BIBLIOGRAFÍAS ESPECIALIZADAS OET #19

MONOS DE COSTA RICA: UNA BIBLIOGRAFÍA ANOTADA

ENERO 2013

Información tomada de la
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50 ANIVERSARIO
1963 - 2013
Organización para
Estudios Tropicales

599.87286
M751m Monos de Costa Rica: una bibliografía anotada / Compilado por Gilbert Fuentes González. – 1ª ed – San José, C.R.: Organización para Estudios Tropicales, 2013.
462 p.; 4 MB; PDF

ISBN: 978-9930-9445-6-1

1. Primates - Bibliografías. 2. Monos - Bibliografías. 3. Costa Rica – Bibliografías. I. Gilbert Fuentes González. II. Título

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Foto portada: mono carablanca (Cebus capucinus) por Juan José Pucci

Presentación Organización para Estudios Tropicales (OET):

La Organización para Estudios Tropicales (OET) cree firmemente que el correcto manejo de los datos y la información, es una herramienta indispensable para promover la educación y la investigación en los trópicos y esa es una razón para que desde 1996 utilizando la plataforma de su Biblioteca, haya desarrollado y consolidado la "Bibliografía Nacional en Biología Tropical" (BINABITROP http://www.ots.ac.cr/binabitrop).

En la actualidad BINABITROP cuenta con más de 39000 registros de libros, publicaciones periódicas, tesis, monografías, congresos y otros, de los cuales más de 16 mil de estos documentos se ofrecen ya en texto completo. Este es un proyecto único en el país, cuyo objetivo principal es rescatar las publicaciones científicas que tratan sobre Costa Rica, generadas a través de los años tanto dentro como fuera del país para reunirlas en una base de datos disponible al público.

De esta forma la OET colabora con aumentar, conservar y difundir conocimientos generados a partir de nuestra riqueza natural y se constituye en una herramienta de consulta obligatoria para investigadores, siendo la temática principal de Biología Tropical y temas afines como: ecología, manejo de recursos naturales, conservación de la biodiversidad, aspectos legales, sociales y económicos, forestales, agroecología.

Como un subproducto de BINABITROP, hemos iniciado desde el 2001 la generación de Bibliografías Especializadas que tienen como objetivo, compilar las referencias sobre un tema específico y crear un documento electrónico de libre acceso, que le facilite a los interesados sobre el tema tener en un solo punto la información que requieran y así aumentar y difundir el conocimiento que tenemos de nuestra riqueza natural de una forma más práctica.

Monos de Costa Rica: una bibliografía anotada, es nuestra producción 19 de las Bibliografías Especializadas OET, la cual fue elaborada en virtud de que numerosos biólogos y antropólogos han dedicado muchos años en el estudio de estos primates en Costa Rica. Creímos conveniente reunir la literatura dispersa, para que sea usada como una herramienta de referencia en sus investigaciones y publicaciones y así colaborar en la conservación de estos mamíferos.

Esta bibliografía está compuesta por un Índice de Autores, una Lista de Descriptores, y un Listado de Publicaciones compuesto por 758 referencias. Las referencias cuya localización indica NBINA pueden ser solicitadas por correo electrónico a la dirección biblioteca.oet@ots.ac.cr. El texto contiene referencias que cuentan con un enlace donde el lector podrá ver el documento a texto completo en formato pdf.

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Encargada del Sistema de Bibliotecas
Organización para Estudios Tropicales

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LISTA DE PUBLICACIONES

Publicación no.: 001 **Patch use and patch depletion by the spider and howling monkeys of Santa Rosa National Park, Costa Rica** *[Utilización de la parcela de tierra y agotamiento de la misma por parte de los monos colorados y congos del Parque Nacional Santa Rosa, Costa Rica]* / Chapman, Colin A. (University of Florida. Department of Zoology, 223 Bartram Hall, Gainesville, FL 32611, US <E-mail: cachapman@zoo.ufl.edu>).
En: Behaviour (ISSN 0005-7959), v. 105, no. 1/2, p. 99-116. 1988.
An examination of which types of patches are depleted and the manner in which depletion likely occurs, by spider and howling monkeys of Santa Rosa National Park, Costa Rica, allows an assessment of possible factors underlying the different types of social organization.
Localización: Biblioteca OET: S7852.

Publicación no.: 002 **Seed predation by Ateles geoffroyi (Primates, Cebidae) in Costa Rica** *[Depredación de semillas por parte de Ateles geoffroyi (Primates, Cebidae) en Costa Rica]* / Happel, R. (Harvard University. Peabody Museum, Department of Anthropology, Cambridge, MA 02138, US).
En: Brenesia (ISSN 0304-3711), no. 25/26, p. 261-264. 1986.
Spider monkeys, Ateles geoffroyi, were observed crushing and chewing seeds during the dry season in Santa Rosa National Park in northwest Costa Rica. They were seen chewing the seeds of 3 plant species, Manilkara zapota, Mastichodendron capiri and Pouteria sp., all in the Sapotaceae. The spider monkey thus does sometimes act as a seed predator, thereby decreasing the reproductive success of its food plants.
Localización: Biblioteca OET: B.

Publicación no.: 003 **Socioecology and conservation of the red-backed squirrel monkey (Primates, Cebidae, Saimiri oerstedii)** *[Socioecología y conservación del mono tití (Primates, Cebidae, Saimiri oerstedii)]* / Happel, R. (Harvard University. Peabody Museum, Department of Anthropology, Cambridge, MA 02138, US).
En: Brenesia (ISSN 0304-3711), no. 25-26, p. 245-250. 1986.
Saimiri oerstedii, the red-backed squirrel monkey, is an endangered primate species, occurring in southwest Costa Rica and northwest Panama. It is protected only in Parque Nacional Manuel Antonio and Parque Nacional Corcovado, both in Costa Rica. Observations were conducted on S. oerstedii in the summer of 1981 at Parque Nacional Corcovado, and in Parque Nacional Manuel Antonio and adjacent forests in the winter of 1981-1982, to determine the present status of these monkeys in Costa Rica.
Localización: Biblioteca OET: B.

Publicación no.: 004 **Predation on swollen-thorn Acacia ants by white-faced monkeys, Cebus capucinus** *[Depredación de las hormigas de los cornizuelos Acacia por monos carablanca, Cebus capucinus]* / Freese, Curtis H. (The Johns Hopkins University. School of Hygiene and Public Health, Department of Pathobiology, Baltimore, MD 21205, US).
En: Biotropica (ISSN 0006-3606), v. 8, no. 4, p. 278-281. 1976.
White-faced monkeys, Cebus capucinus, intensively preyed on the ant Pseudomyrmex belti that obligatorily occupies and protects swollen-thorn acacias, primarily Acacia collinsii, at the study site. The Cebus obtained ants and probably ant larvae from acacias by ripping off branches and opening thorns

with their teeth. This action often resulted in extensive physical destruction of the acacia, loss of the ant colony, and subsequent death of the plant. Implications of this predation and other interactions between monkeys and myrmecophytes are discussed.
Localización: Biblioteca OET: S2035.

Publicación no.: 005 **Seasonal parturition, mortality and dispersal in the mantled howler monkey, Alouatta palliata Gray** *[Alumbramiento estacional, mortalidad y dispersión en el mono congo, Alouatta palliata Gray]* / Jones, Clara B. (Fayetteville State University. Department of Psychology, 1200 Murchison Road, Fayetteville, NC 28301-4298, US <E-mail: cbjones@uncfsu.edu>).
En: Brenesia (ISSN 0304-3711), no. 18, p. 1-10. 1980.
In seasonal forest, mantled howler monkeys synchronize lactation and dispersal, a parental investment strategy favoring offspring over pregnant females. Mothers, however, can minimize the costs of fecundity in several ways, most notably by the timing of weaning and dispersal. This report is the first suggestion in a Neotropical primate that breeding behavior may vary with habitat.
Localización: Biblioteca OET: S917.

Publicación no.: 006 **Boa constrictor predation and group response in white-faced monkeys** *[Depredación por parte de Boa constrictor y respuesta del grupo en monos carablanca]* / Chapman, Colin A. (University of Florida. Department of Zoology, 223 Bartram Hall, Gainesville, FL 32611, US <E-mail: cachapman@zoo.ufl.edu>).
En: Biotropica (ISSN 0006-3606), v. 18, no. 2, p. 171-172. 1986. (No abstract).
Localización: Biblioteca OET: B.

Publicación no.: 007 **Plasma lipoproteins of free-ranging howling monkeys (Alouatta palliata)** *[Lipoproteínas del plasma de monos congo silvestres (Alouatta palliata)]* / Clark, S.B; Tercyak, A.M; Glander, Kenneth E. (Boston University. School of Medicine, Biophysics Institute, Housman Medical Research Center, Boston, MA 02118, US <E-mail: glander@duke.edu>).
En: Comparative Biochemistry and Physiology. B. Comparative Biochemistry (ISSN 0305-0491), v. 88, no. 3, p. 729-735. 1987.
Plasma lipids and lipoproteins of free-ranging howling monkeys 5 months to 23 years old from Costa Rica (Alouatta palliata), were characterized. High-density lipoproteins (HDL) were lipid-rich, similar to HDL2 of human plasma. Fatty acid compositions of major lipid classes of very-low-, low-(LDL) and high-density lipoproteins differed among social groups, possibly due to dietary and genetic factors. LDL and HDL phospholipids were enriched in phosphatidylethanolamine. Howler plasma cross reacted with antihuman apoA-I antibodies but not with antihuman LDL antibodies. No dimeric form of apoA-II was present.
Localización: Biblioteca OET: S6303. NBINA-7993.

Publicación no.: 008 **Predation by squirrel monkeys and double-toothed kites on tent-making bats** *[Depredación por monos tití y gavilanes gorgirrayados en murciélagos constructores de tiendas (Phyllostomidae)]* / Boinski, Sue; Timm, Robert M. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu> <E-mail: btimm@ku.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 9, no. 2, p. 121-127. 1985.

Central American squirrel monkeys (Saimiri oerstedii) appear to recognize the modified leaves that phyllostomid bats utilize for diurnal roost sites. The monkeys visually and manually search these bat tents for both bats and insects. Adult males are the most successful at capturing bats. Nonvolant juvenile bats are more vulnerable to monkey predation than are adults. Bats that escape monkey predation frequently are captured by double-toothed kites (Harpagus bidentatus) that tend foraging troops of monkeys. Predation by squirrel monkeys, coupled with that of double-toothed kites, may be a significant source of mortality for tent-making bats.
Localización: Biblioteca OET: S2874.

Publicación no.: 009 **Escape in space by Sterculia apetala seeds from the bug Dysdercus fasciatus in a Costa Rican deciduous forest** *[Evasión en el espacio por parte de las semillas de Sterculia apetala del ataque del chinche Dysdercus fasciatus en un bosque caducifolio costarricense]* / Janzen, Daniel H. (University of Pennsylvania. Department of Biology, Philadelphia, PA 19104, US <E-mail: djanzen@sas.upenn.edu>).
En: Ecology (ISSN 0012-9658), v. 53, no. 2, p. 350-361. 1972.
When a seed of the large tree Sterculia apetala falls to the ground beneath the parent tree in a Costa Rican tropical deciduous forest, it is typically found and fed upon within a few minutes by cotton-stainer bugs (Dysdercus fasciatus). The rate of seed discovery by the bugs is highest where the seed fall is most intense and tapers off to zero between 30 and 60 m from the tree trunk. Seeds that fall beneath the parent appear to have no chance of survival under forested conditions. Seeds in open pasture are not found by the bugs, but probably die of desiccation. The bugs are not present under sterile S. apetala trees. Squirrels and monkeys appear to be the primary dispersal agents; after carrying the pods away from the parent, they appear to lose some seeds because of their face and hands being stuck by the hairs on the inner walls of the seed pods. The coevolution of the Dysdercus-Sterculia-mammal interaction is discussed with respect to the effect of seed predators on the density of adult trees in the habitat.
Localización: Biblioteca OET: S2429.

Publicación no.: 010 **Preliminary observations on squirrel monkey (Saimiri oerstedii) vocalizations in Costa Rica** *[Observaciones preliminares sobre vocalizaciones del mono tití (Saimiri oerstedii) en Costa Rica]* / Boinski, Sue; Newman, J.D. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 14, no. 4, p. 329-343. 1988.
This study was an initial attempt to analyze quantitatively vocalizations from the Central American squirrel monkey, Saimiri oerstedii. Vocalizations were recorded in the wild at Parque Nacional Corcovado (S. o. oerstedii), and at Parque Nacional Manuel Antonio (S. o. citrinellus). Additional recordings were made from captive individuals of both subspecies. The acoustic structure of analyzed vocalizations resembled most closely the vocal repertoire of South American Saimiri with the "gothic arch" phenotype, in agreement with the prominent gothic arch facial pattern of S. oerstedii. New structural subtypes of the twitter ("dog-tooth twitter") and the chuck ("bent-mast chuck") not previously found in an extensive library of South American Saimiri sound spectrograms were documented. Calls used by older infants when socially separated and when approaching an adult male were essentially identical (sharing typical "isolation peep" structural features) but had significantly different duration and peak frequency. Analysis of recordings from an escaped captive female calling

outside her compound over a 3-day period indicated the presence of numerous structural intermediates between typical chuck, twitter, and peep calls.
Localización: Biblioteca OET: S2645.

Publicación no.: 011 **Primate seed dispersal: the fate of dispersed seeds** *[Diseminación de semillas por parte de primates: destino de las semillas dispersadas]* / Chapman, Colin A. (University of Florida. Department of Zoology, 223 Bartram Hall, Gainesville, FL 32611, US <E-mail: cachapman@zoo.ufl.edu>).
En: Biotropica (ISSN 0006-3606), v. 21, no. 2, p. 148-154. 1989.
The 3 primate species of Santa Rosa National Park, Costa Rica (Ateles geoffroyi, Alouatta palliata and Cebus capucinus) have diets in which fruits are major components. Seeds of many fruiting species were defaecated and 60% germinated under experimental conditions. The sampling of seed traps placed throughout the forest indicated that an average 392 large seeds that had passed through the stomachs of monkeys fell weekly per hectare of forest floor. When artificial dung piles containing seeds were placed in the forest, 51.8% of seeds were removed by secondary dispersers or killed by predators within 5 days. Seed species affected the rate of removal.
Localización: Biblioteca OET: S2034. Biblioteca OET: NBINA-11377.

Publicación no.: 012 **The 'real' disperser of Swartzia cubensis** *[El diseminador 'real' de Swartzia cubensis]* / Boucher, D.H. (McGill University. Department of Biology, 1205 Av. Docteur Penfied, Montreal, Que. H3A 1B1, CA).
En: Biotropica (ISSN 0006-3606), v. 13, no. 2, Supplement, p. 77-78. 1981.
Observations in 1977 in a dry forest at Parque Nacional Santa Rosa, Guanacaste, Costa Rica, indicated that spider monkeys (Ateles geoffroyi) were far more important dispersers of S. cubensis than toucans (Ramphastos sulfuratus), although it had been inferred from fruit morphology that the toucan was the primary disperser.
Localización: Biblioteca OET: B.

Publicación no.: 013 **Dispersal of Stemmadenia donnell-smithii by birds and monkeys** *[Diseminación de Stemmadenia donnell-smithii por parte de aves y monos]* / Cant, J.G.H. (University of Colorado. Department of Anthropology, Colorado Springs, CO 80907, US).
En: Biotropica (ISSN 0006-3606), v. 11, no. 2, p. 122. 1979.
A recent study by McDiarmid et al. (1977) analyzed avian dispersal of the seeds of Stemmadenia donnell-smithii at a study site in Costa Rica, noting that consumption by parrots was suggested but not observed, and that immature fruit apparently is immune from attack from most vertebrates. From May 1975 to April 1976, and from late June through August 1978, 1 recorded incidental observations of avian and mammalian frugivory at Tikal National Park, Guatemala, during a study of spider monkeys. Animals observed consuming S. donnell-smithii mature pulp, defined as seeds plus arils in accordance with McDiarmid et al.'s (1977) definition, were as follows, an asterisk denoting birds not previously reported to feed on this species: *plain chachalaca (Ortalis vetula), *red-lored parrot (Amazona autumnalis), *mealy parrot (Amazona farinosa), *keel-bitled toucan (Ramphastos sulfuratus), pale-billed woodpecker (Phloeoceastes guatemalensis), *brown jay (Psilorhinus morio), swainson's thrush (Cathairus ustulatus), *montezuma oropendola (Gymnostinops montezuma), *black-cowled oriole (Icterus prosthemelas), *black-faced grosbeak (Caryothraustes poliogaster), and spider monkey (Ateles geoffroyi). Although the data were not collected systematically, feeding by parrots was observed often enough (four times for A.

farinosa) to indicate that parrots are more than occasional consumers of ripe S. donnell-smithii pulp. I also observed both red-lored and mealy parrots chipping away husks and feeding on immature pulp. The fate of the seeds in the mature pulp consumed by parrots is unknown, but presumably those of the immature pulp were effectively destroyed. The consumption of mature pulp by spider monkeys is noteworthy because the pulp constituted 7 percent of their diet (in time spent feeding) during the month of July 1975, and 18 percent during late June and early July 1977 when the fruiting season of S. donnell-smithii was drawing to a close. The biomass of spider monkeys at Tikal is approximately 140 kg/km² (Cant 1978). Germination experiments on S. donnell-smithii seeds collected from the feces of spider monkeys at the study site in 1978 showed that the majority germinate (A. Muskin, pers. comm.). Although A. geoffroyi consumption of this species of tree has not been recorded through an entire fruiting season, the evidence presented here indicates that primates may well equal or surpass birds as dispersal agents at locations such as Tikal where they have not been exterminated.
Localización: Biblioteca OET: B.

Publicación no.: 014 **Howling monkeys and leaf-cutting ants: comparative foraging in a tropical deciduous forest** *[Monos congo y hormigas zompopas: comparación del forrajeo en un bosque tropical deciduo]* / Rockwood, L.L; Glander, Kenneth E. (George Mason University. Biology Department, Fairfax, VA 20030, US <E-mail: glander@duke.edu>).
En: Biotropica (ISSN 0006-3606), v. 11, no. 1, p. 1-10. 1979.
Foraging by mantled howling monkeys (Alouatta palliata) and leaf-cutting ants (Atta colombica) is compared with regard to plant species harvested, plant parts harvested, statistical patterns in foraging effort, seasonal variation in foraging effort, daily foraging patterns, and foliage height attacked. This comparison is possible because intensive, year-long studies of foraging by three colonies of A. colombica and by a group of A. palliata were conducted in the same study area (Hacienda La Pacífica) in the Guanacaste Province of Costa Rica. The results show that howling monkeys and leaf-cutters differ in each of the categories mentioned above, yet share many foraging patterns. Both organisms are generalist herbivores, but are also selective. Both leaf-cutters and howlers harvest a variety of plant parts including mature leaves, new leaves, fruit, and flowers, and both cut more mature leaves and fruit in the rainy season and more new leaves and flower parts in the dry season. Both organisms prefer new leaves to mature leaves if given a choice. Nevertheless, howling monkeys and leafcutters prefer different plant species. Of seven rank correlations between monkey and ant preferences, three were negative, and the best positive correlation was 0.100, which was not significant. In addition, based on yearly averages, howlers harvest more new leaves and fruit and fewer mature leaves than do leaf-cutters. These results are compared with recent theoretical predictions concerning feeding behavior in generalist herbivores.
Localización: Biblioteca OET: B.

Publicación no.: 015 **Factors influencing arboreal epiphytic phytosociology in Central America** *[Factores que influencian la fitosociología de epífitas en Centroamérica]* / Perry, Donald R. (University of California. Department of Biology, Los Angeles, CA 90024, US <E-mail: habitats@lynnet.com>).
En: Biotropica (ISSN 0006-3606), v. 10, no. 3, p. 235-237. 1978.
The possible role is discussed of bats and arboreal mammals in controlling the growth and distribution of epiphytes.
Localización: Biblioteca OET: S1234. NBINA-3463.

Publicación no.: 016 **A wet season census of primates at Cabo Blanco Absolute Nature Reserve, Costa Rica** *[Censo de primates en la estación lluviosa en la Reserva Absoluta de la Naturaleza Cabo Blanco, Costa Rica]* / Lippold, L.K. (San Diego State University. Department of Anthropology, San Diego, CA 92182, US).
En: Brenesia (ISSN 0304-3711), no. 31, p. 93-97. 1989.
Primates were censused in this reserve during the wet season of 1989; this is the first census conducted since the reserve was opened to tourists in August 1988, after 25 yr as a restricted scientific reserve. The counts showed 7 groups of Alouatta palliata (76 individuals) and 4 solitary animals, and 2 groups of Cebus capucinus (52 individuals) and 2 solitary animals; age and sex composition are described for both species. The counts indicate a population decrease of 40% for A. palliata and 27% for C. capucinus since the dry seasons of 1987 and 1988; these changes correspond to the opening of the reserve to tourists. The extinction of Ateles geoffroyi in the reserve (some time after it was established in 1963) has already been documented.
Localización: Biblioteca OET: B.

Publicación no.: 017 **Primate populations in Northwestern Costa Rica: potential for recovery** *[Poblaciones de primates en el noroeste de Costa Rica: recuperación potencial]* / Chapman, Colin A; Chapman, L.J; Glander, Kenneth E. (University of Florida. Department of Zoology, 223 Bartram Hall, Gainesville, FL 32611, US <E-mail: cachapman@zoo.ufl.edu> <E-mail: ljchapman @zoo.ufl.edu> <E-mail: glander@duke.edu>).
En: Primate Conservation (ISSN 0898-6207), no. 10, p. 37-44. 1989.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-1969.pdf
Here we report the results of census of Lomas Barbudal Biological Reserve and Guanacaste National Park which was conducted to compare primate abundances in areas with different histories of human interference and different forest types. We discuss the effects of historical interference on the primates, evaluate their potential for recovery, and provide baseline data for future studies. We show how demographic parameters vary among the primate groups in different areas and consider the degree to which habitat alterations and conspecific densities may account for the differences.
Localización: Biblioteca OET: NBINA-1969. S1598.

Publicación no.: 018 **Preliminary survey of the primates of the Zona Protectora and La Selva Biological Station, Northeast Costa Rica** *[Reconocimiento preliminar de los primates de la Zona Protectora y la Estación Biológica La Selva, noreste de Costa Rica]* / Fishkin, A.S; Sussman, R.W. (Washington University. Department of Anthropology, Campus Box 1114, One Brooklings Drive, St. Louis, MO 63130-4899, US <E-mail: rwsussma@artsci.wustl.edu>).
En: Primate Conservation (ISSN 0898-6207), no. 8, p. 63-66. 1987.
Conclusions: Our observations confirm that all three primate species are present in La Selva. We believe that Alouatta palliata is the most abundant primate in La Selva. Based on our composite observations, we estimate that there are 6-10 groups of Alouatta at La Selva. If the average Alouatta group at La Selva is comparable in size to groups found at other sites (and it seems for all three species that there are fewer groups at La Selva, not fewer animals per group, around 14 animals, there should be 80-140 animals in the central La Selva Reserve. Using the same reasoning, we estimate two to four groups of Ateles at 20 animals per group (40-80 animals). These estimates are based on area in which animals

were sighted and on typical home range size per species. They yield population density estimates of approximately 12-19 km² for Alouatta, 6-11/km² for Ateles, and 4-6/km² for Cebus. These densities are generally at the lower end of the range given for these species in other forests, but our estimates are intentionally conservative. We must emphasize the preliminary nature of these figures. The results of our reconnaissance research indicate that long-term study on the primates in both areas is feasible. The animals are sufficiently abundant for ecological research to be conducted. We believe that La Selva is an ideal site for extended studies of population parameters and group dynamics with marked and radio-tagged individuals. This future research will be important in establishing a basis for comparison between the unstudied Atlantic slope primate populations and their well studied Pacific slope counterparts. La Selva Biological Station is also a good site for detailed, integrative research. Accordingly, plans are currently underway for baseline studies of the primates at La Selva, to begin in 1987.
Localización: Biblioteca OET: S929.

Publicación no.: 019 **Impact of mammals on early recruitment of a tropical canopy tree, Dipteryx panamensis, in Panama** *[Impacto de los mamíferos en el establecimiento temprano de un árbol tropical del dosel, Dipteryx panamensis, en Panamá]* / De Steven, D; Putz, F.E. (Duke University. Department of Botany, Durham, NC 27706, US <E-mail: fep@botany.ufl.edu>).
En: Oikos (ISSN 0030-1299), v 43, p. 207-216. 1984.
On Barro Colorado Island, Panama, the canopy tree Dipteryx panamensis (Pitt.) Rec. & Mell (Leguminosae) is a critical food species for the animal community, because it fruits during a season of food scarcity for frugivorous mammals, some of which act as seed predators on Dipteryx. In 1981, seed losses to mammal seed predators were extremely high at fruiting Dipteryx trees on Barro Colorado in comparison to an adjacent mainland area where these mammals appear to be less abundant. Seed removal experiments suggested that seed dispersal did not confer greater escape from this intense seed predation, at least at moderate distances from fruiting trees. The cotyledons of newly-germinated seedlings were also eaten and seedlings were killed in the process, thus few seedlings naturally survived to an established stage. Seeds protected from mammals showed extremely high germination and establishment success. Survival of established seedlings after 13 months was lowest under Dipteryx crowns (12 %), intermediate under the shade of other trees (32 %). and highest in small light gaps (74 %), and only the seedlings in light gaps grew significantly. Eventual regeneration of this tree may depend upon the presence of established seedlings or saplings in the understory when canopy gaps form. Intense seed predation on Barro Colorado restricts the establishment of such seedlings and saplings in comparison to other areas where mammals appear less abundant. While the high Dipteryx seed losses support assertions that Barro, Colorado's mammal populations are unusually abundant relative to other Neotropical areas due to release from regulation by carnivores, it may be that reductions in mammal populations in other areas due to hunting by humans may exaggerate apparent differences between these areas and Barro Colorado.
Localización: Biblioteca OET: S798. NBINA-6405.

Publicación no.: 020 **Resource utilization by mantled howler monkeys (Alouatta palliata) during the dry season in a dry tropical forest** *[Utilización de los recursos por los monos congo (Alouatta palliata) durante la época seca en un bosque seco tropical]* / Skaggs, S.C. San José: Associated Colleges of the Midwest, 1988. s.p.i.

The dry season is a time of reduced leaf abundance in a dry tropical forest. This study reports the patterns of resource utilization by a howler monkey troop during twelve days of the dry season. The howler diet consisted of 64 individual trees comprising 12 species from 8 families. Diet composition for the total study period, based on time feeding per plant part type, consisted of 30.6% leaves, 48.6% flowers, and 21.9% fruit. Diet varied significantly over time (x^2 = 226.71, p . 001 d.f.
Localización: Biblioteca OET: DOC 224. NBINA-14634.

Publicación no.: 021 **Troop movement and food habits of white-faced monkeys in a tropical-dry forest** *[Movimiento de la tropa y hábitos alimentarios de los monos carablanca en un bosque tropical seco]* / Moscow, D; Vaughan-Dickhaut, Christopher. (University of California. Department of Plant Pathology, Berkeley, CA 94720, US <E-mail: cvaughan@facstaff.wisc.edu>).
En: Revista de Biología Tropical (ISSN 0034-7744), v. 35, no 2, p. 287-297. 1987.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-15631.pdf
Home-range, movement and activity patterns and diet of a group of 16 white-faced monkeys (Cebus capucinus) were studied in a Costa Rican tropical dry forest (Palo Verde National Park) at the end of the dry season (March and April) of 1982. The troop used an area of 0.67 km² and moved an average of 4.5 km ± 0.6 daily. Three basic daily activities were identified: resting, moving and feeding. Resting was greatest between 1000-1500 hours. Movement, which was strongly correlated with feeding, occurred most between 0500-0900 hrs and 1300-1800 hrs. The primates were omnivores, feeding on parts of 27 species of plants, four species of insects and an Anolis lizard.
Localización: Biblioteca OET: NBINA-15361. S503.

Publicación no.: 022 **A population survey of Alouatta palliata, Cebus capucinus and Ateles geoffroyi at Palo Verde, Costa Rica** *[Recuento de la población de los monos Alouatta palliata, Cebus capucinus y Ateles geoffroyi en Palo Verde, Costa Rica]* / Massey, A. (North Carolina State University. Zoology Department, Raleigh, NC 27695, US).
En: Revista de Biología Tropical (ISSN 0034-7744), v. 35, no. 2, p. 345-347. 1987.
Calculations of Alouatta palliata, Cebus capucinus and Ateles geoffroyi densities from a census of tropical dry forest in the Guanacaste Province of Costa Rica are provided (69,15 and 0.6/km² respectively). Adult sex ratios, adult female: juvenile + infant ratios, and demographic differences are provided for A. palliata troops in riparian and dry forests.
Localización: Biblioteca OET: S2036.

Publicación no.: 023 **Howlers of Finca La Pacífica** *[Monos congo de Finca La Pacífica]* / Glander, Kenneth E. (Duke University Primate Center, 3705-B Erwin Rd, Durham, N.C. 27706, US <E-mail: glander@duke.edu>). Chicago, IL: University of Chicago, 1971. 90 p. Thesis, M.Sc, University of Chicago, Chicago, IL (USA).
Results of 183 hours of observation of free-ranging howling monkeys, Alouatta palliata palliata, on Finca La Pacífica [now La Pacífica Ecological Centre], Guanacaste, Costa Rica are presented. Six troops were censused, age-sex compositions were determined, No home ranges for two troops were mapped. The troops of the gallery forests and windbreak strips appear to be smaller and more mobile than those in the large uncleared areas or those on Barro Colorado Island. La Pacífica howlers also do more jumping and leaping and cover greater distances in their daily movements. The socionomic age and sex ratio was similar to those of Barro Colorado Island howlers censused after-an apparent yellow fever epidemic.

Localización: Biblioteca OET: Tesis 56.

Publicación no.: 024 **Habitat and resource utilization: an ecological view of social organization in mantled howling monkeys** *[Utilización del hábitat y recursos: una visión ecológica de la organización social en monos congo]* / Glander, Kenneth E. (Duke University Primate Center, 3705-B Erwin Rd, Durham, N.C. 27706, US <E-mail: glander@duke.edu>). Chicago, IL: University of Chicago, 1975. 267 p. Dissertation, Ph.D, University of Chicago, Department of Anthropology, Chicago, IL (USA). (No abstract).
Localización: Biblioteca OET: Tesis 57.

Publicación no.: 025 **Algunos aspectos sobre comportamiento, alimentación y nivel de población de los monos (Primates: Cebidae) en el Refugio de Fauna Silvestre Palo Verde (Guanacaste, Costa Rica)** / Rodríguez-Ramírez, M.A. (Centro Agronómico Tropical de Investigación y Enseñanza. Unidad de Areas Protegidas y Biodiversidad, Turrialba, CR <E-mail: marodrig@catie.ac.cr>).
En: Investigaciones sobre fauna silvestre de Costa Rica. San José: EUNED, 1985. p. 53-71.
Tres especies de cébidos han sido identificadas en la provincia de Guanacaste: mono congo (Alouatta palliata) (Gray), mono carablanca (Cebus capucinus Thomas) y mono colorado (Ateles geoffroyi) (kuhl). La información publicada sobre la dinámica de poblaciones en la región y, en general, en el país es muy escasa. Este documento describe algunos aspectos sobre alimentación, comportamiento, nivel de población y preferencia de hábitat de Allouatta palliata, el Cebus capucinus y el Ateles geoffroyi en el Refugio de Fauna Silvestre Dr. Rafael L. Rodríguez, ubicado en Palo Verde, Guanacaste, Costa Rica. Recomendaciones: Con base en los resultados obtenidos se recomienda el inicio inmediato de estudios sobre la dinámica de población del mono colorado (Ateles geoffroyi), para asegurar la conservación de la especie en el área. Es conveniente además, un censo sistemático de monos en la Provincia de Guanacaste que permita determinar la condición de las poblaciones.
Localización: Biblioteca OET: S786. Biblioteca Conmemorativa Orton: 591.0724 I62.

Publicación no.: 026 **Investigaciones sobre fauna silvestre de Costa Rica** / Ministerio de Agricultura y Ganadería / Uiversidad Estatal a Distancia / Fundación de Parques Nacionales, San José, CR. San José: EUNED, 1985. 104 p. (No abstract).
Localización: Biblioteca OET: 591.0724 I62i. Biblioteca Conmemorativa Orton: 591.0724 I62.

Publicación no.: 027 **Howlers: variation in group size and demography** *[Monos congo: variación en el tamaño del grupo y demografía]* / Crockett, C.M; Eisenberg, J.F; Smuts, B.B (ed.). (University of Washington. Regional Primate Research Center, Box 357330, Seattle, WA 98195, US <E-mail: crockett@u.washington.edu>).
En: Primate societies Chicago, IL: The University of Chicago Press, 1987. p. 54-68. ISBN: 0-226-76716-7.
Introduction: Howler monkeys, genus Alouatta, provide fresh insights and challenges for models of primate societies. Part of the importance of howler monkeys for our understanding of primate societies as a whole derives from the fact that the genus Alouatta is a relatively well-studied group. Howlers are most interesting, however, because they present us with numerous examples of intra- and inter-specific similarities and differences that seemingly defy our efforts to make sense of them.
Localización: Biblioteca OET: 599.0524 P952p.

Publicación no.: 028 **Capuchins, squirrel monkeys, and atelines: socioecological convergence with Old World primates howlers: variation in group size and demography** *[Monos carablanca, tití y atelinos: convergencia socioecológica con primates aulladores del Viejo Mundo: variación en el tamaño del grupo y demografía]* / Robinson, J.G; Janson, Charles H; Smuts, B.B (ed.). (University of Washington. Regional Primate Research Center, Box 357330, Seattle, WA 98195, US <E-mail: jrobinson@wcs.org>).
En: Primate societies Chicago, IL: The University of Chicago Press, 1987. p. 69-82.
The Cebinae and the Atelinae include both the smallest and the largest cebid monkeys. Members of the subfamily Cebinae include squirrel monkeys (genus Saimiri), which weigh under 1 kg, and capuchin monkeys (genus Cebus), which weigh from 2.5 to 4 kg. Members of the subfamily Atelinae include spider monkeys (genus Ateles), woolly monkeys (genus Lagothrix), and the muriqui or woolly spider monkey (genus Brachyteles). Ateles weigh about 8 kg, Lagothrix about 10 kg, and Brachyteles weigh about 12 kg. Sexual dimorphism in size is not pronounced in Saimiri nor in Ateles. Males are larger than females in Cebus, Lagothrix, and Brachyteles. With the increase in body size, males develop larger forelimbs and tail, while the importance of the hindlimbs is reduced (Napier 1976; Hershkovitz 1977). Saimiri are quadrupedal and, except in newborns, lack a prehensile tail. Cebus have arms that are nearly as long as their legs, opposable thumbs, and great dexterity (Grand 1978). Although their tails are prehensile, they are fully furred, not very dexterous, and only able to support an adult weight for short periods. Ateles, Brachyteles, and to a lesser extent Lagothrix show great finger prehensibility and a reduction or elimination of the thumb-adaptations associated with an ability to semibrachiate. The prehensile tail in Lagothrix, Ateles, and Brachyteles is large, and the distal third of the ventral surface is naked. The tail is able to fully support the body for extended periods and is also capable of precise and agile movements. These adaptations allow these larger genera to gain increased access to fruit and leaves on terminal branches.
Localización: Biblioteca OET: 599.0524 P952p.

Publicación no.: 029 **Poison in a monkey's Garden of Eden** *[Veneno en el Jardín del Edén de los monos]* / Glander, Kenneth E. (Duke University Primate Center, 3705-B Erwin Rd, Durham, N.C. 27706, US <E-mail: glander@duke.edu>).
En: Natural History (ISSN 0028-0712), v. 86, no. 3, p. 35-41. 1977.
For howlers in a Costa Rican forest, feeding is not just a matter of plucking any leaf. Recent evidence suggests that to avoid poissoning, howling monkeys, previously thought to have a virtually endless food supply, must be higly selective in the kinds and amounts of vegetation they consume.
Localización: Biblioteca OET: S487.

Publicación no.: 030 **The effect of the location of a simulated intruder on responses to long-distance vocalizations of mantled howling monkeys, Alouatta palliata palliata** *[El efecto de la localización de un intruso simulado en las respuestas a vocalizaciones de larga distancia del mono congo, Alouatta palliata palliata]* / Whitehead, J.M. (University of Florida. Institute of Advanced Study of Communication Processes, Gainesville, FL 32611, US).
En: Behaviour (ISSN 0005-7959), v. 108, no. 1/2, p. 73-103. 1989.
Mantled howling monkeys, Alouatta palliata palliata, of Guanacaste, Costa Rica, respond in a site-dependent way to experimental playbacks of choruses of loud vocalizations. Groups of howling monkeys increase their rates of calling and approach simulated vocal intruders located in often-used patches of forest. In contrast, they call less than previously and do not approach simulated intruders in seldom-

used areas. These monkeys adjust their responses to simulated intruders depending upon the quality of local patches of forest. Various additional factors determine the functions of loud calls of' howling monkeys: the distance to a receiver, the "ontogenetic trajectory" (Wiley, 1981) of the caller, the density of calling groups and possibly the existence of an ongoing confrontation.
Localización: Biblioteca OET: S519.

Publicación no.: 031 **Use of a ground water source by mantled howler monkeys (Alouatta palliata)** *[Utilización de una fuente de agua subterránea por los monos congo (Alouatta palliata)]* / Gilbert, K.A; Stouffer, P.C. (Rutgers University. Department of Anthropology, P.O. Box 270, New Brunswick, NJ 08903, US).
En: Biotropica (ISSN 0006-3606), v. 21, no. 4, p. 380. 1989.
This note describes the first observations of mantled howler monkeys coming to the ground to drink from a standing ground water source. These observations took place in the lowland tropical dry forest of Palo Verde National Park, Guanacaste Province, Costa Rica, during February and March 1988 when the region experienced unusually dry conditions.
Localización: Biblioteca OET: B. NBINA-9673.

Publicación no.: 032 **Do howler monkeys feed upon legume flowers preferentially at flower opening time?** *[¿Los monos congo se alimentan de flores de leguminosas preferiblemente en el momento en que se abren?]* / Jones, Clara B. (Fayetteville State University. Department of Psychology, 1200 Murchison Road, Fayetteville, NC 28301-4298, US <E-mail: cbjones@uncfsu.edu>).
En: Brenesia (ISSN 0304-3711), v. 21, p. 41-46. 1983.
This note presents evidence suggesting that mantled howler monkeys (Alouatta palliata Gray) feed upon flowers of Pithecolobium saman (Mimosaceae) preferentially at flower opening time and discusses the possible significance of this relationship.
Localización: Biblioteca OET: S918.

Publicación no.: 033 **A review and reappraisal of the night monkey, Aotus lemurinus (Primates: Cebidae), in Costa Rica** *[Una reseña y revaluación del mono nocturno, Aotus lemurinus (Primates: Cebidae), en Costa Rica]* / Timm, Robert M. (University of Kansas. Department of Ecology & Evolutionary Biology, Natural History Museum & Biodiversity Research Center, 1345 Jayhawk Blvd., Lawrence, KS 66045-7561, US <E-mail: btimm@ku.edu>).
En: Revista de Biología Tropical (ISSN 0034-7744), v. 36, no. 2B, p. 537-540. 1988.
Los monos nocturnos del género Aotus habitan actualmente las tierras bajas de Suramérica, aunque en épocas pasadas su distribución se prolongaba hasta Isla Bastimentos, Provincia de Boca del Toro, en Panamá. El único registro de un Aotus colectado en Costa Rica proviene del siglo XVIII. Aunque siempre ignorado, la literatura revisada sugiere que este registro es válido. Autores posteriores atribuyeron este especimen a una localidad denominada Quindín, Quindin, o Quindiu. Aquí se demuestra que esta localidad fue erróneamente asociada al ejemplar por D.G. Elliot aproximadamente 45 años después de que se colectó. Varias observaciones (1975-1986) sugieren que Aotus lemurinus se encuentra al menos en dos regiones de las tierras bajas del Caribe de Costa Rica. Monos nocturnos han sido observados en tres ocasiones en la Zona Protectora de La Selva, Provincia de Heredia. Algunos cazadores han visto también a los monos no sólo en los alrededores del área sino también cerca de Bribri, Provincia de Limón, próximo a la frontera con Panamá. Esta especie se debe buscar en habitats apropiados por todas

las tierras bajas del Caribe y debe otorgársele protección completa en su categoría de especie amenazada.
Localización: Biblioteca OET: R. LS.

Publicación no.: 034 **The ecology of squirrel monkeys in Costa Rica** *[La ecología de los monos titi en Costa Rica]* / Boinski, Sue. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu>). Austin, TX: The University of Texas, 1986. 228 p. Dissertation, Ph.D, The University of Texas, Austin, TX (USA).
This dissertation is based on a 24 month study of squirrel monkeys (Saimiri oerstedii oerstedii) in Parque Nacional Corcovado, Puntarenas, Costa Rica. Many previously undescribed aspects of the behavior and ecology of this species are documented. During the final 12 months, two types of data were quantified (1) the behavior of the individually recognized members of the main study troop, and (2) monthly habitat samples, including arthropod abundance, and fruit, flower, leaf flush, and litter depth measures. Strong seasonal fluctuations in foods available to squirrel monkeys were shown, during the wet season arthropod, fruit, and flower availability decreased compared to the dry season. Two distinct sex-related energy and time allocation strategies were identified. Female squirrel monkeys can be described as energy maximizers. Male squirrel monkeys were energy minimizers to allow additional time to be spent in predator vigilance. Predation pressure on neonate squirrel monkeys is suggested to be the major selective factor underlying the synchronized reproductive cycle in this population of squirrel monkeys. Seasonal male body enlargement is probably the result of both male-male mate competition and female preference for the relatively largest males as mates.
Localización: Biblioteca OET: NBINA-8295.

Publicación no.: 035 **Foraging strategies, patch use, and constraints on group size in three species of Costa Rican primates** *[Estrategias de forrajeo, utilización de la parcela y limitaciones del tamaño de grupo en tres especies de primates costarricenses]* / Chapman, Colin A. (University of Florida. Department of Zoology, 223 Bartram Hall, Gainesville, FL 32611, US <E-mail: cachapman@zoo.ufl.edu>). Edmonton, AB: University of Alberta, 1986. Dissertation, Ph.D, University of Alberta, Edmonton, AB T6E 2E9 (Canada).
A quantitative description of foraging patterns, range use, and patch exploitation is provided for three species of neotropical primates living sympatrically in a tropical dry forest. The study was conducted in Santa Rosa National Park, Costa Rica in an area of primarily dry deciduous forest. Over a 4-year period (1982-1986), 24 months were spent in the field studying one group of each of the three primate species in the park: spider monkeys (Ateles geoffroyi), howling monkeys (Alouatta palliata) and cebus monkeys (Cebus capucinus). Although the climate of the region is highly seasonal, and previous studies have suggested that such seasonality corresponds to the changes in food availability, data presented here indicate that both season and food availability are poor predictors of diet and range use patterns. Spider monkeys generally depleted the food trees (patches) they used and howling monkeys depleted the fruit patches they used, but not those patches in which they ate leaves. That suggests that one primate species could limit the availability of shared food resources to a second monkey species. However, the temporal variability of dietary strategies and dietary overlap of these three primate species indicates that dietary-overlap may only act as a selective pressure determining diet choice on an intermittent basis. Analyses of the size of the subgroups formed by the spider and howling monkeys and the corresponding ecological conditions experienced by the animals, suggest that group size can be

constrained by ecological conditions. It was possible to predict the relative size of subgroups based on the size, density, and distributions of food resources, such that when food patches were small, rare, and clumped, small subgroups occurred, whereas when patches were large, abundant, and uniformly distributed, spider and howling monkeys were found in large subgroups. In contrast, cebus monkeys did not respond to changes in these ecological variables by either forming subgroups or by altering the spatial cohesion of their group. The difference between the species may be related to the differential risk of predation, with cebus monkeys, the smallest of the three species, experiencing greater predation pressure than the spider or howling monkeys.
Localización: Biblioteca OET: NBINA-8298.

Publicación no.: 036 **Mammals of the La Selva-Braulio Carrillo complex, Costa Rica** *[Mamíferos del complejo La Selva-Braulio Carrillo, Costa Rica]* / Timm, Robert M; Wilson, Don E; Clauson, Barbara L; LaVal-Bugg, Richard K; Vaughan-Dickhaut, Christopher. (University of Kansas. Department of Ecology & Evolutionary Biology, Natural History Museum & Biodiversity Research Center, 1345 Jayhawk Blvd., Lawrence, KS 66045-7561, US <E-mail: btimm@ku.edu> <E-mail: wilson.don@nmnh.si.edu> <E-mail: rlaval@racsa.co.cr> <E-mail: cvaughan@wisc.edu>). Washington, D.C.: U.S. Department of the Interior, Fish and Wildlife Service, 1989. 162 p. (North American Fauna; no. 75).
Costa Rica's La Selva-Braulio Carrillo complex encompasses a 60-km protected corridor of Caribbean rain and cloud forest extending from 30 m at the La Selva Biological Station to 2,906 m at the top of Volcán Barva. The 52,000-ha complex covers four life zones and two transitional zones, including tropical wet forest, tropical wet forest cool-transition, tropical premontane wet-transition rain forest, tropical premontane rain forest, lower montane rain forest, and montane rain forest. Located in the northeastern part of the country, the area is representative of Central American Caribbean slope forests that extend from Mexico to Panama. The extensive elevational gradient of the complex provides protected habitat for a variety of altitudinal migrants. With support from the National Geographic Society and Rice Foundation, the Organization for Tropical Studies organized a biological survey of the complex in early 1986. The mammal team worked at six sites along the elevational transect established by the expedition: 300 m, 700 m, 1,000 m, 1,500 m, 2,050 m, and 2,600 m. We supplemented our collecting records with unpublished records made available by colleagues, records in the published literature, and specimens in museum collections. In addition, observations recorded by a variety of observers at the La Selva Biological Station are summarized. The mammal fauna of the complex comprises 142 species including 79 bats, 23 rodents, 15 carnivores, 7 marsupials, 6 edentates, 4 artiodactyls, 3 primates, 2 rabbits, 2 shrews, and 1 perissodactyl. At least 10 additional species are likely to occur there. The only species of mammal likely to have been extirpated from the area is the giant anteater. Recognizing the importance of the area to wildlife and to mankind in general, the government of Costa Rica added 13,500 ha to the complex on 13 April 1986. This area, previously known as the "Zona Protectora," provided the mid-elevational link between the lowlands of the La Selva Biological Station and the montane forests of Braulio Carrillo National Park. Unfortunately, destruction of the rain forests surrounding the complex will soon render it an isolated island of protected forest. Thus, the area will become increasingly valuable as a refuge for many species with home ranges that require extensive tracts of undisturbed habitat.
Localización: Biblioteca OET: 599.972864 T584m.

Publicación no.: 037 **Patterns of foraging and range use by three species of neotropical primates** *[Patrones de forrajeo y ámbito de hogar de tres especies de primates neotropicales]* / Chapman, Colin A. (University of Florida. Department of Zoology, 223 Bartram Hall, Gainesville, FL 32611, US <E-mail: cachapman@zoo.ufl.edu>).
En: Primates (ISSN 0032-8332), v. 29, no. 2, p. 177-194. 1988.
The diet and range use patterns of Ateles geoffroyi, Alouatta palliata and Cebus capucinus were studied over 4 years in Santa Rosa National Park, Costa Rica. Diets selected by the primates were; A. geoffroyi 78% fruit, 10% flowers, 11% leaves and 1% insects, A. palliata 28% fruit, 22% flowers and 49% leaves, and C. capucinus 81% fruit, 0.2% flowers, 1% leaves and 17% insects. Differences in diet due to season and feed availability are discussed.
Localización: Biblioteca OET: S7853.

Publicación no.: 038 **Estimación de las poblaciones de algunos mamíferos en el Parque Nacional Manuel Antonio, Costa Rica** / Vaughan-Dickhaut, Christopher; McCoy-Colton, Michael B. (University of Wisconsin-Madison. Department of Wildlife Ecology, Madison, WI 53706, US <E-mail: cvaughan@facstaff.wisc.edu> <E-mail: mmccoy@una.ac.cr>).
En: Brenesia (ISSN 0304-3711), no. 22, p. 207-217. 1984.
The King method was used to estimate the populations of seven mammal species in Manuel Antonio National Park. The white-faced monkey (Cebus capucinus Linnaeus) and the squirrel monkey (Saimiri oerstedii Reinnhardt) with 244 and 186 individuals respectively had the largest populations in the Park. Advantages and disadvantages of using the King method in tropical regions are discussed and recommendations are made to minimize error.
Localización: Biblioteca OET: NBINA-15484. S568.

Publicación no.: 039 **Feeding associations betweeen howling monkeys and basilisk lizards** *[Asociaciones para alimentarse entre los monos congo y las lagartijas basilisco]* / Glander, Kenneth E. (Duke University. Department of Biology, Anthropology & Anatomy, Wheeler Bldg., 3705-B Erwin Rd, Durham, N.C. 27706, US <E-mail: glander@duke.edu>).
En: Biotropica (ISSN 0006-3606), v. 11, no. 3, p. 235-236. 1979.(No abstract).
Localización: Biblioteca OET: B.

Publicación no.: 040 **Association of birds with monkeys in Costa Rica** *[Asociación de aves con monos en Costa Rica]* / Boinski, Sue; Scott, P.E. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu>).
En: Biotropica (ISSN 0006-3606), v. 20, no. 2, p. 136-143. 1988.
Double-toothed kites (Harpagus bidentatus), gray-headed tanagers (Eucometis pencillata), and tawny-winged woodcreepers (Dendrocincla anabatina) forage in association with squirrel monkey (Saimiri oerstedii) troops in Parque Nacional Corcovado, Costa Rica, throughout the year, based on field work conducted from February to September 1982 and from June 1983 to September 1984. These species and other occasional attendants fed on arthropods and small vertebrates flushed by the monkeys. Censuses indicated that kites, tanagers, and woodcreepers spent roughly twice as much time following squirrel monkeys during the wet season, when arthropod availability was lowest, than at other times of the year. Bird attendance frequency was greatest in the morning during the wet season, but time of day differences were less distinctive in other seasons. Attendance frequencies were greater when squirrel

monkey troops were foraging and travelling than resting and still. Kites at this site also followed capuchin monkeys (Cebus capucinus), but appeared to prefer squirrel monkeys.
Localización: Biblioteca OET: B.

Publicación no.: 041 **Biología de Protospirura muricola Gedoelst, 1916 y Mastophorus muris (Gmelin, 1790) (Nematoda: Spiruridae), en Costa Rica. II. Huéspedes definitivos** *[The biology of Protospirura muricola and Mastophorus muris (Nematoda: Spiruridae) in Costa Rica. II. Definitive hosts]* / Campos-Quesada, Mariana; Vargas-Vargas, Mario. (Universidad Nacional. Escuela de Ciencias Biológicas, Heredia, CR <E-mail: mcampo@una.ac.cr>).
En: Revista de Biología Tropical (ISSN 0034-7744), v. 26, no. 1, p. 199-211. 1978.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-14440.pdf
Of 100 rats collected in the central market of San José, Costa Rica, 61 were infected with spirurids: 14 with Protospirura muricola and 59 with Mastophorus muris. This is the first record of M. muris in rats in Costa Rica. The 2 species were distinguished by examination of the buccal capsule, spicules and vulval position; measurement of the eggs indicated that the 2 species can also be separated at this stage of development. A total of 90 larvae (probably P. muricola) was obtained from 9 white rats 4 to 12 days after inoculation with spirurid capsules obtained from Leucophaea maderae from the market; 40 adults were obtained from 5 similarly infected rats 71 to 160 days after infection. The results suggest that this cockroach is a natural intermediate host of P. muricola in Costa Rica. The morphometrics of 15 live infective larvae and 15 larvae mounted in polyvinyl alcohol, all obtained from this experiment, were not significantly different. Experimental inoculation of one Ateles geoffroyi with spirurid capsules from L. maderae yielded 26 adult nematodes that were identified as P. muricola. Similar experimental infection of one Cebus capucinus was not successful.
Localización: Biblioteca OET: R. NBINA-14440.

Publicación no.: 042 **Reproduction and population growth in free-ranging mantled howling monkeys** *[Reproducción y crecimiento de la población en monos congo silvestres]* / Glander, Kenneth E. (Duke University. Duke University Primate Center, 3705-B Erwin Rd, Durham, N.C. 27706, US <E-mail: glander@duke.edu>).
En: American Journal of Physical Anthropology (ISSN 0092-9483), v. 53, p. 25-36. 1980.
Free-ranging mantled howling monkey (Alouatta palliata Gray) females experienced a regular estrus cycle averaging 16.3 days, demonstrated sexual skin changes, and participated in multiple matings before becoming pregnant. Gestation averaged 186 days. The average interval between births was 22.5 months. Sexual maturity occurred at approximately 36 and 42 months for females and males, respectively. Female age at first birth was about 3½ years. Births were scattered during some years and clustered during others. The age, rank, and parity of the females affected infant survival. More female than male infants survived to one year of age. Increased population size was the result of immigration rather than births.
Localización: Biblioteca OET: S6978.

Publicación no.: 043 **Food habits of white-faced capuchins Cebus capucinus L. (Primates: Cebidae) in Santa Rosa National Park, Costa Rica** *[Hábitos alimentarios del mono carablanca Cebus capucinus L. (Primates: Cebidae) en el Parque Nacional Santa Rosa, Costa Rica]* / Freese, Curtis H. (The Johns Hopkins

University. School of Hygiene and Public Health, Department of Pathobiology, Baltimore, MD 21205, US).
En: Brenesia (ISSN 0304-3711), no. 10/11, p. 43-56. 1977.
The food and feeding behaviour of a population of Cebus capucinus in Santa Rosa National Park, Province of Guanacaste, Costa Rica, was studied for a period of nearly two years. The apes eat parts, mostly fruits, of 42 species of plants and some insects, mainly ants and cicadas. The time spent as well as the amount of plant material ad insects consumed fluctuates with the dry or wet season.
Localización: Biblioteca OET: B. Biblioteca Luis D. Tinoco: 570B.

Publicación no.: 044 **Cuterebra baeri Shannon y Greene, 1926 en el mono aullador de Costa Rica** / Zeledón-Araya, Rodrigo; Jiménez-Quirós, Otto; Brenes-Madrigal, Rodrigo R. (Universidad Nacional. Escuela de Medicina Veterinaria, Programa de Investigación en Enfermedades Tropicales, Heredia, CR <E-mail: rodrigozeledon@ice.co.cr>).
En: Revista de Biología Tropical (ISSN 0034-7744), v. 5, no. 2, p. 129-134. 1957.
Se informa del hallazgo de larvas maduras del muscoideo Cuterebra baeri que se encontraba en la región del cuello de una hembra adulta del mono Alouatta palliata de Costa Rica. El huésped se encontró en Tilarán, prov. Guanacaste, con lo que se amplía la distribución geográfica de este díptero. Se ofrecen figuras del esqueleto cefalofaríngeo y el detalle de los procesos cuticulares de la larva.
Localización: Biblioteca OET: R.

Publicación no.: 045 **The ontogeny of foraging in squirrel monkeys, Saimiri oerstedii** *[La ontogenia de forrajeo en monos tití, Saimiri oerstedii]* / Boinski, Sue; Fragaszy, D.M. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu>).
En: Animal Behaviour (ISSN 0003-3472), v. 37, no. 3, p. 415-428. 1989.
The development of foraging and locomotor independence by wild infant squirrel monkeys is described. Infants began to locomote independently during the fourth week of life and successful foraging appeared within the next 2 weeks. Infants were weaned by 16 weeks. The frequency and targets of foraging activities in infants became indistinguishable from those of older animals within 4-5 months after the onset of foraging, with four exceptions. Compared with older animals, infants exhibited (1) greater reliance on methods that did not involve prehension of small prey, (2) less visual inspection of potential foraging sites, (3) less skilled processing of certain prey to remove potentially toxic gut contents and to prevent escape, and (4) less avoidance of urticaceous caterpillars. Observations of infants watching other infants experiencing difficulties with noxious prey and prevention of approach to noxious prey by adults suggest that avoidance of certain species could be transmitted socially. Otherwise, no direct social influence on foraging was shown. Only a few features of foraging require extensive individually acquired motor skills, and wearilings can feed themselves adequately before these skills are developed. Infants in the wild population were weaned much earlier than has been observed in captive groups, and at about the age at which abilities are sufficiently mature for foraging to reach minimal efficiency. The age of weaning in this population probably represents the lower limit for this taxon.
Localización: Biblioteca OET: A. S7297. LC.

Publicación no.: 046 **Saimiri as a probable pollinator of Passiflora** *[Saimiri como un probable polinizador de Passiflora]* / Happel, R. (Harvard University. Peabody Museum, Department of Anthropology, Cambridge, MA 02138, US).
En: Brenesia (ISSN 0304-3711), no. 21, p. 455-464. 1983.
A number of primates have been reported to include flowers in their diet, but they often entirely remove the flowers they feed on and thus do not aid in the reproduction of the plant. However, some primates have been suggested to act as pollinators, including galagos (Coe and Isaac, 1965), lemurs (Sussman and Raven, 1978; Sussman, 1979), and a number of Neotropical primates (Prance, 1980; Janson et al., 1981; Torres de Assumpcao, 1981). In January of 1982 observations were made on Saimiri oerstedii in Parque Nacional Manuel Antonio, Costa Rica, a humid tropical forest. Previous studies have noted visitation by Saimiri to a number of different flowers in Colombia (Robert Bailey, personal communication) and Peru (Janson et al., 1981), and thus this study focused on the role of Saimiri as a pollinator. During this study, Saimiri oerstedii was observed to visit flowers of two different plant species. The monkeys fed destructively on Pseudobombax septenatum (Bombacaceae), removing the entire flower from the tree before drinking the nectar and eating the petals. Saimiri monkeys were also observed to visit Passiflora adenopoda (Passifloraceae), in which they removed and ate the sepals, petals and corona, leaving the reproductive structures intact, attached to the androgynophore. In order to detach the calyx and corolla of the Passiflora flowers the monkeys brushed the anthers and picked up pollen on their faces. In one feeding bout an adult Saimiri was observed to feed on 10 flowers in 2 minutes before moving on to another food source, and thus could have aided in the outcrossing of Passiflora. The flowers of the Passiflora adenopoda vine share some features of the non-flying mammal pollination syndrome outlined by Janson et al. (1981): A tough, partly fused perianth, upright orientation of the flowers, and highly conspicuous flowers enhanced by production during times of leaf leaflessness. It would be of interest to conduct more detailed studies on the interaction between Saimiri and Passiflora to determine if some of their adaptations are the result of coevolution.
Localización: Biblioteca OET: B. NBINA-8122.

Publicación no.: 047 **Flexibility in diets of three species of Costa Rican primates** *[Flexibilidad en las dietas de tres especies de primates costarricenses]* / Chapman, Colin A. (University of Florida. Department of Zoology, 223 Bartram Hall, Gainesville, FL 32611, US <E-mail: cachapman@zoo.ufl.edu>).
En: Folia Primatologica (ISSN 0015-5713), v. 49, no. 2, p. 90-105. 1987.
Variability in diet and dietary overlap were documented for the three species of primates in Santa Rosa National Park, Costa Rica (Ateles geoffroyi, Alouatta palliata, Cebus capucinus). All three species exhibited great flexibility in their diets, such that in 1 month a monkey species could be considered as having one type of diet (e.g. frugivorous), while in a subsequent month it would be classified as having a different type of diet (e.g. folivorous or insectivorous). It is suggested that such variability in diet and dietary overlap make it unlikely that competition just between these primates' species was a strong selective pressure determining their diets.
Localización: Biblioteca OET: S7854.

Publicación no.: 048 **Behavioural development of howling monkey twins (Alouatta palliata) in Santa Rosa National Park, Costa Rica** *[Desarrollo del comportamiento en gemelos de monos congo (Alouatta palliata) en el Parque Nacional Santa Rosa, Costa Rica]* / Chapman, Colin A; Chapman, L.J. (University of

Florida. Department of Zoology, 223 Bartram Hall, Gainesville, FL 32611, US <E-mail: cachapman@zoo.ufl.edu> <E-mail: ljchapman@zoo.ufl.edu>).
En: Primates (ISSN 0032-8332), v. 27, no. 3, p. 377-381. 1986.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-1971.pdf
Twins born to a young female howling monkey in Santa Rosa National Park, Costa Rica were observed during the first 96 days of their life. The comparison of their development to that of single infants and the comparison of the behaviour of the mother of the twins to that of mothers of single infants revealed few differences. However, qualitative observations suggest that high costs are associated with maternal care of infant twins. The mother had difficulty carrying both infants and was the only female observed to become sick during the study. Increased costs of lactation were not compensated for by an increase in foraging time. It would seem that howling monkey mothers possess a maternal care system which is capable of providing suitable care to twins. However, the costs on the mother of raising twins are suggested as a factor selecting for a litter size of one.
Localización: Biblioteca OET: NBINA-1971. S7855.

Publicación no.: 049 **A comparison of transect methods of estimating population densities of Costa Rican primates** *[Una comparación de los métodos de transectos para estimar las densidades poblacionales de primates costarricenses]* / Chapman, Colin A; Fedigan, Linda M; Fedigan, Laurence. (University of Florida. Department of Zoology, 223 Bartram Hall, Gainesville, FL 32611, US <E-mail: cachapman@zoo.ufl.edu> <E-mail: ljchapman@zoo.ufl.edu> <E-mail: fedigan@ucalgary.ca>).
En: Brenesia (ISSN 0304-3711), no. 30, p. 67-80. 1988.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-4039.pdf
This study compares population density estimates derived from a variety of transect methods against direct counts for a group of cebus (Cebus capucinus) and a group of howling monkeys (Alouatta palliata) inhabiting a seasonally dry forest in Costa Rica. Transects stratified by habitat, walked at all hours of the day for a large sample size, covering sufficient area to adequately sample all habitats. and using "mean distance to the animal" to estimate strip width, combined to give the most accurate density estimates. Our study indicated the importance of a large number of trials, which arc required before it can be assured that precision becomes stable. Differences in precision and accuracy of various transect methods are discussed in an attempt to provide information on which techniques are best suited for particular situations.
Localización: Biblioteca OET: S7850. NBINA-4039.

Publicación no.: 050 **Spider monkey sleeping sites: use and availability** *[Lugares para dormir escogidos por el mono colorado: uso y disponibilidad]* / Chapman, Colin A. (University of Florida. Department of Zoology, 223 Bartram Hall, Gainesville, FL 32611, US <E-mail: cachapman@zoo.ufl.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 18, no. 1, p. 53-60. 1989.
The behavior of spider monkeys (Ateles geoffroyi) at sleeping sites and the characteristics of these sites were studied in Santa Rosa National Park Costa Rica. The spider monkeys tended to congregate just prior to dusk at a number of sleeping sites which were repeatedly used (81.6%), but occasionally they slept in trees which were only used once (18.4%). All of the regularly used sleeping trees were not used concurrently, but rather, there was a rotation between sites. In general, males were not encountered at regularly used sleeping sites as often as other age/sex classes, and when they were in all male subgroups, they did not sleep in repeatedly used sites. The trees used as regular sleeping sites tended to

be large, but such trees were common in the group's home range. The size of the subgroups attending repeatedly used sleeping trees was large when food was abundant and small when food was scarce. It is suggested that this relationship reflects that the costs of travelling to the sleeping site would be more easily recovered when food was abundant than when food was scarce.
Localización: Biblioteca OET: S7851.

Publicación no.: 051 **Multiple central place foraging by spider monkeys: travel consequences of using many sleeping sites** *[Forrajeo múltiple en un lugar centralizado por parte de los monos colorados: consecuencias del viaje al utilizar múltiples sitios para dormir]* / Chapman, Colin A; Chapman, L.J; McLaughlin, R.L. (University of Florida. Department of Zoology, 223 Bartram Hall, Gainesville, FL 32611, US <E-mail: cachapman@zoo.ufl.edu> <E-mail: ljchapman@zoo.ufl.edu>).
En: Oecologia (ISSN 0029-8549), v. 79, no. 4, p. 506-511. 1989.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-1972.pdf
Central place foraging models assume that animals return to a single central place such as a nest, burrow, or sleeping site. Many animals, however choose between one of a limited number of central places. Such animals can be considered Multiple Central Place Foragers (MCPF), and such a strategy could reduce overall travel costs, if the forager selected a sleeping site close to current feeding areas. We examined the selection of sleeping sites (central places) by a community of spider monkeys (Ateles geoffroyi) in Santa Rosa National Park, Costa Rica in relation to the location of their feeding areas. Spider monkeys repeatedly used 11 sleeping trees, and they tended to choose the sleeping site closest to their current feeding area. A comparison of the observed travel distances with distances predicted for a MCPF strategy, a single central place strategy, and a strategy of randomly selecting sleeping sites demonstrated (1) that the MCPF strategy entailed the lowest travel costs, and (2) that the observed travel distance was best predicted by the MCPF strategy. Deviations between the observed distance travelled and the values predicted by the MCPF model increased after a feeding site had been used for several days. This appears to result from animals sampling their home range to locate new feeding sites.
Localización: Biblioteca OET: NBINA-1972. S7848.

Publicación no.: 052 **Social responses to the traumatic injury of a juvenile spider monkey (Ateles geoffroyi)** *[Respuestas sociales al daño traumático de un mono colorado juvenil (Ateles geoffroyi)]* / Chapman, Colin A; Chapman, L.J. (University of Florida. Department of Zoology, 223 Bartram Hall, Gainesville, FL 32611, US <E-mail: cachapman@zoo.ufl.edu> <E-mail: ljchapman@zoo.ufl.edu>).
En: Primates (ISSN 0032-8332), v. 28, no. 2, p. 271-275. 1987.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-1973.pdf
The behavioural development of a juvenile male spider monkey (Ateles geoffroyi) preceding and subsequent to a traumatic injury resulting in the loss of his tail, was documented over a nine-month period in Santa Rosa National Park, Costa Rica. The juvenile became heavily reliant on his mother, who readily provided compensatory care, including nursing the juvenile even though he had previously been weaned. In comparison to another juvenile male spider monkey of similar age, the development of the injured animal was severely retarded and even five months after the accident, the juvenile was still nursing and being carried by his mother. As injuries may be relatively common among primates it is suggested that the provision of compensatory care is an important trait in many primate species.
Localización: Biblioteca OET: NBINA-1973. S7849.

Publicación no.: 053 **Helmintos de la República de Costa Rica. V. Sobre la validez del género Controrchis Price, 1928 (Trematoda, Dicrocoeliidae) y descripción de Controrchis caballeroi n.sp.** / Jiménez-Quirós, Otto; Brenes-Madrigal, Rodrigo R. (Universidad de Costa Rica. Facultad de Microbiología, Laboratorio de Helmintología, San José, CR).
En: Revista de Biología Tropical (ISSN 0034-7744), v. 5, no. 1, p. 103-121. 1957.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-9308.pdf
A further contribution is presented to the knowledge of the helminthologic fauna of Costa Rica, Central America, comprising: 1. Redescription of the genus Controrchis Price, 1928 (Trematoda, Dicrocoeliidae). 2. Description of a new species, Controrchis caballeroi, found in biliary ducts of Alouatta palliata palliata (Gray) Goodwin in Tilarán, province of Guanacaste, Costa Rica. 3. An histopathologic diagnosis of the presence of the trematode in biliary ducts of the host. 4. A chart of the specific differences between Controrchis biliophilus Price, 1928 and Controrchis caballeroi n.sp. 5. A discussion of the validity of genus Controrchis and of the new species C. caballeroi.
Localización: Biblioteca OET: R. NBINA-9308.

Publicación no.: 054 **Notes on a collection of mammals from Costa Rica** *[Observaciones sobre una colección de mamíferos procedentes de Costa Rica]* / Allen, Joel Asaph.
En: Bulletin of the American Museum of Natural History (ISSN 0003-0090), v. 3, article 14, p. 203-218. 1891.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-3671.pdf
I am indebted to Mr. George K. Cherrie, Taxidermist and Acting Curator of Mammals, Birds, and Reptiles, in the Museo Nacional de Costa Rica, for the opportunity of examining the mammals which from the basis of the present paper. They belong in part personally to Mr. Cherrie. The American Museum is indebted to the authorities of the Museo Nacional and to Mr. Cherrie for a set of duplicates from the joint collection here under notice. Collection numbers altogether about 100 specimens, partly skins and skeletons, and partly spirits specimens, representing 38 species. The carnivores and the larger mammals generally are scantily represented; the bats also are not numerous, but the collection is rich in Muridae, of which there are nine species, three of them apparently new to science. There is also a new Blarina, which, very surprisingly, turns out to belong to the 32-toothed section of the genus, not before reported from south of the United States. Many of the specimens were collected by Don Anastasio Alfaro, Director of the Museo Nacional de Costa Rica, but the greater part by Mr. Cherrie. Most of the alcoholics were obtained on La Carpintera, a mountain situated eight miles east of San José, at an altitude of about 6ooo feet, during the months of October, November, and December, 1890. The officials of the Costa Rica Government, we are gratified to learn, take great interest in collecting and making known the natural history productions of the Republic, and provide liberally for the development of their rapidly growing Museum. Mr. Cherrie informs me that further collections of Costa Rican mammals will probably be forwarded to this Museum for identification. In addition to the collections already mentioned I have examined in the present connection the entire series of Costa Rican and Mexican Muride belonging to the United States National Museum, including the types of Dr. Coues's Hesperomys melanophrys, kindly loaned me for this purpose by the authorities of the National Museum.
Localización: Biblioteca OET: NBINA-3671.

Publicación no.: 055 **Mamíferos de Costa Rica** *[Costa Rica mammals]* / Alfaro-González, Anastasio. San José: Tipografía Nacional, 1897. 51 p.

Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-13039.pdf
Estudio corregido y aumentado por el Prof. J.A. Allen e impreso con el objeto de que sirviera de catálogo para la Sección de Costa Rica en la Exposición Centroamericana de 1897. En él se marca con números correspondientes cada una de las especies que fue posible representar en la colección de animales disecados. La obra está hecha mediante un extracto del catálogo de las especies anotadas como procedentes de Costa Rica en la Biologia Centrali-Americana. Se tomaron en cuenta las notas publicadas por el Dr. Alejandro von Frantizius en el primer tomo de los Documentos Inéditos para la Historia de Costa Rica de don León Fernández. Consigna también todas las especies dadas a conocer por el Prof. J.A. Allen, Jefe del Departamento de Mamíferos del Museo Americano de Historia Natural de Nueva York, quien revisó el manuscrito antes de darlo a la imprenta. También se ha servido de los apuntes hechos por Mr. Geo K. Cherrie. Anota el catálogo las 121 especies siguientes (NOTA: Muchos nombres científicos han cambiado al siglo XXI): Mycetes palliatus, Ateles geoffroyi, Cebus hypoleucus, Nyctipithecus vociferans, Chrysothrix oerstedi, Adelonycteris fusca, Rhogoesa parvula, Atalapha borealis frantzii, Atalapha cinerea, Vestilio nigricans, Saccopteryx bilineata, S. plicata, S. canina, Rhynchonycteris naso, Diclidurus albus, Molossus rufus, M. abrasus, M. nasutus, Nyctinomus brasiliensis, Nyctinomus gracilis, Chilonycteris personata, C. rubiginosa, Pteronotus davyi, Vampyrus spectrum, V. auritus, Mycronycteris megalotis, Tarchiops cirrhosus, Hemiderma brevicauda, H. castanea, Glossophaga soricina, Artibeus perspicillatus, A. cinerius, A. carpolegus, Vampyrops linatus, V. vittatus, Chiroderma salvini, Sturnira lilium, Desmodus rufus, Blarina nigrescens, B. orophila, B. brevicauda, Felis onca, F. pardalis, F. tigrina, F. concolor, F. yaguarundi, F. eyra, F. domestica, Canis latrans, C. familiaris, Urocyon cinereo, Procyon lotor hernandezii, Bassaricyon gabbi, B. sumichrasti, Nasua narica, Cercoleptes caudivolvus, Mustela brasiliensis, Galictis barbata, Conepatus mapurito, Lutra felina, Trichechus australis, Equus caballus, E. asinus, Elasmognathus bairdii, E. dowi, Sus scrofa, Dicotyles tajacu, D. labiatus, Bos taurus, Ovis aries, Capra hircus, Dorcelophus clavatus, Mazama temama, Sciurus hypopyrrhus, S. aestuans hoffmanni, S. alfari, Mus rattus, M. alexandrinus, M. decumanus, M. musculus, Abrothrix teguina, A. caliginosus, Tylomys nudicaudus, Peromyscus cherriere, P. leucopus sonoriensis, P. nudipes, Reithrodontomys costaricensis, R. australis, Oryzomys alfaroi, O. costaricensis, O. talamancae, O. couesi, O. cherriei, Sigmodon hispidus toltecus, Macrogeomys heterodus, M. cherriei, M. costaricensis, Heteromys longicaudatus, Echimys semispinosus, Synetheres mexicanus, Dasyprocta isthmica, D. punctata, Coelogenys paca, Cavia cobaya, Lepus graysoni, L. gabbi, L. cuniculus, Bradypus infuscatus, B. castaneiceps, Choloepus hoffmanni, Dasypyus gymnurus, Tatusia novemcincta, Myrmecophaga jubata, M. tetradactyla, Cyclothurus didactylus, Didelphis marsupialis aurita, Metachirus quica, Marmosa cinerea, Philander lanigera y Chironectes variegatus.
Localización: Biblioteca OET: NBINA-13039. Biblioteca Carlos Monge A.: 599 A385m U.

Publicación no.: 056 **Additional notes on Costa Rican mammals, with descriptions of new species** *[Observaciones adicionales sobre los mamíferos costarricenses, con descripciones de especies nuevas]* / Allen, Joel Asaph.
En: Bulletin of the American Museum of Natural History (ISSN 0003-0090), v. 9, article 3, p. 31-44. 1897.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-3677.pdf
Estas notas adicionales sirven de complemento al valioso catálogo de don Anastasio Alfaro "Mamíferos de Costa Rica", estudio recogido y aumentado por el Prof. J.A. Allen, impreso, para la Primera Exposición Centroamericana, en San José, 1897. El Dr. Allen dice: "Through the kindness of Mr. Anastasio Alfaro, Director of the Museo Nacional de Costa Rica, and Mr. George K. Cherrie formerly assistant at the

Museo Nacional, I have had the opportunity of examining much material relating to the mammals of Costa Rica, a considerable part of which material has been contributed to this Museum, either by Messrs. Alfaro and Cherrie personally recently been purchased of Mr. Cherrie. These combined collections number about 300 specimens, and represent 65 species. In April, 1891, I published a paper entitled "Notes on a collection of mammals from Costa Rica" (Bull. Amer. Mus. Nat. Hist. 3:203- 218), in which 38 species were recorded as represented in the material then under review. This was followed in September, 1892, by a second paper, entitled "Further notes on Costa Rica mammals with description of a new species of Oryzomys" (Bull. Amer. Mus. Nat. Hist. 5:237-240), adding 9 species to the 38 previously recorded. Since the publication of this latter paper various small lots of Costa Rica mammals have been received from Mr. Alfaro, and a small collection purchased of Mr. Cherrie. These later sendings were found to contain a number of undescribed species, which have been published from time to time in this Bulletin. No general report has been made upon this later material which is now taken as the basis of the present paper, and adds some 20 species to the number here previously recorded. As a matter of convenience for future reference, it has been deemed advisable to include in the present communication all of the species mentioned in the previous papers, with references to the place of mention, or description, in the case of the new species separately described. This paper is, therefore, not only a report on the recent accessions, but a summary of my previous papers on Costa Rica mammals. The nomenclature is here revised to conform to numerous recent changes. A star is prefixed to the species not given in the former papers. It is a pleasure in this connection to call attention to the excellent annotated list of Costa Rican mammals recently published by Mr. Anastasio Alfaro. While doubtless not complete, it thoroughly represents our present knowledge of the mammalian fauna of Costa Rica, and forms an admirable basis for further work in this field. The total number of species enumerated is 121; of these 10 species are domesticated animals, and 4 are introduced species of Mus, leaving 107 as indigenous on general grounds as likely to occur from their know distribution both to the northward and southward of Costa Rica; but the basis of their inclusion is always duly indicated". Hay una plancha de ilustraciones referente a cortes anatómicos y dibujos de huesos.
Localización: Biblioteca OET: NBINA-3677.

Publicación no.: 057 **The behavior of white-faced capuchins (Cebus capucinus) at a dry-season waterhole** *[El comportamiento de los monos carablanca (Cebus capucinus) en un ojo de agua en la estación seca]* / Freese, Curtis H. (The Johns Hopkins University. School of Hygiene and Public Health, Department of Pathobiology, Baltimore, MD 21205, US).
En: Primates (ISSN 0032-8332), v. 19, no. 2, p. 275-286. 1978.
During a study of white-faced capuchins (Cebus capucinus) in Santa Rosa National Park, northwest Costa Rica, the study troop drank daily from a single terrestrial waterhole for approximately three months during the dry season. The drinking order of troop members at the waterhole was not random: adult males tended to be in the first quartile of the drinking. progression, adult females generally occurred with equal frequency throughout the progression, and juveniles drank most commonly in the third quartile. There were also differences in the usual drinking ranks among individuals of the same age-sex class. It is hypothesized that those adult males which are usually first in the progression are increasing their personal fitness by reducing the risk of predation on their offspring and on potential mates. The tendency of adult females to precede juveniles may similarly reflect protection of offspring. The daily visits to the waterhole by the study troop did not appear to greatly restrict the use of their range. It is

suggested, however, that the availability of standing sources of water may be an important factor affecting the local distribution and density of capuchins in seasonally and chronically dry areas.
Localización: Biblioteca OET: S9500. Biblioteca del BIODOC: 3520.

Publicación no.: 058 **Birth synchrony in squirrel monkeys (Saimiri oerstedii): A strategy to reduce neonatal predation** *[Nacimiento sincronizado en los monos tití (Saimiri oerstedii): Una estrategia para reducir la depredación de neonatos]* / Boinski, Sue. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu>).
En: Behavioral Ecology and Sociobiology (ISSN 0340-5443), v. 21, no. 6, p. 393-400. 1987.
The vigilance behaviors and association patterns of adult female squirrel monkeys (Saimiri oerstedii) in Parque Nacional Corcovado, Costa Rica were studied over the annual reproductive cycle to identify a possible adaptive function associated with the unusually close within-group birth synchrony prevalent in Saimiri populations. Raptor association with the troops, predation attempts, and monthly changes in food abundance were also documented. Seasonal fluctuations in food abundance probably constrained the timing of births among three contiguous troops to a two month period. The close within-troop birth synchrony (majority of births occurring within a week) is suggested to be advantageous because of intense predation pressure on neonate squirrel monkeys. Adult females with neonates cooperate in anti-predator vigilance and defense of neonates. Participation in these maternal associations may increase the probability of neonate survivorship. Variable gestation length in squirrel monkeys may reflect a liability in the duration of gestation to allow coordination of the timing of births among females in a troop.
Localización: Biblioteca OET: S9497. Biblioteca del BIODOC: 1925.

Publicación no.: 059 **Use of a club by a wild white-faced capuchin (Cebus capucinus) to attack a venomous snake (Bothrops asper)** *[Utilización de un garrote por parte de un mono carablanca (Cebus capucinus) para atacar una serpiente venenosa (Bothrops asper)]* / Boinski, Sue. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 14, no. 2, p. 177-179. 1988.
In Parque Nacional Manuel Antonio, Costa Rica, an adult male Cebus capucinus was observed repeatedly hitting a venomous snake (Bothrops asper) with a branch. Initially a large dead branch overhanging the snake had been broken off in the course of aggressive displays to the snake by the adult and two subadult males. The snake's escape was apparently prevented by the weight of the fallen branch and possibly by the injuries caused by its fall. This is the first direct observation of a capuchin monkey in a natural habitat using a tool.
Localización: Biblioteca OET: S9495. Biblioteca del BIODOC: 1916.

Publicación no.: 060 **The status of Saimiri oerstedii citrinellus in Costa Rica** *[Estado de Saimiri oerstedii citrinellus en Costa Rica]* / Boinski, Sue. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu>).
En: Primate Conservation (ISSN 0898-6207), v. 8, p. 69-72. 1987.
Introduction: An initial survey of squirrel monkey distribution in Costa Rica (Boinski, 1985) concluded that Saimiri oerstedii citrinellus, a Costa Rican endemic, was probably restricted to the immediate vicinity of Parque Nacional Manuel Antonio, near Quepos in the Pacific wet lowlands of the province Puntarenas. The number of surviving animals was estimated to be 300. Formerly the subspecies

extended northward to Cerro Herradura (9° 40' N, 84° 3' W) and the Dota Mountains (probably Cerro San Jerónimo; 9° 37' N, 84° 09' W) (Frantzius, 1869; cited in Hershkovitz, 1984). The southern boundary was probably limited by the Ríos Sierpe and Térraba (8° 25' N, 84° 25' W). This geographic barrier served to separate S. o. citrinellus from the other Costa Rican subspecies, S. o. oerstedii, which is found further south. From 28 May to 26 June 1986, I conducted a second survey in the provinces of Puntarenas and San José. The objective of this survey was to (1) obtain detailed information on the current distribution of S. o. citrinellus and ascertain its distinctiveness from S. o. oerstedii, (2) identify and evaluate the factors that are likely to affect the future existence of the former subspecies, and (3) provide recommendations to aid government and private institutions in Costa Rica to implement a successful conservation program. Both the observations I made and the information obtained by others were considered in light of more than two years of field work with S. o. oerstedii in Parque Nacional Corcovado, Costa Rica. I spent ten days in Parque Nacional Manuel Antonio making detailed observations of individual and group behavior on the two resident troops. Photographs and vocalization recordings were also collected. For six days, I censused additional troops and interviewed local residents within a five km radius of the park. Site visits and surveys of potential Saimiri habitat in other areas of the two provinces accounted for another ten days of the study. Twelve captive Saimiri were also examined. Those interviewed, in addition to farmers and villagers, included staff in the Servicio de Parques Nacionales and other agencies in the Ministerio de Agricultura y Ganadería, banana and oil palm company workers and managers, and biologists familiar with the area. Information was sought regarding (1) sites where Saimiri were either currently or formerly present, (2) natural history observations, such as food and range use, birth and breeding seasons, and interactions with potential predators and competitors, (3) human threats to extant populations, such as hunting and capture for pets, (4) predictions for the future utilization of habitat currently supporting Saimiri, and (5) attitudes concerning the importance of the maintenance of Saimiri populations in Costa Rica.
Localización: Biblioteca OET: S9492. Biblioteca del BIODOC: 1909.

Publicación no.: 061 **Habitat use by squirrel monkeys (Saimiri oerstedii) in Costa Rica** *[Uso del hábitat por parte de los monos tití (Saimiri oerstedii) en Costa Rica]* / Boinski, Sue. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu>).
En: Folia Primatologica (ISSN 0015-5713), v. 49, no. 3/4, p. 151-167. 1987.
This paper analyses movement patterns, habitat preferences, activity schedules, and dispersion of troop members in squirrel monkeys (Saimiri oerstedii) in relation to seasonal changes in food abundance in a Costa Rican tropical wet forest. Secondary forest was the preferred habitat and use of primary forest and late successional forest was limited primarily to seasons when food availability was low. Range area differed between seasons, varying from 79 to 110 ha, and totaling 176 ha over 11 months. The number of hectares used, hourly rate of group movement, and proportion of time spent foraging each season were all negatively related to relative food abundance. There was a tendency to spend less lime in foraging activities in the middle of the day and to spend more time exclusively in travel at dawn and dusk. In all seasons dispersion was least when the troop was travelling and it was generally greatest during seasons of low food abundance. Measures of the allocation of time by the troop to food-related activities and the extent of troop dispersion each season were consistent with estimates based on behavior sampling of individuals.
Localización: Biblioteca OET: S9510. Biblioteca del BIODOC: 592.

Publicación no.: 062 **Sex differences in the foraging behavior of squirrel monkeys in a seasonal habitat** *[Diferencias entre sexos en el comportamiento de forrajeo de los monos tití en un hábitat estacional]* / Boinski, Sue. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu>).
En: Behavioral Ecology and Sociobiology (ISSN 0340-5443), v. 23, no. 3, p. 177-186. 1988.
The effects of sex and seasonal changes in food abundance on foraging behavior were studied in squirrel monkeys (Saimiri oerstedii) in Costa Rica over an eleven-month period. Females searched for and ate food at significantly greater frequencies than did males throughout the study. The frequency of the specific foraging techniques used occasionally differed significantly within seasons, but not across the study period. Few differences were found in the foraging behaviors of non-reproductive sexually mature females compared to females that were pregnant or lactating. The major exception was that during the month following parturition reproductive females foraged for flowers and fruits more frequently than did non-reproductive females. The reduction of time spent by males in foraging activities gives them more time for other activities, especially anti-predator vigilance. Foraging techniques and the proportions of different food types in the diet changed seasonally. Foraging for arthropods was most frequent in the season when arthropod abundance was lowest, resulting in the amount of time spent eating arthropods to vary less across the seasons. Fruits and flowers were not eaten in a direct relationship to availability, but were used more than expected relative to availability, when arthropod abundance was reduced. Individuals were more dispersed when foraging compared to other activities. Overall, there was little evidence of any direct foraging benefits for a squirrel monkey from being social.
Localización: Biblioteca OET: S9493. Biblioteca del BIODOC: 1274.

Publicación no.: 063 **A report on dense forest habitat for endangered species in Costa Rica** *[Informe sobre hábitat de bosques densos para especies amenazadas en Costa Rica]* / Vaughan-Dickhaut, Christopher. (University of Wisconsin-Madison. Department of Wildlife Ecology, Madison, WI 53706, US <E-mail: cvaughan@facstaff.wisc.edu>). Heredia: Universidad Nacional, Departamento de Publicaciones, 1983. 62 pp.
Existence and loss of dense forest habitat for 28 endangered wildlife species in Costa Rica is quantified and analyzed using vegetation maps, density estimates and insular ecology theory. From 1940 to 1977 species suffered an average 35% destruction of dense forest habitat. A number of species including: Myrmecophaga tridactyla, Panthera onca, Trichechus manatus, Haria hapyja and Ara ambigua will probably go extinct in Costa Rica within the next century due to lack of sufficiently large dense forest habitat areas for survival. The importance of protecting large areas of dense forest habitat for conserving genetically "viable" wildlife populations is emphasized and key areas are identified for each species. In addition species are ranked as to degree of endangerment using biological parameters.
Localización: Biblioteca OET: AD 995.

Publicación no.: 064 **Capture techniques for three species of monkeys in Costa Rica** *[Técnicas de captura para tres especies de monos en Costa Rica]* / Glander, Kenneth E; Fedigan, Linda M; Fedigan, Laurence; Chapman, Colin A. (Duke University Primate Center, 3705-B Erwin Rd, Durham, N.C. 27706, US <E-mail: glander@duke.edu> <E-mail: fedigan@ucalgary.ca>).
En: Folia Primatologica (ISSN 0015-5713)
A total of 54 free-ranging monkeys were captured and marked in Santa Rosa National Park, Costa Rica during May, 1985, and an additional 17 were captured during May 1986. The animals were darted using

a blow-pipe or a CO2 gun. The drugs used were Ketaset, Sernylan and Telazol. Ketaset was effective for Cebus capucinus but unsuccessful for Alouatta palliata and Ateles geoffroyi. Sernylan was successful for Ateles geoffroyi and Alouatta palliata, but is no longer commercially available. Telazol proved to be an excellent capture drug for both Alouatta palliata and Ateles geoffroyi.
Localización: Biblioteca OET: S10345. Biblioteca del BIODOC: 7219.

Publicación no.: 065 **Spider monkey home ranges: a comparison of radio telemetry and direct observation** *[Ambitos de distribución de los monos colorados: comparación de observación directa y mediante radiotelemetría]* / Fedigan, Linda M; Fedigan, Laurence; Chapman, Colin A; Glander, Kenneth E. (University of Calgary. Department of Anthropology, 2500 University Drive N.W., Calgary, AB T2N 1N4, CA <E-mail: fedigan@ucalgary.ca> <E-mail: cachapman@zoo.ufl.edu> <E-mail: glander@duke.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 16, no. 1, p. 19-29. 1988.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-4040.pdf
The ranging patterns of two male and five female spider monkeys (Ateles geoffroyi) were studied with the use of radio telemetry in Santa Rosa National Park, Costa Rica. The average size of a spider monkey home range was 62.4 ha; however, range size varied with sex, and, for females, with the presence of a dependent infant. The probability of encountering a radio-collared spider monkey in a three-hour search using radio telemetry (0.91) was much greater than using a visual search (0.20), and telemetric data resulted in a larger estimate of mean home range size than did observational data, when all subjects were compared. However, the difference appeared to be owing to the presence of male ranges in the telemetric, but not the observational, data. When the size of home ranges derived from radio-tracking data for adult females was compared to size of ranges for adult females derived from observations, the results were not significantly different. Adult males had larger home ranges than adult females,thus lending support to the hypothesis that males have adapted to the dispersion of females by occupying a large home range that overlaps the ranges of several adult females with dependent infants, perhaps reflecting social and energetic constrainsts.
Localización: Biblioteca OET: S9507. NBINA-4040. Biblioteca del BIODOC: 7117.

Publicación no.: 066 **Post-weaning resource competition and sex ratios in spider monkeys** *[Competencia post-amamantamiento por los recursos y relación de sexos en monos colorados]* / Chapman, Colin A; Fedigan, Linda M; Fedigan, Laurence; Chapman, L.J. (University of Florida. Department of Zoology, 223 Bartram Hall, Gainesville, FL 32611, US <E-mail: cachapman@zoo.ufl.edu> <E-mail: fedigan@ucalgary.ca> <E-mail: ljchapman@zoo.ufl.edu>).
En: Oikos (ISSN 0030-1299), v. 54, no. 3, p. 315-319. 1989.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-1974.pdf
In this study we examine the applicability of the resource competition hypothesis to explain both the existence of a skewed sex ratio in the spider monkey (Ateles spp.) where females disperse, and the varion in sex ration among geographically separated sites and neighboring sites of varying productivity. The resource competition hypothesis would predict that when females disperse, animals should attempt to reduce the effect of intraspecific competition by limiting the number of male offspring produced by the community. This prediction is in agreement with the observed female biased sex ratio in spider monkeys. The observed variability in sex ratios between populations suggests that when the potential for post-weaning resource competition is high (i.e. in habitats with low productivity), the community will limit the production of the non-dispersing males more than in highly productive habitats.

Localización: Biblioteca OET: NBINA-1974. S9506. Biblioteca del BIODOC: 7120.

Publicación no.: 067 **Numbers of mammal species in North and Central American forest communities** *[Número de especies de mamíferos en comunidades de bosque de Norte y Centroamérica]* / Fleming, T.H. (University of Miami. Department of Biology, Coral Gables, FL 33124, US <E-mail: tfleming@umiami.ir.miami.edu>).
En: Ecology (ISSN 0012-9658), v. 54, no. 3, p. 555-563. 1973.
Latitudinal trend in the species diversity of North and Central American mammalian communities are documented by examining seven habitats ranging from the tundra of central Alaska to the moist tropical forest of central Panama. The communities are compared with respect to the numbers and kinds of species in each habitat and their size, spatial, and trophic relationships. Fifteen to 16 species occur in the two primarily Alaskan habitats examined, 31-35 species in three forests in the eastern United States, and 70 species in two Panamanian forests. Observed latitudinal changes in species diversity, and community structure are primarily a result of a southward increase in the number of bat species. The greater variety ad year-round availability of food resources such as fleshy fruits and insects, rather than increased spatial heterogeneity, appears to account for the greater diversity of mammals in the tropical habitats. The structure of Old and New World tropical mammalian communities appears to be very similar. One major difference is that among the bats there are relatively more fruit-and/or pollen-eating species and fewer insect-eating species in the Panamanian community than in Malaya.
Localización: Biblioteca OET: NBINA-629.

Publicación no.: 068 **A census of Alouatta palliata and Cebus capucinus monkeys in Santa Rosa National Park, Costa Rica** *[Censo de los monos Alouatta palliata y Cebus capucinus en el Parque Nacional Santa Rosa, Costa Rica]* / Fedigan, Linda M; Fedigan, Laurence; Chapman, Colin A; Glander, Kenneth E. (University of Calgary. Department of Anthropology, 2500 University Drive N.W., Calgary, AB T2N 1N4, CA <E-mail: fedigan@ucalgary.ca> <E-mail: cachapman@zoo.ufl.edu>).
En: Brenesia (ISSN 0304-3711), no. 23, p. 309-322. 1985.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-4041.pdf
A direct count census of Alouatta palliata and Cebus capucinus monkeys in Santa Rosa National Park, Costa Rica, was carried out in July and August, 1983 and between March and May, 1984. A total of 25 Alouatta palliata groups totaling 342 individuals were counted, giving a Park density of 3,4 howling monkeys per km². Twenty-eight Cebus capucinus groups were located, totaling 393 individuals and giving a crude density of 3.9 Cebus monkeys per km². Population densities of intensively studied groups of known home range were higher than the overall Park density. Group totals, age and sex compositions, and locations in Santa Rosa are described.
Localización: Biblioteca OET: NBINA-4041. Biblioteca Luis D. Tinoco: 570B.

Publicación no.: 069 **Implications of seed dispersal by animals for tropical reserve management** *[Implicaciones de la diseminación de semillas por animales para el manejo de reservas tropicales]* / Howe, Henry F. (University of Iowa. Department of Zoology, Program in Evolutionary Ecology and Behavior, Iowa City, IA 52242, US).
En: Biological Conservation (ISSN 0006-3207), v. 30, no. 3, p. 261-281. 1984.
Many tropical trees bear fruits adapted for consumption by animals, and many tropical animals depend on fruits for food for at least part of the year. The purpose of this paper is to discuss the potential

importance of: (I) uneven species abundance distributions; (2) the imperative of local seed dispersal for plant recruitment; and (3) seasonality of fruit production for managing small tropical reserves. Some mutualistic seed-dispersal systems are 'pivotal' for forest communities. Although most species of trees produce when other fruits are readily available in the forest, others (e.g. Casearia corymbosa in Costa Rican rainforest and Virola sebifera in Panamanian rainforest) bear fruits during annual periods off fruit scarcity, and consequently maintain species of fruit-eating birds and mammals which are critical for the dispersal and ultimate recruitment of many tree species at other times of the year. The question of' relative abundance presents particular problems when' pivotal' plant species are rare or confined to special habitats. This paper considers ecological relationships which accelerate species loss fran habitat islands over and above 'random' loss of ecologically independent species predicted from biogeographic theory, and suggestsmanagement methods that can reduce such excessive loss.
Localización: Biblioteca OET: S8721. NBINA-6927.

Publicación no.: 070 **Female reproductive success in a group of free-ranging howling monkeys (Alouatta palliata) in Costa Rica** *[Exito reproductivo de la hembra en un grupo de monos congo en libertad (Alouatta palliata) en Costa Rica]* / Clarke, Margaret R; Glander, Kenneth E; Small, M.F (ed.). (Central Washington University. Department of Anthropology, Ellensburg, WA 98926, US <E-mail: clarkem@cwu.edu> <E-mail: glander@duke.edu>).
En: Female primates: studies by women primatologists New York: Alan R. Liss, 1984. p. 111-126. (Monographs in Primatology; v. 4).
Introduction: Primate females, as mammals, have a limited reproductive potential compared to primate males [Darwin, 1859; Trivers, 1972; Wilson, 1975]. Unlike males, whose investment may be limited to insemination, females must provide an internal environment for each offspring during gestation and must also continue to support that offspring after birth through suckling. Although investment in any particular offspring ends at weaning for many mammalian females, most primate females continue to carefor and interact with offspring even after their offspring are presumed to be no longer dependent on suckling for survival. This extended period of dependency presumably allows offspring to learn how to interact socially [Goss-Custard et al., 1972; McKenna, 1979; Poirier, 1977], because non-sociable individuals of a typically social species may be less likely to reproduce successfully. Thus, a female primate's most efficient investment per offspring would include gestation, lactation, and additional parental investment to promote integration of the offspring into the social group [Trivers, 1974: Wilson, 1975]. If all primate females lived the same number of years and followed this "maximum offspring-minimum investment" strategy successfully, all females would have the same number of successful offspring. There would then be no differential reproductive success among females as each would leave approximately the same number of genes in future generations. Although differential reproductive success among males has been emphasized in evolutionary interpretations of primate social and physical characteristics [e.g., Hall and DeVore, 1965; Hausfater, 1975; Sade, 19671, it has also been recognized that all female primates do not contribute equally to future generations [Dawkins, 1976; Wasser, 1983]. As a female's absolute maximum contribution is limited to the total number of reproductive years she lives divided by the minimum parental investment for a successful offspring, the question is to what extent females differ in their failure to reach a maximum potential. An individual's reproductive success is measured relative to other members of the population, and thus a successful individual is one who produces more successful offspring than her competitors, even though she may not fulfill her own potential. The data necessary for determining different reproductive success of

individual females involves lifetime birth and survivorship data for identifiable females, as well as data on the reproductive success of surviving offspring. These kinds of data are currently unavailable, although at several field sites records kept on individually marked animals may eventually produce this information. Present data on rhesus (Macaca mulatta) colonies at La Parguera and Cayo Santiago in Puerto Rico, on howlers (Alouatta palliata) at La Pacífica in Costa Rica, and on baboons (Papio cynocephalus) at Amboseli in Kenya, while encompassing 7-15 years, are still only suggestive of real differences in realized female reproduction. Ten-year studies from the sites in Puerto Rico indicate that infant survivorship improved with parity in most females, but that females of high rank had more offspring, had better infant survivorship, and had female offspring that produced offspring at an earlier age than did low-ranking females [Drickamer, 1974; Sade et al, 1976]. Interbirth intervals, which would affect total number of offspring produced in a lifetime, also varied between females and from year to year. Eight years of data on female howlers at La Pacífica indicate that interbirth intervals vary from 18 to 24 months, and that mid-ranking females may have the highest infant survivorship [Glander, 19801. Seven-year data on female baboons at Amboseli also indicate that females have variable interbirth intervals, that infant survivorship was greater for high-ranking females, and that low-ranking females had more male infants, while high-ranking females had more female infants [Altmann, 1980]. It is intriguing to consider theidea that females can adjust the sex ratio of offspring in response to external considerations. Facultative adjustment of sex ratios has been interpreted by Silk et al [1981] for captive Macaca radiata, and has been suggested for free-ranging galagos (Galago crassicadautus) [Clark, 1978]. The purpose of this paper is to reexamine our records of the howlers of La Pacífica and other groups in Guanacaste Province of Costa Rica to assess differences in successful reproduction of females, examine social and biological correlates of infant survivorship, and define causes of infant mortality. A female howler's first parturition is at about 4 years of age [Glander, 1980], and although longevity is not yet known, one female in the main study group is still producing viable offspring at about 20 years of age. Interbirth intervals for surviving infants average around 22 months, so a successful howler female would be expected to have a maximum of eight infants. If we can assess what qualities are associated with a successfully reproducing female howler, we can interpret how a female howler "should" behave or "should" adjust the timing of births to be successful in evolutionary terms. By using the term "should," we are not implying that the female makes these decisions consciously, simply that those individuals who behave in an evolutionarily advantageous manner will theoretically contribute more of their genes to future generations than animals that behave differently [Blaffer Hrdy, 1977, 1981; Dawkins, 1976;Trivers, 1972; Wilson, 1975]. Groups of howlers consist mostly of nonrelated adults and associated offspring [Clarke, 1982; Glander, 1980]. Both male and female juveniles emigrate [Clarke, 1982; Glander, 1980; Jones, 1980a], and many adults are known immigrants. Although males and females form almost linear hierarchies based on access to preferred food and preferred resting sites [Glander, 1975; Jones, 1978], the low degree of relatedness within groups precludes extensive kin analyses. Analysis of reproductive success based on matrilines or acquired maternal rank as in rhesus and baboons [Altmann, 1980; Drickamer, 1974; Sade et al., 1977; Trivers and Willard, 1973] are not appropriate for howlers, and we will be concerned instead with characteristics of successful individuals rather of kin groups. First we will examine biological characteristics-ie, the sex of the infant or the season in which it was born. Then we will examine social factors, such as whether infants have peers, relatives, competitors,or group stability. Finally, we will look at individual attributes of the mother-her rank, parity, age, and care of offspring.

Localización: Biblioteca OET: S8749.

Publicación no.: 071 **Population trends of the mantled howler groups of La Pacífica, Guanacaste, Costa Rica** *[Tendencias de la población en grupos de monos congo de La Pacífica, Guanacaste, Costa Rica]* / Clarke, Margaret R; Zucker, E.L; Scott, Norman Jackson, Jr. (Central Washington University. Department of Anthropology, Ellensburg, WA 98926, US <E-mail: clarkem@cwu.edu> <E-mail: zucker@loyno.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 11, no. 1, p. 79-88. 1986.
A complete survey of La Pacífica in Guanacaste Province, Costa Rica was conducted in July 1984 in order to determine whether the howler (Alouatta palliata) population had declined since 1972 as a result of deforestation. During the 6-day survey, 257 howlers were located, representing 16 different social groupings and nine solitary animals. The total number of howlers, the number and location of groups, and the age-sex composition were very similar to a 1972-1976 survey of the same population. Age-sex composition of La Pacífica howler groups was similar to those of another population of mantled howlers in Costa Rica and of populations in Mexico and in Panama, although La Pacífica had a higher mean number of adult females per group. There was no evidence to support the hypothesis that the La Pacífica howler population has declined in recent times.
Localización: Biblioteca OET: S8747.

Publicación no.: 072 **Lista anotada y observaciones de los mamíferos del Refugio Nacional de Vida Silvestre Tapantí, Costa Rica** / Morúa-Navarro, Ana Patricia. San José: Universidad de Costa Rica, 1986. 87 p. Tesis, Licenciatura en Biología, Universidad de Costa Rica, Escuela de Biología, San José (Costa Rica).
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-13107.pdf
El presente trabajo se llevó a cabo en el Refugio Nacional de Vida Silvestre Tapantí [actualmente Parque Nacional Tapantí Macizo de la Muerte], localizado en las estribaciones de la Cordillera de Talamanca, provincia de Cartago. Tiene una extensión de 5 200 ha, con elevaciones que van desde los 1 100 m hasta los 2 400 m. Se indican 79 especies de mamíferos para la zona, de los cuales 42 se observaron durante las caminatas o fueron capturados. Los restantes se reportan con base a colecciones de especímenes hechas en sitios aledaños y los informes de vecinos y personal del Refugio. Entre los mamíferos colectados se encuentra el segundo especimen para Costa Rica de Syntheosciurus brochus poasensis, extendiéndose su ámbito para el país. De los mamíferos observados, se hace énfasis en los felinos. De las seis especies que se reportan, dos se capturan y fotografían: Felis wiedi y Felis yaguaroundi. Se observó a cuatro Felis concolor. Se encontraron huellas de Felis pardalis. Se logró colectar un especimen de Felis tigrina, que presenta una fase melánica, la primera hallada en Costa Rica. La captura de tres especies de roedores pequeños, en cuatro hábitats diferentes: bosque primario, crecimiento secundario de 16 años, crecimiento secundario de 10 añosy una plantación de cardamomo, se efectuó con el fin de determinar su distribución y población. Scotinomys teguina se capturó en los cuatro hábitats, siendo la única especie para la plantación. Peromyscus nudipes en tres y Oryzomys devius únicamente en el bosque primario. El número de individuos por ha en cada hábitat para S. teguina fue de 22, 44, 12 y 3, respectivamente. Para P. nudipes fue de 50, 37 y 25. 0. devius fue de 16 individuos. Se determinó el ámbito de hogar, sin tomar en cuenta las recapturas de borde o en el mismo lugar de la primera captura. En la plantación no se determinó porque sólo un individuo se capturó, así como también en el bosque primario para las hembras de S. teguina, y P. nudipes, y 0. devius que no se recapturó. En el bosque primario los machos de P. nudipes poseían un ámbito de hogar de 450 m² y los de S. teguina de 400 m². En el crecimiento secundario de 16 años los machos de P. nudipes tenían un ámbito de hogar de

266 m² y las hembras de 200 m². En los machos de S. teguina fue de 266 m² y las hembras de 333 m². En el crecimiento secundario de 10 años, los machos de P. nudipes poseían 333 m² y las hembras 200 m². Se comparó la distribución altitudinal de los ordenes de mamíferos observados y esperados con los de otras seis localidades de Costa Rica: Estación Biológica La Selva, Península de Osa, provincia de Guanacaste, San Vito de Coto Brus, Bosque Nuboso de Monteverde y Cerro de la Muerte.
Localización: Biblioteca OET: NBINA-13107. Biblioteca Luis D. Tinoco: Tesis 9612.

Publicación no.: 073 **Chemical components of howler monkey (Alouatta palliata) food choice and kinetics of tannin binding with natural polymers** *[Componentes químicos del alimento escogido por los monos congo (Alouatta palliata) y cinética del enlace de los taninos con los polímeros naturales]* / Bilgener, M. (Ondokuz Mayis Universitesi. Fen-Edebiyat Fakültesi; Biyologi Bölümü, Samsun, TR). Boston, MA: Boston University, 1988. 343 p. Dissertation, Ph.D., Boston University, Boston, MA (USA).
Herbivore food choice is dependent upon the nutritional requirements of animals and the availability and quality of potential food plants. Many secondary compounds are recognized as feeding deterrents and may be toxic to some herbivores. Herbivores must take in nutrients while minimizing secondary compounds in their diet in order to survive and reproduce. Howler monkeys (Alouatta palliata) are the largest folivorous monkeys of the New World. Their foraging behavior has been extensively studied by K. E. Glander of Duke University in Guanacaste Province, Costa Rica. His research suggests that howlers discriminately feed on certain plants which are not necessarily the most abundant species. Eaten and uneaten plant samples collected in Costa Rica were analyzed for concentrations of total phenolics (astringency), condensed tannins, gallotannins, glucose, total proteins, fiber and lignin and also for their in vitro digestibility by pepsin and cellulase. Chemical analyses showed that the most important factor influencing howler monkey food choice is the protein content of food plants. Howlers require an average protein content of 15.6% (by dry weight) in their diet regardless of secondary compound content. However, when howlers feed on protein rich plants, they choose less astringent plants with lower tannin concentrations. Tannins act as feeding deterrents in two ways: by precipitating dietary proteins thus reducing their availability, and by inhibiting the activity of digestive enzymes. The kinetics of digestive enzyme inhibition (i.e. pepsin; a pancreatic protease; a bacterial protease; alfa-amylase; hemicellulase; and cellulase inhibition by tannins) was studied using substrate-enzyme tannin (inhibitor) systems. These experiments showed that the mode of enzyme inhibition by tannins is dependent on the chemical structure of the tannins used, pH values of the reaction mixture and also the presence of other food polymers (such as cellulose) in the media. The ecological roles of tannins and cellulose as herbivore deterrent compounds must be reassessed in the light of these results.
Localización: No disponible.

Publicación no.: 074 **Manipulation or honest advertising: the case of loud calls among the mantled howling monkey, Alouatta palliata** *[Manipulación o publicidad honesta: el caso de los fuertes gritos entre los monos congo, Alouatta palliata]* / Whitehead, J.M. (University of Florida. Institute of Advanced Study of Communication Processes, Gainesville, FL 32611, US). International Conference on Behavioral Ecology: Program & Abstracts , 1988. no. 2. (No abstract).
Localización: No disponible.

Publicación no.: 075 **Group size and foraging strategies of spider monkeys** *[Tamaño del grupo y estrategias de forrajeo en los monos colorado]* / Chapman, Colin A. (University of Florida. Department of

Zoology, 223 Bartram Hall, Gainesville, FL 32611, US <E-mail: cachapman@zoo.ufl.edu>). International Conference on Behavioral Ecology: Program & Abstracts , 1988. no. 2. (No abstract).
Localización: No disponible.

Publicación no.: 076 **The activity pattern, home range, daily movement and food habits of Saimiri oerstedi citrinellus in Manuel Antonio National Park, Costa Rica** *[Patrón de actividad, ámbito de hogar, movimiento diario y hábitos alimentarios de Saimiri oerstedi citrinellus en el Parque Nacional Manuel Antonio, Costa Rica]* / Notman, Evan. (Organization for Tropical Studies, POB 676-2050, San Pedro de Montes de Oca, CR <E-mail: evannotman@comcast.net>).
En: Journal of the Minnesota Academy of Science (ISSN 0026-539X), v. 53, no. 3, p. 32. 1988. *(Abstract only)*.
Localización: No disponible.

Publicación no.: 077 **Mating patterns in squirrel monkeys (Saimiri oerstedii) implications for seasonal sexual dimorphism** *[Implicaciones de los patrones de acoplamiento en los monos tití (Saimiri oerstedii) en cuanto al dimorfismo sexual estacional]* / Boinski, Sue. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu>).
En: Behavioral Ecology and Sociobiology (ISSN 0340-5443), v. 21, no. 1, p. 13-21. 1987.
The mating system of squirrel monkeys (Saimiri oerstedi) in Parque Nacional Corcovado, Costa Rica was studied and used to develop a model to interpret the evolution of seasonal sexual dimorphism in squirrel monkeys (Saimiri spp.). Adult male body weights in captivity and the wild may increase more than 20%, beginning approximately two months prior to and continuing through the annual two month breeding season. Female inter-troop transfer was common in the study population, but male troop residence was stable. Instances of aggression among adult males in the troop, even in sexual contexts, were rare. Reproductively mature males enlarged to varying degrees by the start of the breeding season and cooperated in mobbing females to olfactorily evaluate female estrous condition. Female mate preference corresponded to a ranking based on relative male enlargement. The largest male obtained 70% of the copulation observed in the 1984 breeding season. Little evidence exists that females typically mate with more than one male during the period of peak receptivity. Seasonal enlargement in males is suggested to be the result of both male intrasexual competition and female choice.
Localización: Biblioteca Luis D. Tinoco: 590B.

Publicación no.: 078 **Sound spectrographic analysis of vocalizations from the Costa Rican squirrel monkeys (Saimiri oerstedii)** *[Análisis espectrográfico del sonido de las vocalizaciones de los monos tití costarricenses (Saimiri oerstedii)]* / Boinski, Sue; Newman, J.D. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 12, no. 3, p. 331. 1987.
(Abstract only) This study was an initial attempt to analyze quantitatively vocalizations from the Central American squirrel monkey, Saimiri oerstedii. Vocalizations were recorded in the wild at Parque Nacional Corcovado (S. o. oerstedii), and at Parque Nacional Manuel Antonio (S. o. citrinellus). Additional recordings were made from captive individuals of both subspecies. The acoustic structure of analyzed vocalizations resembled most closely the vocal repertoire of South American Saimiri with the gothic arch" phenotype, in agreement with the prominent gothic arch facial pattern of S. oerstedii. New structural subtypes of the twitter ("dog-tooth twitter") and the chuck ("bent-mast chuck") not

previously found in an extensive library of South American Saimiri sound spectrograms were documented. Calls used by older infants when socially separated and when approaching an adult male were essentially identical (sharing typical "isolation peep" structural features) but had significantly different duration and peak frequency. Analysis of recordings from an escaped captive female calling outside her compound over a 3-day period indicated the presence of numerous structural intermediates between typical chuck, twitter, and peep calls.
Localización: Biblioteca OET: S9876.

Publicación no.: 079 **Sex differences in the foraging behavior of squirrel monkeys in a seasonal Costa Rican habitat** *[Diferencias entre sexos en el comportamiento de forrajeo de los monos tití en un hábitat estacional]* / Boinski, Sue. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 12, no. 3, p. 331. 1987.
(Abstract only). The effects of sex and seasonal changes in food abundance on foraging behavior were studied in squirrel monkeys (Saimiri oerstedii) in Costa Rica over an eleven-month period. Females searched for and ate food at significantly greater frequencies than did males throughout the study. The frequency of the specific foraging techniques used occasionally differed significantly within seasons, but not across the study period. Few differences were found in the foraging behaviors of non-reproductive sexually mature females compared to females that were pregnant or lactating. The major exception was that during the month following parturition reproductive females foraged for flowers and fruits more frequently than did non-reproductive females. The reduction of time spent by males in foraging activities gives them more time for other activities, especially anti-predator vigilance. Foraging techniques and the proportions of different food types in the diet changed seasonally. Foraging for arthropods was most frequent in the season when arthropod abundance was lowest; resulting in the amount of time spent eating arthropods to vary less across the seasons. Fruits and flowers were not eaten in a direct relationship to availability, but were used more than expected relative to availability, when arthropod abundance was reduced. Individuals were more dispersed when foraging compared to other activities. Overall, there was little evidence of any direct foraging benefits for a squirrel monkey from being social.
Localización: Biblioteca OET: S9875.

Publicación no.: 080 **Vocally mediated reciprocity between neighbouring groups of mantled howling monkeys, Alouatta palliata palliata** *[Mediación vocal recíproca entre grupos vecinos de monos congo, Alouatta palliata palliata]* / Whitehead, J.M. (University of Florida. Institute of Advanced Study of Communication Processes, Gainesville, FL 32611, US).
En: Animal Behaviour (ISSN 0003-3472), v. 35, no. 6, p. 1615-1627. 1987.
The hypothesis that acoustic communication mediates spacing between groups of mantled howling monkeys, Alouatta palliata palliata, was tested experimentally in a Costa Rican forest. Previous work showed that reverberation increases with the distance sound propagates within the forest and thus could provide distance cues to monkeys. Two series of barks were therefore played back to test groups: the first series simulated the calls of a male withdrawing from the test group; the second series simulated the calls of an approaching male. In response, males approached the sounds of an apparently approaching male and withdrew from an apparently withdrawing male. Thus reverberation provided cues about distance to the howling monkeys. The direction in which the monkeys moved depended on

the direction of movement simulated by the call sequence. Furthermore, the pattern of reciprocated movements, which exemplifies a form of the evolutionarily stable strategy `Tit-For-Tat', helps to regulate relations between neighbouring males and hence spacing between neighbouring groups. Localización: Biblioteca Luis D. Tinoco: 590A.

Publicación no.: 081 **Patterns of male-female spatial relationships in a multi-male group of howling monkeys (Alouatta palliata) in Costa Rica** *[Patrones de relaciones espaciales machos-hembras en un grupo de múltiples machos de monos congo (Alouatta palliata) en Costa Rica]* / Zucker, E.L; Clarke, Margaret R. (Loyola University. Department of Psychology, New Orleans, LA 70118, US <E-mail: zucker@loyno.edu> <E-mail: larkem@cwu.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 12, no. 3, p. 379-380. 1987.
(Abstract only). Male-female spatial relationships were studied in a 4-male group of mantled howling monkeys living in an upland habitat at La Pacífica Ecological Centre, Guanacaste Province, Costa Rica. Data were collected via focal sampling of the males during July and August, 1985 (100.7 hours) and August, 1986 (40.7 hours). During this period, total group size was between 19 and 23 individuals, including 9-10 adult females; the four males could be ranked hierarchically based on agonistic outcomes. Each of the four males showed different spatial patterns. The alpha and beta males spent more time than expected within 5 m of at least one adult female (p .001), and these two males were the only ones to be in passive contact with an adult female to any appreciable extent. The beta male spent significantly more time within 1 m and 3 m of females than did the other males (p .001 for both distances), whereas the alpha male spent significantly more time with females at distances between 3 and 5 m (p .001). The gamma male spent the largest proportion of his time near females at distances between 5 and 15 m, and for the omega male, total time with females increased as distances to the females increased. Multiple females (up to 6) were most likely found near the alpha male. In this multi-male group, males' patterns of spatial relationships with adult females were associated with relative status, although no males were excluded from proximity to females.
Localización: Biblioteca OET: S9879.

Publicación no.: 082 **Long-distance vocalizations and spacing in mantled howling monkeys Alouatta palliata** *[Vocalizaciones a larga distancia y espaciamiento en monos congo Alouatta palliata]* / Whitehead, J.M. (University of Florida. Institute of Advanced Study of Communication Processes, Gainesville, FL 32611, US). Chapel Hill, N.C.: University of North Carolina, 1985. 167 p. Dissertation, Ph.D, University of North Carolina at Chapel Hill (USA).
The hypothesis that acoustic communication mediates spacing in some arboreal primates was tested experimentally with groups of mantled howling monkeys, Alouatta palliata, in western Costa Rica, Central America. Previous studies of sound transmission within forests have shown that reverberation produces predictable changes in sounds transmitted over long distances. The effects of reverberation on one of the howler's long distance calls, the bark, were tested in two ways. First, artificially generated tones, similar in duration and pitch to barks, were broadcast and recorded at canopy level within the tropical forest. Quantitative evaluation of the resultant reverberation revealed a significant increase between 50 and 100 m from the source. Thus barks are good candidates for calls that provide cues about distance to neighbors. Second, to assess the effect of reverberated calls on the behavior of howling monkeys, two series of barks were played back to test groups. The first series consisted of clear barks followed by equivalent reverberated barks, played at the same location and intensity; this series

simulated the calls of a male withdrawing from the test group. The second series presented the same tapes in the opposite sequence and simulated the calls of an approaching male. The two series of playbacks produce strikingly different behaviors: male subjects approached the sounds of an apparently approaching male and withdrew from the sounds of an apparently withdrawing male. I conclude that properties of sound transmission ensure honest communication of information about distance and that reciprocity plays a role in regulating spatial relations between neighboring monkeys. To assess the effects of another loud call, I played back roars. The response of test groups depended on the location of the simulated intruder: groups rapidly approached simulated intruders in intensively used parts of their range; they did not move or withdrew from playbacks originating in seldom used parts of the range. Not all groups responded in the same manner. I conclude that groups of howling monkeys normally show a site-dependent spacing system and that the mechanisms of spacing permit adjustment in the use of forests to local conditions.
Localización: Biblioteca OET: NBINA-8303.

Publicación no.: 083 **Primate ecology and conservation** *[Ecología y conservación de primates]* / Else, J.G (ed.); Lee, P.C (ed.). International Primatological Society Congress. 10th. v. 2, Nairobi KY1984. Cambridge: Cambridge University Press, 1986. 393 p. ISBN: 0521324513. (No abstract).
Localización: Biblioteca del BIODOC.

Publicación no.: 084 **Demographic trends in the Alouatta palliata and Cebus capucinus populations of Santa Rosa National Park, Costa Rica** *[Tendencias demográficas en las poblaciones de Alouatta palliata y Cebus capucinus del Parque Nacional Santa Rosa, Costa Rica]* / Fedigan, Linda M. (University of Calgary. Department of Anthropology, 2500 University Drive N.W., Calgary, AB T2N 1N4, CA <E-mail: fedigan@ucalgary.ca>). International Primatological Society Congress. 10th. v. 2, Nairobi KY1984.
En: Primate ecology and conservation. Else, J.G; Lee; P.C. (eds.). Cambridge: Cambridge University Press, 1986. p. 285-294. ISBN: 0521324513.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-4042.pdf
(No abstract).
Localización: Biblioteca OET: NBINA-4042. Biblioteca del BIODOC.

Publicación no.: 085 **Male-male interactions in a group of mantled howling monkeys (Alouatta palliata) in Costa Rica** *[Interacciones machos-machos en un grupo de monos congo (Alouatta palliata) en Costa Rica]* / Zucker, E.L; Clarke, Margaret R. (Loyola University. Department of Psychology, New Orleans, LA 70118, US <E-mail: zucker@loyno.edu> <E-mail: larkem@cwu.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 10, no. 4, p. 443. 1986.
(Abstract only). The organization of adult male-male social behavior was studied in a 23-member, 4-male group of mantled howling monkeys living in an upland habitat at La Pacífica Ecological Centre, Guanacaste Province, Costa Rica. One hundred twenty-two hours of focal animal data were collected during July and August, 1985. Male-male agonistic interactions were infrequent (.2/hr), and supplantations were the most frequent kind of agonistic interaction. Outcomes of all dyadic agonistic interactions were 88% linear; the observed reversals of agonistic outcomes involved the beta male. Each male was involved in at least 2 "greetings" with another male, which included hugging, mutual genital inspections, and vocalizations by both participants and other group members. The alpha male initiated 2/3 of the 12 greetings observed, and overall, the third-ranking male was approached in 3/4 of these

interactions. A male was within sight of another male 25.7% of the time, and was within 5 m of another male 12% of the time. The beta male spent the largest proportion of time in proximity (within 5 m) to other males (18%), and significantly more time near the alpha male than near the other two males (p .001). However, the social preferences of other males, assessed by the amount of time in proximity, were not consistently rank-dependent. Comparisons of these data with the data available in the literature suggest that as the number of central males in a group increases, so does male sociality.
Localización: Biblioteca OET: S9886. NBINA-15030.

Publicación no.: 086 **The foraging patterns and diet composition of mantled howler monkeys (Alouatta palliata) during the dry season in dry tropical forest** *[Patrones de forrajeo y composición de la dieta de monos congo (Alouatta palliata) durante la estación seca en el bosque seco tropical]* / Skaggs, S.C.
En: Journal of the Minnesota Academy of Science (ISSN 0026-539X), v. 51, no. 3, p. 17. 1985.
(Abstract only). The dry season is a time of reduced leaf abundance in a dry tropical forest. This study reports the patterns of resource utilization by a howler monkey troop during twelve days of the dry season. The howler diet consisted of 64 individual trees comprising 12 species from 8 families. Diet composition for the total study period, based on time feeding per plant part type, consisted of 30.6% leaves, 48.6% flowers, and 21.9% fruit. Diet varied significantly over time (x^2 = 226.71, p . 001 d.f. = 4). Home range size measured approximately 28 h. and mean daily distance traveled was 621 m + 292 m; S.D., N = 12. Feed trees in the home range had a clumped distribution. Maps of daily foraging patterns show areas of resource use connected by areas that were not used extensively for fee ding. Repeated use of the same forest pathways was evident. This may serve as a means of monitoring the changing resources.
Localización: No disponible.

Publicación no.: 087 **Site-dependent spacing in mantled howling monkeys** *[Espaciamiento en monos congo dependiente del espacio]* / Whitehead, J.M. (University of Florida. Institute of Advanced Study of Communication Processes, Gainesville, FL 32611, US).
En: American Journal of Primatology (ISSN 0275-2565), v. 10, no. 4, p. 439-440. 1986.
[Abstract only]. The hypothesis that loud calls mediate intergroup spacing among primates was tested by means of canopy-level playbacks of roar choruses to groups of mantled howling monkeys (Alouatta palliata) in western Costa Rica. Playbacks of roars evoke different responses depending on the location of the speaker; groups increase their rate of calling and approach sounds from often-used patches of forest; in contrast they call less than previously and do not approach a speaker located in a seldom-used area. Howlers are one of a number of species of vertebrates employing vocalizations to mediate site-dependent spacing. Additional evidence supports the hypothesis that site¬dependent spacing in howlers depends on the defendability of the particular patch of forest, the cost of movement, the rates of resource renewal, as well as on the use of other long-distance vocalizations by mobile male callers. This study was supported by grants from the National Science Foundation (BNS 80-13053), the R.J. Reynolds Research Foundation, and assistance from the Organization for Tropical Studies.

Publicación no.: 088 **Reproductive patterns in mantled howler monkeys: estrus, mate choice and copulation** *[Patrones reproductivos en monos congo: ciclo estral, escogencia de la pareja y copulación]* / Jones, Clara B. (Fayetteville State University. Department of Psychology, 1200 Murchison Road, Fayetteville, NC 28301-4298, US <E-mail: cbjones@uncfsu.edu>).

En: Primates (ISSN 0032-8332), v. 26, no. 2, p. 130-142. 1985.
The present study was undertaken to evaluate non-random mating patterns in two groups of mantled howler monkeys in two tropical dry forest habitats. Sexual dimorphism, female estrus stage, male dominance rank, sexual solicitations and copulations were assessed. Males are significantly larger than females, but female weight varies more than male weight. The length of female estrus cycles is comparable in both habitats, but females in the more strongly seasonal habitat demonstrate greater estrus synchrony relative to their numbers. Males solicit potential mates more frequently than females, a pattern explained by the relatively high rate of sexual solicitation by high-ranking males. Females in "peak" estrus solicit "alpha" males, while females in other stages of estrus solicit males equally by rank. Intersexual aggression occurs rarely, and "forced copulations" are attempted but, apparently, are unsuccessful. Sexual solicitations by "alpha" males and "peak" estrus females are most likely to lead to copulation, and "alpha" males are more likely to copulate than "gamma" males. In general, latencies from first solicitation to copulation are expensive in time, especially for high-ranking males. Estimated annual reproduction success favors high-ranking males, and results indicate that male and female mating behavior is mutually coordinated and controlled.
Localización: Biblioteca OET: S10053.

Publicación no.: 089 **Status of the squirrel monkey Saimiri oerstedii in Costa Rica** *[Estado del mono tití Saimiri oerstedii en Costa Rica]* / Boinski, Sue. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu> <E-mail: aimee.campbell@mailcity.com>).
En: Primate Conservation (ISSN 0898-6207), no. 6, p. 15-16. 1985.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-15271.pdf
(No abstract).
Localización: Biblioteca OET: NBINA-15271.

Publicación no.: 090 **White-faced capuchin (Cebus capucinus) predation on a nestling coati (Nasua narica)** *[Depredación de los monos carablanca (Cebus capucinus) sobre las crías del pizote (Nasua narica)]* / Newcomer, M.W; De Farcy, D.D. (San José State University. Department of Biological Sciences, San José, CA 95192-0100, US).
En: Journal of Mammalogy (ISSN 0022-2372), v. 66, no. 1, p. 185-186. 1985.
In a recent review, Butynski (1982) considered vertebrate predation by primates to be an uncommon behavior, but not surprising "since most primates regularly search for, capture and eat invertebrates." Although the white-faced capuchin (Cebus capucinus) is omnivorous (Freese, 1977; Hladik and Hladik, 1969; Oppenheimer, 1968), Enders (1935) considered it to be more carnivorous than the other monkeys of its region, capturing such animal prey as insects, lizards, birds' eggs and nestlings, and small vertebrates such as nestling squirrels. Hladik and Hladik (1969) and Oppenheimer (1982) determined that about 20% of the diet of white-faced capuchins in Panama consists of animal matter (primarily insects). We report here a case of predation by a white-faced capuchin on a nestling coati (Nasua narica) in Santa Rosa National Park, Guanacaste Province, Costa Rica. For a general description of the area see Freese (1978). At 1500 h on 9 April 1983, we approached and followed a small troop (ca. 10) of capuchins along the Sendero Natural (a 1-km nature trail), after hearing vocalizations of monkeys and the barking of an adult coati. Four capuchins were running along a horizontal branch of a large dead tree. The lead monkey was carrying a nestling coati in its hand while the other three monkeys appeared

to be in pursuit; below them, in the crotch of the same tree, stood an adult coati. Adult capuchins are similar in weight to adult female coatis, being about 3 kg and 3.7 kg, respectively (Freese, 1983; Russell, 1982). After a few seconds, the capuchin dropped the nestling, which landed about 3 m from the base of the tree. The young coati was still alive and did not appear to have any visible damage. It was about 15 cm in length (head and body), and the eyes were as yet unopened, indicating its age at probably less than one week (Kaufmann, 1962). The adult coati was about 6 m above us and barking repeatedly so we backed away. Immediately, two capuchins descended to the ground, and the larger of the two carried the nestling back into the tree. This monkey then moved into an adjacent tree, followed by the other monkey. The larger capuchin began to feed on the nestling, while its smaller companion remained in attendance less than 3 m away. The smaller monkey paced back and forth near the feeding monkey, observing it, but at no time did it beg, vocalize, or attempt to feed. The remainder of the capuchin troop stayed in the dead tree and paid little attention to these two. The adult coati also remained in the dead tree, barking frequently in the direction of the feeding capuchin. We saw another nestling coati fall to the ground at the base of the dead tree. The adult coati turned around in time to catch sight of another capuchin rapidly backing away from the crotch of the tree. This monkey had apparently tried to capture another nestling while the adult coati's attention was elsewhere. Coati nests are often flimsy platforms built in the crotch of a tree (Kaufmann, 1962). The adult coati quickly descended to the ground, retrieved its young, and returned it to the crotch of the tree. We did not see this nestling again. The capuchin in the adjacent tree continued to feed on the first nestling coati. About 5 min later, the capuchin dropped the nestling coati after being startled by the passage of a small raptor. The two capuchins did not attempt to recover the carcass but instead moved in the direction of the troop, which was moving away. The nestling's carcass had been opened along the ventral side, and all of the viscera had been eaten except for the intestines. The skin and flesh of the rest of the body had not been eaten. Agonistic behaviors have been reported between white-faced capuchins and coatis (Oppenheimer, 1968, 1982), and Kaufmann (1962) considered them to be competitors, but only cats, large snakes, tayras (Eira barbara), and adult male coatis have been reported as predators of coatis in the tropics (Janzen, 1970; Kaufmann, 1983). Adult female and subadult coatis form bands which, through combined vigilance, decrease the opportunity for predation on the young (Kaufmann, 1962; Russell, 1982). Female coatis separate from the band to give birth and do not rejoin the band until the young are able to keep up with the band's movements. Our observations were made when the coati young were most vulnerable to predation and near the end of the 5-month dry season in Guanacaste Province, a time when insect abundance and diversity are at a low (Janzen, 1973). Small vertebrates, such as nestling coatis, could serve as an alternate source of animal prey during this time.
Localización: Biblioteca OET: J. LC.

Publicación no.: 091 **True anting by the capuchin, Cebus capucinus** *[Verdadera cacería de hormigas por parte del mono carablanca, Cebus capucinus]* / Longino, John T. (The Evergreen State College, Olympia, WA 98505, US <E-mail: longinoj@evergreen.edu>).
En: Primates (ISSN 0032-8332), v. 25, no. 2, p. 243-245. 1984.
I observed capuchins (Cebus capucinus) putting ants (Camponotus sericeiventris) in their fur at Corcovado National Park, Costa Rica. The behavior was similar to "anting" in passerine birds. The literature on anting in birds is reviewed and compared with the relevant references on self-annointment behavior in mammals.
Localización: Biblioteca OET: S9769.

Publicación no.: 092 **Infant-killing and infant disappearance following male takeovers in a group of free-ranging howling monkeys (Alouatta palliata) in Costa Rica** *[Infanticidio y desaparición de las crías luego de la toma del mando de un nuevo macho en un grupo de monos congo en libertad (Alouatta palliata) en Costa Rica]* / Clarke, Margaret R. (Central Washington University. Department of Anthropology, Ellensburg, WA 98926, US <E-mail: clarkem@cwu.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 5, no. 3, p. 241-247. 1983.
Events surrounding an infant-killing following a male takeover are described for a group of free-ranging howling monkeys in Costa Rica, and additional evidence is presented for infant disappearances following three previous male takeovers. Infant-killing is best interpreted in this context as a male reproductive strategy, as infant-killing did effectively shorten the interbirth interval, and only infants of high-ranking females died or disappeared following a male takeover. Due to the exclusive access of the dominant male to high-ranking estrous females, an incoming male who had lived as a peripheral male before taking over the group would run little risk of eliminating his own offspring in the course of killing the offspring of high-ranking females.
Localización: Biblioteca OET: NBINA-6705.

Publicación no.: 093 **A field manipulation of spatial relations among male mantled howler monkeys** *[Manipulación en el campo de las relaciones espaciales entre machos de monos congo]* / Jones, Clara B. (Fayetteville State University. Department of Psychology, 1200 Murchison Road, Fayetteville, NC 28301-4298, US <E-mail: cbjones@uncfsu.edu>).
En: Primates (ISSN 0032-8332), v. 23, no. 1, p. 130-134. 1982.
To test the hypothesis that dominance rank is reflected in spatial relationships and rates of vocalization, a field manipulation was performed removing the third-ranked male from a three-male group of mantled howler monkeys, significantly decreasing the interindividual distance (IID) between the first- and second-ranked males and increasing the rates of vocalization (VR) between them. After five days, the third-ranked male returned to his group, and IID's and VR's returned to premanipulation levels. During the manipulation phase, the second-ranked male was able to achieve closer proximity to females than during the premanipulation or postmanipulation periods, suggesting that he found it less difficult to control relations with the first-ranked male when the third-ranked male was absent. All statistically significant results were a function of behavioral changes by the second-ranked male. The study's findings may reflect the importance of male coalitions in the regulation of male-male competition and the relationship between spatial and acoustic variables and sexual selection.
Localización: Biblioteca OET: S9802.

Publicación no.: 094 **Historia natural de los monos de Costa Rica** / López-Pizarro, Eduardo. San José: Ministerio de Agricultura y Ganadería / Dirección General de Vida Silvestre, 1985. 19 p. (No abstract).
Localización: Biblioteca OET: NBINA-15313. Biblioteca Museo Nacional: QL737.P925 L66. Biblioteca Venezuela (IICA).

Publicación no.: 095 **Hábitat potencial y su aplicabilidad en la conservación de especies faunísticas en Costa Rica** / Vaughan-Dickhaut, Christopher. (University of Wisconsin-Madison. Department of Wildlife Ecology, Madison, WI 53706, US <E-mail: cvaughan@facstaff.wisc.edu>). Contribuciones de la Escuela

de Ciencias Ambientales al Primer Congreso Nacional Sobre Conservación de Fauna Silvestre, San José CRJulio 14-19, 1980.
En: Vaughan-Dickhaut, Christopher; McCoy-Colton, Michael B. (eds.). Heredia: Universidad Nacional, 1981. p. 21-38. (Serie de Ordenación de Fauna Silvestre; no. 3).
Con base en la literatura se ha hecho un cálculo de la habitat potencial de especies faunísticas consideradas en vías de extinción en el país y por medio de una encuesta nacional con cazadores y campesinos se ha tratado de comprobar la existencia de estas especies en su hábitat potencial boscosa propuesta. Como resultado se han dividido las especies estudiadas en dos grandes grupos: aquellas que dependen mayormente de hábitats boscosos no alterados para su sobrevivencia y aquellas que se encuentran tanto en hábitats de grandes extensiones (80% o, mayor) como en áreas de bosque secundario y bosques aislados, o sea, en hábitats alterados. Para todas estas especies se puede calcular la cantidad de bosque primario existente en los años 1950, 1961 y 1977 y la tasa de destrucción de hábitat entre estos períodos. Así se determina la cantidad de hábitat boscoso existente en el año 1977 para cada especie y se extrapoló la fecha de eliminación de hábitat boscoso, utilizando para ello una tasa actual de deforestación. Además se determina en términos generales la cantidad de hábitat potencial bajo protección en el año 1977. Al estimarse el hábitat actual y la tasa de pérdida del hábitat de una especie faunística llegamos en forma general al objetivo de este trabajo, cual es el de cuantificar el estado de hábitat potencial de algunas de las especies faunísticas nacionales consideradas en vías de extinción. Desde el punto de vista de hábitat, se llega a conocer en forma general el estado de la especie. Se nota que existen especies que se encuentran casi exclusivamente en áreas boscosas de 80% o mayor cobertura boscosa y otras que se adaptan a áreas alteradas aunque además viven en áreas de grandes extensiones boscosas. Este segundo grupo de especies es más adaptable a cambios de hábitat y aparentemente en menos peligro de extinción por esta razón. Además el hábitat tiene relación directa con la población potencial de la especie, tomando en cuenta que por razones de presión de cacería y factores naturales (enfermedades y depredación, disponibilidad de comida), las densidades pueden ser más altas o bajas entre áreas semejantes, o sea, el hábitat potencial es posiblemente un mejor índice del estado de la especie que el índice de densidad. Para poder llegar a directrices generales de manejo de una especie, y contando con el mapa de hábitat potencial, el primer paso es recomendar protección de la superficie más grande posible de su hábitat. Sin embargo, cada especie tendrá sus necesidades propias y será necesario profundizar en cada caso para determinarlas densidades de las poblaciones en diferentes tipos de hábitat y la ecología de cada especie, con la finalidad de llegar a un manejo racional. Para poder visualizarel proceso descrito en este trabajo, a continuación se presenta un diagrama de flujo que pretende guiar los pasos y la secuencia que se deben tomar en cuenta para llegar a manejar una especie faunística. Funciona en especial para especies en vías de extinción cuyo problema principal es la destrucción o alteración de hábitat (ver figura 5). Después de realizar las etapas 1,2; 3 y 5 uno debe decidir si es necesario estimar la densidad de la población en la zona o zonas donde la manejará. Con respecto a esto, Caughley (1) presenta una excelente discusión acerca de las razones que ayudan a guiar esta decisión. Si se decide hacer estimaciones de densidades, hay una variedad de métodos que se puede utilizar (1). Este tipo de información puede servir para comparar el tamaño de la población de un año a otro o entre diferentes regiones para un mismo año. Si se decide no estimar el tamaño de la población, se procede al paso 7 donde se estudia la ecología de la especie, lo que debe incluir: comportamiento, movimientos, territorio, hábitos alimentarios, tasas de natalidad y mortalidad, etc. En el mejor de los casos se puede recopilar mucha de esta información antes de pasar al número 8 el cual contempla esbozar los principios de manejo de la especie y probar estos principios durante un período.

A la vez es importante en esta etapa hacer estimaciones de densidad para compararlos mientras que uno practica el manejo de la especie. En. síntesis, para poder definir el estado de una especie considerada en "vías de extinción" es necesario cuantificar su situación en cuanto al tamaño de su población y/o su habitat en el espacio y tiempo y/o los otros factores que la amenazan. El método que fue empleado con especies faunísticas en Costa Rica, suministra datos acerca de la existencia, cantidad, distribución y utilización de hábitat por cada especie estudiada. El modelo que se presenta trata de mostrar la secuencia lógica a emplear en el manejo de una especie faunística en vías de extinción.
Localización: Biblioteca OET: AD 151.

Publicación no.: 096 **Karyotypes of squirrel monkeys (Saimiri sciureus) from different geographic regions** *[Cariotiopos de monos tití (Saimiri sciures) de diferentes regiones geográficas]* / Jones, T.C; Thorington, R.W; Hu, M.M; Adams, E; Cooper, R.W.
En: American Journal of Physical Anthropology (ISSN 0092-9483), v. 38, no. 2, p. 269-277. 1973.
Three different karyotypes have been found so far among Saimiri originating from five different South American localities. All animals examined have the same diploid number (44) of chromosomes but the number of acrocentric and submetacentric chromosomes varies, presumably as a result of pericentric inversions. Saimiri originating from Iquitos, Peru, consistently have ten acrocentric chromosomes; animals originating from Leticia, Colombia, have 12 acrocentric chromosomes. Hybrids produced in our laboratory have the expected 11 acrocentrics and one unpaired submetacentric chromosome. Animals originating from Guyana have fourteen acrocentric chromosomes and the expected two fewer submetacentric chromosomes. Squirrel monkeys from Costa Rica, Panama, and Pucallpa, Peru, studied to this date conform to the Iquitos type with ten acrocentric chromosomes. These findings point to genetic differences which may result in variable responses to laboratory situations. The evolutionary factors involved in this rearrangement of chromosomes and possible influences on phenotypes are subjects of interest for future study. The importance of identifying the source of squirrel monkeys used in biomedical research is apparent if results from different laboratories are to be repeated or compared.
Localización: Biblioteca OET: S9708.

Publicación no.: 097 **The systematic implications of nonmetric cranial variation in five taxa of spider monkeys Ateles** *[Las implicaciones sistemáticas de la variación craneal no métrica en cinco taxones de monos colorados Ateles]* / Froehlich, J.W.
En: American Journal of Physical Anthropology (ISSN 0092-9483), v. 41, no. 3, p. 480. 1974.
(Abstract only). The non-metric and metric cranial variation among g 200 spider monkeys has been investigated. These specimens were studied during a postdoctoral fellowship at the Smithsonian Institution and at the Museum of Comparative Zoology and the American Museum of Natural History. The skulls represented Ateles geoffroyi ornatus from Costa Rica, A. g. panamensis from Panama, A. fusciceps from Panama and Colombia, A. b. belzebuth hybridus from Colombia, and A. b. belzebuth from Venezuela. The nomenclature is that of Kellogg and Goldman ('44). Since there are many unique non-metric cranial variants in spider monkeys, while other traits used in the past are invariant, a new set of variables was developed, and are here described. In order to provide a baseline for evaluating the taxonomic relevance of these non-metric characters, a multiple discriminant analysis was made of the metric data. The results of non-metric, multidimensional scaling and other analyses of non-metric data are compared with the metric discriminants; and the systematic implications of each set of data are discussed.

Publicación no.: 098 **Dermatoglyphic variation in Central American howler monkeys (Alouatta palliata)** *[Variación de los dermatoglifos en monos congo centroamericanos (Alouatta palliata)]* / Froehlich, J.W; Froehlich, P.H; Malmgren, L.A; Scott, Norman Jackson, Jr.
En: American Journal of Physical Anthropology (ISSN 0092-9483), v. 44, no. 1, p. 179. 1976.
(Abstract only). Volar, plantar, and ventral tail impressions were collected from 90 wild-captured howler monkeys (Alouatta palliata) on Barro Colorado Island, Panama Canal Zone, and at La Pacífica, Costa Rica. The animals were sampled from several contiguous troops in each location. The dermal ridge prints were satisfactorily made with a silicone rubber compound. Specific analysis techniques were developed for maximally measuring howler monkey dermatoglyphic variation. Several significant differences were found in the comparisons between Panamanian and Costa Ricen populations. This heterogeneity in the polygenic dermal ridges contrasted markedly with the relative homogeneity seen in the single locus, serological traits of the same monkeys. The microevolutionary and systematic implications of these results are discussed.
Localización: Biblioteca OET: S9883.

Publicación no.: 099 **Enzyme studies and the genetic fine structure of howler monkey populations** *[Estudios enzimáticos y la estructura genética fina de las poblaciones de monos congo]* / Malmgren, L.A; Brush, Alan H.
En: American Zoologist (ISSN 0003-1569), v. 14, no. 4, p. 1275. 1974. (No abstract).
Localización: No disponible.

Publicación no.: 100 **Baby-sitting infant sharing and adoptive behavior in mantled howling monkeys** *[Niñeras que comparten al infante y comportamiento adoptivo en los monos congo]* / Glander, Kenneth E. (Duke University Primate Center, 3705-B Erwin Rd, Durham, N.C. 27706, US <E-mail: glander@duke.edu>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), v. 41, no. 3, p. 482. 1974.
(Abstract only). During a 14 month field study of free-ranging howlers (Alouatta palliata) in Costa Rica, observations of aunt behavior, attempted infant adoption, and paternal care were recorded. Golden brown infants were the center of attention of all group members. Females without infants often followed new mothers and attempted to "take" the infant by "presenting their necks" to the infant and giving a characteristic vocalization. The mother sometimes sat passively during the attempt or she resisted by turning her back and moving away. Females were noted carrying another infant in addition to their own. Siblings also carried infants, juvenile females showing more interest than juvenile males. Adult males frequently investigated the infants and often the infants transferred to the males during this time. Usually the time away from the mother were less than five minutes and the mother remained nearby. On several occasions after infant transfer had occurred the mother immediately left the area, leaving the infant with a "baby-sitter" for as long as 30 minutes. In most cases the "baby-sitter" was either an adult or juvenile male. In one instance several members of my study group carried an infant from another group.
Localización: Biblioteca OET: S9887.

Publicación no.: 101 **Aspects of male behavior in mantled howlers Alouatta palliata in Costa Rica** *[Aspectos del comportamiento del macho en monos congo Alouatta palliata in Costa Rica]* / Clarke,

Margaret R. (Central Washington University. Department of Anthropology, Ellensburg, WA 98926, US <E-mail: clarkem@cwu.edu>). Annual meeting of the American Association of Physical Anthropologists. 50th, Detroit, MI, US. April 22-25, 1981.
En: American Journal of Physical Anthropology (ISSN 0002-9483), v. 54, no. 2, p. 209. 1981.
(Abstract only). Adult males in eight different groups were observed as part of a 21-month field study on the behavior of free-ranging howling monkeys in Guanacaste province, Costa Rica. Most groups were multimale groups and the average sex-ratio was 1 to 3.C. Males fell into three categories: solitary, peripheral, or group male. Solitary males were young or prime males who had left their natal group and were not tolerated near a group by group member males. Peripheral males spent some time with one or more groups and appeared to be assessing chances for joining a group. Group males were complete social members of their groups and spent their time within its home range. Males within a group form a linear hierarchy with the most recent immigrant most dominant. The dominant male has access to estrous females and had apparently exclusive access to the highest ranking female during 41 of 49 observed estrous cycles. Males can only join a group by taking over and becoming the dominant male and there is strong evidence that the takeover is accompanied by infanticide. The occurence of infanticide has not been previously reported for this species.
Localización: Biblioteca OET: S9885.

Publicación no.: 102 **Sex ratio and differential mortality in howling monkeys Alouatta palliata** *[Proporción de sexos y diferente mortalidad en monos congo (Alouatta palliata)]* / Glander, Kenneth E; Clarke, Margaret R. (Duke University Primate Center, 3705-B Erwin Rd, Durham, N.C. 27706, US <E-mail: glander@duke.edu> <E-mail: clarkem@cwu.edu>). Annual meeting of the American Association of Physical Anthropologists. 50th, Detroit, MI, US. April 22-25, 1981.
En: American Journal of Physical Anthropology (ISSN 0002-9483), v. 54, no. 2, p. 225. 1981.
(Abstract only). Observations on a group of free-ranging howling monkeys (Alouatta palliata) in Costa Rica since 1970 reveal that of 39 births, 20 were males, 16 were females, and 3 were unknown. This sex ratio is not significantly different from 1:1 (M:F). The adult socionomic sex ratio for this group, however, is closer to 1:3. Although part of this disparity can be accounted for by the existence of solitary males, censuses also disclosed solitary females and -the overall adult ratio is still skewed towards females. Our records indicate that there is differential mortality between males and females before they are weaned at about 15 months of age. Sixty percent of the males died before being weaned. All of the females survived to this stage. Neither sex experienced mortality from weaning to dispersal which occurs between two and four years of age. The final adult sex ratio must be obtainec during the dispersal and emigrating, phase. There may be higher mortality among males while the animals are solitary, or the females may be more successful at joining groups.
Localización: Biblioteca OET: S9884.

Publicación no.: 103 **Group composition in mantled howling monkeys Alouatta palliata during the past 12 years** *[Composición del grupo en monos congo Alouatta palliata durante los últimos 12 años]* / Glander, Kenneth E. (Duke University Primate Center, 3705-B Erwin Rd, Durham, N.C. 27706, US <E-mail: glander@duke.edu> <E-mail: clarkem@cwu.edu>). Annual meeting of the American Association of Physical Anthropologists. 53th, Philadelphia, PA, US. April 11-14, 1984.
En: American Journal of Physical Anthropology (ISSN 0002-9483), v. 63, no. 2, p. 163. 1984.

(Abstract only). During the past 12 years the composition of one group of marked mantled howling monkeys (Alouatta palliata) in La Pacífica Ecological Centre, Cañas, Costa Rica has shown certain patterns of change. Group has fluctuated from 13 to 22 and has averaged 17 (N=23). The number of males has ranged from 2 to 8 and the number of females from 7 to 17 with an average sex ratio of 4.4 males to 11.9 females. There have been 1 to 3 adult males and 5 to 10 adult females in the group. A total of 47 infants have been born (23 males, 19 females, and 5 unknown). Twenty-one of these infants died before 1 year of age (15 males, 1 female, and 5 unknown). Only 2 of the surviving infants stayed in the group (1 male and I female), 19 left the group (6 males and 13 females), and 5 infants-juveniles are still with the group (1 male and 4 females and 8 females born in other groups successfully joined the study group while 3 males and 3 females tried and failed to join. Two of the females who joined subsequently left the study group.

Publicación no.: 104 **Interactions of adult male howling monkeys Alouatta palliata with immatures in a free-ranging social group** *[Interacciones de los machos adultos de monos congo Alouatta palliata con los individuos inmaduros en un grupo social en libertad]* / Clarke, Margaret R. (Central Washington University. Department of Anthropology, Ellensburg, WA 98926, US <E-mail: clarkem@cwu.edu>). Annual meeting of the American Association of Physical Anthropologists. 55th, Albuquerque, NM, US. April 9-12, 1986.
En: American Journal of Physical Anthropology (ISSN 0002-9483), v. 69, no. 2, p. 188. 1986.
(Abstract only). Interactions of adult males with infants and juveniles in nonhuman primate social; groups have been interpreted as agonistic buffering, paternal caretaking, interest and tolerance, or competition in the form of infant-killing. To explore some of these hypotheses, a 22-month field study was carried out on a group of howlers in La Pacifica, Guanacaste Province, Costa Rica. During the study, the group consisted of 2-4 adult males, 1-4 juveniles, 2-8 infants, as well as adult females. Data from 1450 hours of focal and ad lib observations revealed that adult male interactions with immatures were predominately those of interest, but they also included caretaking behaviors and aggression. The quality and quantity of interactions toward immatures were associated with developmental stage and putative kinship. Caretaking was minimal, but was directed exclusively toward probable offspring. Harmful interactions and aggressive behaviors were directed toward nonrelated immatures. Adult male aggression toward immatures increased in frequency when adult females resumed cycling, and at the time immatures first began emigrating. As previously reported, immigrating adult males wound young male infants (frequently resulting in death). There was no evidence for agonistic buffering. Adult male's interactions appeared to reflect attempts to maximize their own reproductive success by helping offspring, and harming and/or eliminating nonrelated competitors.

Publicación no.: 105 **Behavioral development of howling monkey twins Alouatta palliata in Santa Rosa National Park, Costa Rica** *[Desarrollo del comportamiento en gemelos de monos congo Alouatta palliata en el Parque Nacional Santa Rosa, Costa Rica]* / Chapman, Colin A; Chapman, L.J. (University of Florida. Department of Zoology, 223 Bartram Hall, Gainesville, FL 32611, US <E-mail: cachapman@zoo.ufl.edu> <E-mail: ljchapman@zoo.ufl.edu>).
En: Primates (ISSN 0032-8332), v. 27, no. 3, p. 377-382. 1986.
Twins born to a young female howling monkey in Santa Rosa National Park, Costa Rica were observed during the first 96 days of their life. The comparison of their development to that of single infants and the comparison of the behaviour of the mother of the twins to that of mothers of single infants revealed

few differences. However, qualitative observations suggest that high costs are associated with maternal care of infant twins. The mother had difficulty carrying both infants and was the only female observed to become sick during the study. Increased costs of lactation were not compensated for by an increase in foraging time. It would seem that howling monkey mothers possess a maternal care system which is capable of providing suitable care to twins. However, the costs on the mother of raising twins are suggested as a factor selecting for a litter size of one.
Localización: Biblioteca OET: S9767.

Publicación no.: 106 **The positional behavior and substrate use of squirrel monkeys: ecological implications** *[El comportamiento de postura y utilización del sustrato por parte del mono titi: implicaciones ecológicas]* / Boinski, Sue. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu>).
En: Journal of Human Evolution (ISSN 0047-2484), v. 18, no. 7, p. 659-678. 1989.
Age, sex, seasonal and contextual patterns in positional behavior and substrate use are described in a wild troop of squirrel monkeys (Saimiri oerstedii) in a Costa Rican tropical wet forest. Quadrupedal locomotion is predominant; relatively little climbing or leaping occurs. Most food is harvested and ingested by the animals while sitting on top of a branch. The animals also hang by hindlimbs, sit in tripod stances and use vertical clinging postures during foraging. Although the frequencies of foraging behaviors changed seasonally, the types of positional behaviors used in foraging and non-foraging contexts and substrate use were almost constant. Few differences among individuals or between seasons were found in positional behaviors that are not explicable by individual differences in time allocated to foraging. Neither the types of leaps made nor their distances differ among age-sex classes, although larger animals use substrates of larger diameter. Thinner horizontal, but not vertical, substrates are used in foraging compared to non-foraging contexts. The discussion addresses: (1) substrate preferences and sexual dimorphism in body size as mechanisms permitting resource partitioning among group members; (2) ecological and morphological constraints on positional behavior; and (3) posture as an important factor in the diverse foraging behaviors of the small-bodied New World primates.
Localización: Biblioteca OET: S9454.

Publicación no.: 107 **Condición económica de los monos en Costa Rica** / Jiménez-Jiménez, Jorge. (Universidad de Costa Rica. Escuela de Biología, Ciudad Universitaria, CR).
En: O'Bios (Costa Rica), v. 2, no. 3, p. 21-40. 1970. (No abstract).
Localización: Biblioteca OET: O.

Publicación no.: 108 **The epidemiology of yellow fever in Middle America** *[Epidemiología de la fiebre amarilla en Centroamérica]* / Trapido, Harold; Galindo, Pedro. (Gorgas Memorial Laboratory, Panama City, PA).
En: Experimental Parasitology (ISSN 0014-4984), v. 5, no. 3, p. 285-323. 1956.
Diferentes aspectos acerca de la epidemiología de la fiebre amarilla en Panamá (1948), Costa Rica y el resto de América Central. Descripción de casos, inmunología, hospederos y vectores. Se citan mosquitos del género Aedes involucrados en el ciclo urbano y Haemagogus en los ambientes selváticos.
Localización: Biblioteca OET: NBINA-7007.

Publicación no.: 109 **Why don´t Saimiri oerstedii and Cebus capucinus form mixed-species groups?** *[¿Por qué Saimiri oerstedii y Cebus capucinus no forman grupos mixtos de especies?]* / Boinski, Sue. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu>).
En: International Journal of Primatology (ISSN 0164-0291), v. 10, no. 2, p. 103-114. 1989.
The instances of association with Cebus capucinus troops were monitored for 11 months as part of a field study of Saimiri oerstedii in a tropical wet forest in Costa Rica, Parque Nacional Corcovado. Contrary to the usual situation in South America, where S. sciureus forms persistent mixed-species groups with Cebus apella, in Corcovado S. oerstedii rarely associated with Cebus capucinus; the frequencies were consistent with those expected from random association. Depending on the season, the S. oerstedii troop spent between 2.3 and 11.8% of its time in the vicinity of a Cebus capucinus troop. Most associations appeared to be chance meetings of short duration. When the two species did associate for an extended period, it was Cebus capucinus, and not S. oerstedii, that appeared to maintain the association, possibly in order to benefit from the antipredator behavior of S. oerstedii. There was no evidence that either species benefited from enhanced foraging efficiency when in association.
Localización: Biblioteca OET: S9499.

Publicación no.: 110 **Primates in Cabo Blanco Absolute Nature Reserve, Costa Rica** *[Primates en la Reserva Absoluta de la Naturaleza Cabo Blanco, Costa Rica]* / Lippold, L.K. (San Diego State University. Department of Anthropology, San Diego, CA 92182, US).
En: Primate Conservation (ISSN 0898 6207), no. 10, p. 23-25. 1989. (No abstract).
Localización: No disponible.

Publicación no.: 111 **Vigilance in white-faced capuchins, Cebus capucinus, in Costa Rica** *[Vigilancia en monos carablanca, Cebus capucinus, en Costa Rica]* / Rose, L.M; Fedigan, Linda M. (University of British Columbia. Department of Anthropology, 6303 NW Marine Dr, Vancouver, BC V6Y 1Z1, CA <E-mail: lrose@interchange.ubc.ca> <E-mail: fedigan@ucalgary.ca>).
En: Animal Behaviour (ISSN 0003-3472), v. 49, no. 1, p. 63-70. 1995.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-4028.pdf
Vigilance behaviour was examined in four groups of white-faced capuchins in Santa Rosa National Park, Costa Rica. In each group, males spent more time vigilant than females. Average time spent vigilant within each group was not significantly correlated with group size, but was negatively correlated with the number of male group members. The alpha male tended to be the most vigilant individual in each group. Males in two of the four groups were more vigilant at waterholes than in other areas; males in two of the three groups having overlapping ranges were more vigilant in areas of overlap. There was a positive correlation between absence of neighbours and level of vigilance in both sexes. Male vigilance appeared to be directed primarily towards males in other groups, rather than towards potential predators or other group members.
Localización: Biblioteca OET: S2934. NBINA-4028.

Publicación no.: 112 **Habitat selection and seasonal patterns of activity and foraging of mantled howling monkeys (Alouatta palliata) in northeastern Costa Rica** *[Selección de hábitat y patrones estacionales de actividad y forrajeo de los monos congo (Alouatta palliata) en el noroeste de Costa Rica]*

/ Stoner, Kathryn E. (Universidad Nacional Autónoma de México. Centro de Investigación en Ecosistemas, Apartado Postal 27-3, Xangari, Morelia 48980, MX <E-mail: kstoner@oikos.unam.mx>).
En: International Journal of Primatology (ISSN 0164-0291), v. 17, no. 1, p. 1-30. 1996.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-6097.pdf
I conducted a 15-month ecological study of habitat preferences and activity and foraging patterns of two troops of mantled howling monkeys, Alouatta palliata, in a lowland rain forest at La Selva Biological Reserve in northeastern Costa Rica. The two troops specialized on different habitats in spire of the fact that both of them had all habitats available and were not constrained by neighboring troops since the population density of howlers is low (7-15 howlers/km(2)). Troop 1 spent the majority of time in primary forest (80%) followed by secondary forest (10%), while troop 2 spent the majority of time in undisturbed riparian habitat (60%) followed by primary forest (30%). Habitat sampling indicates that neither the total number of stems, species, or families nor the diversity (Shannon index) or evenness is a good indicator for howler habitat selection. Instead the density of trees from the 12 species most commonly consumed by each troop is the most important factor. Activity and foraging patterns were not dependent upon the season as has been described for howling monkeys in forests with a more pronounced dry season at Barro Colorado Island, Panama, and La Pacífica in northwestern Costa Rica. This is likely a result of the more constant food supply at La Selva, combined with less intraspecific competition due to the low howler density. The intraspecific variability of foraging patterns and troop-specific habitat specialization observed in Alouatta palliata should be considered in the conservation biology of primates. Primate relocation programs should include not only an ecological assessment of the release site but also a comparison of the release site with the habitat that the groups currently occupy.
Localización: Biblioteca OET: S7857. NBINA-6097.

Publicación no.: 113 **Prevalence and intensity of intestinal parasites in mantled howling monkeys (Alouatta palliata) in northeastern Costa Rica: Implications for conservation biology** *[Ocurrencia e intensidad de los parásitos intestinales en los monos congo (Alouatta palliata) en el noreste de Costa Rica: Implicaciones para la biología de la conservación]* / Stoner, Kathryn E. (Universidad Nacional Autónoma de México. Centro de Investigación en Ecosistemas, Apartado Postal 27-3, Xangari, Morelia 48980, MX <E-mail: kstoner@oikos.unam.mx>).
En: Conservation Biology (ISSN 0888-8892), v. 10, no. 2, p. 539-546. 1996.
I examined the prevalence and intensity of intestinal parasitic infections in a population of mantled howling monkeys (Alouatta palliata) at La Selva Biological Reserve, a rainforest in northeastern Costa Rica. I collected fresh fecal samples from individual howler monkeys from two focal troops from October 1991 through October 1992. The presence of parasite ova and larvae in samples was determined by using a formalin-ethyl acetate sedimentation technique. Three types of endoparasites were found: (1) a roundworm, Parabronema sp., (2) a physalopterid roundworm, species undetermined, and (3) a fluke, species undetermined. No differences were found in the prevalence of parasitic infections between sexes or troops. No statistical differences were found between the sexes fro the intensity of infection. The troop that lived along the river showed a statistically significant higher intensity of nematode infection that the troop that lived mostly in primary forest. Parabronema sp. was found only from individuals in the river group. The prevalence of parasitic infection observed in howlers at La Selva (100%) is higher than has been reported for howlers in a dry deciduous forest at La Pacífica, Costa Rica (47%). Microclimatic factors, ranging patterns, and home-range size are identified as important variables that may affect parasitic infections of howler populations. Data from this study suggest that narrow

corridor designs may be inappropriate for conservation of primates and possibly other species of arboreal animals.
Localización: Biblioteca OET: C. NBINA-3811. LS.

