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Iquitos Region, Peru

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THE REPTILES OF THE UPPER AMAZON BASIN,  
IQUITOS REGION, PERU

I. LIZARDS AND AMPHISBAENIANS

By James R. Dixon and Pekka Soini

ABSTRACT

A general description of the major plant communities and their associated topographies is presented for the Iquitos region, Peru. Individual accounts of 40 species of lizards and amphisbaenians is included, containing information on their reproduction, habitat preferences, and behavior and taxonomy where pertinent. A general summary of species diversity and reproduction of lizards and amphisbaenians for the Iquitos region precedes the species accounts. The species accounts are followed by a section concerning species of questionable occurrence in the Iquitos region. Information regarding the latter species is discussed in detail.

A list (Table 1) is presented, containing 142 forms of reptiles occurring in the Iquitos region, including new records for the country and/or the region. The latter consists of the lizards *Gonatodes concinnatus*, *Lepidoblepharis festae*, *Pseudogonatodes guinanensis*, *Enyalioides cofanorum*, *Ophryoessoides aculeatus*, *Arthrosaura reticulata*, *Cercosaura ocellata*, *Ptychoglossus brevifrontalis*; the snakes *Typhlops* sp., *Anilius scytale*, *Atractus* sp., *Atractus resplendens*, *Chironius carinatus*, *Chironius multiventris*, *Chironius scurrulus*, *Clelia bicolor*, *Dendrophidion dendrophis*, *Drymarchon corais*, *Drymobius rhombifer*, *Helicops leopardinus*, *Helicops pastazae*, *Leimadophis* sp., *Leimadophis poecilogyrus*, *Liophis breviceps*, *Liophis cobella*, *Oxybelis aeneus*, *Oxybelis argenteus*, *Oxybelis fulgidus*, *Oxyrhopus melanogenys*, *Oxyrhopus trigeminus*, *Philodryas viridissimus*, *Pseudoboa coronata*, *Pseudoeuryx plicatilis*, *Pseustes poecilonotus*, *Pseustes sulphurus*, *Rhadinaea occipitalis*, *Tantilla melanocephala*, *Thamnodynastes pallidus*, *Tripanurgos compressus*, *Xenodon severus*, *Bothrops brasili*, *Bothrops castelnaudi*, *Bothrops hyoprurus*, *Lachesis muta*, *Micrurus filiformis*; the crocodilian *Paleosuchus palpebrosus*; the turtles *Kinosternon scorpioides*, *Platemys platycephala* and *Phrynops gibbus*.

## INTRODUCTION

The Amazonian rain forests in the vicinity of Iquitos, Peru, are rapidly being altered by logging, farming and industrial activities. The clearing of forests has allowed the expansion of certain saurian taxa that are well adapted to human environs such as *Ameiva ameiva*, *Kentropyx calcaratus*, *Alopoglossus carinicaudatus*, *Mabuya mabouya*, *Anolis ortonii*, *Anolis fuscoauratus*, *Hemidactylus mabouya*, and *Gonatodes humeralis*. The same activities may be extremely limiting to closed canopy, forest dwellers, such as *Gonatodes concinnatus*, *Pseudogonatodes guianensis*, *Lepidoblepharis festae*, *Anolis transversalis*, and *Alopoglossus atriventris*. It seems safe to assume that normal settlement activities (slash and burn) for annual production of pineapple, yuca, plantain, papaya, and cocona are not extremely damaging to the forest as more extensive commercial activities for rubber, cotton, rice, and other similar products. Slash and burn activities are short-lived. The fields are usually abandoned by the third year of use and allowed to return to forest. A closed canopy forest will re-establish itself in about 15 or 20 years. However, larger commercial activities are maintained by constant clearing, fertilizing and application of herbicides. These areas may never return to forest, or at least to their original condition.

In an effort to document the herpetofauna in an area of rapid human growth and soil disturbance within the Amazon Basin, we have attempted to survey the herpetofauna over the past seven years for reproductive cycles and general activity. Collections and observations were made in several localities (Fig. 1), including farmland, young and old secondary forest growths, and (closed canopy) primary forest.

The topography within a 100 km radius of Iquitos consists principally of swamps, flats and steep to gently rolling hills seldom more than 50 m in height. Except for man-made clearings, open savanna is nonexistent in the Iquitos region. The hills lie between the river systems, such as between the Rio Mazan and Rio Nanay, Rio Amazonas and Rio Yavari, and Rio Nanay and Rio Tigre. Sandy ridges and a few rolling sand hills are within an hour's walk of the village of Moropon, one of our principal collecting localities. These areas are well drained with many springs and small streams associated with the forest floor. In some areas (north of Centro Union) there are large expanses of swamps and flat terrain that become exceedingly wet in the height of the rainy season (10 months of the year). Within a 45-minute walk of the village of Mishana (another major collecting site), there are four major topographic and vegetative microhabitats. Once into the closed

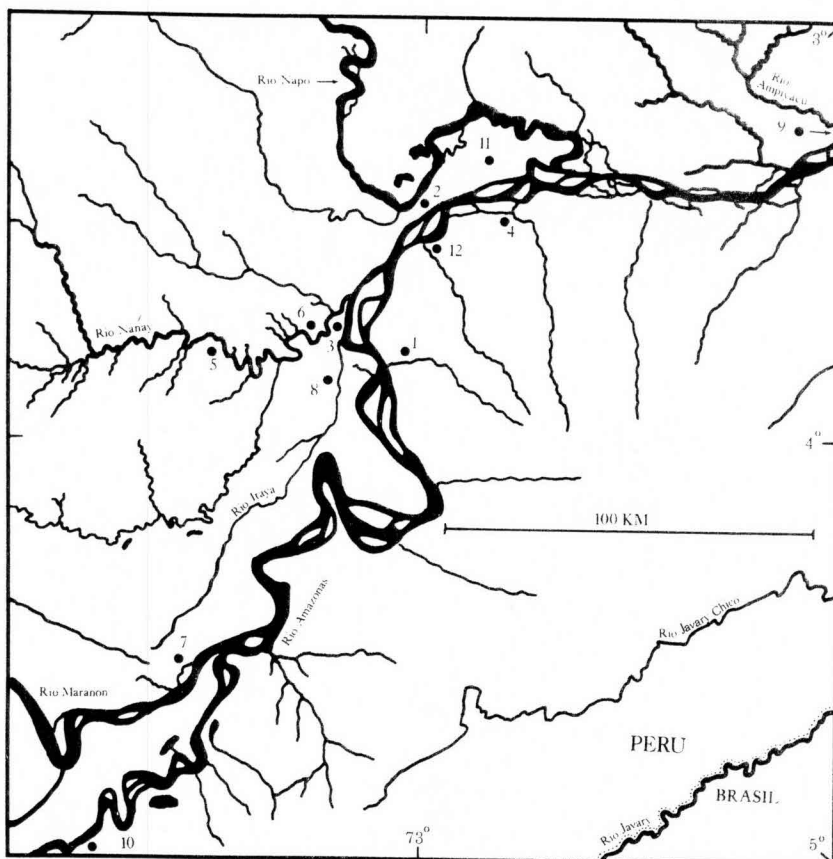


FIGURE 1. An approximate two degree map of the Iquitos region, Peru. Major rivers are indicated and numbers refer to towns or villages utilized as collecting sites. (1) Centro Union, (2) Indiana, (3) Iquitos, (4) Maniti, (5) Mishana, (6) Moropon, (7) Nauta, (8) Paraiso, (9) Pebas, (10) Requena, (11) Yanamono, (12) Yanayacu. Another collecting locality, Santa Maria ( $1^{\circ}23'S$ ,  $74^{\circ}39'W$ ) lies outside of our illustrated area.

canopy forest, one must cross a series of densely wooded swamps separated by small sand ridges. The small sand ridges between the swamps are generally composed of two types of vegetation. The slopes are densely wooded, with 10 to 15 cm of leaf litter on the forest floor. The crests of the sand ridges are frequently covered with a uniform stand of relatively few tree species that produce little leaf litter. The last habitat includes a semiswamp condition well above the water table that consists of depressions in the tops of hills. The trees within the depressions are small (less than 10 cm in

dbh and 15 m in height), but are dense enough to obscure vision within 10 m. The depression floor is spongy and densely covered with bromeliads, mosses and ferns.

In any faunal study, a survey of the literature for records of species occurring in the study area must be completed. The present paper, dealing only with the saurian fauna, is the first of a series, and we take this opportunity to present a list (Table 1) of the known species of reptiles found in the Iquitos area.

## MATERIALS AND METHODS

The majority of saurian material examined by us was taken by us and by local hunters associated with small villages along the Rio Amazonas, Rio Aucayo, Rio Itaya, Rio Maniti, Rio Momon, Rio Nanay, and the Rio Santa Maria. One of us (Soini) made semi-monthly speedboat trips to various collecting sites to obtain material and make general observations of the flora and herpetofauna. Whenever possible, color notes of living animals and actual place of capture within the habitat was recorded. All detailed notes on habitat and occurrence of specific forms have been documented by observation by either one or both of us. All seasonal activity was observed by Soini over a seven-year period.

All recorded specimens were preserved in the field by the hunters or by us. Species determinations were made through comparisons with documented museum specimens, taxonomic keys, experts in various lizard groups, and literature descriptions.

TABLE 1. The following list of 142 forms of reptiles from the Iquitos region is based upon literature records and on specimens collected by Dixon and Soini. Those housed in the TCWC or Soini's personal collection are indicated by a period (.) or by an asterisk (\*). The asterisk represents a new country or regional record. Those species not represented in our collections are indicated by a plus (+).

AMPHISBAENIDAE	
. <i>Amphisbaena alba</i> Linnaeus	. <i>Amphisbaena fuliginosa bassleri</i> Vanzolini
GEKKONIDAE	
* <i>Gonatodes concinnatus</i> (O'Shaughnessy)	. <i>Lepidoblepharis festae festae</i> Peracca
. <i>Gonatodes humeralis</i> (Guichenot)	* <i>Pseudogonatodes guianensis</i> Parker
. <i>Hemidactylus mabouia</i> (Moreau de Jonnes)	. <i>Thecadactylus rapicaudus</i> (Houttuyn)
IGUANIDAE	
. <i>Anolis bombiceps</i> Cope	* <i>Enyalioides cofanorum</i> Duellman
. <i>Anolis chrysolepis scypheus</i> Cope	. <i>Iguana iguana</i> (Linnaeus)
. <i>Anolis fuscoauratus fuscoauratus</i> D'Orbigny	* <i>Ophryoessoides aculeatus</i> (O'Shaughnessy)
. <i>Anolis ortoni</i> Cope	. <i>Plica plica</i> (Linnaeus)
. <i>Anolis punctatus boulengeri</i> O'Shaughnessy	. <i>Plica umbra ochrocollaris</i> (Spix)

- . *Anolis trachyderma* Cope
- . *Anolis transversalis* Dumeril
- . *Enyalioides laticeps* (Guichenot)
- . *Polychrus marmoratus* (Linnaeus)
- . *Uracentron flaviceps* (Guichenot)
- + *Uracentron guentheri* (Boulenger)

#### TEIIDAE

- . *Alopoglossus atriventris* Duellman
- . *Alopoglossus carinicaudatus* (Cope)
- . *Ameiva ameiva petersi* Cope
- \* *Arthrosaura reticulata* (O'Shaughnessy)
- . *Bachia trisanale trisanale* (Cope)
- . *Bachia vermiforme* (Cope)
- \* *Cercosaura ocellata baessleri* Ruibal
- . *Dracaena guianensis* (Daudin)
- . *Iphisa elegans* (Gray)
- . *Kentropyx calcaratus* Spix
- . *Kentropyx pelviceps* Cope
- . *Leposoma parietale* (Cope)
- . *Neusticurus ecleopus* Cope
- . *Prionodactylus argulus* (Peters)
- \* *Ptychoglossus breuifrontalis* Boulenger
- + *Ptychoglossus picticeps* (Cope)
- . *Tupinambis teguixin* (Linnaeus)

#### SCINCIDAE

- . *Mabuya mabouya mabouya* (Lacepede)

#### TYPHLOPIDAE

- . *Typhlops reticulatus* (Linnaeus)
- \* *Typhlops* sp. — two species

#### ANILIDAE

- . *Anilius scytale* (Linnaeus)

#### BOIDAE

- . *Boa constrictor constrictor* Linnaeus
- . *Corallus caninus* (Linnaeus)
- . *Corallus enydris enydris* (Linnaeus)
- . *Epicrates cenchria gaigei* Stull
- . *Eunectes murinus murinus* (Linnaeus)

#### COLUBRIDAE

- . *Atractus* sp. — three species
- . *Atractus badius* (Boie)
- . *Atractus collaris* Peracca
- . *Atractus elaps* (Gunther)
- . *Atractus latifrons* (Gunther)
- . *Atractus major* Boulenger
- \* *Atractus resplendens* Werner
- \* *Chironius carinatus* (Linnaeus)
- . *Chironius fuscus* (Linnaeus)
- \* *Chironius multiventris* Schmidt & Walker
- \* *Chironius scurrulus* (Wagler)
- \* *Clelia bicolor* (Peracca)
- . *Clelia clelia clelia* (Daudin)
- \* *Dendrophidion dendrophis* (Schlegel)
- . *Dipsas catesbyi* (Santzen)
- . *Dipsas indica indica* Laurenti
- + *Dipsas pavonina* Schlegel
- . *Drepanoides anomalus* (Jan)
- \* *Drymarchon corais corais* (Boie)
- \* *Drymobius rhombifer* (Gunther)
- . *Drymoluber dichrous* (Peters)
- . *Erythrolamprus a. aesculapii* (Linnaeus)
- \* *Helicops* sp. — one species
- . *Helicops angulatus* (Linnaeus)
- \* *Helicops leopardinus* (Schlegel)
- \* *Helicops pastazae* Shreve
- . *Helicops polylepis* Gunther
- . *Hydrops martii callostictus* Gunther
- . *Hydrops triangularis bassleri* Roze
- . *Imantodes cenchoa cenchoa* (Linnaeus)
- . *Imantodes lentiferus* (Cope)
- \* *Leimadophis* sp. — one species
- + *Leimadophis almadensis* (Wagler)
- \* *Leimadophis poecilogyrus amazonicus* Amaral
- . *Leimadophis pygmaeus* (Cope)
- . *Leimadophis reginae* (Linnaeus)
- . *Leimadophis typhlus typhlus* (Linnaeus)
- . *Leptodeira annulata annulata* (Linnaeus)
- . *Leptophis ahaetulla nigromarginatus* (Gunther)
- . *Leptophis cupreus* (Cope)
- \* *Liophis breviceps* Cope
- \* *Liophis cobella* (Linnaeus)
- . *Liophis purpurans* (Dumeril, et al.)
- . *Liophis undulatus* (Wied)
- \* *Oxybelis aeneus* (Wagler)
- . *Oxybelis argenteus* (Daudin)
- \* *Oxybelis fulgidus* (Daudin)
- . *Oxyrhopus melanogenys* (Tschudi)
- . *Oxyrhopus petola digitalis* (Reuss)
- \* *Oxyrhopus trigeminus* Dumeril, et. al.
- \* *Philodryas viridissimus* (Linnaeus)
- \* *Pseudoboa coronata* Schneider
- \* *Pseudoeryx plicatilis ecuadorensis* Mertens
- \* *Pseudoeryx p. plicatilis* (Linnaeus)
- \* *Pseustes poecilonotus polylepis* (Peters)
- \* *Pseustes s. sulphureus* (Wagler)
- . *Rhadinaea brevirostris* (Peters)
- \* *Rhadinaea occipitalis* (Jan)
- + *Rhinobothryum lentiginosum* (Scopoli)
- . *Siphlophis cervinus* (Laurenti)
- . *Spilotes p. pullatus* (Linnaeus)
- \* *Tantilla m. melanocephala* (Linnaeus)
- \* *Thamnodynastes pallidus* Linnaeus
- \* *Tripanurgos compressus* (Daudin)
- . *Xenodon r. rabdocephalus* (Wied)
- \* *Xenodon severus* (Linnaeus)
- . *Xenopholis scalaris* (Wucherer)

