

# SPIZAETUS

NEOTROPICAL RAPTOR NETWORK NEWSLETTER

ISSUE 34

DECEMBER 2022

*SPIZAETUS ISIDORI* IN VENEZUELA

*FALCO FEMORALIS* IN ARGENTINA

*MORPHINUS GULANENSIS* IN HONDURAS

*ATHENE CUNICULARIA* IN CENTRAL AMERICA

*FALCO PEREGRINUS* IN PERU





# SPIZAETUS

NEOTROPICAL RAPTOR NETWORK NEWSLETTER

Issue 34 © December 2022  
English Edition, ISSN 2157-8958

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*Spizaetus isidori* © Dušan Brinkhuizen

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# TABLE OF CONTENTS

BLACK-AND-CHESTNUT EAGLE ( <i>SPIZAETUS ISIDORI</i> ) IN THE CITY OF MÉRIDA, ANDES OF VENEZUELA <i>Luis A. Saavedra &amp; Carla I. Aranguren</i> .....	4
THE APLOMADO FALCON ( <i>FALCO FEMORALIS PICHINCHAE</i> ): BEHAVIORAL OBSERVATIONS, HABITAT USE, BIOMETRICS, AND PLUMAGE DESCRIPTION, IN NORTHWESTERN ARGENTINA <i>Patricia Capllonch, Rodolfo Miatello, &amp; Diego Ortiz</i> .....	10
CONFIRMATION OF A DARK MORPH CRESTED EAGLE ( <i>MORPHNUS GUIANENSIS</i> ) (ACCIPI-TRIDAE) IN HONDURAS AND VETERINARY CARE AND TREATMENT POST RESCUE OF AN INDIVIDUAL <i>Marcio Martínez, Marvin García, Valeria Cerrato, Alejandro Velásquez, Marialetis Martínez, Alejandro Barahona &amp; Albino Padilla</i> .....	19
BURROWING OWL ( <i>ATHENE CUNICULARIA</i> ) RECORDS IN EL SALVADOR, GUATEMALA AND HONDURAS <i>Ricardo Ibarra Portillo, Bianca B. Bosarreyes, Edwin Miranda Mejía, Luis Pineda, Josué Efraín González, Alfredo Valle, Gilber Barillas &amp; Wagner Chávez</i> .....	27
FIRST NEST RECORD AND OBSERVATIONS OF NESTING PEREGRINE FALCON ( <i>FALCO PEREGRINUS CASSINI</i> ) IN THE AMAZON SLOPE OF PERU <i>Daniel Orizano</i> .....	35
DR. JOSÉ HERNÁN SARASOLA, RECIPIENT OF THE TOM CADE AWARD 2022 <i>Jennifer Coulson</i> .....	42
OF INTEREST.....	44

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# BLACK-AND-CHESTNUT EAGLE (*SPIZAETUS ISIDORI*) IN THE CITY OF MÉRIDA, ANDES OF VENEZUELA

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The Black-and-chestnut Eagle (*Spizaetus isidori*), together with the Harpy Eagle (*Harpia harpyja*), is considered one of the great South American eagles (Schäfer 1999). This large raptor (weight = 1.5-3.5 kg) can reach a total length of 63-74 cm and has a wingspan of approximately 180 cm (Zuluaga et al. 2022). Its head, throat, and back are black, while on the ventral part it is chestnut with black stripes. One of its particular characteristics is a long black crest on its head, as well as feather-covered legs and rounded wings (Phelps and Meyer Schauensee 1994).

It primarily inhabits undisturbed moist montane forests along mountain slopes in Venezuela, Colombia, Ecuador, Peru, Bolivia, and northern Argentina (Ferguson-Lees and Christie 2001). In Venezuela it is found in montane and cloud forests from 600 to 2500 m. a.s.l. in the Cordillera de Mérida, Sierra de Perijá, and the Cordillera de la Costa (Hilty 2003).

The Black-and-chestnut Eagle has low population densities and high territorial requirements. It is estimated that one pair needs approximately 10,000 ha to develop their life cycle (Thiollay 1991). This species is categorized by the International Union for the Conservation of Nature (IUCN) as Endangered, while in Venezuela it is considered Near Threatened by the Red Book of Venezuelan Fauna (Rodríguez and Rojas-Suárez 2008, BirdLife International 2021).

Main threats to the species include the fragmentation and destruction of forests, and illegal hunting due to predation on domestic birds, among others (Echeverry-Galvis et al. 2014, Restrepo-Cardona et al. 2020, Zuluaga et al. 2020). These factors have led to a decrease in their populations, estimated at 250-999 individuals (possibly a few hundred for Venezuela) (Bierregaard et al. 2020). Knowledge of the Black-and-chestnut Eagle in Venezuela is scarce, and is based on records of its distribution and some descriptions of its diet





**Figure 1. Southwest view of the city of Mérida, Mérida State, Venezuela. Photo © Luis A. Saavedra**

(Phelps and Meyer Schauensee 1994, Schäfer 1999, Hilty 2002). For these reasons, it is important to continue to study aspects of the biology and ecology of the Black-and-chestnut Eagle in Venezuela. In particular, data on population dynamics, distribution, trophic ecology, reproduction, and threats could contribute substantially to the knowledge and conservation of the species in the country. In this manuscript, we present new observations of the Black-and-chestnut Eagle in an urban area of the city of Mérida, Andes of Venezuela.

The city of Mérida is located in the Cordillera de Mérida, Andes of Venezuela, specifically in the valley of the Chama River located between the Sierra de la Culata and the Sierra Nevada de Mérida (Ataroff and Sarmiento 2003). The city has a population of approximately 215,542 in-

habitants and its limits extend 60 km<sup>2</sup> on a terrace of alluvial origin with a southwest-northeast orientation that is 10-15 km long and 1-3 km wide with an average elevation of 1,640 m. a.s.l. (Camargo and Guerrero 1997, INE 2014, Luján et al. 2014) (Fig. 1). Mérida has a mesothermal mountain climate where two ecological zones converge - the montane semi-deciduous forest (between 800-1700 m.a.s.l.) and the lower montane cloud forest (between 1700 - 2200 m.a.s.l.) (Ataroff and Sarmiento 2003, Aranguren 2009).