Publicación no.: 114 **The huh vocalization of white-faced capuchins - a spacing call disguised as a food call** / Boinski, Sue; Campbell, A.F. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu> <E-mail: aimee.campbell@mailcity.com>).
En: Ethology (ISSN 0179-1613), v. 102, no. 10, p. 826-840. 1996.
White-faced capuchins (Cebus capucinus), predictably emit huh vocalizations It high rates within dense fruit patches. We sought to determine why white faced capuchins at the La Selva Biological Station, Costa Rica produce these food-associated calls. Here we analyze the contests in which this intra-group vocalization was emitted, including the spatial responses elicited from other troop members. A cumulative 26.6 h of continuous focal samples and 3314 spectrograms (including 1643 huhs) were analyzed from a study troop with 16 focal subjects. The mean individual rate of huhs was greater (1) during foraging versus nonforaging activities; (2) during fruit foraging compared to both visual searching for foraging sites and foraging for arthropod prey; and (3) when the nearest neighbor was within a 10 m radius of the focal animal compared to when the nearest neighbor was at greater distances. A huh also predicted a significant increase in nearest-neighbour distance; on average, mean nearest-neighbor distance increased 3 m within 2 min following a huh vocalization. Null models of change in mean nearest-neighbor distance over time were generated from the original data set by treating predetermined time points (140 s intervals) in the focal recordings as if those points marked instances at which huhs were produced by the focal subject. No significant alterations in nearest-neighbor distance were detected within time lags up to 100 s in these null models, supporting the conclusion that huhs are causally linked with subsequent increases in nearest-neighbor distances. Huhs were most evident when capuchins were within dense fruit patches, hut these calls were produced across all foraging contests. Our results suggest that huhs may not be food calls in the usual sense (i.e. informing others of the location of food sources to be shared), but may be more appropriately described as spacing calls. Huhs probably act to increase foraging efficiency by reducing overlap in foraging areas with other troop members.
Localización: Biblioteca OET: S2726.

Publicación no.: 115 **Use of trill vocalizations to coordinate troop movement among white-faced capuchins - a second field test** *[Utilización de vocalizaciones de gorjeo para cordinar el movimiento de la tropa en los monos carablanca - segundo ensayo de campo]* / Boinski, Sue; Campbell, A.F. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu> <E-mail: aimee.campbell@mailcity.com>).
En: Behaviour (ISSN 0005-7959), v. 132, no. 11-12, p. 875-901. 1995.
The white-faced capuchin, Cebus capucinus, employed a specialized vocalization, the trill, to coordinate troop movement at La Selva Biological Station, an Caribbean wet-forest study site in Costa Rica. We analyse the contexts in which this intra-group vocalization was emitted, including responses elicited from other group members. A cumulative 26.6 hours of continuous samples and 3,314 spectrograms (including 1,295 trills) were analysed from a study troop with 16 focal subjects. These results generally corroborate the conclusions of a comparable field study of T white-faced capuchins at Santa Rosa National Park, a Pacific coast dry-forest site in Costa Rica (Boinski, 1993, Amer. J. Primatol. 30, p. 85-

100). At both sites, (1) trills were closely associated with the initiation of movement by a stationary troop in a specific direction. (2) Trills were emitted at a much higher rate in the leading edge of a travelling troop than in following positions. (3) Individuals often reinforced the efforts of other troop members to coordinate troop movement. (4) Lack of consensus among troop members over the travel route was evident. (5) In rare instances trills were employed in tactical maneuvers suggestive of intentionality and the ability to anticipate behavioural effects. Differences in the usage of trills at these two sites were also detected. (1) At La Selva all troop members, with the exception of infants, used trills in the coordination of troop movement, whereas at Santa Rosa marked age, sex and rank distinctions in the extent of participation were apparent. (2) Capuchins at Santa Rosa altered the trajectory of travelling troops with trills, even reversing directions, but not at La Selva. These disparities may follow from differences between the sites in the extent of visual and auditory contact typical among troop members, social structure, susceptibility to predation, and possible genetic variation.
Localización: Biblioteca OET: S2561. LS.

Publicación no.: 116 **Interbirth interval variation in three sympatric species of neotropical monkey** *[Variación en los intervalos entre naciminetos en tres especies simpátricas de monos neotropicales]* / Fedigan, Linda M; Rose, L.M. (University of Calgary. Department of Anthropology, Social Sciences Bldg 830, Calgary, AB T2N 1N4, CA <E-mail: fedigan@ucalgary.ca> <E-mail: lrose@interchange.ubc.ca>).
En: American Journal of Primatology (ISSN 0275-2565), v. 37, no. 1, p. 9-24. 1995.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-4029.pdf
Relatively few papers have focused on interbirth intervals in primates, even though the spacing between births is one of the primary determinants of female reproductive success in long-lived mammals. We present life history data from a ten-year field study of Costa Rican capuchins (Cebus capucinus), howlers (Alouatta palliata), and spider monkeys (Ateles geoffroyi). Analyses of intraspecific variability found no significant differences attributable to individual variation in age, parity, weight, or maternal rank. Loss of an infant significantly shortened the interbirth interval in all three species. There was no correlation between annual rainfall and birth rates, but there was a significant clustering of births in the dry season. Survival analyses demonstrated a significant difference between the median interbirth intervals of the three species. Howlers have the shortest intervals (19.9 months), capuchins exhibit longer intervals (26.36 months), and spider monkeys have the longest intervals (34.72 months). This comparative pattern does not correspond to relative body weights of the three species, but does correspond to relative brain weights. Comparisons to other primates with similar life history characteristics demonstrate that interbirth intervals are best examined at the level of their three component phases: gestation, lactation, and cycling to re-conception.
Localización: Biblioteca OET: S3250. NBINA-4029.

Publicación no.: 117 **Ecological constraints on group size: an analysis of spider monkey and chimpanzee subgroups** *[Restricciones ecológicas sobre el tamaño del grupo: un análisis de los subgrupos de monos colorado y chimpancés]* / Chapman, Colin A; Wrangham, R.W; Chapman, L.J. (University of Florida. Department of Zoology, 223 Bartram Hall, Gainesville, FL 32611, US <E-mail: cachapman@zoo.ufl.edu> <E-mail: ljchapman@zoo.ufl.edu>).
En: Behavioral Ecology and Sociobiology (ISSN 0340-5443), v. 36, no. 1, p. 59-70. 1995.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-1976.pdf

The social organization of spider monkeys (Ateles geoffroyi) and chimpanzees (Pan troglodytes) appear remarkably similar. In this paper, field studies of these two species were used to (1) test a model of ecological constraints on animal group size which suggests that group size is a function of travel costs and (2) assess ecological and social factors underlying the social organization of these two species. Spider monkeys were studied over a 6-year period in Santa Rosa National Park, Costa Rica, and chimpanzees were studied for 6 years in Kibale National Park, Uganda. Adults of both species spent their time in small subgroups that frequently changed size and composition. Thus, unlike most primate species, spider monkeys and chimpanzees were not always in a spatially cohesive social group; each individual had the option of associating in subgroups of a different size or composition. Both species relied on ripe fruit from trees that could be depleted through their feeding activity. However, spider monkey food resources tended to occur at higher densities, were more common, less temporally variable, and did not reach the low levels experienced by chimpanzees. Analyses of the relationship between subgroup size and the density and distribution of their food resources suggested that travel costs limit subgroup size. However, these ecological factors did not influence all age/sex classes equally. For example, the number of adult males in a subgroup was a function of food density and travel costs. However, this was not the case for female chimpanzees, suggesting that the benefits of being in a subgroup for females did not exceed the costs, even when ecological conditions appeared to minimize subgroup foraging costs. Therefore, it seems likely that social strategies influenced the relationship between food resource variables and subgroup size.
Localización: Biblioteca OET: NBINA-1976. S3687.

Publicación no.: 118 **Dust accumulation in the canopy - a potential cause of dental microwear in primates** *[Acumulación de polvo en el dosel - una causa potencial de microdesgaste dental en primates]* / Ungar, Peter S; Teaford, Mark F; Glander, Kenneth E; Pastor, R.F. (University of Arkansas. Department of Anthropology, Old Mam 330, Fayetteville, AR 72701, US <E-mail: pungar@mail.uark.edu> <E-mail: mteaford@jhmi.edu> <E-mail: glander@duke.edu>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), v. 97, no. 2, p. 93-99. 1995.
Dental microwear researchers consider exogenous grit or dust to be an important cause of microscopic wear on primate teeth. No study to date has examined the accumulation of such abrasives on foods eaten by primates in the forest. This investigation introduces a method to collect dust at various heights in the canopy. Results from dust collection studies conducted at the primate research stations at Ketambe in Indonesia, and Hacienda La Pacífica in Costa Rica indicate that 1) grit collects throughout the canopy in both open country and tropical rain forest environments; and 2) the sizes and concentrations of dust particles accumulated over a fixed period of time differ depending on site location and season of investigation. These results may hold important implications for the interpretation of microwear on primate teeth.
Localización: Biblioteca OET: S8778.

Publicación no.: 119 **Estado de conservación del mono tití (Saimiri oerstedii citrinellus) en su área de distribución original, Manuel Antonio, Costa Rica** *[Conservation status of the squirrel monkey (Saimiri oerstedii citrinellus) in its original distribution area, Manuel Antonio, Costa Rica]* / Araúz-González, Jacobo. Heredia: Universidad Nacional, 1993. 92 p. Tesis, Maestría en Manejo de Vida Silvestre, Universidad Nacional, Programa Regional de Manejo de Vida Silvestre, Heredia (Costa Rica).

El presente estudio lo realicé en las tierras bajas (0-300 msnm) del Pacífico Central y Sur de Costa Rica. Específicamente desde el poblado de Bajo Capulín en el extremo noroeste, hacia el sur comprende las zonas próximas a Herradura, Jacó y el Valle de Parrita y Quepos. Además incluye la estrecha franja de tierras entre la costa y la fila costeña desde Dominical hasta el Río Grande de Térraba. La duración del estudio fue de ocho meses, desde junio de 1992 hasta enero de 1993. El propósito del trabajo fue obtener información sobre la distribución histórica, la distribución actual e identificar zonas prioritarias para la conservación y para la posible repatriación del mono tití (Saimiri oerstedii citrinellus). También compilé datos sobre la relación de estos primates con los humanos residentes en la zona de estudio. La confirmación de la distribución histórica de Saimiri oerstedii citrinellus no reveló que estos animales ocuparan en el pasado zonas más allá de los límites expuestos por la literatura. No obtante, la distribución en el ámbito señalado no coincidieron con los límites reconocidos teóricamente en la parte noroeste de la distribución. La distribución actual de esta subespecie la ubiqué en 26 sitios comprendidos desde la zona del Río Tulín hasta los manglares ubicados al sur de Coronado. De esas 26 localidades, 16 son zonas de vegetación primaria y secundaria, siete son manglares y tres sitios fueron localizados en plantaciones de palma africana (Elaeis guineensis). Los ambientes donde los tití fueron observados con mayor frecuencia por los pobladores son el bosque secundario, el bosque primario y el bosque ripario, mientras que en los cultivos de palma africana, en las cercas vivas y en los manglares fueron observados con menor frecuencia. Identifiqué como potenciales áres prioritarias para la conservación de los tití una zona de remanentes boscosos ubicados en la parte alta del Río Tulín, los cuales en conjunto suman aproximadamente unas 200 ha de hábitat potencial, y están localizados en el ámbito altitudinal de la especie (0-300 msnm). En la Hacienda Barú identifiqué parches boscosos que podrían ser utilizados como posibles sitios para ensayos de repatriación. En total los fragmentos boscosos comprenden una superficie de aproximadamente 450 ha. En las consultas con los pobladores residentes en las zonas próximas a los tití (47 encuestas), consideraron que estos animales no son dañinos para los cultivos (80 por ciento) y salvo contados casos, mencionaron que atacan cultivos como maíz tierno y café maduro (20 por ciento). Las personas que consideraron un posible uso a estos monos afirmaron que su captura para mascotas es lo más atractivo (91 por ciento, n = 12), sólo una persona mencionó la alternativa de capturarlos para la venta y todos descartaron absolutamente la idea de usarlos como alimento. El principal beneficio que los pobladores ven en los tití es su valor estético (76 por ciento, n = 17), sin embargo, la mayoría de las personas (64 por ciento, n = 47) ignora qué beneficios pueden brindar estos animales al ambiente o a los humanos. Los pobladores que viven en los alrededores de las zonas ocupadas por los tití se manifestaron totalmente anuentes a proteger los monos y propusieron algunas estrategias en las cuales podrían aportar su colaboración.
Localización: Biblioteca del BIODOC: Tesis 1166.

Publicación no.: 120 **El tití mono ardilla** / Muñoz, G.
En: UNA Informa, v. 3, no. 18, p. 11. 1990.
Como muchas otras especies de vertebrados, el mono tití o ardilla (Saimiri oerstedii) se encuentra en peligro de extinción. Este mono es de cuerpo pequeño con pelaje de tonalidad anaranjada. Las extremidades y los hombros son de color amarillo grisáceo, el vientre, así como las orejas y la cara son de color blanco. Su larga cola no prensil es de color amarillo grisáceo y su parte terminal es de color negro. Con el objetivo de obtener información que permita establecer las pautas para la conservación de este primate, la estudiante del Programa Regional de Maestría en Fauna Silvestre, Grace Wong, realizó en 1987 su tesis de licenciatura sobre este inofensivo animal, en el Parque Nacional Manuel

Antonio. El proyecto de investigación denominado "Ecología del mono tití en el Parque Nacional Manuel Antonio", fue financiado con fondos del Programa de Primates del Fondo Mundial para la Vida Silvestre (WWF) en su mayor parte, así como por la Organización para Estudios Tropicales, la Universidad Nacional y el apoyo del Servicio de Parques Nacionales.
Localización: Biblioteca OET: S688.

Publicación no.: 121 **Ecología del mono tití (Saimiri oerstedii citrinellus) en el Parque Nacional Manuel Antonio, Costa Rica** *[Ecology of the squirrel monkey (Saimiri oerstedii citrinellus) in Manuel Antonio National Park, Costa Rica]* / Wong-Reyes, Grace. (Universidad Nacional. Programa Regional de Maestría en Manejo de Vida Silvestre, Apdo. 1350, Heredia, CR <E-mail: wongr@forwild.umass.edu>). Heredia: Universidad Nacional, 1990. 57 p. Tesis, Licenciatura en Manejo de Vida Silvestre, Universidad Nacional, Escuela de Ciencias Ambientales, Heredia (Costa Rica).
Durante un período de 10 meses se obtuvo información sobre la disponibilidad de frutos y sobre los patrones de actividad, ámbito de acción, uso del hábitat y dieta de una tropa de monos tití en el Parque Nacional Manuel Antonio. Se registraron dos picos de fructificación, el primero se produjo en junio, y el segundo en setiembre. El menor número de especies con frutos se registró durante los meses noviembre a febrero. Las actividades desarrolladas por los monos tití variaron entre estaciones y a lo largo del día. La actividad de mayor ocurrencia en el estudio fue forrajear-viajar (FM). La actividad forrajear y descansar estacionariamente (FDE) disminuyó durante los períodos de escasez de frutos. El ámbito de acción estacional de la tropa de monos tití varió entre 36.5 a 49 ha; y el área del ámbito de acción en todo el estudio fue de 57 ha. Se determinó que no existió correlación entre el número de especies con frutos disponibles y el tamaño de ámbito de acción mensual. Se estableció que la utilización de los diferentes tipos de bosque dependió de la estación. Se determinó, que para todo el período de estudio, el bosque secundario maduro fue el más utilizado por los monos tití, mientras que el bosque primario casi no fue utilizado. Existió una relación entre la disponibilidad de especies con frutos y la dieta de los monos tití.
Localización: Biblioteca OET: Tesis 104. Biblioteca Joaquín García M.: Tesis 1596. Biblioteca Conmemorativa Orton: Thesis W872e.

Publicación no.: 122 **Mammals of La Selva, Costa Rica** *[Mamíferos de La Selva, Costa Rica]* / Wilson, Don E; Gentry, Alwyn Howard, [ed.]. (Smithsonian Institution. Department of Mammalogy, Washington, DC 20560, US <E-mail: wilson.don@nmnh.si.edu>).
En: Four neotropical rainforests New Haven: Yale University Press, 1991. p. 273-286. ISBN: 0-300-04722-3.
The mammal fauna of La Selva Biological Station has been studied for fewer than twenty years, yet it represents one of the better known faunas in Central America. The site is located almost in the center of the Central American Caribbean Lowland Forest, and the mammals are typical of a fauna found from tropical Mexico to northern South America. Knowledge of the mammals of La Selva began to accumulate during the 1960s, when the property was still owned by Leslie Holdridge. Collections were made at La Selva or in the general vicinity of Puerto Viejo by Richard Casebeer, Ronald Linsky, and Andrew Starrett of the University of Southern California and Craig Nelson of the University of Kansas. Bats: Shortly after Finca La Selva was purchased by the Organization for Tropical Studies (OTS) in 1968, I began netting bats there along with many students in OTS courses, among them Richard LaVal and David Armstrong. Michael Mares visited in 1971. I continued my study of bats during OTS courses through 1974, and the

number of species of bats known from the site increased to 32 (Armstrong 1969; Gardner et al. 1970; Mares and Wilson 1971). During 1973 and 1974, LaVal sampled the bat fauna intensively using both mist nets and harp traps. His efforts dramatically increased the number of reported species to 63, several of which were new to Costa Rica.
Localización: Biblioteca OET: 574.52642 F773fLCLS.

Publicación no.: 123 **Neotropical rainforest mammals: a field guide** *[Mamíferos neotropicales del bosque lluvioso: guía de campo]* / Emmons, L.H. (Smithsonian Institution. National Museum of Natural History, Division of Mammals, Washington, D.C, US). Chicago: The University of Chicago Press, 1990. 281 p. ISBN: 0-226-20718-8.
This is the first broad regional field guide to Neotropical mammals. We created it from scratch because there are no reference books for the kinds of information we needed. The knowledge of Neotropical mammals has many glaring gaps, which will take decades to fill at current rates of research. This book includes the lowland rainforest mammals found in Central and South America at elevations below 1,000 meters. These species for the most part form a discrete fauna: mammal communities within the rainforest region are very similar to other in composition of monkeys, oppossum, sloths, bats, deer, and rodents.
Localización: Biblioteca OET: 599.098 E54n.

Publicación no.: 124 **Primate population decline at Cabo Blanco Absolute Nature Reserve, Costa Rica** *[Disminución de la población de primates en la Reserva Absoluta de la Naturaleza Cabo Blanco, Costa Rica]* / Lippold, L.K. (San Diego State University. Department of Anthropology, San Diego, CA 92182, US). *En:* Brenesia (ISSN 0304-3711), no. 34, p. 145-152. 1990.
Human disturbance of primate populations and their habitats is an increasingly common problem in tropical forests. Although many studies have enumerated the impact of hunting, trapping and logging, none have considered what effects high numbers of tourists might have on these populations. As part of a long-term study, known primate groups were censused in Cabo Blanco during the 1990 dry season, and evidence of decline from totals prior to opening of the reserve to tourism (in 1988) was found; the reserve was established in 1963. Census data are reported for Alouatta palliata (howling monkeys) and Cebus capucinus (white-faced monkeys). In addition, the paper reports that two groups of A. palliata originally residing within the reserve moved outside its borders. The changes in numbers and location of groups are correlated with the recent introduction of ecotourism.
Localización: Biblioteca OET: B.

Publicación no.: 125 **Habitat preferences, foraging patterns, intestinal parasitic infections, and diseases in mantled howler monkeys, Alouatta palliata (Mammalia: Primates: Cebidae), in a rain forest in Northeastern Costa Rica** *[Preferencias de hábitat, patrones de forrajeo, infecciones parasitarias intestinales y enfermedades en monos congo, Alouatta palliata (Mammalia: Primates: Cebidae), en un bosque lluvioso en el noreste de Costa Rica]* / Stoner, Kathryn E. (Universidad Nacional Autónoma de México. Centro de Investigación en Ecosistemas, Apartado Postal 27-3, Xangari, Morelia 48980, MX <E-mail: kstoner@oikos.unam.mx>). Lawrence, KS: The University of Kansas, 1993. 205 p. Dissertation, Ph.D, The University of Kansas, Department of Systematics and Ecology, Lawrence, KS (USA).
A 16 month study of population density, foraging, habitat use, and endoparasites of mantled howler monkeys, Alouatta palliata, was conducted at La Selva Biological Reserve, a lowland tropical rainforest in

northeastern Costa Rica. The population density of howlers at La Selva is approximately 15 troops (7-15 howlers/km^2). Several factors that may be responsible for the current low density of howlers at La Selva were evaluated, including: hunting, competition, predation, and disease. The low density of howlers at La Selva is likely due to a population decrease experienced by these primates in the 1950's as a result of the human yellow-fever epidemic. Two howler troops specialized on particular habitats within their home ranges. When plant species density and composition of the different habitats within the home ranges of each group were compared, it was noted that both groups preferred some tree species more than others and that they stayed in the habitat with the highest density of trees from the species they consumed most commonly. Foraging and activity patterns were not correlated with seasonal changes. There were no significant differences over time in the proportion of each day devoted to resting, eating, or moving but there were significant differences between groups for resting, moving and socializing. No relationship was found between the percent consumption/day of plant parts and their availability over time, but there were significant differences between groups for the percent consumption/day of plant parts. Three types of endoparasites were found in the howlers: (1) Parabronema sp. (Nematoda: Secernentea: Spiruridae), (2) an unidentified physalopteran roundworm, (Nematoda: Secernentea: Physalopteridae), and (3) an unidentified digeanean fluke (Platyhelminthe: Digenea). All of the thirteen individuals sampled were infected with at least two species of parasites. The howler group that spent more time near the river had a significantly higher average intensity of nematodes than the forest group. Factors that were recognized as contributing to the higher intensity of nematodes observed in the river group include: repeated pathway use, smaller home range, and foraging patterns. Intraspecific variability of foraging patterns and troop specific habitat specialization should be considered in conservation programs because they can influence parasites in howlers and thus mortality rates. The importance of habitat size, location, and the quality and quantity of potential food resources should be evaluated carefully since these factors affect the intensity of parasitic infections in howler troops.
Localización: Biblioteca OET: Tesis 151.

Publicación no.: 126 **Voices of the cloud forest** *[Voces del bosque nuboso]* / Ross, D.L., Jr. (Library of Natural Sounds, Cornell Laboratory of Ornithology, 159 Sapsucker Woods Road, Ithaca, NY 14850, US <E-mail: libnatsounds@cornell.edu>). Ithaca, NY: Library of Natural Sounds, Cornell Laboratory of Ornithology, 1992. ISBN: 0-938027-07-7.
The selections of this production have been chosen to characterize the sounds one might expect or hope to hear within the Monteverde Cloud Forest Reserve at elevations from 1450 m to greater than 1800 on the taller peaks. The recordings have been arranged chronologically in the order that one might experience the sounds through the course of a cloud forest day. VOICES OF THE CLOUD FOREST: Montane Tink Frog (Eleutherodactylus hylaeformis), Mottled Owl (Ciccaba virgata); Frog (Hyla sp.); Howler Monkey(Alouatta palliata); Tawny-throated Leaftosser (Sclerurus mexicanus); Barred Forest-Falcon (Micrastur ruficollis); Yellowish Flycatcher (Empidonax falvescens); Resplendent Quetzal (Pharomachrus mocinno); Bright-rumped Attila (Attila spadiceus); Prong-billed Barbet (Semnornis frantzii); Black-faced Solitaire (Myadestes melanops); Azure-hooded Jay (Cyanolyca cucullata); Slaty-backed Nightingale-Thrush (Catharus fuscater); Ochraceous Wren (Troglodytes ochraceus); Highland Tinamou (Nothocercus bonapartei); Gray-breasted Wood-Wren (Henicorhina leucophrys); Lineated Foliage-gleaner (Syndatyla subalaris); Common bush-tanager (Chlorospingus ophthalmicus); Orange-bellied Trogon (Trogon aurantiventris); Black-breasted Wood-Quail (Odontophorus leucolaemus); Immaculate Antbird (Myrmeciza immaculata); Gray-throated Leaftosser (Sclerurus albigularis); Streak-

breated Treehunter (Thripadectes rufobrunneus); Emerald Toucanet (Aulacorhynchus prasinus); Collared Redstart (Myioborus torquatus); Silvery-fronted Tapaculo (Scytalopus argentifrons); Swallow-tailed Kite (Elanoides forficatus); Slaty Flower-piercer (Diglossa plumbea); Ruddy-capped Nightingale-Thrush (Catharus frantzii); White-faced Capuchin (Cebus capucinus); Black-thighed Grosbeak (Pheucticus tibialis); Sooty-faced Finch (Lysurus crassirostris); Golden-browed Chlorophonia (Chlorophonia callphrys); Three-wattled Bellbird (Procnias tricarunculata); Volcán Arenal "Arenal Volcano"; White-throated Robin (Turdus assimilis); Black Guan (Chamaepetes unicolor); Alston's Brown Mouse (Scotinomys teguina); Spotted Woodcreeper (Xiphorynchus erythropygius); Dusky Nightjar (Caprimulgus saturatus); Kinkajou (Potos flavus); Bare-shanked Screech-Owl (Otus clarkii).
Localización: No disponible.

Publicación no.: 127 **Dietary differences between neighboring Cebus capucinus groups: local traditions, food availability or responses to food profitability?** *[Diferencias en la dieta entre grupos vecinos de Cebus capucinus: ¿tradiciones locales, disponibilidad de alimento o respuestas al aprovechamiento del alimento?]* / Chapman, Colin A; Fedigan, Linda M. (University of Florida. Department of Zoology, 223 Bartram Hall, Gainesville, FL 32611, US <E-mail: cachapman@zoo.ufl.edu> <E-mail: fedigan@ucalgary.ca>).
En: Folia Primatologica (ISSN 0015-5713), v. 54, no. 3/4, p. 177-186. 1990.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-4027.pdf
The feeding patterns of three neighboring groups of Cebus capucinus were documented over a 3-year period in Santa Rosa National Park, Costa Rica. We describe the diets of the three groups and examine whether dietary differences between groups could be attributed to environmental differences in food abundances, to differences in the profitability of what was available or to learned local traditions. Diets were variable among groups; group A primarily ate fruit (81.2% of feeding time) and spent little time eating insects (16.9%), while group C was more heavily reliant on insects (44.3%) and ate less fruit (53.0%). Group B had a diet that was somewhat intermediate (69.8% fruit, 29.0% insects). By measuring the densities of all major plant foods, we were able to determine that many of the dietary differences bwtween groups could not be attributed to simple measures of food abundance, but we could not distinguish between the food profitability hypothesis and local tradicion hypothesis.
Localización: Biblioteca OET: S2043. NBINA-4027. PVB.

Publicación no.: 128 **Population density of the mantled howler monkey (Alouatta palliata) at La Selva Biological Reserve, Costa Rica: a new technique to analyze census data** *[Densidad de población del mono congo (Alouatta palliata) en la Reserva Biológica La Selva, Costa Rica: una nueva técnica para analizar datos de censos]* / Stoner, Kathryn E. (Universidad Nacional Autónoma de México. Centro de Investigación en Ecosistemas, Apartado Postal 27-3, Xangari, Morelia 48980, MX <E-mail: kstoner@oikos.unam.mx>).
En: Biotropica (ISSN 0006-3606), v. 26, no. 3, p. 332-340. 1994.
Broad survey census data for mantled howler monkeys, Alouatta palliata, from La Selva Biological Station, northeastern Costa Rica, are analyzed with an agglomerative hierarchical clustering method to estimate minimum number of troops. The estimate of 15 troops (7-15 howlers/km-2) provided by the duster analysis is similar to an independent census of the same population using the triangulation technique. These data indicate the potential usefulness of duster analysis methods to estimate minimum number of primate troops within an area. Cluster analysis has several advantages over more

traditional primate census techniques: the assumption that it is necessary to achieve reliable estimates from line transect sampling is not required (i.e., points directly on the line will never be missed); census data can be collected by one person making it easier logistically than conducting a census with the triangulation technique which requires many people; census data collected over a brief period of time can be used to provide quantitative estimates of population density; and observations provided by others in the survey area during the time period of the census may be used. Cluster analysis is recommended when attempting to estimate population densities of primates in tall evergreen forests where visibility is poor, when animals have long inactive periods, few or unpredictable vocalizations, and/or occupy the top of the canopy. The cluster method of analyzing broad survey data may also be applicable to other territorial mammalian populations that are difficult to census by other means.
Localización: Biblioteca OET: S2028. NBINA-3551.

Publicación no.: 129 **La dieta del jaguar (Panthera onca), el puma (Felis concolor), el manigordo (Felis pardalis), (Carnivora, Felidae) y dos métodos de evaluación de su abundancia relativa en el Parque Nacional Corcovado, Costa Rica** / Chinchilla-Romero, Federico Alfonso. (Estación Biológica Monteverde, Ap. Postal 1265-1100 CR). Heredia: Universidad Nacional, 1994. 49 p. Tesis, Maestría en Manejo de Vida Silvestre, Universidad Nacional, Heredia (Costa Rica).
The diets of the jaguar (Panthera onca), the puma (Puma (=Felis) concolor) and the ocelot (Felis (=Leopardus) pardalis) were studied in a tropical rainforest in Corcovado National Park, South Pacific belt of Costa Rica, from August 1993 to June 1994. A total of 50 km of trails were examined monthly for fecal material. Analysis of relative frequency of ocurrence and relative estimation biomass in the fecal samples showed that mammals were the main preys of the three felids, while reptiles and birds were less important. The preys of jaguar and puma have body weights above 2.5 kg, and the preys of ocelot, whose main prey was the spiny rat, Proechimys semispinosus, less than 2.5 kg. There were no important changes in food habits during the study, although trophic diversity of jaguar and ocelot increase during the dry seasons.
Localización: Biblioteca OET: Tesis 204.

Publicación no.: 130 **Nesting success of rufous-naped wrens (Campylorhynchus rufinucha) is greater near wasp nests** *[El éxito de anidamiento del Chico Piojo (Campylorhynchus rufinucha) es mayor cerca de los nidos de avispas papeleras]* / Joyce, Frank J. (Instituto Monteverde, Apdo. 10165, San José, CR <E-mail: fjoyce@racsa.co.cr>).
En: Behavioral Ecology and Sociobiology (ISSN 0340-5443), v. 32, no. 2, p. 71-77. 1993.
Rufous-naped wrens (Campylorhynchus rufinucha) in northwestern Costa Rica build breeding nests most frequently in ant-acacia trees (Acacia collinsii) and occasionally near wasp nests in ant-acacia trees. By moving occupied wasp nests (Polybia rejecta) to randomly chosen ant-acacia trees with wren nests, I tested the hypothesis that wrens nesting near wasp nests were more likely to fledge young than wrens not nesting near wasp nests. Wrens whose nests were near experimentally relocated wasp nests were significantly more likely to fledge young (37.5% of 16 attempts in 1987 and 75% of 12 attempts in 1988) than were wrens whose nests had no wasp nests placed near them (0% of 16 attempts in 1987 and 20% of 15 attempts in 1988). In 15 cases, repeated nesting attempts occurred in the same trees both with and without experimentally-placed wasp nests. Analysis of these data allowed a comparison of the effect of wasp nests on fledging success while differences among trees were controlled. Within the same tree, nesting attempts associated with wasp nests were significantly more likely to fledge young than

nesting attempts without wasp nests. Predation was the primary cause of nest failure, and within forest, white-faced monkeys (Cebus capucinus) were the most important predators. The difference in success of wren nests with and without wasps and observations of predators indicate that enhancement of fledging success was due to deterrence of predatory vertebrates by wasps.
Localización: Biblioteca OET: S2590.

Publicación no.: 131 **Variation in substrate use by white-faced capuchins** *[Variación en el uso del sustrato por parte de los monos carablanca]* / Gilbert, K.A; Stouffer, P.C. (Rutgers University. Department of Anthropology, P.O. Box 270, New Brunswick, NJ 08903, US).
En: Human Evolution (ISSN 0393-9375), v. 5, no. 1, p. 5-9. 1992.
We examined substrate use by a group of white-faced capuchins (Cebus capucinus) during the dry season in the seasonally dry forest at Palo Verde National Park, Costa Rica. The group's most common terrestrial activities were foraging and traveling. Subjuveniles were most terrestrial, traveling terrestrially 55% of the time and foraging terrestrially 42% of the time. Juveniles were least terrestrial (36% travel, 24% forage). Rest and social activity were highly arboreal for all age classes. Terrestrial foraging was most common in the middle of the day. Terrestrial traveling became increasingly common over the course of the day.
Localización: Biblioteca OET: S2698. PVB. NBINA-7123.

Publicación no.: 132 **Mammalian diversity in neotropical lowland rainforests: a preliminary assessment** *[Diversidad de mamíferos en los bosques lluviosos neotropicales de las tierras bajas: evaluación preliminar]* / Voss, R.S; Emmons, L.H. (American Museum of Natural History. Department of Mammalogy, Central Park West at 79th St, New York, NY 10024, US <E-mail: voss@amnh.org>).
En: Bulletin of the American Museum of Natural History (ISSN 0003-0090), no. 230, p. 1-115. 1996.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-3689.pdf
The La Selva Biological Station (10°26'N, 83º59'W) is located at the confluence of the Río Sarapiquí and the Río Puerto Viejo in the Caribbean watershed of Provincia Heredia, Costa Rica. Owned and operated by the Organization of Tropical Studies (OTS), La Selva includes level and hilly terrain from about 35 to 150 m elevation. Upland soils are derived from in situ weathering of ancient lava flows, but bed-rock at lower elevations is overlain by old alluvial terraces and by recent alluvium that is sometimes flooded. The average annual rainfall is 3962 mm; although some months are consistently wetter than others, none receives an average precipitation of less than 150 mm. Nearly two-thirds of the 1536 ha currently held by OTS is covered by undisturbed or selectively logged primary forest, but the original 730 ha reserve wherein most of the mammalian faunal inventory efforts were carried out in the 1960s and 1970s is about 90% primary forest. Swamps, secondary forests, abandoned pastures. Observations and collections of mammals at La Selva Biological Station, Costa Rica, began when the property was privately owned; the earliest published records date from 1960. Bats were intensively surveyed from 1973 to 1974 with mist nets and harp traps set at ground level across trails, but some species were taken by hand from their roosts in hollow logs and trees. The continuous presence of resident and visiting researchers at La Selva for over three decades is probably responsible for the apparently complete roster of large mammals. Among the smaller nonvolant fauna, however, at least two marsupials (Metachirus nudicaudatus, Micouresus alstoni) and one rodent (Oryzomys talamancae) could still be expected; their abscence from the current list is possible due to the lack of any intensive trapping efforts since Fleming's (1973b) methodologically limited survey. A conservative list of expected bats (excluding

cave-roosting species, the proximity of suitable roosts for which is unknown) includes many high-flying species, for which appropriate capture methods have apparently never ben used at La Selva: Pteropteryx macrotis, Micronycteris sylvestris, Artibeus hartii, Centurio senex, Mesophylla macconnelli, Diaemus youngi, Diphylla ecaudata, Thyroptera discifera, Lasiurus blossevillii, Lasiurus castaneus, Lasiurus ega, Eumops uripendulus, Eumops hansae, Molossops greenhalli, Nyctionomops laticaudatus, Promops centralis, Molossus ater, Molossus molossus.
Localización: Biblioteca OET: AD 745. NBINA-3689.

Publicación no.: 133 **Female-female social relationships in wild white-faced capuchin monkeys, Cebus capucinus** *[Relaciones sociales hembra-hembra en monos carablanca, Cebus capucinus silvestres]* / Perry, Susan E. (Max-Planck-Institute for Evolutionary Anthropology. Independent Junior Research Group in Cultural Phylogeny, Deutscher Platz 6, 04103 Leipzig, DE <E-mail: perry@eva.mpg.de>).
En: American Journal of Primatology (ISSN 0275-2565), v. 40, no. 2, p. 167-182. 1996.
A single social group of wild white-faced capuchin monkeys was studied for a period of 26 months at Lomas Barbudal Biological Reserve, Costa Rica. A total of 604 hr of focal animal data was collected on six adult females in a group of 21 monkeys. Females could be ranked in a stable, linear dominance hierarchy. Adult females spent much more time in proximity to other adult females than to adult males. Females groomed other females twice as often as they groomed males, and about 55 times more often than males groomed males. Females tended to groom up the dominance hierarchy, and dyads with smaller rank distances groomed more often. Higher-ranking females nursed infants other than their own at lower rates than did lower-ranking females; however, females nursed infants of females ranked both above and below them. Although lower-ranking females were more likely than higher-ranking females to be the victims of aggression, higher-ranking females were not necessarily more aggressive than lower-ranking females. In 96% of female-female coalitions vs. a female, the victim was lower-ranking than both coalition partners; in the remaining 4%, the victim was intermediate in rank between the two coalition partners. Higher-ranking female-female dyads formed coalitions more often than did lower-ranking dyads. Those female-female dyads that groomed more frequently also formed coalitions more frequently. The patterning of social interactions indicates that Cebus capucinus at Lomas Barbudal are female bonded.
Localización: Biblioteca OET: S3017.

Publicación no.: 134 **A preliminary parasitological analysis of fecal samples from a wild population of Costa Rican squirrel monkeys (Saimiri oerstedii)** [Un análisis preliminar parasitológico de muestras fecales de una población silvestre de monos tití de Costa Rica (Saimiri oerstedii)] / Appleton, C.C; Boinski, Sue. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu>).
En: Journal of Medical Primatology (ISSN 0047-2565), v. 20, no. 8, p. 402-403. 1991.Fecal samples (n = 18) were obtained from a wild population of squirrel monkeys, Saimiri oerstedii, in Costa Rica. The parasite cysts, eggs, and larvae recovered from these samples are described.
Localización: No disponible.

Publicación no.: 135 **Field methods for capture and measurement of three monkey species in Costa Rica** *[Métodos de campo para la captura y medición de tres especies de monos en Costa Rica]* / Glander, Kenneth E; Fedigan, Linda M; Chapman, Colin A. (Duke University. Department of Biology, Anthropology

& Anatomy, Wheeler Bldg., 3705-B Erwin Rd, Durham, N.C. 27706, US <E-mail: glander@duke.edu> <E-mail: fedigan@ucalgary.ca> <E-mail: cachapman@zoo.ufl.edu>).
En: Folia Primatologica (ISSN 0015-5713), v. 57, no. 2, p. 70-82. 1991.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-4031.pdf
A total of 54 free-ranging monkeys were captured and marked in Santa Rosa National Park, Costa Rica, during May 1985, and an additional 17 were captured during March 1986. The animals were darted using a blowpipe or a CO-2 gun. The drugs used were Ketaset, Sernylan and Telazol. Ketaset was effective for Cebus capucinus but unsuccessful for Alouatta palliata and Ateles geoffroyi. Sernylan was successful for A. geoffroyi and A. palliata but is no longer commercially available. Telazol proved to be an excellent alternative capture drug for both A. palliata and A. geoffroyi.
Localización: Biblioteca OET: S4086. NBINA-4031.

Publicación no.: 136 **Locomotor and postural behavior in Alouatta palliata and Cebus capucinus** *[Comportamiento locomotor y postural en Alouatta palliata y Cebus capucinus]* / Gebo, D.L. (Northern Illinois University. Department of Anthropology, DeKalb, IL 60115, US).
En: American Journal of Primatology (ISSN 0275-2565), v. 26, no. 4, p. 277-290. 1992.
Positional behavior of two platyrrhine monkeys, Alouatta palliata and Cebus capucinus, was observed at La Pacifica Ecological Centre and Santa Rosa National Park, Costa Rica. Frequency data for locomotion, postures, support diameters, orientation of supports, and use of canopy were recorded on focal males and females. Alouatta palliata is a frequent user of arboreal quadrupedalism (47%) and climbing (37%), with bridging (10%) representing the next most frequent type of locomotion. Intraspecific comparisons show the smaller-sized females of Alouatta to prefer very small diameter supports, the lower canopy, and to climb more frequently than the larger males - a pattern opposite to that which has been documented to occur with increasing body size across species. A more limited study on Cebus capucinus shows this species to be highly quadrupedal (54%) with moderately high locomotor frequencies for climbing (26%) and leaping (15%).
Localización: Biblioteca OET: S5074.

Publicación no.: 137 **Developmental and comparative aspects of social play of mantled howling monkeys in Costa Rica** *[Aspectos comparativos y de desarrollo del juego social en los monos congo en Costa Rica]* / Zucker, E.L; Clarke, Margaret R. (Loyola University. Department of Psychology, New Orleans, LA 70118, US <E-mail: zucker@loyno.edu> <E-mail: clarkem@cwu.edu>).
En: Behaviour (ISSN 0005-7959), v. 123, no. 1-2, p. 144-171. 1992.
The social play of infant and juvenile mantled howling monkeys in Costa Rica was studied via focal sampling (529.2 h) of known individuals of known age over a 22-month period. Observations of adult males (291.2 h of focal samples), done over portions of 3 calendar years, provided supplemental data for the social play of adults. Developmental patterns of play are presented, and are compared with data available for other mantled howlers, other sites, and other species of howlers. Social play by infants and juveniles occurred at the rate of .56 bouts/h, represented 5.79% of the total focal observation time, and bouts had a mean duration of 6.19 minutes. Play by an adult male occurred at the rate of .03 bouts/h (.007/h for all 4 adult males combined), represented 0.24% of his total focal time, and had a mean duration of 5.0 minutes. Ontogenetically, social play began in the 8th week of life. Infants' rates of play and percentage of time spent in play increased from the I-1 stage through the I-3 stage, then decreased into the juvenile period (gt 1 year of age). Mean durations of play bouts increased through the 3 infant

stages, then decreased slightly in the J-1 stage. The occurrence of play groups (3 or more individuals) increased through the infant and juvenile stages. As infants aged, a larger percentage of bouts occurred further from the infants' and juveniles' mothers. With respect to social variables, no overall developmental pattern was evident for playing with an older or younger partner, or a partner that was the offspring of a mother ranked higher or lower than one's own mother; different age classes showed different patterns. When an older sibling was available as a play partner, no preference for this relative was shown. I-3's had the highest number of different play partners. Immature howlers played predominantly with other immatures (93% of their interactions). The behaviours observed during play were simlar to those reported for other howlers; the behaviours emitted by an adult male were similar to those of the juvenile partner, as was the style and intensity of play. The social play of these mantled howlers is viewed with respect to social, demographic, and ecological variables. The play of howlers is both facilitated and constrained by these variables.
Localización: Biblioteca OET: S4401.

Publicación no.: 138 **Vocal coordination of troop movement among white-faced capuchin monkeys, Cebus capucinus** *[Coordinación vocal del movimiento de la tropa entre los monos carablanca, Cebus capucinus]* / Boinski, Sue. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 30, no. 2, p. 85-100. 1993.
Coordinated travel by social groups is well documented, often with evidence that cognitive spatial maps are employed. Yet the mechanisms by which movement decisions are made and implemented within social groups are poorly known. In a field study of white-faced capuchin monkeys in Costa Rica it was demonstrated that a specific call, the "trill," is used by adults in the initiation and directing of troop movement. The trills of subadults were restricted to vocal exchanges with other subadults. Continuous vocal recordings were collected of the vocalizations of the 14 members of the study troop. A cumulative 33.7 h of continuous samples and 1,892 sonagrams were analyzed. In addition to vocalizations clearly associated with alarm, distress, or agonistic contexts, two distinct call types were identified, trills and huhs. Age-sex classes differed in the rate at which both types of calls were produced in different spatial positions within the troop. Adult females and males produced higher rates of trills when in the leading edge compared to all other spatial positions in a traveling troop. Trills at the edge of a stationary troop represented 36 "successful" and 3 "unsuccessful" start attempts; the troop usually moved in the trajectory predicted by a trilling adult's location on the troop periphery within 10 min of the initiation of trilling. Adults also altered the trajectory of traveling troops by trilling at the side and back of the troop (10 "successful" and 4 "unsuccessful" attempts). Huh vocalizations were most predictably produced when a capuchin is in a dense fruit patch. These results emphasize the role vocalizations serve in the coordination and trajectory of group movement in nonhuman primates, especially those populations that are arboreal or in which visual contact is otherwise impeded.
Localización: Biblioteca OET: S3232.

Publicación no.: 139 **Benefits and costs of resident males to females in white-faced capuchins, Cebus capucinus** *[Costos y beneficios de los machos residentes para las hembras de los monos carablanca, Cebus capucinus]* / Rose, L.M. (University of British Columbia. Department of Anthropology, 6303 NW Marine Dr, Vancouver, BC V6Y 1Z1, CA <E-mail: lrose@interchange.ubc.ca>).
En: American Journal of Primatology (ISSN 0275-2565), v. 32, no. 4, p. 235-248. 1994.

Some benefits and costs of resident males to females are examined in white-faced capuchins (Cebus capucinus) at Santa Rosa National Park, Costa Rica. A total of 380 hours of focal data were collected on adults in two groups, between January and July 1991. The results of this study suggest that for females, males provide some greater benefits, and impose some higher costs than do other females. Males are more vigilant than females, and are somewhat more successful in detecting predators. To the extent that predator protection is a major benefit of group living, this benefit seems to derive more from males than from females. Increased contest competition is the major cost of group living, and the study suggests that females bear a higher proportion of this cost than males. More foraging related agonism occurs between males and females than between females, more aggression occurs between than within sexes, and female foraging success is negatively associated with agonistic interactions involving males. However, female foraging success is negatively affected by the proximity of other females, and not by the proximity of males. Differences in the distribution of male benefits and costs according to female dominance rank are suggested.
Localización: Biblioteca OET: S8203.

Publicación no.: 140 **The value of radio tracking in the study of neotropical rain forest monkeys** *[El valor de la radiolocalización en el estudio de monos del bosque lluvioso neotropical]* / Campbell, A.F; Sussman, R.W. (Washington University. Department of Anthropology, Campus Box 1114, One Brookings Drive, St. Louis, MO 63130-4899, US <E-mail: aimee.campbell@mailcity.com> <E-mail: rwsussma@artsci.wustl.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 32, no. 4, p. 291-301. 1994.
Although radio tracking has been used increasingly in primate field studies over the past 15 years, some primatologists have been reluctant to use it. We present data that demonstrate benefits of radio tracking in the study of rain forest primates. Data were collected during an ecological study of Ateles geoffroyi and Cebus capucinus in hilly, dense rain forest habitat with poor visibility, in northeastern Costa Rica. We show that radio tracking decreased search time for both species, which led to increased contact time and facilitated continuous data collection. Mean search time for both primate species was significantly reduced using radio tracking (Kruskal-Wallis Test, P lt 0.05). Search times for both species increased at the end of the study, when the transmitters ceased functioning. These increased search times occurred despite high levels of familiarity with the ranging patterns of the animals. The rate of marking feeding trees increased significantly with radio tracking and decreased significantly when the radios failed (Kruskal-Wallis Test, P lt 0.01). Other benefits of radio tracking include: finding animals far off trail, in dense vegetation, and in inclement weather; maintaining continuous contact with the animals, which allows for more complete knowledge of ranging and foraging patterns; and monitoring group and subgroup composition.
Localización: Biblioteca OET: S8779.

Publicación no.: 141 **Male residence and association patterns in Costa Rican squirrel monkeys (Saimiri oerstedii)** *[Residencia del macho y patrones de asociación en los mono tití costarricenses (Saimiri oerstedii)]* / Boinski, Sue; Mitchell, C.L. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 34, no. 2, p. 157-169. 1994.
A model is developed to interpret the evolution of the unusual pattern of male residence and social structure in the Costa Rican squirrel monkey (Saimiri oerstedii). Observations of a wild population

document that males 1) maintain close spatial and social associations with other males, especially other males in their birth cohort, but not females and infants; 2) exhibit negligible within-troop male-male aggression, high levels of antipredator vigilance, and frequent predator deterrence; 3) cooperate in aggressive olfactory investigation of females; and 4) maintain residence in their natal troop with their male birth cohort, eventually succeeding to reproductive positions in their natal troop. Less commonly, male age-cohorts leave the troop well past reproductive maturity and usurp the reproductive male cohort in another troop. We suggest that this divergence from the social structure typical of male squirrel monkeys in Peru (males transient between troops, weak male-male bonds, high within-troop male aggression, little investment in anti-predator behavior) arose because female S. oerstedi in Costa Rica are not philopatric. In Costa Rica, long term reproductive cooperation is likely advantageous to males, because of the frequent movement of female S. oerstedii between troops; the potential costs of inbreeding are reduced. Male S. oerstedii of all ages residing in the same troop, but especially those of the same age cohort, are predicted to have a much higher degree of genetic relatedness than adult females.
Localización: Biblioteca OET: S3231.

Publicación no.: 142 **Fur rubbing: Use of medicinal plants by capuchin monkeys (Cebus capucinus)** *[Frotamiento de la piel: Uso de plantas medicinales por parte de los monos carablanca (Cebus capucinus)]* / Baker, Mary E. (Rhode Island College. Department of Anthropology, 600 Mt. Pleasant Ave., Providence, RI 02908, US <E-mail: mbaker@ric.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 38, no. 3, p. 263-270. 1996.
There is a growing body of evidence documenting animals' selective use of medicinal plants found in their environments. During research conducted in Costa Rica, capuchin monkeys (Cebus capucinus) have been observed topically applying material of at least four plant genera (Citrus, Clematis, Piper, and Sloanea). The first three of these plants contain secondary compounds which are known to have anti-insect and/or medicinal benefits and the ethnographic record shows that indigenous peoples throughout the New World use these plants for similar purposes and in similar ways. It is suggested that free-ranging nonhuman primates use plants topically for their potential medicinal purposes.
Localización: Biblioteca OET: S3056.

Publicación no.: 143 **Chemical factors influencing food choice of Howler monkey (Alouatta palliata)** *[Factores químicos que influyen en la escogencia del alimento en los monos congo (Alouatta palliata)]* / Bilgener, M. (Ondokuz Mayis Universitesi. Fen-Edebiyat Fakültesi; Biyologi Bölümü, Samsun, TR).
En: Turkish Journal of Zoology [Doga Turk Zooloji Dergisi] (ISSN 1011-0895), v. 19, no. 4, p. 291-303. 1995.
Howler monkeys (Alouatta palliata) are the largest folivorous monkeys of the New World. Previous researches suggest that howlers discriminantly feed on certain plants which are not necessarily the most abundant species. Eaten and uneaten plant samples collected in Guanacaste Province, Costa Rica, were analyzed for concentrations of total phenolics (astringency), condensed tannins, gallotannins, total proteins, fibers and lignin and also for their in vitro digestibility by pepsin and cellulase. Chemical analyses showed that the most important factor influencing howler monkey food choice is the protein content of food plants. Howlers require an average protein content of 15.6% (by dry weight) in their diet regardless of secondary compound content. However, when howlers feed on protein-rich plants, they choose less astringent plants with lower tannin concentrations.

Localización: Biblioteca OET: S5888.

Publicación no.: 144 **Intergroup encounters in wild white-faced capuchins (Cebus capucinus)** *[Encuentros entre manadas de monos cara blanca (Cebus capucinus)]* / Perry, Susan E. (Max-Planck-Institute for Evolutionary Anthropology. Independent Junior Research Group in Cultural Phylogeny, Deutscher Platz 6, 04103 Leipzig, DE <E-mail: perry@eva.mpg.de>).
En: International Journal of Primatology (ISSN 0164-0291), v. 17, no. 3, p. 309-330. 1996.
Wrangham (1980) hypothesized that knowledge of the nature of intergroup encounters is crucial to understanding primate social relationships and social organization. I studied a single social group of wild white-faced capuchins over a period of 26 months and observed 44 encounters between social groups during 3703 hr of observation. All intergroup encounters consisted of predominantly hostile social interactions. However, nonaggressive interactions between males of different social groups occurred in a few cases. Adult males were the sole participants in 39 encounters and the primary participants in all 44 encounters. Tha alpha male was the most frequent participant. High-ranking females participated aggressively in five encounters, and low-ranking females never participated. There was no stable intergroup dominance hierarchy. I hypothesize that the need for male-male cooperation in intergroup aggression is an important factor influencing the quality of intergroup male-male relationships. Behavior during is consistent with the idea that intergroup behavior is related to male reproductive strategies, but inconsistent with the idea that intergroup aggression is related to female defense of resources. The possibility that males are "hired guns" (Wrangham, 1980) cannot be ruled out.
Localización: Biblioteca OET: S3035.

Publicación no.: 145 **Diet of Panthera onca, Felis concolor and Felis pardalis (Carnivora: Felidae) in Parque Nacional Corcovado, Costa Rica** *[Dieta de Panthera onca, Felis concolor y Felis pardalis (Carnivora: Felidae) en el Parque Nacional Corcovado, Costa Rica]* / Chinchilla-Romero, Federico Alfonso. (Estación Biológica Monteverde, Ap. Postal 1265-1100 CR). Tropical Diversity Origins, Maintenance, and Conservation. ATB & OTS Symposium and Annual Meeting Abstracts, San José, CR, 15-20 June, 1997. San José: Organization for Tropical Studies, 1997, p. 47.
(Abstract only). Using scats, I studied the diet of jaguars (Panthera onca), mountain lions (Felis concolor), and ocelots (Felis pardalis), in Parque Nacional Corcovado, Costa Rica, from August 1993 to June 1994. In 56 positively identified scats (21 jaguar scats with 14 prey, 11 mountain lion scats with 9 prey, and 23 ocelot scats with 12 prey), the main prey were mammals; reptiles and birds were less important with respect to both frequency and biomass. All jaguar prey, and most of those of mountain lions, were larger than 2.5 Kg. Jaguar's predation on white lipped peccaries, Tayassu pecari, was more frequent during the rainy season, perhaps because peccaries form large groups during the dry season and are more difficult to capture. Three species of Cebidae, and proechymid rodents were the most important components of the mountain lion diet. The main prey in the ocelot diet was the spiny rat, Proechimys semispinosus, and other rodents; all ocelot prey were less than 2.5 Kg. Of the three species, mountain lion and ocelot diets were most similar. All major prey species were taken during both dry and wet season.

Publicación no.: 146 **Habitat fragmentation and protection status evaluation of titi monkey (Saimiri oerstedii citrinellus) population in Central Pacific Region, Costa Rica** *[Evaluación de la segmentación del hábitat y estado de protección de la población del mono tití (Saimiri oerstedii citrinellus) en la región*

Pacífico Central, Costa Rica] / Fernández-Morillo, Maria Teresa; Altrichter-Cateula, Mariana; Hernández-Soliz, César Augusto; Herrera-Rosales, Heydi Maria; Jiménez-Ruiz, Belkys; Jiménez-Pérez, Ignacio; López-Arévalo, Hugo Fernando; Millán-Araujo, José Oswaldo; Mora-Cerdas, Geisel; Paniagua-Espinoza, Arnoldo; Sáenz-Méndez, Joel Cris; Sierra, Claudine; Tabilo-Valdivieso, Elier Lorenzo. (Universidad Nacional. Programa Regional en Manejo de Vida Silvestre, Apdo. 1350-3000, Heredia, CR <E-mail: mfernad@una.ac.cr> <E-mail: marianaal@msn.com> <E-mail: mariana_altrichter@redlands.edu> <E-mail: hherrera@una.ac.cr> <E-mail: ijimenez@una.ac.cr> <E-mail: omillan@una.ac.cr> <E-mail: gmora@una.ac.cr> <E-mail: apaniagu@una.ac.cr> <E-mail: jsaenz@una.ac.cr> <E-mail: clodin@racsa.co.cr> <E-mail: etabilo@una.ac.cr>). Tropical Diversity Origins, Maintenance, and Conservation. ATB & OTS Symposium and Annual Meeting Abstracts, San José, CR, 15-20 June, 1997. San José: Organization for Tropical Studies, 1997. p. 55.
(Abstract only). The most endangered primate in Costa Rica is titi monkey, owed to habitat destruction. During 1996, we evaluated the fragmentation forest status and titi distribution between Parrita and Naranjo rivers (Puntarenas, Costa Rica) from 0 to 350 meters high. By photointerpretation and field checking, we studied some forest patches and their surrounding matrix characteristics. We looked for monkey groups in the patches and made 124 interviews to local people. We found monkeys in 26 of 45 studied patches. Their presence was associated with connectivity among patches (P=0.0009) and forest heterogeneity (P=0.025). Distance to Manuel Antonio or the mountains was smaller in patches with monkeys (P=0.005). The multivariate analysis showed that monkeys live in areas with high density of patches, in the biggest ones, far from villages and in forest fragments with high charral percentage in the matrix. The patches distribution map showed that lots of them are out of Central Pacific Conservation Area (ACOPAC). We conclude that monkey's population is more abundant than previously supposed, but out of control landscape changes could affect their future survivorship. We recommend to focus on habitat management, river forest and natural fences conservation, and to include in ACOPAC the most critical patches.
Localización: No disponible.

Publicación no.: 147 **White faced monkey (Cebus capucinus) predation impact on coati (Nasua narica) population in Santa Rosa National Park, Costa Rica** / Sáenz-Méndez, Joel Cris; Espach, H.E. (Universidad Nacional. Programa Regional en Manejo de Vida Silvestre, Apdo. 1350-3000, Heredia, CR <E-mail: jsaenz@una.ac.cr>). Tropical Diversity Origins, Maintenance, and Conservation. ATB & OTS Symposium and Annual Meeting Abstracts, San José, CR, 15-20 June, 1997. San José: Organization for Tropical Studies, 1997.
(Abstract only). During six years (1990-1995) we evaluate white-faced monkey predation on coati population at Nancite and Santa Rosa National Park. Each year, during the reproductive season, we recorded in the coati bands the depredated offspring, mortality, surviving and recruitment rate. 44 females of 4 bands were radio-tagged. The bands number was estimate by intense searching along the park. The offspring mortality was 84.1% at Nancite and 82.6% at Santa Rosa, although it was 100% some years in certain bands. During the first reproductive season, surviving rate was 3.6% at Nancite and 4.6% at Santa Rosa. In the second reproductive period, it was 51.2% and 54.5% at each place. Recruitment rate was 10.3% at Nancite and 11.2% at Santa Rosa. We determinated the extintion probability in 100 years using an estochastic simulation model (VORTEX). The extincion probability at Nancite is 56.2% and 51.6% at Santa Rosa. We conclude that the high white-faced monkey predation on coati offspring has a strong impact on the coati population at Santa Rosa National Park, and it could take the population local

extintion in 30 years. Although the coati bands are showing an adaptative response, they are having a second reproductive period, what has not been reported in the rest of its distribution range.
Localización: No disponible.

Publicación no.: 148 **Sexual and social behavior among mantled howlers (Alouatta palliata) from Costa Rica** *[Comportamiento sexual y social entre los monos congo (Alouatta palliata) de Costa Rica]* / Salas-Campos, Ingrid; Zaldívar-Ruiz, María Eugenia; Glander, Kenneth E. (Universidad de Costa Rica. Escuela de Biología, San José, CR <E-mail: zaldivar@cariari.ucr.ac.cr> <E-mail: glander@duke.edu>). Tropical Diversity Origins, Maintenance, and Conservation. ATB & OTS Symposium and Annual Meeting Abstracts, San José, CR, 15-20 June, 1997. San José: Organization for Tropical Studies, 1997.
(Abstract only). In this study we examine sexual and social behavior among mantled howler monkeys (Alouatta palliata) from Costa Rica. Our goal was to determine whether or not there were any sexual or social preferences among diads within one specific group. Our data include adult individuals from one troop of the population of La Pacífica Ecological Centre in Costa Rica. This population has been studied for about 25 years. We collected data on behavioral interactions using the focal animal method. We found no differences on the frequency of copulations among males. However, we found differences in courtship according to the sex and rank of individuals; overall, females spent more effort in courtship than males, particularly younger females, and the dominant male was courted more often than the subdominant male, particularly during the peak of the estrus cycle. Among males, the subdominant male spent more effort courting females, particularly during estrus days. We discuss the evolutionary meaning of these differences in sexual behavior.
Localización: No disponible.

Publicación no.: 149 **Mitochondrial DNA variation among mantled howlers (Alouatta palliata) from Costa Rica** *[Variación del ADN mitocondrial entre los monos congo (Alouatta palliata) de Costa Rica]* / Villalobos-Brenes, Federico Alexander; Zaldívar-Ruiz, María Eugenia; Lobo-Segura, Jorge A; Gutiérrez-Espeleta, Gustavo A; Sánchez-Porras, Ronald E; Glander, Kenneth E. (Instituto Centroamericano para la Investigación en Biología y Conservación, Apartado 2398-2050, San Pedro de Montes de Oca, CR <E-mail: fvillalobos@cibrc.org> <E-mail: zaldivar@biologia.ucr.ac.cr> <E-mail: jlobo@biologia.ucr.ac.cr> <E-mail: ggutier@biologia.ucr.ac.cr> <E-mail: resanche@cariari.ucr.ac.cr> <E-mail: glander@duke.edu>). Tropical Diversity Origins, Maintenance, and Conservation. ATB & OTS Symposium and Annual Meeting Abstracts, San José, CR, 15-20 June, 1997. San José: Organization for Tropical Studies, 1997.
(Abstract only). In this study we examine genetic variation in mitochondrial DNA among howler monkeys (Alouatta palliata) from Costa Rica. Our data include individuals from five different sites in Costa Rica. We examine variation in the D-Loop region. The amplified segments will be cut with restriction enzymes. The enzymes tested so far, particularly Apa I and Eco RV, reveal very little variation between as well as within sites. We will perform RFLP's analysis using other enzymes. Nevertheless, these results match findings from studies using electrophoretic markers and contrast with data from other Alouatta species in South America. We discuss the relevance of our findings for conservation of this species in Costa Rica.
Localización: No disponible.

Publicación no.: 150 **Genetic variation among mantled howlers (Alouatta palliata) from Costa Rica** *[Variación genética entre los monos congo (Alouatta palliata) de Costa Rica]* / Zaldívar-Ruiz, María Eugenia; Glander, Kenneth E; Sánchez-Porras, Ronald E; Gutiérrez-Espeleta, Gustavo A. (Universidad de

Costa Rica. Escuela de Biología, San José, CR <E-mail: zaldivar@biologia.ucr.ac.cr> <E-mail: glander@duke.edu> <E-mail: resanche@cariari.ucr.ac.cr> <E-mail: ggutier@biologia.ucr.ac.cr>). Tropical Diversity Origins, Maintenance, and Conservation. ATB & OTS Symposium and Annual Meeting Abstracts, San José, CR, 15-20 June, 1997. San José: Organization for Tropical Studies, 1997.
(Abstract only). In this study we examine genetic variation among mantled howlers (Alouatta palliata) from Costa Rica using electrophoretic markers. Our data include individuals from five different sites in Costa Rica. We find very little variation between sites as well as between individuals within sites. A previous study using electrophoretic markers also revealed very little genetic variation between individuals from a Costa Rican population. These results contrast with findings for other Alouatta species in South America. We discuss the consequences of the lack of genetic variation for the conservation of A. palliata in Costa Rica.
Localización: No disponible.

Publicación no.: 151 **Stable isotope ratios indicate diet and habitat use in New World monkeys** *[La relación de los isótopos estables indican la dieta y el uso del hábitat en los monos del Nuevo Mundo]* / Schoeninger, Margaret J; Iwaniec, U.T; Glander, Kenneth E. (University of Wisconsin. Department of Anthropology, Madison, WI 53706, US <E-mail: mjschoen@facstaff.wisc.edu> <E-mail: glander@duke.edu>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), v. 103, no. 1, p. 69-83. 1997.
This paper demonstrates the use of stable isotope ratios of carbon and nitrogen in animal tissues for indicating aspects of species behavioral strategy. We analyzed hair from individuals representing four species of New World monkeys (Alouatta palliata, the mantled howler (La Pacífica Ecological Centre); Ateles geoffroyi, the spider monkey; Cebus capucinus, the capuchin (La Selva Biological Station); and Brachyteles arachnoides, the woolly-spider monkey or muriqui) for $\delta^{13}C$ and $\delta^{15}N$ using previously developed methods. There are no significant differences in either carbon or nitrogen ratios between sexes, sampling year, or year of analysis. Seasonal differences in $\delta^{13}C$ reached a low level of significance but do not affect general patterns. Variation within species was similar to that recorded previously within single individuals. The $\delta^{13}C$ data show a bimodal distribution with significant difference between the means. The two monkey populations living in an evergreen forest were similar to each other and different from the other two monkey populations that inhabited dry, deciduous forests. This bimodal distribution is independent of any particular species' diet and reflects the level of leaf cover in the two types of forest. The $\delta^{15}N$ data display three significantly different modes. The omnivorous capuchins were most positive reflecting a trophic level offset. The spider monkeys and the muriquis were similar to one another and significantly more positive than the howlers. This distribution among totally herbivorous species correlates with the ingestion of legumes by the howler monkey population. In combination, these data indicate that museum-curated primate material can be analyzed to yield information on forest cover and diet in populations and species lacking behavioral data.
Localización: Biblioteca OET: S6042. NBINA-3741.

Publicación no.: 152 **Neotropical rainforest mammals: A field guide** *[Mamíferos neotropicales del bosque lluvioso: Guía de campo]* / Emmons, L.H. (Smithsonian Institution. National Museum of Natural History, Division of Mammals, Washington, D.C, US). Chicago, IL: The University of Chicago Press, 1997. 307 p. ISBN: 0-226-20721-8.

This book includes the lowland rainforest mammals found in Central and South America at elevations below 1,000 meters. These species for the most part form a discrete fauna: mammal communities within the rainforest region are very similar to other in composition of monkeys, oppossum, sloths, bats, deer, and rodents.
Localización: Biblioteca OET: 599.098 E54n2.

Publicación no.: 153 **The functional ecology of howling monkey positional behavior: Proximate effects of habitat structure, tree architecture, phenophase and body size upon Alouatta palliata foraging in discrete forest and crown types** / Nisbett, R.A. Iowa City, IA: The University of Iowa, 1993. 492 p. Dissertation, Ph.D, The University of Iowa, Iowa City, IA (USA).
The recognition that habitat plays an important role in primate locomotion rests on the poorly understood assumption that functional relationships exist between morphology and structural features of the environment. Fleagle holds that the effects of phylogeny, size and habitat must be sequestered; Cant claims that habitat structure is a critical variable intervening between the behaviors being evaluated and food acquisition, the criterion of evaluation; Pounds affirms that locomotion reflects both proximate influences of the environment and evolved tendencies of the animals. He asserts that the alternative hypothesis that habitat structure is responsible for observed differences must be falsified before accepting empirical claims that phylogeny or size accounts for any observed differences. The purpose of this study has been to assess the proximate effects of habitat structure on Alouatta palliata positional behavior. I have used a comparative, intraspecific approach to study the behavior of monkeys inhabiting discrete forest communities in the tropical dry forests of Costa Rica. These lowland Pacific forests are well-studied, complex mosaics. I quantified habitat structure at three levels to assay structural heterogeneity and complexity as components of ecological diversity. I collected behavioral data during the wet and dry seasons on three size classes (adult males, females and juveniles) in several groups. I found striking differences in the species composition, tree architecture and forest metrics of the upland versus riparian forests. Likewise, I found salient differences in the positional behavior profiles of the groups utilizing the respective forests and sought correlations between the positional behavior of foraging and behaviorally-relevant habitat attributes. While the animals in the gallery corridors were predominately quadrupedal, leaping, climbing and bridging accounted for 45% of the locomotion in the upland monkeys. To test the veracity of the upland profile, I assessed the behavior of riparian monkeys moving in a subset of "upland tree species" along the periphery of the gallery corridor. The profile from the manipulation mirrored the upland behavior and substrate use patterns. In addition, there were significant differences in behavior and substrate use by size and phenophase.
Localización: Biblioteca OET: NBINA-8315.

Publicación no.: 154 **Density and growth rate of some tropical dry forest trees: comparisons between successional forest types** *[Densidad y tasa de crecimiento de algunos árboles del bosque tropical seco: comparaciones entre tipos de bosque sucesional]* / Chapman, Colin A; Chapman, L.J. (McGill University. Department of Biology, 1205 Dr. Penfield Ave, Montreal, Quebec H3A 1B1, CA <E-mail: cachapman@zoo.ufl.edu> <E-mail: ljchapman@zoo.ufl.edu>).
En: Bulletin of the Torrey Botanical Club (ISSN 0040-9618), v. 117, no. 3, p. 226-231. 1990.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-1978.pdf
During a 4-yr study in Santa Rosa National Park (NW Costa Rica), the density, phenology and growth rate of 29 species of dry forest trees important in the diets of primates were documented in 3 habitat types:

pristine [primary] semi-evergreen forest, old successional semi-deciduous forest and young successional semi-deciduous forest. The overall density of adult trees was lowest in the young successional forest (80 trees/ha) followed by the primary forest (140.3 trees/ha) and the older successional forest (154.8 trees/ha). However, the primary forest had a fairly constant abundance of food for primates, while both types of successional forest had more seasonally variable production. The average diameter growth rate of trees in the semi-evergreen forest was slower than that documented in either of the successional forests.
Localización: Biblioteca OET: NBINA-1978. S3750.

Publicación no.: 155 **Rainforest mammals of La Selva and vicinity [APPENDIX 2]** *[Mamíferos del bosque lluvioso de La Selva y vecindad [APÉNDICE 2]]* / Voss, R.S; Emmons, L.H. (American Museum of Natural History. Department of Mammalogy, Central Park West at 79th St, New York, NY 10024, US <E-mail: voss@amnh.org>).
En: Bulletin of the American Museum of Natural History (ISSN 0003-0090)En: Mammalian diversity in Neotropical lowland rainforests: A preliminary assessment, no. 230, p. 87-89. 1996.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-4567.pdf
The La Selva Biological Station (10º26'N, 83º59'W) is located at the confluence of the Río Sarapiquí and the Río Puerto Viejo in the Caribbean watershed of Provincia Heredia, Costa Rica. Owned and operated by the Organization of Tropical Studies (OTS), La Selva includes level and hilly terrain from about 35 to 150 m elevation. Upland soils are derived from in situ weathering of ancient lava flows, but bed-rock at lower elevations is overlain by old alluvial terraces and by recent alluvium that is sometimes flooded. The average annual rainfall is 3962 mm; although some months are consistently wetter than others, none receives an average precipitation of less than 150 mm. Nearly two-thirds of the 1536 ha currently held by OTS is covered by undisturbed or selectively logged primary forest, but the original 730 ha reserve wherein most of the mammalian faunal inventory efforts were carried out in the 1960s and 1970s is about 90% primary forest. Swamps, secondary forests, abandoned pastures, and cacao (Theobroma cacao) and pejibaye palm (Bactris gasipaes) plantations make up the remainder of the La Selva property. Observations and collections of mammals at La Selva began when the property was privately owned; the earliest published records date from 1960... COMMENTS: The continuous presence of resident and visiting researchers at La Selva for over three decades is probably responsible for the apparently complete roster of large mammals. Among the smaller nonvolant fauna, however, at least two marsupials (Metachirus nudicaudatus, Micoureus alstoni) and one rodent (Oryzomys talamancae) could still be expected; their absence from the current list is possibly due to the lack of any intensive trapping efforts since Fleming's (1973b) methodologically limited survey. A conservative list of expected bats (excluding cave-roosting species, the proximity of suitable roosts for which is unknown) includes many high-flying species, for which appropriate capture methods have apparently never been used at La Selva: Peropteryx macrotis, Micronycteris sylvestris, Artibeus hartii, Centurio senex, Mesophylla macconnelli, Diaemus youngi, Diphylla ecaudata, Thyroptera discifera, Lasiurus blossevillii, Lasiurus castaneus, Lasiurus ega, Eumops auripendulus, Eumops hansae, Molossops greenhalli, Nyctinomops laticaudatus, Promops centralis, Molossus ater, Molossus molossus.
Localización: Biblioteca OET: 599.098 V969/S4798. NBINA-4567.

Publicación no.: 156 **Evidencia parasitológica sobre la filogenia de los homínidos y los cébidos** *[Parasitological evidence on the phylogeny of hominids and cebids]* / Retana-Salazar, Axel P.

(Universidad de Costa Rica. Escuela de Biología, Ciudad Universitaria, CR <E-mail: apretana@cariari.ucr.ac.cr>).
En: Revista de Biología Tropical (ISSN 0034-7744), v. 44, no. 2A, p. 391-394. 1996.
A systematic revision of the ectoparasites (lice) of the hominoids and ceboids support the Trogloditian hypothesis, according to which the genus Homo is the sister group of Pan, and the genus Gorilla the sister group of both. The phylogenetic analisis of this matrix derived from the study of primate lice show an I.C. of 0.71 for the Trogloditian hypothesis including the ceboids in the analisis. [Una revisión sistemática de los ectoparásitos piojos de los hominoideos y los ceboideos apoya a la hipótesis filogenética "Troglodita" de los primates, según la cual Homo es el grupo hermano de Pan y Gorilla el grupo hermano de ambos. El análisis filogénetico de la matriz obtenida con los piojos de los primates muestra un C.I. = 0.71, para la hipótesis troglodita, incluyendo en el análisis a los ceboideos].
Localización: Biblioteca OET: R.

Publicación no.: 157 **Begging and transfer of coati meat by white-faced capuchin monkeys, Cebus capucinus** *[Súplica y transferencia de carne de pizote por parte de monos carablanca, Cebus capucinus]* / Perry, Susan E; Rose, L.M. (Max-Planck-Institute for Evolutionary Anthropology. Independent Junior Research Group in Cultural Phylogeny, Deutscher Platz 6, 04103 Leipzig, DE <E-mail: perry@eva.mpg.de> <E-mail: lrose@interchange.ubc.ca>).
En: Primates (ISSN 0032-8332), v. 35, no. 4, p. 409-415. 1994.
White-faced capuchin monkeys were frequently observed to raid the nests and predate the pups of coatis at two study sites (Santa Rosa National Park and Lomas Barbudal Biological Reserve) in nortwestern Costa Rica. Adult monkeys of both sexes were the primary participants in nest-raiding. At Santa Rosa, the original captor of the pup tended to eat the entire carcass, whereas at Lomas Barbudal, the monkeys rapidly became satiated and allowed another monkey to have the carcass. At Lomas Barbudal, there was a tendency for adult females to share preferentially with their own offspring, but only if the offspring were less than 1 year old. Dominance rank of the owner of the carcass relative to the rank of the beggar did not significantly affect the probability of willingly transferring meat to the beggar. In one of two years, carcass theft was more likely to occur when the thief was higher ranking than the carcass owner.
Localización: Biblioteca OET: S4864.

Publicación no.: 158 **Uncertain conservation status of squirrel monkeys in Costa Rica, Saimiri oerstedii oerstedii and Saimiri oerstedii citrinellus** *[Estado de conservación incierto de los monos tití en Costa Rica, Saimiri oerstedii oerstedii y Saimiri oerstedii citrinellus]* / Boinski, Sue; Sirot, L. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu>).
En: Folia Primatologica (ISSN 0015-5713), v. 68, p. 181-193. 1997.
Central American squirrel monkeys, Saimiri oerstedii, have never been abundant. This species is apparently extinct in Panama and nearly so in Costa Rica. Less than 4,000 are estimated to survive in Costa Rica. In recent years only a limited number of squirrel monkey troops have been documented outside of two Costa Rica national parks, Parques Nacionales Corcovado and Manuel Antonio. Numerous factors contribute to a pessimistic prognosis for this species, most importantly, the continued deforestation and tourist development with concomitant demands on prime squirrel monkey habitat from hotels, restaurants, roads, and vacation villas in the Pacific Wet Lowland habitat of squirrel monkey. We also highlight features of the natural history of this species most relevant to conservation

efforts with the goal of enhancing the success of surveys and maintenance and breeding of captive groups.
Localización: Biblioteca OET: S3216.

Publicación no.: 159 **Squirrel monkeys in Costa Rica: drifting to extinction** *[Los monos tití en Costa Rica: camino a la extinción]* / Boinski, Sue; Jack, Katharine M; Lamarsh, C; Coltrane, J.A. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu> <E-mail: kjack@tulane.edu>).
En: Oryx (ISSN 0030-6053), v. 32, no. 1, p. 45-58. 1997.
Central American squirrel monkeys, Saimiri oertstedii, are limited to Costa Rica and Panama, and have never been abundant. The Costa Rican population is now decimated. Based on our survey of squirrel monkeys throughout a large portion of this species'Costa Rican range in 1996, we can confirm that at least 1,246 squirrel monkeys remain in 26 spatially dispersed localities. Despite probable undercounts of squirrel monkey numbers within sites and potentially missed localities, the total population size should be considered far below Lande's (1995) calculation that the long-term genetic viability of a species requires a minimum effective population size of 5,000 individuals. Deforestation and habitat fragmentation spurred by agricultural and tourism development are the familiar culprits contributing to this decline. Our strong recommendation is that future conservation efforts be targeted at the level of each specific locality, perhaps recruiting local, national, and international sponsors. A focused strategy would allow management efforts to be tailored to the circumstances specific to each site and thus more efficiently allocate scarce resources move efficiently.
Localización: Biblioteca OET: S3215. NBINA-9157.

Publicación no.: 160 **Affiliation patterns among male Costa Rican squirrel monkeys** *[Patrones de afiliación entre los machos de monos tití costarricenses]* / Boinski, Sue. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu>).
En: Behaviour (ISSN 0005-7959), v. 130, no. 3/4, p. 191-209. 1994.
Remarkably close male bonding exists among Costa Rican squirrel monkeys, Saimiri oerstedii. In the population males were philopatric, exhibited no male-male within-troop aggression, and only very slight evidence for a dominance hierarchy. Juvenile, young and full adult males were spatially clumped in same-age male cohorts. A less intense, secondary association was also shown between the young and full adult male cohorts. These association were most dense over a spatial scale of 5 m or less, but can also be detected in a 5-10 m distance from a local male. Males also cooperated
En: 1) sexual investigation of females during the mating season, 2) aggressive random expectations and only a transitory period of cooperation was observed among mothers during the birth season. Furthermore, there was little evidence of bonds between the sexes. Seasonal variation in affiliation patterns was best explained by fluctuations in food availability and secondary, reproductive activity. These results are surprising both from the perspective of the general pattern of male affiliation among primates and the other marked aaggression and dominance relationship among males documented in captive and wild populations of South America squirrel monkeys. The ultimate explanation is suggested to be the disparate distribution of fruit resources exploited by South and Central American squirrel monkeys, mediated by effects on female affiliation and dispersal patterns.
Localización: Biblioteca OET: S3230.

Publicación no.: 161 **Vocal coordination of troop movement in squirrel monkeys (Saimiri oerstedii and S. sciureus) and white-faced capuchins (Cebus capucinus)** *[Coordinación vocal del movimiento de la tropa en los monos tití (Saimiri oerstedii y S. sciureus) y los monos carablanca (Cebus capucinus)]* / Boinski, Sue. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu>).
En: Adaptive radiations of neotropical primates. Norconk, M.A; Rosenberger, A.L; Alfred, L; Paul, A. (eds.). New York: Plenum Press, 1996. p. 251-269, 541-542. ISBN: 0306453991.
Troops of New World monkeys in the wild are often first detected by field workers from the tumult of routine intra-group vocal communication. Prodigious numbers of calls can be produced by an individual, and especially a troop, within a brief time period. This vocal barrage usually represents a few types of vocalizations emitted at high rates (Smith et al., 1982; Boinski et al., 1994), Although a species' vocal repertoire usually comprises a limited set of distinct vocalizations, may encompass much individual and population within-call variation in acoustic structure (Newman 1985; Snowdon 1982, 1989). Yet many vocalizations produced by wild New World monkeys are not associated with any overt social interaction, foraging activity, or predation threat. This prompts inquiry into why individual monkeys indulge in such varied, apparently non-essential vocal communication. The cumulative costs of these intra-group vocalizations are likely significant in terms of energy expenditure and enhanced exposure to predators, even if the cost of each individual vocalization is trivial (Krebs & Dawkins 1984; Jurgens & Schriever 1991).
Localización: Biblioteca OET: S3233.

Publicación no.: 162 **The influence of tourism on the mantled howler monkey (Alouatta palliata) in Cabo Blanco, Costa Rica** *[La influencia del turismo en los monos congo Alouatta palliata) en Cabo Blanco, Costa Rica]* / Vergeest, F. / Wageningen Agricultural University. Department of Nature Conservation, Wageningen, NL. Wageningen: Wageningen Agricultural University, 1992.
Localización: Biblioteca del BIODOC: no. 1325.

Publicación no.: 163 **Utilización del hábitat, comportamiento y dieta del mono congo (Alouatta palliata) en un bosque premontano húmedo, Costa Rica** *[Habitat utilization, behavior and diet of the howler monkey (Alouatta palliata) in a premontane moist forest, Costa Rica]* / Sánchez-Porras, Ronald E. (Universidad de Costa Rica - Sede de Occidente. Programa de Investigaciones del Bosque Premontano, San Ramón de Alajuela, CR <E-mail: resanche@cariari.ucr.ac.cr>). Heredia: Universidad Nacional, 1991. 109 p. Tesis, Maestría en Manejo de Vida Silvestre, Universidad Nacional, Programa Regional en Manejo de Vida Silvestre, Heredia (Costa Rica).
Determiné el número de individuos, la composición social, y la variación estacional del: a) ámbito de acción mensual (AAM) y total (AAT), b) hábitos alimentarios, c) comportamiento y ch) distribución altitudinal de los monos congo (Alouatta palliata) de setiembre 1989 a marzo 1990 en dos parches de bosque premontano húmedo: a) alterado de 5 ha, sector Río Jesús y b) no alterado de 1000 ha, sector Mina Moncada en San Ramón, Alajuela, Costa Rica. Las estaciones seca y lluviosa ocurren en noviembre-abril y mayo-octubre, respectivamente. Las tropas fueron observadas durante 1536 h para una media de 12 h diarias en 132 días, con un total de 3067 localizaciones. Se estimó la distribución altitudinal por medio de localizaciones diarias. Se observó el comportamiento fenológico de 15 especies de árboles que los congos consumieron para determinar la relación entre consumo y disponibilidad. Se encontró una tropa en Río Jesús de 11 individuos y cuatro tropas en Mina Moncada con un total de 49 individuos. El

AAM en Río Jesús varió de 1,13 a 3,34 ha, con un AAT de 6,25 ha. En Mina Moncada el AAM varió de 0,003 a 1,95 ha con el AAT de 2,67 ha. El AAM no varió significativamente entre meses en Río Jesús (P=0,47). En Mina Moncada el AAM fue mayor en los meses febrero-marzo con respecto a setiembre-noviembre (P=0,05). El AAM fue mayor en Río Jesús que en Mina Moncada (P=0,01). Los congos utilizaron significativamente un mayor número de especies y de más diversidad (P=0,07) en Río Jesús que en Mina Moncada (P=0,003). En Río Jesús los congos utilizaron un 63% del tiempo en consumir Ficus pertusa, F. obtusifolia, Inga vera y F. yaponensis, y en Mina Moncada emplearon un 73% del tiempo en consumir F. obtusifolia, F. trachelosyce y F. jimenezii. Tanto en Río Jesús como Mina Moncada, hubo mayor consumo de hojas tiernas que las demás categorías de alimentación (P=0,001). Existió diferencias fenológicas entre las 15 especies de árboles estudiadas. El uso de alimento no fue asociado con su disponibilidad en la mayoría de los casos. Para F. jimenezii existió más uso con más disponibilidad pero no fue significativo (r=0,58; P=0,13), mientras que con F. pertusa se dio más uso con menos disponibilidad, pero tampoco fue significativo (r=0,51; P=0,18). Se registraron solo seis pautas de comportamiento de las diez establecidas. El descanso fue la pauta en la que los congos gastaron mayores porcentajes de tiempo en los dos sectores. La distribución altitudinal de la tropa en Mina Moncada varió de 650 a 850 m.s.n.m. Se propone los límites para proteger el sector de Mina Moncada, así como también se propone pautas para el manejo de la especie y su hábitat.
Localización: Biblioteca del BIODOC: Tesis 713.

Publicación no.: 164 **Uso del hábitat, estimación de la composición y densidad poblacional del mono tití (Saimiri oerstedii citrinellus) en la zona de Manuel Antonio, Quepos, Costa Rica** *[Habitat use, and population composition and density of the squirrel monkey (Saimiri oerstedii citrinellus) in the Manuel Antonio National Park zone, Quepos, Costa Rica]* / Wong-Reyes, Grace. (Universidad Nacional. Programa Regional de Maestría en Manejo de Vida Silvestre, Apdo. 1350, Heredia, CR <E-mail: wongr@forwild.umass.edu>). Heredia: Universidad Nacional, 1991. 78 p. Tesis, Maestría en Manejo de Vida Silvestre, Universidad Nacional, Programa Regional en Manejo de Vida Silvestre, Heredia (Costa Rica).
El mono tití (Saimiri oerstedii citrinellus) es una subespecie endémica de Costa Rica y es considerada como el primate en mayor peligro de extinción en América Central. Actualmente el Parque Nacional Manuel Antonio (PNMA) es la única área estatal donde se le protege. Entre los meses de julio de 1989 a mayo de 1990, se efectuó un estudio que tuvo como propósitos conocer la composición de las tropas de monos tití existentes en el PNMA y áreas aledañas, determinar si existía movimiento de grupos entre el Parque y sus alrededores y estimar el ámbito de acción y hábitat utilizado por los grupos existentes en la zona. Se abarcó una extensión de 1818 ha, de éstas 609 ha forman parte del PNMA. Se ubicaron 14 tropas de monos tití con un total de 581 individuos, seis de estos grupos eran residentes del Parque (266 animales) y las ocho restantes se movilizaron principalmente fuera de él. La densidad poblacional estimada para el área de estudio fue 31 individuos/km² . El tamaño de las 14 tropas varió entre 22 a 66 individuos, no se encontró diferencias entre los tamaños de las tropas residentes dentro y fuera del Parque. La población de monos tití estuvo compuesta por un 35% de hembras adultas, un 12% de machos adultos, un 25% de juveniles y un 27% de infantes. La tasa promedio de natalidad durante 1990 fue de 76%, y el número de nacimientos por tropa varió entre 4 y 17 individuos; no se encontró diferencia entre la tasa de natalidad de las tropas residentes dentro y fuera del Parque. Los ámbitos de acción de 10 tropas variaron entre 35 y 63 ha, no hubo diferencia entre los ámbitos de acción de las tropas residentes dentro y fuera del PNMA (U=4, n1=6, n2=4, P 0,05). El bosque secundario maduro fue

el hábitat más representado en los ámbitos de acción de tres tropas residentes en el PNMA mientras que el bosque secundario joven fue el hábitat más representado en los ámbitos de las tropas existentes fuera del Parque. Nueve de las 14 tropas observadas traslapan sus ámbitos de acción, pero las mayores sobreposiciones se produjeron entre las tropas residentes en el Parque. El área de traslape entre grupos varió entre 1 y 28 ha. De los seis grupos residentes en el Parque, cuatro compartieron más que un 40% de sus ámbitos de acción con otras tropas. Fuera del Parque, cuatro grupos compartieron menos que un 33% de sus ámbitos y cinco utilizaron el área en forma exclusiva. Se plantearon como pautas para la conservación del mono titi en Manuel Antonio: desarrollar una campaña de educación ambiental dirigida a los propietarios de la tierra, mejorar el hábitat existente y continuar con estudios sobre la dinámica poblacional de este primate.
Localización: Biblioteca del BIODOC: no. 716.

Publicación no.: 165 **Sizes of home ranges and howling monkey groups at Hacienda La Pacífica, Costa Rica: 1972-1991** *[Tamaños y ámbitos de distribución de los grupos de monos congo en la Hacienda La Pacífica, Costa Rica: 1972-1991]* / Zucker, E.L; Clarke, Margaret R; Glander, Kenneth E; Scott, Norman Jackson, Jr. (Loyola University. Department of Psychology, New Orleans, LA 70118, US <E-mail: zucker@loyno.edu> <E-mail: clarkem@cwu.edu> <E-mail: glander@duke.edu>).
En: Brenesia (ISSN 0304-3711), no. 45/46, p. 153-156. 1996.
Mantled howling monkeys (Alouatta palliata) at Hacienda La Pacífica, Costa Rica, have been captured and marked since 1972, and the population surveyed systematically in 1984 and 1991. The presence of marked animals allowed for the positive identification of groups over time. During this 20-year period, group locations have been noted during all procedures, and maximum observed home range sizes for 21 howler groups were calculated. Mean home range size was 27.2 ha. Home range size correlated most strongly with the number of adults per group, which is the most stable component of a howler group. Home range sizes and range size per monkey at La Pacífica were intermediate in comparison to corresponding values at other sites.
Localización: Biblioteca OET: S4398.

Publicación no.: 166 **Behavioral development and socialization of infants in a free-ranging group of howling monkeys (Alouatta palliata)** *[Desarrollo del comportamiento y socialización de los infantes en un grupo de monos congo libres (Alouatta palliata)]* / Clarke, Margaret R. (Central Washington University. Department of Anthropology, Ellensburg, WA 98926, US <E-mail: clarkem@cwu.edu>).
En: Folia Primatologica (ISSN 0015-5713), v. 54, no. 1/2, p. 1-15. 1990.
A 22-month field study was carried out on free-ranging mantled howlers in Costa Rica. Six female and 5 male infants were observed systematically from birth until they died, left the group, or the study ended. Interaction patterns, activity patterns, and proximity data were analyzed from 703 h of focal observations and 753 h of ad lib observations. Developmental trends in weaning and nonmother care were associated with mothers' feeding patterns, suggesting an increase in maternal feeding efficiency. As howler immigration patterns resulted in groups of adults of low relatedness, analyses based on social bonding or kin selection were inappropriate, and socialization patterns instead appeared to prepare howler infants to respond predictably in an adult world. Females, which were more sociable as adults, were also more sociable as infants, initiating interactions and reacting positively. They also exhibited less weaning stress than males. Males, which were forced out of the group sooner, remained solitary longer, and primarily interacted with adult females as adults, were forced to be independent sooner, reacted

negatively to interactions, and ceased interacting with adult males by 3 months of age. Ecological constraints on development could not be determined from this study, although there was no evidence for developmental trends being influenced by predator stress.
Localización: Biblioteca OET: S8746.

Publicación no.: 167 **Survey of the howling monkey population at La Pacífica: A seven-year follow-up** *[Reconocimiento de la población de monos congo en La Pacífica: siete años de seguimiento]* / Clarke, Margaret R; Zucker, E.L. (Central Washington University. Department of Anthropology, Ellensburg, WA 98926, US <E-mail: clarkem@cwu.edu> <E-mail: zucker@loyno.edu>).
En: International Journal of Primatology (ISSN 0164-0291), v. 15, no. 1, p. 61-73. 1994.
We surveyed the howling monkey population at La Pacifica in Costa Rica over a 1-month period in July and August 1991. The survey method consisted of an initial 6-day survey, directly comparable to a 1984 survey, and at least two repeat surveys of all areas to locate all groups and to identify all animals. The initial survey indicated an increase in the number of groups and a decrease in the size of groups from earlier surveys, though the group composition was unchanged. We used the results of initial and repeat surveys to determine population size and composition. We located 30 groups with a total of 370 animals. Twenty-one groups contained animals marked with collars and/or legbands, and four additional groups contained animals with clearly identifiable white markings. Although the population structure has changed over 7 years, it is still within the species-typical range for Alouatta palliata.
Localización: Biblioteca OET: S4400.

Publicación no.: 168 **Dispersal patterns in Costa Rican mantled howling monkeys** *[Patrones de dispersión en los monos congo costarricenses]* / Glander, Kenneth E. (Duke University Primate Center, 3705-B Erwin Rd, Durham, N.C. 27706, US <E-mail: glander@duke.edu>).
En: International Journal of Primatology (ISSN 0164-5713), v. 13, no. 4, p. 415-436. 1992.
Both male and female juveniles disperse in Costa Rican mantled howling monkeys (Alouatta palliata). 79% of the males and 96% of the females leave their natal groups. Males may spend up to 4 years and females up to 1 year as solitaries. Extra-group individuals are faced with only three possibilities, ie., form a new group by joining another extra-group individual, join an established social group, or remain solitary. Most surviving extra-group individuals join an established social group which contains no kin. Females join with the help of a resident male and once in a group proceed to rise to the alpha position through dyadic interactions. The immigrant female either becomes the alpha female or leaves and tries again in another group. Male's challenge the alpha male and either defeat him or remain solitary. Competition with relatives for limited high quality food may be the reason for both sexes leaving their natal groups in howlers. By leaving, the successful immigrants increase their mother's inclusive fitness while suppressing the fitness of nonrelatives instead of remaining natal and competing with relatives for limited food.
Localización: Biblioteca OET: S6975.

Publicación no.: 169 **Quantitative description of parturition in a wild mantled howling monkey: a case study of prenatal behaviors associated with a primiparous delivery** *[Descripción cuantitavia del parto en una mona conga silvestre: estudio de caso de comportamientos prenatales asociados con el alumbramiento de primerizo]* / Nisbett, R.A; Glander, Kenneth E. (The University of Oklahoma. Department of Anthropology, Oklahoma City, OK 73190, US <E-mail: glander@duke.edu>).

En: Brenesia (ISSN 0304-3711), no. 45/46, p. 157-168. 1996.
Observations of nonhuman primates giving birth in naturalistic settings are rare in the primate literature. This account is one of few quantitative descriptions of parturition in the wild. A primiparous delivery by a mantled howling monkey was observed at Hacienda La Pacífica, Costa Rica, near Cañas in Guanacaste Province. The total time from the first observed contraction to delivery was 78.5 minutes with the time from crowning to expulsion lasting 6.5 minutes. The time in labor and delivery time are similar to a previously reported breech delivery at this same study site and are much longer than those reported for red howling monkeys. This account is compared to observations of other naturalistic and captive birth events and the evolutionary and morphological consequences are discussed. Difficult births in this case may be due to the female being primiparous. Alternatively, difficult births may be due to the small body size of Hacienda La Pacífica females.
Localización: Biblioteca OET: B.

Publicación no.: 170 **Group takeover by a natal male howling monkey (Alouatta palliata) and associated disappearances and injuries of immatures** *[Dominio del grupo por parte de un mono congo macho natal y la asociación de desapariciones y daños de los individuos inmaduros]* / Clarke, Margaret R; Zucker, E.L; Glander, Kenneth E. (Central Washington University. Department of Anthropology, Ellensburg, WA 98926, US <E-mail: clarkem@cwu.edu> <E-mail: zucker@loyno.edu> <E-mail: glander@duke.edu>).
En: Primates (ISSN 0032-8332), v. 35, no. 4, p. 435-442. 1994.
As a part of a long-term study on howling mokey behavior and social dynamics, a known natal male was observed taking over his group from his putative sire. Due to the accidental death of the adult males, this natal male had matured in a one-male group and had never observed juvenile male emigration or adult male immigration and associated behaviors. Nevertheless, the behaviors associated withe the takeover were indistinguishable from those of an immigrant male, including disappearance of immatures, one of whom was found with extensive injuries. While it cannot said that the natal male inherited these behaviors from his presumed father, it can be said that he exhibited species-typical behaviors associated with male takeover in the absence of observational learning.
Localización: Biblioteca OET: S4402.

Publicación no.: 171 **Are female mantled howling monkeys able to choose the sex of their offspring?** *[¿Son capaces las monas congo de escoger el sexo de su descendencia?]* / Glander, Kenneth E. (Duke University. Duke University Primate Center, 3705-B Erwin Rd, Durham, N.C. 27706, US <E-mail: glander@duke.edu>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), no. 14, p. 82. 1992.
(Abstract only). Birth records from 21 years suggest that some female mantled howling monkeys (Alouatta palliata) may be able to influence the sex of their offspring. Eight of ten infants born to alpha females were males (1 was female and I was unknown). One female had 4 of 4 male infants, another female had 8 of 9 male infants, the 9th infant was of unknown sex. A third female had 4 of 5 female infants (1 unknown). The method of sex preselection is unknown, but one way a female may influence the gender of her offspring would be by controlling access of either X or Y sperm to her uterus. Female sperm have been shown to be electropositive while male sperm are electronegative (Bhattacharya, et al., 1979, Int. I. Fertil. 24:256-259) and various authors have successfully separated X- and Y-chromosome-bearing human spermatozoa with electrophoresis (see Sevinc, 1968, J. Reprod. Fert.,=

16:7-14). If a female howler were able to produce an electrical current and change it from positive to negative, she could control whether X- or Y- chromosome-bearing sperm passed her cervix and entered her uterus. To test this hypothesis, I measured the electrical potential at the entrance of the vagina and at the cervix of Costa Rican howlers. The results grouped into two types, i.e., those where the millivolt reading at the cervix (av. = 9.7, n = 36) was lower than that at the entrance to the vagina (av. = 32.5, n = 36) and those where the cervix reading (av. = 24.4 millivolts, n = 22) was higher than at the entrance (av. = 11.2, n = 22). In both cases the differences were significant (F = 14.72, p = .0004 and F = 5.49, p = .024). Several females also demonstrated a change from positive to negative in readings taken at different times. Testing continues, but the results suggest that female howlers may be able to influence the sex of their offspring by producing an electrical current in their vagina which has the efficacy to control which sperm reach the ova.
Localización: No disponible.

Publicación no.: 172 **Nonhuman primate self-medication with wild plant foods** *[Automedicación con plantas silvestres alimenticias por parte de primates no humanos]* / Glander, Kenneth E; Etkin, N.L (ed.). (Duke University. Duke University Primate Center, 3705-B Erwin Rd, Durham, N.C. 27706, US <E-mail: glander@duke.edu>).
En: Eating on the wild side: the pharmacologic, ecologic, and social implications of using noncultigens Tucson, AZ: The University of Arizona Press, 1994. p. 227-239.
Primate researchers generally view foraging strategies as a balance between acquiring the proper nutrients and avoiding toxins and digestion inhibitors (Glander 1982; Waterman 1984), but this view of optimal foraging may ignore potential benefits of certain plant secondary compounds. Unlike ethnobotanists studying human diets who often emphasize the 'medicinal' aspects of plants rather than the selection of plant material; for nutrients (Etkin and Ross 1991), primatologists may concentrate solely on the dynamic interaction between nutrients and secondary compounds as the explanation for primate foraging behavior. If a nonhuman primate can learn to avoid certain plant species or plant parts because ingestion reduces the animals fitness (Glander 1975, 1978, 1981, 1982 Glander and Rabin 1983; Hladik 1978; McKey 1979; Milton 1979, 1980, Oates 1977; Oates et al. 1977; Wrangharn and Waterman 1983), then nonhuman primates may also be able to learn to exploit the tropical forest medicine chest. Scholars familiar with the use of plants as effective drugs by humans worldwide as discussed elsewhere in this volume should not be surprised that nonhuman primates also use the wild plant medicines available to them in the natural pharmacopoeia of tropical forests. The study of natural drugs and how they affect animals and people that ingest them is known as pharmacognosy. In 1991, Richard Wrangham and Eloy Rodríguez coined the term zoopharmacognosy to describe self-medication by animals in general and nonhuman primates in particular. The first zoopharmacognosy symposium, titled: "Zoopharmacognosy: Medicinal Plant Use by Wild Apes and Monkeys," was held in February 1992 at the American Association for the Advancement of Science meetings in Chicago. The natural history literature is filled with anecdotal evidence that vertebrates use plant medicines. Malay elephants, for example, feed on certain legume creepers (Entada schefferi) just before walking long distances (Hubback 1941). Indian wild boars selectively dig and eat the roots of pigweed (Boerhaavia diffusa), which humans use as an anthelmintic (Janzen 1978). Mexican folklore suggests that pigs eat pomegranate (Punica granatum) roots because they contain an alkaloid toxic to tapeworms (Janzen 1978) Daniel Janzen (1978) may have been the first to suggest that nonhuman primates are self-medicating when he linked the absence of protozoan parasites in Kibale Forest black and white colobus (Colobusguereza) and red colobus monkeys

(C. badius) with their regular ingestion of plant secondary compounds. Only recently, however, have observations of wild chimpanzees (Pan troglodytes) provided the first direct evidence of self-medication by nonhuman primates (Huffman and Seifu 1989). Known and presumed cases of self-medication, as well as the use of nonfood plants by primates, involve chimpanzees (P. troglodytes), howling monkeys (Alouatta palliata), muriqui (Brachyteles arachnoides), black and white colobus monkeys (C. guereza), and baboons (Papio anubis and P. hamadryas), among others.
Localización: Biblioteca OET: S6976.

Publicación no.: 173 **Experimental field study of spatial memory and learning in wild capuchin monkeys (Cebus capucinus)** *[Estudio experimental de campo de la memoria espacial y aprendizaje en monos carablanca silvestres (Cebus capucinus)]* / Garber, Paul A; Paciulli, L.M. (University of Illinois. Department Anthropology, 109 Davenport Hall, 607 S Mathews Ave, Urbana, IL 61801, US <E-mail: p-garber@uiuc.edu>).
En: Folia Primatologica (ISSN 0015-5713), v. 68, no. 3/5, p. 236-253. 1997.
Despite a large body of data on diet and ranging patterns in prosimians, monkeys and apes, little is known regarding the types of information that non-human primates use when making foraging decisions, In a series of controlled field experiments, we tested the ability of wild capuchins (Cebus cupucinus) at La Suerte Biological Research Station in north-eastern Costa Rica to remember the spatial positions of 13 feeding platforms and use olfactory and visual cues to identify baited (real bananas) versus sham (plastic bananas) feeding sites. The results indicate that when 'place' was predictable, the capuchins learned the spatial locations of food and non-food sites rapidly (one-trial learning), In a second experiment, the positions of baited feeding sites were random, In the absence of other information, the capuchins used the presence of a local landmark cue (yellow block) placed at reward platforms to select feeding sites, In a final experiment, there was evidence that expectations regarding the amount of food available at a platform (2 bananas vs, 1/2 banana) had a significant influence on capuchin foraging decisions, Although the capuchins were sensitive to changes in experimental conditions, when they were given conflicting cues, spatial information was predominant over other information in selecting feeding sites.
Localización: Biblioteca OET: S9800.

Publicación no.: 174 **Vertebrate predation and food-sharing in Cebus and Pan** *[Depredación de vertebrados y compartimiento de alimento en Cebus y Pan]* / Rose, L.M. (University of British Columbia. Department of Anthropology, 6303 NW Marine Dr, Vancouver, BC V6Y 1Z1, CA <E-mail: lrose@interchange.ubc.ca>).
En: International Journal of Primatology (ISSN 0164-0291), v. 18, no. 5, p. 727-765. 1997.
Capuchins and chimpanzees are the only nonhuman primates apart from baboons known to prey systematically upon relatively large vertebrates. Vertebrate predation is common and well documented in Pan troglodytes, rare in Pan paniscus, and commonly reported but infrequently studied in Cebus. Food-sharing is common in both Pan species but rarely reported for wild capuchins. I present data on vertebrate predation and food-sharing by white-faced capuchins (Cebus capucinus) from ongoing field studies at Santa Rosa National Park, Costa Rica. We have observed 106 successful predation events resulting in the capture of 156 prey items during 2929 observation hr (5.35 prey per 100 hr). Squirrels and nestling coatis comprised half of the prey taken; the remainder was mainly nestling birds and eggs. Adult males took 52% of all prey and 67% of squirrels. Squirrels are actively hunted and about 65% of

them are adults. I estimated that the average capuchin group kills 43-50 squirrels annually, mostly during the dry season. Capuchins hunt squirrels in groups 81% of the rime, and 17% of hunts are successful. There is no evidence for cooperative hunting, but occasional collaboration is suggested. Rates of food-sharing were low (1.7 per 100 hr), and meat was the only food shared between adults. I compare predation and food-sharing in C. capucinus with published data for Pan troglodytes, primarily in Gombe and Tai National Parks. I discuss sex differences, hunting strategies, the relationship between hunting and food-sharing and various ecological and social factors that may promote vertebrate predation in Pan and Cebus.
Localización: Biblioteca OET: S5585. Biblioteca del BIODOC: 599.8 I.

Publicación no.: 175 **Effects of habitat quality and hunting pressure on arboreal folivore densities in neotropical forests: a case study of howler monkeys (Alouatta spp.)** *[Efectos de la calidad del hábitat y de la presión de la caza en densidades arbóreas del comedor de hojas de bosques neotropicales un estudio de caso de los monos congo (Alouatta spp.)]* / Peres, Carlos A. (University of East Anglia. School of Environmental Sciences, Cserge, Norwich, NR4 7TJ Norfolk, GB <E-mail: c.peres@uea.ac.uk>).
En: Folia Primatologica (ISSN 0015-5713), v. 68, no. 3-5, 199-222. 1997.
This large-scale geographic comparison examines the effects of subsistence hunting pressure and several indirect indicators of habitat quality on the abundance of howler monkeys (Alouatta spp.), the best studied and the most folivorous of all platyrrhine primates. Alouatta population densities were obtained from a standardized series of line-transect censuses undertaken at 23 Amazonian forest sites (1987-1995), including annually flooded (varzea), unflooded (terra firme), and eastern Amazonian transitional terra firme forests. A total of 83 density estimates from elsewhere were compiled from a comprehensive review of field studies from southern Mexico to northern Argentina. Howler density and biomass in Neotropical forests is profoundly affected by degree of hunting pressure, structural heterogeneity of the forest canopy, and to a lesser extent, the rainfall seasonality, total rainfall, and latitude of a given site. Mild gradients of forest elevation were a poor predictor of howler densities. In evergreen forests of lowland Amazonia, distance to major white-water rivers, which covaries with forest heterogeneity and soil fertility, is the best single predictor of howler densities. In Amazonia, habitat-specific patterns of distribution and abundance of Alouatta and other arboreal folivores conform to geochemical gradients determined by watershed types and their consequences for soil fertility. Results presented here confirm suggestions for Old World generalist herbivores that howler monkeys face strong dietary constraints which are most likely related to quality, phenology and productivity of digestible foliage during periods of resource scarcity.
Localización: Biblioteca OET: S6220.

Publicación no.: 176 **Why be vigilant?: the case of the alpha animal** *[¿Por qué ser vigilante? el caso de un animal alfa]* / Gould, L; Fedigan, Linda M; Rose, L.M. (University of Calgary. Department of Anthropology, Calgary, AB T2N 1N4, CA <E-mail: fedigan@ucalgary.ca> <E-mail: lrose@interchange.ubc.ca>).
En: International Journal of Primatology (ISSN 0164-0291), v. 18, no. 3, p. 401-414. 1997.
We compared patterns of vigilance behavior in a male- and a female-dominant species-white-faced capuchins and ring-tailed lemurs-and used the results to test four hypotheses to explain vigilance behavior in primates. Adult male white-faced capuchins spent significantly more time vigilant than females did, and much male vigilance appeared to be directed toward males from other social groups.

This finding supports the protection of paternity hypothesis. No sex difference existed in vigilance behavior among the ring-railed lemurs, and subjects of both sexes exhibited more vigilance toward predators/potential predators than toward extragroup conspecifics, which supports the predator detection hypothesis. A trade-off argument, suggesting that females tolerate males in a group in return for greater male vigilance, does not apply to ring-tailed lemurs in our study. In both the male-dominant capuchins and the female-dominant ring-tailed lemurs, the alpha subject in the majority of the study groups was significantly more vigilant than other group members were. In white-faced capuchins, the alpha male mates more often than subordinate males do; therefore, the greater degree of vigilance exhibited by the alpha male may correspond to the protection of his reproductive investment. In ring-tailed lemurs, there can be more than one matriline in a group. Thus, the greater amount of vigilance behavior exhibited by the alpha female may be related to protection of her matriline, which could ultimately lead to greater inclusive fitness. Alpha subjects in our study groups exhibited certain behaviors more frequently or exclusively. Accordingly, there may be a constellation of behaviors characteristic of alpha animals.
Localización: Biblioteca OET: S4339. NBINA-4032.

Publicación no.: 177 **Male-female social relationships in wild white-faced capuchins (Cebus capucinus)** *[Relaciones macho-hembra en monos carablanca silvestres (Cebus capucinus)]* / Perry, Susan E. (Max-Planck-Institute for Evolutionary Anthropology. Independent Junior Research Group in Cultural Phylogeny, Deutscher Platz 6, 04103 Leipzig, DE <E-mail: perry@eva.mpg.de>).
En: Behaviour (ISSN 0005-7959), v. 134, no. 7/8, p. 477-510. 1997.
This paper describes male-female dyadic social relationships in C. capucinus, detailing the types of costs and benefits exchanged between the sexes. A single group of wild white-faced capuchin monkeys (Cebus capucinus) was studied in Lomas Barbudal Biological Reserve, Costa Rica, for 24 months. A total of 953 hours of focal animal data were collected on 4 adult males and 6 adult females. The pattering of social interactions was studied in an attempt to assess the outcome of disputes between males and females. In dyadic interactions, females avoided and cowered to males roughly 50 times more often than males avoided or cowered to females. Females responded fearfully to females'neutral approaches. Males supplanted females 15 times more often than female's supplanted males. The alpha male spent more time with females than did lower-ranking males. In general, males were more responsible for proximity maintenance within male-female dyads than were the females. Females behaved aggressively to males slightly more often than vice versa, but males inflicted more severe aggression on females. The types of benefits that each sex conferred on the other were largely different. Females groomed males, but males virtually never reciprocated. Both males and females aided one another in coalitions, which were primarily directed against adult male capuchins and non-monkeys. During one portion of the study, comparison among heterosexual dyads revealed associations between male coalitionary support and both (a) female coalitionary support and (b) female grooming, suggesting interchanges of benefits. females were able to compensate, in part, for their subordinate status relative to form coalitions with other adult males against females. female-female coalitions were effective for achieving immediate goals, such as evicting males from feeding trees. However, even determined coalitions of females were ineffective in their attempts to control male group membership, without receiving aid from adult males.
Localización: Biblioteca OET: S3246.

Publicación no.: 178 **Nonconceptive sexual behavior in bonobos and capuchins** *[Comportamiento sexual no conceptivo en monos bonobos y carablanca]* / Manson, Joseph H; Perry, Susan E; Parish, A.R. (Max Planck Institute for Evolutionary Anthropology, Deutscher Platz 6, D-04103, Leipzig, DE <E-mail: manson@eva.mpg.de> <E-mail: perry@eva.mpg.de>).
En: International Journal of Primatology (ISSN 0164-0291), v. 18, no. 5, p. 767-786. 1997.
Sexual behavior by infecundable females, and by same-sex and adult-immature dyads, occurs in wild and captive bonobos (Pan paniscus). Proposed functions of these behaviors, in social primates generally, include practice, paternity confusion, exchange and communication as well as appeasement. We used this framework to interpret and to compare observations of sexual behavior in a captive bonobo group and a wild white-faced capuchin (Cebus capucinus) group. In both species, (a) sexual behavior was no more frequent in cycling females than in pregnant or lactating females and (b) same-sex and adult-immature dyads engaged in as much mounting or genitogenital contact as adult heterosexual dyads did. The species differed in that (a) bonobos engaged in sexual behavior 65 times as frequently as capuchins, (b) only bonobos engaged in sexual contact other than ventrodorsal mounting during focal observation, and (c) bonobo sexual contact was concentrated most heavily in socially tense situations in adult female-female dyads, whereas capuchin sexual contact was concentrated most heavily in socially tense situations in adult male-male dyads. These data and published literature indicate that (a) practice sex occurs in both species, (b) paternity confusion may be a current function of C. capucinus nonconceptive sex, (c) exchange sex remains undenmostrated in capuchins, and (d) communication sex is more important to members of the transferring sex-female bonobos and male capuchins-than to members of the philopatic sex.
Localización: Biblioteca OET: S3245.

Publicación no.: 179 **La dieta del jaguar (Panthera onca), el puma (Felis concolor) y el manigordo (Felis pardalis) (Carnivora: Felidae) en el Parque Nacional Corcovado, Costa Rica** *[Diets of Panthera onca, Felis concolor and Felis pardalis (Carnivora: Felidae) in Parque Nacional Corcovado, Costa Rica]* / Chinchilla-Romero, Federico Alfonso. (Estación Biológica Monteverde, Ap. Postal 1265-1100 CR).
En: Revista de Biología Tropical (ISSN 0034-7744), v. 45, no. 3, p. 1223-1229. 1997.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-10155.pdf
The diets of the jaguar (Panthera onca), the puma (Puma [=Felis] concolor) and the ocelot (Felis [=Leopardus] pardalis) were studied in a tropical rainforest in Corcovado National Park, South Pacific belt of Costa Rica, from August 1993 to June 1994. A total of 50 Km of trails were examined monthly for fecal material. Analysis of relative frequency of ocurrence and relative estimation biomass in the fecal samples showed that mammals were the main preys of the three felids, while reptiles and birds were less important. The preys of jaguar and puma have body weights above 2500 g, and the preys of ocelot, whose main prey was the spiny rat, Proechimys semispinosus, less than 2500 g. There were no important changes in food habits during the study, although trophic diversity of jaguar and ocelot increase during the dry seasons.
Localización: Biblioteca OET: R. NBINA-10155.

Publicación no.: 180 **El turismo, su impacto socioeconómico sobre los recursos naturales de Manuel Antonio** / Sáenz-Méndez, Joel Cris. (Universidad Nacional. Programa Regional en Manejo de Vida Silvestre, Apdo. 1350-3000, Heredia, CR <E-mail: jsaenz@una.ac.cr>).
En: Ambientales (ISSN 1409-2158), no. 9, p. 156-164. 1992.

El Parque Nacional Manuel Antonio está considerado a nivel nacional e internacional como un ejemplo de desarrollo turístico no planificado, en donde se está produciendo una destrucción acelerada de los recursos naturales. Paradójicamente el 70% de los turistas que visitan Manuel Antonio llegan a la zona atraídos por las bellezas de la flora y fauna del lugar, lo cual se perderá si no se detiene el tipo de desarrollo actual y se opta por un desarrollo turístico planificado. También algunas instituciones del Estado están contribuyendo al grave deterioro ambiental en Manuel Antonio. Por ejemplo, el Instituto Costarricense de Electricidad (ICE), en su necesidad de suplir la demanda de energía a los nuevos hoteles, está realizando el tendido eléctrico sin ningún criterio técnico, por lo menos desde el punto de vista ecológico. Muchas de esas líneas pasan por áreas donde se desplazan monos Tití (Saimiri oerstedii). Se han reportado muertes (6) de estos monos por electrocución. Esto ocurre porque el ICE corta muchos árboles para hacer el tendido eléctrico (cables), y al estar los cables en la ruta de desplazamiento de los monos, ellos se ven obligados en algunos casos a sujetarse de los cables para pasar de un parche de bosque a otro y de esa manera ocurren los accidentes. Se describen otros problemas como la contaminación de las playas, ríos y esteros por basura o aguas negras. La mayoría de los pequeños agricultores han dejado sus parcelas convirtiéndose en asalariados de hotes y restaurantes, con bajos salarios. El turismo extranjero ha superado al nacional en los últimos años. Esto se debe en parte a los altos precios que se cobran por los servicios. Pasar una noche en Manuel Antonio puede costarle a una persona entre 3.000 a 12.000 colones, a lo que hay que añadir los altos precios en los restaurantes y sodas, por lo que muy pocos costarricenses están en capacidad de sufragar estos gastos. El precarismo también se ha asentado en Manuel Antonio, estableciéndose un "negocio de tierras" como producto de los altos precios que ha adquirido la tierra en Manuel Antonio y la poca oportunidad de un trabajo bien remunerado. Se comenta que 1 ha puede valer más de US $60.000 y la mayoría de los compradores son extranjeros. Todo lo anterior expuesto indica que en Manuel Antonio existe un gran problema socio-económico-ambiental. Por una parte los beneficios del turismo natural o ecoturismo no están llegando a la población local, amén de las pocas fuentes de trabajo. La idiosincracia de los pobladores también está cambiando hacia un aspecto negativo: el alcoholismo, consumo y trasiego de drogas es común hoy en día en Manuel Antonio. De continuar el actual ecoturismo, que en realidad es un turismo convencional con otro nombre, pero con los mismos efectos sobre el medio ambiente, dentro de unos pocos años Costa Rica dejaría de ser un destino turístico por excelencia, como ha sucedido con otros paraísos turísticos de fama mundial como Cancún en México o Islas Canarias en el Caribe.
Localización: Biblioteca OET: S4209.

Publicación no.: 181 **Population characteristics of howlers: ecological conditions or group history** *[Características de la población de monos congos: condiciones ecológicas o historia del grupo]* / Chapman, Colin A; Balcomb, S.R. (University of Florida. Department of Zoology, 223 Bartram Hall, Gainesville, FL 32611, US <E-mail: cachapman@zoo.ufl.edu>).
En: International Journal of Primatology (ISSN 0164-0291), v. 19, no. 3, p. 385-403. 1998.
We examined the relative importance of ecological parameters-habitat productivity and seasonality-and group history-episodic predation, disease, and sudden habitat deterioration-to explain variation in the density and group structure of howlers (Alouatta spp.). We use data from a census of Guanacaste National Park, Costa Rica, and a literature review characterizing 80 howler populations. In Guanacaste National Park both habitat type and degree of protection affect howler density and group structure. howlers were found at the highest density and in the largest groups in areas of semievergreen forest, which ecological sampling indicates have the most consistent level of food production. Differences in

density between the sector of the park that first received protected status and more recently protected areas may be due partially to the degree of protection the areas received. We test the prediction that howler density and group structure would be influenced by habitat productivity as indexed by rainfall. Average group size and sex ratios differ among species, but female-to-immature ratios do not. Considering all censuses at one site to be independent, there are significant interspecific differences in density, with Alouatta pigra occurring at lower densities than the other species. In spite of such variability there is no relationship between annual rainfall and howler density and rainfall had a variable effect on group size depending on the level of independence that was considered. While such ecological comparisons are unrefined, e.g., rainfall must be used as a surrogate for habitat production, the fact that so few relationships were documented suggests that factors other than the ecological factors considered here are responsible for the observed differences in population characteristics. We suggest that much of the variability in howler population characteristics is related to events occurring in the recent history of the groups, such as habitat alteration, hunting, food tree crop failure, and disease.
Localización: Biblioteca OET: NBINA-10106.

Publicación no.: 182 **Growth of mantled howler groups in a regenerating Costa Rican dry forest** *[Crecimiento de los grupos de monos congo en un bosque seco costarricense en regeneración]* / Fedigan, Linda M; Rose, L.M; Morera-Avila, Rodrigo A. (University of Calgary. Department of Anthropology, Calgary, AB T2N 1N4, CA <E-mail: fedigan@ucalgary.ca> <E-mail: lrose@interchange.ubc.ca>).
En: International Journal of Primatology (ISSN 0164-0291), v. 19, no. 3, p. 405-432. 1998.
We examined population dynamics in mantled howlers (Alouatta palliata palliata) in a regenerating tropical dry forest in Santa Rosa National Park (SRNP), Costa Rica. The population has grown at a rate of about 7% per annum during the past decade. The growth in numbers from 342 in 1984 to 554 in 1992 reflects an increase in the number of groups (from 25 to 34) and a slight increase in their average size (from 13.6 to 16.3). Population density has increased fr om 4.9 to 7.9 individuals per km². Santa Rosa's population density and group compositions are similar to those at several other mantled howler sites, but densities of mantled howlers are much higher at two other well-studied sites: La Pacífica and Barro Colorado Island (BCI). We relate the low density of howlers at Santa Rosa to local historical and ecological factors. Howler populations at high and low densities differ in average group size and sex ratio. At high population densities, groups are larger and include more adult females. The number of male howlers per group appears to be more strictly limited and less variable than the number of females is. However, there is greater variation in male group membership at Santa Rosa than at La Pacífica or BCI, and at Santa Rosa there are more generating forests available into which males and females can disperse and form new groups. We present case studies describing two ways in which new howler groups are formed, and we suggest that, compared to females and compared to males at high density sites, males are relatively advantaged in the uncrowded habitats at Santa Rosa and other low density sites.
Localización: Biblioteca OET: S3830. NBINA-4030.

Publicación no.: 183 **Agonistic and affiliative relationships of adult female howlers (Alouatta palliata) in Costa Rica over a 4-year period** *[Relaciones agonísticas y afiliativas de las hembras adultas de los monos congo (Alouatta palliata) en Costa Rica durante un período de 4 años]* / Zucker, E.L; Clarke, Margaret R. (Tulane University. Department of Psychology, Box 194, New Orleans, LA 70118, US <E-mail: clarkem@cwu.edu> <E-mail: mrclarke@tulane.edu>).

En: International Journal of Primatology (ISSN 0164-0291), v. 19, no. 3, p. 433-449. 1998.
We observed 12 adult female mantled howlers (Alouatta palliata), which have been part of Group 2 at Hacienda La Pacífica, Guanacaste province Costa Rica, via focal animal sampling during portions of July and August of 1988 and 1990-1992 (7-9 females/year, 955.3 hr of observation). We used agonistic interactions and time in proximity (1 m) as indices of social relationships. The rate of female-female agonistic interactions was 0.38/hr (yearly range: 0.24 to 0.51/hr). Yearly dominance hierarchies, based an outcomes of dyadic agonistic interactions, varied in linearity between 60.7 and 94.6%. Adult females spent 7.10% of their time in proximity to another adult female (yearly range: 1.04-15.64%) and 4.95% of their time in proximity to an adult male (yearly range: 2.27-7.51%). Using yearly dominance ranks, we tested proximity patterns for differences based on rank and presence of dependent offspring. In 3 of the 4 years, high-ranking females spent significantly greater proportions of their time in proximity with other females than did low-ranking females. Time in proximity with the 3 or 4 adult males was not associated with rank. Having a dependent infant was not related to the proportion of time in proximity to females or males, and females, especially top-ranking ones, spent more time in proximity to females with dependent infants than to females without infants. These results show that social relationships in mantled howler groups are dynamic and generally support predictions made by von Schaik (1989) regarding scramble-type, female competitors. We also discuss the roles of immigrations infants, and male relationships in the patterning of social relationships.
Localización: Biblioteca OET: S4399. NBINA-7142.

Publicación no.: 184 **Infant-nonmother interactions of free-ranging mantled howlers (Alouatta palliata) in Costa Rica** *[Interacciones de infantes con monas que no son su madre en monos congo en libertad (Alouatta palliata) en Costa Rica]* / Clarke, Margaret R; Glander, Kenneth E; Zucker, E.L. (Central Washington University. Department of Anthropology, Ellensburg, WA 98926, US <E-mail: clarkem@cwu.edu> <E-mail: glander@duke.edu> <E-mail: zucker@loyno.edu>).
En: International Journal of Primatology (ISSN 0164-0291), v. 19, no. 3, p. 451-472. 1998.
Proximate and ultimate explanations of interactions between infants and nonmothers vary depending upon the relatedness of the interactors. We investigated interactions of infants and nonmothers from a 22-month continuous study and from the long-term monitoring of the mantled howler population of La Pacífica, Guanacaste Province, Costa Rica. Relatedness is low or absent in these mantled howler groups. Juvenile females appeared to practice care skills with older infants, but as most first infants died, they failed to benefit. Infant positive interactions with adults occurred with the mother and probable father other adult females behaved aggressively toward the youngest infants. Mothers were retentive of infants and responded negatively to these interactions, suggesting that they perceived them as threatening. Interactions with infants appear to reflect competition in groups of unrelated adults. A review of other populations of Alouatta palliata and other species of howlers indicate variability in social group size and suggest variability in intragroup relatedness. We suggest that further study will confirm that social behavior (including interactions with infants) will vary by resource availability (group size) and associated demographic patterns (male and female migration) that affect relatedness in howler social groups.
Localización: Biblioteca OET: S3923.

Publicación no.: 185 **Parasites of wild howlers (Alouatta spp.)** *[Parásitos de monos congo silvestres (Alouatta spp.)]* / Stuart, M.D; Pendergast, V; Rumfelt, S; Pierberg, S; Greenspan, L.L; Glander, Kenneth

E; Clarke, Margaret R. (University of North Carolina. Department of Biology, Asheville, NC 28804, US <E-mail: glander@duke.edu> <E-mail: clarkem@cwu.edu>).
En: International Journal of Primatology (ISSN 0164-0291), v. 19, no. 3, p. 493-512. 1998.
A literature review of howler parasites provides the basis for an overview of the ecological significance of parasite surveys in primates. Within this framework, we have added insights into the interactions between primate hosts and their parasites from a long-term study in Costa Rica. We collected fecal samples from mantled howlers (Alouatta palliata) over a 9-year period (1986-1994 inclusive) and analyzed them for parasite eggs, larvae, cysts, and oocysts. We found many misperceptions inherent in the typical methodology of primate parasite surveys and in the reporting of the findings. Our work in Costa Rica suggests that a snapshot effect occurs with most surveys. A static view does not reflect the dynamic and changing ecological interaction between host and parasite. We describe some problems with parasite data, analyses that emphasize the need for long-term longitudinal surveys in wild primate groups.
Localización: Biblioteca OET: S3825. NBINA-3965.

Publicación no.: 186 **Conservation biology of the genus Alouatta** *[Biología de la conservación del género Alouatta]* / Crockett, C.M. (University of Washington. Regional Primate Research Center, Box 357330, Seattle, WA 98195, US <E-mail: crockett@u.washington.edu>).
En: International Journal of Primatology (ISSN 0164-0291), v. 19, no. 3, p. 549-578. 1998.
As assessed by the IUCN Mace-Lande system, seven (35%) of the 20 Alouatta species and subspecies with adequate data are classified as "threatened," i.e., critically endangered, endangered, or vulnerable (Rylands et al., 1995). This percentage is much lower than the 75 to 100% threatened taxa for, the other large-bodied genera: Ateles, Lagothrix, and Brachyteles. Only 5 of the 16 Neotropical genera have lower percentages of threatened taxa than that of Alouatta: Cebuella, Pithecia, Saguinus, Saimiri, and Cebus. The threatened howler taxa occupy small distributions in areas of forest fragmentation. In general, populations are most affected by major habitat disturbance, such as total deforestation and flooding from dam construction, and by human hunters. Facilitated by their ability to exploit folivorous diets in small home ranges, howlers can tolerate considerable habitat fragmentation but not the increased exposure to hunting that may accompany it. Howlers seem particularly vulnerable to yellow fever and bot fly parasitism. Although the former threat may decrease by increasing fragmentation of the habitat, other sorts of parasitism may increase in disturbed habitats. The low genetic variability of the Central American howlers suggests a resistance to inbreeding depression potentially experienced during population bottlenecks. Greater between-population variability may still exist. Although howlers are not readily bred in captivity, they respond well to translocation. Translocation has been successfully achieved for greater than or equal to 4 howler species and is a viable option for introducing new genetic variability into population fragments and repopulating areas from which howlers are extinct. Their pattern of bisexual dispersal facilitates colonization of regenerating habitats, and in suitable, protected habitats they have shown the capacity for strong population recovery.
Localización: Biblioteca OET: S3854.

Publicación no.: 187 **Costa Rica, naturally** *[Costa Rica, naturalmente]* / Tierney, J.
En: The New York Times (ISSN 0362-4331), Sec. 5, Col. 1, p. 13 (Feb 1, 1998). 1998.
The brochure made it sound simple and appealing: explore Costa Rica's rain forests from a cruise ship that reaches pristine coasts normally accessible only by grueling overland treks. But I headed for the

jungle with trepidation. We set off on Jan. 3 from Puntarenas, a ramshackle little port on the eastern side of the Gulf of Nicoya in western Costa Rica, aboard the Temptress Explorer. This 185-foot former cargo vessel was converted three years ago into a cruise ship that can hold 99 passengers. It wasn't glitzy - no pool, no casino, no grand dining room - but it was well-appointed and well air-conditioned. The roomy cabins (about 10 by 12 feet each) had picture windows, teak beds, private baths and showers; the upper deck and forward lounge offered plenty of comfortable chairs with great views. Our first morning was spent at a tropical forest in the privately owned Curu wildlife refuge, south of Paquera, across the gulf on the Nicoya Peninsula. The guides led small groups on leisurely strolls around a mangrove lagoon as white-faced capuchin monkeys (Cebus capucinus) swung from branch to branch and howler monkeys (Alouata palliata) bellowed somewhere off deep in the woods. On one branch, we spotted a furry brown-and-white creature that looked a bit like a small panda with a long snout. It was the lesser anteater, using its long sticky tongue to slurp up termites.
Localización: Biblioteca OET: NBINA-3294.

Publicación no.: 188 **Hand preference and object-use in free-ranging white faced capuchin monkeys (Cebus capucinus) in Costa Rica** *[Preferencia en la utilización de las manos y uso de objetos en monos carablanca en libertad (Cebus capucinus) en Costa Rica]* / Panger, M.A. (The George Washington University. Department of Anthropology, 2110 G St NW, Washington, DC 20052, US <E-mail: panger@gwu.edu>). Berkeley: University of California, 1997. 206 p. Dissertation, Ph.D, University of California at Berkeley, Department of Anthropology, Berkeley, CA 94720 (USA).
This is the first long-term field study to examine hand preference and object-use in free-ranging capuchin monkeys (Cebus spp.) were studied in Palo Verde National Park, Costa Rica. The 11-month study took place from February 1995, to January 1996. Focal, scan, and ad libitum sampling techniques were used to collect data. In addition to obtaining data on hand preference and object-use, this study investigated the natural history of Palo Verde capuchin monkeys. Although capuchin monkeys have been studied extensively in captivity, data on their tool-using and hand preference behavior under free-ranging conditions are limited. One aim of this project was to see if free-ranging capuchin monkeys exhibit tool-use behavior and hand-use patterns that are similar to those of captive ones. The leading frameworks attempting to explain and predict primate hand-use patterns were tested using a variety of spontaneous tasks that differed in regard to manipulative difficulty and required postural regulation (reach, tap, grab, carry, and object-use). The monkeys showed symmetrical hand-use patterns for the highly manipulative task (i.e., object-use) at the individual level; and populational level biases for tasks requiring a degree of postural regulation (i.e., carry). These results do not support the available primate hand-use frameworks and differ from the captive Cebus literature on this topic. This research indicates that postural regulation may influence hand-use patterns in nonhuman primates at the populational level. The results from this study also indicate that although free-ranging capuchin monkeys are highly manipulative, they do not exhiit the range of rate of tool-using behavior demonstrated by their captive counterparts. No true tool-use was observed during the entire 11-month study. The most comon type of object-use (which occurred at a rate of .19/hr) involved object-substrate use (i.e, rub, pound, and fulcrum). There were no age/sex class differences in the individual rates of object-use. The contexts and assumed functions of the object-use observed are discussed, as well as reasons for the differences seen in the rates and types of object manipulation between captive and free-ranging capuchin monkeys.
Localización: Biblioteca OET: NBINA-5707.

Publicación no.: 189 **Male-male social relationships in wild white-faced capuchins (Cebus capucinus)** *[Relaciones macho-macho en monos carablanca (cebus capucinus) silvestres]* / Perry, Susan E. (Max-Planck-Institute for Evolutionary Anthropology. Independent Junior Research Group in Cultural Phylogeny, Deutscher Platz 6, 04103 Leipzig, DE <E-mail: perry@eva.mpg.de>).
En: Behaviour (ISSN 0005-7959), v. 135, Part 2, p. 139-172. 1998.
Male white-faced capuchins are expected to have tense, yet cooperative, relationships because they must compete for matings in an intragroup context, yet males of the same group need one another's support for intergroup competition for mates. In this paper, I examine in detail the social relationships of the 4 adult males in a single social group of wild white-faced capuchins at Lomas Barbudal Biological Reserve, Costa Rica. There was a clear alpha male, to whom all other males deferred; however, there was no obvious linear ranking among the subordinate males. Urine rubbing and branch displays were performed more often by the alpha than by subordinate males, though one subordinate male increased his rates of these behaviours when the alpha male was out of view. The alpha male formed coalitions with subordinate males against other males, but pairs of subordinate males never formed coalitions against the alpha male. The alpha male was not consistent with regard to which subordinate male he supported in triadic interactions. Affiliative interactions between subordinate males were consistently disrupted by the alpha male. Males cooperated with one another in the context of defense against predators and defense against males of other social groups. Relaxed affiliation and close proximity between males were rare, in comparison with male-female and female-female dyads. Tense affiliation (e.g. wheeze dances, play, and rough grooming) was most common following a change in alpha male, when aggressive interactions were also more common. Despite males' relatively low rates of affiliation and proximity, males actively searched for one another when a male was missing from the group for an extended period of time.
Localización: Biblioteca OET: S4644.

Publicación no.: 190 **A case report of a male rank reversal in a group of wild white-faced capuchins (Cebus capucinus)** *[Informe de un caso de inversión del rango en un grupo de monos carablanca (Cebus capucinus)]* / Perry, Susan E. (Max-Planck-Institute for Evolutionary Anthropology. Independent Junior Research Group in Cultural Phylogeny, Deutscher Platz 6, 04103 Leipzig, DE <E-mail: perry@eva.mpg.de>).
En: Primates (ISSN 0032-8332), v. 39, no. 1, p. 51-70. 1998.
During the course of a study of social relationships in wild white-faced capuchins at Lomas Barbudal Biological Reserve, Costa Rica (May 1990 - May 1993), the alpha male was deposed by a subordinate male. The rank reversal was preceded by a decline in proximity maintenance by females to the alpha male, and an increase in the amount of aggression directed toward the alpha male by the beta female and her female coalition partners. At the time of the rank reversal, females switched from giving the gargle vocalization exclusively to the old alpha male to gargling to the new alpha male; however, juveniles were less consistent with regard to which male they gargled to. At the time of the rank reversal, most adult females reduced the time spent in proximity and grooming with the old alpha male, and increased the time spent in proximity and grooming with the new alpha male. In contrast, juveniles' patterns of affiliation with males did not change in a predictable way following the reversal. The social strategies employed by capuchin monkeys during this rank reversal are compared with those of chimpanzees.
Localización: Biblioteca OET: S4645.

Publicación no.: 191 **Hand preference in free-ranging white-throated capuchins (Cebus capucinus) in Costa Rica** *[Preferencia en el uso de las manos en monos carablanca en libertad (Cebus capucinus) en Costa Rica]* / Panger, M.A. (The George Washington University. Department of Anthropology, 2110 G St NW, Washington, DC 20052, US <E-mail: panger@gwu.edu>).
En: International Journal of Primatology (ISSN 0164-0291), v. 19, no. 1, p. 133-163. 1998.
I studied the hand preference patterns of individuals in three troops of white-throated capuchins (C. capucinus) in Palo Verde National Park, Costa Rica, during 11 months from February 1995 to January 1996. I used focal and ad libitum sampling techniques and tested several frameworks that seek to explain and to predict primate hand use patterns via a variety of spontaneous tasks that differ in manipulative difficulty and required postural regulation: reach, tap, grab, carry, and object-use. The monkeys showed symmetrical hand use patterns for the easy tasks, reach and tap; strongly asymmetrical patterns for the highly manipulative task object-use, at the individual level; and weak population-level biases for tasks requiring a degree of postural regulation, carry. The results for data on grab are inconclusive. These results do not support the available primate hand use frameworks and differ from most of the captive literature on hand preference in Cebus. The findings indicate that postural regulation may influence hand use patterns in nonhuman primates at the population level.
Localización: Biblioteca OET: S5663. NBINA-7143. Biblioteca del BIODOC: 599.8 I.

Publicación no.: 192 **Positional behavior and vertebral morphology in atelines and cebines** *[Comportamiento de postura y morfología vertebral en atelinos y cebinos]* / Johnson, S.E; Shapiro, L.J. (University of Texas. Department of Anthropology, Austin, TX 78712, US <E-mail: liza.shapiro@mail.utexas.edu>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), v. 105, no. 3, p. 333-354. 1998.
Atelines are of particular interest to primate evolutionary studies because they converge with hominoids in postcranial anatomy, including the vertebral column. Currently, our understanding of ateline vertebral morphology is limited to mainly qualitative descriptions and functional interpretations based on general categories of positional behavior. Even less is known about the vertebrae of other platyrrhines. This study more closely examines vertebral form and function in atelines and cebines by combining direct field observations of axial postures and movements, assessments of spinal loading regimes, and a detailed vertebral morphometric analysis. Field observations (Corcovado National Park, Costa Rica) on Ateles geoffroyi, Alouatta palliata, Cebus capucinus, and Saimiri oerstedii were quantified in conjunction with a morphometric analysis of ateline and cebine lumbar vertebrae. Hylobates was also included for comparison. Compared to Cebus and Saimiri, atelines engage more frequently in postures and locomotor behaviors that induce pronounced bending loads on the spine. All atelines share lumbar adaptations for resisting bending, including ventrodorsally elongated vertebral bodies and perpendicularly oriented transverse processes. Among atelines, lumbar region lengths and vertebral bodies are shortest in Ateles and Brachyteles, longest in Alouatta (resembling Cebus), and intermediate in Lagothrix. Compared to Cebus and all atelines, Saimiri has a relatively longer lumbar region, longer and less ventrodorsally expanded vertebral bodies, and more ventrally oriented transverse processes. These features accentuate bending loads, but increase the sagittal flexibility required for leaping. Vertebral convergence between hylobatids and atelines is more readily interpretable as a product of shared spinal loading patterns than shared positional behaviors.
Localización: Biblioteca OET: S5613.

Publicación no.: 193 **Sounds of neotropical rainforest mammals: an audio field guide** *[Sonidos de mamíferos neotropicales del bosque lluvioso: guía de campo de audio]* / Emmons, L.H; Whitney, B.M; Ross, D.L., Jr. (c/o Field Guides Inc., P.O. Box 160723, Austin, TX 78716-0723, US <E-mail: 75213.3314@compuserve.com>)./ Library of Natural Sounds, Cornell Laboratory of Ornithology, 159 Sapsucker Woods Road, Ithaca, NY 14850, US E-mail: libnatsoundsornell.edu. Ithaca, NY: Library of Natural Sounds, Cornell Laboratory of Ornithology, 1997. ISBN: 0-938027-40-9.
This two-CD guide was developed as an audio companion to 'Neotropical Rainforest Mammals: A Field Guide' (Emmons and Feer 1997. Chicago: University of Chicago Press, Second ed.). It presents the characteristic sounds of 109 species of rainforest mammals, most never before published. Featured are the voices and sounds of 54 primates and 55 other mammals, including such diverse species as anteaters, bats, kinkajous, jaguars, tapirs, peccaries, manatees, squirrels, and bamboo rats. In a rainforest environment where dense vegetation blocks the view, familiarity with sound is essential for identifying the secretive mammals that live there. This audio guide provides a new tool for finding and identifying New World tropical rainforest mammals.
Localización: Biblioteca OET.

Publicación no.: 194 **Nesting associations of birds, ants, and wasps** *[Asociaciones de anidamiento de aves, hormigas y avispas]* / Joyce, Frank J. (Instituto Monteverde, Apdo. 10165, San José, CR <E-mail: fjoyce@racsa.co.cr>). Ithaca, NY: Cornell University, 1990. 198 p. Dissertation, Ph.D, Cornell University, Ithaca, NY (USA).
Nest sites chosen by birds may be an important determinant of reproductive success because eggs and nestlings are defenseless against predators. In a 7- year field study in Santa Rosa National Park, Guanacaste, Costa Rica, I investigated nest-site choices and nesting success of yellow-olive flycatchers (Tolmomyias sulphurescens), banded wrens (Thryothorus pleurostictus), and rufous-naped wrens (Campylorhunchus rufinucha). Over 85% of 1,243 nests were found in ant-acacia trees (Acacia collinsii). Although uncommon, ant-acacia trees with waps nests were the preferred nest site of the three birds studied. The flycatchers and banded wrens also built nests near wasp nests in other trees. igh nest failure (70%) was due almost exclusively to predation by capuchin monkeys (Cebus capucinus), snakes and birds. In certain situations, ants and wasps deterred these animals from preying on bird nests. Bird nests in isolated acacias were less likely to be preyed on than nests in non- isolated acacias. Wasp species varied in the degree of protection they provided. Ant-acacia trees in which I placed artificial wasp nests (AWN's) were significantly ore likely to be chosen as nest sites by birds than acacia trees without AWN's. In additional experiments, birds exhibited a preference for AWN's in ant-acacia trees over other tree species, but did not show a preference for large AWN's over small ones. To test the hypothesis that bird nests near wasp colonies were more likely to fledge youn than nests not near wasps, I placed active wasp (Polybia rejecta) nests in randomly chosen trees near rufous-naped wren nests. Wren nests near wasps were significantly more likely to fledge young than wren nests not near wasps. Over 110 bird species in 56 genera and 19 families have been reported to nest with Hymenoptera. Most of these species are tropical passerines that build covered nests. Evidence supports the hypothesis that most of these birds are attracted to Hymenoptera and that this is a behavioral trait that may have originated because birds and Hymenoptera converged on nest sites. The phylogenetic distribution of this trait indicates parallel evolution among families and comon ancestry among species within genera.

Localización: No disponible.

Publicación no.: 195 **Group size and stability: why do gibbons and spider monkeys differ?** *[Tamaño del grupo y estabilidad: ¿por qué los gibones y los monos colorado difieren)]* / Robbins, D; Chapman, Colin A; Wrangham, R.W. (Center of Field Research, 680 Mount Auburn St, Watertown, MA 02173, US <E-mail: cachapman@zoo.ufl.edu>).
En: Primates (ISSN 0032-8332), v. 32, no. 3, p. 301-305. 1991.
Gibbons and spider monkeys have similar diets, body size, and locomotor patterns. They are therefore to be subject to similar socioecological rules. However their grouping patterns differ. Gibbons live in stable groups, whereas spider monkey forms unstable sub-groups that vary from small to large during different seasons. If similar principles apply to the two species, food abundance should vary more for spider monkeys than for gibbons; food density should be similar for the two species when spider monkey sub-groups are the same size as gibbon groups; and the highest level of food abundance shou8ld be higher for spider monkeys than for gibbons. These predictions are upheld for a particular populations of Hylobates muelleri and Ateles geoffroyi.
Localización: Biblioteca OET: S4297.

Publicación no.: 196 **Preliminary results of hand use in free-ranging capuchins (Cebus capucinus)** *[Resultados preliminares del uso de la mano en monos carablanca en libertad (Cebus capucinus)]* / Gomperts, S; Costello, M.B. (School Field Studies, 16 Broadway, Beverly, MA 01915, US).
En: American Journal of Primatology (ISSN 0275-2565), v. 24, no. 2, p. 104. 1991.
(Abstract only). Previously published reports of the manipulative skills of captive Cebus have demonstrated that Cebus exhibit coordinated bimanual control in problem-solving tasks. The frequency of unimanual and bimanual hand use during feeding, foraging, and investigative behavior was recorded for free-ranging capuchins at the Refugio Nacional de Vida Silvestre Curú, Costa Rica. Of the 756 cases of manual use observed, 573 (76%) involved coordinated bimanual behavior, such as transferring an object from one hand to another. Over 95% of bimanual hand use occurred while feeding or foraging. Objects were initially prehended bimanually, and then transferred to one hand in a power grip (right hand, 67%; left hand, 33%) in 12% of the 573 bimanual cases. Dextrous manipulation of an object held in one hand represented only 8% of total bimanual activity during feeding or foraging. The low frequency of tasks requiring a division of labor between the hands, such as the proposed left hand preference for visually guided reaching and a right hand preference for manipulation, suggests that C. capucinus do not rely upon handedness for food acquisition.

Publicación no.: 197 **A coprological survey of parasites of wild mantled howling monkeys, Alouatta palliata palliata** *[Un resumen de los parásitos en el excremento de monos congo silvestres, Alouatta palliata palliata]* / Stuart, M.D; Greenspan, L.L; Glander, Kenneth E; Clarke, Margaret R. (University of North Carolina. Department of Biology, Asheville, NC 28804, US <E-mail: glander@duke.edu> <E-mail: clarkem@cwu.edu>).
En: Journal of Wildlife Diseases (ISSN 0090-3558), v. 26, no. 4, p. 547-549. 1990.
Fecal samples from 155 mantled howling monkeys (Alouatta palliata palliata) examined at Centro Ecológico La Pacífica, Guanacaste Province, Costa Rica, revealed 75 (48%) had parasitic infections. A sampling of nine howling monkeys from Santa Rosa National Park, Costa Rica indicated only one infected animal (11%). Only three of 19 (16%) spider monkeys (Ateles geoffroyi) also from Santa Rosa

were infected. Controrchis biliophilus, Trypanoxyuris minutus, unidentified strongylid eggs and Isospora sp. oocysts were found. Three monkeys from La Pacifica died and were examined for adult helminths. They were infected with Ascaris lumbricoides, C. biliophilus and T. minutus.
Localización: Biblioteca OET: S8745. Biblioteca del BIODOC: 636.089 J.

Publicación no.: 198 **Experimental test of deception in long-distance calls of howling monkeys (Alouatta palliata)** *[Prueba de engaño experimental en llamadas a larga distancia de monos congo (Alouatta palliata)]* / Whitehead, J.M. (University of Florida. Institute of Advanced Study of Communication Processes, Gainesville, FL 32611, US).
En: American Journal of Primatology (ISSN 0275-2565), v. 24, no. 2, p. 140. 1991.
(Abstract only). Recent discussions of the function and evolution of animal signals in intraspecific communication have emphasized two divergent viewpoints: signals are deceptive and manipulate receivers into acting in the signaller's benefit; or, signals convey accurate information about the signaller's intent or internal state and are thus a form of honest advertising. I conducted an experimental test of these viewpoints as part of a field study of the role of loud calls in intergroup spacing of manned howling monkeys in La Pacifica Ecologica Centre, Costa Rica. Previous playbacks of loud calls showed that males judge the distance to calling neighbors by attending to reverberation of loud barks and withdrawing from areas vacated by a barking male. The hypothesis that howlers deceive neighbors about their direction of movement and induce them to withdraw from an area was tested using vocalizations (bark variants) that mimic reverberated barks and sound as if they originated from a greater distance that they actually did. The alternative hypothesis is that calls similar to reverberated barks cannot substitute for them atad thus do not alter the monkey's partem of movement in the same manner. Responses to playbacks support the latter alternative and suggest that barks and their attendant reverberation convey honest cues about the distance to the calling male. The inability of animals to counterfeit spacing signals is a necessary condition for the maintenance of evolutionary stability of spacing systems based upon reciprocity and long-distance vocalizations.
Localización: Biblioteca OET: S9866.

Publicación no.: 199 **Fecal estradiol, sexual swelling, and sociosexual behavior of free-ranging female howling monkeys in Costa Rica** *[Estradiol fecal, hinchamiento sexual y comportamiento sociosexual de las hembras de monos congo en Costa Rica]* / Clarke, Margaret R; Zucker, E.L; Harrison, R.M. (Central Washington University. Department of Anthropology, Ellensburg, WA 98926, US <E-mail: clarkem@cwu.edu> <E-mail: zucker@loyno.edu>). Annual Meeting of the American Society of Primatologists. XIV, Veracruz MXJune 24-28, 1991. , 1991. 31 p.
The influence of ovarian steroid hormones, including estradiol, on reproductive behavior have been studied using blood samples in a number of species of nonhuman primates in captivity. Captive animals are chemically or physically restrained, and a sample drawn. Serum or plasma estradiol concentrations then are determined using radioimmunoassay. In zoos, the measurement of fecal estradiol has been used to determine the sex of monomorphic birds; to monitor estrous cycles in nondomestic cats, and to detect pregnancy in zoo-living yak, red buffalo, Nubian ibex, and Grevey's zebra. In a 1987 publication, Riler, Wasser, and Sackett (1987) described the extraction of estradiol from the feces of pig-tailed macaques. As the collection of fecal samples is noninvasive, and does not require restraing, Risler and colleagues suggested that this method would be suitable for use in field situations. Beginning in 1988, we collected fecal samples from free-ranging female mantled howling in Costa Rica in order to study

relationships between physiological variables and behavior. The following hypotheses were tested: 1. Fecal estradiol values will be significantly and positively correlated. 2. Fecal estradiol values will be significantly and positively correlated with stage of estrus (based on visual ratings of estrous swellings; adapted from Glander, 1980). 3. Estradiol values will be significantly higher for cycling females than noncycling females (i.e., pregnant and/or lactating). 4. There will be a significant and positive correlation between estradiol values and time in proximity to adult males. 5. Copulatory behavior will be associated temporaly with elevated estradiol values.
Localización: Biblioteca OET: DOC 4403.

Publicación no.: 200 **Breech delivery and birth-related behaviors in wild mantled howling monkeys** *[Alumbramiento en posición de sentado y comportamientos relacionados con el parto en monos congo silvestres]* / Moreno, L.I; Salas, I.C; Glander, Kenneth E. (Duke University. Department of Biology, Durham, NC 27705, US <E-mail: glander@duke.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 23, no. 3, p. 197-199. 1991.
The breech birth of an infant mantled howling monkey was observed on February 12, 1990. The mother assisted the successful delivery by pulling on the infant's tail and hindleg. No other members of the social group attended the mother or demonstrated any interest in the birth process.
Localización: Biblioteca OET: S6284.

Publicación no.: 201 **Sexual bias in troop progression leading in the mantled howler monkeys: male or female?** / Murdock, A.
En: American Journal of Primatology (ISSN 0275-2565), v. 24, no. 2, p. 124. 1991.
(Abstract only). During a two-week study in Curú National Wildlife Refuge, Costa Rica, data were collected on eleven troops of Alouatta palliata, or mantled howler monkeys using ad libitum sampling during a series of three-day collections. The purpose of the study was to determine if troop progression leading contains a sexual bias. The size of the troops observed ranged from 4 to 22 individuals with a mean size of 11.6 and a standard deviation of 4.8 individuals. The percent of troop members of adult status was 64%. The percent of males within the adult population was 372. All the groups were multimale with 81.8% having more females than males. The mean ratio of males to females was 0.75:1. Given the probabilities of leadership for a whole troop, males led more often than any other troop member (= 28.19, p 0.5)). Females led troop progressions less often than predicted by chance. When compared with the adult population only, males led more often than females (=14.4, p .05)).
Localización: Biblioteca OET: S9867.

Publicación no.: 202 **A new survey of the howling monkey population of La Pacífica** *[Un nuevo censo de la población de monos congo de La Pacífica]* / Clarke, Margaret R; Zucker, E.L. (Central Washington University. Department of Anthropology, Ellensburg, WA 98926, US <E-mail: clarkem@cwu.edu> <E-mail: zucker@loyno.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 27, no. 1, p. 23. 1992.
(Abstract only). A 6-day survey of the La Pacífica howling monkey population was done in July, 1991, replicating our survey done in 1984. The results confirmed the hypothesis that there were an increased number of howler groups at La Pacífica, but that groups were smaller. Comparing 1984 and 1991 results, total population decreased from 257 to 208, but the number of groups increased from 16 to 21; mean group size decreased from 15.5 to 9.6 animals and estimated density decreased from 77.3 to 63.0

howlers per square hectare. The ratios of adult males to females and immatures to adults remained unchanged, but mean number of adults per group decreased from 11.1 to 7.0. An intensive 15-day follow-up survey provided more complete population data. Twenty-seven groups (341 animals) and 3 solitaries were identified; 22 groups were located and resurveyed on two separate days, and 16 were recounted 3 or 4 times. Twenty groups contained marked animals (collars and/or leg bands), 4 had animals with unique physical marks, and 2 were identified by consistent age-sex compositions and locations. While only the data from the two 6-day surveys are comparable directly, data from the follow-up survey also indicated more, but smaller, howler groups (mean=12.6 howlers/group). No active deforestation occurred between surveys, but changes in irrigation patterns could have affected available resources. Deforestation begun at the end of the 1991 survey may further affect this population of howlers.
Localización: Biblioteca OET: S9880.

Publicación no.: 203 **The effect of group size and food abundance on contest and scramble competition in Alouatta palliata** *[Efecto del tamaño del grupo y abundancia de alimento en la disputa y competencia de lucha en Alouatta palliata]* / Larose, F. (University of Alberta. Department of Anthropology, 13-15 Tory Bldg, Edmonton, Alberta T6G 2H4, CA).
En: American Journal of Primatology (ISSN 0275-2565), v. 30, no. 4, p. 325. 1993.
(Abstract only). Four groups of howler monkeys were studied over a period of thirteen months in Santa Rosa National Park, Costa Rica, to determine the effects of group size on contest and scramble competition over food resources. The results showed that home range and day range length increased significantly as a function of group size (scramble competition). Home range and day range also varied with the seasonality and abundance of food resources. Also, although aggressive interactions occurred at a low rate (n=244, 2040 hours), the results showed that they occurred primarily over clumped, high-quality food items and that females and juveniles incurred most of the costs of contest competition. Two of the larger groups in the study routinely underwent a process of fission and fusion in order to minimize the costs of intra-group feeding competition primarily because of time budget constraints. The results show that group size is not correlated with food patch size or number of food patches used as howlers preferred large feeding trees of a limited number of species throughout the study period. The study demonstrates that the distribution of food is a limiting factor for group size in the study population and that mantled howlers are not exempt from scramble and contest competition as had been suggested by earlier studies.
Localización: Biblioteca OET: S9572.

Publicación no.: 204 **Social relationships of adult female howling monkeys (Alouatta palliata) in Costa Rica** *[Relaciones sociales de las hembras adultas de los monos congo (Alouatta palliata) en Costa Rica]* / Zucker, E.L; Clarke, Margaret R. (Loyola University. Department of Psychology, New Orleans, LA 70118, US <E-mail: zucker@loyno.edu> <E-mail: clarkem@cwu.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 30, no. 4, p. 361-362. 1993.
(Abstract only). The 12 adult females who have been part of Group 2 at Hacienda La Pacífica were observed via focal animal sampling during portions of July and August of 1988 and 1990-1992 (7-9 females/year; 955.3 hours of observation). Agonistic interactions and time in proximity (within 1 m) were used as indices of social relationships. The overall rate of female-female agonism was 0.39/hr (yearly range .24/hr-.52/hr). Adult females spent 6.35 of their time in proximity to another adult female

(yearly range 1.1%-15.8%), and 4.4% of their time in proximity to an adult male (yearly range 2.2%-7.57). Dominance ranks were determined based on the outcomes of dyadic agonistic interactions, and patterns of proximity were tested for differences based on rank and presence of dependent offspring. In three of the four years, high-ranking females spent signíficantly greater proportions of their time in proximity with other females than did low-ranking females. Time in proximity with the three or four adult males was not associated with rank. The presence of a dependent infant was not related to proportion of time in proximity to females or males. In any given year, however, high-rankíng females spent more time in proximity to females with dependent infants than to females without infants. The absence of more consistent patterns across years reflects the dynamic nature of mantled howler groups, including changes in group membership and dominance status of adult females.
Localización: Biblioteca OET: S9877.

Publicación no.: 205 **The coordination of spatial position: a field study of the vocal behaviour of adult female squirrel monkeys** *[Coordinación de la posición espacial: estudio de campo del comportamiento vocal de la hembra adulta de los monos titi]* / Boinski, Sue. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu>).
En: Animal Behaviour (ISSN 0003-3472), v. 41, no. 1, p. 89-102. 1991.
Continuous focal recordings were collected of the vocalizations of 21 marked adult female squirrel monkeys, Saimiri oerstedii, in their natural Costa Rican habitat. Concurrent data were also obtained for each focal female on her foranging activity, distance from the nearest neighbouring adult female, spatial position within the troop, and ongoing troop activities and movements. A cumulative 18.6 h of continuous samples and 3080 sonagrams were analysed. Consistent with earlier studies, four major call types were identified: smooth chuck, bent mast chuck, peep and twitter. As the distance from the nearest adult female increased, the rate of vocalizations increased dramatically, the peep call disproportionately so. A rapid rate of vocalization, with an increased proportion of twitters and a decreased proportion of bent mast chucks, was strongly associated with the initiation of troop movement and with females in the vanguard of a moving troop. No direct relationship was found between foraging and vocal behaviour. Even the most narrowly defined call types were likely to be uttered in sequences. There was no evidence that sequential patterns of calls (syntax) differed across contexts.
Localización: Biblioteca OET: S3953.

Publicación no.: 206 **Competitive regimes and female bonding in two species of squirrel monkeys (Saimiri oerstedii and S. sciureus)** *[Regímenes competitivos y vinculación de las hembras en dos especies de monos tití (Saimiri oerstedii y S. sciureus)]* / Mitchell, C.L; Boinski, Sue; van Schaik, C.P. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu>).
En: Behavioral Ecology and Sociobiology (ISSN 0340-5443), v. 28, no. 1, p. 55-60. 1991.
Ecological and behavioral data from longterm field studies of known individuals in two closely related squirrel monkey species (Saimiri oerstedii and S. sciureus) were used to examine hypotheses about the source of variation in female bonding among group-living primates. Social relationships in species which live in cohesive groups are thought to depend on the nature of competition for resources. S. oerstedii and S. sciureus both live in large groups and are subject ot intense predation. Direct feeding competition both between and within groups is extremely low in S. oerstedii; in this species female relationships are

undifferentiated, no female dominance hierarchy is evident and females disperse from their natal group. S. sciureus also experiences very low levels of between-group competition, but within-group direct competition for resources is frequent;; this species demonstrates differentiated female relationships, a female dominanc hierarchy, and female philopatry. The correlated ecological and social variables found in these two congeners further minimize the minor effects of phylogenetic differences and emphasize the importance of food distribution in determining social characteristics.
Localización: Biblioteca OET: S6946.

Publicación no.: 207 **Olfactory communication among Costa Rican squirrel monkeys: a field study** *[Comunicación mediante el olfato entre los monos tití costarricenses: estudio de campo]* / Boinski, Sue. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu>).
En: Folia Primatologica (ISSN 0015-5713), v. 59, no. 3, p. 127-136. 1992.
Behaviors with a possible role in olfactory communication among troop members were investigated as part of a field study on the reproductive and foraging ecology of squirrel monkeys (Saimiri oerstedii) in Corcovado National Park, Costa Rica. All age classes engaged in the olfaction-related behaviors. Apart from olfactory investigation of female genitals by males during the mating season, no other potential olfaction-related behavior (urine wash, branch investigation, rump, chest, back rub and sneeze) exceeded 1% of mean behavioral samples. Assessment of reproduction condition appears to be the primary function of such olfactory investigation of the female genital region. The primary function of urine washing is suggested to be the general communication of reproductive status, possbibly facilitating reproductive synchrony. Sneezing, rump, back and chest rubbing do not appear to deposit substances active in olfactory communication.
Localización: Biblioteca OET: S6948.

Publicación no.: 208 **Sex, flies and audiotape: squirrel monkey field studies** *[Sexo, moscas y cintas de audio: estudios de campo de monos tití]* / Boinski, Sue. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 30, no. 4, p. 300. 1993.
(Abstract only). Squirrel monkeys exemplify the recent advances in understanding the evolution and adaptations of New World primates. Newly available field data from Peru and Costa Rica can now be integrated with physiological, morphological, molecular and behavioral data from laboratory studies of this genus. Moreover, squirrel monkeys are an exciting comparative study system as this taxa has a broad geographic distribution with well differentiated populations that are adapted to local conditions.The "new" squirrel monkey will be described, including its taxonomy, foraging behavior, reproductive strategies and mating systems, vocal communication and anti-predator strategies. Also identified will be aspects of their biology and behavior where research is most needed.
Localización: Biblioteca OET: S9878.