#### VIPERIDAE

- . *Bothrops atrox* (Linnaeus)
- . *Bothrops bilineatus smaragdinus* Hoge
- \* *Bothrops brasili* Hoge
- \* *Bothrops castelnaudi* Dumeril, et al.
- \* *Bothrops hyoprurus* Amaral
- \* *Lachesis m. muta* (Linnaeus)

#### ELAPIDAE

- . *Micrurus narducci* (Jan)
- . *Micrurus hemprichii ortonii* Schmidt
- . *Micrurus l. langsdorffi* Wagler
- . *Micrurus lemniscatus helleri* Schmidt & Schmidt
- \* *Micrurus filiformis* (Günther)
- . *Micrurus putumayensis* Lancini
- . *Micrurus s. surinamensis* (Cuvier)
- . *Micrurus spixii obscurus* (Jan)

#### CROCODYLIDAE

- . *Caiman c. crocodilus* (Linnaeus)
- . *Melanosuchus niger* (Spix)
- \* *Paleosuchus palpebrosus* (Cuvier)
- . *Paleosuchus trigonatus* (Schneider)

#### TESTUDINIDAE

- . *Geochelone denticulata* (Linnaeus)

#### KINOSTERNIDAE

- \* *Kinosternon s. scorpioides* (Linnaeus)

#### CHELIDAE

- . *Chelus fimbriatus* (Schneider)
- \* *Platemys platycephala* (Schneider)
- \* *Phrynops gibbus* (Schweigger)
- . *Phrynops nasutus* (Schweigger)

#### PELOMEDUSIDAE

- . *Podocnemis expansa* (Schweigger)
- . *Podocnemis sextuberculata* Cornalia
- . *Podocnemis unifilis* Troschel

A total of 1,089 specimens representing 40 species was utilized in this study. All of this material is deposited in the Texas Cooperative Wildlife Collection, Texas A & M University. Additional comparative material was borrowed from the Los Angeles County Museum of Natural History (LACM), American Museum of Natural History (AMNH), California Academy of Sciences (CAS), Museum of Comparative Zoology, Harvard (MCZ), Museum of Vertebrate Zoology, Berkeley (MVZ), and the United States National Museum (USNM). In some cases, certain species were extremely difficult to obtain (e.g. forest canopy forms) and are represented by only a few specimens. In other instances, some species were rare without documented reasons. We have, however, attempted to give possible explanations for their rarity in the text.

Standard methods of measuring length and width of oviducal eggs, recently laid eggs and testes were utilized. Snout-vent lengths (SVL) were measured from the tip of the snout to the posterior edge of the vent and tail lengths from the posterior edge of the vent to the tip of the tail.

#### HABITAT

It is important to understand that the portion of the Amazon Basin under study has two weather seasons. These seasons, wet and dry, greatly influence the distribution of the flora and fauna. Though the dry season is relatively short, the fact that the rains diminish near the headwaters of the major rivers for a short period



affects the flow of the Amazon and its tributaries considerably (Fig. 2). The average rainfall for Iquitos is about 3,050 mm/year (30 year average), but the peak rainfall period extends from December through May (up to 500 mm/month), with the least occurring in July and August (155 mm/month).

The highest recorded daily mean temperature during the past three years was 33.2 C (October) and the lowest, 19.7 C (July). However, there is seldom more than a 10 C range between the highest and lowest temperature extremes for any one month. The average humidity is in the mid-eighties, seldom dropping below 60%. (Estacion Meteorologica de Zungarococha, unpublished data).

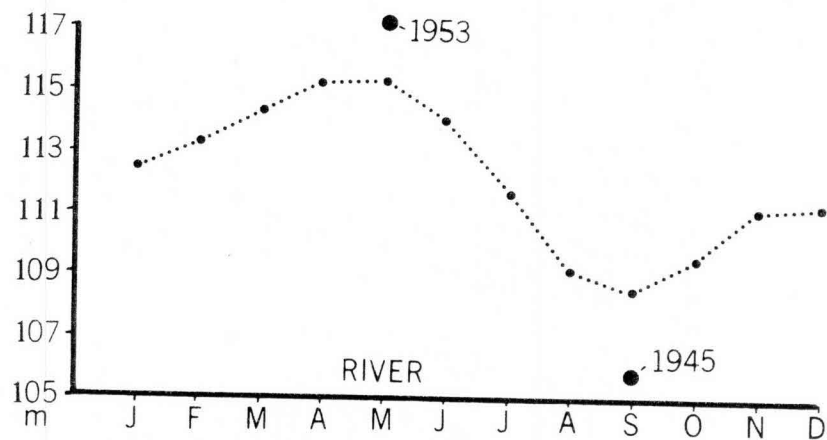
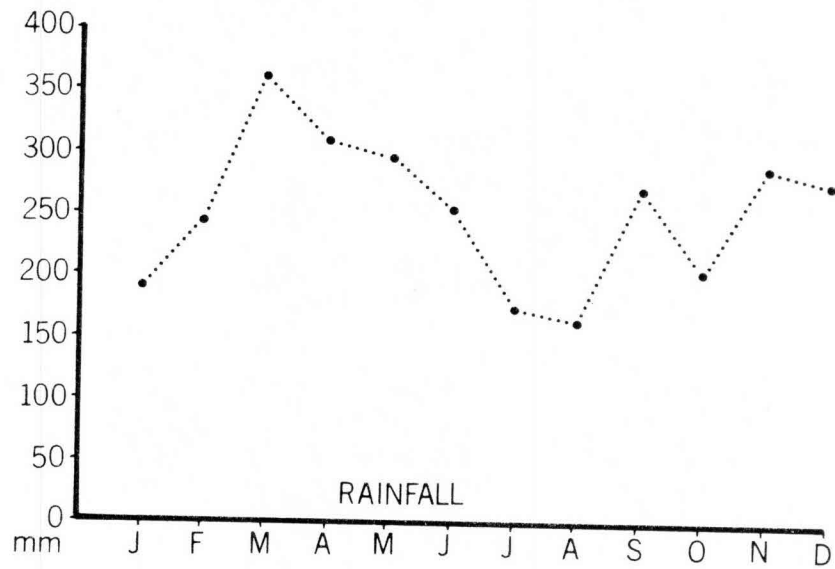


FIGURE 2. Upper figure represents rainfall data for Iquitos, Peru, for the 1970-72 period. Each dot represents three year average for that month. Lower figure represents mean water level of the Amazon River at Iquitos, Peru, for a thirty year period (1933-62); figures are for sea level approximation. The two large dots with respective dates represent the extreme water levels during the period.

**Seasonally Flooded Lowlands** — The seasonally flooded lowlands (Bajiales) consist of areas that are under water up to ten months of the year. The vegetation is rather homogeneous, with only a few dominant species of plants. One major plant community is present, shrub thickets with scattered larger trees protruding above the thickets. Epiphytes and climbing plants are scarce. The soil is clay or clay-loam. This formation is found primarily along the edge of rivers and oxbow lakes (cochas). Characteristic plants of this community are *Myrciaria paraensis*, *Psidium* sp., *Inga* sp., *Triplaris* sp., *Piptadenia* sp., *Ficus* sp., *Cecropia* spp., *Astrocaryum jauari* and *Bactris* sp.

Slightly higher ground (Tahuampa) surrounding the rivers and oxbow lakes is usually flooded for three months or more of the year. This seasonally flooded terrain supports a heterogeneous, multicanopied forest, frequently with a completely closed canopy. The soil is silty clay covered with a thin layer of litter. In closed canopy situations ground plants are essentially absent, with the exception of saplings of the larger trees. Epiphytes and lianas are common. Besides some of the tree and shrub species associated with the lower flooded areas, such species as *Campsiandra laurifolia*, *Hevea brasiliensis*, *Capirona decorticans*, *Spondias moin*, *Iriartea exorrhiza*, *Euterpe edulis*, *Mauritia flexuosa*, *Scheelea* sp., *Sapium* sp., *Bombax* sp., *Ceiba* sp., and *Erythrina* sp. comprise the major plants of the Tahuampas.

The islands of the Rio Amazonas should be included in the seasonally flooded lowlands habitat. They often become entirely or partly flooded during the peak flood season and occasionally disappear when the river changes its course. The vegetation of the younger islands consists of almost pure stands of *Cecropia* sp. and reeds.

**Non-Flooded (Closed Canopy) Forests** — The primary rain forest of the Iquitos region is generally multicanopied and closed. Very little sunlight reaches the forest floor and the composition of the woods is generally in the hundreds of plant species. The topography of the land underlying the primary forest tends to group the plant communities into loosely connected units of specific types of vegetation. These communities are dependent on soil type, slope, and exposure to the water table. The general soil and slope conditions range from flat, extensive areas of mud or yellow clay with poor drainage to well drained sandy hills with a 10 to 50 degree slope.

The flatlands and lower slopes of hills and ridges are usually covered with dense leaf litter. Besides saplings of the larger trees,

small dwarf palms, ferns, several species of *Sterlizia*, *Heliconia*, *Calathea*, *Philodendron*, and other aroids cover the forest floor. In addition, the stemless palms of the genera *Orbygnya*, *Phytelephas*, and *Scheelea*, and the slender stem dwarf palms of the genera *Bactris*, *Geonoma*, *Hyospathe* and *Lepidocaryum* are common and conspicuous. Frequently, these palms form single species stands or two to three species stands (locally called Shapajales, Irapayales, Yarinales, etc.) on poorly drained flatlands.

The absence of branches on tree trunks below the canopy layer is a common characteristic of the tree species of the primary rain forest. Cauliflory seems to be common and buttress and stilt roots are other common features. Orchids, bromeliads and aroids are common on the trunks and particularly on the branches of the trees. Trees belonging to the families Leguminosae, Euphorbiaceae, Sapotaceae, Lecythidaceae, Rubiaceae, Moraceae, Lauraceae, Esterculiaceae, Flacourtiaceae, Burseraceae and Apocinaceae are common. The common genera of palms are *Orbignya*, *Phytelephas*, *Bactris*, *Euterpe*, *Astrocaryum*, *Schleelea*, *Jessenia*, *Geonoma*, *Hyospathe*, *Lepidocaryum*, *Maximiliana* and *Desmoncus*.

The summits of hills and ridges are usually characterized by having a few, scattered large trees and many small, slender trees that may be sparsely set or in dense stands. Epiphytes are frequently abundant and conspicuous, growing at low levels (one to three m) on the stems and trunks of the smaller trees. Bromeliads are frequently found growing on the ground and occasionally forming a dense ground cover. Broad leaf herbaceous plants, such as *Calathea* and *Philodendron*, are absent. Ground palms and larger palm trees are conspicuously absent. This type of plant community is often associated with flattened hilltops that contain large depressions in which the "chontilla" palm (*Euterpe* sp.) may abound. The soil at the summit of rounded hills is almost pure whitish sand covered with a thin layer of dry litter. The canopy of this plant community is of the filter-type, with frequent spots of sunlight reaching the forest floor. Generally there are only two to three canopy layers present.

Swampy depressions (Aguajales) in the forest floor or between hills and ridges become flooded following every rain. These areas always contain some water, but may form large connecting swamps during the height of the rainy season. The soil of the swamps is sandy clay or mud, usually black or dark brown in color due to the accumulation of rotting leaf litter within the depressions. The vegetation is almost homogeneous, with the aguaje palm (*Mauritia flexuosa*) always dominant and often

occurring in pure stands. Other palms frequently found in the swamps are *Jessenia batana* (Ungurahui), *Euterpe edulus* (Huasai) and *Maurita* sp. (Aguajillo). Occasionally a few small trees and patches of shrubs may occur on hummocks within the swamps. The canopy is usually broken and lianas and epiphytes are few.

**Secondary Forests** — Abandoned cultivated fields and clearings that have become overgrown with secondary growths (Purmas) may be divided into two recognizable successional stages. The earliest stage, young secondary growth, consists of fast-growing reeds, herbaceous plants and woody trees and shrubs with soft hollow trunks. Usually only two strata may be distinguished (shrubs and saplings; small to medium tall trees). No epiphytes are present, but trailing vines may be numerous. The reeds, shrubs and saplings may form impenetrable thickets interlaced with climbing vines and trailing razor grass (*Scleria* sp.). Many of the vines and other climbing plants are thorny. The ground cover is principally grasses and woody shrubs. Such tree and shrub genera as *Cecropia*, *Poureouma*, *Ochroma*, *Dictyloma*, *Sterculia*, *Miconia*, and *Cassia* are characteristic of young secondary growth.

As soon as enough higher trees have grown to the point of forming a partially closed canopy (secondary forest), the ground vegetation changes rapidly. Leaf litter develops and the shrubs and vines give way to slower-growing, hardwood trees. As these grow to maturity, the earlier invaders (*Cecropia*, *Poureouma*, *Ochroma*) are replaced by palms and larger hardwood trees. As the trees form dense canopies, the ground vegetation becomes less dense and such forest floor plants as *Heliconia* appear. Old secondary forest, sometimes difficult to distinguish from primary forest, is usually less heterogeneous than primary forest, and at this stage there are no or only a few epiphytes present.

#### SPECIES DIVERSITY

We have made no effort to quantify our ecological distribution data of the herpetofauna of the region in the manner utilized by Crump (1971) for an eastern Amazonian rain forest area. Her data are quite precise (10 x 10 m quadrat), while ours are based on general observations of major forest types. If we extrapolate the number of lizard species found in the five major habitat types of Crump (1971:19), her ecological distribution data closely approximate ours (Fig. 3). Our major difficulty in data comparison was equating her vegetation types to ours. In general,

Crump's (1971) vegetation types are terra firme (= non-flooded, closed canopy forest), varzea (= seasonally flooded lowland), igapo (= aguajal swamp), capoeira (= secondary growths), edge and open (= forest edge and savanna). We found 13 of 40 species (32.5%) restricted to the closed canopy forest, Crump found 6 of 23 (25.3%). We found 6 (15.0%) species in forest edge — savanna situations, Crump 4 (17.4%) species. In almost every case the data comparison of species/habitat data were within 5% of each other.