The observations were made while monitoring the 2021 and 2022 fall migration of Nearctic raptors from the downtown area of the city (see Saavedra and Escalona Cruz 2021) and in the El Carmen sector on the northeast edge of the city (2022). In total, five sightings were recorded. All the individuals observed were flying in a south-

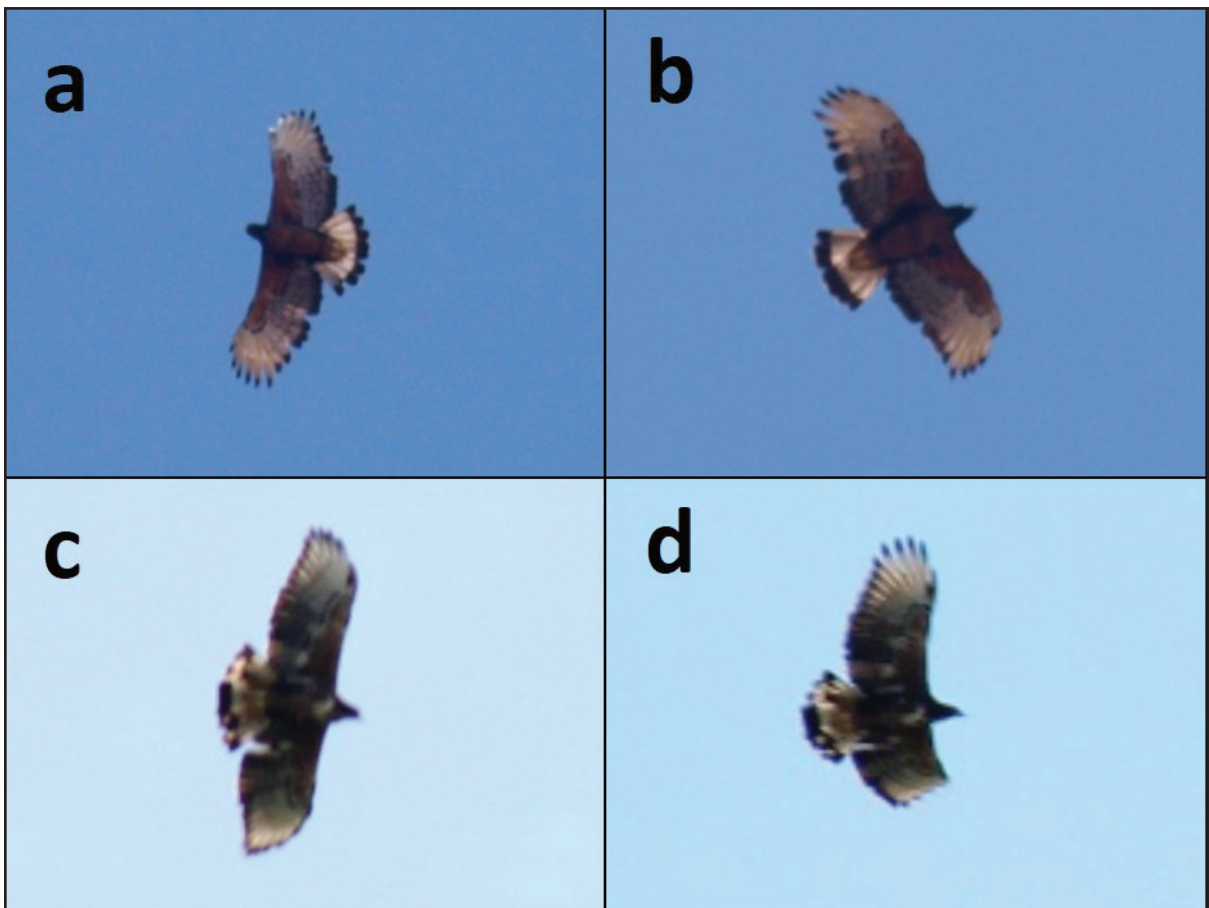
west to northeast direction (Fig. 2 and 3). On two occasions (18 November 2021 at 13:30 hrs and 10 October 2022 at 14:00 hrs), a pair of adults was observed. The remaining observations were of solitary individuals; specifically, one adult (22 November 2021 at 11:30 hrs), and an immature individual that was observed on two occasions (7 October 2022 at 10:14 hrs and on 18 October 2022 at 13:20 hrs).

Additionally, there is a record in the Vertebrate Collection of the Universidad de Los Andes (CVULA) of a immature individual, which collided with an electrical tower on the outskirts of

the city in 2016 (Loma de La Virgen sector; north of the city of Mérida).

The presence of the Black-and-chestnut Eagle in the city of Mérida is notable, mainly because this species is considered sensitive to the fragmentation and degradation of its habitat (Thiollay 1991). However, recent tracking studies using global positioning systems (GPS) suggest that this species prefers wooded areas with little intervention and that, during their natal dispersal, they can tolerate and move over fragmented areas. This proximity to developed areas and contact with humans can represent a high risk for

**Figure 2.** Individual *Spizaetus isidori* reported from the “Cinco Águilas Blancas” Raptor Observation and Counting Station, Mérida, Venezuela: a and b adult individual recorded on 22 November 2021; C and D, immature individual recorded on 7 October 2022. Photos © Luis A. Saavedra







**Figure 3. Individual immature *Spizaetus isidori* observed on 18 October 2022. Note the lack of secondary feathers on the left wing as in the individual observed on 7 October 2022 (Fig 2). Photo ©Luis A. Saavedra**

the species, since it is often hunted because it is considered a threat to domestic animals (Zuluaga et al. 2022). In addition to this, the report we present of the electrocuted individual suggests that conflicts with humans are not restricted to hunting and the destruction of their habitat, but also to anthropic structures such as electrical or telecommunications towers.