Publicación no.: 209 **Dry season activity of Cebus capucinus in a Costa Rican dry forest** *[Actividad en la estación seca de Cebus capucinus en un bosque seco costarricense]* / Gilbert, K.A; Stouffer, P.C. (Rutgers University. Department of Anthropology, New Brunswick, NJ 08903, US).
En: American Journal of Primatology (ISSN 0275-2565), v. 20, no. 3, p. 193. 1990.

We examined activity patterns and substrate use by a group of white-faced capuchins during the dry season in the lowland dry forest at Palo Verde National Park, Costa Rica. The frequency of foraging, resting and traveling varied temporally with a period of inactivity in the middle of the day. Social activities were uncommon, but were concentrated in the middle of the day. Juveniles foraged more than subjuveniles or adults, but traveled and rested less. Subjuveniles foraged least. Traveling and foraging, offer in open, unshaded areas, coincided with the cooler times of the day. The group often foraged and traveled on the ground. Subjuveniles were most terrestrial, using the ground 55% of the time when traveling and 42% of the time when foraging. Juveniles were least terrestrial (36% travel. 24% forage). Rest and social activities were highly arboreal for all age classes. Terrestrial foraging was most common in the middle of the day. Terrestrial traveling became increasingly common over the course of the day. The relative openness of the forest during the dry season and the large areas of secondary growth with little canopy cover may have facilitated terrestrial activities.
Localización: Biblioteca OET: S8776.

Publicación no.: 210 **Dry season diet of Cebus capucinus** *[Dieta de Cebus capucinus en la estación seca]* / Gilbert, K.A; Stouffer, P.C; Stiles, E.W. (Rutgers University. Department of Anthropology, New Brunswick, NJ 08903, US).
En: American Journal of Primatology (ISSN 0275-2565), v. 24, no. 2, p. 103. 1991.
(Abstract only). We collected feeding data on white-faced capuchins in the lowland dry forest of Parque Nacional Palo Verde, Costa Rica, during the dry season. We censused line transects within the ranging area of the study group to quantify fruit and palm abundance and collected and analyzed the macro-nutritional content of all available fruits. The study group spent 61.7% of foraging time eating plant material and 38.3% eating invertebrates (primarily ants inhabiting Acacia thorns). The capuchins foraged on a variety of abundant, low quality plant parts, which were probably most important as sources of carbohydrates. Fruit was the most common plant part eaten, followed by palm pith, leaves and flowers. The most abundant fruit, Guazuma tomentosa (Sterculiaceae) was also the most commonly eaten. This fruit is rich in carbohydrates but poor in lipids and protein. Luehea candida (Tiliaceae), which contains seeds high in lipids and protein, was a distant second in overall diet and sixth in abundance. The small palm Bactris guinensis was the most abundant plant utilized by monkeys and was third in overall diet. Meristematic tissue of B. guinensis was an important carbohydrate source. The other fruits eaten were low in abundance, represented by fewer than ten trees in the ranging area. These included fruits high in water and soluble carbohydrates, such as Spondias purpurea (Anacardiaceae) and Diospyros nicaraguensis (Ebenaceae), and small arillate fruits with high lipid contents, such as Tetracera volubilis (Dilleniaceae). A variety of leguminous fruits were available, but only Acacia collinsii and Cassia grandis were eaten.

Publicación no.: 211 **Tool use by wild Cebus monkeys at Santa Rosa National Park, Costa Rica** *[Uso de herramientas por parte de los monos carablanca silvestres en el Parque Nacional Santa Rosa, Costa Rica]* / Chevalier-Skolnikoff, S. (University of California. California Primate Research Center, Davis, CA 95616, US).
En: Primates (ISSN 0032-8332), v. 31, no. 3, p. 375-383. 1990.
Although wild cebus monkeys have been observed to use tools, this behavior has been reported only rarely. No one has systematically examined tool use in wild Cebus, and it is not known how prevalent tool use is in the species' natural repertoire. During 300 hr of observation on 21 wild capuchins (Cebus

capucinus imitator) at Santa Rosa National Park in Costa Rica, 31 incidents of tool use, including eight different types of tool-use behavior, were observed. These observations indicate that tool use is a notable behavior pattern in this troop. Considering these incidents of tool use in conjunction with other reports on complex food'getting and preparation behavior by Cebus suggests that tool use is a manifestation of Cebus' high behavioral adaptability. Since only Cebus and the great apes (especially chimpanzees) have been observed to show such a diverse tool'use repertoire, to use tools so frequently, or to show such complex food'getting behavior in the wild, these observations also support the notion that Cebus and the great apes have followed a parallel evolutionary development of tool-using capacity.
Localización: Biblioteca OET: S9489. Biblioteca del BIODOC: 1309.

Publicación no.: 212 **Differential palm utilization by Ateles geoffroyi and Cebus capucinus at La Selva Biological Station, Costa Rica** *[Utilización diferencial de las palmas por parte de los monos Ateles geoffroyi y Cebus capucinus en la Estación Biológica La Selva, Costa Rica]* / Campbell, A.F. (Washington University. Department of Anthropology, St. Louis, MO 63130, US <E-mail: aimee.campbell@mailcity.com>).
En: American Journal of Primatology (ISSN 0275-2565), v. 24, no. 2, p. 92. 1991.
(Abstract only). This paper presents data on palm use from an ongoing comparative ecological study of Ateles geoffroyi and Cebus capucinus at La Selva Biological Station, located in the lowland rain forest of northeastern Costa Rica. Palms have been shown to be an important food resource, most especially during periods of low fruit availability, for Ateles and Cebus in several locations. Three factors which make La Selva an exceptional location to investigate the importance of palm use by Ateles geoffroyi and Cebus capucinus are as follows: (1) the site lacks a mejor dry season and period of fruit scarcity, (2) palms are both strikingly diverse and abundant (29 species, some at high densities), and (3) the primates had not been systematically studied prior to the beginning of this project in 1990. Behavioral data on use of palas as food sources, travel pathways, and resting sites are presented. Comparative data on the palos, including spatiotemporal distribution and physiognomic description of trees and fruits of the most commonly-used palms (e.g., Astrocaryum confertum, Socratea durissima, and Welfia georgii) are also presented. Differences in palm use are discussed in relation to body size, locomotion, and patterns of social grouping of the two primates.
Localización: Biblioteca OET: S10074.

Publicación no.: 213 **"Fur washing" among capuchin monkeys (Cebus capucinus): evidence for use of medicinal plants** *["Lavado de la piel" entre los monos carablanca (Cebus capucinus): evidencia del uso de plantas medicinales]* / Baker, Mary E. (Rhode Island College. Department of Anthropology, 600 Mt. Pleasant Ave., Providence, RI 02908, US <E-mail: mbaker@ric.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 27, no. 1, p. 14. 1992.
There is a growing body of evidence documenting animals' selective use of medicinal plants found in their environments. During research conducted in Costa Rica, capuchin monkeys (Cebus capucinus) have been observed topically applying material of at least four plant genera (Citrus, Clematis, Piper, and Sloanea). The first three of these plants contain secondary compounds which are known to have anti-insect and/or medicinal benefits and the ethnographic record shows that indigenous peoples throughout the New World use these plants for similar purposes and in similar ways. It is suggested that free-ranging nonhuman primates use plants topically for their potential medicinal purposes.
Localización: Biblioteca OET: S9882.

Publicación no.: 214 **La vida social de los monos carablanca en Lomas Barbudal** *[The social life of white-faced monkeys in Lomas Barbudal]* / Perry, Susan E; Manson, Joseph H; Gros-Louis, Julie J; Sirot, L. (Max-Planck-Institute for Evolutionary Anthropology. Independent Junior Research Group in Cultural Phylogeny, Deutscher Platz 6, 04103 Leipzig, DE <E-mail: perry@eva.mpg.de> <E-mail: manson@eva.mpg.de> <E-mail: jgroslou@indiana.edu>).
En: Bee Line: News and Bulletin [Friends of Lomas Barbudal], v. 6, no. 1-3, p. 16-17. 1992. (No abstract).
Localización: Biblioteca OET: B. S4865.

Publicación no.: 215 **Sex differences in diet and foraging behavior in white-faced capuchins (Cebus capucinus)** *[Diferencias entre sexos en cuanto a la dieta y comportamiento de forrajeo en los monos carablanca (Cebus capucinus)]* / Rose, L.M. (University of British Columbia. Department of Anthropology, 6303 NW Marine Dr, Vancouver, BC V6Y 1Z1, CA <E-mail: lrose@interchange.ubc.ca>).
En: International Journal of Primatology (ISSN 0164-0291), v. 15, no. 1, p. 95-114. 1994.
I examined sex differences in diet and foraging behavior in two groups of white'faced capuchin monkeys (Cebus capucinus) in a tropical dry forest at Santa Rosa National Park, Costa Rica. I tested three hypotheses! sex differences in diet and foraging behavior are best explained by (1) sexual dimorphism, (2) the energy demands of pregnancy and lactation for females; and (3) avoidance of competition between the sexes. Sexual dimorphism offered the best explanation of sex differences in the diet and foraging behavior of C. capucinus, accurately predicting that males do more strenuous foraging activity, make less use of small foraging supports, and spend more time on or near the ground. Females spent more time foraging than males did but probably obtained a lower protein yield per unit foraging time. Females exploited more small and embedded invertebrates, while males ate more large invertebrates and vertebrate prey. Pregnant and lactating females spent more time resting and less time foraging than other females did, increasing their foraging return by focusing on foods requiring little handling. There was little evidence of competition avoidance between the sexes.
Localización: Biblioteca OET: S8204.

Publicación no.: 216 **Association patterns of spider monkeys: the influence of ecology and sex on social organization** *[Patrones de asociación de los monos colorado: influencia de la ecología y el sexo en la organización social]* / Chapman, Colin A. (University of Florida. Department of Zoology, 223 Bartram Hall, Gainesville, FL 32611, US <E-mail: cachapman@zoo.ufl.edu>).
En: Behavioral Ecology and Sociobiology (ISSN 0340-5443), v. 26, no. 6, p. 409-414. 1990.
In this paper I consider how the costs and benefits of group living in spider monkeys (Ateles geoffroyi) vary between troop members. The results suggest hat ecological factors set aun upper limit to the number of spider monkeys that can associate and still efficiently exploit the available resources. In addition, the needs of the individual appear to influence the type and size of the subgroup it chooses. Adult males band together, travel over a large area, and are frequently sighted near the community's boundary. In contrast, adult females spend more time solitary than males and have association patterns that are strongly influenced by the presence of a dependent infant. Females with dependent infants tend to travel in small subgroups or alone, avoid the boundaries of the community's home range, and exhibit a restricted patter of use of their range. The results suggest that males may be attempting to locate females with which they can breed, while mothers attempt to protect their infants by avoiding conspecifics and potentialy dangerous situations near territorial boundaries.

Localización: Biblioteca OET: S3954.

Publicación no.: 217 **Variability in spider monkeys' vocalizations may provide basis for individual recognition** *[La variabilidad en las vocalizaciones de los monos colorado pueden suministrar las bases para el reconocimiento individual]* / Chapman, Colin A; Weary, D.M. (University of Florida. Department of Zoology, 223 Bartram Hall, Gainesville, FL 32611, US <E-mail: cachapman@zoo.ufl.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 22, no. 4, p. 279-284. 1990.
Analysis of long-range vocalizations given by spider monkeys revealed consistent acoustic differences among the calls of individuals. Of seven acoustic measurements, four exhibited significant variation between individuals. A discriminant analysis demonstrated that two of these variables allowed correct identification of the caller 44% of the time. Including the remainder of the variables increased the percentage correctly identified to 50%. Individual identification by call structure could benefit spider monkeys, where individuals forage separately in subgroups and the interactions between specific pairs of individuals is highly variable. Acoustic recognition of callers would facilitate the choice of which subgroups to join, thus allowing individuals to manipulate the size and composition of their subgroups. In addition, the calls of mothers and offspring appeared to be similar in acoustic properties.
Localización: Biblioteca OET: S2647. LS.

Publicación no.: 218 **Manipulating foraging group size: spider monkey food calls at fruiting trees** *[Manipulando el tamaño del grupo de forrajeo: las llamadas de los monos colorados a los árboles en fructificación]* / Chapman, Colin A; Lefebvre, L. (University of Florida. Department of Zoology, 223 Bartram Hall, Gainesville, FL 32611, US <E-mail: cachapman@zoo.ufl.edu>).
En: Animal Behaviour (ISSN 0003-3472), v. 39, no. 5, p. 891-896. 1990.
The food calling behaviour of the Costa Rican spider monkey, Ateles geoffroyi, was studied to determine if food calls function as conditional signals designed to attract conspecifics and thereby manipulate the size of the feeding subgroups. First, individuals were shown to manipulate the number of conspecifics joining them by altering the frequency of calling. Then, based on the expected levels of feeding competition and male-female strategies, four predictions were made concerning the frequency with which individuals should call. As predicted, calls were given more often by subgroups containing dominant individuals than by subgroups with only subordinate individuals, in large trees more often than in small ones, and more frequently when food resources were abundant than when they were scarse. However, contrary to what was predicted, subgroups containing males did not call more than subgroups with only females. In general, the observations suggest that spider monkeys can conditionally broadcast information to manipulate their subgroup size and do so in ways that may decrease feeding competition.
Localización: Biblioteca OET: S3952.

Publicación no.: 219 **Reproductive biology of captive and free-ranging spider monkeys** *[Biología reproductiva de los monos colorados cautivos y en libertad]* / Chapman, Colin A; Chapman, L.J. (University of Florida. Department of Zoology, 223 Bartram Hall, Gainesville, FL 32611, US <E-mail: cachapman@zoo.ufl.edu> <E-mail: ljchapman@zoo.ufl.edu>).
En: Zoo Biology (ISSN 0733-3188), v. 9, no. 1, p. 1-9. 1990.
Records from 42 zoos and from long-term studies of wild populations were analysed to describe the reproductive biology of spider monkey (Ateles spp.). Both data sets suggested that spider monkey

females typically have their first infant between 7 and 8 years of age with an interbirth interval of approximately 32-26 months. Infant sex ratio for zoo populations was approximately 1 male to 1 female; infant sex ratios from wild populations were variable. Zoo records provided adequate sample size to suggest that interbirth interval was not influenced by the sex of the infant produced, and that the sex ratio and the probability of infant survival did not change with the number of infants the mathe had produced. The findings of this study have implications with respect to the conservation of New World primate species. Since spider monkeys take a long time to reach sexual maturity and their interbirth interval is longer than that expected based on their body size, their populations may be slow to recover following disturbances. Thus, particular care should be taken for the protection of these species.
Localización: Biblioteca OET: S4295.

Publicación no.: 220 **The foraging itinerary of spider monkeys: when to eat leaves?** *[El itinerario de forrajeo de los monos colorados: ¿cuándo comer las hojas?]* / Chapman, Colin A; Chapman, L.J. (University of Florida. Department of Zoology, 223 Bartram Hall, Gainesville, FL 32611, US <E-mail: cachapman@zoo.ufl.edu> <E-mail: ljchapman@zoo.ufl.edu>).
En: Folia Primatologica (ISSN 0015-5713), v. 56, no. 3, p. 162-166. 1991.
In this report, we describe the foraging itinerary of spider monkeys (Ateles geoffroyi), focussing on the pattern of leaf consumption over the day relative to other activities. We also provide a comparison with data on other species in order to examin the generality of temporal patterns. We suggest that detailed studies of foraging itineraries can increase or understanding of potential selective pressures fovouring animals to eat specific types of food.
Localización: Biblioteca OET: S6186.

Publicación no.: 221 **Object-use in free-ranging white-faced capuchins (Cebus capucinus) in Costa Rica** *[Utilización de objetos en monos carablanca en libertad (Cebus capucinus) en Costa Rica]* / Panger, M.A. (The George Washington University. Department of Anthropology, 2110 G St NW, Washington, DC 20052, US <E-mail: panger@gwu.edu>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), v. 106, no. 3, p. 311-321. 1998.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-6603.pdf
Chimpanzees and capuchins demonstrate greater varieties and higher rates of tool-use when compared to other non-human primates. Although capuchins have been studied extensively in captivity, data on their tool-using behavior under free-ranging conditions are limited. This is the first long-term field research to systematically study complex object manipulation in capuchins. The aims of this research are 1) to examine the types, rates, and contexts of tool- and object-use in free-ranging capuchins and 2) to determine if free-ranging capuchins' object manipulation behavior is comparable to the behavior exhibited by captive individuals. Data on 3 troops of white-faced capuchins (Cebus capucinus) were collected from February 1995 to January 1996 at Palo Verde National Park, Costa Rica. Data were collected using focal animal and ad libitum sampling techniques. Any observed incident of tool-use and object-use was recorded. No tool-use was observed during the 11-month study. Object-use (pound, rub, and fulcrum-use) occurred at a rate of 0.19/hr and made up less than 1% of the monkeys' time (there were no differences among the age/sex classes). The results indicate that free-ranging capuchins do not exhibit the range of tool-using behavior demonstrated by their captive counterparts. This may be the result of differential motivational responses to objects, arboreal lifestyle, absence of adequate tool material, and/or absence of food resources that require extraction involving tool-use.

Localización: Biblioteca OET: S5588. NBINA-6603.

Publicación no.: 222 **See how they grow: Tracking capuchin monkey (Cebus capucinus) populations in a regenerating Costa Rican dry forest** *[Mira cómo crecen: Siguiendo la huella de las poblaciones de monos carablanca (Cebus capucinus) en un bosque seco costarricense en regeneración]* / Fedigan, Linda M; Rose, L.M; Morera-Avila, Rodrigo A. (University of Calgary. Department of Anthropology, Calgary, AB T2N 1N4, CA <E-mail: fedigan@ucalgary.ca> <E-mail: lrose@interchange.ubc.ca>).
En: Adaptive radiations of neotropical primates. Norconk, M.A; Rosenberger, A.L. Garber, P.A. (eds.) New York: Plenum Press, 1996. p. 289-307, 543-544. ISBN: 0306453991.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-4034.pdf
The expansion of habitat refuges through land restoration and subsequent regeneration of tropical forest is a critical tool in conservation biology. Here we describe population growth in white-faced capuchins (Cebus capucinus) in a regenerating dry forest at Santa Rosa National Park, Costa Rica. Data come from annual park-wide censuses, supplemented by ongoing observations of three intensively-studied social groups. Between 1984 and 1992, the population grew from 393 to 526 individuals. Growth was primarily due to the increasing size of existing social groups, rather than the formation of new groups. The proportion of males in the population and the ratio of adult males to females increased significantly between 1983 and 1992. This may be due to immigration from outside the park, and/or to a male-biased birth ratio. A sample of 44 births showed a skew of almost 3: 1 toward males. Data from our study groups indicates an average birth rate of 0.47, with 39% survival to age five. Birth rates were not affected by group size, and neither birth rates, group size, nor increase in group size were affected by habitat type. However, birth rates were positively correlated with the amount of early rainfall in the previous year, and births were significantly biased toward the dry season. We conclude that the need for fruit and dry season drinking water prevents capuchins from living exclusively in newly regenerated forest, and inhibits the formation of new groups in response to and neither birth rates, group size, nor increase in group size were affected by habitat type. However, birth rates were positively correlated with the amount of early rainfall in the previous year, and births were significantly biased toward the dry season. We conclude that the need for fruit and dry season drinking water prevents capuchins from living exclusively in newly regenerated forest, and inhibits the formation of new groups in response to habitat expansion. We suggest that, at least during the early stages of forest restoration, existing groups increase in size, expanding their ranges into newly-available habitat while maintaining access to essential fruit and water resources in areas of older forest. The growing proportion of males in the population suggests that the dispersing sex may benefit most from habitat protection and expansion.
Localización: Biblioteca OET: S4341. NBINA-4034.

Publicación no.: 223 **Critical issues in cebine evolution and behavior** *[Asuntos críticos en la evolución y comportamiento de monos cébidos]* / Fedigan, Linda M; Rosenberger, A.L; Boinski, Sue; Norconk, M.A; Garber, Paul A; Norconk, M.A (ed.). (Department of Anthropology, Calgary, AB T2N 1N4, CA <E-mail: fedigan@ucalgary.ca> <E-mail: boinski@ufl.edu> <E-mail: p-garber@uiuc.edu>).
En: Adaptive Radiations of Neotropical Primates New York: Plenum Press, 1996. p. 219-228.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-4035.pdf
Cebus and Saimiri, together with Callicebus and Aotus, represent four genera of New World monkeys whose unresolved taxonomic position has served to muddle platyrrhine cladistics. Their affinities remain somewhat problematic, although we argue that in the past 20 years, new molecular, genetic,

morphological and behavioral analyses have narrowed the range of possible explanations regarding Cebus and Saimiri, in particular. Here, we attempt to clarify cebine evolutionary relationships and outline some interesting and relevant directions for future studies in behavior and ecology.
Localización: Biblioteca OET: S4342. NBINA-4035.

Publicación no.: 224 **Spatial benefits afforded by high rank in white-faced capuchins** *[Beneficios espaciales permitidos por el alto rango en monos carablanca]* / Hall, C.L; Fedigan, Linda M. (McGill University. Department of Biology, 1205 Docteur Penfield Avenue, Montreal PQ, H3A 1B1, CA <E-mail: chall@biol.lan.mcgill.ca> <E-mail: fedigan@ucalgary.ca>).
En: Animal Behaviour (ISSN 0003-3472), v. 53, p. 1069-1082. 1997.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-4033.pdf
Group living is a source of both costs and benefits for animals. Benefits may include decreased predation risk, and an increased ability to find food and defend clumped resources; the most prominent cost is probably increased competition for food within the group. Presumably, animals will always try to minimize the cost they receive relative to the corresponding benefit. Since costs and benefits will vary between spatial positions within the group, animals should prefer those spatial positions with the lowest costs relative to benefits. For groups whose members are organized by a social dominance hierarchy, access to preferred spatial positions may be a benefit of high rank. We examined the relationship between dominance rank and spatial patterns in two groups of white-faced capuchins, Cebus capucinus. We expected the animals to be faced with two cost-benefit gradients: predation risk increasing from centre to edge, and depletion costs increasing from front to back. Depletion was a significant factor in the dry season but not in the wet season; therefore, presumably only the predation risk gradient was present in the wet season. Dominant animals were more central than their subordinate counterparts during both seasons, and within the centre, they preferred the most forward position during the dry season but not during the wet season. The absence of variation in agonism across spatial positions suggests that active exclusion of subordinates by dominant animals cannot explain the spatial patterns observed. Instead, we conclude that subordinates avoid dominant animals as a strategy to reduce contest competition.
Localización: Biblioteca OET: S4340. NBINA-4033.

Publicación no.: 225 **Sex differences and intersexual relations in adult white-faced capuchins (Cebus capucinus)** *[Diferencias sexuales y relaciones intersexos en adultos de monos carablanca (Cebus capucinus)]* / Fedigan, Linda M. (University of Calgary. Department of Anthropology, Calgary, AB T2N 1N4, CA <E-mail: fedigan@ucalgary.ca>).
En: International Journal of Primatology (ISSN 0164-0291), v. 14, no. 6, p. 853-877. 1993.
I aim to explicate the pattern of differences and relations between the sexes in two groups of C. capucinus, in terms of phylogenetic, social and ecological predictors. I use three lines of evidence to develop predictions as to how male and female C. capucinus interact and how the sexes differ in behavior: (1) phylogenetic similarities to other species of Cebus; (2) a general model of sex differences in "female-bonded" social systems; and (3) ecological analogy of Old World monkeys. First, I conclude that phylogenetic affinity is a good predictor in that C. capucinus are similar to other species of Cebus in many patterns of sex-differentiated behavior. An exception is that, unlike C. apella and C. olivaceus, in which a single breeding male is reported to be highly conspicuous in each group, C. capucinus live in a decidedly multimale system. Secondly, the general model of sex differences in female philopatric, male-

dispersal societies, which was originally developed for Old World species, also accurately predicts several aspects of social behavior in C. capucinus. Thirdly, a proposed ecological analogy between Cercopithecus ascanius and species of Cebus is not substantiated in this study of C. capucinus, though the analogy is apparently well suited to the social dynamics of other species in the genus Cebus.
Localización: Biblioteca OET: S4343. NBINA-4036.

Publicación no.: 226 **Vertebrate predation in Cebus capucinus: meat eating in a Neotropical monkey** *[Depredación de vertebrados en Cebus capucinus: comer carne en un mono neotropical]* / Fedigan, Linda M. (University of Calgary. Department of Anthropology, Calgary, AB T2N 1N4, CA <E-mail: fedigan@ucalgary.ca>).
En: Folia Primatologica (ISSN 0015-5713), v. 54, no. 3/4, p. 196-205. 1990.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-4037.pdf
A long-term study of two groups of white-faced capuchins (Cebus capucinus) in Santa Rosa National Park in Costa Rica provides evidence of unusually high levels of vertebrate predation compared to those reported in other field studies of Cebus. The hunting techniques for different prey types are described, and several questions concerning vertebrate predation in primates are addressed. Why is there variation between individuals and between groups in the rate of predation? Why do males hunt more than females? Previous hypotheses to explain hunting in Old World primates are applied to this Neotropical example. Finally, I argue that successful vertebrate predation can readily arise in species like Cebus, which are characterized by opportunistic foraging patterns, manipulative and cognitive skills and well-developed techniques for locating and subduing invertebrate prey.
Localización: Biblioteca OET: S4344. NBINA-4037.

Publicación no.: 227 **Ecological knowledge of regeneration from seed in neotropical forest trees: Implications for natural forest management** *[Conocimiento ecológico de regeneración mediante semilla en árboles del bosque neotropical: Consecuencias para el manejo de bosques naturales]* / Guariguata-Urbano, Manuel R; Pinard, M.A. (CIFOR, JKPWB, P.O. BOX 6596, Jakarta 10065, ID <E-mail: mguarigu@catie.ac.cr>).
En: Forest Ecology and Management (ISSN 0378-1127), v. 112, no. 1-2, p. 87-99. 1998.
We discuss the main ecological factors that influence tree recruitment in neotropical moist- and wet forests within the context of timber management based on selective logging. We argue that setting aside protection areas in managed forests as a way to preserve ecological processes may not be sufficient to ensure sustainable levels of tree regeneration, and that a thorough understanding and application of tree seed ecology can help to refine management prescriptions. We review relevant aspects of tree reproductive biology seed production and dispersal, spatial and temporal constraints on seed availability, disperser behavior, and the potential consequences of hunting and forest fragmentation on tree regeneration, and discuss their implications for biological sustainability in managed forests. Tree seed production can be influenced by the selective removal of neighbors of the same species (due to insufficient pollen transfer), flowering asynchrony, and attributes of the species' sexual system. The extent to which an area is supplied by seed can be affected by dispersal mechanism, spatio-temporal limitations to seed dispersal, and tree size-dependent levels of seed production at the species level. Studies of vertebrate-disperser behavior and tree seed deposition in logged forests are scarce and warrant further attention in order to refine our understanding of the dependency of sustained timber production on vertebrate fauna. Although much remains to be learned about tree seed

ecology in neotropical logged forests, the baseline information presented here may offer a starting point for developing ecological criteria for seed tree retention. Furthermore, it may contribute in improving ecologically-based management prescriptions in order to enhance or at least maintain sufficient levels of natural regeneration without the need to rely on artificial regeneration.
Localización: Biblioteca OET: S5593.

Publicación no.: 228 **Fecal estradiol values for group-living cycling, pregnant, and lactating female howling monkeys (Alouatta palliata) in Costa Rica** *[Valores de estradiol fecal para hembras de monos congo (Alouatta palliata) que viven en grupos, en ciclo, embarazadas y lactantes en Costa Rica]* / Zucker, E.L; Clarke, Margaret R; Harrison, R.M. (Loyola University. Department of Psychology, New Orleans, LA 70118, US <E-mail: zucker@beta.loyno.edu> <E-mail: clarkem@cwu.edu>). Annual Meeting of the American Society of Primatologists. XVIII, Scottsdale, AZ, US. June 21-24, 1995. , 1995. 16 p.
Fecal estradiol values are presented for 14 adult female mantled howling monkeys living in Group 2 at Hacienda La Pacifica (Guanacaste Province, Costa Rica) during July/August of 1988 and 1990-1992 (7-9 females/year; 32 female years; 494 samples; mean = 15.4 samples/female/year). Twelve females were sampled in more than one year, yielding data for 3 pregnant, 8 lactating, and 21 cycling females. Combining data across years, cycling females had mean estradiol values of 417.8 ng/g, pregnant females 53.6 ng/g. and lactating females 164.6 ng/g. In only one year (1990) were females in all three categories. In 1991 and 1992, cycling females had significantly higher mean estradiol values than lactating females; in 198, cycling females also had higher mean estradiol values than did lactating females, but values were highly variable (and the difference nonsignificant). Over the entire study, six females were cycling in at least one year and in another category in a different year. Of these six females, four had consistenly higher estradiol values when they were cycling than when either pregnant or lactating. These data are intended to provide descriptive, normative data for group-living howling monkey females, and indicate that, in general, cycling females have higher estradiol values than do females in other reproductive conditions, although even among cycling females, estradiol values are highly variable.
Localización: Biblioteca OET: DOC 4406.

Publicación no.: 229 **Fecal testosterone values for free-ranging male mantled howling monkeys (Alouatta palliata) in Costa Rica** *[Valores de testosterona fecal para machos de monos congo (Alouatta palliata) en libertad en Costa Rica]* / Zucker, E.L; Clarke, Margaret R; O'Neil, J.A.S; Harrison, R.M. (Loyola University. Department of Psychology, New Orleans, LA 70118, US <E-mail: zucker@beta.loyno.edu> <E-mail: clarkem@cwu.edu>). International Primatological Society / American Society of Primatologists Joint Congress, Madison, WI, US. August 11-16, 1996. Madison, WI: University of Wisconsin, 1996. 16 p.
The purpose of this study was to provide descriptive data on fecal testosterone values for group-living howler males at Hacienda La Pacífica, Guanacaste Province, Costa Rica, and to examine these values for relationships with relative dominance status within multi-male groups. Samples were collected from 9 males from 4 different groups during June, July, and/or August of 1993 (12 samples), 1994 (9 samples), and 1995 (51 samples). Sample collection, storage, and extraction procedures have been described previously. Samples from two males were obtained in all 3 years, 3 other males were sampled in 2 consecutive years, and 4 males were sampled in only one year. Based on all 72 samples, the mean testosterone value for these nonseasonal breeders was 51.36 ng/g of feces (sd = 38.86). There was no difference between morning (n = 27; 52.04 ng/g) and afternoon (n = 45; 50.95 ng/g) samples (P0.05), nor was there a difference across years (F = 1.09, P0.05). Over 3 years, mean testosterone values were

consistently related to status in a 2-male group, with the higher ranking male having higher testosterone values. Data from 1995 for a 3-male group showed a similar relationship, but an inverse relationship was found for another 3-male group in 1995; for this latter group, the 1995 pattern differed from that found in 1994. Overall, these data indicate that dominance status and testosterone values appear to be related positively in stable groups, but testosterone values might be sensitive to social or ecological.
Localización: Biblioteca OET: DOC 4405.

Publicación no.: 230 **Latencies to first births by immigrating adult female howling monkeys (Alouatta palliata) in Costa Rica** *[Latencias hasta los primeros nacimientos por parte de hembras adultas inmigrantes de monos congo (Alouatta palliata) en Costa Rica]* / Zucker, E.L; Clarke, Margaret R; Glander, Kenneth E. (Loyola University. Department of Psychology, New Orleans, LA 70118, US <E-mail: zucker@beta.loyno.edu> <E-mail: clarkem@cwu.edu> <E-mail: glander@duke.edu>). The American Society of Primatologists. Twentieth meeting, San Diego, CA, US. June 27-30, 1997. San Diego, CA: The American Society of Primatologists, 1997. 12 p.
Most female mantled howlers (Alouatta palliata) emigrate from their natal groups as juveniles, and after some period of time as solitary individuals, attempt to enter other groups as young adults. This solitary period can range from one month to two years (Clarke & Glander, 1992), and Glander (1992) has estimated the mean length of time as 8-9 months. In order to remain as a permanent member in a new group, these immigrating females must become dominant to the resident females, a process that can take up to one year. One benefit of group-living is the opportunity to accrue reproductive success (RS), so immigrating females should begin reproducing as soon as they can in order to maximize lifetime reproductive success. Mantled howlers are nonseasonal breeders, so, presumably, conception could occur any time following immigration. Female mantled howlers have a gestation duration of approximately 186 days, so an immigrating female could produce her first infant approximately six months after joining a group, whether she has become dominant in that group or not. The life history of a female mantled howler is depicted in Figure 1, showing the infant/juvenile stage in the natal group, the period of living as a solitary animal, immigration, and then periods of conception (C) and parturition (P) through adulthood. The time from immigration to the first parturition (Pi) is the latency to the first birth, and subsequently, the time between parturitions are the interbirth intervals, which for mantled howlers, average 22 months; 23.7 months for howlers at Santa Rosa National Park, Costa Rica. The first full interbirth interval occurs after the first parturition. In this report, we focus primarily on the latencies to first births by immigrating females, but to do so, we also need to examine interbirth intervals. Our purposes here were to: 1. Calculate the mean latencies to first births by immigrating adult female howling monkeys, and compare these latencies to the minimum possible latency of six months. 2. Compare the first full interbirth interval of these immigrants with their latencies to first births (e.g., first births vs. second births). 3. Compare the latencies to first births with these females subsequent interbirth intervals (e.g., all births). 4. Compare latencies to first births of immigrants with the interbirth intervals of the resident females, who are established members of these groups. The explicit hypotheses tested were: 1. The mean latencies to first births of immigrating females will be significantly less than the mean interbirth interval of the resident females. 2. The mean latencies to first births of immigrating females will be less than their next interbirth interval. 3. The mean subsequent interbirth intervals of immigrating females will not differ from those of resident females.
Localización: Biblioteca OET: DOC 4404.

Publicación no.: 231 Animales en peligro de extinción de Costa Rica / Mena-Araya, Yadira; Solís-Rivera, Vivienne; Chaves-Quirós, Ana Cecilia; Arguedas-Moya, M. (Ministerio de Ambiente y Energía. Equipo de Areas Silvestres Protegidas; Sistema Nacional de Areas de Conservación, San José, CR <E-mail: vsolis@racsa.co.cr> <E-mail: acchaves@cariari.ucr.ac.cr> <E-mail: turtles@gema.com>). , 1990. 76 p. Folleto escrito para niños que presenta información sobre algunas especies de vertebrados terrestres, semiterrestres y acuáticos, cuyas poblaciones están en peligro de extinción. Debes recordar que hay una gran cantidad de plantas y animales pequeños como los insectos, que también están en peligro y no han sido incluidos en este documento. Encontrarás información general de cada animals y un mapa de su distribución en Costa Rica, según los reportes dados sobre su existencia en las diferentes regiones del país. Podría ser que algunas especies se encuentren todavía en áreas no marcadas en el mapa, por lo que si conoces otros lugares donde se haya reportado la existencia de un determinado animal, te invitamos a colorear esta región en tu folleto. En las últimas páginas encontrarás una lista que indica el estado de las poblaciones de los animales incluidos en este folleto. La silueta del animal señala si está en peligro de extinción, amenazado o si es una especie común en Costa Rica.
Localización: Biblioteca OET: AD 393.

Publicación no.: 232 **Howler subgroups as homeostatic mechanisms in disturbed habitats** *[Subgrupos de monos congo como mecanismos homeostáticos en hábitats desequilibrados]* / Jones, Clara B. (Fayetteville State University. Department of Psychology, 1200 Murchison Road, Fayetteville, NC 28301-4298, US <E-mail: cbjones@uncfsu.edu>).
En: Neotropical Primates (ISSN 1413-4705), v. 3, no. 1, p. 7-9. 1995.
The size and composisition of groups may have important consequences for the survival and fecundity of organisms. A subgroup may be defined as a unit (1) of a demographic group whose functions may be similar to or different from the functions of demographic groups. Subgroup sizes of one demographic group of mantled howler monkeys (Alouatta palliata Gray) in tropical dry forests were sampled using ad libitum methods over an 18-month period in 1976 and 1977 at La Pacifica Ecological Centre, Cañas, Guanacaste, Costa Rica. The resulting distribution was analyzed. Only adults were counted (N = 18). Figure 1 shows the subgroup sizes and their frequency (mean = 4.46 ± 1.99, N = 120). The coefficient of dispersion is 0.89, representing a repulsed (or overdispersed) distribution with more observations at the center of the distribution than at the extremes and with variance smaller than one would expect by chance alone, suggesting an optimal subgroup size. La Pacifica is a disturbed area, including significant deforestation, habitat fragmentation, and selective cutting where the howler population may be maintained by immigration (i.e. metapopulation effects). Howlers have thrived at this site where no other monkey species reside. Mantled howlers are listed as "endangered" in the United States Endangered Species Act, primarily due to habitat destruction in areas outside of Costa Rica. La Pacifica may be viewed as a conservation experiment where mantled howlers show no apparent signs of local extinction. Local extinctions of fragmented populations are common, and it will be important to conduct continuing studies of the La Pacifica metapopulation to document changes as disturbance continues, especially the flexibility of howler behavior, social organization, and population dynamics. This note proposes that patterns of subgrouping in mantled howlers indicate homeostasis in response to environmental heterogeneity which may maximize the opportunities for success of these monkeys in disturbed and managed areas. Animals with similar characteristics (e.g., Ateles and Cebus) may also employ subgrouping as a flexible homeostatic response.
Localización: Biblioteca OET: S4607.

Publicación no.: 233 **Relative reproductive success in the mantled howler monkey: implications for conservation** *[Exito reproductivo relativo en el mono congo: implicaciones para su conservación]* / Jones, Clara B. (Fayetteville State University. Department of Psychology, 1200 Murchison Road, Fayetteville, NC 28301-4298, US <E-mail: cbjones@uncfsu.edu>).
En: Neotropical Primates (ISSN 1413-4705), v. 4, no. 1, p. 21-23. 1996.
The structure of primate groups is thought to result from the tendency of females to select rich patches of food and that of males to select large aggregations of females. Because patch richness and the consequent number and quality of females may vary, the relative reproductive success (RRS) of females may also vary over space and time. Relative reproductive success is a population parameter, since it is one characteristic of demographic or life history traits describing sub-units of a species within and between environmental regimes. RRS is important to the field of conservation biology since an increase in the variance of reproductive success in a population reduces effective population size. Information about RRS facilitates viability analysis of population fluctuations required for recovery from environmental perturbations. This report analyzes relative reproductive success (RRS) of mantled howler monkeys (Alouatta palliata) in two Central American forests as the mean number of juveniles plus infants (J + 1) per female group size per site. This report uses data from several studies at two research sites where mantled howler monkeys have been studied most intensively: Guanacaste (GTE), Costa Rica in a tropical dry forest environment (n = 51 groups) and Barro Colorado Island (BCI) in a semideciduous lowland tropical forest environment of Panama (n = 73 groups). Mantled howler monkeys, large cebids distributed throughout the forests of Middle America and the Pacific coast of norther South America, are classified as endangered in the United States Endangered Species Act.
Localización: Biblioteca OET: S4605.

Publicación no.: 234 **The potential for metacommunity effects upon howler monkeys** *[Efectos potenciales de la metacomunidad sobre los monos congo]* / Jones, Clara B. (Fayetteville State University. Department of Psychology, 1200 Murchison Road, Fayetteville, NC 28301-4298, US <E-mail: cbjones@uncfsu.edu>).
En: Neotropical Primates (ISSN 1413-4705), v. 3, no. 2, p. 43-45. 1995.
Mantled howler monkeys (Alouatta palliata) belong to frugivore and herbivore guilds throughout their wide distribution in Meso- and South America. In this note I provide evidence of interspecific interactions between howlers and 27 other genera recorded at Hacienda La Pacifica, Cañas, Guanacaste, Costa Rica. Ad libitum methods of observation were employed in addition to the 'focal tree' observational method, in which a single tree upon which howlers were known to feed, generally a tree in peak flower, fruit, or leaf flush, was observed and the interactions of all animals species recorded. Feeding rates were counted as number of mouthfulls per minute. Howlers may be specially vulnerable to extinction because their membership in the frugivore guild. For howlers at La Pacifica, feeding rates for fruit are more variable than for new leaves or flowers (P ¾ 0.05, X^2 = 7.11, df = 2), and higher variations in feeding rates are found in patchier deciduous habitat (P ¾ 0.01, X^2 = 6.77, df = 1). These observations suggest that fruit is more highly dispersed for howlers than new leaves or flowers, possibly contributing to the likelihood of increased extinction if greater heterogeneity is correlated with increased stochasticity.
Localización: Biblioteca OET: S4604.

Publicación no.: 235 **Life history patterns of howler monkeys in a time-varying environment** *[Patrones del ciclo vital de los monos congo en ambientes que varían con el tiempo]* / Jones, Clara B. (Fayetteville State University. Department of Psychology, 1200 Murchison Road, Fayetteville, NC 28301-4298, US <E-mail: cbjones@uncfsu.edu>).
En: Boletín Primatológico Latinoamericano (ISSN 0327-1501), v. 6, no. 1, p. 1-8. 1997.
This report examines the relationship between life history characteristics and environmental predictability for mantled howler monkeys (Alouatta palliata) at Hacienda La Pacifica, Guanacaste Province, Costa Rica. A census with age structure was employed to estimate life history parameters including survivorship, fecundity, and mortality. A time-series analysis of rainfall at La Pacifica was conducted to test inferences from life history theory whereby variations in mortality across the lifespan are a function of environmental predictability. La Pacifica was found to be a relatively predictable environment, and, consistent with theory, howlers exhibit life history traits expected for their regime. These include low survivorship during more than one age class, iteroparity, a relatively small reproductive effort, a single young per litter, relatively few young across a lifetime, and a relatively long lifespan. The predictable environment of howlers at La Pacifica appears to favor adult over juvenile (including infant) survivorship, and howler life history is consistent with that for other large mammalian herbivores whose females may time reproductive investment to reduce the effects of environmental heterogeneity ("bet-hedging").
Localización: Biblioteca OET: S4608.

Publicación no.: 236 **A field guide to the mammals of Central America and Southeast Mexico** *[Guía de campo de los mamíferos de Centroamérica y el sureste de México]* / Reid, F.A. (Royal Ontario Museum. Department of Mammalogy, 100 Queen's Park, Toronto, Ontario M5S 2C6, CA). New York: Oxford University Press, 1997. 334 p. ISBN: 0-19-506400-3.
This guide includes all living species of native mammals south of the Isthmus of Tehuantepec, Mexico, through the Mexican states of Chiapas, Tabasco, Campeche, Quintana Roo, and Yucatán, and all Central American countries: Guatemala, Belize, Honduras, El Salvador, Nicaragua, Costa Rica, and Panama. This region comprises most of the Neotropical Zoogeographic Realm of Middle America, which also extends northward up both coasts of Mexico and southward into South America along the Pacific Slope of northern Colombia and northwest Ecuador. Marine mammals found in the waters surrounding Central America and southeastern Mexico and most islands associated with these countries are also included. Isla del Coco, Costa Rica, is not included. Non-native mammals that may form feral populations are not included, with the exception of three widespread introduced rodents, the house rats and mouse.
Localización: Biblioteca OET: 599.0972 R355a.

Publicación no.: 237 **Secondary metabolites in Pentaclethra macroloba: a dominant canopy species fed on by mantled howling monkeys (Alouatta palliata) in northeastern Costa Rica** *[Metabolitos secundarios en Pentaclethra macroloba: una especie dominante del dosel, comida por los monos congos (Alouatta palliata) en el noreste de Costa Rica]* / Lambert, J.E. (Southwest Missouri State University. Department of Sociology and Anthropology, Springfield MO 65804, US <E-mail: lambert@zoo.ufl.edu>).
En: Brenesia (ISSN 0304-3711), no. 49-50, p. 103-108. 1998.
Feeding by howling monkeys on young leaves of Pentaclethra macroloba in a 15-ha degraded forest fragment at the La Selva Biological Station in Costa Rica, is reported as having been common during the months of December and January (1994-95 and 1997-98), in periods when fruits were extremely scarce

in the forest; there was no feeding on P. macroloba leaves during studies in the summer wet season months. In an earlier report from a study at La Selva consistent feeding by monkeys on leaves of P. macroloba was not found, suggesting that this may be an alternative food resource in degraded habitats. Young leaves of P. macroloba were collected in January 1995, and extracts analysed for total phenolics, tannins, cyanogenic glycosides, alkaloids and saponins. Total phenolics were 6.03% dry weight, and tannins made up 5.76% of this; this content of phenolics is consistent with the level reported for other forests supporting primates. Cyanogenic glycosides, alkaloids and saponins were not present in young leaves of P. macroloba. The results are discussed in relation to the feeding behaviour of howling monkeys.
Localización: Biblioteca OET: B.

Publicación no.: 238 **Behavioral ecology of white-faced capuchins (Cebus capucinus) in Costa Rica** *[Ecología del comportamiento de los monos carablancas (Cebus capucinus) en Costa Rica]* / Rose, L.M. (University of British Columbia. Department of Anthropology, 6303 NW Marine Dr, Vancouver, BC V6Y 1Z1, CA <E-mail: lrose@interchange.ubc.ca>). St. Louis, MO: Washington University, 1998. 357 p. Dissertation, Ph.D, Washington University, Department of Anthropology, St. Louis, MO (USA).
In this study I describe the behavioral ecology of white-faced capuchins, with particular reference to effects of group size, number of males and adult sex ratio. I examine patterns of social interaction within and between the sexes, dominance relationships, and short-term benefits and costs of resident males for females. I also examine the causes and consequences of male takeovers. During the 24-month field study I collected 1,238 hours of focal data on 26 adults, and additional ad libitum data. My study was designed to allow comparison of continuous focal and focal interval sampling methods. Interval sampling proved more productive but under-represents rare or brief activities. The two methods yielded similar activity budgets' but continuous sampling under-estimated difficult to follow activities such as rapid travel. Group size has little effect on activity budgets, foraging success or travel distance, but agonism rates tend to increase with group size. The main advantage of larger group size is probably the ability to defend a large, high-quality home range. Females expend more foraging effort than males and devote more time to social behavior, while males spend more time resting and vigilant. Social relationships are primarily affiliative. High ranking females and new mothers receive the most grooming, with no consistent trend for grooming to be directed up the hierarchy or for females of adjacent rank to groom most often. Alpha males are central in spatial and social terms, and tend to be preferred by females as neighbors, recipients of grooming, and mating partners. For females, the major benefits provided by males are probably vigilance and active defense against predators and extragroup males. However, males are no better at detecting predators than females. Alpha males may tolerate subordinates because they are valuable allies in defense against male takeovers, contribute to vigilance, and pose few foraging costs. Neither the number of males present nor adult sex ratio have marked effects on activity budgets, but females groom males more when there are fewer males per group. Male takeovers appear to be driven partly by relative mating opportunities and are a major way that males redistribute themselves within the population.
Localización: Biblioteca OET: NBINA-8347.

Publicación no.: 239 **Fur rubbing as evidence for medicinal plant use by capuchin monkeys (Cebus capucinus): Ecological, social, and cognitive aspects of the behavior** *[Frotamiento de la piel como evidencia del uso de plantas medicinales por parte de los monos carablanca (Cebus capucinus): aspectos*

ecológicos, sociales y cognitivos del comportamiento] / Baker, Mary E. (Rhode Island College. Department of Anthropology, 600 Mt. Pleasant Ave., Providence, RI 02908, US <E-mail: mbaker@ric.edu>). Riverside, CA: University of California, 1998. 332p. Dissertation, Ph.D, University of California, Department of Anthropology, Riverside, CA (USA).
Free-ranging capuchin monkeys (Cebus capucinus) were studied at the Refugio de Vida Silvestre Curú, Costa Rica for a total of approximately 15 months over a seven year period from 1991-1996. The wild-life refuge consists of human-altered habitats, secondary forest and dry tropical forest. During the research project, capuchin monkeys were observed applying over their bodies plant material of five, possibly six, genera (Citrus, Clematis, Piper, Sloanea and two unidentified mushrooms). The monkeys are precise in their selection and utilization of these plants. The first three of these plants are known to contain secondary compounds which have anti-insect and/or medicinal benefits. The ethnographic record shows that indigenous peoples throughout the New World use these plants for similar purposes and in similar ways. The intent of this dissertation is twofold. The first is to provide an overview of behavioral patterns for comparison with research conducted at other wildlife refuges and national parks. The groups selected for this study were restricted to those whose home ranges were in the predominantly human-impacted areas. Ambient and behavioral data were collected and analyzed to provide an ecological and behavioral adaptations of the capuchins at Curú. The second purpose of this research is to present a detailed discussion of fur rubbing behavior. This behavior is not restricted to this population or species of capuchin monkeys; it is seen in all four species of Cebus, and in both captive and feral groups. This thesis will provide the first systematic inquiry into the function of the behavior. To better understand the more elusive issues of cognition, field experiments were included to answer such questions as "How do the monkeys recognize proper rubbing material?"; "What evidence is there that this is a learned behavior?"; and "What is the function of this behavior?".
Localización: Biblioteca OET: NBINA-5763.

Publicación no.: 240 **Abdominal angiostrongyliasis in a spider monkey (Ateles geoffroyi)** *[Angiostrogiliosis abdominal en un mono colorado (Ateles geoffroyi)]* / Berrocal, Alexis; Arroyo-González, Rafael A; Bulgarelli-Jiménez, G.M; Valverde, A. (Universidad Nacional. Escuela de Medicina Veterinaria, Departamento de Patología, Apdo. 86-3000, Heredia, CR <E-mail: berrocal@ns.medvet.una.ac.cr>).
En: European Journal of Veterinary Pathology (ISSN 1124-5352), v. 3, no. 1, p. 35-37. 1997.
A male spider monkey, aged 2.5 years, from a zoo [in Costa Rica] was referred to a private animal hospital with history of an acute rectal prolapse. Due to the poor prognosis following clinical evaluation, the monkey was euthanized and a complete postmorten examination revealed a caecocolic intussusception. A focal white nodule of the right hepatic medial lobe was also observed. Histological examination of the caecal mucosa, submucosa and liver revealed a parasitic granulomatous inflammation. Transversal sections of adult female parasites were observed inside some hepatic arteries. The parasite was identified as Angiostrongylus costaricensis [Parastrongylus costaricensis].
Localización: Biblioteca OET: S6339.

Publicación no.: 241 **Food, lodging, and squirrel monkeys** *[Alimento, tala y los monos titi]* / Jukofsky, Diane. (Rainforest Alliance, Apdo. 138-2150, Moravia, CR <E-mail: infotrop@racsa.co.cr>).
En: Wildlife Conservation (ISSN 1048-4949), v. 99, no. 2, p. not specified. 1996.

Tourists come to Manuel Antonio National Park in Costa Rica to see the tropical forests and exotic wildlife, including the adorable squirrel monkeys. The development of hotels and restaurants for tourists is endangering the habitat. Management plans do not yet exist for the park.
Localización: No disponible.

Publicación no.: 242 **The peaceful primates** *[Los primates pacíficos]* / Bergman, C.
En: Smithsonian (ISSN 0037-7333), v. 30, no. 3, p. 78-86. 1999.
The author discusses the life history of squirrel monkeys in Costa Rica. Squirrel monkeys in Costa Rica and other areas of America are critically endangered. Population numbers have dramatically dropped in the last 30 years. Costa Rica's squirrel monkeys are adorable, charismatic, sexy and critically endangered. Sue Boinski's research on these monkeys is discussed.
Localización: Biblioteca OET: NBINA-210.

Publicación no.: 243 **The 'whinny' of spider monkeys: Individual recognition before situational meaning** *[El 'relincho' de los monos colorados: Reconocimiento individual antes del significado situacional]* / Teixidor, P.; Byrne, R.W. (Calle Azalea 566, Alcobendas 28109, Madrid, ES <E-mail: 106302.1635@compuserve.com>).
En: Behaviour (ISSN 0005-7959), v. 136, part 3, p. 279-308. 1999.
When spider monkeys (Ateles geoffroyi) are dispersed and moving through wooded areas in the dry forest of Santa Rosa National Park in Costa Rica, they give loud calls, whinnies, that can be heard over long distances and appear to be answered with the same call from other monkeys. We examined the circumstances in which this vocalization was emitted and the responses elicited from other group members. A total of 105 h of continuous recordings on emission of whinnies, 113 h of individual focal samples and 291 spectrograms were analyzed from a study group with 15 identified subjects. Whinnies emitted in different circumstances caused different reactions. Whinnies provoked by the sight of an observer were never responded to in any particular way, while those given during resting or feeding sometimes caused an active response of approach or calling. Most strikingly, whinnies given during group movement provoked hearers to approach or call significantly more often than either those given while feeding or resting. Playback experiments found one response, 'scan', to differ according to the original circumstances of emission of the broadcast call: monkeys scanned more in the direction of the sound when hearing feeding rather than group movement whinnies. Acoustic analyses of individual differences in the whinny call showed that several features - maximum frequency, number of frequency modulations and frequency range - were available for spider monkeys to distinguish between the whinnies of different group members. No universal differences were found between whinnies from different contexts, but for each of three individuals examined in detail, group movement whinnies had a fundamental frequency with more arches or modulations than feeding or resting whinnies. That spider monkeys respond differently to playback of feeding whinnies suggests that they are capable of taking idiosyncratic individual variations in voice into account when extracting the call's message. The functional characteristics of the whinny are discussed in relation to the information the call may convey and its degree of referential specificity.
Localización: Biblioteca OET: NBINA-27.

Publicación no.: 244 **Diversidad genética en monos congo (Aloutatta palliata) de Costa Rica** / Zaldívar-Ruiz, María Eugenia; Glander, Kenneth E; Sánchez-Porras, Ronald E; Gutiérrez-Espeleta, Gustavo A.

(Universidad de Costa Rica. Escuela de Biología, San José, CR <E-mail: zaldivar@biologia.ucr.ac.cr> <E-mail: glander@duke.edu> <E-mail: resanche@cariari.ucr.ac.cr> <E-mail: ggutier@biologia.ucr.ac.cr>).
En: Memoria. Jornadas de Investigación 1999 San José: Universidad de Costa Rica, Vicerrectoría de Investigación, 1999. p. 77.
(Abstract only). En este proyecto se estudió la diversidad genética en monos congo (Alouatta palliata) de Costa Rica con el análisis de marcadores electroforéticos. Se colectaron muestras en cinco localidades de Costa Rica. No se encontró variación genética para ninguno de los sistemas analizados. Estos resultados contrastan con lo observado para otras especies de ese género en América del Sur. Esos resultados también contrastan con lo hallado para otras especies de primates de Costa Rica. Se discuten las implicaciones evolutivas de esos resultados. Asimismo, se discute su relevancia para el manejo de especies con fines de conservación biológica.

Publicación no.: 245 **Dynamics of female-female relationships in wild Cebus capucinus: Data** *[Dinámica de las relaciones hembra-hembra en monos carablanca (Cebus capucinus) silvestres: datos]* / Manson, Joseph H; Rose, L.M; Perry, Susan E; Gros-Louis, Julie J. (Max-Planck-Institute for Evolutionary Anthropology. Independent Junior Research Group in Cultural Phylogeny, Deutscher Platz 6, 04103 Leipzig, DE <E-mail: perry@eva.mpg.de> <E-mail: lrose@interchange.ubc.ca> <E-mail: sperry@anthro.ucla.edu> <E-mail: jgroslou@indiana.edu>).
En: International Journal of Primatology (ISSN 0164-0291), v. 20, no. 5, p. 679-706. 1999.
Three questions about female-female relationships remain largely unexplored in female-philopatric platyrrhines. First to what extent is female dominance status dependent on coalitional support? Second, how stable are female dominance hierarchies over multiyear periods? Third what is the role of allogrooming in servicing long-term social relationships? We addressed these questions using data collected on Cebus capucinus at Lomas Barbudal Biological Reserve and Santa Rosa National Park, over a six-year period. Most female-female coalitions against females reinforced the existing dominance hierarchy, but such coalitions were 3-7 times more frequent at Lomas Barbudal than at Santa Rosa. The Lomas Barbudal group's female hierarchy was highly stable throughout the six years of observation, whereas all three of the intensively observed Santa Rosa groups experienced frequent dominance reversals accompanied by physical aggression. In the Lomas Barbudal group, grooming tended to be directed up the hierarchy, and more closely-ranked females groomed at higher rates than distantly-ranked females, whereas these patterns were not consistently found at Santa Rosa. At both sites, grooming was evenly balanced within 67% of female-female dyads, and mothers of young infants received more grooming than other females did. Females did not spend more of their time grooming each other in groups containing more females than in groups containing fewer females, but they distributed their grooming less evenly among their female groupmates in the largest observed group of females. Some of the intersite differences may be attributable to differences in the rate of female mortality or transfer or both.
Localización: Biblioteca OET: S6371.

Publicación no.: 246 **Distribution of three monkey species along a gradient of regenerating tropical dry forest** *[Distribución de tres especies de monos a lo largo de una gradiente de bosque seco tropical en regeneración]* / Sørensen, T.C; Fedigan, Linda M. (Alberta Environmental Protection. Natural Resources Service, Suite 203, 111-54 St, Provincial Building, Edson AB T7E 1T2, CA <E-mail: fedigan@ucalgary.ca>).
En: Biological Conservation (ISSN 0006-3207), v. 92, p. 227-240. 2000.

Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-4038.pdf
Only 2% of tropical dry forest in Central America remains undisturbed; consequently habitat regeneration is the best option to provide adequate areas of habitat for wildlife. This study examined the influence of a forest regeneration gradient (0-180 years since pasture abandonment) on the densities df white-faced capuchins (Cebus capucinus), howling monkeys (Alouatta palliata), and spider monkeys (Ateles geoffroyi) in the tropical dry forest of Santa Rosa National Park, Costa Rica. Monkey densities and tree characteristics were sampled using 600 m transects within each of 14 sites from February to June 1996. Densities of all three monkey species were higher in older forests and in forests with greater food biomass estimates. The results indicate that monkey habitat, and consequently viable monkey populations, can be regained through protection and natural regeneration of tropical dry forest.
Localización: Biblioteca OET: S5628. NBINA-4038.

Publicación no.: 247 **Mamíferos de Costa Rica** *[Costa Rica mammals]* / Carrillo-Jiménez, Eduardo; Wong-Reyes, Grace; Sáenz-Méndez, Joel Cris; Feeny, Christina (trad.); Suárez-Cowley, A (il.). (Universidad Nacional. Programa Regional de Maestría en Manejo de Vida Silvestre, Apdo. 1350, Heredia, CR <E-mail: ecarrill@racsa.co.cr> <E-mail: wongr@forwild.umass.edu> <E-mail: jsaenz@una.ac.cr>). Santo Domingo de Heredia: Instituto Nacional de Biodiversidad (INBio), 1999. 248 p. ISBN: 9968-702-26-9.
This guide includes a description of 100 of Costa Rica's best known species of mammals. Some are very well known, some are rare and others are in danger of extinction. The intention is that after reading this guide you will be able to recognize the species described here in the field, and will be familiar with the general characteristics of each one. The guide consists of two parts. The first section contains general information about mammals, their origin and classification, as well as the distinctive characteristics of each group existing in the world. The second section, which is the main part of the guide, gives an account of the characteristics of 100 species selected. This description includes the scientific name of each mammal species, and their distribution around the world and in Costa Rica, illustrated with a map of their potential distribution in the country, shown in green. This is followed by a description of their habitat, habits, feeding, reproduction and their status in the country; in some cases, with an illustration of the tracks of the species to assist their identification in the field. It is important to note that the size (small, medium or large) that is mentioned in the description of each species is relative to the members of the same family. To help identify the species that belong to the same family an icon has been included that characterizes each one of these.
Localización: Biblioteca OET: C1-155.

Publicación no.: 248 ***Mamíferos del Parque Nacional Corcovado: Costa Rica*** *[Mammals of Corcovado National Park: Costa Rica]* / Wong-Reyes, Grace; Sáenz-Méndez, Joel Cris; Carrillo-Jiménez, Eduardo; Feeny, Christina (trad.); Tucker, J (trad.); Suárez-Cowley, A (il.). (Universidad Nacional. Programa Regional de Maestría en Manejo de Vida Silvestre, Apdo. 1350, Heredia, CR <E-mail: wongr@forwild.umass.edu> <E-mail: jsaenz@una.ac.cr> <E-mail: ecarrill@racsa.co.cr>). Santo Domingo de Heredia: Instituto Nacional de Biodiversidad (INBio), 1999. 117 p. ISBN: 9968-702-29-3.
This guide provides visitors to the Corcovado National Park (CNP) with information on the habits and characteristics of 42 mammal species found in the region. The guide is divided into two sections. The first section gives an overview of the Park itself and general information about the group "mammals", while the second offers individual descriptions of species, which might be common, rare or threatened. The species accounts include the animal's scientific and common names, a physical description, details

of their distribution in Costa Rica, habitat, habits and conservation status. Additional notes highlight any important details and offer suggestions on how or where to observe the species. It is important to note hat the size (small, medium or large) mentioned in the description of each species is relative to the members of the same family. To help identify the species that belongs to the same family, an icon has been included that characterizes each one of these. Towards the end of the descriptions section there is a map showing the trails where you may observe the different species.
Localización: Biblioteca OET: C1-154.

Publicación no.: 249 **Disparate data sets resolve squirrel monkey (Saimiri) taxonomy: Implications for behavioral ecology and biomedical usage** / Boinski, Sue; Cropp, S.J. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu> <E-mail: cropp@pcg.wustl.edu>).
En: International Journal of Primatology (ISSN 0164-0291), v. 20, no. 2, p. 237-256. 1999.
Squirrel monkeys (Saimiri spp.) are the most commonly used neotropical (platyrrhine) monkeys in biomedical research; however no consensus exists as to the phylogenetic relationships amongst geographic variants or whether these variants represent species or subspecies. Here we report a strongly supported squirrel monkey phylogeny, congruent across multiple data sets, including new field data and the first molecular (mtDNA) cladogram. These data support species-level classification for the three major groups in this study approximately the same amount of molecular divergence exists among Saimiri oerstedii, S. sciureus, and S. boliviensis. The S. sciureus/S. oerstedii ancestor diverged from S. boliviensis and shortly thereafter S. sciureus and S. oerstedii diverged. Until now, lack of a robust taxonomy has hindered exploitation of the massive potential of Saimiri for comparative studies. No other primate genus displays such widely divergent, genetically-based social behaviors. Our taxonomy also provides robust support for previous warnings against the widespread use of hybrid squirrel monkeys as research models.
Localización: Biblioteca OET: S6947.

Publicación no.: 250 **The ecological role of the prehensile tail in white-faced capuchins (Cebus capucinus)** *[Papel ecológico de la cola prensil en los monos carablanca (Cebus capucinus)]* / Garber, Paul A; Rehg, J.A. (University of Illinois. Department of Anthropology, 607 S. Mathews Ave., 109 Davenport Hall, Urbana, IL 61801, US <E-mail: p-garber@uiuc.edu>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), v. 110, no. 3, p. 325-339. 1999.
Prehensile tails appear to have evolved at least twice in platyrrhine evolution. In the atelines, the tail is relatively long and possesses a bare area on the distal part of its ventral surface that is covered with dermatoglyphs and richly innervated with Meissner's corpuscles. In contrast, the prehensile tail of Cebus is relatively short, fully haired, and lacks specialized tactile receptors. Little is currently known regarding tail function in capuchins, and whether their prehensile tail serves a greater role in feeding or traveling. In this paper we examine patterns of positional behavior, substrate preference, and tail use in wild white-faced capuchins (Cebus capucinus) inhabiting a wet tropical forest at La Suerte Biological Station in northeastern Costa Rica. Observational data were collected over the course of 3 months on adult capuchins using an instantaneous focal animal time sampling technique. Differences in the frequency and context of tail use, and the estimated amount of weight support provided by the tail relative to other appendages during feeding/foraging and traveling were used as measures of the ecological role of this specialized organ in capuchin positional behavior. During travel, quadrupedal walking, leaping, and

climbing dominated the capuchin positional repertoire. The capuchin tail provided support in only 13.3% of travel and was principally employed during below branch locomotor activities. In contrast, tail-assisted postures accounted for 40.6% of all feeding and foraging records and occurred primarily in two contexts. The tail was used to suspend the individual below a branch while feeding, as well as to provide leverage and weight support in above-branch postures associated with the extraction of prey from difficult to search substrates. A comparison of tail use in Cebus, with published data on the atelines indicates that both taxa possess a grasping tail that is capable of supporting the animal's full body weight. In capuchins and howling monkeys, the tail appears to be used more frequently and serves a greater weight-bearing role during feeding than during traveling. In Ateles, and possibly Brachyteles, and Lagothrix, however, the prehensile tail serves a dual role in both feeding and forelimb suspensory locomotion. Additional relationships between white-faced capuchin feeding, positional behavior, extractive foraging techniques, and prehensile tail use are discussed.
Localización: Biblioteca OET: S6906. NBINA-6893.

Publicación no.: 251 **Behavioral sampling in the field: Continuous focal versus focal interval sampling** *[Muestreo de comportamiento en el campo: muestreo continuo focal versus a intervalos]* / Rose, L.M. (University of British Columbia. Department of Anthropology, 6303 NW Marine Dr, Vancouver, BC V6Y 1Z1, CA <E-mail: lrose@interchange.ubc.ca>).
En: Behaviour (ISSN 0005-7959), v. 137, no. 2, p. 153-180. 2000.
I compared data collection rates for continuous and interval focal samples during a two-year, single-observer field study of white-faced capuchins (Cebus capucinus) at Santa Rosa National Park, Costa Rica. I also compared the basic activity budgets generated by the two sampling methods, estimates of numbers in proximity, and rates at which additional ad libitum observations could be recorded. I collected 1238 hours of focal data (620 hr continuous, 618 hr interval). I found focal interval sampling to be 25% more time efficient, despite higher rate of sample loss, partly because interval samples are easier to obtain in difficult conditions. I found no evidence that interval sampling provided better opportunities for ad libitum observation than continuous sampling. Overall, the two methods yielded similar estimates of activity budgets. However, continuous sampling resulted in somewhat higher estimates of time spent eating, while interval data gave somewhat lower estimates of time spent foraging (looking for or handling food items) and moving, resulting in lower estimates of foraging success. Interval sampling also yielded slightly lower estimates of time spent vigilant. I attribute these patterns to two major effects: (1) errors of omission (missing rare behaviors of short duration) during interval samples and (2) a greater tendency toward conditional sampling bias (under-representing behaviors due to difficult sampling conditions such as rapid travel) under a continuous sampling regime.
Localización: Biblioteca OET: NBINA-28.

Publicación no.: 252 **Geographic variation in behavior of a primate taxon: stress responses as a proximate mechanism in the evolution of social behavior** *[La variación geográfica en el comportamiento de un taxón de primates: respuestas al estrés como un mecanismo aproximado en la evolución del comportamiento social]* / Boinski, Sue. (University of Florida. Department of Anthropology and Comparative Medicine, 1350 Turlington, Gainesville, FL 32605-7305, US <E-mail: boinski@ufl.edu>).
En: Geographic variation in behavior: perspectives on evolutionary mechanisms. Foster, S.A; Endler, J.A. (eds.) New York: Oxford University Press, 1999. p. 95-120. (No abstract).
Localización: Biblioteca OET: S6950.

Publicación no.: 253 **The social organizations of squirrel monkeys: implications for ecological models of social evolution** *[Las organizaciones sociales de los monos titi: implicaciones para los modelos ecológicos de evolución social]* / Boinski, Sue. (University of Florida. Department of Anthropology and Comparative Medicine, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu>).
En: Evolutionary Anthropology (ISSN 1060-1538), v. 8, no. 3, p. 101-112. 1999.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-1868.pdf
Squirrel-monkeys occur in a considerable number of slightly different forms, but all are built upon a similar body plan and have a basic color scheme. One of the larger races-from inner Perú-is also the most colorful and one of the brightest colored of all mammals. It may be taken as a point of departure. The top of the head and the upper and outer parts of the body and the upper side of the basal half of the tail are a vivid green, with a pepper and salt effect of yellow and gray. The face is pure white except for black spectacles, muzzle and chin; the throat, chest, underside, insides of limbs, and the underside of the basal half of the tail are brilliant daffodil yellow. The terminal half of the tail is jet black and rather bushy. The flesh of the hands is pale pink. Other races vary in the intensity of the green and yellow, so that some may be olive brown above and white below, and in the amount and arrangement of the black areas on the face and the tip of the tail. Some have almost naked ears, others have these organs clothed in short fur, and still others bear thereupon long tufts or fringes. All these variations seem to blend into the other geographically ... some of these pure color variations may constitute valid regional subspecies or even species.
Localización: Biblioteca OET: S6949. NBINA-1868.

Publicación no.: 254 **The Central American squirrel monkey (Saimiri oerstedii): Introduced hybrid or endemic species?** *[El mono tití centroamericano (Saimiri oerstedii): ¿híbrido introducido o especie endémica?]* / Cropp, S.J; Boinski, Sue. (Washington University. School of Medicine, Department of Anatomy & Neurobioloy, 660 S Euclid Ave, St Louis, MO 63110, US <E-mail: cropp@pcg.wustl.edu> <E-mail: boinski@ufl.edu>).
En: Molecular Phylogenetics and Evolution (ISSN 1055-7903), v. 16, no. 3, p. 350-365. 2000.
Although squirrel monkeys (Saimiri spp., Primates: Cebidae) are abundant and widespread in South America, the disjunct Central American species, Saimiri oerstedii, has been restricted to the Pacific wet lowlands of Costa Rica and Panama since the earliest historical records. This taxon is now endangered in Costa Rica and nearly extinct in Panama because of habitat loss, development, and the pet trade. Conservation efforts have been hampered because of the influential, but untested, speculation that S. oerstedii represents a hybrid species introduced by prehispanic Amerind traders from multiple localities in South America. Using nuclear and mitochondrial DNA sequence data to reconstruct the phylogenetic relationships among Saimiri from Central and South America, we reexamine the taxonomic status of squirrel monkeys from different geographic regions. The sequence data support P. Hershkovitz's (1984, Am. J. Primatol. 6: 257-281) taxonomy advocating four distinct species. Combining this information with evidence from the fossil record to date the divergence times among sister taxa, we test and reject the hypothesis that Central American squirrel monkeys are the result of human introduction.
Localización: Biblioteca OET: S6. NBINA-6860.

Publicación no.: 255 **Pulmonary (Filaroides sp.) and intestinal (Prosthenorchis sp.) parasites of New World monkeys** *[Parásitos pulmonares (Filaroides sp.) e intestinales (Prosthenorchis sp.) de monos del*

Nuevo Mundo] / Berrocal, Alexis; Naranjo, C. (Universidad Nacional. Escuela de Medicina Veterinaria, Departamento de Patología, Apdo. 86-3000, Heredia, CR <E-mail: berrocal@ns.medvet.una.ac.cr>). International Symposium of the World Association of Veterinary Laboratory. IX., College Station, TX, US. June 2-5, 1999. College Station, TX: World Association of Veterinary Laboratory, 1999. s.p.
During 1998, the Pathology Department of Escuela de Medicina Veterinaria, Universidad Nacional, Heredia, Costa Rica admitted 15 monkeys (Saimiri oerstedii citrinellus) for pathological examination. Seven of those monkeys presented with intestinal and pulmonary nematodes. Among the monkeys with intestinal nematodes, four were adults (age range 3 to 5 years old) and one, a young monkey, six months old. In four of these cases only the abdominal organs were sent because the field veterinarian had done the necropsy. Four of the monkeys' clinical histories were limited because they had lived in a national park. One monkey was killed in a car accident, another was electrocuted and the others two were found with evident abdominal pain and died shortly afterwards. The fifth came from a wild life refugee with a history loss of appetite and of weight during eight days; this animal was treated with antiparasitic drugs but did not recover. Grossly, the consistent finding was a mesenteric lymphadenopathy and a multiple parasites in the luminal mucosa, which were identified morphologically as Prosthenorchis sp. The parasites were mainly located in and around the cecal-colonic valve, and the majority of them were attached to the mucosa. In two cases there was perforation with diffuse acute peritonitis. Based on the anatomical localization, the parasites were classified as P. elegans (cecum-colon) and P. spirula (ileum). Microscopically the lymphadenopathy was characterized by a mononuclear inflammatory reaction with histiocytic predominance. The affected intestinal parts contained multiple sections of adult parasites with their cephalic ends inside the intestinal wall. The mucosa was ulcerated with many mononuclear inflammatory cells and fibrosis in the outer layer reaching the serosa. Also there was a histiocytic systemic reaction mainly in the lung and heart. The pulmonary cases were two white-face monkeys (Cebus capucinus: a four-year-old male and an adult female. The male lived in captivity; he was depressed and anorexic with a body temperature of 42°C, and died suddenly. The female came from a zoo, where she had been lethargic and depressed after a large open wound on her right thigh. Macroscopically there were no relevant findings; however microscopically both animals had lungworms which had morphological features consistent with Filaroides sp.
Localización: Biblioteca OET: S10121. Biblioteca OET: NBINA-11058.

Publicación no.: 256 **Pathological main findings in 22 tropical monkey cases** *[Principales hallazgos patológicos en 22 casos de monos tropicales]* / Berrocal, Alexis. (Universidad Nacional. Escuela de Medicina Veterinaria, Departamento de Patología, Apdo. 86-3000, Heredia, CR <E-mail: berrocal@ns.medvet.una.ac.cr>). 18th Meeting of the European Society of Veterinary Pathology, Amsterdam, NL. Sept. 19-22, 2000. Amsterdam: European Society of Veterinary Pathology, 2000. s.p.
Aim of the study: To study retrospectively all pathological findings observed in 22 monkeys that died naturally. All gross and microscopical findings were recorded in a protocol. The samples were processed routinely for histopathological examination, and stained with H. & E; in some cases immunohistochemistry and bacteriology were used. According to final diagnosis 4 groups were created: 1- intestinal parasites, 2- pulmonary parasites, 3- infectious agents and 4- others. 13 Cases came from a wildlife refuge near Manuel Antonio National Park, 6 were from a rehabilitation zoo-center, the other 3 were pets. The clinical information was scanty, most of them were found dead. Pathological findings: a- intestinal parasites (n=7), 6 were Saimiri oerstedii citrinellus 4 adults (3 to 5 years old) and 2 young (6

months old). In these 6 cases, based on the parasite morphology and anatomical localization, they were identified as Prosthenorchis elegans (cecum-colon) and P. spirula (ileum). The seven one was a 2.5 years old, male Ateles geoffroyi spider monkey with Angiostrongylus costarricensis; b- Pulmonary nematodiasis (n=3); all were white-faced capuchin monkeys (Cebus capucinus). No pulmonary gross lesions were seen. Based on microscopy they were classified as Filaroides sp; c- Infectious agents: two cases: one was a male Alouatta palliata mantled howling monkey, 16 months old that died suddenly due to acute leptomeningo-encephlatis by Listeria monocytogenes. The second was a female Saimiri oerstedii squirrel monkey, one year old, that showed an acute multifocal hepatitis due to Toxoplasma gondii (immunopositive); d- The remaining ten monkeys showed variable pathologies like necrotic bacterial hepatitis and haemorrhagic cystitis. It is important to stress that the principal group was the parasitic one, mainly Prosthenorchis sp. which is a parasite that in our serie has been found only in Saimiri oerstedii all coming from Manuel Antonio National Park; animals, that normally are in contact with the park visitors. Moreover both infectious cases were also coming from places with direct contact with tourists (zoo and national park).
Localización: Biblioteca OET: S10120.

Publicación no.: 257 **Monitoring mammal populations in Costa Rican protected areas under different hunting restrictions** *[Monitoreo de poblaciones de mamíferos en áreas protegidas de Costa Rica con diferentes restricciones de cacería]* / Carrillo-Jiménez, Eduardo; Wong-Reyes, Grace; Cuarón-Orozco, Alfredo D. (Universidad Nacional. Programa Regional de Maestría en Manejo de Vida Silvestre, Apdo. 1350, Heredia, CR <E-mail: ecarrill@racsa.co.cr> <E-mail: wongr@forwild.umass.edu> <E-mail: cuaron@oikos.unam.mx>).
En: Conservation Biology (ISSN 0888-8892), v. 14, no. 6, p. 1580-1591. 2000.
It is necessary to assess whether the management of protected areas is achieving the objectives set for them. In particular, changes and trends in wildlife populations should be documented. We compared the 1990 abundance of mammals in two Costa Rican protected areas Corcovado National Park (CNP) and Golfo Dulce Forest Reserve (GDFR), with similar environmental characteristics but different hunting restrictions and levels of protection. We also monitored the abundance of mammals in CNP over a 4-year period. We also devised an inexpensive method of monitoring tropical rainforest mammal populations in a timely and efficient manner. The method is based on the use of mammal track records and arboreal mammal sightings and requires little effort. With this method 20 mammal species were recorded at CNP and 15 at GDFR. Species were consistently less abundant in GDFR than in CNP, principally those species preferred by hunters. Species were grouped according to whether or not they are used as food and whether they are locally or globally threatened or not threatened. The abundance of all these groups of species in GDFR was 6-28% the abundance in CNP. During 1990-1994, overall mammal abundance in CNP remained relatively stable, but there was considerable variability among species. As a group, both species used for food and globally threatened species declined in abundance during that period in CNP. The abundance of all groups of species declined from 1992 to 1994, coinciding with a reduction in hunting vigilance at CNP. Evidence suggests that the main factor differentiating the abundance of mammals in the two protected areas, and at CNP during the study period, was the level of hunting. Golfo Dulce Forest Reserve seems to be achieving only partial success in protecting wildlife, whereas Corcovado National Park seems to be considerably more effective, although not entirely successful.
Localización: Biblioteca OET: S6993. NBINA-4024.

Publicación no.: 258 **Infant handling in wild Cebus capucinus: testing bonds between females?** *[Manejo de bebés en Cebus capucinus silvestres: ¿probando los vínculos entre hembras?]* / Manson, Joseph H. (Max Planck Institute for Evolutionary Anthropology, Deutscher Platz 6, DE-04103, Leipzig, DE <E-mail: manson@eva.mpg.de>).
En: Animal Behaviour (ISSN 0003-3472), v. 57, no. 4, p. 911-921. 1999.
The evolved functions, if any, of infant handling (IH) by female primates remain unclear for many species. I tested a new hypothesis, that IH tests social bonds between adult females, using data on a group of wild white-faced capuchins. I also tested the nonadaptive, learning-to-mother, reciprocity, harassment and alliance-formation hypotheses. Focal subjects were the mothers of 10 infants that ranged in age from 0 to 90 days. The behaviours comprising IH (inspecting, nuzzling, sniffing, and a distinctive vocalization) differed from typical maternal behaviour. Nulliparous females engaged in no more IH than did parous females. The median frequency of rough handling was zero, kidnapping was not observed, and maternal restraint of infants was extremely rare. Infant handling rate was unrelated to the relative dominance ranks of the mother and the handler. Females tended to handle the infants of females with which they groomed and formed aggressive coalitions more frequently. Dyadic IH rates were not correlated with rates of allonursing when the infants were older than 90 days of age. There was no evidence for reciprocal exchanges of IH between females. Mother-terminated IH bouts were longer when the mother had groomed the handler more frequently before the infant's birth. Based on these findings, the learning-tomother, reciprocity and harassment hypotheses are unsupported for this species. Some support exists for the nonadaptive hypothesis. Contrasting predictions of the bond-testing and alliance-formation hypothesis are presented for future testing.
Localización: Biblioteca OET: S6421.

Publicación no.: 259 **Presumptive foraging association between sharp-shinned hawks (Accipiter striatus) and white-faced capuchin monkeys (Cebus capucinus)** *[Presunta asociación de alimentación entre el gavilán vientrigris (Accipiter striatus) y los monos carablancas (Cebus capucinus)]* / Warkentin, I.G. (Memorial University of Newfoundland Environmental Science. Sir Wilfred Grenfell College, Corner Brook, NF, A2H 6P9, CA <E-mail: iwarkent@beothuk.swgc.mun.ca>).
En: Journal of Raptor Research (ISSN 0892-1016), v. 27, no. 1, p. 46-47. 1993.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-9571.pdf
Associations between monkeys and birds have been reported for several different species pairings in tropical regions of both the Old and New World. The avian associates reported are largely insectivorous and include species from Cuculiformes, Passeriformes, and Falconiformes. Within the latter order, this behavior has been observed in White Hawks (Leucopternis albicollis), Plumbeous (Ictinia plumbea) and Grey-headed (Leptodon cayanensis) kites, and frequently in Double-toothed Kites (Harpagus bidentalus). There may be indirect competition for food resources between the species involved in these associations, but generally it is assumed that the relationship is a commensal one: the monkeys are affected little by the presence of the birds, while the birds benefit through the capture of flushed prey. Little detailed study has been made of bird/monkey associations. It is likely that this behavior exists in a number of other avian species but remains unreported. Of particular note is that published accounts of foraging associations involve resident, rather than migratory, avian species. To my knowledge, this observation represents the first time that a migratory species (and a bird-eating raptor) has been reported to associate with monkeys in such a relationship. On 20 December 1991, while studying the

foraging behavior of migratory songbirds in Tivives Forest Reserve, Puntarenas, Costa Rica (9° 52'N-84°42'W), I observed a troop of 15-20 White-faced Capuchin Monkeys (Cebus capucinus) moving through a stand of Black Mangrove (Avicennia bicolor). During the half-hour period that I watched the monkeys, they moved approximately 100 m and were accompanied for the entire period by two immature female Sharp-shinned Hawks (Accipiter strialus). The hawks were distinguishable from Double-toothed Kites, the other species of similar size and appearance seen on the study area, by the absence of a black median stripe on the throat and the extent of streaking on the breast. Both Double-toothed Kites and Sharp-shinned Hawks were seen regularly in the study area from November through February. Over the 4 mo period of observations during this field season, however, I encountered capuchin troops on seven occasions and noted a commensal relationship with birds only in this single instance. The monkeys moved through the canopy at between 7 and 15 m (canopy height 20 m). The hawks perched from 1 to 5 in apart on branches at about the height of the highest foraging monkeys (12 to 15 m). Both birds appeared to maintain positions roughly in the center of the monkey troop by making several flights each during the observation period. I observed no attempts on prey by the hawks during this time, and no potential avian prey was seen. Monkey troops are followed routinely by a small number of avian species, but these accounts of foraging associations have indicated the involvement of resident birds only. For example, the most consistently reported and best studied associations are between the largely insectivorous Double-toothed Kite, a resident species, and White-faced Capuchins or Squirrel Monkeys (Saimiri sciureus). Given that many migrant bird species spend more than one-half of any given year on their wintering areas, it is somewhat surprising that migrant bird/monkey associations have not been recorded previously. Migrant insectivores, such as flycatchers which make use of aerial saillys to capture prey, would presumably benefit from this type of association. Several explanations for the lack of such reports are possible: 1) Interactions between migrant birds and monkey troops may simply be rare. The Sharp-shinned Hawk is likely subject to selection for behavioral plasticity and associational learning, given that it is a species which forages on prey that vary in concentration and behavior over the course of the year and over its migration route. Thus, following monkeys is only one of several possible tactics that sharp-shins might use during the winter period; 2) Boinski and Scott noted that the incidence of avian foragers at monkey troops varied with rainfall levels and arthropod abundance. They found that insectivorous birds associated more commonly with monkey troops during the wet season, when total arthropod abundance was low, than during drier periods which have greater arthropod availability. Because Sharp-shinned Hawks and other migrant birds are present during the dry season, their absence from lists of species associated with monkey troops may be solely a function of prey availability, and the relative profitability of other foraging strategies when compared with that of following monkey troops.
Localización: Biblioteca OET: S6424. NBINA-9571.

Publicación no.: 260 **Correlates of self-directed behaviour in wild white-faced capuchins** *[Correlaciones del comportamiento autodirigido en monos carablanca silvestres]* / Manson, Joseph H; Perry, Susan E. (Max Planck Institute for Evolutionary Anthropology, Deutscher Platz 6, DE-04103, Leipzig, DE <E-mail: manson@eva.mpg.de> <E-mail: perry@eva.mpg.de>).
En: Ethology (ISSN 0179-1613), v. 106, no. 4, p. 301-317. 2000.
Elevated rates of self-directed behaviour (SDB) such as self-scratching and autogrooming have been widely used in recent years as an indicator of anxiety in catarrhine primates. This study presents the first examination of correlates of SDB rates in a platyrrhine primate. Subjects were 8 wild female white-faced

capuchins at Lomas Barbudal, Costa Rica, who were observed for 119 h of focal individual follows. The subjects performed significantly more self-scratching and autogrooming while in close proximity to conspecifics than while alone, irrespective of whether the neighbour was dominant or subordinate to them. This result was attributable to elevated SDB rates during the 30s preceding and following all grooming bouts. Furthermore, subjects engaged in more SDB while in proximity to females (a) that were closer to them in dominance rank and (b) with whom they spent a larger proportion of their time in proximity. Self-directed behaviour rates after conflicts did not differ from non-postconflict rates. Nor were SDB rates above baseline levels during the 30 s before subjects descended to the ground. These results may provide support for the view that SDB rates index anxiety in this species, if grooming decisions signal individuals' current allegiances and are therefore a source of anxiety, even if being groomed is, itself, relaxing. Postconflict preparation for further aggression may mitigate against scratching and autogrooming in a fast-moving arboreal species.
Localización: Biblioteca OET: S6420. NBINA-2654.

Publicación no.: 261 **Dental microwear in live, wild-trapped Alouatta palliata from Costa Rica** *[Microdeterioro dental en monos congo silvestres atrapados vivos de Costa Rica]* / Teaford, Mark F; Glander, Kenneth E. (The Johns Hopkins University. School of Medicine, Department of Cell Biology and Anatomy, Baltimore, MD 21205, US <E-mail: mteaford@jhmi.edu> <E-mail: glander@duke.edu>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), v. 85, no. 3, p. 313-319. 1991.
One problem with dental microwear analyses of museum material is that investigators can never be sure of the diets of the animals in question. An obvious solution to this problem is to work with live animals. Recent work with laboratory primates has shown that high resolution dental' impressions can be obtained from live animals. The purpose of this study was to use similar methods to begin to document rates and patterns of dental microwear for primates in the wild. Thirty-three Alouatta palliata were captured during the wet season at Hacienda La Pacífica near Cañas, Costa Rica. Dental impressions were taken and epoxy casts of the teeth were prepared using the methods of Teaford and Oyen (1989a). Scanning electron micrographs were taken of the left mandibular second molars at magnifications of 200 x and 500 x. Lower magnification images were used to calculate rates of wear, and higher magnification images were used to measure the size and shape of microwear features. Results indicate that, while basic patterns of dental microwear are similar in museum samples and samples of live, wild-trapped animals of the same species, ecological differences between collection locales may lead to significant intraspecific differences in dental microwear. More importantly, rates of microwear provide the first direct evidence of differences in molar use between monkeys and humans.
Localización: Biblioteca OET: S6977.

Publicación no.: 262 **Mamíferos silvestres de Costa Rica** *[Wild mammals from Costa Rica]* / Mora-Benavides, José Manuel. (Universidad de Costa Rica. Escuela de Biología, Ciudad Universitaria, CR <E-mail: jmmora@biologia.ucr.ac.cr>). San José: EUNED, 2000. 220 p. ISBN: 9968-31-126-X.
Este libro incluye todas las especies de mamíferos reportadas en Costa Rica. De ellas se da el nombre científico, el nombre común, las medidas corporales, una breve descripción, enfocando principalmente aspectos de forma o color, que son más llamativos. Además, se da información básica de la distribución general y, en particular, en Costa Rica, para cada especie. Para la mayoría de las especies, especialmente aquellas más conspicuas, se aportan los detalles más interesantes o conocidos de su historia natural. Es necesario seguir estudiando la historia natural de nuestros mamíferos y divulgar al menos los

conocimientos más generales, con el fin de contribuir, en parte, al conocimiento y, de ser posible, a la conservación de nuestras especies de mamíferos, tan valiosas y tan descuidadas.
Localización: Biblioteca OET: 599.097286 M827ma.

Publicación no.: 263 **Neotropical primates in a regenerating Costa Rican dry forest: A comparison of howler and capuchin population patterns** *[Primates neotropicales en un bosque seco costarricense en regeneración: una comparación de los patrones de población de los monos congo y carablanca]* / Fedigan, Linda M; Jack, Katharine M. (University of Calgary. Department of Anthropology, Calgary, AB T2N 1N4, CA <E-mail: fedigan@ucalgary.ca> <E-mail: kjack@tulane.edu>).
En: International Journal of Primatology (ISSN 0164-0291), v. 22, no. 5, p. 689-713. 2001.
Few data exist on how primate populations return to regenerating tropical forests. We compare the ways that two populations of neotropical monkeys, Alouatta palliata and Cebus capucinus, expanded cover a 28-year period after the establishment of Santa Rosa National Park on reclaimed ranchlands in Costa Rica. We found that both howler and capuchin populations increased substantially in size subsequent to protection, but the howler population grew faster. This is likely due to their faster-paced life-history pattern than that of capuchins. The howler population increased mainly via the establishment of many new groups, whereas the capuchins expanded mainly, by increasing the size of existing groups. We related this finding to the fact that capuchins are limited largely by their need to drink from water holes during the dry, seasons whereas howlers are limited principally by their preference for larger-sized trees that occur in older forests. Proportions of adult male capuchins increased significantly during our study, likely due to skewed sex ratio at birth or male-biased immigration into the protected park or both factors. Our main finding is that, in as short a time period as 28 years, we can substantially enhance the size of monkey, populations by allowing the regeneration of tropical forest. Furthermore, we provide a preliminary interpretation of how extrinsic factors-deforestation, hunting, crop-spraying, destruction of the watershed and intrinsic variables, e.g., pace of reproduction; diet, differentially, affect not only each species' vulnerability to extinction but also its capacity to recover when human disturbances are minimized.
Localización: Biblioteca OET: NBINA-107.

Publicación no.: 264 **Effect of male emigration on the vigilance behavior of coresident males in White-faced Capuchins (Cebus capucinus)** *[Efecto de la emigración de machos en el comportamiento de vigilancia de los machos co-residentes en los monos carablanca (Cebus capucinus)]* / Jack, Katharine M. (Tulane University. Department of Anthropology, 1021 Audubon St, New Orleans, LA 70118, US <E-mail: kjack@tulane.edu>).
En: International Journal of Primatology (ISSN 0164-0291), v. 22, no. 5, p. 715-732. 2001.
I examined the vigilance behavior of male Cebus capucinus residing in four groups in Santa Rosa National Park, Costa Rica. One male emigrated from each of three study, groups, providing ideal experimental conditions for examining the effect of coresident males on male vigilance behavior (social and nonsocial). Following the predator and conspecific defense theories for the adaptive value of male vigilance behavior and the occurrence of multimale groups, I predicted that male nonsocial vigilance would increase after the emigration of a coresident male. My prediction was supported in only one of the three study groups. Males in two groups decreased their nonsocial vigilance after the emigration of a coresident male, which was probably influenced by seasonal changes and the peripherality, of one group's coresident male before his emigration. The social vigilance hypothesis proposes that for species

with rigid dominance hierarchies, social vigilance should increase with an increase in same sex competitors. Therefore, I predicted that male social vigilance would decrease after the emigration of a coresident male. The hypothesis is generally supported in my findings, as two of the three groups displayed a decrease in social vigilance after the emigration of a coresident male. Increased social vigilance in the third group is best explained by, the change in the alpha male social behavior after the emigration of his only, coresident male.
Localización: Biblioteca OET: NBINA-108.

Publicación no.: 265 **Temas prioritarios para estudios ecológicos** / INBIO / SINAC / Banco Mundial, San José, CR. San José: Programa Conjunto INBio-SINAC Proyecto "Desarrollo de Recursos de Biodiversidad", 2000. (GEF/BM/TF; no. 028324).
Desde junio de 1998, el Instituto Nacional de Biodiversidad (INBio) en conjunto con el Sistema Nacional de Areas de Conservación (SINAC) ejecutan el proyecto "Desarrollo de Recursos de Biodiversidad" financiado por el Fondo Global para el Ambiente (GEF) a través del Banco Internacional para la Reconstrucción y el Desarrollo (BM). Este proyecto tiene como objetivo demostrar que al adquirir más conocimiento e información acerca de especies particulares, se aumenta el valor de las mismas, así como las posibilidades de mercadeo de los servicios de la biodiversidad. Dentro del componente "Usos Sostenibles de la Biodiversidad", el proyecto contempla el apoyo para la realización de una serie de estudios ecológicos en cada una de las Areas de Conservación involucradas (Tempisque, Arenal-Tilarán, Amistad Caribe, Amistad Pacífico y Osa). El enfoque de los estudios es sobre especies seleccionadas para obtener un mayor conocimiento sobre la ecología de especies de particular importancia o interés para el desarrollo de bases científicas para su conservación y manejo de sistemas bióticos. A través de los estudios ecológicos se busca obtener un mayor conocimiento sobre historia natural de especies consideradas como amenazadas o en peligro de extinción y de otras raras o de particular importancia; información ecológica de especies para la toma de decisiones respecto al manejo de áreas protegidas; apoyo al diseño de proyectos de conservación y uso sostenible de la biodiversidad mediante la incorporación de mejor y mayor información ecológica de las especies y sistemas bióticos; y contribuir en el desarrollo de indicadores biológicos para la determinación de los impactos de uso de recursos naturales y desarrollo de proyectos. Durante 1998 y 1999 se han puesto en ejecución más de 16 estudios ecológicos en las cinco Areas de Conservación. En una revisión realizada al proyecto, en noviembre de 1999, se concluyó que se requería tener una mejor claridad sobre las necesidades de información ecológica más urgentes por parte de las Areas de Conservación, que permitiera que los estudios impactaran más y mejor, en la toma de decisiones sobre el manejo de los recursos de biodiversidad. Con base en lo anterior, se acordó que durante el primer trimestre del año 2000, se organizaría un encuentro en cada Area de Conservación, con la finalidad de elaborar una lista de temas prioritarios para realizar estudios ecológicos. Dicho encuentro tendría participación de funcionarios de las Areas de Conservación, INBio e investigadores invitados. Este documento presenta un resumen de los principales resultados alcanzados en los cinco encuentros realizados. Objetivos de los Encuentros: 1) Elaborar un portafolio (lista de temas prioritarios con términos de referencia) sobre prioridades para desarrollar estudios ecológicos en respuesta a necesidades específicas del Area de Conservación. 2) Desarrollar una estrategia para acercar e integrar instituciones de investigación, investigadores, estudiantes nacionales e internacionales para que desarrollen los estudios identificados. En este documento se presentan los temas prioritarios para la realización de estudios ecológicos identificados

en cada Area de Conservación. Incluye información básica como problemas a resolver, resultados esperados y recomendaciones de instancias e investigadores que pueden realizar el estudio.
Localización: Biblioteca OET: AD 415.

Publicación no.: 266 **Reproductive consequences of variation in the composition of howler monkey (Alouatta spp.) groups** *[Consecuencias reproductivas de la variación en la composición de los grupos de monos congo (Alouatta spp.)]* / Treves, A. (6010 S Hill Dr, Madison, WI 53705, US <E-mail: atreves@facstaff.wisc.edu>).
En: Behavioral Ecology and Sociobiology (ISSN 0340-5443), v. 50, no. 1, p. 61-71. 2001.
At least three general categories of environmental pressure - predation, resource distribution, and demographics - shape the costs and benefits of group-living for animals. Among the demographic factors that influence individual survival and reproduction, the composition of social groups can play an important role. Census data drawn from 26 populations of howler monkeys (Alouatta spp.) were used to determine if the composition of groups explained variation in their reproductive performance. Each group's reproductive performance was estimated by calculating the difference between the observed number of immatures and the number expected from its population average. Of four group structure variables tested, only one - the residual of the adult and subadult sex ratio - was a consistent correlate of reproductive performance across the howler monkey populations. Groups with a greater proportion of adult and subadult males contained more juveniles than expected from the population average. I propose that the survival or retention of immatures within howler monkey groups depends in part on the behavior of resident males. Of particular importance, the relative proportions of resident males and females were more informative than the absolute number of males or females. On this: basis, I evaluate the possible role of males in protection from predation, conspecific aggression, and resource competition. The techniques used ht re can also be used to forecast major changes in demographic structure within populations.
Localización: Biblioteca OET: NBINA-78.

Publicación no.: 267 **Life history patterns of male white-faced capuchins (Cebus capucinus): Male-bonding and evolution of multimale groups** *[Patrones de ciclo vital de los monos carablanca (Cebus capucinus): obligaciones del macho y evolución de grupos con múltiples machos]* / Jack, Katharine M. (Tulane University. Department of Anthropology, 1021 Audubon St, New Orleans, LA 70118, US <E-mail: kjack@tulane.edu>). Edmonton: University of Alberta, 2001. 121 p. ISBN: 0-612-60302-4. Dissertation, Ph.D., University of Alberta, Graduate School, Edmonton, Alberta (Canada).
Male cooperation in competition with outsiders (male-bonding) has been suggested to occur more easily between related males. Such cooperative aggression has been observed among coresident male white-faced capuchins (Cebus capucinus); a species characterized by male dispersal and female philopatry and group males are presumed unrelated. In this study I address the question of why males cooperate by examining male dispersal patterns, affiliative relationships, and the effect of male emigration on the vigilance behavior of coresident males. During a 15 month field-study, 1430.75 hours of focal data and additional ad libitum data were collected on all males over 4 years of age (N = 15) in four groups of white-faced capuchins in Santa Rosa National Park, Costa Rica. I also make use of the behavioral and demographic data collected on these monkeys since 1984. Male natal emigration in white-faced capuchins appears to occur in response to an attraction to extragroup males or dispersing coresident males, while secondary emigration results from an attraction to extragroup mates. Once

males reach adulthood they change groups approximately every four years and parallel dispersal (i.e. dispersing with group mates or into groups containing familiar males) remains high even during secondary migrations. Parallel dispersal enables males to retain familiar allies during group transfers and appears to influence male relationships within groups. The number of months males have resided together was a significant factor in predicting male affiliative relationships within groups. Group size was also significantly associated with affiliative interactions among coresident males; i.e. males residing in small groups were more affiliative than male residing in larger groups. The effect of male emigration on the vigilance of coresident males indicated that additional males within groups confer both costs and benefits. Costs relate to an increased amount of time devoted to monitoring the social environment when additional coresident males are present. Benefits relate to the finding that some males are able to devote less time to non-social vigilance (vigilance for predators and conspecifics) when additional males are present in the group. However, the vigilance behavior of males, particularly non-social vigilance, is highly variable and influenced by multiple factors (e.g. season).
Localización: Biblioteca OET: NBINA-8356.

Publicación no.: 268 **Molecular evolution, social structure, and phylogeography of the mantled howler monkey (Alouatta palliata)** *[Evolución molecular, estructura social y filogeografía de los monos congo (Alouatta palliata)]* / Ellsworth, J.A. (Truckee Meadows Community College. Department of Biology, 7000 Dandini Boulevard, Reno, NV 89512-3999, US <E-mail: jellsworth@tmcc.edu>). Reno, NV: University of Nevada, 2000. 179 p. ISBN: 0-599-92324-5. Dissertation, Ph.D., University of Nevada, Graduate School, Reno, NV (USA).
My dissertation is an examination of genetic organization at a variety of scales. I discovered microsatellite loci in mantled howler monkeys (Alouatta palliata) and used them to investigate the evolutionary relationships among Alu repeats, the most common short interspersed nuclear element (SINE) in the human genome. I used genotype data to assess how mantled howler monkey social organization and dispersal pattern influence the distribution of genetic diversity at a local scale. I estimated the phylogenetic relationships among populations of mantled howler monkeys with respect to two other howler species to infer the colonization history of Central America by these monkeys. By developing the first microsatellite loci from a New World primate genome, I was able to examine the association between microsatellite loci and Alu elements in a novel taxon. Microsatellite loci in mantled howlers were found adjacent to Alu elements at the same rate as is found in humans, suggesting similar evolutionary processes across anthropoid primates at these sites. My phylogenetic analyses show that the common practice of estimating evolutionary history from consensus sequences does not always agree with the relationships revealed via analyses of individual sequences. I found that the social organization and bisexual dispersal pattern exhibited by mantled howler monkeys results in near genetic panmixia at the local level. The genotype analyses also indicated that alpha males do not have exclusive reproductive access to group females and that there may be an unexpectedly high incidence of adoption of infants by adult females in this species. This population exhibited extremely low levels of genetic diversity. The phylogeographic analyses indicate that mantled and black howler monkeys represent independent invasions into Central America. The unexpected genetic distinctiveness of black howlers support their previously controversial species designation. Mantled howlers most likely colonized Central America via the Isthmus of Panama, and the extraordinarily low levels of genetic variability north of this point suggest that there was an historically small effective population in this region.
Localización: Biblioteca OET: NBINA-8378.

Publicación no.: 269 **Mantled howler population of Hacienda La Pacífica, Costa Rica, between 1991 and 1998: Effects of deforestation** *[Población de monos congo de la Hacienda La Pacífica, Costa Rica, entre 1991 y 1998: Efectos de la deforestación]* / Clarke, Margaret R; Crockett, C.M; Zucker, E.L; Zaldívar-Ruiz, María Eugenia. (Central Washington University. Department of Anthropology, Ellensburg, WA 98926, US <E-mail: clarkem@cwu.edu> <E-mail: crockett@u.washington.edu> <E-mail: zucker@loyno.edu> <E-mail: zaldivar@biologia.ucr.ac.cr>).
En: American Journal of Primatology (ISSN 0275-2565), v. 56, no. 3, p. 155-163. 2002.
A survey of the mantled howler (Alouatta palliata) population on Hacienda La Pacífica, Guanacaste, Costa Rica, was done in July and August of 1998 to determine population parameters following deforestation due to major canal construction between 1990 and 1994. The survey was carried out in a manner identical to our 1991 survey and consisted of a single pass and two re-surveys of all forested areas of the farm. As canal construction effectively increased fragmentation of the habitat, we predicted decreased population and group size over this time. Results indicated that between the 1991 and 1998 survey, group size decreased but not significantly, and there were significantly fewer adult males and adult females per group. Population size, however, remained unchanged as there was an increase in animals in the immature age classes. An increase in the infant to adult female ratio suggests a stable or even expanding population, which could represent recovery from the initial disturbance of deforestation. Thus, despite changes in the forest and land use patterns, the area now appears to support the same number of howlers as found in previous surveys.
Localización: Biblioteca OET: S8336. NBINA-175.

Publicación no.: 270 **Responses to deforestation in a group of mantled howlers (Alouatta palliata) in Costa Rica** *[Respuestas a la deforestación en un grupo de monos congo (Alouatta palliata) en Costa Rica]* / Clarke, Margaret R; Collins, D.A; Zucker, E.L. (Central Washington University. Department of Anthropology, Ellensburg, WA 98926, US <E-mail: clarkem@cwu.edu> <E-mail: zucker@loyno.edu>).
En: International Journal of Primatology (ISSN 0164-0291), v. 23, no. 2, p. 365-381. 2002.
To evaluate the effects of partial deforestation of the home range of a group of free-ranging howlers on Hacienda La Pacífica, Costa Rica, we compared activity patterns, social interactions, daily travel lengths, group sizes and migration patterns before, during, and after habitat destruction. Immediate responses were a decrease in social interactions and increase in start to travel. Long-term responses included an increase in feeding time and longer daily path length. The long-term responses were associated with the adjustment to a new home range which was longer and narrower, with the patchiest resources at the furthest end points. Group size decreased due to a significant decrease in adult males and females and a significant increase in infant deaths between the predeforestation period and the deforestation/postdeforestation periods. Significant increase in adult female deaths/emigration continues, though emigration of immatures remains unchanged. Reduced group size could be due to reduced resources or disturbed migration routes throughout the farm due to the construction of a major canal system.
Localización: Biblioteca OET: S8337. NBINA-271.

Publicación no.: 271 **Meat and the early human diet: insights from neotropical primate studies** *[Carne y la dieta humana primitiva: comprensión a partir de los estudios de primates neotropicales]* / Rose, L.M.

(University of British Columbia. Department of Anthropology, 6303 NW Marine Dr, Vancouver, BC V6Y 1Z1, CA <E-mail: lrose@interchange.ubc.ca>).
En: Meat-eating & human evolution. Stanford, C.B. & Bunn, H.T. (eds.) New York: Oxford University Press, 2001. p. 141-159. ISBN: 0-195-1313-98.
Introduction: The inclusion of meat as a regular part of the diet has long been seen as a significant development in human evolution, affecting patterns of land use, tool development, social interaction, communication, and cognitive development. By the 1960s, hunting and its behavioral and technological legacy had gained broad acceptance as the key human adaptation. However, studies of contemporary hunter-gatherers such as the !Kung (Lee 1979, 1984) and changes in attitudes shaped largely by the growth of feminist awareness in the 1970s increasingly emphasized the importance of plant foods in the human diet and the predominant role of women in providing these foods (Tanner 1979; Dahlberg 1981; Fedigan 1986). In addition, the development of modern, hypothesis-driven archaeology was accompanied by a tendency to downplay the cognitive capacity of early hominids, particularly their ability to hunt large prey (e.g., Binford 1981, 1985). Meticulous work at sites such as Olduvai and Koobi Fora confirmed the associations between carcass remains, tools, and PlioPleistocene hominids, but by the mid 1980s, meat procurement strategies were increasingly cast in terms of scavenging rather than hunting (reviewed in Rose and Marshall 1996). However, interpretations have now begun to shift back toward a mixed strategy of hunting and scavenging, as initially proposed by Leakey (1971) and Isaac (1971) with an emphasis on "power scavenging" rather than marginal, passive scavenging (Bunn 1996, this volume; Tappen this volume). There have also been some recent attempts to integrate nonhuman primate studies and behavioral ecological principles into reconstructions of early hominid meat-eating and land use (Rose and Marshall 1996; Stanford 1996).
Localización: Biblioteca OET: S8205.

Publicación no.: 272 **Mamíferos del Area de Conservación Arenal, Costa Rica** *[Mammals of the Arenal Conservation Area, Costa Rica]* / Sáenz-Méndez, Joel Cris; Carrillo-Jiménez, Eduardo; Wong-Reyes, Grace; Tucker, J (trad.); Suárez-Cowley, A (il.). (Universidad Nacional. Programa Regional de Maestría en Manejo de Vida Silvestre, Apdo. 1350, Heredia, CR <E-mail: jsaenz@una.ac.cr> <E-mail: ecarrill@racsa.co.cr> <E-mail: wongr@forwild.umass.edu>). Santo Domingo de Heredia: Instituto Nacional de Biodiversidad (INBio), 1999. 130 p. ISBN: 9968-702-28-5.
En esta guía de campo se presenta una explicación de las generalidades del Area de Conservación Arenal, en la que se estima que hay cerca de 130 especies de mamíferos de las cuales son descritas las 45 de mayor importancia para el visitante. Se enfatiza aquí la importancia hidrológica de la región, la presencia de volcanes y reservas ecológicas, la historia, los principales ríos y carreteras, cuerpos de agua y corredores biológicos que se han establecido en esta región, la cual incluye desde zonas cálidas costeras hasta el bosque nuboso de Monteverde, tan frecuentado por los turistas. Se proporciona un mapa de las zonas en que está dividida el área. Las páginas 16 a 18 presentan la lista de especies y para cada una se presenta (igual que en el resto de la serie) un logotipo, el nombre científico, el nombre común, la descripción corporal, la distribución geográfica, el hábitat general, el comportamiento, el estado de conservación de la especie, notas adicionales de todo tipo y detalles de los lugares donde se le puede encontrar. La obra incluye al final un glosario y una bibliografía. En esta obra la calidad de las ilustraciones es buena y, aunque el lector difícilmente lo notará, la persona que ilustró no es la misma que en Mamíferos de Costa Rica, ilustrado por Afina Zuares Cowley. Mamíferos del Parque Nacional Corcovado y Mamíferos del Area de Conservación Arenal fueron ilustrados por Jennifer Tucker.

Considerando la utilidad y calidad de esta obra así como las demás de la serie, el precio es muy razonable y recomiendo su compra a todos los interesados. (Reseña del libro por Julián Monge-Nájera).
Localización: Biblioteca OET: 599.097.286 S127mPVB.

Publicación no.: 273 **An expanded test of the ecological model of primate social evolution: Competitive regimes and female bonding in three species of squirrel monkeys (Saimiri oerstedii, S. boliviensis, and S. sciureus)** *[Un análisis expandido del modelo ecológico de la evolución social de los primates: Regímenes competitivos y obligaciones de las hembras en tres especies de monos tití (Saimiri oerstedii, S. boliviensis y S. sciureus)]* / Boinski, Sue; Sughrue, K; Selvaggi, L; Quatrone, R.P; Henry, M; Cropp, S.J. (University of Florida. Department of Anthropology, 1112 Turlington Hall, POB 117305, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu> <E-mail: cropp@pcgwustl.edu>).
En: Behaviour (ISSN 0005-7959), v. 139, no. 2/3, p. 227-261. 2002.
Two critical premises underlie prevalent interpretations of the ecological basis of variation among female primate social behavior. The first is that food distribution affects competitive regimes for food experienced by females. This leads, in turn, to the second premise that these competitive regimes generate predictable patterns of female social relationships and residence. Long-term field studies of S. oerstedii at Corcovado National Park, Costa Rica and S. boliviensis at Manu, Peru (Mitchell et al., 1991) provide what is widely considered as the most powerful support to date for such an ecological model. The data front these two squirrel monkey field studies are entirely consistent with the various incarnations of the van Schaik (1989) and associates' models linking, a cascade of predictions on within- and between-sex social bonds and dispersal patterns to the presence or absence of significant within-group contest competition for food. A key premise of these models is that females tolerate the significant costs of within-group food competition because of the advantages group living affords in reduction of predation risk. In the current study, comparable ecological and behavioral data from long-term field observations of known individuals of S. sciureus at Raleighvallen, Suriname are used to expand the test of ecological models to three species. In all three sites female within-group direct competition regimes clearly follow from the distribution of fruit patches. In Suriname, however, S. sciureus females exhibit weak social bonds and rarely form coalitions with other females despite frequent, intense, even Vicious within-group direct food competition. Although all males appear to emigrate from their natal troops, some females do as well, probably exceeding about 10% of the female group membership annually. Yet the lack of consistency with the expectations of the ecological model is only superficial. In fact, S. sciureus is the exception that corroborates the general robustness of predictions made in the ecological model. The fruit patches defended by S. sciureus, although small, are usually dense, extremely rewarding and easily defended by the individual with the greatest resource holding potential. Female coalitions to defend fruit patches Would not be stable, as one female call ultimately prevails in monopolizing the resource. The lack of reliable foraging benefits to females who form coalitions and the consequent lack of strong female social bonds among female S. sciureus are completely concordant with the logical rationale underlying the ecological model.
Localización: Biblioteca OET: NBINA-343.

Publicación no.: 274 **Field anesthesia and capture techniques of free-ranging mantled howling monkeys (Alouatta palliatta) in Costa Rica** *[Anestesia en el campo y técnicas de captura de monos congo en libertad (Alouatta palliatta) en Costa Rica]* / Larsen, R.S; Moresco, A; Glander, Kenneth E. (North Carolina State University. College of Veterinary Medicine, 4700 Hillsborough St., Raleigh, NC

27606, US <E-mail: rslarsen@unity.ncsu.edu> <E-mail: amoresco@unity.ncsu.edu> <E-mail: glander@acpub.duke.edu>). Proceedings of the American Association of Zoo Veterinarians Annual Conference, Columbus, Ohio USOctober 9-14, 1999. , 1999. p. 243-247.
In July of 1998, 83 anesthetic procedures were performed on 68 free-ranging mantled howling monkeys (Alouatta paliatta) in Costa Rica. Animals were safely anesthesized using 42 ± 8 mg/kg of Telazol administered with a Pneu-dart system. Morbidity was associated with inappropriate dart placement and injection of infants and juveniles with adult dosages. All animals recovered with supportive care and there were no mortalities.
Localización: Biblioteca OET: S10690. NBINA-9089.

Publicación no.: 275 **White-faced monkey (Cebus capucinus) ecology and management in neotropical agricultural landscapes during the dry season** *[Ecología y manejo de los monos carablanca (Cebus capucinus) en paisajes agrícolas neotropicales durante la estación seca]* / Williams, H.E; Vaughan-Dickhaut, Christopher. (University of Wisconsin. School of Veterinary Medicine, Madison, WI 53706, US <E-mail: mrssoupah@aol.com> <E-mail: cvaughan@facstaff.wisc.edu>).
En: Revista de Biología Tropical (ISSN 0034-7744), v. 49, no. 3/4, p. 1199-1206. 2001.
Habitat use by a Cebus capucinus troop was studied in an agricultural landscape during late dry season (March-April 1994) in northwest Costa Rica. Riparian forests, palm canals and living fence rows accounted for 82% of observations significantly more than the other six habitats present. The study troop consumed 24 species of plants and five anunals. Feeding concentrated on the introduced African oil palm (Elaeis guineensis) (33.6%) and mango (Mangifera indica) (27.2%), found mostly in palm canals and mango orchards respectively. The troop rested between 0930-1330 hr and fed and moved between 0530-0930 hr and 1330-1730 hr. Living fence rows were used as travel routes or corridors and less intensively for other activities.
Localización: Biblioteca OET: R.

Publicación no.: 276 **Comparison of census methods to record density and group size of Ateles geoffroyi, Alouatta palliata, and Cebus capucinus in lowland tropical rainforest in Costa Rica** *[Comparación de métodos de censos para registrar la densidad y tamaño de los grupos de Ateles geoffroyi, Alouatta palliata y Cebus capucinus, en el bosque tropical lluvioso de las tierras bajas en Costa Rica]* / Pruetz, Jill D; Leasor, H.C; Teaford, Mark F (ed.). (Iowa State University. Department of Anthropology, 324 Curtiss Hall, Ames, IA 50011, US <E-mail: mteaford@jhmi.edu>). Sixty-Ninth Annual Meeting of the American Association of Physical Anthropologists, Adam's Mark Hotel, San Antonio, Texas USApril 10-April 15, 2000.
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 30, p. 255. 2000.
(Abstract only). Besides allowing researchers to assess primates' survival potential, accurate censusing methods provide demographic data on groups or populations that are not fully habituated. We compare the effects of census methods, contact times with groups, and species differences on group encounters and group counts for spider monkeys, howling monkeys, and capuchin monkeys in Costa Rica. In June-August, 1999, sweep transect and walking censuses along established trails were used to assess primate populations in three forest fragments that differed in size and degree of disturbance (i.e. from logging) at La Suerte Biological Field Station. Groups were encountered 152 times during 318 field hours. During 98 hours (on 19 days) of walking censuses, including fruiting tree vigils, and 115 hours (on 28 days) devoted to vegetation analyses, primate groups were contacted 79 times. Contact with groups ranged

from less than one minute to 210 minutes. On 12 days of sweep transects (105 hours) primate groups were contacted 73 times for approximately 30 minutes each contact. Group counts increased with duration of contact time, up to 120 minutes. Spider monkeys were contacted 18 times walking censuses and six times in sweep transects. Howlers were contacted 38 times in walking censuses and 53 times in sweep transects, and capuchins were contacted 19 times in walking censuses and 10 times in sweep transects. Per hour, sweep transects were more efficient in locating howlers, but both census methods were equally successful in locating spider and capuchin groups. Other factors that affect primate density and group size are forest fragment size, degree of forest disturbance, and habitat type availability at La Suerte.
Localización: Biblioteca OET: NBINA-472.

Publicación no.: 277 **Variability in howler monkey choice of sleeping and resting sites** *[Variabilidad en la escogencia de los sitios para dormir o descansar por parte de los monos congo]* / Welker, B.J; Hunt, G.V; Teaford, Mark F (ed.). (State University of New York. Department of Anthropology, 1 College Circle, Geneseo, NY 14454, US <E-mail: mteaford@jhmi.edu>). Sixty-Ninth Annual Meeting of the American Association of Physical Anthropologists, Adam's Mark Hotel, San Antonio, Texas USApril 10-April 15, 2000.
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 30, p. 318. 2000.
(Abstract only). Data for this study were collected while observing one group of free-ranging howler monkeys in the Santa Rosa National Park, Area de Conservación Guanacaste, Costa Rica. The study took place in dry tropical forest during the dry season in early 1999. At this time of year, days are typically sunny and hot and most trees in the study area lose many or all of their leaves. Data were collectd using resting animals during their long afternoon rest period and again when they retired for the night. The following variables were measured: (1) tree species, architecture, size, and percent foliage (2) monkey height, distance from the trunk, distance to nearest neighbor, and whether the individual was positioned under foliage, and (3) substrate characteristics. Results indicate that monkeys position themselves well under the densest portion of the tree canopy by day to avoid the sun and heat. At night, they spread out onto smaller terminal branches in open canopy trees.
Localización: Biblioteca OET: NBINA-473.

Publicación no.: 278 **The effects of postural regulation on the hand-use patterns of free-ranging white-faced capuchins (Cebus capucinus) in Panama** *[Los efectos de la regulación de la postura en los patrones de utilización de la mano en monos carablanca (Cebus capucinus) en libertad en Panamá]* / Panger, M.A; Wolfe, L.D. (The George Washington University. Department of Anthropology, 2110 G St NW, Washington, DC 20052, US <E-mail: panger@gwu.edu>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 28, p. 217. 1999.
(Abstract only). Recent research indicates that free-ranging capuchins exhibit a right-handed trend for behaviors requiring a high degree of postural regulation (Panger 1998). The primary aim of this project was to further examine the potential influence of postural regulation on capuchin hand-use patterns. Postural regulation and its influence on hand preference in nonhuman primates have never been directly tested under free-ranging conditions. Two months (from May 18-July 17, 1998) were spent on BCI, Panama, collecting data on 10 white-faced capuchins (Cebus capucinus) (4 adult males/6 adult females). Over 215 contact hours were spent with the monkeys, and a total of 1315 unimanual behaviors were observed and recorded by one of the authors (MP). Because of the short duration of the

project and the relatively dense vegetation on BCI, data were collected using opportunistic follows. A variety of unimanual behaviors were examined, including carry-vertical (CV) and carry-horizontal (CH). Each time a unimanual behavior was observed during a follow, it was recorded along with the hand used, the estimated height of the monkey above the ground, and the object involved. In addition, because CV and CH involve substantial postural regulation, the posture (i.e., tripedal, bipedal, quadrupedal) of a monkey performing these behaviors was also recorded. Initial analysis shows that the hand-use patterns of free-ranging white-faced capuchins on BCI, Panama, (a humid tropical forest) are very similar to those from white-faced capuchins living in Palo Verde National Park, Costa Rica, (a dry tropical forest) (Panger 1998). The exception to this involves the "carry" (CV and CH) data. Unlike at Palo Verde, no clear right-handed trend was observed for "carry" during the study on BCI. Therefore, this study did NOT support the hypothesis that postural regulation influences hand-use patterns in free-ranging capuchins.
Localización: Biblioteca OET: S9633.

Publicación no.: 279 **Mother and infant interactions and infant and nonmother interactions in mantled howling monkeys, Aloutta palliata, from the La Suerte Biological Field Station, Costa Rica and the Ometepe Biological Field Station, Nicaragua** *[Interacciones madre e infante e interacciones infante y no madres en los monos congo, Aloutta palliata de la Estación Biológica de Campo La Suerte, Costa Rica y la Estación Biológica de Campo Ometepe, Nicaragua]* / Torgrimson, B.N. (University of Wisconsin at Stevens Point, Stevens Point, WI 54481, US). Sixty-Eighth Annual Meeting of the American Association of Physical Anthropologists, Columbus, OH USApril 26-May 1, 1999.
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 28, p. 265-266. 1999.
(Abstract only). Differences in early interactions between mothers and infants and nonmothers and infants influence the development of young primates. In particular, the type and quality of adult and infant interaction may affect infant survival (Clarke, 1990; Glander, 1980). The present study examined and compared infant interactions in free ranging mantled howling monkeys, Alouatta palliata, at the Ometepe Biological Field Station in Nicaragua and the La Suerte Biological Field Station in Costa Rica. This study occurred from June through August, 1998 during the wet season in a tropical wet rainforest in northeastern Costa Rica (La Suerte Biological Field Station) and during the wet season of a semideciduous tropical dry forest on the Island of Ometepe in Nicaragua (Ometepe Biological Field Station). Data were collected on mother/infant interaction, nonmother/infant interaction (evaluated by quality of interaction and infant response), proximity to mother, infant activity, and infant independence. Data were collected every 2 minutes using an instantaneous focal animal point sampling technique. A total of 1,318 samples of quantitative data were recorded. In concordance with other research (Clarke, 1990), results indicate that infant proximity to mother decreased substantially with increasing age, whereas, infant independence increased with age. Similarly, time spent feeding (independent of mother) and exploring increased with age. When they occurred, interactions between infant/nonmothers solicited primarily positive responses from the infant (78.6%). There were relatively few injurious interactions (5.7%), and all injurious interactions occurred between infant and adult nonmothers.
Localización: Biblioteca OET: NBINA-9821.

Publicación no.: 280 **Assessment of the howling monkey (Alouatta palliata) population on Hacienda La Pacífica, Guanacaste, Costa Rica** *[Valoración de la población de monos congo (Alouatta palliata) en la*

Hacienda La Pacífica, Guanacaste, Costa Rica] / Clarke, Margaret R; Zucker, E.L; Crockett, C.M; Zaldívar-Ruiz, María Eugenia. (Central Washington University. Department of Anthropology, Ellensburg, WA 98926, US <E-mail: clarkem@cwu.edu> <E-mail: crockett@u.washington.edu> <E-mail: zucker@loyno.edu> <E-mail: zaldivar@biologia.ucr.ac.cr>). Annual Meeting of the American Association of Physical Anthropologists. Sixty-Eighth, Columbus, OH USApril 26-May 1, 1999.
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 28, p. 108-109. 1999.
(Abstract only). A complete survey of the forests of Hacienda La Pacífica was done in July and August, 1998 to assess the present howling monkey population and to compare the results with earlier surveys. Methods were identical to the 1991 survey, including an initial transect survey with all 6 field workers (8 days) and two repeat surveys (10 days); three teams of two workers searched smaller areas on consecutive days to relocate and identify animals. The total population, from the complete survey, was almost identical to 1991 (369 vs. 370). Mean group size was 10.1 (365 animals in 36 groups), which was less than the 1991 mean (12.6). Modal group size was the same (12). Group sizes in 1998 ranged from 4 to 28. Four solitary animals also were found. There were changes from 1991 in the age-sex composition of groups. There were 19% fewer adult males (55 vs. 68 in 1991) and fewer males per social group. There were 17 one-male groups, 18 two-male groups, and only one three-male group. Fewer adult females were located (168 vs. 183 in 1991; 8% decrease), whereas there was a 58% increase in juveniles and infants (133 vs. 84 in 1991). This howler population (total number) has been stable since 1974-76, but the pattern of increased number of social groups, noted in the 1984 and 1991 surveys, continues. In this survey, fewer adult males were located, while the reproductive base of adult females was reduced only minimally. Retention of immatures could be due to changes in arboreal migration routes. Forests have been altered by canal construction and the conversion of pasture land to wet rice production.
Localización: Biblioteca OET: S8333. NBINA-9816.

Publicación no.: 281 **Extraction of DNA and PCR analysis of DNA from free-ranging howling monkey (Alouatta palliata) feces** *[Extracción del ADN y análisis mediante la técnica de reacción en cadena de la polimerasa (PCR) del ADN de las heces de monos congo en libertad (Alouatta palliata)]* / Zhang, X.C; Winkler, L.A; Ferrell, R. (University of Pittsburgh. School of Public Health Pittsburgh, P.O. Box 287, Titusville, PA 15261, US).
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 28, p. 284. 1999.
(Abstract only). The analysis of DNA from fecal specimens offers a noninvasive and easily accessible means of analyzing the genetic diversity and paternal relationships within wild monkey groups. However, there have been a number of problems in extracting DNA from feces, including the limited amount of DNA in the samples, difficulty in degradation and the presence of secondary compounds which function as inhibitors during the process of amplifying DNA via PCR techniques. The latter problem may be further complicated in howling monkeys by their dietary specializations which include substantial quantities of leaves and associated secondary compounds (Glander, 1978). The present paper describes a method of successful DNA isolation and amplification from feces of free-ranging mantled howling monkeys (Alouatta palliata). Fresh fecal samples were collected and stored in ethanol by one of us at La Suerte Biological Research Station, Costa Rica and Ometepe Biological Research Station, Nicaragua in July and December of 1997. DNA was extracted from 12 samples by a protocol modified from Deuter et al. (1995) which uses a stool lysis buffer and potato flour as an absorption matrix for inhibiting compounds during the initial isolation of DNA from the stool specimen; after 12 hours of digestion with protemase K (2.5 mg/ml), DNA was purified using Qiagen kits (Aiagen, Hilden,

Germany) as described by the manufacturer. Initially DNA was amplified via PCR using human microsatellite loci identified for various Platyrrhine species (Ellsworth and Hoelzer, 1997). DNA was successfully amplified in 50% of the fecal samples for 4 of these loci. We processed DNA from all 12 samples a second time using PCR technique for five additional loci identified for the mantled howling monkey (Ellsworth and Hoelzer, 1997) and modified the procedure to include double amplification during the PCR process. This second PCR amplification yielded DNA for 83% (10/12) of the samples for one of these five markers but none for the remainder. DNA from humans and captive howling monkeys was used as a control in all procedures. Analysis of DNA from feces offers great potential for genetic analysis of wild monkey populations. However, although we successfully isolated DNA, we were unable to amplify it for all known markers. Our best results were obtained with loci which had the shortest PCR fragment length (154, Ellsworth and Hoelzer, 1997). The small amount of DNA present in fecal material, the difficulty in preventing degradation, and the presence of inhibitors continue to be a problem. Because of DNA degradation, successful genotyping of howling monkeys from fecal samples may require that amplification primers be designed to amplify sites of interest in fragments of 150bp or less.
Localización: Biblioteca OET: NBINA-471.

Publicación no.: 282 **Diet, daily movement, and social behavior of two reintroduced spider monkeys (Ateles geoffroyi) in Curú Wildlife Refuge** *[Dieta, movimiento diario y comportamiento social de dos monos colorado (Ateles geoffroyi) reintroducidos en el Refugio de Vida Silvestre Curú]* / Hopper, R.S. San José: American Colleges of the Midwest Tropical Field Research, 1996. (No abstract).
Localización: Biblioteca del BIODOC.

Publicación no.: 283 **Patterns of home range use by Ateles geoffroyi and Cebus capucinus at La Selva Biological Station, northeast Costa Rica** *[Patrones de uso del hábitat por los monos colorado (Ateles geoffroyi) y carablanca (Cebus capucinus) en la Estación Biológica La Selva, noreste de Costa Rica]* / Campbell, A.F. (Washington University. Department of Anthropology, Campus Box 1114, One Brookings Drive, St. Louis, MO 63130-4899, US <E-mail: aimee.campbell@mailcity.com>).
En: American Journal of Primatology (ISSN 0275-2565), v. 33, no. 3, p. 199-200. 1994.
(Abstract only) Variation in the use of space is a topic of primary importance in comparative ecological studies of sympatric primate species. Here I compare patterns of home range use by Ateles geoffroyi and Cebus capucinus observed over a 16-month field study in northeastern Costa Rica. Overall home ranges for both species were calculated using 1-hectare (ha) quadrats. The Ateles focal community used a home range of approximately 115 ha and the Cebus group used a home range of 137 ha, with 40% shared by both primates. However, the size of the home range and cot areas, daily path lengths, and spatial patterns of intensity of use varied greatly over time for bot species. Thus, both monthly and overall results are presented. Differential use of the home range may be related to dispersion and availability of preferred fruit resources. Geographic Information Systems (GIS) tools were used to calculate home range by several methods, in order to illustrate the degree to which home range estimates can vary with the method used. I compare home range estimates based on 0.25-ha, 1-ha, and 4-ha quadrats, minimum convex polygon methods, and buffer analyses, using buffers of varying sizes around feeding trees, sighting points, and daily paths. Research supported by the United States Information Agency (Fulbright Fellowship), Organization for Tropical Studies, Sigma Xi, and Explorers Club.
Localización: Biblioteca OET: S8561.

Publicación no.: 284 **Food processing in different social groups of Alouatta palliata** *[Procesamiento del alimento en diferentes grupos sociales de monos congo, Alouatta palliata]* / Teaford, Mark F; Yamashita, Nayuta; Aldridge, K; Glander, Kenneth E. (The Johns Hopkins University. School of Medicine, Department of Cell Biology and Anatomy, Baltimore, MD 21205, US <E-mail: mteaford@jhmi.edu> <E-mail: glander@duke.edu>). Sixty-Eighth Annual Meeting of the American Association of Physical Anthropologists, Columbus, Ohio USApril 26-May 1.
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 28, p. 263-264. 1999.
(Abstract only). Teeth are a crucial link in the processing of foods by most mammals. Work by Kay and others has shown that differences in tooth shape can be correlated with differences in diet. However, all of that work has been based on analyses of unworn or slightly worn teeth. As tooth shape changes significantly with wear, one might ask if dental function also changes with wear. The purpose of this study was to see if older adult animals showed differences in food processing ability as compared with younger adult animals. Adult mantled howling monkeys (Alouatta palliata) were captured as described by Glander et al. (1991) at Hacienda La Pacífica near Cañas, Costa Rica. Dental impressions were taken from anesthetized animals, as were fecal samples and samples of stomach contents. Fecal samples and stomach contents were each washed through a progressive series of sieves with mesh diameters of 4 mm, 1 mm, 0.5 mm and 0.3 mm. Particles caught in each sieve were dried and weighed, with the weight caught in each sieve being treated as a percentage of the total weight of particles caught. Percentages for each sieve size were then compared between animals of different ages and between animals from different social groups. Results indicate that, while older animals may have larger particle sizes in their fecal samples, and in their stomach contents, than do younger animals, animals from different social groups show far greater differences than those demonstrated between animals of different ages. It remains to be seen if these differences are maintained through changes in food availability in different seasons.
Localización: Biblioteca OET: NBINA-451.

Publicación no.: 285 **Activity budget, diet, and patterns of resource utilization of the mantled howling monkey (Alouatta palliata) in Ometepe, Nicaragua** *[Presupuesto de actividad, dieta y patrones de utilización de los recursos en el mono congo (Alouatta palliata) en Ometepe, Nicaragua]* / Travers, C.D. (State University of New York. Department of Anthropology, Stony Brook, NY 11794, US). Sixty-Eighth Annual Meeting of the American Association of Physical Anthropologists, Columbus, Ohio USApril 26-May 1.
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 28, p. 267. 1999.
(Abstract only). Phenological variation in the availability and distribution of food resources in tropical forests has a considerable influence on primate behavior. In this study, I examine the activity budget, diet, and patterns of resource utilization in the mantled howling monkey (Alouatta palliata) during dry and wet season study periods. This research was conducted in a semi-deciduous dry tropical forest at Estación Biológica de Ometepe, Nicaragua during December 1997-January 1998 (dry season) and July-August 1998 (wet season). Quantitative data were collected using instantaneous focal animal sampling at two-minute intervals. Alouatta palliata was observed for a total of 65.8 hours (23.8h dry season, 42h wet season). The results indicate that the howling monkey activity budget was dominated by resting (79.3%). Activities such as feeding/foraging (12.5%) and traveling (6.9%) accounted for less than 20% of all observations. Paired tests revealed no significant differences in the activity budget between the dry

and wet season samples. There was evidence, however, of seasonal variation in the consumption of different plant parts. During the dry season the howling monkeys' diet was dominated by the use of flowers (45.8%) and flower buds (20. 3%). Other food categories such as leaves (15.3%), fruit (8.5%), and petioles (6.8%) were eaten less frequently. In the wet season, however, leaves accounted for (76.6%) of feeding records. The remainder of the diet consisted primarily of fruit (18.9%). Plant families exploited during the dry season were, in many cases, also exploited in the wet season. Howling monkey dietary patterns at Ometepe appeared to be consistent with published data from other howling monkey populations studied in Costa Rica, Panama, and Mexico, suggesting the same dietary niche (Milton, 1980). Additional relationships between howling monkey foraging behavior and the distribution and exploitation of feeding trees are discussed.
Localización: Biblioteca OET: S9634.

Publicación no.: 286 **Primate conservation: the prevention of disease transmission** *[Conservación de primates: la prevención de transmisión de enfermedades]* / Wallis, J; Lee, D.R. (Oklahoma University Health Sciences Center. Department of Psychiatry and Behavioral Sciences, P.O. Box 26901, Oklahoma City, OK 73190, US <E-mail: janette-wallis@ouhsc.edu>).
En: International Journal of Primatology (ISSN 0164-0291), v. 20, no. 6, p. 803-826. 1999.
We address the strategies to prevent disease transmission from human to nonhuman primates in natural settings. Some field research methods, such as gaining close proximity for observation, provisioning for habituation, or reintroducing for repopulation, may place primate subjects at risk for acquiring human-carried diseases. Additional risks arise through inadequate waste disposal or nonhygienic conditions of humans residing at the study site. We describe several disease outbreaks at primate field sites, emphasizing the need for proper protocols to diagnose, to treat, and to prevent recurrence. Finding solutions to the disease transmission problem requires effecting change in the behavior and policies of many individuals, including field researchers, veterinarians, human health care providers, park personnel, government officials, local villagers, and tourists. The prevention of exposure to infectious disease is an important, fundamental aspect of primate conservation; the assurance of good health and longevity in wild primate populations is paramount to the more traditional conservation issues of poaching control and forest protection.
Localización: Biblioteca OET: NBINA-474.

Publicación no.: 287 **Validity of measures assessing reproductive status of female howling monkeys (Alouatta palliata) in Costa Rica** *[Validez de las medidas para valorar el estado reproductivo de la hembra de los monos congo (Alouatta palliata) en Costa Rica]* / Zucker, E.L; Clarke, Margaret R; Putnam, P.M; Harrison, R.M. (Loyola University. Department of Psychology, New Orleans, LA 70118, US <E-mail: zucker@loyno.edu> <E-mail: clarkem@cwu.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 33, no. 3, p. 255. 1994.
Multiple measures of reproductive status of female mantled howlers were obtained to assess further the validity of these measures. Blood and fecal samples (for stradiol and progestorone assoys) were obtained from 50 females captured for dental, morphometric, and population studies. Vaginal swabs were done for cytological study and genital swelling sizes were measured from photographs. Fecal and serum estradiol values were correlated significantly (p0.02), as were fecal and serum progesterone values (p0.01). Fecal estradiol values of pregnant, lactating, and cycling females were significantly different (p0.05), as were fecal progestoren values (p0.005); mean values for both hormones were

highest for pregnant females and lowest for lactating females. As cycling females were in all phases of the cycle, vaginal cytology was used to subcategorize these females. Mean serum estradiol (p0.03) and progesterone (p0.02) values were significantly higher in luteal phase females (n.
Localización: Biblioteca OET: S8338.

Publicación no.: 288 **Ecological niche differences between Alouatta palliata and Cebus capucinus comparing feeding modes, branch use, and diet** *[Diferencias en nicho ecológico entre los monos congo (Alouatta palliata) y carablanca (Cebus capucinus) comparando los modos de alimentación, uso de las ramas y dieta]* / Tomblin, D.C; Cranford, J.A. (Virginia Polytechnic Institute & State University. Department of Biology, College of Arts & Sciences, Blacksburg, VA 24061-0406, US).
En: Primates (ISSN 0032-8332), v. 35, no. 3, p. 265-274. 1994.
During the wet season, two sympatric species of primates, Alouatta palliata (mantled howlers) and Cebus capucinus (white-faced capuchins), were assayed for feeding niche differences through behavioral and habitat use patterns at Refugio de Fauna Silvestre Curú in Costa Rica. Differences in the use of relative diameter and thickness of branches and five different modes of feeding were compared between the species. White-faced capuchins used more manipulative modes of obtaining food, a wider range of arboreal habitat, and had a more diverse diet than mantled howlers. Mantled howlers may be more restricted than white-faced capuchins in arboreal microhabitat use due to their possible need for large support branches during feeding bouts and resting periods. We report that differences in feeding behaviors, diet, and arboreal habitat use seem to play a large role in separating these species niches.
Localización: Biblioteca OET: S8582.

Publicación no.: 289 **Visibility, group size, vigilance, and drinking behavior in coati (Nasua narica) and white-faced capuchins (Cebus capucinus): experimental evidence** *[Visibilidad, tamaño del grupo, vigilancia y comportamiento para beber en los pizotes (Nasua narica) y monos carablanca (Cebus capucinus): evidencia experimental]* / Burger, Joanna. (Rutgers University. Division of Life Sciences, 604 Allison Road, Piscataway, NJ 08854-8082, US <E-mail: burger@biology.rutgers.edu>).
En: Acta Ethologica (ISSN 0873-9749), v. 3, p. 111-119. 2001.
I studied the role of visibility on the vigilance behavior of coatis Nasua narica and white-faced capuchins Cebus in a dry tropical forest in the Palo Verde National Park, Costa Rica. Vigilance and drinking behavior were observed at a waterhole where the water surface was 2-3 m below ground level for 5 days. Then I provided an artificial water pan of similar size adjacent to the natural waterhole, but level with the ground, and observed the same behaviors. Animals drinking at the natural waterhole had to descend below ground where they could not see above ground, while those drinking from the experimental pan could see approaching predators. Variations in drinking and vigilance behavior were accounted for by site (natural vs. experimental water source) and group size, with site contributing most significantly to variations. Both coatis and capuchins decreased their time to wait at the forest edge before emerging to drink, had more drinking bouts, had longer bout lengths, and decreased their vigilance behavior when they drank at the ground-level waterhole compared to the one below the surface, where their visibility was obscured. For both species, total drinking time increased, and vigilance decreased, with group size. This study demonstrated experimentally that visibility and group size influence drinking and vigilance behaviors.
Localización: Biblioteca OET: S8331. NBINA-450.

Publicación no.: 290 **Sex and age class differences in the foraging behavior of free-ranging white-faced capuchins (Cebus capucinus) in Costa Rica** *[Diferencias entre sexos y clases de edades en el comportamiento de forrajeo de monos carablanca silvestres (Cebus capucinus) en Costa Rica]* / Panger, M.A; Teaford, Mark F (ed.). (The George Washington University. Department of Anthropology, 2110 G St NW, Washington, DC 20052, US <E-mail: panger@gwu.edu> <E-mail: mteaford@jhmi.edu>). Sixty-Ninth Annual Meeting of the American Association of Physical Anthropologists, Adam's Mark Hotel, San Antonio, Texas, US. April 10-April 15, 2000.
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 30, p. 245. 2000.
(Abstract only). The diet and foraging behavior of capuchins (Cebus spp.) vary significantly, both intra- and interspecifically. Determining how age/ sex class differences influence this variability requires comparative data across research sites. During an 11-month study, I examined the foraging behavior of free-ranging capuchins at a previously unstudied Cebus site, and investigated the relationship between age/sex class and variability in foraging behavior. Foraging data were collected on three troops of white-faced capuchins (Cebus capucinus) at Palo Verde National Park, Costa Rica, using focal animal sampling techniques. During focal samples, data pertaining to substrate use, food processing and acquisition behaviors, and type of food ingested (i.e. animal or plant matter) were collected. The results indicate that adult males and females differ in several aspects of their foraging behavior: 1) males spend a greater percent of total eating time eating animal prey (primarily insects); and 2) males and females differ in substrate use (i.e. males spend more time on the ground and lower in the trees than females). Aspect (1) is correlated with differential rates of behaviors associated with catching insects (i.e. males exhibit higher rates of grab, peel bark, probe, and unroll leaves). Females, however, show higher rates of "tap" (which is often used to search for insect prey).When comparing juveniles to adults, juveniles spend more time eating and are overall more "active" than adults (i.e. they exhibit higher rates of break branch, clasp, pounce, and unroll). The juvenile substrate-use pattern resembles the adult female pattern. The results are similar to results reported from other Cebus sites. This indicates that, amid the variability in Cebus foraging behavior, there are recognizable patterns. The possible reasons for the differences seen in the foraging behavior across age/sex classes will be discussed.
Localización: Biblioteca OET: NBINA-469.

Publicación no.: 291 **Social interactions between wild infant and adult male white-faced capuchin monkeys (Cebus capucinus)** *[Interacciones sociales entre infantes y machos adultos de monos carablanca silvestres (Cebus capucinus)]* / Mackinnon, Katherine C; Teaford, Mark F (ed.). (Saint Louis University. Department of Sociology and Criminal Justice and Center for International Studies, St Louis, MO 63103, US <E-mail: mackinn@slu.edu> <E-mail: mteaford@jhmi.edu>). Sixty-Ninth Annual Meeting of the American Association of Physical Anthropologists, Adam's Mark Hotel, San Antonio, Texas USApril 10-April 15, 2000.
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 30, p. 217. 2000.
As a part of a larger study on Cebus capucinus immature social development, I examined interactions between infants of both sexes and adult males in two social groups of capuchins in the distinctly seasonal tropical dry forest of Santa Rosa National Park, Costa Rica. Approximately 400 hours of data were collected in the form of ten minute focal samples, using a behavioral repertoire designed for this study. Spatial association patterns were determined from spatial proximity scores (to the focal animal) at the beginning and end of each ten minute focal sample. In general, C. capucinus infants in the wild are classified as "dependent" from birth to six months, and "independent" from six months to one year,

although there is a variation in development patterns. I documented the range of affiliative behaviors between infants and adult males, including what factors drew the attention of the infants to the adult males, and vice versa, and the effect the infants have on their social interactions with adult males in the social group. In this presentation, I will focus on the influence of the mother's sexual behavior on interactions between the infant and specific adult males. In addition, certain adult males show preferences for interacting with specific females, in terms of grooming and proximity rates. This directly affects the frequency and kinds of interactions between adult males and infants. The results of this investigation indicate that there is much variation in infant-adult male social interactions, and that these interactions are influenced by the dominance rank of the adult males and group composition factors (i.e. age/sex classes). Analyzed data will be discussed in light of hypotheses that are commonly invoked to explain such behavioral interactions in nonhuman primates, kinship recognition and kin selection, and the acquisition of social skills.
Localización: Biblioteca OET: NBINA-449.

Publicación no.: 292 **The Costa Rican squirrel monkey: waltzing toward extinction** *[El mono tití costarricense: fácilmente hacia la extinción]* / Boinski, Sue. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 33, no. 3, p. 196-197. 1994.
(Abstract only) Costa Rican squirrel monkeys (Saimiri oerstedii) are living life on the edge. In the only preserves that contain squirrel monkeys, the situation appears grim; possibly as many as 500 S. o. oerstedii remain in Parque Nacional Corcovado, and probably less than 200 S. o. citrinellus survive in and about Parque Nacional Manuel Antonio. The remaining populations of both subspecies are fragmented into isolated troops separated by miles of deforested countryside. S. o. oerstedii is already extinct in Panama (although there are rumors of one or two surviving troops on the border shared with Costa Rica) due to deforestation. I will present the most recent data available on the distribution of squirrel monkeys in Costa Rica and prospects for their conservation. If a primate species can go extinct in Costa Rica, what realistic expectations dare we have for primate conservation in other countries?
Localización: Biblioteca OET: S8560.

Publicación no.: 293 **Caracterización del turista y su relación con la fauna en los humedales de la cuenca baja y media del río Tempisque, Costa Rica** / Menacho-Odio, Rose Marie. (<E-mail: roseamena@yahoo.com>). Heredia: Universidad Nacional, 2001. 100 p. Thesis, Mag. Sc. en Conservación y Manejo de Vida Silvestre, Universidad Nacional, Programa Regional en Manejo de Vida Silvestre para Mesoamérica y El Caribe, Heredia (Costa Rica).
Con el objetivo de dar recomendaciones para el manejo de un turismo orientado a la conservación de la fauna de los humedales de la cuenca media y baja del río Tempisque se caracterizó a los visitantes de esta zona. Se estudió la composición, motivaciones, preferencias por animales silvestres y percepción de los visitantes ante diferentes distancias de acercamiento del bote a una colonia de anidación de aves acuáticas. Se caracterizó la visitación a Isla Pájaros, una importante colonia de aves acuáticas localizada en el río Tempisque. Finalmente, se estudió el efecto de factores como velocidad, dirección del bote y cobertura vegetal en el comportamiento de algunas aves acuáticas, iguanas (Iguana iguana) y cocodrilos (Crocodylus acutus). Se identificaron seis motivaciones entre los visitantes: Aprendizaje-disfrute de la vida silvestre, afiliativa, conservacionista, aprendizaje de la cultura costarricense, fotografía de animales silvestres y búsqueda de tranquilidad. La motivación de aprendizaje-disfrute de la vida silvestre obtuvo

un mayor puntaje por parte de los visitantes, mientras que la motivación de fotografía de animales silvestre obtuvo el menor puntaje. Entre los animales comunes y preferidos por los visitantes se encuentran el cocodrilo (Crocodylus acutus), los monos congo (Alouatta palliata), monos carablanca (Cebus capucinus) y la espátula rosada (Ajaia ajaja). Se encontró que la satisfacción del visitante en la observación de las aves anidando aumentó al acercarse a la Isla Pájaros. Aún cuando un 42% de los visitantes señaló que el acercamiento del bote a la isla podría perjudicar algo o mucho a las aves anidando, no se encontraron diferencias en la percepción del daño de acuerdo a distintos rangos de distancia a la que el bote se acercó a la isla. Se encontró que la frecuencia de viajes en bote a Isla Pájaros durante el período de estudio fue de dos viajes diarios. La duración promedio de la visita alrededor de la isla fue de 23 min., lo que corresponde a un 19% del tiempo de visita total por el río. Se encontraron diferencias entre las distancias que mantuvieron los botes de la isla en marea alta y en marea baja. Existen varias razones por loas que podría ser importante regular la actividad turística para que el bote mantenga una mayor distancia de la isla. Estas razones son: 1) se observó que durante el período de estudio y cuando la marea lo permitía, los botes se mantuvieron cerca de un 65% del tiempo de visita a distancias menores a 15 m de la isla y el 94% del tiempo de visita a distancias menores a 50 m de la isla, 2) la mayoría de las visitas se realizaron en horas de alta temperatura ambiental, 3) la espátula rosada resultó muy atractiva para los visitantes y a menudo se tendió a buscar los nidos de estas aves y a acercar el bote a ellas, 4) las garzas blancas y patos aguja parecieron particularmente sensibles a la cercanía de los botes y 5) en la isla existen depredadores de huevos, como el zanate (Quiscalus mexicanus). Se determinó que ante un movimiento rápido y directo del bote hacia los animales, éstos reaccionaron con mayores distancias de espante y huyeron en mayor proporción que ante un movimiento lento y tangencial del bote. Se dan recomendaciones para el manejo de la actividad turística en los humedales del río Tempisque.
Localización: Biblioteca OET: Tesis 430. Biblioteca del BIODOC: Tesis 2094.

Publicación no.: 294 **Body weights of adult female Alouatta palliata in Costa Rica increase with age** *[El peso corporal de la hembra adulta de Alouatta palliata en Costa Rica se incrementa con la edad]* / Zucker, E.L; Clarke, Margaret R; Glander, Kenneth E. (Loyola University. Department of Psychology, New Orleans, LA 70118, US <E-mail: zucker@loyno.edu> <E-mail: clarkem@cwu.edu> <E-mail: glander@duke.edu>).
En: Neotropical Primates (ISSN 1413-4705), v. 9, no. 3, p. 93-96. 2001.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-9566.pdf
In this report, we present body weight data for adult females, which have successfully immigrated and reside in one social group at Hacienda La Pacifica, Guanacaste Province, Costa Rica. These females were residents between 1985 and 1993, during which time various age and sex classes were the subjects of behavioral and physiological studies.
Localización: Biblioteca OET: S8334. NBINA-9566.

Publicación no.: 295 **Body weights before and after first pregnancies of immigrant adult female mantled howling monkeys (Alouatta palliata) in Costa Rica** *[Peso corporal antes y después de la primera preñez de hembras adultas inmigrantes de monos congo (Alouatta palliata) en Costa Rica]* / Zucker, E.L; Clarke, Margaret R; Glander, Kenneth E. (Loyola University. Department of Psychology, New Orleans, LA 70118, US <E-mail: zucker@loyno.edu> <E-mail: clarkem@cwu.edu> <E-mail: glander@duke.edu>).

En: Neotropical Primates (ISSN 1413-4705), v. 9, no. 2, p. 57-60. 2001.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-9620.pdf
Immigrant female howling monkeys give birth to their first offspring, on average, after 19.7 months of residency in a new group, meaning they do not conceive their first infant until they are in the group for nearly 14 months (gestation length = 186 days). One hypothesized explanation for this apparent delay in reproduction is that they are not fully physically mature at the time of immigration. To assess this hypothesis, we present here (a) the body weights of immigrant female mantled howling monkeys, (b) comparisons of immigrants' weights with the weights of adult female residents, and (c) the body weights of immigrants before and after their pregnancies. As immigrants are younger than residents, their weights were expected to be less, initially,than the residents. Thus, we are examining the body weights of female mantled howling monkeys from soon after their immigrations (pre-pregnancy) until after their first births (post-pregnancy).
Localización: Biblioteca OET: S8335. NBINA-9620.

Publicación no.: 296 **A comparison of methods used to census mantled howlers in the dry tropical forest of Costa Rica** *[Comparación de métodos empleados para censar monos congo en el bosque seco tropical de Costa Rica]* / Clarke, Margaret R; Crockett, C.M; Zucker, E.L. (Central Washington University. Department of Anthropology, Ellensburg, WA 98926, US <E-mail: clarkem@cwu.edu> <E-mail: crockett@u.washington.edu> <E-mail: zucker@loyno.edu>).
En: Laboratory Primate Newsletter (ISSN 0023-6861), v. 40, no. 4, p. 4-6. 2001.
A complete survey of the forests of Hacienda La Pacífica was done in July and August, 1998 to assess the present howling monkey population and to compare the results with earlier surveys. Methods were identical to the 1991 survey, including an initial transect survey with all 6 field workers (8 days) and two repeat surveys (10 days); three teams of two workers searched smaller areas on consecutive days to relocate and identify animals. The total population, from the complete survey, was almost identical to 1991 (369 vs. 370. Mean group size was 10.1 (365 animals in 36 groups), which was less than the 1991 mean (12.6). Modal group size was the same (12). Group sizes in 1998 ranged from 4 to 28. Four solitary animals also were found. There were changes from 1991 in the age-sex composition of groups. There were 19% fewer adult males (55 vs 68 in 1991) and fewer males per social group. There were 17 one-male groups, 18 two-male groups, and only one three-male group. Fewer adult females were located (168 vs. 183 in 1991; 8% decrease), whereas there was a 58% increase in juveniles and infants (133 vs. 84 in 1991). This howler population (total number) has been stable since 1974-76, but the pattern of increased number of social groups, noted in the 1984and 1991 surveys, continues. In this survey, fewer adult males were located, while the reproductive base of adult females was reduced only minimally. Retention of immatures could be due to changes in arboreal migration routes. Forests have been altered by canal construction and the conversion of pasture land to wet rice production.
Localización: Biblioteca OET: S8333.

Publicación no.: 297 **Phylogenetic relationships among Saimiri species based on nuclear and mitochondrial DNA evidence** *[Relaciones filogenéticas entre las especies de Saimiri con base en evidencia del ADN del núcleo y de las mitocondrias]* / Cropp, S.J; Boinski, Sue. (Washington University. School of Medicine, Department of Anatomy & Neurobioloy, 660 S Euclid Ave, St Louis, MO 63110, US <E-mail: cropp@pcgwustl.edu> <E-mail: boinski@ufl.edu>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 28, p. 112. 1999.

(Abstract only). The taxonomy of squirrel monkey (genus Saimiri) has been, and continues to be, the subject of much debate, with various authors proposing anywhere from one to seven species. Although a large number of behavioral and cytogenetic studies have clarified similarities and differences among various squirrel monkey taxa, until recently, very little was known about the phylogenetic relationships among members of the genus. Also, while the divergence of Saimiri from other New World genera has been estimated at 16.5 to 19.0 MA, divergence times among the extant species have not been well established. This study examines the phylogenetic relationships among Saimiri taxa based on DNA sequence data and uses that data to estimate divergence times among them. DNA sequence data was collected from four regions of the genome: the D-loop and cytochrome b regions of the mitochondrial DNA, intron 1 of the IRBP gene, and intron A of the ZFX/ZFY gene. Six Saimiri taxa were included in this study, as well as a sample of Cebus sp., which was used as an outgroup reference taxon. Parsimony analysis of the sequence data revealed approximately equal amounts of genetic diversification between S. sciureus, S. boliviensis, and S. oersteii. Based on the sequencedata, the Costa Rican squirrel monkey, S. oerstedii, appears to be most closely related to the northern squirrel monkey, S. sciureus. Although their relationship is not well-supported in a bootstrap analysis, combining the DNA sequence data with behavioral and morphological data yielded extremely high support for this relationship. The poorly studied S. ustus was included also in this study and was found to be more genetically differentiated than the other squirrel monkey taxa. Divergence times between the species were also calculated. Results of this analysis have important implications for the use of squirrel monkeys in biomedical research, for interpretations of behavioral and morphological data, and for the taxonomy of the genus.
Localización: Biblioteca OET: NBINA-470.

Publicación no.: 298 **Techniques for studying the spatio-temporal distribution of animal vocalizations in tropical wet forests** *[Técnicas para el estudio espacio-temporal de la distribución de las vocalizaciones animales en bosques húmedos tropicales]* / Hammer, O; Barrett, N. (University of Oslo. Paleontological Museum, Sars gt. 1, 0562 Oslo, NO <E-mail: ohammer@toyen.uio.no> <E-mail: natashab@notam.uio.no>).
En: Bioacoustics (ISSN 0952-4622), v. 12, no. 1, p. 21-35. 2001.
An array of four microphones was set up in two rain forest locations in Costa Rica [La Selva and La Suerte Biological Stations], and 12-14 hours of sound were recorded over a 24-hour period at each location. Using this acoustical location system, the distribution of animal signaling in time, space and frequency could be assessed. This study demonstrates the feasibility of localizing some animals acoustically even under difficult field conditions in a highly reverberant and noisy environment. Primates seem to be particularly easy to track usingthis method, while birds seem more problematical. We also advocate the use of long-term indiscriminate acoustical sampling of all vocalizers, in order to give information about the synecology of animal communication. Long-term spectral analysis and data reduction by Principal Components Analysis provide tools for comparing acoustical samples over time and space.
Localización: Biblioteca OET: NBINA-4319.

Publicación no.: 299 **Uso de hábitats y plantas importantes en la alimentación de los monos congos (Alouatta palliata) y carablancas (Cebus capucinus) en el bosque tropical seco, Costa Rica** *[Importance of keystone plant species for populations of the white-faced monkey (Cebus capucinus) and the howler monkey (Alouatta palliata) in a tropical dry forest of Costa Rica]* / Morera-Avila, Rodrigo A. Heredia:

Universidad Nacional, 1996. 103 p. Tesis, Mag. Sc. en Conservación y Manejo de Vida Silvestre, Universidad Nacional, Sistema de Estudios de Posgrado, Heredia (Costa Rica).

A través de las actividades diarias definidas como búsqueda de alimento, alimentación, descanso y "otras" actividades realizadas por los monos Congos (Alouatta palliata) y Carablancas (Cebus capucinus), evalué la utilización y consumo de especies vegetales de las cuales se alimentan estos primatess en el bosque tropical seco en el Parque Nacional Santa Rosa del Area de Conservación Guanacaste, Costa Rica. Mediante la secuencia de las fases fenólogicas de plantas importantes en el mantenimiento de las poblaciones de estos primates, se determinó la categoría de alimento (hojas tiernas y maduras, brotes, flores, frutos y "otras" partes) y la frecuencia con que se alimentaron estos monos. También fue evaluado el uso de hábitats por parte de estos primates. Esta información fue obtenida mediante observaciones de dos grupos de Congos (1320 h) y dos de Carablancas (1320 h) para un total de observación, entre setiembre 1992 y agosto 1993. Durante todo el período evaluado los Carablancas dedicaron mayores de porcentajes de tiempo a la búsqueda de alimento (59.8%), mientras que en la estación lluviosa gastaron 52.8% y en la seca 40.7%. Por su parte los Congos emplearon más tiempo al descanso (62.8%) para todo el período anual, con 59.7 % para la estación lluviosa y un 66.0% para la seca. Los Congos consumieron 42 especies de plantas y los Carablancas 57. Se presentaron diferencias significativas ($F=17.9$; $gl=7,88$; $P<0.00001$) entre el tiempo de consumo de las diferentes categorías de alimento para los Congos en todo el período, lo mismo para los carablancas ($F=131.4$; $gl=7.88$; $P<0.00001$). Los Congos le dedicaron a las hojas tiernas el 46.2% del tiempo de alimentación en la estación húmeda, 30.4% a frutos, 9.4% a flores, 9.1% a las hojas maduras, 1.4% a brotes y 6.4% para "otras" categorías. Sin embargo no hubo diferencias significativas en la época húmeda, ni tampoco la seca. Durante la estación seca el tiempo de consumo descendió para las hojas tiernas a 29.6% y frutos a 8.2%, aumentó en hojas maduras 30.4% y "otras" categorías 6.4% y en brotes 5.3%. El tiempo en el consumo de las categorías de alimento empleado por Carablancas mostró diferencias significativas ($F=54.8$; $gl=7,38$; $P<0.00001$) para época húmeda y ($F= 19.2$; $gl=7,29$; $P<0.00001$) y en la seca, fue similar para los frutos en las dos estaciones 57.3 y 5 8.7 % respectivamente. Hubo un descenso importante en el consumo de insectos de 38.4 a 29.6% de la época húmeda a la seca. De las 42 especies de las que se alimentaron las Congos seis especies fueron consumidas un porcentaje mayor o igual al 15 % del tiempo de consumo. En cuanto a la frecuencia de uso, Bursera simaruba presentó los mayores porcentajes de frecuencia de uso en siete meses de los 10 que fue comida. Albizzia adinocephala fue utilizada durante 11 meses a pesar de que solo en un mes obtuvo el mayor porcentaje de frecuencia de uso. Luehea speciosa en dos meses de los cuatro en que fue consumida. También Cochloclospermum vitifolium y Chlorophora tinctoria [Maclura tinctoria] sólo en un mes presentaron mayores porcentajes de frecuencia de uso delos tres meses en que fueron comidas. Ficus spp. no presentó porcentaje mayor de frecuencia de uso en ningún mes pero fue consumida en 10 meses. De las 57 especies de que se alimentaron los Carablancas 13 fueron consumidas en porcentaje mayor o igual al 15%. La gramínea Lasiacis sorgoides obtuvo mayor porcentaje de frecuencia de uso en tres meses, el borrico Cissus sicyoides en dos meses y un meslas especies Karwinskia calderoni, Luhea candida, Acacia collinsii, Genipa americana, Stryphnodendron excelsum, Bunchosia biocellata y Allophylus occidentalis. Aunque otras especies presentaron porcentajes mayores de frecuencia de uso en ningún mes, fueron consumidas durante varios meses del período anual por un porcentaje de tiempo de consumo mayor o igual al 15%, tal es el caso de Ficus spp. que fue consumida en 10 meses, B. simaruba, L. candida, Chomelia spinosa en cuatro, Guettarda macrosperma y Manilkara chicle en tres meses. Tanto los Congos como los Carablancas consumieron varias especies con porcentajes de tiempo de consumo menores al

15% durante varios meses del período evaluado. En cuanto al uso de hábitats los Carablancas hicieron uso de todos los hábitats presentes en las áreas de estudio, siendo el de mayor uso el Crecimiento Secundario Joven (CSJ) en las dos estaciones. Por su parte los Congos usaron durante las dos estaciones el hábitat del Crecimiento Secundario Avanzado (CSA) en porcentajes altos, el Bosque Siempre Verde-Vegetación Riparia (BSV-VR) con porcentajes bajos y solamente usaron el CSA en un bajo porcentaje en la estación seca.
Localización: Biblioteca Joaquín García M.: Tesis 2623.