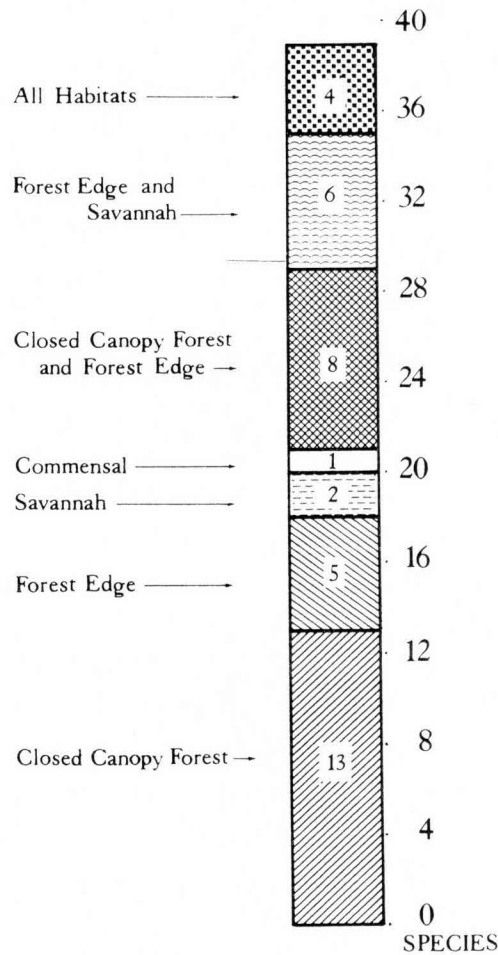


FIGURE 3. Ecological distribution of lizard species by vegetation types in the Iquitos region, Peru. Figures to the right represent number of species restricted to a type or combination of vegetation types.

Perhaps the most interesting data are Crump's (1971) generalist species. Two of these, *Gonatodes humeralis* and *Mabuya mabouya*, are also two of the four generalist species in the Iquitos region, some 2,840 km to the west of Belem, Brazil. Crump's third generalist, *Kentropyx calcaratus*, is also present in the Iquitos region, but in the latter area it is restricted to open canopy and forest edge situations, both in non-flooded terrains and seasonally flooded lowlands. Another species, *K. pelviceps*, occupies the non-flooded, closed canopy forest.

Further comparative analyses could not be made because of non-compatible data. Crump utilized amphibians and reptiles in her analyses while we cover only reptiles.

### REPRODUCTION

We have discussed reproduction of each species in the species accounts, but there are some aspects of reproduction that we summarize here. Most of the 31 species of lizards for which we have considerable reproductive data are acyclic (Fig. 4). *Mabuya mabouya* is the only lizard that appears to be cyclic. We have examined adult females of this species from nearly every month of the year and none were gravid during the months of November through May. Hatchlings were observed from August through November.

Communal nesting is undoubtedly more common than originally believed. We not only found intraspecies nest sites, but interspecies nest sites as well. On at least two occasions we have found compliments of eggs of several females of each species of *Anolis ortonii*, *Alopoglossus carinicaudatus* and *Prionodactylus argulus* in the same nest. The majority of the clutches of eggs examined for several species of lizards have been taken from ground-dwelling ant nests. In 1968, near Bellavista, Peru, one of us (Dixon) found more than 35 eggs of *Gonatodes atricucularis* in a small rotten spot on a living cacao tree. Apparently, certain sites possess the optimum requirements for egg survival, such as ideal moisture, exposure to sunlight, soil type and/or protection from predation. Whether these particular nest sites are actively searched for, found by chance, or utilized year after year by several generations of females, is unknown.

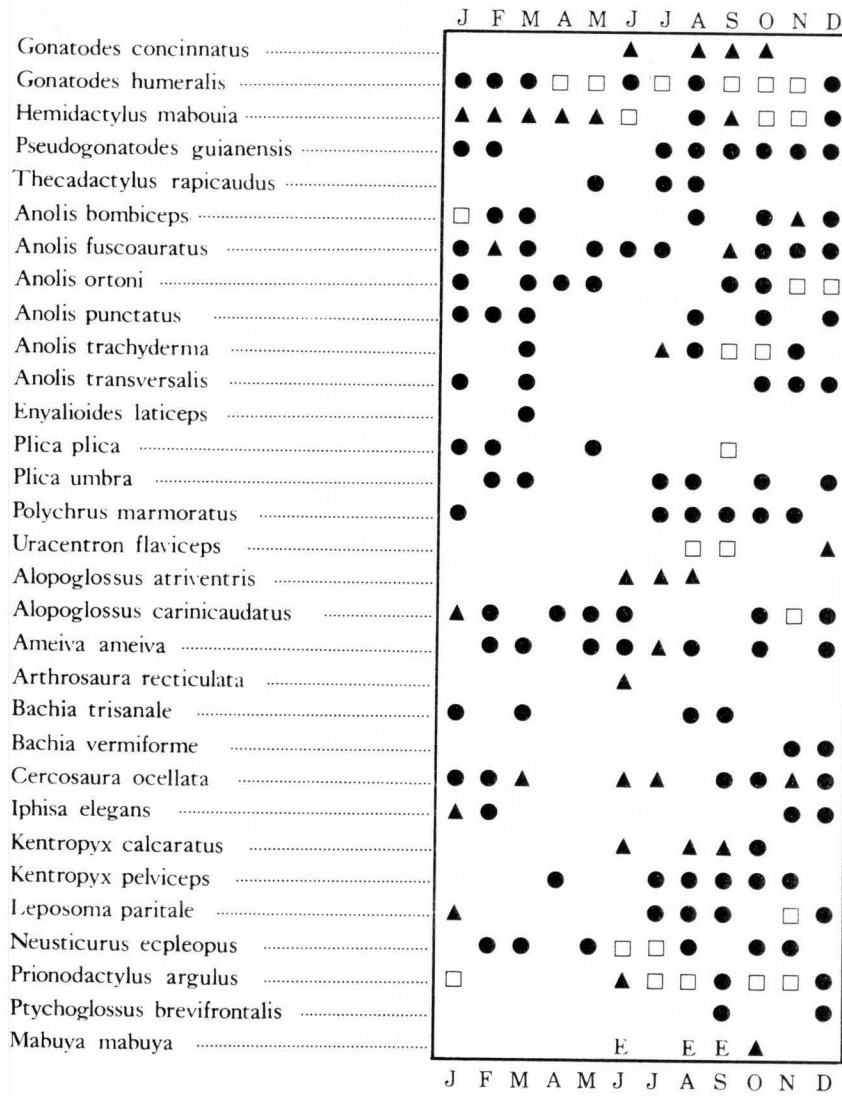


FIGURE 4. Reproductive data for 31 species of lizards from the Iquitos region, Peru. A triangle represents presence of hatchlings during the month, circle represents presence of mature oviducal eggs during the month, open square represents presence of mature oviducal eggs and hatchlings during the month, an E represents the presence of embryos during the month.



KEY TO THE GENERA AND SPECIES OF AMPHISBAENIANS  
AND LIZARDS OF THE IQUITOS REGION, PERU

1. At least 1 pair of external limbs present . . . . . 2
  - No external limbs . . . . . *Amphisbaena*
    - 1a. large, thick, more than 65 segments per midbody annulus, body annuli more than 220 . . . . . *A. alba*
    - medium, slender, less than 50 segments per midbody annulus, body annuli less than 215 . . . . . *A. fuliginosa*
2. Scales of dorsum differing from those of venter, femoral pores often present . . . . . 3
  - Scales of dorsum same as those of venter, cycloid, no femoral pores . . . . . *Mabuya mabouya*
3. Venter covered with large, squarish, plate-like scales, or with smooth cycloid scales or with pointed, imbricate keeled scales in transverse rows . . . . . 4
  - Venter covered with numerous small, rounded or pointed, imbricate or subimbricate scales, not in transverse rows, either smooth, keeled or with very small granular scales . . . . . 16
4. Anterior nasal scales in contact between rostral and frontonasal . . . . . 5
  - Anterior nasal scales separated by rostral and frontonasal . . . . . 9
5. Limbs present, normal. . . . . 6
  - Limbs reduced in size, hind limbs absent (tubercle). . . *Bachia*
    - 5a. None or 5th supralabial touching parietal, dorsals 53-59, ventrals 40-45, no color pattern . . . . . *B. vermiforme*
    - 4th supralabial touching parietal, dorsals 48-53, ventrals 35-40, black paravertebral stripes enclosing reddish brown dorsum. . *B. trisanale*
6. No keeled tubercles on dorsum . . . . . 7
  - Dorsum with scattered, keeled tubercles . . *Dracaena guianensis*

7. Ventral scales smooth . . . . . 8  
 Ventral scales strongly keeled . . . . . *Kentropyx*
- 7a. dorsolateral and lateral yellowish green  
 neck stripes in young and adults,  
 femoral pores 27-37 . . . . . *K. calcaratus*  
 dorsolateral yellowish green neck stripe  
 in young and adults, lateral light stripe  
 absent, femoral pores 37-49 . . . . . *K. pelviceps*
8. Preanal pores absent . . . . . *Ameiva ameiva*  
 Preanal pores present . . . . . *Tupinambis teguixin*
9. Lower eyelid pigmented, lacks transparent disk . . . . . 10  
 Lower eyelid without pigment, transparent disk  
 present . . . . . 11
- 10 Postparietals and occipitals present . . . . *Prionodactylus argulus*  
 Postparietals and occipitals absent . . . . *Arthrosaura reticulata*
11. Innermost digit normal, 4 or more dorsal  
 scale rows . . . . . 12  
 Innermost digit rudimentary; 2 dorsal  
 scale rows . . . . . *Iphisa elegans*
12. No granular scales present dorsally . . . . . 13  
 Granular scales present dorsally . . . . *Neusticdrurus ecleopus*
13. Occipitals and postparietals absent . . . . . 14  
 Occipitals and postparietals present . . . *Cercosaura ocellata*
14. Anterior limb with keeled scales . . . . . 15  
 Anterior limb with smooth scales . . . . . *Ptychoglossus*
- 14a. supraoculars three . . . . . *P. picticeps*  
 supraoculars four . . . . . *P. brevifrontalis*
15. Head scales rugose, posterior edge of parietals  
 rounded . . . . . *Leposoma parietale*  
 Head scales smooth, posterior edge of parietals  
 straight . . . . . *Alopoglossus*
- 15a. side of neck with large conical scales,  
 preanal pores 2, SAB 19-21 . . . . *A. carinicaudatus*  
 side of neck with small, almost granular  
 scales, preanal pores 4-6,  
 SAB 23-27 . . . . . *A. atriventris*

16. Upper head scales of variable size, often plate-like,  
but never granular . . . . . 17  
Upper head scales granular . . . . . 23
17. Digits compressed or cylindrical, subdigital  
lamellae keeled or smooth . . . . . 18  
Digits flat, subdigital lamellae smooth,  
usually widened . . . . . *Anolis*
- 17a. supraoculars strongly keeled . . . . . 17b  
supraoculars smooth, rugose or  
weakly keeled . . . . . 17c
- 17b. Narrow white line below chin, frequently  
V-shaped, ventrals weakly keeled,  
bicolored dewlap . . . . . *A. trachyderma*  
no mark on chin, ventrals strongly keeled,  
tricolored dewlap . . . . . *A. chrysolepis*
- 17c. ventral scales smooth or weakly keeled . . . . . 17d  
ventral scales strongly keeled . . . . . *A. bombiceps*
- 17d. parietal to snout scales more than 25  
(25-35). . . . . 17e  
parietal to snout scales less than 22  
(15-22) . . . . . 17f
- 17e. supraoculars smooth . . . . . *A. punctatus*  
supraoculars rugose, keeled . . . . . *A. fuscoauratus*
- 17f. scales bordering mental in horizontal  
series, small species . . . . . *A. ortonii*  
scales bordering mental in V-shaped series,  
large species. . . . . *A. transversalis*
18. No large, flat scale below ear . . . . . 19  
Large, flat, round scale below ear . . . . . *Iguana iguana*
19. Tail length much greater than snout-vent length . . . . . 20  
Tail length about one half of snout-vent length,  
greatly flattened . . . . . *Uracentron*
- 19a. more than 25 (30-38) whorls of caudal  
scales from base to tip, dorsal body  
scales, including nuchals, distinctly  
keeled . . . . . *U. flaviceps*

- less than 25 (ca. 21) whorls of caudal scales from base to tip, dorsal scales of neck and anterior part of body smooth . . . . . *U. guentheri*
20. Interparietal scale present or absent, if present usually small, not several times larger than adjoining scales . . . . . 21  
 Interparietal scale present, several times larger than adjoining scales . . . . . *Plica*
- 20a. side of neck with groups of enlarged, spinose scales in adults . . . . . *P. plica*  
 side of neck without groups of enlarged spinose scales . . . . . *P. umbra*
21. Anterior superciliaries not conspicuously overlapping, femoral pores present or absent, preanal pores absent . . . . . 22  
 Anterior superciliaries elongate, diagonal, overlapping, femoral pores absent, preanal pores present or absent . . . . . *Ophryoessoides aculeatus*
22. Tail twice or more of snout-vent length, no enlarged vertebral scale row . . . . . *Polychrus marmoratus*  
 Tail short or long, if longer than twice snout-vent length, enlarged vertebral scale row present . . . . . *Enyalioides*
- 22a. a single dorsolateral row of enlarged body scales . . . . . *E. cofanorum*  
 no such row present . . . . . *E. laticeps*
23. Digits dilated, at least partially . . . . . 24  
 Digits slender throughout their length . . . . . 25
24. Claw in contact with or projecting only slightly beyond basal phalanx . . . . . *Thecadactylus rapicauda*  
 Claw situated much beyond dilated part of basal phalanx . . . . . *Hemidactylus mabouia*
25. Claw between five or more scales . . . . . 26  
 Claw between two scales, a small superior and large inferior . . . . . *Gonatodes*

- 25a. head with variegated pattern, light nuchal collar bordered by dark brown . . . . . *G. concinnatus*  
 head not reticulated, light nuchal collar ill-defined, light loop across head behind eyes in males . . . . . *G. humeralis*
26. Claw sheath composed of five scales . . . . . *Pseudogonatodes guianensis*  
 Claw sheath composed of six scales . . . . . *Lepidoblepharis festae*

#### SPECIES ACCOUNTS

To circumvent lengthy descriptions of each form we have adopted the following outline: Scientific name; collection and number of specimens examined; habitat preference; list of localities within the Iquitos region, followed by number of individuals by sex and age; first literature record for the area; additional records (if any); ecological data, such as actual sites of capture and microhabitat (if known), activity, reproduction and size of adults; color notes on living individuals; taxonomic notes, if any, are pertinent to the discussion of the taxon.

The last section of the accounts concerns questionable species previously recorded for the region. We either accept or reject the record, based on our experience in the field or information from specialists presently working on the taxon.

#### *Gonatodes concinnatus* (O'Shaughnessy)

TCWC (43). A medium sized, diurnal, beautifully colored gecko restricted to closed canopy (primary) forest. Moropon (21 ♂ , 21 ♀ ). First record: present paper.