The sightings of the Black-and-chestnut Eagle in the city of Mérida may be due to several factors. The proximity of this urban area to the large extensions of primary forest belonging to the Sierra de la Culata and Sierra Nevada National Parks, together with the elongated shape of the city of Mérida (1-3 km wide), could be a factor that allows their passage from one forested site to another. Similarly, the heat island phenomenon that occurs in urban areas can generate rising air currents that facilitate movement through the city. In

this sense, the ability to fly allows some species to maintain a connection between fragmented habitats and their ecological functions (Zuluaga et al. 2021). However, the proximity between natural and urban areas in the city of Mérida could cause a greater frequency of interactions between the Black-and-Chestnut Eagle and threats of anthropic origin.

At the same time, the observations of adults and immatures indicate that in the natural areas surrounding the city of Mérida there are adequate conditions for the species to reproduce and develop. This suggests that at least one pair of eagles has a territory that includes portions of the northern part of the city. In this sense, the importance of the Cinco Águilas Blancas Raptor Observation and Counting Station is clear, not only for the monitoring of migratory raptor species, but also for the study of Threa-

tened, Endangered, or little known resident species. Finally, we encourage new research efforts aimed at expanding our knowledge of the Black-and-chestnut Eagle in Venezuela.

### Acknowledgments

We wish to express our gratitude to Idea Wild, International Bird Conservation Partnership, Hawk Migration Association of North America (HMANA), Ave Zona, Birds Caribbean and Optics for the Tropics, whose input and support has been instrumental in establishing the Observation Station and Raptor Count Five White Eagles, which allowed for the study of urban raptor species. To María Escalona, John Gerwin, Juana Díaz, Katie O'Brien, Miguel Matta, Jesús Salvador Stanley, Zulema Stanley, Nuris Cruz, Marco Contreras, and Luis A. Niño who have provided vital logistical support.

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\* \* \*

# THE APLOMADO FALCON (*FALCO FEMORALIS PICHINCHAE*): BEHAVIORAL OBSERVATIONS, HABITAT USE, BIOMETRICS, AND PLUMAGE DESCRIPTION IN NORTHWESTERN ARGENTINA

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The Aplomado Falcon (*Falco femoralis*) is widely distributed in the Neotropics (Chapman 1925). Currently, three subspecies are recognized: *F. f. femoralis* from Central America to Tierra del Fuego avoiding the Amazon, *F. f. septentrionalis* from the southern United States to northern Mexico, and *F. f. pichincha* along the Andes mountain range, from Colombia, Ecuador, Peru, Bolivia and northern Chile and Argentina. Its conservation status is Near Threatened and/or Least Concern (Bildstein et al. 1998). However, the northern subspecies, *F. f. septentrionalis*, is categorized as Threatened due to contamination and accumulation of pesticides in the eggs (Shull 1986, Keddy-Hector 2000).

Two subspecies are found in Chile, *F. f. femoralis* (only in Magallanes) and *F. f. pichincha* (from

Arica to Curicó) (Araya and Millie 1998). *Falco f. pichincha* frequents the Arica and Parinacota region from the coastal areas to the Precordillera and the Altiplano (approx. 5,000 m.a.s.l.), and *F. f. femoralis* is found in the Magallanes Region (Liébana and Santillán 2018).

In 1925, Chapman described *F. f. pichincha* based on three large females collected in the Andes of Ecuador (Chapman 1925). In turn, Hellmayr and Conover (1949) reviewed the information from publications and collections, confirming that *F. f. pichincha* was considerably larger and differed in plumage coloration from the other subspecies. It was designated as the Andean Aplomado Falcon. The populations of *F. f. femoralis* found in central and southern Argentina are considered as large as those of *F. f. pichincha*. Field studies suggest that





**Figure 1.** La Quebradita, Km 69, located at 2,350 m.a.s.l. The large circle shows the two-hectare study site, the lookout point, the associated forest, and the bushy canyons with tributary streams of the Tafi River. The small black circles show the poplars and three cypresses, roosts, and probable nesting site in 2021. Foto © Pedro Blenderger.

the subspecies that breeds in Buenos Aires and surrounding southern provinces is larger than a typical *F. f. femoralis* (Bó 1996, De Lucca and Saggese 1996, De Lucca and Quaglia 2012, De Luca et al. 2013, Salvador 2013). Despite the larger size and supposedly paler coloration of the subspecies from southern Argentina, only the three subspecies mentioned above are currently recognized (Keddy-Hector, D. P. 2019).

*F. f. pichincha* frequents mountain ranges up to 4,000 m.a.s.l. in Salta, Jujuy, Catamarca, Tucumán, and La Rioja (Olrog 1979, de la Peña 2013). It inhabits Chile, Bolivia, Peru, and Ecuador (Olrog 1979, Keddy-Hector 2019), where it frequents high Andean areas and can be found in high Yungas. It is a conspicuous inhabitant

in the Puno area of Argentina, and is frequently observed in wet meadows at the base of streams or in swamps. Studies carried out between 2011 and 2017 in Yavi, Argentina (22°07'52"S; 65°27'47"W, 3,440 m.a.s.l.) showed that *F. f. pichincha* hunts in pairs, feeding on smaller birds such as Mountain Parakeet (*Psilopsiagon aurifrons*), Bare-faced Ground Dove (*Metriopelia ceciliae*), and Black-winged Ground Dove (*Metriopelia melanoptera*), among others (Mamaní et al. 2018).

In Tafi del Valle, Tucumán, Argentina, it has been observed in the village, as well as in Cerro El Negrito and El Infiernillo Lagoons, where Olrog (1949) collected a male. Likewise, in the Fundación Miguel Lillo, Tucumán collection,



there are two skins which were collected in Chile (N°4017, 27 April 1941, collector Carlos Reed) and Cochino (22°44'42"S; 65°53'48"W), Jujuy (N°13744, 18 January 1964, collector Francisco Contino).