Publicación no.: 300 **Cross-site differences in foraging behavior of white-faced capuchins (Cebus capucinus)** *[Diferencias entre sitios en el hábito de forrajeo de los monos carablanca (Cebus capucinus)]* / Panger, M.A; Perry, Susan E; Rose, L.M; Gros-Louis, Julie J; Vogel, E.R; Mackinnon, Katherine C; Baker, Mary E. (The George Washington University. Department of Anthropology, 2110 G St NW, Washington, DC 20052, US <E-mail: panger@gwu.edu> <E-mail: perry@eva.mpg.de> <E-mail: lrose@interchange.ubc.ca> <E-mail: jgroslou@indiana.edu> <E-mail: evogel@ucsc.edu> <E-mail: mackinn@slu.edu> <E-mail: mbaker@ric.edu>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), v. 119, no. 1, p. 52-66. 2002.
Researchers have identified a variety of cross-site differences in the foraging behavior of free-ranging great apes, most notably among chimpanzees (Pan troglodytes) and more recently orangutans (Pongo pygmaeus), that are not due to obvious genetic or ecological differences. These differences are often referred to as "traditions." What is not known is whether this high level of interpopulation variation in behavior is limited to hominoids. In this study, we use long-term data from three Costa Rican field sites that are geographically close and similar ecologically to identify potential foraging traditions in white-faced capuchins (Cebus capucinus). Foraging traditions are predicted in Cebus because of many behavioral and morphological convergences between this genus and the great apes. The processing techniques used for the same food species were compared across sites, and all differences found were classified as present, habitual, or customary. Proximity data were also analyzed to determine if social learning mechanisms could explain variation in foraging behavior. Of the 61 foods compared, we found that 20 of them are processed differently by capuchins across sites. The differences involve pound, rub, tap, "fulcrum," "leaf-wrap," and "army ant following." For most of the differences with enough data to analyze, the average proximity score of the "matched" dyads (two individuals within a group who shared a "different" processing technique) was statistically higher than the average proximity score of the remaining "unmatched" dyads.
Localización: Biblioteca OET: NBINA-692. S8700. PV.

Publicación no.: 301 **Longitudinal assessment of immature-to-adult ratios in two groups of Costa Rican Alouatta palliata** *[Evaluación longitudinal de la proporción de inmaduros-adultos en dos grupos de monos congo (Alouatta palliata) costarricenses]* / Zucker, E.L; Clarke, Margaret R. (Loyola University. Department of Psychology, New Orleans, LA 70118, US <E-mail: zucker@loyno.edu> <E-mail: clarkem@cwu.edu>).
En: International Journal of Primatology (ISSN 0164-0291), v. 24, no. 1, p. 87-101. 2003.
We used immature-to-adult female ratios (IFR), which indicate replacement rates, to assess changes in and viabilities of nonhuman primate groups and populations Heltne et al. (1975) concluded that the howling monkey (Alouatta palliata) population at La Pacífica (Guanacaste, Costa Rica) was declining, as the IFR was 1.5, the ratio thought needed for a sustainable population. Our population surveys of

1984,1991, and 1998 revealed that the number of Monkeys in the population was stable, but the number of groups had increased and mean group size decreased. To examine these group-level changes, we present the IFR and immature-to-adult (IAR) ratios for La Pacífica Groups 2 and 18, which we have studied longitudinally for 18 and 10 years, respectively. Group 2 was larger than Group 18, but both groups showed similar mean IFRs for the study periods The mean IFR for each group exceeded the population IFR. The annual IFRs varied more in the smaller group than in the larger group, and the IARs for these groups varied more than the IFRs did. All annual IFRs in the groups were below the hypothesized critical value of 1.5. Given these group and population values, we examined this critical IFR value with respect to mantled howler life history characteristics,particularly interbirth intervals and juvenile emigration, both of which preclude ratios 1.5, and compared the La Pacífica mantled howler population ratios with those of other populations. Group size, in conjunction with these ratios, might be more predictive of sustainable groups and populations.
Localización: Biblioteca OET: S8750. NBINA-792.

Publicación no.: 302 **Monkeying around with ARC/INFO: GIS methods in the study of primate ecology and conservation** / Campbell, A.F; Wentz, E.A. (Washington University. Department of Anthropology, Campus Box 1114, One Brookings Drive, St. Louis, MO 63130-4899, US <E-mail: aimee.campbell@mailcity.com> <E-mail: wentz@asu.edu>).
En: ARC News, Summer 1993, p. 1-3. 1993.
The global environmental crisis has focused public attention on the once-esoteric subject of rain forest conservation. Tropical rain forest ecosystems are among the most complex on earth and conservation in the tropics begins with the fundamental knowledge of what there is to conserve. Primates are an important component of tropical ecosystems and have long fascinated anthropologists, biologists, and zoologists. Here we describe an innovative new use of ARC/INFO in a 16-month comparative ecological field study of two primate species in a Costa Rican rain forest. We believe this is the first use of GIS in primate field research. This project combines basic research on primate feeding and ranging with GIS methods to better understand resource and habitat requirements necessary to protect and sustain primate populations.
Localización: Biblioteca OET: NBINA-775.

Publicación no.: 303 **The secret lives of squirrel monkeys: social behavior takes surprising turns among these tiny primates** *[La vida secreta de los monos tití: el comportamiento social toma cambios sorprendentes entre estos menudos primates]* / Bower, B.
En: Science News (ISSN 0036-8423), v. 156, p. 14-15. 1999.
Don't mess with Pacino. He brawls hard and dirty, and he stoically takes his licks. Constant no-holds barred battles have left wicked scars on his mouth and nose. Still, he looks good compared with the guys he regularly thrashes. Their injuries include torn ears, permanent limps, scarred hands incapable of grasping, and missing tail segments. Pacino is the alpha male-top dog, so to speak-in a troop of South American squirrel monkeys. As the undisputed champ of daily tooth-and-claw clashes, Pacino reigns over about a dozen adult males who operate as a loose-knit gang when not disfiguring each other. Pacino and his male underlings dole out plenty of abuse to the opposite sex as well. Hostile acts range from grabbing fruit out of females' mouths to pinning females down to force them to copulate. Simply put, these fuzzy little guys, weighing in at around 1.5 pounds, are pigs. Yet the long-suffering females show no signs of organizing efforts to protect their food or to fend off Pacino and his nasty boys.

Instead, each adult female largely sticks to raising her kids and searching alone for fruit and insects. So goes the unpleasant lives of standard-issue squirrel monkeys, an observer might conclude. Not exactly the social arrangements of Pacino and his terrorized troop, who live in the country of Suriname, north of Brazil, are as different from those of Costa Rican squirrel monkeys as a street gang's code of conduct is from Amish etiquette. Moreover, Peruvian squirrel monkeys take another path altogether, emphasizing what some might call "girl power." Among the Costa Rican primates, neither sex tries to push the other around or to control food supplies, nor does fighting almost never occur. In Peru, however, close-knit groups of females rule. Males keep their distance as females peruse the best foraging spots; sexual activity takes place only when a female signals her readiness to a suitor of her choice. Either of these social scenes would repel Pacino, whom researchers in the field named after actor Al Pacino, perennial movie tough guy. During the past 2 years, a team led by anthropologist Sue Boinski of the University of Florida in Gainesville has for the first time documented the uneven battle of the sexes in the Surinamese squirrel monkey population. Pacino the squirrel monkey, though he acts like his namesake's character in Scarface, plays in a larger drama that might be called The Three Faces of Saimiri. Scientists place all squirrel monkeys in the genus Saimiri but have long debated how many species of these diminutive primates exist. Behavioral contrasts among Saimiri populations, combined with new DNA data, now support the existence of at least three distinct squirrel monkey species, Boinski contends. Boinski's three-way species comparisonalso suggests that the time has come to revamp an influential model of primate social behavior. In particular, her work challenges the notion that intense food competition within a group always yields female alliances aimed at countering the power plays of pushy males. Stark contrasts in squirrel monkey behavior further suggest that scientists have greatly underestimated the extent to which early Homo species and other human ancestors led diverse social lives, Boinski argues. To top it off, the Florida researcher rejects the longstanding view that squirrel monkeys behave much the same in the wild as they do in captive colonies. "Beyond descriptions of basic female-male relationships, more than 30 years of captive studies offer fragmented, often distorted, interpretations of squirrel monkey social behavior," asserts Boinski. Peering through the thick foliage of a rain forest, a person has a tough t time locating, much less keeping up with, groups of the dark muzzled primates. So, only a few researchershave conducted detailed, extended fieldwork with squirrel monkeys. Boinski laments this situation but finds it understandable. Squirrel monkey troops in the wild, which usually consist of 25 to 50 animals, cover home ranges measuring several miles across. Tree-swinging troop members zip through swamps and forests at a moment's notice, testing the reflexes and stamina of human observers. Tracking a specific troop becomes even harder in areas where the monkeys migrate seasonally across long distances. As small-bodied animals vulnerable to predators such as snakes and jaguars, squirrel monkeys require at least 4 months to get used to the presence of curious scientists. Observers who pass that hurdle still find it difficult to tell individual troop membersapart. Boinski's team solves that problem by briefly trapping each animal and applying telltale dye marks. A squirrel monkey troop often spreads out so far in the course of daily activities that most individuals cannot see any of their compatriots. To maintain contact, the monkeys yell out birdlike sounds that, after one hears them for a while, "are as blatant as a high school band," Boinski says. Squirrel monkeys' evolutionary history is anything but blatant. Their species number from one to seven, according to various investigators. Boinski and University of Chicago anthropologist Susan J. Cropp have just completed the first genetic analysis addressing this problem. From the hair of squirrel monkeys belonging to six separate populations and from a comparison group of South American capuchin monkeys, the scientists isolated segments of mitochondrial DNA, which is inherited only from the mother. The squirrel monkey DNA

samples fall into three distinct genetic groups. As a result, Boinski and Cropp argue in an upcoming International Journal of Primatology for the existence of at least three of the squirrel monkey species that were first described more than 20 years ago. At different times over the past 2 decades, Boinski has studied representatives of these three species: Saimiri oerstedii in Costa Rica, Saimiri boliviensis in Bolivia and Peru, and Saimiri sciureus in Suriname and Guyana. Squirrel monkeys throughout Central and South America look much alike physically and exhibit a fondness for berries and small, soft, easily husked fruits. At the recent annual meeting of the American Association of Physical Anthropologists, in Columbus. Ohio, Boinski described the different groups' remarkable range of social behaviors. She also discussed the implications of their behavioral flexibility for understanding how primates organize their social lives. Prior observations of squirrel monkeys in Costa Rica and Peru, conducted by Boinski and others, fit well with a popular model of primate social behavior. Its proponents theorize that as competition for food within a group intensifies, females prove more likely to remain in their birth troop and to form alliances with their female relatives. As this competitive scenario plays out, according to the so-called ecological model, males compete fiercely for food.
Localización: Biblioteca OET: NBINA-331.

Publicación no.: 304 **A comparison of methods for observing juvenile and group behavior in mantled howlers** *[Comparación de métodos para observar a juveniles y comportamiento del grupo en monos congo]* / Clarke, Margaret R; Tremblay, A.M; Arden, D.H. (Central Washington University. Department of Anthropology, Ellensburg, WA 98926, US <E-mail: clarkem@cwu.edu>).
En: Laboratory Primate Newsletter (ISSN 0023-6861), v. 39, no. 4, p. 6-8. 2000.
Introduction: As part of a proposal for a long-term study of emigration in mantled howlers (Alouatta palliata), a preliminary study was carried out to evaluate if there were an observation method that could be accurately carried out by one field worker to document simultaneously the activity of a focal (or specific) juvenile and its social group. Focal animal observations (all behaviors and interactions of a specific animal, as in Altmann, 1974) and focal group activity (main activity of a specific group, as in Marsden & Bateson, 1994) were recorded by a fieldworker who had not systematically observed free-ranging animals before. Observations were compared with focal group sampling done by a more experienced fieldworker, who also recorded major group activity at 5-minute intervals (concurrent instant scan samples) throughout the observation period. Conclusions: 1. It is feasible for focal animal observations to be carried out on a juvenile howler in conjunction with focal group activity observations. 2. Group activity appears to be adequately evaluated by either focal group observations or 5-minute instantaneous scan samples; although the scan sample underestimates travel time and focal samples underestimate "other". 3. Scan samples taken from concurrent focal animal/ group activity observations closely approximate those taken from scan samples alone. Recommendations: 1. The observation method of choice appears to be focal animal sampling on the juvenile and instantaneous scan samples at 5-minute intervals for group activity. 2. Scan sampling has the additional benefit of forcing the observer to note group activity at a specific time rather than when it is noticed as different from the focal animal activity.
Localización: Biblioteca OET: S8748.

Publicación no.: 305 **Fur mite, Listrocarpus alouattae Fain (Acari: Atopomelidae), from Alouatta palliata Gray (Primates: Cebidae) in Costa Rica** *[El ácaro Listrocarpus alouattae Fain (Acari: Atopomelidae) del pelaje de Alouatta palliata Gray (Primates: Cebidae) en Costa Rica]* / Troyo-Rodríguez,

Adriana; Solano-Chinchilla, Mayra; Calderón-Arguedas, Olger; Chinchilla-Carmona, Misael; Sánchez-Porras, Ronald E; Gutiérrez-Espeleta, Gustavo A. (Universidad de Costa Rica. Centro de Investigación en Enfermedades Tropicales (CIET), Departamento de Parasitología, Facultad de Microbiología, San José, CR <E-mail: atroyo@cariari.ucr.ac.cr> <E-mail: mayrasol@cariari.ucr.ac.cr> <E-mail: olgerc@cariari.ucr.ac.cr> <E-mail: misael@racsa.co.cr> <E mail: resanche@cariari.ucr.ac.cr> <E mail: ggutier@biologia.ucr.ac.cr>).
En: International Journal of Acarology (ISSN 0164-7954), v. 28, no. 3, p. 251-255. 2002.
Preliminary results of a study on ectoparasites of Costa Rican monkeys are presented. Thirty six mantled howler monkeys (Alouatta palliata) and 3 capuchin monkeys (Cebus capucinus) from different zones of the country were examined for ectoparasites. Fur mites of the family Atopomelidae were found on 2 of the individuals of A. palliata, which were identified as Listrocarpus alouattae (Acari: Astigmata). A statistical analysis showed differences between most measurements of these specimens and those described by Fain (1979) suggesting that there are intraspecific variations in L. alouattae.
Localización: Biblioteca OET: S9068.

Publicación no.: 306 Social conventions in wild white-faced capuchin monkeys: evidence for traditions in a neotropical primate [Acuerdos sociales en monos carablanca silvestres: evidencia de tradiciones en un primate neotropical] / Perry, Susan E; Baker, Mary E; Fedigan, Linda M; Gros-Louis, Julie J; Jack, Katharine M; MacKinnon, Katherine C; Manson, Joseph H; Panger, M.A; Pyle, K; Rose, L.M. (Max-Planck-Institute for Evolutionary Anthropology. Independent Junior Research Group in Cultural Phylogeny, Deutscher Platz 6, 04103 Leipzig, DE <E-mail: perry@eva.mpg.de> <E-mail: mbaker@ric.edu> <E-mail: fedigan@ucalgary.ca> <E-mail: jgroslou@indiana.edu> <E-mail: kjack@tulane.edu> <E-mail: mackinn@slu.edu> <E-mail: panger@gwu.edu> <E-mail: lrose@interchange.ubc.ca>).
En: Current Anthropology (ISSN 0011-3204), v. 44, no. 2, p. 241-268. 2003.
Ten researchers collaborated in a long-term study of social conventions in wild white-faced capuchin monkeys, involving examination of a 19,000-hour combined data set collected on 13 social groups at four study sites in Costa Rica over a 13-year period. Five behavior patterns qualified as social traditions, according to the study's criteria: handsniffing, sucking of body parts, and three types of "games." Some conventions were independently invented in virtually identical form at multiple sites. The extinction of several conventions was observed during the course of the study; it appears that they rarely last longer than ten years. It is hypothesized that the monkeys are using these group- or clique-specific social conventions to test the quality of their social relationships.
Localización: Biblioteca OET: NBINA-4053.

Publicación no.: 307 **Preliminary study on hormone measurement in dried feces of free-ranging howling monkeys (Alouatta palliata) in Costa Rica** *[Estudio preliminar sobre medición de hormonas en las heces secas de monos congo silvestres (Alouatta palliata) en Costa Rica]* / Clarke, Margaret R; Teaford, Mark F. (Central Washington University. Department of Anthropology, Ellensburg, WA 98926, US <E-mail: clarkem@cwu.edu> <E-mail: mteaford@jhmi.edu>). Annual Meeting of The American Society of Primatologists. Twenty-fifth, Oklahoma City, OK USJune 01-04, 2002.
En: American Journal of Primatology (ISSN 0275-2565), v. 57, Suppl. 1, p. 67. 2002.
(Abstract only). A preliminary study was done to evaluate the feasiblity of cortisol and reproductive hormone analysis from dried fecal samples in free-ranging howlers. Subjects for the study were 4 adult and 4 subadult male howlers from 3 social groups on La Pacífica Ecological Centre, Cañas, Costa Rica.

Twenty-nine fecal samples were collected during June, 2001 and were placed on coffee filters and stored in plastic bags. Samples were dried overnight (or until "dusty") in a food dehydrator. The samples were sent to the Wisconsin Assay Service Laboratory for reproductive and stress hormone analysis. All 3 social groups exhibited a potentially stressful situation: There was a subadult male in each of the 1-male groups, and two subadults in the 2-male group. Juvenile emigration is species typical, and these younger males were past the age of normal emigration. An analysis of cortisol concentrations indicated no correlation between concentration and sample time of day (r=-.32, p=.11), but there was a significant difference between mean cortisol concentrations in the one vs. two male groups (t=-3.5, df=6, p.02) with lower concentrations in the 2-male group, suggesting coalitions. There was also an inverse relationship between cortisol concentration and dominance rank (r.
Localización: No disponible.

Publicación no.: 308 **Habitat mediates relationship between age and interbirth intervals in Costa Rican mantled howling monkeys (Alouatta palliata)** *[El hábitat media en las relaciones entre la edad y los intervalos entre partos en los monos congo costarricenses (Alouatta palliata)]* / Zucker, E.L; Clarke, Margaret R; Glander, Kenneth E. (Loyola University. Department of Psychology, New Orleans, LA 70118, US <E-mail: zucker@loyno.edu> <E-mail: clarkem@cwu.edu> <E-mail: glander@duke.edu>). Annual Meeting of The American Society of Primatologists. Twenty-fifth, Oklahoma City, OK USJune 01-04, 2002.
En: American Journal of Primatology (ISSN 0275-2565), v. 57, Suppl. 1, p. 33. 2002.
(Abstract only). Variable interbirth intervals (IBIs) contribute to differential reproduction. We hypothesized that IBIs would increase with age, as younger females should produce more infants while their reproductive values are relatively high and expended parental investment low. Data included 59 IBIs from births between 1979 and 1996 for 27 female mantled howling monkeys in three groups (two in riparian habitat and one in upland habitat) at La Pacifica, Guanacaste Province, Costa Rica. Only IBIs following births of surviving infants were included, and females' ages were estimated from dental wear patterns. Overall, the mean IBI was 22.4 months (sd=9.1), and IBI was related positively with age at conception (r=.33, df=57, p.02). However, habitat type mediated this relationship. IBIs in riparian habitat (20.9 months) were significantly shorter than those in the upland habitat (26.5 months; t.
Localización: No disponible.

Publicación no.: 309 **Patterns of use in leaf source species by mantled howler monkeys (Alouatta palliata)** *[Patrones de uso de fuentes de especies de hojas por parte de los monos congo (Alouatta palliata)]* / Welker, B.J. (State University of New York. Department of Anthropology, 1 College Circle, Geneseo, NY 14454, US). Annual Meeting of the American Association of Physical Anthropologists. Seventy First, Buffalo, N.Y USApril 10-13, 2002.
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 34, p. 163. 2002. [Abstract only].
Feeding selectivity in herbivorous primates is not well understood. Many studies have examined interspecific selectivity but none have systematically examined within species selectivity. This paper presents preliminary data on differences in patterns of use for three focal tree species as part of a larger study focusing on proximate mechanisms affecting intraspecific folivorous feeding selectivity in mantled howler monkeys. The study site is located in the Área de Conservación, Guanacaste, Costa Rica. Observational data were collected from one group of mantled howler monkeys during two dry seasons

in 1997 and 1998. The patterns of use for each of the three tree species (Astronium graveolens, Machaerium biovulatum, and Hymenaea courbaril) differed. Many Astronium graveolens trees were fed from each year but there was almost no overlap between years in particular trees used. The pattern of use in Machaerium biovulatum differed in that there was a high degree of overlap between years but with no apparent preference for particular trees versus others. The third species, Hymenaea courbaril, was the most interesting in that the animals appeared to prefer leaves from particular individuals. The monkeys were repeatedly observed to pass through trees that possessed leaves at the preferred developmental stage to feed in neighboring conspecific trees. There was a moderate amount of overlap between years in trees used and not used. These results are of interest in illuminating differences in patterns of use within and between species and as a first step in understanding the processes involved in feeding selectivity by focusing within species.
Localización: Biblioteca OET: S10308.

Publicación no.: 310 **Variation in foraging and food processing techniques among white-faced capuchins (Cebus capucinus) in Santa Rosa National Park, Costa Rica** *[Variación en forrajeo y técnicas de procesamiento del alimento entre monos carablanca (Cebus capucinus) en el Parque Nacional Santa Rosa, Costa Rica]* / O'Malley, R.C; Fedigan, Linda M. (University of Calgary. Department of Anthropology, Calgary, AB T2N 1N4, CA <E-mail: fedigan@ucalgary.ca>). Annual Meeting of the American Association of Physical Anthropologists. Seventy First, Buffalo, N.Y USApril 10-13, 2002.
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 34, p. 119-120. 2002.
(Abstract only). Members of the genus Cebus demonstrate great skill in exploiting embedded foods and bypassing plant and animal defenses. Past studies have shown that Cebus diet and foraging behaviour varies significantly between sexes, age classes, groups, and populations. Only recently has greater attention been given to exactly what food processing techniques are employed, and how they vary within and between social groups. These are important questions because such variability might reflect what social learning processes (if any) underlie the acquisition and persistence of such techniques, and aid in determining whether they arise and persist through cultural processes. A six-month field study was conducted among habituated Cebus capucinus in Santa Rosa National Park. 318 hours of focal animal data were collected from two adjacent groups numbering 28 individuals total. Data were collected on foraging variables (foraging height, substrate use, proximity to others, and foods eaten) in addition to more specific data on food processing (hand and mouth use, hand movements, and techniques used). Differences found in the foraging behaviour of age/sex classes are largely consistent with previous studies. A number of food processing techniques were documented for specific food items, and most individuals showed a strong preference for only one or two techniques. However, the spread of these preferences does not break down consistently along age/sex classes, groups, affiliates, or matrilines. These findings suggest that individual learning processes, rather than social learning processes, underlie the acquisition of food processing techniques. Results of a pilot field extraction experiment will also be briefly described.
Localización: Biblioteca OET: S10658.

Publicación no.: 311 **Life history of male white-faced capuchins (Cebus capucinus), Santa Rosa National Park, Costa Rica** *[Ciclo vital del macho de los monos carablanca (Cebus capucinus), Parque Nacional Santa Rosa, Costa Rica]* / Jack, Katharine M; Fedigan, Linda M. (Tulane University. Department of Anthropology, 1021 Audubon St, New Orleans, LA 70118, US <E-mail: kjack@tulane.edu> <E-mail:

fedigan@ucalgary.ca>). Annual Meeting of the American Association of Physical Anthropologists. Seventy First, Buffalo, N.Y USApril 10-13, 2002.
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 34, p. 89. 2002.
(Abstract only). Male cooperation in competition with outsiders (male-bonding) has been suggested to occur more easily between related males. Such cooperative aggression has been observed among coresident male white-faced capuchins (Cebus capucinus);a species characterized by male dispersal and female philopatry and group males are presumed unrelated. In this study I address the question of why males cooperate by examining male dispersal patterns, affiliative relationships, and the effect of male emigration on the vigilance behavior of coresident males. During a 15 month field-study, 1430.75 hours of focal data and additional ad libitum data were collected on all males over 4 years of age (N = 15) in four groups of white-faced capuchins in Santa Rosa National Park, Costa Rica. I also make use of the behavioral and demographic data collected on these monkeys since 1984. Male natal emigration in white-faced capuchins appears to occur in response to an attraction to extragroup males or dispersing coresident males, while secondary emigration results from an attraction to extragroup mates. Once males reach adulthood they change groups approximately every four years and parallel dispersal (i.e. dispersing with group mates or into groups containing familiar males) remains high even during secondary migrations. Parallel dispersal enables males to retain familiar allies during group transfers and appears to influence male relationships within groups. The number of months males have resided together was asignificant factor in predicting male affiliative relationships within groups. Group size was also significantly associated with affiliative interactions among coresident males; i.e. males residing in small groups were more affiliative than male residingin larger groups. The effect of male emigration on the vigilance of coresident males indicated that additional males within groups confer both costs and benefits. Costs relate to an increased amount of time devoted to monitoring the social environment when additional coresident males are present. Benefits relate to the finding that some males are able to devote less time to non-social vigilance (vigilance for predators and conspecifics) when additional males are present in the group. However, the vigilance behavior of males, particularly non-social vigilance, is highly variable and influenced by multiple factors (e.g. season).
Localización: Biblioteca OET: S10656.

Publicación no.: 312 **Experimental field study of tool use in wild capuchins (Cebus capucinus): Learning by association or insight?** *[Estudio experimental de campo sobre el uso de herramientas en los monos carablanca (Cebus capucinus): ¿Aprendizaje por asociación o razonamiento?]* / Garber, Paul A; Brown, E.D. (University of Illinois. Department Anthropology, 109 Davenport Hall, 607 S Mathews Ave, Urbana, IL 61801, US <E-mail: p-garber@uiuc.edu>). Annual Meeting of the American Association of Physical Anthropologists, Seventy First, Buffalo, N.Y USApril 10-13, 2002.
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 34, p. 74-75. 2002.
(Abstract only). Several species of capuchins have been observed to use tools occasionally in the wild. This includes the use of sticks as probes and stones as hammers to break open hard-shelled fruits. Under experimental conditions in captivity, capuchins are reported to use tools in a wide range of problem-solving conditions. However, it remains unclear whether capuchins have insight into how a tool functions, or whether capuchin tool use is better understood as a form of associative learning. From September through November 2000 we conducted an experimental field study of tool use in a group of 15 wild white-faced capuchins (Cebus capucinus) inhabiting La Suerte Biological Research Station, Costa Rica. The problem presented to the capuchins involved the use of wooden dowels as probes to obtain a

food reward (banana) located inside a clear plexiglas box. The task required the capuchins to manually insert a dowel into any of 7 holes in order to push a banana off a shelf. The banana could then be retrieved through an opening at the bottom of the box. The capuchins visited the tool use platform 702 times over the course of 55 consecutive days. During the first 21 days of the study, the capuchins explored the box, but made no attempt to manipulate the dowels. On days 22-39, the dowels were inserted through the holes and under the bananas so that touching the dowels would cause the bananas to fall. The capuchins took advantage of this situation and manipulated the dowels to obtain the food reward. When the dowels were placed back on the platform (days 40-55), however, the capuchins made no attempt to use them as tools. These data support the hypothesis that tool use by white-faced capuchins represents learning by associative rather than learning by insight. Additional relationships between dominance, access to resources, and observational learning are discussed.
Localización: Biblioteca OET: S10657.

Publicación no.: 313 **Female immigration patterns in mantled howling monkeys (Alouatta palliata) on La Pacífica, Guanacaste, Costa Rica** *[Patrones de inmigración de las hembras en los monos congo (Alouatta palliata) en La Pacífica, Guanacaste, Costa Rica]* / Clarke, Margaret R; Glander, Kenneth E. (Central Washington University. Department of Anthropology, Ellensburg, WA 98926, US <E-mail: clarkem@cwu.edu> <E-mail: glander@duke.edu>). Annual Meeting of the American Association of Physical Anthropologists. Seventy First, Buffalo, N.Y USApril 10-13, 2002.
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 34, p. 54. 2002.
(Abstract only). While secondary transfer is not typical in mantled howler females, longterm records based on capture sessions and behavioral observations indicate that there are several situations where females do not stay in the first group they join after emigration from the natal groups. Between 1975 and 2001 there have been 70 documented cases of immigration by females over three years of age in two riparian and 3 upland habitat study groups. Of the 52 females under 6 years of age, 20 left in less than one year ("transients"), 5 left after three years("secondary emigrants"), and 27 remained in the group. Eighteen older females joined groups (age = 6 years with infant to 21 years), and 5 subsequently left ("multiple emigrants"). Permanent members vs, transients and later emigrants were compared by social factors (female age, group size, females in group, male takeover) and environmental factors (habitat, rainfall during joining year and previous year). When all animals were compared, there were no significant differences in any categories. When transients were eliminated, significantly more females of all ages remained in the group with increased rainfall the previous year, and left in the presence of a male takeover. When young immigrants were compared with older immigrants, older immigrants stayed when group size and resident females numbers were down, whereas young immigrants stayed when the group was larger. There was no significant effect of habitat, although there were more transients in the two riparian habitat groups, and older transients were more likely to stay in these groups. The Sterkfontein Caves of South Africa are famous for the large number of fossil hominids attributed to Australopithecus africanus. Excavation and research in recent years has revealed that the cave breccias which span a time range from about 4 million years to over 100,000 years contain several hominid species. The well known member 4 breccia of 2.6 to 2.8 million years contains a second Australopithecus species in addition to A. Africanus. The older deposits have another Australopithecus dating to 3.5 million years ago and the member 5 breccia contains Paranthropus at around 2 million years and Homo ergaster at about 1.7 million years. These fossils are assessed within their temporal and environmental contexts.

Localización: Biblioteca OET: S10659.

Publicación no.: 314 **Does group size reflect a trade-off between predation risk and within-group food competition?** / Boinski, Sue. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu>). Annual Meeting of the American Association of Physical Anthropologists. Seventy First, Buffalo, N.Y USApril 10-13, 2002.
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 34, p. 46. 2002.
(Abstract only). The arsenal of spatial and social strategies that appear to counter predation risk and enhance success in within-group food competition among primates is extensive. Nevertheless, group size is widely considered to be a particularly useful dependent variable to evaluate the tradeoffs in the costs and benefits of these two selective regimes. In theory, larger group size affords greater efficiency in detecting and deterring predators. But as group size increases, the benefits of reduced predation risk are offset by exacerbated within-group food competition for finite resources. Also, in practical application, for comparative analyses with broad phylogenetic scope, few alternative proxy measures are as sensitive to both selective regimes as group size. To date, however, scant evidence directly supports the putative effects of predation risk and food competition on group size. Here I exploit long-term field data from three species of squirrel monkey (Saimiri oerstedii - Costa Rica; S. boliviensis - Peru; and S. sciureus - Suriname) for a comparative analysis of how group size covaries across different combinations of predation risk and food competition. Each field site is typical of the habitat within the range of each species and is nearly untouched by human disturbance. Considered separately, each field study provides an interesting and plausible scenario as to the optimal solution for the interaction of these two selective regimes. Yet couched within a comparative framework, this study system affords strong evidence that species-typical group sizes represent a balance between thre risks of predation and the costs of within-group food competition.
Localización: Biblioteca OET: S10660.

Publicación no.: 315 **Mamíferos de Costa Rica** *[Mammals of Costa Rica]* / Wilson, Don E; Timm, Robert M; Chinchilla-Romero, Federico Alfonso. (Smithsonian Institution. Department of Mammalogy, Washington, DC 20560, US <E-mail: wilson.don@nmnh.si.edu> <E-mail: btimm@ku.edu>).
En: Diversidad y conservación de los mamíferos neotropicales. Ceballos, G; Simonetti, J.A. (eds.) México, D.F: CONABIO-UNAM, 2002. p. 227-253. ISBN: 9709000187.
Costa Rica is extremely biologically diverse country. Of the total mammalian species present prior to the arrival and colonization of the Europeans to the region, almost all appear to have survived. There are approximately 232 mammal species in Costa Rica; from those 221 species are terrestrial or aquatic (11 orders, 33 families and 127 genera), and 21 species of the Order Cetacea are marine.The Order Chiroptera is the most diverse with more than 110 species, and Rodentia is the second larger one with more than 45 species. The other terrestrial and aquatic Orders are Carnivora (22 spp), Didelphimorphia (eight spp), Xenarthra (seven spp), Insectivora (five spp), Primates (four spp), Artiodactyla (four spp), Lagomorpha (three spp), Perissodactyla (onesp) and Sirenia (one sp). Almost 150 species of mammals in Costa Rica have small body sizes (100 g), including one marsupial, all the Insectivora species, and most of the bats and the mice. The medium and large sized mammal species in Costa Rica (100g - 10 kg), include the monkeys, armadillos, rabbits, some rodents and many species of the Order Carnivora. The biggest species in the country (10 kg to 100 kg), include some species of Carnivora, the ungulates (like deer Mazama americana, Odocoileus virginianus, peccaries Tayassu pecari and Pecari tajacu, tapir

Tapirus bairdii), and the manatee (Trichechus manatus). Approximately the 25% of the mammal species are herbivores, including most of the rodents, all the rabbits and ungulates; and 25% are insectivores like many bats, all the shrews, the ant eater tamandua, and few mice. Around 35 species are omnivores like all the opossums, some bats, couple monkeys, some rodents and several species of Carnivora. At least 30 species are frugivores, includingmost of the bats, two monkeys (Alouatta palliata and Ateles geoffroyi), and two big rodents (Dasyprocta punctata and Agouti paca). A total of 13 species including few bats, some Mustelidae species and the Felidae are carnivores. There are 11 nectarivore bats (Lonchophyllinae and Glossophaginae), and three hematophagus bats (Desmodus rotundus, Diaemus youngi and Diphylla ecaudata). Most Costa Rican mammals have a wide distribution in the Continent. Of the 33 Families, two have Neartical affinity, 14 Neotropical, and 15 have both kinds of affinities. Six species of mammals are endemic: four rodents (Orthogeomys heterodus, Orthogeomys undenwoodi, Heteromys oresterus and Reithrodontomys rodriguezi) one carnivore (Bassaricyon lasius) and one insectivore (Cryptotis jacksoni). At least other two species of the genus Cyptotis could be also endemic to Costa Rica, but more studies are required. Among the Primates the subspecies of the squirrel monkey Saimiri oerstedii citrinellus is endemic to the country, and the other subspecies Saimiri oerstedii oerstedii is endemic to both countries Costa Rica and Panama. Costa Rica is the northern most limit of the distribution of 27 species, and the southern most limit of 21 species. Because the distribution of approximately 19 species of mammals is very near to the borders with Nicaragua and Panama, these are expected to occur in Costa Rica. Some of these species are distributed from North America to South America, but have not yet been recorded in Costa Rica. These expected species include four opossums, one shrew, four bats, one monkey, and nine rodents. The human impact on the native mammals of Costa Rica has been severe in many cases. Human activities have altered the abundance of many species; some have increasedin abundance, whereas many have decreased. Generalists tend to do fairly well in disturbed areas, and can coexist with humans, occupying (even thriving in) second growth and marginal habitats. However, specialists do poorly in coexisting with humans, andall species that are threatened are either specialist in their feeding niches or are game species actively persecuted by humans. Elimination of even one mammal species from an area may have a far-reaching impact upon the forest. With the elimination of the white-lipped peccaries (Tayassu pecari) for example, the structure of the forest may be changing as peccaries are important seed predators, seedling predators and seed disperses, the activities of large herds affect the forest structure. Research and conservation on mammals in the tropics is entering an exciting phase. Costa Rican and foreign biologists are now perfecting the techniques and experience needed to study and conserve the mammals and their forests in this country.
Localización: Biblioteca OET: S8893.

Publicación no.: 316 **Explaining variation in affiliative relationships among male white-faced capuchins (Cebus capucinus)** *[Explicando la variación en las relaciones afiliativas entre los machos de los monos carablanca (Cebus capucinus)]* / Jack, Katharine M. (Tulane University. Department of Anthropology, 1021 Audubon St, New Orleans, LA 70118, US <E-mail: kjack@tulane.edu>).
En: Folia Primatologica (ISSN 0015-5713), v. 74, no. 1, p. 1-16. 2003.
Relationships among coresident male white-faced capuchins are highly variable, ranging from affiliative to aggressive. In this paper I examine the affiliative relationships of all adult and subadult males residing in four social groups in Santa Rosa National Park, Costa Rica. Relationships among males in two study groups were neutral and tolerant, while in the remaining two groups males were highly affiliative. Male-

male dyadic affiliative interactions were examined to determine which variables (group size, sex ratio, age relationship, relationship duration, and rank distance) influence the quality of male relationships within the study groups. Group size explained much of the variation, with males in small groups being more affiliative. However, the duration and history of the relationship among coresident males appears to be the most important variable in understanding male-male relationships within social groups.
Localización: Biblioteca OET: NBINA-879.

Publicación no.: 317 **Immature-to-adult ratios over time in two groups of Costa Rican mantled howling monkeys (Alouatta (palliata): Annual variations and comparison with population parameters** *[Proporciones entre inmaduros y adultos a través del tiempo en dos grupos de monos congo costarricenses (Alouatta palliata): Variaciones anuales y comparación con parámetros de la población]* / Zucker, E.L; Clarke, Margaret R. (Loyola University. Department of Psychology, New Orleans, LA 70118, US <E-mail: zucker@loyno.edu> <E-mail: clarkem@cwu.edu>). Annual Meeting of the American Society of Primatologists. 22nd, New Orleans, LA USAugust 12-16, 1999.
En: American Journal of Primatology (ISSN 0275-2565), v. 49, no. 1, p. 115-116. 1999.
(Abstract only). Group and population viabililities are evaluated using immature-to-adult ratios (IAR) and immature-to-adult female ratios (IFRR). Two groups of manted howlers at La Pacífica Ecological Centre (Guanacaste, Costa Rica) have been observed annualy since 1984 (Group 2) and 1992 (Group 18). For Group 2, both ratios were lowest in 1986 (IAR: 154; IFRR: .222) and highest in 1994 (IAR: .875; IFR: 1.667); they decreased after 1994, increasing again in 1998. For Group 18, IAR and IFR were lowest in 1992 (.125 and .167, respectively), increased until 1996 (IAR: .636; IFR: 1.000), and have decreased since then. Ratios for the entire La Pacífica population were calculated from survey work in 1972-1976, 1984, 1991, and 1998, the latter affter canal construction had disrupted forest continuity. From the entire population IAR's ranged between .335 and .592, and IFR's ranged between .459 and .786. Ratios for Group 2 exceed the popution values in 1984, 1991, and 1998 but overall means for both groups on both measures were below those of the entire population in 1998. Whereas the overall number of howlers at La Pacífica has remained relatively stable for more than two decades, age/sex compositions within and across groups varied greatly. The general recent decline in these immature-to-adult ratios in Groups 2 and 18 could be related to reduced home range sizes and restricted migration routes following canal construction.
Localización: Biblioteca OET: NBINA-1852.

Publicación no.: 318 Functions of vigilance in wild white-faced capuchins (Cebus capucinus) in Costa Rica [Funciones de vigilancia en monos carablanca silvestres (Cebus capucinus) en Costa Rica] / Rose, L.M. (University of British Columbia. Department of Anthropology, 6303 NW Marine Dr, Vancouver, BC V6Y 1Z1, CA <E-mail: lrose@interchange.ubc.ca>). Annual Meeting of the American Society of Primatologists. 22nd., New Orleans, LA USAug. 12-16, 1999.
En: American Journal of Primatology (ISSN 0275-2565), v. 49, no. 1, p. 93. 1999.
(Abstract only). Vigilance may serve multiple functions, including predator detection. Previous studies of Cebus capucinus indicate that males are more vigilant than females. However, it has been suggested that a large proportion of male vigilance is directed toward extragroup males, reflecting mate competition rather than predator protection. I recorded the circumstances of vigilance by adults in three groups of C. capucinus in Costa Rica during two 8-month field seasons. Analyses were based on 1,238 hr. of focal data, and 83 predator encounters in which the individual giving the first alarm call was clearly

identified. The proportion of total time spent vigilant by all adult male group members associated with extragroup males exceeded that associated with potential predators in only one group in one year (35% versus 32%. The average rate of individual male vigilance associated with extragroup males across all groups and years was 14 secs/hr, compared with 20 secs/ hr for predator-related vigilance, 16 secs/hr for general risk vigilance, 10 secs/hr for within-group social monitoring, and 8 secs/hr for vigilance other circumstances. Males were significantly more vigilant than females in all categories except social monitoring. However, I found no sex difference in giving initial alarm calls to potential predators (males 40%, females 43%, immature 17%. This suggests that despite being more vigilant, male white-faced capuchins are no better than females at detecting predators.
Localización: Biblioteca OET: NBINA-2211.

Publicación no.: 319 **A comparison of methods used to census mantled howlers in the dry tropical forests of Costa Rica** *[Comparación de métodos empleados para censar monos congo en el bosque seco tropical de Costa Rica]* / Clarke, Margaret R; Crockett, C.M; Zucker, E.L. (Central Washington University. Department of Anthropology, Ellensburg, WA 98926, US <E-mail: clarkem@cwu.edu> <E-mail: crockett@u.washington.edu> <E-mail: zucker@loyno.edu>). Annual Meeting of the American Society of Primatologists. 22nd, New Orleans, LA, US. Aug. 12-16, 1999.
En: American Journal of Primatology (ISSN 0275-2565), v. 49, no. 1, p. 43-44. 1999.
(Abstract only). We censused mantled howlers (Alouatta palliata) at Hacienda La Pacífica in 1984, 1991, and 1998 using a transect method: 4-7 fieldworkers walked approximately parallel paths through potential howler habitats. In 1991 and 1998, a repeat survey (re-survey) protocol was added: teams of two fieldworkers searched smaller areas of the most suitable habitats on consecutive days (re-surveys 1 and 2). Transect surveys located 248 howlers in 16 groups (1986), 208 in 21 groups (1991), and 199 in 22 groups (1998). Three surveys combined (the number of different individuals and groups detected on any pass, transect plus two re-surveys) revealed 341 howlers in 27 groups (1991) and 347 howlers in 34 groups (1998). The transect survey located 78% and 65% of total groups and 61% and 57% of total individuals in 1991, and 1998, respectively. The combined re-surveys indicated 294 in 24 groups (86% of total) in 1991, and 275 in 27 groups (79% of total) in 1998. In 1998, re-survey 1 detected 168 animals in 18 groups whereas re-survey 2 revealed 21.3 in 21 groups. Thus, the second re-survey (third pass) counted 45 more animals than the first re-survey but only 14 more than the first pass transect. The single survey of either method produced a poorer estimate of population size. Transect plus two re-surveys is the better method for censusing howlers in dry tropical forests.
Localización: Biblioteca OET: S10633. NBINA-5823.

Publicación no.: 320 **Defecation patterns of Cebus capucinus and Alouatta palliata and the relationship with seed dispersal efficiency** *[Patrones de defecación de Cebus capucinus y Alouatta palliata y la relación con la eficiencia de diseminación de semillas]* / Numa, C; Wehncke, Elisabet V; Domínguez-Pérez-Tejada, C.A. (Instituto Alexander von Humboldt, calle 37 #8-40 mezzanine, Bogotá, CO <E-mail: cnuma@excite.com> <E-mail: elisabetw@ecologia.unam.mx> <E-mail: tejada@servidor.unam.mx>). International Symposium-Workshop on Frugivores and Seed Dispersal: Biodiversity and Conservation Perspectives. III, São Pedro, São Paulo, BR. August 6-11, 2000, p. 232.
(Abstract only). Two groups of white-faced monkeys and two of howler monkeys were followed for six weeks during the 1999 wet season, in the tropical dry forest of Palo Verde National Park, Costa Rica. We studied foraging and ranging behavior, seed handling and processing, seed dispersal distances, and

defecation patterns. Troops, feeding trees, and defecation positions were recorded, as well as four general behavioral activities. Distances traveled by monkeys were traced on maps and the probabilities of seed dispersal distances calculated. Capuchins moved longer distances (2463 m/day) than howlers (413 m/day). Most frequent distances/hour were also contrasting (capuchins=100 m; howlers=0 m). We collected 81 capuchin feces and 33 howler feces. In them 16/17 and 6/6 seed species were intact, respectively. Seed sizes swallowed by howlers ranged between 0.01-2.4 cm, while capuchins swallowed seeds between 0.01-1.5 cm. Capuchins visited in average more fruiting trees/h (1.39 ± 0.7, N=56) than howlers (0.54 ± 0.8, N=6).Highest probability of movement out of a fruiting tree was in the first 10 min for capuchins (before first appearance of seeds in feces), and from 25-300 min for howlers. Capuchins moved seeds in a range of 0-594 m away from parent plants (mean distance of seed travel=154.5 7 - 120.9 m, N=48), and howlers of 0-232 m (mean distance of seed travel=57.9 ▒ 76 m, N=7). Amount of dung may be important in determining post-dispersal activity. Two-three capuchins defecated together in 8/81 times, while howlers defecated always together (4-8 howlers, 33 times). We followed the fate of Allophyllus occidentalis seeds defecated and not defecated by capuchins in the field, in two patterns of defecations simulating both primates. Seeds without feces were more removedthan seeds with feces (defecated seeds removed= 149/600, control seeds removed=249/600; x^2=66.95, df=9, P0.001). Aggregated seeds were more removed than disaggregated no matter the presence or absence of feces (with feces: x^2=24.39, df=4, P<0.0001; without feces: x^2=12.89, df=4, P=0.011). The aggregation of seeds seems to be more important than the presence of feces. Several morphological and behavioral distinctions exist between howler monkeys and white-faced monkeys that are likely to affect patterns of fruit preference and their ecological impact as seed dispersers.
Localización: Biblioteca OET: AD 511.

Publicación no.: 321 **A census of mammal populations in Punta Leona Private Wildlife Refuge, Costa Rica** *[Censo de poblaciones de mamíferos en el Refugio de Vida Silvestre Privado Punta Leona, Costa Rica]* / Timmock, J; Vaughan-Dickhaut, Christopher. (Associated Colleges of the Midwest, Apartado 10265, San José, CR <E-mail: cvaughan@facstaff.wisc.edu>).
En: Revista de Biología Tropical (ISSN 0034-7744), v. 50, no. 3/4, p. 1169-1180. 2002.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-4469.pdf
Population sizes of six mammal species were estimated using the King method during the late dry season (March) of 1996 in the Punta Leona Private Wildlife Refuge, Costa Rica. The white-faced monkey (Cebus capucinus), coati (Nasua narica) and nine-banded armadillo (Dasypus novemcinctus) with 148, 46, and 8 sighted individuals, respectively, demonstrated the largest populations in the refuge. The Central American spider monkey (Ateles geoffroyi), tamandua anteater (Tamandua mexicana), and variegated squirrel (Sciurus variegatoides) were also included in the census. Population densities are calculated, habitat types are described, and habitat use and activity periods are discussed.
Localización: Biblioteca OET: R. NBINA-4469.

Publicación no.: 322 **PHVA for the Costa Rican squirrel monkey, Saimiri oerstedii** *[PHVA para el mono tití costarricense, Saimiri oerstedii]* / Matamoros-Hidalgo, Yolanda. (Parque Zoológico y Jardín Botánico Nacional Simón Bolívar, San José, CR <E-mail: fundazoo@racsa.co.cr>).
En: Neotropical Primates (ISSN 1413-4705), v. 4, no. 2, p. 63-64. 1996.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-15272.pdf

One of the recommendations made at the Saimiri Workshop held in 1994 was to have a second meeting in the area where they live. From 5-7 June 1995, 48 people met at the Manuel Antonio National Park, on the Central Pacific coast of Costa Rica, to discuss the status and recommendations for the conservation of the species. Five working groups were formed: Biology - discussed the biological data available and ran the VORTEX population simulation for the species; Distribution - analyzed the past and current distribution of the species and mapped the areas of remaining Saimiri populations; Translocation and Captive Breeding - developed protocols in case these measures were necessary for the survival of the species, helped by Dr. Cheryl Asa, St. Louis Zoo, and Dr. Larry Williams, University of South Alabama; Public Education - discussed the need for an education program; and Community - analyzed current and future community actions, with the collaboration of local authorities and five campesinos. The finalreport is still being prepared. It includes recommendations for more specific research to support an adequate management of the species. The most urgent topics were given as: 1) Determination of the distribution and demographics of the populations of thetwo subspecies, S. o. oerstedii and S. o. citrinellus; 2) the establishment of a public education program directed to the local communities and tourists; and 3) the establishment of a community action plan to protect the species. Dr. Ulysses Seal, Chairman of the IUCN/SSC Conservation Breeding Specialist Group (CBSG), met with government authorities, who indicated their willingness to implement the recommendations of the workshop. From a report to CBSG News 1995, 6(l): 23, by Yolanda Matamoros, ALPZA-AMAZOO.
Localización: Biblioteca OET: NBINA-15272.

Publicación no.: 323 **Is it a monkey or a bird? Vocal similarities between members of avian multi-specific flocks and squirrel monkey troops** *[¿Es un mono o un ave? Similitudes vocales entre miembros de bandadas de aves de múltiples especies y tropas de monos tití?]* / Farquhar, N.J. Congreso de Ornitología Tropical. IV, Quito EC3-9 Nov., 1991. Quito: Corporación Ornitológica del Ecuador / Pontificia Universidad Católica del Ecuador, 1991. p. irr.
(Abstract only) Convergent evolution of morphological characteristics in response to similar selective forces has been suggested for many groups of plants and animals. I investigated the possible convergence in acoustic communication signals between birds and mammals by quantifying the similarities between their vocalizations, and examining the selective pressures that may have shaped them. Mid-canopy multi-specific avian flocks and squirrel monkey (Saimiri oerstedii) troops exploit similar habitatsin a lowland tropical rainforest of Costa Rica. Certain vocalizations of the avian flock members have been observed to sound very similar to vocalizations known to function as 'contact calls' in the squirrel monkeys. Both groups were recorded in the field, and the calls compared. Although discriminant function analysis of six parameters measured from the sonograms successfully separated the two groups, it revealed that the most prominent shared structural features of the two groups of calls were 1) highpeak frequencies and 2) rapid frequency modulation (FM) sweeps. The effects of physical features of the forest environment on the propagation of sound signals predict the use of both of these acoustic features for short-range communication among group members. Another factor possibly shaping vocalizations reflects the relationship between the structure of sounds and the motivation of the signaller. The structure of these vocalizations is consisten with the prediction of motivation for a call used to promote cohesion among group members. Although the function of the calls in the avian flocks has not been systematically studied, investigations indicate that squirrel monkeys do use this call in the coordination of troop movement.
Localización: Biblioteca OET: AD 479.

Publicación no.: 324 **Asociaciones de nidos entre pájaros, hormigas y avispas en Costa Rica** / Joyce, Frank J. (Instituto Monteverde, Apdo. 10165, San José, CR <E-mail: fjoyce@racsa.co.cr>). Congreso de Ornitología Tropical. IV, Quito EC3-9 Nov., 1991. Quito: Corporación Ornitológica del Ecuador / Pontificia Universidad Católica del Ecuador, 1991. p. irr.
(Abstract only) Más de 100 especies de pájaros construyen sus nidos al lado de los panales o colonias de hormigas, avispas, y abejas. Esta observación genera dos preguntas: (1) ¿Cuál causa esta asociación: casualidad o una atracción de los pájaros alos insectos? (2) ¿Será posible que los pájaros reciban un beneficio porque las hormigas y avispas atacan depredadores de los nidos de pájaros?. En el Parque Nacional Santa Rosa, Guanacaste, Costa Rica, yo investigué estas y otras preguntas por estudiar selección de sitios para nidificación del piquiplano azufrado (Tolmomyias sulphurescens), soterrey de costillas barreteadas (Thryothorus pleurostictus) y soterrey nuquirrufo (Campylorhynchus rufinucha). Estas especies construyen nidos cubiertos. El sitiomás común de estas especies es el cornizuelo (Acacia collinsii), un arbusto en el cual generalmente vive una colonia de hormigas. Además de cornizuelos, los pájaros construyen nidos muy cerca a panales. Los resultados de varios experimentos con panales artificiales demostraron que estos pájaros construyen sus nidos al lado de avispas porque ellos son atraídos a los panales. En otros experimentos con el soterrey nuquirrufo (C. rufinucha), yo probé la hipótesis más probable que los nidos ubicados con panales fueron capaces de producir más pichones que nidos que no estuvieron al lado de panales. En 1987 y 1988, yo moví panales de la avispa Polybia rejecta a cornizuelos con nidos de soterrey nuquirrufo. En los dos años era significativamente más probable que los nidos en cornizuelos con panales translocados produjeran más pichones que nidos en cornizuelos sin panales. La depredación era la causa principal por la cual fallaron los nidos, y en el bosque los monos carablanca (Cebus capucinus) eran los depredadores más importantes.
Localización: Biblioteca OET: AD 479.

Publicación no.: 325 **Estado de fragmentación del hábitat para el desplazamiento del mono congo (Alouatta palliata) y sus efectos sobre la variabilidad genética en tropas de esta especie en el Área de Conservación Tempisque, Costa Rica** / Quan-Rodas, Claudia Lorena. (Universidad Nacional. Instituto Internacional en Manejo y Conservación de Vida Silvestre, Apdo. 1350-3000, Heredia, CR <E-mail: alouatta18@hotmail.com>). Heredia: Universidad Nacional, 2002. 80 p. Tesis, Mag. Sc. en Conservación y Manejo de Vida Silvestre, Universidad Nacional, Sistema de Estudios de Posgrado, Programa Regional en Manejo de Vida Silvestre para Mesoamérica y el Caribe, Heredia (Costa Rica).
Habitat fragmentation is currently one of the major threats to wildlife populations. This process can reduce the genetic flow in isolated populations, increase endogamy levels and therefore a progressive loss of adaptive value. The objectives of thisthesis are to describe the habitat fragmentation in the Tempisque Conservation Area (TCA) and to measure the effects of this process on the genetic variability of howler monkey (Alouatta palliata) troops that live in this region. GIS methodology was used for the landscape description. Two microsatellite loci were evaluated for 22 individuals in five locations of a continuous and relatively large habitat, as well as for 14 individuals in 5 locations of forest fragments outside protected areas. The habitatin the TCA is severely fragmented and consists mainly of gentle slope areas that are well suited for the development of productive activities. The main remaining forests are found in zones with steep slopes and in most cases coincide with protected areasor proposed corridors and Special Protection Zones. In fragmented zones, the howler monkey troops have less genetic flow and diversity compared to troops in large forest areas like Palo Verde National Park. The

results show that natural and anthropic barriers exist for the dispersion of the howlers. Gallery forests act as natural corridors through the landscape, therefore its protection and enrichment is very important for primates in this habitat. The fragmentation processes and the loss of genetic diversity could put at risk the survival of howlers in TCA in the medium or long term. However, the howlers' great adaptability and ability to recover after declines can help to maintain its populations if adequate management activities are implemented. In this study some recommendations are offered in this regard.
Localización: Biblioteca OET: Tesis 417.

Publicación no.: 326 **The behavior of wild white-faced capuchins: demography, life history, social relationships, and communication** *[El comportamiento de los monos carablancas silvestres: demografía, ciclo vital, relaciones sociales y comunicación]* / Perry, Susan E. (University of California at Los Angeles. Department of Anthropology, Behavior, Evolution and Culture Program, Los Angeles, CA 90095, US <E-mail: sperry240anthro.ucla.edu>).
En: Advances in the Study of Behavior (ISSN 0065-3454), v. 44, p. 135-181. 2012.ISBN: 90-6605-975-3.
Introduction: The primary impetus for studying nonhuman primate social systems in anthropology has been to provide insights into human behavioral evolution. During the 1960s and 1970s, behavioral primatology focused on catarrhines, and particularly on great apes, because of their phylogenetic proximity to humans, and thus their similarity to hominins resulting from homology. However, to understand the selective pressures that shaped key behavioral, morphological, and life history traits, it is critical to take a broader comparative perspective, seeking evolutionarily independent appearances of the traits of interest and investigating the cross-species correlates of these traits. Most of what we know about the life histories of white-faced capuchin monkeys comes from two long-term research projects, both located in tropical dry forest sites in Guanacaste, Costa Rica the Lomas Barbudal Monkey Project (referred to as "Lomas"), established in 1990 by Susan Perry (Perry and Manson, 2008; Perry et al., 2012), and a project in Santa Rosa National Park, started in 1983 by Linda Fedigan (Fedigan and Jack, 2012). Shorter studies of social behavior have been conducted at Barro Colorado Island in Panama (Crofoot et al., 2008; Mitchell, 1989; Oppenheimer, 1968), La Trujillo in Honduras (Buckley, 1983), and three other Costa Rican sites: Palo Verde (Panger, 1997; Perry et al., 2003a), La Selva (Boinski and Campbell, 1995), and Curu Wildlife Refuge (Baker, 1999; Perry et al., 2003a. Unless otherwise stated, the data in this chapter come from the Lomas Barbudal Monkey Project. Over the course of the past 21 years, this research project has collected data on 445 individual monkeys from 12 social groups, amassing a total of over 79,000 h of behavioral data. Table I summarizes the periods of data collection for each study group and the types of data collected.
Localización: Biblioteca OET: NBINA-15879.

Publicación no.: 327 **Impact of male takeovers on infant deaths, births and conceptions in Cebus capucinus at Santa Rosa, Costa Rica** *[Impacto de los machos dominantes en la muerte de infantes, en los partos y concepciones en Cebus capucinus en Santa Rosa, Costa Rica]* / Fedigan, Linda M. (University of Calgary. Department of Anthropology, Calgary, AB T2N 1N4, CA <E-mail: fedigan@ucalgary.ca>).
En: International Journal of Primatology (ISSN 0164-0291), v. 24, no. 4, p. 723-741. 2003.
Male takeovers are associated with infant wounding and death in 3 of 4 capuchin species. In this paper, I analyze the effects of male takeovers on infant mortality and the subsequent conceptions and interbirth intervals of their mothers over an 18-yrperiod and test predictions of the sexual selection model of

infanticide for white-faced capuchins, (Cebus capucinus). Major findings are that infants are significantly more likely to die in the 3- and 12-mo periods following a takeover than in times of peace and that a female whose infant dies experiences a significantly shorter interbirth interval before her next infant is born than she would have had the former infant survived. In the vast majority of cases, the invading males become resident in the group and are present during the subsequent conceptions of the females in the group. However, overall conception rates do not rise significantly in the year after a takeover, there is no relationship between the age of the infant at death and the length of the mother's subsequent interbirth interval and it is not yet clear if male infants are preferentially targeted by invading males. Most takeovers occur during the 6-mo dry season and most conceptions occur in the wet season, 3- 6 mo later. My findings support the major predictions of the sexual selection model of infanticide in primates and demonstrate that male takeovers of social groups have substantial effects on infant survival and maternal parturition patterns in Cebus capucinus.
Localización: Biblioteca OET: NBINA-1000.

Publicación no.: 328 **Interspecific interactions between Cebus capucinus and other species: Data from three Costa Rican sites** *[Interacciones interespecíficas entre Cebus capucinus y otras especies: Datos de tres sitios costarricenses]* / Rose, L.M; Perry, Susan E; Panger, M.A; Jack, Katharine M; Manson, Joseph H; Gros-Louis, Julie J; Mackinnon, Katherine C; Vogel, E.R. (University of British Columbia. Department of Anthropology, 6303 NW Marine Dr, Vancouver, BC V6Y 1Z1, CA <E-mail: lrose@interchange.ubc.ca> <E-mail: perry@eva.mpg.de> <E-mail: panger@gwu.edu> <E-mail: kjack@tulane.edu> <E-mail: jmanson@anthro.ucla).
En: International Journal of Primatology (ISSN 0164-0291), v. 24, no. 4, p. 759-796. 2003.
Capuchins exhibit considerable cross-site variation in domains such as foraging strategy, vocal communication and social interaction. We report interactions between white-faced capuchins (Cebus capucinus) and other species. We present comparative data for 11 groups from 3 sites in Costa Rica that are ecologically similar and geographically close, thus reducing the likelihood that differences are due solely to genetic or ecological differences. Our aim is to document both the range of variation and common elements across sites and situations. We also consider factors that contribute to the variation or consistency or both, including social learning, local ecology, and temperament. We consider 4 categories of allospecifics: (1) vertebrate prey, (2) potential predators, (3) feeding competitors, and (4) neutral species. Although we cannot rule out local differences in ecology, our data suggest that social learning may account for at least some cross-site differences in behavior toward allospecifics. Our strongest finding is that boldness, aggression and pugnacity are displayed consistently across sites, groups and circumstances, even in interactions with neutral species, which reflects a critical aspect of species-specific temperament in Cebus capucinus that has been evolutionarily developed and reinforced through highly opportunistic foraging, strong predator defense, and active hunting. We suggest directions for future research, particularly in regard to primate temperament as an evolved trait with consequences for fitness.
Localización: Biblioteca OET: NBINA-999.

Publicación no.: 329 **Social development of wild white-faced capuchin monkeys (Cebus capucinus) in Costa Rica: An examination of social interactions between immatures and adult males** *[Desarrollo social de los monos carablanca silvestres (Cebus capucinus) en Costa Rica: Un examen de las interacciones sociales entre machos inmaduros y adultos]* / MacKinnon, Katherine C. (Saint Louis

University. Department of Sociology and Criminal Justice and Center for International Studies, St Louis, MO 63103, US <E-mail: mackinn@slu.edu>). Berkeley, CA: University of California, 2002. 274 p. ISBN: 0-493-82348-4. Dissertation, Ph.D., University of California at Berkeley (USA).
This dissertation examines the social behavior and development of wild white-faced capuchin monkeys (Cebus capucinus) in northwestern Costa Rica. The 11-month study was carried out in the Área de Conservación Guanacaste, Sector Santa Rosa, from January to December 1998. Data were collected on two habituated study groups of capuchins using focal, scan, and ad libitum sampling techniques. Additional information on the socioecology of this species, such as group movement patterns, diet, intergroup encounters, and predator interactions was also documented. Information on the social behavior and development of young C. capucinus in the wild is limited. This study adds to the existing body of knowledge on immature (infant and juvenile) behavior in this species, and is the first long-term study on interactions between immatures and adult males. This dissertation documents a broad range of behavioral interactions between immatures and adult male white-faced capuchins. Analyzed data from affiliative, agonistic, and play behaviors are presented and the behavioral mechanisms and possible theoretical explanations of social interactions between immatures and adult males are discussed. In particular, the factors which drew the attention of immatures to certain adult males are examined: the male's rank in the dominance hierarchy, the nature of the relationship between the young animal's mother and individual adult males in the group, the age of the young animal, and kin recognition. Several conclusions are presented. First, immature interactions with adult males are customary and essential. Second, theoretical reasons for this type of social interaction are plural and not mutually exclusive. Third, kin selection and recognition are not the primary reasons for such interactions (i.e. genetic relatedness, or lack of it, doesn't adequately explain certain behavioral patterns). Finally, adult male dominance rank and the immature's familiarity with certain adult males are more important factors in the formation of these relationships. This study explores the nature of immature and adult male interactions in wild white-faced capuchins, and considers the possible reasons behind them. Studies of this kind are important for the development of theories regarding male parental care, affiliation, and social development in both nonhuman and human primates.
Localización: Biblioteca OET: NBINA-8402.

Publicación no.: 330 **The context of an observed infant-killing event in Cebus capucinus at Santa Rosa National Park, Costa Rica** *[Contexto de la observación de la muerte de un infante de Cebus capucinus en el Parque Nacional Santa Rosa, Costa Rica]* / MacKinnon, Katherine C. (Saint Louis University. Department of Sociology and Criminal Justice and Center for International Studies, St Louis, MO 63103, US <E-mail: mackinn@slu.edu>). Annual Meeting of the American Society of Primatologists. 26th., University of Calgary, Alberta CAJuly 29-August 2, 2003.
En: American Journal of Primatology (ISSN 0275-2565), v. 60, Suppl. 1, p. 60-61. 2003.
(Abstract only) During a 1998 field season I observed and documented an infant-killing event in a group of white-faced capuchin monkeys (Cebus capucinus) in Santa Rosa National Park, Costa Rica. Here I present the context of this event, including the known histories of the participants and the behavior of the individually recognized study animals before, during, and after the event. Additionally, the 2-day old infant's body was recovered and paternity was determined. Currently this is the first fully observed and documented infant-killing event in this species during a long-term field study. While the number of observed cases of infanticide is low (~60), the sexual selection hypothesis has become the predominant theoretical framework for explaining its occurrence. In the instance presented here, I argue that it was

the aberrant behavior of the infant's low-ranking mother that placed it directly in harm's way. Additionally, I suggest that the sexual selection hypothesis regarding infanticide places too much emphasis on explaining infant deaths primarily as resulting from a reproductive strategy of male primates. Alternative explanations must still be explored, especially in cases where the context of such an event is known.
Localización: Biblioteca OET: S9576.

Publicación no.: 331 **The effects of forest fragment size and isolation on monkey density in a Costa Rican tropical dry forest** *[Efectos del tamaño de la fragmentación del bosque y aislamiento en la densidad de monos en un bosque seco tropical]* / DeGama-Blanchet, Holly Noelle; Fedigan, Linda M. (University of Calgary. Department of Anthropology, Calgary, Alberta T2N 1N4, CA <E-mail: fedigan@ucalgary.ca>). Annual Meeting of the American Society of Primatologists. 26th., University of Calgary, Alberta, CA. July 29-August 2, 2003.
En: American Journal of Primatology (ISSN 0275-2565), v. 60, Suppl. 1, p. 57-58. 2003.
(Abstract only) This study examined the effects of forest fragment size and isolation on the density and presence of white-faced capuchins (Cebus capucinus), mantled howling monkeys (Alouatta palliata) and black-handed spider monkeys (Ateles geoffroyi), in tropical dry forest fragments. Line transects were walked between January and June 2003 in three sectors of the megapark Área de Conservación Guanacaste, Costa Rica. In accordance with previous studies on primates and with predictions made in Island Biogeography Theory, I hypothesized that there would be larger primate populations and that each primate species would be more likely to be found in larger fragments of forest. Secondly, I predicted that these primate populations would be less likely to be found and their populations would be smaller in more isolated patches. Lastly, this study explored how forest fragment age affected primate density and how the primate population dynamics in the Park have changed since the las transect surveys were conducted. The information gained from my study contributes to the small body of knowledge on how primates survive in habitat fragments.
Localización: Biblioteca OET: S9577.

Publicación no.: 332 **Function and mechanisms of alarm calls, lost calls and contact calls in white-faced capuchins** *[Función y mecanismos de los llamados de alarma, llamados de extravío y llamados de contacto en monos carablanca]* / Digweed, S; Fedigan, Linda M. (University of Calgary. Department of Anthropology, Calgary, Alberta, T2N 1N4, CA <E-mail: fedigan@ucalgary.ca>). Annual Meeting of the American Society of Primatologists. 26th., University of Calgary, Alberta CAJuly 29-August 2, 2003.
En: American Journal of Primatology (ISSN 0275-2565), v. 60, Suppl. 1, p. 57. 2003.*(Abstract only)*
This study explored the functions and mechanisms underlying alarm calls, contact calls and lost calls in Cebus capucinus, a species that is considered the New World equivalent of the vervet monkey. Like vervets, white-faced capuchins have three types of predators (large cats, raptors and snakes), and it has been observed that the white-faced capuchins produce different sounding alarm calls, possibly in response to the different types of predators. Individuals from two study groups of white-faced capuchins were observed from June to July 2002 and January to May 2003 in Santa Rosa National Park, ACG, Costa Rica. Focal animal and sequence samples were used to record instances of alarm, lost and contact call behavior and the contexts in which they occurred. Acoustic analysis of alarm calls was carried out to determine if distinct vocalizations are directed at different types of predators. Recordings were also made of what were hypothesized to be contact and lost vocalizations. Acoustic analysis of lost

and contact calls was carried out to determine if there was structural differences between the call types and how this structure may relate to call function. Determining if referential signaling occurs in white-faced capuchin alarm calls, and the potential factors mediating capuchin contact and lost calls will add to the general body of knowledge on this species as well as to specific documentation of their vocal repertoire.
Localización: Biblioteca OET: S9578.

Publicación no.: 333 **Hormonal and behavioral evidence of non-conceptive mating in wild female white-faced capuchins (Cebus capucinus), Santa Rosa National Park, Costa Rica** *[Evidencia hormonal y de comportamiento de cópulas que no llevan a la concepción en hembras silvestres de las monas carablanca (Cebus capucinus), Parque Nacional Santa Rosa, Costa Rica]* / Carnegie, Sarah D; Fedigan, Linda M; Ziegler, Toni E. (University of Calgary. Department of Anthropology, Calgary, Alberta, T2N 1N4, CA <E-mail: sdcarneg@ucalgary.ca> <E-mail: fedigan@ucalgary.ca>). Annual Meeting of the American Society of Primatologists. 26th., University of Calgary, Alberta CAJuly 29-August 2, 2003.
En: American Journal of Primatology (ISSN 0275-2565), v. 60, Suppl. 1, p. 56-57. 2003.
(Abstract only) Non-conceptive mating can be defined as mating that occurs within a female's ovarian cycle but outside a defined ovulatory period. Wild, white-faced capuchins are known to practice non-conceptive mating but this has been determined in the past by estimating reproductive states. The objectives of the study were to use hormone profiles to document if non-conceptive mating occurs in this species and determine which reproductive state (ovulating, non-ovulating/cycling and pregnant) this behavior is observed the most. Focal animal follows and fecal samples were collected concurrently from 10 females in two groups of habituated, wild capuchins. Fecal samples were analyzed for estradiol and progesterone using RIAs and EIAs respectively. The results show that from 28 observed matings, 79% involved pregnant females. This was significantly more than the other non-conceptive group of females (Kruskal-Wallis, multiple comparisons; $X^2 = 8.61$, df = 2, p = 0.01). The frequency of mating between pregnant and ovulating females was not significantly different. Of the matings among the pregnant females, 95% (N =22) were with males other than the alpha male. Pregnant females may practice this behavior to confuse paternity and therefore lessen the chance of infanticide by males who have mated with them. In proximate terms, males may be attracted to the elevated hormone levels that are similar in both pregnant and ovulating females.
Localización: Biblioteca OET: S9575.

Publicación no.: 334 **Evaluating social influences on food processing behavior in white-faced capuchins (Cebus capucinus)** *[Evaluando las influencias sociales sobre el comportamiento de procesamiento de los alimentos en los monos carablanca (Cebus capucinus)]* / O'Malley, R.C; Fedigan, Linda M. (University of Calgary. Department of Anthropology, Calgary, Alberta, T2N 1N4, CA <E-mail: fedigan@ucalgary.ca>). Annual Meeting of the American Society of Primatologists. 26th., University of Calgary, Alberta CAJuly 29-August 2, 2003.
En: American Journal of Primatology (ISSN 0275-2565), v. 60, Suppl. 1, p. 55. 2003.
(Abstract only) Inter-population variation in capuchin food processing techniques has been argued to reflect "social traditions" in foraging behavior. However, comparisons of capuchin populations have been conducted only at a broad level, with little attention given to intra-population variability among groups, age/sex classes, and individuals. Our research examines patterns of variability in food processing among Cebus capucinus at Santa Rosa National Park, Costa Rica. In particular, we examine such

variability within the context of the social networks of proximity, rank, and kinship. We collected 309.5 hours of focal data on two groups of capuchins in 2001, identifying rates of food interest bouts by each individual, as well as forms of complex processing and consumption for specific food types. Food interest was observed most often in non-adults, and directed most often towards adult females. Distinctive techniques were identified for several foods (Luehea candida pods, Sloanea terniflora fruits, and caterpillars). Non-parametric analyses modeled on that used by Panger et al. (2002) revealed no differences in processing techniques that consistently correlated with social networks, though we found some evidence that patterns of Luehea processing do correlate with proximity and rank in one study group. These results highlight the need for further research on specific food processing patterns among wild capuchin individuals and groups, in order to develop a clearer perspective on the broad differences that have been identified between populations.
Localización: Biblioteca OET: S9571.

Publicación no.: 335 **The role of food patches in primate socioecology: A monkey's eye view** *[Papel de las parcelas de alimento en la socioecología de primates: desde la perspectiva de los monos]* / Vogel, E.R; Janson, Charles H. (University of California. Department of Anthropology, 1156 Hight Street, Santa Cruz, CA 95064, US <E-mail: evogel@ucsc.edu>). Annual Meeting of the American Society of Primatologists. 26th., University of Calgary, Alberta, CA. July 29-August 2, 2003.
En: American Journal of Primatology (ISSN 0275-2565), v. 60, Suppl. 1, p. 43-44. 2003.
(Abstract only). Food abundance and distribution have played a central role in the conceptual theory of primate socio-ecology (Janson 1988; van Schaik 1989; Chapman et al. 1995; Sterck et al. 1997). This theory predicts that agonistic ('contest') competition should occur when food is distributed in discrete, defensible patches; in contrast, when food sources are distributed uniformly or randomly, nonagonistic ('scramble') competition is expected. Primatologists usually measure resource density and patchiness from a botanical perspective, ignoring the biology of the animal being studied. Such an approach may be irrelevant to how the animals view the dispersion of resources. We suggest a new method that provides a monkey-based index of food abundance and quality. Rather than assigning quadrat size based on plant density, we propose using the monkey species' average group spread as a sampling unit. We use a focal-tree method to estimate both the within-tree benefit, and the opportunity costs, of food-related contests. This procedure is evaluated using data on white¬faced capuchin monkeys, Cebus capucinus, from a subset of the 700 focal-tree follows collected in northwestern Costa Rica. These results show that the density of feeding trees in the sampling quadrat, not including the focal tree, is a significant predictor of both frequency and types of agonism in the focal tree. Our approach clarifies some contradictory published results about the relationships between aggression and food distribution in primates.
Localización: Biblioteca OET: S9569.

Publicación no.: 336 **Restoring monkeys to tropical habitats: Lessons from a Costa Rican dry forest** *[Devolviendo a los monos a los hábitats tropicales: lecciones de un bosque seco costarricense]* / Fedigan, Linda M. (University of Calgary. Department of Anthropology, Social Sciences Bldg 830, Calgary, AB T2N 1N4, CA <E-mail: fedigan@ucalgary.ca>). Annual Meeting of the American Society of Primatologists. 26th., University of Calgary, Alberta, CA. July 29-August 2, 2003.
En: American Journal of Primatology (ISSN 0275-2565), v. 60, Suppl. 1, p. 35. 2003.

(Abstract only). The accelerating pace at which tropical forests are being felled threatens the extinction of many species, and much research is focused on documenting the decline of primate populations forced to live in ever-diminishing forest fragments. Although some formerly disturbed habitats are now protected, only a small literature exists on how and when mammal populations return to regenerating forests. Since 1983 we have monitored the population dynamics of Alouatta palliata and Cebus capucinus in Santa Rosa National Park, Costa Rica. This park was established in 1971 on reclaimed ranchlands and expanded into the Área de Conservación Guanacaste in 1989, at which time poachers, anthropogenic fires, and cattle were gradually eliminated from the area and tropical dry forest allowed to regenerate. We found that both howler and capuchin populations increased substantially in size during our twenty year study, but the howler population grew faster. They also grew differently, the howlers expanding mainly via the establishment of new groups and the capuchins through increasing the size of existing groups. I will examine the ecological, social and life history variables (e.g., hunting, dispersal patterns, and pace of reproduction) that appear to differentially affect the vulnerability of these two species as well as their capacity to recover. Santa Rosa is a restoration "good news" story and I will briefly describe the historical, cultural and political reasons for its success.
Localización: Biblioteca OET: S9567.

Publicación no.: 337 **Behavioral ecology of the Central American spider monkey (Ateles geoffroyi panamensis) in Costa Rican wet forest: Pilot study results** *[Ecología del comportamiento del mono colorado centroamericano (Ateles geoffroyi panamensis) en un bosque húmedo costarricense: Resultados de un estudio piloto]* / Weghorst, Jennifer A. (Washington University. Department of Anthropology, St Louis, MO, 63130-4899, US). Annual Meeting of the American Society of Primatologists. 24th., Savannah, GA, US. August 08-11, 2001.
En: American Journal of Primatology (ISSN 0275-2565), v. 54, Suppl. 1, p. 97. 2001.
(Abstract only). In this pilot study, I aimed to ascertain the feasibility of a long-term behavioral ecology project on the Central American spider monkey at Sirena Biological Station, Corcovado National Park, Costa Rica (8° 26' to 8° 39' N, 83° 25' to 83° 44' W). This tropical wet forest site (annual average rainfall around 4800 mm) provides an opportunity to study Ateles' fission-fusion social system in what is a botanically productive and diverse habitat. From mid-June through mid-August 2000, 1 logged over 200 contact hours with the spider monkeys. Results from a brief, informal survey showed Ateles to be the most-frequently seen primate and suggest that spider monkey density may be higher for Sirena than for other sites. I collected data on activity budget, subgroup size and composition, and diet. Activity budget results from continuous, focal animal sampling, biased almost entirely toward adult females, were: Rest 40.28% (includes "Rest in contact" 19.33%), Forage 34.83%, Travel 23.87%, and Other (including affiliative and agonistic interactions, grooming, and play) 1.02%. Average subgroup size of independently-locomoting individuals was 4.23 (std. dev. 3.24), with a modal size of 2. Most subgroups contained both sexes. Ateles ate from 44 plant species across 24 families, with most of these fruit sources, suggesting a highly diverse diet.
Localización: Biblioteca OET: S9574.

Publicación no.: 338 **Variation in ranging patterns and habitat use by capuchin monkeys (Cebus capucinus) in a dry tropical forest** *[Variación en los patrones de distribución y uso del hábitat por parte de los monos carablanca (Cebus capucinus) en un bosque seco tropical]* / Baker, Mary E. (Rhode Island College. Department of Anthropology, 600 Mt. Pleasant Ave., Providence, RI 02908, US <E-mail:

mbaker@ric.edu>). Annual Meeting of the American Society of Primatologists. 24th., Savannah, GA, US. August 08-11, 2001.
En: American Journal of Primatology (ISSN 0275-2565), v. 54, Suppl. 1, p. 95. 2001.
(Abstract only). Primates living in dry tropical forests must deal with extreme seasonal variation in resource availability. Many of the water sources that they are able to access in the trees and at ground level dry up, many trees lose their leaves and the vegetative cover becomes very thin and sparse. It is expected that during the dry season they will limit the distance they travel each day and restrict their foraging efforts to areas where there is more food and water and greater leaf cover for both shade and protection from predators. Research on free-ranging white-faced capuchin monkeys (Cebus capucinus) in Costa Rica from 1993 to 1996 indicated that the mean distance traveled each day did not vary significantly when comparing the dry and wet seasons (two-tailed Mann-Whitney U=0.7379, p0.05). Where the monkeys spent their time did vary by season; they favored areas with water and denser leaf cover. Moreover, it was found that the monkeys began altering their pattern of habitat usage during the transitional period between the dry and wet seasons.
Localización: Biblioteca OET: S9573.

Publicación no.: 339 **Life history of male white-faced capuchins (Cebus capucinus), Santa Rosa National Park, Costa Rica** *[Ciclo vital del macho de los monos carablanca (Cebus capucinus), Parque Nacional Santa Rosa, Costa Rica]* / Jack, Katharine M; Fedigan, Linda M. (Tulane University. Department of Anthropology, 1021 Audubon St, New Orleans, LA 70118, US <E-mail: kjack@tulane.edu> <E-mail: fedigan@ucalgary.ca>). Annual Meeting of the American Society of Primatologists. 24th., Savannah, GA, US. August 08-11, 2001.
En: American Journal of Primatology (ISSN 0275-2565), v. 54, Suppl. 1, p. 50. 2001.
(Abstract only). Life history data on the dispersing sex are difficult to obtain and often absent from studies of free ranging primates. Sdch data, however, are essential to comparative primate socioecology. We detail the life history of males residing in three groups of Cebus capucinus in Santa Rosa National Park between 1984 and 2000. Thirty-eight males were born in three groups: 14 died, 21 emigrated, and 3 had not yet dispersed. Natal emigration occurred at a median age of 54.6 months and median tenure of immigrant males within groups was 42.7 months for immatures (N=19), 27.7 months for subadults (N=10), and 48.9 months for adults (N=32) (SURVIVAL analysis). All immature males (N=29), subadult males (N=10), and 82% of adult males (N=27) dispersed voluntarily, while six adult males were evicted by new immigrants. Natal emigration appeared to be in response to an attraction to extragroup males or dispersing coresident males, while secondary emigration appeared to be the result of an attraction to extragroup mates. Parallel dispersal (dispersal with coresident males or into groups containing familiar males) was common and did not decrease significantly with age: natal 71%, immature secondary emigrants 75%, subadult 80%, and adult males 67%. Male Cebos capucinus change groups continually throughout their lives and the high rates of parallel dispersal may function to maintain male related¬ness in groups and reduce the costs of frequent dispersal.
Localización: Biblioteca OET: S9570.

Publicación no.: 340 **Activity patterns of adult male howling monkeys (Alouatta palliata) in the dry forest of Costa Rica: Comparison by age, habitat and social group** *[Patrones de actividad de los machos adultos de los monos congo (Alouatta palliata) en el bosque seco tropical de Costa Rica: Comparación por edad, hábitat y grupo social]* / Clarke, Margaret R; Arden, D.H; Epstein, D; Gilbert, M. (Central

Washington University. Department of Anthropology, Ellensburg, WA 98926, US <E-mail: clarkem@cwu.edu>). Annual Meeting of the American Society of Primatologists. 24th., Savannah, GA, US. August 08-11, 2001.
En: American Journal of Primatology (ISSN 0275-2565), v. 54, Suppl. 1, p. 28. 2001.
(Abstract only) Five adult males in 3 social groups of mantled howling monkeys on Hacienda La Pacífica, Guanacaste, Costa Rica, were studied for 316.5 hours during June and July 2000 using focal animal observations. One 2-male group lived in upland dry forest, and one 2-male group and the 1-male group lived in riparian forest. Each 2-male group had an older, subordinate male (25 and 19 years), and all 3 groups had a younger, dominant male (8,10, and 11 years). Data were tabulated for resting, traveling, feeding and interacting, and converted to percentage per day to account for variable observation periods. Two-way ANOVA was used to compare activities by age (young/old) and by habitat (riparian/upland). One-way ANOVA was used to compare group differences. Adult males in upland habitat fed significantly longer (F 1,55 = 5.34, p .03), and older males traveled significantly longer (F 1,55
Localización: Biblioteca OET: S9568.

Publicación no.: 341 **Food processing technique differences across three capuchin (Cebus capucinus) populations in Costa Rica** *[Diferencias en la técnica de procesamiento del alimento en tres poblaciones de monos carablanca (Cebus capucinus) en Costa Rica]* / Panger, M.A; Perry, Susan E; Rose, L.M; Gros-Louis, Julie J; Vogel, E.R; MacKinnon, Katherine C; Baker, Mary E. (The George Washington University. Department of Anthropology, 2110 G St NW, Washington, DC 20052, US <E-mail: panger@gwu.edu> <E-mail: perry@eva.mpg.de> <E-mail: lrose@interchange.ubc.ca> <E-mail: jgroslou@indiana.edu> <E-mail: evogel@ucsc.edu> <E-mail: mackinn@slu.edu> <E-mail: mbaker@ric.edu>). Annual Meeting of the American Association of Physical Anthropologists, Kansas City, MO,US, March 28-31, 2001.
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 32, p. 117. 2001.
(Abstract only). Researchers have identified several foraging traditions (i.e., intraspecific behavioral differences across populations not due to obvious genetic or ecological variation) in chimpanzees, orangutans, and macaques. What is not currently known is whether this high level of interpopulation variation in behavior is unique to Old World primates. In this study we use long-term data from three Costa Rican field sites that are geographically close and similar ecologically (Lomas Barbudal, Palo Verde, and Santa Rosa) to identify potential foraging traditions in white-faced capuchins (Cebus capucinus). The processing technique(s) used for food species that were eaten by monkeys at two or more of the three main study sites were compared. All differences found were classified as present, habitual, or customary. Social network data were also analyzed, when available. Our results demonstrate that hominoids and macaques are NOT unique among the primates in regard to their degree of interpopulation variation in foraging behavior. Of the 61 foods compared, 20 of them are processed differently by capuchins across the three sites. The differences involve pound, rub, tap, fulcrum, "leaf-wrapping", and "army anting". For most of the differences there is a strong correlation between proximity scores and the individuals within a population who share the "different" processing techniques.
Localización: Biblioteca OET: S9636.

Publicación no.: 342 **Presence of mother and juvenile dispersal in free-ranging howling monkeys (Alouatta palliata) in the tropical dry forest of Costa Rica** *[Presencia de la madre y dispersión de los juveniles en monos congo en libertad (Alouatta palliata) en el bosque seco tropical de Costa Rica]* /

Clarke, Margaret R; Glander, Kenneth E. (Central Washington University. Department of Anthropology, Ellensburg, WA 98926, US <E-mail: clarkem@cwu.edu> <E-mail: glander@duke.edu>). Annual Meeting of the American Association of Physical Anthropologists, Kansas City, MO, US, March 28-31, 2001.
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 32, p. 50. 2001.
(Abstract only). While the "rule" in mantled howling monkeys is that juveniles of both sexes emigrate from their natal group, occasionally an animal does stay in its natal group. Thus, it was unusual when two juveniles remained in their natal social group until adulthood. Both of their mothers had died before the juveniles reached the usual age of emigration. To verify if this pattern occurred regularly, emigration records in 5 social groups of howling monkeys living in both riparian and upland habitat on Hacienda La Pacífica in the tropical dry forest of Guanacaste, Costa Rica were analyzed. These groups had been regularly censused for 28, 20, 15, 12 and 11 years. From 1972 to 2000, there were 80 juveniles for whom presence/absence of mother and emigration histories were known. Sixty-six juveniles had mothers in the group, and 64 emigrated. Fourteen juveniles did not have mothers in the group and 6 emigrated (C^2df=1 =30.9, p.0001). These emigrants, however, left the group at an older age than ,the norm for the group, staying 1-4 years longer. This suggests that the lack of a mother in the natal group gave them extra years of group membership which presumably could shorten the species-typical solitary phase before permanently joining a different social group. There were no differences in patterns for upland or riparian groups. Animals that remained in their natal group had to "join" the group in the same manner as an immigrant, i.e. become the dominant female or dominant male. The migration "rules" haven't changed, but it appears that the presence of the mother does have an effect on when or if a juvenile will be forced out of its natal group. Since juveniles are chased, and frequently hurt, by nonrelatives prior to emigration, we suggest that juvenile emigration is perhaps better understood as competition between adult females, competition which ceases to exist when the juvenile's mother is no longer in the group.
Localización: Biblioteca OET: S9632.

Publicación no.: 343 **Genetic variation of mantled howler monkeys (Alouatta palliata) from Costa Rica** *[Variación genética de los monos congo (Alouatta palliata) de Costa Rica]* / Zaldívar-Ruiz, María Eugenia; Glander, Kenneth E; Rocha-Núñez, Oscar J; Aguilar, G; Vargas-Barrantes, Elida María; Gutiérrez-Espeleta, Gustavo A; Sánchez-Porras, Ronald E. (Universidad de Costa Rica. Escuela de Biología, San José, CR <E-mail: zaldivar@biologia.ucr.ac.cr> <E-mail: glander@duke.edu> <E-mail: ojrocha@biologia.ucr.ac.cr> <E-mail: ggutier@biologia.ucr.ac.cr> <E-mail: resanche@cariari.ucr.ac.cr>).
En: Biotropica (ISSN 0006-3606), v. 35, no. 3, p. 375-381. 2003.
We examined genetic diversity of howler monkeys (Alouatta palliata) from Costa Rica. Blood samples of howler monkeys were collected at various locations in Costa Rica, and electrophoresis of total plasma proteins yielded no variation. We also conducted starch gel electrophoresis of red cell isozymes and did not find variation for any of the 4 loci analyzed (i.e., ACP, ADA, CA2, EST, GPI, IDH, LDH-1, LDH-2, MDH, PGD, PGM-1, PGM-2, SOD, and TPI). These findings were compared with the levels of genetic variation for A. seniculus and A. belzebul from one Brazilian population. Four of the 14 isozymes (ADA, GPI, PGD, and SOD) showed more than one allele for these species. Both A. seniculus and A. belzebul from Brazil showed similar levels of genetic variation. The potential causes of the low genetic variation in A. palliata from Costa Rica are discussed.
Localización: Biblioteca OET: B. NBINA-7900.

Publicación no.: 344 **Distribution and resource use of the mantled howler monkey (Alouatta palliata) at La Selva Biological Reserve, Costa Rica** *[Distribución y utilización del recurso por parte del mono congo (Alouatta palliata) en la Reserva Biológica La Selva, Costa Rica]* / Stoner, Kathryn E. (Universidad Nacional Autónoma de México. Centro de Investigación en Ecosistemas, Apartado Postal 27-3, Xangari, Morelia 48980, MX <E-mail: kstoner@oikos.unam.mx>). Annual Meeting of the Association for Tropical Biology held at the AIBS (American Institute of Biological Sciences), San Antonio, TX, US. August 4-8, 1991. St. Louis, MO: Association for Tropical Biology, 1991. no pagination. (No abstract).
Localización: No disponible.

Publicación no.: 345 **White-faced capuchins cooperate to rescue a groupmate from a Boa constrictor** *[Los monos carablanca cooperan para rescatar de una Boa constrictor a un miembro del grupo]* / Perry, Susan E; Manson, Joseph H; Dower, G; Wikberg, Eva. (Max-Planck-Institute for Evolutionary Anthropology. Independent Junior Research Group in Cultural Phylogeny, Deutscher Platz 6, 04103 Leipzig, DE <E-mail: perry@eva.mpg.de> <E-mail: manson@eva.mpg.de>).
En: Folia Primatologica (ISSN 0015-5713), v. 74, no. 2, p. 109-111. 2003.
Although avoidance of predators has long been thought to play a major role in the evolution of primate sociality [van Schaik, 1983], there are relatively few data on predation attempts on primates and the responses of primates to attacks by predators [Stanford, 2002]. Wild white-faced capuchins (Cebus capucinus) regularly mob snakes [Chapman, 1986]. There is one published observation of white-faced capuchins killing a Bothrops asper with a club [Boinski, 1988], and one published account of successful predation by a Boa constrictor on a juvenile white-faced capuchin [Chapman, 1986]. In the latter instance, the victim's groupmates mobbed the snake and one adult male repeatedly dropped a stick on it, but none of the monkeys tried to use contact aggression to free the victim. On July 13, 2002, while conducting a study on infant development in C. capucinus at Lomas Barbudal Biological Reserve, Costa Rica, we observed an attack by a 2-m-long Boa constrictor on a 3-year-old capuchin (MH). By the time the observers arrived on the scene, the boa was coiled around MH. Her mother, MA, arrived almost immediately and was soon joined by another juvenile. MA repeatedly bit the snake and pulled at it, uncoiling its tail and body from the victim. Meanwhile, alpha-male PP arrived and began hitting and perhaps biting the snake from the opposite side, so that the snake could not defend itself from MA and PP simultaneously. The juvenile who was first to arrive grabbed MH's arms and pulled. Although avoidance of predators has long been thought to play a major role in the evolution of primate sociality [van Schaik, 1983], there are relatively few data on predation attempts on primates and the responses of primates to attacks by predators [Stanford, 2002]. Wild white-faced capuchins (Cebus capucinus) regularly mob snakes [Chapman, 1986]. There is one published observation of white-faced capuchins killing a Bothrops asper with a club [Boinski, 1988], and one published account of successful predation by a Boa constrictor on a juvenile white-faced capuchin [Chapman, 1986]. In the latter instance, the victim's groupmates mobbed the snake and one adult male repeatedly dropped a stick on it, but none of the monkeys tried to use contact aggression to free the victim. On July 13, 2002, while conducting a study on infant development in C. capucinus at Lomas Barbudal Biological Reserve, Costa Rica, we observed an attack by a 2-m-long Boa constrictor on a 3-year-old capuchin (MH). By the time the observers arrived on the scene, the boa was coiled around MH. Her mother, MA, arrived almost immediately and was soon joined by another juvenile. MA repeatedly bit the snake and pulled at it, uncoiling its tail and body from the victim. Meanwhile, alpha-male PP arrived and began hitting and perhaps biting the snake from the opposite side, so that the snake could not defend itself from MA and

PP simultaneously; the juvenile who was first to arrive grabbed MH's arms and pulled her from the coils less than 1 min after she was first observed to have been captured. MH clasped the juvenile as she was being pulled free. Other group members began to arrive and to exhibit the alarm calling and mobbing behaviour that is typical when a boa is spotted, though no other monkeys made physical contact with the snake. As soon as MH was freed from the snake's coils, the monkeys at the scene (MH, MA, PP and those that were alarm calling and shaking branches above the snake) leapt clear of the snake and scattered. The snake thrashed about and attempted to strike at the monkeys, particularly at MA. The snake remained poised facing the monkeys for several minutes before attempting to leave the area. Observers noticed several bite wounds on its back, presumably inflicted by MA, though PP may have inflicted some wounds as well. It was impossible to identify every participant in the mobbing, but it seemed that almost all the 38 group members participated in alarm calling and branch shaking at the snake. MH appeared uninjured; she ran to the top of a tree immediately after escaping the coils, but soon approached to within a few metres of the snake to join in the mobbing and alarm calling. After the snake stopped thrashing, several group members closed in on the snake again to mob it at close range. The monkeys gradually left the area but some continued to mob the snake for 22 min after the attack. MA and several others resumed foraging, but made periodic trips back to the general area to relocate the snake and alarm call as it moved away from the site of the attack. There are striking parallels between this incident and the observation of a successful rescue of a subadult male moustached tamarin Saguinus mystax from a Boa constrictor [Tello et al., 2002]. In both cases, several group members physically attacked a boa that had captured a group member and were successful in saving the victim. It is worth noting that both callitrichids and capuchins have well-developed cooperative relationships. The need to care cooperatively for large-bodied twin infants [Goldizen, 1990] and to defend against predation [Caine, 1993] is thought to have selected for extensive cooperation in callitrichids. Capuchins frequently cooperate in the context of intraspecific coalitionary aggression [Perry, 2003]. In contrast, in two recently reported cases of predation by constricting snakes on prosimians, the victims' conspecifics witnessing the attacks did not launch cooperative physical attacks to rescue them. Only one individual made physical contact with a python that had captured a spectral tarsier Tarsius spectrum [Gursky, 2002], though several other tarsiers mobbed it from a safe distance. Similarly, a boa that had captured a sifaka Propithecus verreauxi was mobbed but not physically attacked by the victim's groupmates [Burney, 2002]. Tarsiers and sifakas, unlike capuchins and callitrichids, are not known to exhibit extensive cooperation in other contexts, and perhaps this lack of practice at coordinated action hampers their ability to launch coordinated attacks against predators.
Localización: Biblioteca OET: NBINA-1149.

Publicación no.: 346 **Male dominance and reproductive success in white-faced capuchins (Cebus capucinus)** *[Dominancia del macho y éxito reproductivo en monos carablanca (Cebus capucinus)]* / Jack, Katharine M; Fedigan, Linda M. (Tulane University. Department of Anthropology, 1021 Audubon St, New Orleans, LA 70118, US <E-mail: kjack@tulane.edu> <E-mail: fedigan@ucalgary.ca>). Annual Meeting of the American Association of Physical Anthropologists. 22, Tempe, AR, US, April 23-26, 2003.
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 36, p. 121-122. 2003.
(Abstract only). We investigate the relationships between dominance and reproductive success in two groups of white-faced capuchins (Cebus capucinus) in Santa Rosa Nacional Park, Costa Rica between October 1993 and January 2000. Paternity was determined using DNA extracted from non-invasively obtained hair and fecal samples and amplified using PCR. 25 infants were born into the two study groups

during this period, although six of these infants died or disappeared before samples were gathered and paternity exclusion was unsuccessful for an additional four of the infants. Of the 19 infants sampled: we could not exclude one or more possible fathers for four infants in the sample (21%) (Note: the alpha male could not be excluded as a potential sire for all four of these infants); three (16%) were sired by subordinate males within the group (all beta males in groups containing 3 adult males) and; 12 (63%) were sired by alpha males. Within one of our long-term study groups, the alpha male has experienced an unusually long tenure (1993 to present) and he sired all of the infants (seven of nine) that we were able to sample from this group during his tenure. Although our sample size is small, these data clearly indicate that within our study groups there is a reproductive advantage to being alpha male.
Localización: Biblioteca OET: S9631.

Publicación no.: 347 **Forest degradation and demographic changes in Ateles geoffroyi at Estación Biológica La Suerte, Costa Rica** *[Degradación del bosque y cambios demográficos en Ateles geoffroyi en la Estación Biológica La Suerte, Costa Rica]* / O'Mara, T. (Grand Valley State University. Department of Anthropology, Allendale, MI, US). Annual Meeting of the American Association of Physical Anthropologists. 22, Tempe, AR, US, April 23-26, 2003.
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 36, p. 161. 2003.
(Abstract only). Ateles utilizes one of the largest community ranges in the Americas. Large ranges are necessary due to Ateles' high frugivory and the patchy, unpredictable nature of fruiting. Elimination of half of a community's range could be detrimental to Ateles' survival. Such a situation exists within the Large forest at Estación Biológica La Suerte, Costa Rica (EBLS). The EBLS forest (100 ha) is divided into the 30 ha Large Forest (LF), owned and managed by EBLS and the privately owned 70 ha German Forest (GF) which is currently being logged intensively. This study compares Pruetz's (2000) baseline demographic data on A. geoffrgyi with data collected since logging began. Line transect surveys were conducted over established trails within the LF and GF on a community of Ateles geoffroyi. Data were collected on group size, composition, diet, activity, and ranging, and then compared to Pruetz's (2000) baseline data. Results are comparable to Pruetz's data, with slight increases in mean subgroup size and overall population density. Mean subgroup size was 3.18 with a range of 1-8. Mode subgroup size was 2. At least 1 adult female was observed in 76% of subgroups. Male-only subgroups were observed 12% and solitary animals 5% of total observations. Minimum population size was 13 individuals. Population density estimated is at 13-18 individuals/km². Initial results suggest deforestation in greater than one-half of A. geoffroyi's possible range has had little effect on their demography and ranging patterns. However, deforestation is only in its first stages and further logging may well impact Ateles survival.
Localización: Biblioteca OET: S9627.

Publicación no.: 348 **Arbovirus surveillance in free-ranging howling monkeys, with a case study of the seroepidemiology of vesicular stomatitis virus** *[Vigilancia de los arbovirus en monos congo silvestres, con un estudio de caso de la seroepidemiología del virus de la estomatitis vesicular]* / Nisbett, R.A. (Texas Tech University. Department of Anthropology, Lubbock, TX 79409-2132, US). Annual Meeting of the American Association of Physical Anthropologists. 22, Tempe, AR, US, April 23-26, 2003.
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 36, p. 158-159. 2003.
(Abstract only). Virologists have hypothesized that "persistent" viral infections--those that have co-speciated with, are well-adapted to, and asymptomatic in their reservoir host species--represent potential emerging infectious diseases (FJDs) in tangential hosts like humans. Recently, it has been

suggested that field studies of nonhuman primates can play an important role in understanding cross-species transmissions. This paper reports on an arbovirus surveillance study of free-ranging howling monkeys (Alouatta palliata) in La Pacifica Ecological Centre, Guanacaste, Costa Rica. Immunoassays for mosquito-borne flaviviruses (dengue fever serotypes, yellow fever, West Nile virus, St. Louis encephalitis), alphaviruses (eastern, western and Venezuelan equine encephalitis viruses), and a rhabdovirus (vesicular stomatitis virus: VSV) are employed to explore the genetic epidemiology and immunology of concurrent arboviral infections. This paper reports preliminary data on the seroepidemiology of VSV in a well-studied howler population. Serologic and demographic data are utilized to examine risk factors and evaluate hypotheses, e.g., that the New Jersey strain of VSV occupies an endemic ecological zone in riparian forests. These data were collected in 1992-93 and again in 2001 on many of the same individuals. Demographic and ecological parameters include: age, sex, parity, reproductive status for females, weight, forest type, and season of capture. Like human populations in endemic VSV areas, a high percentage of the monkeys are infected. Interestingly, females are more likely to be seropositive and to have higher antibody titers. The value of such studies for understanding local human disease incidence, the synecology of arboviral pathogens, and for addressing issues in primate conservation will be discussed.
Localización: Biblioteca OET: S9626.

Publicación no.: 349 **Vocal communication at sleep trees by spider monkeys (Ateles geoffroyi frontatus)** *[Comunicación oral en los árboles dormitorio por parte de los monos colorados (Ateles geoffroyi frontatus)]* / Matthews, Kim; Aureli, Filippo. (Liverpool John Moores University. Biological and Earth Sciences, Liverpool L3 3AF, GB <E-mail: f.aureli@ljmu.ac.uk>). Annual Meeting of the American Association of Physical Anthropologists. 22, Tempe, AR, US, April 23-26, 2003.
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 36, p. 148. 2003.
(Abstract only). Spider monkey "whinny" vocalisations have acoustic characteristics enabling individual recognition. Whinnies are usually associated with coordination of subgroup movement and feeding episodes. The social organisation of spider monkeys, whereby the community fissions into smaller subgroups which may fuse together at feeding and sleep tree sites, means that individual recognition through whinnies may be important in assessing who is present in the subgroup, particularly after fission or fusion occurs. This study was undertaken on a large community of spider monkeys in Santa Rosa National Park, Costa Rica Subgroups were followed from first encounter during the day until nightfall on 32 occasions between May 2000 and December 2001. On four occasion's fusion of subgroups occurred during the hour preceding arrival at the sleep trees, and on a further four occasions fusion occurred at the sleep trees. Whinnies were recorded before and after arrival at the sleep trees. Although subgroup size correlates significantly with whinny rate per hour both before and after arrival at the sleep trees, the correlation disappears when we control for the number of individuals present, When comparing whinny rates per individual per hour at the sleep trees we find that rates are higher when fusion occurs than when it does not. This difference is especially significant when only cases in which fusion occurred at the sleep trees, are included in the analysis. This result may suggest that spider monkeys use whinnies to assess who is present at the sleep trees after a fusion event when approaching darkness reduces visibility.
Localización: Biblioteca OET: S9624.

Publicación no.: 350 **Behavioral interactions between small juvenile and adult male white-faced capuchin monkeys (Cebus capucinus) in Costa Rica** *[Interacciones de conducta entre infantes y machos adultos de los monos carablanca (Cebus capucinus) en Costa Rica]* / MacKinnon, Katherine C. (Saint Louis University. Department of Sociology and Criminal Justice and Center for International Studies, St Louis, MO 63103, US <E-mail: mackinn@slu.edu>). Annual Meeting of the American Association of Physical Anthropologists. 22, Tempe, AR, US, April 23-26, 2003.
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 36, p. 143. 2003.
(Abstract only). This paper examines the broad range of behavioral interactions between small juvenile and adult male white-faced capuchin monkeys (Cebus capucinus) in northwestern Costa Rica. I report findings from an 11-month study carried out in the Área de Conservación Guanacaste. Data were collected on two habituated groups of capuchins using a variety of sampling techniques. Small juveniles spent approximately 35% percent of their overall time budgets engaged in social behaviors, and up to 10% of their time interacting with certain adult males. The vast majority of interactions I observed between juveniles and adult males were affiliative in nature. The clear trend that emerges from the small juvenile and adult male interactions in this study is that juveniles favor strongly the alpha male. Within the adult male age-class, several behaviors (e.g. "watch") were performed exclusively towards the alpha male when small juveniles were the actors during focal sampling. Although the alpha male received the majority of attention overall, individual variation will also be discussed. Play, although infrequent, did occur between juveniles and adult males, and agonistic behaviors were rare. Small juvenile interactions with adult males occur across a wide variety of contexts. Possible reasons for social interactions between these age/sex classes are plural and not mutually exclusive. Kin recognition is not the primary reason for such interactions (i.e, genetic relatedness, or lark of it, doesn't adequately explain certain behavioral patterns). Adult male dominance rank and the juvenile's familiarity with certain adult males are likely more important in the formation of such relationships.
Localización: Biblioteca OET: S9623.

Publicación no.: 0351 **Evidence for computational spatial memory in wild capuchin monkeys (Cebus capucinus)** *[Evidencia de memoria espacial computacional en monos carablanca silvestres (Cebus capucinus)]* / Garber, Paul A; Brown, Ellen. (University of Illinois. Department Anthropology, 109 Davenport Hall, 607 S Mathews Ave, Urbana, IL 61801, US <E-mail: p-garber@uiuc.edu>). Annual Meeting of the American Association of Physical Anthropologists. 22, Tempe, AR USApril 23-26, 2003.
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 36, p. 99. 2003.
(Abstract only). Studies of primate spatial cognition indicate that certain landmarks may be encoded as associative representations whereas in other cases the spatial location and structural features of several landmark cues may be represented relationally and used to compute novel paths of travel. In the present research, we conducted an experimental field study of spatial cognition and foraging strategies in a group of 15 wild white-faced capuchins (Cebus capucinus) in La Suerte Biological Station, northeastern Costa Rica. Specifically, we examined the ability of wild capuchins to use the relative spatial relationships among three landmark cues to predict the location of baited feeding sites. The research design involved the construction of 8 visually identical feeding platforms arranged in a circle with a diameter of 8 m. We then conducted a series of six experiments in which the relative spatial positions of landmarks (yellow and pink colored poles measuring 2 m in height) were the only information available to the forager to distinguish efficiently the two reward platforms from six sham feeding sites. These experiments tested the ability of the capuchins to (1) associate the proximity of a

landmark with a food reward and (2) generate novel spatial information computationally using the configuration of three landmark cues. Data were collected from September through November 2000. The capuchins visited the feeding platforms during 227 experimental trials over the course of 55 consecutive days. The results indicate that foragers were successful in using both static and dynamic spatial representations to locate food rewards (p0.05). In several of these experiments, capuchin foragers first selected the reward platform whose location required computation of the spatial relationships of three landmark cues (p0.01). Additional relationships between capuchin foraging strategies and spatial cognition are discussed*.*
Localización: Biblioteca OET: S9625.

Publicación no.: 0352 **Dental topographic analysis of molar wear in Alouatta palliata** *[Análisis topográfico dental del desgaste de las muelas en Alouatta palliata]* / Dennis, John C; Ungar, Peter S; Teaford, Mark F; Glander, Kenneth E. (University of Arkansas. Department of Anthropology, Old Mam330, Fayetteville, AR 72701, US <E-mail: pungar@uark.edu> <E-mail: mteaford@jhmi.edu> <E-mail: glander@duke.edu>). Annual Meeting of the American Association of Physical Anthropologists. 22, Tempe, AR, US, April 23-26, 2003.
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 36, p. 87-88. 2003.
(Abstract only). Studies of dental biomechanics have demonstrated that tooth shape reflects the mechanical properties of foods that primates eat. Most studies have focused on unworn teeth, thus begging the question "how does tooth wear affect dental functional morphology"? This presentation reports on a longitudinal study of wear-related changes in tooth form in Alouotta palliata. Dental impressions were taken of lower M2s of 14 howling monkeys at Hacienda La Pacífica, Costa Rica between 1989 and 1999. Each monkey was darted a number of times during that period and dental impressions were taken each time. Resulting tooth replicas were digitized to a resolution of 0.0254 mm using a laser scanner, and 3D models of occlusal surfaces were interpolated using GIS software. Data for average surface slope, relief, and angularity were generated for each sampling of each individual. Changes in values were calculated over 2, 4, and 7-year intervals, and tested for normality. These data were then assessed for significance using Student's t and Signed Rank tests. Results indicate that the howling monkeys generally showed decreased molar surface slopes and relief over time. However, consistent changes were riot evident for molar surface angularity. The lack of change in angularity between most intervals suggests maintenance of some functional aspects of morphology. This is consistent with results indicating no age related differences in food particle sizes in the feces and stomach contents of these monkeys*.*
Localización: Biblioteca OET: S9630.

Publicación no.: 0353 **Terrestrial behavior of spider monkeys (Ateles spp.): a comparative study** *[Comportamiento terrestre de los monos colorado (Ateles spp.): un estudio comparativo]* / Campbell, Christina J; Aureli, Filippo; Chapman, Colin A; Ramos-Fernández, Gabriel; Matthews, Kim; Russo, Sabrina E; Suarez, Scott; Vick, Laura. (Pomona College. Department of Anthropology, 420 N Harvard Ave, Claremont, CA 91711, US <E-mail: christina_campbell@pomona.edu> <E-mail: f.aureli@ljmu.ac.uk> <E-mail: cachapman@zoo.ufl.edu>). Annual Meeting of the American Association of Physical Anthropologists. 22, Tempe, AR, US, April 23-26, 2003.
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 36, p. 74. 2003.

(Abstract only). Spider monkeys (Ateles spp.) are well known for their highly arboreal lifestyle, spending much of their time in the highest levels of the canopy, rarely venturing down to the ground. We analyze ad libitum data from five study sites, covering two species and five subspecies, to investigate ground use by this genus and attempt to illuminate the conditions under which spider monkeys venture to the ground. Three of the sites are located in Central/North America: Barro Colorado Island, Panama (Ateles geeffroyi panamensis), Santa Rosa National Park, Costa Rica (A. g. frontatus), and Punta Laguna, Mexico (A. g. yucalanensis). The two remaining sites are in South America: Manu National Park, Peru (A. belzebuth charnek), and Yasuni National Park, Ecuador (and A. b. belzebuth). Data suggest that ground use by Ateles across all sites is rare, however it is more restricted at the two South American sites. In South America, ground use was only observed in the contexts of eating soil or rotten wood and visiting saladeros (salt licks). In contrast at the three A. geoffroyi sites it was observed in the contexts of drinking from streams during dry seasons, adult females escaping attack by adult males, and as part of a "chase game". In addition, on BCI adult males were seen on the ground while eating soil and prior to attacking adult females- Potential explanations (e.g., climate, taxonomy, predator pressure) for the differences between the Central/North and South American sites are discussed*.*
Localización: Biblioteca OET: S9629.

Publicación no.: 0354 **Patterns of positional behavior in juvenile and adult white-faced capuchins (Cebus capucinus)** *[Cambios en comportamiento de la postura en monos carablanca infantes y adultos (Cebus capucinus)]* / Bezanson, Michelle F. (Santa Clara University. Department of Anthropology, 500 El Camino Real, Santa Clara, CA 95053-1500, US <E-mail: mbezanson@scu.edu>). Annual Meeting of the American Association of Physical Anthropologists. 22, Tempe, AR, US, April 23-26, 2003.
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 36, p. 66. 2003.
(Abstract only). An understanding of ontogenetic differences in patterns of positional behavior and substrate utilization in nonhuman primates offers insight into the effects that changes in body mass, motor coordination, and limb proportions have on behavior and ecology. The genus Cebus is characterized by a pattern of growth in which compared to the adult condition, limb segments are shorter at birth and grow at slow rates relative to the trunk. In this research I compare patterns of positional behavior in juvenile and adult Cebus capucinus and examine the degree to which adult patterns of locomotion and posture develop during ontogeny. Cebus capucinus was observed from April-September 2002 at Estación Biológica La Suerte in Northeastern Costa Rica. Quantitative behavioral data were collected on juveniles and adults utilizing one-minute focal animal instantaneous sampling. Data were collected on positional behavior, activity pattern, details of prehensile-tail use, and substrate utilization. Cebus were observed for 205 hours totaling 12,300 activity records. Results indicate that adults and juveniles were similar in their use of positional modes During feeding and foraging, the most common positional modes observed in adults and juveniles included sit, squat, quadrupedal stand, and quadrupedal walk. During feeding, juveniles used the positional mode squat more often (46%) than adults (16.5%) while adults were observed to sit (59.4%) more often than juveniles (29.8%). Tail-assisted feeding and foraging accounted for 34% of the adult and 46% of juvenile observations. During travel, prehensile tail use was less common (2.2% in adults and 4.3% in juveniles). While juveniles and adults exhibited a similar positional repertoire, differences in the frequency of particular positional modes may relate to differences in limb and trunk proportions. Additional relationships among substrate use, positional behavior, and limb proportions in Cebus are discussed*.*
Localización: Biblioteca OET: S928.

Publicación no.: 0355 **Seed dispersal by Cebus capucinus and Alouatta palliata: Consequences for seed dispersal effectiveness** *[Diseminación de semillas por parte de Cebus capucinus y Alouatta palliata: Consecuencias para la eficacia de dispersión de semillas]* / Wehncke, Elisabet V; Valdez, C.N; Domínguez-Pérez-Tejada, C.A. (Universidad Nacional Autónoma de México. Departamento de Ecología Evolutiva, Laboratorio de Interacciones Planta Animales, Apartado 70-275, nidad Universitaria Circuito Exterior, México, DF 04510, MX). Annual Meeting of the Ecological Society of America. 87th, and Annual International Conference of the Society for Ecological Restoration. 14Th, abstracts, Tucson, AR, US, August 4-9, 2002.
En: Ecological Society of America Annual Meeting Abstracts, v. 87, p. 448. 2002.
(Abstract only). We compared different aspects of the dispersal process between two arboreal primate species living in the tropical dry forest of Palo Verde National Park, Costa Rica. Both primate species serve as primary dispersers for many fruit species, but there is considerable variation in ranging and feeding behavior, how they handle and process seeds, and in post-dispersal fate of seeds. Compared to howlers (Alouatta palliata), white-faced monkeys (Cebus capucinus) are smaller animals, have shorter seed retention times, produce smaller defecations, and travel longer distances per day producing an heterogeneous pattern of seed deposition in the forest. Cebus swallow a range of smaller seeds, move more frequently between trees, and consume more fruit species than howlers. The consequences of the contrasting defecation patterns produced by white-faced monkeys and howlers on the fate of seeds of Acacia collinsii were assessed by means of a field experiment. We found that presence and quantity of fecal material affected post-dispersal activity. Seeds in scatter defecation patterns, sufficiently apart one of each other, farther from parental trees and with no apparently strong olfactory cues that could attract seed predators, (common defecation pattern of white-faced) seemed to have more chance of survival, than seeds in clumped patterns of coherent feces. Primary seed defecation locations of white-faced monkeys can be considered the final sites of seeds in the forest. Particularly, white-faced fecal material enhanced germination and seedling establishment of Acacia seeds.
Localización: No disponible.

Publicación no.: 0356 **Quo vadis? Tactics of food search and group movement in primates and other animals** *[¿Quo vadis? Tácticas de búsqueda del alimento y movimiento en grupo en primates y otros animales]* / Milton, K.
En: On the move. How and why animals travel in groups. Boinski, S; Garber, P.A. (eds.).. Chicago: The University of Chicago Press, 2000. p. 375-417. ISBN: 0226063399. (No abstract).
Localización: No disponible.

Publicación no.: 0357 **Alouatta palliata politics: empirical and theoretical aspects of power** *[Política de Alouatta palliata: aspectos empíricos y teóricos del poder]* / Jones, Clara B. (Fayetteville State University. Department of Psychology, 1200 Murchison Road, Fayetteville, NC 28301-4298, US <E-mail: cbjones@uncfsu.edu>).
En: Primate Report (ISSN 0343-3528), v. 56, p. 3-21. 2000
Social scientists have studied social influence, in particular, aspects of power, for more than 50 years. Social influence in two groups of the mantled howling monkey (Alouatta palliata) was investigated. Dyadic aggressive interactions were observed 131 times in 516 h of observation. Ritualized aggression (the "branch-break" display), primarily exhibited by males, accounted for 40% of the observed

aggression, while fighting and chasing comprised the remainder. Females exhibited fighting proportionately more than males, but the sexes were equally likely to chase. No aggression was observed between males in the 2-male deciduous forest group. A class (socioeconomic) effect was noted in dyadic aggressive interactions among females since aggressors and victims were usually of similar rank. Females may "disrupt" one another's sexual activities, suggesting that female-female competition is intense. There was little evidence for female bonding. Male-female aggression occurred infrequently, almost always in sexual contexts. Females often used the submissive "bared-teeth display" to rebuff males and appear to be significantly "emancipated" from male control. Aggression by adults toward immatures was rare. High-ranking individuals were observed to harass low-ranking individuals, the primary tactic of group expulsion in both sexes. Males were observed to intervene in the aggressive interactions of females, a form of "policing". Coalitions were observed in the 3-male riparian forest group within both sexes and, for females, appeared to be opportunistic. Post-conflict behavior was analyzed to test the hypothesis that submissive behaviors are expressed more frequently after conflict. No significant differences in the exhibition of submissive behavior occurred post-conflict compared with matched controls. Specific behavior patterns occurred more frequently during post-conflict or matched control periods, however. In particular, "approach" and "vocalize" were more frequent post-conflict, the latter possibly representing "reconciliation" to repair or to stabilize relationships. The lowest-ranking male in the three-male riparian forest group was experimentally translocated to assess the effects of changes in proximity as a function of male identity and dominance rank. The presence or absence of individuals appeared to affect competitive relations among males. French and Raven's (1959) "bases of power" were identified in A. palliata, but mechanisms of social influence are not necessarily "cognitive-based" as they may be for chimpanzees and humans. French and Raven's paradigm may provide a useful framework for comparative studies*.*
Localización: Biblioteca OET: NBINA-1830 y NBINA-1830a.

Publicación no.: 0358 **Testis symmetry in the mantled howling monkey** *[Simetría de los testículos en el mono congo]* / Jones, Clara B. (Fayetteville State University. Department of Psychology, 1200 Murchison Road, Fayetteville, NC 28301-4298, US <E-mail: cbjones@uncfsu.edu>).
En: Neotropical Primates (ISSN 1413-4705), v. 7, no. 4, p. 117-119. 1999.
Markow et al. (1996) studied fluctuating asymmetry (random deviations from symmetry in traits on opposite sides of the body) in the sex combs of two Drosophila species and found no evidence for sexual selection in this secondary sexual character, contrary to the predictions of Moller and Pomiankowski (1994). The latter authors argued that symmetry would be positively related to male copulation success and that secondary sexual characteristics would exhibit the strongest associations because they are under directional selection. Differential symmetry among males, then, may provide cues to females of male fitness, explaining variance in male reproductive success. Markow et al. propose that Moller and Pomiankowski's ideas require further investigation in a range of taxa before it can be concluded that they are general. The purpose of this correspondence is to present preliminary observations on fluctuating asymmetry in testis size in the mantled howling monkey (Alouatta palliata). Mantled howlers, large Neotropical cebids, are found throughout the forests of Mesoamerica and the northern coast of South America. Age is negatively correlated with dominance rank and copulation success, and significant sexual dimorphism in weight between adult males and females suggests that sexual selection has operated in this species (Jones, 1985). A prominent aspect of male morphology is the large, white scrotum (Fig. 1) employed in stereotyped displays in sexual and aggressive contexts (C. B. Jones, unpubl.

data). Animals were studied at Hacienda La Pacífica, Cañas, Guanacaste, Costa Rica (see Clarke and Zucker, 1994) in the early to mid 1970's by Dr. Norman J. Scott, Jr. and his assistants, including the present author. Monkeys were tranquilized, aged, weighed, and measured (Scott et al., 1976). I divided adult males into four age classes: I (n = 7), an individual 5-7 years old; II (n = 11), 7-10 years old; III (n = 7), 10-15 years old; and, IV (n = 2), 15 years old. The vertical and horizontal height and width (mm) of each testis was obtained by measuring its outline through the tissues of the scrotum with a sliding caliper. Mean vertical height of right testis was 32.2 ±2.5 nun; mean width of right testis was 23.9 ±1.9. Mean vertical height of left testis was 31.4 ±2.6 mm; mean width of left testis was 23.1 ±1.7. In order to assess fluctuating asymmetry of each male, I computed two ratios: a ratio of the smallest to largest (left testis to right testis or right to left) vertical height of testis (VR); and a ratio of the smallest to largest (left to right or right to left) horizontal width of testis (HR) of each male. This paper assumes that testis shape and scrotal shape are highly positively correlated. Across males, weight did not differ significantly by age (Sign Test: X^2 = 3.1, df = 3, P = 0.50). Thus, differences across males in mating success cannot be explained by differences in weight. Likewise, while VR (range = 0.92-0.99, median = 0.97) correlates positively with weight (r = 0.44, N = 27, P0.01), VR did not differ significantly across males by age (Sign Test: X^2 = 4.18, df = 3, P = 0.30). Fluctuating asymmetry in the ratio of vertical circumference of both testes, then, apparently cannot explain variance in copulation success across males. An analysis of HR (range = 0.88 - 1.00, median=0.95) revealed that it failed to correlate with weight (r = 0.10, N = 27, P= 0.31), possibly exhibiting developmental instability, compared with the vertical orientation. Similar to the findings for VR, HR exhibits no differences across males by age (Sign test: X^2 = 2.23, df = 3, P = 0.70), possibly showing that female mantled howler monkeys do not employ fluctuating asymmetry in testis size as a visual cue of male quality. Fluctuating asymmetry in two secondary sexual characteristics in the mantled howler monkey (VR and HR) does not appear to be sexually selected, then, consistent with the findings of Markow et al. (1996). Moller and Pomiankowski (1994) predicted that the highest correlations with asymmetry are expected in secondary sexual characters. If the range in asymmetry for mantled howler testes are representative of other secondary sexual traits in the species (e.g. incisor length), it seems unlikely that symmetry will correlate with male fitness or that female "choices" will be a function of low fluctuating asymmetry. It would be important to know the heritability of secondary sexual characteristics for this monkey since a trait with low heritability may not be a reliable measure of fitness for females who may be evolved to select "good genes". Further, female mantled howler monkeys appear to be very sensitive to the proximate context of mating, such as the availability of resources (Jones, 1995), a condition that would dampen any tendency for female selectivity to correlate with secondary sexual characteristics. Finally, Allen and Simmons (1996) suggest that fluctuating asymmetry in visual signals, such as scrotal displays, exhibit an "equivocal" association with male fitness compared to structures having "mechanical significance" (e.g., the penis), and show for dung flies that "coercive mating" is correlated with symmetry and male mating success. The mating system of mantled howlers is not characterized by coercion (Jones, 1985), possibly explaining the failure to find a relationship between fluctuating asymmetry, age, and, thereby, male mating success in this species. These tentative results for mantled howlers should be tested with larger sample sizes but suggest that Moller and Pomiankowsi's predictions require adjustment to taxonomic and, possibly, to ecological differences.

Localización: Biblioteca OET: N.

Publicación no.: 0359 **Pointing behavior in mantled howling monkeys, Alouatta palliata** *[Comportamiento de señalamiento en los monos congo, Alouatta palliata]* / Jones, Clara B. (Fayetteville State University. Department of Psychology, 1200 Murchison Road, Fayetteville, NC 28301-4298, US <E-mail: cbjones@uncfsu.edu>).
En: Neotropical Primates (ISSN 1413-4705), v. 7, no. 2, p. 53-54. 1999.
Stereotyped and ritualized action patterns may produce visual signals oriented to potential receivers (Bradbury and Vehrencamp, 1998). These postures may transmit information to conspecifics and may exhibit "typical intensity" whereby the posture appears "unambiguous" and varies little within and between (closely related) species (Eibl-Eibesfeldt, 1970). Visual signals, thus, tend to be highly conservative evolutionarily (Bradbury and Vehrencamp,1998). In this note I report ritualized "pointing" behavior in mantled howler monkeys (Alouatta palliata Gray). Pointing in mantled howlers occurs in two forms during foraging. One form (Type 1) entails an individual, almost always an adult female, sitting still in a normal, non-ritualized, position in a given direction in an apparent solicitation to other group members to follow. The second form (Type 2, Figure 1) is a ritualized posture described in the present note. It is similar to carnivore pointing behavior described by Morris (1986), Ewer (1973), and others (e.g., Shaler, 1895; Scott and Fuller, 1965; Arkwright, 1902; Whitman, 1899; Rine, 1973). As described for pointing dogs and wolves by Morris (1986), "The behavior of the pointer on a hunt seems highly artificial, but it is not. When wolves first scent a prey, the leading members of the pack freeze in their tracks and point themselves rigidly in the direction of the scent. There is a pause, until they have all fixated on the odor of the prey, and then they begin the next phase of their hunting operation. It is this wolf-pause that the pointer is performing. The only thing that is strange about the dog example is the way the animal extends the `frozen moment'."(pp.67). I have observed the "frozen moment" in mantled howlers on nine occasions in riparian habitat at Hacienda La Pacífica, Cañas, Guanacaste, Costa Rica. All occurrences took place between 5-7 August 1976 (n= 3) and between 21 February and 10 March 1977 (n = 6). Adult females exhibited Type 2 pointing eight times, a young male, once. In all instances, animals appeared to be searching for food, and changes in direction occurred in group movement, sometimes leading to the formation of subgroups when non-posturing individuals followed females pointing in different directions. Positions of non-posturing individuals often shifted from subgroup to subgroup as they appeared to "decide" which pointer to follow. Males and females generally vocalized continuously during this process which was reminiscent of avian "information centres" described by Ward and Zahavi (1973). Ewer (1973) suggested that "vegetarian species" (such as mantled howlers) may be responsive to plant, especially flower, odors, suggesting a relationship between olfactory sensitivity and "mode of life". In her opinion, the ritualized pointing posture originated from the animal's tendency to extend its neck to smell. Arkwright (1902) makes the intriguing suggestion that hunting by smell may select for "spreading nostrils", a diagnostic trait of New World monkeys. Ewer also stresses that ritualized pointing in wolves is a silent posture that may occur in association with a "group ceremony", similar to the "greeting ceremony" seen in African hunting dogs. Glander (1975) has described the "greeting ceremony" in mantled howlers, and the "information centre" noted above may be similar in form and function to the wolf and hunting dog ceremonies discussed by Ewer. Such apparent similarities in behavior may represent convergent mammalian patterns. Discussing pointing dogs, Scott and Fuller (1965) point out that the tendency to crouch is primitive in mammals and make the interesting suggestion that ritualized pointing represents "selection to restrain attack". This view may be generalized to the idea that ritualized pointing indicates a restraint on selfish behavior and the tendency to forage solitarily for maximum individual gain. Social foraging has been described in howlers (Milton,

1980; Glander, 1975; Jones, 1996), and howlers are noted for their communal and non-aggressive tendencies (e.g., Wilson, 1975). The behavior described in this note is consistent with Milton's (1980) conclusion that foraging in howlers is "goal directed". The pattern of decision-making leading individuals to follow different pointers (both Type 1 and Type 2) to alternative feeding sources may explain patterns of subgrouping and differential assortment of group members. These patterns of behavior and the vocalizations accompanying them require systematic study in the future.
Localización: Biblioteca OET: N. S10292.

Publicación no.: 0360 **Patterns of suspensory feeding in Alouatta palliata, Ateles geoffroyi, and Cebus capucinus** *[Patrones de alimentación en suspensión en Alouatta palliata, Ateles geoffroyi y Cebus capucinus]* / Bergeson, D.J. (Washington University. Department of Anthropology, Campus Box 1114, St. Louis, MO 63130, US).
En: Primate locomotion. Recent advances. Strasser, E; Fleagle, J; Rosenberger, A; McHenry, H. (eds.).. New York: Plenum Press, 1998. p. 45-60. ISBN: 030646022X. (No abstract).
Localización: No disponible.

Publicación no.: 0361 **A broad-band contact call by female mantled howler monkeys: implications for heterogeneous conditions** *[Un llamado de contacto de banda ancha por parte de las hembras de los monos congo: implicaciones para las condiciones heterogéneas]* / Jones, Clara B. (Fayetteville State University. Department of Psychology, 1200 Murchison Road, Fayetteville, NC 28301-4298, US <E-mail: cbjones@uncfsu.edu>).
En: Neotropical Primates (ISSN 1413-4705), v. 6, no. 2, p. 38-40. 1998. (No abstract).
Localización: Biblioteca OET: S10291.

Publicación no.: 0362 **Primates hunting by Guayami amerindians in Costa Rica** *[Cacería de primates por parte de los amerindios guaymíes en Costa Rica]* / González-Kirchner, J.P; Sainz de la Maza, M. (Universidad Complutense. Facultad de Biología, Departamento Biología Animal I, Sección de Antropología, 28040 Madrid, ES).
En: Human Evolution (ISSN 0393-9375), v. 13, no. 1, p. 15-19. 1998
This paper discuss the socioeconomical and cultural motivations for hunting primates between the Guaymi amerindian native population in Costa Rica, and their ecological implications. Meat consume rate between Guaymi population is very low, less than one time each week. Only 51% of the population use primates like food ocasionally, and Ateles geoffroyi shows to be the preferred meat source. Instead of that fight against crop raiders becomes here an important reason to shot primates. All the inquiered claim that Cebus capucinus is the most destructive species. Other traditional uses of the primates found between Guaymis is the supposed medicinal value of some species, and its condition of preferred pets. Howler monkeys (Alouatta palliata) are hunted to get their fat that is considered a usefull medicine. The species found more frequently like pets are Ateles geoffroyi and Cebus capucinus.
Localización: Biblioteca OET: NBINA-7122.

Publicación no.: 0363 **New data on the distribution and abundance of Saimiri oerstedii citrinellus** *[Nuevos datos sobre la distribución y abundancia de Saimiri oerstedii citrinellus]* / Sierra, Claudine; Jiménez-Pérez, Ignacio; Altrichter-Cateula, Mariana; Fernández-Morillo, Maria Teresa; Gómez-Bernal, German Luis; González-Villalobos, Jorge A; Hernández-Soliz, César Augusto; Herrera-Rosales, Heydi

Maria; Jiménez, B; López-Arévalo, Hugo Fernando; Millán-Araujo, José Oswaldo; Mora-Cerdas, Geisel; Tabilo-Valdivieso, Elier Lorenzo. (Apartado 73-3017, San Isidro de Heredia, CR <E-mail: clodin@racsa.co.cr> <E-mail: ijimenez@una.ac.cr> <E-mail: mariana_altrichter@redlands.edu> <E-mail: mfernad@una.ac.cr> <E-mail: hherrera@una.ac.cr> <E-mail: omillan@una.ac.cr> <E-mail: gmora@una.ac.cr> <E-mail).
En: Primate Conservation (ISSN 0898-6207), v. 19, p. 5-9. 2003
(No abstract)**.**
Localización: Biblioteca OET: NBINA-10510.

Publicación no.: 0364 **Traditions in wild white-faced capuchin monkeys** *[Tradiciones en monos carablanca silvestres]* / Perry, Susan E; Panger, M.A; Rose, L.M; Baker, Mary E; Gros-Louis, Julie J; Jack, Katharine M; Mackinnon, Katherine C; Manson, Joseph H; Fedigan, Linda M; Pyle, K. (Max-Planck-Institute for Evolutionary Anthropology. Independent Junior Research Group in Cultural Phylogeny, Deutscher Platz 6, 04103 Leipzig, DE <E-mail: perry@eva.mpg.de> <E-mail: panger@gwu.edu> <E-mail: mbaker@ric.edu> <E-mail: jgroslou@indiana.edu> <E-mail: lrose@interchange.ubc.ca> <E-mail: kjack@tulane.edu> <E-mail: mackinn@slu.edu> <E-mail: manson@eva.mpg.de> <E-mail: fedigan@ucalgary.ca>).
En: The biology of traditions: models and evidence. Fragaszy, D.M; Perry, S (eds.).. New York: Cambridge University Press, 2003. p. 391-425. ISBN: 0521815975.
(No abstract)**.**
Localización: Biblioteca OET: NBINA-2964.

Publicación no.: 0365 **Coalitionary aggression in white-faced capuchins** *[Agresión coaligada en monos carablanca]* / Perry, Susan E. (Max-Planck-Institute for Evolutionary Anthropology. Independent Junior Research Group in Cultural Phylogeny, Deutscher Platz 6, 04103 Leipzig, DE <E-mail: perry@eva.mpg.de>).
En: Animal social complexity: intelligence, culture, and individualized societies. de Waal, F.B.M; Tyack, P. L. (eds.).. Cambridge: Harvard University Press, 2003. p. 111-114. ISBN: 0674009290. (No abstract).
Localización: No disponible.

Publicación no.: 0366 **Urine-washing behaviors as condition-dependent signals of quality by adult mantled howler monkeys (Alouatta palliata)** *[Comportamiento de lavado de la orina como señales de condición de dependencia de la calidad de los adultos de los monos congo (Alouatta palliata)]* / Jones, Clara B. (Fayetteville State University. Department of Psychology, 1200 Murchison Road, Fayetteville, NC 28301-4298, US <E-mail: cbjones@uncfsu.edu>).
En: Laboratory Primate Newsletter (ISSN 0023-6861), v. 42, no. 1, p. 12-14. 2003.
Introduction: Communication may be defined as the transmission of information from one animal ("the sender") to another ("the receiver") that presumably benefits both (Bradbury & Vehrencamp, 1998). Information is contained in signals whose design may vary in response to constraints imposed by the physical and biotic (including social) environments as well as the physiological mechanisms of the organisms (Bradbury & Vehrencamp, 1998). Chemical signals are the most primitive mode of animal communication, and their transmission must broadcast molecules the complete distance between sender and receiver (Bradbury & Vehrencamp, 1998). Milton (1975) studied "urine-rubbing" (i.e., "urine-washing": Milton, 1985) in mantled howlers (Alouatta palliata) at Barro Colorado Island, Panama, a

semideciduous lowland tropical forest, concluding that these behavior patterns were most likely to function in "intra-troop cohesion" and that adult males were likely to employ urine-washing behaviors during periods of stress. Milton also considered other possible functions of urine-washing in mantled howlers such as thermoregulation, communication of cycling state by females, and repelling of insects. Data on urine-washing behaviors from two groups of mantled howlers in two habitats of Costa Rican tropical dry forest are presented here. It is concluded that these behavior patterns function as condition-dependent signals (see Brockmann, 2001) in sexual and agonistic contexts for adult males and females who advertise their quality by way of volatile urinary compounds.
Localización: Biblioteca OET: S10290.

Publicación no.: 0367 **Genital displays by adult male and female mantled howling monkeys, Alouatta palliata (Atelidae): evidence for condition-dependent compound displays** *[Exhibición de los genitales de los machos y hembras adultos de los monos congo, Alouatta palliata (Atelidae): evidencia de la dependencia de demostración de compuestos]* / Jones, Clara B. (Fayetteville State University. Department of Psychology, 1200 Murchison Road, Fayetteville, NC 28301-4298, US <E-mail: cbjones@uncfsu.edu>).
En: Neotropical Primates (ISSN 1413-4705), v. 10, no. 3, p. 144-147. 2002.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-9552.pdf
(No abstract).
Localización: Biblioteca OET: S10289. NBINA-9552.

Publicación no.: 0368 **Contexts and behavioral correlates of trill vocalizations in wild white-faced capuchin monkeys (Cebus capucinus)** *[Contexto y correlación con el comportamiento de los chillidos en los monos carablanca (Cebus capucinus)]* / Gros-Louis, Julie J. (Indiana University. Department of Psychology, 1101 E. 110th St., Bloomington, IN 47405, US <E-mail: jgroslou@indiana.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 57, no. 4, p. 189-202. 2002
Primate vocalizations that appear to occur independently of specific contexts typically are considered to be contact calls. However, results from several recent studies indicate that these calls function to facilitate social interactions. White-faced capuchin monkeys (Cebus capucinus) emit a high-frequency vocalization, termed a "trill," in social interactions and during travel. In this study, immatures emitted most trills, but adult females also trilled; by contrast, adult males rarely trilled. Infants emitted the majority of trills, and they trilled at significantly higher rates than adult females. Infants trilled most when approaching other individuals. Furthermore, infants emitted proportionately more trills than other age classes when approaching other individuals. I therefore focused on the detailed context and immediate behavioral correlates of trilling by infants. Infants that trilled when approaching others tended to interact affiliatively with them subsequently (i.e., climbing on, touching, receiving grooming, and performing food inspection) more than infants that did not trill when approaching. Therefore, infant trilling may have had an immediate effect on the recipient's behavior.
Localización: Biblioteca OET: NBINA-1138.

Publicación no.: 0369 **Survey of three primate species in forest fragments at La Suerte Biological Field Station, Costa Rica** *[Encuesta de tres especies de primates en fragmentos de bosque en la Estación Biológica de Campo La Suerte, Costa Rica]* / Pruetz, Jill D; Leasor, H.C. (Iowa State University. Department of Anthropology, 324 Curtiss Hall, Ames, IA, US <E-mail: erythrocebus@aol.com>).

En: Neotropical Primates (ISSN 1413-4705), v. 10, no. 1, p. 4-9. 2002
Here we report a survey of the three primate species inhabiting tropical lowland rainforest at La Suerte Biological Field Station (LSBFS) in Costa Rica, and address the difficulty in assessing primate densities using brief contacts with surveyed groups. Although the site has been the focus of numerous primate-oriented field courses, systematic data are lacking on the densities of the primate species occurring at LSBFS. This site provides an ideal setting in which to examine the effects of reforestation efforts on several primate species**.**
Localización: Biblioteca OET: NBINA-2601.

Publicación no.: 0370 **A possible example of coercive mating in mantled howling monkeys (Alouatta palliata) related to sperm competition** *[Un posible ejemplo de cópula coactiva en monos congo (Alouatta palliata) relacionada con la competencia del semen]* / Jones, Clara B. (Fayetteville State University. Department of Psychology, 1200 Murchison Road, Fayetteville, NC 28301-4298, US <E-mail: cbjones@uncfsu.edu>).
En: Neotropical Primates (ISSN 1413-4705), v. 10, no. 2, p. 95-96. 2002.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-9554.pdf
(No abstract)**.**
Localización: Biblioteca OET: S10288. NBINA-9554.

Publicación no.: 0371 **The relationship between tail use and positional behavior in Alouatta palliata** *[Relación entre el uso de la cola y el comportamiento de postura en Alouatta palliata]* / Lawler, R.R; Stamps, C. (Yale University. Department of Anthropology, P. O. Box 208277, New Haven, CT 06520-8277, US).
En: Primates (ISSN 0032-8332), v. 43, no. 2, p. 147-152. 2002
The relationship between tail use and positional behavior is explored in Alouatta palliata. During bridging, climbing, suspension, standing, and sprawling, the tail is attached to a substrate for the majority of sample points. Tail attachment was more likely to occur when the animal is traveling on vertical or terminal substrates. Quadrupedalism showed few instances of attachment and sitting reflected nearly equal amounts of prehension and non-prehension. Tail prehension is used in all behavioral contexts but shows higher frequencies of attachment during feeding than during resting, or foraging. Tail prehension appears to aid in the stability, support, and balance of the animal across numerous positional behaviors**.**
Localización: Biblioteca OET: NBINA-6502.

Publicación no.: 0372 **Congruence of tail use behaviors between male and female mantled howling monkeys (Alouatta palliata)** *[Comportamiento de uso de la cola por parte de los machos y hembras de monos congo (Alouatta palliata)]* / Wheeler, B; Ungar, Peter S. (University of Arkansas. Department of Anthropology, Old Main 330, Fayetteville, AR 72701, US <E-mail: pungar@mail.uark.edu>).
En: Folia Primatologica (ISSN 0015-5713), v. 72, no. 5, p. 292-297. 2002.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-1066.pdf
(No abstract)**.**
Localización: Biblioteca OET: NBINA-1066.

Publicación no.: 0373 **The sugar composition of fruits in the diet of spider monkeys (Ateles geoffroyi) in tropical humid forest in Costa Rica** *[Composición de azúcar de las frutas en la dieta de los monos colorados (Ateles geoffroyi) en el bosque húmedo tropical en Costa Rica]* / Riba-Hernández, José Pablo; Stoner, Kathryn E; Lucas, Peter W. (Universidad de Costa Rica. Escuela de Biología, San Pedro de Montes de Oca, CR <E-mail: kstoner@oikos.unam.mx> <E-mail: pwlucas@hkucc.hku.hk>).
En: Journal of Tropical Ecology (ISSN 0266-4674), v. 19, no. 6, p. 709-716. 2003
Spider monkeys (Ateles geoffroyi) detect sucrose at a threshold lower than any primate yet tested and prefer sucrose to glucose or fructose in laboratory tests. This preferential selection of sucrose led to the hypothesis that such acute discrimination is related to a diet of sucrose-rich fruits. Furthermore, it has been suggested that fruit sugars may be related to distinct guilds of vertebrate seed-dispersers. The objectives of this study were: (1) to test if spider monkeys select sucrose-rich fruits both within and among plant species and (2) to test the hypothesis that sugar concentration is related to bird, bat or monkey seed-dispersal syndromes. Data were collected from one troop of spider monkeys in south-western Costa Rica. Interspecific comparison of ingested fruits shows that spider monkeys consumed species with significantly higher concentrations of glucose and fructose than sucrose. Similarly, at the intraspecific level, food-fruits had significantly more fructose and glucose than non-food fruits, but no difference was found for sucrose. The three different sugar types were not correlated with the importance of the species in the diet based on the amount of time they spent consuming each species. Although sucrose concentrations were significantly higher in primate-dispersed species compared with those dispersed by other vertebrates, soluble carbohydrates in primate-dispersed fruits were principally composed of glucose and fructose. Neither fructose nor glucose concentrations showed significant differences across the three categories of seed dispersal**.**
Localización: Biblioteca OET: NBINA-1182.

Publicación no.: 0374 **Violent coalitionary attacks and intraspecific killing in wild white-faced capuchin monkeys (Cebus capucinus)** *[Violentos ataques en grupo y matanza intraespecífica en monos carablanca silvestres (Cebus capucinus)]* / Gros-Louis, Julie J; Perry, Susan E; Manson, Joseph H. (Indiana University. Department of Psychology, 1101 E 10th St, Bloomington, IN 47405, US <E-mail: jgroslou@indiana.edu> <E-mail: perry@eva.mpg.de> <E-mail: manson@eva.mpg.de>).
En: Primates (ISSN 0032-8332), v. 44, no. 4, p. 341-346. 2003
During 12 years of observation, we have observed three confirmed and two inferred lethal coalitionary attacks on adult male white-faced capuchins (Cebus capucinus) by members of two habituated social groups at Lomas Barbudal Biological Reserve, Costa Rica. In one case, an alpha male was badly wounded and evicted from his group, and when later found by his former groupmates he was attacked by several of them and died less than 24 h later. In two other cases, lone extra-group males were mobbed by adult and immature males of a bisexual group. One victim's abdomen was torn open and he died less than 24 h later. A second victim was quite badly bitten but may have escaped. The fourth and fifth cases resulted from intergroup encounters. One victim lost the use of both arms but may have survived, whereas the other died of unknown causes within an hour of the attack. The observed death rate from coalitionary aggression at our site is approximately the same as that reported for eastern chimpanzees. Because at least three of the five observed incidents involved large coalitions attacking lone victims, they support the general hypothesis that imbalances of power contribute to intraspecific killing in primates. However, the occurrence of lethal coalitional attacks in a species lacking fission-fusion social organization poses a

challenge to the more specific version of the imbalance-of-power hypothesis proposed by Manson and Wrangham in 1991 to explain chimpanzee and human intergroup aggression.
Localización: Biblioteca OET: NBINA-1178.

Publicación no.: 0375 **New field site: preliminary census of primates at El Zota Biological Field Station, Costa Rica** *[Nuevo sitio de campo: censo preliminar de los primates en la Estación Biológica de Campo El Zota]* / Pruetz, Jill D; LaDuke, Thomas C. (Iowa State University. Department of Anthropology, 324 Curtiss Hall, Ames, IA, US <E-mail: erythrocebus@aol.com> <E-mail: tcladuke@po-box.esu.edu>).
En: Neotropical Primates (ISSN 1413-4705), v. 9, no. 1, p. 22-23. 2001
El Zota is a new biological field station located in northeastern Costa Rica (10°57.6'N, 83°75.9'W) near the Barro del Colorado Reserve. The Station includes approximately 1000 hectares (over 2470 acres) of lowland rainforest that is host to a diverse native fauna and flora. It is among the largest of its kind in Costa Rica and is home to more wildlife than in any other biological station of its kind in the country. Portions of El Zota were formerly used as a cattle ranch, but have now been converted to a functional tree farm, producing both native and exotic trees for harvest as a means of sustainable land use. The majority of the station is natural forest (~700 ha), including lowland rain forest, lowland swamp forest, pasture (-30ha), and the reforested areas of monospecific stands of trees used for timber and paper. A small river meanders through the swamps. The mammals at El Zota include white-fronted capuchins (Cebus capucinus), mantled howlers (Alouatta palliata), black-handed spider monkeys (Ateles geoffroyi), tapirs (Tapirus bairdii), jaguars (Panthera onca), peccaries (Tayassu tajacu), Honduran tent bats, and white-tailed deer (Odocoileus virginianus). The avifauna includes the great green macaw (Ara ambigua), several other species of parrots, including Amazona farinosa, three species of toucans (Ramphartos spp. and Pteroglossus torquatus), king vultures (Sarcoramphus papa), swallow-tailed kites (Elanoides forficatus), purple-throated fruit crows (Querula purpurata), semiplumbeous hawks (Leucopternis semiplumbea), laughing falcons (Herpetotheres cachinnans), and a host of others. The brown caiman (Caiman crocodilus), green iguana (Iguana iguana), green basilisk (Basiliscus plumifrons), yellow-headed gecko (Gonatodes albogularis), fer-de-lance or terciopelo (Bothrops asper), hog-nosed viper (Porthidium nasutum), and boa constrictor (Boa constrictor) are among the documented species of reptiles, and the strawberry (Dendrobates pumilio) and green-and-black (D. auratus) poison dart frogs are among the amphibians. Several of these species are considered endangered or threatened (e.g., spider monkey, jaguar, and tapir). Faunal surveys are still in progress. The El Zota field station is designed to allow students to learn techniques that can be applied to field research on ecology, behavior, and conservation in the tropics as well to the protection and management of the research station itself. The station is owned by the Heiner Ramírez family of Costa Rica and affiliated with the Fundación Neotropical in Costa Rica. The field school curriculum is designed by a group of seasoned faculty from various universities. Together, all parties involved are committed to the conservation and the land and its inhabitants in this part of Costa Rica.
Localización: Biblioteca OET: NBINA-2602.

Publicación no.: 0376 **Countryside biogeography of neotropical mammals: Conservation opportunities in agricultural landscapes of Costa Rica** *[Biogeografía del campo de mamíferos neotropicales: Oportunidades de conservación en paisajes agrícolas de Costa Rica]* / Daily, Gretchen C; Ceballos, Gerardo; Pacheco, Jesús; Suzán, G; Sánchez-Azofeifa, Gerardo Arturo. (Stanford University. Department of Biological Sciences, Center for Conservation Biology, Gilbert Hall 371 Serra Mall, Stanford, CA 94305-

5020, US <E-mail: gdaily@stanford.edu> <E-mail: gceballo@miranda.ecologia.unam.mx> <E-mail: arturo.sanchez@ualberta.ca>).
En: Conservation Biology (ISSN 0888-8892), v. 17, no. 6, p. 1814-1826. 2003
The future of mammalian diversity in the tropics depends largely on the conservation value of human-dominated lands. We investigated the distribution of non-flying mammals in five habitats of southern Costa Rica: relatively extensive forest (227 ha),coffee plantation, pasture, coffee with adjacent forest remnant (35 ha), and pasture with adjacent forest remnant (35 ha). Of the 26 native species recorded in our study plots, 9 (35%) were restricted to forest habitat, 14 (54%) occurred in both forest and agricultural habitats, and 3 (11%) were found only in agricultural habitats. Species richness and composition varied significantly with habitat type but not with distance from the extensive forest. Interestingly, small forest remnants (35 ha) contiguous with coffee plantations did not differ from more extensive forest in species richness and were richer than other agricultural habitat types. Small remnants contiguous with pasture were species-poor. When clearing started, the study region likely supported about 60 species. Since then, at least 6 species (10%), one family (4%), and one order (11%) have gone extinct locally. The species that disappeared were the largest in their families and included carnivorous (e. g., jaguar [Panthera onca]), herbivorous (e.g., Baird's tapir, [Tapirus bairdii]), and arboreal (e. g., mantled howler monkey [Alouatta palliata]) species. Although there is no substitute for native forest habitat, the majority of native, nonflying mammal species use countryside habitats. The populations of many persist even 5 km from relatively extensive forest, at least over the 40 years since forest clearance. Moreover, if hunting ceased, we expect that at least one of the locally extinct species could be reestablished in the existinglandscape. Thus, there is an important opportunity to maintain and restore the diversity, abundance, and ecosystem roles of mammals in at least some human-dominated regions of the Neotropics**.**
Localización: Biblioteca OET: S10419. NBINA-1302.

Publicación no.: 0377 **Hacia un plan de acción para los primates mesoamericanos** / Rodríguez-Luna, E; Cortés-Ortiz, L; Mittermeier, R.A; Rylands, A.B; Wong-Reyes, Grace; Carrillo-Jiménez, Eduardo; Matamoros-Hidalgo, Yolanda; Núñez, F; Motta-Gill, J. (Universidad Veracruzana. Instituto de Neuroetología, A.P. 566, C.P. 91000, Xalapa, Veracruz, MX <E-mail: wongr@forwild.umass.edu> <E-mail: ecarrill@racsa.co.cr> <E-mail: fundazoo@racsa.co.cr>).
En: Neotropical Primates (ISSN 1413-4705), Supl. 4, p. 119-133. 1996.
Se carece de un plan regional para el estudio y conservación de los primates que habitan la región mesoamericana. De los 23 taxa (especies y subespecies) considerados para Mesoamérica, 13 se han calificado como amenazados (3 en peligro crítico, 4 en peligro y 6 vulnerables) y 18 se consideran endémicos para la región. Por ello, el Grupo Especialista en Primates, Sección Neotropical, se ha propuesto formular el Plan de Acción correspondiente, a fin de aportar a las personas e instituciones interesadas, un documento de trabajo que les ayude en sus tareas. En este sentido se presenta un listado de los taxa y su distribución probable, así como su posible estado en la naturaleza. Con base en ello, se hace una serie de recomendaciones a quienes pudieran sumarse al esfuerzo conservacionista. Se discuten los alcances y limitaciones de un plan con estas características**.**
Localización: Biblioteca OET: N.

Publicación no.: 0378 **Can spider monkeys (Ateles geoffroyi) discriminate vocalizations of familiar individuals and strangers?** *[¿Pueden los monos colorados (Ateles geoffroyi) discriminar las*

vocalizaciones de individuos familiares y extraños?] / Teixidor, P; Byrne, R.W. (Calle Azalea 566, Alcobendas 28109, Madrid, ES <E-mail: 106302.1635@compuserve.com>).
En: Folia Primatologica (ISSN 0015-5713), v. 68, no. 3/5, p. 254-264. 1997.
In a field experiment, tape-recorded vocalizations of spider monkeys (Ateles geoffroyi) were played back to investigate whether individuals were able to discriminate between group members and strangers. Monkeys responded remarkably similarly in the two cases, with no significant difference found between the numbers of calls given by an individual, or the types of call given. However, a group was more likely to give some vocal reaction when hearing a stranger's call than when hearing one from an individual of their own community. Further, the only instances in which agonistic territorial behaviours occurred were in reaction to strangers' playbacks. No significant effects on the response given were produced by the sex of the caller, the location and time of day of the broadcast, the size of the subgroup hearing the call or the activity in which they were involved. These results are discussed with respect to acoustic, social and ecological factors that may lead to the apparent lack of vocal discrimination of strangers within the community range.
Localización: Biblioteca OET: S9803.

Publicación no.: 0379 Social parasitism in the mantled howler monkey, Alouatta palliata Gray (Primates: Cebidae): involuntary altruism in a mammal? [Parasitismo social en el mono congo, Alouatta palliata Gray (Primates: Cebidae): ¿altruismo involuntario en un mamífero?] / Jones, Clara B. (Fayetteville State University. Department of Psychology, 1200 Murchison Road, Fayetteville, NC 28301-4298, US <E-mail: cbjones@uncfsu.edu>).
En: Sociobiology (ISSN 0361-6525), v. 30, no. 1, p. 51-61. 1997. Facultative (temporary) social parasitism is described for the mantled howler monkey. These alternative behaviors, conditional upon environmental stimuli, may be identified where organisms exploit social relationships to their own advantage by directly or indirectly coercing interactants into behaving altruistically. Social parasitism exploits the communication systems of interacting individuals, and a simple model describes how it might evolve. Studies of the mantled howler monkey suggest that facultative social parasitism may be a byproduct of appeasement behavior, may be especially beneficial to social inferiors and may be a robust model for the interpretation of behavior in other mammalian species.
Localización: Biblioteca OET: S9805.

Publicación no.: 0380 **Dental microwear and diet in a wild population of mantled howling monkeys (Alouatta palliata)** *[Microdeterioro dental y dieta en una población silvestre de monos congo (Alouatta palliata)]* / Teaford, Mark F; Glander, Kenneth E. (The Johns Hopkins University. School of Medicine, Department of Cell Biology and Anatomy, Baltimore, MD 21205, US <E-mail: mteaford@jhmi.edu> <E-mail: glander@duke.edu>).
En: Adaptive radiations of neotropical primates. Norconk, M.A; Rosenberger, A.L; Garber, P.A. (eds.). New York: Plenum Press, 1996. p. 433-449, 548-549. ISBN: 0306453991. (No abstract).
Localización: No disponible.

Publicación no.: 0381 **The howling monkeys of La Pacífica** *[Los monos congo de La Pacífica]* / Glander, Kenneth E. (Duke University. Duke University Primate Center, 3705-B Erwin Rd, Durham, N.C. 27706, US <E-mail: glander@duke.edu>). Durham, N.C.: Duke University Primate Center, 1996. 31 p. (No abstract).
Localización: No disponible.

Publicación no.: 0382 **Squirrel monkey viewing and tourism in Costa Rica** *[Vistazo al mono tití y turismo en Costa Rica]* / Wong-Reyes, Grace; Carrillo-Jiménez, Eduardo. (Universidad Nacional. Programa Regional de Maestría en Manejo de Vida Silvestre, Apdo. 1350, Heredia, CR <E-mail: wongr@forwild.umass.edu> <E-mail: ecarrill@racsa.co.cr>).
En: Occasional Papers of the IUCN Species Survival Commission (SSC) (ISSN 1026-4965), v. 12, no. 12, p. 37-39. 1996. (No abstract).
Localización: No disponible.

Publicación no.: 0383 **Predictability of plant food resources for mantled howler monkeys at Hacienda La Pacífica, Costa Rica: Glander's dissertation revisited** [Previdencia de los recursos de plantas alimenticias para los monos congo en la Hacienda La Pacífica, Costa Rica: la disertación de Glander revisitada] / Jones, Clara B. (Fayetteville State University. Department of Psychology, 1200 Murchison Road, Fayetteville, NC 28301-4298, US <E-mail: cbjones@uncfsu.edu>).
En: Neotropical Primates (ISSN 1413-4705), v. 4, no. 4, p. 147-149. 1996. (No abstract)**.**
Localización: Biblioteca OET: S10287.

Publicación no.: 0384 **Temporal division of labor in a primate: age-dependant [dependent] foraging behavior** *[División temporal del trabajo en un primate: comportamiento de forrajeo dependiente de la edad]* / Jones, Clara B. (Fayetteville State University. Department of Psychology, 1200 Murchison Road, Fayetteville, NC 28301-4298, US <E-mail: cbjones@uncfsu.edu>).
En: Neotropical Primates (ISSN 1413-4705), v. 4, no. 2, p. 50-53. 1996. (No abstract)**.**
Localización: Biblioteca OET: S10286.

Publicación no.: 0385 **Male dispersal patterns in white-faced capuchins, Cebus capucinus Part 1: patterns and causes of natal emigration** *[Patrones de diseminación de los machos en los monos carablanca, Cebus capucinus Parte 1: patrones y causas de la emigración natal]* / Jack, Katharine M; Fedigan, Linda M. (Tulane University. Department of Anthropology, 1021 Audubon St, New Orleans, LA 70118, US <E-mail: kjack@tulane.edu> <E-mail: fedigan@ucalgary.ca>).
En: Animal Behaviour (ISSN 0003-3472), v. 67, no. 4, p. 761-769. 2004
This is the first of two papers examining male dispersal patterns in white-faced capuchins. Our study was based on behavioural and demographic data collected on multiple groups of white-faced capuchins in Santa Rosa National Park, Costa Rica since 1985. Here we examine the patterns and proximate causation of male natal dispersal. Natal dispersal in white-faced capuchins occurred at a median age of 4.5 years, with no males remaining in the natal group past 8 years. Initial departure from the natal group appeared to be in response to an attraction to extragroup males and dispersing groupmates. Rates of parallel dispersal (dispersal with co-resident males and/or into groups containing familiar males) were very high for natal males (71-82%), and this pattern of dispersal may have evolved to increase inclusive fitness benefits in male-dispersed species. Additionally, this pattern of dispersal probably increases survivorship among dispersing males who are not yet physically mature, as is common in white-faced capuchins**.**
Localización: Biblioteca OET: NBINA-1345.

Publicación no.: 0386 **Male dispersal patterns in white-faced capuchins, Cebus capucinus Part 2: patterns and causes of secondary dispersal** *[Patrones de diseminación de los machos en los monos*

carablanca, Cebus capucinus Parte 2: patrones y causas de la diseminación secundaria] / Jack, Katharine M; Fedigan, Linda M. (Tulane University. Department of Anthropology, 1021 Audubon St, New Orleans, LA 70118, US <E-mail: kjack@tulane.edu> <E-mail: fedigan@ucalgary.ca>).
En: Animal Behaviour (ISSN 0003-3472), v. 67, no. 4, p. 771-782. 2004
Male dispersal from the birth group is common in the majority of social mammals, and in many species, males also engage in secondary or breeding dispersal following natal emigration. However, the patterns and causes of secondary dispersal are poorly understood due to the difficulty in following emigrants. Here, we detail the patterns and causation of male secondary dispersal in several groups of white-faced capuchins observed between 1985 and 2000 in Santa Rosa National Park, Costa Rica. Subsequent to natal emigration, which occurs between 2 and 8 years of age (median 4.5 years), male white-faced capuchins embark on a life of continual movement. Although males of all age classes engage in voluntary secondary dispersal, the ways by which males entergroups varies according to their age class. Adult males (greater than or equal to 10 years old) are more likely to enter groups aggressively, and they display longer tenure than either subadult males (7-10 years of age) or juvenile males (1-7 years of age). Given our finding that adult males face the highest risks in terms of aggressive interactions with conspecifics, we examined several explanations as to why they continue to disperse throughout their lives. Our data best support the intragroup mating competition hypothesis for secondary dispersal, whereby males move frequently between groups as a means of increasing their reproductive opportunities. Males may also engage in frequent secondary dispersal to avode mating with their maturing daughters, although this hypothesis was not strongly supported by the current data. Males of all age classes displayed very high levels of parallel dispersal, which probably serves to offset the high costs of dispersal (predation, starvation and/or aggression from conspecifics) and it may also serve as a means of retaining kinship among group males**.**
Localización: Biblioteca OET: S10425. NBINA-1344.