The microhabitat of this species is primarily the basal area (below 1.5 m) of medium to large, buttressed or non-buttressed trees in densely canopied forests. It is absent in forest edge and broken canopy situations where it is replaced by its smaller and ecologically more versatile congener, *G. humeralis*. During a peak reproductive season the young may disperse to forest edge situations or into secondary forests. We have never seen more than two individuals on the same basal area of a tree, regardless of tree size, and never of the same sex. We have not been able to drive an

individual away from his "home" tree nor chase it higher in the tree than one meter. When frightened, this species seeks holes at the base of the tree or between the roots if the tree is buttressed or stilted. Suitable adjacent trees may be occupied by single individuals of the same or opposite sex, but in general, population numbers never appear to be high, which may be the result of a complex social structure. This species arches its black and white banded tail, looping it anteriorly, then posteriorly, forming an almost complete figure eight. This action exposes the ventral surface of the tail, which is more conspicuously marked than the dorsal surface. Each individual consistently twitches its tail into the figure eight, relaxes the tail to a slightly arched position, and then repeats the figure eight. It almost seems that the tail is in constant motion. This behavior may be one by which they "signal" other individuals, warning them of territorial boundaries, and may also be used in courtship. The tail flagging, however, has been observed in hatchlings and juveniles of both sexes, which may also indicate a predator distraction function.

This species exhibited a population explosion in September 1972 and hatchlings had spread to tree stumps, basal parts of medium-sized trees and saplings, from closed canopy forest to old and young secondary growths. In one instance, two hatchlings had invaded a tree already occupied by an adult *Gonatodes humeralis*. Several trees, saplings and stumps were marked on 11 September that contained hatchlings that were outside of the preferred habitat of the adults, including the pair that had invaded the tree occupied by the *G. humeralis*. The trees and stumps were checked on 24 September and all hatchlings had disappeared. Considering this species' preference for a large, single tree, it appears that predation or adverse environmental conditions eliminated the hatchlings.

Gravid females containing one oviducal egg were taken in the months of January, March, August, September, October and November. The largest oviducal egg measured 5.0 x 8.2 mm, smallest 5.0 x 7.6 mm. Adult females ranged from 42 to 48 mm in SVL, adult males 40 to 52 mm.

The juvenile and adult coloration agrees with that described by Vanzolini (1955, 1968).

*Gonatodes humeralis* (Guichenot)

TCWC (108). A small diurnal gecko that inhabits every available habitat in the Iquitos region. Centro Union (5 ♂, 7 ♀), Iquitos (34 ♂, 17 ♀), Maniti (1 ♂, 2 ♀), Mishana (1 ♂, 2 ♀), Moropon (14 ♂, 23 ♀), Yanayacu (1 ♂, 1 ♀). First record: Napo and Maranon (Cope, 1868). Additional records: Pebas (Peters, 1871), Transval (Burt and Myers, 1942), Rio Ampiyacu (Vanzolini, 1968).

This species is commonly found on walls of houses, fences, trash piles, basal parts of large trees, saplings, shrubs, logs and stumps from seasonally flooded lowlands to the summit of sand hills in all vegetative types.

Inside primary forest, *G. humeralis* is sparsely distributed and found mainly in tree fall sites and other broken canopy situations. In secondary forests, with lower and less dense canopies, *G. humeralis* is frequently the most common lizard encountered.

*Gonatodes humeralis* is active from sunrise to sunset and frequently at night where street or house lights are utilized. A few individuals have been observed feeding inside of houses between the hours of 2000 and 2200. Unlike *G. concinnatus*, *G. humeralis* is frequently found alone, and occasionally in pairs or pairs and juveniles. This species does not hesitate to move from tree to tree and appears to have a larger home range than *G. concinnatus*. *Gonatodes humeralis* seldom climbs higher than two meters above the ground and usually hides in cracks in walls, fissures in trees or leaf litter at the base of trees. In primary forest, *G. humeralis* is seldom found on a tree that lacks fissures, where *G. concinnatus* is frequently found.

Diurnal lizards, such as *Anolis fuscoauratus* and *Prionodactylus argulus*, frequently utilize the same resting site as *G. humeralis*, but at different times during the day. Around human habitation, *G. humeralis* and *Hemidactylus mabouia* may occupy the same space on a wall, but at opposite ends of the diel cycle.

Gravid females containing one oviducal egg have been taken in every month except January and June, but egg clutches of this species have not been found. The largest oviducal egg measured 4.6 x 8.3 mm, smallest 3.2 x 3.2 mm. Adult females ranged from 33 to 39 mm SVL, adult males 31 to 41.

Sexes are dichromatic with females being rather drab dorsally and ventrally. Males have bright yellow chins, throats and lips. Dorsally, the snout and occiput is brown with fine silvery blue

reticulations. A thin, silver line crosses the shoulders and the remainder of the dorsum is brown to brownish black with minute red and yellow spots scattered throughout. The venter is flesh to tannish yellow.

Adult females of *G. humeralis* were removed from the stomachs of the snakes *Drymoluber dichrous* and *Bothrops atrox*.

*Hemidactylus mabouia* (Moreau de Jonnes)

TCWC (25). A house gecko restricted to the areas of human habitation in the Iquitos region. Centro Union (2 ♂, 1 J), Iquitos (4 ♂, 2 ♀, 15 J), Moropon (1 ♀). First record: Rio Itaya (Vanzolini, 1968). Additional records: Iquitos, Requena, Rio Maniti (Kluge, 1969).

The evolution and geographic origin of this species has been thoroughly studied by Kluge (1969). However, little has been published on its natural history. *Hemidactylus mabouia* is the common house lizard in the environs of Iquitos. It appears to have recently spread to outlying villages via river taxi carrying lumber and other goods. *Thecadactylus rapicadus* usually invades native houses from the nearby forests and is usually present in the village prior to the arrival of *H. mabouia*. Following the initial emigration of *H. mabouia* to a village, *T. rapicaudus* usually disappears.

*Hemidactylus mabouia* is primarily nocturnal, but has been observed foraging in dark corners of houses during the day. Of 14 eggs laid on the ceiling of Soini's house in December 1972, three measured 8.5 x 9.1, 8.7 x 9.6, and 9.0 x 10.1 mm. All eggs hatched at various times i.e., January 7, 15, 24, February 2, 17, March 18 and hatchlings ranged from 20 to 25 mm SVL. Two oviducal eggs were present in all gravid females, and one egg was always larger than the other. For example, one female (72 mm SVL) contained oviducal eggs measuring 5.5 x 6.8 and 7.5 x 10.8 mm respectively. This suggests that one egg is laid at a time and probably both are laid within a few days of each other. Two eggs were laid on 23 February 1973 and hatched one day apart (19, 20 April), but it is unknown that the eggs were from the same female. Adult females ranged from 61 to 72 mm SVL, adult males 59 to 67 mm. Gravid females with oviducal eggs were taken during the months of January, June, August and October, hatchlings in January, February, March, August and October.

For details of color and taxonomy see Kluge (1969).



*Lepidoblepharis festae festae* Peracca

TCWC (2). A small terrestrial, diurnal gecko known only from the primary forest. Moropon (1 ♂), Centro Union (1 ♂). First record: present paper.

We have no habitat information on this species other than it occurs in closed canopy forest situations. Our two specimens, a subadult male 25 mm SVL and an adult male 28 mm SVL, were taken in October and January, respectively.

The males are quite colorful, having a broad white loop passing from the upper posterior corner of the eye, across the top of the head to the opposite side. The white loop is bordered posteriorly by a broad black nuchal band. A white line passes posteriorly from the outer edge of the white loop, dorsolaterally along the body and extends onto the proximal one-fifth of the tail. A second white line passes from the posterior corner of the eye, over the shoulder and terminates at the hind limb insertion. A third white line passes from behind (occasionally in front of) the arm insertion to the groin. Each of the three white lines are separated by a blackish brown line of about equal width.

The snout is pinkish white with two thin, blackish lines extending from each nostril posteriorly to the anterior corner of the eye. The top of the head is blackish brown and the mid-dorsal area of the body and tail is generally of the same color. The ground color stripe of the mid-dorsum contains a series of 8 to 10 obscure, blackish blotches. The blotches form two irregular rows and occasionally one or more of the blotches may be united medially. The limbs are obscurely banded with blackish bands over ground color.

The venter is light brown, flecked with darker brown. The chin and throat are white, with a dark brown U-shaped band between the second pair of infralabials, and a short diagonal brown streak from the fourth infralabial to the ventrolateral aspect of the throat.

Vanzolini (1968) discusses the salient characteristics and distribution of this species.

*Pseudogonatodes guianensis guianensis* Parker (New Comb.)

TCWC (35). A tiny, terrestrial gecko restricted to closed canopy (primary) forest. Centro Union (14 ♂, 11 ♀, 1 J), Mishana (1♂, 2 ♀), Moropon (1 ♂, 1 ♀, 1 J), Yanamono (1 ♂), Yanayacu (1 ♂, 1 ♀). First record: present paper.

A majority of these lizards were found associated with tree-fall sites, camp sites, or wherever the canopy layer allowed several small patches of sunlight to reach the forest floor. A few were taken from the forest floor in dense canopy areas where sunlight seldom penetrates. Most specimens were found beneath fallen palm leaves and bark, wood chips, leaf litter and occasionally crossing foot paths in areas where the soil was well drained. These lizards are conspicuously absent when the ground cover becomes overgrown with a dense layer of herbaceous vegetation. This species seems to forage actively between the hours of 0800 and 1500.

One hatchling (13 mm SVL) was taken on 10 May, another (16 mm SVL) in July, and gravid females containing one oviducal egg were taken in all months except April and November. Ten oviducal eggs averaged 3.3 x 5.8 mm and adult females ranged from 24 to 30 mm SVL (M = 27.4), adult males 21 to 28 (M = 25.9).

Males tend to have a distinct yellowish to dirty white loop across the nape and rear of head while the remainder of the body varies from soft brown to blackish brown. A black line is present along each side of the tail that is bordered above and below by a yellowish brown line. Females also have the light loop across the nape and rear of head but much more obscure and occasionally absent. Occasionally a male has a very faint loop and thus resembles the female in coloration.

An examination of 41 specimens of *P. guianensis* from Ecuador, Guyana and Peru reveals little difference in squamation. A comparison of this series with *P. lunulatus* from Venezuela and Colombia indicates that *lunulatus* is probably not conspecific with *guianensis*. A comparison of *P. amazonicus* from Brazil with *P. guianensis* indicates that the two are probably conspecific. All characters of squamation overlap for *guianensis* and *amazonicus*, the only difference being the boldness of the color pattern in *amazonicus* as compared to *guianensis*. With so few specimens of *amazonicus* in existence, we hesitate to suggest complete synonymy, but we are reasonably sure that the two species represent races of a single species.

*Thecadactylus rapicaudus* (Houttuyn)

TCWC (23). A large gecko found in closed canopy (primary) forests and forest edge situations (forest villages). Maniti (1 ♂ , 1 ♀ ), Mishana (4 ♂ , 4 ♀ ), Moropon (7 ♂ , 6 ♀ ). First record: Napo and Maranon (Cope, 1868). Additional records: Pebas (Cope, 1869), Transval (Burt and Myers, 1942).

Four of the 22 specimens were found in native huts along game trails or along streams in the forest. Like Vanzolini (1972), we have found them inside hollow trees during the day. We have also found them on logs at dusk and on larger tree trunks at night. They seem to be active earlier (1830 hr) in the forest than at the forest edge (2000 hr).

Adult females ranged from 88 to 107 mm SVL, males 80 to 100 mm. Gravid females with one oviducal egg were taken in the months of March, May, July, August, and December. The largest oviducal egg measured 13.8 x 17.0 mm, smallest 7.1 x 10.0 mm. December females contained yolked ovarian follicles and flaccid oviducts, indicating that they had probably laid an egg during the month. Beebe (1944) indicated that one female laid an egg (11.4 x 13.4 mm) in August .

We agree with Beebe's (1944) description of the color patterns in this species and that any discussion of color pattern for this species would not adequately cover the infinite array of patterns found in any one population.

*Anolis bombiceps* Cope

TCWC (37). A large anole restricted to primary (closed canopy) forest. Centro Union (2 ♂ ); Mishana (9 ♂ , 6 ♀ , 5 Jv.); Moropon (6 ♂ , 7 ♀ , 2 Jv.). First recorded record: Nauta (Cope, 1876). Additional records: Estiron, Rio Ampiacu, Rio Itaya, Rio Nanay (Vanzolini and Williams, 1970).

This species seems to be more terrestrial than arboreal. The majority of specimens were taken from the forest floor litter, but occasionally from the lower trunks of slender trees, saplings, logs, and other forest floor plants. It seldom climbed more than three meters above the forest floor, even when pursued by us. Its typical escape sequence consists of a dash to a tree or small shrub, a short climb to one or two meters and "freezing". When captured, the anole gapes, exposing bright blue flesh at the corners of its mouth.

Mature females range from 65 to 74 mm in snout-vent length, males from 55 to 71 mm. Two oviducal eggs were examined in each of 11 specimens taken in January, February, March, August, September, October and December. The right oviducal egg was largest in nine, the left in two. The largest oviducal egg measured was 8.2 x 18.7 mm, smallest 5.0 x 6.4 mm (same female, taken in October). All gravid females contained two oviducal eggs except for one female taken in August. She had obviously just laid the right oviducal egg. Adult male testes were largest in May, smallest in September.

The dorsal color pattern and its many variations is very similar to that of *A. chrysolepis scypheus*. The male dewlap color is bicolored however, not tricolored as in *chrysolepis*. The major portion of the dewlap is bright blue rather than black, as reported by Vanzolini and Williams (1970). The enlarged lateral scale rows vary from yellowish white to a blackish wash. The color of the lateral rows of enlarged scales are apparently under hormonal control. They are typically yellowish when the lizard is first captured, but after a few hours in captivity they become blackish. Females may or may not have a light vertebral stripe that varies from tan to yellow, generally lighter towards its edges and bordered laterally by a thin black line.

*Anolis chrysolepis* and *A. trachyderma* are the only other anoles taken sympatrically with *A. bombiceps* and the former at only one site (Centro Union). Four other species of anoles occur at Centro Union, but two are primarily restricted to the forest edge (*fuscoauratus*, *ortoni*), two are large, arboreal forest anoles (*punctatus*, *transversalis*). *Anolis trachyderma* exploits a much wider habitat range than *A. bombiceps*, but inside primary forest, they have largely overlapping foraging habits and structural niches. However, the considerable size difference between these two species suggests that different size of prey are eaten.

#### *Anolis chrysolepis scypheus* Cope

TCWC (3). A medium-sized anole that is restricted to closed canopy forest, at least in the Iquitos region. Centro Union (1 ♂, 2 ♀). First record: Pebas (Burt and Myers, 1942). Additional records: Rio Itaya, Iquitos (Vanzolini and Williams, 1970).

This species is primarily terrestrial and similar in habits to *A. bombiceps*. One of the three specimens was taken from a tree trunk 2.5 m above the ground. We have little ecological data for this form and those interested in its ecology should refer to the

excellent paper on this species by Vanzolini and Williams (1970).

Where this species is syntopic with *A. bombiceps* (Centro Union), its dorsal color is tannish orange and the dewlap is tri-colored. The edge of the dewlap is red, central portion bright blue and enlarged lateral scale rows white. We have not taken this species north or west of the Amazon and regardless of the literature records, believe it restricted to the east and south banks of the Rio Amazonas, at least in the Iquitos region. It appears to be extremely rare in the latter region, as indicated by having taken only three specimens over a seven-year period.