## Materials and Methods

We made non-systematic observations of Aplomado Falcon behavior and feeding in Puno, in the areas of Catamarca and Salta, during different years beginning in 2014. In 2017 and between 2020-2022, we studied the behavior of the subspecies, *F. f. pichincae*, in Tañi del Valle in the province of Tucumán, Argentina. The valley is

surrounded by high mountains with elevations between 2,000 and 3,000 m.a.s.l. It is located between the Sierras del Aconquija and the Cumbres Calchaquíes, two 4,500 m high mountain ranges. It is a humid valley with a temperate climate and abundant summer rains.

The landscape is made up of tall grasslands, Andean prairies, and bushy and wooded ravines. The herbaceous grass community is mainly composed of *Festuca hieronymi*, *Deyeuxia rosea*, *Deyeuxia polygama*, *Chloris distichophylla*, *Paspalum lineispatha* and *Stipa tucumana* (Cabrera 1976, Halloy 1982). At its upper elevational limit, the

**Figure 2.** The back of a male *Falco femoralis pichincae*, which is gray with a darker tail with white bands. Photo © Emiliano Matias





misty grasslands are mixed with impoverished communities of grasses from the Puno steppe and the high Andean grasslands (Cabrera and Willink 1980).

## Results and Discussion

### *Behavior, feeding, and use of the plots*

During the study period, we recorded eight individuals belonging to the subspecies *F. f. pichinchae*. The individuals were mainly observed in lower areas (approx. 2,000 m.a.s.l.) in La Angostura and La Ovejería, in vacant lots near Villa de Tafí, and also at 3,000 m.a.s.l. in El Infiernillo. In 2021, we observed a pair that remained in La Quebradita for several months. Between 2 and 6 March of that year, we observed the pair in large

poplars (approx. 15 m high) and cypresses that they used as perches (Fig. 1). On 17 April, we observed the pair with two juveniles in this same area. *F.f. pichinchae* nests between January and March in Tafí del Valle (pers. obs.), so, based on our observations, it is likely that the pair nested in the area and that nesting is associated with poplars and cypresses.

Later, we observed the pair and the juveniles perched on poles under poplars and cypresses. In the same period, we observed the adults feeding the juveniles dung beetles (*Scarabaeus* sp), which are mainly found in cow and horse manure. On 18 and 19 April, at 11:00 hrs, we observed the pair circling low over the canyon together with a

**Figure 3.** Female *Falco femoralis pichinchae*, in Catamarca at 2,855 m.a.s.l. Photo © Diego Ortiz







**Figure 4. Female *Falco femoralis pichincha*, in Infiernillo, Tucumán (2.890 msnm) Photo © Emiliano Matias**

single juvenile. During the observations, the falcons spent four minutes vocalizing and chasing each other. On 18 May, at 11:00 hrs., the pair was in the same plot, together with a juvenile male that vocalized for 3-4 min. During June, July, August, and September, the individuals disappeared from these territories. They weren't observed again until 26 October. It is likely that the individuals carried out exploratory movements within the Tafí Valley.

On 26 January 2022, the pair was observed displaying territorial behaviors against other species residing on the farm, including Burrowing Owl (*Athene cunicularia*). The female (larger than the male) made several intimidating flights and oc-

cupied the line of wire posts 50 m from the owl's perches. During this period, the pair was seen eating beetles at a rate of four or five insects every 10 min. Between 11:00 and 12:00 hrs., they made several flights of approx. 15-25 m, catching a beetle each time. They then repeated the hunting routine in the afternoon (16:00-17:00 hrs.). We observed this behavior daily until 20 February.

Occasionally, the pair made circular flights at approx. 500-1000 m, to later be observed with larger prey (generally birds) that were plucked and consumed on fence posts. During these interactions, the male made fine “*quiik...quiik*” vocalizations, while the female made a lower “*queek...*

“*keek*” vocalization. On 18 April, a kleptoparasitic interaction was observed between two Crested Caracaras (*Caracara plancus*) that chased the female Aplomado Falcon to try to snatch a bird that she had hunted. During this event, the male Aplomado launched himself in low flights (from approx. 30 m) toward the caracaras, until they gave up.

Although summer is a favorable time to hunt insects (i.e., beetles and homoptera) due to their abundance, in general, our observations confirm a high percentage of birds in the diet of *F. f. pichinchae* including Eared Dove (*Zenaida auriculata*), Spot-winged Pigeon (*Columba maculosa*), Mountain Parakeet, Rufous-collared Sparrow (*Zonotrichia capensis*), Chiguanco Thrush (*Turdus chiguanco*), *Diuca* sp, and *Metriopelias* sp. According to our observations, *F. f. pichinchae* performs

hunts that begin in a descending flight through a ravine or stream bed. The flights are initiated by one of the individuals of the pair. They then carry out coordinated flights at approx. 30 m from each other. At a height of between 5 to 30 m, the one that passes ahead makes a dive just above the ground. This provokes an escape response in the birds hidden there, generating their exit and subsequent capture by the second falcon that comes behind at a higher height. Using this strategy, the pair generally captures small birds that are eaten by both individuals, though the female consumes the prey in greater proportion.