Publicación no.: 0387 **Two new species of Listrocarpus Fain (Acari: Atopomelidae) from Cebus capucinus Linnaeus and Saimiri oerstedii Reinhardt (Primates: Cebidae) in Costa Rica** *[Dos especies nuevas de Listrocarpus Fain (Acari: Atopomelidae) de Cebus capucinus Linnaeus y Saimiri oerstedii Reinhardt (Primates: Cebidae) en Costa Rica]* / Troyo-Rodríguez, Adriana; Solano-Chinchilla, Mayra; Calderón-Arguedas, Olger. (Universidad de Costa Rica. Centro de Investigación en Enfermedades Tropicales (CIET), Departamento de Parasitología, Facultad de Microbiología, San José, CR <E-mail: atroyo@cariari.ucr.ac.cr> <E-mail: mayrasol@cariari.ucr.ac.cr> <E-mail: olgerc@cariari.ucr.ac.cr>).
En: Systematic and Applied Acarology Special Publications (ISSN 1461-0183) , no. 18, p. 1-8. 2003.
Two new species of Listrocarpus (Fain; 1967), L. capucinus sp. nov. and L. costaricensis sp. nov., from the hair of the white faced capuchin, Cebus capucinus (Linnaeus; 1758) and the squirrel monkey, Saimiri oerstedii (Reinhardt; 1872), found in the Central Pacific coast of Costa Rica, are described**.**
Localización: Biblioteca OET: NBINA-1390.

Publicación no.: 0388 **Wild capuchins (Cebus capucinus) fail to use tools in an experimental field study** *[Monos carablanca silvestres (Cebus capucinus) fallan en utilizar herramientas en un estudio experimental de campo]* / Garber, Paul A; Brown, Ellen. (University of Illinois. Department Anthropology, 109 Davenport Hall, 607 S Mathews Ave, Urbana, IL 61801, US <E-mail: p-garber@uiuc.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 62, no. 3, p. 165-170. 2004

From September through November 2000 we conducted an experimental field study of tool use in a group of 15 wild white-faced capuchins (Cebus capucinus) in Costa Rica. The problem presented to the capuchins involved the use of wooden dowels as probes to obtain a food reward (two bananas) located inside a clear Plexiglas box. Specifically, the task required the capuchins to manually insert a dowel into any of six holes drilled into the box in order to push the bananas off a shelf. The banana could then be retrieved through a large opening at the bottom of the box. The capuchins visited the tool-use platform 702 times over the course of 55 consecutive days and under several experimental conditions. During the first 21 days of the study, they explored the box but made no attempt to touch or pick up the dowels. Even after we placed the dowels in the holes, the capuchins only occasionally manipulated them. Overall, the results indicate that the capuchins did not use a tool to solve this novel foraging problem**.**
Localización: Biblioteca OET: NBINA-1404.

Publicación no.: 0389 **Group size resurgence in mantled howlers (Alouatta palliata)** *[Resurgimiento del tamaño del grupo en monos congo (Alouatta palliata)]* / Clarke, Margaret R. (Central Washington University. Department of Anthropology, Ellensburg, WA 98926, US <E-mail: clarkem@cwu.edu>). Annual Meeting of the American Association of Physical Anthropologists. Seventy-Third, Tampa, FL, US, April 14-17, 2004.
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 38, p. 75-76. 2004.
The effects of deforestation and management practices on group size and composition of the howlers of La Pacífica, Costa Rica, have been previously reported. Here I report on the rebound of one group following a return to previous irrigation procedures. La Pacífica is in the dry tropical zone and little rain falls between December and May. Without irrigation, the upland forests lose their leaves and provide only new growth as food for howlers. Group 2 has been surveyed since the mid-1970's and has been regularly monitored from 1984 through 2003. Group sise had ranged between 20 and 27 from 1974 through 1990, at which point it decreased, and ranged between 11 and 14 group members through 2000. The low impact irrigation watering the home range ceased after 1986, and water reached the forest only occasionally. In 2000, the previous irrigation system was restored. By 2003, six new females had joined the group, three of which were secondary transfers from nearby groups. Group size increased to 26 (4 adult males, 11 adult females, 11 inmaturos), plus 3 peripheral females. During this complete study period, male:female ratio has varied between 1:1.5 to 1:3.0, and males left the group when the ratio dropped below 1:2.0. Adult female to immature ratio varied between 1:0.8 and 1:2.2. Thus, while the composition of the group remained stable, the size of the group decreased in association with limited irrigation, and increased after irrigation (and presumably resources) were restored**.**
Localización: Biblioteca OET: S9535.

Publicación no.: 0390 **Ontogenetic influences on prehensile-tail use in Cebus capucinus** *[Influencias ontogenéticas del uso de la cola prensil en monos carablanca (Cebus capucinus)]* / Bezanson, Michelle F. (Santa Clara University. Department of Anthropology, 500 El Camino Real, Santa Clara, CA 95053-1500, US <E-mail: mbezanson@scu.edu>). Annual Meeting of the American Association of Physical Anthropologists. Seventy-Third, Tampa, FL, US. April 14-17, 2004.
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 38, p. 63. 2004.
During the course of growth and development, individuals experience ontogenetic changes in body weight, limb proportions, and motor skills. These changes are likely to exert a strong influence on foraging strategies, travel efficiency, substrate preference, and patterns of positional behavior. In this

research, I examine ontogenetic patterns of prehensile-tail use in Cebus capucinus inhabiting a tropical rainforest in Costa Rica. Cebus capucinus was observed for 361 hours during 2002 and 2003 at Estación Biológica La Suerte in North-eastern Costa Rica. Behavioral data were collected using a one-minute instantaneous sampling technique. Five age classes were recognised. When riding dorsally, infants (birth-2 mos.) and older infants (2 mos.-6mos) were observed to wrap their tails around their mother's arm, leg, tail or neck during approximately 12% of the time. When foraging independently, the older infants used their tails as mass-hearing fifth limbs 12.4 % of the observations. During feeding and foraging, young juveniles (6 mos.-1 year) and older juveniles (1 yr.-2 yrs) used their tails in suspensory postures 13.9% and 10.1 % respectively. Overall, infanta and juveniles were found to use their prehensile tails significantly more often than adults during feeding and foraging. Mass-bearing prehensile-tail use differed during social behavior. Adults were not observed in suspensory postures during social behaviors. During play, older juveniles were observed in suspensory postures 35.7% of the observations followed by older infanta (32 %) and young juveniles (28.7%). These data suggest that the prehensile tail serves different functions during infancy, juvenescence, and adulthood. Additional relationships among limb proportions, positional behavior, and substrate use are discussed.
Localización: Biblioteca OET: S9534.

Publicación no.: 0391 **Three apparent cases of infanticide by males in wild white-faced capuchins (Cebus capucinus)** *[Tres casos de aparentes infanticidios por parte de machos en monos carablanca silvestres (Cebus capucinus)]* / Manson, Joseph H; Gros-Louis, Julie J; Perry, Susan E. (Max Planck Institute for Evolutionary Anthropology, Deutscher Platz 6, DE-04103, Leipzig, DE <E-mail: manson@eva.mpg.de> <E-mail: jgroslou@indiana.edu> <E-mail: sperry@eva.mpg.de>).
En: Folia Primatologica (ISSN 0015-5713), v. 75, no. 2, p. 104-106. 2004
(No abstract).
Localización: Biblioteca OET: NBINA-1425.

Publicación no.: 0392 **Play patterns in small juvenile white-faced capuchin monkeys (Cebus capucinus) in Costa Rica** *[Patrones de juego en bebés de monos carablanca (Cebus capucinus) en Costa Rica]* / MacKinnon, Katherine C. (Saint Louis University. Department of Sociology and Criminal Justice and Center for International Studies, St Louis, MO 63103, US <E-mail: mackinn@slu.edu>). Annual Meeting of the American Association of Physical Anthropologists. Seventy-Third, Tampa, FL, US. April 14-17, 2004.
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 38, p. 139. 2004.
This paper examines play patterns in small juvenile (1-3 yrs) white-faced capuchin monkeys (Cebus capucinus) in north-western Costa Rica. I report findings from an 11-month study carried out in Santa Rosa National Park, Área de Conservación Guanacaste. Data were collected on two habituated groups of capuchina using a variety of sampling techniques, and all juveniles were recognised individually. Play-chase was the most common type of play among the small juveniles in this study, comprising approximately 15% of their total sample time. Small juveniles play-chased the most with other juveniles. For example, four of the six small juveniles in this study had the highest rate of play-chase with other small juveniles, and two of the six had the highest rate with large juveniles. Play-wrestle was not as common as play-chase and comprised approximately 7% of the total sample time of small juveniles. As with play-chase, this behavior was performed most within the same age-class (e.g., small juveniles with small juveniles). In addition to play-chase vs. Play-wrestle hehaviors, I will also discuss indi vidual

variation and possible reasons for play-partner preferences. Play serves many functions: it helps young animals assess dominance rank and social roles in the group, and it helps them learn how to control aggression. More generally, play helps the juvenile primate establish and solidify social relationships and to interact effectively in a social world, all of which are crucial for survival.
Localización: Biblioteca OET: S9533.

Publicación no.: 0393 **Resident male replacement in Cebus capucinus groups** *[Reemplazo del macho residente en grupos de monos carablanca Cebus capucinus]* / Jack, Katharine M; Fedigan, Linda M. (Tulane University. Department of Anthropology, 1021 Audubon St, New Orleans, LA 70118, US <E-mail: kjack@tulane.edu> <E-mail: fedigan@ucalgary.ca>). Annual Meeting of the American Association of Physical Anthropologists. Seventy-Third, Tampa, FL, US. April 14-17, 2004.
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 38, p. 119. 2004.
In male dispersed primate species adult males may enter groups peacefully and join resident males at low ranks, or aggressively and assume the top dominance positions within groups. In our long-term study of white-faced capuchina, Cebus capucinus, in Santa Rosa National Park, Costa Rica, we have never observed an adult mate (10 years) to enter a group peacefully at a low rank and join higher ranking resident males. Instead, we see complete replacements of group males at an average of every 2.3 - 4.6 years. In our study population, these replacements of resident males occur in two ways: extragroup males enter a group aggressively and evict resident males (takeover) or they opportunistically enter a group that la without resident males (waltz-in). Here we detail 15 mate replacements that have occurred within our study groups between 1985 and 2002. In particular, we discuss how male replacements occur, when they occur, and why they occur.
Localización: Biblioteca OET: S9532.

Publicación no.: 0394 **A preliminary study of seed dispersal by white-faced capuchins (Cebus capucinus) and mantled howlers (Alouatta palliata) in Costa Rica** *[Estudio preliminar de la diseminación de semillas por parte de los monos carablanca (Cebus capucinus) y los monos congo (Alouatta palliata) en Costa Rica]* / Smith, S.J. (University of Illinois. Department of Anthropology, Urbana, IL, US). Annual Meeting of the American Association of Physical Anthropologists. Seventy-Third, Tampa, FL, US. April 14-17, 2004.
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 38, p. 184. 2004.
(Abstract only). Primates are reported to play an important role as seed dispersers in tropical forests. Seeds ingested and defecated by primates are often viable, and show increased frequencies and rates of germination when compared to non-ingested seeds. The degree to which this pattern varies among seeds of different plant species or with different primate dispersers is unclear. I compare germination frequency and germination rates of seeds of Castilla elastica defecated by white-faced capuchin and mantled howlers with seeds obtained directly from the fruit. C. elastica is an important plant species consumed by howlers and capuchins during the wet season. Fecal samples from capuchins (N = 36) and howlers (N = 76) were collected from May - July 2003 at Estación Biológica La Suerte in northeastern Costa Rica. Seeds of C. elastica found in feces (capuchins, N=73; howlers, N = 184) and seeds obtained directly from the fruit (N = 188) were placed in petri dishes with moist filter paper and checked daily for germination. Nearly all control seeds (99.5%) and seeds passed by capuchina (97.3%) germinated, whereas seeds passed by howlers had lower germination frequencies (82.5%, chi square = 32.9, df = 1, p 0.001). Seeds passed by capuchina had similar average latency periods (3.7 days) to control seeds (3.5

days), whereas seeds passed by howlers had slightly longer average latency periods (4.4 days). These results suggest seeds of C. elastica are affected differently during gut passage through mantled howlers and white-faced capuchins. Additional relationships concerning primate frugivory, seed dispersal, gut passage rates, and forest regeneration are discussed.
Localización: Biblioteca OET: S9531.

Publicación no.: 0395 **Taller de evaluación de viabilidad de población y hábitat de Saimiri oerstedii citrinellus, Zoológico Simón Bolívar, San José, Costa Rica, 31 Mayo-2 Junio 1994** *[Population and habitat viability assessment workshop for Saimiri oerstedii citrinellus, Simón Bolívar Zoo, San José, Costa Rica, 31 May - 2 June 1994]* / Wong-Reyes, Grace (ed.); Matamoros-Hidalgo, Yolanda (ed.); Seal, U.S (ed.). (Universidad Nacional. Programa Regional de Maestría en Manejo de Vida Silvestre, Apdo. 1350, Heredia, CR <E-mail: wongr@forwild.umass.edu> <E-mail: fundazoo@racsa.co.cr>).
En: IUCN/SSC Grupo Especialistas en Reproducción en Cautiverio San José: IUCN/SSC, 1994. p. 1-79. (No abstract).
Localización: No disponible.

Publicación no.: 0396 **Behavioral sampling in the field: comparison of individual and group sampling methods** *[Muestreo etológico en el campo: comparación de métodos de muestreo individual y de grupos]* / Fragaszy, D.M; Boinski, Sue; Whipple, J. (University of Georgia. Department of Psychology, Athens, GA 30602, US <E-mail: boinski@ufl.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 26, no. 4, p. 259-275. 1992
Sampling decisions affect the efficiency and reliability of data collection, and the appropriateness of the data for analyses of group and individual behavior. We evaluate the correspondence between interval sampling of individual behavior at high temporal density (focal interval sampling) with interval sampling of group behavior at lower density (group scan sampling) in two field studies with neotropical primates, capuchins and squirrel monkeys. The two methods provided consistent estimates of population means and variance for activity profiles, foraging activities, and height above ground. The correspondence between mean values with the two methods was greater when group sampling included individual identities than when a nominal scoring scheme was used. A group scan method (without identification of individuals) can be used alone when information is needed within a brief time, such as initial description of activity budgets of a population. Although individual identities take time to learn, data sets in which the individual is the unit of analysis provide several other kinds of analytical possibilities. We recommend use of a mixed sampling regime containing both of these elements (focal and group sampling) as a good way to minimize the time costs of data collection and as a means to evaluate reliability of data collection by a solo observer.
Localización: Biblioteca OET: S9983. NBINA-5894.

Publicación no.: 0397 **White-faced capuchin monkeys show triadic awareness in their choice of allies** / Perry, Susan E; Barrett, H.C; Manson, Joseph H. (Max-Planck-Institute for Evolutionary Anthropology. Independent Junior Research Group in Cultural Phylogeny, Deutscher Platz 6, 04103 Leipzig, DE <E-mail: perry@eva.mpg.de> <E-mail: manson@eva.mpg.de>).
En: Animal Behaviour (ISSN 0003-3472), v. 67, no. 1, p. 165-170. 2004
The social intelligence hypothesis, which holds that social challenges have selected for increased intelligence and social skills, has been supported by evidence, that, in catarrhine primates, individuals

know about the characteristics of groupmates' social relationships. Evidence for such 'triadic awareness' has not been sought for platyrrhine primates, although two platyrrhine genera, capuchins, Cebus, and squirrel monkeys, Saimiri, are among the most highly encephalized primates. We examined patterns of coalitionary recruitment in wild white-faced capuchins, C. capucinus. Analyses have shown that more dominant individuals are more likely to join aggressive coalitions than low-rankers, and that individuals preferentially support those with whom they have stronger affiliative relationships. Data from 110 fights, analysed using simulation techniques that produced distributions of results expected under null hypotheses, revealed that contestants preferentially solicited prospective coalition partners that (1) were dominant to their opponents, and (2) had better social relationships (higher ratios of affiliative/cooperative interactions to agonistic interactions) with themselves than with their opponents. Further analyses showed that soliciting dominant partners could be explained by either of two simpler rules, 'Solicit an ally that outranks yourself' or 'Solicit the highest-ranking available individual'. However, soliciting partners with better social relationships appears to indicate triadic awareness, because subjects did not preferentially solicit the nearby individual with whom they shared the highest-quality social relationship. Effects of relative relationship quality on coalition solicitation decisions were independent of effects of dominance rank**.**
Localización: Biblioteca OET: NBINA-1443.

Publicación no.: 0398 **Ecología y conservación de felinos silvestres en el área de influencia del Parque Nacional Corcovado, Costa Rica** / Tavares-de Almeida, Roverbal. (Apartado 26-8203, Puerto Jiménez, Península de Osa, CR <E-mail: nrojas78@hotmail.com>). Heredia: Universidad Nacional, 2003. 96 p. Tesis, Mag. Sc., Universidad Nacional, Programa Regional en Conservación y Manejo de Vida Silvestre para Mesoamérica y El Caribe, Heredia (Costa Rica).
I studied the relative abundance of five species of wild felines and their potential prey, using track counts in transects and scent stations in six sectors of tropical rain forest adjacent to Corcovado National Park in southwest Costa Rica. I analyzed the diet of the felines by studying their excrement and stomach content. Tracks of jaguar (Panthera onca) were not found in the sector most distant from the park and there were no differences in abundance between the two sectors bordering the park. Jaguars utilized the primary forest in the Osa Guaymí Indigenous Territory and on the private properties directly adjacent to the park. There were differences in the relative abundance indices for the puma (Puma concolor) between the sectors and the species was present in areas with moderate human activity. The indices for the ocelot (Leopardus pardalis) and margay (Leopardus wiedii) also showed variation between the sectors. Tracks of jaguarundí (Herpailurus yaguarondi) were only present in the sector furthest from the park. The relative abundance indices for paca (Agouti paca), tayra (Eira barbara) and coati (Nasua narica); and the density of the spider monkeys (Ateles geoffroyi), white-faced monkey Cebus capucinus), squirrels (Sciurus spp.) and three species of birds (Crax rubra, Penelope purpurascens y Tinamus major) showed differences between the three sectors studied, with higher values for the two sectors neighboring the park. Twenty-two species o f prey were identified in the excrements of felines in the study area. The diversity and abundance of potential prey sustain a carnivorous community, where felines act as a key species for the functioning and maintenance of the habitat in the area of influence of the park.
Localización: Biblioteca del BIODOC: Tesis 2181.

Publicación no.: 0399 **Chest circumference differs by habitat in Costa Rican mantled howler monkeys: implications for resource allocation and conservation** *[La circunferencia del pecho no está de acuerdo con el hábitat en los monos congo costarricenses: consecuencias en la distribución de los recursos y la conservación]* / Jones, Clara B. (Fayetteville State University. Department of Psychology, 1200 Murchison Road, Fayetteville, NC 28301-4298, US <E-mail: cbjones@uncfsu.edu>).
En: Neotropical Primates (ISSN 1413-4705), v. 11, no. 1, p. 22-24. 2003.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-9553.pdf
(No abstract)***.***
Localización: Biblioteca OET: S10284. NBINA-9553.

Publicación no.: 0400 **Variability in foraging and food processing techniques among white-faced capuchins (Cebus capucinus) in Santa Rosa National Park, Costa Rica** *[Variabilidad en forrajeo y técnicas de procesamiento del alimento entre monos carablanca (Cebus capucinus) en el Parque Nacional Santa Rosa, Costa Rica]* / O'Malley, R.C. Edmonton, AB, 2002. 115 pp. ISBN: 0-612-81319-3. Thesis, M.A., University of Alberta, Edmonton (Canada).
Capuchins and chimpanzees share a number of socio-ecological characteristics, including an extractive foraging niche and an impressive capacity for skilled object manipulation. Based on documented patterns of foraging variability across populations, they may also share a capacity for social traditions, or `culture.' This research was an effort to document patterns of foraging variability in two groups of free-ranging Cebus capucinus, and to identify the asocial and social factors underlying such variation. A high degree of variability was observed in foraging patterns and processing techniques for specific foods. Most differences between age/sex classes and groups could be attributed to developmental and environmental factors. However, patterns of food processing observed for one food type, Luehea candida , appear to be influenced by patterns of association within groups, and may reflect foraging traditions. This research supports the growing body of evidence suggesting that a capacity for social traditions is not unique to hominoids***.***
Localización: Biblioteca OET: NBINA-8416.

Publicación no.: 0401 **Beating about the bush** *[Golpeando sobre el arbusto]* / Davies, S.
En: Geographical, v. 73, no. 10, p. 60-63. 2001
The writer describes an expedition into the Costa Rican dry forest. The trip, to the Área de Conservación Guanacaste of Santa Rosa National Park, was made under the auspices of the Earthwatch Institute. The aim of the expedition was to investigate the role of predators in holding numbers of primary consumers of forest foliage in check. The volunteers on the expedition collected the debris that fell to the forest floor, which included caterpillar dung, ants, and spiders, in order to estimate the levels of herbivory and predation***.***
Localización: Biblioteca OET: NBINA-6607.

Publicación no.: 0402 **Injury and disease of the mantled howler monkey in fragmented habitats** *[Lesiones y enfermedades de los monos congo en hábitats fragmentados]* / Jones, Clara B. (Fayetteville State University. Department of Psychology, 1200 Murchison Road, Fayetteville, NC 28301-4298, US <E-mail: cbjones@uncfsu.edu>).
En: Neotropical Primates (ISSN 1413-4705), v. 2, no. 4, p. 4-5. 1994. (No abstract)***.***
Localización: Biblioteca OET: S10283.

Publicación no.: 0403 **Trouble in paradise** *[Desorden en el paraíso]* / Dohrn, M.
En: BBC Wildlife (ISSN 0265-3656), v. 11, no. 2, p. 24-27. 1993. (No abstract).
Localización: No disponible.

Publicación no.: 0404 **The mammals of Costa Rica: a natural history and field guide** *[Los mamíferos de Costa Rica: una guía de campo e historia natural]* / Wainwright, M. Ithaca, NY: Cornell University Press, 2007. 454 p. ISBN: 0801473756.
From the raucous mantled howler monkeys and the charismatic white-nosed coatis to the elusive jaguar, The Mammals of Costa Rica offers authoritative accounts of the fascinating creatures of the neotropics. With more than four hundred spectacular illustrations and a wealth of detailed information drawn from firsthand observation, new research, and synthesis of the scientific literature, this book describes all of Costa Rica's readily identifiable terrestrial and freshwater mammals. The clear and entertaining text is perfectly suited to meet the needs of naturalists, students, and researchers, as well as both experienced and first/time visitors to Costa Rica and the American tropics. The mammal descriptions include key identification features, range maps, vocalizations, local folklore and mythology, and comprehensive information about natural history and conservation. The colour illustrations show not only the mammals themselves but also their tracks, foods, and skulls. Also included are illustrations of numerous other animals and plants with which the mammals have close ecological links. By presenting mammals in a broader context, The Mammals of Costa Rica provides an entry point into a general study of tropical ecology and conservation. This book was previously published under the title "The Natural History of Costa Rican Mammals"**.**
Localización: Biblioteca OET: 599.097.286 W41m.

Publicación no.: 0405 **Effect of polymorphic colour vision for fruit detection in the spider monkey Ateles geoffroyi, and its implications for the maintenance of polymorphic colour vision in platyrrhine monkeys** *[Efecto de la visión de color polimórfica para la detección de frutas en el mono colorado Ateles geoffroyi y sus implicaciones para el mantenimiento de la visión de color polimórfica en los monos platyrrhinos]* / Riba-Hernández, José Pablo; Stoner, Kathryn E; Osorio, Daniel. (Universidad de Costa Rica. Escuela de Biología, San Pedro de Montes de Oca, CR <E-mail: kstoner@oikos.unam.mx>).
En: Journal of Experimental Biology (ISSN 0022-0949), v. 207, no. 14, p. 2465-2470. 2004
Most platyrrhine monkeys have an X-linked tri-allelic polymorphism for medium and long wavelength (M/L) sensitive cone photopigments. These pigments' sensitivity maxima (lambda(max)) range from 535 to 562 nm. All animals also have an autosomally coded short-wavelength-sensitive (S) cone pigment. In populations with three M/L alleles there are six different colour vision phenotypes. Heterozygous females have trichromatic colour vision, while males and homozygous females are dichromats. The selective basis for this polymorphism is not understood, but is probably affected by the costs and benefits of trichromatic compared to dichromatic colour vision. For example, it has been suggested that trichromats are better equipped than dichromats to detect fruit against a leaf background. To investigate this possibility, we modeled fruit detection by various colour vision phenotypes present in the frugivorous spider monkey, Ateles geoffroyi. Our study population is thought to have three M/L alleles with cone pigment lambda(max) values close to 535, 550 and 562 nm. The model predicted that all trichromat phenotypes had an advantage over dichromats, and the 535/562 run phenotype was best; however, the model predicted that dichromats could detect all of the fruit species consumed by spider

monkeys. We conclude that the heterozygote advantage experienced by females may be the most plausible explanation for the maintenance of this polymorphism in A. geoffroyi. Nevertheless, more studies need to evaluate social foraging behaviour and the performance of different phenotypes of other New World monkeys to determine if this is a global explanation for this phenomena or more specific to A. geoffroyi**.**
Localización: Biblioteca OET: NBINA-1673.

Publicación no.: 0406 **Spider monkey alarm calls: honest advertisement or warning kin?** *[Llamadas de alarma del mono colorado: ¿anuncio sincero o advertencia para el pariente?]* / Chapman, Colin A; Chapman, L.J; Lefebvre, L. (University of Florida. Department of Zoology, 223 Bartram Hall, Gainesville, FL 32611, US <E-mail: cachapman@zoo.ufl.edu> <E-mail: ljchapman@zoo.ufl.edu>).
En: Animal Behaviour (ISSN 0003-3472), v. 39, no. 1, p. 197-198. 1990.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-1968.pdf
Many primate species give alarm calls at night in response to predators or to the alarm calls of conspecifics (Anderson 1984). Byrne (1981) proposed that alarm calls of this type may be an 'honest advertisement' (Clutton-Brock & Albon 1979), providing predators with reliable information about the number of defenders in the group. Alternatively individuals in small groups could attempt to deceive predators by calling more and mimicking larger groups ('Beau Geste tactic', Krebs 1977; Byrne 1981). Alarm calls given at night may have a greater potential for manipulation than those given during the day, since detection of cheating may be more difficult. Here, we report experimental field data describing the responses of spider monkeys in Santa Rosa National Park, Costa Rica to recorded alarm calls played back at sleeping trees at dusk. The social unit of spider monkeys, Ateles geoffroyi, consists of amiably interacting subgroups, the size and composition of which change frequently. Over 5 years (1983-1988) of investigation at Santa Rosa (36 months field time), 1018 subgroups were observed and followed, the size of which averaged (±SE) 4.9±0.13 individuals (range =1-35). Spontaneous alarm calls were infrequently heard during this period (N= 48), probably because spider monkeys rarely encountered predators and/or the presence of the observers may have deterred predators from approaching. Spontaneous bouts of repetitive alarm calling varied from 5 s to 46 min (mean=204 s, N=48) and were given by subgroups ranging in size from 1 to 18 members. Usually, it was not possible to identify the reason the animals called (N=31). However, on five occasions we saw a potential predator when the calls were given, and on 12 instances calls were given when humans (other than the observers) approached the subgroup. Since in a forest environment it is impossible to state if or when a predator has left the vicinity, or to control for the actions of a predator, it is extremely difficult to relate the duration of spontaneous calling bouts to the size of the subgroups in order to test the hypotheses proposed earlier. We therefore opted for a more experimental approach. The alarm calls of a medium-ranking adult female, responding to an unknown terrestrial predator were recorded with a Sony TC-D5 recorder. The spider monkey's alarm call is known as a 'bark' (Eisenberg 1976) and is given to a variety of terrestrial predators (Symington 1987). Observers arrived at the sleeping site well before the monkeys and placed speakers on the opposite side of the tree to which the observers were positioned. Shortly after a subgroup settled into the sleeping tree, the alarm call was played to them. Playbacks were conducted only on those occasions where the subgroup contained only known individuals and did not include the female that was recorded giving the original alarm call. This female was known to interact with all members of the subgroups. The spider monkeys often congregated at sleeping sites at night (Chapman 1989), and alarm calls were never given in response to the sudden appearance of a monkey

at the sleeping tree (N=152). Thus, we believe that the behaviour of the spider monkeys when the alarm call was played was a response to the playback and not to the presumed approach of other monkeys. When subgroups were comprised of known individuals (N=12), we recorded the duration and type of vocalizations, and whether the animal oriented and/or travelled in the direction of tbe speakers. We considered the duration of the response for the subgroup as the time from when they first responded, to the time when the last animal stopped calling. Observations were continued for approximately 20 min following the playback or until the lack of light precluded observations (one occasion). In all instances the animals were no longer exhibiting any apparent reactions. To prevent familiarization with the experimental procedure and to minimize the potential of unnatural response by the monkeys, playbacks conducted at one sleeping site were separated by at least 10 days. If alarm calls given at sleeping sites are honest advertisements, then the duration and/or intensity of the call should be proportional to the size of the subgroup. If individuals in small subgroups attempt to imitate large subgroups by calling longer, then one would expect a negative relationship between subgroup size and call duration. In addition, we have sufficient information with respect to social organization and kin affiliation in the monkeys of our study group to permit an analysis of their behaviour at sleeping sites in terms of the proximity of immediate family kin. We conducted playbacks on 12 occasions involving subgroups that ranged in size from three to eight individuals (mean=5.7). On 18 other occasions, spider monkeys did not come to the sleeping site we had chosen, and on four occasions, subgroups contained unknown individuals. All subgroups responded to the recorded alarm call by vocalizing (range in duration = 30 s-11 min). All individuals, with the exception of some infants, oriented in the direction of the speakers. Individuals in 10 out of the 12 subgroups approached the speaker and occasionally travelled well past its location. There was no difference between the size of subgroups that approached the speaker and those that did not approach (approach: mean=5.4; no approach: mean=7.0, t=1.25, P=0.289), nor between the number of known related individuals in the subgroup that approached the speaker and those that did not (approach: mean=2.4; no approach: mean=1.0; 1=1.21, P=0.255). In a multiple regression, subgroup size and the number of immediate family kin accounted for 77% of the variation in the duration of the vocal response to the playback (R2=0.766, P=0.0014). Partial correlation coefficients were then examined to isolate the independent effects of these two variables. As the number of known kin in a subgroup increased, there was a strong tendency for the duration of the response to increase (partial correlation coefficient=0.87, P=0.0005) when the effects of subgroup size were held constant. When the size of the subgroups increased independent of the number of kin they contained, there was a weak tendency for the duration of the vocal response to decrease (partial correlation coefficient= -0.52, P=0.098). Contrary to the prediction of the honest advertisement hypothesis, the duration of the vocal response given to alarm calls did not increase with subgroup size. In fact, the opposite effect was observed; individuals in small subgroups tended to give longer responses than individuals in larger subgroups, although this effect did not reach traditional levels of statistical significance (P= 0.098). It may be that spider monkeys in small subgroups are using the Beau Geste tactic, calling longer in order to deceive predators by mimicking a larger group with more defenders**.**
Localización: Biblioteca OET: NBINA-1968.

Publicación no.: 0407 **Ecological constraints on group size in three species of Neotropical Primates** *[Restricciones ecológicas en el tamaño del grupo en tres especies de primates neotropicales]* / Chapman, Colin A. (University of Florida. Department of Zoology, 223 Bartram Hall, Gainesville, FL 32611, US <E-mail: cachapman@zoo.ufl.edu> <E-mail: ljchapman@zoo.ufl.edu>).

En: Folia Primatologica (ISSN 0015-5713), v. 55, no. 1, p. 1-9. 1990.
The foraging strategies and association patterns of 3 species of primates (Ateles geoffroyi, Alouatta palliata, Cebus capucinus) were studied over a 5-year period. The objective of the study was to provide a quantitative test of the hypothesis that the size, density and distribution of food re-sources influence the size of animal groups. In examining the assumptions of this hypothesis, it was shown that these primates used resources that occurred in patches, depleted the patches through their use, and that membership in large subgroups was associated with increased travel costs. The howler and spider monkey groups formed subgroups, the size of which could be predicted from the size, density and distribution of their plant food resources. When resources were clumped and at a low density, both the howler and spider monkeys were found in small subgroups, whereas when patches were uniformly distributed and at high density they formed larger subgroups. Capuchin monkeys, in contrast, did not respond to changes in these ecological variables by forming subgroups or changing the cohesion of their group.
Localización: Biblioteca OET: S9793.

Publicación no.: 0408 **Proximate mechanisms governing feeding behavior and selectivity in mantled howler monkeys, Alouatta palliata** / Welker, B.J. (State University of New York. Department of Anthropology, 1 College Circle, Geneseo, NY 14454, US). Buffalo, N.Y.: University of New York, 2004. 274 pp. Dissertation, Ph.D., University of New York at Buffalo (USA).
This study focuses on dry season feeding behavior and dietary selectivity in a group of mantled howler monkeys (Alouatta palliata) at the study site in the Sector Santa Rosa within the Área de Conservación Guanacaste, Costa Rica. Data were collected during three consecutive field seasons. An in-depth examination of the group's diet demonstrated their (1) heavy use of seasonal resources, especially fruits and flowers, and asynchronously produced Ficus products and (2) lower reliance on mature leaves. Variability in resource use was observed within and between years. Much of the within-year variability is hypothesized to be due to the changing availability of preferred resources, especially those that are seasonally produced and figs. Between-year variability in the consumption of some resources is hypothesized to be related to differential plant part production by certain tree species as well as the asynchronous nature of fig production. Tree characteristics and phenological data were used to test hypotheses related to feeding tree use. Contrary to previous reports, tree size and food crop size were not related to the use of particular trees as feeding trees. In addition, while feeding trees needed to be accessible from adjacent trees, the degree to which they were contiguous with surrounding trees did not affect their use. The group demonstrated differential home range use that appeared to be related to variability in canopy height and density and the location of preferred food species. Finally, leaf consumption in three tree species was examined to determine whether the animals may have been practicing intraspecific feeding selectivity as has been reported by other researchers studying mantled howler monkeys. Hymenaea courbaril met the criteriaset forth and an intensive examination was undertaken to determine if leaves from trees that were fed from differed in measures of primary and secondary chemistry from those trees that were not fed from. While no measures of primary chemistry were found to differ between used and unused trees, leaves from unused trees and/or leaf stages contained higher levels of several sesquiterpene compounds that are hypothesized to serve herbivore deterrent functions in a Hymenaea congener as well as Pinus.
Localización: Biblioteca OET: NBINA-5416.

Publicación no.: 0409 **Dental topography and molar wear in Alouatta palliata from Costa Rica** *[Topografía dental y desgaste de las muelas en Alouatta palliata de Costa Rica]* / Dennis, John C; Ungar, Peter S; Teaford, Mark F; Glander, Kenneth E. (University of Arkansas. Department of Anthropology, Old Mam330, Fayetteville, AR 72701, US <E-mail: pungar@uark.edu> <E-mail: mteaford@jhmi.edu> <E-mail: glander@duke.edu>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), v. 125, no. 2, p. 152-161. 2004
Paleoprimatologists depend on relationships between form and function of teeth to reconstruct the diets of fossil species. Most of this work has been limited to studies of unworn teeth. A new approach, dental topographic analysis, allows the characterization and comparison of worn primate teeth. Variably worn museum specimens have been used to construct species-specific wear sequences so that measurements can be compared by wear stage among taxa with known differences in diet. This assumes that individuals in a species tend to wear their molar teeth in similar ways, a supposition that has yet to be tested. Here we evaluate this assumption with a longitudinal study of changes in tooth form over time in primates. Fourteen individual mantled howling monkeys (Alouatta palliata) were captured and then recaptured after 2, 4, and 7 years when possible at Hacienda La Pacífica in Costa Rica between 1989-1999. Dental impressions were taken each time, and molar casts were produced and analyzed using dental topographic analysis. Results showed consistent decreases in crown slope and occlusal relief. In contrast, crown angularity, a measure of surface jaggedness, remained fairly constant except with extreme wear. There were no evident differences between specimens collected in different microhabitats. These results suggest that different individual mantled howling monkeys wear their teeth down in similar ways, evidently following a species-specific wear sequence. Dental topographic analysis may therefore be used to compare morphology among similarly worn individuals from different species**.**
Localización: Biblioteca OET: NBINA-1786.

Publicación no.: 0410 **Seed dispersal and defecation patterns of Cebus capucinus and Alouatta palliata: consequences for seed dispersal effectiveness** *[Diseminación de semillas y patrones de defecación de Cebus capucinus y Alouatta palliata: consecuencias para la efectividad de la diseminación de semillas]* / Wehncke, Elisabet V; Valdez, C.N; Domínguez-Pérez-Tejada, C.A. (Universidad Nacional Autónoma de México. Departamento de Ecología Evolutiva, Laboratorio de Interacciones Planta Animales, Apartado 70-275, nidad Universitaria Circuito Exterior, México, DF 04510, MX <E-mail: elisabetw@ecologia.unam.mx> <E-mail: tejada@servidor.unam.mx>).
En: Journal of Tropical Ecology (ISSN 0266-4674), v. 20, part 5, p. 535-543. 2004
Primates are primary seed dispersers for many tropical tree species. Different species of primates vary considerably in ranging and feeding behaviour, seed processing, and in seed defecation patterns. Here we compare the role of two arboreal primate species, howlers (Alouatta palliata), and white-faced monkeys (Cebus capucinus) as seed dispersers in a tropical dry forest in Costa Rica. We found that Cebus produce smaller defecations, spend shorter times feeding per tree, have longer seed dispersal distances, and produce a more scattered pattern of seed deposition in the forest than Alouatta. In addition, Cebus moved more frequently between trees, and consumed fruits of more species than Alouatta. We examined the consequences of the contrasting defecation patterns produced by Cebus and Alouatta on the early seed fate of Acacia collinsii. We found that quantity, but not the identity (Cebus vs. Alouatta) of faecal material affected post-dispersal activity. Seeds in scattered faeces, sufficiently apart from each other (the common defecation pattern of white-faced monkeys), had higher short-term survival than seeds in clumped patterns of faeces (the pattern associated with Alouatta)**.**

Localización: Biblioteca OET: NBINA-1780.

Publicación no.: 0411 The demographic and reproductive context of male replacements in Cebus capucinus [Contexto demográfico y reproductivo de la sustitución del macho en Cebus capucinus] / Fedigan, Linda M; Jack, Katharine M. (University of Calgary. Department of Anthropology, Social Sciences Bldg 830, Calgary, AB T2N 1N4, CA <E-mail: fedigan@ucalgary.ca> <E-mail: kjack@tulane.edu>).
En: Behaviour (ISSN 0005-7959), v. 141, no. 6, p. 755-775. 2004
Male primates may immigrate into groups by peacefully joining the residents and taking up low-ranking positions in the hierarchy, or they may enter by force, challenging the resident males and attempting to drive them from high rank or from the group. Here we address the questions of how, when, and why immigrating male white-faced capuchins (C. capucinus) at Santa Rosa National Park (Costa Rica) replace the former resident males of our groups, rather than simply joining them. We present data on 15 male replacements in 6 study groups tracked from 1984 through March 2004. During 11 aggressive takeovers, resident males were nearly always outnumbered by coalitions of invading males; lone resident males were particularly vulnerable. Both residents and invaders were wounded and infants often perished during or soon after takeovers. Male replacements also occur when resident males abandon their groups and males from neighboring groups 'waltz in' to become resident. Three such 'waltz in' replacements occurred during the study period. If we combine takeovers with 'waltz in' cases, replacements occur about every 4 years in our study groups, almost invariably during the dry season months of January to April, about 3-6 months before the annual peak in conceptions. In the years that groups are subject to takeovers, group composition includes significantly lower proportions of adult males than in no-takeover years. We conclude that: (1) the mechanism of male replacement is usually aggressive takeover, but sometimes abandonment of the group by prior resident males occurs; and (2) aggressive takeovers are more likely to happen when the group is vulnerable because it has a lower proportion of adult males, particularly when all co-resident males have emigrated, leaving only the alpha male in residence. Our long-term study shows that adult males need coalition partners not only to gain entry to a group but also to maintain their membership within it***.***
Localización: Biblioteca OET: NBINA-2965.

Publicación no.: 0412 **Adult migration patterns of the mantled howlers of La Pacífica** *[Patrones de migración de los adultos de los monos congo de La Pacífica]* / Clarke, Margaret R; Glander, Kenneth E. (Central Washington University. Department of Anthropology, Ellensburg, WA 98926, US <E-mail: clarkem@cwu.edu> <E-mail: glander@duke.edu>). New Perspectives in the Study of Mesoamerican Primates: Distribution, Ecology, Behavior and Conservation Symposium. Celebrated during the Meeting of the American Society of Primatologists, Madison, WI, University of Wisconsin, US. June 8-12, 2004. , 2004.
(Abstract only). An analysis of survey and capture data on adult howling monkeys (Alouatta palliata) from 1972 through 2002 revealed different patterns of migration for adult male and adult female howlers. Records from 7 different social groups for 115 group years revealed 70 migration events in females and 40 in males. Leaving and joining was evaluated on a number of social and environmental variables for each sex using independent t-tests. Females were more likely to join groups in riparian habitats, to join groups that had an unusually low number of females, and to join groups following a year of normal (rather than low) rainfall. Females were only observed attempting to join groups where the male-female ratio was below 1:3. There were no environmental variables associated with male

migration. Males joined groups when the adult male-female sex ratio was 1:5 or higher, and left groups when that ratio dropped to 1:2. The actual size of the group had no effect. Males joined groups at an average 4.4 ± 0.9 years of age, and left groups at an average 15.1 ± 7.4 years of age. Older males were documented to form small one-male groups after emigrating. Female migration patterns associate primarily with environmental variables (habitat, rainfall) and secondarily with social variables (number of group females, sex-ratio), while male migration patterns only associate with social variables (i.e. male-female ratio and male age).
Localización: No disponible.

Publicación no.: 0413 **How are male dispersal patterns, dominance rank and reproductive success related in wild white-faced capuchins (Cebus capucinus) in Santa Rosa National Park, Costa Rica?** *[¿Cómo son los patrones de diseminación, rangos de dominancia y éxito reproductivo en los monos carablanca silvestres (Cebus capucinus) en el Parque Nacional Santa Rosa, Costa Rica?]* / Jack, Katharine M; Fedigan, Linda M. (Tulane University. Department of Anthropology, 1021 Audubon St, New Orleans, LA 70118, US <E-mail: kjack@tulane.edu> <E-mail: fedigan@ucalgary.ca>). New Perspectives in the Study of Mesoamerican Primates: Distribution, Ecology, Behavior and Conservation Symposium. Celebrated during the Meeting of the American Society of Primatologists, Madison, WI, University of Wisconsin, US. June 8-12, 2004. , 2004.
(Abstract only). Sexual selection theory predicts that males who win intrasexual competition will experience increased mating success and in some primate species low mating success is suggested to be a driving force behind male dispersal; however therelationship among these variables is still poorly understood. Here we investigate the interrelatedness of male dispersal patterns (tenure length and reason for dispersal), dominance rank, and reproductive success within two groups of Cebus capucinus between 1993 and 2000. During this period 15 immigrant males resided in the study groups and 24 infants were born (19 of which survived long enough to obtain samples for non-invasive paternity determination). Male dominance rank, the proportion of infants sired, and the reason for dispersal are all significantly correlated (p.05) while male tenure length is not correlated with any of the variables. Within our study groups, low ranked males sire fewer offspring and emigrate voluntarily, while alpha males sire the majority of offspring and tend to remain in a group until evicted by outsider males. These data, combined with our previous finding that males experience an increase in dominance rank with group transfer, indicate that the voluntary dispersal of low ranking males may be an adaptive strategy to increase their reproductive success. Our long-term data suggests that unless a male is able to reach alpha status, his chances of reproducing are low.
Localización: No disponible.

Publicación no.: 0414 **Factors involved in variation in tree and species use by mantled howler monkeys, Alouatta palliata** *[Factores involucrados en la variación en el uso de árboles y especies por parte de los monos congo, Alouatta palliata]* / Welker, B.J. (State University of New York. Department of Anthropology, 1 College Circle, Geneseo, NY 14454, us). New Perspectives in the Study of Mesoamerican Primates: Distribution, Ecology, Behavior and Conservation Symposium. Celebrated during the Meeting of the American Society of Primatologists, Madison, WI, University of Wisconsin, US. June 8-12, 2004. , 2004.
(Abstract only). A study of feeding behavior by mantled howler monkeys was undertaken to examine mechanisms involved in intraspecific tree use. Behavioral (2-min point time samples) and tree

characteristic (physical, spatial, phenological, and chemical) data were collected/processed during three consecutive dry seasons from 1997 to 1999 at the study site of Sector Santa Rosa, Area de Conservación Guanacaste, Costa Rica. Tree characteristic data were collected from all trees (= 20 cm diameter at breast height), within seven food species, and used and unused trees were compared. Size and crop data were collected for all food trees. Physical characteristics thought to be related to use were tree accessibility, phenology, and location and, in one species, the secondary chemistry of leaves, i.e. variable sesquiterpene levels. Contrary to previous reports, neither tree size nor the size of their food crops was related to whether a tree could/would be fed from. Between-year differences in time spent feeding from particular species was related to (1) variation in plant part production and (2) availability of preferred resources. Data for three leaf-source species are used to demonstrate differing patterns of usage between species, some of which appears unrelated to the aforementioned factors. These results shed light on the complexity of feeding behavior and selectivity in this primate species and are discussed with respect to conservation issues.
Localización: No disponible.

Publicación no.: 0415 **Is average good enough: how much do mantled howling monkeys really weight?** *[¿Es el promedio suficiente: cuánto realmente pesan los monos congo?]* / Glander, Kenneth E. (Duke University. Department of Biology, Anthropology & Anatomy, Wheeler Bldg., 3705-B Erwin Rd, Durham, N.C. 27706, US <E-mail: glander@duke.edu>). New Perspectives in the Study of Mesoamerican Primates: Distribution, Ecology, Behavior and Conservation Symposium. Celebrated during the Meeting of the American Society of Primatologists, Madison, WI, University of Wisconsin, US. June 8-12, 2004. , 2004.
(Abstract only). A comparison of mantled howling monkey (Alouatta palliata) body weights from two Costa Rican populations [Santa Rosa (SR) and La Pacifica (LP)] and the island population of Barro Colorado (BCI) resulted in "average" female body weights of 6,445 g (BCI:N=49), 5,161 g (SR:N=21), and 4,726 g (LP:N=663). The "average" male body weight for these same three populations is 7,562 g (BCI:N=38), 6,573 g (SR:N=15), 6,167 g, and 5,790 g (LP:N=288). The BCI females are significantly heavier thanboth the SR females (F=80.48, P.0000) and LP females (F= 360.48, P.0000) and the BCI males are significantly heavier than both the SR males (F=23.23, P.0000) and the LP males (F=295.05, P.0000). The SR females are significantly heavier than the LP females (F=10.25, P.001) and the SR males are significantly heavier than the LP males (F=26.54, P.0001). The SR population is located about 70 km from LP while the BCI howler population is about 750 km from the Costa Rican populations. Not only is there variation in body mass between populations, there is also variation in body mass within populations that can exceed that between populations. The body mass range is 4,300-7,300 g for the LP population and 6,000-8,750 g for the BCI population.
Localización: No disponible.

Publicación no.: 0416 **Leap, bridge, or ride? Ontogenetic influences on gap crossing in Cebus and Alouatta** / Bezanson, Michelle F. (Santa Clara University. Department of Anthropology, 500 El Camino Real, Santa Clara, CA 95053-1500, US <E-mail: mbezanson@scu.edu>). New Perspectives in the Study of Mesoamerican Primates: Distribution, Ecology, Behavior and Conservation Symposium. Celebrated during the Meeting of the American Society of Primatologists, Madison, WI, University of Wisconsin, US. June 8-12, 2004. , 2004.
(Abstract only). During growth and development ontogenetic changes in body weight, limb proportions, and motor skills are likely to influence locomotion through the arboreal canopy. In this research, I

examine ontogenetic patterns of gap crossing in Cebus capucinus and Alouatta palliata inhabiting a tropical rainforest in Costa Rica. Cebus and Alouatta were observed for 773 hours during 2002 and 2003 at Estación Biológica La Suerte in Northeastern Costa Rica. A sample of 1000 trees along 50 10-metertransects was measured to analyze the effects of gap size on gap-crossing locomotor behavior among individuals in five age classes. Statistical analyses incorporating randomization procedures indicated that adult and juvenile locomotor behavior exhibited a similar pattern within each species, differing only in the frequency of particular behaviors. In Cebus, leaping increased slightly with age while in Alouatta leaping decreased. While Cebus were found to cross wider gaps than Alouatta, there were no significant differences in the sizes of gaps utilized among juveniles and adults within each species. The results of the present study suggest that increasing body mass does not predictably influence the capuchin and howler locomotor repertoire. Additional relationships among substrate use, locomotor behavior, and limb proportions in Cebus and Alouatta are discussed.
Localización: No disponible.

Publicación no.: 0417 **Dispersal of a pioneer tree species (Castilla elastica) by mantled howler monkeys (Alouatta palliata) in Costa Rica** *[Diseminación de una especie de árbol pionera (Castilla elastica) por parte de los monos congo (Alouatta palliata) en Costa Rica]* / Pruetz, Jill D; Davis, H.D; McMurry, J.K; Gann, V. (Iowa State University. Department of Anthropology, 324 Curtiss Hall, Ames, IA 50011, US). Annual Meeting of the American Society of Primatologists, Georgetown, TX, Southwestern University, US. 28 June - 1 July, 1998. , 1998. *(Abstract only)*.
Localización: No disponible.

Publicación no.: 0418 **Changes in daily activity pattern and rates of social interactions in a free-ranging group of mantled howling monkeys (Alouatta palliata) in Costa Rica following partial deforestation of their home range** *[Cambios en el patrón diario de actividad y tasas de interacciones sociales en un grupo de monos congo en libertad (Alouatta palliata) en Costa Rica después de una deforestación parcial de su ámbito de ambiente]* / Clarke, Margaret R; Collins, D.A; Zucker, E.L. (Central Washington University. Department of Anthropology, Ellensburg, WA 98926, US <E-mail: clarkem@cwu.edu> <E-mail: zucker@loyno.edu>). Annual Meeting of the American Society of Primatologists, Georgetown, TX, Southwestern University, US. 28 June - 1 July, 1998. , 1998.
(Abstract only). To evaluate the effects of partial deforestation of the home range of a group of free-ranging howlers on Hacienda La Pacífica, Costa Rica, we compared activity patterns, social interactions, daily travel lengths, group sizes and migration patterns before, during, and after habitat destruction. Immediate responses were a decrease in social interactions and increase in start to travel . Long-term responses included an increase in feeding time and longer daily path length. The long-term responses were associated with the adjustment to a new home range which was longer and narrower, with the patchiest resources at the furthest end points. Group size decreased due to a significant decrease in adult males and females and a significant increase in infant deaths between the predeforestation period and the deforestation/postdeforestation periods. Significant increase in adult female deaths/emigration continues, though emigration of immatures remains unchanged. Reduced group size could be due to reduced resources or disturbed migration routes throughout the farm due to the construction of a major canal system.
Localización: No disponible.

Publicación no.: 0419 **Testing spectral tuning residues of visual pigments and colour-vision typing of wild New World monkeys in Costa Rica** / Hiramatsu, Chihiro; Aureli, Filippo; Fedigan, Linda M; Kawamura, Shoji. (University of Tokyo. Graduate School of Frontier Sciences, Department of Integrated Biosciences, Seimeitou 502,5-1-5 Kashiwanoha, Kashiwa, Chiba 2778562, JP <E-mail: kawamura@k.u-tokyo.ac.jp> <E-mail: f.aureli@ljmu.ac.uk> <E-mail: fedigan@ucalgary.ca>).
En: Folia Primatologica (ISSN 0015-5713), v. 75, no. 1, p. 191. 2004.
(Abstract only). Colour-vision polymorphism of New World monkeys results from allelic variation of the single-locus M/LWS (Middlle-to-Long-Wave-Sensitive) visual pigment gene residing on the X-chromosome. There are typically three alleles of the pigment found in a species, resulting in six colour-vision phenotypes within one species. This polymorphic nature offers an excellent opportunity for our understanding of the adaptive significance of colour vision. On the basis of amino-acid sequence comparison, spectral differences among the alleles have been ascribed to the 180th, 229th, 233rd, 277th and 285th amino acids of the pigment. While significant spectral effects have been demonstrated for the 180th, 277th and 285th residues by site-directed mutagenesis for a large number of vertebrate M/LWS pigments ('three-site rule'), effects at the 229th and 233rd residues remain untested. In this study, we measured absorption spectra of reconstituted M/LWS pigments from several New World monkey species. Their peak absorption spectra were consistent with the prediction from the three-site rule. Our site-directed mutagenesis for the 229th and 233rd residues showed that their mutational effects for absorption spectrum were negligible. These results preclude the necessity of examining the exon 4, encoding the 229th and 233rd residues, of M/LWS pigment genes for colour-vision typing of New World monkeys. We conducted colour-vision typing for wild populations of two New World monkeys, Cehus capucinns and Ateles geoffroyi, living in Santa Rosa National Park of Costa Rica, by analysing their faecal DNA. Colour-vision polymorphism was indeed observed in the wild populations, and phenotypic composition was found to be highly variable among populations.
Localización: No disponible.

Publicación no.: 0420 **Color vision variation of capuchin and spider monkeys in Santa Rosa National Park, Costa Rica** [in japanese] *[Variación en la visión de color en los monos carablanca y congo en el Parque Nacional Santa Rosa, Costa Rica* [en japonés]*]* / Kawamura, Shoji; Hiramatsu, Chihiro; Aureli, Filippo; Fedigan, Linda M. (University of Tokyo. Graduate School of Frontier Sciences, Department of Integrated Biosciences, Seimeitou 502,5-1-5 Kashiwanoha, Kashiwa, Chiba 2778562, JP <E-mail: kawamura@k.u-tokyo.ac.jp> <E-mail: f.aureli@ljmu.ac.uk> <E-mail: fedigan@ucalgary.ca>).
En: Reichorui Kenkyu / Primate Research (ISSN 0912-4047), v. 20, p. 16. 2004.
(Abstract only).
Localización: No disponible.

Publicación no.: 0421 **Mammalian and avian species that visited two human-introduced species of tree, the pejibaye (Bactris gasipaes) and mamon (Melicoccus bijugatus), in a Costa Rican tropical lowland forest** *[Especies de mamíferos y aves que visitan a dos especies de árboles introducidos por el hombre, el pejibaye (Bactris gasipaes) y el mamón (Melicoccus bijugatus), en un bosque tropical costarricense de las tierras bajas]* / Callahan, R. (Arizona State University. Primate Foundation of Arizona, 8243 E. McDonald Dr., Scottsdale, AZ 85250, US).
En: American Journal of Primatology (ISSN 0275-2565), v. 62, Suppl. 1, p. 57-58. 2004.

(Abstract only). This study investigated the relationships between local fauna to introduced tree species (the Mamón and Pejibaye) in a Costa Rican tropical lowland forest. Both avian and mammalian species were observed participating in fruit-eating-events (FEE's). Species observed include: Cebus capucinus, Psarocolius montezuma, Oryzoborus funereus, an unidentified species of robin, and an unknown bird species. Cebus spent the most amount of time engaged in FEE's (83% of FEE's). It has previously been shown that pulp removal inhibits fungal growth, increasing the chance of successful germination. Cebus was observed to remove 76-100% of the pulp from 43% of their seeds. This has implications for fungal growth inhibition, as 100% of non-germinating seeds had fungus and only 25% of germinating seeds had fungus. Cebus capucinus may serve as an efficient seed disperser, but further studies of longer duration, use of fecal assessment, and more detailed accounts of seed fate are needed.
Localización: Biblioteca OET: S10634.

Publicación no.: 0422 **The complete capuchEn: the biology of the genus Cebus** *[El mono carablanca completo: la biología del género Cebus]* / Fragaszy, D.M; Fedigan, Linda M; Visalberghi, E. (<E-mail: fedigan@ucalgary.ca>). Cambridge: Cambridge University Press, 2004. 356 pp. ISBN: 0-521-66768-2.
Capuchin monkeys are one of the most widely distributed genera of primates in Central and South America. Capuchins captivate the imagination of scientists and the lay public alike with their creative and highly variable behavior, their grace and power in action, and their highly developed social character. In this, the first scholarly book devoted to the biology of the genus Cebus (Primates: Platyrrhine), the taxonomy, distribution, life history, ecology, anatomy, development, perception, cognition, motor skills, social and sexual behavior of these monkeys are summarized. The book also describes how humans have viewed, used and studied these monkeys from ancient times to the present. The authors explicitly organismic and inclusive treatment provides a picture in unparalleled detail of the capuchin over its lifetime for all those with an interest in these fascinating animals. This book explores our understanding of Capuchin monkeys in relation to their lives in nature--their physical, mental and social characteristics in comparison to other monkeys.
Localización: Biblioteca OET: 599.85 F811c.

Publicación no.: 0423 **How do howler monkeys cope with habitat fragmentation?** *[¿Cómo enfrentan los monos congo la fragmentación del hábitat?]* / Bicca-Marques, J.C. (Pontificia Universidad Católica de Río Grande do Sul. Facultad de Biociencias, Av Ipiranga 6681 Pd 12, Porto Alegre, RS 90619-900, BR <E-mail: jcbicca@terra.com.br>).
En: Primates in fragments: ecology and conservation. Marsh, L.K. (ed.). New York: Kluwer Academic/Plenum Publ., 2003. p. 283-303. ISBN: 0306476967. (No abstract).
Localización: No disponible.

Publicación no.: 0424 **Socioecología de Alouatta palliata en hábitats fragmentados: Implicaciones para su conservación** *[Socioecology of Alouatta palliata in fragmented habitat: Implications for conservation]* / Vea, J.J; Cristobal-Azkarate, J. (University of Barcelona. Ctr Esp Rec Primates (CERP) & Department of Psiquiatry & Psicobiology Clin, Vall Hebron 171, 08035 Barcelona, ES <E-mail: jvea@psi.ub.es>).
En: Primates: evolución, cultura y diversidad: homenaje a Jordi Sabater PI. Martínez-Contreras, J; Vea, J.J. (eds.) Mexico: Centro de Estudios Filosóficos, Políticos y Sociales, Vicente Lombardo Toledano, 2002. p. 175-195. ISBN: 9685721009. (No abstract).
Localización: No disponible.

Publicación no.: 0425 **New World monkeys I: Squirrel monkeys and capuchins (Cebidae)** *[Monos del Nuevo Mundo I: monos tití y carablancas (Cebidae)]* / Gold, K.C.
En: Grzimek's animal life encyclopedia Hutchins, M; Kleiman, D.G; Geist, V; McDade, M.C. (eds.). Detroit: Gale, 2004. p. 101-113. ISBN: 0787653624. (No abstract).
Localización: No disponible.

Publicación no.: 0426 **Age-class differences in foraging behavior of the white faced capuchin monkey (Cebus capucinus)** *[Diferencias en clases de edades en el comportamiento de forrajeo del mono carablanca (Cebus capucinus)]* / MacKinnon, Katherine C. (Saint Louis University. Department of Sociology and Criminal Justice and Center for International Studies, St Louis, MO 63103, US <E-mail: mackinn@slu.edu>). Congress of the International Primatological Society, 1994. p. 79. *(Abstract only)*.
Localización: No disponible.

Publicación no.: 0427 **Age-class spatial association patterns of Cebus capucinus at Santa Rosa National Park, Costa Rica** *[Asociación de patrones espaciales de clases de edades de Cebus capucinus en el Parque Nacional Santa Rosa, Costa Rica]* / MacKinnon, Katherine C. (Saint Louis University. Department of Sociology and Criminal Justice and Center for International Studies, St Louis, MO 63103, US <E-mail: mackinn@slu.edu>). International Primatological Society / American Society of Primatologists Joint Congress, Madison, WI, US. August 11-16, 1996. Madison, WI: University of Wisconsin, 1996. p. 212. *(Abstract only)*.
Localización: No disponible.

Publicación no.: 0428 **Individual variation in the appearance of social behaviours in infant capuchin monkeys (Cebus capucinus) in Costa Rica** *[Variación individual en la aparición de comportamientos sociales en monos carablanca infantiles (Cebus capucinus) en Costa Rica]* / MacKinnon, Katherine C. (Saint Louis University. Department of Sociology and Criminal Justice and Center for International Studies, St Louis, MO 63103, US <E-mail: mackinn@slu.edu>).
En: Folia Primatologica (ISSN 0015-5713), v. 75, Suppl. 1, p. 296-297. 2004.
(Abstract only). This paper examines the initial appearance of several social behaviours in infant (birth to 12 months) white-faced capuchin monkeys (Cebus capucinus) in northwestern Costa Rica. During an 11-month shady data were collected on individually recognized infants in two habituated groups in Santa Rosa National Park. Infants crawled around on their mothers during the first week of life, and crawled of her for up to 5 minutes at 1-2 months of age. By the 3rd month, infants made longer forays off their mothers, travelled greater distances from her, and crawled onto other individuals in the group. I will present focal data on several specific behaviours, including: 'crawls onto male', 'crawls onto other female', 'carried by other than mother' and 'social play'. I will also briefly discuss overall time budgets. Infant capuchins spend very little time alone compared to other age classes. Even when independent and off their mothers for extended periods, infants are often in the company of other adult females, adult males and juveniles. The infants in this study spent 93% of their overall time budgets engaged in social behaviours (n = 3; mean = 93; sd = 7.9); small juveniles (1-3 years of age) spent 35% (n = 6; mean = 34.3: sd = 2.4). Data on behaviours and overall time budgets will be compared to captive data. The infants in this study reached certain behavioural markers earlier than capuchins in captivity. For

instance, infants crawled off the mother for the first time at 4 weeks of age, compared to about 9 weeks in captivity. The possible causes of such variation will be discussed.
Localización: No disponible.

Publicación no.: 0429 **Infant-carrying by non-mothers in wild white-faced capuchin monkeys (Cebus capuchinus): Do infants have preferential transportation partners?** *[Infante llevado por monas carablanca (Cebus capucinus) que no son sus madres: ¿tienen los infantes compañeros de transporte preferidos?]* / MacKinnon, Katherine C. (Saint Louis University. Department of Sociology and Criminal Justice and Center for International Studies, St Louis, MO 63103, US <E-mail: mackinn@slu.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 62, Suppl. 1, p. 80-81. 2004.
(Abstract only). This paper explores patterns of infant-carrying in white-faced capuchin monkeys (Cebus capucinus) in the Santa Rosa National Park, northwestern Costa Rica over an 11-month period. Data were collected on two habituated groups of capuchins using a variety of sampling techniques, and all group members were recognized individually. Most primates are completely dependent on their mothers for transportation during the first few weeks, and often months, of life; capuchins are especially altricial at birth, and develop more slowly when compared to other New and Old World monkey species. In this study of C. capucinus, the first 2 months of life were marked by a period of locomotor dependency on the infant's mother. Once an infant was continually crawling off of its mother at 8-10 weeks of age, its social world expanded and was marked by an increasingly complex set of social interactions. When infants were independent and away from their mothers for extended periods of time, non-mother adults and juveniles often carried them. Infants were both the recipients of 'ride invite' behaviors, as well as the instigators of getting transportation assistance. I will discuss individual variation in partner preferences from the infant's perspective, and explore reasons for such variation: relationship of the infant's mother to the preferred non-mother carrying partner, temperament differences and dominance status of the non-mother carriers, and kinship.
Localización: Biblioteca OET: S10635.

Publicación no.: 0430 **Age differences in foraging patterns and spatial associations of the white-faced capuchin monkey (Cebus capucinus) in Costa Rica** *[Diferencias de edad en patrones de forrajeo y asociaciones espaciales del mono carablanca (Cebus capucinus) en Costa Rica]* / MacKinnon, Katherine C. (Saint Louis University. Department of Sociology and Criminal Justice and Center for International Studies, St Louis, MO 63103, US <E-mail: mackinn@slu.edu>). Edmonton, AB: University of Alberta, 1995. 109 pp. ISBN: 0-612-06359-3. Thesis, M.A., University of Alberta (Canada).
Age differences in foraging behavior and spatial association patterns are examined in white-faced capuchin monkeys (Cebus capucinus) at Santa Rosa National Park, Costa Rica. Foraging behaviors are examined from an ontogenetic perspective, and differential habitat exploitation is examined at four stages of development: independent infant, small juvenile, large juvenile, and adult. Approximately 337 hours of frequency data were collected in the form of ten-minute instantaneous focal samples on two study groups. Foraging behaviors are divided into four categories: feeding behaviors, food types eaten, substrates acted upon, and locations used in the canopy. C. capucinus individuals living in the same social group exhibit great variation across age classes in activity profiles. Developmental factors appear to explain the original predictions outlined for age class differences in foraging behavior. Spatial association patterns were also examined in the form of nearest neighbor proximity scans. There is a pattern of development in terms of spatial association preferences. Particularly, small juveniles and

adults prefer to associate with members of their own age classes for a greater percentage of proximity scans than the other age classes. These strong preferences, particularly with small juveniles forming peer groups, seem to be socially motivated.
Localización: Biblioteca OET: NBINA-8422.

Publicación no.: 0431 **Foraging behavior of the white faced capuchin monkey (Cebus capucinus)** *[Comportamiento de forrajeo del mono carablanca (Cebus capucinus)]* / MacKinnon, Katherine C. (Saint Louis University. Department of Sociology and Criminal Justice and Center for International Studies, St Louis, MO 63103, US <E-mail: mackinn@slu.edu>).
En: American Journal of Physical Anthropology (ISSN 0092-9483), Suppl. 20, p. 138-139. 1995.
(Abstract only). Age class differences in foraging behavior were examined in three social groups of Cebus capucinus in the distinctly seasonal dry tropical forest of Santa Rosa National Park, Costa Rica. Approximately 340 hours of data were collected in the form of instantaneous focal samples according to an ethogram designed for this study. Spatial association patterns were also measured from data in the form of spatial proximity scores (to the focal animal) at the beginning and end of each focal sample. The acquisitions of greater foraging skills by older individuals allowed those individuals to exploit a greater variety of food sources, as well as a greater variety of more difficult-to-process food items. Infants and juveniles had lower rates of successful food exploitation, and were kept away from highly preferred food items by older individuals by way of avoidance 'behaviors, supplantations, etc. Foraging "nursery groups" had higher rates of food intake, suggesting that peer group affiliations are important not only-in a social context, but in a competition avoidance one as well. The existence of distinct age-class clusters in certain foraging and social contexts is examined from ecological and social perspectives.
Localización: No disponible.

Publicación no.: 0432 **Behavioural indicators of ovarian phase in white-faced capuchins (Cebus capucinus)** *[Indicadores de comportamiento de la fase de ovulación en las monas carablanca (Cebus capucinus)]* / Carnegie, Sarah D; Fedigan, Linda M; Ziegler, Toni E. (University of Calgary. Department of Anthropology, Calgary, Alberta, T2N 1N4, CA <E-mail: sdcarneg@ucalgary.ca> <E-mail: fedigan@ucalgary.ca>).
En: American Journal of Primatology (ISSN 0275-2565), v. 62, Suppl. 1, p. 120-121. 2004.
(Abstract only). In many primate species, conspicuous behavioural and/or morphological changes are indicators of the conceptive stage of the female cycle. However, there are several primate species that lack these cues, including the white-faced capuchin. This lack of cues has been referred to as "concealed ovulation", and argued to be a reproductive strategy that confuses paternity and lowers the risk of infanticide. In this project, we studied 10 adult female white-faced capuchins in Santa Rosa National Park, Costa Rica from January to June, 2002. Our purpose was to determine their ovarian cycling patterns, through the analysis of fecal ovarian hormones, and to compare simultaneously collected behavioural data to determine which cues females use to signal their conceptive phases. We found that female C. capucinus showed only small increases in rates of affiliative/ proceptive behaviours (i.e. approaches and grooms) directed towards adult males during their conceptive phases. The best indicator of ovarian state was the two-fold increase in male affiliative and sexual behaviours directed towards females during their conceptive as compared to non-conceptive phases. Infanticide is known to occur in these white-faced capuchins, and our finding of very little proceptive behaviour supports the argument that females may conceal ovulation as a counter-strategy to infanticide. However, females

appear to be more attractive to males during their conceptive phases, indicating that their ovulatory periods are not entirely concealed.
Localización: Biblioteca OET: S10636.

Publicación no.: 0433 **Reunions following separation: negotiating uncertain relationships?** *[Reuniones seguidas por separación: ¿negociando relaciones dudosas?]* / Manson, Joseph H; Perry, Susan E. (Max Planck Institute for Evolutionary Anthropology, Deutscher Platz 6, DE-04103, Leipzig, DE <E-mail: manson@eva.mpg.de> <E-mail: perry@eva.mpg.de>).
En: Folia Primatologica (ISSN 0015-5713), v. 75, Suppl. 1, p. 146-147. 2004.
(Abstract only). Social animals that experience frequent separations from allies and rivals face the problem of assessing, upon reunion, any changes that have occurred in the status of their relationships Conspicuous reunion displays involving loud vocalisations, challenging motor patterns and/or risky intimate contact may function to enable individuals to assess each others current emotional dispositions toward one another. It is hypothesised that intra- and inter-specific variation in the occurrence of such displays will be predicted by variation in the occurrence of separations between partners whose relationships have high value yet low security. This hypothesis is tested with comparative data and with data collected during l2 years of observations of wild white-faced capuchins, Cebus capucinus, at Lomas Barbudal, Costa Rica. At least one individual was missing from its group on 5-30% of observation days. The longest observed separation was 26 days. For 76 reunions, it was possible to determine whether or not the returning individual engaged in a wheeze dance, a ritualized set of coordinated movements performed along with loud context-specific vocalisations and often followed by pseudo-copulatory mounting and thrusting behaviour. Regression analysis revealed that returning adult males were more likely than natal males or adult females to dance and that the probability of a dance increased with the duration of separation. Over 80'% of returning adult males' dances were performed with other adult males. In a subset of 36 reunions for which the cause of separation was known, (lances were more probable following separations due to social tension (i.e. fights, consort pairs leaving the group) than following separations after individuals accidentally lost contact with the group while foraging. Following fights, returning males' dance partners were not usually their former opponents.
Localización: No disponible.

Publicación no.: 0434 **Genetic assessment of male reproductive success in wild white-faced capuchin monkeys** *[Evaluación genética del éxito reproductor del macho en monos carablanca]* / Muñiz, Laura; Perry, Susan E; Manson, Joseph H; Gros-Louis, Julie J; Vigilant, Linda. (Max Planck Institute for Evolutionary Anthropology, Deutscher Platz 6, DE-04103, Leipzig, DE <E-mail: manson@eva.mpg.de> <E-mail: jgroslou@indiana.edu> <E-mail: sperry@eva.mpg.de> <E-mail: vigilant@eva.mpg.de>).
En: Folia Primatologica (ISSN 0015-5713), v. 75, Suppl. 1, p. 310. 2004.
(Abstract only). Among the New World primates, white-faced capuchins, Cebus capucinus, have independently evolved several social traits observed in catarrhines. Females are philopatric and form stable social bonds over time, whereas males migrate repeatedly between groups. Males compete for membership in bisexual groups and for alpha status within groups, using a variety of tactics including coalitions with males and with females. We are combining genetic, demographic, and behavioural data in order to assess male reproductive success and its determinants, and estimate the influence of kinship on social relationships in multiple habituated groups of wild white-faced capuchins. The genetic analysis requires highly polymorphic microsatellite markers, but the typical approach of testing those developed

in other species failed to yield sufficiently variable markers. Therefore, we developed a set of highly variable tetranucleotide microsatellite markers specific to while-faced capuchins and have applied them to DNA obtained from faecal samples of more than 100 individuals. Here we present preliminary data on paternity analysis of some 50 offspring in three groups from Lomas Barbudal Biological Reserve, Costa Rica, and discuss the factors influencing male reproductive success in this species.
Localización: No disponible.

Publicación no.: 0435 **Wild white-faced capuchins need to cool down before they can reconcile** *[Los monos carablanca silvestres necesitan refrescarse antes de que puedan reconciliarse]* / Perry, Susan E; Manson, Joseph H. (Max-Planck-Institute for Evolutionary Anthropology. Independent Junior Research Group in Cultural Phylogeny, Deutscher Platz 6, 04103 Leipzig, DE <E-mail: perry@eva.mpg.de> <E-mail: manson@eva.mpg.de>).
En: Folia Primatologica (ISSN 0015-5713), v. 75, Suppl. 1, p. 76. 2004.
(Abstract only). Primate species vary in the frequency with which individuals engage in Peacefull Conflict Interactions (PPCI) with former opponents, and it is not yet clear how much of this variation is attributable to environmental factors (e.g. captive vs. wild conditions) and how much is attributable to evolved species-typical temperaments. Two data sets were analysed to assess the frequency and consequences of PPCI in wild white-faced capuchins, Cebus capucinus, at Lomas Barbudal, Costa Rica. Survival analysis of 70 pairs of 30-minute Post-Conflict (PC) and Matched Control (MC) follows showed a marginal trend for former opponents to interact affiliatively earlier in the PC than in the MC periods, but PPCI occurred in only 32°x6 of the PC follows. Logistic regression analysis revealed that PPCI that took place earlier in the I'C period were significantly more likely than later PPCI to be followed by renewed aggression between the former opponents. A second data set consisted of PC and quasi-MC periods culled from multi-hour follows, producing longer (mean = 105 minutes, range = 32-463 minutes) PC-MC periods than in the first data set. Survival analysis of these PC-MC pairs (N = 67) showed that former opponents interacted affiliatively significantly earlier in the PC than the MC periods. These results are consistent with other aspects of the C. capucinus species-typical temperament. For example, these monkeys lack ritualized signals of submission even though they form dominance hierarchies, and they aggressively challenge heterospecifics, including would-be predators that are larger than themselves. Following fights between groupmates, white-faced capuchins apparently need more time than most primates to reach an emotional state in which successful reconciliation is possible.
Localización: No disponible.

Publicación no.: 0436 **The function of food-associated calls in white-faced capuchin monkeys, Cebus capucinus, from the perspective of the signaller** *[Función de las llamadas asociadas con la comida en monos carablanca, desde la perspectiva del llamador]* / Gros-Louis, Julie J. (Indiana University. Department of Psychology, 1101 E. 110th St., Bloomington, IN 47405, US <E-mail: jgroslou@indiana.edu>).
En: Animal Behaviour (ISSN 0003-3472), v. 67, no. 3, p. 431-440. 2004
In many species, call recipients respond to food-associated calls by approaching the signaller. For this reason, most studies of food-associated calls focus on the benefits to a signaller of attracting a particular audience to a food source. Although call recipients respond as if they have been informed about the location of a food source, it is not necessarily the case that the primary function of food-associated calls is to inform others. I combined naturalistic observations and food placement experiments to investigate

the environmental and social influences on call production in white-faced capuchin monkeys to assess other possible functions of food-associated calls. Individuals did not call under the circumstances predicted by an information-sharing hypothesis. The quantity of food and the agee-sex composition of the audience did not influence call production, but food type did. Individuals produced more food-associated calls when they discovered fruit compared with insects or eggs. Results of observations of social interactions after food discovery indicated another possible function of food-associated calls. Individuals who called when they discovered food were less likely to be approached by others who were in visual contact than individuals who remained silent. Individuals who did not call when they discovered food were more likely to call subsequently if a higher-ranking, as opposed to a lower-ranking, animal approached them. Furthermore, individuals who called when approached by higher-ranking animals were less likely to receive aggression than individuals who did not call. Therefore, food-associated calls may function to announce food ownership, thereby decreasing aggression from other individuals**.**
Localización: Biblioteca OET: NBINA-1849.

Publicación no.: 0437 **Time-matched grooming in female primates? New analyses from two species** *[¿Tiempo dedicado al acicalamiento en hembras de primates? Nuevos análisis de dos especies]* / Manson, Joseph H; Navarrete, C.D; Silk, J.B; Perry, Susan E. (Max Planck Institute for Evolutionary Anthropology, Deutscher Platz 6, DE-04103, Leipzig, DE <E-mail: manson@eva.mpg.de> <E-mail: perry@eva.mpg.de>).
En: Animal Behaviour (ISSN 0003-3472), v. 67, no. 3, p. 493-500. 2004
The parcelling model of reciprocity predicts that grooming partners will alternate between giving and receiving grooming within grooming bouts, and that each partner will perform approximately as much grooming as it receives within each bout ('time matching'). Models of allogrooming based on biological markets theory predict that individuals of lower dominance rank will exchange grooming for tolerance from high-rankers, and therefore an inverse relation will be found between grooming partners' dominance rank distance and how closely they match each other's grooming contributions within each bout. We used weighted logistic regression and weighted least-squares regression to test these predictions using data from female white-faced capuchins, Cebus capucinus, and bonnet macaques, Macaca radiata. Only 5-7% of macaque grooming bouts, and 12-27% of capuchin grooming bouts, were reciprocated. However, (1) the duration of grooming by the first groomer significantly predicted whether the groomee would reciprocate at all, and (2) when bouts were reciprocated, the duration of grooming by the first groomer significantly predicted the duration of grooming by the second groomer. Grooming was most balanced among females of similar dominance ranks. Both the time-matching and rank-related effects were weak, although significant. These results indicate that although some form of time matching may be a general charac¬teristic of grooming in female-bonded primate species, time matching accounts for relatively little of the variation in the distribution of grooming within bouts. We also draw attention to weighted regression as a technique that avoids pseudoreplication while using all available data**.**
Localización: Biblioteca OET: NBINA-1850.

Publicación no.: 0438 **Do the quirks of capuchins make them creatures with culture?** *[¿Las excentricidades de los monos carablanca hacen de ellos criaturas con cultura?]* / McDonagh, S.
En: Science News (ISSN 0036-8423), v. 165, no. 14, p. 218-220. 2004.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-3167.pdf

It's not easy keeping up with pint-size monkeys in the jungle. The teams of researchers who've been doing it for the past 14 years have had to put up with a lot: barreling face-first into spider webs before sunrise, hacking through dense, bug-infested undergrowth, getting droppings in their hair, and being heckled by cantankerous little monkeys called capuchins. Still, there's no place Susan Perry would rather be than the forests of the Lomas Barbudal Biological Reserve in Costa Rica. Perry is a primatologist at the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany, and she's been studying white-faced capuchins (Cebus capucinus) at Lomas Barbudal since 1990. Each day in the field, she and her colleagues get to observe these monkeys' curious interactions, some of the quirkiest behavior in the animal kingdom. For example, one game begins when one monkey bites a clump of hair from another monkey's face. The two monkeys use their teeth to pass the clump back and forth, dropping a little hair each time. When the hair runs out, the game begins again. In another unusual duet, two monkeys sit together for long periods, swaying gently-with their fingers up each other's nose. These are among the numerous social conventions that Perry and her colleagues call "traditions." The behaviors are so named because they don't appear to be an inherent part of the animals' biology; instead, the knee-high monkeys seem either to invent them or to learn them from each other. Perry also observed that only certain individuals in certain cliques practice the behaviors. Moreover, the activities aren't necessarily perennial: They endure for various lengths of time and can be modified in the life of a monkey troop. They can become fashionable, fall out of use, and return some years later. Innovative, learned, parochial, transient, flexible-these words describe some of the hallmarks of cultural behaviors, as set forth in numerous studies of nonhuman primates. Does this make capuchins a species with culture, as many researchers suggest that chimpanzees and other great apes are (SN: 6/19/99, p. 388)? And what do the strange high jinks mean to the capuchins? Perry and her colleague Joseph Manson, a cultural primatologist at the University of California, Los Angeles, decided to study capuchins in part because these feisty creatures have the highest brain-to-body-size ratio of any primate other than people. "I was interested in finding out what they were doing with these big brains," says Perry, who also has a position at the University of California, Los Angeles. Their study is the first detailed observation of capuchins' social lives. In the April 2003 Current Anthropology, Perry, Manson, and their colleagues published their analysis of the monkeys' social behaviors. It's based on data collected over 13 years. They had tracked 13 capuchin troops in four nature reserves, including Lomas Barbudal. Each troop contained 15 to 38 monkeys and had more females than males. More than half of each group was made up of juveniles. "Because they live in multimale, multifemale groups, they have a lot of potential for politics," Perry explains. The groups selected were geographically close enough to each other to ensure only limited genetic variation from group to group, but they were far enough away so that they didn't ordinarily mix. By comparing notes, the researchers following different troops could check which behaviors were unique to their group. And within groups, they could trace the rise and fall of different behaviors. "The most important aspect of a tradition is that it's transmitted to new practitioners via social learning," Perry explains. In all, she and her colleagues nominated five conspicuous, lasting behaviors to be considered as social traditions in the monkeys. All of them were playful activities: the hair-in-mouth game; the fingers-in-noses pastime, which the scientists call hand-sniffing; the sucking of a companion's body parts, such as fingers, tails, or ears; a finger-in-mouth game; and a game in which a pair of monkeys use their teeth to pass an object, such as a stick or pebble, back and forth. "We arbitrarily set a 6-month minimum for a behavior to be considered a tradition," Manson says. "This was a conservative cutoff to be sure that we didn't count as traditions behaviors that were tried only once or twice by a very small number of individuals." When Perry started following her group, some of the capuchins were

already practicing hand-sniffing. After grooming each other, the monkeys would stick their fingers up each other's nose, sometimes poking each other in the eye while doing so. They would then sit together, swaying gently, in what appears to some observers to be a trancelike state. The capuchins "have very long fingernails, and it's probably not very comfortable," Perry says. And having a finger in its nose can make a monkey sneeze. When that happens and a finger is ejected, the partner puts its finger back in place, and the pair continues swaying. The researchers noticed the hand-sniffing behavior in different monkey groups and often with different practitioners. In some groups, all pairs were females; in others, all were males. "In one group, hand-sniffing faded out and then years later came back in, being performed by different individuals," Manson says. In another type of behavior, monkeys lie side by side and suck on each other's tail. In a novel iteration of this social convention, one monkey would sit on another's head, and the monkey underneath would suck the top monkey's tail while giving the partner a foot massage. Once a pair of capuchins figured out a configuration they liked, the behavior became routine. Various monkeys have independently invented "funny little mutations of these behaviors," Perry says. Finally, there's the game in which one monkey keeps another monkey's finger firmly gripped in its mouth. The trapped monkey uses its feet and other hand to pry open the captor-monkey's mouth and free the finger. "It's a very slow, methodical, relaxed interaction," Perry says. "They're working hard at getting the mouth open, but not in a frantic way. It's more like they're solving a puzzle." What's behind all this curious conduct? Barbara Smuts, a psychologist and anthropologist at the University of Michigan in Ann Arbor and author of the book Sex and Friendship in Baboons (1999, Harvard University Press), says that the games are a form of social negotiation-a way for the capuchins to check where they stand with their cohorts. "Play can establish a special context for individuals to negotiate their relationship with little risk of injury," she says. But, Smuts points out, the capuchins' games have an edge. They all cause the monkeys some physical discomfort. Perry and Manson say that feature is important to understanding why these particular behaviors occur. The giver imposes stress on a receiver and then evaluates how well-or how badly-the latter reacts. In this way, the pair tests the bond between them.

Localización: Biblioteca OET: NBINA-3167.

Publicación no.: 0439 **Geographic microsatellite variability in Central American howling monkeys** *[Variación geográfica en microsatélites de los monos congo centroamericanos]* / Winkler, L.A; Zhang, X.C; Ferrell, R; Wagner, R; Dahl, J; Peter, G; Sohn, R. (University of Pittsburgh. School of Public Health Pittsburgh, P.O. Box 287, Titusville, PA 15261, US <E-mail: lawupt@pitt.edu>).
En: International Journal of Primatology (ISSN 0164-0291), v. 25, no. 1, p. 197-210. 2004.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-1851.pdf
In 1997, we began to assess the genetic variability and the potential conservation risk of the increasing human impact on the howling monkeys of Ometepe Island in southern Nicaragua. We captured and collected blood from 29 howling monkeys (Alouatta palliata) at two geographically separated localities in a single area (San Ramón) on Ometepe Island, Nicaragua, during two field seasons. We also collected blood from a community of 10 Alouatta pigra in the Scotland Half Moon region in Belize. We extracted DNA from the blood and analyzed 12 microsatellite loci. The number of alleles per locus (allele variability) is less for most (but not all) loci in the Ometepe versus the Belize sample and less than earlier published reports of mixed geographic samples from Central America. The results are noteworthy in that both the Ometepe Island sample and the Belize sample possess greater allelic heterozygosity for most loci than reported in other Central American howling monkey popula¬tions. The Ometepe and

Belize groups also demonstrated differences in allele frequencies at each geographic location. There appeared to be adequate gene flow in both locations despite extensive fragmentation due to agriculture and other human land usage.
Localización: Biblioteca OET: NBINA-1851.

Publicación no.: 0440 **Introduced mammals of the world: their history, distribution and influence** *[Mamíferos del mundo introducidos: su historia, distribución e influencia]* / Long, J.L. Collingwood, Vic: CSIRO Pub, 2003. 589 pp. ISBN: 0851997368. (No abstract).
Localización: Biblioteca OET: 599 I848i.

Publicación no.: 0441 **Do brown capuchins socially learn foraging skills?** *[¿Los monos carablanca aprenden socialmente las habilidades de forrajeo?]* / Boinski, Sue; Quatrone, R.P; Sughrue, K; Selvaggi, L; Henry, M; Stickler, C.M; Rose, L.M. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu> <E-mail: lrose@interchange.ubc.ca>).
En: The biology of traditions: models and evidence. Fragaszy, D.M; Perry, S (eds.).. New York: Cambridge University Press, 2003. p. 365-390. ISBN: 0521815975. (No abstract).
Localización: No disponible.

Publicación no.: 0442 **Are vigilance, risk from avian predators and group size consequences of habitat structure? A comparison of three species of squirrel monkey (Saimiri oerstedii, S. boliviensis, and S. sciureus)** *[¿Son la vigilancia, la amenaza de aves depredadoras y el tamaño del grupo consecuencias de la estructura del hábitat? Una comparación de tres especies de monos tití (Saimiri oerstedii, S. boliviensis y S. sciureus)]* / Boinski, Sue; Kauffman, Laurie; Westoll, A; Stickler, C.M; Cropp, S.J; Ehmke, E. (University of Florida. Department of Anthropology, 1350 Turlington, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu> <E-mail: cropp@pcgwustl.edu>).
En: Behaviour (ISSN 0005-7959), v. 140, no 11/12, p. 1421-1467. 2003
We compared the interactions between vigilance, risk from avian predators, and typical group size for three species of squirrel monkey (Saimiri oerstedii, S. boliviensis, and S. sciureus). Field studies of each species in relatively undisturbed habitats provided data including behavioral interactions between avian predators and squirrel monkeys and the latter's vigilance response, habitat use, group size, population density and within-group food competition. Three hypotheses were examined. The first two identified aspects of the habitat structure exploited by squirrel monkeys and their avian predators as key parameters. (1) The overall success of avian attacks is a function of the density of understory vegetation present to hinder these birds from closely approaching individual troop members. (2) The extent of continuous canopy forest cover within habitats underlies which of two vigilance strategies are exhibited. Preemptive vigilance occurs when monkeys allocate time to visual scrutiny in a manner consistent with the intent of obtaining advance warning on the approach of an avian predator. During reactive vigilance, in contrast, monkeys are not overtly vigilant against an aerial attack until an attack or other stimulus strongly indicative of immediate risk occurs. Preemptive vigilance occurs in open habitats with little canopy, while reactive vigilance predominates when birds can make effective ambush attacks from forest canopy cover. Both hypotheses were supported. Group sizes vary significantly across the three squirrel monkey species with S. boliviensis having the largest and S. sciureus the smallest mean group size. Our third hypothesis examined the premise that group size in social animals reflects a tradeoff between predation risk (whether based on long-term observationsor extrapolated from habitat

structure) and within-group food competition. The power of this tradeoff mechanism to explain group-size variation was contrasted with a simpler, one parameter model, within-group food competition under an ideal free distribution. The ideal free distribution approach was consistent with the observed ranking of group sizes, whereas the tradeoff model provided mixed results. In retrospect, the weakness of the tradeoff model is not surprising. Changes in the risk incurred by individual members of a squirrel monkey troop as a consequence of variation in group size are likely of much smaller magnitude than the risk exposure resulting from local habitat structure.
Localización: Biblioteca OET: NBINA-1909.

Publicación no.: 0443 **Molecular systematics and biogeography of the Neotropical monkey genus, Alouatta** *[Sistemática molecular y biogeografía del género neotropical de monos Alouatta]* / Cortés-Ortiz, L; Bermingham, Eldredge; Rico, C; Rodríguez-Luna, E; Sampaio, I; Ruiz-García, Manuel. (Smithsonian Tropical Research Institute, Naos Labs, Unit 0948, APO AA 34002-0948 US <E-mail: cortes1@naos.si.edu> <E-mail: eb@naos.si.edu> <E-mail: mruiz@javeriana.edu.co>).
En: Molecular Phylogenetics and Evolution (ISSN 1055-7903), v. 26, no. 1, p. 64-81. 2003
We take advantage of the broad distribution of howler monkeys from Mexico to Argentina to provide a historical biogeographical analysis on a regional scale that encompasses the entire Neotropics. The phylogenetic relationships among 9 of the 10 recognized Alouatta species were inferred using three mitochondrial and two nuclear genes. The nuclear gene regions provided no phylogenetic resolution among howler monkey species, and were characterized by very low levels of sequence divergence between Alouatta and the Ateles outgroup. The mtDNA genes, on the other hand, produced a well-resolved phylogeny, which indicated that the earliest split among howler monkeys separated cis- and trans-Andean clades. Eight monophyletic mtDNA haplotype clades were identified, representing six named species in South America, including Alouatta seniculus, Alouatta sara, Alouatta macconelli, Alouatta caraya, Alouatta belzebul, and Alouatta guariba, and two in Mesoamerica, Alouatta pigra and Alouatta palliata. Molecular clock-based estimates of branching times indicated that contemporary howler monkey species originated in the late Miocene and Pliocene, not the Pleistocene. The causes of Alouatta diversification were more difficult to pin down, although we posit that the initial cis-, trans-Andean split in the genus was caused by the late Miocene completion of the northern Andes. Riverine barriers to dispersal and putative forest refuges can neither be discounted nor distinguished as causes of speciation in many cases, and one, the other or both have likely played a role in the diversification of South American howler monkeys. Finally, we estimated the separation of Mesoamerican A. pigra and A. palliata at 3 Ma, which corresponds to the completion date of the Panama Isthmus promoting a role for this earth history event in the speciation of Central American howler monkeys.
Localización: Biblioteca OET: NBINA-1910.

Publicación no.: 0444 **Evolution and function of routine trichromatic vision in primates** *[Evolución y función de la visión tricromática de rutina en los primates]* / Lucas, Peter W; Dominy, Nathaniel J; Riba-Hernández, José Pablo; Stoner, Kathryn E; Yamashita, Nayuta; Loría-Calderón, Esteban; Petersen-Pereira, Wanda; Rojas-Durán, Yahaira; Salas-Peña, Ruth; Solís-Madrigal, Silvia; Osorio, Daniel; Darvell, Brian W. (University of Hong Kong. Department of Anatomy, 21 Sassoon Rd, Hong Kong, CN <E-mail: pwlucas@hkucc.hku.hk> <E-mail: njdominy@ucsc.edu> <E-mail: kstoner@oikos.unam.mx>).
En: Evolution (ISSN 0014-3820), v. 57, no. 11, p. 2636-2643. 2003.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-1911.pdf

Evolution of the red-green visual subsystem in trichromatic primates has been linked to foraging advantages, namely the detection of either ripe fruits or young leaves amid mature foliage. We tested competing hypotheses globally for eight primate taxa: five with routine trichromatic vision, three without. Routinely trichromatic species ingested leaves that were ''red shifted'' compared to background foliage more frequently than species lacking this trait. Observed choices were not the reddest possible, suggesting a preference for optimal nutritive gain. There were no similar differences for fruits although red-greenness may sometimes be important in close-range fruit selection. These results suggest that routine trichromacy evolved in a context in which leaf consumption was critical.
Localización: Biblioteca OET: NBINA-1911.

Publicación no.: 0445 **The effect of ecology on aggressive interactions in white-faced capuchin monkeys, Cebus capucinus, in a Costa Rican dry forest** *[Efecto de la ecología en las interacciones agresivas en monos carablanca, Cebus capucinus, en un bosque seco costarricense]* / Vogel, E.R. (University of California. Department of Anthropology, 1156 Hight Street, Santa Cruz, CA 95064, US <E-mail: evogel@ucsc.edu>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 36, p. 217. 2003.
(Abstract only). Aggressive interactions in the context of feeding are more common when resources are sparse and/or more patchily distributed (Janson 1985; Barton & Whiten 1993; Sterck & Steenbeek 1997; van Schaik & van Noordwijk 1988). Several studies have analyzed the effects of resource distribution and abundance on the frequency of dyadic interactions, but no studies to date have related the severity of aggression to food resource characteristics. I studied two levels of dyadic aggressive behavior (active and passive) as well as polyadic aggressive behavior during feeding in white-faced capuchins, Cebus capucinus. This study addresses whether resource quality, quantity, and distribution have an effect on the type and quantity of competitive interactions observed. I evaluated the importance of nine ecological and behavioral variables that may influence escalations in food related aggression during a 15 month period. Focal feeding trees (n=700) were observed from the beginning to end of a feeding bout and all dyadic and polyadic aggressive interactions were recorded. These types of aggression are likely to be associated with different risks of further escalation and subsequent costs of time and possible injury. Preliminary analysis indicates that frequency of food-related aggression can be predicted by both ecological and behavioral variables, whereas the type of aggression appears to be influenced mostly by the crown volume and the number of competitors in the feeding tree. These results agree with previous studies on capuchin monkeys and further support our understanding of the role of ecology in affecting primate social structure.
Localización: Biblioteca OET: S10195.

Publicación no.: 0446 **Intergroup variation in social conventions in wild white-faced capuchins** *[Variación entre grupos en tradiciones sociales en monos carablanca]* / Perry, Susan E. (Max-Planck-Institute for Evolutionary Anthropology. Independent Junior Research Group in Cultural Phylogeny, Deutscher Platz 6, 04103 Leipzig, DE <E-mail: perry@eva.mpg.de>). Annual Meeting of the American Society of Primatologists. 22nd., New Orleans, LA USAug. 12-16, 1999.
En: American Journal of Primatology (ISSN 0275-2565), v. 49, no. 1, p. 87. 1999
(Abstract only). Long-term study of multiple social groups of capuchins by researchers at several sites has revealed an impressive diversity of behaviors, some of which may qualify as social traditions analogous to those that have been described for chimpanzees and Japanese macaques. This study

describes some social conventions that appear to be unique to a particular social groups of wild white-faced capuchins, Cebus capucinus, at Lomas Barbudal Biological Reserve. Four social conventions are discussed in detail: "hand-sniffing," "tail-sucking," the "finger-in-mouth game," and the "hair-passing game." The spread of these behaviors throughout social networks over time is documented to test whether transmmission routes are vertical or horizontal in each case. Social contexts of social conventions are descriibed in detail to provide information on (a) the possible modes of social learning involved, and (b) the possibbe uses of these behaviors in negotiating their social relationships.
Localización: Biblioteca OET: NBINA-6090.

Publicación no.: 0447 **Tropical dry forest regeneration and its influence on three species of Costa Rican monkeys** *[Regeneración del bosque seco tropical y su influencia en tres especies de monos costarricenses]* / Sørensen, T.C. (Alberta Environmental Protection. Natural Resources Service, Suite 203, 111-54 St, Provincial Building, Edson AB T7E 1T2, CA). Edmonton, Alberta: University of Alberta, 1998. 109 pp. ISBN: 0-612-28990-7. Thesis, M.Sc., University of Alberta, Department of Biological Sciences, Edmonton, Alberta (Canada).
Only 2% of tropical dry forest in Central America remains undisturbed; consequently habitat regeneration is the only option left to conserve adequate areas of habitat. I studied the influence of a forest regeneration gradient (0-130 years since abandonment) on the abundance and group composition of white-faced capuchins (Cebus capucinus), howling monkeys (Alouatta palliata), and spider monkeys (Ateles geoffroyi) in the tropical dry forest of Santa Rosa National Park, Costa Rica. Trees and monkey densities were sampled using 600m transects within each of 14 sites from February to June 1996. Tree species composition and structure showed consistent trends with forest age. Densities of all three monkey species increased as the forest regenerated. Monkey food biomass was estimated from the tree data and was highly correlated with densities of each monkey species. The results indicate that forest structure and species composition, monkey habitat, and consequently viable monkey populations, can be regained through protection and consequent natural regeneration of tropical dry forest.
Localización: Biblioteca OET: NBINA-5630.

Publicación no.: 0448 **Translocation of mantled howling monkeys (Alouatta palliata) in Guanacaste, Costa Rica** *[Traslado de monos congo (Alouatta palliata) a un diferente hábitat en Guanacaste, Costa Rica]* / de Vries, Andrew. Calgary, AB: University of Calgary, 1991. 127 pp. ISBN: 0-315-66862-8. Thesis, M.A., University of Calgary, Calgary, AB (Canada).
The howlers were studied until August 10, 1990 using focal animal and scan sample techniques to record time budgets and social behaviour. A total of 568.5 hours of focal animal data were collected for the translocated monkeys but these were heavily biased in favour of 3 animals. The experimental data were compared with 552.2 hours of focal animal data collected simultaneously on three groups of resident howlers as part of a long term ecological study. The howler groups did not remain cohesive after translocation. Hypotheses that the group dispersed because of (1) an improper release technique (hard release) (2) disrupted social groups and (3) a prior tendency to fission or form fission-fusion groups were dismissed. It is argued that the howlers responded to being released in an unfamiliar habitat by behaving as solitaries so that they could more easily find food resources.
Localización: Biblioteca OET: NBINA-9032.

Publicación no.: 0449 **Primates in peril: the world's top 25 most endangered primates** *[Primates en peligro: los 25 primates del mundo más amenazados]* / Mittermeier, R.A; Konstant, W.R; Rylands, A.B; Ganzhorn, J; Oates J,F; Butynski, T.M; Nadler, T; Supriatna, J; Padua, C.V; Rambaldi, D. Washington, DC: Conservation International/IUCN, 2002. 20 pp. (No abstract).
Localización: No disponible.

Publicación no.: 0450 **The natural history of Costa Rican mammals** *[Historia natural de los mamíferos costarricenses]* / Wainwright, M. Miami: Zona Tropical Publication, 2002. 384 pp. ISBN: 0970567812.
This entertaining, clear, and fact-tilled book might be classified as a hybrid between a field guide and a text on Costa Rican mammals, its size precludes it from being an easy-to-transport pocket guide, but its depth and breadth more than make up for this. Containing an incredible wealth of information. The Natural History of Costa Rican Mammals is an excellent reference for serious naturalists, tour guides, educators, and researchers who teach or work in the tropics. Mark Wainwright is a nature guide and instructor for tropical ecology courses in Costa Rica, and has written and illustrated Costa Rican field identification pamphlets and children's books. He also is an accomplished illustrator, and this book contains more than 400 of his original illustrations. He has firsthand experience with a considerable number of Neotropical mammals, including kinkajous (Potos favus) that steal sugar water from his hummingbird feeders, agile olingos (Bassaricyon gabhii) that occasionally catch and consume hummingbirds at the feeders, and the poorly-known climbing rat (Tylomys watsoni) and vesper mouse (Nyctomys sumichrasti) that are house pests at Monteverde. Wainwright's expertise and observations emphasize mid-sized and larger mammals, and, accordingly, those accounts are stronger and more informative. A wealth of widely scattered scientific literature and unpublished thesis work, as well as his observations and those of others, is included. Educators, researchers, and naturalists will benefit from Wainwright's literature reviews, especially those from unpublished theses, personal communications, and other hard-to-obtain sources. Numerous illustrations are provided for whole mammals as well as skulls, anatomy, tracks, reaps of current distribution, scats, densites, foods eaten, bat tents, anti others. Of Costa Rica's more than 232 species of mammals, accounts are included herein for all the mid-sized and larger species and many of the smaller species. The West Indian manatee (Trichechus manatus) and one cetacean (Sotalia fluviatilis), also are included because both forage extensively in freshwater. Standard accounts include the sections Names (scientific, English, Spanish, indigenous names when available), Range, Size, and Similar Species, but the unmatched contribution of this work is the section for each species, Natural History, which provides an excellent summary of widely scattered literature as well as unpublished observations on diet, abundance, behavior, and much more. The remaining sections in the species accounts include Conservation, References, and, for some, Sounds and/ or Mythology, in which Wainwright ties indigenous beliefs to contemporary biological concepts. I welcome The Natural History of Costa Rican Mammals for its wealth of basic and new information. Much of what is published on Neotropical mammals is a rehash of previous work and illustrations, which often are not properly credited. The accounts on northern naked-tailed armadillos (Cabassous centralis), greater grisons (Galictis vittata), and olingos are especially notable in providing new information on very poorly known species. Wainwright provides focused summaries and new information on foods and other aspects of the biology of better-known species that have been studied elsewhere in the Neotropics, e.g., primates, kinkajous, collared (Pecan tajacu) and white-lipped peccaries (Tayassu pecan), white-tailed deer (Odocoileus virginianus), and Baird's tapir (Tapirus bairdii). Conservation issues also are in sharp focus here. We learn that hunters kilt an average of 900 pacas (Agouti paca) yearly in one 146-km² region, and

that some paca fauns are fronts for illegal paca hunters. In deforested areas, manatees have been observed to pull themselves partially out of the water to feed on pasture grasses. The book also describes some of the fascinating challenges faced by researchers and points out numerous questions that remain unanswered. As noted, this work provides more accurate information on nmidsized and larger species than do many authoritative works. Primate distributions are particularly notable for their accuracy, and for the first time we see the correct distribution of the three genera of skunks found in Costa Rica. Inevitably, some corrections are to be noted. Wainwright followed the older and more general published literature on some groups unfamiliar to him, in particular on shrews, suggesting that they are more widely distributed than they actually are. Rather than being found countrywide, Cryptotis live only at higher elevations, and Cryptotis parva is the species found only in the Central Valley surrounding the city of San José. The wrinkled-faced bat (Centurio senex) is a dry-forest endemic generally found only in the very seasonal northwestern lowlands. I am not convinced that crab-eating raccoons (Procyon cancrivorus) occur as far north or inland in Costa Rica as noted here and elsewhere. The lack of voucher specimens and the ready confusion of this species with the widely distributed northern raccoon, Procyon lotor, has led to a generous concept of the distribution of crab-eating raccoons in Costa Rica. The published literature on the 2 species of opossums (Didelphis marsupialis and D. virginiana) that is summarized here often does not correctly distinguish between the two. Few regions of the world can boast more scientific pub¬lications in organismal biology per km² than can Costa Rica. Wainright's book is a significant contribution to the list of notable references for this country, most notably Frankie et at. (2004), Janzen (1983), McDade et al. (1994), Nadkarni and Wheelwright (2000), Reid (1997), Savage (2002), and Stiles and Skutch (1989)**.** (Book review by Robert M. Timm).
Localización: Biblioteca OET: U-191. 599.097286 W41n.

Publicación no.: 0451 **Fur-rubbing behavior of capuchin monkeys** *[Comportamiento de frotamiento de la piel por parte de los monos carablanca]* / DeJoseph, M; Taylor, R.S.L; Baker, Mary E; Aregullin, M. (Exponent, 420 Lexington Ave, Ste 408, New York, NY 10170, US <E-mail: mbaker@ric.edu>).
En: Journal of the American Academy of Dermatology (ISSN 0190-9622), v. 46, no. 6, p. 924-925. 2002
(No abstract)**.**
Localización: Biblioteca OET: NBINA-1905.

Publicación no.: 0452 **Characterization of microsatellite loci in a New World primate, the mantled howling monkeys (Alouatta palliata)** *[Caracterización de los loci de los microsatelites en primates del Nuevo Mundo: los monos congo (Alouatta palliata]* / Ellsworth, J.A; Hoelzer, G.A. (Truckee Meadows Community College. Department of Biology, 7000 Dandini Boulevard, Reno, NV 89512-3999, US <E-mail: jellsworth@tmcc.edu>).
En: Molecular Ecology (ISSN 0962-1083), v. 7, p. 657-658. 1998. (No abstract)**.**
Localización: Biblioteca OET: NBINA-6135.

Publicación no.: 0453 **An exploratory analysis of developmental plasticity in Costa Rican mantled howler monkeys (Alouatta palliata palliata)** *[Análisis exploratorio de la plasticidad del desarrollo en monos congo costarricenses (Alouatta palliata palliata)]* / Jones, Clara B. (Fayetteville State University. Department of Psychology, 1200 Murchison Road, Fayetteville, NC 28301-4298, US <E-mail: cbjones@uncfsu.edu>).

En: New perspectives in the study of Mesoamerican primates: distribution, ecology, behavior, and conservation. Estrada, Alejandro; Garber, Paul A; Pavelka, Mary S. M; Luecke, LeAndra (eds.) New York: Kluwer / Springer, 2005. p. 265-285. ISBN: 038725854X.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-2272.pdf
The topic of developmental plasticity is fundamentally related to life history evolution (West-Eberhard, 2003), in particular, patterns of survival and reproduction. Jones (1997b) employed matrix analysis (see Alberts and Altmann, 2003) of Scott's census data with age structure for mantled howlers at Hacienda La Pacífica to estimate life history parameters including survivorship, fecundity, and mortality. The suite of life history traits described by this author (e.g., low survivorship in more than one age class, iteroparity, relatively small reproductive effort) is consistent with the view that mantled howlers, and, possibly other members of the genus, express tactics and strategies minimizing costs to fecundity. Since changes in CC and/or CC:P are irreversible, morphological changes, it is proposed that female mantled howlers are capable of responding to local conditions with mechanisms of developmental plasticity, a within individual strategy compatible with the life history strategy of mantledhowlers (Myers and Bull, 2002, Table 1; see Ravosa et al. 1993). Further research is required to test alternate hypotheses for the present results [e.g.. natural selection (C. P. Groves, personal communication; F. Nihout, personal communication)] and to examine the possibility that there is a threshold of response to locally stressful conditions in irrigation habitat exibited by female howlers and manifested as developmental plasticity in CC and CC:P. The present report is consistent with the program ofStearns et al. (2003, p. 311) expressed in the following statement: "Alternative explanations for characteristic male and female growth schedules, and the consequences of the patterns seen in each species, ...all call for investigation across the spectrum of primate social systems." The study of the functional ecology, including physiological ecology and developmental plasticity, of primates is in its early stages (Milton, 1998; also see Strier, 1992; Ravosa et al., 1993; Crockett, 1998; Reader and Laland, 2003, pp. 20-21), investigations which are likely to occupy laboratory and field investigators for many years. This body of research will have important implications for primate and other mammalian development, energetics. life history, evolution, and conservation since it involves an understanding of growth. survival, and reproduction relative to environmental regimes.
Localización: Biblioteca OET: S10258. NBINA-2272.

Publicación no.: 0454 **Vertebrados en peligro (Costa Rica)** *[Endangered mammals (Costa Rica)]* / Herrera-Villalobos, Alvaro, comp.; Suárez, A, (il.); Zeledón, Fernando, (il.); Solá, M, (il.); Gonzáles, O, (il.); Avila-Solera, Diana. ed.); Ocampo-Cubero, Esteban, (dis. graf.). (Instituto Nacional de Biodiversidad (INBio), Apdo. 22-3100, Santo Domingo de Heredia, CR). Santo Domingo de Heredia: Editorial INBio, 2005. 2 pp.
Las especies ilustradas en esta lámina corresponden a la mayoría de los animales vertebrados de Costa Rica considerados en peligro, según las siguientes disposiciones: 1) Decreto No. 26435-MINAE (3 de diciembre de 1997) que las clasificó como especies en peligro de extinción; 2) CITES, Apéndice 1, que las registra como especies que son o pueden ser afectadas por su comercio; y 3) Lista Roja de la UICN, que las cataloga mundialmente como especies en peligro crítico y en peligro de extinción. Las otras especies que completan la lista de vertebrados en peligro son las siguientes: Sigmodontomys aphrastus (ratón de monte), Amazona auropalliata (lora nuca amarilla), Falco peregrinus (halcón peregrino), Cistothorus platenses (soterrey sabanero), Dendrocygna bicolor (piche canelo), Dendrocygna viduata (piche careto), Caretta caretta (tortuga cabezona, Caguama), Pagrus pagrus (pargo rojo), Pristis pristis (pez sierra

común) y Epinephelus itajara y Epinephelus niveatus (peces cabrillas o meros). ¡Ayudemos ala conservación de estas especies, evitando su cacería, captura y comercio, la deforestación y la contaminación del ambiente! Localización: Biblioteca OET: NBINA-2110. Biblioteca de Inventario (INBio).

Publicación no.: 0455 The functions of status in the mantled howler monkey, Alouatta palliata Gray: Intraspecific competition for group membership in a folivorous neotropical primate [Las funciones del estatus en el mono congo, Alouatta palliata Gray: competencia intraespecífica membresía en el grupo en un primate neotropical folívoro] / Jones, Clara B. (Fayetteville State University. Department of Psychology, 1200 Murchison Road, Fayetteville, NC 28301-4298, US <E-mail: cbjones@uncfsu.edu>).
En: Primates (ISSN 0032-8332), v. 21, no. 3, p. 389-405. 1980. In the dominance hierarchies of adult male and female mantled howler monkeys (Alouatta palliata Gray), high-ranking individuals are young adults; intermediate-ranking individuals, middle-aged adults; and low-ranking individuals, old adults. This relationship reverses the trend observed in most group-living animals and is previously unreported for this species. A limiting supply of palatable leaves may create intense intraspecific competition for group membership which, it is hypothesized, has resulted in this rare pattern of hierarchical relations. It is shown that individual-level selection is sufficient to explain the evolution of this apparently "altruistic" status system, though other mechanisms are assessed. The energetic constraints imposed by a folivorous diet appear to restrict the expression of aggression to "ritualized" forms. Two groups of monkeys in two different habitats were studied and the rates of appeasement and aggressive behavior were found to be higher in the more "stressful" forest. The latter group, however, displays significantly more behavioral patterns entailing low or intermediate energy expenditure**.**
Localización: Biblioteca OET: S10293.

Publicación no.: 0456 **Spider monkey (Ateles geoffroyi) rehabilitation, reintroduction and conservation at Curú Wildlife Refuge, Costa Rica** *[Rehabilitación, reintroducción y conservación del mono colorado (Ateles geoffroyi) en el Refugio de Vida Silvestre Curú, Costa Rica]* / McKinney, Tracie; Schutt, A. (Marshall University. Department of Sociology and Anthropology, One John Marshall Drive, Huntington, WV 25755, US <E-mail: t.mckinney@marshall.edu>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 40, p. 149-150. 2005.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-9945.pdf
[Abstract only]. The black-handed spider monkey (Ateles geoffroyi) is among the most endangered of neotropical primates (CITES Appendix 1) due to habitat loss and poaching pressure. The species was once present throughout Costa Rica but in recent years has been depleted from the southern Nicoya Peninsula. Populations of the species are stable in national parks elsewhere in the country. The Costa Rican Ministry of Wildlife has developed a number of programs to help return this endangered primate to previously inhabited regions. One such program is housed at the Refugio Nacional de Vida Silvestre Curú, a 3,750-acre private hacienda and wildlife refuge that receives orphaned, injured and confiscated animals from a variety of sources. Since it was designated a national rescue center for spider monkeys in 1989, over 30 individuals have been rehabilitated and released and their progress monitored for at least six months. Seven infants have been born to rehabilitated females, and spider monkeys have moved into new areas of the refuge. Curú staff continues to monitor the animals to assess the feasibility of reintroduction as a conservation tool. Conservation efforts developed within habitat countries are rarely uported in the literature, despite the necessity of local involvement for the success of species survival programs. For natural populations of threatened primates to be protected, long-term projects such as

this one must be encouraged. A similar project involving age-specific reintroductions of howler (Alouatta palliata) and capuchin monkeys (Cebus capucinus) is scheduled to begin at Curú next year.
Localización: Biblioteca OET: S10305. Biblioteca OET: NBINA-9945.

Publicación no.: 0457 **Los mamíferos del Parque Nacional Santa Rosa** / Fleming, T.H. (University of Miami. Department of Biology, Coral Gables, FL 33124, US <E-mail: tfleming@umiami.ir.miami.edu>). San José: UNED / Programa de Educación Ambiental, 1981. 13 pp.
Este folleto tiene el objetivo de dar a conocer los mamíferos del Parque Nacional Santa Rosa. Además de incluir una lista de los mamíferos representados en el Parque, este folleto describe brevemente la historia natural de los principales grupos de mamíferos, evaluando su importancia ecológica.
Localización: Biblioteca OET: S10350.

Publicación no.: 0458 **Massive destruction of Symphonia globulifera (Clusiaceae) flowers by Central American spider monkeys (Ateles geoffroyi)** *[Destrucción masiva de las flores de Symphonia globulifera (Clusiaceae) por parte de monos colorados centroamericanos (Ateles geoffroyi)]* / Riba-Hernández, José Pablo; Stoner, Kathryn E. (Universidad de Costa Rica. Escuela de Biología, San Pedro de Montes de Oca, CR <E-mail: kstoner@oikos.unam.mx>).
En: Biotropica (ISSN 0006-3606), v. 37, no. 2, p. 274-278. 2005
Although more than 39 primate species have been described as nectar feeders, no studies have documented the negative affect this behavior may have on the reproductive success of the plants they consume. Here we report, for the first time, massive flower destruction of the tropical tree Symphonia globulifera by the frugivorous spider monkey, Ateles geoffroyi, and document the detrimental effect this behavior has on fruit set. Foraging behavior was collected from one troop of A. geoffroyi during 460 contact hours from June 1999 to May 2000 in the tropical humid forest at the Refugio de Vida Silvestre Punta Río Claro (8° 39'N, 83° 44'E) in the Osa Peninsula in Southwestern Costa Rica. Detailed phenological data were collected from ten S. globulifera trees that the monkeys fed upon and ten trees that were outside of their home range, but in the Refugio. From July to September 1999 S. globulifera was the most important species consumed, representing from 86 to 100 percent of the total feeding time eachmonth. Monkey foraging on S. globulifera flowers was destructive, detaching the flowers completely from the branches in 80 percent of the foraging bouts, and leaving flowers without petals and with damaged reproductive parts in 20 percent of the bouts. None of the ten trees where the monkeys were foraging set fruit, but seven of ten trees outside of their home range set fruit in November and December 1999. These results suggest that some primates may play an important role in floral herbivory in tropical forests and the subsequent reduction in reproductive success. Future studies should focus on evaluating the long-term effect this foraging behavior may have on the population structure of this species and evaluate the effect of primate floral herbivoryon the reproductive success of other plant species.
Localización: Biblioteca OET: NBINA-2612.

Publicación no.: 0459 **Distribution, ecology, life history, genetic variation, and risk of extinction of nonhuman primates from Costa Rica** *[Distribución, ecología, ciclo vital, variación genética y riesgo de extinción de primates no humanos de Costa Rica]* / Zaldívar-Ruiz, María Eugenia; Rocha-Núñez, Oscar J; Glander, Kenneth E; Aguilar, G; Huertas, A.S; Sánchez-Porras, Ronald E; Wong-Reyes, Grace. (Universidad de Costa Rica. Escuela de Biología, San José, CR <E-mail: marizaldivar@hotmail.com> <E-

mail: ojrocha@biologia.ucr.ac.cr> <E-mail: glander@duke.edu> <E-mail: resanche@cariari.ucr.ac.cr> <E-mail: wongr@forwild.umass.edu>).
En: Revista de Biología Tropical (ISSN 0034-7744), v. 52, no. 3, p. 679-693. 2004.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-3092.pdf
We examined the association between geographic distribution, ecological traits, life history, genetic diversity, and risk of extinction in nonhuman primate species from Costa Rica. All of the current nonhuman primate species from Costa Rica are included in the study; spider monkeys (Ateles geoffroyi), howling monkeys (Alouatta palliata), capuchins (Cebus capucinus), and squirrel monkeys (Saimiri oerstedii). Geographic distribution was characterized accessing existing databases. Data on ecology and life history traits were obtained through a literature review. Genetic diversity was characterized using isozyme electrophoresis. Risk of extinction was assessed from the literature. We found that species differed in all these traits. Using these data, weconducted a Pearson correlation between risk of extinction and ecological and life history traits, and genetic variation, for widely distributed species. We found a negative association between risk of extinction and population birth and growth rates; indicating that slower reproducing species had a greater risk of extinction. We found a positive association between genetic variation and risk of extinction; i.e., species showing higher genetic variation had a greater risk of extinction. The relevance ofthese traits for conservation efforts is discussed.
Localización: Biblioteca OET: R. NBINA-3092.

Publicación no.: 0460 **Reconciliation in wild white-faced capuchins (Cebus capucinus)** *[Reconciliación en monos carablanca (Cebus capucinus)]* / Manson, Joseph H; Perry, Susan E; Stahl, D. (Max Planck Institute for Evolutionary Anthropology, Deutscher Platz 6, D-04103, Leipzig, DE <E-mail: manson@eva.mpg.de> <E-mail: perry@eva.mpg.de>).
En: American Journal of Primatology (ISSN 0275-2565), v. 65, p. 205-219. 2005
The likelihood of reconciliation (defined as preferential peaceful contact among former opponents following conflicts) has been predicted to vary positively with relationship value and compatibility, and negatively with relationship security. Long-term data on wild white-faced capuchins (Cebus capucinus) indicate that dyads consisting of an adult female and an alpha male have high value and compatibility, but low security. Two studies of C. capucinus postconflict (PC) behavior were carried out at Lomas Barbudal Biological Reserve, Costa Rica. One study consisted of 30-min PC and matched control (MC) follows. The second study extracted PC and MC periods from long follows, yielding PC/MC periods averaging 105 min. In study 2, but not study 1, significantly more PC/MC pairs were attracted (former opponents affiliated with each other sooner in the PC period than in the MC period) than were dispersed (former opponents affiliated with each other sooner in the MC period than in the PC period). Reconciliation in study 2 could not be explained as a by-product of former opponents' tendency to seek affiliative contact with conspecifics generally, or of the spatial proximity of opponents following conflicts. Attempted reconciliation was less likely to be followed by renewed aggression when reconciliation attempts were delayed following conflicts. The data were insufficient for a formal test of differences in conciliatory tendency (the difference between the number of attracted and dispersed PC/MC pairs, divided by the total number of pairs) among dyad types to be conducted.
Localización: Biblioteca OET: NBINA-2311.

Publicación no.: 0461 **Infección por larvas de Alouattamyia baeri (Diptera: Cuterebridae) en monos aulladores, Alouatta palliata (Primates: Cebidae) de la costa Caribe de Costa Rica** *[Alouattamyia baeri (Diptera: Cuterebridae) larval infection of howlers Alouatta palliata (Primates: Cebidae) of the Caribbean coast of Costa Rica]* / Calderón-Arguedas, Olger; Troyo-Rodríguez, Adriana; Solano-Chinchilla, Mayra; Sánchez-Porras, Ronald E; Chinchilla-Carmona, Misael; Gutiérrez-Espeleta, Gustavo A. (Universidad de Costa Rica. Centro de Investigación en Enfermedades Tropicales (CIET), Departamento de Parasitología, Facultad de Microbiología, San José, CR <E-mail: olgerc@cariari.ucr.ac.cr> <E-mail: atroyo@cariari.ucr.ac.cr> <E-mail: mayrasol@cariari.ucr.ac.cr> <E-mail: misael@racsa.c).
En: Neotropical Primates (ISSN 1413-4705), v. 12, no. 1, p. 21-24. 2004
En el presente trabajo se analizaron las características de la infestación que el díptero Alouattamyia baeri presenta en una muestra de monos aulladores (Alouatta palliata) de la costa Caribe de Costa Rica.
Localización: Biblioteca OET: NBINA-2599.

Publicación no.: 0462 **Flora bacterial oral y su perfil de sensibilidad a antibióticos en monos de Costa Rica** *[Oral bacterial fauna and its sensitivity to antibiotics in monkeys of Costa Rica]* / Gamboa-Coronado, María del Mar; Rodríguez-Cavallini, Evelyn; Rojas-Contreras, Galia; Sánchez-Porras, Ronald E; Gutiérrez-Espeleta, Gustavo A. (Universidad de Costa Rica. Facultad de Microbiología, Laboratorio de Investigación en Bacteriología Anaerobia y Centro de Investigación en Enfermedades Tropicales, San José, CR <E-mail: mgamboac@cariari.ucr.ac.cr> <E-mail: evelynr@cariari.ucr.ac.cr> <E-mail: resanche@cariari.ucr.ac.cr> <E-mail: ggutier@biologia.ucr.ac.cr>).
En: Neotropical Primates (ISSN 1413-4705), v. 12, no. 1, p. 24-30. 2004
Introducción: Costa Rica es considerada como la región de mayor diversidad biológica en Centroamérica; en 51 000 km² tiene al menos de 500 000 diferentes especies (Reid et al., 1994) y entre los mamíferos presentes, se identifican cuatro especies de monos distribuidas por todo el pais, dos de las cuales son .Alouatta palliata, conocido como congo, y Ateles geoffroyi, o mono colorado. Los A. palliata se encuentran distribuidos en todo el país; son arborícolas, aunque en ocasiones se ven obligados a cruzar áreas abiertas sobre suelo para alimentarse de árboles aislados y ocasionalmente, cuando el recurso alimenticio es escaso, migran del parche boscoso hacia los cafetales. En Costa Rica, A. geoffroyi es considerada en peligro de extinción, debido a la deforestación y a la caza para aprovechar su carne. Los individuos de esta especie se encuentran en todo el país y se les conoce por su especialización extrema a la forma de vida arbórea; son principalmente frugívoros, alimentándose muy selectivamenteen el bosque maduro, en alturas de moderadas a extremas. Con el tiempo los monos han aumentado su contacto con los humanos, ya sea por la siembra de café dentro de zonas boscosas o por la eliminación de árboles, lo que ha afectado su comportamiento y hábitos alimenticios y por ende, posiblemente su flora bacteriana normal. En el ser humano, las bacterias aerobias y anaerobias constituyen los componentes principales de la microflora que coloniza las superficies mucosas y la piel; las bacterias anaerobias superan en número a las bacterias aerobias, pudiéndose encontrar una relación de 10:1 en la cavidad oral. Se conoce poco acerca de la flora bacteriana normal de los nonos, incluyendo la oral, ya que la mayoría de estudios se enfocan principalmente en su biología, comportamiento, hábitat y alimentación. En este trabajo se pretende describir la flora bacteriana (aerobia y anaerobia) de la cavidad oral de monos de las especies A. palliata y A. geoffioyi y determinar su patrón de sensibilidad a los antibióticos. Esto con el propósito de evaluar el riesgo potencial de contraer alguna enfermedad por la cercanía humana con los monos y tratar de establecer si la interacción del hombre en ambientes propios de estos animales ha influenciado dicho patrón de sensibilidad antimicrobiana.

Localización: Biblioteca OET: NBINA-2600.

Publicación no.: 0463 **Rank differences in energy intake rates in white-faced capuchin monkeys, Cebus capucinus: the effects of contest competition** *[Diferencias de rango en las tasas de ingestión de energía en monos carablanca, Cebus capucinus: los efectos del concurso de competencia]* / Vogel, E.R. (University of California. Department of Anthropology, 1156 Hight Street, Santa Cruz, CA 95064, US <E-mail: evogel@ucsc.edu>).
En: Behavioral Ecology and Sociobiology (ISSN 0340-5443), v. 58, p. 333-344. 2005
The effect of aggressive competition over food resources on energy intake rate is analyzed for individuals of three groups of 25-35 white-faced capuchin monkeys, Cebus capucinus, living in and near Lomas Barbudal Biological Reserve, Costa Rica. An individual's energy intake rate on a given food species was affected by its rank and the number of agonistic interactions within the feeding tree. Dominant group members had higher energy intake rates relative to subordinate group members whether or not there was agonism within the feeding tree. Low- and mid-ranked individuals had lower energy intake rates in trees with higher amounts of aggression, while energy intake rate of high-ranked individuals was not affected by the amount of aggression in the feeding tree. Energy intake was not influenced by the sex of the individual when rank was held constant statistically. Energy intake was positively correlated with total crown energy (measured in kilojoules) within the feeding tree for two of three study groups. This difference may be explained by the quality of each group's territory. Finally, high-ranked individuals are responsible for the majority of agonism within feeding trees and target middle- and low-ranked individuals equally. These findings fit the predictions of current socioecological models for within-group contest competition over food resources. The results of this study suggest that within-group competition affects energy intake rate in white-faced capuchin monkeys**.**
Localización: Biblioteca OET: NBINA-2628.

Publicación no.: 0464 **Dispersal patterns among three species of squirrel monkeys (Saimiri oerstedii, S. boliviensis and S. sciureus): I. Divergent costs and benefits** *[Patrones de diseminación entre tres especies de monos tití (Saimiri oerstedii, S. boliviensis y S. sciureus): I. Costos y beneficios divergentes]* / Boinski, Sue; Kauffman, Laurie; Ehmke, E; Schet, S; Vreedzaam, A. (University of Florida. Department of Anthropology, 1350 Turlington, POB 117305, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu> <E-mail: research@stinasu.sr>).
En: Behaviour (ISSN 0005-7959), v. 142, no. 5, p. 525-632. 2005
Current theory frames animal dispersal as an outcome of potentially complex, multi-factorial interactions and tradeoffs that may vary across individual, sex, rank, age, social group, species, habitat and time. Empirical data relevant to a broad rangeof the potential costs and benefits incurred by dispersal are, not surprisingly, limited for many mammals and other vertebrates. Here we present the first report on dispersal in a wild population of the Neotropical primate Saimiri sciureus (Primates: Cebidae). Long-term observations (1998-2001) of this squirrel monkey represent part of a broader study of the forest community at Raleighvallen in the Central Suriname Nature Reserve. These new dispersal records for S. sciureus are combined with comparable information from congeners, S. boliviensis in Peru and S. oerstedii in Costa Rica. The resulting three-way compilation includes the ecological, social and mating context for each congener. Further enhancing the inherent phylogenetic control of a within-genus comparison, these data were collected with the explicit intent of joint analyses, and the study sites for these small, arboreal social mammals are three of the least disturbed extant Neotropical forests

in the historical record. Saimiri appears to merit description as the genus with the most diverse set of species dispersal patterns yet documented among mammals. (1) S. sciureus of both sexes undertake dispersal on several to many occasions during their lifetime. Females and immatures commonly transfer between troops. The large portion of male S. sciureus spend their adult years as solitary or peripheral males. Few males attain secure residence in a mixed-sex troop, a prerequisite for mating success. (2) On attainment of sexual maturity, male S. boliviensis emigrate with their same-age cohort, first joining all-male bands, and eventually entering mixed-sex troops with this same natal male birth cohort. Natal female S. boliviensis are philopatric and form cohesive matrilines. Within-troop competition determines each matriline's priority of access to fruit resources. (3) In contrast to both S. sciureus and S. boliviensis, S. oerstedii males are philopatric and maintain tight affiliation with same age-cohort males. Natal female S. oerstedii emigrateas juveniles prior to their first mating season, and may undertake secondary dispersals in subsequent years. Squirrel monkeys represent a genus with realistic prospects of discriminating the costs and benefits germane to species-typical dispersal strategies. To this end, we collate 30 different causal parameters commonly invoked as influencing mammalian dispersal patterns. Each of these factors is assessed separately for possible influence on the empirically determined sex and species differences. We predict the possible consequences of direct and inclusive fitness interactions on dispersal outcomes for future testing with genetic data. Components of Saimiri selective regimes particularly salient to female dispersal strategies include food competition, foraging benefits provided by kin and inbreeding avoidance. Dispersal patterns among male Saimiri are constrained by mate competition and the consequent reproductive skew, in addition to enhanced predation risk during dispersal forays. Little evidence, however, suggests that relative to familiar landscapes, exploitation of novel ranging areas substantially increases foraging costs or predation risk for dispersing squirrel monkeys of either sex. We then compare the species-specific dispersal regimes initially identified with the univariate array of proposed costs and benefits to the tradeoffs predicted by a selection of contemporary multivariate dispersal models. The multivariate models did not, however, improve substantially upon the collective insights on cost-benefit regimes achieved with the univariate hypotheses. Conclusions regarding the selective regimes structuring dispersal among squirrel monkeys are best considered provisional until genetic data become available allowing tests of our inferences concerning kin relationships and population structure of the study populations. In the end, this fine-grained analysis is consistent with contemporary understandings on the costs and benefits structuring dispersal strategies. Yet our findings provide an uncommonly clear demonstration that the outcome of the interaction of individual factors (food competition, mate competition, and inbreeding avoidance) depends in very subtle ways on the natural history of the organism. This text and two companion papers, II. Within-species and local variation and III. Cognition, comprise a monograph on the evolution and ecology of squirrel monkey dispersal patterns. Implications of the various results are relevant to resource and mate competition, inbreeding avoidance and kin-recognition, predation risk, coalition and alliance formation, cognitive capacities required for implementation of dispersal tactics, impacts of pre-Columbian anthropogenic disturbance on extant Neotropical biota, and conservation management, among others.

Localización: Biblioteca OET: NBINA-2687.

Publicación no.: 0465 **Dispersal patterns among three species of squirrel monkeys (Saimiri oerstedii, S. boliviensis and S. sciureus): II. Within-species and local variation** *[Patrones de diseminación entre tres especies de monos tití (Saimiri oerstedii, S. boliviensis y S. sciureus): II. Variación local y entre especies] /*

Boinski, Sue; Ehmke, E; Kauffman, Laurie; Schet, S; Vreedzaam, A. (University of Florida. Department of Anthropology, 1350 Turlington, POB 117305, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu> <E-mail: research@stinasu.sr>).
En: Behaviour (ISSN 0005-7959), v. 142, no. 5, p. 633-677. 2005
Three long-term field studies, together with numerous supplementary sources of information, demonstrate that the Neotropical squirrel monkey, genus Saimiri (Primates: Cebidae) are distinguished among mammals by the wide divergence in dispersal patterns among congeners. Both sexes of Saimiri sciureus at Raleighvallen in the Central Suriname Nature Reserve undertake dispersal on several to many occasions during their lifetime. Male dispersal and female philopatry characterize S. boliviensis studies atManu, Peru. Among S. oerstedii, studied at Corcovado and other locations in Costa Rica, females disperse and males are philopatric. This is the second in a series of three companion reports investigating patterns and processes relevant to dispersal in these three species of squirrel monkeys. The first report, 1. Divergent costs and benefits (Boinski et al., 2005), predicts the direct and inclusive fitness costs and benefits structuring species, sex and individual dispersal strategies among squirrel monkeys. Ill. Cognition (Boinski, 2005), the final report comprising this monograph, considers the possible cognitive mechanisms underlying dispersal among squirrel monkeys and other taxa, and suggests useful strategies to collect and interpret additional data from laboratory and field contexts. Here we evaluate the sources and potential magnitude of variation in dispersal strategies within each squirrel monkey species. For all three congeners, local edaphic and anthropogenic regimes of habitat disturbance probably represent the major source of within-species variance in the density of wild populations. Squirrel monkey population density, all else being equal, positively increases with the intensity of habitat disturbance. New evidence suggests that in addition to edaphic and recent historical disturbance regimes, in some localities in the Neotropical lowlands anthropogenic disturbance caused by pre-Columbian Amerindians remains a potent factor enhancing squirrel monkey numbers. Squirrel monkeys are predicted to exhibit density-dependent behavioural responses. In turn, these responses are expected to modulate population-level dispersal outcomes in several predictable axes. Major between-site variation in dispersal strategies, however, is unlikely for either sex among S. oerstedii or S. boliviensis. Although all natal male S. sciureus almost certainly disperse before or at the time of sexual maturity, the proportion of females emigrating from a S. sciureus troop appears more variable, dependent on local levels of within-troop competition for food. In any year or season, those mature and immature female S. sciureus with high priority access to food resources are least likely to disperse.
Localización: Biblioteca OET: NBINA-2688.

Publicación no.: 0466 **Dispersal patterns among three species of squirrel monkeys (Saimiri oerstedii, S. boliviensis and S. sciureus): III. Cognition** *[Patrones de diseminación entre tres especies de monos tití (Saimiri oerstedii, S. boliviensis y S. sciureus): III. Cognición]* / Boinski, Sue. (University of Florida. Department of Anthropology, 1350 Turlington, POB 117305, Gainesville, FL 32611, US <E-mail: boinski@ufl.edu>).
En: Behaviour (ISSN 0005-7959), v. 142, no. 5, p. 679-699. 2005
Cognitive skills essential to dispersal remain a thorny, seldom-broached topic, especially among the putatively 'clever' primates. This essay, the final installment of a three-part monograph, considers the cognitive mechanisms underlying expression of three extremely distinctive species-specific dispersal outcomes within squirrel monkeys (genus Saimiri, Primates: Cebidae). Findings from two companion reports, which assess the costs and benefits structuring between-species differences J. Divergent costs

and benefits, Boinski et al., 2005a) and variation within-species (II. Within-species and local variation, Boinski et al., 2005b), provide the groundwork for my often speculative discussion. (1) In Costa Rica, female S. oerstedii do not form kin-based alliances. All females disperse prior to their first mating season and may disperse on numerous occasions throughout adulthood. Male S. oerstedii are philopatric and exhibit close social bonds with other natal males, particularly those from the same birth cohort. (2) Male dispersal and female philopatry, the prevalent pattern in most mammals, including primates, characterizes Peruvian S. boliviensis. Both sexes form life-long alliances with same-sex kin. After natal dispersal, male birth cohorts join all-male groups, from which they attempt to immigrate into mixed-sex troops. Female kin in a S. boliviensis troop form matrilines critical in within-group food competition. (3) All male and most female S. sciureus disperse from several to many occasions during their lifetime. In contrast to the other two species, male S. sciureus never exhibit stable alliances with other males, including probable kin. Similarly, female coalitions are transient, detectable only during periods of relative food abundance. What are the implications of this marked between-species disparity in dispersal outcomes for squirrel monkey cognition, and, by extension, the cognition of other social mammals? Two timely issues are addressed. First, squirrel monkeys exemplify the provocative parallels in the assessments required of individuals embedded within three circumstances usually treated separately: dispersal; coordination of group travel; and fission-fusion adjustments of group composition. Are arguments that dispersal is moreor less cognitively demanding than either coordinated travel or fission-fusion social structures justified? Fundamentally, all three processes are reducible to frequency-dependent decision-making by individuals based upon concurrent social and ecological assessments across multiple dimensions, such as time, space, and participant number. Second, a common approach to identify the covariation of selective regimes and apparent cognitive abilities are taxonomically inclusive, multivariate parametric statistical models, which incorporate information on ecology, behaviour, morphology and phylogeny. However, such correlative analyses add little to what is arguably the major challenge in contemporary field investigations of animal behaviour: How can we distinguish complex, multivariate decision-making algorithms from simple 'rule of thumb' solutions? Must field workers await the findings of laboratory-based neuroethological and neuroanatomical investigations to improve understanding of what innate versus learned behaviour contributes to complex social and ecological decisions in group-living mammals, such as those incarnate in dispersal? My suggestion is that more research emphasis be given to detailed, longitudinal field observations of recopized individualsfrom infancy onwards. The resulting empirical data, although in most instances onerous to collect, will enable construction of a rich, multivariate, quantitative and qualitative longitudinal picture of individual development and changing contexts of experience. In turn, these descriptive data will afford a strong basis for rejecting or accepting predictions distinguishing experiential, socially learned and innate components of dispersal behaviour**.**

Localización: Biblioteca OET: NBINA-2689.

Publicación no.: 0467 **Evaluating social influences on food-processing behavior in white-faced capuchins (Cebus capucinus)** *[Evaluando las influencias sociales sobre el comportamiento de procesamiento de los alimentos en los monos carablanca (Cebus capucinus)]* / O'Malley, R.C; Fedigan, Linda M. (University of Calgary. Department of Anthropology, Calgary, Alberta, T2N 1N4, CA <E-mail: fedigan@ucalgary.ca>).

En: American Journal of Physical Anthropology (ISSN 0002-9483), v. 127, no. 4, p. 481-491. 2005

Interpopulation variability in patterns of food processing, similar to what is described as "traditional" or "cultural" variation in chimpanzees (Pan troglodytes) and orangutans (Pongo pygmaeus), was identified in white-faced capuchins (Cebus capucinus). However, recent comparisons of food processing in capuchins were conducted only at the population level, with relatively little attention given to variability among groups, age/sex classes, or individuals. This paper examines variability in the processing of specific food types within the context of various social networks (i.e., patterns of association, rank, and kinship) among free-ranging Cebus capucinus at Santa Rosa National Park in Costa Rica. We collected data on two groups of white-faced capuchins in 2001, identifying rates of "food interest" for each individual, as well as forms of processing for specific food types. Juveniles exhibited the most interest in the food-processing behavior of other group members, and food interest was directed most frequently toward adult females. We identified distinctive processing techniques for several food items (Luehea candida pods, Sloanea terniflora fruits, and caterpillars) that facilitated comparisons among individuals within groups. Food-processing techniques for Sloanea fruit and caterpillars appeared to vary independently of the social networks examined in this study. However, we found evidence that variation in Luehea candida processing is to some degree linked to both patterns of association and social rank. The potential influence of these variables on observed food processing patterns warrants further scrutiny**.**
Localización: Biblioteca OET: NBINA-2771.

Publicación no.: 0468 **Presencia de Trypanosoma minasense (Kinetoplastida: Trypanosomatidae) en Alouatta palliata (Primates: Cebidae) de Costa Rica** *[Trypanosoma minasense (Kinetoplastida: Trypanosomatidae) in Alouatta palliata (Primates: Cebidae) from Costa Rica]* / Chinchilla-Carmona, Misael; Troyo-Rodríguez, Adriana; Guerrero-Bermúdez, Olga Marta; Gutiérrez-Espeleta, Gustavo A; Sánchez-Porras, Ronald E. (Universidad de Costa Rica. Centro de Investigación en Enfermedades Tropicales (CIET), Departamento de Parasitología, Facultad de Microbiología, San José, CR <E-mail: misael@racsa.co.cr> <E-mail: atroyo@cariari.ucr.ac.cr> <E-mail: abriceno@racsa.co.cr> <E mail: ggutier@biologia.ucr.ac.cr> <E-mail: resanche@cariari.ucr.ac.cr>).
En: Parasitología Latinoamericana (ISSN 0717-7712 [online]), v. 60, p. 90-92. 2005.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-2711.pdf
A Trypanosoma from the mantled howling monkey Alouatta palliata was studied. Measures, as well as its biological characteristics (mice infection and failure to infect Triatominae) identify this parasite as Trypanosoma minasense. This organism is found for the first time in Costa Rica**.**
Localización: Biblioteca OET: NBINA-2711.

Publicación no.: 0469 **Variability in food-processing behavior among white-faced capuchins (Cebus capucinus) in Santa Rosa National Park, Costa Rica** *[Variabilidad en el comportamiento del procesamiento de la comida entre los monos carablanca (Cebus capucinus) en el Parque Nacional Santa Rosa, Costa Rica]* / O'Malley, R.C; Fedigan, Linda M. (University of Calgary. Department of Anthropology, Calgary, Alberta, T2N 1N4, CA <E-mail: fedigan@ucalgary.ca>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), v. 128, no. 1, p. 63-73. 2005
Observed patterns of variability in the food-processing behavior of white-faced capuchins (Cebus capucinus) across populations may reflect foraging traditions. However, there has been relatively little attention given to intrapopulation variability in food processing among groups and age/sex classes, making recent cross-population comparisons difficult to interpret. In this paper, we provide data on

patterns of object use in foraging that we observed at Santa Rosa National Park, Costa Rica, for comparison with published data from a neighboring research site, Palo Verde National Park. We also describe the techniques used to process two food items consumed by Cebus capucinus at Santa Rosa, and discuss the factors that may underlie observed variability. We conducted a 6-month study on two groups of capuchins in 2001, and collected data on general activity and feeding patterns, rates and forms of object use, and distinctive processing techniques employed for two specific foods (Sloanea terniflora and Luehea candida). Rates of object-use behavior at Santa Rosa were considerably higher than those reported for Palo Verde and showed significant variation between groups and age/sex classes, as did patterns of Sloanea and Luehea processing. Observed differences in feeding rates between groups may reflect food availability or relative profitability, whereas variation between age/sex classes seems to reflect differences in the physical capabilities, foraging strategies, and the relative experience of mature and immature animals. Further research is needed to identify how a social context may influence the acquisition of food-processing techniques in juveniles and the development of foraging traditions in social groups**.**
Localización: Biblioteca OET: NBINA-2909.

Publicación no.: 0470 **A preliminary test of the van Schaik model of male coalitions for Costa Rican mantled howler monkeys (Alouatta palliata)** *[Prueba preliminar del modelo de van Schaik de las coaliciones de machos para los monos congo costarricenses (Alouatta palliata)]* / Jones, Clara B. (Fayetteville State University. Department of Psychology, 1200 Murchison Road, Fayetteville, NC 28301-4298, US <E-mail: cbjones@uncfsu.edu>).
En: Laboratory Primate Newsletter (ISSN 0023-6861), v. 44, no. 3, p. 3-5. 2005.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-2874.pdf
Introduction: In mantled howler monkey (Alouatta palliata) societies, conflicts arise because interindividual interests differ (Jones, 2000). Darwin (1871; also see Dixson, 1998; Jones & Agoramoorthy, 2003) proposed that, among males, "male-male competition" (intrasexual selection) would determine access to and monopolization of females. Although most competitive interactions among male mantled howlers are dyadic, coordinated attacks by two males against a third have been observed (Jones, 1978, 19801985, 2000). In this communication, I present a reinterpretation of these coalitions as a preliminary test of a recent model of male-male within-group coalitionary aggression (the van Schaik model: van Schaik et al., 2004). Van Schaik and his colleagues(2004) proposed that coalition value "is the sum of the payoffs of the partners in their original ranks" (p. 101). Although not explicitly stated by these authors, "payoffs" will be condition-dependent since individual optima are expected to change from situation to situation (e.g., according to the "value" of the resource or the quality of the target male). It is also important to note that the symmetry in value among coalition partners need not be equivalent, and that the likelihood of coalition formation among males may be inversely related to rank distance between them, all other things being equal. Van Schaik et al. (2004) propose five "basic coalition types": (1) rank-changing coalitions targeting individuals ranking above all coalition partners;(2) rank-changing coalitions in which higher-rankers support lower-rankers to rise to a rank below themselves; (3) non-rank-changing coalitions, expected to occur whenever high-ranking males have low-ranking close relatives; (4) non-rank-changing coalitions by high-rankers against lower-ranking targets; and, (5) non-rank-changing coalitions in which all partners rank below their target and which flatten the payoff distribution. The present analysis suggests that, consistent with the van Schaik model, adult male

mantled howler monkeys exhibit a variant of configuration #2 in addition to configurations #1 or #5. The possible implications of these findings for social evolution in mantled howlers is discussed.
Localización: Biblioteca OET: NBINA-2874.

Publicación no.: 0471 **Terrestrial behavior of Ateles spp** *[Comportamiento terrestre de Ateles spp]* / Campbell, Christina J; Aureli, Filippo; Chapman, Colin A; Ramos-Fernández, Gabriel; Matthews, Kim; Russo, Sabrina E; Suarez, Scott; Vick, Laura. (Pomona College. Department of Anthropology, 420 N Harvard Ave, Claremont, CA 91711, US <E-mail: christina_campbell@pomona.edu> <E-mail: f.aureli@ljmu.ac.uk> <E-mail: cachan@zoo.ufl.edu>).
En: International Journal of Primatology (ISSN 0164-0291), v. 26, no. 5, p. 1039-1051. 2005
Spider monkeys (Ateles spp.) are well known for their highly arboreal lifestyle, spending much of their time in the highest levels of the canopy and rarely venturing to the ground. To investigate terrestriality by Ateles and to illuminate the conditions under which spider monkeys venture to the ground, we analyzed ad libitum data from 5 study sites, covering 2 species and 5 subspecies. Three of the sites are in Central/North America: Barro Colorado Island (BCI), Panama (Ateles geoffroyi panamensis),Santa Rosa National Park, Costa Rica (A. g. frontatus), and Punta Laguna, Mexico (A. g. yucatanensis). The 2 remaining sites are in South America: Cocha Cashu Biological Station, Peru (A. belzebuth chamek) and Yasuni National Park, Ecuador (A. b. belzebuth). Terrestrialism by Ateles at all sites is rare; however, it is more restricted at the 2 South American sites. In South America, ground use only occurred in the contexts of eating soil or rotten wood and visiting salt licks. In contrast at the 3 sites with Ateles geoffroyi it rarely occurred in a feeding context, but instead more frequently while drinking from streams during the dry season, by adult females escaping attack by adult males, and as part of a chase game. In addition, on BCI adult males were on the ground before attacking adult females. We discuss potential explanations, e.g., climate, species differences, predation pressure, for the differences between the Central/North and South American observations.
Localización: Biblioteca OET: NBINA-3078.

Publicación no.: 0472 **Parásitos intestinales en monos congo Alouatta palliata (Primates: Cebidae) de Costa Rica** *[Intestinal parasites in howler monkeys Alouatta palliata (Primates: Cebidae) of Costa Rica]* / Chinchilla-Carmona, Misael; Guerrero-Bermúdez, Olga Marta; Gutiérrez-Espeleta, Gustavo A; Sánchez-Porras, Ronald E; Rodríguez-Ortiz, Beatriz. (Universidad de Costa Rica. Centro de Investigación en Enfermedades Tropicales (CIET), Departamento de Parasitología, Facultad de Microbiología, San José, CR <E-mail: misael@racsa.co.cr> <E-mail: abriceno@racsa.co.cr> <E mail: ggutier@biologia.ucr.ac.cr> <E-mail: resanche@cariari.ucr.ac.cr> <E-mail: brodrigu@cariari.ucr.ac.cr>).
En: Revista de Biología Tropical (ISSN 0034-7744), v. 53, no. 3/4, p. 437-454. 2005.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-3073.pdf
Fecal samples of 102 howler monkeys (Alouatta palliata) from several sites of Costa Rica were studied for intestinal parasites. The zones studied were: Central Valley (San Ramón, Alajuela), Central Pacific (Chomes and Manuel Antonio National Park, Puntarenas), North Pacific (Palo Verde National Park and Playa Potrero, Guanacaste), Chira Island in the Nicoya Gulf and Caribean area (Cahuita, Limón). Animals were anesthetized with dards containing Telazol in order to collect the fecal material; some monkeys defecated spontaneously and others by direct stimulation. Samples were studied in saline solution (0.85%) and a Iodine solution, or stained with Haematoxylin. The material was also cultured in Dobell culture medium to determine the presence of amoeba and flagellates. Strongyloides, Controrchis,

Trypanoxyuris genera were found in 3.4% of the samples. In addition 16.7% to 80% of the animals showed protozoa infection with Endolimax, Entamoeba, Trichomonas and Giardia. It is discussed the relationships of parasite infection with environmental conditions, animal population and human presence, especially in the monkey conservation programs point of view.
Localización: Biblioteca OET: R. NBINA-3073.

Publicación no.: 0473 **A phylogeny of howler monkeys (Cebidae: Alouatta) based on mitochondrial, chromosomal and morphological data** *[Filogenia de los monos congo (Cebidae: Alouatta) con base a datos morfológicos, cariotípicos y moleculares]* / Villalobos-Brenes, Federico Alexander; Valerio-Contreras, Alejandro A; Retana-Salazar, Axel P. (Central American Institute of Biological Research and Conservation, P.O. Box 2398-2050, San José, CR <E-mail: fvillalobos@cibrc.org> <E-mail: avalerio_13@hotmail.com> <E-mail: apretana@cariari.ucr.ac.cr>).
En: Revista de Biología Tropical (ISSN 0034-7744), v. 52, no. 3, p. 665-677. 2004.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-3135.pdf
The current taxonomic status of the species and subspecies belonging to the genus Alouatta is addressed by combined phylogenetic analysis using morphological, kariotipyc and molecular data (mitochondrial genes cytocrome oxidase II and cytochrome B). Our result demonstrated that Alouatta palliata is the most basal taxon for the genus in concordance with previous studies, as well as showing the validity of the taxon Alouatta sara as a species. Also our analysis shows that the sex chromosome has evolved from a XY/XX system to a X1X2Y1Y2/X1X1X2X2 system within the genus, as well as an increase in the size and complexity of the hioideal bone.
Localización: Biblioteca OET: R. NBINA-3135.

Publicación no.: 0474 **Depredación de mono carablanca (Cebus capucinus, Primates: Cebidae) por tolomuco (Eira barbara, Carnivora: Mustelidae)** / Robles-González, R; Durán-Alvarado, Francisco J. (Apdo. 1808-2100, San José, CR <E-mail: zurqui00@racsa.co.cr> <E-mail: museohn@racsa.co.cr>).
En: Brenesia (ISSN 0304-3711), no. 62, p. 89-90. 2004. (No abstract).
Localización: Biblioteca OET: B.

Publicación no.: 0475 **Los primates mesoamericanos: conservación, asesoramiento y manejo planificado**. Informe Final, San José, Parque Zoológico Simón Bolívar, CR. Junio 23-25, 1997. 12 pp.
Durante la semana del 23 al 29 de Junio se reunieron en el Zoológico Nacional Simón Bolívar especialistas en conservación, educadores ambientales, primatólogos, directores, biólogos, médicos veterinarios y cuidadores de los zoológicos con el fin de analizar la situación de los primates de la región mesoamericana y dar recomendaciones para su conservación. Este análisis se hizo para todos los taxones en cada país.
Localización: Biblioteca OET: NBINA-3081.

Publicación no.: 0476 **Development of feeding selectivity in mantled howling monkeys, Alouatta palliata** *[Desarrollo de la selectividad en la alimentación en los monos congo, Alouatta palliata]* / Whitehead, J.M. (University of Florida. Institute of Advanced Study of Communication Processes, Gainesville, FL 32611, US).
En: Primate ontogeny, cognition and social behaviour. Else, J.G; Lee, P.C. (eds.). Cambridge: Cambridge University Press, 1986. p. 105-117. (No abstract).

Localización: No disponible.

Publicación no.: 0477 **Mechanical defenses in leaves eaten by Costa Rican howling monkeys (Alouatta palliata)** *[Defensas mecánicas en las hojas comidas por los monos congo costarricenses (Alouatta palliata)]* / Teaford, Mark F; Lucas, Peter W; Ungar, Peter S; Glander, Kenneth E. (The Johns Hopkins University. School of Medicine, Department of Cell Biology and Anatomy, Baltimore, MD 21205, US <E-mail: mteaford@jhmi.edu> <E-mail: pwlucas@hkucc.hku.hk> <E-mail: pungar@mail.uark.edu> <E-mail: glander@duke.edu>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), v. 129, no. 1, p. 99-104. 2006
Primate species often eat foods of different physical properties. This may have implications for tooth structure and wear in those species. The purpose of this study was to examine the mechanical defenses of leaves eaten by Alouatta palliata from different social groups at Hacienda La Pacífica in Costa Rica. Leaves were sampled from the home ranges of groups living in different microhabitats. Specimens were collected during the wet and dry seasons from the same tree, same plant part, and same degree of development as those eaten by the monkeys. The toughness of over 300 leaves was estimated using a scissors test on a Darvell mechanical tester. Toughness values were compared between social groups, seasons, and locations on the leaves using ANOVA. Representative samples of leaves were also sun dried for subsequent scanning electron microscopy and energy dispersive x ray (EDX) analyses in an attempt to locate silica on the leaves. Both forms of mechanical defense (toughness and silica) were found to be at work in the plants at La Pacifica. Fracture toughness varied significantly by location within single leaves, indicating that measures of fracture toughness must be standardized by location on food items. Monkeys made some food choices based on fracture toughness by avoiding the toughest parts of leaves and consuming the least tough portions. Intergroup and seasonal differences in the toughness of foods suggest that subtle differences in resource availability can have a significant impact on diet and feeding in Alouatta palliata. Intergroup differences in the incidence of silica on leaves raise the possibility of matching differences in the rates and patterns of tooth wear.
Localización: Biblioteca OET: NBINA-3369.

Publicación no.: 0478 **Comparative use of color vision for frugivory by sympatric species of platyrrhines** *[Utilización comparativa de la visión de color por parte de especies simpátricas frugívoras de monos platyrrhinos]* / Stoner, Kathryn E; Riba-Hernández, José Pablo; Lucas, Peter W. (Universidad Nacional Autónoma de México. Centro de Investigación en Ecosistemas, Apartado Postal 27-3, Xangari, Morelia 48980, MX <E-mail: kstoner@oikos.unam.mx> <E-mail: pwlucas@hkucc.hku.hk>).
En: American Journal of Primatology (ISSN 0275-2565), v. 67, no. 4, p. 399-409. 2005
Ateles spp. and Alouatta spp. are often sympatric, and although they are mainly frugivorous and folivorous, respectively, they consume some of the same fruit species. However, they differ in terms of color vision, which is thought to be important forfruit detection. Alouatta spp. have routine trichromatic color vision, while Ateles spp. presents the classic polymorphism of platyrrhines: heterozygous females have trichromatic color vision, and males and homozygous females have dichromatic vision. Given these perceptual differences, one might expect Alouatta spp. to consume more reddish fruits than Ateles spp., since trichromats have an advantage for detecting fruits of that hue. Furthermore, since Ateles spp. have up to six different color vision phenotypes, as do most other platyrrhines, they might be expected to include fruits with a wider variety of hues in their diet than Alouatta spp. To test these hypotheses we studied the fruit foraging behavior of sympatric Alouatta palliata and Ateles geoffroyi in Costa Rica, and

modeled the detectability of fruit via the various color vision phenotypes in these primates. We found little similarity in fruit diet between these two species (Morisita = 0.086). Furthermore, despite its polymorphism, A. geoffroyi consumed more reddish fruits than A. palliata, which consumed more greenish fruits. Our modeling results suggest that most fruit species included in the diet of A. geoffroyi can be discriminated by most color vision phenotypes present in the population. These findings show that the effect of polymorphism in platyrrhines on fruit detection may not be a disadvantage for frugivory. We suggest that routine trichromacy may be advantageous for other foraging tasks, such as feeding on young leaves.
Localización: Biblioteca OET: NBINA-3406.

Publicación no.: 0479 **Sugar concentration of fruits and their detection via color in the Central American spider monkey (Ateles geoffroyi)** *[Concentración de azúcar de las frutas y su detección vía color en los monos colorados centroamericanos (Ateles geoffroyi)]* / Riba-Hernández, José Pablo; Stoner, Kathryn E; Lucas, Peter W. (Universidad de Costa Rica. Escuela de Biología, San Pedro de Montes de Oca, CR <E-mail: kstoner@oikos.unam.mx>).
En: American Journal of Primatology (ISSN 0275-2565), v. 67, no. 4, p. 411-423. 2005
Although most arguments explaining the predominance of polymorphic color vision in platyrrhine monkeys are linked to the advantage of trichromacy over dichromacy for foraging for ripe fruits, little information exists on the relationship between nutritional reward and performance in fruit detection with different types of color vision. The principal reward of most fruits is sugar, and thus it seems logical to investigate whether fruit coloration provides a long-distance sensory cue to primates that correlates with sugar content. Here we test the hypothesis that fruit detection performance via trichromatic color vision phenotypes provides better information regarding sugar concentration than dichromatic phenotypes (i.e., is a color vision phenotype with sufficient red-green (RG) differentiation necessary to "reveal" the concentration of major sugars in fruits?). Accordingly, we studied the fruit foraging behavior of Ateles geoffroyi by measuring both the reflectance spectra and the concentrations of major sugars in the consumed fruits. We modeled detection performance with different color phenotypes. Our results provide some support for the hypothesis. The yellow-blue (YB) color signal, which is the only one available to dichromats, was not significantly related to sugar concentration. The RG color vision signal, which is present only in trichromats, was significantly correlated with sugar content, but only when the latter was defined by glucose. There was in fact a consistent negative relationship between fruit detection performance and sucrose concentration, although this was not significant for the 430 nm and 550 nm phenotypes. The regular trichromatic phenotypes (430 mn, 533 mn, and 565 nm) showed higher correlations between fruit performance and glucose concentration than the other two trichromatic phenotypes. Our study documents a trichromatic foraging advantage in terms of fruit quality, and suggests that trichromatic color vision is advantageous over dichromatic color vision for detecting sugar-rich fruits.
Localización: Biblioteca OET: NBINA-3407.

Publicación no.: 0480 **Color vision polymorphism in wild capuchins (Cebus capucinus) and spider monkeys (Ateles geoffroyi) in Costa Rica** *[Polimorfismo de la visión de color en monos carablanca silvestres (Cebus capucinus) y monos colorados (Ateles geoffroyi) en Costa Rica]* / Hiramatsu, Chihiro; Tsutsui, Toko; Matsumoto, Y; Aureli, Filippo; Fedigan, Linda M; Kawamura, Shoji. (University of Tokyo. Graduate School of Frontier Sciences, Department of Integrated Biosciences, Seimeitou 502,5-1-5

Kashiwanoha, Kashiwa, Chiba 2778562, JP <E-mail: kawamura@k.u-tokyo.ac.jp> <E-mail: f.aureli@ljmu.ac.uk> <E-mail: fedigan@ucalgary.ca>).
En: American Journal of Primatology (ISSN 0275-2565), v. 67, no. 4, p. 447-461. 2005
New World monkeys are unique in exhibiting a color vision polymorphism due to an allelic variation of the red-green visual pigment gene. This makes these monkeys excellent subjects for studying the adaptive evolution of the visual system from both molecular and ecological viewpoints. However, the allele frequencies of the pigments within a natural population have not been well investigated. As a first step toward understanding the relationship between vision and behavior, we conducted color vision typing by analyzing fecal DNA from two wild groups of white-faced capuchin monkeys (Cebus capucinus) and one group of black-handed spider monkeys (Ateles geoffroyi) inhabiting Santa Rosa National Park of Costa Rica. All color-typed monkeys were individually identified. In C. capucinus and A. geoffroyi we found three and two pigment types, respectively, and the spectral mechanism that created one of the two Ateles pigments was found to be novel. In one Cebus group and the Ateles group, all alleles were present, whereas in the other Cebus group only two alleles were found, with one allele predominating. This was likely due to the effect of close inbreeding, indicating that wild populations can exhibit a variety of allele compositions. This result also suggests that the color vision polymorphism can be easily distorted by natural factors, such as inbreeding, skewing the population structure**.**
Localización: Biblioteca OET: NBINA-3405.

Publicación no.: 0481 **Where wildlife meets wild surf** *[Donde la fauna y flora se encuentran con el oleaje salvaje]* / Hoge, W.
En: The New York Times (ISSN 0362-4331), Feb. 16, 1997, p. 11. 1997
Warren Hoge discusses a visit to the Pacific coast of Costa Rica. We decided on two spots, one at the tip of the remote Osa Peninsula in the south and the other on the busier coast of Guanacaste Province in the north. I had last seen the northern part of Costa Rica in 1979 where, as a correspondent, I had covered the bloody ending of the war between the forces of Anastasio Somoza and the Sandinista rebels across the border in southern Nicaragua. I pledged back then to return someday to focus on the peaceful beauty of Guanacaste's savannahs and seashore, its spreadtrees and grazing white brahma cattle. Our group was my wife, Olivia; my son, Nicholas, the soi-disant surfer; his schoolmate Wyndham Boylan-Garnett; Wyndham's mother, Nuala Boylan, and myself. We flew to San José in August, where we overnighted at the Gran Hotel Costa Rica, a raffish downtown hotel with an open colonnaded restaurant looking out on the city's busiest square, where we reporters had put up in 1979**.**
Localización: Biblioteca OET: NBINA-3307.