*Anolis fuscoauratus fuscoauratus* D'Orbigny

TCWC (53). A small anole that is abundant in young secondary growths and along forest edges and clearings. Centro Union (5 ♂, 1 ♀); 5 km NNE Iquitos (6 ♂, 2 ♀); Mishana (3 ♂, 3 ♀); Moropon (13 ♂, 17 ♀, 2 yg.); Yanamono (1 ♂). First record: Napo and upper Marañon (Cope, 1868). Additional records: Pebas (Cope, 1869), Nauta (Cope, 1876), Transvaal (Burt and Myers, 1942).

This species is arboreal and commonly found on tree trunks, small saplings, shrubs, palm trunks, dead branches, fence posts, logs, stumps, and banana plants. It seldom climbs higher than three meters and is occasionally seen inside primary forest in tree falls and other broken canopy situations.

Gravid females with two oviducal eggs have been taken in every month except February and April. Of 21 gravid females, the left oviducal egg was largest in eight (38%). The largest oviducal egg measured 4.3 x 10.2 mm, smallest 2.1 x 3.0 mm. Male testes were largest in December, smallest in September. The largest number of gravid females was taken in December and March. Hatchlings were observed in February and September. Adult females ranged from 39 to 49 mm snout-vent length, adult males from 35 to 46 mm.

The dorsum is brown to grayish brown, frequently with a rather inconspicuous, narrow vertebral stripe of darker brown, enclosing a single row of blackish spots. The venter is white, speckled with small brown spots. Occasionally females have a yellowish tan vertebral stripe. The dewlap color of males is pale lemon yellow to pale green with the enlarged lateral scale rows white and the ventral edge white. The white edge color occasionally encroaches toward the center of the dewlap and the pale green or lemon yellow areas are reduced in size.

This species was recorded from Nauta as *Anolis bocourti*, by Cope (1876). Dr. E. E. Williams (pers. comm.) informs us that *A. bocourti* is identical to *A. fuscoauratus*.

*Anolis ortonii* Cope

TCWC (41). A small arboreal anole that frequents older secondary growths, forest edges, orchards, yards and park-like situations in towns. 5 km NNE Iquitos (5 ♀, 3 yg.), Moropon (13 ♂, 13 ♀, 2 juv.), Centro Union (3 ♂, 1 ♀, 1 yg.), Mishana (1 ♀). First record: Napo or upper Marañon (Cope, 1868). Additional records: Nauta (Cope, 1876), Pebas (Boulenger, 1885).

These lizards are frequently found on the ground near trees and fences, on fence posts, buildings and occasionally high in trees (eight meters). They seem to prefer medium and subcanopy levels of large trees, but occasionally frequent small fruit trees around houses. Two or more individuals of either sex are commonly seen on the same tree.

One egg of this species was found in mid-October at the base of a banana tree. The egg was buried about 3 cm in the nest of a large black ant (species unknown). It measured 6.8 x 10.2 mm and hatched 29 November 1972. Another egg measuring 9.0 x 11.0 mm was found beneath a fallen piece of bark in mid-November. It hatched 3 January 1973 and the hatchling measured 19.5 mm snout-vent length, tail 30.5 mm. Females taken in January, March, April, September, October, November and December were all gravid with one or two oviducal eggs, varying in size from 5.1 to 10.5 to 6.0 x 12.0 mm. Occasionally females contained two eggs of almost equal size (6.0 x 10.0, 6.0 x 12.0 mm), indicating that both eggs may be laid at or near the same time. Snout-vent lengths of mature females ranged from 39 to 48 mm, males, 38 to 50 mm.

Most individuals have a cryptic, lichen-like dorsal color pattern of grayish tones, but a few are predominantly brown. Some females have a wide, whitish stripe (occasionally yellowish tan), bordered along the sides by a thin brown to black line from nape to tail. The dewlap of the male is large and bicolored. The ventral edge and lateral scale rows are bright yellow while the flash color varies from orange to red. Females have a small dewlap of similar color.

*Anolis punctatus boulengeri* O'Shaughnessy

TCWC (15). A large anole frequently found at forest edges but also occurring in primary (broken canopy) and secondary forests.

ro Union (1 ♀), Mishana (3 ♂, 4 ♀), Moropon (4 ♂, 3 ♀).  
Record: "Pebas" (Cope, 1871).

Williams (1965) indicates that *A. punctatus* is a wide-ranging  
zon species but cites no specific records for Peru. Our  
mens were taken from small shrubs or trees near the edges of  
ings. None were found in large trees nor very high above the  
nd. All were taken from areas where basking sites were  
erous.

avid females containing two oviducal eggs were taken in the  
ths of January, February, March, August, October, and  
mber. The largest oviducal egg measured 8.0 x 16.1 mm,  
est, 4.0 x 5.3 mm. Adult females ranged 66 to 75 mm in  
t-vent lengths, adult males, 65 to 80 mm.

ie dorsal coloration of adults is leaf green with six to seven  
narrow white cross bands confined to the upper body. The  
r sides are spotted with minute white dots and the limbs are  
ed with minute dark brown spots. Occasionally, specimens  
eep purple dorsally, especially after being in captivity for a  
ours. The white cross bands and white spots are very distinct  
the latter color prevails. Male dewlaps are orange to reddish  
ge with the enlarged lateral scale rows light yellow.

#### *Anolis trachyderma* Cope

WC (59). A small semi-arboreal anole found in farming areas,  
t edge, secondary forests of various successional stages and in  
ary forest. Centro Union (12 ♂, 7 ♀, 4 yg.), 5 km NNE  
os (2 ♂, 1 ♀, 1 yg.), Indiana (1 ♂), Mishana (1 yg.), Moropon  
♂, 10 ♀, 4 yg.), Rio Momon (1 yg.). First record: Nauta  
e, 1876). Additional records: Pebas (Cope, 1885), Iquitos  
iams and Vanzolini, 1966).

*Anolis trachyderma* is commonly found foraging on the forest  
at low levels on small trees, shrubs, herbaceous plants, and  
tently in thickets and dense foliage. We have never observed  
species higher than two meters above the forest floor. When  
tened, its escape behavior is similar to that of *A. bombiceps*.  
ever, when this species is on a tree, it frequently hides in a  
in the ground at the base of the tree. *Anolis trachyderma*  
ars to be active later than the other six species found in the  
os region. We have observed them actively foraging as late as  
hours.

avid females containing two oviducal eggs have been taken in  
onths of March, August, September, October and November.  
4 gravid females the left oviducal egg was largest in eight

(53.3%). The largest oviducal egg measured 6.3 x 14.8 mm, smallest 3.3 x 4.2 mm. A hatchling was taken 20 June, along the Rio Momon. Adult females ranged from 40 to 57 mm in snout-vent length, adult males, 40 to 52 mm.

The dorsal color pattern of males consists of a broad dark bluish gray to light tan vertebral stripe that encloses a single series of blackish spots that tend to be V-shaped. The sides are soft brown, each with two dark brown, longitudinal stripes that are continuous or interrupted. Females frequently resemble males in dorsal coloration. Some females have a broad white to pink or reddish vertebral stripe that is bordered by a narrow, wavy stripe of slightly darker color. The dark stripes contrast to the soft brown ground color and frequently extend distally to the middle of the tail. The male dewlap is yellowish orange, progressively more yellow towards the ventral edge with scattered black spots throughout. Females may have small dewlaps of similar color.

*Anolis transversalis* Dumeril

TCWC (10). A large, beautifully colored anole that occurs in the higher canopy layers of the closed canopy forest and along forest edges. Centro Union (1 ♂, 1 ♀), Mishana (3 ♀), Moropon (3 ♂, 2 ♀). First record: Nauta (Cope, 1876). Additional records: Pebas (Cope, 1885), Iquitos (Williams and Vanzolini, 1966).

This species is most frequently found descending trunks of large trees in the closed canopy forest. One specimen was taken at the forest edge, low on the trunk of a large ceiba tree. We suspect that this species only leaves a tree to lay its eggs.

Our specimens of gravid females were taken in the months of January, March, October, November, and December. Two of six females contained only the left oviducal egg, the right oviduct being flaccid, and they had obviously just deposited the right oviducal egg. The largest oviducal egg measured 7.6 x 16.7 mm. Adult females ranged from 69 to 81 mm in snout-vent length, adult males, 79 to 83 mm.

The dorsal coloration is similar to that described by Williams and Vanzolini (1966). One character not mentioned by Williams and Vanzolini (1966) is the bright blue iris of this species. In addition, the females have a well-developed dewlap that is chocolate brown with the enlarged scale rows and the ventral edge yellowish tan. The dewlap of males varies from lemon-orange to reddish orange with the enlarged lateral scale rows of the dewlap varying from light green to yellowish.



*Enyalioides cofanorum* Duellman

CAS-SU (1). In Ecuador this species is most frequently found on the forest floor by day and asleep on bushes at night (Duellman, 1973). Pebas (1 ♂). First record: present paper.

This species was reported from Pebas, Peru, as *E. microlepis* by Burt and Myers (1942). Ecological data are lacking for this species in Peru. Data from CAS-SU 8323 indicates that little squamative variation occurs over a geographic distance of approximately 1,000 airline km, the distance between the type locality and Pebas, Peru. In almost every instance, the salient characters of the Pebas specimen fall near the mean of those characters presented by Duellman (1973).

*Enyalioides laticeps* (Guichenot)

TCWC (21). A striking, sexually dichromatic iguanid restricted to the Amazonian rain forest. Centro Union (1 ♂, 1 ♀), Indiana (1 ♂), Moropon (12 ♂, 4 ♀), Santa Maria (2 ♀). First record: Pebas (Cope, 1885).

The majority of our specimens was taken from rotting stumps in the primary forest and most were taken within one meter of the ground. One specimen was taken from leaf litter near the base of a large tree and another from the basal area of a Ceiba tree. We suspect that the nocturnal retreats of this species are shallow holes in the forest floor. One individual was chased from a tree stump and it hid in a shallow hole near the stump. Several specimens were later taken from similar shelters where they had sought refuge.

Adult females ranged from 86 to 130 mm in SVL, adult males 84 to 116 mm. Adult females with 10 to 11 yolked ovarian eggs were taken in the months of April, June and August. One gravid female, taken in March, contained 6 oviducal eggs that ranged in size from 9.0 x 12.7 to 10.5 x 13.2 mm.

Adult females are brownish green dorsally and white ventrally. Some females had a greenish white chin, throat and upper chest, with a small yellow patch in the center of the gular region, and occasionally a white patch of color behind each ear. Adult and juvenile males are bright to dull brown dorsally (occasionally greenish brown) and the venter is cream to yellowish tan. The upper chest, throat and chin are bright orange to red with a black patch in the center of the gular region.

*Iguana iguana* (Linnaeus)

TCWC (1). This species is known only from the forest edge and especially along streams. Iquitos (1 ♀). First record: Napo or upper Marañon (Cope, 1868). Additional records: Iquitos (Carrillo, 1970).

This species had become extremely rare in the Iquitos region, as have many other commercialized animals. We assume that over-hunting for skins and the pet trade has reduced the local population to a very low level. We have no specific information on its ecology for this region. One very young individual was found in January. It has been observed along the main banks of the Rio Amazonas near Iquitos and Yanamono, and along smaller streams in the primary forest. To our knowledge, *Iguana* is not eaten locally, but a number of skins and a few live individuals are exported from Iquitos every year.

*Ophryoessoides aculeatus* (O'Shaughnessy)

TCWC (7). A semiterrestrial iguanid restricted to closed canopy (primary) forest. Mishana (5 ♂, 1 ♀, 2J). First record: present paper.

This species, like other forest *Ophryoessoides*, is extremely difficult to obtain. They are seldom seen because of their cryptic coloration but are frequently heard as they run across leaf litter of the forest floor. The instant they "freeze", however, they become virtually invisible to a potential predator. The cryptic coloration of this species is so much like that of a dry leaf that only the movement of the eye is detectable. Our few specimens were taken from fallen logs, basal areas of tree trunks and dense leaf litter.

Our single adult, nongravid female measured 61 mm in SVL, adult males 55 to 66 mm, and hatchling, 37 mm.

Sexual dichromatism is essentially absent in this species, except for the deepness of color in the gular and venter regions. The dorsum of both sexes resembles a dry leaf. The dorsum is essentially soft brown with a median dark brown stripe (representing the midrib) that has dark brown diagonal lines paralleling each other (the veins) that are darker anteriorly and posteriorly than at midbody. The diagonal and median lines are much darker at the base of the tail and the tail darker than the former, representing the stem of the leaf. The dorsolateral edges of the soft brown dorsum are pinkish white, followed below by a broad

band of brownish black from shoulder to tail. The sides of the head and nape are soft brown with a broad diagonal line outlined in white passing from the center of the eye to the lateral edge of the throat. The venter is a soft pink with scattered white spots, with males having deeper and brighter pink than the females.

*Plica plica* (Linnaeus)

TCWC (29). A large tree iguanid found in closed canopy forest and forest edge. Centro Union (1 ♂, 1 ♀, 1J), Maniti (2 ♂), Mishana (1 ♂, 2 ♀, 1J), Moropon (7 ♂, 9 ♀, 3J). First record: Rio Napo (Cope, 1868). Additional records: Pebas (Cope, 1885); Iquitos, Rio Itaya, mouth of Rio Napo (Etheridge, 1970).

*Plica plica* is essentially restricted to the microhabitat of large tree trunks in the Amazonian rain forest. All of our specimens came from various heights on large tree trunks. When pursued, this species jumps to the ground and hides in holes near the base of the tree from which it was chased, or runs up the tree to higher levels. Vanzolini (1972) indicates that the specimens he found in the Brazilian rain forest were high in trees and escaped by climbing higher in the trees. Beebe (1944) indicates that some of his specimens came from large rocks along rivers. The food of *P. plica* consists largely of large tree ants and beetles.

Beebe (1944) collected a female with two oviducal eggs on 13 May, and Medem (1969) reported that this species lays its eggs in January and February. All but one of our mature females, ranging from 88 to 143 mm SVL, were not gravid. The latter females were taken during the months of January, February, October and December and contained 4 to 7 yolked ovarian follicles. One gravid female taken in February contained two oviducal eggs measuring 11.0 x 12.2 and 9.7 x 13.5 mm, respectively. Juveniles ranged from 45 to 79 mm SVL, adult males 90 to 140 mm.

The color pattern of this species has been adequately described by Vanzolini (1972).

*Plica umbra ochrocollaris* (Spix)

TCWC (49). A common arboreal iguanid found in seasonally flooded and non-flooded primary forest and old secondary forests. Centro Union (7 ♂, 1 ♀, 1J), Indiana (2 ♂), Iquitos (1 ♀), Mishana (7 ♂, 7 ♀), Moropon (12 ♂, 6 ♀, 5J). First record: Pebas (Cope, 1871). Additional records: Iquitos, Rio Itaya, mouth of Rio Napo (Etheridge, 1970).

Like *P. plica*, this species is primarily a tree trunk inhabitant. Our entire series, except for one specimen, came from the trunks of small trees, from ground level to a height of 6 m. The single specimen came from the lower trunk of a large tree. Thus we can confirm Vanzolini's (1970) suggestion that *P. umbra* prefers small trees, as compared to the tree size selected by *P. plica*.