A similar strategy has been observed in other individuals in Argentina. For example, on 25 January 2014, a pair was observed hunting in the Calchaquí River, 5 km from La Poma, Salta (24°43'16"S; 66°12'0"W, 2998 m.a.s.l.). On this

**Figure 5.** *Falco femoralis pichinchae* captured in El Infiernillo (2,890 m.a.s.l.), Tafi del Valle, Tucumán on 10 June 2017. Left photo © Esteban Martínez Pastur; Right photo © Emiliano Matías.





occasion, the male dived very close to a family of Yellow-billed Teal (*Anas flavirostris oxyptera*) with four ducklings. During their escape, the female Aplomado captured one of the ducklings and took it to the sandy edge of the stream, where she began to consume it. On another occasion, on 18 December 2016, we observed a pair cooperatively hunting in Río Grande, in Los Nacimientos (27°11'00"S; 66°44'00"W, 2032 m.a.s.l.), Fiambalá Department, Catamarca. During the event, a male was observed following a dove (*Columba* sp). Surprisingly, from a greater height, the female launched into a dive, capturing the dove. Again, the female consumed the largest proportion of the prey. Finally, our observations also suggest that *F. f. pichincha* may try to hunt larger birds. For example, on cold and cloudy days some individuals were observed chasing birds such as the Guira Cuckoo (*Guira guira*) and the Andean Flicker (*Colaptes rupicola*).

### ***Description of plumage and biometrics***

In July 2017, we captured an individual *F.f. pichincha* (under permits with Centro Nacional de Anillado de Aves Argentinas (CNEAA), operating under Universidad Nacional de Tucumán). It had a dark leaden gray back and an incomplete black abdominal band. Its wings and tail were blackish; the latter had white bands (Fig. 2). At rest, the tail extended beyond the tip of the primaries by approx. 4 to 5 cm. These characteristics are also represented in a female photographed at

2,855 m.a.s.l. in the town of Capillitas, Catamarca, although her breast was lighter in coloration (Fig. 3).

According to our observations, there is variation in color between individuals, with some individuals being darker. In the pair studied at La Quebradita, males were lighter than the females. On the nape of their necks, there were two ochre or cinnamon drops that dripped in the shape of a horseshoe and the nape of the neck was dark gray. Also, the coloration of the face between sexes is very contrasting. In the male we captured at El Infiernillo, the cere and periocular area were bright yellow (Fig. 4). We do not know if these characteristics occur in other specimens or depend on age.

*F.f. pichincha* is a large subspecies, heavier than *F. f. femoralis* (Aráoz et al. 2016, Keddy-Hector 2019). As a reference, the measurements taken in the only captured individual (Fig. 5) during the study period were: weight 350 g, total length 39 cm, folded wing 29.8 cm, tail 18.5 cm, culmen with cere 2.36 cm, and tarsus 6.22 cm. Likewise, the measurements of an individual of *F. f. femoralis* (captured in Villa Mariano Moreno, Tucumán) were: weight 230 g, total length 32 cm, wing folded 24 cm, tail 10 cm, culmen with cere 2.2 cm, and tarsus 6 cm (Aráoz et al. 2016). However, the low number of individuals studied does not allow us to establish any patterns. Thus future studies are necessary.

## Acknowledgments

To the members of CENAA, Thania Moreno Ten, Esteban Martínez Pastur, and Emiliano Matías for the field help and the photographs. To Sebastián Aveldaño for the information on the material deposited in the Miguel Lillo Foundation Collection.

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# CONFIRMATION OF A DARK MORPH CRESTED EAGLE (*MORPHNUS GUIANENSIS*) (ACCIPITRIDAE) IN HONDURAS, AND VETERINARY CARE AND TREATMENT POST RESCUE OF AN INDIVIDUAL

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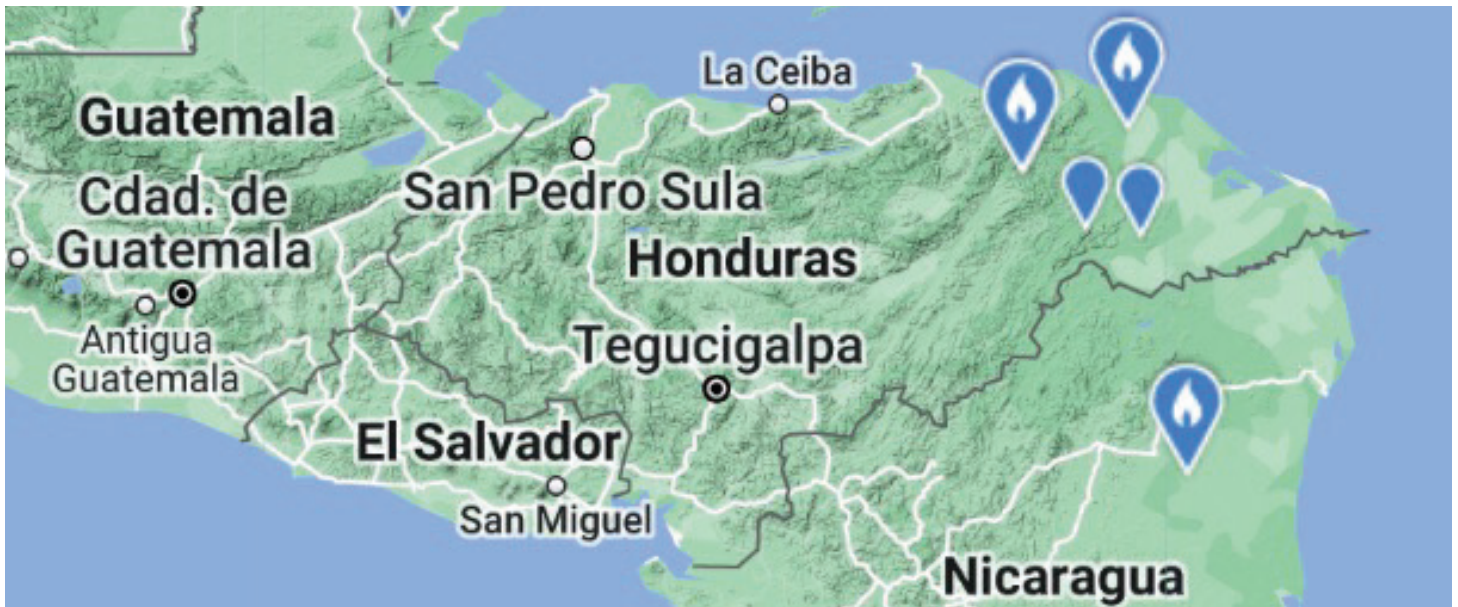
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**T**he Crested Eagle (*Morphnus guianensis*) is a large Accipitriforme (family: Accipitridae) that inhabits the neotropical forests of Mexico, Central, and South America (modified from Smith, 2020). Taxonomically, the Crested Eagle is the only member of the genus *Morphnus*, and it is considered a monotypic species.