Publicación no.: 0482 **Discriminative feeding on legumes by mantled howler monkey (Alouatta palliata) may select for persistence** *[Alimentación discriminatoria en leguminosas por el mono congo (Alouatta palliata) puede seleccionar para resistencia]* / Jones, Clara B. (Fayetteville State University. Department of Psychology, 1200 Murchison Road, Fayetteville, NC 28301-4298, US <E-mail: cbjones@uncfsu.edu>).
En: Neotropical Primates (ISSN 1413-4705), v. 13, no. 1, p. 3-5. 2005.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-9560.pdf
Legumes are important to mantled howler monkeys as sources of food. Consistent with an earlier study showing that mantled howlers were likely to feed on Pithecellobium saman flowers at flower-opening time, the present report provides evidence for the same pattern for Andira inermis. Using a "focal tree"

observational method, one group of monkeys (N = 18 adults) inhabiting riparian habitat of Costa Rican tropical dry forest were observed utilizing 3 individual A. inermis from 30 March - 10 April 1976.Monkeys were more likely to feed during hours of peak flower-opening, including peak pollen and nectar production (individuals/h: Chi Square "goodness of fit," P 0.05). These observations suggest that, in addition to flowers, fruit, and leaves, pollen and nectar may be important food sources for mantled howlers. Heavy concentrations of bees interfered with access to flowers, requiring the monkeys to persist for as long as 3 h before beginning to feed after bee activity had diminished. Interspecific interactions, then, may select for "persistence," "patience," or "impulse control." "Persistence" may be a signature of primates and other social mammals and may be favored by any conditions in which local competition occurs for limiting resources**.**
Localización: Biblioteca OET: NBINA-9560. S10678.

Publicación no.: 0483 **Behavioral plasticity among black-handed spider monkey (Ateles geoffroyi) communities in a mosaic habitat at El Zota Biological Field Station, Costa Rica** *[Plasticidad de comportamiento entre las comunidades de monos colorados (Ateles geoffroyi) en un mosaico de hábitats en la Estación Biológica El Zota, Costa Rica]* / Lindshield, Stacy M. (Iowa State University. Department of Anthropology, 324 Curtiss Hall, Ames, IA 50011, US <E-mail: slind@iastate.edu>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 42, p. 122. 2006. (No abstract)**.**
Localización: Biblioteca OET: NBINA-4139.

Publicación no.: 0484 **Spatial variation in the activity and positional behavior of Ateles geoffroyi ornatus and its relationship to forest disturbance at Estación Biológica La Suerte, Costa Rica** *[Variación espacial en la actividad y comportamiento de pose de Ateles geoffroyi ornatus y su relación con la perturbación del bosque en la Estación Biológica La Suerte, Costa Rica]* / O'Mara, M.T. (Arizona State University. School of Human Evolution and Social Change, P.O. Box 872402, Tempe, AZ 85287-2402, US).
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 42, p. 141. 2006. (No abstract)**.**
Localización: Biblioteca OET: NBINA-4140.

Publicación no.: 0485 **Variable specificity in the anti-predator vocalizations and behaviour of the white-faced capuchin, Cebus capucinus** *[Especificidad variable en las vocalizaciones antidepredador y comportamiento del mono carablanca, Cebus capucinus]* / Digweed, S; Fedigan, Linda M; Rendall, D. (University of Lethbridge. Department of Psychology and Neuroscience, 4401 University Drive, Lethbridge, AB, T1K 3M4, CA <E-mail: shannon.digweed@uleth.ca> <E-mail: fedigan@ucalgary.ca>).
En: Behaviour (ISSN 0005-7959), v. 142, no. 8, p. 997-1021. 2005.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-4026.pdf
Much research in animal communication is aimed at understanding the functional design features of animal vocal signals. Our detailed analyses of the vocalizations and behavioural responses elicited in white-faced capuchins by predators and other disturbances point to two call variants that differ modestly in their acoustic structure and that are accompanied by functionally distinct behavioural responses. The first variant is given exclusively to avian predators and is almost invariably accompanied by the monkey's immediate descent from the treetops where it is most vulnerable; therefore, we label this call variant the 'aerial predator alarm'. The second variant, that differs only slightly but noticeably from the first, is given to a wide range of snakes and mammals, including a range of species that represent no predatory threat to the monkeys. This second call is also associated with more variable

responses from calling monkeys, from delayed retreat from the source of disturbance, to active approach, inspection, and sometimes mobbing of the animal involved. We therefore label this variant more generally as an 'alerting call'. Although some other primate species show a more diverse system of anti-predator calls, and the capuchins themselves may yet be found to produce a greater variety of calls, a system of two call variants with varying degrees of predator specificity and behavioural response is not uncommon among primates and appears functionally appropriate for capuchins. The basic structure of the alerting call allows conspecific listeners to localize the caller and the source of disturbance readily, thereby allowing listeners to approach and assist in mobbing in cases where the disturbance warrants it, or to avoid the area in cases where the disturbance is identified as a predatory threat. Conversely, the aerial predator alarm is inherently less localizable and therefore conveys the presence of a predator to conspecific listeners nearby while allowing the signaler itself to remain relatively inconspicuous**.**
Localización: Biblioteca OET: NBINA-4026.

Publicación no.: 0486 **Behavioral indicators of ovarian phase in white-faced capuchins (Cebus capucinus)** *[Indicadores de comportamiento de la fase ovarial en monas carablanca (Cebus capucinus)]* / Carnegie, Sarah D; Fedigan, Linda M; Ziegler, Toni E. (University of Calgary. Department of Anthropology, 2500 University Dr. NW, Calgary, Alberta T2N 1N4, CA <E-mail: sdcarneg@ucalgary.ca> <E-mail: linda.fedigan@ualberta.ca>).
En: American Journal of Primatology (ISSN 0275-2565), v. 67, p. 51-68. 2005
In many primate species, conspicuous behavioral and/or morphological changes are indicators of the fertile phase of the female cycle. However, several primate species, such as the white-faced capuchin, lack these cues. This is referred to as concealed ovulation, and is argued to be a reproductive strategy that confuses paternity and lowers the risk of infanticide. We studied 10 adult female white-faced capuchins in Santa Rosa National Park, Costa Rica, from January to June 2002. We determined their ovarian cycling patterns by analyzing fecal ovarian hormones, and compared simultaneously collected behavioral data to determine which, if any, cues females use to signal their fertile phases. We found that four females cycled during the study period but ceased to cycle without becoming pregnant. We considered several explanations for the lack of conception during our study, including reproductive seasonality. We found that female C. capucinus showed only small increases in rates of affiliative/proceptive behaviors directed toward adult males during their periovulatory phases. The best indicator of cycle phase was a significant increase in male affiliative behaviors (e.g., following and grooming bouts) and sexual behaviors (e.g., copulations and courtship displays) directed toward females during the periovulatory phase compared to the nonovulatory phase. Our finding that females exhibit little proceptive behavior, but that copulations and male courtship are nonetheless concentrated in periovulatory phases suggests that even though females do not provide behavioral and morphological cues to ovulation, males are still able to detect it. Infanticide occurs with some frequency in these monkeys, and there is evidence for postconceptive mating as a female strategy to lower risk of infanticide via paternity confusion. However, despite this occurrence of nonconceptive mating and the absence of female cues to ovulation, truly concealed ovulation does not appear to be characteristic of this study populationof white-faced capuchins**.**
Localización: Biblioteca OET: NBINA-4912.

Publicación no.: 0487 **The effects of forest fragment age, isolation, area, habitat type, and water availability on monkey density in a tropical dry forest** *[Efectos de la edad de fragmentación del bosque,*

aislamiento, área, tipo de hábitat y disponibilidad de agua en la densidad de monos en un bosque seco tropical] / DeGama-Blanchet, Holly Noelle. (University of Calgary. Department of Anthropology, Calgary, Alberta T2N 1N4, CA <E-mail: fedigan@ucalgary.ca>). Calgary, Alberta: Univesity of Calgary, 2005. 113 pp. ISBN: 0-494-03810-1. Thesis, M.A., University of Calgary (Canada).
In the megapark Area de Conservación Guanacaste (ACG), Costa Rica, four centuries of heterogeneous disturbance, including logging, burning, hunting, and clearing, have fragmented and degraded the tropical dry forest. The present study examined the effects of ACG forest fragment age, isolation, area, habitat type, and dry season water availability on the density of white-faced capuchins (Cebus capucinus), mantled howling monkeys (Alouatta palliata), and black-handed spider monkeys (Ateles geoffroyi)using the line transect method. Significantly higher densities of capuchins and howlers were found in older forest. Fragment isolation and area were significantly, and positively, related only to capuchin relative density. Additionally, transects containing evergreen forest had higher densities of all three species, while this relationship was only significant for capuchins. Lastly, water availability was only significantly, positively, related to capuchin density. The information gained from my study can be used to create conservation management plans for these three primates**.**
Localización: Biblioteca OET: NBINA-5403.

Publicación no.: 0488 **Vertebrados terrestres alóctonos de la Isla del Coco, Costa Rica** / Montoya-Maquín, J. Michel. (Fundación Amigos de la Isla del Coco, Apdo postal 6327, 1000 San José, CR <E-mail: michelmontoya@correo.co.cr>). San José: Fundación Amigos Isla del Coco / Area de Conservación Isla del Coco, 2004. 27 pp.
Se presenta un recuento histórico de hechos y observaciones realizadas en la Isla del Coco sobre especies de vertebrados introducidos. Se analiza la presencia de las ratas (Rattus rattus y Rattus norvegicus), cerdo cimarrón (Sus scrofa), cabra cimarrona (Capra hircus), gato cimarrón (Felis catus), venado cola blanca (Odocoileus virginianus). Se presenta información sobre introducciones históricas de otros vertebrados domésticos (gallinas, patos, pavos, guineas, perros, vacas y caballos). Así mismo se reseña la introducción de mamíferos silvestres como el tepescuintle (Agouti paca) y el mono araña (Ateles geoffroyi), y de aves canoras: Turdus grayi (Turdidae), Thaupis episcopus (Thraupidae), Ramphocelus passerinii (Thraupidae), Icterus pectoralis e I. mesomelas (Icteridae) y Zonotrichia capensis (Emberizidae)**.**
Localización: Biblioteca OET: S10623.

Publicación no.: 0489 **Prehensile tail use during feeding and foraging of white-faced capuchins, Cebus capucinus** *[Uso de la cola prensil durante la alimentación y forrajeo de los monos carablanca, Cebus capucinus]* / Covey, R.M. (The Ohio State University. Department of Anthropology, Columbus, OH 43210, US). Columbus, OH: The Ohio State University, 2005. 49 pp. Thesis, Senior Honors, The Ohio State University, Undergraduates Colleges, Department of Anthropology, Columbus, OH (USA).
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-4051.pdf
The prehensile tail appears to have evolved at least twice in New World Monkeys, once in Atelines (Alouatta, Ateles, Lagothrix, Brachyteles) and once in the genus Cebus. Compared to that of Atelines, the prehensile tail in Cebus is shorter, fully haired, lacks specialized tactile receptors, and differs in the extent of dorsal and ventral muscle bundle development. Given these morphological differences, it is plausible that the functional roles of prehensile tails differ in these platyrrhine clades. The prehensile tail has been studied extensively in several Ateline species, however little information exists on how

members of Cebus use this specialized appendage. In order to address this question, I examined the positional behavior, activity budget,foraging strategies and associated tail use of white-faced capuchins Cebus capucinus for three weeks at the La Suerte Biological Field Station in Northeast Costa Rica. I used an instantaneous focal animal sampling method to specifically examine the role the prehensile tail plays during feeding and foraging in a group of 15 habituated individuals. At La Suerte, white-faced capuchins use their prehensile tail 20.87% of the total observation time. Prehensile tail use occurred during 42.02% of all feeding observations and 28.79% of all foraging observations. The capuchins fed and foraged for insects 51% of the time and fruit 43% of the time. Prehensile tail use occurred more during insect feeding and foraging, occurring 37.5% of the time. The prehensile tail was used during 33.64% of all fruit feeding and foraging observations. The factors responsible for the parallel development of the prehensile tail in Cebus species as well as Atelines are not completely understood. My data support the argument that Cebus evolved a prehensile tail to aid during feeding and foraging since tail grasping was rarely observed during travel. My associated feeding data support Cant's (1977) argument that the prehensile tail evolved as a means to better exploit a frugivorous diet on terminal branches. These findings contrast with data for most Atelines where tail use occurs in similar frequencies during both feeding and traveling. More research is needed to fully understand the function of the prehensile tail in Cebus capucinus as well as within the entire Cebus genus. Once we understand the role the tail plays in their lives, we can more accurately hypothesize about the evolution of the prehensile tail**.**
Localización: Biblioteca OET: NBINA-4051.

Publicación no.: 0490 **A comparison of two methods to create tracks of moving objects: linear weighted distance and constrained random walk** / Wentz, E.A; Campbell, A.F; Houston, R. (Arizona State University. Department of Geography, Tempe AZ 85287-0104, US <E-mail: wentz@asu.edu> <E-mail: aimee.campbel@mailcity.com>).
En: International Journal of Geographical Information Science (ISSN 1362-3087 [online edition]), v. 17, no. 7, p. 623-645. 2003.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-4025.pdf
As an object moves through space, it creates a track (or path) representing the object's past and present position and associated attributes. If data capture fails, then positions along the tracks are unknown. The particular problem we address in this paper is to create tracks of moving objects with missing data. We implement and test two techniques that create continuous tracks of two primate species (Ateles geoffroyi, the red spider monkey, and Cebus capucinus, the white-faced capuchin). Continuous tracks were needed to calculate home range and to analyze daily ranging patterns for each species. Establishing continuous tracks of primates through field data alone, however, was impossible due to challenging field conditions. The results of the analysis using tracks with interpolated positions helped establish that Ateles tend to move directly to their destination while Cebus tended to follow a more wandering track**.**
Localización: Biblioteca OET: NBINA-4025.

Publicación no.: 0491 **Males on the move: Evolutionary explanations of secondary dispersal by male primates** *[Machos en el movimiento: Explicaciones evolutivas de la dispersión secundaria por primates machos]* / Jack, Katharine M. (Tulane University. Department of Anthropology, 1021 Audubon St, New Orleans, LA 70118, US <E-mail: kjack@tulane.edu> <E-mail: fedigan@ucalgary.ca>).
En: Primate Report (ISSN 0343-3528), v. 67, p. 61-83. 2003.

Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-4050.pdf
The dispersal of one or both sexes from the birth group is a trait common to all social mammals, but for many species, movement between groups does not end there. In several species of primates characterized by male dispersal, males have very short tenure within groups, and they appear to change groups throughout their lives. Much effort has been expended to explain the adaptive significance of natal dispersal, while comparatively little attention has been given to the significance of secondary dispersal. In this paper, I examine the data available on secondary dispersal in seven primate species and evaluate the inbreeding avoidance and intrasexual mating competition hypotheses as explanatory frameworks for its evolution. The data available, although limited, provide strong support for the intrasexual mating competition hypothesis. The inbreeding avoidance hypothesis is not well supported**.**
Localización: Biblioteca OET: NBINA-4050.

Publicación no.: 0492 **Alarm calls of white-faced capuchin monkeys: an acoustic analysis** *[Llamadas de alarma de los monos carablanca: un análisis acústico]* / Fichtel, Claudia; Perry, Susan E; Gros-Louis, Julie J. (University of California at Los Angeles. Department of Anthropology, 405 Hilgard Avenue, Los Angeles, CA 90095-1553, US <E-mail: sperry@anthro.ucla.edu> <E-mail: jgroslou@indiana.edu>).
En: Animal Behaviour (ISSN 0003-3472), v. 70, no. 1, p. 165-176. 2005
Capuchin monkeys (Cebus capucinus) are threatened by several types of predators, including various aerial, arboreal and terrestrial predators. Whenever they encounter one of these threats, capuchin monkeys show different escape strategies and utter one of several types of alarm calls. These alarm calls constitute two acoustic categories, each of which is composed of several subtypes: the first category is composed of alarm calls given in response to aerial predators, humans and other capuchin monkeys, and the second is composed of alarm calls given in response to terrestrial predators and snakes. However, within these two broad categories the different subtypes of alarm calls appeared to show a graded continuum with transitions in between. Therefore, we performed an acoustic analysis to determine whether alarm calls between and within categories are characterized by distinct acoustic features. First, the two broad alarm call categories differed in call structure. Second, alarm calls of the first category, given in response to aerial predators, humans and other monkeys, differed in several acoustic variables and thus may convey context-specific information about the type of threat to listeners. Third, alarm calls of the second category, given in response to terrestrial predators and snakes, also differed in several acoustic variables; however, variants of these alarm calls are also given in response to caiman as well as during highly aggressive interactions between conspecifics and thus may not convey specific information about the type of predator or the threat to listeners. Capuchin monkey alarm calls may therefore have the potential to be functionally referential, general and/or urgency-based signals. Future research using detailed playback experiments with alarm calls and analyses of listeners' responses is required**.**
Localización: Biblioteca OET: NBINA-4276.

Publicación no.: 0493 **Age/sex class differences in foraging on Acacia-dwelling ants by white-faced capuchins (Cebus capucinus)** *[Diferencias en clases de edades/sexo en el comportamiento de forrajeo sobre hormigas que viven en las Acacia por monos carablanca (Cebus capucinus)]* / O'Malley, R.C; Fedigan, Linda M. (University of Calgary. Department of Anthropology, Calgary, AB T2N 1N4, CA <E-mail: fedigan@ucalgary.ca>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 42, p. 141. 2006

(Abstract only). Feeding on Acacia-dwelling ants by white-faced capuchins (Cebus capucinus) is similar in some respects to termite-fishing by chimpanzees. Both food sources are predictable in time and space and presumably meet similar dietary needs, but also present formidable foraging challenges. The ants' aggressive response to disturbance of their host plant may favor the development of specific predation skills or strategies. We present data on Acacia ant foraging by wild capuchins, discuss observed differences between groups and age/sex classes, and note similarities with termite-fishing by chimpanzees. We conducted observations on two neighboring groups in Santa Rosa National Park, Costa Rica, in 2001. We found significant differences in the rate of feeding bouts between groups. Juveniles engaged in feeding bouts at higher rates than other age/sex classes and also had the highest percentage of failed attempts. We identified several feeding methods but a preference towards single, detached branch thorns. We noted an aggressive response by the ant colony more frequently when subjects were feeding on thorns that were detached from the plant rather than left attached, though it was unclear whether this was a cause or effect of the method used. As in termite-fishing chimpanzee populations, neighboring capuchin groups engaged in Acacia ant feeding at different rates despite living in similar habitat, and the behavior was less frequently observed in adult males. Adults were more skilled than younger individuals. We hypothesize that capuchins require several years to achieve proficiency, and that different foraging patterns of adult males and females reflect divergent foraging strategies**.**
Localización: Biblioteca OET: NBINA-4140.

Publicación no.: 0494 **Look before leaping: foraging selectivity of capuchin monkeys on acacia trees in Costa Rica** *[Mire antes de saltar: forrajeo selectivo de los monos carablanca en árboles de acacia en Costa Rica]* / Young, Hilary C; Fedigan, Linda M; Addicott, John F. (University of Calgary. Department of Anthropology, 2500 University Drive N.W., Calgary, AB T2N 1N4, CA <E-mail: fedigan@ucalgary.ca>).
En: Oecologia (ISSN 1432-1939 (online)), v. 155, no. 1, p. 85-92. 2008.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-7989.pdf
Acacia trees in Costa Rica have an obligate mutualism with three species of Pseudomyrmex ants, which vigorously defend their host tree from insect and mammalian herbivores. Depending on the size and species of ant colony, individual acacia trees may be differentially protected. For animals able to discern between weakly and highly aggressive ant colonies, costs of ant stings from less active colonies might be offset by nutritional value acquired from feeding on acacia fruit or ant larvae in swollen thorns. We examined foraging selectivity of capuchin monkeys on acacia trees in Santa Rosa National Park, Costa Rica. We measured four characteristics of the acacia trees from which capuchins fed and of acacias immediately adjacent to those in which the monkeys fed: diameter at breast height (DBH), accessibility, species of closest tree and ant species present. We found that capuchins prefer to forage in acacias that are large and accessible. We also made two measurements of ant colony activity on each tree, one before and one after disturbing the ant colony. We found that the three species of mutualistic ants differ in baseline activity levels and that mutualistic ants are more active than non-mutualistic ant species found in acacia trees. We also found that capuchins foraged more frequently in trees colonized by non-mutualistic ants, but the explanatory value (r^2) of this model was low. Furthermore, monkeys did not discriminate between acacias on the basis of baseline ant activity or the ant colony's response to disturbance. We conclude that these monkeys select acacia trees in which to forage based on characteristics of the trees rather than the ants. In addition, our study suggests that white-faced capuchins act as predators on the acacia ants but they probably benefit the dispersal and reproductive

success of acacia trees. Capuchins may in fact function as an additional mutualistic partner for acacia trees via seed dispersal, but they must overcome the ants' defense of the trees to do so.
Localización: Biblioteca OET: NBINA-7989.

Publicación no.: 0495 **Mammals of Costa Rica** *[Mamíferos de Costa Rica]* / Goodwin, George G.
En: Bulletin of the American Museum of Natural History (ISSN 0003-0090), v. 87, article 5, p. 275-473. 1946.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-4471.pdf
Introduction: While many collections have come out of Costa Rica since the pioneers Drs. Frantzius, Hoffmann, and Elliot first visited the country in 1858 or 1859, the majority of the early collectors were primarily interested in birds. Type descriptions of new mammals have been published from time to time and in some instances lists of species in a particular collection given, but up to the present time no attempt has been made to cover the entire mammal fauna of Costa Rica. In this paper the author has endeavored to bring together not only all the species known to occur in Costa Rica but widely ranging forms that more or less cover this territory, and those described from the adjacent parts of Nicaragua and Panama that have close relationships tothe Costa Rican fauna. This report is based primarily on the collections of the American Museum of Natural History, now totaling approximately 1000 specimens. However, most of Underwood's recent collections in other North American museums have also been examined. One hundred and eighty-six forms are here recorded from Costa Rica, of which 93 are *types. To this are added 73 forms that have a probable range in Costa Rica or occur in neighboring parts of adjacent countries. The life zones and physiographic features of Costa Rica were adequately worked out and published by M. A. Carriker, Jr., in the Annals of the Carnegie Museum, volume 6, number 1, 1909. Recent collections, however, have added some pertinent information on the origin of the Costa Rican mammals and indicated some rather unexpected boundaries. Owing, to the geographic position of Costa Rica, widely ranging species of both the northern and southern halves of the Western Hemisphere broadly overlap. In general, however, the mammal fauna of the humid tropical eastern lowlands is separated from that of the and Pacific coastal plains by species of the central mountain chain. Forms from Volcán Irazú and the Cordillera Central are typically Costa Rican, while those from the Talamanca Range showa tendency to intergrade with Panamanian species. The division here seems to follow the valley of the Reventazón. The sharpest differentiation in the fauna occurs in the Guanacaste region and Volcanic Range where the mammal fauna is definitely of a more northern origin. Some factors, more significant than the Río Grande and the valley of the San Carlos, must serve as natural boundaries. Collections from the Caribbean coast lowlands are not large, but the species appear to be much the same as those from similar locations in Panama. On the Pacific side of the cordillera there is some differentiation in forms east of the Río Chiriquí Viejo on the Panama border and north of the Río Grande in the Province of Guanacaste. Measurements are given in millimetersunless otherwise stated. Capitalized names of colors are from Ridgway's "Color standards and color nomenclature," 1912.
Localización: Biblioteca OET: NBINA-4471.

Publicación no.: 0496 **Mammals from Southern Mexico and Central and South America** *[Mamíferos del sur de México, Centro y Suramérica]* / Allen, Joel Asaph.
En: Bulletin of the American Museum of Natural History (ISSN 0003-0090), v. 20, article 4, p. 29-80. 1904.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-4517.pdf

During the last three years the Museum has obtained by purchase several small collections of mammals from Mexico and Central America, the more important of which are the three which form the subject of the present paper. In working up these collections much other material previously in the Museum, including considerable from Colombia and Venezuela, has been critically examined, with the result that a number of apparently new forms have been discovered, and are here included. In this connection I wish especially to acknowledge my indebtedness to Mr. Outram Bangs, Curator of Mammals at the Museum of Comparative Zoology, Cambridge, Mass., for the generous loan of types, topotypes, and other material from Chiriqui and elsewhere; to Mr. Gerrit S. MillerJr., in charge of the collection of mammals at the U. S. National Museum, for the use of specimens from Mexico and Costa Rica; and to Dr. C. Hart Merriam, Chief of the Biological Survey, U. S. Department of Agriculture, for the loan of specimens, and for aid in determining some of the smaller rodents in the Veracruz collection.
Localización: Biblioteca OET: NBINA-4517.

Publicación no.: 0497 **Evaluación clínica de una población de monos congos (Alouatta palliata) en el Parque Nacional Cahuita, Costa Rica** / Perdomo-Santana, Laura. (Universidad Nacional. Programa Regional en Manejo de Vida Silvestre, Apartado Postal 1350-3000, Heredia, CR <E-mail: sisterlau09@yahoo.com>). San José: ACLAC-INBio, 2003. 18 pp.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-4725.pdf
Between September 2001 through August 2002 a series of activities where conducted to evaluate the health status of a population of mantled howler monkeys (Alouatta palliata) in Cahuita National Park, Costa Rica. Methods to estimate density, minimum number, average size and composition of groups within the study area were used. Twenty-eight animals were captured and received a complete physical examination. Blood, feaces, hair and skin samples were collected for laboratory analysis during this procedure. Diet was also observed during fieldwork. The minimum number of troops detected by the methodology was 15: 10 on the northern section and 5 in the most southern part. Thirty species of plants from fifteen families were found to be consumed at least once by Alouatta palliata individuals. Resources in the private properties are also used as food and sleeping sites. Seven types of parasites were identified. Complete blood values were obtained for 4 individuals and white blood cell differentials were described for the whole sample (n = 28). Divulgation was emphasized through reports and oral communication.
Localización: Biblioteca OET: NBINA-4725.

Publicación no.: 0498 **Research for a case study on the effects of ecotourism in developing countries: A view of Manuel Antonio, Costa Rica, without rose-colored glasses** *[Investigación para un estudio de caso sobre los efectos del ecoturismo en países en desarrollo: Un vistazo a Manuel Antonio, Costa Rica, sin anteojos color rosado]* / Donaldson, S.E. Fort Worth, TX: Texas Christian University, 2004. 210 pp. Thesis, M.Sc.. exas Christian University, Graduate Faculty of the College of Science and Engineering, Fort Worth, Texas (USA).
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-4718.pdf
In a world filled with terrorism and war, Costa Rica is a model country of peace and is a leader in environmental preservation and education. Tourists from all over the globe travel to the country to experience its impressive reserves, vast array of species and welcoming culture. Once plagued with an economy dependent on deforestation, Costa Rica is now considered one of the most popular ecotourism destinations in the world, receiving over one million tourists per year. It is a country

internationally praised for its forward-thinking environmental laws. However, often forgotten is the fact that Costa Rica is a developing country that lacks the basic infrastructure needed to consistently enforce these laws. The village of Manuel Antonio is a populararea of Costa Rica known for its beautiful beaches, spectacular views and prolific wildlife. However, Manuel Antonio is also described in literature as overpopulated, severely polluted and carelessly overdeveloped. Locals describe the village as an area stuffed with ?cement castles,? where developers continue developing, NGOs have turned to policing, tourists and locals are polluting and the environment is suffering. Several local business owners feel that the area could soon become known as an example of ecotourism gone terribly wrong. Although Manuel Antonio is home to many positive examples of environmental projects and ecotourism businesses, the general consensus is that the area is quickly moving down the path of environmental crisis. This study addresses some of the environmental, economic and social issues in Manuel Antonio related to tourism, by assessing the opinions of tourists, owners/managers of tourism businesses, community members, non-governmental organizations, real estate developers and employees in the tourism industry. Although tourists appear to be enjoying their experience in Manuel Antonio, study results indicate that Manuel Antonio is at risk for environmental and social crisis*.*
Localización: Biblioteca OET: NBINA-4718.

Publicación no.: 0499 **Interacción de la fauna silvestre y la red de distribución eléctrica en Costa Rica: evaluación y soluciones de manejo** / Araúz-Abrego, Edgar A. Heredia: Universidad Nacional, 2002. 76 pp. Thesis, Mag.Sc. en Conservación y Manejo de Vida Silvestre, Universidad Nacional, Programa Regional en Manejo de Vida Silvestre para Mesoamérica y El Caribe, Heredia (Costa Rica).
The electric power distribution lines cause deaths of Costa Rican and other Latin-American countries wildlife. This study quantifies the annual wild animals deaths caused for electrocution in the Electricity Costarrican Institute (ICE in Spanish) distribution lines. The species of vertebrates, the number of affected individuals and the more frequent sites of electrocution was characterized for this study. The economic damages to ICE power lines due to power outages provoked by wildlife were also analyzed and quantified. This research was conducted between August 2000 and December 2001 in the ICE thirty operative regions in the Republic of Costa Rica. The information that exists about the flashovers caused by animals in the Local Operation Network Center (ONC) databases for the years 1998, 1999, 2000 and the first six months of 2001 was analyzed. The results show that all superior vertebrata classes interact with the power lines. An annual average of 1228,5 flashovers caused by wildlife was registered. For the years 1999 and 2000 it was possible to identify 450 (36%) and 534 (39%) causer animals at species or group level. Santa Rita, Quepos and Barranca Operative Regions presenting the highest percentages of flashovers caused by wildlife. Mammals were the more susceptible group to cause power outages on the distribution lines. This differs from the results of previous studies pointing birds as the most vulnerable group. The cost of the electric energy that has not sale due to outages caused by wildlife was $ 312 634,22 in 2000 and $ 365 453,51 in 2001. These amounts are very low compared with the ICE total annual incomes. Although, it is important to consider the company public image damages and the humanitarian and conservation considerations related with the impacts on the wildlife. These justified the ICE inversion on the damages mitigation efforts caused to wildlife. This is the baseline information to design a mitigation and prevention strategy to reduce the electric power lines impacts over the wildlife. On this paper I made management and conservation recommendations for groups as monkeys, sloths, squirrels and birds. Economic quantification of the damages is the linkage between the fauna

conservation efforts and economic institutional interests. Valuation of the costs is useful to show in perspective the future inversion on the wildlife electrocution mitigation measures.
Localización: Biblioteca del BIODOC: Tesis 2357.

Publicación no.: 0500 **Color vision polymorphism in wild New World monkeys in Costa Rica examined by gene typing for red-green visual pigments** / Hiramatsu, Chihiro; Kawamura, Shoji. (University of Tokyo. Graduate School of Frontier Sciences, Department of Integrated Biosciences, Seimeitou 502, 5-1-5 Kashiwanoha, Kashiwa, Chiba 2778562, JP <E-mail: kawamura@k.u-tokyo.ac.jp>).
En: Zoological Science (ISSN 0289-0003), v. 21, no. 12, p. 1347. 2004. (No abstract).
Localización: Biblioteca OET: NBINA-9706.

Publicación no.: 0501 **Endemic infections of Parastrongylus (Angiostrongylus) costaricensis in two species of nonhuman primates, raccons, and an opossum from Miami, Florida** *[Infecciones endémicas de Parastrongylus (Angiostrongylus) costaricensis en dos especies de primates no humanos, mapachines y zarigüeyas de Miami, Florida]* / Miller, C.L; Kinsella, J.M; Garner, M.M; Evans, Sterling; Guillett, P.A; Schmidt, R.E. (Miami MetroZoo, 12400 SW 152nd Street, Miami, FL 33177, US <E-mail: wormdwb@aol.com>).
En: Journal of Parasitology (ISSN 0022-3395), v. 92, no. 2, p. 406-408. 2006.
Parastrongylus (=Angiostrongylus) costaricensis was first reported in the United States from cotton rats, Sigmodon hispidus, in Texas in 1979. Here, we report the findings of P. costaricensis in a siamang (Hylobates syndactylus) from the Miami MetroZoo, in 2 Ma's night monkeys (Aotus nancymaae) from the DuMond Conservancy located at Monkey Jungle in Miami, in 4 raccoons (Procyon lotor) trapped near the MetroZoo, and in an opossum (Didelphis virginiana) trapped at the MetroZoo. These records are the first records of P. costaricensis from all 4 species of hosts. All of the primates were zoo-born, and the raccoons and opossum were native, indicating that this parasite is now endemic at these 2 sites.
Localización: Biblioteca OET: NBINA-4801.

Publicación no.: 0502 **Rescue behavior in white-faced capuchin monkeys during an intergroup attack: Support for the infanticide avoidance hypothesis** *[Comportamiento de rescate en monos carablanca durante un ataque entre grupos: Apoyo a la hipótesis de evitación de infanticidio]* / Vogel, E.R; Fuentes-Jiménez, A. (University of California. Department of Anthropology, 1156 Hight Street, Santa Cruz, CA 95064, US <E-mail: evogel@ucsc.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 68, no. 10, p. 1012-1016. 2006
In this work we report the first published observational evidence of rescue behavior during an intergroup interaction in white-faced capuchin monkeys (Cebus capucinus). The study groups (groups AA and RR) inhabit the forest of Lomas Barbudal Biological Reserve in Guanacaste, Costa Rica, and have been under investigation since 1990 and 1997, respectively. Here we report a single interaction in which a victim mother-infant pair was rescued from potential injury or death by the intervention of an adultmale from their social group during an intergroup encounter. We discuss several hypotheses that may be relevant in explaining this unique observation.
Localización: Biblioteca OET: NBINA-5265.

Publicación no.: 0503 **Effects of color vision phenotype on insect capture by free-ranging white-faced capuchin monkeys (Cebus capucinus) in Santa Rosa National Park, Costa Rica** *[Efectos del fenotipo de*

visión de color sobre la captura de insectos en monos carablanca en libertad (Cebus capucinus) en el Parque Nacional Santa Rosa, Costa Rica] / Melin, Amanda D; Fedigan, Linda M; Hiramatsu, Chihiro; Kawamura, Shoji. (University of Calgary. Department of Anthropology, 2500 University Dr NW, Calgary, AB T2N 1N4, CA <E-mail: amelin@ucalgary.ca> <E-mail: linda.fedigan@ualberta.ca> <E-mail: cachapman@zoo.ufl.ed <E-mail: kawamura@k.u-tokyo.ac.jp>).
En: American Journal of Primatology (ISSN 0275-2565), v. 68, Suppl. 1, p. 133. 2006
(Abstract only). Like many platyrrhine primates, white-faced capuchins (*Cebus capucinus*) are characterized by polymorphic color vision, which is enabled via multiple alleles for a single-locus, X-linked opsin. In combination with an autosomal opsin, this arrangement provides trichromatic vision to heterozygous females, whereas homozygous females and males are dichromats. Because trichromatic vision enables visual differentiation among red, orange, yellow and green, trichromacy may be advantageous for finding edible fruits or leaves among mature foliage. Currently most researchers attribute the evolution and maintenance of polymorphic color vision to trichromat (i.e., heterozygote) advantage. However, dichromacy may be better for achromatic tasks, such as penetrating color camouflage, especially under low-light conditions. We evaluated whether dichromats were better able to capture camouflaged invertebrates. Through fecal analysis, we determined the genotypes for each individual (N=35) in two groups of capuchins living in Santa Rosa National Park. Foraging data were collected for seven months, encompassing both wet and dry seasons. Insect capture rates were affected by foliage density, height in forest and time of day. Dichromatic monkeys were significantly more efficient at capturing surface-dwelling insects (repeated-measures ANOVA, $p<0.05$), especially under conditions of low ambient light. However, trichromats were significantly more efficient in extracting embedded insects from substrates (Mann-Whitney U test, $p<0.05$). Our findings do not support heterozygote advantage as the mechanism maintaining polymorphic color vision in this population.
Localización: Biblioteca OET: NBINA-8769.

Publicación no.: 0504 **Adoption of infant howling monkeys (Alouatta palliata)** *[Adopción de infantes de monos congo (Alouatta palliata)]* / Clarke, Margaret R; Glander, Kenneth E. (Central Washington University. Department of Anthropology, Ellensburg, WA 98926, US <E-mail: clarkem@cwu.edu> <E-mail: glander@duke.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 1, no. 4, p. 469-472. 1981
During 3 years of continuous field observations on mantled howlers (Alouatta palliata Gray) in Costa Rica we observed five infants without mothers in the main study group. Four of these infants solicited care and two were adopted (one permanently, one temporarily) by lactating females. The other two were carried but not adopted. The fifth neither solicited nor received care. An infant must solicit care to receive care, and female howlers apparently can suckle more than one infant at a time.
Localización: Biblioteca OET: NBINA-6706.

Publicación no.: 0505 **Ontogenetic patterns of positional behavior in Cebus capucinus and Alouatta palliata** *[Factores ontogénicos de comportamiento de pose en Cebus capucinus y Alouatta palliata]* / Bezanson, Michelle F. (University of Arizona. Department of Anthropology, Tucson, AZ 85721, US).
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 40, p. 74. 2005. *(Abstract only).*
Localización: Biblioteca OET: NBINA-5274.

Publicación no.: 0506 **Testing the model for male-male coalitions: data from male mantled howling monkeys (Alouatta palliata)** *[Probando el modelo de coaliciones machos-machos: datos de machos de monos congo (Alouatta palliata)]* / Clarke, Margaret R. (Central Washington University. Department of Anthropology, Ellensburg, WA 98926, US <E-mail: clarkem@cwu.edu>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 40, p. 87. 2005. *(Abstract only).*
Localización: Biblioteca OET: NBINA-5273.

Publicación no.: 0507 **They came, they saw, they conquered - now what? Management of a Costa Rican rain forest for three species of primates** *[Vinieron, vieron, conquistaron - ¿ahora qué? Administración de una selva tropical costarricense para tres especies de primates]* / Howells, M.E; Pruetz, Jill D. (Iowa State University. Department of Anthropology, 324 Curtiss Hall, Ames, IA, US <E-mail: erythrocebus@aol.com>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 40, p. 119. 2005. *(Abstract only).*
Localización: Biblioteca OET: NBINA-5275.

Publicación no.: 0508 **Group size in folivorous primates: ecological constraints and the possible influence of social factors** *[Tamaño del grupo en primates folívoros: apremios ecológicos y la posible influencia de factores sociales]* / Chapman, Colin A; Pavelka, M.S.M. (University of Florida. Department of Zoology, 223 Bartram Hall, Gainesville, FL 32611, US <E-mail: cachapman@zoo.ufl.edu>).
En: Primates (ISSN 1610-7365 [online edition]), v. 46, no. 1, p. 1-9. 2005
The ecological-constraints model assumes that food items occur in depletable patches and proposes that an increase in group size leads to increased day range due to more rapid patch depletion. Smaller groups become advantageous when an increase in travel costs is not repaid by an increase in energy gained or some other fitness advantage. On the other hand, we also know that group size can be influenced by social factors. Here we contrast the diet and group size of red colobus (Procolobus badius) andblack-and-white colobus (Colobus guereza) in Kibale National Park, Uganda to consider how ecological and social factors are affecting their group sizes. Subsequently, we examine whether the insights gained from this detailed comparison can provide an understanding of why the social organization and group size of mantled howlers (Alouatta palliata) and black howlers (A. pigra) differ. Two groups of red colobus and two groups of black-and-white colobus were studied over 10 months. Red colobus groups were larger (48 and 24) than black-and-white colobus groups (9 and 6). The two groups of red colobus overlap home ranges with the two groups of black-and-white colobus; 75% and 95% of their home ranges were within red colobuss home range. There was a great deal of similarity in the plant parts eaten by the two species and both species fed primarily on young leaves (red colobus 70%, black-and-white colobus 76%). In terms of the actual species consumed, again there was a great deal of similarity between species. The average dietary overlap among months for the two neighboring groups of red colobus was 37.3%, while the dietary overlap between the red colobus and the black-and-white colobus group that had its home range almost entirely within the home range of the red colobus groups averaged 43.2% among months. If ecological conditions were responsible for the difference in group size between the two colobine species, one would expect the density of food trees to be lower in the home ranges of the black-and-white colobus monkeys, since they have the smaller group size. We found the opposite to be true. Both black-and-white colobus groups had more food trees and the cumulative size of those trees was greater than those in the red colobuss home ranges. We quantify

how these differences parallel differences in mantled and black howlers. The average group size for mantled howlers was 12.9 individuals, and for black howlers it was 5.3 individuals. We explore possible social constraints, such as infanticide, that prevent black-and-white colobus and black howlers from living in large groups.
Localización: Biblioteca OET: NBINA-4967.

Publicación no.: 0509 **Valor de algunas prácticas agrícolas para la conservación de poblaciones de primates en paisajes fragmentados en Mesoamérica** *[Conservation value of some agricultural practices for primate populations in fragmented landscapes in Mesoamerica]* / Estrada, Alejandro; Harvey, Celia A; Sáenz-Méndez, Joel Cris; Muñoz-Guerrero, Diego A; Naranjo, E; Rosales-Meda, Marta Marleny. (Instituto de Biología (UNAM). Estación de Biología Los Tuxtlas, Laboratorio de Primatología, Apartado Postal 94, San Andrés Tuxtla, Veracruz, MX <E-mail: aestrada@primatesmx.com> <E-mail: c.harvey@conservation.org> <E-mail: jsaenz@una.ac.cr>).
En: Universidad y Ciencia (ISSN 0186-2979), Número Especial, no. 2, p. 85-94. 2005.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-4903.pdf
It is generally accepted that agricultural activities are the main threat to primate diversity in the world. The point in this paper is that some agricultural practices in the fragmented landscapes of the Neotropics favour the persistence of primate populations, and merit study and evaluation. The presence of activities of primate populations of five primate species (Alouatta palliata, A. pigra, Ateles geoffroyi, Saimiri oerstedii, Cebus capucinus) were found in 15 types of agrosystems. Some populations of these primates were found to reside permanently or temprarily in 50% of the agrosystems. Others use the agrosystems as temporary foraging or stop-over areas during movements through the landscapes. In most cases, crop damage by primates is non existent. The presence and activities of the primates in the agrosystems may favour primary productivity, the persistence of tree species that provide shade to crops, and the provision of nutrients to the soil of the agrosystems.
Localización: Biblioteca OET: NBINA-4903.

Publicación no.: 0510 **Human and non-human primate co-existence in the neotropics: a preliminary view of some agricultural practices as a complement for primate conservation** *[Coexistencia de primates humanos y no humanos en los neotrópicos: un vistazo preliminar de algunas prácticas agrícolas como complemento para la conservación de primates]* / Estrada, Alejandro. (Instituto de Biología (UNAM). Estación de Biología Los Tuxtlas, Laboratorio de Primatología, Apartado Postal 94, San Andrés Tuxtla, Veracruz, MX <E-mail: aestrada@primatesmx.com>).
En: Ecological and Environmental Anthropology (ISSN 1554-2408), v. 2, no. 2p. 1-11 [online]2006
In this paper I address the general perception that agricultural activities are the principal threat to primate biodiversity in the tropics and argue that in Neotropical landscapes some agricultural practices may favor primate population persistence,and that this situation merits attention and investigation. To explore these issues, I examined three interrelated pressures upon tropical forests for the Mesoamerican and Amazon basin regions: human population growth trends, levels of poverty and human development and deforestation rates. I also present relevant results of recent surveys completed on the presence and activities of primate populations in agroecosystems in several landscapes in Mesoamerica. I further assess the possible benefits of primates to agroecosystems, and stress the value for primate conservation of some agricultural practices in the Neotropics. Human population in Mesoamerica (ca 48 million) and Amazon basin (ca 300 million) regions has been growing at a rate of

2.6-3.0% per year since the 1950's, and it is expected that populations will double in size in 25-35 years. According the United Nation's Human Development Index, high poverty and low human development are typical of the human population in both regions. Pressures uponthe land for living space and for food production are paralleled by high deforestation rates in both regions, ca 440,000 ha/yr in Mesoamerica and ca 3.5 million ha/yr in the Amazon basin. Our surveys in landscapes in Mexico, Guatemala and Costa Rica found populations of five of the eight primate species existing in Mesoamerica, temporarily or permanently living in an array of 15 agroecosystems, suggesting these habitats may be important for their persistence. With this information at hand, I further assess the possible benefits of presence and activities of primates to agroecosystems, stress the value for primate conservation of some agricultural practices in the Neotropics, and point out needed areas for further investigation.
Localización: Biblioteca OET: NBINA-4908.

Publicación no.: 0511 **Acoustic analysis and contextual description of food-associated calls in white-faced capuchin monkeys (Cebus capucinus)** *[Análisis acústico y descripción de las llamadas asociadas con el alimento en monos carablanca (Cebus capucinus)]* / Gros-Louis, Julie J. (Indiana University. Department of Psychology, 1101 E. 110th St., Bloomington, IN 47405, US <E-mail: jgroslou@indiana.edu>).
En: International Journal of Primatology (ISSN 0164-0291), v. 27, no. 1, p. 273-294. 2006
Since early studies of primates that identified vocalizations that attracted others to a food source, the assumed function of food-associated calls has been to inform others of the presence of food. The label food-associated calls and its implied function has led to a focus in research on many species of the costs/benefits for the signaler and recipient of informing others about the presence of food; however, without clearly identifying the calls contextually or acoustically, it is unclear if calls are specific to a feeding context and thus whether calls provide specific information about the presence of food. If calls occur exclusively in the context of feeding, information about individual identity would allow listeners to decide whether or not to approach a calling individual. I conducted acoustic and contextual analyses on food-associated calls in white-faced capuchins. I identified the calls as distinct vocalizations that occur almost exclusively in a feeding context. Discriminant function analyses demonstrate that information about caller sex and identity are encoded in the calls. Therefore, there is the potential for individuals to use acoustic information when responding to food-associated calls; however, playback experiments are necessary to test more explicitly the hypothesis that recipients are able to recognize the calls of specific individuals.
Localización: Biblioteca OET: NBINA-5009.

Publicación no.: 0512 **Social parasitism in mammals with particular reference to neotropical primates** *[Parasitismo social en mamíferos con referencia particular a los primates neotropicales]* / Jones, Clara B. (Fayetteville State University. Department of Psychology, 1200 Murchison Road, Fayetteville, NC 28301-4298, US <E-mail: cbjones@uncfsu.edu>).
En: Mastozoología Neotropical (ISSN 1666-0536 [online version]), v. 12, no. 1, p. 19-35. 2005
Organisms often respond in ways that appear to benefit others rather than themselves. This phenomenon is consistent with the views of Darwin (1859) and Dawkins (1999) that individuals may exploit the responses of others. This phenomenon, "social parasitism", has been extensively investigated in social insects, particularly, ants. Other empirical studies have demonstrated social parasitism in fish,

birds, and mammals. This paper reviews several possible examples of mammalian social parasitism, with an emphasis upon intraspecific social parasitism (ISP) in Neotropical primates. Social parasitism is discussed as a life history feature of long-lived, social organisms such as many primates, including humans. A simple mathematical model, applied to social parasitism, is presented linking parasite transmission to a parasite?s influence on its host. Phenotypic manipulation is assessed as a mechanism of social parasitism, and possible examples from the literature on Neotropical primates are provided. Social parasitism is discussed in relation to the evolution of higher grades of sociality (eusociality, cooperative breeding), manipulation success (infectivity), and the evolution of virulence (e.g., aggression, punishment). It is proposed that an understanding of variations in virulence and infectivity by social parasites is likely to reveal important evolutionary dynamics for an integrated view of social evolution**.**
Localización: Biblioteca OET: NBINA-4942.

Publicación no.: 0513 **The Atelines: variations in ecology, behavior, and social organization** *[Los Atelinos: variaciones en ecología, comportamiento y organización social]* / Di Fiore, Anthony; Campbell, Christina J. (New York University. Department of Anthropology, 25 Waverly Pl, New York, NY 10003, US <E-mail: anthony.difiore@nyu.edu> <E-mail: christina_campbell@pomona.edu>).
En: Primates in Perspective. Campbell, C.J; Fuentes, A; MacKinnon, K.C; Panger, M; Bearder, S.K. (eds.). New York: Oxford University Press, 2006. p. 155-185. ISBN: 0-19-517134-9.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-5110.pdf
Introduction: Primates of the subfamily Atelinae are the largest monkeys in the New World and include the howler monkeys (genus Alouatta), spider monkeys (genus Ateles), woolly monkeys (genus Lagothrix), and muriquis (genus Brachyteles); additionally, according to some authors, the yellow-tailed woolly monkey is sufficiently distinct from other woolly monkeys (and other atelines) to warrant its elevation to a separate genus, Oreonax (e.g., Groves 2001). Atelines are a monophyletic group (descended from a common ancestor), constituting one of the three major platyrrhine radiations recognized in modern molecular systematic studies (e.g., Schneider 2000, Schneider et al. 2001). Morphologically, atelines are characterized by having a muscular prehensile tail, which, in all genera, is commonly used to support the full weight of the body during feeding and as an additional support during locomotion (Fig. 10.1). In two genera (Ateles, Brachyteles), the use of rapid suspensory, semibrachiating locomotion is particularly common. Both genera show dramatic modifications of the hand (e.g., a reduced thumb and elongation of the remaining digits) and shoulder (e.g., an elongated and dorsally positioned scapula), as well as elongation of the tail and limbs relative to trunk length, as adaptations to this distinctive locomotor pattern (Hill 1962, Erickson 1963). Adult body size in atelines ranges from just over 3 kg to an estimated 15 kg (Table 10.1). In howler monkeys and woolly monkeys, males are considerably larger than females, while in spider monkeys and muriquis there is little sexual dimorphism in body size**.**
Localización: Biblioteca OET: NBINA-5110.

Publicación no.: 0514 **Primate locomotor behavior and ecology** *[Comportamiento locomotor y ecología de primates]* / Garber, Paul A. (University of Illinois. Department of Anthropology, 109 Davenport Hall, 607 S Mathews Ave, Urbana, IL 61801, US <E-mail: p-garber@uiuc.edu>).
En: Primates in Perspective. Campbell, C.J; Fuentes, A; MacKinnon, K.C; Panger, M; Bearder, S.K. (eds.) New York: Oxford University Press, 2006. p. 543-560. ISBN: 0-19-517134-9. (No abstract).

Localización: No disponible.

Publicación no.: 0515 **Intra-group aggression in wild spider monkeys** *[Agresión intragrupo en monos colorados en libertad]* / Asensio, Norberto; Korstjens, Amanda H; Aureli, Filippo. (Universitat de Barcelona. centre Especial de Recerca en Primats (CERP), Passeig de la Vall d'Hebron 171, 08035 Barcelona, ES <E-mail: ashe@ctv.es> <E-mail: f.aureli@ljmu.ac.uk>).
En: Primate Eye (ISSN 0305-8417), no. 89, p. 7. 2006. [Abstract only].
Localización: No disponible.

Publicación no.: 0516 **Significance of trichromatic color vision in fruit foraging of spider monkeys [in japanese]** *[Significado de la visión del color tricromático en el forrajeo de frutas en los monos colorados [en japonés]]* / Hiramatsu, Chihiro; Melin, Amanda D; Aureli, Filippo; Schaffner, Colleen M; Kawamura, Shoji. (University of Tokyo. Graduate School of Frontier Sciences, Department of Integrated Biosciences, Seimeitou 502,5-1-5 Kashiwanoha, Kashiwa, Chiba 2778562, JP <E-mail: kawamura@k.u-tokyo.ac.jp> <E-mail: amelin@ucalgary.ca> <E-mail: f.aureli@ljmu.ac.uk> <E-mail: c.schaffner@chester.ac.uk>).
En: Reichorui Kenkyu / Primate Research (ISSN 0912-4047), v. 22, Suppl, p. S12-S13. 2006. [Abstract only].
Localización: No disponible.

Publicación no.: 0517 **Time as a constraint on group size in spider monkeys** *[El tiempo como limitante en el tamaño del grupo en monos colorados]* / Korstjens, Amanda H; Verhoeckx, I.L; Dunbar, R.I.M. (University of Liverpool. School of Biological Sciences, Crown St, Liverpool L69 7ZB, GB <E-mail: a.h.korstjens@liv.ac.uk>).
En: Behavioral Ecology and Sociobiology (ISSN 0340-5443), v. 60, no. 5, p. 683-694. 2006
An animal can only survive in a given habitat if it has enough time to find, process and digest food whilst avoiding predation. The time it has for food acquisition is affected by the vegetation and competition with conspecifics, which depends on aggregation tendencies. We used the relationships between time allocations, on the one hand, and climatic variables (as a proxy for habitat quality) and group size, on the other, to develop a model that predicts maximum ecologically tolerable group size at different locations for spider monkeys. Spider monkeys are particularly interesting because the social communities often split up into small units. Temperature variation and rainfall variation were the main determinants of time budgets. Community size and average annual rainfall determined party size. The model correctly predicted presence or absence of spider monkeys at 78-83% of 217 New World forest sites. Within the geographical range of the species, this time budget model predicted the presence of spider monkeys better than a model based directly on climate variables. Predicted community and party sizes were significantly larger at sites where spider monkeys are present than at sites where they are absent. As required by the model, predicted maximum community sizes were significantly larger than observed community sizes. Moving time showed a U-shaped relationship with party size, which suggests that moving time is the factor that keeps spider monkey communities from travelling together in a tight group.
Localización: Biblioteca OET: NBINA-4960.

Publicación no.: 0518 **The cebines: toward an explanation of variable social structure** *[Los cebinos: hacia una explicación de la variable estructura social]* / Jack, Katharine M. (Tulane University.

Department of Anthropology, 1021 Audubon St, New Orleans, LA 70118, US <E-mail: kjack@tulane.edu>).
En: Primates in perspective. Campbell, C.J; Fuentes, A; MacKinnon, K.C; Panger M; Bearder, S.K. (eds.). New York: Oxford University Press, 2006. p. 107-123. ISBN: 0195171330.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-11931.pdf
(No abstract)**.**
Localización: Biblioteca OET: NBINA-11931.

Publicación no.: 0519 **Preliminary support for possible prophylactic medicinal plant use in mantled howler monkeys (Alouatta palliata)** *[Apoyo preliminar del posible uso profiláctico de plantas medicinales en monos congo (Alouatta palliata)]* / Welker, B.J. (State University of New York. Department of Anthropology, 1 College Circle, Geneseo, NY 14454, US). Congress of the International Primatological Society. XXI., Entebbe Uganda. June 25-30, 2006. Abst #313.
(Abstract only). There is good evidence in several primate taxa of the use of plants for medicinal purposes. Data from my 1997 and 1998 field seasons (2/97-5/97 and 12/97-5/98; 162.2 and 229.4 hr feeding data, respectively) at the study site of Sector Santa Rosa, Área de Conservación Guanacaste, Costa Rica, suggest a possible prophylactic function for the monkeys' consumption of Astronium graveolens (Family: Anacardiaceae) leaves. The monkeys were almost twice as likely to feed on A. graveolens leaves after consuming fruit, than would be expected by chance in either year (×2=96.9, df=4, p.01; $\times^2$=40.3, df=4, p<.01; respectively). Other leaf source species showed no such pattern. While it is possible that A. graveolens leaves served some complementary nutritional function, feeding bouts in this species were of very short duration. Glander (1994) suggests that the consumption of plant parts from the family Anacardiaceae may, due to their bactericidal activity, inhibit infections of the teeth and gums. Two monoterpenes found in A. graveolens, i.e. â-ocimene, and levorotoray-limonene, have known anti-fungal and bactericidal properties. Mantled howler monkeys at both Glander's and my study sites do not exhibit oral health problems. The practice of following fruit consumption with bactericidal plant items might reduce the accumulation of plaque and resultant oral health problems.
Localización: No disponible.

Publicación no.: 0520 **A study of tail and hand preference in free-ranging mantled howler monkeys (Alouatta palliata palliata) in Costa Rica** *[Estudio de preferencia de uso de la cola y de la mano en monos congo en libertad (Alouatta palliata palliata) en Costa Rica]* / Zandonà, Eugenia; Grassi, D; Guidolin, L; Rigamonti, Marco M. (Universidade do Estado do Rio de Janeiro. Departamento de Ecologia IBRAG, Rua São Francisco Xavier, 524, Maracanã, Rio de Janeiro, RJ, CEP 20550?013, BR <E-mail: eugenia.zandona@gmail.com> <E-mail: marco.rigamonti@hsr.it>). Meeting of the Italian Primatological Society. XVII, Palermo ITMay 16-18, 2005.
En: Folia Primatologica (ISSN 0015-5713), v. 77, no. 4, p. 278. 2006.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-6702.pdf
(Abstract only). Brain functional asymmetry probably played a key role in the evolution of our species. Language and the production and the recognition of facial expressions of emotions are only the most well-known examples. Handedness, a right hand preference at a population level for most manual tasks, is an interesting case of behavioural asymmetry that, until today, has been clearly shown only in humans. During this study, we observed 35 free-ranging mantled howler monkeys (Alouatta palliata palliata) in the tropical dry forest in the Área de Conservación Guanacaste, Costa Rica. We collected data

on manual preference observing a spontaneous behaviour, 'branchreach', displayed during foraging activity. We also observed tail position in the resting posture, when these monkeys wrap their tails around their bodies. This behaviour has been described in only a few species and might offer additional information to assess the mechanisms at the basis of functional cerebral asymmetries. For the statistical analysis of data, we used the most conservative approach, as suggested by McGrew and Marchant [Yearbook of Physical Anthropology 40: 201-232, 1997]. All statistical tests were nonparametric and two-tailed, with P 0.05 chosen as the level of significance. In order to ensure the independence of data points, we recorded only the first event of each bout. For both behaviours, the majority of individuals were ambipreferent and there were no significant differences between males and females or among age classes. We think that the study of spontaneous behaviours, displayed in free-ranging subjects, could be of great help in understanding the adaptive value of functional asymmetries**.**
Localización: Biblioteca OET: NBINA-6702.

Publicación no.: 0521 **Space is the place: an experimental field study of differences in the ability of wild capuchins monkeys to solve foraging problems using probing tools and spatial memory** *[El espacio es el lugar: un estudio en el campo experimental de diferencias en la capacidad de los monos carablanca en libertad de solucionar problemas de forrajeo usando herramientas de sondeo y memoria espacial]* / Garber, Paul A. (University of Illinois. Department Anthropology, 109 Davenport Hall, 607 S Mathews Ave, Urbana, IL 61801, US <E-mail: p-garber@uiuc.edu>).
En: International Journal of Primatology (ISSN 0164-0291), v. 27, Suppl. 1, Abst #324. 2006.
(Abstract only). Experimental field studies offer a powerful methodological tool for testing hypotheses of learning_problem-solving, and cognition in wild primates. In this study I examine and compare the ability of wild Costa Rican white-faced capuchin monkeys (Cebus capucinus) to solve two foraging problems. The first required a tool-mediated solution (a probing task requiring the use of a dowel to push a banana off a shelf to an opening below). The second required the ability to use landmark cues (yellow and pink poles) to predict the location of baited feeding sites. Each experiment was conducted over a period of 55 consecutive days, and the monkeys visited our experimental feeding platforms over 3.000 times. The results indicate that even in those cases when the capuchins used a tool to solve a foraging problem, they lacked an understanding of how the tool functioned in accomplishing the task. That is, they learned that the tool worked but not how the tool worked. In contrast, the capuchins quickly learned to use an array of 2 and 3 landmark cues to locate hidden food rewards. In addition, given that foragers arrived at the feeding station from different directions and encountered alternative views of the landmarks it is possible that the capuchins were able to mentally rotate the configuration of an array of three landmark cues to efficiently solve the foraging problem.
Localización: No disponible.

Publicación no.: 0522 **How does kinship influence male-male social relationships in wild white-faced capuchin monkeys?** *[¿Cómo influencia el parentesco las relaciones sociales entre machos en monos carablanca?]* / Muñiz, Laura; Perry, Susan E; Manson, Joseph H; Gilkenson, Hannah; Vigilant, Linda. (Max Planck Institute for Evolutionary Anthropology, Deutscher Platz DE-04103, Leipzig, DE <E-mail: manson@eva.mpg.de> <E-mail: sperry@eva.mpg.de> <E-mail: vigilant@eva.mpg.de>).
En: International Journal of Primatology (ISSN 0164-0291), v. 27, Suppl. 1, Abst #155. 2006.
(Abstract only). Social relationships between animals may vary according to factors such as age, sex and hierarchical rank. Among group-living primates, individuals commonly co-reside with relatives for

extended periods of time, and over the past forty years, kinship studies have revealed the importance of relatedness in shaping social relationships. In this study. we examined the influence of kinship on cooperative behaviours between male-male dyads of wild white-faced capuchin monkeys (Cebus capucinus) and compared patterns of kin-biased behaviour on social relationships between this and other primate species. White-faced capuchins live in multi-male, multi-female groups averaging 16 individuals. Males typically emigrate from their natal territory prior to reaching sexual maturity. and may move between groups several times throughout their lives. often in pairs or trios that cooperate to take over groups containing reproductive females. Adult male residency and alpha male tenure length vary considerably both within and between groups, and can depend, among other factors, on male alliances existing within the social group. We combined genetic and observational data to ask whether members of male-male co-migrations and alliances tend to be kin. Our dataset consists of demographic data from three neighbouring social groups of white-faced capuchins from Lomas Barbudal Biological Reserve, Costa Rica. and genetic information generated from DNA extracted from non-invasive faecal samples of 187 individuals genotyped at 18 microsatellite marker loci.
Localización: No disponible.

Publicación no.: 0523 **Alternative foraging strategies and the visual pigment polymorphism of New World monkeys** *[Estrategias alternativas de forrajeo y el pigmento de polimorfismo visual de los monos del Nuevo Mundo]* / Vogel, E.R; Dominy, Nathaniel J; Neitz, M. (University of California. Department of Anthropology, 1156 Hight Street, Santa Cruz, CA 95064, US <E-mail: evogel@ucsc.edu> <E-mail: njdominy@ucsc.edu>).
En: International Journal of Primatology (ISSN 0164-0291), v. 27, Suppl. 1, Abst #473. 2006.
(Abstract only). A visual pigment polymorphism characterizes many platyrrhine genera. It results from allelic variation of the single-locus middle-to-long wavelength (M/L) cone opsin gene on the X-chromosome. The presence in the population of three alleles coding for different M/L photopigments results in a variety of color vision phenotypes. Females that are heterozygous for the M/L opsin gene possess trichromatic vision. All other individuals possess dichromatic vision. The polymorphism may be maintained by a consistent fitness advantage for heterozygous trichromatic females (heterosis) or by frequency-dependent selection, in which dichromats have an advantage over trichromats under some circumstances. Here we examine the advantages of trichromatic vision in a wild population of capuchins. We studied white-faced capuchins (Cebus capucinus) in Lomas Barbudal, Costa Rica, for over one year. We observed bouts of frugivory in detail, quantifying fruit and energy intake rates for individual animals. We collected fecal samples in the field and extracted genomic DNA when observations were complete. We then sequenced the M/L opsin gene to determine individual phenotypes. Our results show that there is a dichromatic advantage for fruit intake rates (p=0.008) and energy intake rates (p=0.02). The result is most influenced by fruits characterized as dull (seas. Janson, 1.983). This result suggests the existence of alternative foraging strategies: dichromats feed more quickly than trichromats, particularly on dull colored fruits. Such a result appears consistent with frequency-dependent selection.
Localización: No disponible.

Publicación no.: 0524 **Sharp spines and toxic stings: How white-faced capuchins (Cebus capucinus) overcome the defense mechanisms of invertebrates in Costa Rica** *[Espinas filosas y picaduras tóxicas: Cómo los monos carablanca (Cebus capucinus) superan los mecanismos de defensa de invertebrados en*

Costa Rica] / Young, Hilary C. Calgary: University of Calgary, 2006. 117 pp. ISBN: 0494054298. Thesis, M.A., University of Calgary, Alberta (Canada).
Capuchin monkeys are renowned for specializing their foraging efforts on foods that "fight back"; that is, plants, small vertebrates and invertebrates with defense systems. From May to July of 2003, and from January to May, 2004, I collected 191 hours of focal data on white-faced capuchins (Cebus capucinus) in order to examine the way in which they forage on hidden and defended invertebrates in Costa Rica. I also investigated how capuchins successfully feed on the fruit and larvae-filled thorns of ant-defended acacia trees (Acacia collinsii) by examining the techniques the monkeys used, the food items they targeted, and the physical characteristics of the acacia trees they fed in. Capuchins were found to forage on a variety of invertebrate taxa, including many that had defense systems. They spent more time extracting invertebrates than gleaning them. When foraging in acacia trees, capuchins minimized contact with acacia ants by using specific foraging techniques and by avoiding trees housing the most aggressive acacia ant species. The capuchins in this study did not forage destructively on acacia trees, and removed acacia fruit at five times the rate of acacia thorns. Future research may reveal that white-faced capuchins play a role in the dispersal of A. collinsii seeds in Costa Rica***.***
Localización: Biblioteca OET: NBINA-5402.

Publicación no.: 0525 **Color vision polymorphism in wild New World monkeys** *[Polimorfismo de la visión del color en monos del Nuevo Mundo en libertad]* / Kawamura, Shoji; Hiramatsu, Chihiro; Tsutsui, Toko; Matsumoto, Y. (University of Tokyo. Graduate School of Frontier Sciences, Department of Integrated Biosciences, Seimeitou 502,5-1-5 Kashiwanoha, Kashiwa, Chiba 2778562, JP <E-mail: kawamura@k.u-tokyo.ac.jp>).
En: Genes & Genetic Systems (ISSN 1341-7568), v. 80, no. 6, p. 480. 2005.
(Abstract only). Color-vision polymorphism of New World monkeys results from allelic variation of the single-locus red-green opsin gene residing on the X-chromosome. to clarify color-vision variation in natural populations, we analyzed fecal DNA for two wild groups of capuchin monkeys (Cebus capucinus) and one group for spider monkeys (Ateles geoffroyi) inhabiting Santa Rosa National Park, Costa Rica. On the basis of the five-site rule that correlates peak absorption spectrum (max) of an opsin photopigment with its amino acid composition at five sites, three alleles were found in capuchins (with predicted max values 560, 545 and 530 nm) and two alleles were found in spider monkeys (560 and 552 nm). We reconstituted all of these photopigments and measured their absorption spectra. While max values of the three capuchin alleles were all concordant with the five-site rule, those of spider monkey alleles considerably violated the rule (553 nm for the 560-nm prediction and 538 nm for the 552-nm prediction). This result necessitated us to further investigate the novel spectral mechanism evolved in spider monkeys and to survey polymorphism at the relevant amino acid site(s) in spider monkey populations.
Localización: No disponible.

Publicación no.: 0526 **Genetic evidence on the historical biogeography of Central American howler monkeys** *[Evidencia genética sobre el historial biogeográfico de los monos congo centroamericanos]* / Ellsworth, J.A; Hoelzer, G.A. (Truckee Meadows Community College. Department of Biology, 7000 Dandini Boulevard, Reno, NV 89512-3999, US <E-mail: jellsworth@tmcc.edu>).
En: Primate biogeography: progress and prospects. Lehman, S.M; Fleagle, J.G. (eds.). New York: Springer, 2006. p. 81-103. ISBN: 0387298711.

The study described in this chapter aimed to elucidate the historical biogeography of howler monkeys in Central America. We expected to find evidence supporting an invasion from a common ancestor of the three species proceding northward from South America into Central America, with mantled howlers and black howlers being sister species that diverged after the northward invasion of a common source population. We examined patterns of variation at eight microsatellite loci across three populations of mantled howler monkeys ranging from Southern Mexico to Panama, and one population each of black howlers (Belize) and red howlers (Venezuela). The data reveal a broad pattern of declining genetic variation from south to north in mantled howlers, and a closest relationship between the two most northerly sampling sites, consistent with the hypothesis of an historical invasion from the south. These populations are also genetically distinctive, indicating limited gene flow among them. Another result that matched our a priori expectations was that the red howler population exhibited the greatest genetic diversity in our comparisons. We were surprised, however, to find that black howlers were the most genetically distinctive population in our data set, suggesting that they are not the sister species of mantled howlers. We suggest to hypotheses that could explain this result. First, black howlers may have decended from a different invasion of Central America that predated the one leading to mantled howlers. Second, black howlers may have arrived in Central America via a different route than that taken by the ancestors of matled howlers. Specifically, they may have used the islands of the Caribbean archipelago as stepping stones to reach their current location without moving up the Isthmus of Panama.

Localización: Biblioteca OET: NBINA-7463.

Publicación no.: 0527 **Primer registro de un Platyrrhini (Alouattini) fósil del cuaternario de Costa Rica** / Laurito-Mora, César A; Valerio-Zamora, Ana Lucía. (Instituto Nacional de Aprendizaje. Núcleo de Turismo, Apdo. 1203-2200, San José, CR <E-mail: cesarlaurito@ice.co.cr> <E-mail: alvalerio@costarricense.cr>).
En: Revista Geológica de América Central (ISSN 0256-7024), v. 31, p. 25-29. 2004.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-3221.pdf
This work describes some fossil remains, recovered from the Nacaome local fauna by the Archaeology Department of the Costa Rican National Museum during the campaign of 1993. The material includes a premolar tooth and a postcranial bone of a Platyrrhini monkey. The genus Alouatta is recognized by the anatomy of the third lower premolar which shares some affinities and differences with the living species of Alouatta palliata.

Localización: Biblioteca OET: S10908. NBINA-3221.

Publicación no.: 0528 **High population density of black-handed spider monkeys (Ateles geoffroyi) in Costa Rican lowland wet forest** *[Alta densidad poblacional de los monos colorados (Ateles geoffroyi) en un bosque húmedo costarricense de tierras bajas]* / Weghorst, Jennifer A. (Washington University. Department of Anthropology, St Louis, MO 63130, US <E-mail: jaweghor@artsci.wustl.edu>).
En: Primates (ISSN 0032-8332), v. 48, no. 2, p. 108-116. 2007
The main objective of this study was to estimate the population density and demographic structure of spider monkeys living in wet forest in the vicinity of Sirena Biological Station, Corcovado National Park, Costa Rica. Results of a 14-month line-transect survey showed that spider monkeys of Sirena have one of the highest population densities ever recorded for this genus. Density estimates varied, however, depending on the method chosen to estimate transect width. Data from behavioral monitoring were

available to compare density estimates derived from the survey, providing a check of the survey' s accuracy. A combination of factors has most probably contributed to the high density of Ateles, including habitat protection within a national park and high diversity of trees of the fig family, Moraceae. Although natural densities of spider monkeys at Sirena are substantially higher than those recorded at most other sites and in previous studies at this site, mean subgroup size and age ratios were similar to those determined in previous studies. Sex ratios were similar to those of other sites with high productivity. Although high densities of preferred fruit trees in the wet, productive forests of Sirena may support a dense population of spider monkeysother demographic traits recorded at Sirena fall well within the range of values recorded elsewhere for the species**.**
Localización: Biblioteca OET: NBINA-5737.

Publicación no.: 0529 **Ontogenetic patterns of positional behavior in Cebus capucinus and Alouatta palliata** *[Patrones ontogénicos de comportamiento de postura en Cebus capucinus y Alouatta palliata]* / Bezanson, Michelle F. (Santa Clara University. Department of Anthropology, 500 El Camino Real, Santa Clara, CA 95053-1500, US <E-mail: mbezanson@scu.edu>). Tucson, AZ: University of Arizona, 2006. 246 pp. Dissertation, Ph.D., University of Arizona, Department of Anthropology, Tucson, AZ (USA).
Positional behavior is the measurable and observable link between the biology and behavior of an animal in its environment. In this dissertation, I examine ontogenetic patterns of positional behavior in infant, juvenile, and adult white-faced capuchins (Cebus capucinus) and mantled howling monkeys (Alouatta palliata) inhabiting the same tropical forest in Costa Rica. During growth and development ontogenetic changes in body size, limb proportions, and motor skills are likely to influence locomotion and posture through the arboreal canopy. I collected data on positional behavior, activity, prehensile-tail use, branch size, branch angle, and crown location during a 12 month period at Estacion Biologica La Suerte in northeastern Costa Rica. The data set is comprised of 401.3 hours of data on Cebus capucinus and 554.3 hours of data on Alouatta palliata totaling 955.7 hours of data or 57,344 individual activity records. Life history timing and differences in rates of growth did not predictably influence the development of adult-like positional behaviors in Cebus and Alouatta. In both species, infancy was characterized by high proportions of dorsal, ventral, and side riding on the mother with smaller proportions of independent positional modes observedduring play, explore, active posture, and feed/forage. Young Cebus resembled the adult pattern of positional behavior by six months of age while howlers exhibited significant differences in several positional behavior categories through 24 months of age.The positional repertoire of both species revealed similarities in the types of modes used during feed/forage and travel in juveniles and adults. For example, in juvenile and adult age categories of Cebus, feeding and foraging included high proportions of quadrupedal walk, sit , and squat in conjunction with climbing, leaping, and suspensory behaviors. In howlers, the degree to which coordination and increases in body mass during ontogeny as limiting factors in the development of adultlike positional competence is unclear. Data presented here suggest that the environment exerts different pressures on growing Cebus and Alouatta that may relate to diet, energy expenditure, foraging skill, and/or social learning**.**
Localización: Biblioteca OET: NBINA-5380.

Publicación no.: 0530 **Effects of colour vision phenotype on insect capture by a free-ranging population of white-faced capuchins, Cebus capucinus** *[Efectos del fenotipo de visión del color en la captura de insectos por parte de una población de monos carablanca (Cebus capucinus) en libertad]* /

Melin, Amanda D; Fedigan, Linda M; Hiramatsu, Chihiro; Sendall, C.L; Kawamura, Shoji. (University of Calgary. Department of Anthropology, 2500 University Dr NW, Calgary, AB T2N 1N4, CA <E-mail: amelin@ucalgary.ca> <E-mail: linda.fedigan@ualberta.ca> <E-mail: kawamura@k.u-tokyo.ac.jp>).
En: Animal Behaviour (ISSN 0003-3472), v. 73, no. 1, p. 205-214. 2007
Unlike most eutherian mammals, which have dichromatic (two-colour) vision, most platyrrhine primate species have polymorphic colour vision. This unique characteristic is enabled via multiple alleles for a mid-to long-wavelength-sensitive (M/LWS), single-locus opsin gene on the X chromosome. In combination with the autosomal opsin common to most vertebrates, this arrangement provides heterozygous females with trichromatic (three-colour) vision, whereas homozygous females and males are dichromats. Trichromatic vision enables visual differentiation among longer-wavelength colours, such as red, orange, yellow and green. Currently, many researchers attribute the evolution and maintenance of polymorphic colour vision to trichromat (= heterozygote) advantage. However, dichromacy may be more suited for achromatic tasks, such as penetrating colour camouflage, especially under low-light conditions. We evaluated whether dichromatic capuchin monkeys (Cebus capucinus) were more efficient than trichromatic monkeys at capturing camouflaged and noncamouflaged insects. Through faecal DNA analysis, we determined the genotypes of the M/LWS opsins for 34 capuchins in two groups inhabiting Santa Rosa National Park, Costa Rica. Dichromatic monkeys were more efficient at detecting camouflaged, surface-dwelling insects, especially under conditions of low ambient light. However, unexpectedly, trichromats were more efficient in extracting embedded, noncamouflaged insects from substrates. To our knowledge, this is the first study to document a foraging advantage to dichromatic monkeys in the wild. Our findings show that there is a lack of heterozygote advantage in foraging for surface-dwelling insects and therefore indicate that this mechanism may not be the sole drivingforce maintaining polymorphic colour vision in this population**.**
Localización: Biblioteca OET: NBINA-5553.

Publicación no.: 0531 **The effects of observer presence on the behavior of three groups of Cebus capucinus in Área de Conservación Guanacaste, Sector Santa Rosa, Costa Rica** *[Los efectos de la presencia del observador en el comportamiento de tres grupos de monos carablanca (Cebus capucinus) en el Área de Conservación Guanacaste, Sector Santa Rosa, Costa Rica]* / Jack, Katharine M; Lenzi, B.B; Healan, Erin; Rudman, Sara; Schoofi, V; Fedigan, Linda M. (Tulane University. Department of Anthropology, 1021 Audubon St, New Orleans, LA 70118, US <E-mail: kjack@tulane.edu> <E-mail: fedigan@ucalgary.ca>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 44, p. 134-135. 2007
(Abstract only). Although habituation is a vital preliminary activity to collecting behavioral data on wild primates, very little is known about the process of habituation and the long-term effects of observer presence on behavior. We report on hehavioral responses of Cebus capucinus to observer presence over four weeks. Prior to our study each group was habituated to varying degres: (1) CP group: behavioral studies began in 1984 and continue to present: (2) EX group: focus of a one-year study on males from 1998-1999, and: (3) BH group: never studied/followed but the group has been exposed to researchers working on other projects in their home range. As expected, BH displayed significantly more observer directed behaviors (looks, watches, threat faces, threat displays) than the other two groups and showed a significant decrease in the frequency of looks and the duration of watches throughout the study. EX did not differ significantly from CP for any of the hehaviors measured, although they did show a marked, but non-significant, decrease in observer directed behaviors over time. CP displayed only minimal

responses to observer presence (lowest number of looks and threat faces, lowest duration of watches, and the only group without a threat display), and their responses were constant over time. Scan data collected on group state (calm vs agitated) also supported our expectation that repeated exposure to observers lessens the response of subject animales: over time both BH and EX displayed an increase in the proportion of group scans that were calm, while CP showed no change**.**
Localización: Biblioteca OET: NBINA-6165.

Publicación no.: 0532 **A telemetry system for studying jaw-muscle activity in free-ranging primates: pilot data from howling monkeys (Alouatta palliata) at La Pacífica, Costa Rica** *[Un sistema de telemetría para estudiar la actividad del músculo de la mandíbula en primates en libertad: datos experimentales de monos congo (Alouatta palliata) en La Pacífica, Costa Rica]* / Williams, Susan H; Vinyard, Christopher J; Glander, Kenneth E; Teaford, Mark F; Deffenbaugh, Max; Thompson, Cynthia L. (Ohio University. Department of Biomedical Sciences, Athens, OH 45701, US <E-mail: willias7@ohio.edu> <E-mail: glander@duke.edu> <E-mail: mteaford@jhmi.edu>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 44, p. 250. 2007
Laboratory-based electromyographic (EMG) studies are integral for understanding primate masticatory function and evolution. By directly linking jaw-muscle function during chewing to mandicular form, these studies provide the foundation for adaptive hypotheses relating primate jaw form to diet. However, because these studies elicit mastication using foods not consumed by wild primate diets, their ecological and evolutionary relevance is unclear. This lack of an ecologically-relevant biological role is further confounded by the fact that jaw-muscle activity is influenced by food mechanical properties, which may influence primate food choice in the wild. To more critically test adaptive hypotheses of primate masticatory form and function, jaw-muscle EMGs need to be analyzed in an appropriate environmental context. To this end, we developed a telemetry system for recording jaw-muscle EMGs during mastication by free-ranging wild primates feeding in their natural habitat. The telemetry system amplifies, filters and transmits up to eight electrode signals as an FM radio signal to a receiver. This signal is digitally recorded and demultiplexed producing separate EMG waveforms for each electrode. Prior to use in the field, we verified that the system performed similarly to a non-telemetered system used in collecting primate EMG data. We tested the telemetry system in the field on mantled howling monkeys at La Pacífica, Costa Rica. Jaw-muscle EMGs were collected from two individuals during the mastication of leaves and berries, revealing a qualitative variation relative to food toughness. This study demonstrates the feasibility of integrating laboratory-based experimental techniques with field research on primate feeding ecology**.**
Localización: Biblioteca OET: NBINA-6213.

Publicación no.: 0533 **Behavior and endocrine concentrations do not distinguish sex in monomorphic juvenile howlers (Alouatta palliata)** *[El comportamiento y las concentraciones endocrinas no distinguen el sexo en juveniles monomórficos de monos congo (Alouatta palliata)]* / Clarke, Margaret R; Zucker, E.L; Ford, Randall Thomas; Harrison, R.M. (Central Washington University. Department of Anthropology, Ellensburg, WA 98926, US <E-mail: clarkem@cwu.edu> <E-mail: zucker@loyno.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 69, no. 4, p. 477-484. 2007
Behavioral observations on juvenile mantled howlers are limited by visually undifferentiated genitalia; however, animals can be sexed when they are very young or if they are captured. Behavioral data and fecal samples from juveniles during month-longfield studies from 1993 to 1995 were analyzed to

determine whether there are developmental differences in behavior or hormone concentrations that can be used to differentiate males from females. The subjects were juveniles of known sex and age from five different social groups on Hacienda La Pacífica, Costa Rica. Based on 749.8 hr of focal-animal sampling, there were no sex differences in daily activity patterns. There were no sex differences in proximity to mothers and other group members, and age differences reflected howler life-history patterns. There were no differences in estradiol or testosterone concentration by age or sex. Juvenile monomorphy thus extends beyond morphology to behavioral and hormonal similarity as well. Most juveniles are forced out of their natal groups and remain solitary until they join new groups by supplanting all same-sex adult group members. Monomorphy may allow them to spend more time in natal groups, and thus both reduce the solitary period and allow the juveniles to improve social skills needed for later immigration. While this strategy may benefit juvenile howlers, it remains a problem for those who wish to study juvenile sex differences from a distance.
Localización: Biblioteca OET: NBINA-5815.

Publicación no.: 0534 **Hunger and aggression in capuchin monkeys** *[Hambre y agresión en monos carablanca]* / Janson, Charles H; Vogel, E.R. (SUNY. Department of Ecology and Evolution, Stony Brook, NY 11794-4364, US <E-mail: evogel@ucsc.edu>).
En: Feeding ecology in apes and other primates: ecological, physiological and behavioural aspects. Hohmann, G; Robbins, M.M; Boesch, C. (eds.) New York: Cambridge University Press, 2006. p. 285-312. (Cambridge Studies in Biological and Evolutionary Anthropology; no. 48). ISBN: 0-521-85837-2. (No abstract).
Localización: No disponible.

Publicación no.: 0535 **The effects of food size, rarity, and processing complexity on white-faced capuchins' visual attention to foraging conspecifics** *[Los efectos del tamaño de los alimentos, la rareza y la complejidad del procesamiento en la atención visual a sus congéneres de forrajeo en monos carablanca]* / Perry, Susan E; Ordóñez-Jiménez, J.C. (Max-Planck-Institute for Evolutionary Anthropology. Independent Junior Research Group in Cultural Phylogeny, Deutscher Platz 6, 04103 Leipzig, DE <E-mail: perry@eva.mpg.de>).
En: Feeding ecology in apes and other primates: ecological, physiological and behavioural aspects. Hohmann, G; Robbins, M; Boesch, C. (eds.). New York: Cambridge University Press, 2006. 203-234. (Cambridge Studies in Biological and Evolutionary Anthropology; no. 48). ISBN: 0-521-85837-2. (No abstract).
Localización: No disponible.

Publicación no.: 0536 **Anti-predator strategies of cathemeral primates: dealing with predators of the day and the night** / Colquhoun, I.C. (University of Western Ontario. Department of Anthropology, London, ON N6A 5C2, CA).
En: Primate anti-predator strategies. Gursky, S.L; Nekaris, K.A.I. (eds.). New York: Springer, 2007. p. 146-172. ISBN: 978-0-387-34807-0. (No abstract).
Localización: Biblioteca OET: NBINA-7425.

Publicación no.: 0537 **Experimental field study of handedness in wild tufted (Cebus nigritus) and white-faced (Cebus capucinus) capuchins: evidence for individual and species differences** *[Estudio*

experimental de campo del uso de las manos en monos copetudos (Cebus nigritus) y carablanca (Cebus capucinus) silvestres: evidencia para las diferencias individuales y de la especie] / Garber, Paul A; Gomes, D.F; Bicca-Marques, J.C. (University of Illinois. Department Anthropology, 109 Davenport Hall, 607 S Mathews Ave, Urbana, IL 61801, US <E-mail: p-garber@uiuc.edu> <E-mail: jcbicca@terra.com.br>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 44, p. 112. 2007
In this field investigation we used an identical experimental research design to compare the degree to which wild capuchins in Brazil and Costa Rica exhibit laterality or handedness during visually-directed triska that required reaching to remove a large leaf covering a ford reward, grabbing the food reward, and manipulating a tool (pushing or pulling a wooden dowel) in order to obtain access to a hidden or embedded food reward. Both handedness, and tool use have been associated with hemispheric specialization in humans. The experimental design involved the construction of a series of feeding platforms located within the home range of our study groups. In a series of experiments, platforms contained either real or sham bananas concealed by a single large leaf. Olfactory cues were equalized between reward and nonreward platforms. In the tool use experiments platforms contained a plexiglass box with banana; inside. Three of eight white-faced capuchins and five of seven tufted capuchins exhibited a significant hand preference during individual tasks, but there was no evidence of a consistent individual preference across all tasks. Population level handedness was evaluated by calculating a handedness index (H1) for each individual. White-faced capuchins did not show population level handedness in any task, whereas tufted capuchins showed a significant bias toward the use of the right hand in one task only (removing a leaf, t(7)=4.153, p=0.0043). The strengths and weaknesses of using capuchins as a model for examining questions of handedness and tool use in humans and apes are discussed**.**
Localización: Biblioteca OET: NBINA-6214.

Publicación no.: 0538 **A schema for multimodal communication applied to male mantled howler monkeys (Alouatta palliata)** *[Un esquema de comunicación multimodal aplicado a los machos de los monos congo (Alouatta palliata)]* / Jones, Clara B; van Cantfort, Thomas E. (Fayetteville State University. Department of Psychology, 1200 Murchison Road, Fayetteville, NC 28301-4298, US <E-mail: cbjones@uncfsu.edu>).
En: Laboratory Primate Newsletter (ISSN 0023-6861), v. 46, no. 2, p. 6-7. 2007.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-5971.pdf
(No abstract)**.**
Localización: Biblioteca OET: NBINA-5971.

Publicación no.: 0539 **Patterns of mtDNA genetic diversity in capuchin monkeys at regional and local scales** *[Patrones de diversidad genética en el ADN mitocondrial en los monos carablanca a escalas regionales y locales]* / Lynch-Alfaro, Jessica W; Gutiérrez-Espeleta, Gustavo A; Olson, L.E; Ross, V; Neitzel, S; Surkraw, K; Drown, D.M; Alfaro, M.E. (Washington State University. School of Biological Sciences and Center for Reproductive Biology, Department of Anthropology, Pullman, WA 9163, US <E-mail: ggutier@biologia.ucr.ac.cr>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl 44, p. 161. 2007
For decades, a clear understanding of intrageneric relationships of capuchin monkeys (genus Cebus) has eluded researcher studying morphological characteristics. Here we elucidate patterns of genetic diversity within Cebus at regional and local scales by analyzing mtDNA characters. To assess genetic

diversity within the genus, tissue was sampled from over 200 museum specimens of wild-caught capuchins of known provenance across their distribution in Latin America. To analyze the relationhip of genetic variation to geography on a finer scale for C. capucinus in western Costa Rica, 64 blood samples were collected across seven localities in Alajuela, Puntarenas and Guanacaste provinces. For both data sets, we sequenced fragments of three mtDNA genes (12s, 328 bp; cytB, 3.46 hp; d-loop, 321 hp). We constructed phylograms of the sequences using likelihood and Bayesian methods. Consistent with morphology-based studies, genetic data revealed Cebus as a monophyletic genus composed of two major clades, the tufted and non-tufted groups. In contrast to previous morphological studies, our data revealed C. albifrons as paraphyletic. Within the umbrella of C. apella, several distinct reciprocally monophyletic clades correlated well with geography. For C. capucinus, d-loop analysis revealed a deep genetic split between southern and northern populations, with a strong geographic signal for females and males, suggesting limited lifetime dispersal distance in this species. This study provides the first robust molecular phylogeny for the genus Cebus, including evidence for genetic diversification within C. capucinus.
Localización: Biblioteca OET: NBINA-6215.

Publicación no.: 0540 **Post-conceptive mating in white-faced capuchins, Cebus capucinus: hormonal and sociosexual patterns of cycling, noncycling, and pregnant females** *[Cópula post-concepción en monos carablanca, Cebus capucinus: patrones hormonales cíclicos, no cíclicos y sociosexuales de hembras preñadas]* / Carnegie, Sarah D; Fedigan, Linda M; Ziegler, Toni E. (University of Calgary. Department of Anthropology, Calgary, Alberta, T2N 1N4, CA <E-mail: sdcarneg@ucalgary.ca> <E-mail: fedigan@ucalgary.ca>).
En: New Perspectives in the Study of Mesoamerican Primates: Distribution, Ecology, Behavior, and Conservation. Estrada, Alejandro; Garber, Paul A; Pavelka, Mary S. M; Luecke, LeAndra (eds.). New York: Springer, 2006. p. 387-409. ISBN: 038725854X.
In many primate species, sociosexual behaviors are known to vary throughout a female's reproductive cycle, yet few studies have focused on changes in behavior across reproductive states. We examined sexual and affiliative behaviors that are exhibited across three reproductive states: cycling, noncycling, and pregnancy, in wild white-faced capuchins. To reliably determine reproductive state, we analyzed fecal steroids to create hormone profiles for each of the subject females. Our objectives were to determine the behavioral indicators from which one could reliably infer the reproductive status of wild female capuchins in the absence of hormonal data, and in doing so, to explore the reproductive strategies used by female capuchins. Our hormonal analysis was successful and revealed some interesting aspects of female capuchin reproduction. We found that the cycling females stopped cycling mid-way through the study but did not become pregnant. We are uncertain as to why they stopped cycling and further research into this finding is presently underway. We found that cycling and pregnant females copulated and received more courtship displays from adult males than did noncycling females. Sexual behaviors were more commonly seen between pregnant females and subordinate males, and between cycling females and alpha males. Pregnant females displayed proceptive behaviors at higher rates toward subordinate males, and cycling females received attractivity indicators at higher rates from alpha males. Noncycling females were rarely, if at all, involved in sexual, proceptive, or attractive behavioral indicators. However, they were responsible for maintaining close proximity to the alpha males 100% of the time. Finally, we found that urine washing occurred at higher rates among the cycling females compared to the other females. We conclude that the high rate of sexual behavior and

proceptivity between the pregnant females and the subordinate males may be associated with a female strategy to prevent infanticide. By mating with lower ranked males and by forming positive bonds with them, pregnant females confuse males as to the paternity of the new infant and encourage them to be protective in the eventuality of an aggressive male take-over.
Localización: Biblioteca OET: NBINA-5985.

Publicación no.: 0541 **Primates in agroecosystems: conservation value of some agricultural practices in Mesoamerican landscapes** *[Primates en agroecosistemas: valor en conservación de algunas prácticas agrícolas en paisajes mesoamericanos]* / Estrada, Alejandro; Sáenz-Méndez, Joel Cris; Harvey, Celia A; Naranjo, E; Muñoz-Guerrero, Diego A; Rosales-Meda, Marta Marleny. (Instituto de Biología (UNAM). Estación de Biología Los Tuxtlas, Laboratorio de Primatología, Apartado Postal 94, San Andrés Tuxtla, Veracruz, MX <E-mail: aestrada@primatesmx.com> <E-mail: jsaenz@una.ac.cr> <E-mail: c.harvey@conservation.org>).
En: New Perspectives in the Study of Mesoamerican Primates: Distribution, Ecology, Behavior, and Conservation. Estrada, Alejandro; Garber, Paul A; Pavelka, Mary S. M; Luecke, LeAndra (eds.) New York: Springer, 2006. p. 437-470. ISBN: 038725854X.
While there is a general perception that agricultural activities are the principal threat to primate biodiversity in the tropics, empirical evidence was presented in this paper to investigate the value of certain types of agroecosystems for sustaining primate populations in fragmented landscapes in Mesoamerica. Presence of primates was investigated in Los Tuxtlas, Mexico, in Lachuá, Guatemala, and in three landscapes in Costa Rica. We also compared the similarity in population parameters (density, group size, and immature to adult female ratios) of five primate species (A. palliata, A. pigra, A. geoffroyi, S. oerstedii, and C. capucinus) living in agroecosystems with those of the same species living in extensive and/or in fragmented forests. Primates were found in 15 agroecosystems. Some species were found residing in shaded agroecosystems (e.g., cacao, coffee), but not in unshaded plantations (e.g., citrus, allspice), which were used as foraging or stop-over habitats. For howler and spider monkeys in Mexico, mean values of primate demographic parameters in agroecosystems more closely resembled those in extensive than in fragmented forests. Those for squirrel and capuchin monkeys fell within the range of populations in forest fragments. Farmers reported crop damage by primates in banana, mango, citrus, and allspice plantations, but responses toward the monkeys' activities ranged from tolerance to expulsion. No damage was reported by howler and spider monkeys to the shaded cacao, coffee, and cardamom plants or in forestry plantations. Some primate species can persist in cacao plantation by exploiting the leaves and fruits of tree species providing shade for the cultivated plants, while others can do so by visiting various agroecosystems on a regular basis. Our study suggests that certain types of agroecosystems, specifically those grown under the shade of forest or of planted trees, favor the persistence of primate populations in fragmented landscapes. At these habitats, the presence and feeding activities of primates may benefit the plantations by accelerating primary productivity, by dispersing the seeds of their fruit sources, and by adding important amounts of nutrients, via their defecation, to the soil of the plantation.
Localización: Biblioteca OET: NBINA-5986.

Publicación no.: 0542 **Overview of the Mesoamerican primate fauna, primate studies, and conservation concerns** *[Descripción de la fauna mesoamericana de primates, estudios de primates y aspectos de conservación]* / Estrada, Alejandro; Garber, Paul A; Pavelka, M.S.M; Luecke, L. (Instituto de

Biología (UNAM). Estación de Biología Los Tuxtlas, Laboratorio de Primatología, Apartado Postal 94, San Andrés Tuxtla, Veracruz, MX <E-mail: aestrada@primatesmx.com>).
En: New Perspectives in the Study of Mesoamerican Primates: Distribution, Ecology, Behavior, and Conservation. Estrada, Alejandro; Garber, Paul A; Pavelka, Mary S. M; Luecke, LeAndra (eds.). New York: Springer, 2006. p. 1-22. ISBN: 038725854X.
The primates of Mesoamerica represent an important and successful radiation of nonhuman primates that have been under investigation since the 1930s. Despite many decades of research, documentation is still needed concerning the ecology, diet, social behavior, reproductive biology, and ecological impact of the Mesoamerican primate taxa, and how factors such as deforestation, human disturbance, and habitat change have affected the current distribution, demography, genetic variability, and conservation status of populations in the region. Mesoamerican primates are an integral cultural component of the natural patrimony of all countries in the region. The investigation of their biology, behavior, ecology, and conservation is a fundamental aspect of research providing information for sustaining the biodiversity of the region, the natural history of neotropical primates, their role in forest ecology as seed dispersers, seed predators, pollinators, and agents of forest regeneration, and on the evolution of the Order Primates. The goal of this volume is to present a comprehensive overview of the most recent advances in primate field research, ecology, and conservation biology in Mesoamerica. This includes information on taxonomy and the historical biogeography of primate origins in Mesoamerica, demographic and population trends from new and long-term field studies, data on feeding ecology, ranging behavior, cognition, and behavioral plasticity, and the effects of habitat disturbance (natural and human induced) on population viability. Chapters are designed to integrate newly collected field data with theoretical perspectives drawn from evolutionary biology, socioecology, biological anthropology, cognitive ecology, and conservation. Several chapters employ innovative methodological techniques such as remote sensing and geographic information systems, experimental field studies, landscape ecology, and reproductive endocrinology to address critical research questions. Data presented in other chapters provide a framework for developing action plans for future research, identifying geographical regions and species for which we continue to lack sufficient information, and highlighting areas for immediate conservation action. Despite many decades of primate research in Mesoamerica, there continue to remain many unanswered questions. This is highlighted in our volume by the limited behavioral, ecological, and demographic information presented on S. geoffroyi, Aotus zonalis, and S. oerstedii. All three species are restricted in their distribution to the southern region of Mesoamerica. Both S. geoffroyi and S. oerstedii have not been the focus of long-termfield research since mid-1980s. Aotus zonalis has never been the focus of a long-term study. We hope this volume will stimulate the development and continuation of both basic field research and applied field studies that will open new lines of inquiry and education focusing on all Mesoamerican primate taxa. We envision a new perspective in which primate research and forest conservation are strengthened by integrating theoretical perspectives and methodological tools from the fields of population genetics, landscape ecology, agroforestry, and behavioral ecology, along multidisciplinary lines. Within this framework, we must consider the needs of the human populations in the region and the progress being made, in spite of overpopulation, poverty, and underdevelopment, by Mesoamerican countries to preserve their natural biodiversity**.**
Localización: Biblioteca OET: NBINA-5987.

Publicación no.: 0543 **Food choice by juvenile capuchin monkeys (Cebus capucinus) in a tropical dry forest** *[Escogencia del alimento por parte de juveniles de monos carablanca (Cebus capucinus) en un bosque seco tropical]* / MacKinnon, Katherine C. (Saint Louis University. Department of Sociology and Criminal Justice and Center for International Studies, St Louis, MO 63103, US <E-mail: mackinn@slu.edu>).
En: New Perspectives in the Study of Mesoamerican Primates: Distribution, Ecology, Behavior, and Conservation. Estrada, Alejandro; Garber, Paul A; Pavelka, Mary S. M; Luecke, LeAndra (eds.) New York: Springer, 2006. p. 349-365. ISBN: 038725854X.
Dietary preferences of white-faced capuchins monkeys (C. capucinus) in northwestern Costa Rica were examined across age classes and between two distinct seasons over the course of 1 year. The findings show that the dietary profiles of small juveniles, large juveniles, and adults are quite similar, suggesting that juveniles are efficient foragers from a young age. The predictions of several ontogenetic models are presented, and the data lend limited support to the juvenile risk aversion and motor ability models.
Localización: Biblioteca OET: NBINA-5988.

Publicación no.: 0544 **Average body weight for mantles howling monkeys (Alouatta palliata): an assessment of average values and variability** *[Peso corporal promedio para monos congo (Alouatta palliata): una evaluación de los valores promedio y la variabilidad]* / Glander, Kenneth E. (Duke University Primate Center, 3705-B Erwin Rd, Durham, N.C. 27706, US <E-mail: glander@duke.edu>).
En: New Perspectives in the Study of Mesoamerican Primates: Distribution, Ecology, Behavior, and Conservation. Estrada, Alejandro; Garber, Paul A; Pavelka, Mary S. M; Luecke, LeAndra (eds.) New York: Springer, 2006. p. 247-263. ISBN: 038725854X. (No abstract).
Localización: Biblioteca OET: NBINA-5990.

Publicación no.: 0545 **The biogeographic history of Mesoamerican primates** *[La historia biogeográfica de los primates mesoamericanos]* / Ford, S.M. (Southern Illinois University. Center of Systematic Biology, Department of Anthropology, Carbondale, IL 62901-4502, US).
En: New Perspectives in The Study of Mesoamerican Primates: Distribution, Ecology, Behavior, and Conservation. Estrada, Alejandro; Garber, Paul A; Pavelka, Mary S. M; Luecke, LeAndra (eds.) New York: Springer, 2006. p. 81-114. ISBN: 038725854X.
Mesoamerican primates derive from distinct source populations that were likely isolated in northwestern Colombia approximately 8 mya with the rise of the northern Andes. This community of monkeys must have included squirrel monkeys in addition to relatives of the other Mesoamerican taxa, although squirrel monkeys are now extinct/absent in the region. All primates known to be distinct parts of the trans-Andean Colombian fauna migrated into the isthmus. With the complete emergence and establishment of a land connection across the Darién region around 3.5 mya, primates quickly moved widely into Mesoamerica. Evidence from a variety of sources suggests that the connection subsided again periodically over the last 3 my, resulting in at least a second major cycle of emergence/dispersal around 2 mya. Some evidence suggests a third subsidence/emergence cycle around 1 mya, with a filter present today. Filtered exchange of land fauna may have also occurred pre-emergence, around 6-8 mya. Although primates would have been present in the source Chocó region, there is no current evidence that they utilized any tenuous early connection that may have existed. Modern distributions suggest that primates entered Mesoamerica in at least three and likely four waves. The first wave included ancestors of Alouatta pigra and Saimiri oerstedii, with initial major emergence of the isthmus. These

now exist only in relict areas where they are endangered, with their ancestors elsewhere on the isthmus, and in the case of squirrel monkeys in northern Colombia, now extinct. The second wave was likely an explosive entry and rapid dispersal up the isthmus of ancestral Alouatta palliata, Ateles geoffroyi, and Cebus capucinus. As gene flow between populations was interrupted by highlands, grasslands, and periodic rises in sea level, groups differentiated, including the distinctive howlers of Azuero Peninsula and Isla de Coiba. The third and fairly recent wave brought tamarins (Saguinus geoffroyi) and owl monkeys (Aotus zonalis). The final invader has been Ateles fusciceps, through a filter that may also have allowed back migrations of tamarins, capuchins, howlers, and owl monkeys into northwestern Colombia, although these may be part of the ancestral population pool that remained in this region. Three recent immigrants into northwestern Colombia (Alouatta seniculus, Cebus albifrons, and Cebus apella) may eventually invade the isthmus, placing pressure on the unique primate fauna of the Mesoamerican region. Relationships between the areas inhabited by the various named subspecies of A. geoffroyi, A. palliata, and C. capucinus in Mesoamerica remain obscure. Current models, derived from mtDNA analyses of howlers and other fauna, suggest explosive dispersal throughout the region followed by differentiation. A test of this model is needed; mtDNA data from populations of howlers, spider monkeys, and capuchins should show equidistant relationships between monkeys in each of the biogeographic zones identified here if this model is correct**.**
Localización: Biblioteca OET: NBINA-5989.

Publicación no.: 0546 **Taxonomy and distributions of Mesoamerican primates** *[Taxonomía y distribuciones de primates mesoamericanos]* / Rylands, A.B; Groves, C.P; Mittermeier, R.A; Cortés-Ortiz, L; Hines, J.J.H. (Conservation International. Center of Applied Biodiversity Sciences, 1919 M St NW, Ste 600, Washington DC 20036, US <E-mail: cortes1@naos.si.edu).
En: New Perspectives in the Study of Mesoamerican Primates: Distribution, Ecology, Behavior, and Conservation. Estrada, Alejandro; Garber, Paul A; Pavelka, Mary S. M; Luecke, LeAndra (eds.). New York: Springer, 2006. p. 29-79. ISBN: 038725854X.
In this chapter, we review the taxonomy and distributions of the 21 primate taxa occurring in Central America and southern Mexico, from about 24°N in Tamaulipas, Mexico, extending south along the coast of the Gulf of Mexico, through Central America to the border of Colombia and Panama. In our appraisal, we follow the PSC, as outlined by Groves (2001). Panama (with eight species) has the richest primate community; Costa Rica has four species (five if night monkeys, Aotus are included). Capuchin monkeys, C. capucinus, extend north as far as Nicaragua and Honduras, and only spider monkeys (A. geoffroyi) and howling monkeys (A. palliata and A. pigra) occur in Belize, Guatemala, and Mexico. Only spider monkeys have been recorded from El Salvador. Geoffroy's tamarin, S. geoffroyi, and the night monkey, Aotus, both regionally restricted to Panama, are considered distinct and monotypic. There are two broadly accepted subspecies of squirrel monkey, S. oerstedii, occurring in a small area of the Pacific lowlands of Panama and Costa Rica. The white-throated capuchin, C. capucinus, extending from Panama to northern Honduras, may comprise three subspecies, although their validity is doubtful. There are two distinct howling monkey species, the mantled howler (A. palliata) and the black howler (A. pigra). The howling monkeys of Coiba Island and the Azuero Peninsula have some distinct morphological features that argue for their classification as a third species, A. coibensis, but a recent molecular genetics' study failed to distinguish them from A. palliata. We list three subspecies of A. palliata but they are of doubtful validity. The spider monkeys, A. geoffroyi, are highly variable. Seven subspecies are listed, and there is the possibility of an eighth undescribed subspecies in northern Honduras. The variability is still poorly

understood, however, and the possibility remains that a number of taxa are not valid. The Colombian black spider monkey, A. fusciceps rufiventris, extends a short way into Panama. A notable finding while researching this review was the lack of modern published revisions of the taxonomy and distributions of the region's primates; the major references are still those of Kellogg and Goldman (1944), Hershkovitz (1949), and Hall (1981, based on Hall and Kelson, 1959). The spider monkeys, howler monkeys, and capuchin monkeys are in urgent need of major taxonomic revision, while it is probable that the establishment of the precise historic distributions of all of the Mesoamerican primates is now an impossible task due to introductions, hunting, and forest loss and fragmentation. The widespread loss of population diversity makes taxonomic and biogeographic research on the Mesoamerican primates an increasingly difficult task. All are now restricted to few, diminishing, and isolated forest fragments, and there is an urgent need for regionwide and detailed surveys to identify and map them, to determine the status of the populations remaining.
Localización: Biblioteca OET: NBINA-5984.

Publicación no.: 0547 **Managing monkeys and mangos** *[Manejo de los monos y los mangos]* / Baker, Mary E; Schutt, A. (Rhode Island College. Department of Anthropology, 600 Mt. Pleasant Ave., Providence, RI 02908, US <E-mail: mbaker@ric.edu>).
En: Commensalism and Conflict: The Human-Primate Interface. Paterson, J.D; Wallis, J (eds.). Norman, OK: American Society of Primatologists, 2005. p. 444-463. ISBN: 0965830136. (No abstract).
Localización: No disponible.

Publicación no.: 0548 **Primates in agroecosystems: conservation value of some agricultural practices in neotropical landscapes** *[Primates en agroecosistemas: valor en la conservación de algunas prácticas agrícolas en paisajes neotropicales]* / Estrada, Alejandro. (Instituto de Biología (UNAM). Estación de Biología Los Tuxtlas, Laboratorio de Primatología, Apartado Postal 94, San Andrés Tuxtla, Veracruz, MX <E-mail: aestrada@primatesmx.com>). Congresso Brasileiro de Primatologia. XI. Programa e Livro de Resumos, Porto Alegre, BR. Porto Alegre: Sociedade Brasileira de Primatologia, 2005. p. 34. (No abstract).
Localización: No disponible.

Publicación no.: 0549 **Possible costs of radio-tracking a young adult female mantled howler monkey (Alouatta palliata) in deciduous habitat of Costa Rican tropical dry forest** *[Posibles costos de rastreo mediante radio de una joven adulta mona congo (Alouatta palliata) en un hábitat caducifolio de bosque seco costarricense]* / Hilpert, A.L; Jones, Clara B. (Fayetteville State University. Department of Psychology, 1200 Murchison Road, Fayetteville, NC 28301-4298, US <E-mail: cbjones@uncfsu.edu>).
En: Journal of Applied Animal Welfare Science (ISSN 1088-8705), v. 8, no. 3, p. 227-232. 2005
Field experiments are required to determine the causes of the patterns identified in this report and their potential threats to the internal validity of field studies on mantled howlers. The literature on biotelemetry suggests that radio collars are likely to have deleterious effects on animals when a radio collar exceeds 5% of body weight-"the 5% rule"-(Cooke et al., 2004; Neubaum et al., 2005). Because all adult females in Group 12 wore identification collars and tags (Jones, 1980), however, a partial control was incorporated in this research (Gauthier-Clerc et al., 2004). Ultimately, the benefits of using transmitter collars must be weighed against the costs (Cooke et al., 2004), including the important issues of scientific significance, research ethics, and animal welfare.

Localización: Biblioteca OET: NBINA-6216.

Publicación no.: 0550 **Light levels used during feeding by primate species with different color vision phenotypes** *[Niveles de luz utilizados durante la alimentación por parte de especies de primates con diferentes fenotipos de color]* / Yamashita, Nayuta; Stoner, Kathryn E; Riba-Hernández, José Pablo; Dominy, Nathaniel J; Lucas, Peter W. (University of Southern California. Keck School of Medicine, Department of Cell & Neurobiology, 1333 San Pablo St, Los Angeles, CA 90089-9112, US <E-mail: nayutaya@usc.edu> <E-mail: kstoner@oikos.unam.mx> <E-mail: njdominy@ucsc.edu> <E-mail: pwlucas@hkucc.hku.hk>).
En: Behavioral Ecology and Sociobiology (ISSN 0340-5443), v. 58, no. 6, p. 618-629. 2005
The intensity of available light is important in determining how well a diurnal animal can distinguish color. Primates with different types of color vision may exhibit behaviors that maximize visual contrast during critical activities such as feeding. We hypothesized that (1) trichromatic taxa will feed in a wide range of light conditions because color constancy permits stabilized color appearance across changes in illumination, and (2) that taxa with a high proportion of dichromatic individuals will tend to feed at higher light levels to increase color contrast. We recorded light levels during feeding bouts of seven primate taxa with varying degrees of color vision: the dichromatic Lemur catta, two polymorphic species, Propithecus v. verreauxi and Ateles geoffroyi, and the routine trichromats, Alouatta palliata, Colobus guereza, Piliocolobus badius, and Cercopithecus ascanius. Results were equivocal for our hypotheses. While routinely trichromatic taxa used varying light levels, the pattern of results did not differ from the dichromatic Lemur catta. However, polymorphic taxa not only sought the highest light, but females, which are the only individuals in polymorphic taxa that can be trichromatic, fed in higher light levels than males when eating non-green foods. This result is consistent with selection operating to maintain a balanced polymorphism in these taxa, though the connection between light levels and color vision type for the females is unclear. Our results further suggest that trichromatic vision may afford a selective advantage because it permits foraging under a greater range of light levels.
Localización: Biblioteca OET: NBINA-5981.

Publicación no.: 0551 **Genetic variability in four Alouatta species measured by means of nine DNA microsatellite markers: genetic structure and recent bottlenecks** *[Variabilidad genética de cuatro especies der Alouatta medida mediante nueve marcadores genéticos microsatelitales del ADN: estructura genética y cuellos de botella recientes]* / Ruiz-García, Manuel; Escobar-Armel, P; Alvarez, D; Mundry, M; Ascunce, M; Gutiérrez-Espeleta, Gustavo A; Shostell, J.M. (Pontificia Universidad Javeriana. Facultad de Ciencias, Departamento de Biología, Cra 7A No 43-82, Bogotá DC, CO <E-mail: mruiz@javeriana.edu.co> <E-mail: ggutier@biologia.ucr.ac.cr>).
En: Folia Primatologica (ISSN 0015-5713), v. 78, no. 2, p. 73-87. 2007
We used microsatellite DNA to study the population genetics of 4 Alouatta species from Central and South America. Our main findings include the following: (1) A. seniculus had the highest level of microsatellite variability while A. caraya and A. palliata had the lowest mean number of alleles per locus and the lowest expected heterozygosity, respectively; (2) the samples of A. seniculus and A. palliata came from different regions and were not in Hardy-Weinberg equilibrium (HWE) which may indicate a Wahlund effect and differentiated gene pools - in contrast, A. macconnelli and A. caraya were in HWE; (3) the microsatellite genetic heterogeneity of the 4 Alouatta species was similar to the karyotype divergence found among these Alouatta species; the species pair with the lowest level of heterogeneity

(genetic differentiation) was A. seniculus/A. caraya , while the Central American species, A. palliata , was highly differentiated from the other 3 South American species; (4) we recommend the establishment of a conservation plan to help protect A. caraya because the Cornuet and Luikart procedure demonstrated a recent bottleneck for this species.
Localización: Biblioteca OET: NBINA-5980.

Publicación no.: 0552 **Effect of color vision phenotype on the foraging of wild white-faced capuchins, Cebus capucinus** *[Efecto del fenotipo de visión de color en el forrajeo de monos carablanca silvestres, Cebus capucinus]* / Vogel, E.R; Neitz, M; Dominy, Nathaniel J. (University of California. Department of Anthropology, 1156 Hight Street, Santa Cruz, CA 95064, US <E-mail: evogel@ucsc.edu> <E-mail: njdominy@ucsc.edu>).
En: Behavioral Ecology (ISSN 1045-2249), v. 18, no. 2, p. 292-297. 2007
New World monkeys exhibit a color vision polymorphism. It results from allelic variation of the single-locus middle-to-long wavelength opsin gene on the X chromosome. Females that are heterozygous for the gene possess trichromatic vision. All other individuals possess dichromatic vision. The prevailing hypothesis for the maintenance of the color vision polymorphism is through a consistent fitness advantage to heterozygous trichromatic females. Such females are predicted to be more efficient than dichromats when detecting and selecting fruit. Recent experiments with captive callitrichid primates provided support for this hypothesis by demonstrating that color vision phenotype affects behavioral responses to contrived food targets. Yet, the assumptions that trichromatic females acquire more calories from fruit, or that number of offspring is linked to caloric intake, remain untested. Here, we assess if, in the wild, heterozygous trichromatic individuals in a group of white-faced capuchins (Cebus capucinus) enjoy an energetic advantage over dichromats when foraging on fruit. Contrary to the assumptions of previous theoretical and experimental studies, our analysis of C. capucinus foraging behavior shows that trichromats do not differ from dichromats in their fruit or energy acquisition rates. For white-faced capuchins, the advantage of trichromatic vision may be related to the detection of predators, animal prey, or fruit under mesopic conditions. This result demonstrates the importance of using a fitness currency that is relevant to individual animals to test evolutionary hypotheses.
Localización: Biblioteca OET: NBINA-5961.

Publicación no.: 0553 **Hand preference during feeding in white-faced capuchins (Cebus capucinus)** *[Mano preferida durante la alimentación en monos carablanca (Cebus capucinus)]* / Moore, D.L; Barr, A.E. (Georgia State University. Department of Anthropology and Geography, Atlanta, GA 30303, US).
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl 42, p. 134. 2006
(Abstract only). Across extant humans, there is an approximate 90% right-hand preference for a variety of tasks. To determine how prevalent and longstanding this feature is in the order Primates, researchers have studied hand preference in nonhuman primates. Research conducted so far has produced inconclusive results. The majority of these studies have been on captive animals, particularly the great apes. Although individual hand preferences for particular tasks have been demonstrated in different species, the only population¬level result has been found in chimpanzees (Pan troglodytes). This study focused on a group of white-faced capuchins (Cebus capucinus) at La Suerte Biological Field Station in Costa Rica. Capuchins have the largest relative brain size of the New World monkeys and have fine manipulative skills, both characteristics that have been proposed as precursors to the evolution of handedness and brain laterality. A group of fourteen capuchins was observed for a period of two weeks.

Data was collected in focal samples consisting of three minute bouts while animals were feeding, and recorded as right, left, or bimanual. Feeding was defined as the placement of any food object in the mouth using the hands. At least thirty data points were collected on each animal. Although there were some individual preferences while feeding, the results demonstrated no group-level hand preference. This study contributes to others in suggesting that handedness evolved after the split of New and Old World primates, or that this characteristic did not evolve simultaneously in Cebus capucinus**.**
Localización: Biblioteca OET: NBINA-6163.

Publicación no.: 0554 **Reproductive behavior and ovarian cycles in white-faced capuchins, Cebus capucinus** *[Comportamiento reproductivo y ciclos de ovulación en las monas carablanca, Cebus capucinus]* / Carnegie, Sarah D. (University of Calgary. Department of Anthropology, Calgary, Alberta, T2N 1N4, CA <E-mail: sdcarneg@ucalgary.ca>).
En: ASP [American Society of Primatology] Bulletin, v. 29, no. 4, p. 6-7. 2005. (No abstract).
Localización: No disponible.

Publicación no.: 0555 **Exploring the utility of Van Schaik's model of male coalitions for female mantled howler monkeys (Alouatta palliata)** *[Explorando la utilidad del modelo de Van Schaik's de agrupamientos de machos para las monas congo (Alouatta palliata)]* / Jones, Clara B. (Fayetteville State University. Department of Psychology, 1200 Murchison Road, Fayetteville, NC 28301-4298, US <E-mail: cbjones@uncfsu.edu>).
En: Laboratory Primate Newsletter (ISSN 0023-6861), v. 45, no. 1, p. 4-6. 2006.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-5970.pdf
(No abstract)**.**
Localización: Biblioteca OET: NBINA-5970.

Publicación no.: 0556 **"Unpacking" the variability of metrics for adult male and adult female mantled howler monkeys, Alouatta palliata** *["Desempacando" la variabilidad de la métrica para machos adultos y hembras adultas de monos congo, Alouatta palliata]* / Jones, Clara B. (Fayetteville State University. Department of Psychology, 1200 Murchison Road, Fayetteville, NC 28301-4298, US <E-mail: cbjones@uncfsu.edu>).
En: Laboratory Primate Newsletter (ISSN 0023-6861), v. 45, no. 2, p. 6-9. 2006.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-5969.pdf
(No abstract)**.**
Localización: Biblioteca OET: NBINA-5969.

Publicación no.: 0557 **Sex differences in the activity budget and foraging patterns of the mantled howler monkeys (Alouatta palliata)** *[Diferencias de sexo en el presupuesto de actividad y patrones de forrajeo de los monos congo (Alouatta palliata)]* / Miller, J.R.
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 42, p. 131. 2006
This poster presents the results of a study of the foraging patterns and the activity budgets of adult mantled howler monkeys (Alouatta palliata) at La Suerte Biological Field Station, Costa Rica. The field study took place during January 2004 and was undertaken for the purpose of evaluating sex differences within sample populations drawn from three separate contiguous troops. The results indicate that this sample population exhibited significant sex differences in behavioral and foraging patterns. Statistical

analysis revealed that males engaged in more frequent locomotor activity and less time feeding than females, as well as selecting lower quality foliage. For example, adult males allocated 3% of their daily activity budget to foraging, while adult females spent 15% of their daily activity in foraging. An even greater distinction occurred when the percentage of higher quality forage (such as young leaf buds) was calculated by gender - females spent approximately 20% of their daily foraging activity consuming leaf buds while no males were observed to engage in this behavior. Thus, the data suggest that disparities in nutritional requirements between males and females may be a critical factor driving differences in their activity patterns. The results are also compared to a number of published studies, including the seminal work of Milton, which included assessments of the food preferences of adult mantled howler monkeys. Finally, suggestions are addressed for more intensive projects with this species in the subject region, including more focused research parameters for investigating the nutritional implications underlying activity patterns between males and females**.**
Localización: Biblioteca OET: NBINA-6212.

Publicación no.: 0558 **Pilot study to assess the need for primate conservation in northern Punta Burica, Costa Rica** *[Estudio piloto para estimar la necesidad de conservación de primates en el norte de Punta Burica, Costa Rica]* / Mann, K. (5193 Fairlawn Dr, Fayetteville, NY 13066, US <E-mail: katiemann@planet-save.com>).
En: Canopy (Oxford Brookes University), v. 4, no. 2, p. 17. 2006.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-5965.pdf
(Abstract only). There have been limited primate conservation studies coming from Punta Burica of southwest, Costa Rica. The purpose of this study was to determine the need for primate conservation in this region of Costa Rica, which has been identified as a priority for conservation. In conjunction with the primate surveys, I conducted a botanical investigation in order to identify conflicts between the needs of spider monkeys and the needs of local people. The spider monkey was the least commonly encountered primate and was completely absent from the Punta Banco study area. The botanical survey identified the vulnerable trees Caryocar costaricense and Eschweilera neei, which provide food for the spider monkey, with the former being an important sleeping site as well. In addition both of these species are sought after for human use. It was found that proactive conservation efforts are needed in order to prevent the local extinction of the endangered Panamánian red spider monkey. Theendangered and endemic squirrel monkey is also worthy of proactive conservation efforts. Some members of the Ngäbe community, which are an endangered people, have shown considerable interest in the conservation of the spider monkey and are willing to collaborate on a conservation project. Amigos de los Monos, Friends of the Monkeys, had an inaugural meeting in 2005 in order to reach consensus on the first steps of the monkey conservation project, with the spider monkey as a flagship species. As economicincentive to terminate the hunting of the spider monkey and the destruction of their habitat, some Ngäbe people are willing to house researchers that are interested in primatological, conservation, or cultural studies. It is hopeful that the Ngäbe peoplewill be able to retain their remaining traditions with the opportunity for employment within their reserve. Any former or future students wishing to carry out research in this area will be participating in this project, and their research fees will be contributing to conservation**.**
Localización: Biblioteca OET: NBINA-5965.

Publicación no.: 0559 **A bibliography on howler monkeys (Alouatta sp.)** *[Una bibliografía sobre los monos congo (Alouatta sp.)]* / Jack, J.L. (Oregon Health & Science University. Oregon National Primate Research Center, Department of Cardiovascular Physiology, , Beaverton, OR 97006-3448, US).
En: Primates (ISSN 0032-8332), v. 8, p. 271-290. 1967.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-5966.pdf
Reports dealing with howler monkeys since 1900 have been assembled in the present bibliography. The references marked with (R) have been taken verbatim from Ruch's Bibliographia Primatologica. Papers identified by * deal more extensively with Alouatta***.***
Localización: Biblioteca OET: NBINA-5966.

Publicación no.: 0560 **Población de mono congo en isla San Lucas** / Rosales-Meda, Marta Marleny.
En: Ambientico (ISSN 1409-214X), no. 158, p. 17-20. 2006.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-6061.pdf
(No abstract)***.***
Localización: Biblioteca OET: NBINA-6061.

Publicación no.: 0561 **Mono tití en peligro de extinción** / Wong-Reyes, Grace. (Universidad Nacional. Programa Regional de Maestría en Manejo de Vida Silvestre, Apdo. 1350, Heredia, CR).
En: Ambientico (ISSN 1409-214X), no. 107, 3 p. 2002.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-6065.pdf
(No abstract)***.***
Localización: Biblioteca OET: NBINA-6065.

Publicación no.: 0562 **Proximities to specific adult males by adult female howling monkeys (Alouatta palliata) in Costa Rica** *[Aproximaciones a machos adultos específicos por parte de hembras adultas de monos congo (Alouatta palliata) en Costa Rica]* / Zucker, E.L; Clarke, Margaret R. (Loyola University. Department of Psychology, New Orleans, LA 70118, US <E-mail: zucker@loyno.edu> <E-mail: larkem@cwu.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 69, Suppl. 1, p. 110. 2007.
(Abstract only). We re-tabulated our data for adult female howlers' proximities to adult males, living in one group at La Pacífica, Costa Rica, to determine if females exhibited social preferences (assessed by proximity) to specific males over time. Subjects were 8 females in July-August 1988 (270.8 hours of focal animal data; 4 adult males present) and 7 females in July-August 1992 (300.7 hours of focal animal data; 3 adult males present). Four females and two males were in both samples. In each sample, several females (3 in 1988; 4 in 1992) spent more time near (1 m) the alpha male than other males, but overall, female proximity to males was not related to female rank, infant presence/absence, or male rank. In 1988, there was significantly more proximity by females to the top- and third-ranking males (30% and 46%, respectively) than expected by chance (c2, a=0.05). While individual females exhibited preferences for different males, preferences changed over time. As howler groups consist of unrelated adults, due to juvenile emigration and subsequent immigration patterns, this flexibility in social preferences can be interpreted as reflecting immediateadjustments to changing social situations, such as births, deaths, and immigrations, rather than reflecting long-term histories or being predictive of future social relationships.
Localización: No disponible.

Publicación no.: 0563 **EMG telemetry in free-ranging primates: Pilot data from howling monkeys (Alouatta palliata) at La Pacifica, Costa Rica** / Williams, Susan H; Vinyard, Christopher J; Glander, Kenneth E; Teaford, Mark F; Deffenbaugh, Max; Thompson, Cynthia L. (Ohio University. Department of Biomedical Sciences, Athens, OH 45701, US <E-mail: willias7@ohio.edu> <E-mail: glander@duke.edu> <E-mail: mteaford@jhmi.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 69, Suppl. 1, p. 121-122. 2007.
(Abstract only). Laboratory-based electromyographic (EMG) studies are integral for understanding primate masticatory function and evolution. By directly inking jaw-muscle function during chewing to mandibular form, these studies provide the foundation for adaptive hypotheses relating primate jaw form to diet. However, because these studies elicit mastication using foods atypical of wild primate diets, their ecological and evolutionary relevance is unclear. This lack of an ecologically-relevant biological role is further confounded by the fact that jaw-muscle activity is influenced by food mechanical properties, which may influence primate food choice in the wild. To more critically test adaptive hypotheses of primate masticatory form and function, we developed a telemetry system for recording jaw-muscle EMGs during mastication by wild primates feeding naturally. The telemetry system amplifies, filters and transmits up to eight electrode signals as an FM audio signal to a receiver. This signal is digitally recorded and demodulated producing separate EMG waveforms for each electrode. Prior to field use we verified that the system performed similarly to a non-telemetered system used in collecting primate EMG data. We tested the telemetry system in the field on mantled howling monkeys at La PacÍfica, Costa Rica. Jaw-muscle EMGs were collected from two individuals during the mastication of leaves and berries, revealing a qualitative variation relative to food toughness.
Localización: No disponible.

Publicación no.: 0564 **Who cares who calls? Selective responses to the lost calls of socially dominant group members in the white-faced capuchin (Cebus Capucinus)** *[¿Qué más da quién llama? Respuestas selectivas a las llamadas perdidas de los miembros socialmente dominantes del grupo en los monos carablanca (Cebus Capucinus]* / Digweed, S; Fedigan, Linda M; Rendall, D. (University of Lethbridge. Department of Psychology and Neuroscience, 4401 University Drive, Lethbridge, AB, T1K 3M4, CA <E-mail: shannon.dig).
En: American Journal of Primatology (ISSN 0275-2565), v. 69, no. 7, p. 829-835. 2007
In many social mammals and birds, soft vocalizations are habitually produced during dispersed moving and foraging, the function being to maintain contact and regulate spacing between group members. In some species, much louder calls are given sporadically by specific individuals when they become separated from the group, or 'lost'. The function of these calls has seldom been specifically tested, particularly among social primates, but is often assumed to involve regaining contact with the group based on a combination of individually distinctive calls and antiphonal responses to them from within the group. To test these assumptions, we conducted research on two groups of white-faced capuchins (Cebus capucinus) in Costa Rica. We analyzed 82 bouts of 'lost' calls given by 13 different adult individuals when separated from the group and the antiphonal responses they elicited. Lost calls were individually distinctive and were answered in 35% of calling episodes. Answers were selective: dominant males and females were answered more than were subordinate callers of either sex. As a result, dominant callers relocated and returned to the group more quickly than did subordinate callers. We discuss the potential proximate motivations for, and ultimate benefits of, such selective answering of dominant group members**.**

Localización: Biblioteca OET: NBINA-6704.

Publicación no.: 0565 **Naturally acquired yellow fever in wild monkeys of Costa Rica** *[Fiebre amarilla adquirida naturalmente en monos silvestres de Costa Rica]* / Vargas-Méndez, O; Elton, Norman W.
En: The American Journal of Tropical Medicine and Hygiene (ISSN 0002-9637) , v. 2, no. 5, p. 850-863. 1953
The acquisition of liver specimens for histopathologic examination from monkeys during the activity of the current epizootic of yellow fever in Costa Rica has demonstrated that the progress of a wave of the sylvan (jungle) form of the disease can be traced in this manner as well as by similar studies on human fatal ities. Out of 35 specimens obtained in Costa Rica, 24 are considered to exhibit the typical liver lesion. It was possible to secure satisfactory specimens in only about 10 per cent of theinvestigations of the reports of the presence of dead monkeys in the localities involved. An analysis of this experience will be applied to the formulation of a project designed to attempt to check the movement of the wave in the vicinity of La Ceiba, Honduras, in order to prevent involvement of northern Guatemala and Yucatan. The histopathologic features of yellow fever in the livers and kidneys of the arboreal primates closely parallel those found in man. The Councilman necrosis in the liver, as well as the heme casts, basophilic concretions and colloid material ("lime casts") in the kidney tubules are highly resistant to postmortem autolysis. Intranuclear acidophilic inclusions (Torres bodies) were found in a large percentage of the monkey livers, and an evaluation of their diagnostic significance is now in progress***.***
Localización: Biblioteca OET: NBINA-6140.

Publicación no.: 0566 **Urine washing and sniffing in wild white-faced capuchins (Cebus capucinus): testing functional hypotheses** *[Lavado de la orina y olfato en monos carablanca en libertad (Cebus capucinus): probando la hipótesis funcional]* / Campos, Fernando Alonso; Manson, Joseph H; Perry, Susan E. (Max Planck Institute for Evolutionary Anthropology, Deutscher Platz 6, D-04103, Leipzig, DE <E-mail: manson@eva.mpg.de> <E-mail: perry@eva.mpg.de>).
En: International Journal Of Primatology (ISSN 0164-0291), v. 28, no. 1, p. 55-72. 2007
Urine washing (UW) is taxonomically widespread among strepsirhines and platyrrhines, yet its functional significance is still unclear. We used 2274 h of focal follows of 35 adult and subadult wild white-faced capuchins (Cebus capucinus) to test 1) the intergroup signaling, intragroup social signaling, and thermoregulatory hypotheses for UW and 2) the hypothesis that individuals sniff each other's urine and other traces to gather socially significant information. Males engaged in significantly more UW than females. All 5 alfa-males engaged in more UW than subordinate males did, including 4 alfa-males that increased their UW rate above that of their male groupmates after their rise to alfa rank. Males engaged in significantly less UW while in view of other males than at other times. Male-male sniffing rates do not correlate with either aggression rate or dominance rank distance. Urine washing rates did not increase while subjects were in parts of their home range where more intergroup encounters occurred. Urine washing rates were highest early in the morning and late in the afternoon, presumably when temperatures were coolest. The data do not support either the thermoregulatory or social signaling hypothesis. We suggest that experiments with captive capuchins are necessary to resolve the issue of the function of urine washing in the taxon***.***
Localización: Biblioteca OET: NBINA-6707.

Publicación no.: 0567 **Survey of the howler population of La Pacífica, 2006** *[Reconocimiento de la población de monos congo en La Pacífica, 2006]* / Clarke, Margaret R; Ford, R; Arden, D; Glander, Kenneth E. (Central Washington University. Department of Anthropology, Ellensburg, WA 98926, US <E-mail: clarkem@cwu.edu> <E-mail: glander@duke.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 69, Suppl 1, p. 55-56. 2007
(Abstract only). We surveyed the population of Howlers (Alouatta palliata) on Hacienda La Pacífica in July 2006. We completed a single pass of the farm in a manner similar to a 1984 survey, and to the first pass of surveys conducted in 1991 and 1998. Our results revealed a population of 202 group-living animals plus 2 male solitaries.There were 38 adult males, 98 adult females, and 66 immature animals in 16 social groups. Mean group size was 12.6 (range=4-26) and the adult male to female ratio was 1:2.6. These results were remarkably similar to the results from 1974-76 and our previous first pass surveys. The trend toward increased numbers of smaller groups observed in 1991 and 1998 following the original change in land management appears to be reversing. The transition from wet rice agriculture to tilapia tank farming was completed in 2004, and there have been minimal disturbances in land use since that time. Larger groups were found in undisturbed forest and in strip forests that were returned to irrigated cattle pasture in 1999. Fewer groups were found in the strips of forest around the tilapia tanks, which are now populated with large water birds. These results suggest that the population is re-stabilizing, but a subsequent survey will be necessary to substantiate that trend**.**
Localización: Biblioteca OET: NBINA-6703.

Publicación no.: 0568 **Multimodal communication by male mantled howler monkeys (Alouatta palliata) in sexual contexts: a descriptive analysis** *[Comunicación multimodos en los machos de monos congo (Alouatta palliata) en contextos sexuales: un análisis descriptivo]* / Jones, Clara B; van Cantfort, Thomas E. (Fayetteville State University. Department of Psychology, 1200 Murchison Road, Fayetteville, NC 28301-4298, US <E-mail: cbjones@uncfsu.edu>).
En: Folia Primatologica (ISSN 0015-5713), v. 78, no. 3, p. 166-185. 2007.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-6701.pdf
We analyzed continuously sampled focal and ad libitum data of male mantled howler monkeys (Alouatta palliata) observed in random order. Males resided in two groups in a Costa Rican tropical dry forest environment (riparian habitat group: 3 males, 15 females, 402 h observation; deciduous habitat group: 2 males, 8 females, 114 h observation). Samples were limited to sexual contexts, in particular, the 60-min periods before and after each copulation observed within each group for each male. Time samples for each male were distributed equally before and after their own copulations. Before statistical analyses were conducted, data were corrected for differences in time sampled for males within each group. Four types of multimodal signaling were resolved: (1) audiovisual, (2) olfactory-visual, (3) olfactory-visual-tactile and (4) tactile-gustatory. Olfactory and tactile signals were never observed in combination with auditory signals. Consistent with expectation for a Neotropical, arboreal species, audiovisual signals were the most frequently observed type of multimodal communication in both groups (riparian habitat group: n = 139; deciduous habitat group: n = 66). Our evidence strongly suggests that unimodal signals may be combined and recombined to form complex, multimodal signals. Subordinate males in each group were more likely than dominant males to emit audiovisual signals before their own copulations. Male dyads were compared to assess the relative rate of audiovisual signaling by one male before another male's copulations. On average, the subordinate male of the riparian habitat group exhibited audiovisual signals at a higher rate before his own copulations compared to the rate of audiovisual

signaling by his dominant challengers. The same comparisons are not significant for males in the deciduous habitat group. The pattern of male response that we report whereby subordinates emit some complex signals at a higher rate than dominants supports the 'terminal investment hypothesis' predicting that organisms should increase reproductive effort with age since, in mantled howlers, age correlates negatively with dominance rank. Additional, qualitative observations suggested that subordinates in both groups were most likely to obtain copulations when they increased rates of complex signaling and/or escalated interactions with their male challengers. Group differences were apparent, however, and we suggest factors that may account for these patterns. We assessed responses by female receivers of complex signals emitted by males in sexual contexts. In general, higher-ranking males are more attractive to females and are more successful at monopolizing them. Findings for other, less frequently displayed, multimodal signals (olfactory-visual, olfactory-visual-tactile and tactile-gustatory) are presented and discussed. We conclude with the suggestion that howlers may be a robust model for the investigation of complex signals in Neotropical primates, including research on functionally referential communication and context-dependent syntax**.**
Localización: Biblioteca OET: NBINA-6701.

Publicación no.: 0569 **Feeding selectivity by mantled howler monkeys (Alouatta palliata) in relation to leaf secondary chemistry in Hymenaea courbaril** *[Selectividad alimentaria de los monos congo (Alouatta palliata) en relación con compuestos químicos secundarios en el guapinol Hymenaea courbaril]* / Welker, B.J; König, W; Pietsch, M; Adams, R.P. (State University of New York. Department of Anthropology, 1College Circle, Geneseo, NY 14454, US <E-mail: welker@geneseo.edu>).
En: Journal of Chemical Ecology (ISSN 0098-0331), v. 33, no. 6, p. 1186-1196. 2007
This study is a quantitative examination of primate feeding selectivity in relation to secondary chemistry within a single plant species, Hymenaea courbaril. It provides the first evidence that sesquiterpenes may act as feeding deterrents in mantled howler monkeys. A free-ranging group of mantled howler monkeys at the study site of Sector Santa Rosa, Area de Conservación Guanacaste, Costa Rica were observed for the 2-month period of H. courbaril leaf flush in 1999. Tree characteristic data and leaf specimens were collected from 22 focal trees. Gas chromatography and mass spectrometry were used to estimate relative percentages of sesquiterpenes in leaf specimens. The monkeys fed only on the youngest leaves and only from particular trees. Whereas leaf stage selectivity was likely governed by tannin content and structural carbohydrates in younger and older leaf stages, respectively, differential tree use may be related to variability in sesquiterpene content. There is evidence that alfa-copaene may have played a role in interindividual tree use, and that cyperene may also be implicated. However, there is no reported evidence of antiherbivore activity for cyperene**.**
Localización: Biblioteca OET: NBINA-6700.

Publicación no.: 0570 **Presencia de Plasmodium brasilianum (Apicomplexa, Plasmodidae) en el mono congo (Alouatta palliata, Primates: Cebidae) de Costa Rica. Importancia epidemiológica en relación con el ser humano** *[Plasmodium brasilianum (Apicomplexa, Plasmodidae) in the mantled howler monkey Alouatta palliata (Primate: Cebidae) of Costa Rica: Epidemiological importance related to human]* / Chinchilla-Carmona, Misael; Guerrero-Bermúdez, Olga Marta; Gutiérrez-Espeleta, Gustavo A; Sánchez-Porras, Ronald E. (Universidad de Costa Rica. Centro de Investigación en Enfermedades Tropicales (CIET), Departamento de Parasitología, Facultad de Microbiología, San José, CR <E-mail: chinchillacm@ucimed.com> <E-mail: abriceno@racsa.co.cr> <E mail: ggutier@biologia.uc).

En: Parasitología Latinoamericana (ISSN 0717-7712 (online)), v. 61, p. 192-196. 2006.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-6648.pdf
Plasmodium brasilianum, a malaria parasite of Primates, was found for the first time in Costa Rica in 6 of 104 howler monkeys (Alouatta palliata) studied. Animals were captured and anaesthesied with dards containing equal parts of tiletamine hidrochloride and Zolazepam (Zoletil®). To study blood parasites, smears were prepared, fixed in methyl alcohol and stained by Giemsa technique. Young and advanced trofozoites (band forms) as well as gametocytes and squizonts ("rosseta" forms) were found. Since this parasite is very similar to P. malariae, a human parasite that has been found in Costa Rica, the presence of P. brasilianum is discussed on the epidemiological point of view**.**
Localización: Biblioteca OET: NBINA-6648.

Publicación no.: 0571 **Ontogenetic patterns of positional behavior during play in Cebus capucinus and Alouatta palliata** *[Patrones ontogénicos del comportamiento de postura durante el juego en Cebus capucinus y alouatta palliata]* / Bezanson, Michelle F. (Santa Clara University. Department of Anthropology, 500 El Camino Real, Santa Clara, CA 95053-1500, US <E-mail: mbezanson@scu.edu>).
En: American Journal of Physical Anthropology (ISSN 0092-948), Suppl 44, p. 74-75. 2007
(Abstract only). Play is described as an important aspect of locomotor development in mammal lives. While play as an aspect of social behavior is perceived to be a time of practice of motor control and development, studies rarely emphasize locomotion and posture during play even though this activity can be associated with disparity in relative amounts of positional modes between young individuals and adults. I collected 955.7 hours of data (57,344 individual activity records) on locomotion and posture, activity, branch size, branch angle, and crown location in five age categories of white-faced capuchins and mantled howlers during a 12 month period at Estación Biológica La Suerte in the northeastern Costa Rica. Infancy and juvenile periods in both species were characterized by play behavior, a continued association with the mother during social behavior, progressive locomotor independence, and continued social learning. In both species, positional modes were more diverse in juveniles when compared to adults. As play increased in juveniles, the positional repertoire became more varied. In capuchins and howlers, play involved chasing, wresling, and associated faster and more acrobatic positional modes. Positional modes such as tail suspend, leap, and quadrupedal run increased during social play. A comparison of positional behavior within all behavioral contexts (feeding. foraging, travel, social behavior), showed that the greatest differences (p 0.05) among age categories in both species were within the contexts of social behavior and are related to the relative proportions of play in juveniles. This pattern was consistent with the intuitive suggestion that as play increases, so will the frequency of locomotor modes. Results presented here not only illustrate the importance of play and locomotor development but also suggest that studies of ontogenetic patterns of positional behavior consider differences among more precise behavioral contexts**.**
Localización: Biblioteca OET: NBINA-6699.

Publicación no.: 0572 **Effects of color vision phenotype on foraging behavior of white-faced capuchin monkeys** *[Efectos del fenotipo de visión del color en el comportamiento de forrajeo de los monos carablanca]* / Melin, Amanda D. (University of Calgary. Department of Anthropology, 2500 University Dr NW, Calgary, AB T2N 1N4, CA <E-mail: amelin@ucalgary.ca>).
En: ASP [American Society of Primatology] Bulletin, v. 30, no. 3, p. 14-15. 2006.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-6100.pdf

Unlike most eutherian mammals, which have dichromatic (two-colour) vision, most platyrrhine primate species have polymorphic colour vision. This unique characteristic is enabled via multiple alleles for a mid-to long-wavelength-sensitive (M/LWS), single-locus opsin gene on the X chromosome. In combination with the autosomal opsin common to most vertebrates, this arrangement provides heterozygous females with trichromatic (three-colour) vision, whereas homozygous females and males are dichromats. Trichromatic vision enables visual differentiation among longer-wavelength colours, such as red, orange, yellow and green. Currently, many researchers attribute the evolution and maintenance of polymorphic colour vision to trichromat (= heterozygote) advantage. However, dichromacy may be more suited for achromatic tasks, such as penetrating colour camouflage, especially under low-light conditions. We evaluated whether dichromatic capuchin m onkeys (Cebus capucinus) were more efficient than trichromatic monkeys at capturing camouflaged and noncamouflaged insects. Through faecal DNA analysis, we determined the genotypes of the M/LWS opsins for 34 capuchins in two groups inhabiting Santa Rosa National Park, Costa Rica. Dichromatic monkeys were more efficientat detecting camouflaged, surface-dwelling insects, especially under conditions of low ambient light. However, unexpectedly, trichromats were more efficient in extracting embedded, noncamouflaged insects from substrates. To our knowledge,this is the first study to document a foraging advantage to dichromatic monkeysin the wild. Our findings show that there is a lack of heterozygote advantage in foraging for surface-dwelling insects and therefore indicate that this mechanism may not be the sole drivingforce maintaining polymorphic colour vision in this population**.**
Localización: Biblioteca OET: NBINA-6100.

Publicación no.: 0573 **Seed dispersal ecology of non-restricted frugivores, capuchin monkeys in three neotropical forests** *[Ecología de la diseminación de semillas de frugívoros no restringidos, monos carablanca en tres bosques neotropicales]* / Wehncke, Elisabet V; Domínguez, Cesar A. (San Diego Natural History Museum. Biodiversity Research Center of the Californias, 1788 El Prado, San Diego, CA, US <E-mail: elisabetw@ecologia.unam.mx>).
En: Journal of Tropical Ecology (ISSN 0266-4674), v. 23, p. 519-528. 2007
Seed dispersal by frugivorous animals has the potential to affect both the demography and the patterns of gene flow of plant populations. In many tropical and subtropical forests a large number of seeds are efficiently dispersed by "non-restricted frugivores" (NRFs, animals for which fruits do not represent the main bulk of their diet), a group commonly underestimated as seed dispersers. Here, we synthesize data from three different neotropical forests (Argentina, Panama and Costa Rica), evaluating several aspects of seed dispersal by two species of Cebus monkeys. Capuchin monkeys are NRFs broadly distributed throughout Central and South America that are potentially long distance seed dispersers. In this study we evaluated the influence of the foraging behaviour of Cebus apella and C. capucinus on the patterns of seed dispersal. Even though the distribution of fruit types significantly differed among forests, no evidence of diet selection was found, indicating that the fruits consumed by monkeys represent a random sample of the pool available at each site. Neither seed treatment, nor the evenness with which fruit species were consumed, differed among forests. In contrast, the feeding time per fruiting tree (10-45 min), the diversity of fruits consumed (H=2-3.3), and seed dispersal distances (100-400 m), differed among the three forests. Thus, capuchin monkeys consume a high diversity of fruits in transit producing a scattered dissemination of seeds in all study forests. This study highlights the ecological and evolutionary significance of seed shadows generated by NRFs, without neglecting the possibility that differences in the distribution of fruit patches, species richness and a range of environmental attributes

among the studied forests, exert a strong influence on the outcome of the interaction between NRFs and plants.
Localización: Biblioteca OET: NBINA-7278.

Publicación no.: 0574 **The density and distribution of Ateles geoffroyi in a mosaic landscape at El Zota Biological Field Station, Costa Rica** *[Densidad y distribución de Ateles geoffroyi en un mosaico de paisaje en la Estación Biológica de Campo El Zota, Costa Rica]* / Lindshield, Stacy M. (Iowa State University. Department of Anthropology, 324 Curtiss Hall, Ames, IA 50011, US <E-mail: slind@iastate.edu>). Ames: Iowa State University, 2006. 142 p. ISBN: 978-0-542-99896-6. Thesis, M.A. in Anthropology, Iowa State University, Department of Anthropology, Ames, IA (USA).
The genus Ateles is thought to prefer primary forest, as spider monkeys are ripe fruit specialists and generally occupy the upper canopy of tropical forests. However, this generalization could be weakened by new research examining Ateles' use of disturbed and undisturbed habitat. This study measures spider monkey habitat use with density estimates following line transect methodology and encounter frequencies between undisturbed and disturbed habitat in wet and swamp forests. Results indicate no significant difference in habitat use. Preliminary measures of habitat quality show greater overall fruit abundance in primary forest, yet similar Ateles densities suggest factors influencing habitat use in mosaicland is more complex than previous research indicates. A better understanding of spider monkeys in areas of forest disturbance is necessary in order to evaluate their habitat requirements in an increasingly anthropogenic landscape.
Localización: Biblioteca OET: NBINA-8028.

Publicación no.: 0575 **Natal emigration by both sexes in the La Pacifica Population of mantled howlers: when do some stay?** *[Emigración del lugar de nacimiento por ambos sexos en la población de monos congo de La Pacifica: ¿Cuándo algunos se quedan?]* / Clarke, Margaret R; Glander, Kenneth E. (University of Texas Health Science Center Houston. Department of Neurobiology and Anatomy, 6431 Fannin St. MSB 7.046, Houston, TX 77030, us <E-mail: margaret.clarke@uth.tmc.edu> <E-mail: clarkem@cwu.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 69, p. 1-9. 2007
We have reported previously that all male and female mantled howlers emigrate from natal groups at Hacienda La Pacífica, Costa Rica. In the years since that report, a small number of juveniles have stayed in the natal group without experiencing a solitary phase. Here, we present a post hoc analysis on juvenile emigration in six groups of howlers under observation for varying amounts of time between 1972 and 2005. Our records revealed 139 juveniles for whom emigration status was certain, and 125 of these did emigrate. There was a significant association between presence of mother and emigration: juveniles without mothers were more likely to remain in their natal group ($x^2 = 53.1$, P .0001). The mean age of emigration for all juveniles (n Localización: Biblioteca OET: NBINA-7270.

Publicación no.: 0576 **Effects of reproductive status on energy intake, ingestion rates, and dietary composition of female Cebus capucinus at Santa Rosa, Costa Rica** *[Efectos del estado reproductivo sobre la ingesta de energía, tasas de ingestión y composición de la dieta de la hembra de Cebus capucinus en el Parque Nacional Santa Rosa, Costa Rica]* / McCabe, G.M; Fedigan, Linda M. (University of Calgary. Department of Anthropology, 2500 University Drive N.W., Calgary, AB T2N 1N4, CA <E-mail: fedigan@ucalgary.ca>).

En: International Journal of Primatology (ISSN 0164-0291), v. 28, no. 4, p. 837-851. 2007
The limiting factor for fitness in female primates is the acquisition of high-quality food, i.e., food that is high in energy and nutrients, such as protein, fat, and carbohydrates. Reproductive status can influence female feeding patterns, e.g., lactating females in some primate species consume greater quantities of food and specific nutrients than do nonlactating females. We examined the energy intake, ingestion rate, and composition of the diet in female white-faced capuchins in 3 reproductive states: lactating, gestating, and cycling. We observed 12 reproductively active females for 7 mo and compared their energy intake, ingestion rates, and intake rates of nutrients: protein, fat, sugar, and fiber. Lactating females took in significantly more energy per hour while feeding than pregnant and cycling females did. Lactating females also ingested significantly more food items per hour, but they did not spend more time eating than other females did, and they did not differ in the composition of their diet as measured by insect consumption and proportion of protein. Pregnant and cycling females did not differ from each other in any of the measures. We predicted that as the infants aged and began to move independently to forage and play, their mothers' energy intake rates would decrease in concert with decreased energy demands by the infant. We found a statistically significant relationship between these 2 factors, with infant age explaining 75.4% of variation in mothers' energy intake, supporting previous studies that found lactation to be the most energetically expensive reproductive state**.**
Localización: Biblioteca OET: NBINA-7357.

Publicación no.: 0577 Understanding escalated aggression over food resources in white-faced capuchin monkeys [Entendimiento de la escalada agresiva sobre los recursos alimentarios en los monos carablanca] / Vogel, E.R; Munch, S.B; Janson, Charles H. (University of California. Department of Anthropology, 1156 Hight Street, Santa Cruz, CA 95064, US <E-mail: evogel@ucsc.edu>).
En: Animal Behaviour (ISSN 0003-3472), v. 74, no. 1, p. 71-80. 2007
Escalated aggression has been studied both theoretically and empirically in many species of organisms. Most studies have focused on individuals competing for mates, territories or rank within a social hierarchy. In nonhuman Primates, dyadic aggression has been studied in the context of feeding trees, whereas coalitions have been studied primarily in the context of mate or rank acquisition. Although coalitions can represent a substantial fraction of agonistic interactions at feeding trees, most studies have not taken into account the effect of present ecological conditions on the occurrence of coalition formation. We examined whether there is an ecological basis to escalated aggression, defined as overt dyadic aggression and polyadic coalition formation, in wild white-faced capuchin monkeys, Cebus capucinus. Our results indicate that ecological characteristics of the feeding trees, the availability of potential allies and rank differences between interactants are important in predicting escalated aggression in this species. This is the first field study to link ecology to escalations in the form of dyadic and polyadic aggression in nonhuman Primates**.**
Localización: Biblioteca OET: NBINA-7818.

Publicación no.: 0578 **Sex differences in the social behavior of juvenile spider monkeys (Ateles geoffroyi)** *[Diferencias de sexo en el comportamiento social de monos colorados juveniles (Ateles geoffroyi)]* / Rodrígues, Michelle A. (The Ohio State University. Department of Anthropology, Columbus, OH 43210, US). Ames, IA: Iowa State University, 2007. 150 p. Thesis, M.A., Iowa State University, Ames, Iowa (USA).

Previous studies indicate adult spider monkeys (Ateles geoffroyi) display marked sex differences, including some that may emerge early in life. However, the social behavior of juvenile spider monkeys and potential sex differences has not been adequately studied. Sex differences in the social behavior and proximity patterns of individually recognized juvenile black-handed spider monkeys (A. geoffroyi ornatus) were examined at El Zota Biological Field Station in Costa Rica. Both males and females exhibited sex-typical differences. Only females initiated grooming. Females centered interaction around their mothers and female peers, while males interacted more with adult and juvenile males. Juvenile males were also found in significantly larger parties than females, and were in parties containing adult males significantly more than females. The results of this study indicate that juvenile spider monkeys begin to exhibit sex-typical behaviors at an early age, and that these behavioral patterns prepare them for the social challenges of adulthood*.*
Localización: Biblioteca OET: NBINA-7642.

Publicación no.: 0579 **Grouping behaviour and sex ratio in mantled howling monkeys** *[Comportamiento de agrupamiento y proporción de sexos en monos congo]* / Scott, Norman Jackson, Jr; Malmgren, L.A; Glander, Kenneth E.
En: Recent advances in primatology. Vol. 1: Behaviour. Chivers, D.J; Herbert, J. (eds.). New York: Academic Press, 1978. p. 183-185. ISBN: 0-12-173301-7. (No abstract).
Localización: No disponible.

Publicación no.: 0580 **Isozymes and plasma proteins in eight troops of golden mantled howling monkeys (Alouatta palliata)** *[Isoenzimas y proteínas del plasma en ocho tropas de monos congo (Alouatta palliata)]* / Malmgren, L.A; Brush, Alan H.
En: Recent advances in primatology. Vol. 3. Evolution. Chivers, D.J; Joysey, K.A. (eds.). New York: Academic Press, 1978. p. 283-285. ISBN: 0-1-173303-3. (No abstract).
Localización: No disponible.

Publicación no.: 0581 **Howling monkey feeding behavior and plant secondary compounds: a study of strategies** *[Comportamiento alimentario de los monos congo y compuestos secundarios de las plantas: un estudio de estrategias]* / Glander, Kenneth E. (Duke University Primate Center, 3705-B Erwin Rd, Durham, N.C. 27706, US <E-mail: glander@duke.edu>).
En: The ecology of arboreal folivores. Montgomery, G.G. (ed.). Washington, D.C.: Smithsonian Institution Press, 1978. p. 561-574. ISBN: 0-87474-646-9. (No abstract).
Localización: No disponible.

Publicación no.: 0582 **Empirical population genetics of golden mantled howling monkeys (Alouatta palliata) in relation to population structure, social dynamics, and evolution** *[Genética de población empírica de los monos congo (Alouatta palliata) en relación con la estructura de la población, dinámica social y evolución]* / Malmgren, L.A. Storrs, CT: The University of Connecticut, 1978. 226 p. Dissertation, Ph.D., The University of Connecticut, Storrs, Connecticut (USA).
Howling monkeys have been studied in the field more than any other non-human New World primate, but population and social dynamics still are not well understood. In this study, biochemical and mensural characters and preliminary information from demographics and direct observations of tagged animals from which the blood samples and measurements were taken were analysed to consider the

nature and extent of intertroop migration, mechanisms of troop formation, the role of peripheral males in populationdynamics, and the net effect of these social elements combined on the genetic character of local populations and the evolutionary biology of the species.Golden mantled howling monkeys, Alouatta palliata, from two Costa Rican populations and several parts of Panama were tranquilized with drug darts shot from a CO2 powered rifle and captured. Individuals were aged, measured, weighed, and tagged, blood samples were taken, and the monkeys were returned to their troops. Most troops were censused each week during four two-month field trips. Behavioral observations were opportunistic. Blood samples were freeze-dried or frozen and conveyed to the laboratory where they were electrophoresed and stained for proteins encoded by at least 20 loci (GPD, LDH, M-MDH, S-MDH, GPDH, GDH, ceruloplasmin, AK, Es-A, Es-B, LAP, PEP, PHI, hemoglobins, and plasma proteins). Nei's and Rogers' indexes of genetic similarity and Wright's F statistic were used to estimate the extent of isolation and inbreeding within troops from patterns of protein variation. Allele frequency data also were used to estimate effective intertroop migration rates. The distinctness of troops and geographically separated populations with respect to the electrophoretically determined protein variation, twelve morphological characters, and partial albinisms was tested by multiple group discriminant function analyses. Variability (5%) and heterozygosity (1.3%) values determined from biochemical analyses were low relative to those reported for other species. All but one of the enzyme systems, M-MDH, was monomorphic. Three M-MDH phenotypes were resolved with banding patterns similar to those described for other primates, birds, and reptiles. A population bottleneck during the colonization of Central America might explain the low variability. Or, inherent constraints on biochemical variability might exist. The fact that Costa Rican and Panamanian howlers varied at the same locus for the same alleles in about the same frequencies in spite of geographic isolation and morphological divergence, supports this notion. Possibly, homozygote lethality in small relatively inbred ancestral populations restricted biochemical variation, or, biochemical adaptations to the howlers` diet might have required highly specialized biochemical pathways and encouraged the evolution of a physiologically flexible individual, but genetically conservative populations. Overall electrophoretic (I = 0.990; S = 0.912) and morphological similarity among troops was high. M-MDH allelic variation indicated that in spite of small effective troop size, territoriality, and philopatry, howler troops were not inbred. It was estimated that one monkey emigrates per troop per year. Field observations and data from recaptures indicated that juvenile male egress and adult male intertroop migration probably accounts for most of the gene flow. Some evidence suggests that changes in resource availability caused by irrigation might alter male dispersal patterns and directly influence local population genetic character. An observed troop fission produced two daughter troops of equal size but unequal dominance. Biochemical analyses indicated that daughter troop membership was influenced by female kinship. Characteristics of the sub-dominant troop made it an excellent potential dispersal unit. Like some of the most able colonizers, e.g. rats, mice, and men, howlers appear tolerant to low genic variability. This, combined with non-random division of the gene pool during troop fission, might have been critical for survival and rapid divergence of small ancestral founder populations and the evolution of the polytypic, wide-ranging genus Alouatta.
Localización: No disponible.

Publicación no.: 0583 **Aspects of reproductive behavior in the mantled howler monkey, Alouatta palliata Gray** *[Aspectos del comportamiento reproductivo en el mono congo, Alouatta palliata Gray]* / Jones, Clara B. (Fayetteville State University. Department of Psychology, 1200 Murchison Road,

Fayetteville, NC 28301-4298, US <E-mail: cbjones@uncfsu.edu>). Ithaca, NY: Cornell University, 1978. 128 p. Dissertation, Ph.D., Cornell University, Ithaca, NY (USA). (No abstract).
Localización: Biblioteca Museo Nacional: QL737.P925/J65a.

Publicación no.: 0584 **Foraging strategies, group size, and food competition in the mantled howler monkey, Alouatta palliata** *[Estrategias de forrajeo, tamaño del grupo y competencia por alimento en el mono congo, Alouatta palliata]* / Larose, F. Edmonton, AB: University of Alberta, 1996. 171 p. ISBN: 0-612-18063-8. Dissertation, Ph.D., University of Alberta, Department of Anthropology, Edmonton, Alberta (Canada).
A thirteen month study of the foraging strategies of the mantled howler monkey (Alouatta palliata) was carried out in Santa Rosa National Park, Costa Rica, to investigate the relationship between group size, resource availability, and the intensity of food competition. Four groups of different sizes, ranging from six to forty-five animals, were followed simultaneously during this study. Quantitative descriptions of diet, ranging patterns, time budget, and patch use are presented for each group to provide a basis for comparing the intensity of food competition within each group. Dietary overlap was generally low on a monthly, seasonal, and annual basis. Variability in abundance and density of plant species explained some of these differences. However, similarities were found in the number of food species used on a daily basis, and in the preference for large feeding trees. Results also demonstrate the preference for seasonal items such as flowers, fruits, and young leaves when these are available. Results also show that ranging patterns increased as a function of group size providing evidence that competition for resources forced animals in larger groups to spend more energy looking for food. Analysis of time budget provided more evidence of increased food competition. Groups BH45 and BH18 fissioned during the dry season when they were forced to remain active during the intense midday heat to find food. The results also showed that seasonal and annual variability of food items greatly influenced time budget and ranging patterns of howlers. Analysis of aggression over food items also showed that howlers competed for preferred food items such as fruits and flowers. Evidence is presented suggesting that females, juveniles, and low-ranking animals incur most of the costs of aggressive competition over food. Analyses of food patch use also suggest that although large groups deplete food patches more often than small groups, most food patches used by howlers may not be depleted. The availability of "super-productive" food patches may reduce the intensity of food competition within groups and allow for larger group sizes.
Localización: Biblioteca OET: NBINA-8065.