Beebe (1944) indicates that gravid females were taken in May and October, and clutch size was two eggs per female. We have taken gravid females containing two oviducal eggs during the months of February, March, July, August, October and December. The largest oviducal egg measured 9.1 x 25.5 mm, smallest 9.2 x 11.6 mm. Two fully developed, shelled oviducal eggs were examined in a female with a 79 mm SVL. The eggs filled approximately 78% of the body cavity. Mature females ranged from 68 to 81 mm SVL, adult males 64 to 89 mm, and a March hatchling 36 mm.

Our color notes for this species agree with those of Vanzolini (1972).

*Polychrus marmoratus* (Linnaeus)

TCWC (31). An arboreal iguanid found along the edges of primary and secondary forests. Centro Union (3 ♂ 6 ♀), Indiana (2 ♂, 1 ♀), Iquitos (2 ♂, 2 ♀), Maniti (1J), Mishana (2 ♀), Moropon (4 ♂ 5 ♀, 1 J, 1 yg.), Paraiso (1 ♀). First record: Pebas (Cope, 1871). Additional records: Rio Ampiyacu (Burt and Myers, 1942), Iquitos (Carillo, 1970).

All but one of our specimens were taken from branches of small shrubs and trees associated with clearings adjacent to primary and secondary forests. The latter specimen was taken from a log inside the closed canopy forest.

Adult females ranged from 109 to 147 mm SVL and adult males 91 to 121 mm. In addition to Beebe's (1944) report of a clutch of 7 eggs for a January female and 8 eggs for an August female, we have seven gravid females from January (1), February (2), March (2) and April (2) that contained 9, 11, 11, 9, 10, 9 and 7 eggs respectively. The largest oviducal egg measured 13.0 x 13.1 mm, smallest 10.0 x 10.2 mm. One hatchling was taken in November.

Beebe (1944) reported on the habitat, behavior and color pattern of this species, and our notes agree with his.

*Uracentron flaviceps* (Guichenot)

TCWC (23). An arboreal iguanid found principally along the edges of primary and secondary forests. Centro Union (2 ♂, 1 ♀), Iquitos (1 ♂, 1 J), Mishana (3 ♀), Moropon (3 ♂, 7 ♀, 1 J, 3 yg.), Santa Maria (1 ♂). First record: Pebas (Cope, 1871). Additional records: Iquitos (Etheridge, 1968).

This species inhabits various species of large trees and frequently those with relatively rough bark. The adults are frequently found in pairs, sharing the same basking sites and usually foraging together. One pair was observed in Soini's backyard for a two-year period. The male and female frequented the same tree for long periods of time and used the same tree hole for their nocturnal retreat. Their principal foraging sites were the main branches and trunk of their "home" tree. The diet consisted primarily of large tree ants. Apparently, when prey items became scarce on the home tree, the pair moved to nearby trees, via interconnecting branches, however small. They were never observed descending to the ground to cross to another tree.

The eggs are laid in tree holes at a height of 8 to 20 m. In August a clutch of two eggs was found in the hole of a recently felled tree. The adult pair in Soini's yard laid two eggs in a tree hole approximately 8 m above the ground. Following hatching, the young and adults remained together on the same tree for about six months, and all four lizards utilized the nest hole for a nocturnal retreat. A female taken in April had just laid one egg and another, 12.0 x 20.7 mm, was about to be deposited. One hatchling was found 10 December in grass near a wooden fence in Soini's yard. The hatchling measured 38 mm SVL, 58 mm LOA.

In a recently cleared field at Moropon, a large copaiba tree (*Copaifera reticulata*) approximately 30 m in height, was felled on 13 September 1973. The tree contained seven adult females, one adult male and three young of *U. flaviceps*. In addition to the above, six additional individuals, consisting principally of adult females and young, escaped. All of the specimens were found in a deep hollow (80 cm) in a vertical branch that split off the main trunk at a height of approximately 20 m. The bottom of the hollow contained 14 eggs, stuck together in series of two and four egg shells embedded in an old termite nest. The eggs ranged in size from 11.0 x 23.1 to 14.0 x 25.1 mm ( $\bar{x}$  = 12.08 x 23.72). The largest egg was opened and contained a fully formed embryo that measured 31.5 mm SVL, 48.5 mm LOA. The three young taken ranged in size from 36 to 40 mm SVL, 56 to 61 mm LOA.

The evidence of communal nesting in this species appears convincing, but the circumstances surrounding the felling of the tree suggests that the communal nest resulted from man's activities. The field surrounding the copaiba tree was cleared two months prior to the felling of the latter. This, in effect, may have forced several families of *U. flaviceps* to retreat to the only tree left in the field and, of necessity, had only one hollow in which to deposit their eggs.

Etheridge (1968) reported that males of *U. flaviceps* have two color patterns. One consists of a uniform dorsum with a complete, double white collar across the nape. The second pattern consists of a uniform dorsum or one with many light spots and the collar absent.

We have not observed the double collar phase in the vicinity of Iquitos. Admittedly, our sample is small, but Soini has observed populations around Iquitos for several years without observing the collar phase. The double collar phase has been observed in specimens from central Peru and from Santa Maria, a locality on the Rio Napo, some 300 km north of Iquitos. Living colors of individuals from Iquitos are: adult male, blackish brown dorsally and ventrally without conspicuous markings of any kind; hatching, dorsum brownish blue with many small yellow spots scattered throughout, head spots light green, tail spots tan to reddish, a single, incomplete, light green narrow collar bordered by black ventrally and laterally and broken up into a series of light green spots dorsally, venter grayish tan with lateral edges reddish, lateral and ventrolateral portions of tail with rusty transverse spots; female and juveniles, brownish black dorsally with scattered yellow spots throughout, an interrupted yellow or light blue collar bordered by black across the nape, bright red or orange beneath the tail and in the inguinal region.

*Mabuya mabouya mabouya* (Lacepede)

TCWC (60). A large skink occurring in every available habitat in the Iquitos region. Centro Union (8 ♂, 6 ♀, 3J), Indiana (4 ♀), Iquitos (1 ♀, 1 J), Maniti (2 ♀), Mishana (2 ♂), Moropon (8 ♂, 11 ♀, 6 J), Paraiso (2 ♂, 4 ♀), Yanamono (2 ♂). First record: Napo or upper Marañon (Cope, 1868). Additional records: Nauta (Cope, 1876), Pebas (Cope, 1885).

*Mabuya* is one of the most common lizards of the region. It occurs along fences, walls, porches, ceilings of houses, gardens, orchards, and garbage in Iquitos. In outlying areas it is found in

(manmade and natural), young and old secondary forests  
ary forests from seasonally flooded lowlands to the  
of sand hills. This species seems to prefer tree falls and  
s for basking sites in forest areas and has been observed  
in clearings and cultivated fields at mid-day on soils of 53  
species spends much time climbing grass stalks and other  
pursuit of grasshoppers. The remains of one specimen  
d in the stomach of a young snake, *Bothrops atrox*.

females ranged from 68 to 116 mm SVL, adult males 70  
mm and hatchlings 37 to 40 mm. Gravid females with 3 to  
eggs were taken in the months of June, July and August.  
Males were observed or captured from August through  
January. All adult females taken from the months of October  
January contained flaccid oviducts and non-yolked  
ovules.

(1945) and Vanzolini and Rebocas-Spieker (1973) have  
discussed the prey items eaten by *Mabuya mabouya*, and Beebe also  
discussed the color and behavior. Vanzolini and Rebocas-Spieker  
also discussed some aspects of the ecology of this species.

#### *Alopoglossus atriventris* Duellman

(50). A small microteiid found only in closed canopy  
forests: Centro Union (4 ♂, 5 ♀), Moropon (16 ♂, 15 ♀),  
Moropon (5 ♂, 5 ♀). First record: Duellman, 1973.

Species seems restricted to deep leaf litter associated with  
small hills surrounding temporary or permanent swampy  
areas. Males were taken near the edge of the swamps, indicating  
they probably prefer the dryer parts of the slopes. This  
species is apparently a non-basker for all specimens were taken in  
light zones where no sunlight reaches the forest floor.  
Males were observed foraging as late as 1800 hours.

Females ranged from 43 to 49 mm SVL, adult males 41  
mm. Gravid females containing two oviducal eggs were  
observed every month except January, February and March. The  
oviducal egg measured 4.9 x 10.7 mm, smallest 3.7 x 3.9  
mm. Hatchlings were particularly numerous in June at Yanamono.

Color and tails of color, see Duellman (1973).

*Alopoglossus carinicaudatus* (Cope)

TCWC (16). An inconspicuous microteiid that appears to be restricted to dense grassy fields associated with forest clearings and pasture situations. Iquitos (2 ♂, 7 ♀, 3 J), Moropon (2 ♂, 2 ♀). First record: Iquitos (Ruibal, 1952).

This species is uncommon in the Iquitos region but rarity may be due to collecting methods. Most specimens were taken from dense grass where large trees or houses shaded the area most of the day. Some specimens were taken from garbage piles, shaded porches and under houses.

Mature females ranged from 47 to 52 mm SVL, adult males 45 to 56 mm. Two eggs are usually laid and oviducal eggs were present in females taken during the months of February, April, May, June, October and November. The largest oviducal egg examined measured 6.6 x 11.2 mm, smallest 3.1 x 3.4 mm. One captive female laid two eggs on 23 April 1973. Two clutches of two eggs each were found in an ant nest 5 November 1972. The eggs measured 6.6 x 10.1, 6.7 x 10.3, 6.2 x 11.0, and 6.5 x 11.0 mm. One of the eggs hatched the next day and the hatchling measured 20.2 mm SVL, tail 32.0 mm. One clutch of eggs was hatched in the laboratory 19 October 1972 and the young measured 19.0 mm SVL, tail 27.0 mm, and 20.0 mm SVL, tail 30.0 mm. Two clutches of two eggs each were found in an ant nest on 29 April 1973. The eggs measured 7.2 x 10.0, 7.3 x 10.6, 7.5 x 10.5 and 7.4 x 10.5 mm. The eggs were returned to the nest site for future observations. The nest site was destroyed by domestic pigs on 2 June 1973, but three of the eggs were recovered and these measured 8.0 x 10.5, 9.0 x 11.5 and 9.0 x 11.7 mm. The eggs were removed to the laboratory where fungus killed them on 10 June 1972. The eggs were opened and contained fully developed young.

The dorsal coloration of adults and young is brownish tan, with or without faint flecks of darker brown. Females are cream white below, males yellowish white with each ventral scale edged with black. The ventral coloration of our series of males disagrees with that recorded by Ruibal (1952), who indicates that his series of males had immaculate venters.

Ruibal (1952) states that males of *A. carinicaudatus* have 10/10 femoral pores and 1/1 preanal pores ( a total of 22 pores). Our series varies in femoral-preanal pore number from 25 to 27. Of four specimens examined by Ruibal, only one had medial contact between the third pair of chin shields (postmentals). Our sample has the third pair of postmentals in contact in 10 of 14 specimens.



We suspect, as Ruibal suggested, that a study of variation in this species from throughout its known range will result in the discovery of several undescribed taxa.

*Ameiva ameiva petersii* Cope

TCWC (49). A common macroteiid found in all habitats of the Iquitos region except closed canopy forest and seasonally flooded lowlands. Centro Union (3 ♂, 2 ♀), Indiana (1 ♀), Iquitos (12 ♂, 9 ♀), Maniti (1 ♀), Mishana (2 ♀), Moropon (7 ♂, 7 ♀, 1 yg.), Munich (3 ♂), Paraiso (1 ♂). First record: Rio Napo or Maranon (Cope, 1868). Additional records: Pebas (Cope, 1869), Nauta (Cope, 1876), Transval (Burt and Myers, 1942).

*Ameiva a. petersii* is a heliophile commonly found in open grass fields, pasture, cultivated clearings, young secondary growth, forest edge, village paths, roadways and in city lots and yards. This species has never been observed inside primary forest but seemingly emigrates through the forest for short distances to small fields and clearings. It has been found in some manioc and banana fields that are separated from similar fields by one or two kilometers of closed canopy forest. The species either follows the native trails connecting the fields or is brought in as eggs among the roots of transplanted banana plants. Other isolated fields separated from similar fields by 8 to 10 km of closed canopy forest have not been invaded by *Ameiva*. Crump (1971) and Vanzolini (1972) give similar accounts for *Ameiva a. ameiva* in Brasil.

Adult females range from 75 to 155 mm SVL, adult males 80 to 155 mm and hatchlings 35 to 40 mm. Beebe (1945) found gravid females of *Ameiva a. ameiva* in the months of March, May, June, July and October and recorded clutches of two to four eggs. Our sample of *Ameiva a. petersii* indicates that adult females are gravid during the months of February, August, October and December, and the number of oviducal eggs varied from four to eight. The smallest gravid female (113 mm SVL) contained four oviducal eggs, the largest female (155 mm SVL) contained eight eggs. The largest oviducal egg measured 11.3 x 20.5 mm, smallest 7.2 x 9.4 mm. Beebe (1945) found a freshly laid egg measuring 10.4 x 10.4 mm.

The color pattern and ontogenetic sequence of *Ameiva a. ameiva* reported by Beebe (1945), is very similar to what we found for *Ameiva a. petersii*.

*Arthrosaura reticulata* (O'Shaughnessy)

TCWC (14). A medium-sized microteiid found only in closed canopy forest. Centro Union (1 ♂, 3 ♀, 1J), Mishana (2 ♂, 1 ♀), Moropon (1 ♂, 4 ♀), Yanamono (1 ♀). First record: Present paper.

This species seems restricted to a microhabitat of damp leaf litter near the edges of aguajal swamps. Most of our specimens were taken from leaf litter at the edge of swamps at all localities. None were observed on the summits of sand hills surrounding the swamps, but a few were found along the lower slopes during the height of the rainy season.

Adult females ranged from 45 to 61 mm SVL and adult males 57 to 66 mm. One gravid female with two oviducal eggs was found in February. The eggs measured 3.0 x 5.4 and 3.2 x 5.7 mm. Another gravid female containing two oviducal eggs (6.8 x 13.0, 6.8 x 13.1 mm) was removed from the stomach of an adult viper, *Bothrops atrox*, taken in April. Other adult females taken in February, June and November contained 3 to 8 ovarian follicles.

The juveniles of this species are dark gray dorsally, cream below and with a bright red tail. Adult females are reddish black dorsally, yellowish tan below and with dull-colored tails. Adult males are nearly black dorsally, brownish yellow below, with the ventral surfaces of thighs and tail bright red.

Our series differs from those reported on by Da Cunha (1967) from about 150 km E. of Iquitos (Benjamin Constant, Brazil), by having a much wider range in scales around the body, 43 to 51 rather than 43 to 47; longitudinal rows of ventral scales 8 to 12 rather than 6; preanal shield scales 4 to 8 rather than 6. Other differences in squamation indicate that our methods of taking data and that of Da Cunha may not be comparable.