According to Stiles and Skutch (2007), the Crested Eagle can reach a size of approx. 81cm with a wingspan of 185cm. It can weigh approx. 3kg. In its immature stages, the Crested Eagle is similar in plumage to the Harpy Eagle (*Harpia harpyja*). However, its pointed crest and longer and less robust tarsi are key features to distinguish it

from the Harpy Eagle (Angehr and Dean, 2010). Furthermore, it is a polymorphic species, exhibiting two clearly distinguishable morphs within the population.

The light morph is characterized by a black crest, head, neck, and pale grayish breast. The abdominal region has white coverts with rufous cinnamon barring. In contrast, the dark morph is characterized by a dark gray to blackish head, neck, and chest. The abdominal region may have white coverts with profuse blackish barring or may be completely blackish in some individuals (Stiles and Skutch, 2007). Juvenile Crested Eagles are mostly white with a gray mantle with blackish



**Figure 1.** Map generated in eBird with current and historical reports of Crested Eagles in Honduras. Until now, only six records have been made and all of them were of light morph individuals. The blue marks in the form of an invested drop indicate the exact geographical point of each record.

barring. Ventrally, the flight feathers have narrower black bands than those of the adult. It has been estimated that juveniles take approx. three years to acquire adult plumage (modified from Stiles and Skutch, 2007).

The distribution of the Crested Eagle ranges from northern Guatemala to Bolivia, northeastern Argentina, and southeastern Brazil (Stiles and Skutch, 2007). In Honduras, it is considered a very rare species (Gallardo, 2014). Crested Eagle habitat includes primary and secondary forests in the humid lowlands of some protected areas and indigenous territories of countries such as Guatemala, Honduras, Nicaragua, Costa Rica, Panama, Colombia, Bolivia, Northeast Argentina, and Southeast Brazil (modified from Stiles and Skutch, 2007).

Generally, this species uses the high canopy, often perching on an open branch. It also tends to soar over the canopy more frequently than the Harpy Eagle (Stiles and Skutch, 2007). However, it can also move between trees by leaping between branches (Marcio Martínez, personal observation). The Crested Eagle's vocalizations are similar to those emitted by Great Black Hawk (*Buëtogallus urubutinga*) (Stiles and Skutch, 2007). According to Angehr and Dean (2010), it may occasionally emit high-pitched, "wheet-like" vocalizations. Breeding information for this species in Central America is scarce. However, Stiles and Skutch (2007) mention that the clutch size is two cream-white eggs. At the international level, the Crested Eagle is categorized as Near Threatened according to the IUCN. However, in Honduras this species is considered Critically Endangered (WCS et al 2021).

## Background in Honduras

The light morph of the Crested Eagle has been previously documented and appears in the list of the avifauna of Honduras (Mckewy and Zelaya, 2015). According to eBird records ([www.ebird.org](http://www.ebird.org)), within its known range, the species has been recorded 934 times. Most of the observations come from South America, with only six observations in Honduras (Fig. 1). These observations were made by Gallardo (2012) in the mountains of Colón; Funes and Bonta (2015) at the Casa de Tabla site (Río Plátano); Gallardo, Fong and Au-

erbach (2016) in Tapalwas; Martínez and Mejía (2016) at the Río Sikre (Río Plátano), and Martínez (2021) at the Wuarska site (Río Plátano) (eBird 2022).

Through this manuscript, we report the presence of a dark morph Crested Eagle in Honduras. Additionally, because the individual was admitted to a rescue center, we describe some associated clinical and captive management issues.

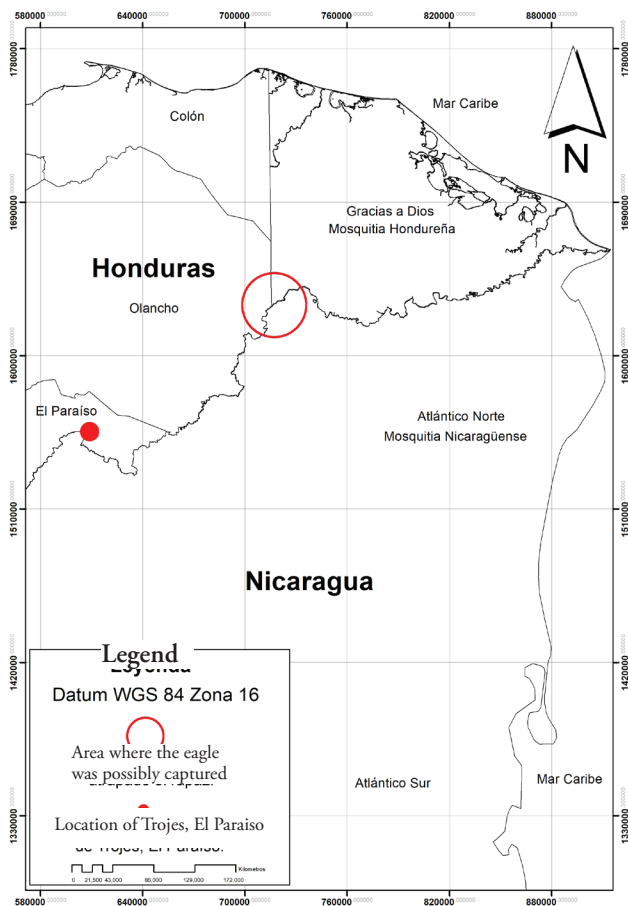
## Location of Record

In early 2022, a dark morph Crested Eagle was captured by people of Miskitu origin at a site on the Coco or Segovia River (Wanki River in the Miskita indigenous language) (Fig. 2), located in the border area with Nicaragua, within the indigenous territory, Puluwas Community, MSBu – Moskitia Ni-Caragüense (Herrera et al. 2019). It is the site of the first record of a dark morph Crested Eagle in Honduras.