Publicación no.: 0585 **The social behavior and ecology of the black-handed spider monkey (Ateles geoffroyi)** *[El comportamiento social y ecología del mono colorado (Ateles geoffroyi)]* / McDaniel, P.S. St. Louis, MO: Saint Louis University, 1994. 271 p. Dissertation, Ph.D., Saint Louis University, St. Louis, MO (USA).
Investigating the ecological requirements and social dynamics of free-ranging animals is essential if we hope to develop conservation programs for biologically imperiled species. The life history characteristics and ecology of spider monkeys, combined with the external threats they face, increase their likelihood for extinction. This project was designed to describe and quantify the activity patterns, social behaviors and social dynamics of black-handed spider monkeys (Ateles geoffroyi) in a fragmented, tropical moist forest in northwestern Costa Rica. Seasonal comparisons of the habitat use, spatial relationships and activity patterns were also investigated, in the context of Ateles association with mantled howler monkeys (Alouatta palliata) and white-faced capuchins (Cebus capucinus). Opportunistic scan sampling

was used to collect information on the habitat use, spatial relationships and activity patterns of all three primate species. Instantaneous scan sampling and the recording of all occurrences of selected behaviors were used to collect information on the activity patterns, social behaviors and social dynamics of the spider monkeys. Results suggested that social bond formation and sex role differentiation occur at a young age in spider monkeys, with patterns of affiliation and aggression appearing early in an animal's social development. Distinct differences in activity patterns revealed activity to be more age-class dependent than sex-class dependent. Both interspecific and intraspecificseasonal differences were found in habitat use patterns, spatial relationships and activity patterns for all three primate species. Variation in species' ecology was found between the animals in this fragmented forest and other locations throughout Central and South America, implying that ecological pressures are not only seasonal but also site specific.
Localización: Biblioteca OET: NBINA-8079.

Publicación no.: 0586 **The positional behavior and prehensile tail use of Alouatta palliata, Ateles geoffroyi, and Cebus capucinus** *[Comportamiento de postura y uso de la cola prensil de Alouatta palliata, Ateles geoffroyi y Cebus capucinus]* / Bergeson, D.J. (Washington University. Department of Anthropology, Campus Box 1114, St. Louis, MO 63130, US). St. Louis, MO: Washington University, 1996. 368 p. Dissertation, Ph.D., Washington University, St. Louis, Missouri (USA).
The aim of this study was to investigate the positional behavior of three species of prehensile-tailed platyrrhines, Alouatta palliata, Ateles geoffroyi, and Cebus capucinus, in Costa Rica. An additional aim was to examine the biological role of the prehensile tall in each of these primates. Data were collected on the positional behavior and prehensile tail use of each species. These data were used to examine the effects of gap size, crown location, support characteristics, and diet on positional behavior and prehensile tail use. The atelines shared a common arboreal habitat, as the size, angle, flexibility, height, and crown location of the supports used during both travel and feeding were similar in howling monkeys and spider monkeys. The methodsused by Alouatta and Ateles to move and feed on these branches differed between species, and reflect alternate ways of exploiting a similar habitat. When confronted with gaps between tree crowns, spider monkeys usually crossed these gaps by forelimb suspension, pronograde bridging, or leaping, while howling monkeys usually crossed between these gaps by pronograde bridging or quadrupedal walking. When traveling and feeding, Cebus used different supports and different patterns of locomotion and posture than the atelines, and was less restricted to the crown periphery than the atelines. Cebus usually crossed gaps between tree crowns by leaping. In each species, the rate of prehensile tail use was highest during feeding and foraging. Branch characteristicscrown location, and diet each had significant effects on the positional behavior and prehensile tail use of all three species. In each species, the support characteristic that most influenced positional behavior and prehensile tail use was branch size. Contrary to previous suggestions, the rate of prehensile tall use and suspensory feeding did not increase in the crown periphery. The data suggest that the prehensile tail serves several biological roles in each species. In addition to increasing the feeding sphere of Alouatta, Ateles, and Cebus via suspensory postures, the prehensile tail also serves to increase the ability of each species to balance on small branches, to free the hands of each species, to allow each species to feed as well as forage in the crown periphery, to feed and move on vertical supports, and to cross gaps between tree crowns.
Localización: Biblioteca OET: NBINA-8078.

Publicación no.: 0587 **Troop progressions of free-ranging howler monkeys (Alouatta palliata)** *[Avances de las tropas de monos congo (Alouatta palliata) en libertad]* / Costello, M.B. Riverside, CA: University of California, 1991. 78 p. Dissertation, Ph.D., University of California at Riverside, California (USA).
The sociospatial organization of troop progressions of baboons exhibit a regular and recurrent order. Relative to other age-sex classes, adult males are located at the front and rear of progressions at frequencies greater than troop composition wouldpredict. This has the effect of protecting the vulnerable young, who tend to be centrally located and are least able to defend themselves against predators. At the proximate level, differences in fearfulness and confidence between the age-sex classes areconsidered to result in non-random progression orders. Ultimately, intrasexual selection is thought to be responsible for the sexual dimorphism of body size and temperament between adult males and adult females, which would influence the location of eachclass of individuals during a terrestrial progression. This is the first systematic study of the sociospatial order of troop progressions in a New World primate. Analyses of the sociospatial order of progressions of a single troop of mantled howler monkeys (Alouatta palliata) revealed that two adult females occupied the #1 position during troop progressions more frequently than troop composition would predict. Both adult females were subordinate to all other adult females but one. The single adult male neither led nor trailed the troop at greater than chance levels. Most progressions were single file movements out of the initial tree and into the destination tree, and ended in bouts of foraging. Consistent with the data on baboon progressions, the walking infant of this troop never led a progression. The frontward trend of each of the two adult females appeared to function to lower the probability of aggressive interactions while foraging. There were no indications that these individuals were initiating or directing the progressions. It is unlikely, given the paucity of predation data on such a well studied primate as Alouatta palliata, that predation has had as big a selection effect on the social dynamics of howler monkeys as it has had on baboons.
Localización: No disponible.

Publicación no.: 0588 **Socialization, infant mortality, and infant-nonmother interactions in howling monkeys (Alouatta palliata) in Costa Rica** *[Socialización, mortalidad infantil e interacciones infantes con no madres en monos congo (Alouatta palliata) en Costa Rica]* / Clarke, Margaret R. (Central Washington University. Department of Anthropology, Ellensburg, WA 98926, US <E-mail: clarkem@cwu.edu>). Davis, CA: University of California, 1982. 228 p. Dissertation, Ph.D., University of California at Davis (USA).
A 22 month field study of howlers (Alouatta palliata) in Guanacaste, Costa Rica, was carried out to elucidate the process of socialization and clarify the function of interactions of infants with nonmothers. Thirteen infants were followed on a focal and ad lib basis in the main study group, and others were followed on an ad lib basis in the secondary study group. Five additional groups were censused for demographic changes. Infant ontogeny and socialization reflected mothers' early independence for foraging as well as adult social behavior. Infants were forced off their mothers as early as six weeks of age while mothers fed, and infants traveled alone after six months of age. Although infants suckled until 15 months of age, maternal dependence decreased after 10 months of age. Weaning was more stressful for male infants. Interaction patterns reflected stereotyped adult behaviors. Females, who were more sociable as adults, were more sociable as infants and interacted with all group members. Males, who experienced a longer solitary phase than females before entering a group, were less sociable as infants, avoided interactions, and did not interact with adult males beyond the age of three months. The adult sex ratio of 1:3 in howlers was affected byhigh infant male mortality. Males had increased chances of falling; both because they played harder, longer. and with older animals, and because males received

less care from their mothers. Infant males were also subject to infant-killing by invading males. There was no evidence for juvenile mortality, either as group members or as solitaries. Interactions with nonmothers did not appear to directly benefit infants. Mothers rescued infants, and adopters were generally not group members. There were few relatives within howler groups,but sibs and probable fathers occasionally helped infants. Both sibs and adult males were also observed harming peers of their probable kin. Adult females were interested in infants of all ages, but dominant females were mostinterested in the youngest infants, and directed harm toward infants of lower ranking females. Mothers avoided nonmothers while their infants were young and vulnerable, but allowed infants to interact more freely after 10 weeks of age, possibly for mothers' increased foraging efficiency. Howlers, then, appear to interact selfishly, and compete within groups of animals who share little or no relatedness.
Localización: No disponible.

Publicación no.: 0589 **Seed predation by mammals and forest dominance by Quercus oleoides, a tropical lowland oak** *[Depredación de semillas por mamíferos y bosques dominados por Quercus oleoides, un encino del bosque tropical de las tierras bajas]* / Boucher, D.H. (McGill University. Department of Biology, 1205 Avenue Docteur Penfield, Montreal, Quebec H3A 1B1, CA).
En: Oecologia (ISSN 0029-8549), v. 49, p. 409-414. 1981
Quercus oleoides Cham. and Schlecht is an unusual tree in several respects: it is an oak found in neotropical lowland forests, its distribution is not continuous but rather divided into many patches of various sizes, and it is a dominant in all the forests in which it occurs, attaining densities far higher than most species of tropical trees. This density pattern is related to the vulnerability of Q. oleoides acorns to predation by mammals. Observations of agoutis, deer, peccaries, squirrels, pocket mice and other seed consumers in Santa Rosa National Park, Costa Rica, showed that these mammals act only as predators, not dispersers, of Q. oleoides acorns. Experiments which involved placing acorns in deciduous forest where Q. oleoides does not occur, demonstrated that, due to high predation rates, the number of acorns produced by an isolated tree is far too low for adults to replace themselves. In oak forest, on the other hand, where the combined acorn crops of many oaks satiate the seed predatorsacorn survivorship until germination is high enough to maintain the population. Furthermore, acorn survivorship in oak forest areas is inversely proportional to the apparent mammal density in those areas. Thus the pattern of forest dominance and patchy distribution is related to positively density-dependent acorn survivorship: where Q. oleoides is the forest dominant, it will survive, but if its density falls to the level typical of tropical trees, it will go locally extinct**.**
Localización: Biblioteca OET: NBINA-8022. S7036.

Publicación no.: 0590 **Influencia de las variables de hábitat y paisaje sobre la presencia-ausencia del mono tití y del mono carablanca en un área fragmentada del Pacífico Central de Costa Rica** / Sáenz-Méndez, Joel Cris; Sáenz, Paula. (Universidad Nacional. Instituto Internacional en Conservación y Manejo de Vida Silvestre, Apdo. 1350-3000, Heredia, CR <E-mail: jsaenz@una.ac.cr>).
En: Evaluación y conservación de biodiversidad en paisajes fragmentados de Mesoamérica. Harvey, C.A; Sáenz-Méndez, J.C. (eds.) Santo Domingo de Heredia: Editorial INBio, 2007. p. 511-545. ISBN: 978-9968-927-29-1.
We evaluated the impact of habitat and landscape variables on two species of monkeys, (Saimiri oerstedii citrinellus, the Titi monkey and Cebus capucinus, the White-faced monkey) using Canonical

Discriminant Analysis (CDA) to determine which variables best explain the presence of these two species. We conducted an intensive search of monkeys in all of the forest fragments (45) of the study area (540 km²). Ten landscape variables, three vegetation variables for interior of the fragments, and two matrix variables. Titi monkeys were present in 28 fragments while White faced monkeys were in 30. Eighteen fragments had only one monkey species present (of these 11 had only Titis and 7 had only White-faced monkeys) and 21 fragments had both species present. The first canonical axis (CAN1) of the CDA explained the presence of Titis with a correct classification of 90% of the variables (Kappa Cohen (Kc) = 0.79), and by means of two variables, distance from the source habitat (non fragmented forests) and presence of corridors between fragments. For White-faced monkeys CAN1 explained their presence by means of two variables, forest fragment size and the cover percentage of young secondary forest on a 5 km radius of the monkey?s location, and with a correct classification of 89% (Kc = 0.77). When the two groups of monkeys were considered as separate groups within the CDA, only the variable ?corridors? explained the presence of both species of monkey, with a correct classification of 60% (Kc = 0.23). On the other hand, there were more fragments with corridors containing Titis than fragments without corridors (X^2 = 7.248, p = 0.0067). In conclusion, fragments close to source habitats and fragments with corridors showed a high probability of containing Titis. However, for the Whitefaced monkeys, the size of the forest fragment and the percent cover of young secondary forest in the surrounding matrix were important**.**
Localización: Biblioteca OET: NBINA-8064.

Publicación no.: 0591 **Manipulative monkeys: the capuchins of Lomas Barbudal** *[Monos manipuladores: los carablancas de Lomas Barbudal]* / Perry, Susan E; Manson, Joseph H. (Max-Planck-Institute for Evolutionary Anthropology. Independent Junior Research Group in Cultural Phylogeny, Deutscher Platz 6, 04103 Leipzig, DE <E-mail: perry@eva.mpg.de> <E-mail: manson@eva.mpg.de>). Cambridge, MA: Harvard University Press, 2008. 358 pp. ISBN: 0674026640.
With their tonsured heads, white faces, and striking cowls, the monkeys might vaguely resemble the Capuchin monks for whom they were named. How they act is something else entirely. They climb onto each other's shoulders four deep to frighten enemies.They test friendship by sticking their fingers up one another's noses. They often nurse--but sometimes kill--each other's offspring. They use sex as a means of communicating. And they negotiate a remarkably intricate network of alliances, simian politicsand social intrigue. Not monkish, perhaps, but as we see in this downright ethnographic account of the capuchins of Lomas Barbudal, their world is as complex, ritualistic, and structured as any society. Manipulative Monkeys takes us into a Costa Rican forest teeming with simian drama, where since 1990 primatologists Susan Perry and Joseph H. Manson have followed the lives of four generations of capuchins. What the authors describe is behavior as entertaining--and occasionally as alarming--as it is recognizable: the competition and cooperation, the jockeying for position and status, the peaceful years under an alpha male devolving into bloody chaos, and the complex traditions passed from one generation to the next. Interspersed with their observations of the monkeys' lives are the authors' colorful tales of the challenges of tropical fieldwork--a mixture so rich that by the book's end we know what it is to be a wild capuchin monkey or a field primatologist. And we are left with a clear sense of the importance of these endangered monkeys for understanding human behavioral evolution**.**
Localización: Biblioteca OET: 599.85097286 P465m.

Publicación no.: 0592 **Experimental field study of hand preference in wild black-horned (Cebus nigritus) and white-faced (Cebus capucinus) capuchins: evidence for individual and species differences** *[Estudio experimental de campo sobre la preferencia de mano en el mono negro cornudo silvestre (Cebus nigritus) y mono carablanca (Cebus capucinus): evidencia de diferencias individuales y de especies]* / Garber, Paul A; Gomes, D.F; Bicca-Marques, J.C. (University of Illinois. Department Anthropology, 109 Davenport Hall, 607 S Mathews Ave, Urbana, IL 61801, US <E-mail: p-garber@uiuc.edu> <E-mail: jcbicca@terra.com.br>).
En: Animal Cognition (ISSN 1435-9448), v. 11, no. 3, p. 401-411. 2008
In this experimental field investigation, we compare the degree to which wild capuchins in Brazil (Cebus nigritus) and Costa Rica (Cebus capucinus) exhibit individual- and population-level handedness during three visually-guided tasks. These tasks required reaching to remove a large leaf covering a hidden food reward, seizing the food reward, and manipulating a tool (pulling a wooden dowel) in order to obtain access to an embedded food reward. Studies in some populations of captive capuchins indicate evidence for both individual hand preferences and population-level handedness. In this study, six of eight wild C. capucinus and six of seven wild C. nigritus exhibited a significant hand preference during individual tasks, but no individual exhibited a consistent preference across all three tasks. Task-specialization, or the tendency for most individuals in the same group or population to use the same hand to accomplish a particular task, also was evaluated. Cebus nigritus showed a significant bias toward the use of the right hand in removing the leaf. Although the number of individual capuchins in both species that manipulated the dowels was limited (N = 7), each individual that manipulated the dowels in eight or more instances had a positive handedness index, suggesting a greater use of the right hand to accomplish this task. Overall, our results provide preliminary support for individual- and population-level handedness in wild capuchin monkeys.
Localización: Biblioteca OET: NBINA-8503.

Publicación no.: 0593 **Polymorphic color vision in white-faced capuchins (Cebus capucinus): Is there foraging niche divergence among phenotypes?** *[Visión polimórfica del color en monos carablanca (Cebus capucinus): ¿Hay divergencia de nichos de forrajeo entre fenotipos?]* / Melin, Amanda D; Fedigan, Linda M; Hiramatsu, Chihiro; Kawamura, Shoji. (University of Calgary. Department of Anthropology, 2500 University Dr NW, Calgary, AB T2N 1N4, CA <E-mail: amelin@ucalgary.ca> <E-mail: linda.fedigan@ualberta.ca> <E-mail: kawamura@k.u-tokyo.ac.jp>).
En: Behavioral Ecology and Sociobiology (ISSN 0340-5443), v. 62, no. 5, p. 659-670. 2008
Many species of platyrrhine primates are characterised by sex-linked color vision polymorphism. This presents an opportunity to study the biology and ecology of individuals with different phenotypes living in the same group. Several evolutionary processes could maintain polymorphic genes in populations. In this study, we evaluate the hypothesis that foraging niche divergence among monkeys explains the presence of multiple color vision phenotypes. Specifically, we test whether dichromats and trichromats differ in foraging time devoted to cryptic vs brightly colored resources. We did not find any differences in foraging time spent on different food types by dichromatic and trichromatic monkeys in two groups of white-faced capuchins (Cebus capucinus) living in a tropical dry forest. We conclude that in so far as these variables are concerned, niche divergence does not likely explain color vision polymorphism in our study population.
Localización: Biblioteca OET: NBINA-8502.

Publicación no.: 0594 **Pilot study to assess the need for primate conservation in northern Punta Burica, Costa Rica (Central-America)** *[Estudio piloto para estimar la necesidad de conservación de primates en el norte de Punta Burica, Costa Rica (Centroamérica)]* / Mann, K. (5193 Fairlawn Dr, Fayetteville, NY 13066, US <E-mail: katiemann@planet-save.com>). München: Documenta Naturae, 2006. 92 pp. (no. 159). ISBN: 978-3-86544-159-1.
Die vorliegende Studie soll die Notwendigkeit für den Aufbau eines Primatenschutzes im nördlichen Teil von Punta Burica im Südwesten von Costa Rica aufzeigen. Es handelt sich um eine interdisziplinäre Studie, die primatologische und botanische Untersuchungen verwendet, um gefährdete Arten zu bestimmen. Grundfragen zu Sozialwissenschaften wurden dabei integriert, um menschliche Konflikte im Hinblick auf den Naturschutz aufzuzeigen und zu vermeiden. Die Ergebnisse umfassen sowohl die Bestimmungen der gefährdeten Affenspezies,- als auch die Schaffung der "Freunde der Monos", einer engagierten Organisation, die das Aussterben dieser Populationen zu vermeiden versucht.
Localización: No disponible.

Publicación no.: 0595 **Ecological reconstruction using d13C values in the unaltered bone mineral of select primate species** *[Reconstrucción ecológica utilizando d13C en los valores inalterados del mineral óseo de especies de primates seleccionados]* / Schoeninger, Margaret J. (University of California at San Diego. Department of Anthropology, La Jolla, CA 92093, US). Annual Meeting of the American Association of Physical Anthropologists. 77th, Columbus, OH, US. Apr. 9, 2008. p. 188.
(Abstract only). Hair samples of modern C3-feeding primate species from ecologically distinct areas of Mesoamerica, South America, Africa and Madagascar vary by 6? in d13C in association with canopy cover. The pattern of variation suggests that recent- and paleo-ecological reconstructions should be possible using d13C values in the unaltered mineral fraction of bone from select primate species. Cebus capucinus (capuchin) and Ateles geoffroyi (spider) from La Selva Biological Station, Costa Rica from a tropical wet forest have identical average d13C values even though the former is omnivorous and the latter is frugivorous. Alouatta palliata (mantled howler) from La Pacifica Ecological Centre, Costa Rica, Brachyteles arachnoides (muriquis) from Fazenda Esmeralda, Brazil, a population of chimpanzees from East Africa, and two different Galago species from Gedi, Kenya from mixed evergreen and deciduous forest have d13C values similar to each other but significantly different from capuchin and spider monkeys. The differences are of the same magnitude and in the same direction as that in leaves from open canopies compared with closed canopies, and are independent of specific primate diet. Lepilemur leucopus from Beza Mahafaly Special Reserve, Madagascar and another population of chimpanzees from dry, deciduous forests have d13C values similar to each other even though lepilemur is a folivore and chimpanzees are frugivorous. Both species are significantly less negative than the ones from closed and broken forest canopy habitats. Published data from other C3-feeding fauna, including primates, largely match the pattern reported here, and indicate the expected level of accuracy in ecological reconstructions.
Localización: No disponible.

Publicación no.: 0596 **Crop-raiding of mango fruits, Mangifera indica, by mantled howlers (Alouatta palliata) in the Refugio de Vida Silvestre Curú, Costa Rica** *[Incursión en los cultivos de mango, Mangifera indica, por los monos congo (Alouatta palliata) en el Refugio de Vida Silvestre Curú, Costa Rica]* / McKinney, Tracie; Orozco-Zamora, Carolina. (Marshall University. Department of Sociology and Anthropology, One John Marshall Drive, Huntington, WV 25755, US <E-mail: t.mckinney@marshall.edu>

<E-mail: orozco_zamora@costarricense.cr>). Annual Meeting of the American Association of Physical Anthropologists. 77th, Columbus, OH, US. Apr. 9, 2008. p. 153.
(Abstract only). The expansion of agriculture in many areas of the neotropics presents both obstacles and opportunities for primates living in increasingly deforested environments. Although there are relatively few reports of crop-raiding by neotropical primates, it is reasonable to expect that some platyrrhines are more likely candidates for crop exploitation than others. Howler monkeys, with their dietary flexibility, wide distributions, and ability to tolerate multiple habitats are good candidates for commensal living. Here we report results from an eighteenmonth study of Alouatta palliata at the Refugio de Vida Silvestre Curú in western Costa Rica. Howlers at Curú consume fruit in proportions similar to other palliata groups (39.86% of their total diet), however the vast majority of their fruit intake (77.24%) derives from the domestic mango, Mangifera indica. Mangos are by far the most important food source for these monkeys, comprising 22.76% of their total diet during the study period. The balance of the howler diet consists of naturally-occurring resources including Anacardium excelsum (9.19%), Samanea saman (8.27%), Ficus spp. (6.91%), and Inga spp. (5.67%). The availability of mango crop is limited to May through July, leading to a higher reliance on fruit in rainy season (53.17%) than dry season (24.55%). These data support the notion that howlers are ¨as frugiverous as possible and as foliverous as necessary¨ (Silver et al., 1998:273), and suggest that their use of agroecosystems be widely explored.
Localización: No disponible.

Publicación no.: 0597 **Kin biased social behavior in wild whitefaced capuchin monkeys, Cebus capucinus** *[Comportamiento social sesgado en la parentela de monos carablanca en libertad, Cebus capucinus]* / Perry, Susan E; Muñiz, Laura; Manson, Joseph H; Gros-Louis, Julie J; Vigilant, Linda. (University of California at Los Angeles. Department of Anthropology, Los Angeles, CA 90095, US <E-mail: sperry@anthro.ucla.edu> <E-mail: manson@eva.mpg.de> <E-mail: vigilant@eva.mpg.de>). Annual Meeting of the American Association of Physical Anthropologists. 77th, Columbus, OH, US. Apr. 9, 2008. p. 171.
(Abstract only). It has long been known that kinship biases individuals? choices of social partners in a variety of species. However, the fine details of how individuals balance the importance of kinship against other variables such as dominance rankis less clear. It is also uncertain how kinship recognition mechanisms function in primates. In this paper, we present data from wild capuchin monkeys living in or near Lomas Barbudal Biological Reserve, Costa Rica. Analysis of genetic data for three groups of monkeys revealed a strong tendency to avoid fatherdaughter inbreeding (P0.0001, Muniz et al. 2006), though it was not clear whether fathers, daughters, or both, were responsible for the aversion. Adult females' partner choice preferences for grooming and proximity were monitored for a single group over a decade. The amount of grooming and proximity time allocated to paternal half-siblings was far more similar to that of non-kin than to that of maternal half siblings or full siblings. This suggests that females do not recognize shared paternity with other females. There were interesting fluctuations in the extent to which rank distance vs. kinship was important in the structuring of social relationships. When group size was small and the average coefficient of relatedness was high with low variance, kinship was less important than rank in determining proximity and grooming rates. When group size increased to include approximately 10 adult females, and mean matrilineal relatedness was lower with higher variance, kinship became an important determining variable and rank became less important.
Localización: No disponible.

Publicación no.: 0598 **The emergence of sex-segregated association patterns in juvenile spider monkeys (Ateles geoffroyi)** *[La aparición de segregación por sexos en los patrones de asociación juvenil en los monos colorados (Ateles geoffroyi)]* / Rodrigues, Michelle A. (The Ohio State University. Department of Anthropology, Columbus, OH 43210, US). Annual Meeting of the American Association of Physical Anthropologists. 77th, Columbus, OH, US. Apr. 9, 2008. p. 181.
(Abstract only). Spider monkey societies have been characterized as sex-segregated, in which adult males frequently range together, while females, particularly those with offspring, tend to be more solitary. These subgrouping patterns are shaped by both social and ecological factors; whereas females should optimize foraging success, males should optimize reproductive opportunities. However, this social organization presents a particular challenge to juveniles because the social experiences most valuable to their development may be limited by their mothers' foraging needs and social preferences. Here I report on sex differences in the interactions, proximity patterns, and subgrouping patterns of individually recognized juvenile spider monkeys at El Zota Biological Field Station, Costa Rica. A total of 71 hours of focal sampling data were collected on nine individuals. Male and female juveniles demonstrated patterns similar to those reported for adult spider monkeys, despite the fact that many of the pressures hypothesized to explain adult patterns are not applicable to juveniles. Juvenile females interacted predominantly with female conspecifics, particularly mothers and other juvenile females, while male juveniles interacted with a wider variety of age/sex classes, particularly adult and other juvenile males. Male juveniles also spent more time than females in proximity to adult and juvenile males. Juvenile males were found in significantly larger parties than juvenile females, and were in parties containing adult males significantly more than were juvenile females. These results suggest that patterns of sex-segregation begin early in life, and are better explained by social factors than by the ecological variables that determine adult association patterns.
Localización: No disponible.

Publicación no.: 0599 **Effects of food exploitation on activity and group size of mantled howlers (Alouatta palliata)** *[Efectos de la explotación del alimento sobre la actividad y tamaño del grupo en monos congo (Alouatta palliata)]* / Tinney, A; Bezanson, Michelle F. (Santa Clara University. Department of Anthropology, 500 El Camino Real, Santa Clara, CA 95053-1500, US <E-mail: mbezanson@scu.edu>). Annual Meeting of the American Association of Physical Anthropologists. 77th, Columbus, OH, US. Apr. 9, 2008. p. 208.
(Abstract only). Studies of feeding ecology in primates have indicated that energy expenditure and group size are related to food type and food availability. Behavioral effects of resource use were analyzed using group size, diet, feeding behavior, activity budget and forest structure data in Alouatta palliata at La Suerte Biological Field Station in Northeastern Costa Rica. Focal scan sampling data were collected over a two-month period on three troops of A. palliata (each with 4-11 individuals). Howlers concentrated all behaviors in trees that were more than 10 cm dbh. Mean dbh of all trees measured (1,496 trees within 94 plots) was 13.93cm + 18.77 (range: 2.5-223) and the mean dbh of trees more than 10 cm dbh was 27.67 cm + 24.04 (range: 10-223). Average tree height was 10.18m + 6.81 (range: 0.8-53.3) and average height of first branching or bole height was 6.33m + 4.86 (range: 5-32). The tallest trees were estimated at 30-50 meters. Howlers were observed consuming leaves at a significantly higher rate (80%) than other food types (20%) during the two month period and five tree species constituted a majority of A. palliata diet despite the fact that other tree species exploitable by howlers were available

during the study duration. Results confirmed a correlation between low levels of activity and consumption of leaves containing low protein-to-fiber ratios. Groups visited a small number of feeding trees in close proximity to one another and frequently revisited previous feeding sites. Results presented here support the notion that howler groups are able to adjust and survive in small forest patches and despite selective feeding behavior can concentrate on a small number of food types. Additional relationships among feeding behavior, forest structure, and resource availability are discussed.
Localización: No disponible.

Publicación no.: 0600 **ASPM and the evolution of cortical size in an adaptive radiation of New World monkeys** / Villanea, Fernando A; Perry, George H; Gutiérrez-Espeleta, Gustavo A; Dominy, Nathaniel J. (Universidad de Costa Rica. Escuela de Biología, San José, CR <E-mail: ggutier@biologia.ucr.ac.cr> <E-mail: njdominy@ucsc.edu>). Annual Meeting of the American Association of Physical Anthropologists. 77th, Columbus, OH, US. Apr. 9, 2008. p. 214.
(Abstract only). The primate community of Costa Rica is a model system for examining the underlying genetic mechanisms of encephalization. Mantled howling monkeys (Alouatta palliata) and black-handed spider monkeys (Ateles geoffroyi) are sympatric, similar in body size, and closely related, yet the relative brain size of Ateles is ca. twice that of Alouatta. The other members of the primate community; squirrel monkeys (Saimiri oerstedi) and white-faced capuchins (Cebus capucinus); the brain of Cebusis among the largest relative to body mass of any nonhuman primate and it is substantially larger than Saimiri. In addition, the neocortex of Cebus shares with Ateles the most complex pattern of fissures among the platyrrhine primates. Recently, the abnormal spindle microcephaly related gene, ASPM, has been linked to the evolution of human brain size. ASPM has experienced significant positive natural selection in the human lineage and has been associated with greater cortical size and cognitive abilities. Here we test the hypothesis that ASPM has experienced significant positive selection in Ateles and Cebus in comparison to Alouatta and Saimiri, among other species. We purified DNA from each Costa Rican species and amplified exon 18, which codes for the cadmodulin-binding domain. We compared the sequences to those of other species available in GenBank. We calculated lineage specific dN/dS ratios and found that ASPM has not experienced significant positive selection in Ateles and Cebus (dN/dS1). We conclude that ASPM is unlikely to be involved in the evolution of large brain size in these genera.
Localización: No disponible.

Publicación no.: 0601 **Prehensile tail use in white-faced capuchins Cebus capucinus at La Suerte Biological Field Station, Costa Rica** *[Uso de la cola prensil en monos carablancas Cebus capucinus en la Estación Biológica La Suerte, Costa Rica]* / Covey, R.M. (The Ohio State University. Department of Anthropology, Columbus, OH 43210, US). Annual Meeting of the American Association of Physical Anthropologists. 77th, Columbus, OH, US. Apr. 9, 2008. p. 82.
(Abstract only). Prehensile tails have likely evolved at least twice in New World Monkeys; once in Atelines and once in the genus Cebus. Compared to Atelines, prehensile tails in Cebus are shorter, fully haired, lack specialized tactile receptors, and differ in the extent of dorsal and ventral muscle bundle development. Given these morphological differences, it is plausible that functional roles of prehensile tails differ between platyrrhine clades. Here I present data on the context of prehensile tail use in Cebus capucinus and compare my results to published data on tail use in several Ateline species. Data on Cebus capucinus tail use and positional behavior were collected during August 2004 and January 2006 at

La Suerte Biological Field Station in Northeast Costa Rica. I used instantaneous focal animal sampling to sample tail use frequencies and associated contextual data on a fully habituated capuchin group containing fifteen individuals. My results indicate white-faced capuchins use their prehensile tails most frequently during feeding and foraging. Suspensory activities involving the tail occurred most often when feeding on insects. In contrast, capuchins did not employ their prehensile tail often during travel. This pattern of tail use contrasts strongly with studies of Atelines who are reported to employ their tail in similar frequencies during feeding and traveling. Factors responsible for parallel development of prehensile tails in platyrrhines are not completely understood, however mypreliminary data support the hypothesis Cebus evolved its specialized appendage primarily as a postural feeding adaptation and less as a means.
Localización: No disponible.

Publicación no.: 0602 **Patterns of subgrouping and spatial affiliation in a community of mantled howling monkeys (Alouatta palliata)** *[Patrones de subgrupos y afiliación espacial en una comunidad de monos congo (Alouatta palliata)]* / Bezanson, Michelle F; Garber, Paul A; Murphy, J.T; Premo, L.S. (Santa Clara University. Department of Anthropology, 500 El Camino Real, Santa Clara, CA 95053-1500, US <E-mail: mbezanson@scu.edu> <E-mail: p-garber@uiuc.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 70, no. 3, p. 282-293. 2008
Studies of social affiliation and social spacing offer important insight into the dynamics of subgroup formation and social strategies in living primates. Among the 11 species in the genus Alouatta, mantled howlers (A. palliata) are the only species to consistently form large, stable social groups composed of several adult males and several adult females. In this study, we examine patterns of subgrouping, activity, and partner preferences in a troop of 26-29 wild mantled howling monkeys (including 12-13 marked individuals) inhabiting Isla de Ometepe, Nicaragua. During two study seasons in 2000 and 2001, we simultaneously monitored the size, composition, and activities of individuals in two to three different subgroups. A half-weight association index was used to calculate partner preferences and patterns of spatial association. Results indicate that our howler study troop fragmented into subgroups of 1-20 with subgroups averaging five and six individuals. Subgroup size and membership reflected individual patterns of social affiliation and social tolerance, and in general remained consistent across activities and from year to year. We also found evidence of cliques or social networks of three to four individuals embedded within larger subgroups. Asmall number of adult males appeared to play an important social role as the nucleus of clique formation. We argue that the persistence of strong male-male and male-female partner preferences in mantled howlers helps to explain the stability of relatively large multimale-multifemale groups.
Localización: Biblioteca OET: NBINA-8501.

Publicación no.: 0603 **Juvenile-directed aggressive and agonistic interactions in Alouatta palliata, mantled howler monkeys** / Hanson, K.L. (University of Alaska. Departments of Psychology &Anthropology, Anchorage , AK 99501, US).
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl 46, p. 112. 2008.
(Abstract only). Among Alouatta palliatta, both male and female juveniles disperse from the natal group prior to reproductive maturity. Aggression directed at younger females by older females in the group has been cited as a possible cause of dispersal in red howlers (A. seniculus), though this pattern has not been observed in mantled howlers. Despite low overall levels of reported agonistic social behavior, it

was anticipated that such interactions may target juveniles specifically, as a means to encourage dispersal. Three juveniles were observed at Estación Biológica La Suerte in Costa Rica for a total of 23.9 hours. The incidence of agonistic interactions, as well as overall activity budget and incidence of affiliative social interaction, was examined. Four juvenile-directed agonistic interactions were observed in all, and included displacements, chasing, aggressive vocalizations, and one instance of food theft. Though these interactions, which occurred within a single group of howlers, are anecdotal and cannot be generalized to this or other species, the presence of juveniledirected agonistic behavior may provide an important clue to the factors that facilitate and encourage natal emigration.
Localización: No disponible.

Publicación no.: 0604 **Effects of habitat characteristics on the behavioral ecology and habitat use patterns of mantled howler monkeys, Alouatta palliata** *[Efectos de las características del habitat en la ecología de comportamiento y patrones de uso del hábitat de los monos congo, Alouatta palliata]* / Jost, C.A. (Purdue University. Department of Sociology and Anthropology, West Lafayette, IN 47907-1145, US).
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 46, p. 127. 2008
(Abstract only). The conversion of primary forests into human dominated landscapes throughout the Neotropics has resulted in a reduction of suitable habitat for arboreal primates. Given their flexible foraging strategy, the mantled howler monkey (Alouatta palliata) provides an interesting focal species for examining adaptive flexibility in a dynamic environment. Previous research on the effects of habitat fragmentation on howler monkeys has focused on the particular characteristics of fragments necessary to maintain the presence of howler groups. More recently, studies have examined the specific impacts of habitat alterations on the behavioral ecology of groups of howlers within forest fragments. Fragmentation and habitat degradation have been found to result in changes in range size, population density and overall habitat quality. This brief study uses ecological and behavioral data to explore how habitat availability with a single forest fragment affects the habitat usage and activity patterns of three groups of mantled howler monkeys at La Suerte Biological Field Station, Costa Rica. Findings indicate that the differences observed in the behavior and habitat use patterns of study groups were attributable to size of home range, availability of habitat types within each group's home range, and high population density. The results of this study demonstrate that site-specific studies examining the behavioral responses of howler species to fragmentation should enable researchers to better predict their long-term viability in mature and degraded forests of Central America**.**
Localización: Biblioteca OET: NBINA-10111.

Publicación no.: 0605 **Male tenure and reproductive success in single-male vs. multi-male groups of free-ranging howling monkeys in Costa Rica** *[Tenencia del macho y éxito reproductivo en un macho solitario vs. múltiples grupos de machos de monos congo en libertad en Costa Rica]* / Clarke, Margaret R; Glander, Kenneth E. (Central Washington University. Department of Anthropology, Ellensburg, WA 98926, US <E-mail: clarkem@cwu.edu> <E-mail: glander@duke.edu>).
En: Neotropical Primates (ISSN 1413-4703), v. 13, no. 3, p. 23-27. 2005.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-9558.pdf
Introduction: Male reproductive success in nonhuman primates has traditionally been measured by access to estrous females, and successful matings/inseminations are attributed either to high-ranking males in multi-male groups or to the one male in a single-male group (e.g., Fedigan, 1983; Smuts, 1987;

Dixson et al., 1993; Paul et al., 1993). Paternity exclusion techniques and the testing of potential fathers and infants, however, have demonstrated that access, including copulation, does not always correlate with success. As group size increases, there are more females for the highest-ranking male to inseminate, and if the females are seasonal or synchronous breeders, the male is less able monopolize estrous females (Nunn, 1999; Takahashi, 2001). The discrepancy between dominance rank and mating success involves more than female availability, however. In single-male Patas monkey groups, the resident male did not sire all offspring (Ohsawa et al., 1993), and alternate male strategies in multi-male groups are known from rhesus monkeys (Berard et al., 1993, 1994, 1999; Smith, 1993, 1994) and savannah baboons (Alberts et al., 2003) which allow for reproductive success in lower-ranking males. True reproductive success is defined as the total number of surviving offspring, which can only be measured over the lifetime of an individual male. Given the practical difficulties, this may be reduced to a pair of simple proxies: the length of time a male is fertile and has access to fertile females, and the number of other males competing for those same females. These two measures may serve as useful predictors of potential reproductive success. Mantled howlers (Alouatta palliata) may form both single-male and multi-male groups within the same population. Sincehowler groups often experience takeovers by an outside male, there could be an advantage to living in a multi-male group, as low-ranking males would have the "protection" of the high-ranking males' competitive ability to repel newcomers (Nunn, 2000). Although all males would compete for access to estrous females, occasional reproductive synchrony could benefit low-ranking males; the dominant male can only monopolize one female at a time, which allows other males access to other fertile females. Conversely, the lone male in the single-male group would be expected to have access to all estrous females and father all offspring born in that group (Ridley, 1986), but would be at higher risk for predation or a takeover by an outside male (van Schaik and Horstermann, 1994). To evaluate the effects of male tenure on reproductive success in both single-male and multi-male groups, we examined our records for group membership and infant survival in seven groups of howlers at Hacienda La Pacifica between 1970 and2002. These included one group that had always had only one male, two groups that were always multi-male, and four groups that fluctuated between single- and multi-male status. As resource availability could have affected reproductive success, we carriedout a similar analysis for males in riparian habitats (three groups), which could be considered richer in resources (Glander and Nisbett, 1996), vs. males in upland habitats (four groups). We have made two important assumptions in this analysis. First, we assume that the male in a single-male group sires all offspring; and second, we assume that over a male?s lifetime, males in multi-male groups have equal reproductive success. Takeovers by young males result in a reverse age-graded dominance hierarchy in this population (Glander, 1980; Jones, 1980). A young, dominant male would be expected to have high reproductive success, which would presumably decrease as the male aged and lost his status.
Localización: Biblioteca OET: NBINA-9558.

Publicación no.: 0606 **Proyecto liberación del mono congo (Alouatta palliata), Reserva Biológica Bosque Escondido, Península de Nicoya (Agosto - Diciembre, 2000)** / Solano-Garita, Olman; Higgins, Katie. s.l: Olman Solano & Katie Higgins, 2001. 12 p.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-8676.pdf
La presente investigación está basada en el estudio de un grupo de cinco monos congo (Alouatta palliata). Nino y Louie, dos machos de aproximadamente dos años de edad; Indy, la mayor de ellos, de tres años; Yoko, hembra de dos años nueve meses y Elkin, macho de dos años y medio. Todos ellos

fueron mascotas donadas por sus dueños o decomisadas por funcionarios del MINAE (Ministerio del Ambiente y Energía) que llegaron al Centro Rescate de Vida Silvestre Tropical (C.R.V.S.T.) localizado en las instalaciones del Parque de Vida Silvestre Zoo Ave que se encuentra en La Garita de Alajuela.
Localización: Biblioteca OET: NBINA-8676.

Publicación no.: 0607 **Feeding patterns in mantled howling monkeys** *[Patrones de alimentación en monos congo]* / Glander, Kenneth E. (Duke University Primate Center, 3705-B Erwin Rd, Durham, N.C. 27706, US <E-mail: glander@duke.edu>).
En: Foraging behavior. Ecological, ethological and psychological approaches. Kamil, Aland C; Sargent, Theodore D. (eds.). New York: Garland STPM Press, 1981. p. 231-257. ISBN: 0824070682. (No abstract).
Localización: No disponible.

Publicación no.: 0608 **The effects of observer presence on the behavior of Cebus capucinus in Costa Rica** *[Los efectos de la presencia del observador en el comportamiento de Cebus capucinus en Costa Rica]* / Jack, Katharine M; Lenz, Bryan B; Healan, Erin; Rudman, Sara; Schoof, Valerie A.M; Fedigan, Linda M. (Tulane University. Department of Anthropology, 1021 Audubon St, New Orleans, LA 70118, US <E-mail: kjack@tulane.edu> <E-mail: fedigan@ucalgary.ca>).
En: American Journal of Primatology (ISSN 0275-2565), v. 70, no. 5, p. 490-494. 2008
We report on the responses of Cebus capucinus in the Santa Rosa Sector of the Área de Conservación Guanacaste, Costa Rica, to the presence of observers over a 4-week period. Study groups were habituated to different degrees: (1) Cerco de Piedra (CP):continuous observations began in 1984; (2) Exclosure (EX): focus of an 18-month study on males from 1998 to 1999; and (3) NBH: never studied/ followed but the group frequently encounters researchers. We collected three types of data: group scans (group state was coded as calm or agitated at observer presence), focal animal data (observer-directed behaviors were recorded), and fecal cortisol levels. The two less-habituated groups (NBH and EX) differed significantly from the habituated group (CP) in theirbehavioral and cortisol responses, and they showed an increase in habituation over the study period (agitation and cortisol levels both dropped). Individuals in NBH also decreased their responses to observers during focal follows; however, at the end of the study the responses of the two less-habituated groups (NBH and EX) remained elevated in comparison to the habituated group (CI?), suggesting the need for further habituation. Unlike capuchin groups that rarely encounter humans, NBH and EX never fled from observers and they rarely emitted observer-directed alarm calls. We suggest that the permanence of habituation and the ability to habituate animals passively through a neutral human presence are both important considerations for researchers conducting studies in areas where animal safety from poachers, etc. cannot be guaranteed.
Localización: Biblioteca OET: NBINA-8768.

Publicación no.: 0609 **Rehabilitación del mono aullador Alouatta palliata palliata (Mammalia: Primates: Cebidae) en el Centro de Rescate de Vida Silvestre Tropical, Zoo Ave, Costa Rica** / Varela, Ingrid; List, Mónika; Janik, Dennis. (Centro de Rescate de Vida Silvestre Tropical (Zoo Ave), Apdo. 1327-4050, La Garita de Alajuela, CR <E-mail: ingrid@zooave.org>). La Garita de Alajuela: Centro de Rescate de Vida Silvestre Tropical (Zoo Ave), 2005. 21 p.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-8901.pdf

Se describen los protocolos utilizados y resultados obtenidos en el Centro de Rescate de Vida Silvestre Tropical, Zoo Ave, Costa Rica, durante el proceso de rehabilitación y liberación de 36 individuos de mono aullador (Alouatta palliata palliata) que habían sido víctimas del tráfico de mascotas silvestres y que ingresaron al Centro durante el periodo 1999-2004. La mayor parte de los individuos ingresaron con problemas de desnutrición e impronta inadecuada. Todos fueron sometidos a controles veterinarios, dietas acorde con la ecofisiología de la especie y socialización con coespecíficos. Diez individuos murieron en el Centro, la causa de muerte más común fue la dilatación gástrica aguda. Veintiséis individuos que salvaron los controles veterinarios y de comportamiento fueron trasladados en grupos sociales de entre dos y cinco individuos al Centro de Investigación y Conservación de Fauna Silvestre Cerro Azul, dónde se sometieron a un proceso de liberación suave en un área de bosque protegido de más de 700 hectáreas. Se ha dado seguimiento a los individuos diariamente antes y después de la liberación durante más de un a;o. Dieciséis individuos conformaron grupos sociales entre ellos mismos, dos machos que alcanzaron la adultez viven solitarios y cinco individuos se unieron a tropas de aulladores silvestres, uno de ellos ya ha parido dos crías. El comportamiento de todos se asemeja al de aulladores que nunca han sido mantenidos en cautiverio. Durante el proceso de preliberación dos individuos murieron por ataque de un depredador y uno por la caída desde un árbol.
Localización: Biblioteca OET: NBINA-8901.

Publicación no.: 0610 **Evaluación del hábitat, paisaje y la población del mono tití (Cebidae, Plathyrrini: Saimiri oerstedii oerstedii) en la Península de Osa, Costa Rica** / Solano-Rojas, Daniela. Heredia: Universidad Nacional, 2007. 87 p. Tesis, Mag. Sc., Universidad Nacional, Programa Regional en Conservación y Manejo de Vida Silvestre para Mesoamérica y El Caribe, Heredia (Costa Rica).
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-8797.pdf
The squirrel monkey's habitat and landscape status outside of Corcovado National Park (CNP) in the Osa Peninsula was evaluated, in a total area of 25443 ha, during the months of September 2005 until May 2006. Informal interview to key informers were done to establish forested sites with squirrel monkey?s presence. A total of 22 forested sites were choose and surveyed between Rincon and Carate River. In each site, vegetation plots of 20 x 50 m (0.1 ha) were established to determine the floristic composition and horizontal structure. Total of trees with a DBH of 5 cm. or more, trees species richness (S), foliage height diversity (FHD), basal area by hectare (G), DBH diversity (DH), and the average of alpha diversity (alpha) of trees (PH) were calculated. The landscape was characterized and troop size and sex and age?s composition of the squirrel monkey?s troops were determined. A land use cover map 2005 was elaborated for a total area of 24741 ha with a minimum mapping area of 0.5 ha. A 30 ha hexagons grill was superpose and the landscape characteristics were evaluated in 4 hexagons by forested site (120 ha). A Generalized Linear Model (GLM) was used to analyze the relationship between the squirrel monkey's troop size and the habitat (DH, FHD, PH),landscape (forest composition [compA: forest and secondary young forest percentage], Edge Density [ED], and occurrence of other primates (Ateles geoffroyi, Alouatta palliata, Cebus capucinus). Akaike's Information Criterion corrected for small sample size (AICc) was used to select the best model. A total of 63 vegetation plots were established among the 22 forested sites, were 354 different species of trees were identify and 69 (19%) were unidentified. The most diverse forested sites were found near of La Palma village and were floristically more similar in their composition. Cabinas Tití forested site had the greatest number of tree?s species (S= 64). All the forested sites had a structure of secondary forest, where the majority of trees had a DHB less than 35 cm. and a height between 5 to 10 meters. The most abundant species were Apeiba tibourbou (161),

Croton shideanus (100), Guazuma ulmifolia (107), Inga thibaudiana (137), Luehea seemani (148) and Spondias mombin (129), trees commonly found in secondary forest and their fruits were eaten by the squirrel monkeys. Forest (7471 ha) and pastures (6218 ha) were the most abundant classes of land use coverage. The squirrel monkey?s troop size was related positively with the percentage of forest (compA) and the Edge Density (ED) and negatively with spider monkey?s presence (A. geoffroyi). To enhance the protection of secondary forest outside the CNP and to educate the people on the communities that surround the forested sites promoting voluntary conservation is necessary for the sustainability of the troops in this area.
Localización: Biblioteca OET: NBINA-8797.

Publicación no.: 0611 **Dry season ranging behavior and intergroup relations in white-faced capuchins (Cebus capucinus) at Santa Rosa National Park, Costa Rica** *[Comportamiento durante la época seca y relaciones entre grupos en los monos carablanca (Cebus capucinus) en el Parque Nacional Santa Rosa, Costa Rica]* / Parr, Nigel; Campos, Fernando Alonso; Childers, A; Fedigan, Linda M; Jack, Katharine M. (University of Calgary, 2500 University Drive NW, Calgary, AB T2N 1N4, CA <E-mail: fedigan@ucalgary.ca> <E-mail: kjack@tulane.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 70, Suppl. 1, p. 53. 2008
(Abstract only). Primate ranging patterns are spatial realizations of socioecological pressures. Specifically, they result from a balance of intra- and intergroup interactions related to the acquisition of resources and mating opportunities. We studied the ranging behavior and intergroup dynamics in four neighboring groups of Cebus capucinus in Santa Rosa National Park, Costa Rica from January through May 2007. Using handheld GPS units, we recorded group locations at 30-minute intervals over 1282 contact hours. Range sizes were calculated using adaptive local convex hulls, with core and total ranging areas being defined as the 50 and 100 percent isopleths, respectively. Total range sizes varied from 97.7 ha to 147.9 ha with a mean of 118.2 ha, while core areas varied from 11.3 to 22.2 ha with a mean of 18.7 ha. Daily path lengths differed significantly among groups (Kruskal-Wallis Test)
Localización: Biblioteca OET: NBINA-9632.

Publicación no.: 0612 **Isolation and characterization of microsatellite markers in the white-faced capuchin monkey (Cebus capucinus) and cross-species amplification in other New World monkeys** *[Aislamiento y caracterización de marcadores microsatelitales en monos carablanca (Cebus capucinus) y amplificación cruzada de especies en otros monos del Nuevo Mundo]* / Muñiz, Laura; Vigilant, Linda. (Max Planck Institute for Evolutionary Anthropology, Deutscher Platz 6, DE-04103, Leipzig, DE <E-mail: vigilant@eva.mpg.de>).
En: Molecular Ecology Resources (ISSN 1471-8278), v. 8, no. 2, p. 402-405. 2008. (No abstract).
Localización: Biblioteca OET: NBINA-8925.

Publicación no.: 0613 **A census of primates in Cabo Blanco Absolute Nature Reserve, Costa Rica** *[Censo de primates en la Reserva Absoluta de la Naturaleza Cabo Blanco, Costa Rica]* / Lippold, L.K. (San Diego State University. Department of Anthropology, San Diego, CA 92182, US).
En: Brenesia (ISSN 0304-3711), no. 29, p. 101-105. 1988.
Primates were censused in this reserve from January to March 1987, and in January and February 1988. The reserve was established in 1963, and at that time 3 sympatric species were reported: Alouatta palliata, Cebus capucinus and Ateles geoffroyi. Eight Alouatta palliata groups and 14 solitary animals

(totalling 119 individuals) and 3 Cebus capucinus groups and 8 solitary individuals (totalling 73 individuals) were counted. Age and sex composition of both species are described. No Ateles geoffroyi were observed and it appears that this species is now extinct in Cabo Blanco**.**
Localización: Biblioteca OET: B.

Publicación no.: 0614 **Adopt a forest** *[Adopte un bosque]* / Laurance, William F. (Smithsonian Tropical Research Institute, Apartado 0843-03092, Balboa, Ancon, PA <E-mail: laurancew@si.edu>).
En: Biotropica (ISSN 0006-3606), v. 40, no. 1, p. 3-6. 2008. (No abstract)**.**
Localización: Biblioteca OET: NBINA-8946.

Publicación no.: 0615 **How much is a lot? Seed dispersal by white-faced capuchins and implications for disperser-based studies of seed dispersal systems** *[¿Cuánto es mucho? La dispersión de semillas mediante monos carablanca y sus consecuencias en estudios de sistemas de diseminación de semillas]* / Valenta, Kim; Fedigan, Linda M. (University of Calgary. Department of Anthropology, 2500 University Drive N.W., Calgary, AB T2N 1N4, CA <E-mail: fedigan@ucalgary.ca>).
En: Primates (ISSN 0032-8332), v. 49, no. 3, p. 169-175. 2008
The quantity of seeds dispersed is considered one of several means to determine the dispersal effectiveness of an animal. However, there is little consistency in the manner in which quantities are measured or presented. Here, we quantify seed dispersal by white-faced capuchin monkeys (Cebus capucinus) in Santa Rosa National Park, Costa Rica by measuring: degree of frugivory, number of plant species consumed, the number of seeds consumed per unit time, the number of seeds dispersed intact per unit time, and the number of seeds dispersed intact per unit space. Forty-nine percent of C. capucinus diet is composed of the fruit of 39 species, 4 of which constitute 82% of the frugivory. Seventy-four percent of consumed fruits contain seeds that pass intact through the capuchin digestive system. Capuchins pass a mean of 15.7 seeds of a mean of 1.3 species per defecation, and defecate 25.4 times per 12-h day. These numbers are compared with extant data for C. capucinus, and possible reasons for discrepancies among results between studies are discussed. We propose a standardization of quantitative measures of seed dispersal so that quantifications of seed dispersal can be compared within species, and eventually across species**.**
Localización: Biblioteca OET: NBINA-9081.

Publicación no.: 0616 **Ranging costs in wild spider monkeys** / Asensio, Norberto; Korstjens, Amanda H; Aureli, Filippo. (Liverpool John Moores University. Research Center of Evolutionary Anthropology & Palaeoecology, School ofBiology & Earth Sciences, Liverpool L3 5UX, Merseyside, GB <E-mail: n.asensio@ljmu.ac.uk> <E-mail: f.aureli@ljmu.ac.uk>).
En: Folia Primatologica (ISSN 0015-5713), v. 79, no. 5, p. 310. 2008
(Abstract only). Intragroup feeding competition is one of the most significant costs of group living. One important aspect of such a cost is a component of scramble competition, often reflected in a positive relationship between travel distance and group size. This is especially so for frugivorous animals living in habitats with seasonal variation in fruit availability. In species with high levels of fission-fusion dynamics, community members can adjust group size to local food availability by fissioning into small subgroups. This adjustment is viewed as a way to deal with scramble competition and thus reduce ranging costs. We studied the effect of subgroup size and seasonality on four components of ranging costs (travel distance, time spent travelling, speed and travel effort) focusing on the movements between food

patches of the members of a community of spider monkeys in Santa Rosa National Park, Costa Rica. We did not find an effect of the two variables on any of the ranging cost components, suggesting that costs are kept to a similar level across seasons and subgroup size categories. Smaller subgroups could visit larger patches as well as smaller ones, but larger subgroups did not visit small patches. Compared to the food patch previously visited, spider monkeys visited larger patches just after fusions (and smaller patches just after fissions). However, there was a cost associated with such an adjustment as they covered a greater distance between patches after fusions. This rapid adjustment, even if it came at a short-term cost, is evidence of the effectiveness of fission-fusion dynamics, especially because the cost was not long/lasting, as larger subgroups did not, on average, experience greater ranging costs than smaller ones.
Localización: Biblioteca OET: NBINA-9091.

Publicación no.: 0617 **Intragroup aggression, fission-fusion dynamics and feeding competition in spider monkeys** *[Agresión intragrupo, dinámica de fisión-fusión y competencia alimentaria en los monos colorados]* / Asensio, Norberto; Korstjens, Amanda H; Schaffner, Colleen M; Aureli, Filippo. (Liverpool John Moores University. Research Center of Evolutionary Anthropology & Palaeoecology, School of Biology & Earth Sciences, Liverpool L3 5UX, Merseyside, GB <E-mail: n.asensio@ljmu.ac.uk> <E-mail: c.schaffner@chester.ac.uk> <E-mail: f.aureli@ljmu.ac.uk>).
En: Behaviour (ISSN 0005-7959), v. 145, no. 7, p. 983-1001. 2008
Scramble competition is related to animals depleting resources before others can use them, whereas contest competition is associated with the monopolization of resources and food-related aggression. One hypothesized major benefit of fission-fusion sociality is the reduction of scramble feeding competition between community members. We studied intragroup aggression in a community of spider monkeys. Despite seasonal variation in food availability, we found no seasonal difference in aggression rates, which, in combination with a basic lack of aggression among adult females, suggests that fission-fusion dynamics may reduce not only scramble, but also the intensity of contest competition. There were, however, numerous attacks from adult females towards subadult females, especially new immigrants. This aggression, although it occurred mainly during feeding, may not reflect contest competition. Instead, it may be used by resident females to limit scramble competition at the community level, which is ultimately affected by the number of community members. The aggressive harassment of subadult females by long-term resident females can be a means to encourage dispersal of natal subadult females and discourage immigration of new subadult females who are both potential future resource competitors.
Localización: Biblioteca OET: NBINA-9323.

Publicación no.: 0618 **Predictors of reproductive success in female white-faced capuchins (Cebus capucinus)** *[Predictores del éxito reproductivo de las hembras de monos carablanca (Cebus capucinus)]* / Fedigan, Linda M; Carnegie, Sarah D; Jack, Katharine M. (University of Calgary. Department of Anthropology, Calgary, Alberta, T2N 1N4, CA <E-mail: fedigan@ucalgary.ca> <E-mail: sdcarneg@ucalgary.ca> <E-mail: kjack@tulane.edu>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), v. 137, no. 1, p. 82-90. 2008.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-9159.pdf
Early investigations into variable reproductive success in nonhuman primates tended to focus on the benefits conferred by high dominance rank. However, the effect of high rank on individual reproductive

success has been found to vary both intra- and interspecifically, requiring researchers to expand their investigations to include additional factors. Here we examine the age and rank of the mother, sex of the infant, group size, number of close kin, replacement of group males, and resource availability as possible predictors of female reproductive success in white-faced capuchins (Cebus capucinus) in the Santa Rosa sector of the Área de Conservación Guanacaste, Costa Rica. We examine the length of interbirth intervals (IBI) and infant survivorship as measures of individual reproductive success for the 31 adult females that resided in our three study groups between 1986 and 2007. The greatest predictor of IBI length was whether or not the first infant in the interval survived (number of matrilineal kin and resource availability were also significant predictors); while infant survivorship was most significantly predicted by the occurrence of a turnover in group males in the year following the birth of an infant (infant sex was also a significant factor). Based on these findings, we conclude that male and female reproductive strategies are at odds in this species, with male strategies strongly influencing female reproductive success.
Localización: Biblioteca OET: NBINA-9159.

Publicación no.: 0619 **The effects of forest fragment age, isolation, size, habitat type, and water availability on monkey density in a tropical dry forest** *[Efectos de la edad de fragmentación del bosque, aislamiento, tamaño, tipo de hábitat y disponibilidad de agua en la densidad de monos en un bosque seco tropical]* / DeGama-Blanchet, Holly Noelle; Fedigan, Linda M. (University of Calgary. Department of Anthropology, Calgary, Alberta T2N 1N4, CA <E-mail: fedigan@ucalgary.ca>).
En: New perspectives in the study of Mesoamerican primates: distribution, ecology, behavior, and conservation. Estrada, Alejandro; Garber, Paul A; Pavelka, Mary S. M; Luecke, LeAndra (eds.) New York: Springer, 2005. p. 165-188. ISBN: 038725854X.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-9156.pdf
In summary, forest fragment age is an important explanatory variable for capuchin and howler density (higher densities were found in older areas of forest), whereas it makes no contribution to explaining the density of spider monkeys. The presence ofevergreen forests in ACG is also important for explaining the absolute density of all three species, as there were higher densities in fragments containing evergreen forest. Transects where water was available in the dry season had higher capuchin densities; water availability appears to be more important for this species than for the spider monkeys and howlers. Forest fragment isolation and size made little contribution to explaining the density of any primate in ACG, probably due to the large size of forest fragments surveyed. Based on these findings, we conclude that older fragments of forest with dryseason standing water, and a substantial amount of evergreen forest should be preferentially protected to enhance the conservation of white-faced capuchins, black-handed spider monkeys, and mantled howlers in Costa Rica.
Localización: Biblioteca OET: NBINA-9156.

Publicación no.: 0620 **Why be alpha male? dominance and reproductive success in wild white-faced capuchins (Cebus capucinus)** *[¿Por qué ser macho alfa? dominio y éxito reproductivo en los monos carablanca silvestres (Cebus capucinus)]* / Jack, Katharine M; Fedigan, Linda M. (Tulane University. Department of Anthropology, 1021 Audubon St, New Orleans, LA 70118, US <E-mail: kjack@tulane.edu> <E-mail: fedigan@ucalgary.ca>).

En: New perspectives in the study of Mesoamerican primates: distribution, ecology, behavior, and conservation. Estrada, Alejandro; Garber, Paul A; Pavelka, Mary S. M; Luecke, LeAndra (eds.) New York: Springer, 2006. p. 367-386. ISBN: 038725854X.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-9158.pdf
The relationship between male dominance rank and reproductive success has been a long-debated topic in primate behavior. While most early studies looked at mating success as a proxy measure of reproductive success, recent advances in using small quantities of DNA obtained from hair and feces have enabled paternity testing even in a field setting. In this study, we examine the relationship between male dominance rank and reproductive success in two groups of wild white-faced capuchin monkeys (Cebus capucinus) residing in Santa Rosa National Park between October 1993 and January 2000. A total of four alpha males and 12 subordinates resided within the two groups during the study period and 25 infants were born. Of these infants, only 19 were genotypeddue to the deaths or disappearances of six infants prior to sampling. Paternity was determined using DNA extracted from non-invasively obtained hair and fecal samples and amplified using PCR. Using this method, we were able to perform complete exclusionson 15 of the 19 infants genotyped. Our analysis revealed that alpha males in the two study groups sired significantly more offspring than did subordinates; alphas sired a minimum of 13 infants and a maximum of 17, while subordinates sired between two andsix of the infants born in our groups. This multimale-multifemale species displays an extremely egalitarian mating system and overt mate guarding by dominant males has not been observed. However, the data presented here indicate that there is a definite advantage to being an alpha male in this species. This finding may explain the high rate of male secondary dispersal and, in particular, the voluntary dispersal of subordinate males observed in our long-term study groups***.***
Localización: Biblioteca OET: NBINA-9158.

Publicación no.: 0621 **Use of landmark cues to locate feeding sites in wild capuchin monkeys (Cebus capucinus): an experimental field study** / Garber, Paul A; Brown, Ellen. (University of Illinois. Department Anthropology, 109 Davenport Hall, 607 S Mathews Ave, Urbana, IL 61801, US <E-mail: p-garber@uiuc.edu>).
En: New perspectives in the study of Mesoamerican primates: distribution, ecology, behavior, and conservation. Estrada, Alejandro; Garber, Paul A; Pavelka, Mary S. M; Luecke, LeAndra (eds.) New York: Springer, 2006. p. 331-332. ISBN: 038725854X.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-9347.pdf
Studies on spatial cognition in primates and other animals indicate that landmarks serve as reference points, and may be encoded as distance and/or direction vectors in navigating to concealed or out-of-sight goals (dens, nests, feeding sites). In the present research, we conducted an experimental field study of spatial cognition and foraging strategies in a group of 15 wild white-faced capuchins (C. capucinus) in northeastern Costa Rica (10°26?N, 83°47?W). Specifically, we examined the ability of wild capuchins to use the geometric relationships of an array of two and three landmark cues to predict the location of baited feeding sites. The research design involved the construction of eight visually identical feeding platforms arranged in a circle with a diameter of 8 m. We then conducted a series of six experiments in which the relative spatial positions of experimentally manipulated landmarks (yellow- and pink-colored poles measuring 2 m in height) were the only information available to the forager to efficiently distinguish the location of reward and sham feeding sites. Our results indicate that over the course of 55 consecutive days and 227 experimental trials, the capuchins visited the feeding platforms

3262 times. Group members quickly learned to attend to the spatial positions of landmark arrays and use this information to compute the location of reward platforms. In addition, given that foragers arrived at the feeding station from different directions and encountered alternative views ofthe landmarks, it is possible that the capuchins were able to mentally rotate the configuration of the landmark array to efficiently solve this foraging problem**.**
Localización: Biblioteca OET: NBINA-9347.

Publicación no.: 0622 **Vocal repertoire of Cebus capucinus: acoustic structure, context, and usage** *[Repertorio vocal de Cebus capucinus: estructura acústica, contexto y utilización]* / Gros-Louis, Julie J; Perry, Susan E; Fichtel, Claudia; Wikberg, Eva; Gilkenson, Hannah; Wofsy, Susan; Fuentes, Alex. (Indiana University. Department of Psychology, 1101 E. 110th St., Bloomington, IN 47405, US <E-mail: jgroslou@indiana.edu> <E-mail: perry@eva.mpg.de>).
En: International Journal of Primatology (ISSN 0164-0291), v. 29, no. 3, p. 641-670. 2008.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-9348.pdf
Researchers studying nonhuman primate vocal repertoires suggest that convergent environmental, social, and motivational factors account for intra- and interspecific vocal variation. We provide a detailed overview of the vocal repertoire of white-faced capuchins, including acoustic analyses and contextual information of vocal production and vocal usage by different age-sex classes in social interactions. The repertoire is a mixture of graded and discrete vocalizations. In addition, there is general support for structural variation in vocalizations with changes in arousal level. We also identified several combined vocalizations, which might represent variable underlying motivations. Lastly, by including data on the social contexts and production of vocalizations by different age-sex classes, we provide preliminary information about the function of vocalizations in social interactions for individuals of different rank, age, and sex. Future studies are necessary to explore the function of combined vocalizations and how the social function of vocalizations relate to their acoustic structure, because social use of vocalizations may play an important role in shaping vocal evolution**.**
Localización: Biblioteca OET: NBINA-9348.

Publicación no.: 0623 **Efectos de la fragmentación del hábitat sobre la variabilidad genética en tropas de mono aullador (Alouatta palliata) del Área de Conservación Tempisque, Costa Rica** / Quan-Rodas, Claudia Lorena. (Universidad Nacional. Instituto Internacional en Manejo y Conservación de Vida Silvestre, Apdo. 1350-3000, Heredia, CR <E-mail: alouatta18@hotmail.com>).
En: Evaluación y conservación de biodiversidad en paisajes fragmentados de Mesoamérica. Harvey, C.A; Sáenz-Méndez, J.C. (eds.) Santo Domingo de Heredia: Editorial INBio, 2007. p. 475-509. ISBN: 978-9968-927-29-1.
This chapter describes the habitat fragmentation in the Tempisque Conservation Area (TCA) of Costa Rica and evaluates the effects of fragmentation on the genetic variability of howler monkey troops that live in this region. With the help of geographic information systems, seven landscape variables and index of habitat compatibility for howler monkey movement were estimated and used to determine the connectivity of different areas in the TCA. The minimum cost routes that connect the main remaining forests were identified and these were compared to the current location of land under environmental services payment schemes, protected areas and proposed corridors, as well as special protection zones. The habitat in the TCA is severely fragmented, particularly in the lowlands that are well suited for agriculture. Pastures cover 41.8% of the area and forests cover 36.4%. The main areas considered to be

of high mobility for howler monkeys are found in protected areas or zones with steep slopes greater than 15%. To examine the effects of habitat fragmentation on howler monkey genetic variability, two microsatellite loci were evaluated for 22 individuals from five locations in Palo Verde National Park (a continuous and relatively large habitat) as well as for 14 individuals in 5 forest fragments outside protected areas. In fragmented zones, the howler monkey troops had a lower number of genotypes and fewer alleles than monkeys in Palo Verde. Genetic flow and diversity were lower among monkeys in fragments(0.387 and 0.233) compared to troops in large forest areas like Palo Verde National Park (1.595 y 0.513). The results suggest that there are both natural and anthropogenic barriers to the dispersal of the howler monkeys. Riparian forests act as natural corridors across the landscape and their protection and enrichment is therefore very important for primates in this region. The fragmentation and the loss of genetic diversity could threaten the survival of howlers monkeys in the TCA in the medium or longterm. However, the howler monkey's great adaptability could help to maintain its populations if adequate management activities are implemented.
Localización: Biblioteca OET: 333.9516 E92.

Publicación no.: 0624 Esquinas-NationalPark: Der Regenwald der Österreicher in Costa Rica [Parque Nacional Esquinas: El bosque lluvioso de los austríacos en Costa Rica] / Schnal, Peter (ed.); Zettel, Herbert (ed.). (Naturhistorisches Museum Wien, Burgring 7, AT). Wien: Naturhistorisches Museum Wien, 1996. 138 p. ISBN: 3-900-275-57-2. (No abstract).
Localización: Biblioteca OET: AD 922.

Publicación no.: 0625 **Efecto de la vista a color polimórfica y los carbohidratos solubles en la selección de frutos por el mono araña (Ateles geoffroyi)** / Riba-Hernández, José Pablo. San Pedro de Montes de Oca: Universidad de Costa Rica, 2003. 93 p. Tesis, Mag. Sc., Universidad de Costa Rica, Sistema de Estudios de Posgrado en Biología, San José (Costa Rica). (No abstract).
Localización: Biblioteca Luis D. Tinoco: Tesis 23226.

Publicación no.: 0626 **Planted trees as corridors for primates at El Zota Biological Field Station, Costa Rica** *[Árboles sembrados como corredores para primates en la Estación Biológica de Campo El Zota, Costa Rica]* / Luckett, Jerimiah; Danforth, Elizabeth; Linsenbardt, Kim; Pruetz, Jill D. (Franklin College. Department of Biology, Franklin, IN 46131, US).
En: Neotropical Primates (ISSN 1413-4705), v. 12, no. 3, p. 143-146. 2004.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-9557.pdf
Introduction: We conducted a study at the privately owned El Zota Biological Field Station in Costa Rica to assess the effects of forest management techniques on primate ecology and behavior. While many conservation-oriented studies note the need for 'corridors' to promote dispersal between isolated habitat fragments, few studies provide quantitative information on their use by primates. From July to August 2002, we studied the three primate species that occur at the El Zota Biological Field Station in Costa Rica - Cebus capucinus, Ateles geoffroyi, Alouatta palliata - to compare their use of planted versus naturally forested areas. We collected approximately 25 hours of data to quantify the general activities exhibited by primates in these types of habitat.
Localización: Biblioteca OET: NBINA-9557.

Publicación no.: 0627 **Caracterización de la población del mono aullador (Alouatta palliata palliata) en el Refugio Nacional de Vida Silvestre Isla San lucas, Costa Rica** / Rosales-Meda, Marta Marleny. (Universidad Nacional. Instituto Internacional en Conservación y Manejo de Vida Silvestre, Apdo. 1350-3000, Heredia, CR <E-mail: marleny_rm@yahoo.com.mx>).
En: Neotropical Primates (ISSN 1413-4705), v. 14, no. 3, p. 122-127. 2007.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-9564.pdf
La presente investigación constituye el primer aporte para conocer el estado de los monos aulladores (congos) en el Refugio Nacional de Vida Silvestre Isla San Lucas y tuvo como objetivos: 1) caracterizar la población existente (composición por sexo-edad y características particulares) y 2) identificar algunos de los árboles utilizados como alimento y descanso en época seca.
Localización: Biblioteca OET: NBINA-9564.

Publicación no.: 0628 **Diet of spider monkeys (Ateles geoffroyi) in Mesoamerica: current knowledge and future directions** *[Dieta de los monos colorados (Ateles geoffroyi) en Mesoamérica: conocimiento actual y orientaciones futuras]* / González-Zamora, Arturo; Arroyo-Rodríguez, Víctor; Chaves-Badilla, Oscar M; Sánchez-López, Sonia; Stoner, Kathryn E; Riba-Hernández, José Pablo. (Instituto de Ecología A.C.. Departamento de Biodiversidad y Ecología Animal, Xalapa, Veracruz, MX <E-mail: kstoner@oikos.unam.mx> <E-mail: victorarroyo_rodriguez@hotmail.com>).
En: American Journal of Primatology (ISSN 0275-2565), v. 70, p. 1-13. 2008
Here we review all published articles and book chapters, as well as unpublished theses and data of Ateles geoffroyi diet to (1) summarize the literature; (2) synthesize general feeding patterns; (3) document plant taxonomic similarity in diet across study sites; and (4) suggest directions for future research and conservation priorities. We found 22 samples from five countries: Mexico, Guatemala, El Salvador, Costa Rica and Panama. Tropical wet forest is the most studied habitat (N=13 samples), followed by tropical dry forest (6) and tropical moist forest (3). Most samples have been carried out in large protected forests. In spite of showing an overall high dietetic diversity (364 species, 76 families), A. geoffroyi concentrated the majority of feeding time on a few species in the families Moraceae and Fabaceae. At all study sites fruits were the most common food item in the diet followed by leaves. Furthermore, a greater variety of food items and less fruit were consumed in forest fragments. These findings suggest that fruit shortage in fragments results in primates using foods of presumably lower energetic content such as leaves. Similarity in diet was higher among groups geographically closer to each other than among distant groups, showing thatthe floristic and phenological characteristics of the forest can influence diet composition. We conclude that several years of data are required to fully describe the dietary list of A. geoffroyi at any one site, as studies of the same group over different years shared as little as 56% of species. As most populations of A. geoffroyi live in highly fragmented landscapes, it is crucial to carry out studies in these areas to evaluate (1) changes in diet and activity patterns that may negatively affect survival; and (2) habitat attributes that may favor their persistence in altered landscapes.
Localización: Biblioteca OET: NBINA-9731.

Publicación no.: 0629 **Kin-biased social behaviour in wild adult female white-faced capuchins, Cebus capucinus** *[Comportamiento social sesgado en la parentela de monos carablanca en libertad, Cebus capucinus]* / Perry, Susan E; Manson, Joseph H; Muñiz, Laura; Gros-Louis, Julie J; Vigilant, Linda.

(University of California at Los Angeles. Department of Anthropology, Los Angeles, CA 90095, US <E-mail: sperry@anthro.ucla.edu> <E-mail: manson@eva.mpg.de> <E-mail: vigilant@eva.mpg.de>).
En: Animal Behaviour (ISSN 0003-3472), v. 76, no. 1, p. 187-199. 2008
Studies of kin bias in the distribution of social behaviour in group-living matrifocal species generally underline the importance of bonds among female kin. However, few studies examine either how kin bias may be affected by variation in the availability of kin or the relevance of paternal kin. In this study, we used genetic and behavioural data to analyse correlates of coalition formation, proximity, grooming and dominance relations among female white-faced capuchins over a 10-year period during which the number of adult females in the group varied from 6 to 10. Females sided with the most closely related of two opponents when joining coalitions. Both dominance rank and kinship influenced proximity and grooming patterns. In particular, when group size was small, mean relatedness high and interdyadic variation in relatedness low, rank distance was a better predictor of proximity and grooming than was kinship distance. However, when group size was large, mean relatedness lower and interdyadic variation in relatedness higher, females significantly biased their grooming and spatial proximity towards kin. Dominance rank was not so tightly associated with relatedness as in provisioned female-bonded cercopithecines; females did not follow the 'youngestsister ascendancy rule'. Full sisters, maternal half sisters and mother-daughter dyads associated at statistically indistinguishable rates, and all associated significantly more often than paternal half sisters. Paternal half sisters did not associate more often than distantly related female-female dyads (r 0.125). These and similar results call into question the general importance of paternal kin ties in wild Primates***.***
Localización: Biblioteca OET: NBINA-9773.

Publicación no.: 0630 **Mammals of the Piedras Blancas National Park, Costa Rica: species composition, habitat associations and efficiency of research methods - a preliminary overview** *[Mamíferos del Parque Nacional Piedras Blancas, Costa Rica: composición de especies, asociaciones de hábitat y eficiencia de métodos de investigación - una panorámica preliminar]* / Landmann, Armin; Walder, Christoph; Vorauer, Anton; Emser, Timm. (University of Innsbruck. Institute of Zoology, Technikerstr. 25, A-6020 Innsbruck, AT <E-mail: armin.landmann@uibk.ac.at> <E-mail: christoph.walder@aon.at> <E-mail: anton.vorauer@utanet.at>).
En: Stapfia (ISSN 0252-192X), v. 80, p. 409-422. 2008.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-9635.pdf
This paper summarises the current knowledge about non-flying mammals and research activities so far dedicated to this group in the area of the Piedras Blancas National Park, SW Costa Rica. A first commented species list of the small national park area (150 km²) comprises 52 species from 21 families, excluding bats. The majority of mammals found at Piedras Blancas National Park are widespread species typical of neotropical rainforests or of disturbed semi-open landscapes at Costa Rican lowlands. However, the local fauna still harbours a diverse mammalian community and carnivores in particular are still well represented (14 species), including some endangered species which show high vulnerability to human impact, like the River Otter, the Jaguar, the Ocelot or the Margay. The paper also includes an overview of the accuracy and effectiveness of methods that have been applied for collecting data about mammals in the area, and a comparison of species diversity in the main habitats (primary rainforest secondary forest, cultivated landscapes)***.***
Localización: Biblioteca OET: NBINA-9635.

Publicación no.: 0631 **Use of a mirror as a data collection aid** *[Utilización de un espejo como ayuda para la colecta de datos]* / Baker, Mary E. (Rhode Island College. Department of Anthropology, 600 Mt. Pleasant Ave., Providence, RI 02908, US <E-mail: mbaker@ric.edu>).
En: Laboratory Primate Newsletter (ISSN 0023-6861), v. 47, no. 1, p. 9-10. 2008

One of the problems encountered when studying nonhuman primates is the disruption of intimate social behaviors as a result of focused visual attention by the researcher. Behaviors such as grooming, some forms of play, body part sucking (e.g., Perry et al. 2003a; 2003b), extended feeding, and infant care require focused attention on the social partner or object. When individuals become aware that they are being watched they may experience a heightened sense of vulnerability. This is particularly problematic in partially or poorly habituated groups and shy individuals: staring is a threat to primates and intense visual orientation by an observer can cause them to stop socializing or move into dense vegetation, or cause aggressive displays directed towards the observer. Such unintended interference by a researcher has negative and frustrating consequences: not only are the research subjects unable to engage in social behaviors, but data on these behaviors is also lost or compromised. The white-faced capuchin monkeys (Cebus capucinus) that I study in Costa Rica engage in oral grooming solicitation and finger sucking. In this behavior the solicitor places a piece of bark, leaf or fruit in her mouth and sits with her lips slightly parted. The interacting subject then attempts to remove the object from the solicitor?s mouth. This type of grooming involves nuzzling and mouth-to-mouth contact which sometimes looks like kissing. Groomers may try to pry the solicitor's mouth open to extract the object in the mouth. It always requires the groomer placing her fingers in the groomee?s mouth for prolonged periods of time. The solicitor may take hold of the groomer?s hand with the object and replace both object and fingers back into her mouth. Often, when the interacting subject removes the object, the solicitor will gently take the object away from the groomer and replace it in her own mouth, thus soliciting the entire sequence again. The monkeys sit, holding hands with the groomer?s fingers inserted in the groomee?s mouth, for a few seconds to more than 30 minutes, during which both individuals avoid eye contact and stare off into space in a dazed manner, unlike that seen in any other type of behavior. This interesting and strange behavior is not very common; it could happen several times a month, or only once in several weeks. I wanted to get as much data as possible. However, frequently, when the monkeys became aware that I was closely watching them, they would stop and one or both would move away from me, and they tended not to resume the behavior once they had relocated. I tried to increase the distance between myself and the monkeys, but this often made it hard to see, and continued to be disruptive for particularly shy individuals. I tried avertingmy eyes, glancing periodically at the monkeys or turning my body sideways, but none of this seemed to help. I also tried watching them through my video camera, but found that they were sensitive to the camera presence as well. If the camera was focused at them and my body was oriented behind it, looking into the viewfinder' not visual attention, but body orientation, toward them 'they did move away. I tried moving my body sideways, looking into the viewfinder from the side, or watching through the flip screen, but they seemed to understand that I was still watching them. Additional problems with using a camera in the field are the extra bulk and weight to carry, having access to electricity to recharge the batteries, and, when moving through dense vegetation, uneven terrain, or down the middle of a river, difficulty setting up the camera and/or viewing the monkeys. It occurred to me that I needed a way to watch the monkeys without their knowledge. In the field I carry a Suunto compass, which has a mirror for estimating slope. I sat on the ground, opened the compass, and, while holding the compass in my lap, angled the mirror towards the monkeys. From the monkeys' perspective I was sitting down, intently focused on the object in my lap.

Not only could I watch the monkeys for long periods of time, but I also found I could move very close to them, sometimes to within 2 m, without disrupting their behavior. I now carry a small compact mirror in my backpack and continue to use it to watch the monkeys. This has allowed me to collect data on complete bouts of sensitive, vulnerable behaviors. The capuchins have never shown any interest in my mirror, perhaps because they have never gotten close enough to see their reflection. Monkeys and prosimians do notdemonstrate recognition of their own reflection, so this observational strategy should work well for them. The great apes do, however, demonstrate self-recognition, so using a mirror may not work as well with them (Gallup, 1977)**.**
Localización: Biblioteca OET: NBINA-9916.

Publicación no.: 0632 **Social interactions, social relationships and the social system of spider monkeys** *[Interacciones sociales, relaciones sociales y sistema social en monos colorados]* / Aureli, Filippo; Schaffner, Colleen M. (Liverpool John Moores University. School of Biological and Earth Sciences, Research Centre in Evolutionary Anthropology and Palaeoecology, Liverpool L3 3AF, GB <E-mail: f.aureli@ljmu.ac.uk> <E-mail: c.schaffner@chester.ac.uk>).
En: Spider Monkeys: Behavior, Ecology and Evolution of the Genus Ateles. Campbell C.J. (ed.). New York: Cambridge University Press, 2008. p. 236-265. ISBN: 978-0-521-86750-4. (No abstract)**.**
Localización: Biblioteca OET: 599.858 S754.

Publicación no.: 0633 **The taxonomic status of spider monkeys in the twenty-first century** *[La situación taxonómica de los monos colorados en el siglo XXI]* / Collins, Andrew C.
En: Spider Monkeys: Behavior, Ecology and Evolution of the Genus Ateles. Campbell C.J. (ed.). New York: Cambridge University Press, 2008. p. 50-78. ISBN: 978-0-521-86750-4.
The taxonomy of the various species of Ateles has changed multiple times over the years and continues to be debated today. In Chapter 3 Collins covers the history of this taxonomic debate and discusses issues that relate to taxonomic inconsistencies today. The major issue I was confronted with in editing the chapters for this volume is the designation of the Bolivian and Peruvian black spider monkeys (Ateles belzebuth chamek versus Ateles chamek). I have chosen in this volume to be consistent throughout the chapters and to follow Collins by using Ateles belzebuth chamek. Adding to the confusion of this taxon is the fact that the spider monkeys at Cocha Cashu National Park, Peru, have been widely published under the incorrect name of A. paniscus (Symington, 1987a, 1987b, 1988a, 1988b). Genetic evidence clearly shows, however, that the morphological similarities they share with A. paniscus in Surinam and the Guianan Shield (i.e. black coat and pink faces) are superficial and they should either be A.belzebuth chamek, or A. chamek**.**
Localización: Biblioteca OET: 599.858 S754.

Publicación no.: 0634 **The ethnoprimatology of spider monkeys (Ateles spp.): from past to present** *[La etnoprimatología de los monos colorados (Ateles spp.): Desde el pasado hasta el presente]* / Cormier, Loretta A; Urbani, Bernardo. (University of Alabama at Birmingham. Department of Anthropology, 338 Ullman Building, 1212 University Boulevard, Birmingham, AL 35294-3350, US <E-mail: lcormier@uab.edu> <E-mail: burbani@illinois.edu>).
En: Spider Monkeys: Behavior, Ecology and Evolution of the Genus Ateles. Campbell C.J. (ed.). New York: Cambridge University Press, 2008. p. 377-403. ISBN: 978-0-521-86750-4.

Cormier and Urbani discuss the interaction of spider monkeys with that ever-present primate species - Homo sapiens. We can never forget that the lives of spider monkeys, in much of their range, is intricately entwined with the lives of our species. The presence of spider monkeys in archaeological data such as faunal assemblages and iconography is reviewed and discussed. The authors also review data concerning the importance of spider monkeys to modern-day peoples ? largely in the Amazonian region. Spider monkeys are often considered one of the tastiest primate species and as such hunting can play an important role in the survival of various populations.
Localización: Biblioteca OET: 599.858 S754.

Publicación no.: 0635 **Diets of wild spider monkeys** *[Dietas de los monos colorados silvestres]* / Di Fiore, Anthony; Link, Andres; Dew, J. Lawrence. (New York University. Department of Anthropology, Centre of Study of Human Origins, 25 Waverly Pl, New York, NY 10003, US <E-mail: anthony.difiore@nyu.edu>).
En: Spider Monkeys: Behavior, Ecology and Evolution of the Genus Ateles. Campbell C.J. (ed.). New York: Cambridge University Press, 2008. p. 81-137. ISBN: 978-0-521-86750-4.
In Chapter 6, Dew reviews the evidence showing that spider monkeys play an important role as seed dispersers in the forests they inhabit and backs up this review with primary data from his research at Yasuní National Park in Ecuador. Comparing spidermonkeys (Ateles belzebuth belzebuth) with the closely related and sympatric woolly monkey (Lagothrix lagothricha poeppigii), he shows that spider monkeys are highly effective dispersers at this site. They disperse seeds of a wide variety of sizes (including large seeds that woolly monkeys do not disperse), they show low levels of seed predation, they disperse seeds far away from the parent tree and they do not damage the seed by ingesting it. The conservation implications of the importance of spider monkeys for forest renewal and maintenance are clear.
Localización: Biblioteca OET: 599.858 S754.

Publicación no.: 0636 **Importance of achromatic contrast in short-range fruit foraging of primates** *[Importancia del contraste acromático de corto alcance en el forrajeo de las frutas por parte de primates]* / Hiramatsu, Chihiro; Melin, Amanda D; Aureli, Filippo; Schaffner, Colleen M; Vorobyev, Misha; Matsumoto, Y; Kawamura, Shoji. (University of Tokyo. Graduate School of Frontier Sciences, Department of Integrated Biosciences, Seimeitou 502,5-1-5 Kashiwanoha, Kashiwa, Chiba 2778562, JP <E-mail: kawamura@k.u-tokyo.ac.jp> <E-mail: amelin@ucalgary.ca> <E-mail: c.schaffner@chester.ac.uk> <E-mail: f.aureli@ljmu.ac.uk>).
En: PLoS ONE (ISSN 1932-6203), v. 3, no. 10, p. 1-12. 2008.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-9917.pdf
Trichromatic primates have a "red-green" chromatic channel in addition to luminance and "blue-yellow" channels. It has been argued that the red-green channel evolved in primates as an adaptation for detecting reddish or yellowish objects, such as ripe fruits, against a background of foliage. However, foraging advantages to trichromatic primates remain unverified by behavioral observation of primates in their natural habitats. New World monkeys (platyrrhines) are an excellent model for this evaluation because of the highly polymorphic nature of their color vision due to allelic variation of the L-M opsin gene on the X chromosome. In this study we carried out field observations of a group of wild, frugivorous black-handed spider monkeys (Ateles geoffroyi frontatus, Gray 1842, Platyrrhini), consisting of both dichromats (n = 12) and trichromats (n = 9) in Santa Rosa National Park, Costa Rica. We determined the color vision types of individuals in this group by genotyping their L-M opsin and

measured foraging efficiency of each individual for fruits located at a grasping distance. Contrary to the predicted advantage for trichromats, there was no significant difference between dichromats and trichromats in foraging efficiency and we found that the luminance contrast was the main determinant of the variation of foraging efficiency among red-green, blue-yellow and luminance contrasts. Our results suggest that luminance contrast can serve as an important cue in short-range foraging attempts despite other sensory cues that could be available. Additionally, the advantage of red-green color vision in primates may not be as salient as previously thought and needs to be evaluated in further field observations.
Localización: Biblioteca OET: NBINA-9917.

Publicación no.: 0637 **Fig foraging by white-faced capuchin monkeys in Costa Rica: considering polymorphic color vision** *[Forrajeo de higos por los monos carablanca en Costa Rica: considerando la visión polimórfica de color]* / Melin, Amanda D; Fedigan, Linda M; Kawamura, Shoji; Hiramatsu, Chihiro. (University of Calgary. Department of Anthropology, 2500 University Dr NW, Calgary, AB T2N 1N4, CA <E-mail: amelin@ucalgary.ca> <E-mail: linda.fedigan@ualberta.ca> <E-mail: kawamura@k.u-tokyo.ac.jp>).
En: Primate Eye (ISSN 0305-8417), no. 96, p. 388. 2008.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-9918.pdf
(Abstract only). White-faced capuchins, like many Neotropical monkey species, possess sex-linked polymorphic color vision. Males are dichromatic (red-green colorblind) and females are either di- or trichromatic. The mechanism accounting for this stable polymorphism remains unclear, but may relate to frugivory. Figs (Ficus spp.) are important primate resources and an ideal genus for evaluating foraging efficiency in relation to food color. In Costa Rica, Ficus species can be classified into two general types: 1) relatively small, with conspicuous color change from green to red during ripening ("conspicuous"); and 2) relatively large figs that remain green when ripe ("cryptic"). We predicted that trichromats would be better able to detect conspicuousfigs from leaves than would dichromats, and that females, due to their capacity for trichromatic vision, would be more efficient foragers than males for conspicuous figs. We modeled red-green and yellow-blue chromaticity signals of the two types of figs for different color vision phenotypes and conducted observations on four groups of capuchins(N=66) in Santa Rosa National Park, Costa Rica. We found that the red-green chromaticity signal of ripe conspicuous figs, but not cryptic figs, best separates fruit from background leaves. Feeding rate (P 0.001) and proportion of successful investigations (P 0.001) was higher overall for conspicuous figs than cryptic figs. We also found sex related differences (P.
Localización: Biblioteca OET: NBINA-9918.

Publicación no.: 0638 **Behavioral adaptations to heat stress and water scarcity in white-faced capuchins (Cebus capucinus) in Santa Rosa National Park, Costa Rica** *[Adaptaciones de comportamiento al estrés térmico y la escasez de agua en el mono carablanca (Cebus capucinus) en el Parque Nacional Santa Rosa, Costa Rica]* / Campos, Fernando Alonso; Fedigan, Linda M. (University of Calgary. Department of Anthropology, Calgary, Alberta T2N 1N4, CA <E-mail: fedigan@ucalgary.ca>).
En: American Journal of Physical Anthropology (ISSN 0092-9483), v. 138, no. 1, p. 101-111. 2009.
We examined thermoregulatory behaviors in a wild population of white-faced capuchins (Cebus capucinus) inhabiting a highly seasonal dry forest in Santa Rosa National Park (SRNP), Costa Rica. The dry season in SRNP lasts 5 months and is characterized by high ambient temperatures regularly exceeding

37°C, low relative humidity, and the near absence of precipitation. This study demonstrates that capuchins rest more and travel shorter distances during the hottest and driest hours of the day, and suggests that they extend their tongues to lower body temperature via evaporative cooling. Seasonal weather patterns and group movement data reported here are based on 940 h of observations on three social groups of capuchins (wet season: 370 h, dry season: 570h). In the dry season, the proportion of time spent resting increased at higher temperatures whereas the proportion of time spent traveling decreased. Distance traveled between location points taken at half-hour intervals decreased significantly as temperature increased, although the correlation was not strong. Capuchins exposed their tongues during hot, dry, windy conditions, and this behavior was much more frequent in the dry season. Temperature was significantly higher and humidity significantly lower for tongue-out events than expected for a random event in the dry season. Finally, as surface water became scarce, home-range areas of heavy use became increasingly centered on the remaining permanent water sources. These results suggest that heat stress and water scarcity are significant influences on the behavior of capuchins in hot, dry conditions.
Localización: Biblioteca OET: NBINA-10110.

Publicación no.: 0639 **Telemetry system for assessing jaw-muscle function in free-ranging primates** *[Sistema de telemetría para evaluar la función del músculo de la mandíbula en primates en libertad]* / Williams, Susan H; Vinyard, Christopher J; Glander, Kenneth E; Deffenbaugh, Max; Teaford, Mark F; Thompson, Cynthia L. (Ohio University. Department of Biomedical Sciences, Athens, OH 45701, US <E-mail: willias7@ohio.edu> <E-mail: glander@duke.edu> <E-mail: mteaford@jhmi.edu>).
En: International Journal of Primatology (ISSN 0164-0291), v. 29, no. 6, p. 1441-1453. 2008
In vivo laboratory-based studies describing jaw-muscle activity and mandibular bone strain during mastication provide the empirical basis for most evolutionary hypotheses linking primate masticatory apparatus form to diet. However, the laboratory data pose a potential problem for testing predictions of these hypotheses because estimates of masticatory function and performance recorded in the laboratory may lack the appropriate ecological context for understanding adaptation and evolution. For example, in laboratory studies researchers elicit rhythmic chewing using foods that may differ significantly from the diets of wild primates. Because the textural and mechanical properties of foods influence jaw-muscle activity and the resulting strains, chewing behaviors studied in the laboratory may not adequately reflect chewing behaviors of primates feeding in their natural habitats. To circumvent this limitation of laboratory-based studies of primate mastication, we developed a system for recording jaw-muscle electromyograms (EMGs) from free-ranging primates so that researchers can conduct studies of primate jaw-muscle function in vivo in the field. We used the system to record jaw-muscle EMGs from mantled howlers (Alouatta palliata) at Hacienda La Pacifica, Costa Rica. These are the first EMGs recorded from a noncaptive primate feeding in its natural habitat. Further refinements of the system will allow long-term EMG data collection so that researchers can correlate jaw-muscle function with food mechanical properties and behavioral observations. In addition to furthering understanding of primate feeding biology, our work will foster improved adaptive hypotheses explaining the evolution of primate jaw form.
Localización: Biblioteca OET: NBINA-10107.

Publicación no.: 0640 **A facultative mutualism? Interspecific associations between a small raptor (Harpagus bidentatus) and two species of capuchin monkey (Cebus capucinus, C. apella) in Costa Rica**

and Suriname *[¿Un mutualismo facultativo? Asociaciones interespecíficas entre una pequeña ave de rapiña (Harpagus bidentatus) y dos especies de monos carablanca (Cebus capucinus, C. apella) en Costa Rica y Surinam]* / MacKinnon, Katherine C. (Saint Louis University. Department of Sociology and Criminal Justice and Center for International Studies, St Louis, MO 63103, US <E-mail: mackinn@slu.edu>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 48, p. 180. 2009. *(Abstract only)*.
Localización: Biblioteca OET: NBINA-10624.

Publicación no.: 0641 **Parties in the rainforest: Subgroup size and composition of black-handed spider monkeys at a wet site in Costa Rica** *[Grupos en el bosque lluvioso: Tamaño y composición del subgrupo en los monos colorados en un sitio húmedo en Costa Rica]* / Rodrigues, Michelle A; Lindshield, Stacy M; Walz, Jessica T; Palmer, M; Larsen, T.L. (The Ohio State University. Department of Anthropology, Columbus, OH 43210, US).
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 48, p. 223. 2009. *(Abstract only)*.
Localización: Biblioteca OET: NBINA-10625.

Publicación no.: 0642 **Effects of gut passage, feces, and seed handling on latency and rate of germination in seeds consumed by capuchins (Cebus capucinus)** *[Efectos del paso a través del intestino, heces y la manipulación de las semillas en la latencia y la tasa de germinación de semillas consumidas por monos carablanca (Cebus capucinus)]* / Valenta, Kim; Fedigan, Linda M. (University of Calgary. Department of Anthropology, 2500 University Dr NW, Calgary, AB T2N 1N4, CA <E-mail: fedigan@ucalgary.ca>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), v. 138, no. 4, p. 486-492. 2009
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-10546.pdf
One of the key measures of the effectiveness of primary seed dispersal by animals is the quality of seed dispersal (Schupp: Plant Ecol 107/108 [1993] 15-29). We present data on quality of seed dispersal by two groups of white-faced capuchins (Cebus capucinus) in Costa Rica to test the hypothesis that capuchin seed handling results in effective primary dispersal for some fruit species they consume. We examined seed handling for 27 plant species, and germination rates of 18 species consumed by capuchins. For five of the most commonly swallowed seed species, we determined germination rates and average time to germination (latency) for seeds ingested and defecated by capuchins and compared these to seeds removed directly from fruit and planted. For thesame five species, we compared germination rates and latency for passed seeds planted in capuchin feces to those cleaned of feces and planted in soil. For three of five species, differences in proportion of germinated seeds were significantly higher for gut passed seeds than for controls. For four of five species, germination latency was significantly faster for gut passed seeds than for controls. Feces had either no effect on seed germination rate or precluded germination. Data presented here support the hypothesis that white-faced capuchins are effective primary dispersers.
Localización: Biblioteca OET: NBINA-10546.

Publicación no.: 0643 **Behavioral thermoregulation and urine-washing in white-faced capuchins at Santa Rosa National Park, Costa Rica** *[Comportamiento termoregulatorio y lavado de orines en los monos carablanca en el Parque Nacional Santa Rosa, Costa Rica]* / Campos, Fernando Alonso.

(University of Calgary. Department of Anthropology, Calgary, Alberta T2N 1N4, CA). Calgary: University of Calgary, 2008. 150 p. ISBN: 9780494382516. Thesis, M.A., University of Calgary, Department of Anthropology, Calgary (Canada).
White-faced capuchins in Santa Rosa National Park live in a seasonally variable environment. Heat stress and water scarcity significantly influence the capuchins' behavior. Capuchins travel shorter distances, rest more, and travel and forage less in hot conditions. They also expose their tongues to lower body temperature via evaporative heat loss. When water becomes scarce, capuchins remain closer to permanent water sources. Urine-washing (UW) is a highly seasonal behavior that occurs more frequently in the dry season. UW is not clearly related to any social context, and rates do not differ among different age/sex classes. The primary function of UW for these capuchins is non-social and probably related to improving grip for arboreal travel in dry conditions. Alpha males may also engage in UW during sexual contexts and when solicited for an olfactory signal by subordinates, and some capuchins appear to use UW to relieve ant stings.
Localización: Biblioteca OET: NBINA-10578.

Publicación no.: 0644 **The effects of infant births on male-female relationships in Cebus capucinus** *[Efectos de los nacimientos de infantes en las relaciones macho-hembra en Cebus capucinus]* / Sheller, Claire R; King, Zdanna; Jack, Katharine M. (Tulane University. Department of Anthropology, 7041 Freret St, New Orleans, LA 70118, US <E-mail: claireshellер@gmail.com>).
En: American Journal of Primatology (ISSN 0275-2565), v. 71, no. 5, p. 380-383. 2009
Most primates are characterized by cohesive male-female bonds that are maintained year round. While recent studies have addressed the selective pressures influencing the evolution of male-female relationships in primates, we know relatively little about the proximate mechanisms affecting them. It has been demonstrated that newborn white-faced capuchins (Cebus capucinus) attract the attention of other group members and this may be an important mechanism influencing male-female relationships. We studied two groups of C. capucinus in the Area de Conservación Guanacaste, Costa Rica, between February and July 2007. A total of 348 hr of focal data were collected on all adult males (n = 6) residing in each of the study groups. During our study, 13 of the 14 group females were either pregnant or lactating, and 9 infants were born. We calculated an average daily affiliation rate between all group males combined and each adult female four weeks before and four weeks after the birth of her infant. Repeated measures ANOVAs revealed no significant changes in affiliation following infant births (F = 2.262, df = 1, P 0.176). Results remained nonsignificant for rank (F = 1.550, df
= 1, P < 0.260) and group membership (F = 0.729, df = 1, P < 0.429). Infant sex was the only variable with a significant effect on affiliation rates between males and females (F = 10.020, df = 1, P < 0.019). Adult males increased their affiliation with all adult females that gave birth to male infants (n = 4), while their rates decreased with all but one of the adult females with female infants (n = 4). While preliminary, these results indicate that the adult males may cultivate relationships with other males at a young age.
Localización: Biblioteca OET: NBINA-10695.

Publicación no.: 0645 **Female dispersal in a female-philopatric species, Cebus capucinus** *[La dispersión de la hembra en una especie filopátrica de hembras, en el mono carablanca Cebus capucinus]* / Jack, Katharine M; Fedigan, Linda M. (Tulane University. Department of Anthropology, 7041 Freret St, New Orleans, LA 70118, US <E-mail: kjack@tulane.edu> <E-mail: fedigan@ucalgary.ca>).
En: Behaviour (ISSN 0005-7959), v. 146, no. 4/5, p. 471-497. 2009

White-faced capuchins (Cebus capucinus) reside in multimale-multifemale groups characterized by female philopatry and frequent male dispersal. However, over the years we have observed five females immigrate into our study groups and 23 disappear/emigrate. We examined long-term demographic and behavioural data on three groups of C. capucinus residing in Santa Rosa, Costa Rica, between 1986 and 2007. During this time, 56 females resided in our study groups and as of June 2007, 23 were still present, ten were confirmed/presumed dead and 23 were missing. Here we review the circumstances surrounding the five immigrations and 23 missing females and evaluate three main hypotheses to explain female dispersal in a female philopatric species: inbreeding avoidance, reduction of intragroup feeding competition and infanticide avoidance. The two main predictions of the inbreeding avoidance hypothesis were not supported by our study; male tenure did not exceed female age at first birth and the majority of dispersers were parous females. The reduction in intragroup feeding competition hypothesis received moderate support; dispersing/disappearing females tend to leave during the dry season and they have fewer matrilineal kin than females remaining in their natal group. Our data were most consistent with the infanticide avoidance hypothesis in that females are more likely to disperse/disappear during years with male replacements, a time when infant deaths are also more common. These data provide further evidence of the large impact that the movement and actions of adult male white-faced capuchins have on the lives of females in this species**.**
Localización: Biblioteca OET: NBINA-10808.

Publicación no.: 0646 **Relación entre las infecciones parasitarias de dos especies de primate y el estado de conservación del bosque tropical seco: relevancia en la conservación de la biodiversidad** / Maldonado, Selene; Stoner, Kathryn E. (Universidad Nacional Autónoma de México. Centro de Investigaciones en Ecosistemas, Laboratorio de Ecología y Conservación de Mamíferos Tropicales, Antigua Carretera a Pátzcuaro 8701. Col. Ex-Hacienda de San José de la Huerta. C.P. 58190, Morelia, Mic, MX <E-mail: selenem@oikos.unam.mx> <E-mail: kstoner@oikos.unam.mx>). Congreso Internacional de los Servicios Ecosistémicos en los Neotrópicos: estado del arte y desafíos futuros / International Congress on Ecosystem Services in the Neotropics: State of the art and future challenges, Valdivia CL13-19 de noviembre de 2006.
En: Bosque (ISSN 0717-9200 (online)), v. 27, no. 2, p. 205. 2006
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-10821.pdf
(Abstract only): El bosque tropical seco es uno de los ecosistemas con mayor diversidad y endemismo. Los primates neotropicales que habitan en estos ecosistemas son considerados como especies clave, sin embargo, sus poblaciones han disminuido como consecuencia de la perturbación. Actualmente las enfermedades parasitarias forman parte de las principales causas que afectan la sobreviviencia de estos primates en los hábitats perturbados, por lo que resulta como indicador del estado de conservación de su hábitat y de la salud del ecosistema. Por lo que este estudio evalúa los parámetros de riqueza, prevalencia e intensidad parasitaria de dos poblaciones de primates (Alouatta palliata y Ateles geoffroyi) que cohabitan en el bosque seco del Parque Nacional Santa Rosa en Guanacaste, Costa Rica. Las infecciones parasitarias se analizaron en relación con la especie de primate, estación y edad de los individuos. Se identificaron cuatro especies de parásitos intestinales, un protozoario: Balantidium sp. y tres helmintos: Controrchis sp., Strongylida y Trypanoxyuris sp. Los análisis estadísticos mostraron diferencias significativas entre todos los factores evaluados. Este estudio nos proporciona información para el entendimiento de las infecciones parasitarias y el ecosistema en el que se encuentran. La relación parásito-hospedero es una adaptación gradual que dirige al equilibrio de la asociación, por lo

que no produce efectos negativos en los individuos hospederos. Sin embargo, en los hábitats perturbadosesta interacción se modifica produciendo enfermedad en los hospederos, y este estudio revela algunos de los factores que pueden tener mayor relevancia en el desequilibrio de esta asociación.
Localización: Biblioteca OET: NBINA-10821.

Publicación no.: 0647 **Spider monkeys (Ateles geoffroyi) in small reserves: can mutualistic interactions between large monkeys and large seeded plants be maintained in the Osa Peninsula, southwestern Costa Rica?** *[Monos colorados (Ateles geoffroyi) en reservas pequeñas: ¿las interacciones mutualísticas entre grandes monos y grandes plantas de semillas puede mantenerse en la Península de Osa, Suroeste de Costa Rica?]* / Riba-Hernández, José Pablo; Stoner, Kathryn E. (Universidad de Costa Rica. Escuela de Biología, San Pedro de Montes de Oca, CR<Email: proyectocarey@yahoo.com.mx> <E-mail: kstoner@oikos.unam.mx>). The Association for Tropical Biology & Conservation Annual Meeting, Morelia MXJuly 15-19, 2007. , 2007. p. 22.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-10594.pdf
(Abstract only): Spider Monkeys (Ateles) are the largest Neotropical specialized frugivores capable of dispersing large seeds. Due to anthropogenic actions, the Osa Peninsula in southwestern Costa Rica has been fragmented into small islands with onlya few protected areas. It is unknown to what extent mutualistic interactions, such as seed dispersal of large seeds by monkeys, are maintained within these small protected reserves. We evaluate the status of Ateles geoffroyi as seed dispersers in the tropical rainforest at Punta Río Claro Wildlife Refuge (500 ha; 90% mature forest). If this small expected: 1) large-seeded plants will be included in their diet, 2) most fruits consumed will result in seed dispersal, 3) foraging will occur mainly in matureforest, and 4) monkeys will be present year around within the reserve. Ateles consumed fruits from 52 of the 70 tree species reported for the reserve. Their diet included 30% large-seeded species, with all species being swallowed and dispersed. Large-seeded tree species were the most important in their diet. Approximately 90 % of their foraging time occurred in primary forest. Although it appears as if the mutualistic interaction of seed dispersal by Ateles is maintained within this small reserve, monkeys were not found year around, being absent in the months coinciding with the lowest fruit availability. These results suggest that 500 ha may not be big enough to sustain local populations of Ateles within the region. Their absence within small fragments, even for part of the year, may have consequences for the regeneration of large-seeded plants and ultimately effect forest structure and composition. We suggest that conservation efforts within the region focus on preserving larger fragments of mature forest to ensure the maintenance of mutualisitc interactions between large-seeded plants and their dispersers.
Localización: Biblioteca OET: NBINA-10594.

Publicación no.: 0648 **Interplay of olfaction and vision in fruit foraging of spider monkeys** *[Interacción del olfato y la vista de los monos colorados en el forrajeo de las frutas]* / Hiramatsu, Chihiro; Melin, Amanda D; Aureli, Filippo; Schaffner, Colleen M; Vorobyev, Misha; Kawamura, Shoji. (University of Tokyo. Department of Integrated Bioscies, Graduate School of Frontier Sciences, 5-1-5 Kashiwanoha, Chiba 2778562, JP <E-mail: kawamura@k.u-tokyo.ac.jp>).
En: Animal Behaviour (ISSN 0003-3472), v. 77, no. 6, p. 1421-1426. 2009
It is not well understood how primates combine olfactory and visual cues in their natural behaviour, especially during feeding. In this study we conducted field observations of a group of wild, frugivorous black-handed spider monkeys, Ateles geoffroyi (Platyrrhini), consisting of both dichromats (N = 11) and

trichromats (N = 9) in Santa Rosa National Park, Costa Rica. We focused on the fruit foraging behaviour, for which involvement of vision has been well studied. We examined how often the monkeys inspected fruits by sniffing them during their fruit feeding attempts (i.e. sniffing index). We found that both dichromats and trichromats sniffed the visually cryptic fruit species more often than the conspicuous species, with the sniffing index being negatively correlated with the luminance and blue-yellow contrasts of fruits to background leaves. Furthermore, the sniffing index was negatively correlated with the proportion of fruits eaten (versus rejected) following a foraging attempt in both dichromats and trichromats. These results suggest that monkeys use olfaction for discrimination between edible and inedible fruits when vision alone is insufficient to evaluate the quality of fruits, showing the first documentation of interplay between vision and olfaction in primate feeding behaviour under natural conditions.
Localización: Biblioteca OET: NBINA-11090.

Publicación no.: 0649 **Fissioning minimizes ranging costs in spider monkeys: a multiple-level approach** *[Los monos colorados reducen sus costes de viaje al fisionarse: un análisis multinivel]* / Asensio, Norberto; Korstjens, Amanda H; Aureli, Filippo. (Liverpool John Moores University. Research Center of Evolutionary Anthropology & Palaeoecology, School ofBiology & Earth Sciences, Liverpool L3 5UX, Merseyside, GB <E-mail: n.asensio@ljmu.ac.uk> <E-mail: f.aureli@ljmu.ac.uk>).
En: Behavioral Ecology and Sociobiology (ISSN 0340-5443), v. 63, no. 5, p. 649-659. 2009
The adjustment to deal with intragroup food competition is probably the most plausible explanation of high levels of fission-fusion dynamics. However, studies did not always support expected relations between food availability, ranging costs, and subgroup size. We used several levels of analysis differing in the time and spatial scale in order to investigate this explanation in spider monkeys. In our study, subgroups were larger when food availability was higher across most levels of analyses used. We also found a fine-scale adjustment: compared to the food patch previously visited, spider monkeys traveled to larger patches just after fusions. This was not without an immediate travel cost: the interpatch distance and travel time after a fusion werelonger than that before the fusion. This rapid adjustment shows the flexibility that fission-fusion dynamics can offer. Spider monkeys are in large subgroups only when food conditions are favorable, as evidenced by the fact that at all the other time-scale levels larger subgroups did not experience greater ranging costs than smaller subgroups. Our results indicate that on the whole spider monkeys successfully minimize ranging costs by fission and fusion of subgroups.
Localización: Biblioteca OET: NBINA-11011.

Publicación no.: 0650 **Prevalence of fur mites (Acari: Atopomelidae) in non-human primates of Costa Rica** *[Prevalencia de los ácaros del pelo (Acari: Atopomelidae) en primates no humanos de Costa Rica]* / Troyo-Rodríguez, Adriana; Solano-Chinchilla, Mayra; Calderón-Arguedas, Olger; Chinchilla-Carmona, Misael; Sánchez-Porras, Ronald E; Gutiérrez-Espeleta, Gustavo A. (Universidad de Costa Rica. Facultad de Microbiología, Departamento de Parasitología y Centro de Investigación en Enfermedades Tropicales, San José, CR <E-mail: adriana.troyo@ucr.ac.cr> <E-mail: mayra.solano@ucr.ac.cr> <E-mail: olger.calderon@ucr.ac.c).
En: Revista de Biología Tropical (ISSN 0034-7744), v. 57, no. 1/2, p. 353-360. 2009
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-11025.pdf
Parasites have been investigated for some New World primates however, very little is known about ectoparasites and specifically Fur mites. In this study, Alouatta palliata, Cebus capucinus, Saimiri

oerstedii, and Ateles geoffroyi monkeys from different areas of Costa Rica were searched for fur mites. A total of 276 monkeys were evaluated, and 51 of them were positive for mites of the family Atopomelidae. Listrocarpus alouattae was identified oil 22.3% of A. palliata; Listrocarpus capucinus on 12.8% of C. capucinus; and Listrocarpus costaricensis on 36.8% of S. oerstedii. No fur mites were found on A. geoffroyi. Sex was not considered a determinant of mite infestation, but prevalence was significantly higher in the Central Volcanic Mountain Range Conservation Area for L. alouattae (p=0.01) and in the Central Pacific Conservation Area for L. capucinus (p=0.002). These primate fur miles arc highly host-specific. Differences in the geographical distribution may he due to monkey behavior and history, as well as to environmental conditions.
Localización: Biblioteca OET: NBINA-11025.

Publicación no.: 0651 **The effect of human development on mammal populations of the Punta Leona Private Wildlife Refuge, Costa Rica** *[Efecto del desarrollo humano en las poblaciones de mamíferos del Refugio Privado de Vida Silvestre Punta Leona, Costa Rica]* / van Hulle, Michael; Vaughan-Dickhaut, Christopher. (Grinnell College, Grinnell, IA 52803, US <E-mail: vanhulle@grinnell.edu> <E-mail: cvaughan@facstaff.wisc.edu>).
En: Revista de Biología Tropical (ISSN 0034-7744), v. 57, no. 1/2, p. 441-449. 2009
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-10933.pdf
The effect of human development oil six diurnal mammal Species was Studied using transects in the Punta Leona Private Wildlife Refuge, Puntarenas, Costa Rica during the dry season months of March and April 2006. Individuals/km was recorded for cacti species in more developed (MD) (near paved roads, buildings. construction, or deforested trees) and less developed areas (LD) (secondary forest). The while-faced capuchin monkey (Cebus capucinus) (n = 233), coatimundi (Nasua narica) (n = 46), and CentralAmerican spider monkey (Ateles geoffroyi) (n = 36) demonstrated a preference for less-developed habitats. The nine-banded armadillo (Dasypus novemcinctus) (11 = 4), tamandua (Tamandua mexicana) (n = 2) and variegated squirrel (Sciurus variegatoides n = 5) were observed infrequently. White-faced monkeys avoided construction areas, but received artificial food daily in developed areas. Coatmundis also received artificial foods daily and showed aggression towards guests.
Localización: Biblioteca OET: NBINA-10933.

Publicación no.: 0652 **Conformism in the food processing techniques of white-faced capuchin monkeys (Cebus capucinus)** *[Conformismo en las técnicas de procesamiento del alimento de los monos carablanca (Cebus capucinus)]* / Perry, Susan E. (University of California at Los Angeles. Department of Anthropology, Los Angeles, CA 90095, US <E-mail: sperry@anthro.ucla.edu>).
En: Animal Cognition (ISSN 1435-9448), v. 12, no. 5, p. 705-716. 2009
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-10955.pdf
Researchers of "culture" have long been interested in the role of social learning in establishing patterns of behavioral variation in wild animals, but very few studies examine this issue using a developmental approach. This 7-year study examines theacquisition of techniques used to process Luehea candida fruits in a wild population of white-faced capuchin monkeys, Cebus capucinus, residing in and near Lomas Barbudal Biological Reserve, Costa Rica. The two techniques for extracting seeds (pounding or scrubbing) were approximately equal in efficiency, and subjects experimented with both techniques before settling on one technique-typically the one they most frequently observed. In a sample of 106 subjects that had already settled on a preferred technique, the females adopted the maternal technique

significantly more often than expected by chance, but the males did not. Using a longitudinal approach, I examined the acquisition of Luehea processing techniques during the first 5 years of life. Regression analysis revealed that the technique most frequently observed (measured as proportion of Luehea processing bouts observed that used pounding as opposed to scrubbing) significantly predicted the technique adopted by female observers, particularly in the second year of life; the amount of impact of the observed technique on the practiced technique was somewhat less significant for male observers. These results held true for (a) observations of maternal technique only, (b) observations of technique used by all individuals other than the mother, and (c) observations of maternal and non-maternal techniques combined.
Localización: Biblioteca OET: NBINA-10955.

Publicación no.: 0653 **Tool use in wild spider monkeys (Ateles geoffroyi)** *[Uso de herramientas en monos colorados (Ateles geoffroyi)]* / Lindshield, Stacy M; Rodrigues, Michelle A. (Iowa State University. Department of Anthropology, 324 Curtiss Hall, Ames, IA 50011, US <E-mail: slind@iastate.edu>).
En: Primates (ISSN 0032-8332), v. 50, no. 3, p. 269-272. 2009
Tool use has been observed in a variety of primate species, including both New and Old World monkeys. However, such reports mainly address the most prodigious tool users and frequently limit discussions of tool-using behavior to a foraging framework.Here, we present observations of novel and spontaneous tool use in wild black-handed spider monkeys (Ateles geoffroyi), where female spider monkeys used detached sticks in a self-directed manner. We introduce factors to explain Ateles tool-using abilities and limitations, and encourage the synthesis of relevant research in order to gain insight into the cognitive abilities of spider monkeys and the evolution of tool-using behaviors in primates.
Localización: Biblioteca OET: NBINA-11186.

Publicación no.: 0654 **Mantled howler monkey (Alouatta palliata) mature leaf choice in relation to condensed tannin content at Santa Rosa, Costa Rica** *[Los monos congo (Alouatta palliata) eligen hojas maduras en relación al contenido de taninos condensados en el Parque Nacional Santa Rosa, Costa Rica]* / Welker, B.J. (State University of New York. Department of Anthropology, 1 College Circle, Geneseo, NY 14454, US <E-mail: welker@geneseo.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 71, no. 1, p. 42. 2009.
(Abstract only). The importance of the protein-to-fiber ratio (PFR) in primate leaf choice has been amply demonstrated. Using a sample of twelve food species (seven used for both young (YL) and mature leaves (ML) and five for YL only), I have previously shown [Welker, 2008] that a group of free-ranging mantled howler monkeys fed only on ML from those species for which the PFR was above 0.32. Condensed tannins (CT) are also known to play a role in howler monkey leaf choice. This next phase of the study examines the CT content of ML from the aforementioned food species. ML specimens were collected in January 2007 at the study site of Sector Santa Rosa, Costa Rica. Leaves were ground and mixed with a combination acid butanol and iron reagent and absorbance (indicative of CT content) was read using a spectrophotometer at 550nm. Absorbance values 3.0 did not register as absolute values. Results indicate that ML from species used for both YL and ML [mean=1.14±0.45, values=0.15, 0.17, 0.21, 0.80, 1.09, 2.57, 3.0] had significantly lower values [t(10)=4.15, p=0.006] than those from species used for YL only [all means3.0]. Other than the one species with a value 3.0, all species used for ML were ≤=2.57. Thus the monkeys' leaf choice is complex and involves a balancing act between avoiding multiple digestion-inhibiting compounds while obtaining enough protein.

Localización: No disponible.

Publicación no.: 0655 **How fruiting fig trees affect the ranging behavior of wild white-faced capuchins (Cebus capucinus) in Santa Rosa National Park, Costa Rica** *[Cómo afecta la fructificación de los higuerones el comportamiento de medición de la distancia de los monos carablanca (Cebus capucinus) en el Parque Nacional Santa Rosa, Costa Rica]* / Parr, Nigel; Melin, Amanda D; Fedigan, Linda M. (University of Calgary, 2500 University Drive NW, Calgary, AB T2N 1N4, CA <E-mail: amelin@ucalgary.ca> <E-mail: fedigan@ucalgary.ca>).
En: American Journal of Primatology (ISSN 0275-2565), v. 71, no. 1, p. 90. 2009.
(Abstract only). Primate group movements are driven primarily by resource acquisition. Free ranging animals are predicted to maximize their access to resources and minimize the energy output required to collect these resources. Fig trees are a keystone resource for many frugivores, fruiting asynchronously throughout the year and providing a frequent food source. Additionally, fig trees are often large enough to accommodate many monkeys simultaneously. We studied the ranging and foraging behavior of four groups of white-faced capuchins (Cebus capucinus) in Santa Rosa National Park, Costa Rica, January 2007-February 2009. Using a handheld GPS, we recorded group positions every half-hour and at sleep sites. When monkeys entered figs, we recorded the location of the tree, the species, phenology and the circumference at breast height. Day range lengths [n=122] were not affected by fig visitations [F(1,120)=0.08, n.s.] however, groups returned to previously visited areas more often [F(1,114)=6.14, p0.02] and were more likely [F(1,191).
Localización: No disponible.

Publicación no.: 0656 **Antipredator behavior (attention, movement, and alarm calling) differs based on age in wild white-faced capuchin monkeys (Cebus capucinus) in Lomas Barbudal Biological Reserve, Costa Rica** *[El comportamiento antidepredador (atención, movimiento y llamada de alarma) es diferente según la edad en los monos carablanca silvestres (Cebus capucinus) en la Reserva Biológica Lomas Barbudal, Costa Rica]* / Meno, W.E; Coss, R.G; Perry, Susan E. (University of California at Davis. Department of Anthropology, Animal Behaviour Graduate Group, Davis, CA 95616, US <E-mail: sperry@anthro.ucla.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 71, Suppl. 1, p. 115. 2009.
(Abstract only). In group living primate species, conspecifics can be a valuable information resource. Immature monkeys may be especially observant of their social environment when exposed to potential predators since their smaller size makes them more vulnerable. Infants are expected to pay more attention to their social environment during a predator encounter since their limited experience makes them dependent on information from older individuals. As the monkeys age, they should become more proficient in their predator recognition skills and antipredator behavior and thus less dependent on social cues. Juveniles are predicted to spend more time looking at predators, spend more time stationary, and alarm call more during predator encounters than infants. Rattlesnake and boa constrictor models were presented to 10 infant and 10 juvenile white-faced capuchin monkeys (Cebus capucinus). Focals were the first to find the models and were videotaped until they left the proximity of the snake models. Videos were analyzed for rate of alarm calls, proportion of time spent looking at the model, and proportion of time spent stationary. Infants and juveniles did not differ in rate of alarm calls or proportion of time spent looking at the model. Infants showed a trend of remaining less stationary than juveniles during predator encounters [Planned Comparison; p=0.11]. This difference may indicate

that infants move more during predator encounters in order to obtain cues from their social environment.
Localización: No disponible.

Publicación no.: 0657 **The function of food-associated calls in white-faced capuchins (Cebus capucinus) at Lomas Barbudal, Costa Rica differs for signalers and recipients** *[La función de las llamadas asociadas con los alimentos en los monos carablanca (Cebus capucinus) en Lomas Barbudal, Costa Rica es diferente para los emisores y receptores]* / Gros-Louis, Julie J. (University of Iowa. Department of Psychol, Iowa City, IA 52242, US).
En: American Journal of Primatology (ISSN 0275-2565), v. 71, Suppl. 1, p. 120. 2009.
(Abstract only). The function of vocalizations is inferred by observing recipients' responses to call playbacks. A combination of naturalistic and experimental studies in two groups of white-faced capuchins indicates that interpretation of function differs from signalers' and recipients' perspectives. In playback experiments, listeners looked longer when they heard food-associated calls compared to controls [Wilcoxon signed ranks test: female vocalizer, p0.004; male vocalizer: Rambo's group, p0.07; Abby's group, p0.04]. Females were more likely to approach the speaker after hearing males', but not females', food calls compared to controls [Fisher's exact test: female-female, p0.10; male-female, p0.05]. However, focal observations revealed thatthe presence of foraging individuals was a significant predictor of call rate [Random effects linear regression, p0.00001]. Furthermore, food placement experiments revealed food quantity did not influence call production as would be expected if calls function to inform [Logistic regression, GEE estimation, p0.7]; rather, calls served a spacing and possession function. Signalers were less likely to be approached if they called upon discovering food [Wilcoxon signed ranks test, p0.063]. If approached, individuals who called received less aggression [Fisher's exact test, p.
Localización: No disponible.

Publicación no.: 0658 **Rank-based differences in fecal androgen and cortisol levels in male white-faced capuchins (Cebus capucinus) in the Santa Rosa sector, Área de Conservación Guanacaste, Costa Rica** *[Diferencias en rango basadas en los niveles de andrógenos y cortisol fecales en los monos carablanca (Cebus capucinus) en el sector de Santa Rosa, Área de Conservación Guanacaste, Costa Rica]* / Schoof, Valerie A.M; Jack, Katharine M. (Tulane University. Department of Anthropology, 1021 Audubon St, New Orleans, LA 70118, US <E-mail: kjack@tulane.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 71, Suppl. 1, p. 142. 2009.
(Abstract only). In white-faced capuchins (Cebus capucinus), alpha and subordinate males can be easily distinguished; alpha males are often the largest, the most vigilant, and frequently the center of attention. Here we examine if male capuchins alsodisplay rank-based differences in their hormonal profiles. Between February and July 2007, we collected 193 fecal samples from all adult [n=7] and subadult [n=1] males [17-27 samples per male] residing in three groups (GN, LV and EX) in the Santa Rosa Sector, Área de Conservación Guanacaste, Costa Rica. Each group contained a clear alpha male and one or two subordinate males. When examined as a group, alpha males had higher mean androgen levels [n=3, μ=849.9 ng/g] than subordinate males [n=5, μ=142.3 ng/g; Mann Whitney U test, p=0.036]; this was also true when parsed by group [Mann Whitney U test, pGN=0.001, pLV=0.001, pEX=0.045]. Alpha males as a group do not have higher mean cortisol levels [n=3, μ=102.1 ng/g] than subordinate males [n=5, μ=58.1 ng/g]. However, when examined by group, the alpha males residing with multiple

subordinate males had higher cortisol levels than their subordinates [Mann Whitney U test, pGN=0.001, pLV=0.001], but this was not the case for the alpha male residing with a single subordinate [Mann Whitney U test, pEX=0.461]. These data suggest that dominance rank influences the hormone profiles of male white-faced capuchins, though other factors are also likely involved.
Localización: No disponible.

Publicación no.: 0659 **Environmental and spatial influences on urine-washing behavior in white-faced capuchins at Santa Rosa National Park, Costa Rica** *[Influencias ambientales y espaciales sobre el comportamiento de lavado con la orina en los monos carablanca en el Parque Nacional Santa Rosa, Costa Rica]* / Campos, Fernando Alonso; Fedigan, Linda M. (University of Calgary. Department of Anthropology, Calgary, Alberta T2N 1N4, CA <E-mail: fedigan@ucalgary.ca>).
En: American Journal of Primatology (ISSN 0275-2565), v. 71, Suppl. 1, p. 201. 2009.
(Abstract only). Urine-washing (UW) is a peculiar behavior, common among Cebids, that involves applying urine to the hands and feet. While its appearance suggests a scent-marking behavior, empirical evidence for its functional significance remains highly contradictory. I used 395h of focal animal samples to examine environmental and spatial influences on UW behavior in wild white-faced capuchins (Cebus capucinus) inhabiting a highly seasonal dry forest in Costa Rica. UW frequency per pooled focal hour was over 10 times greater in the dry season, and bootstrapping analysis revealed that the low relative humidity rather than the heat of the dry season may have been primarily responsible for the seasonal difference. Some individuals [3/13] urine-washed in significant association with foraging on ant-defended acacia trees [behavioral co-occurrence above 95% bootstrap confidence interval], but most urine-washes did not occur during foraging. The behavior states immediately before and after UW differed significantly from expectations based on baseline activity rates: UW was relatively more frequent in travel, vigilance, and self-grooming contexts and less frequent in resting, foraging, and social contexts [Friedman?s tests, p0.001 for 6 behavior contexts]. The hypothesis that UW is used for between-group signaling was not strongly supported. Although UW was more frequent in spatially peripheral areas and less frequent in heavily used areas, UW was not significantly more common in areas where intergroup encounters occurred or near valuable resources.
Localización: No disponible.

Publicación no.: 0660 **Social influence and the development of food processing techniques in wild white-faced capuchin monkeys (Cebus capucinus) at Lomas Barbudal, Costa Rica** *[Influencia social y desarrollo de técnicas de procesamiento del alimento en monos carablanca silvestres (Cebus capucinus) en Lomas Barbudal, Costa Rica]* / Perry, Susan E. (University of California at Los Angeles. Department of Anthropology, Los Angeles, CA 90095, US <E-mail: sperry@anthro.ucla.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 71, no. Suppl. 1, p. 210. 2009.
(Abstract only). Researchers of "culture" have long been interested in the role of social learning in establishing patterns of behavioral variation in wild animals, but very few studies examine this issue using a developmental approach. This multi-year study of wild capuchins (Cebus capucinus) at Lomas Barbudal, Costa Rica, demonstrates that (a) monkeys selectively observe models who are foraging on more difficult-to-process foods [Kruskal-Wallis, p=0.01], (b) when there are two equally efficient foraging techniques available, as is the case when foraging on Luehea candida fruits, foragers under 5 years of age [21 females, 27 males] eventually conform to the technique they most frequently have the opportunity to observe others performing [Poisson regression], and (c) the females [n=48, p=0.002,

Fisher's exact test), but not the males [n=55, p=0.2], adopted the maternal technique for Luehea processing significantly more often than expected by chance. Collectively, these results suggest that social influence may be an important determinant of the foraging techniques adopted by wild capuchins under some circumstances, despite the fact that these animals do not readily imitate. Funding: MPI-EVAN, NSF 0613226, Leakey Foundation, NGS.
Localización: No disponible.

Publicación no.: 0661 **Strength and stability of dominance hierarchies in female white-faced capuchins (Cebus capucinus) at Santa Rosa National Park, Costa Rica** *[Solidez y estabilidad de las jerarquías de dominio en las hembras de los monos carablanca (Cebus capucinus) en el Parque Nacional Santa Rosa, Costa Rica]* / Bergstrom, Mackenzie Lee; Fedigan, Linda M. (University of Calgary. Department of Anthropology, 2500 University Drive N.W., Calgary, AB T2N 1N4, CA <E-mail: fedigan@ucalgary.ca>).
En: American Journal of Primatology (ISSN 0275-2565), v. 71, Suppl. 1, p. 224. 2009.
(Abstract only). Dominance relationships are based on competitive interactions. Patterns of dominance vary across species according to ecological and social pressures. To clarify the nature of competitive patterns among female white-faced capuchins we examined two aspects of dominance: hierarchical strength and stability. We collected behavioral data January-May 2008 [331 focal hours; 714 contact hours] on 22 adult females from 3 habituated study groups. Hierarchies were constructed based on the direction of dyadic agonistic interactions. To determine hierarchical strength, we measured the context of dominance interactions (resource related vs. social), the latency to hierarchical detection and the directional inconsistency of aggression. To assesshierarchical stability, we calculated the proportion of undecided dyadic relationships and using long-term data, we determined changes in female group membership and the average annual rank change per female. A greater proportion of dominance interactions occurred in a foraging rather than social context, latency to detection was 21 hours/female and directional inconsistency scores for aggressive interactions were 5% -all indicating considerable hierarchical strength. No dominance relationships were undecided or heavily disputed, female group membership changed by 2 females/year (1 exit, 1 entry) and mean annual rank change per female was 0.427. There were no changes in the rank order of matrilines during the last 8 years. These results indicate stability in dominance relationships despite low-grade fluctuation in female membership and changes in alpha male residency.
Localización: No disponible.

Publicación no.: 0662 **Mammals of Cabo Blanco: History, diversity, and conservation after 45 years of regrowth of a Costa Rican dry forest** *[Mamíferos de Cabo Blanco: Historia, diversidad, y conservación después de 45 años de regeneración de un bosque seco de costarricense]* / Timm, Robert M; Lieberman, Diana; Lieberman, Milton; McClearn, Deedra. (University of Kansas. Museum of Natural History, Lawrence, KS 66045, US <E-mail: btimm@ku.edu> <E-mail: deedra.mcclearn@ots.ac.cr>).
En: Forest Ecology and Management (ISSN 0378-1127), v. 258, no. 6, p. 997-1013. 2009
Reserva Natural Absoluta Cabo Blanco, a strongly seasonal deciduous forest located at the southern-most tip of northwestern Costa Rica's Nicoya Peninsula, was established in 1963 and is the country's oldest nationally protected reserve. The peninsula has been occupied for millennia and is a heavily impacted landscape, and, unfortunately, its biotic diversity is among the most poorly studied in Central America. As part of multiyear studies of the flora and fauna of the region, we assess the changes invegetation and the terrestrial mammal community from earlier times to the present day. Through

historical records, interviews with long-term residents of the area, and our studies over the past decade, we document changes in forest cover, settlement, and land use, and assess the changes in species diversity and in mammal species' abundance. We then discuss the ecology of the mammal species on the peninsula, emphasizing the role that humans have played in influencing population levels. After 45 years of protection, the forest structure of the 3100 ha reserve differs markedly from that observed in the early 20th Century and it is quite heterogeneous. Species diversity of both the native vegetation and the mammals is substantial in the regenerating forest.The known mammal fauna included at least 37 species of non-flying mammals and 39 species of bats. Six species (Geoffroy's Spider Monkey, Giant Anteater, White-lipped Peccary, Central American Red Brocket Deer, Baird's Tapir, and Jaguar) have been extirpated from the reserve. Poaching of game species continues and will be difficult to eliminate completely. Nevertheless, with regenerating habitats, coupled with protection of wildlife, reestablishment of the reserve's native species has been dramatic both in terms of species diversity and abundance. The reserve is not in a defaunated condition. Many mammalian frugivores, seed dispersers, and/or seed predators are common and most top mammalian predators are present. We present several testable hypotheses regarding the significance of this mammalian community in the context of other Neotropical forest mammal and plant communities. Rapid expansion of tourism in this region has the potential to affect the reserve adversely. In recent years, the reserve has served as an important site for teaching tropical biology courses. Small reserves, such as Cabo Blanco, even if not connected to larger protected areas through corridors, provide critical habitat for native flora and fauna, a source of genetic stock, and valuable regional teaching and research sites.
Localización: Biblioteca OET: NBINA-11038.

Publicación no.: 0663 **δ^{13}C values reflect aspects of primate ecology in addition to diet** *[Los valores de δ^{13}C reflejan aspectos de la ecología de los primates, además de la dieta]* / Schoeninger, Margaret J. (University of California at San Diego. Department of Anthropology, La Jolla, CA 92093, US <E-mail: mjschoen@ucsd.edu>).
En: The Evolution of Hominin Diets: Integrating Approaches to the Study of Palaeolithic Subsistence. Hublin, J.J; Richard, M.P. (eds.); Vertebrate Paleobiology and Paleoanthropology Series Dordrecht: Springer Science + Business Media B.V, 2009. p. 221-227. ISBN: 978-1-4020-9698-3.
Hair samples from different C-3-feeding primate species living in ecologically distinct areas of Mesoamerica, South America, Africa, and Madagascar have δ^{13}C values that vary by 6% in association with the amount of canopy cover. Cebus capucinus(capuchin) and Ateles geoffroyi (spider) from La Selva, Costa Rica live in an area of tropical wet forest with continuous forest canopy and have identical average δ^{13}C values, even though the former is omnivorous and the latter is frugivorous. Alouatta palliata (mantled howler) from La Pacífica, Costa Rica Brachyteles arachnoides (muriquis) from Fazenda Esmeralda, Brazil, a population of chimpanzees from East Africa, and Galago zanzibaricus and Galago garnettii from Gedi, Kenya live in areas of mixed evergreen and deciduous forest with broken forest canopy. Their δ^{13}C values are similar to each other but significantly different from capuchin and spider monkeys. The differences are of the same magnitude and in the same direction as that in leaves from open canopies compared with closed canopies, and are independent of specific primate diet. Lepilemur leucopus from Beza Mahafaly Special Reserve, Madagascar, and another population of chimpanzees live in dry, deciduous forests. Their δ^{13}C values are similar to each other, even though lepilemur is a folivore and chimpanzees are frugivorous. Both species are significantly less negative than the ones from closed and broken forest canopy habitats. Published data on North American cervids, East African bovids, and

sifakas from Madagascar largely match the patterns observed in these primates. In reconstructing diets in archaeological human populations and in fossil hominins, this 6% variation must be considered rather than using the average $\delta^{13}C$ value for C-3 plants. In addition, because fossil hominin samples may be altered by 1-2%, the range for pure C-3 diets could be more extensive than commonly appreciated.
Localización: No disponible.

Publicación no.: 0664 **A field study of kinematics during quadrupedal walking in Cebus capucinus** *[Un estudio de campo de la cinemática durante la marcha cuadrúpeda en Cebus capucinus]* / Bezanson, Michelle F; Raichlen, D.A. (Santa Clara University. Department of Anthropology, 500 El Camino Real, Santa Clara, CA 95053-1500, US <E-mail: mbezanson@scu.edu>).
En: American Journal of Physical Anthropology (ISSN 0092-9483), Suppl 48, p. 91. 2009. (Abstract only].
Localización: No disponible.

Publicación no.: 0665 **Dominance among female white-faced capuchins (Cebus capucinus) at Santa Rosa National Park, Costa Rica** *[Dominancia entre las hembras de monos carablanca (Cebus capucinus) en el Parque Nacional Santa Rosa, Costa Rica]* / Bergstrom, Mackenzie Lee. (University of Calgary. Department of Anthropology, 2500 University Drive N.W., Calgary, AB T2N 1N4, CA). Calgary: University of Calgary, 2009. 141 p. ISBN: 9780494510926. Thesis, M.A., University of Calgary, Department of Anthropology, Calgary (Canada).
Research on Old World primates has provided the foundation for our understanding of behavioral variation in competitive strategies resulting from social and ecological pressures. The aim of this project was to clarify the nature of competitive patterns among female white-faced capuchins, a New World primate. I examined five aspects of dominance: hierarchical linearity, strength, stability, nepotism, and dominance style. Females displayed linear and strong hierarchies in the dry season, but dominanceexpression was lower in the rainy season. Females formed stable matrilineal hierarchies and quickly acquired rank positions beneath their mother and older sisters upon reaching sexual maturity. Capuchin females also exhibited an intermediate dominance style based on unidirectional aggression, moderate levels of kin bias, and conciliatory behaviour. These findings enhance our understanding of capuchin social systems and help to establish how the competitive strategies of white-faced capuchins compare to those of Old World primates.
Localización: Biblioteca OET: NBINA-11064.

Publicación no.: 0666 **Life history and locomotion in Cebus capucinus and Alouatta palliata** *[Ciclo vital y locomoción en Cebus capucinus y Alouatta palliata]* / Bezanson, Michelle F. (Santa Clara University. Department of Anthropology, 500 El Camino Real, Santa Clara, CA 95050, US <E-mail: mbezanson@scu.edu>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), v. 140, no. 3, p. 508-517. 2009
As an individual matures from birth to adulthood, many factors may influence the positional repertoire. The biological and behavioral changes that accompany a growing individual are expected to influence foraging strategy, social status and interaction, diet, predator avoidance strategies, and ultimately positional behavior as a behavioral link between anatomy and the environment. In this work, positional behavior is considered as an important frature of life history in juvenile and adult white-faced capuchins (Cebus capucinus) and mantled howling monkeys (Alouatta palliata) inhabiting, the same tropical forest in Costa Rica. During growth and development ontogenetic changes in body size, limb proportions, and

motor skills are likely to influence locomotion and posture through the arboreal canopy. I collected data on positional behavior, activity, branch size, branch angle, and crown location during a 12-month period at Estación Biológica La Suerte in northeastern Costa Rica Life history timing and differences in rates of growth did not predictably influence the development of adultlike positional behaviors in Cebus and Alouatta. Young Cebus resembled the adult pattern of positional behavior by 6 months of age while howlers exhibited significant differences in several positional behavior categories through 24 months of age. The positional repertoire of both species revealed similarities in the types of modes used during feed-forage and travel in juveniles and adults Data presented here suggest that the environment exerts different pressures on growing Cebus and Alouatta that may relate to diet, energy expenditure, foraging skill, and/or social learning*.*
Localización: Biblioteca OET: NBINA-11081.

Publicación no.: 0667 **Algunos aspectos de la biología reproductiva y social de los individuos reproductores dentro de un grupo silvestre de monos congos (Alouatta palliata Gray), Hacienda La Pacífica, Cañas, Guanacaste, Costa Rica** / Salas-Vindas, Isabel C. San José: Universidad de Costa Rica, 2001. 60 p. Tesis, Mag. Sc. en Biología, Universidad de Costa Rica, Sistema de Estudios de Posgrado en Biología, San José (Costa Rica).
Se evalúa predicciones sexuales y reproductivas a partir de la teoría de selección sexual de Darwin dentro de un grupo de monos congo.Se utilizan datos de rango social, días de estro de las hembras del grupo, solicitudes sexuales y cópulas, para determinar las siguientes predicciones: Primera, los machos del grupo invertirán más esfuerzo que las hembras en comportamientos de cortejo. Segunda, el esfuerzo para copular será mayor en los días en que la probabilidad de concepción sea más alta, es decir durante la primera mitad del período de estro. Tercera, el macho dominante tendrá mayor éxito de cópula que el macho subdominante.
Localización: Biblioteca Luis D. Tinoco: Tesis 21149.

Publicación no.: 0668 **Flora bacteriana oral y su perfil de sensibilidad a antibióticos en monos de Costa Rica (especies Alouatta palliata y Ateles geoffroyi)** / Rojas-Contreras, Galia. San José: Universidad de Costa Rica, 2002. 57 p. Práctica de Graduación Dirigida, Lic. en Microbiología Química Clínica, Universidad de Costa Rica, Facultad de Microbiología, San José (Costa Rica).
Se describe la flora bacteriana (aerobia y anaerobia) de la cavidad oral de monos de las especies Alouatta plalliata y Ateles geoffroyi y se determina su patrón de sensibilidad a los antibióticos.
Localización: Biblioteca Luis D. Tinoco: Tesis 21414.

Publicación no.: 0669 **Identificación y determinación de resistencia a antibióticos de bacilos Gram negativos aislados de heces de monos silvestres de Costa Rica** / Esquivel-Aguilar, Susana M. San José: Universidad de Costa Rica, 2004. 39 p. Trabajo Final de Graduación, Lic. en Microbiología Química Clínica, Universidad de Costa Rica, Facultad de Microbiología, San José (Costa Rica).
Identifica y determina el patrón de resistencia a los antibióticos de bacilos Gram negativos de la biota indígena gastrointestinal de monos de bosques de Costa Rica, de las especies Alouatta palliata, Ateles geoffroyi y Cebus capucinus. Se trata de explicar el por qué de la aparición de cepas resistentes a antibióticos en estos animales.
Localización: Biblioteca Luis D. Tinoco: Tesis 24341.

Publicación no.: 0670 **Flora bacteriana de la cavidad oral de monos Saimiri oerstedii y su perfil de sensibilidad a antibióticos** / Jiménez-Cuadra, Silvia. San José: Universidad de Costa Rica, 2006. 56 p. Trabajo Final de Graduación, Lic. en Microbiología Química Clínica, Universidad de Costa Rica, Facultad de Microbiología, San José (Costa Rica).
Se describe la flora bacteriana aerobia y anaerobia de la cavidad oral de monos de la especie Saimiri oerstedii y se determina su patrón de sensibilidad a antibióticos. Se discute si el contacto del ser humano en el hábitat propio de estos animales podría haber influenciado dicho patrón de sensibilidad antimicrobiana.
Localización: Biblioteca Luis D. Tinoco: Tesis 26897.

Publicación no.: 0671 **Efecto de la fragmentación del hábitat en la estructura poblacional del mono congo (Alouatta palliata) y del mono carablanca (Cebus capucinus) en el Refugio de Vida Silvestre Privado Nogal, Sarapiquí, Heredia, Costa Rica** / Rodríguez-Matamoros, Jorge. San José: Universidad de Costa Rica, 2007. 92 p. Tesis, Lic. en Biología con énfasis en Zoología, Universidad de Costa Rica, Escuela de Biología, San José (Costa Rica).
Introducción: En Costa Rica existen cuatro especies de primates silvestres: el mono araña (Ateles geoffroyi), el mono carablanca (Cebus capucinus), el mono congo (Alouatta palliata) y el mono ardilla o tití (Saimiri oerstedi). Una de las mayores amenazas para la supervivencia de estas especies es la fragmentación boscosa, la cual disminuye la cantidad de alimento disponible, limita el movimiento de las tropas y la migración de individuos entre éstas (Reid 1997, Mora 2000, Wainwright 2002). A medida que estas especies son más afectadas por las actividades humanas, se vuelve más importante el estudiar los factores que afectan su viabilidad a largo plazo. En el Refugio de Vida Silvestre Privado Nogal, se han registrado monos congo, monos carablanca y monos ara;a, tres de las cuatro especies de primates silvestres que habitan en Costa Rica. Estas especies se encuentran distribuidas en dos fragmentos con un área total de 101 ha. El plan de manejo del refugio incluye el desarrollo de corredores biológicos entre los fragmentos y eventualmente con otras áreas boscosas incluyendo la Reserva Biológica La Selva. Adicionalmente se construirán puentes aéreos entre los fragmentos para aumentar el acceso a recursos alimentarios e intercambio genético entre las tropas de cada especie. Sin embargo, el desarrollo de estos corredores podría tardar varios a;os para alcanzar su funcionalidad. Para complementar estas acciones de manejo se necesita información sobre la estructura demográfica de las poblaciones de estos primates para analizar la viabilidad de estas a largo plazo. Cabe aclarar que sólo se ha encontrado un individuo de mono ara;a en el refugio, por lo que esta especie no se tomará en cuenta en el estudio.
Localización: Biblioteca OET: NBINA-12153. Biblioteca Luis D. Tinoco: Tesis 28626.

Publicación no.: 0672 Interspecific and intergroup interactions of mantled howling monkeys (Alouatta palliata) in primary versus secondary forest at El Zota Biological Field Station, Costa Rica [Interacción interespecíficas e intergrupos de monos congo (Alouatta palliata) en bosque primario versus secundario en la Estación Biológica de Campo El Zota, Costa Rica] / Senf, Melissa Joy. (Iowa State University. Department of Anthropology, 324 Curtiss Hall, Ames, IA 50011, US). Ames, IA: Iowa State University, 2009. 114 p. Thesis, M.A. in Anthropology, Iowa State University, Graduate Faculty, Ames, Iowa (USA).
Four groups of mantled howling monkeys (Alouatta palliata) were observed at El Zota Biological Field Station in northeastern Costa Rica to assess whether resource scarcity caused by anthropogenic disturbance and hypothesized increased competition forlimited resources would result in more frequent and more aggressive interactions between neighboring howling monkey groups and between howling

monkeys and other, sympatric primate species, namely white-faced capuchins (Cebus capucinus) and black-handed spider monkeys (Ateles geoffroyi). Using a comparison between the primary forest, as a control, and anthropogenically-altered secondary forest, I examined whether a behavioral difference existed between groups with hypothesized varying degrees of resourcecompetition. Intergroup encounters were broken down into long distance howling bouts, with 46 observed, and close proximity interactions, with 11 observed. Results showed an increased frequency of howling in the primary forest as compared with the secondary forest, but no difference between the frequency, duration, or type of close-proximity intergroup encounters. Forty-five interspecies interactions were observed between howling monkeys and sympatric primate species. These interactions showed no difference between forest type for frequency, duration, or type of interaction. These results suggest that the composition and resource availability of the secondary forest at this site that does not align with current assumptions of habitat degradation. Alternatively results may be a reflection of social pressures such as infanticide, intragroup competition, and genetic relatedness as factors shaping howling monkey behaviors in both primary and secondary forests*.*
Localización: Biblioteca OET: NBINA-11143.

Publicación no.: 0673 **Análisis de la variación genética en la región D-Loop del ADN mitocondrial, en monos congo (Alouatta palliata) de Costa Rica** / Villalobos-Brenes, Federico Alexander. (Instituto Centroamericano para la Investigación en Biología y Conservación, Apartado 2398-2050, San Pedro de Montes de Oca, CR <E-mail: fvillalobos@cibrc.org>). San José: Universidad de Costa Rica, 1998. 76 p. Tesis, Mag. Sc., Universidad de Costa Rica, Sistema de Estudios de Posgrado en Biología, San José (Costa Rica).
El objetivo de esta investigación fue estimar la variación genética en la región D-Loop del ADNmt en poblaciones de A. palliata, estudiar su distribución en términos de población y de región geográfica, así como realizar comparaciones con la información disponible de las otras especies del género Alouatta. La región D-Loop del ADmt fue amplificada por PCR, posteriormente fue analizada utilizando seis enzimas de restricción (Hae III, Tru 91, Rsa I, Bst0l, D1eI, Sau96I). Sólo dos enzimas (Hae III y Tru 91) presentaron, cada una, un sitio de restricción polimórfico. Estos sitios polimórficos fueron ubicados en dos regiones diferentes del D-Loop (Región Control I y II). Con base en la información de las enzimas de restricción se estimó la diversidad genética del D-Loop en A. palliata en términos del número promedio de sitios de restricción diferentes, diversidad nucleotídica y haplotípica. El número promedio de sitios de restricción diferentes, para la muestra conjunta, fue de 0,391. Los niveles de variación genética en términos de diversidad nucleotídica (0,004) fueron bajos al ser comparados con estimaciones en otros organismos fuera del género Alouatta. El número de sitios de restricción, así como su distribución en esta region, fue comparado con el mapa de Alouatta belzebul generado a partir de una secuencia del D-Loop. Para las enzimas con variación se encontraron similitudes en la ubicación y número de los sitios de restricción. Las variantes en el patrón de restricción de estas dos enzimas permitieron detectar cuatro haplotipos en la muestra total. La diversidad haplotípica para las poblaciones de A. palliata fue mayor que la determinada en A. pigra (0,71 vs 0.04). Las poblaciones de A. palliata variaron en la composición haplotípica y en lasimilitud genética (estimada en términos del número neto de sitios de restricción diferentes entre poblaciones). Las poblaciones de La Pacífica y Jiménez Núñez presentaron 3 haplotipos. Las poblaciones de Santa Rosa y Santa Cruz fueron idénticas en composición haplotípica mientras que las poblaciones de 28 millas (Limón) y Río Jesús fueron diferentes. Este estudio logró encontrar diferencias genéticas en poblaciones que habían resultado monomórficas al ser analizadas con

marcadores isoenzimáticos. Sin embargo, las tendencias observadas entre la similitud genética de las poblaciones y su proximidad geográfica son preliminares. Por lo tanto, es necesario realizar un muestreo que abarque un rango geográfico mayor en Costa Rica, así como estudios genéticosde poblaciones periféricas en Suramérica, para poder explicar los niveles de variación en las poblaciones Centroamericanas.
Localización: Biblioteca Luis D. Tinoco: Tesis 18666.

Publicación no.: 0674 **An explicit signature of balancing selection for color-vision variation in New World monkeys** / Hiwatashi, Tomohide; Okabe, Yugo; Tsutsui, Toko; Hiramatsu, Chihiro; Melin, Amanda D; Oota, Hiroki; Schaffner, Colleen M; Aureli, Filippo; Fedigan, Linda M; Innan, Hideki; Kawamura, Shoji. (The University of Tokyo. Graduate School of Frontier Sciences, Department of Integrated Biosciences, Kashiwa, Chiba, JP <E-mail: kawamura@k.u-tokyo.ac.jp> <E-mail: kawamura@k.u-tokyo.ac.jp> <E-mail: f.aureli@ljmu.ac.uk> <E-mail: fedigan@ucalgary.ca>).
En: Molecular Biology and Evolution (ISSN 0737-4038), v. 27, no. 2, p. 453-464. 2010
Color vision is an important characteristic of primates and, intriguingly, Neotropical monkeys are highly polymorphic for this trait. Recent field studies have challenged the conventional view that trichromatic color vision is more adaptive than dichromatic color vision. No study has investigated the pattern of genetic variation in the long to middle wavelength-sensitive (L-M or red-green) opsin gene as compared with that of other genomic regions (neutral references) in wild populations of New World monkeys to look for the signature of natural selection. Here, we report such a study conducted on spider monkeys and capuchin monkeys inhabiting Santa Rosa National Park, Costa Rica. The nucleotide sequence of the L-M opsin gene was more polymorphic than the sequences of the neutral references, although the opsin-gene sequences were not more divergent between the two species than were the sequences of the neutral references. In a coalescence simulation that took into account the observed nucleotide diversity of the neutral references, the Tajima's D value of the L-M opsin gene deviated significantly in a positive direction from the expected range. These results are the first to statistically demonstrate balancing selection acting on the polymorphic L-M opsin gene of New World monkeys. Taking the results of behavioral and genetic studies together, the balancing selection we detected may indicate that coexistence of different color-vision types in the same population, also characteristic of humans, is adaptive***.***
Localización: Biblioteca OET: NBINA-11630.

Publicación no.: 0675 **Chromobacterium violaceum infection in a free-ranging howler monkey in Costa Rica** *[Infección de Chromobacterium violaceum en un mono congo en libertad en Costa Rica]* / Baldi, Mario; Morales, Juan Alberto; Hernández-Gómez, Giovanna; Jiménez-Soto, Mauricio; Alfaro, Alejandro; Barquero-Calvo, Elías. (Universidad Nacional. Escuela de Medicina Veterinaria, Programa de Investigación en Enfermedades Tropicales, Apdo 86-3000, Heredia, CR <E-mail: mbaldi@medvet.una.ac.cr>).
En: Journal of Wildlife Diseases (ISSN 0090-3558), v. 46, no. 1, p. 306-310. 2010
Chromobacterium violaceum is a gram-negative saprobe bacterium that is a rare opportunistic pathogen in mammals. There are numerous reports in humans including fatalities, but no record exists in free-ranging nonhuman primates. Here we report an infection by C. violaceum in a wild adult male howler monkey (Alouatta palliata) captured at Ballena Marine National Park, in southwestern Costa Rica. The individual had severe skin lesions over its extremities; gross findings included multiple skin ulcers, white

foci in liver, and lymphoid hyperplasia. Histologic results included deep dermatitis with presence of necrotic epithelial cells where clusters of coccoid-shaped bacteria were detected. In the liver, numerous neutrophils forming microabscesses, telangiectasia, and focal necrotic areas were observed. Necrotic liver tissue sampled for bacteriologic culture resulted in the isolation of C. violaceum. We could not ascertain the source or mechanism of infection in this case, although infection through skin microabrasions is suspected. To the best of our knowledge, this is the first report for this pathogen in a wild, nonhuman primate. This report also draws attention to this infectious agent as a potential emerging wildlife disease and consideration should be paid by regional veterinary and epidemiologic vigilance services.
Localización: Biblioteca OET: NBINA-11638.

Publicación no.: 0676 **Spatial correlates of capuchin-dispersed seed and seedling survival, germination and growth** *[Correlación espacial de la dispersión de semillas por monos carablanca y la germinación, el crecimiento y supervivencia de plántulas]* / Valenta, Kim; Fedigan, Linda M. (University of Calgary. Department of Anthropology, 2500 University Drive N.W., Calgary, AB T2N 1N4, CA <E-mail: fedigan@ucalgary.ca>).
En: American Journal of Physical Anthropology (ISSN 0092-9483), Suppl 48, p. 259. 2009.
(Abstract only). White-faced capuchin monkeys (Cebus capucinus) are effective primary seed dispersers. Here, we examine the effect of spatial patterns of seed dispersal and neighborhood characteristics on seed and seedling survival and growth. During focal follows on 17 habituated capuchin monkeys in Santa Rosa National Park, Costa Rica, we recorded the distance from parent trees for all capuchin defecations containing seeds. We returned seeds of the 5 most commonly passed plant species to up to 10 defection locations (hereafter plots). At each plot we placed 4 piles of 10 seeds each, and between 4 and 6 conspecific lab-raised seedlings. We measured neighborhood characteristics, and the distance to the nearest fruiting conspecific (NFC) tree and parent tree. Over the course of 7-months of study we monitored plots weekly, recording germination or death, growth and seedling damage. We conducted stepwise regressions to analyze the effect of distance and neighborhood characteristics on plots. Both seed survival and duration of survival was significantly affected by the distance to NFC trees for all 5 species. Three of the 5 species also showed increased seedling survival and growth as an effect of increased distance to NFC trees. Other neighborhood and distance effects were found, but were limited, and not consistent in the direction of their effect. These results provide empirical support for a revised version on the seed escape hypothesis: the distance to any fruiting conspecific, and not only the parent, is the most critical variable in the survival and growth of capuchin-dispersed seeds.
Localización: No disponible.

Publicación no.: 0677 **The context of spider monkey whinnies: party composition and activity** *[El contexto de los relinchos del mono colorado: la composición y la actividad de los grupos]* / Walz, Jessica T; Rodrígues, Michelle A. (The Ohio State University. Department of Anthropology, Columbus, OH 43210, US <E-mail: walz.17@osu.edu> <E-mail: rodrigues.11@osu.edu>).
En: American Journal of Physical Anthropology (ISSN 0092-9483), Suppl 48, p. 266. 2009.
(Abstract only). Animals living in complex societies employ contact calls to maintain spatial coherence. These vocalizations are particularly important in fission-fussion societies in which group members may frequently be out of fisual range of others. For spider monkeys the whinny vocalization has been described as both a contact call and a food call. Spider monkeys utilize whinnies during feeding, as well

as other activities such as resting and traveling. Here, we test the specific context of whinnies, including party composition and activities associated with frequent whinnying, among black-handed spider monkey (Ateles geoffroyi ornatus). Results are based on approximately 10 hours of focal animal sampling during July 2008 at El Zota Biological Field Station, a wet forest located in northeastern Costa Rica. Spider monkey did not whinny more frequently during a particular activity. However, significantly more whinnies were observed while spider monkeys were solitary than in mixed company (including with multiple adults and/or juveniles), with young offspring, or in all adult female parties (n = 16, x^2 value =30.815, df = 18, p=0.030). These results indicate that spider monkey whinnies may be particularly important for maintaining communicative contact with community group that are out of visual range. Furthermore, these results support the function of the whinny vocalization as a contact call rather than as a food call. Whinnies are likely essential for promoting relationships within spider monkey societies composed generally of amorphous social groups.
Localización: No disponible.

Publicación no.: 0678 **Effects of habitat fragmentation and disturbance on howler monkeys: a review** *[Efectos de la fragmentación del hábitat y perturbación sobre los monos congo: una revisión]* / Arroyo-Rodríguez, Víctor; Dias, Pedro Américo D. (Universidad Nacional Autónoma de México. Instituto de Investigaciones en Ecosistemas, Antigua Carretera a Pátzcuaro No. 8701, ExHacienda de San José de la Huerta, Morelia 58190, Michoacán, MX <E-mail: victorarroyo_rodriguez@hotmail.com>).
En: American Journal of Primatology (ISSN 0275-2565), v. 72, no. 1, p. 1-16. 2009
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-11666.pdf
We examined the literature on the effects of habitat fragmentation and disturbance on howler monkeys (genus Alouatta) to (1) identify different threats that may affect howlers in fragmented landscapes; (2) review specific predictions developed in fragmentation theory and (3) identify the empirical evidence supporting these predictions. Although howlers are known for their ability to persist in both conserved and disturbed conditions, we found evidence that they are negatively affected by high levels of habitat loss, fragmentation and degradation. Patch size appears to be the main factor constraining populations in fragmented habitats, probably because patch size is positively related to food availability, and negatively related to anthropogenic pressures, physiological stress and parasite loads. Patch isolation is not a strong predictor of either patch occupancy or population size in howlers, a result that may be related to the ability of howlers to move among forest patches. Thus, we propose that it is probable that habitat loss has larger consistent negative effects on howler populations than habitat fragmentation per se. In general, food availability decreases with patch size, not only due to habitat loss, but also because the density of big trees, plant species richness and howlers' home range size are lower in smaller patches, where howlers' population densities are commonly higher. However, it is unclear which vegetation attributes have the biggest influence on howler populations. Similarlyour knowledge is still limited concerning the effects of postfragmentation threats (e.g. hunting and logging) on howlers living in forest patches, and how several endogenous threats (e.g. genetic diversity, physiological stress, and parasitism) affect the distribution, population structure and persistence of howlers. More long-term studies with comparable methods are necessary to quantify some of the patterns discussed in this review, and determine through meta-analyses whether there are significant inter-specific differences in species' responses to habitat loss and fragmentation.
Localización: Biblioteca OET: NBINA-11666.