*Bachia trisanale trisanale* (Cope)

(6). A wormlike microteiid found in old secondary and forests and along forest edges. Mishana (1 ♂), Moropon (3 iso (1 ♂), Santa Maria (1 ♀). First record: Rio Napo 368). Additional records: Iquitos, Mishana, Moropon, Rio xon, 1973).

our specimens came from beneath or inside of decaying leaf litter in secondary and primary forests. A gravid containing two oviducal eggs was taken in August. Two taken in January and March had flaccid oviducts and to have recently laid eggs.

females ranged from 60 to 70 mm SVL and adult males mm (for color notes see *Bachia vermiforme*).

*Bachia vermiforme* (Cope)

(12). A wormlike microteiid found in old secondary and forests, and forest edge situations. Mishana (5 ♂, 7 ♀). Record: Nauta (Cope, 1874).

ut one of our specimens came from beneath and within the stem of a large stump being removed from the edge of a occer field. The latter specimen was taken from beneath a g log in old secondary forest.

re females containing two oviducal eggs were found in the of October and November. The largest oviducal egg ed 4.5 x 11.2 mm, smallest 4.7 x 10.7 mm. Adult females from 55 to 65 mm SVL and adult males 57 to 64 mm.

ording to Dixon (1973), 14 specimens representing inter- es between *B. trisanale* and *B. vermiforme* were examined he vicinity of Iquitos, thus confirming the conspecific of the two forms. This assumption was based on the ation of the holotype of *B. vermiforme* and on the on in number of foretoes of the Iquitos sample. Only the pe of *B. vermiforme* was available at the time, but now an nial 12 specimens shed new light on the relationship of the orms. Several characters, such as chin shield contact, arietal contact, number of dorsals and ventrals (and try) now indicate that the two forms are not conspecific.

lines and the black lateral band is reddish brown. *Bachia vermiforme* is uniform light brown to blackish brown dorsally and ventrally with no trace of a pattern. The dorsal scales number 53 to 59 rather than 48 to 53, ventrals 40 to 45 rather than 35 to 40, none or 5th labial touching parietal rather than always 4th, first and second pair of chin shields normally in medial contact rather than only first pair; both species occur sympatrically at Mishana.

*Cercosaura ocellata bassleri* Ruibal

TCWC (52). A small microteiid restricted to closed canopy forest. Centro Union (12 ♂, 9 ♀, 31 J). First record: present paper.

This species is primarily terrestrial, usually foraging most of the day in dense leaf litter on the forest floor. Occasionally specimens have been observed climbing broadleaf shrubs, and one individual was taken from a plant 0.5 m above the ground.

Adult females range from 54 to 63 mm SVL and adult males 50 to 65 mm. Gravid females containing two oviducal eggs were taken during the months of January, February, September, October and December. The largest oviducal egg measured 6.0 x 12.4 mm, smallest 7.3 x 8.6 mm. On 20 October 1972, a female was observed laying a single egg (8.2 x 15.0 mm) in dense leaf litter at the base of a large tree. Open umbilical scars were present in all young individuals (25 to 28 mm SVL) taken between 28 November and 21 March.

Adult males of this species develop bright red flanks during their breeding period. The red color extends from the dorsolateral dark line to the edge of the ventrals and from the arm insertion to the thigh and beneath the tail. The lateral ocelli are black with white centers and very conspicuous against the red sides. The membrane surrounding the testes of mature males is black.

The only other Peruvian locality from which this form has been taken is Perene (type locality of *C. o. bassleri*), some 865 km SSW of Iquitos. The species is not known from Amazonia Colombia or Ecuador, nor have we found it on the north side of the Rio Amazonas in the Iquitos region. It may reach its northern limit on the south bank of the Rio Amazonas. Our sample differs from the topotypic sample described by Ruibal (1952) in having 28 to 39 (34.6) scales around midbody rather than 24 to 34 (27.5), gulars 9 to 13 rather than 6 to 9, transverse ventral rows 16 to 20 (18.5) rather than 18 to 22 (20.2).

*Dracaena guianensis* Daudin

TCWC (6). A large, semiaquatic and semiarboreal microteiid found in seasonally flooded lowlands, fields, swamps, small streams and lakes. Centro Union (1 ♂), Iquitos (1 ♂, 1 ♀), Moropon (3 ♂). First record: Iquitos (Carrillo, 1970).

We have scant information on the reproduction and habitat preference of this species. One young specimen (110 mm SVL) was seen on a branch of a large shrub overhanging a small forest stream. When chased, it dived into the stream and hid under dead leaves on the bottom. Two young males (118, 119 mm SVL) were taken from manioc stalks in a cultivated field and one subadult male from a small drainage ditch in a yard. During the flood season adult *Dracaena* have been observed swimming into village and city streets in search of food. One of us (Soini) observed several individuals feeding in shallow water in his flooded back yard in May. One would dive, stay under water for varying lengths of time, and eventually arrive at the surface with a snail in its mouth. The lizard held its head in a vertical position, crushed the snail with rather loud noises, spit out the shell, swallowed the soft part, and dived again.

Unfortunately, we have examined only one female for reproductive data. The adult female (370 mm SVL) was taken in February and contained 17 yolked ovarian follicles. One of the young males taken in March had an open umbilical scar. Three additional young specimens, probably less than two months old, were taken in December. A number of skins and a few live individuals of this species are shipped from Iquitos each year.

All of our young specimens had bright green bodies and reddish brown heads. Otherwise, our color notes agree with those presented by Vanzolini (1961).

The number of transverse rows of ventral scales of our series (33-35) are slightly higher than those (32-33) given by Vanzolini and Valencia (1965).

*Iphisa elegans elegans* Gray

TCWC (13). A small, skink-like microteiid restricted to closed canopy forest. Centro Union (1 ♂, 3 ♀), Mishana (2 ♀), Moropon (4 ♂, 1 J), Rio Momon (1 ♂), Yanayacu (1 ♂). First record: The above localities (Dixon, 1974).

This species is found from damp leaf litter at the edge of forest streams to dry litter at the summit of sand hills. It is usually found foraging in and under leaf litter. Adult females range from 46 to 60 mm SVL and adult males 41 to 62 mm. For details of its natural history, see Dixon (1974).

*Kentropyx calcaratus* Spix

TCWC (20). A common macroteiid occurring in all habitats except closed canopy forest. Belen (1 ♀), Centro Union (1 ♂, 1 ♀), Indiana (2 ♀), Iquitos (3 ♂, 1 ♀), Moropon (5 ♂, 5 ♀), Santa Maria (1 ♀). First record: Transval, Pebas (Burt and Myers, 1942).

This species has been found in forest edge situations, cultivated fields, clearings, open river beaches, sparse and dense secondary growths, yards, roadways, and seasonally flooded lowlands. It is often found associated with *Ameiva ameiva*, but wherever this occurs, *Ameiva* is usually the dominant species.

An interesting behavioral trait of this species is that it becomes semiarboreal and semiaquatic during the flood season. When lowland shrub thickets, fields, and secondary plant growths become flooded (4-6 months of year), this species retreats from the rising waters vertically rather than horizontally. It lives among the canopies of small trees and shrubs that remain above the water. These "vegetative" islands, depending upon the density and size of the cluster of vegetation, may house one or several individuals of *Kentropyx*. The lizards keep mainly to the horizontal branches but are occasionally seen climbing the vertical branches. They are most frequently observed near the water surface but when pursued, may climb as high as 2 m above the water or dive into the water. On cloudy days they seem to remain within the dense foliage but on sunny days climb out to the edges of the branches and bask. The most startling discovery was the ability of this species to cross up to six meter stretches of open water in the same fashion as *Basiliscus*. They simply run across the water surface to the next clump of vegetation or if the distance is too great, dive and swim the remainder of the distance.

Other species of lizards observed in these vegetative islands are *Mabuya mabouya* and *Tupinambis teguixin*, both of which seem to be good swimmers.

Mature females range from 70 to 93 mm SVL, adult males 65 to 95 mm, and hatchlings 30 to 35 mm. Gravid females containing two to four, well-developed oviducal eggs were taken in the

January, February, June, August and September. The largest egg measured 9.3 x 18.6 mm, smallest 8.3 x 13.0 mm. Eggs that had recently laid eggs were taken in March, April and hatchlings were taken in October, November and December. Fitch (1970) indicated that year-around breeding is possible and our data supports his view. Our ecological data support the data presented by Rand and Humprey (1972), who indicated that *K. calcaratus* is a species, occasionally found in secondary growths. Our records of *K. striatus* as occupying the open formation suggests that where two species of *Kentropyx* occur, one is a forest form, the other a savanna form. This is true in our region where *K. pelviceps* is the forest form and *K. calcaratus* is the savanna form.

Our specimen was taken from the stomach of a coral reef fish, *Parupeneus spixii*.

The young of *K. calcaratus* have a bright green median stripe on the prefrontals and extending to the anterior dorsum where it fades into a wavy, soft brown stripe to the rump. In addition, there are two light green to yellow lateral stripes on the body. The upper one begins at the eye and extends to the rump, fading somewhat. The lower stripe begins behind the eye, passes over the shoulder slightly beyond the shoulder where it becomes a series of short dashes and spots. The entire ground color of the sides varies from soft brown to chocolate brown. The upper stripe is greenish yellow to dirty white. The lower stripe is present at about 60 mm SVL, but the upper lateral stripe is present in all adults. A lateral brownish stripe lying between the two main stripes, is present in all age groups, and frequently contains a series of irregular, large black spots within the stripe.

We examined over 100 specimens of *K. calcaratus* from various localities within its known distribution and agree with Fitch (1972) that geographical differentiation exists.

We examined the holotype of *K. altamazonicus* Cope and it appears to be a perfect example of a hatchling of *K. calcaratus*. The character separating *altamazonicus* from *calcaratus* was the absence of keeled dorsal scales. All hatchling *K. calcaratus* have keeled dorsals.

*Kentropyx pelviceps* Cope

TCWC (52). A macroteiid found only in primary forest and forest edge situations in the Iquitos region. Centro Union (8 ♂, 6 ♀), Indiana (1 ♀), Mishana (11 ♂, 9 ♀), Moropon (10 ♂, 6 ♀), Santa Maria (1 ♀). First record: Rio Napo or upper Amazon (Cope, 1868). Additional records: Nauta (Cope, 1876), Pebas (Burt and Myers, 1942).

All but one of our specimens were taken from leaf litter on the forest floor. One specimen came from the middle of a small, abandoned clearing dense with secondary growth. Two hatchlings were taken from a similar situation far inside (3 hr. walk) the primary forest. Adults were not observed climbing higher than a fallen log, but hatchlings and juveniles were frequently seen climbing small saplings and other plants to a height of 1.5 m. This species is most active on the warmest part of a sunny day and frequently basks in small spots of sunlight that reach the forest floor. The same individual tends to frequent the same basking site on successive sunny days. This species was never observed on an overcast or rainy day. *Kentropyx pelviceps* seldom seeks holes for escape from predation, but depends upon its speed, running 10 to 20 m at a time, with brief stops.

One young adult was seen feeding on a large cricket. The lizard held the insect on the ground with its forelimbs, and removed and ate one piece at a time. One adult female was removed from the stomach of the coral snake, *Micrurus spixii*, and the remains of another specimen was found in the stomach of the viper, *Bothrops atrox*.

Adult females ranged from 80 to 111 mm SVL, adult males 75 to 115 mm and hatchlings 35 to 39 mm. Gravid females containing 3 to 5 oviducal eggs were taken in the months of March, April, May, August and December, and hatchlings in June, August, September, October and December. Only 2 of 11 adult females were carrying oviducal eggs in March. The remaining nine individuals probably laid their eggs in February because the oviducts were turgid and thickened, and the ovaries contained large, yolked follicles. The largest oviducal egg measured 11.0 x 19.7 mm, smallest 8.8 x 12.0 mm.

In life, the color pattern of *K. pelviceps*, especially young and females, is very similar to *K. calcaratus*, except there is one less pair of lateral light stripes. The row of lateral black spots is absent and the top of the head is never brown, as in adult *K. calcaratus*.



The median light stripe is bluish green rather than bright green especially on the head. The stripe widens and quickly fades to a yellowish green on the nape, then a metallic coppery tint to midbody, then reddish brown to the rump. The edges of the median stripe become strongly undulating from the shoulder to the level of the rump. The median stripe is bordered below by a broad dorsolateral chocolate brown to blackish brown stripe, extending from the eye to the groin in young and juveniles, frequently faded and obscure from eye to anterior third of body in adults. The upper edge of the stripe is strongly undulating in all age groups while the lower edge of the stripe may be straight or undulating in adults.

In juveniles, the narrow, dorsolateral light green stripe is present from above eye to above the shoulder, where it becomes a series of dashes and spots to the groin. The lateral light green stripe is absent. The entire side of the head and nape is occasionally greenish in hatchlings and juveniles. Adults usually lack any trace of the dorsolateral light stripe. The median light stripe is yellowish to soft brown and extends from nape to rump, and the lateral dark stripe is frequently interrupted by blackish vertical bars in adults. The underparts are rather dark gray in young and hatchlings, becoming increasingly coppery brown in adults.

There is some confusion as to the application of a specific name to the Iquitos population. Cope (1885) relegated *pelviceps* to the synonymy of Gunther's (1859) *Monoplocus dorsalis*, but Boulenger (1885) indicated that the type of *M. dorsalis* was removed from the jar and placed by a young specimen of *K. pelviceps*. Burt and Burt (1931) belied Boulenger's suggestion and placed both *dorsalis* and *pelviceps* as synonyms of *calcaratus*. We have examined the holotype of *K. pelviceps* and recognize *pelviceps* as a distinct species, based on sound biological data. The correct allocation of *Monoplocus dorsalis* to either of the currently recognized, western South American species will remain a mystery until the confusion surrounding the holotype of *M. dorsalis* is resolved.

*Leposoma parietale* (Cope)

TCWC (22). A small, terrestrial, reddish brown microteiid occurring in closed canopy forest. Mishana (2 ♂, 2 J), Moropon (4 ♂, 2 ♀, 6 J). First record: Pebas (Cope, 1885). Additional records: Iquitos, Rio Itaya (Ruibal, 1952).

The juveniles of this species are frequently found in wet leaf litter near the edge of springs, forest streams and swamps, where they are often associated with juvenile *Neusticurus epleopus*. Adults have been taken from leaf litter at the base of trees and stemless palms, wet depressions in the forest floor, and from well-drained soils at the summit of sand hills. We have observed this species at several localities (Mishana, Moropon, Paraiso, Yanamono) along the north bank and northern tributaries of the Rio Amazonas, but have failed to find it at any collecting site on the south bank. This fact, supported by published locality records, suggests that this species does not occur south of the Rio Amazonas.

Adult females range from 32 to 38 mm SVL, adult males 32 to 37 mm and hatchlings 17 to 19 mm. Gravid females containing two oviducal eggs have been taken during the months of July, August, September and December, and juveniles and hatchlings were taken or observed in June, July, November, December and January. The largest oviducal egg measured 4.4 x 9.0 mm, smallest 4.0 x 5.0 mm.

The juvenile and adult coloration is similar except for the bright red venter of adult males. The dorsum is reddish brown with occasional flecks of dark brown scattered throughout. A lateral dark stripe, 2-3 scale rows wide, begins at the ear and extends onto the tail. There are 10 to 15 white spots in the dark lateral field between the ear and the thigh. Occasionally, the lateral dark line at the base of the tail is bordered below by a short series of white spots. The labials are generally marked with a series of alternating black and white spots.