The eagle was taken to Trojes, department of El Paraíso, where it was sold. On 24 February, 2022 at 18:00 hrs., the person who bought the Crested Eagle voluntarily brought it to the veterinary clinic of one of the authors (Alejandro Barahona; AB).

At the time of admission, the Crested Eagle had serious injuries (Fig. 3) on its wings (mainly on the right), so palliative treatment was administered. It was then transferred to the Veterinary

**Figure 2.** Map of the area where the individual Crested Eagle was possibly trapped (red circle) and the site where it was admitted and registered (red dot). Prepared by © Marcio Martínez.





School Hospital (HEV) of the National University of Agriculture (UNAG) in Catacamas, Olancho.

### Post-capture Treatment

After the rescue, Marvin García contacted Mari-aletis Martínez, one of the regional technicians of the National Institute of Forest Conservation and Development, Protected Areas and Wildlife (ICF), to corroborate the identification of the species and to coordinate its transfer to the HEV. At the HEV, a clinical examination of the individual was performed under chemical restraint (5% isoflurane for induction and then 3% for maintenance).

The eagle had wounds on its right wing, attributable to a gunshot wound. In addition, a radiological study was performed to determine the state of the bone tissue. The X-rays revealed a complete comminuted fracture in the ulna of the right wing (Fig. 4). It also confirmed that the injury was caused by the impact of a bullet, since the lead fragments could be seen (Fig. 4). Finally, the ICF was informed about the state of the bird and its inability to survive in the wild. Due to this, and its potential usefulness in environmental education programs, the decision was made to keep the individual in the HEV until it could be placed in a rescue center. Once the individual was stabilized, morphometric measurements were taken (Table 1). Likewise, the necessary primary care was provided to prevent the wound from becoming

infected. Once a day, the wound was cleaned with a solution of iodine and hydrogen peroxide, ending with the application of a topical antibiotic composed of gentamicin, neomycin, and flumethasone (Masticilin®).

While the eagle was in the recovery center, it was fed live chicks (*Gallus gallus domesticus*), eating a total of two chicks per day. It is also important to mention that it caught a common pigeon (*Zenaidura asiatica*) that entered the enclosure by accident (Fig. 5). As part of the routine, every other day the eagle was brought outside to a safe area so it could sunbathe for 2 hours. The individual was in the HEV for 8 days (from 25 February to 4 March; Fig. 6).

After its time in the recovery center, the eagle was transferred to the El Ocotol Private Collection and Rescue Center, in Sabanagrande, Francisco Morazán. The transfer was coordinated by technicians and rangers from the ICF and the veterinarian in charge of the bird at the HEV. In the El Ocotol Private Collection and Rescue Center,

**Table 1. Biometric Parameters.**

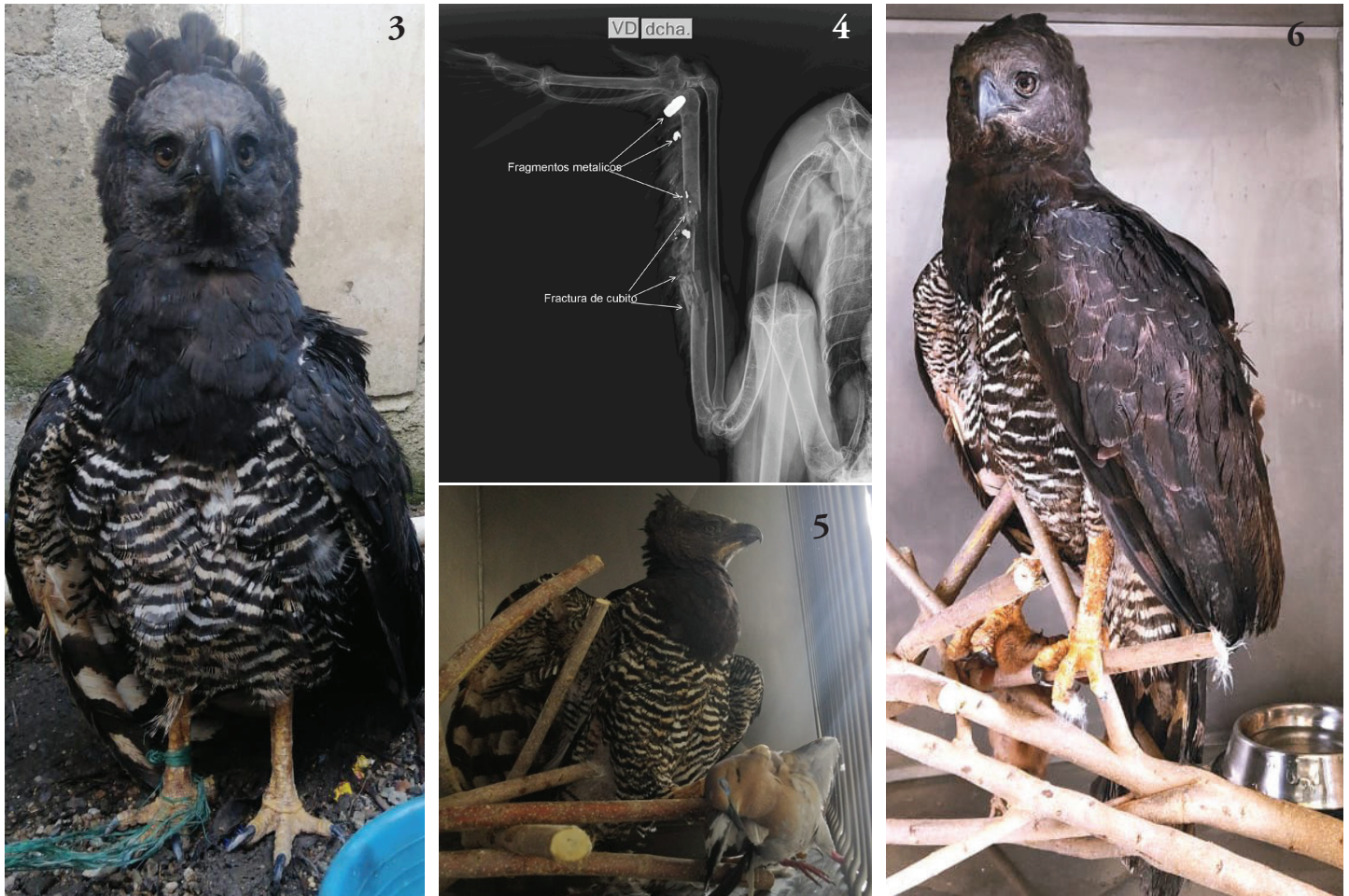
<b>Wingspan</b>	130 cm
<b>Wings</b>	65 cm
<b>Pelvic Limb</b>	18 cm
<b>Beak</b>	6 cm
<b>Fanned Tail</b>	45 cm
<b>Tarsi</b>	12cm
<b>Body Length</b>	78 cm
<b>Weight</b>	2 kg