Publicación no.: 0679 **Aplicando los criterios de la conservación biológica para el establecimiento de corredores biológicos y zona de amortiguamiento para el Parque Nacional Corcovado** / Tavares-de Almeida, Roverbal. (Apartado 26-8203, Puerto Jiménez, Península de Osa, CR <E-mail: nrojas78@hotmail.com>). Arlington, VA: The Nature Conservancy, 2000. [s.n.].
El Parque Nacional Corcovado (PNC) localizado en el Pacífico Sur de Costa Rica, hace frente a una diversidad de situaciones socioecológicas adversas, muchas de las cuales requieren diferentes estrategias de conservación. Las consecuencias de estas situaciones sobre el ambiente natural y la vida silvestre local están acompanadas por la fragmentación forestal, disminución de su población y extinción local. El estudio aquí presentado consideró los principios de la conservación biológica y de la sociología rural para evaluar y valorizar áreas de conexión (corredores biológicos) y áreas adyacentes (zonas de amortiguamiento) al PNC, utilizando los felinos silvestres, principalmente los de gran tamano (jaguar - Panthera onca y puma - Puma concolor) como indicadores del estado de los ambientes. La distribución y abundancia de los felinos y de sus presas potenciales fueron significativamente mayores para áreas límites del parque, sin embargo se encontró una continua distribución de estas especies a lo largo del corredor biológico que conecta el PNC con el Parque Nacional Piedras Blancas (PNPB) y áreas boscosas cercanas. En tres sectores del área de estudio, el jaguar estuvo presente durante la estación lluviosa, con indices relacionados con el tipo de cobertura de cada sector y presencia de presas potenciales. Los índices de abundancia de puma indicaron diferencias entre los sectores, con desplazamientos anuales por toda el área del corredor biológico. La abundancia y distribución de otras cuatro especies de felinos (Leopardus pardalis, L. Wiedii, L. tigrinus y Herpailurus yagouaroundi), presentaron un patrón estacional, con índices mayores para la estación lluviosa. Las seis especies de felinos y veintiuna especies de mamíferos terrestres fueron registrados dentro del área del corredor biológico. Los agrupamientos humanos locales (indígenas y campesinos) mantuvieron una concisa relación con los recursos naturales del bosque y algunos representantes de la fauna silvestre son sobre explotados con la cacería ilegal. El manejo forestal en el área adyacente al parque es considerado una de las principales amenazas para las funciones del corredor biológico y la relación del Ministerio del Ambiente y Energía (MINAE) con los habitantes locales juega un papel vital en el establecimiento oficial de las zonas de amortiguamiento y nuevos programas de conservación para el parque y sus áreas adyacentes**.**
Localización: Biblioteca OET: AD 987.

Publicación no.: 0680 **Spatial patterns of seed dispersal by white-faced capuchins in Costa Rica: evaluating distant-dependent seed mortality** *[Patrones espaciales de la dispersión de semillas por los monos carablanca en Costa Rica: evaluación de la mortalidad de las semillas dependiente de la distancia]* / Valenta, Kim; Fedigan, Linda M. (University of Calgary. Department of Anthropology, 2500 University Drive N.W., Calgary, AB T2N 1N4, CA <E-mail: fedigan@ucalgary.ca>).
En: Biotropica (ISSN 0006-3606), v. 42, no. 2, p. 223-228. 2010
Spatial patterns of seed dispersal are the focus of numerous theoretical examinations of endozoochory. Here, we examine the spatial pattern of seed dispersal by white-faced capuchin monkeys Cebus capucinus in Santa Rosa National Park, Costa Rica, and the neighborhood characteristics and distance variables most closely associated with seed survival and germination, and seedling survival and growth in various locations. Overall, distance to the nearest fruiting conspecific tree has the most positive, consistent effect on growth and survival variables, which supports a variation of the Janzen-Connell seed escape hypothesis**.**
Localización: Biblioteca OET: NBINA-11717.

Publicación no.: 0681 **Phylogeny and phylogeography of squirrel monkeys (genus Saimiri) based on cytochrome b genetic analysis** *[Filogenia y filogeografía de los monos tití (género Saimiri) con base al análisis genético del citocromo b]* / Lavergne, Anne; Ruiz-García, Manuel; Catzeflis, Francois; Lacote, Sandra; Contamin, Hugues; Mercereau-Puijalon, Odile; Lacoste, Vincent; de Thoisy, Benoit. (Institut Pasteur. Service de Primatologie, Center de Primatologie, 23 Avenue Pasteur, BP 6010, Cayenne 97306 cedex, GF <E-mail: bdethoisy@pasteur-cayenne.fr>).
En: American Journal of Primatology (ISSN 1098-2345 (online)), v. 72, no. 3, p. 242-253. 2010
Squirrel monkeys (genus Saimiri) are distributed over a wide area encompassing the Amazon BasEn: French Guiana, Suriname, and Guyana, together with Western Panama and Western Costa Rica. The genus Saimiri includes a complex of species and subspecies displaying considerable morphological variation. Taxonomic and systematic studies have identified, in this genus, one to seven species comprising up to 16 subspecies. The phylogenetic relationships between these taxa are poorly understood. Molecular markers have yielded a consistent framework for the systematics of Central and South American Saimiri, identifying four distinct clades: S. oerstedii, S. sciureus, S. boliviensis, and S. ustus. Here, we reconsider the phylogenetic and biogeographic history of Saimiri on the basis of mitochondrial (mtDNA) sequence data, focusing mostly on individuals originating from the Amazon Basin. We studied 32 monkeys with well-defined geographic origins and inferred the phylogenetic relationships between them on the basis of full-length cytochrome b gene nucleotide sequences. The high level of gene diversity observed (0.966) is consistent with the high level of behavioral and morphological variation observed across the geographic range of the genus: 20 mtDNA haplotypes were identified with a maximum divergence of 4.81% between S. b. boliviensis and S. ustus. In addition to confirming the existence of the four clades previously identified on the basis of molecular characters, we suggest several new lineages, includingS. s. macrodon, S. s. albigena, S. s. cassiquiarensis, and S. s. collinsi. We also propose new patterns of dispersion and diversification for the genus Saimiri, and discuss the contribution of certain rivers and forest refuges to its structuring**.**
Localización: Biblioteca OET: NBINA-11801.

Publicación no.: 0682 **Can color vision variation explain sex differences in invertebrate foraging by capuchin monkeys?** *[¿Puede la variación en la visión de color explicar las diferencias entre sexos de forrajeo de invertebrados en los monos carablanca?]* / Melin, Amanda D; Fedigan, Linda M; Young, Hilary C; Kawamura, Shoji. (University of Calgary. Department of Anthropology, 2500 University Dr NW, Calgary, AB T2N 1N4, CA <E-mail: amelin@ucalgary.ca> <E-mail: linda.fedigan@ualberta.ca> <E-mail: kawamura@k.u-tokyo.ac.jp>).
En: Current Zoology (ISSN 1674-5507), v. 56, no. 3, p. 300-312. 2010
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-11897.pdf
Invertebrates are the main source of protein for many small-to-medium sized monkeys. Prey vary in size, mobility, degree of protective covering, and use of the forest, i.e. canopy height, and whether they are exposed or embed themselves in substrates. Sex-differentiation in foraging patterns is well documented for some monkey species and recent studies find that color vision phenotype can also affect invertebrate foraging. Since vision phenotype is polymorphic and sex-linked in most New World monkeys - males have dichromatic vision and females have either dichromatic or trichromatic vision - this raises the possibility that sex differences are linked to visual ecology. We tested predicted sex differences for invertebrate foraging in white-faced capuchins Cebus capucinus and conducted 12

months of study on four free-ranging groups between January 2007 and September 2008. We found both sex and color vision effects. Sex: Males spent more time foraging for invertebrates on the ground. Females spent more time consuming embedded, colonial invertebrates, ate relatively more "soft" sedentary invertebrates, and devoted more of their activity budget to invertebrate foraging. Color Vision: Dichromatic monkeys had a higher capture efficiency of exposed invertebrates and spent less time visually foraging. Trichromats ate relatively more "hard" sedentary invertebrates. We conclude that some variation in invertebrate foraging reflects differences between the sexes that may be due to disparities in size, strength, reproductive demands or niche preferences. However, other intraspecific variation in invertebrate foraging that might be mistakenly attributed to sex differences actually reflects differences in color vision.
Localización: Biblioteca OET: NBINA-11897.

Publicación no.: 0683 **Dominance among female white-faced capuchin monkeys (Cebus capucinus): hierarchical linearity, nepotism, strength and stability** *[Dominancia entre hembras de monos carablanca (Cebus capucinus): linealidad jerárquica, el nepotismo, la fuerza y la estabilidad]* / Bergstrom, Mackenzie Lee; Fedigan, Linda M. (University of Calgary. Department of Anthropology, 2500 Univ Dr NW, Calgary, AB T2N 1N4, CA <E-mail: fedigan@ucalgary.ca>).
En: Behaviour (ISSN 0005-7959), v. 147, no. 7, p. 899-931. 2010
Research on Old World primates provided the foundation for understanding competitive strategies resulting from social and ecological pressures. The neotropical primate, Cebus capucinus shares many social patterns with Old World cercopithecines (e. g.female philopatry, male dispersal), which may contribute to similar expression of competitive strategies. To clarify the nature of dominance patterns among female white-faced capuchins we examined hierarchical linearity, rank acquisition, matrilineal rank inheritance, hierarchical strength and stability. We collected focal data on 22 adult females (2008) and long-term dominance data (1986-2008) on 33 adult females in Sector Santa Rosa, Costa Rica. Females displayed linear hierarchies based on the direction of dyadic submission. At sexual maturity females quickly acquired rank positions beneath their mother and older sisters. Hierarchies were considered strong based on high proportions of food-related agonism, short latency to detection of hierarchies (21 h/female) and low directional inconsistency scores (5%). Hierarchies were considered stable based on lack of tied submissive interactions (indicative of uncontested rank positions), low rates of rank change (0.510 changes/year), and long-term stability in matrilineal rank order. These findings enhance our understanding of capuchin social systems and how the competitive strategies of white-faced capuchins compare to those of Old World primates.
Localización: Biblioteca OET: NBINA-12233.

Publicación no.: 0684 **Toward understanding the genetic variation of wild white-faced capuchin monkeys in Santa Rosa National Park, Costa Rica** *[Hacia la comprensión de la variación genética de los monos carablanca silvestres en el Parque Nacional Santa Rosa, Costa Rica]* / Sato, Akiko; Campos, Fernando Alonso; Oota, Hiroki; Jack, Katharine M; Fedigan, Linda M; Kawamura, Shoji. (University of Tokyo. Graduate School of Frontier Sciences, Department of Integrated Biosciences, Seimeitou 502,5-1-5 Kashiwanoha, Kashiwa, Chiba 2778562, JP <E-mail: kjack@tulane.edu> <E-mail: fedigan@ucalgary.ca> <E-mail: kawamura@k.u-tokyo.ac.jp>).
En: Genes and Genetic Systems (ISSN 1341-7568), v. 84, no. 6, p. 464. 2009.

(Abstract only). We have collected fecal DNA samples about 180 individuals from 12 social groups of white-faced monkeys (Cebus capucinus) inhabiting Santa Rosa National Park, Costa Rica, and have detected balancing selection for the L-M opsin gene maintaining color vision variation in one of the groups. We plan to extend our study to including the other groups and evaluate natural selection also for other sensory genes such as for olfactory and taste receptors using this DNA collection. However, genetic variation is haped mainly by various chance effects such as random drift and subdivision of populations and can be skewed in a sample. Therefore, to evaluate properly an effect of natural selection, it is prerequisite to examine genetic variations using ?neutral? markers as a reference of chance and sampling effects. We are thus examining genetic variation of these groups of monkeys using various neutral markers including the d-loop region of mitochondrial DNA and autosomal microsatellite loci. Here, we report a progress of our study showing a differential population subdivision between sexes among the social groups of the capuchin monkeys using these markers.
Localización: No disponible.

Publicación no.: 0685 **Ethical issues faced by field primatologists: Asking the relevant questions** *[Asuntos éticos que enfrentan los primatólogos de campo: Hacer las preguntas pertinentes]* / Fedigan, Linda M. (University of Calgary. Department of Anthropology, 2500 Univ Dr NW, Calgary, AB T2N 1N4, CA <E-mail: fedigan@ucalgary.ca>).
En: American Journal of Primatology (ISSN 0275-2565), v. 72, no. 9, p. 754-771. 2010
Field primatologists face unusual ethical issues. We study animals rather than people and receive research approval from animal care rather than ethics committees. However, animal care evaluation forms are developed from concerns about laboratory animal research and are based on the "Three R's" for humane treatment of captive experimental subjects (replacement, reduction and refinement), which are only debatably relevant to field research. Scientists who study wild, free-ranging primates in host countries experience many ethical dilemmas seldom dealt with in animal care forms. This paper reviews the ethical issues many field primatologists say they face and how these might be better addressed by animal care forms. The ethical issues arising for field researchers are divided into three categories: "Presence, Protocols and People" and for each the most frequent issues are described. The most commonly mentioned ethical concern arising from our presence in the field is the possibility of disease transmission. Although most primate field studies employ only observational protocols, the practice of habituating our study animals to close human presence is an ethical concern for many since it can lessen the animals' fear of all humans, thereby facilitating undesirable behaviors (e g., crop-raiding) and rendering them vulnerable to harm Field primatologists who work in host countries must observe national laws and local traditions. As conservationists, primatologists must often negotiate between the resource needs and cultural practices of local people and the interests of the nonhuman primates. Many say they face more ethical dilemmas arising from human interactions than from research on the animals per se. This review concludes with suggestions for relevant questions to ask on animal care forms, and actions that field primatologists can take to better inform animal care committees about the common ethical issues we experience as well as how to develop guidelines for addressing them.
Localización: Biblioteca OET: NBINA-12370.

Publicación no.: 0686 **Putting the community back in community ecology and education: The role of field schools and private reserves in the ethical training of primatologists** *[Poner de nuevo en la comunidad la ecología de comunidades y educación: El papel de las escuelas de campo y reservas*

privadas en la formación ética de los primatólogos] / Garber, Paul A; Molina, Alvaro; Molina, René L. (University of Illinois. Department Anthropology, 109 Davenport Hall, 607 S Mathews Ave, Urbana, IL 61801, US <E-mail: p-garber@illinois.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 72, no. 9, p. 785-793. 2010
In 1993 and 1999, with the assistance of a Nicaraguan family, we founded La Suerte Biological Research Station in northeastern Costa Rica and Ometepe Biological Research Station in southern Nicaragua as a privately owned conservation-oriented business. Our goal was to develop a program of sustainable community ecology focused on education, research, and the conservation of primates and tropical forests. In order to accomplish this we developed field courses in which undergraduate and graduate students conduct scientific research, experience local cultures, and learn about conservation. Over 120 of these students have received doctoral degrees or are currently in graduate programs. Four doctoral dissertations, several MA theses, and some 20 scientific articles have been published based on research conducted at our field stations. In order to achieve our long-term goals of preserving the environment, we also needed to engage directly with local communities to address their needs and concerns. To this end, we developed a series of community-based initiatives related to health care, bilingual education, and conservation education using traditional and on-line teaching tools. In this article, we describe our efforts in Costa Rica and Nicaragua teaching conservation-oriented field courses and working with the local human communities. Building upon these experiences, we outline a set of ethical considerations and responsibilities for private reserves, conservation-oriented businesses, NGOs, and conservancies that help integrate members of the local community as stakeholders in conservation**.**
Localización: Biblioteca OET: NBINA-12364.

Publicación no.: 0687 **Evidence of tourist-influenced behavioral changes in white-faced capuchins (Cebus capucinus) in Manuel Antonio National Park, Costa Rica including an exploration of tourist attitudes towards monkey presence** *[Evidencia de que los turistas han influido en los cambios de comportamiento en los monos carablanca (Cebus capucinus) en el Parque Nacional Manuel Antonio, Costa Rica, incluyendo una exploración de las actitudes de los turistas hacia la presencia del mono]* / Kauffman, Laurie. (DePaul University. Department of Biology, Chicago, IL 60614, US <E-mail: laurie.kauffman@gmail.com>). 33rd Annual Meeting of the American Society of Primatologists, Centre College, Louisville Zoo and Bellarmine University, Louisville, KY June 16-19, 2010
En: American Journal of Primatology (ISSN 0275-2565), v. 72, Suppl. 1, Abstract 117. 2010.
(Abstract only). Despite recent, rapid increases in wildlife-based tourism, few studies focus on the impacts of tourism on primates. Furthermore, knowledge of tourists' views of primates is needed to improve education programs that may mitigate the results of increased tourism. In this study I compare home range size and diet of one troop of 14-17 monkeys in Costa Rica in 1998 to data collected 11 years earlier. I predicted that home range size and consumption of naturally occurring food would decrease. I also interviewed tourists to understand more about their interactions with monkeys. I predicted that tourists would have a positive opinion of the monkeys, see the presence of the monkeys as a reason to visit the park, and think it was acceptable to feed the monkeys. I collected 79.4 hours of behavioral data in March and April 1998 via focal and ad libitum methods and 50 tourists were interviewed. The monkeys were found to eat decreased amounts of naturally occurring foods [X2(2)=102, P0.001], and to have a smaller home range. In addition, 84% of tourists did not think it was acceptable to feed the monkeys, 34% visited the park to see monkeys and 48% had a positive view of the monkeys. This

research indicates that increased tourism has affectedone population of capuchins which could have negative population and ecosystem level consequences.
Localización: No disponible.

Publicación no.: 0688 **Invertebrate foraging by Costa Rican capuchin monkeys: testing predicted sex differences in relation to color vision variation** *[Forrajeo de invertebrados por parte de los monos carablanca costarricenses: Las pruebas predijeron diferencias entre los sexos en relación a la variación de la visión del color]* / Melin, Amanda D; Fedigan, Linda M; Young, Hilary C; Kawamura, Shoji. (University of Calgary. Department of Anthropology, 2500 University Dr NW, Calgary, AB T2N 1N4, CA <E-mail: amelin@ucalgary.ca> <E-mail: linda.fedigan@ualberta.ca> <E-mail: kawamura@k.u-tokyo.ac.jp>). 33rd Annual Meeting of the American Society of Primatologists, Centre College, Louisville Zoo and Bellarmine University, Louisville, KY June 16-19, 2010
En: American Journal of Primatology (ISSN 0275-2565), v. 72, Suppl. 1, Abstract 112. 2010.
(Abstract only). Invertebrates are an important source of protein for many small-bodied monkeys. Prey vary in size, mobility, protection and whether they are exposed, or embedded in substrates. Both sex and color vision phenotypes have been identified as affecting invertebrate foraging patterns among capuchins. Color vision is sex-linked in this genus: males have dichromatic (red-green deficient) vision and females have dichromatic or trichromatic vision. We tested the hypothesis that sex differences are affected by variation in color vision in white-faced capuchins (Cebus capucinus) and observed four groups in Sector Santa Rosa, Costa Rica for 12 months between January 2007 and September 2008. The color vision genotypes of all individuals were determined by extraction, amplification and sequencing of fecal DNA. Results: Sex: Males spent more time foraging at ground level for invertebrates [ANCOVA: P0.001]. Females (dichromats and trichromats) spent more time consuming embedded, colonial invertebrates [ANCOVA: P=0.001], ate more "soft" sedentary invertebrates [ANCOVA: P=0.029], and devoted more time to invertebrate foraging [ANCOVA: P=0.034]. Color Vision: Dichromats (males and females) captured more exposed invertebrates [ANCOVA: P=0.006] and spent less time visually foraging [ANCOVA: P=0.018]. Trichromats consumed more "hard" sedentary invertebrates [ANCOVA: P=0.018]. We conclude that some sex differences are actually attributable to color vision, whereas others are not related to visual ecology and reflect other differences between the sexes, such as strength or reproductive demands.
Localización: No disponible.

Publicación no.: 0689 **Female-male proximity during early development as a possible cue to paternity in white-faced capuchin monkeys (Cebus capucinus)** *[Proximidad hembra-macho durante el desarrollo temprano como una posible señal a la paternidad en los monos carablanca (Cebus capucinus)]* / Godoy, Irene; Perry, Susan E. (University of California at Los Angeles. Department of Anthropology, Los Angeles, CA 90095, US <E-mail: godoy@ucla.edu> <E-mail: sperry@anthro.ucla.edu>). 33rd Annual Meeting of the American Society of Primatologists, Centre College, Louisville Zoo and Bellarmine University, Louisville, KY June 16-19, 2010
En: American Journal of Primatology (ISSN 0275-2565), v. 72, Suppl. 1, Abstract 137. 2010.
(Abstract only). In capuchins, closely related individuals are commonly found in the same group and have the potential to select each other as mates. Nonetheless, capuchins exhibit father-daughter inbreeding avoidance, though little is known about the mechanisms of kin discrimination. Demographic factors such as high male reproductive skew and long alpha tenures make it likely that alpha males are

related to infants in their groups. Here we explore whether patterns of proximity during early development reflect paternal relatedness. We present proximity data on opposite sex dyads collected from 10 minute focal follows of infant females [689 focal hours, N=12] at Lomas Barbudal, Costa Rica. During the first year of life, the median percentage of timespent around alpha males was 11.4% compared to 3.8% around adult subordinate males. Of 12 female-alpha dyads, 6 were daughter-father (D-F), 3 granddaughter-grandfather (GD-GF), and 3 non-kin (NK). Though yearlong mean values for percentage of time spent together only differed slightly according to kin categories [13.7% for D-F, 13.3% for GD-GF, 10.2% for NK], differences were more pronounced during the earlier half of the first year [14.1% for D-F, 16.3% for GD-GF, 7.9% for NK]. We propose that the early familiarity between infant females and alpha males may serve as a cue to relatedness, which individuals can use when making mating decisions later in life.
Localización: No disponible.

Publicación no.: 0690 **Secondary transfer of adult mantled howlers (Alouatta palliata) on Hacienda La Pacífica, Costa Rica: 1975-2009** *[Transferencia secundaria de monos congo adultos (Alouatta palliata) en la Hacienda La Pacífica, Costa Rica: 1975-2009]* / Clarke, Margaret R; Glander, Kenneth E. (University of Texas Health Science Center Houston. Department of Neurobiology and Anatomy, 6431 Fannin St. MSB 7.046, Houston, TX 77030, US <E-mail: margaret.clarke@uth.tmc.edu> <E-mail: glander@duke.edu>).
En: Primates (ISSN 0032-8332), v. 51, no. 3, p. 241-249. 2010
Natal emigration by male and female mantled howlers (Alouatta palliata), and subsequent immigration into breeding groups, is well documented for the free-ranging population on Hacienda La Pacífica, Costa Rica, but secondary transfer was considered rare (Glander in Int J Primatol 3: 415-436, 1992). Population surveys in 1998 and 2006 caused us to question our assumptions and to re-evaluate our long-term data set from a post hoc perspective. We first identified all animals observed or captured as adults in more than one non-natal group anywhere in the population. We then systematically analyzed joining or leaving by adults in seven groups tracked for various times from 1975 to 2005 for patterns suggesting secondary transfer. Fourteen adults (nine females, five males) were found in two different non-natal groups as adults. In addition, one male and one female that became dominant and reproduced in their natal group later transferred to a second group, and one female was known to be a tertiary transfer. Data from the seven tracked social groups indicate that 35% of all the males and 29% of all the females were potential secondary transfers. In these groups, males leaving or joining was not associated with group size or absolute number of females. Females leaving or joining was not associated with group size or absolute number of males, but females left groups with more females and joined groups with fewer females. Both sexes left groups with unfavorable sex ratios for their sex and joined groups with sex ratios more favorable for their sex. Since a favorable sex ratio is associated with reproductive success in other howler populations, this suggests secondary transfer as a reproductive strategy. Other factors could also influence secondary transfe***.***
Localización: Biblioteca OET: NBINA-12386.

Publicación no.: 0691 **Developmental stages in the howler monkey, subspecies Alouatta palliata mexicana: a new classification using age-sex categories** *[Estados de desarrollo en el mono congo, subespecie Alouatta palliata mexicana: una nueva clasificación utilizando categorías de edad-sexo]* / Domingo-Balcells, Cristina; Veà-Baró, Joaquím José. (Universitat de Barcelona. Centre Especial de

Recerca en Primats, Gran Via de les Corts Catalanes, Barcelona, ES <E-mail: cdbalcells@atmacaucho.com>).
En: Neotropical Primates (ISSN 1413-4703), v. 16, no. 1, p. 1-8. 2009
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-12249.pdf
We present a new classification of age-sex categories for the mantled howler monkey Alouatta palliata. This classification includes only those physical and behavioral characteristics that can be distinguished under field conditions, with the goal of being able to infer the approximate age of monkeys in the wild. Our classification is based on data collected ad libitum during monthly censuses of 8 groups of A. p. mexicana in a fragmented landscape on the "Los Tuxtlas" Biosphere Reserve at the northern limit of this species' distribution. Our new classification system contains 10 categories that can be compared directly to existing classification schemes to facilitate cross-site studies. We compare the results of our study to the currently used classification system which was based on more southern populations of A. palliata in Panamá and Costa Rica.
Localización: Biblioteca OET: NBINA-12249.

Publicación no.: 0692 **Male dominance and reproductive success in wild white-faced capuchins (Cebus capucinus) at Lomas Barbudal, Costa Rica** *[Dominancia del macho y éxito reproductivo en las poblaciones silvestres de monos carablanca (Cebus capucinus) en Lomas Barbudal, Costa Rica]* / Muñiz, Laura; Perry, Susan E; Manson, Joseph H; Gilkenson, Hannah; Gros-Louis, Julie J; Vigilant, Linda. (University of California at Los Angeles. Department of Anthropology, 341 Haines Hall, Box 951553, 375 Portola Plaza, Los Angeles, CA 90095, US <E-mail: sperry@anthro.ucla.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 72, no. 12, p. 1118-1130. 2010
Theory and a growing body of empirical evidence suggest that higher ranking males experience reproductive advantages in group-living mammals. White-faced capuchins (Cebus capucinus) exhibit an interesting social system for investigating the relationship between dominance and reproductive success (RS) because they live in multimale multifemale social groups, in which the alpha males can have extraordinarily long tenures (i.e. they coreside with daughters of reproductive age). Genetic paternity was determined from fecal samples for 120 infants born into three social groups of wild C. capucinus at Lomas Barbudal Biological Reserve, Costa Rica. Alpha males produced far more offspring than expected by chance, and significantly high Nonac's B indices (a measure of deviation from a random distribution of RS among potentially breeding individuals) were a feature of six out of eight male tenures. The likelihood of the alpha male siring a particular offspring was predicted by the kin relationship between the mother and the alpha male, as well as the total number of males and females in the group. The almost complete lack of father-daughter inbreeding [Muñiz et al., 2006] constitutes an impediment to alpha male reproductive monopolization in this populationparticularly toward the end of long alpha male tenures.
Localización: Biblioteca OET: NBINA-12446.

Publicación no.: 0693 **Sleep tree use by white-faced capuchins (Cebus capucinus): Implications for differences in seedling composition** *[Uso de árboles para pernoctar por los monos carablanca: Consecuencias para las diferencias en la composición de las plántulas]* / Valenta, Kim; Klemens, Jeffrey A; Fedigan, Linda M. (University of Calgary. Department of Anthropology, 2500 University Drive N.W., Calgary, AB, T2N 1N4, CA <E-mail: klvalent@ucalgary.ca> <E-mail: kleme024@umn.edu> <E-mail: linda.fedigan@ualberta.ca>).

En: Neotropical Primates (ISSN 1413-4705), v. 16, no. 2, p. 73-76. 2009
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-12545.pdf
Introduction: White-faced capuchins are highly frugivorous, diurnal animals, and previous studies indicate that they are effective primary seed dispersers (Wehncke et al., 2003; Smith, 2004; Valenta and Fedigan, 2009a) across several measures of seeddispersal effectiveness: quantity of seeds dispersed (Wehncke et al., 2003; Valenta and Fedigan, 2008), quality of seed dispersal (Chapman, 1989; Smith, 2004; Wehncke and Dalling, 2005; Valenta and Fedigan, 2009a), and diurnal spatial patterns of seed dispersal (Wehncke et al., 2003; Wehncke and Dalling, 2005; Valenta and Fedigan, 2009b). One aspect of capuchin seed dispersal that has not been studied is nocturnal seed input at sleeping sites. White-faced capuchins spend approximately half of their lives sleeping in a limited number of trees (Fragaszy et al., 2004). Although they have not been observed to consume fruit at night, their gut passage rate of 35 minutes to 5 hours (Rowell and Mitchell, 1991; Wehncke et al., 2003; Valenta and Fedigan, 2009b)coupled with their consumption of fruit until minutes before they retire to a sleeping tree (pers. obs.) lead us to the inference that they defecate a large number of seeds beneath sleep trees. Additionally, a great deal of capuchin feces is observed beneath sleep trees the morning after capuchins sleep in them, and capuchins defecate first thing in the morning before leaving sleep trees. Unfortunately, attempts to quantify nocturnal seed rain have not been successful, but the combination of capuchin gut passage rates, with observations of high seed input the morning after sleep trees are utilized by groups indicate that seed rain beneath sleep trees used by this species is significant. Here, we test the effect of repeated sleep tree use by capuchins on forest regeneration by comparing seedling recruitment at two capuchin sleep trees to paired control trees. Given the increase in capuchin-dispersed seed input beneath sleep trees, we expect a higher density of capuchin- dispersed seedlings at these sites.
Localización: Biblioteca OET: NBINA-12545.

Publicación no.: 0694 **Yeasts isolated from Alouatta palliata, Ateles geoffroyi, Cebus capucinus and Saimiri oerstedii (Primates: Cebidae)** *[Levaduras aisladas de Alouatta palliata, Ateles geoffroyi, Cebus capucinus y Saimiri oerstedii (Primates: Cebidae)]* / Gross-Martínez, Norma; Castro, Juan Diego; Guerrero-Bermúdez, Olga Marta; Chinchilla-Carmona, Misael; Sánchez-Porras, Ronald E; Gutiérrez-Espeleta, Gustavo A. (Universidad de Costa Rica. Facultad de Microbiología, Centro de Investigación en Enfermedades Tropicales, San José, CR <E-mail: norma.gross@ucr.ac.cr>).
En: Neotropical Primates (ISSN 1413-4705), v. 16, no. 2, p. 64-67. 2009
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-12522.pdf
Introduction: In the present study the presence of yeasts on the skin, and in the oral cavity and vagina of Alouatta palliata (mantled howler monkey), Ateles geoffroyi (black-handed spider monkey), Cebus capucinus (white-faced capuchin) and Saimiri oerstedii (red-backed squirrel monkey) from several sites of Costa Rica was examined. These primates have been characterized with regard to their feeding patterns (Jones, 1983; Happel, 1986) and geographical distribution (Massey, 1987; Lippold, 1988, Rodríguez and Chinchilla, 1996). Also, the bacterial flora as well as the endo- and ectoparasites of Costa Rican primates have been reported (Troyo et al., 2002; Calderón-Arguedas et al., 2004; Gamboa-Coronado et al., 2004; Chinchilla et al., 2005; Chinchilla et al., 2006). The present project is unique in being the first to assess the yeast flora in these Neotropical primates. The yeast Candida is a saprophyte in natural products, but has been isolated from the mucosa and skin of humans and animals (Mariatand Droulet, 1996). Candida is considered an opportunistic micro-organism that causes disease in hosts with

a weakened immune system (Ostrosky-Zeichner, 2003). The most common clinical manifestations of candidiasis are cutaneous, mucocutaneous and invasive infections. In humans, Candida infections of the mouth and esophagus are frequently associated with AIDS (de Repentigny et al., 2004). Vulvo-vaginal candidiasis is a common cause of vaginal discharge, soreness, vulvar burning, dysuria and local pruritus. Candida may be either a commensal or a pathogen of the vagina, which indicates that changes in the host vaginal defense mechanisms or changes in the vaginal micro-environment are generally necessary for Candida to induce pathology or association withclinical symptoms (Sobel, 1997). On the other hand, invasive candidiasis is reported in individuals with prolonged neutropenia such as those receiving treatment for leukemia or solid tumors, or transplantation therapy (García-Ruiz et al., 2004). The finding of yeast in an individual or in a group of healthy monkeys does not imply that this micro-organism is part of the normal flora of the respective species. It is likely, however, that the isolation of Candida in a particular population of monkeys is indicative of colonization, as has been well established for other animals (Mariat and Droulet, 1996). The purpose of the present work was thus to examine the presence of yeasts in the mucosa and skin of Neotropical monkeys***.***
Localización: Biblioteca OET: NBINA-12522.

Publicación no.: 0695 **Social and ecological impact of anthropogenic disturbance on the sympatric white-faced capuchin (Cebus capucinus) and mantled howler monkey (Alouatta palliata)** *[Impacto social y ecológico de perturbaciones antropogénicas en especies simpátricas de monos carablanca (Cebus capucinus) y monos congo (Alouatta palliata)]* / McKinney, Tracie. (Marshall University. Department of Sociology & Anthropology, One John Marshall Drive, Huntington, WV 25755, US <E-mail: t.mckinney@marshall.edu>). Columbus, OH: The Ohio State University, 2010. 402 p. ISBN: 9781124230108.
Anthropogenic habitat disturbance can impact many facets of the lives of nonhuman primates. In this study, I investigate the consequences of anthropogenic habitat change on two sympatric neotropical primates, the white-faced capuchin (Cebus capucinus) and the mantled howler monkey (Alouatta palliata). By exploring the behavioral accommodations made by these flexible species, we may better understand the specific influences of anthropogenic habitat change on primate populations and, in turn, reduce our impact on these animals. This study tested variations in diet, ranging, activity budget, social behaviors, and human-monkey interactions between one human-commensal and one control troop of each species. The study population resided at the Refugio de Vida Silvestre Curú, a privately owned ranch and wildlife refuge in western Costa Rica that incorporates both anthropogenic and unmodified habitats. The commensal mantled howler monkey troop significantly differed from their forest-dwelling counterparts in terms of diet, home range size and activity budget. The commensal troop raided mango plantations, resulting in a more frugivorous diet (34% fruit) than that of the control group (26% fruit). The commensal troop also maintained a larger home range (41.6 hectares) than the control group (20.4 hectares). The commensal troop spent more of their time feeding and traveling, at 12% and 7% of the total activity budget, than did the control troop (6% feed, 5% travel). The commensal white-faced capuchin troop made significant adjustments to their diet, home range size, and social interactions. The commensal troop benefited from both raided crops and provisioned food items, resulting in a vastly different diet (69% fruit, 24% insects) than that of the wild-feeding control troop (24% fruit, 68% insects). The commensal white-faced capuchin troop also maintained a much larger home range than the control troop, with 66.2 and 26.54 hectares, respectively. The commensal troop had higher rates of affiliative behaviors than the control troop, but when aggressive interactions did occur in the

commensal troop they were more severe. These data suggest that mantled howler monkey survival in human modified habitats is dependent upon ranging and dietary flexibility, whilewhite-faced capuchin survival in these situations involves their ingenuity for exploiting novel food resources.
Localización: Biblioteca OET: NBINA-12593.

Publicación no.: 0696 Parasitosis intestinal en monos capuchinos cariblancos Cebus capucinus (Primates: Cebidae) de un área protegida en la provincia de Limón, noreste de Costa Rica [Intestinal parasites in white-faced capuchin monkeys Cebus capucinus Primates: Cebidae) inhabiting a protected area in the Limón province of Northeastern Costa Rica] / Chinchilla-Carmona, Misael; Urbani, Bernardo; Valerio-Campos, Idalia; Vanegas, Juan Carlos. (Universidad de Ciencias Médicas "Dr. Andrés Vesalio Guzmán" (UCIMED). Laboratorio de Investigación, San José, CR <E-mail: chinchillacm@ucimed.com> <E-mail: burbani@illinois.edu>).
En: Revista de Biología Tropical (ISSN 0034-7744), v. 58, no. 4, p. 1335-1346. 2010
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-12633.pdf
Deforestation of tropical forests is threatening monkey biodiversity and their health status, dependent of an ecologically undisturbed area. To asses this relationship, we analyzed parasite occurrence in their intestines. The study was conducted at the Estación Biológica La Suerte (EBLS), Limón, Costa Rica. The group of white-faced capuchin monkeys (Cebus capucinus) was observed between March and December of 2006. A total of 75 feces samples were obtained. Once a sample was collected, the eaten plant type was identified to family and species level, and feces were processed in the laboratory to determine parasite incidence. Results showed that Moraceae was the most represented family in the samples. Among parasites, Strongyloides spp. and Acanthocephala were the most common. Positive prevalence of parasites was found similar and independent of sex and age of capuchin individuals. Microsporids were mainly reported in feces associated with Piperaceae. A low presence of these parasites was found in samples associated with Myrtaceae, with possible anti-parasite active components. The occurrence of parasites was relatively high in EBLS, when compared to other regions in Costa Rica. The higher occurrence of parasites observed in capuchins at EBLS may bedue to the fact that this rain forest is surrounded by areas affected by human activities. We suggest the promotion of research in neotropical primates parasitology, for a better comprehension of the parasite-host relationship, and in a long term, being able to understand the ecosystems where they coexist, and consequently, preserve the biodiversity of the whole region.
Localización: Biblioteca OET: NBINA-12633.

Publicación no.: 0697 **Two girls for every boy: The effects of group size and composition on the reproductive success of male and female white-faced capuchins** *[Dos chicas por cada chico: Efectos del tamaño del grupo y la composición sobre el éxito reproductivo de los machos y hembras de monos carablanca]* / Fedigan, Linda M; Jack, Katharine M. (University of Calgary. Department of Anthropology, 2500 Univ Dr NW, Calgary, AB T2N 1N4, CA <E-mail: fedigan@ucalgary.ca> <E-mail: kjack@tulane.edu>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), v. 144, no. 2, p. 317-326. 2011
Many factors have been hypothesized to affect the size and adult sex ratios of primate groups and these, in turn, have been argued to influence birth rates. Using park-wide census data collected on a population of capuchins over a 25-year period, we examined whether group size and adult sex ratio affect the per capita reproductive success of male and female white-faced capuchins (Cebus capucinus) in Santa Rosa National Park, Costa Rica. We found that the reproductive success of females (measured

as the observed minus the expected ratio of immatures to adult females in the group) decreased with increasing group size, whereas that of males was independent of group size. The proportion of adult males residing in groups had significant, yet contrasting effects on males and females. Male reproductive success was negatively associated with the proportion of males residing in groups whereas female reproductive success increased with the proportion of males. The latter finding supports the intersexual conflict hypothesis, which suggests that a conflict of interest occurs between males and females over adult sex ratios. The effects of group size and composition on the reproductive success of capuchins, a male-dispersed omnivorous species, are similar to those reported for howlers, a bisexually-dispersed folivorous species. One common factor between these taxa is that groups with low ratios of males to females are at greater risk of takeovers and resultant infanticide. Our results suggest that regardless of dietary preference and dispersal pattern, the threat of infanticide can constrain primate group size and composition*.*
Localización: Biblioteca OET: NBINA-13614.

Publicación no.: 0698 **Thermal imaging and iButtons: a novel use of two technologies to quantify the daily thermal profiles of wild howlers (Alouatta palliata) and their habitats at La Pacífica, Costa Rica** / Glander, Kenneth E; Vinyard, Christopher J; Williams, Susan H; Teaford, Mark F. (Ohio University. Department of Biomedical Sciences, Athens, OH 45701, US <E-mail: willias7@ohio.edu> <E-mail: glander@duke.edu> <E-mail: mteaford@jhmi.edu>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), v. 144, Suppl. 52, p. 143. 2011.
(Abstract only). Thermoregulation is a key element of primate physiology. The significance of temperature is highlighted in on-going debates involving heat stress and thermoregulation in human evolution, particularly since our arboreal ancestors experienced body hair loss and likely increased heat load upon moving into the savanna. Despite this debate, actual body temperatures, and possible heat load, have only been measured for baboons and dwarf lemurs among wild primates. Many primate studies haverecorded ambient temperatures at observer locations or nearby weather stations, but not the animal's body temperature or the ambient temperature in the animal's immediate vicinity. To quantify the thermal profiles of howlers and their arboreal habitat, we employed thermal imaging and datalogging to record continuous ambient and body temperatures for free-ranging mantled howling monkeys (Alouatta palliata) at La Pacífica in Costa Rica. Thermal imaging is a noninvasive tool that measures surface infrared radiation (i.e., similar for black, brown, or white skin). iButtons are small temperature dataloggers that were attached to collars or anklets and surgically implanted subcutaneously. Internal temperatures ranged from 41.8°C-33.3°C with corresponding ambient (i.e., anklet or collar) temperatures of 33.7°C-23.3°C for the same individuals. As expected, internal and ambient temperatures were consistently lower at night, but periods of rain also reduced both internal and external temperatures. These resultsdemonstrate greater temperature fluctuations in a homoeothermic animal than previously reported. Thermoregulation in response to rain and ambient night-time temperatures likely impacts energy budgets in terms of dumping heat or maintaining core temperatures.
Localización: No disponible.

Publicación no.: 0699 **Tree truthing: How accurate are substrate estimates in primate field studies?** *[Verificación en el árbol: ¿Qué tan exactas son las estimaciones del sustrato en los estudios de campo de*

los primates?] / Bezanson, Michelle F; Watts, Sean M. (Santa Clara University. Department of Anthropology, 500 El Camino Real, Santa Clara, CA 95053-1500, US <E-mail: mbezanson@scu.edu>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), v. 144, Suppl. 52, p. 90. 2011.
(Abstract only). Field studies of primate locomotion and posture rely on ground-level estimates of substrate size, angle, and canopy location. These parameter estimates directly influence the selection of positional modes by both the focal animal and the observer identifying the behavior. Estimates are confounded by observer view to target, distance from target, and angles and sizes of adjacent substrates. In this study we aimed to test ground-level estimates against direct measurements of branch angles, diameters, and canopy heights in trees used by Alouatta palliata and Cebus capucinus at La Suerte Biological Research Station in Costa Rica. We climbed five trees (three Ficus, one Pentaclethra, and one Poulsenia) and measured 20 branches. Four observers (two experienced and two recently trained) collected measurements of each branch from different locations on the ground. Diameter estimates varied by 0-28cm (Mean: 5.44 ± 4.55). Branch angles varied by 1-55 degrees (Mean: 14.76 ± 14.02). Height in the tree was best estimated using a clinometer as estimates with a two-meter reference (standing by the tree) varied by 3-11 m (Mean: 5.31 ± 2.44). For these observers, the best branch size estimates were those determined relative to the size of the focal animal and divided into broader categories. Branch angles were best estimated in 5-degree increments and then checked using a Haglöf clinometer in combination with a laser pointer. We compare methods used by previous studies to make recommendations for standardization of substrate measures across field studies of primate locomotion.
Localización: No disponible.

Publicación no.: 0700 **Tolerated scrounging a foraging strategy for young juvenile capuchin Cebus capucinus monkeys** *[El mendigar aceptado, una estrategia de alimentación para los monos carablanca (Cebus capucinus) juveniles]* / Eadie, Elizabeth C. (The University of New Mexico. Department of Anthropology, Albuquerque, NM 87131, US <E-mail: eeadie@unm.edu>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), v. 144, Suppl. 52, p. 130. 2011.
(Abstract only). Capuchin monkeys are unique among primates in their reliance on difficult-to acquire foods and for having large, metabolically demanding brains. This combination poses a challenge to young juveniles who lack experience in obtaining food but nevertheless must obtain enough calories to sustain their growth and daily nutrient requirements. One potential solution would be for young juveniles to capitalize on pieces of food dropped by tolerant and more proficient foragers-a behavior known as tolerated scrounging. Data on foraging behavior was collected at The Pacuare Nature Reserve in Costa Rica on three wild groups of Cebus capucinus. Quantity of food acquired through independent and tolerated scrounging behaviors was measured during continuous focal sampling, while behavioral frequencies were determined from instantaneous scan samples taken at thirty minute intervals. We compare the number of bites obtained through scrounging versus other means between infant, young juveniles, old juveniles and adults. Infants were found to engage in scrounging behaviors over fifty times more frequently than young juveniles, and young juveniles scrounged over four times as often as old juveniles. In addition, scrounging occurred almost exclusively with difficult- to-acquire food items. One implication of our findings is that a tolerant social structure has co-evolved with a stronger reliance on difficult-to-acquire foods. It is possible that tolerated scrounging could be the first behavioral step toward the human behavior of feeding juveniles.
Localización: No disponible.

Publicación no.: 0701 **Comparación de hábitos alimentarios y su relación con las infecciones parasíticas en los monos congo (Alouatta palliata), de Chomes y Palo Verde, Costa Rica** / Martínez-Esquivel, Laura María. San José: Universidad de Costa Rica, 2010. 119 p. Tesis, Licenciatura en Biología con énfasis en Zoología, Universidad de Costa Rica, Escuela de Biología (Costa Rica).
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-12676.pdf
En Costa Rica se halló una infección notoria de parásitos intestinales en los monos congo (Alouatta palliata), con una alta incidencia en Chomes, Puntarenas, y una muy baja en el Parque Nacional Palo Verde (PNPV), Guanacaste (Chinchilla et al. 2005).Por esto se propuso realizar un seguimiento parasitológico de los monos congo de ambos lugares e identificar los componentes de su dieta, para determinar si existe una relación entre la alimentación y la carga parasitaria. Durante seis meses consecutivos se realizaron observaciones de comportamiento y alimentación en dos grupos de monos congo (A. palliata), uno de Chomes y otro de PNPV, con el objetivo de comparar ambas zonas. Además, se realizó un estudio fenológico de las especies que A. palliata utilizó para alimentarse. Se realizó un estudio coproparasitológico, para lo cual se colectaron un total de 117 muestras fecales anónimas. Las muestras se trasladaron en frío (entre 0 y 5°C) al laboratorio donde se procedió a estudiarlas de forma directa mediante su observación con solución salina al 0.85% y solución de lugol. Además, se le realizaron extendidos que fueron tratados con la técnicas de Koster y ácido resistencia para la detección de coccidios y la técnica de Weber modificada para la detección de microsporidios. Se colectaron las partes de las plantas que los monos congo utilizaron para alimentarse y con este material seco y triturado se realizaron extractos por un sistema de arrastre por vapor "Coldfinger". Se efectuaron pruebas in vitro con 51 extractos que actuaron sobre cultivos de ciertos protozoarios intestinales. Los protozoarios se cultivaron en el medio de Dobell y Laidllaw modificado. Los monos congo de Chomes son más sedentarios, ya que dedicaron más tiempo al descanso y se trasladaron menos tiempo y distancia en comparación a los del PNPV. Estos animales utilizaron más especies de plantas en el PNPV que en Chomes, 22 y 27 respectivamente. De éstas, ocho fueron utilizadas en ambos sitios. El estudio fenológico permitió relacionar la disponibilidad de las partes de algunas de las plantas con su consumo por parte de los monos durante los meses de mayor abundancia. En el examen al fresco de las muestras fecales se encontraron protozoarios de los géneros Endolimax, Entamoeba y helmintos de los géneros Strongyloides y Trypanoxyuris. En las tinciones por coccidios se encontraron ooquistes de Cyclospora sp. y Cryptosporidium sp y la tinción de Weber reveló la presencia de microsporidios. Se encontró una mayor parasitosis en Chomes (70% de las muestras analizadas) en contraste con el PNPV (62%). Chomes presentó los mayores porcentajes de infección por protozoarios (41%) y organismos oportunistas (43%) y Palo Verde por helmintos (33%). Para ambos sitios el número de muestras con parásitos aumentó durante la época lluviosa. Se determinaron 29 extractos positivos procedentes de especies de plantas de Chomes y el PNPV, 13 y 16 respectivamente. Seis especies con alguna actividad antiparasitaria fueron utilizadas como alimento por los monos en ambos sitios. Se observó además que el número de parásitos era menor en los meses en que los monos congo utilizaron más plantas con extractos positivos***.***
Localización: Biblioteca OET: NBINA-12676.

Publicación no.: 0702 **Mamíferos del Refugio Nacional de Vida Silvestre Limoncito, Westfalia, Limón, Costa Rica** *[Mamíferos del Refugio Nacional de Vida Silvestre Limoncito, Westfalia, Limón, Costa Rica]* / Piedra-Castro, Lilliana; Bravo-Chacón, Juan; Salazar-Herrera, Bolívar. (Universidad Nacional. Escuela de Ciencias Biológicas; Programa Humedales de Costa Rica, Uso y Conservación, Heredia, CR <E-mail: lpiedra@una.ac.cr> <E-mail: jbravo@una.ac.cr> <E-mail: bolisalazarh@hotmail.es>).

En: Brenesia (ISSN 0304-3711), no. 71/72, p. 21-26. 2009
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-15926.pdf
We present here in a list of mammals species from Limoncito National Wildlife Refuge. There were realized direct observations of the animals, observations of footprints, capture with 10 Sherman's and 10 Tomahawk's traps using fodders of sardines in sauce of tomato, fruits and peanut butter. Also we did 40 interviews for both inside and outside the refuge, during March, 2000 to September, 2004. 533 records of mammals were obtained, 34 % were footprints, 29 % captured with traps and the rest from direct observations. There were obtained records of 31 species of mammals, belonging to 9 orders, 22 families and 29 genus. The orders with major representation were Carnivora and Rodentia with 22.6 and 16.1 % of the total species. The minor represented order was Chiroptera (3.2 %). The mastofauna of the Refuge is shared with South America with 48.4 %. Of all species, 23% are in categories of threat according to national laws, 23% included in the IUCN Red List and 26% within any of the CITES appendices. 27 species were related to human activities. This protected area present the minor number of species in the zone as a consequence of the demographic pressure and the area size . Local and regional strategies of conservation are needed, as the protection of the basin of the Limoncito river that acts as a natural corridor, the extension of the Refuge, system implementation cattle with shade and silviculture and more research.
Localización: Biblioteca OET: NBINA-15926. Biblioteca OET: B.

Publicación no.: 0703 **The effects of provisioning and crop-raiding on the diet and foraging activities of human-commensal white-faced capuchins (Cebus capucinus)** *[Efectos del aprovisionamiento y ataque a los cultivos en la dieta y actividades de alimentación del comensalismo humanos-monos carablanca (Cebus capucinus)]* / McKinney, Tracie. (Marshall University. Department of Sociology and Anthropology, 1 John Marshall Dr, Huntington, WV 25755, US <E-mail: t.mckinney@marshall.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 73, no. 5, p. 439-448. 2011
Non-human primates are coming into increasingly frequent contact with humans and with human-modified environments. The potential for monkeys to survive in such modified landscapes is questionable, and is likely related to a species' behavioral plasticity, particularly as it relates to diet. In this study, I explore the ways in which white-faced capuchins (Cebus capucinus) adjust their diet and foraging behaviors in response to anthropogenic impact. I compare a troop of human-commensal monkeys and a similar troop of wild-feeding monkeys living within the Curú Wildlife Refuge in western Costa Rica for differences in overall diet composition and activity budgets to evaluate the impact of habitat change in this context. The commensal-living white-faced capuchins rely on raided coconut (Cocos nucifera) and oil palm (Elaeis guineensis) crops and provisioned or stolen human foods for over one-half of their total diet. Regardless of this highly anthropogenic diet, the two study troops do not significantly differ in their activity budgets, and the human-commensal troop maintains wild-foraging activities consistent with those of the wild-feeding troop. These data suggest that the white-faced capuchins at this site are responding to anthropogenic disturbanceprimarily through the exploitation of human food resources, but they do not yet appear to have lost the foraging skills required to survive in this modified landscape on their own. This study adds to our growing body of knowledge on primate survival in matrix habitats, and will hopefully inform primate management plans throughout the Neotropics.
Localización: Biblioteca OET: NBINA-12726.

Publicación no.: 0704 **Integration of field and captive studies for understanding the behavioral ecology of the squirrel monkey (Saimiri sp.)** *[Integración de estudios de campo y en cautiverio para comprender el comportamiento ecológico del mono tití (Saimiri sp.)]* / Zimbler-Delorenzo, Heather S; Stone, Anita I. (Eastern Michigan University. Department of Biology, Ypsilanti, MI 48197, US <E-mail: astone9@emich.edu> <E-mail: anitastone17@yahoo.com>).
En: American Journal of Primatology (ISSN 0275-2565), v. 73, no. 7, p. 607-622. 2011
Captive and field studies both provide valuable and complementary information that lead to a better understanding of a species' behavioral ecology. Here, we review studies from wild, captive, and semi-free ranging populations of squirrel monkeys (Saimiri sp.), in order to (a) provide a more current (1985-2010) review of Saimiri behavioral ecology and (b) illustrate that integrating data collected in a variety of settings is an effective approach to addressing ecological questions in primates. Captive environments, such as zoological facilities and research colonies, can be advantageous to researchers by allowing longitudinal studies of behavior and reproduction, as well as providing opportunities for gathering data on life history, because physiological and life history data are known for individual animals. Studies of field populations can provide contextual information regarding the adaptive nature of behaviors that are studied in captivity. Squirrel monkeys are small, neotropical primates that have extensively been used in captive research. As the last in-depth review of Saimiri biology was published in 1985 [Rosenblum & Coe, The squirrel monkey. New York: Academic Press], we review studies since conducted on Saimiri ecology, life history, social behavior, reproduction, and conservation. Our review indicates that there is much variation in socioecology and life history traits between Saimiri species and, surprisingly, also between populations of the same species studied at different locales. In addition, much is known about squirrel monkey reproductive physiology, basic ecology, and vocal communication, but data are still lacking in the fields of life history and some adaptive components and social behavior. In particular, longitudinal studies in the field would be particularly relevant for a genus with a slow life history such as Saimiri. Finally, few data (captive or wild) are available on S. ustus and S. vanzolinii, though at least one of these species is threatened**.**
Localización: Biblioteca OET: NBINA-13032.

Publicación no.: 0705 **Influence of climatic variables, forest type, and condition on activity patterns of Geoffroyi's spider monkeys throughout Mesoamerica** *[Influencia de las variables climáticas, tipo de bosque y condición sobre los patrones de actividad de los monos colorados a través de Mesoamérica]* / González-Zamora, Arturo; Arroyo-Rodríguez, Víctor; Chaves-Badilla, Oscar M; Sánchez-López, Sonia; Aureli, Filippo; Stoner, Kathryn E. (Instituto de Ecología. División de Posgrado, AC Km 2/5 Antigua Carretera Coatepec 351, Xalapa 91070, Veracruz, MX <E-mail: toztlan@yahoo.com.mx>).
En: American Journal of Primatology (ISSN 0275-2565), v. 73, no. 12, p. 1189-1198. 2011
Understanding how species cope with variations in climatic conditions, forest types and habitat amount is a fundamental challenge for ecologists and conservation biologists. We used data from 18 communities of Mesoamerican spider monkeys (Ateles geoffroyi) throughout their range to determine whether their activity patterns are affected by climatic variables (temperature and rainfall), forest types (seasonal and nonseasonal forests), and forest condition (continuous and fragmented). Data were derived from 15 published and unpublished studies carried out in four countries (Mexico, El Salvador, Costa Rica, and Panama), cumulatively representing more than 18 years (221 months, 43,645 hr) of behavioral observations. Overall, A. geoffroyi spent most of their time feeding (38.4±14.0%, mean±SD) and resting (36.6±12.8%) and less time traveling (19.8±11.3%). Resting and feeding were mainly affected

by rainfall; resting time increased with decreasing rainfall, whereas feeding time increased with rainfall. Traveling time was negatively related to both rainfall and maximum temperature. In addition, both resting and traveling time were higher in seasonal forests (tropical dry forest and tropical moist forest) than in nonseasonal forests (tropical wet forest), but feeding time followed the opposite pattern. Furthermore, spider monkeys spent more time feeding and less time resting (i.e., higher feeding effort) in forest fragments than in continuous forest. These findings suggest that global climate changes and habitat deforestation and fragmentation in Mesoamerica will threaten the survival of spider monkeys and reduce the distributional range of the species in the coming decades.
Localización: Biblioteca OET: NBINA-13889.

Publicación no.: 0706 **Pleistocene diversification of living squirrel monkeys (Saimiri spp.) inferred from complete mitochondrial genome sequences** *[La diversificación de los monos tití vivientes (Saimiri spp.) durante el Pleistoceno, deducido a partir de secuencias completas del genoma mitocondrial]* / Chiou, Kenneth L; Pozzi, Luca; Lynch-Alfaro, Jessica W; Di Fiore, Anthony. (Washington University in St. Louis. Department of Anthropology, Campus Box 1114, One Brookings Drive, St. Louis, MO 63130, US <E-mail: anthony.difiore@nyu.edu>).
En: Molecular Phylogenetics and Evolution (ISSN 1055-7903), v. 59, p. 736-745. 2011
In order to enhance our understanding of the evolutionary history of squirrel monkeys (Saimiri spp.), we newly sequenced and analyzed data from seven complete mitochondrial genomes representing six squirrel monkey taxa. While previous studies have lent insights into the taxonomy and phylogeny of the genus, phylogenetic relationships and divergence date estimates among major squirrel monkey clades remain unclear. Using maximum likelihood and Bayesian procedures, we inferred a highly resolved phylogenetic tree with strong support for a sister relationship between Saimiri boliviensis and all other Saimiri, for monophyly of Saimiri oerstedii and Saimiri sciureus sciureus, and for Saimiri sciureus macrodon as the sister lineage to the S. oerstedii/S. s. sciureus clade. We inferred that crown lineages for extant squirrel monkeys diverged around 1.5 million years ago (MYA) in the Pleistocene Epoch, with other major clades diverging between 0.9 and 1.1 MYA. Our results suggest a relatively recent timeline of squirrel monkey evolution and challenge previous conceptions about the diversification of the genus and its expansion into Central America.
Localización: Biblioteca OET: NBINA-13340.

Publicación no.: 0707 **The current status and probable future of jungle yellow fever in Central America** *[El estado actual y probable en el futuro de la fiebre amarilla silvícola en Centroamérica]* / Hanlan, Mary S. (University of Washington. School of Medicine, Department of Public Health and Preventive Medicine, Seattle, WA 98195, US).
En: Norwest Science (ISSN 0029-344X), v. 27, no. 3, p. 83-94. 1953
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-13308.pdf
Diferentes aspectos sobre epidemiología de la fiebre amarilla en Panamá y Costa Rica. Se encontró involucrado al género Haemagogus como el principal vector y a monos cébidos como reservorios del virus en condiciones selváticas.
Localización: Biblioteca OET: NBINA-13308.

Publicación no.: 0708 **Polymorphic colour vision and foraging in white-faced capuchins: insights from field research and simulations of monkey vision** *[Visión de color polimórfica y alimentación en los*

monos carablanca: Comprensión con base a investigación de campo y simulaciones de la visión del mono] / Melin, Amanda D. (University of Calgary. Department of Anthropology, 2500 University Dr NW, Calgary, AB T2N 1N4, CA <E-mail: amelin@ucalgary.ca>). Calgary, Alberta, 2011. 141 p. ISBN: 978-0-494-75303-3. Dissertation, Ph.D., University of Calgary, Faculty of Graduate Studies, Department of Anthropology, Alberta (Canada).
I investigated the consequences of colour vision variation on foraging by white-faced capuchins (Cebus capucinus) inhabiting a seasonally dry forest. Capuchins, like other Neotropical monkeys, possess a polymorphic M/L opsin gene, leading to the presence of multiple dichromatic and trichromatic colour vision phenotypes. My goal was to determine if and how colour vision affected foraging choices, behaviours and efficiency. Capuchins are highly omnivorous and I investigated their foraging patterns forboth fruits and insects. My methods included behavioural observations of free-ranging monkeys, as well as computer-based foraging trials in which capuchin colour vision phenotypes were simulated for human participants. I conducted 13 months of field research on four groups of capuchins in north-western Costa Rica between January 2007 and September 2008, and spent 10 months acquiring digital photographs of monkey food items and running computer trials in the Vision and Aging Laboratory at the University of Calgary between January 2009 and August 2010. Genotyping of the monkeys was completed via DNA amplification and sequencing at the University of Tokyo. I found that trichromatic individuals, especially those with the most spectrally-separated photopigments, were more accurate than dichromats during close-distance foraging for conspicuous (reddish) fruits. These fruits were an important component of the capuchin diet and provided a critical source of moisture during the hottest and driest months. Thesefindings indicate that frugivory may exert selection pressures favouring trichromacy. Dichromatic monkeys were able to compensate behaviourally for their poorer chromatic vision by increasing their attempt rates and use of non-visual senses during fruit foraging. Furthermore, trichromat advantage was not universal. Dichromatic monkeys had higher capture efficiency of surface-dwelling invertebrates, while trichromatic monkeys increased their search times to achieve the same net prey intake. Advantages associated with insectivory may therefore favour the persistence of dichromatic phenotypes in this polymorphic system. In sum, advantages can be identified for both dichromacy and trichromacy. Future studies should examine the associated energetic costs and benefits, as well as the long-term reproductive success of dichromatic versus trichromatic primates to better understand the evolutionary mechanisms maintaining polymorphic colour vision.
Localización: Biblioteca OET: NBINA-13579.

Publicación no.: 0709 **Parasite prevalence in free-ranging mantled howler monkeys (Alouatta palliata), la Suerte Biological Field Station, Costa Rica** *[Prevalencia de parásitos en monos congo en libertad (Alouatta palliata), en la Estación Biológica La Suerte, Costa Rica]* / Sharpe, D; Vratanina, T; Cudmore, B: Markham, K. (University of Georgia. Department of Psychology, Athens, GA 30601, US).
En: American Journal of Primatology (ISSN 0275-2565), v. 73, Supl. 1, Abstract 58. 2011. Annual Meeting of the American Society of Primatologists. 34th, Austin, TX, US, Sep. 16-19, 2011.
(Abstract only). Previous research has demonstrated that factors associated with habitat fragmentation, such as fragment size, habitat degradation, and human presence, influence both parasite prevalence and richness in monkeys. The current research explored parasite prevalence in three troops of mantled howler monkeys (Alouatta palliata) at La Suerte Biological Field Station, Costa Rica. We hypothesized that monkeys residing in a small forest fragment (20 ha, primary vegetation) would have higher parasite prevalence than monkeys in a large forest fragment (200 ha, secondary vegetation) due to smaller home

range sizes and higher conspecific density. Fecal samples from two troops of monkeys in the small fragment (troops A and B=24 samples each) and one troop in the large fragment (troop G=22 samples) were analyzed for parasites using fecal sedimentation and flotation procedures. Pinworm eggs and Strongylid sp. eggs and worms were present. Samples were divided into low prevalence (0-100) and high prevalence (100+) for comparison. There was no significant difference in parasite prevalence among the three troops, $X^2(2)=0.0157$, N=70, P=0.99. This may be due to the proximity of each troops' home range to the La Suerte river and agricultural fields. Additionally, the smaller fragment was populated by more Ficus trees which have been suggested to be used by monkeys to self-medicate.
Localización: No disponible.

Publicación no.: 0710 **The influence of age and dominance status on fecal testosterone, dihydrotestosterone, and cortisol excretion in male white-faced capuchin monkeys (Cebus capucinus) in Santa Rosa National Park, Costa Rica** / Jack, Katharine M; Schoof, Valerie A.M; Sheller, Claire R; Rich, C.I; Klingelhofer, P.P. (Tulane University. Department of Anthropology, 1021 Audubon St, New Orleans, LA 70118, US <E-mail: kjack@tulane.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 73, Supl. 1, Abstract 59. 2011. Annual Meeting of the American Society of Primatologists. 34th, Austin, TX, US, Sep. 16-19, 2011.
(Abstract only). In male primates, developmental stages involve an increase in androgen production and can indicate the start of reproductive maturation. However, in our recent analysis of androgen levels in adult male white-faced capuchins in Santa Rosa, Costa Rica we found that alpha males have significantly higher levels than subordinates. Here we expand this research and compare testosterone (T), dihydrotestosterone (DHT), and cortisol levels across male age classes and dominance status (infantssmall immatures, large immatures, subadults, subordinate and alpha adults). Fecal samples [N=163] were collected opportunistically from males [N=37] residing in three long-term study groups between May-July 2010. T, DHT, and cortisol levels were determined for each sample. Using the average hormone value for each individual, we found that mean ranks of male T level differed significantly across age and adult dominance status categories [Kruskal-Wallis: X^2= 15.944, df=5, P=0.007]. Our pairwise comparisons found that alpha males have higher mean T ranks than large and small immature males [Large Immatures: 23.056, N=37, P=0.021; Small Immatures: 21.650, N=37, P=0.036], but there were no differences across the other categories of analysis. The mean ranksof DHT, DHT:T ratio, and cortisol did not differ across age categories. Results provide valuable insight regarding pubertal development in this species, and indicate that no single age or rank category is associated with relatively greater social or physiological stress.
Localización: No disponible.

Publicación no.: 0711 **Alpha male tenures and male reproductive success in wild white-faced capuchin monkeys, C. capucinus, at Lomas Barbudal, Costa Rica** / Perry, Susan E; Godoy, Irene; Lammers, W. (University of California at Los Angeles. Department of Anthropology, Los Angeles, CA 90095, US <E-mail: sperry@anthro.ucla.edu> <E-mail: godoy@ucla.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 73, Supl. 1, Abstract 68. 2011. Annual Meeting of the American Society of Primatologists. 34th, Austin, TX, US, Sep. 16-19, 2011.
(Abstract only). In species exhibiting high reproductive skew, the length of alpha male tenures can greatly impact the genetic structure of groups. In the Lomas Barbudal Monkey Project data set (up to 20 years of data on 11 groups), 42 males held thealpha position, each contributing 1-12 alpha male tenures.

The mean alpha male tenure length was 0.96 years (ranging from 1 day to at least 17 years, N=97 tenures). About 36% of alpha tenures last 1 week, and 78% last 1 year. However, over 5% last 6 years. In 61% of cases, males became alpha male by challenging the alpha of their resident group, and in 24% of cases, males became alpha by invading neighboring groups. In 5-6 cases, challengers killed the alpha male. In 9% of cases, males "inherited" their group from the current alpha male when he died or disappeared or the group fissioned. Only 27 of 88 adult males available as potential sires sired the 184 offspring for which we know paternity. The alpha male sired 74% of all offspring (92% of offspring produced by unrelated females, and 6% of offspring conceived by his female descendants). Long tenures result in higher numbers of full sibling and paternal half sibling dyads than are typical of primate societies. Support: NSF (SBR-9870429, 0613226 &6848360), Leakey, NGS, MPI ,& Wenner-Gren.
Localización: No disponible.

Publicación no.: 0712 **Variation in male dominance relationships in two multimale groups of mantled howlers (Alouatta palliata) at La Pacífica, Costa Rica** *[Variación en las relaciones de dominación de los machos en dos grupos de múltiples machos de monos congo (Alouatta palliata) en La Pacífica, Costa Rica]* / Corewyn, Lisa C; Clarke, Margaret R; Glander, Kenneth E. (University of Texas Health Science Center Houston. Department of Neurobiology and Anatomy, 6431 Fannin St. MSB 7.046, Houston, TX 77030, US <E-mail: margaret.clarke@uth.tmc.edu> <E-mail: glander@duke.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 73, Supl. 1, Abstract 98. 2011. Annual Meeting of the American Society of Primatologists. 34th, Austin, TX, US, Sep. 16-19, 2011.
(Abstract only). Limited available data report that dominance among males in multimale groups of mantled howlers (Alouatta palliata) ranges from weakly linear and tolerant, to strongly linear and agonistic. Dominance relationships are predicted to bemore tolerant when intergroup competition is high to increase cooperative success in competitions against extragroup males, versus more agonistic when intragroup competition is high for access to females. To test this hypothesis, we collected 1771 hours of focal data from 12/2009 to 12/2010 on males living in two multimale groups of similar size, sex ratio, and habitats on Hacienda La Pacífica, Costa Rica (Group 2, 4 males; Group 12, 5 males with 2 emigrating during the study). Dominance hierarchies were based on dyadic agonistic interactions. While the hierarchy in G2 was strongly linear with a distinguishable alpha male, there was a tie between the two dominant males in G12, suggesting a co-dominant alpha relationship not previously reported in the A. palliata literature. Consistent with this result, mean hourly rates of agonistic interactions among males were higher in G2 [0.22] than in G12 [0.10], approaching significance [Mann Whitney; P=0.057]. Intergroup encounter rates were significantly higher in G12 [0.043/hr] than in G2 [0.017/hr; X^2, P=0.01]. These results suggest that intragroup male dominance relationships in this population may be partly structured by the existing degree of intergroup competition.
Localización: No disponible.

Publicación no.: 0713 **Age of achievement of maximum foraging return rates in wild capuchin monkeys (Cebus capucinus): a test of the ecological complexity model for long juvenile periods** / Eadie, Elizabeth C. (The University of New Mexico. Department of Anthropology, Albuquerque, NM 87131, US <E-mail: eeadie@unm.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 73, Supl. 1, Abstract 240. 2011. Annual Meeting of the American Society of Primatologists. 34th, Austin, TX, US, Sep. 16-19, 2011.

(Abstract only). The determining factors leading to the evolution of long juvenile periods remain unclear. One hypothesis is that of ecological complexity, it posits that- organisms relying on difficult-to-acquire diets need added time to attain skills in juvenescence. To test this hypothesis I studied foraging return rates in a primate known for long juvenile periods - capuchin monkeys. If capuchins evolved a prolonged juvenile period to learn foraging skills, return rates for difficult-to-acquire foods should not be maximized until near the end of this period. Returns maximized earlier would indicate that a long juvenile period evolved for an alternative reason. Foods were assigned strength and skill difficulty levels based on force and number ofmanipulations necessary for foraging. Food samples were analyzed for nutrient content. Five minute focal follows [N=917] were conducted on three groups [27 adults; 20 juveniles] of capuchins at the Pacuare Reserve in Costa Rica. The time took to find, harvest, and process food items, and the quantity obtained, were recorded. Return rates (nutrients ingested/foraging time) for difficult foods were significantly higher for older juveniles, for foods that required strength, but not for foods that required skill alone [ANOVA: ?=0.05]. The implication is that capuchins do not need the entire juvenile period to learn foraging skills (the ecological complexity hypothesis was not supported), but do need it to develop physical strength to harvest foods effectively.
Localización: No disponible.

Publicación no.: 0714 **Anthropology: probing culture's secrets, from capuchins to children** *[Antropología: sondeando los secretos de la cultura, de los monos carablanca a los niños]* / Balter, Michael.
En: Science (ISSN 0036-8075), v. 329, no. 5989, p. 266-267. 2010. (No abstract)**.**
Localización: Biblioteca OET: NBINA-13587.

Publicación no.: 0715 **Population genetic structure and landscape genetics of the endangered Central American Squirrel Monkey (Saimiri oerstedii)** *[Estructura de la genética de la población y genética del paisaje del amenazado mono tití centroamericano (Saimiri oerstedii)]* / Blair, Mary Elizabeth; Melnick, Don J. (American Museum of Natural History. Center for Biodiversity and Conservation, Central Park W at 79th St, New York, NY 10024, US <E-mail: mblair1@amnh.org> <E-mail: djm7@columbia.edu>). Annual meeting of the American Association of Physical Anthropologists. 79th, Albuquerque, New Mexico USApril 14-17, 2010.
En: American Journal of Physical Anthropology (ISSN 0092-9483), v. 141, Suppl 50, p. 68. 2010.
Central American Squirrel Monkeys (Saimiri oerstedii, Primates: Cebidae) are endangered primates that have experienced severe habitat fragmentation in the Central Pacific region of Costa Rica. Restricted gene flow and changes to population genetic structure have been documented in other primates and social mammals experiencing severe habitat fragmentation. In order to examine the effects of habitat fragmentation on gene flow in S. oerstedii 350 fecal samples were collected noninvasively from 22 S. oerstedii troops in the Central Pacific region of Costa Rica and analyzed using population genetics methods. We also used landscape genetics methods to characterize localized gene flow patterns for S. oerstedii and correlate those patterns with measures of landscape heterogeneity. We expected significant population genetic structure in S. oerstedii due to the degree of habitat fragmentation and their sex-biased dispersal patterns, and indeed our results show some population structure. However, because S.oerstedii are secondary forest specialists, some types of anthropogenically-modified habitat do not represent barriers to dispersal, which is also reflected in our results. Our results further suggest that studies of primate ecology and evolution should explicitly consider landscape heterogeneity,

especially as primate habitats are increasingly lost and modified. We recommend ways to develop and refine landscape genetics methods for primates in order to inform future studies of the influence of heterogeneous landscapes on primate ecology, population divergence, and evolution. This study was funded by NSF Award No. BCS-0847912, Columbia University, an International Primatological Society (IPS) Research Grant, an American Society of Primatologists (ASP) Conservation Small Grant, and the Margot Marsh Biodiversity Foundation.
Localización: No disponible.

Publicación no.: 0716 **Social and environmental factors affecting fecal glucocorticoids in wild, female white-faced capuchins (Cebus capucinus)** *[Factores sociales y ambientales que afectan a los glucocorticoides fecales en el medio silvestre de las hembras de los monos carablanca (Cebus capucinus)]* / Carnegie, Sarah D; Fedigan, Linda M; Ziegler, Toni E. (505-201 Carlaw Ave, Toronto, ON M4M 2S1, CA <E-mail: sarah.carnegie@gmail.com>).
En: American Journal of Primatology (ISSN 0275-2565), v. 73, no. 9, p. 861-869. 2011
Assessing glucocorticoid levels in free-ranging nonhuman primates provides a means to determine the social and environmental stress load for individuals. We investigated the effect of four proximate variables reproductive state, season, male rank stability, and dominance rank on the level of fecal glucocorticoids (cortisol metabolites) in eight adult female white-faced capuchin monkeys in Costa Rica. Reproductive state, season, and male rank stability significantly affected fecal glucocorticoids while female dominance rank did not. Cortisol levels were significantly higher in pregnant females as compared with lactating or other reproductive states. Cortisol levels were higher among females during the dry season compared with the wet season, suggesting a metabolic adaptation to maintain homeostasis in drier, hotter conditions. Although unfamiliar males present a greater infanticidal threat than do familiar ones, we found that females experienced higher glucocorticoid levels during male rank instability events, regardless of whether the alpha male role was taken over by a familiar or an unfamiliar male. Our findings provide important benchmark and comparative data for future studies on the variables that affect glucocorticoid levels in this speciesand other mammals**.**
Localización: Biblioteca OET: NBINA-13591.

Publicación no.: 0717 **Anthropogenic change and primate predation risk: Crested Caracaras (Caracara plancus) attempt predation on mantled howler monkeys (Alouatta palliata)** *[Cambios antropogénicos y el riesgo de depredación de primates: Intento de depredación de un mono congo (Alouatta palliata) por un Cargahuesos (Caracara plancus)]* / McKinney, Tracie. (Marshall University. Department of Sociology and Anthropology, One John Marshall Drive, Huntington, WV 25755, US <E-mail: t.mckinney@marshall.edu>).
En: Neotropical Primates (ISSN 1413-4705), v. 16, no. 1, p. 24-27. 2009
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-13473.pdf
Anthropogenic change in primate habitats may be an im-portant factor in predation risk. Predation is often considered a principle selective pressure in primate evolution, and thus an important determining factor for grouping behavior, travel patternsand choice of sleeping sites (van Schaik, 1983; Isbell, 1994; Treves, 2002; Shultz et al., 2004). Predation events are rarely witnessed in the wild due to their rarity, short duration, and the effects of observer presence. Reports of failed predation attempts or even the absence of predation events (Boinski et al., 2000) will broaden our understanding of this important issue. With our currently limited scope on primate predators and risk factors, we may be missing the

impact of human habitat alterationon predation risk and rates. This paper reports a presumed predation attempt by two crested caracaras (Caracara plancus) on infant mantled howler monkeys (Alouatta palliata) in Costa Rica. Crested caracaras are generally associated with human activity (Rodríguez-Estrella et al., 1998; Morrison & Humphrey, 2001), suggesting that habitat disturbance at this site may alter predation risks for these monkeys.
Localización: Biblioteca OET: NBINA-13473.

Publicación no.: 0718 **Sexual selection in mantled howling monkeys (Alouatta palliata), with an emphasis on the role of female mate choice** *[Selección sexual en los monos congo (Alouatta palliata) con un énfasis en el papel de la elección de la hembra como pareja]* / Ford, Randall Thomas. (Duke University. Department of Biological Anthropology and Anatomy, Primate Center, 3705-B Erwin Rd, Durham, NC 27706, US). Durham, NC: Duke University, 2010. 101 p. ISBN: 9781124401577. Dissertation, Ph.D., Duke University, Department of Biological Anthropology and Anatomy in the Graduate School, Durham, NC (USA).
Despite early neglect, recent studies of sexual selection have shown a renewed interest in female reproductive strategies. Clearly the traditional portrayal of female animals as passive participants in mating is incorrect, but much is still unknown about female reproductive strategies, including the extent of female mate choice. The primary goal of this dissertation was to explore the role of female mate choice in mantled howling monkeys (Alouatta palliata), a species in which males have previously been assumed to control mating. From March 2006 through February 2007, I used continuous focal-animal sampling to record the behavior of adult female mantled howlers at Hacienda La Pacífica, Guanacaste, Costa Rica. The focal animals in the study were nine adult females in a social group that has been regularly monitored since 1984. There were also three capture sessions performed by K. Glander to collect blood samples for genetic paternity analysis. A total of 29 individuals in the study group and eight adult males from surrounding groups were captured. The genetic paternity analyses were largely inconclusive. Of the eight microsatellite markers used previously in this species, only four were polymorphic in this sample. Additionally, nearly half (7 of 16) of the purported mothers were excluded at one locus. Assuming the mother was unknown allowed determination of genetic paternity in only one case. In terms of behavior, females were largely responsible for soliciting copulations, but female mate choice did not appear to be a major factor. Females almost never rejected copulations (3.3% of copulation attempts) and mated with multiple males in 77.8% of female cycles. The lack of conclusive genetic paternity data leaves open the possibility of post-copulatory female choice. However, explanations exist for the apparent lack of female mate choice in this species. Because males must attain alpha status to remain in a group, differences in inherent quality may be low among group males. The potential for small differences among males in a social group, combined with the fact that females disperse from their natal group, suggests that female mate choice may occur primarily in choosing a group during dispersal.
Localización: Biblioteca OET: NBINA-13810.

Publicación no.: 0719 **Field guide to the wildlife of Costa Rica** *[Guía de campo para la vida silvestre de Costa Rica]* / Henderson, Carrol L; Adams, Steve, (il.). Austin, TX: University of Texas Press, 2002. 559 p. ISBN: 978-0-292-73459-3.
Costa Rica! The name generates a sense of excitement and anticipation among international travelers. Among European explorers, the first recorded visitor was Christopher Columbus in 1502. On his fourth

trip to the New World, Columbus landed where the port city of Limón is now located. The natives he encountered wore golden disks around their necks. He called this new place "Costa Rica," meaning "Rich Coast," because he thought the gold came from there. The gold had actually come from other countries and had been obtained as a trade item from native traders along the coast. Spanish treasure seekers eventually discovered their error and went elsewhere in their quest for gold. The irony is that Christopher Columbus actually picked the perfect name for this country. The wealth overlooked by the Spaniards is the rich biological diversity that includes about 505,000 species of plants and wildlife! That species richness is an incredible natural resource that sustains one of the most successful nature tourism industries in the Western Hemisphere. It also provides the basis for a biodiversity industry of "chemical prospecting" among plants and creatures in search of new foods and medicines for humans. For such a small country, Costa Rica gets much well-deserved international attention and has become one of the most popular tourist destinations in the Americas. The lure is not "sun and sand" experiences at big hotels on the country's beaches; it is unspoiled nature in far-flung nooks and crannies of wildlands that are accessible at rustic nature lodges throughout the country. It is now possible to immerse yourself in the biological wealth of tropical forests during a vacation in Costa Rica. During a two-week visit you may see more than three to four hundred species of birds, mammals, reptiles, amphibians, butterflies, moths, and other invertebrates. Some vacations are planned for rest and relaxation, but who can do that in such a diverse country where there is so much nature to see and experience! Costa Rica is a country where every day is an adventure, and where the marvelous diversity and abundance of wildlife creates an enthusiasm for nature that many people have not experienced since childhood. At the biological crossroads of the Americas, Costa Rica hosts an astonishing array of plants and animals?over half a million species! Ecotourists, birders, and biologists come from around the world to immerse themselves in the country's unspoiled rain forests, mountains, and beaches, drawn by the likelihoodof seeing more than three or four hundred species of birds and other animals during even a short stay. To help all of these visitors and local residents identify and enjoy the wildlife of Costa Rica, this field guide presents nearly three hundred speciesof birds, mammals, reptiles, amphibians, butterflies, moths, and other invertebrates. Carrol Henderson, an experienced wildlife biologist, traveler, and tour leader in Costa Rica, has chosen the species that ecotourists are most likely to see, along witha selection of rarer, sought-after animals. He gives a general introduction to each group of animals, followed by individual species accounts that highlight identification features and interesting ecological adaptations for survival. His stunning close-up photographs and distribution maps complete each entry. In addition, Henderson includes a wealth of data about Costa Rica's natural environment, as well as a trip preparation checklist and lists of conservation organizations, wildlife tourism sites, andwildlife vocalization tapes and CDs. With so much information so readily and readably accessible, this field guide will be essential for planning and enjoying your time in Costa Rica***.***
Localización: Biblioteca OET: 591.97286 H496f.

Publicación no.: 0720 **Genetic evidence for dispersal by both sexes in the Central American Squirrel Monkey, Saimiri oerstedii citrinellus** *[Evidencia genética para la dispersión de ambos sexos en el mono tití centroamericano, Saimiri oerstedii citrinellus]* / Blair, Mary Elizabeth; Melnick, Don J. (American Museum of Natural History. Center for Biodiversity and Conservation, Central Park W at 79th St, New York, NY 10024, US <E-mail: mblair1@amnh.org> <E-mail: djm7@columbia.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 74, no. 1, p. 37-47. 2012

Sex-biased dispersal (SBD) is common in many vertebrates, including primates. However, dispersal patterns in New World primates may vary among closely related taxa or populations in different local environments. Here, we test for SBD in an endangeredNew World primate, the Central American Squirrel Monkey (Saimiri oerstedii citrinellus). Previous studies of behavioral ecology suggest predominantly female dispersal in S.o. oerstedii in the Southern Pacific region of Costa Rica. However, our genetic data do not support strongly female-biased dispersal in S.o. citrinellus in the Central Pacific region. Our tests for SBD using microsatellite data including comparisons of isolation-by-distance, AIc, and FST values between males and females were not significant. Also, we found greater population genetic structure in mitochondrial markers than in microsatellite markers, indicative of predominantly male dispersal. We conclude that both sexes disperse in S.o. citrinellus, and that males probably disperse over longer distances. We discuss how spatial and temporal variation among local populations should be taken into account when studying dispersal patterns and especially sex bias**.**
Localización: Biblioteca OET: NBINA-13894.

Publicación no.: 0721 **Reproductive seasonality in female capuchins (Cebus capucinus) in Santa Rosa (Área de Conservación Guanacaste), Costa Rica** *[Estacionalidad reproductiva en hembras de monos carablanca (Cebus capucinus) en Santa Rosa (Área de Conservación Guanacaste), Costa Rica]* / Carnegie, Sarah D; Fedigan, Linda M; Melin, Amanda D. (University of Calgary. Department of Anthropology, Calgary, AB T2N 1N4, CA <E-mail: sarah.carnegie@gmail.com>).
En: International Journal of Primatology (ISSN 0164-0291), v. 32, no. 5, p. 1076-1090. 2011
The income-capital breeding model was developed to explain birth seasonality and reproductive strategies in female animals in relation to the abundance of food energy in the environment. An income breeder uses currently available energy and acts so as to maximize either maternal survival or weanling survival, depending on the relationship between timing of births and abundance of food energy. A capital breeder stores energy reserves for future reproductive use. Here we examined energetic influences on reproductive seasonality in a population of female white-faced capuchins (Cebus capucinus) living in a seasonal dry forest in Costa Rica. Our objectives were to determine: 1) the degree of fruiting seasonality in capuchin food trees and 2) the temporal relationship between capuchin births/conceptions and fruit abundance. Our sample included 25 yr of birth data (N= 100 births), 4 yr of capuchin fruit tree phenology data, and 18 mo of ovarian hormone data, which we used to calculate gestation lengths and estimate conception dates. Using circular statistics, we found that the mean peak in fruit abundance occurs in June, and that this population of capuchins reproduces seasonally, with 44% of births occurring within a 3-mo period (May to July, mean month=May). We propose that white-faced capuchins can be generally classified as income breeders that maximize maternal survival instead of weanling survival and that they time infant births such that the most energy expensive period of reproduction, mid-to-late lactation, occurs during the mean peak in fruit abundance**.**
Localización: Biblioteca OET: NBINA-13911.

Publicación no.: 0722 **Habitat modification and gene flow in Saimiri oerstedii: Landscape genetics, intraspecific molecular systematics, and conservation** *[Modificación del hábitat y migración genética en Saimiri oerstedii: Genética del paisaje, sistemática molecular intraespecífica y conservación]* / Blair, Mary Elizabeth. (American Museum of Natural History. Center for Biodiversity and Conservation, Central Park W at 79th St, New York, NY 10024, US <E-mail: mblair1@amnh.org>). New York, N.Y.: Columbia

University, 2011. 205 p. ISBN: 9781124825533. Dissertation, Ph.D., Columbia University, Graduate School of Arts and Sciences, New York, N.Y. (USA).

Habitat modification, when it results in population fragmentation, often results in the loss of genetic diversity due to reduced gene flow, inbreeding, and genetic drift. However, the severity of these effects depends on how diminished dispersal and gene flow become between patches of suitable habitat. An empirical understanding of how habitat change affects dispersal and gene flow within and among patches is essential to predict the effects of increased habitat modification and landscape change on population persistence and processes of divergence. Recent studies in landscape ecology suggest that our understanding of dispersal in a heterogeneous landscape will improve by explicitly considering the heterogeneity of matrix habitats, or unsuitable habitats between patches of suitable habitat. In this dissertation, I describe population genetic structure and dispersal patterns in the Central American Squirrel Monkey (Saimiri oerstedii , Primates: Cebidae), a New World primate threatened with extinction and living in a heterogeneous, human-modified landscape, using analyses that explicitly consider matrix heterogeneity. I focus on the more endangered S. o. citrinellus , whose already restricted distribution in the Central Pacific region of Costa Ricahas undergone considerable anthropogenic modification since the early 1900s. I collected non-invasive fecal samples from S. o. citrinellus across the Central Pacific region, obtaining full genotypes from 233 individuals. I also obtained 11 samples from S. o. oerstedii in the Southern Pacific region of Costa Rica from a collaborator, as well as fine-scale landscape data for the Central Pacific. I analyzed the data using molecular systematics, population genetics, and landscape genetic techniques. In thisdissertation, first I explore whether molecular genetic support exists for the subspecies distinction between S. o. citrinellus and S. o. oerstedii . Second, I describe population genetic structure and recent migration patterns within S. o. citrinellus using traditional population genetic methods and Bayesian models. I also compare population genetic structure among males versus females to test for sex-biased dispersal patterns in S. o. citrinellus . Then, using landscape genetic approaches, I describe the relationship between landscape heterogeneity and genetic structure in S. o. citrinellus , and inferred which matrix habitats are costly to dispersal. Finally, I offer explicit recommendations for the conservation management of S. oerstedii . My results provide genetic support for S. o. citrinellus and S. o. oerstedii as separate taxa referred to as subspecies. Also, I found evidence of population genetic structure in S. o. citrinellus , with two genetically distinct populations and lower genetic diversity in the western population. I did not find genetic evidence for female-biased dispersal in S. o. citrinellus as expected. Instead, my results suggest that both sexes disperse, with males dispersing over longer distances. The landscape genetic analysis suggests that landscape heterogeneity is important in determining local population genetic structure in S. o. citrinellus in the Central Pacific region of Costa Rica. Specifically, oil palm plantations are moderate barriers to gene flow between populations, but not other matrix habitats. However, these inferences are specific to the composition and configuration of the Central Pacific landscape, and should not be generalized to all S. oerstedii populations. This study generated important informationfor conservation management. Based on my results, I recommend that conservation managers house the two S. oerstedii subspecies separately in captive facilities, and only transfer, reintroduce, or translocate among groups of the same subspecies. However, transfers, reintroductions, or translocations of either males or females are both likely to be successful for S. o. citrinellus in the Central Pacific region, pending further behavioral study. I also recommend that, in order to augment dispersal to the isolated western population of S. o. citrinellus, conservation efforts should focus on building biological corridors through or around adjacent oil palm plantations. Also, managers should prioritize the maintenance of existing forest connectivity in the Central Pacific region.

The results also have important implications for future studies of evolutionary and ecological processes in heterogeneous landscapes. This study contributes to a growing body of research that finds differences in dispersal patterns among local primate populations of the same taxon. My results suggest that predictive models for variation in dispersal patterns should consider both variation among the environments of local populations within a species and temporal variation in localenvironments (e.g. recent habitat disturbance). Finally, this dissertation also supports the idea that matrix heterogeneity should be considered explicitly in studies of dispersal and gene flow, as opposed to assuming that all non-suitable habitats have a uniform effect on these processes. In the future, agent-based simulation approaches combined with ecological niche models and data on adaptive genetic diversity could expand upon this work to inform predictive models for population divergence and speciation under different climate and landscape change scenarios***.***
Localización: Biblioteca OET: NBINA-13917.

Publicación no.: 0723 **Reproductive behaviour and endocrinology in female white-faced capuchins (Cebus capucinus)** *[Comportamiento reproductivo y endocrinología en las hembras de monos carablanca (Cebus capucinus)]* / Carnegie, Sarah D. (University of Calgary. Department of Anthropology, Calgary, AB T2N 1N4, CA <E-mail: sarah.carnegie@gmail.com>). Calgary, Alberta: University of Calgary, 2011. 175 p. ISBN: 9780494817643. Dissertation, Ph.D., University of Calgary, Department of Anthropology, Calgary, Alberta (Canada).
This dissertation was designed to further contribute to the growing body of knowledge on wild, female white-faced capuchin (Cebus capucinus) reproductive behaviour and related hormone patterns. My objectives were to better understand these patterns with regards to seasonality, and to further investigate the behaviours that may have been selected for to decrease the risk of infanticide in this species. Between May 2005 and November 2006 (19 months), I evaluated fecal ovarian and glucocorticoid hormone patterns among 11 female white-faced capuchin monkeys in Sector Santa Rosa, Área de Conservación, Guanacaste, Costa Rica. Overall, I found that female capuchins exploit both energetic and behavioural strategies that help maximize their reproductive success. First, this species breeds seasonally to maximize maternal survival rather than weanling survival because infant births are timed such that mid-to-late lactation occurs during the mean peak in fruit abundance. During this study, females displayed a "mating season", but females still mated outside of their periovulatory periods, mated while non-conceptive, and mated polyandrously with group males - all of which suggest that female capuchins have adapted behavioural patterns designed to confuse paternity to reduce the risk of infanticide by males. Dyadic aggression directed by females occurs rarely, but it is more prevalent among lactating females than females in other reproductive states. This supports the predictions of the maternal aggression hypothesis and suggests that female aggression also functions to reduce the risk of injury and/or death of dependent infants (by infanticide or otherwise). I found that fecal glucocorticoids are affected by physiological, social and environmental variables including reproductive state, seasonal fluctuations in temperature and resources, and disruptions in group dynamics including changes in the male dominance hierarchy. My research is the first to provide behavioural and physiological detail about female reproductive patterns using fecal hormones in any wild capuchin species; thus, it provides valuable benchmark and comparative data for future studies on reproduction, endocrinology and behavioural patterns of other capuchin species***.***
Localización: Biblioteca OET: NBINA-14140.

Publicación no.: 0724 **Ecological and demographic correlates to primate densities in fragments of lowland rainforest at La Suerte Biological Station, northeastern Costa Rica** *[Correlaciones ecológicas y demográficas de las densidades de primates en los fragmentos de bosque húmedo de tierras bajas en la Estación Biológica La Suerte, noreste de Costa Rica]* / Campera, M; Adams, K; Aronson, T; Donati, G. (Oxford Brookes University. Department of Anthropology and Geography, Oxford,). 20th Meeting of the Italian Primatological Association, Bussolengo ItApril 10-13, 2011.
En: Folia Primatologica (ISSN 0015-5713), v. 82, no. 4/5, p. 250. 2012. 20th Meeting of the Italian Primatological Association, Bussolengo, It, April 10-13, 2011.
(Abstract only). Forest fragmentation alters both the quality and area of habitat available to primate species. Determining whether there are vegetation traits associated with primate population density and structure may help to manage fragmented habitats better. In this study, we investigated whether significant demographic changes had occurred in populations of Neotropical primates over the last decade at La Suerte Biological Station, Costa Rica. Those changes were then related to forest structureand diversity. We sampled tree height, density, diversity, crown volume and canopy cover in a small fragment of old-growth vegetation (20 ha) and in a fragment of mature, second-growth forest (250 ha). We also carried out censuses of mantled howlers (Alouatta palliata) , white-faced capuchins (Cebus capucinus) and black-handed spider monkeys (Ateles geoffroyi). Overall, both forests had similar vegetation structure, but the primary site had trees with larger crown volume and higher diversity. Forest agecorrelated positively with howler density and the size of howler foraging groups. Primate populations in the primary fragment seem to have reached carrying capacity, while populations of all three species in the secondary fragment had grown significantly. Our findings support other studies that have identified the importance of tree diversity and large trees for primate habitat.
Localización: No disponible.

Publicación no.: 0725 **Living in islands of forests: feeding ecology of Alouatta palliata in forest fragments at La Suerte Biological Field Station, Costa Rica** *[Viviendo en islas de bosques: ecología de la alimentación de Alouatta palliata en fragmentos de bosque en la Estación Biológica de Campo La Suerte, Costa Rica]* / Occhibove, F; Liponi, G.B; Borgognini-Tarli, S.M; Donati, G. (University of Pisa. Department of Biology, Unit of Anthropology, Pisa, IT <E-mail: fla3@libero.it>). 20th Meeting of the Italian Primatological Association, Bussolengo ItApril 10-13, 2011.
En: Folia Primatologica (ISSN 0015-5713), v. 82, no. 4/5, p. 262. 2012. 20th Meeting of the Italian Primatological Association, Bussolengo, It, April 10-13, 2011.
(Abstract only). Facets of habitat quality which allow species persistence in forest fragments are an important aspect for primate conservation. Mantled howler monkeys (A. palliata) seem to be tolerant of habitat fragmentation, though the limits of this flexibility are not yet clear. In some areas, howler monkey densities in small, primary forest fragments are among the highest ever recorded for the species. We hypothesize that if high density is also determined by habitat carrying capacity; primary vegetation should provide higher quality resources. Alternatively, if density is just the consequence of crowding, this would decrease the quality of the diet compared to that of monkeys living in non-crowded forests. To test these hypotheses, we studied four howler monkey groups at La Suerte Biological Field Station, North-eastern Costa Rica. Two groups occurred in a small primary forest with high howler density, while two groups lived in a large secondary forest with lower density. We collected behavioural data via a 5-min Focal Animal Sampling to estimate activity, habitat use and diet. Food samples were also collected and then analyzed to evaluate their nutritional contents. Moreover, we

registered GPS coordinates and estimated home-ranges and mean inter-location distances. Our results show that primary forest food samples contained a significantly lower amount of fiber and a higher protein/fiber ratio than samples from the secondary habitat. Also, primary forest groups used larger feeding trees and moved substantially less than secondary forest groups. Our results support the hypothesis that the primary forest provides higher quality resources than the secondary habitat and, as a possible consequence, howler monkeys living in the latter have to move more to meet their energy requirements.
Localización: No disponible.

Publicación no.: 0726 **Does forest degradation affect locomotion? A preliminary study on Alouatta palliata at La Suerte Biological Station, Costa Rica** *[¿La degradación de los bosques afecta a la locomoción? Un estudio preliminar sobre Alouatta palliata en la Estación Biológica La Suerte de Costa Rica]* / Corcione, F.P; Marini, E; Donati, G. (University of Cagliari. Department of Experimental Biology, Anthropological Science Section, Monserrato, Cagliari, IT <E-mail: fabicorcione@gmail.com>). 20th Meeting of the Italian Primatological Association, Bussolengo ItApril 10-13, 2011.
En: Folia Primatologica (ISSN 0015-5713), v. 82, no. 4/5, p. 273. 2012. 20th Meeting of the Italian Primatological Association, Bussolengo, It, April 10-13, 2011.
(Abstract only). The use of different locomotion styles is closely related to the ecological context occupied by primates. Thus, once accounting for the paramount influence of body size, quantitative changes in the use of a species-specific locomotion repertoire are expected to be shaped by habitat differences. Considering the energetic costs involved in the use of different locomotion modes, it is crucial to understand whether the decreasing primary vegetation available to primates in tropical habitats may affect their choices. To test this hypothesis, we studied four mantled howler monkey (Alouatta palliata) groups living in two different fragments of lowland rainforest at La Suerte Biological Station, Costa Rica, in July-August 2009. Two groups were located in a primary forest and two groups in a mature secondary forest. We collected a total of 125 observation hours on all locomotion activities using Focal Instantaneous Sampling at 5 min intervals. We also distinguished between sexes, support sizes and types of forest. The most frequent type of locomotion recorded during the study period was quadrupedalism. We found a difference in the choice of support between sexes, with females using smaller branches more often. In the primary forest, quadrupedalism was used more frequently, while in the secondary forest jumping and climbing were more often recorded. Finally, in the primary forest the animals were able to use horizontal branches more frequently than in the modified habitat. Our results support the idea that habitat modifications have a strong influence on primate locomotion. These findings, if supported by long-term data, have important implications for the survival of howler monkeys in secondary forests.
Localización: No disponible.

Publicación no.: 0727 **Conservación, asesoramiento y manejo planificado para los primates mesoamericanos** *[Conservation, advice and planned management for Mesoamerican primates]* / Matamoros-Hidalgo, Yolanda (ed.); Seal, U.S (ed.). (Parque Zoológico y Jardín Botánico Nacional Simón Bolívar, San José, CR <E-mail: fundazoo@racsa.co.cr>). Informe del Taller para la Planificación, Asesoría y Manejo, para los Primates Mesoamericanos, San José CRd23-25 Junio 1997 Apple Valley, MN: IUCN/SSC Conservation Breeding Specialist Group, 1997, 319 pp.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-14290.pdf

Alouatta palliata palliata: En Costa Rica esta subespecie es conocida como mono congo o mono aullador. Se distribuye actualmente en Santa Rosa, Cañas, Liberia, Nicoya, Cabo Blanco, Guápiles, San Ramón, Carara, Quepos y el PN Braulio Carrillo. Habita generalmente en bosques de galerías semideciduos, siempreverdes, áreas alteradas, ombrofitos de bajura (húmedos). Sus poblaciones se encuentran según el criterio de la UICN, como de menor riesgo. CITES lo reporta en el apéndice I. MACE-LANDE lo reporta vulnerable y la Ley de Vida Silvestre de Costa Rica, la califica como amenazada por la desaparición y fragmentación del hábitat y en menor grado como cacería para alimentación. Se recomienda para su conservación, realizar estudios genéticos, translocaciones en sitios muy fragmentados, censos para conocer la situación real de las poblaciones, investigaciones de factores limitantes, así como llevar a cabo un PHVA. Ateles geoffroyi frontatus: El mono colorado o mono araña se distribuye actualmente al noreste de Costa Rica, habitando selvas perennifolias y el bosque tropical seco. Se le puede encontrar en Santa Rosa (200 individuos), Rincón de la Vieja (450 individuos), Lomas de Barbudal, Palo Verde y Arenal. Sus poblaciones se encuentran amenazadas. La UICN la considera una especie vulnerable, CITES la coloca en el apéndice II, y la Ley de Vida Silvestre de Costa Rica la califica como amenazada, ya que sus poblaciones están afectadas por la fragmentación del hábitat y la captura para mascota. Para su conservación se recomienda llevar a cabo estudios taxonómicos, censos, monitoreos para determinar información de población, investigaciones sobre las crías, manejo de hábitat para proteger el área ocupada por la especie, manejo de factores limitantes, estudios de historia de vida, estudios sobre salud, nutrición y tráfico. Ateles geoffroyi ornatus: Esta subespecie es conocida como mono colorado o araña en Costa Rica. Se distribuye actualmente en Tortuguero, Braulio Carrillo y La Cangreja. Habita generalmente en la selva perennifolia madura. Sus poblaciones se encuentran según el criterio de UICN como vulnerables. CITES la coloca en el apéndice II y la Ley de Vida Silvestre de Costa Rica la califica como amenazada por la pérdida de hábitat y la captura comomascota. Se recomienda para su conservación llevar a cabo las mismas investigaciones recomendadas para Ateles geoffroyi frontatus. Ateles geoffroyi geoffroyi: Esta subespecie habita en el noreste de Costa Rica, en Barra del Colorado, Caño Negro y Tortuguero. Las principales amenazas para esta subespecie son: la pérdida de hábitat, la fragmentación, los animales exóticos, la cacería para alimento, medicina, trofeos y comercio, los problemas genéticos, las catástrofes y la contaminación, principalmente por pesticidas. Según los criterios de la UICN su población es vulnerable y CITES la ubica en el apéndice II. Las recomendaciones para su conservación son: estudios genéticos, censos, monitoreo, investigación sobre la cría en cautiverio, manejo permanente del hábitat, investigación sobre factores limitantes, salud, nutrición y tráfico. Ateles geoffroy panamensis: Esta subespecie tiene la población restringida a Corcovado y la Reserva Biológica de Carara. Se calcula que hay menos de 250 individuos maduros en la población. Las principales amenazas son la pérdida de hábitat y la fragmentación del mismo, la interferencia del ser humano, la cacería para trofeos, medicina y alimento, el comercio de animales vivos, los problemas genéticos, las catástrofes y la contaminación, principalmente por pesticidas. Su población está calificada como vulnerable según los criterios de la UICN, y está en el apéndice II de CITES. Las recomendaciones para su conservación son las mismas que para A. g. ornatus. Cebus capuccinusimitator: En Costa Rica se le conoce como mono carablanca o mono capuchino. Se le encuentra en bosques secos, de transición y en bosques lluviosos, principalmente de crecimiento secundario. Ocupaba todo el territorio nacional desde los 0 a los 1500 m.s.n.m. Actualmente se le ha reportado en 17 localidades: Península de Osa, Parque Internacional La Amistad, Parque Nacional Manuel Antonio, Reserva Biológica de Carara, Reserva Privada Monteverde, Parque Nacional Santa Rosa, Parque Nacional Rincón de la Vieja, Reserva Curú, Parque Nacional Palo Verde, Reserva Biológica Cabo Blanco, Finca La Selva, Parque Nacional Cahuita,

Parque Nacional Tortuguero, Monumento Nacional Guayabo, Reserva Forestal San Ramón y Parque Nacional Braulio Carrillo. Sus principales amenazas son problemas genéticos, cacería, pérdida de hábitat por fragmentación, perturbaciones marinas incluyendo el fenómeno ?El Niño? y otros cambios, plaguicidas, líneas eléctricas, contaminación, fuego, comercio de animales y sequía. La UICN no lo reporta en la lista roja de 1996. CITES lo clasifica en el Apéndice II y MACELANDE lo reporta como de bajo riesgo. La Ley de Vida Silvestre de Costa Rica lo reporta como Amenazado. Para su conservación se recomienda realizar investigaciones sobre estudios taxonómicos o genéticos, monitoreo para determinar información sobre la población, investigaciones en crías, manejo del hábitat primeramente para proteger y/o mejorar el hábitat correspondiente a la especie (por ejemplo manejo de bosque), translocación einformación por imágenes de satélite. Saimiri oerstedii oerstedii: Es conocido como mono tití o mono ardilla en Costa Rica. Se encuentra cerca a la costa del Océano Pacifico, desde el Río Térraba hasta la parte occidental de la provincia de Chiriquí en Panamá y desde el nivel del mar hasta cerca de 500 m. Su hábitat consiste de bosques primarios y secundarios, además es probable que esté en bosques de galería, plantaciones permanentes y manglares. Su población se encuentra según el criterio de UICN en peligro. CITES lo reporta en el apéndice I. La población tiende a disminuir debido principalmente a la reducción de hábitat y fragmentación, el uso de pesticidas y el comercio local y doméstico. Está presente en seis áreas protegidas que cubren aproximadamente 125.619 ha. Se recomienda hacer estudios de investigación para determinar el tamaño poblacional, y la evaluación de la fragmentación, conservar las áreas protegidas actuales, no extender las zonas agrícolas sobre terrenos con bosques nativos, incentivar la conservación de los bosques privados, preservar la integridad de los bosques riparios, evaluar el estado de las poblaciones y subpoblaciones y hacer un PHVA. Saimiri oerstedii citrinellus: (endémico de Costa Rica). En Costa Rica Saimiri oerstedii citrinellus se conoce con el nombre común de mono tití o mono ardilla. Se distribuye en la costa del Pacífico Central de Costa Rica desde el Río Tulín al norte hasta el Río Térraba en el sur. Su rango altitudinal se extiende desde el nivel del mar hasta los 500 m.

Localización: Biblioteca OET: NBINA-14290.

Publicación no.: 0728 **Estrategia para la conservación del mono tití** *[Strategy for the squirrel monkey conservation]* / Salazar, José Antonio (ed.); Herrera-Retana, Javier (ed.); Valle-Bourrouet, Luisa (ed.); Hernández-Calderón, José J (ed.); Leandro-Loría, Danilo (ed.); Vargas-Rojas, Gustavo (ed.); Matamoros-Hidalgo, Yolanda (ed.); Ellis, Susie (ed.). Informe del Taller "Estrategia para la Conservación del Mono Tití", Parque Nacional Manuel Antonio CR19-21 Agosto 1999. Apple Valley, MN: Grupo de Especialistas en Conservación y Reproducción SSC/UICN, 1999, 53 pp.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-14296.pdf
El propósito del Taller para la Conservación de Saimiri oerstedii fue el de revisar las acciones ejecutadas desde 1995, cuando se realizó un segundo PHVA sobre la especie, y a partir de ello desarrollar una estrategia de conservación para la misma. Del 19 al 21 de agosto 1999, 21 participantes provenientes de diferentes instituciones costarricenses y de Estados Unidos, se reunieron en el Parque Nacional Manuel Antonio con el fin de revisar y desarrollar estrategias de conservación para S. oerstedii.El taller inició con varias presentaciones sobre la situación de S. oerstedii. Posteriormente, los participantes trabajaron en plenaria para identificar los problemas, asuntos y temas que afectan a la conservación de la especie. De acuerdo con un procedimiento clásico, cada participante escribió en un papel los problemas que consideraba más urgentes de resolver; posteriormente estos se colocaron en un panel adhesivo para su clasificación. A todos los problemas identificados se les concedió el mismo valor. Luego, un grupo

pequeño los organizaron en temas básicos. Sobre esta base se conformaron tres grupos de trabajo: Hábitat. Educación. Investigaciones. Cada Grupo de Trabajo elaboró un informe sobre su tema, identificando ampliamente los problemas, asuntos y temas más importantes de su tópico y también revisaron el informe del taller de 1995. Para cada problema, los Grupos enumeraron estrategias/soluciones que pueden mejorarlo y también revisaron las estrategias identificadas en el taller de 1995, determinando cuales no han sido realizadas y cuales todavía eran importantes. Para cada estrategia o solución, los Grupos también especificaron pasos concretos de acciones a ejecutar, especificando una persona o personas en el grupo que tomara(n) la responsabilidad de los pasos y una fecha para completar la acción. Finalmente, cada grupo identificó proyectos especiales de prioridad (por ejemplo, de investigación o de educación) especificando los siguientes: a) ¿Cuál es el propósito del proyecto? b) ¿Cuales serán los resultados del proyecto y como mejorar la situación de la especie? c) ¿Cuánto cuesta? Desarrollar una proyección de gastos. d) ¿Quiénes serán los investigadores o ejecutores? Cuando todos los grupos terminaron esta parte del proceso, cada propuesta estuvo revisada por los otros grupos para sugerencias y adiciones.
Localización: Biblioteca OET: NBINA-14296.

Publicación no.: 0729 **Technical note: Tree truthing: How accurate are substrate estimates in primate field studies?** *[Nota técnica: Verificación en el árbol: ¿Qué tan exactas son las estimaciones del sustrato en estudios de campo de primates?]* / Bezanson, Michelle F; Watts, Sean M; Jobin, Matthew J. (Santa Clara University. Department of Anthropology, Santa Clara, CA 95050, US <E-mail: mbezanson@scu.edu>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), v. 147, no. 4, p. 671-677. 2012
Field studies of primate positional behavior typically rely on ground-level estimates of substrate size, angle, and canopy location. These estimates potentially influence the identification of positional modes by the observer recording behaviors. In this study we aim to test ground-level estimates against direct measurements of support angles, diameters, and canopy heights in trees at La Suerte Biological Research Station in Costa Rica. After reviewing methods that have been used by past researchers, we provide data collected within trees that are compared to estimates obtained from the ground. We climbed five trees and measured 20 supports. Four observers collected measurements of each support from different locations on the ground. Diameter estimates varied from the direct tree measures by 028 cm (Mean: 5.44 ± 4.55). Substrate angles varied by 155° (Mean: 14.76 ± 14.02). Height in the tree was best estimated using a clinometer as estimates with a two-meter reference placed by the tree varied by 311 meters (Mean: 5.31 ± 2.44). We determined that the best support size estimates were those generated relative to the size of the focal animal and divided into broader categories. Support angles were best estimated in 5° increments and then checked using a Haglof clinometer in combination with a laser pointer. We conclude that three major factors should be addressed when estimating support features: observer error (e.g., experience and distance from the target), support deformity, and how support size and angle influence the positional mode selected by a primate individual.
Localización: Biblioteca OET: NBINA-14390.

Publicación no.: 0730 **Variability in core areas of spider monkeys (Ateles geoffroyi) in a tropical dry forest in Costa Rica** *[Variabilidad en las principales zonas de los monos colorados (Ateles geoffroyi) en un bosque seco tropical en Costa Rica]* / Asensio, Norberto; Schaffner, Colleen M; Aureli, Filippo. (Mahidol

University. Faculty of Environment and Resource Studies, 999 Phutthamonthon, Salaya 73170, Nakhon Pathom, TH <E-mail: norberello@gmail.com>).
En: Primates (ISSN 0032-8332), v. 53, no. 2, p. 147-156. 2012
Core areas are highly used parts of the home range on which the survival of solitary or group-living animals depends. We investigated the home range and core area size and area fidelity of a spider monkey community in a tropical dry forest over a 4-year period. Home ranges overlapped extensively across years, subgroup sizes, and seasons. In contrast, spider monkeys used core areas that varied in size and location across the study years, subgroup sizes, and seasons. These shifts in core areas suggestthat the understanding of core areas, and thus the spatial requirements, of a species in a particular habitat may be limited if based on short-term studies. In this respect, our findings emphasize the importance of long-term studies of the spatial ecology of any species in a particular habitat. Our study also shows that the yearly home range basically includes all the core areas from different years, seasons, and subgroup sizes (i.e., the super-core area). This is conceptually important for territorial species, such as spider monkeys, which defend a stable home range as it contains not only the current, but also the future core areas.
Localización: Biblioteca OET: NBINA-14384.

Publicación no.: 0731 **Experimental field study of problem-solving using tools in free-ranging capuchins (Sapajus nigritus, formerly Cebus nigritus)** *[Estudio de campo experimental de resolución de problemas del uso de herramientas en monos capuchinos libres (Sapajus nigritus, anteriormente Cebus nigritus)]* / Garber, Paul A; Gomes, D.F; Bicca-Marques, J.C. (University of Illinois. Department Anthropology, 109 Davenport Hall, 607 S Mathews Ave, Urbana, IL 61801, US <E-mail: p-garber@uiuc.edu> <E-mail: jcbicca@terra.com.br>).
En: American Journal of Primatology (ISSN 0275-2565), v. 74, no. 4, p. 344-358. 2012
Some populations of capuchins are reported to use tools to solve foraging problems in the wild. In most cases, this involves the act of pounding and digging. The use of probing tools by wild capuchins is considerably less common. Here we report on the results of an experimental field study conducted in southern Brazil designed to examine the ability of wild black-horned capuchins (Sapajus nigritus) to use a wooden dowel as a lever or a probe to obtain an embedded food reward. A group of eight capuchins was presented with two experimental platforms, each housing a clear Plexiglas box containing two bananas on a shelf and four inserted dowels. Depending on the conditions of the experiment, the capuchins were required either to pull (Condition I) or push (Conditions II and III) the dowels, in order to dislodge the food reward from the shelf so that it could be manually retrieved. In Condition I, four individuals spontaneously solved the foraging problem by pulling the dowels in 25% (72/291) of visits. In Conditions II and III, however, no capuchin successfully pushed the dowels forward to obtain the food reward. During these latter two experimental conditions, the capuchins continued to pull the dowels (41/151 or 27% of visits), even though this behavior did not result in foraging success. The results of these field experiments are consistent with an identical study conducted on wild Cebus capucinus in Costa Rica, and suggest that when using an external object as a probe to solve a foraging problemindividual capuchins were able to rapidly learn an association between the tool and the food reward, but failed to understand exactly how the tool functioned in accomplishing the task. The results also suggest that once a capuchin learned to solve this tool-mediated foraging problem, the individual persisted in using the same solution even in the face of repeated failure (slow rate of learning extinction)**.**

Localización: Biblioteca OET: NBINA-14801.

Publicación no.: 0732 **Social factors influencing natal dispersal in male white-faced capuchins (Cebus capucinus)** *[Factores sociales que influyen en la dispersión natal de los de los monos carablanca machos (Cebus capucinus)]* / Jack, Katharine M; Sheller, Claire R; Fedigan, Linda M. (Tulane University. Department of Anthropology, 101 Dinwiddie Hall,6823 St Charles Ave, New Orleans, LA 70118, US <E-mail: kjack@tulane.edu> <E-mail: claireshelle r@gmail.com> <E-mail: fedigan@ucalgary.ca>).
En: American Journal of Primatology (ISSN 0275-2565), v. 74, no. 4, p. 359-365. 2012
White-faced capuchin males disperse from their natal group at around 4.5 years of age, but there is much variation in dispersal timing: our youngest confirmed disperser was 19 months and the oldest 11 years old. In this study, we investigate possiblefactors influencing dispersal decisions in this species. Between 1983 and 2010, 64 males were born into three study groups in Santa Rosa National Park, Area de Conservación Guanacaste, and Costa Rica. As of August 2010, 21 died or were presumed dead (14months), 13 remained natal residents, and 30 were presumed dispersers. We used backward logistic regression to identify proximate factors that predict the occurrence of male natal dispersal. The occurrence of a takeover (significant positive association)and group size (non-significant negative association) were included in the model. Male age, number of maternal brothers, and number of adult males were not significant predictors of natal dispersal. The resultant model correctly classified 97% of dispersed and 89% of resident natal males, for an overall success rate of 95%. The occurrence of a group takeover was the strongest predictor of male dispersal, with natal males being 18.7 times more likely to disperse in the context of a group takeover than during peaceful times. A linear regression model showed that the tenure length of a male's probable father influences the age of natal dispersal, explaining 15% of the observed variation in age. However, when our oldest disperser was removed (an outlier) this effect disappeared. Collectively, these results indicate that group instability, as evidenced by the occurrence of a takeover, shorter tenure length of a natal male's father, and smaller group size, triggers natal dispersal in this species while the converse leads to a delay. These data add to our growing evidence of the enormous impact that takeovers have on the behavioral ecology of this species**.**
Localización: Biblioteca OET: NBINA-14802.

Publicación no.: 0733 **Molecular systematics and phylogeography of Cebus capucinus (Cebidae, Primates) in Colombia and Costa Rica by means of the mitochondrial COII gene** *[Sistemática molecular y filogeografía de Cebus capucinus (Cebidae, Primates) en Colombia y Costa Rica mediante el gen mitocondrial COII]* / Ruiz-García, Manuel; Castillo, María Ignacia; Ledezma, Andrea; Leguizamón, Norberto; Sánchez-Porras, Ronald E; Chinchilla-Carmona, Misael; Gutiérrez-Espeleta, Gustavo A. (Pontificia Universidad Javeriana. Facultad de Ciencias, Departamento de Biología, Laboratorio de Genética de Poblaciones Molecular y Biología Evolutiva, Carrera 7A 43-82, Bogotá, CO <E-mail: mruiz@javeriana.edu.co> <E-mail: chinchillacm@ucimed.com> <).
En: American Journal of Primatology (ISSN 0275-2565), v. 74, no. 4, p. 366-380. 2012
We propose the first molecular systematic hypothesis for the origin and evolution of Cebus capucinus based on an analysis of 710 base pairs (bp) of the cytochrome c oxidase subunit II (COII) mitochondrial gene in 121 C. capucinus specimens sampled inthe wild. The animals came from the borders of Guatemala and Belize, Costa Rica, and eight different departments of Colombia (Antioquia, Choco, Sucre, Bolivar, Cordoba, Magdalena, Cauca, and Valle del Cauca). Three different and significant haplotype lineages were found in Colombia living sympatrically in the same departments. They all

presented high levels of gene diversity but the third Colombian gene pool was determined likely to be the most ancestral lineage. The second Colombian mitochondrial (mt) haplogroup is likely the source of origin of the unique Central America mt haplogroup that was detected. Our molecular population genetics data do not agree with the existence of two well-defined subspecies in Central America (limitaneus and imitator). This Central America mt haplogroup showed significantly less genetic diversity than the Colombian mt haplogroups. All the C. capucinus analyzed showed evidence of historical population expansions. The temporal splits among these four C. capucinus lineageswere related to the completion of the Panamanian land bridge as well as to climatic changes during the Quaternary Period.
Localización: Biblioteca OET: NBINA-14803.

Publicación no.: 0734/ **Taller Movimientos de Animales y Riesgo de Enfermedad: Informe de los Grupos de Trabajo , Zoológico y Jardín Botánico Simón Bolívar, San José. CR. 28-30 abril, 2003**. Arguedas-Porras, Randall (comp.) / Matamoros-Hidalgo, Yolanda (comp.). Apple Valley, MN: Grupo de Especialistas en Conservación y Reproducción SSC/UICN, 2003, 59 pp.
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-14592.pdf
Discusión de casos de métodos de traslado de animales en cautiverio a nuevos sitios y los posibles riesgos de transmisión de enfermedades.
Localización: Biblioteca OET: NBINA-14592.

Publicación no.: 0735 **Male care in mantled howler monkeys (Alouatta palliata palliata)** *[Cuido en el macho de los monos congo (Alouatta palliata palliata)]* / Zandonà, Eugenia. (Universidade do Estado do Rio de Janeiro. Departamento de Ecologia IBRAG, Rua São Francisco Xavier, 524, Maracanã, Rio de Janeiro, RJ, CEP 20550?013, BR <E-mail: eugenia.zandona@gmail.com>).
En: Neotropical Primates (ISSN 1413-4705), v. 18, no. 1, p. 22-25. 2011
In this paper I report on male care of an immature mantled howler monkey (Alouatta palliata palliata) orphan, and discuss whether it can be viewed in terms of paternal care or adoption.
Localización: Biblioteca OET: NBINA-14814.

Publicación no.: 0736 **Observations of a fight between two adult male mantled howler monkeys (Alouatta palliata)** *[Observaciones de una pelea entre dos machos adultos de monos congo (Alouatta palliata)]* / Meyer, Christopher. (Avenida cinco, calle cinco, San José, CR <E-mail: ory2pam@verizon.net>).
En: Neotropical Primates (ISSN 1413-4705), v. 18, no. 1, p. 31-33. 2011. (No abstract).
Localización: Biblioteca OET: NBINA-14815.

Publicación no.: 0737 **Participation in group defence: proximate factors affecting male behaviour in wild white-faced capuchins** *[Participación en la defensa del grupo: factores inmediatos que afectan el comportamiento del macho en monos carablanca silvestres]* / Meunier, Hélène; Molina-Vila, Pablo; Perry, Susan E. (University of Strasbourg. Centre of Primatology, Fort Foch, Niederhausbergen, FR <E-mail: meunier.h@gmail.com> <E-mail: molinavila@gmail.com> <E-mail: sperry@anthro.ucla.edu>).
En: Animal Behaviour (ISSN 0003-3472), v. 83, p. 621-628. 2012
When two social groups of the same species confront each other, what factors influence whether individuals participate in the struggle for defence of their group and its resources? In white-faced capuchin monkeys, Cebus capucinus, adult males play animportant role in the outcome of intergroup

encounters by cooperating aggressively against their opponents. However, not all male capuchin monkeys consistently participate in intergroup aggression. Our study therefore aimed to determine which elements influence the participation of males in a dispute. Playback experiments simulating intergroup encounters, which tested adult males in various social contexts, highlight the importance of the presence of another individual. Male white-faced capuchins, C. capucinus, participated in intergroup encounters more frequently when tested in the presence of another adult male than when tested alone. Male subjects were more likely to respond aggressively to the playback stimulus if the other individual present also responded aggressively. However, the number of males residing in the subject's group, relative to the number of males in the group from which the playback stimulus was recorded, did not seem to affect a male's response.
Localización: Biblioteca OET: NBINA-14817.

Publicación no.: 0738 **Tree truthing: How accurate are substrate estimates in primate field studies?** *[Verificación en el árbol: ¿Qué tan exactas son las estimaciones del sustrato en los estudios de campo de los primates?]* / Bezanson, Michelle F; Watts, Sean M; Jobin, Matthew J. (Santa Clara University. Department of Anthropology, 500 El Camino Real, Santa Clara, CA 95053-1500, US <E-mail: mbezanson@scu.edu>).
En: American Journal of Physical Anthropology (ISSN 0092-9483), v. 147, p. 671-677. 2012
Field studies of primate positional behavior typically rely on ground-level estimates of substrate size, angle, and canopy location. These estimates potentially influence the identification of positional modes by the observer recording behaviors. In this study we aim to test ground-level estimates against direct measurements of support angles, diameters, and canopy heights in trees at La Suerte Biological Research Station in Costa Rica. After reviewing methods that have been used by past researchers we provide data collected within trees that are compared to estimates obtained from the ground. We climbed five trees and measured 20 supports. Four observers collected measurements of each support from different locations on the ground. Diameter estimates varied from the direct tree measures by 0-28 cm (Mean: 5.44 ± 4.55). Substrate angles varied by 1-558 (Mean: 14.76 ± 14.02). Height in the tree was best estimated using a clinometer as estimates with a two-meter reference placed by the tree varied by 3-11 meters (Mean: 5.31 ± 2.44). We determined that the best support size estimates were those generated relative to the size of the focal animal and divided into broader categories. Support angles were best estimated in 58 increments and then checked using a Haglöf clinometer in combination with a laser pointer. We conclude that three major factors should be addressed when estimating support features: observer error (e.g., experience and distance from the target), support deformity, and how support size and angle influence the positional mode selected by a primate individual.
Localización: Biblioteca OET: NBINA-14816.

Publicación no.: 0739 **Methods for studying the ecological physiology of feeding in free-ranging howlers (Alouatta palliata) at La Pacifica, Costa Rica** *[Métodos para el estudio de la fisiología ecológica de la alimentación en monos congo en libertad (Alouatta palliata) en La Pacífica, Costa Rica]* / Vinyard, Christopher J; Glander, Kenneth E; Teaford, Mark F; Thompson, Cynthia L; Deffenbaugh, Max; Williams, Susan H. (Northeast Ohio Medical University. Department of Anatomy and Neurobiology, Rootstown, OH 44272, US <E-mail: cvinyard@neomed.edu>).
En: International Journal of Primatology (ISSN 0164-0291), v. 33, no. 3, p. 611-631. 2012

We lack a general understanding of how primates perform physiologically during feeding to cope with the challenges of their natural environments. We here discuss several methods for studying the ecological physiology of feeding in mantled howlers (Alouatta palliata) at La Pacífica, Costa Rica. Our initial physiological effort focuses on recording electromyographic activity (EMG) from the jaw muscles in free-ranging howlers while they feed in their natural forest habitat. We integrate these EMG data with measurements of food material properties, dental wear rates, as well as spatial analyses of resource use and food distribution. Future work will focus on incorporating physiological measures of bone deformation, i.e., bone strain; temperatures; foodnutritional data; and hormonal analyses. Collectively, these efforts will help us to better understand the challenges that howlers face in their environment and the physiological mechanisms they employ during feeding. Our initial efforts provide a proof of concept demonstrating the methodological feasibility of studying the physiology of feeding in free-ranging primates. Although howlers offer certain advantages to in vivo field research, many of the approaches described here can be applied to other primates in natural habitats. By collecting physiological data simultaneously with ecological and behavioral data, we will promote a more synthetic understanding of primate feeding and its evolutionary history**.**
Localización: Biblioteca OET: NBINA-14841.

Publicación no.: 0740 **Viabilidad poblacional de Alouatta palliata (Primates: Atelidae) y Cebus capucinus (Primates: Cebidae) en el Refugio de Vida Silvestre Privado Nogal, Sarapiquí, Heredia, Costa Rica** *[Population viability of Alouatta palliata (Primates: Atelidae) and Cebus capucinus (Primates: Cebidae) at Refugio de Vida Silvestre Privado Nogal, Sarapiquí, Heredia, Costa Rica]* / Rodríguez-Matamoros, Jorge; Villalobos-Brenes, Federico Alexander; Gutiérrez-Espeleta, Gustavo A. (Conservation Breeding Specialist Group (SSC/IUCN/CBSG Mesoamerica), San José, CR <E-mail: Jorge@cbsgmesoamerica.org> <E-mail: fvillalo@gmail.com> <E-mail: gustavo.gutierrez@ucr.ac.cr>).
En: Revista de Biología Tropical (ISSN 0034-7744), v. 60, no. 2, p. 809-832. 2012
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-14752.pdf
Habitat destruction may cause wildlife population fragmentation and is considered an important factor in small population species extinction. As wildlife populations become smaller, threats to their stability and persistence arise as a result of demographic, environmental and genetic stochastic factors. The aim of this work was to study the effects of population fragmentation on the long term viability of Alouatta palliata and Cebus capucinus populations, at Refugio de Vida Silvestre Privado Nogal, Sarapiquí (RVSPN), Heredia. For this we used the computer software VORTEX to run a population viability analysis (PVA) for both species. The input data of the PVA were taken from the demography structure of the RVSPN, literature sources from the species and from PVA related papers. We evaluated two sets of scenarios: small fragmented populations to reflect the population current state, and one larger and continuous population, to reflect the effect of reforestation actions followed by RVSPN to connect forest fragments. Results suggest that both A. palliata and C. capucinus can survive in isolated forest fragments. However, if different factors as inbreeding depression, catastrophes or habitat loss were incorporated to the scenarios, the small fragmented populations become unstable and the risk of extinction increased for both species. Continuous and larger populations were more robust against the threats incorporated in the scenarios when compared to the current situation of smaller and fragmented populations. The best management option for both species would be to continue reforestation efforts in the area to connect forest fragments, with the result of larger and continuous populations of both species. It is important to

continue the observation ofboth species populations, and to promote a habitat management to reduce the negative effects of stochastic environmental events.
Localización: Biblioteca OET: NBINA-14752.

Publicación no.: 0741 **The ontogeny of prehensile-tail use in Cebus capucinus and Alouatta palliata** *[Ontogenia de uso de la cola prensil en Cebus capucinus y Alouatta palliata]* / Bezanson, Michelle F. (Santa Clara University. Department of Anthropology, 500 Camino Real, Santa Clara, CA 95050, US <E-mail: mbezanson@scu.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 74, no. 8, p. 770-782. 2012
A study of the platyrrhine prehensile tail provides an opportunity to better understand how ecological and biomechanical factors affect the ability of primates to distribute mass across many different kinds of arboreal supports. Young individuals experience ontogenetic changes in body mass, limb proportions, and motor skills that are likely to exert a strong influence on foraging strategies, social behaviors, support use, and associated prehensile-tail use. In this research, I examine ontogenetic patterns of prehensile-tail use in Cebus capucinus and Alouatta palliata. I collected behavioral data on activity, positional context, support size, and prehensile-tail use in five age categories of white-faced capuchins and mantled howlers during a 12-month period at Estación Biológica La Suerte in northeastern Costa Rica. Infant and juvenile howlers and capuchins were found to use their prehensile tails significantly more often than adults during feeding, foraging, and social behavior. Prehensile-tail use did not show predictable increases during growth. In both species, adults used their prehensile tails in mass-bearing modes significantly less often than juveniles. Despite differences in tail anatomy in Cebus and Alouatta, prehensile-tail use was observed to follow an increasing trajectory from infancy, peaking during juvenescence, and then decreasing in older juveniles and adults. In both species, it appeared that adult patterns of prehensile-tail use reflected the demands placed on young juvenile.
Localización: Biblioteca OET: NBINA-15338.

Publicación no.: 0742 **Scale-dependent effects of a heterogeneous landscape on genetic differentiation in the Central American squirrel monkey (Saimiri oerstedii)** *[Efectos escala dependientes de un paisaje heterogéneo en la diferenciación genética en el mono titi centroamericano (Saimiri oerstedii)]* / Blair, Mary Elizabeth; Melnick, Don J. (American Museum of Natural History. Center for Biodiversity and Conservation, Central Park W at 79th St, New York, NY 10024, US <E-mail: mblair1@amnh.org> <E-mail: djm7@columbia.edu>).
En: PLoS ONE (ISSN 1932-6203), v. 7, no. 8, e43027. 2012
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-15263.pdf
Landscape genetic studies offer a fine-scale understanding of how habitat heterogeneity influences population genetic structure. We examined population genetic structure and conducted a landscape genetic analysis for the endangered Central American Squirrel Monkey (Saimiri oerstedii) that lives in the fragmented, human-modified habitats of the Central Pacific region of Costa Rica. We analyzed non-invasively collected fecal samples from 244 individuals from 14 groups for 16 microsatellite markers. Wefound two geographically separate genetic clusters in the Central Pacific region with evidence of recent gene flow among them. We also found significant differentiation among groups of S. o. citrinellus using pairwise F ST comparisons. These groups are in fragments of secondary forest separated by unsuitable "matrix" habitats such as cattle pasture, commercial African oil palm plantations, and human residential areas. We used an individual-based landscape genetic approach to measure spatial patterns

of genetic variance while taking into account landscape heterogeneity. We found that large, commercial oil palm plantations represent moderate barriers to gene flow between populations, but cattle pastures, rivers, and residential areas do not. However, theinfluence of oil palm plantations on genetic variance was diminished when we restricted analyses to within population pairs, suggesting that their effect is scale-dependent and manifests during longer dispersal events among populations. We show that when landscape genetic methods are applied rigorously and at the right scale, they are sensitive enough to track population processes even in species with long, overlapping generations such as primates. Thus landscape genetic approaches are extremely valuablefor the conservation management of a diverse array of endangered species in heterogeneous, human-modified habitats. Our results also stress the importance of explicitly considering the heterogeneity of matrix habitats in landscape genetic studies, instead of assuming that all matrix habitats have a uniform effect on population genetic processes.
Localización: Biblioteca OET: NBINA-15263.

Publicación no.: 0743 **Tracking Neotropical monkeys in Santa Rosa: Lessons from a regenerating Costa Rican dry forest** *[Rastreo de monos neotropicales en Santa Rosa: Lecciones de un bosque seco costarricense en regeneración]* / Fedigan, Linda M; Jack, Katharine M. (University of Calgary. Department of Anthropology, 2500 Univ Dr NW, Calgary, AB T2N 1N4, CA <E-mail: fedigan@ucalgary.ca> <E-mail: kjack@tulane.edu>).
En: Long-Term Field Studies of Primates, Kappeler, P.M. & D.P. Watts (eds.) BerlEn: Springer-Verlag, 2012. p. 165-184. ISBN: 978-3-642-22513-0.
The Santa Rosa primate project began in 1983 and we have studied the behavioral ecology of the resident primate species (Cebus capucinus, Alouatta palliata and Ateles geoffroyi) continuously since then. Most of our research has concentrated on the behavior, ecology, and life history of multiple groups of capuchins and on documenting the effects of forest protection and regeneration on the howler and capuchin populations. Our examination of capuchin life histories has shown that they lead complex andintriguing lives, many aspects of which are affected by the frequent movement of adult males between social groups throughout the course of their lives. Over the past 28 years, we have documented increases in both the capuchin and howler populations. However, the howler population apparently reached carrying capacity in 1999, whereas the capuchin population continues to grow, probably because of their ability to occupy early-regeneration habitats. Our long-term examination of the population structure and life history of these two species clearly demonstrate that many species-specific aspects of biology and behavioral ecology differentially influence patterns of primate population recovery. It is only after decades of research that we can begin to understand the underlying constraints and variability in the lives of these animals.
Localización: Biblioteca OET: NBINA-15720.

Publicación no.: 0744 **The association of intergroup encounters, dominance status, and fecal androgen and glucocorticoid profiles in wild male white-faced capuchins (Cebus capucinus)** *[La asociación de encuentros intergrupales, estado de dominación y andrógenos fecales y perfiles de glucocorticoides en machos de monos carablanca silvestres (Cebus capucinus)]* / Schoof, Valérie A.M; Jack, Katharine M. (Tulane University. Department of Anthropology, 101 Dinwiddie Hall, 6283 St. Charles Avenue, New Orleans, LA 70118, US <E-mail: vschoof@tulane.edu> <E-mail: kjack@tulane.edu>).
En: American Journal of Primatology (ISSN 0275-2565), v. 75, no. 2, p. 107-115. 2013.

Androgens play a role in male reproductive competition, frequently via aggression, while glucocorticoids are associated with the stress response. However, the relationships of these hormones with different sources of competition (intra- vs. intergroup) and dominance status are highly variable. Here, we consider the fecal androgen (fA) and glucocorticoid (fGC) profiles of alpha and subordinate male Cebus capucinus in the context of intergroup competition during a rare period of low intragroup competition (i.e. all females were either pregnant or lactating). Intergroup encounters (IGEs) are a long-term reproductive strategy in male white-faced capuchins, enabling them to assess the composition of neighboring groups. IGEs pose a threat to resident males as these can result in injury or death, loss of dominance rank, group eviction, and group takeovers that are frequently associated with infanticide. From February to July 2007, fecal samples were collected from eight males in three groups of white-faced capuchins in the Santa Rosa Sector of the Área de Conservación Guanacaste, Costa Rica. IGE rate was positively associated with both fA and fGC levels, indicating that IGEs are perceived as reproductive challenges by resident males, and may be associated with elevated metabolic costs. Alpha males sire the majority of group offspring and, accordingly, the threat of IGEs to both future (via rank loss or eviction) and current (via infanticide) reproductive success is greater than for subordinate males. Consistent with this observation, alpha males had higher fA and fGC levels than subordinate males. Given that all females were either pregnant or lactating and pronounced overt intragroup competition was absent, we interpret the difference in hormone profiles of alpha and subordinate males as being primarily associated with variation in the perceived threats of IGEs according to dominance status. Future studies should focus on the interaction of intra- and intergroup competition by examining hormone levels in the presence of periovulatory females.
Localización: Biblioteca OET: NBINA-15833.

Publicación no.: 0745 **Seasonal mortality patterns in non-human primates: implications for variation in selection pressures across environments** *[Patrones estacionales de mortalidad en primates no humanos: consecuencias para la variación en las presiones de selección a través de entornos]* / Gogarten, Jan F; Brown, Leone M; Chapman, Colin A; Cords, Marina; Doran-Sheehy, Diane; Fedigan, Linda M; Grine, Frederick E; Perry, Susan E; Pusey, Anne E; Sterck, Elisabeth H.M; Wich, Serge A; Wright, Patricia C. (State University of New York at Stony Brook. Interdepartmental Doctoral Program in Anthropological Sciences, Stony Brook, NY 11794, US <E-mail: jan.gogarten@mail.mcgill.ca>).
En: Evolution (ISSN 0014-3820), v. 66, no. 10, p. 3252-3266. 2012
Examining seasonal mortality patterns can yield insights into the drivers of mortality and thus potential selection pressures acting on individuals in different environments. We compiled adult and juvenile mortality data from nine wild non-human primate taxa to investigate the role of seasonality in patterns of mortality and address the following questions: Is mortality highly seasonal across species? Does greater environmental seasonality lead to more seasonal mortality patterns? If mortality is seasonal, is it higher during wet seasons or during periods of food scarcity? and Do folivores show less seasonal mortality than frugivores? We found seasonal mortality patterns in five of nine taxa, and mortality was more often tied to wet seasons than food-scarce periods, a relationship that may be driven by disease. Controlling for phylogeny, we found a positive relationship between the degree of environmental seasonality and mortality, with folivores exhibiting more seasonal mortality than frugivores.These results suggest that mortality patterns are influenced both by diet and degree of environmental seasonality. Applied to a wider array of taxa, analyses of seasonal mortality patterns may aid

understanding of life-history evolution and selection pressures acting across a broad spectrum of environments and spatial and temporal scales.
Localización: Biblioteca OET: NBINA-15839.

Publicación no.: 0746 **ASPM and the evolution of cerebral cortical size in a community of New World monkeys** *[El gen del huso anormal asociado a la microcefalia y la evolución del tamaño cerebral cortical en una comunidad de monos del Nuevo Mundo]* / Villanea, Fernando A; Perry, George H; Gutiérrez-Espeleta, Gustavo A; Dominy, Nathaniel J. (Washington State University. School of Biological Sciences, Pullman, WA 99164, US <E-mail: fervillanea@wsu.edu> <E-mail: gustavo.gutierrez@ucr.ac.cr>).
En: PLoS ONE (ISSN 1932-6203), v. 7, no. 9, e44928. 2012
Enlace: http://www.ots.ac.cr/rdmcnfs/datasets/biblioteca/pdfs/nbina-15744.pdf
The ASPM (abnormal spindle-like microcephaly associated) gene has been proposed as a major determinant of cerebral cortical size among primates, including humans. Yet the specific functions of ASPM and its connection to human intelligence remain controversial. This debate is limited in part by a taxonomic focus on Old World monkeys and apes. Here we expand the comparative context of ASPM sequence analyses with a study of New World monkeys, a radiation of primates in which enlarged brain size has evolved in parallel in spider monkeys (genus Ateles) and capuchins (genus Cebus). The primate community of Costa Rica is perhaps a model system because it allows for independent pairwise comparisons of smaller- and larger-brained species within two taxonomic families. Accordingly, we analyzed the complete sequence of exon 18 of ASPM in Ateles geoffroyi, Alouatta palliata, Cebus capucinus, and Saimiri oerstedii. As the analysis of multiple species in a genus improves phylogenetic reconstruction, we also analyzed eleven published sequences from other New World monkeys. Our exon-wide, lineage-specific analysis of eleven genera and the ratio of rates of nonsynonymous to synonymous substitutions (d(N)/d(S)) on ASPM revealed no detectable evidence for positive selection in the lineages leading to Ateles or Cebus, as indicated by d(N)/d(S) ratios of 1.0 (0.6502 and 0.4268, respectively). Our results suggest that a multitude of interacting genes have driven the evolution of larger brains among primates, with different genes involved in this process in different encephalized lineages, or at least with evidence for positive selection not readily apparent for the same genes in all lineages. The primate community of Costa Rica may serve as a model system for future studies that aim to elucidate the molecular mechanisms underlying cognitive capacity and cortical size.
Localización: Biblioteca OET: NBINA-15744.

Publicación no.: 0747 **Predicting natal dispersal and male white-faced capuchins (Cebus capucinus)** *[Predicción de dispersión natal y el macho de los monos carablanca (Cebus capucinus)]* / Jack, Katharine M; Sheller, Claire R; Fedigan, Linda M. (Tulane University. Department of Anthropology, 101 Dinwiddie Hall, 6823 St Charles Ave, New Orleans, LA 70118, US <E-mail: kjack@tulane.edu> <E-mail: claireshellers@gmail.com> <E-mail: fedigan@ucalgary.ca>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 50, p. 133. 2010.
(Abstract only). White-faced capuchin males disperse from their natal group at around 4.5 years of age, however, there is much variation in dispersal timing; our youngest confirmed disperser was 19 months and the oldest 11 years. Here we investigate possible factors influencing dispersal decisions in this species. Between 1988 and 2008, 60 males were born into 3 study groups in Área de Conservación Guanacaste, Costa Rica. As of January 2009, 20 were presumed dead (> 14 months), 11 were natal residents, and 29 were presumed dispersers. We used a forward logistic regression to predict the

probability of male natal dispersal for the 29 dispersed males and 6 resident natal males (excluding 5 males aged ≤11 months). Predictor variables were age, maternal rank, maternal presence, paternal presence, number of male siblings present, group size, number of adult males, and the occurrence of a takeover at the time of dispersal or during the life of a resident natal male. A test of the resultant model, which included the occurrence of a takeover, group size, number of adult males, and presence of the male's probable father in the group, versus a model with intercept only was statistically significant, x^2 (4, N=35)=28.251, p<.001. The model was able to correctly classify 96.6% of dispersed and 100% of resident natal males, for an overall success rate of 97.1%. The occurrence of a group takeover was the strongest predictor of male dispersal, adding to our growing evidence of the profound effect takeovers exert on the lives of white-faced capuchins.
Localización: No disponible.

Publicación no.: 0748 **Individual variation in the social interactions of wild juvenile capuchins: what is the role of temperament and an evolved behavioral plasticity?** *[Variación individual en las interacciones sociales de los monos juveniles carablanca silvestres: ¿cuál es el papel del temperamento y el desarrollo de plasticidad de comportamiento?]* / Mackinnon, Katherine C. (Saint Louis University. Department of Sociology and Criminal Justice and Center for International Studies, St Louis, MO 63103, US <E-mail: mackinn@slu.edu>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 50, p. 159-160. 2010.
(Abstract only). Behavioral plasticity during a prolonged period of growth and development is a hallmark of the Order Primates. Throughout the juvenile stage young primates employ a range of behavioral responses to social situations. Here I will present data on juveniles (n=18) from two species of capuchins (Cebus capucinus in Costa Rica, C. apella in Suriname) living in three wild habituated groups. Preferential social partners, sex differences, and the range of responses in social interactions will be highlighted. While there are common patterns of social behavior repertoires and developmental parameters found among most capuchins, there exists a surprising range of variation in juvenile behaviors within and across the two species. For example, in one group there were significant individual differences for rates of approach by small juveniles toward adult males (K-W=10.26, p=0.0165); among small and large juveniles in two social groups (n=13), rates per hour of approach to the alpha males varied from .10 to 1.44 (mean = .67). The genus Cebus displays an extended period of socially-mediated learning. Evidence suggests they may need a longer period of development compared to many primate species, for brain growth and cognitive functioning associated with learning their foraging and social behavior repertoires. In light of this, I will discuss the possible role of variable individual temperaments and behavioral plasticity as evolved mechanisms that benefit young capuchins as they traverse the lengthy developmental landscape.
Localización: No disponible.

Publicación no.: 0749 **Diet, ranging, and activity budget of white-faced capuchins (Cebus capucinus) in an anthropogenic habitat** *[Dieta, distribución y presupuesto de actividad de los monos carablanca (Cebus capucinus) en un hábitat antropogénico]* / McKinney, Tracie. (The Ohio State University. Department of Anthropology, Columbus, OH 43210, US).
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 50, p. 167-168. 2010.
(Abstract only). Non-human primates have long been sympatric with humans throughout their range. Many primate populations are diminished or locally exterminated by anthropogenic disturbance, while

some respond well to habitat modification. To better understand the effects of habitat disturbance, this study examined activity budgets, ranging, and diet in a troop of commensal white-faced capuchins. Data were collected over 24 months at the Refugio Nacional de Vida Silvestre Curú, a small wildlife refuge and farm in western Costa Rica. The study troop was in daily contact with tourists, was provisioned, and had access to plantations. A control group living on the same property but several kilometers from any human interference was used for comparison.The commensal troop was characterized by a highly frugivorous diet, with roughly 70% of feeding time devoted to fruits. The two troops differed in the prevalence of fruit (Kruskal-Wallis H=27.98, p=0.00) and leaves (H=10.18, p=0.001) in the diet, but did not differ in the rates of insect (H=0.63, p=0.426), flower (H=1.90, p=0.l68) or exudate (H=0.0l, p=0.933) consumption. Ranging was also dramatically altered by the commensal troop, which maintained a home range of 66.2 hectares, roughly twice the sizeof the control group's range. Activity budgets did not differ between the two groups (eat: H=1.25, p=0.263; social: H=0.25, p=0.62; travel H=0.0l, p=0.932; rest: H=1.85, p=0.174). These results suggest that white-faced capuchins survive in modified habitats primarily by exploiting alternative food resources, with little modification of activity patterns.
Localización: No disponible.

Publicación no.: 0750 **Habitual sleep tree use by white-faced capuchins (Cebus capucinus) and implications for seed dispersal** *[Utilización habitual de árboles por los monos carablanca (Cebus capucinus) e implicaciones para la dispersión de semillas]* / Valenta, Kim; Klemens, Jeffrey A; Fedigan, Linda M. (University of Calgary. Department of Anthropology, 2500 University Drive N.W., Calgary, AB, T2N 1N4, CA <E-mail: klvalent@ucalgary.ca> <E-mail: kleme024@umn.edu> <E-mail: linda.fedigan@ualberta.ca>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 50, p. 233. 2010.
(Abstract only). Measures of disperser effects on dispersed seed survival and seedling recruitment include elements of the distance, direction and density of seed deposition. The repeated use of a sleep tree by a disperser can result in a high localized density of seed rain, thereby providing an opportunity to measure the effects of high-density seed input on seed mortality and recruitment. We examined density effects by measuring seedling communities beneath trees that are habitually used as sleep trees by two groups of white-faced capuchin monkeys (Cebus capucinus). Seedling communities beneath sleep trees were compared with those beneath two paired control trees in Santa Rosa National Park, Costa Rica. Seedling communities sampled were divided into non-capuchin dispersed taxa (N=311), taxa consumed by capuchins but whose seeds were destroyed by capuchin processing (N=11), taxa consumed by capuchins but seed survival was unknown (N=77), taxa dispersed intact by capuchins (N=391). Paired t-tests were performed to compare species richness, Shannon diversity, and seedling density in each of the four dispersal categories. Capuchin usage of sites did have not a strong effect on the seedling community, with only wind-dispersed taxa showing an increased density between monkey sleep trees vs. controls. Lack of a significant increase in seedling recruitment of capuchin-dispersed taxa beneath sleep trees provides support for the hypothesis of density-dependent seed mortality.
Localización: No disponible.

Publicación no.: 0751 **A first look at jaw-muscle activity in free-ranging primates: the ecological physiology of feeding in howling monkeys (Alouatta palliata) at La Pacífica, Costa Rica** *[Un primer vistazo a la actividad de los músculos de la mandíbula de primates en libertad: la fisiología ecológica de la alimentación en los monos congo (Alouatta palliata) en La Pacífica, Costa Rica]* / Vinyard, Christopher

J; Glander, Kenneth E; Teaford, Mark F; Rose, C.L; Williams, Susan H. (Northeast Ohio Medical University. Department of Anatomy and Neurobiology, Rootstown, OH 44272, US <E-mail: cvinyard@neomed.edu>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 50, p. 236. 2010.
(Abstract only). Historically, laboratory-based in vivo studies of masticatory function and field studies of primate feeding ecology have been conducted independently of one another. This lack of integration forces primatologists to make significant assumptions when combining these lines of evidence in adaptive hypotheses explaining primate craniodental form and feeding behaviors. For example, laboratory-based studies of primate mastication must assume that experimental foods elicit feeding behaviors typical of tree-ranging primates. Likewise, when applying field data to questions about the evolution of primate feeding, we must assume that physiological processes related to mastication are correlated with observed feeding behaviors. As a first attempt to link laboratory- and field-based research, we recorded jaw-muscle activity during feeding in free-ranging mantled howling monkeys (Alouatta palliata) at La Pacífica, Costa Rica. To date, we have recorded superficial and deep masseter activity patterns during feeding from S individuals using a telemetered electromyography (EMG) system. Although we lack laboratory EMG data from howlers, we see qualitative similarities in EMG patterns between tree-ranging howlers and captive platyrrhines. Qualitative similarity supports the routine assumption that feeding mechanics are broadly similar in the laboratory and wild. More subtle differences will help laboratory-based researchers improve the naturalistic relevance of their work. Simultaneous observations of feeding behaviors and jaw-muscle activity allow us to quantity how much time monkeys spend strictly foraging versus chewing when feeding. The marked differences we observed between times spent foraging and jaw-muscle duty factors merit a careful consideration of how foraging data are applied to studies of primate masticatory apparatus evolution.
Localización: No disponible.

Publicación no.: 0752 **The effects of the white-faced capuchin monkey (Cebus capucinus) on seed dispersal within a neotropical forest** *[Los efectos del mono carablanca (Cebus capucinus) en la dispersión de semillas dentro de un bosque neotropical]* / Reimer, J; Bezanson, Michelle F; Watts, Sean M. (Santa Clara University. Department of Anthropology, 500 El Camino Real, Santa Clara, CA 95053-1500, US <E-mail: mbezanson@scu.edu>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 48, p. 219-220. 2009.
(Abstract only). Primate frugivores often are described as playing a fundamental role in maintaining tropical forest diversity as effective seed dispersers. This study assessed the impact of white-faced capuchins (Cebus capucinus) on seed dispersal and germination success in a neotropical rainforest in Costa Rica. Experimental and observational data were collected at La Suerte Biological Field Station, Costa Rica in 2007 and 2008 by measuring, activity, diet, number of intact seeds digested, and dispersal distance from the parent tree. A total of 39 fecal samples were collected, with seeds present in 82% (n=32). Within these fecal samples, there was an average of 36.5 seeds/sample, with an average length of 0.67cm and average girth of 0.40cm (n=75 seeds measured). Eight different types of seeds were found in the feces, with four positively identified as Ficus sp. (n=367), Cecropia insignis (n=360), Psidium guajava (n=29), and Castilla elastica (n=34). We conducted a germination experi- ment to compare ingested seeds (treatment) and non-ingested seeds taken directly from the fruit (control). Finally, distance from the parent tree was measured for P. guajava and C. elastica. Feces containing P. guajava seeds were up to 148 meters and an average of 74.06 meters from the parent tree; those containing C.

elastica seeds were up to 90 meters and an average of 27.35 meters away. We conclude that C. capucinus are dispersing seeds away from parent trees, but results are inconclusive as to whether gut passage increases germination success and/or seedling survival. Given that passive dispersal of seeds away from these tree species is on average 50.7l m, omnivorous primates like C. capucinus positively influence seedling survival and neotropical forest diversity.
Localización: No disponible.

Publicación no.: 0753 **Are capuchins good models for the "grandmother" hypothesis?: What socio-spatial behavior of females with dependent infants can tell us?** *[¿Son los monos carablanca buenos modelos para la hipótesis de la "abuela": ¿Qué puede decirnos el comportamiento socio-espacial de las hembras con hijos a cargo?]* / Stinespring-Harris, A.E; Bernstein, R.M. (The George Washington University. Department of Anthropology, Washington, DC 20052, US).
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 48, p. 248. 2009.
(Abstract only). The "grandmother" hypothesis (GMH) has been advanced to explain the evolutionary origins of post-reproductive longevity in women and suggests that provisioning aid from maternal grandmothers increased reproductive fitness. The GMH also accounts for three additional life history traits: potential longevity, slow rate of development, and early weaning. Nonhuman primate species that share these life history traits and exhibit female philopatry provide promising models for testing the GMH. This study examines white-faced capuchins (Cebus capucinus) as one potential model taxon. Specifically, by examining the socio-spatial behavior of female capuchins, this research evaluates whether the social environment provides favorable conditions for the development of grandmothering behavior. A total of 29.5 hours of focal data were collected at the La Suerte Biological Field Station, Costa Rica; proximity and activity data were recorded in one-minute intervals. Two research questions were addressed: 1) do females with dependent infants (FI) spend a significant amount of time near other females? and 2) do these patterns differ for females without dependent infants (FNI)? The data collected indicate that FI spend a substantial amount of time near other females; however, this pattern was not shared by FNI and suggests that the presence of an infant was a driving force behind this difference. Differences were particularly pronounced during feeding, supporting expectations regarding the relationship of proximity to provisioning. Overall, the use of capuchins as models for grandmothering studies is supported, and suggestions for further research are provided.
Localización: No disponible.

Publicación no.: 0754 **Genetic diversity of neotropical primates: phylogeny, population genetics, and animal models for infectious diseases** *[Diversidad genética de primates neotropicales: filogenia, genética poblacional y modelos animales para enfermedades infecciosas]* / Moreira, M.A.M; Bonvicino, C.R; Soares, M.A; Seuánez, H.N. (Instituto Nacional de Câncer. Instituto Oswaldo Cruz, Division of Genetics, Rua André Cavalcanti 37, 4th floor, Rio de Janeiro, RJ 20231-050, BR).
En: Cytogenetic and Genome Research (ISSN 1424-859X (online)), v. 128, no. 1/3, p. 88-98. 2010.
The classification of neotropical primates has been controversial, and different arrangements have been proposed based on disparate taxonomic criteria and on the traits selected for elucidating phylogenetic reconstructions, like morphologic characters, nuclear DNA and mitochondrial DNA. Population studies of some neotropical primates have been useful for assessing their extant genetic variability and for understanding their social structure and dynamics. Finally, neotropical primates have become valuable models for some human infectious diseases, especially for HIV studies related to viral resistance. In this

review, we comment on these aspects that make neotropical primates a group of highly valuable species for basic and applied research.
Localización: Biblioteca OET: NBINA-15999.

Publicación no.: 0755 **Evolutionary genetics in wild primates: combining genetic approaches with field studies of natural populations** *[Genética evolutiva en primates silvestres: combinando enfoques genéticos con estudios de campo de poblaciones naturales]* / Tung, Jenny; Alberts, Susan C; Wray, Gregory A. (Duke University. Department of Biology, P.O. Box 90338, Durham NC 27708, US <E-mail: jtung@uchicago.edu>).
En: Trends in Genetics (ISSN 0168-9525 (online)), v. 26, no. 8, p. 353-362. 2010.
Ecological and evolutionary studies of wild primates hold important keys to understanding both the shared characteristics of primate biology and the genetic and phenotypic differences that make specific lineages, including our own, unique. Although complementary genetic research on nonhuman primates has long been of interest, recent technological and methodological advances now enable functional and population genetic studies in an unprecedented manner. In the past several years, novel genetic data sets have revealed new information about the demographic history of primate populations and the genetics of adaptively important traits. In combination with the rich history of behavioral, ecological, and physiological work on natural primate populationsgenetic approaches promise to provide a compelling picture of primate evolution in the past and in the present day.
Localización: Biblioteca OET: NBINA-15997.

Publicación no.: 0756 **Community ecology of the Middle Miocene primates of La Venta, Colombia: the relationship between ecological diversity, divergence time, and phylogenetic richness** *[Comunidad de la ecología de los primates del Mioceno Medio de La Venta, Colombia: la relación entre la diversidad ecológica, tiempo de divergencia y riqueza filogenética]* / Wheeler, Brandon C. (Stony Brook University. Interdepartmental Doctoral Program in Anthropological Sciences, Stony Brook, NY 11794-4364, US <E-mail: bcwheeler43@gmail.com>).
En: Primates (ISSN 0032-8332 (online)), v. 51, no. 2, p. 131-138. 2010.
It has been suggested that the degree of ecological diversity that characterizes a primate community correlates positively with both its phylogenetic richness and the time since the members of that community diverged (Fleagle and Reed in Primate communities. Cambridge University Press, New York, pp 92-115, 1999). It is therefore questionable whether or not a community with a relatively recent divergence time but high phylogenetic richness would be as ecologically variable as a community with similarphylogenetic richness but a more distant divergence time. To address this question, the ecological diversity of a fossil primate community from La Venta, Colombia, a Middle Miocene platyrrhine community with phylogenetic diversity comparable with extant platyrrhine communities but a relatively short time since divergence, was compared with that of modern Neotropical primate communities. Shearing quotients and molar lengths, which together are reliable indicators of diet, for both fossil and extant species were plotted against each other to describe the dietary "ecospace" occupied by each community. Community diversity was calculated as the area of the minimum convex polygon encompassing all community members. The diversity of the fossil community was then compared with that of extant communities to test whether the fossil community was less diverse than extant communities while taking phylogenetic richness into account. Results indicate that the La Venta community was not significantly less ecologically diverse than modern communities; supporting the idea

that ecological diversification occurred along with phylogenetic diversification early in platyrrhine evolution.
Localización: Biblioteca OET: NBINA-15998.

Publicación no.: 0757 **Fig foraging by dichromatic and trichromatic Cebus capucinus in a tropical dry forest** *[Forrajeo de higos por Cebus capucinus con visión dicromática y tricromática en un bosque seco tropical]* / Melin, Amanda D; Fedigan, Linda M; Hiramatsu, Chihiro; Hiwatashi, Tomohide; Parr, Nigel; Kawamura, Shoji. (University of Calgary. Department of Anthropology, 2500 University Dr NW, Calgary, AB T2N 1N4, CA <E-mail: amelin@ucalgary.ca>).
En: International Journal of Primatology (ISSN 0164-0291), v. 30, no. 6, p. 753-775. 2009.
Figs are important resources tor frugivores, and Ficus is an ideal taxon tor evaluating patterns of primate foraging related to food color. Ficus spp. can be classified as conspicuous (color change from greenish to reddish during ripening) or cryptic (green throughout ripening). To investigate the effect on foraging of color vision phenotype variation for these 2 types of figs, we conducted a 20-mo study on 4 groups of white-faced capuchins (Cebus capucinus) in the Santa Rosa Sector of the ACG, Costa Rica between May 2004 and September 2008. We genotyped all individuals and collected behavioral data on feeding rates, acceptance indices, and foraging sequences. We found a significant effect of fig type; feeding rates and acceptance indices were higherfor conspicuous figs than for cryptic figs, and subjects sniffed cryptic figs more often than conspicuous figs. We also found that dichromats sniffed more figs and had longer foraging sequences than trichromats, especially for cryptic figs. Among 6 subtypes of dichromats and trichromats, monkeys possessing the trichromat phenotype with the most spectrally separated L-M opsin alleles showed the highest acceptance index for conspicuous figs, though there were no differences in feeding rates among phenotypes. We conclude: 1) conspicuous figs are visually salient not only for trichromats but also for dichromats, 2) olfaction is important for evaluating edibility of cryptic figs, and 3) the reliance on olfaction for selecting fh1it is greater in dichromats.These results indicate divergent foraging strategies among color vision phenotypes for assessing food items.
Localización: Biblioteca OET: NBINA-16000.

Publicación no.: 0758 **The ethnoprimatology of Limón, Costa Rica: a survey in conservation** *[La etnoprimatología de Limón, Costa Rica: una encuesta en conservación]* / Díaz, Ileana I. (Northern Illinois University. Department of Anthropology, Stevens Building, Dekalb, IL, US <E-mail: z1624092@students.niu.edu>).
En: American Journal of Physical Anthropology (ISSN 0002-9483), Suppl. 50, p.94-95. 2010.
(Abstract only). Species diversity is currently being threatened by the occurrence of multiple pressures including loss of forest habitat and human predation for food and commercial gain. In the province of Limón, Costa Rica forest clearing for banana and pineapple plantations destroys the forest and impacts species diversity. In July and August, 2009, 120 adults in three villages: Cariari, Primavera, and Portica were surveyed about primate conservation knowledge, attitudes, beliefs and behaviors. This study used an interview schedule to explore three major questions I. Is there a consensus on attitudes and beliefs among villagers regarding primates and forest conservation? 2. Do these perceptions of nonhuman primates vary in relationship to respondent age, sex, education, profession and village? 3. To what extent does knowledge about primates vary in relationship to respondent age, sex, education, profession and village? Results indicate villagers

share conservation views: 115/120 agreed primate conservation is 'very important'. Positive attitudes toward primates were statistically significantly ($p \leq .05$) correlated with male sex, younger age (under 35 years), increasing education (primary school 81% or higher 88%) and occupation (farmers 82% and vendors 94%). Knowledge was influenced by profession ($x^2=15.7$, $p \leq =0.047$). Farmers were more knowledgeable and more concerned with conservation issues compared to other villagers. The results of this study suggest education is necessary to further conservation efforts especially regarding changing agricultural patterns.

Localización: No disponible.