Uzzell and Barry (1971) examined a large series of *L. parietale* from Ecuador and Colombia and compared it to samples of the suspected unisexual *L. percarinatum* and other species of the genus. They only examined four individuals from Peru and our series indicates that some geographic differentiation is evident. However, our methods of taking data may not be comparable to that of Uzzell and Barry (1971).

#### *Neusticurus epleopus* Cope

TCWC (58). A semiaquatic microteiid found only in the Amazonian rain forest. Centro Union (6 ♂, 2 ♀, 7 J), Mishana (7 ♂, 1 ♀), Moropon (12 ♂, 2 ♀, 16 J), Yanamono (2 ♂, 2 J), Yanayacu (1 J). First record: Transval, Pebas (Burt and Myers, 1942). Additional record: Iquitos (Uzzell, 1966).

Individuals of *N. epleopus* are common in small depressions on the forest floor, along the banks of small streams and around the edges of aguajal swamps. Adults are found only along small, shaded streams in non-flooded primary forest, where suitable banks are available for nesting. Hatchlings and juveniles are common in small wet depressions in the forest floor and around edges of muddy pools and aguajal swamps that usually lack the topographic features for successful reproduction. The young individuals probably disperse to the latter areas because of high density population pressure. Contrary to Uzzell's (1966) report of the escape behavior, running to water, we have found that our specimens attempted to hide in holes along the banks of streams and swamps. Even those individuals found foraging in shallow water ran towards the bank in an attempt to escape rather farther out into the water. Frequently, individuals foraging in the water would seek cover under the nearest wet leaf litter along the bank, or remain motionless on top of the litter, apparently relying on their cryptic coloration to conceal them.

Mature females ranged from 53 to 58 mm SVL, mature males 52 to 64 mm and hatchlings 21 to 24 mm. Gravid females containing two oviducal eggs were taken during the months of February, March, June, August and October. Hatchlings are present in our sample for every month except February, April and May. The largest oviducal egg measured 6.3 x 11.9 mm, smallest 3.0 x 5.7 mm. The remains of one adult specimen was found in the stomach of a semiaquatic snake, *Helicops angulatus*.

In life, the dorsum varies from tan to brownish black. Mature males tend to have bright blue chins and throats with small yellow spots scattered throughout. The vertical bar below the eye is bright yellow in all age groups but more pronounced in males. All age groups have a large black spot over the shoulder that contains a small bright blue spot in its center.

*Prionodactylus argulus* (Peters)

TCWC (77). A beautifully colored microteiid that occurs in all habitats except open pastures, cultivated fields and seasonally flooded lowlands. Centro Union (13 ♂, 25 ♀, 17 J), Iquitos (2 ♂, 2 J), Mishana (2 ♀), Moropon (7 ♂, 6 ♀), Yanamono (2 ♀), Yanayacu (1 ♀). First record: Iquitos, Isla Cedros, Lago Mirano region (Uzzell, 1973).

In forest situations this species is found on the ground, shrubs, logs, tree stumps, tree trunks, debris, palm leaves, and many other places where small spots of sunlight reach the forest floor. It has

been observed basking on numerous occasions and is obviously a heliophile. In outlying villages and rural areas near Iquitos this species is likely to be found in and around the bases of fruit trees, under houses, in garbage heaps, especially where larger trees shade the area part of the day. This species climbs readily, but seldom higher than 0.5 m above the ground.

Mature females range from 39 to 48 mm SVL, adult males 36 to 44 mm and hatchlings 17 to 21 mm. Gravid females containing two oviducal eggs were taken in every month except April and May. The largest oviducal egg measured 5.4 x 10.7 mm, smallest 3.7 x 4.0 mm. Several nest sites were found in Soini's backyard. A September nest site was uncovered at the base of a fence post and adjacent banana tree. The nest not only contained eggs of *P. argulus* but also eggs of *Anolis ortonii* and *Alopoglossus carinicaudatus*. The nest was situated within an ant nest and a total of 14 eggs were present. It was obviously a communal nest site for all three species and several females of each species utilized it. One of the *P. argulus* eggs measured 8.1 x 9.8 mm and hatched on 10 October. The hatchling measured 17.0 mm SVL, tail 31.0 mm. Another nest was discovered in an ant nest situated between two closely set banana plants on 22 December. Two eggs were present and these hatched on 3 January. The young measured 19.3 and 20.0 mm SVL, tails 35.0 and 35.7 mm.

The dorsal coloration of adult males is light brown with small black spots scattered throughout. The brown dorsum is bordered dorso-laterally by a thin white line extending from the nasal scale to the hind limb insertion. The sides below the white line are bright red with about 6 to 10 black and white ocelli in a more or less even row, extending from the ear to the groin. The red of the sides frequently extends onto the ventrals, but seldom more than the outer row of scales. The tail is red in both sexes. The venter is white or cream with many minute dusky black spots scattered throughout. The lateral ocelli and red sides of males may be seasonal. Adult males taken from June through September were red, while similar adults taken from November through February were brown.

Uzzell (1973) revised the genus *Prionodactylus* and examined a total of 26 specimens of *P. argulus* from 19 different Peruvian localities. Our series of 75 individuals from one area reveals a much wider variation of squamation than indicated by Uzzell.

*Ptychoglossus brevifrontalis* Boulenger

TCWC (10). An uncommon microteiid with dark reddish brown dorsum and reddish venter restricted to the closed canopy forest. Centro Union (3 ♂, 2 ♀), Moropon (4 ♂, 1 ♀). First record: present paper.

*Ptychoglossus brevifrontalis* seems to be found only along the lower slopes of sand hills in deep leaf litter. They are occasionally seen crossing native paths but most frequently foraging in dense leaf litter. One specimen was removed from the stomach of the snake, *Rhadinaea brevirostris*.

Mature females ranged from 42 to 53 mm SVL, mature males 40 to 46 mm. Gravid females containing two oviducal eggs were taken in the months of April, June, July, September and December. The largest oviducal egg measured 4.8 x 6.4 mm, smallest 3.2 x 3.3 mm.

Males and females are identical in dorsal coloration but males tend to have reddish venters while those of the females are yellowish tan. If the dorsolateral light line is evident, it is reddish in males, obscure in females. The mid-dorsal area of the body is generally flecked and spotted with dark brown. Occasionally the anterior and posterior edges of the dorsal scales are blackish brown, giving an illusion of narrow crossbands on the body in both sexes.

Through the courtesy of Alice Grandison of the British Museum, the number of scales around the body of the holotype of *P. brevifrontalis* was found to be 33 rather than 24 as reported by Boulenger (1912). A comparison of *P. nicefori* material from Colombia with *P. brevifrontalis* material from Ecuador and Peru suggests that the two species are conspecific. The number of scales around the body of the Ecuador and Peru sample ranged from 33 to 38, the Colombian sample 31 to 32. All other data taken from the two samples indicates complete overlap, including the color pattern. We suggest, therefore, that *P. nicefori* be placed in the synonymy of *P. brevifrontalis*.

*Tupinambis teguixin* (Linnaeus)

TCWC (6). The largest microteiid of our region and occurs in all habitats except direct contact with human habitation. Iquitos (2 ♂, 1 ♀), Moropon (1 ♀), Paraiso (1 ♂, 1 ♀). First record: Rio Napo or upper Amazon (Cope, 1868). Additional records: Iquitos (Carrillo, 1970).

This species is more numerous than our sample indicates. It has been observed on numerous occasions but due to lack of collecting equipment and their large size, we were unable to secure an adequate sample.

This species swims readily and has been observed in vegetative islands (see *Kentropyx calcaratus*) during the flood season. Our three non-gravid females ranged from 195 to 280 mm SVL, males from 270 to 310 mm. Eggs of this species were not found, but local Indian tribes speak of finding *Tupinambis* eggs in termite nests up to 3 m above the ground. This species has been known to attack poultry, especially young chicks, and to rob chicken nests of eggs. A large number of skins and several live specimens of this species are shipped from Iquitos each year.

Beebe (1945) gives descriptive accounts of food, activities, nesting, incubation, color pattern, and size of *Tupinambis*.

*Amphisbaena alba* Linnaeus

TCWC (6). A large amphisbaenid found in young secondary forest at forest edge situations. Centro Union (1 ♂), Iquitos (1 ♀), Moropon (1 ♂, 3 ♀). First record: Pebas (Cope, 1869).

Our specimens came from partly shaded clearings, forest edge and paths in young secondary growths. The single male measured 325 mm SVL, females ranged from 370 to 593 mm and none were gravid.

All of our specimens were dirty white below and yellowish tan dorsally. The entire series has a series of light brown dusky spots sparsely scattered over the entire dorsum. Gans (1962) sums up the literature on the known habits and food of the species.

The number of body annuli varied from 220 to 224, tail annuli 15 to 17, segments per midbody annulus 30-35/37-45, preanal pores 8. These data agree well with the range of variation presented by Gans (1962).

*Amphisbaena fuliginosa bassleri* Vanzolini

TCWC (17). A common amphisbaenid found in all habitats except closed canopy forest and seasonally flooded lowlands. Centro Union (5 ♂, 2 ♀), Mishana (1 ♀), Moropon (2 ♂, 1 ♀). First record: Rio Napo and Marañon (Cope, 1868). Additional records: Pebas (Cope, 1869), Iquitos, Requena (Vanzolini, 1951).

Our specimens came from a variety of sites in open and edge situations. Two were taken from roads near pastures, four from young secondary growth, two from pastures, one from the edge of primary forest, and six from cultivated fields.

Females ranged from 224 to 402 mm SVL, males 251 to 397 mm. None of the females were gravid and hatchlings have not been found. Vanzolini (1951) records a very young individual (105 mm SVL) from Contamana, Peru and his largest specimen (450 mm SVL) from Iquitos, Peru.

The color patterns of our series contain a complete range from the *Amphisbaena f. varia* type to the *Amphisbaena f. bassleri* type. The body annuli range from 201 to 211, tail annuli 25 to 29, segments per midbody annulus 20-25/20-23, preanal pores 7 to 9, which agrees well with that presented by Vanzolini (1959).

#### SPECIES OF QUESTIONABLE OCCURRENCE IN PERU

Of the 45 species of lizards and amphisbaenids either known or reported from the Iquitos region, we have validated the presence of 40 taxa. The remaining five species are discussed below.

##### *Ameiva bifrontata divisa* (Fischer)

This species was reported from the vicinity of Pebas, Peru, by Burt and Myers (1942). We have re-examined this series (CAS-SU 8324-29, 8331-32, 8734) and found that they represent specimens of *Ameiva ameiva petersi*. Although Burt and Myers (1942) admitted that three of the nine specimens listed did not have a divided frontal, they assumed that this was an abnormality and allocated the entire series to *A. bifrontata*. Our entire series of *A. ameiva* (43), all from a 50 km radius of Iquitos, shows that 24.4% of the sample has a divided frontal, 21.9% with a partially divided frontal and 53.7% without a divided frontal. The distribution of *A. bifrontata* (120 mm maximum SVL) does not extend into the western rain forests of the Amazon Basin, while *A. ameiva* (160 mm maximum SVL) is distributed throughout the western Amazon Basin.

##### *Anolis bocourti* Cope

Cope (1876) described this form from Nauta, Peru, a small town some 95 km SSW of Iquitos. Dr. E. E. Williams (Pers.

Comm.) has examined the type series of *A. bocourti* and states that it is identical to *Anolis fuscoauratus*.

*Polychrus liogaster* Boulenger

This species was recorded from Pebas, Peru, by Burt and Myers (1942). A re-examination of the specimens (CAS-SU 8729-30) reveals that the chest and ventral scales are strongly keeled, not smooth or weakly keeled, a character attributed to *P. liogaster*. We refer these specimens to *Polychrus marmoratus*, a common species in the Iquitos region.

*Ptychoglossus picticeps* (Cope)

Since Cope's (1885) description of *P. picticeps*, no additional specimens have appeared in collections and the holotype is lost. Extensive collecting has not been conducted by us in the Pebas area (type locality). This species should occur in the vicinity of Iquitos, some 160 km WSW of the type locality. We have not found it and until additional material is available, we can only assume that this species is extremely rare.

*Uracentron guentheri* (Boulenger)

Etheridge (1968) indicated that *U. guentheri* occurred at Iquitos, based on the type locality information given by Boulenger (1894). We have serious doubts that *U. guentheri* occurs within a 100 km radius of Iquitos. During seven years of collecting and observing the lizard fauna around Iquitos, one of us (Soini) has never seen nor had evidence to the existence of this species in the area. In addition, Iquitos has been a major shipping point for animal traffic since the late nineteenth century and many animals are brought in from areas as far away as 500 km. The species, *U. flaviceps*, is abundant in the Iquitos region, and if *U. guentheri* occurred there, it should have been taken by now.



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THE REPTILES OF THE UPPER AMAZON BASIN,  
IQUITOS REGION, PERU

I. LIZARDS AND AMPHISBAENIANS

By James R. Dixon and Pekka Soini

ABSTRACT

A general description of the major plant communities and their associated topographies is presented for the Iquitos region, Peru. Individual accounts of 40 species of lizards and amphisbaenians is included, containing information on their reproduction, habitat preferences, and behavior and taxonomy where pertinent. A general summary of species diversity and reproduction of lizards and amphisbaenians for the Iquitos region precedes the species accounts. The species accounts are followed by a section concerning species of questionable occurrence in the Iquitos region. Information regarding the latter species is discussed in detail.

A list (Table 1) is presented, containing 142 forms of reptiles occurring in the Iquitos region, including new records for the country and/or the region. The latter consists of the lizards *Gonatodes concinnatus*, *Lepidoblepharis festae*, *Pseudogonatodes guinanensis*, *Enyalioides cofanorum*, *Ophryoessoides aculeatus*, *Arthrosaura reticulata*, *Cercosaura ocellata*, *Ptychoglossus brevifrontalis*; the snakes *Typhlops* sp., *Anilius scytale*, *Atractus* sp., *Atractus resplendens*, *Chironius carinatus*, *Chironius multiventris*, *Chironius scurrulus*, *Clelia bicolor*, *Dendrophidion dendrophis*, *Drymarchon corais*, *Drymobius rhombifer*, *Helicops leopardinus*, *Helicops pastazae*, *Leimadophis* sp., *Leimadophis poecilogyrus*, *Liophis breviceps*, *Liophis cobella*, *Oxybelis aeneus*, *Oxybelis argenteus*, *Oxybelis fulgidus*, *Oxyrhopus melanogenys*, *Oxyrhopus trigeminus*, *Philodryas viridissimus*, *Pseudoboa coronata*, *Pseudoeuryx plicatilis*, *Pseustes poecilonotus*, *Pseustes sulphurus*, *Rhadinaea occipitalis*, *Tantilla melanocephala*, *Thamnodynastes pallidus*, *Tripanurgos compressus*, *Xenodon severus*, *Bothrops brasili*, *Bothrops castelnaudi*, *Bothrops hyoprurus*, *Lachesis muta*, *Micrurus filiformis*; the crocodilian *Paleosuchus palpebrosus*; the turtles *Kinosternon scorpioides*, *Platemys platycephala* and *Phrynops gibbus*.