the bird was examined (Fig. 7), and received the following treatments: the entire wound area was cleaned with a chlorhexidine solution (Aseptosan®) and purified water, damaged feathers were removed as were any bone fragments adhering to the skin.

Subsequently, the area was sutured with approx. seven stitches and then a cream composed of usidic acid, betamethasone, and chlortrimazole (Etimycin®) was applied as an antibiotic for five days. Antibiotherapy was then continued with

a gel composed of allantoin, Allium cepae, and heparin (Contractubex®) for eight days. The antibiotic was applied as a spray in order to avoid capture stress. Finally, the bird was placed in a small recovery cage, facilitating the application of medications, and reducing the risk of injury due to sudden movements in its wings. After 15 days, the wound was evaluated, and the stitches were removed (Figure 8). At this time it was noted that the feathers were beginning to regenerate.

**Figure 3.** First photographs taken of the Crested Eagle in the community of Trojes, El Paraíso, Honduras. Photo © Alejandro Barahona; **Figure 4.** X-ray of the Crested Eagle's right wing, where one can see the fracture in the ulna. Photo © Marvin García; **Figure 5.** Feeding process for the Crested Eagle at the HEV center in Catacamas, Olancho, Honduras. Photo © Valeria Cerrato; **Figure 6.** The Crested Eagle in recovery after veterinary treatment at the HEV center (UNAG), Olancho, Honduras. Photo © Marvin García





## Discussion

In this manuscript, we have reported the first record of a dark morph Crested Eagle in Honduras. This record is of the utmost importance, since it is a very rare species throughout its range and, even more so, within the country. Likewise, according to the authors' knowledge, this would be the first individual of the species found in captivity in Honduras. It is important to note that this individual can be useful as an "ambassador" for birds of prey, participating in environmental education programs.

It is also important to mention that in previous years, one of the authors (MM) had documented - through informants and direct observations - that large birds of prey were killed in Río Plátano and Moskitia. These incidents involved the Crested Eagle and the Black Hawk-eagle (*Spiza-*

*etus tyrannus*). This conflict has occurred both in isolated areas and intervened areas and has involved the indigenous and mestizo populations. In recent years, as experienced by several of the authors, there has been an alarming increase in people who keep several species of wild animals as pets, including potentially dangerous animals.

It is clearly prohibited to keep dangerous, rare, or endangered animals, according to the Forest Law of Protected Areas and Wildlife (Article No. 115; in agreement with 045-2011 of the Manual of Technical-Administrative Standards for the Management and Use of Wildlife in Honduras; in agreement with 021-2017 on the opening of the pet registry and ministerial agreement; and with 024-2018 on the expansion of the wild pet registration period).



**Figure 7 (left).** Veterinary review of the Crested Eagle in the Private Collection and El Ocotal Rescue Center, Francisco Morazán, Honduras. In this center he will spend the rest of his life, due to the seriousness of the fractures he presented. Photo© Alejandro Velásquez.

**Figure 8 (right).** The Crested Eagle feeding on a white mouse (*Mus musculus*) during its recovery in the El Ocotal Private Collection and Rescue Center, Francisco Morazán, Honduras. Photo © Alejandro Velásquez.

Currently in Honduras, and according to WCS et al. (2021), the Crested Eagle is categorized as Critically Endangered, which indicates that its populations are decreasing due to the loss of habitat or poaching. This new record increases the sites where this species is found. It is important that the State and the other organizations that work with birds must prioritize an increase in the conservation actions and protection of the ecosystems that serve as habitat not only for this species, but also for the wide range of fauna found in Honduras.

### Acknowledgments

To the technical staff and rangers of the local office Danlí (Paraíso Region) and Marañones (Río Plátano Region); to the HEV, UNAG staff who supported us in various ways during the bird's stay in their facilities; to Dr. Nadienka Casco and to Msc. Manfredo Casco for their support in veterinary matters in the Private Collection and El Ocotal Rescue Center. Finally, we thank Marta Curti, Enzo Basso Quinche, Adrián Naveda-Rodríguez, José Vargas, and Guillermo Wiemeyer for reviewing, editing, and translating (English and Portuguese versions) of the manuscript.

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# BURROWING OWL (*ATHENE CUNICULARIA*) RECORDS IN EL SALVADOR, GUATEMALA, AND HONDURAS

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The Burrowing Owl (*Athene cunicularia*) (Poulin et al. 2020). Its diet ranges from arthropods (e.g., beetles, other insects, spiders, and scorpions) to small vertebrates such as mice, reptiles, amphibians, and small birds (Thompson and Anderson 1998; Shuford and Gardali 2008). In general, the species is categorized as Least Concern (Birdlife International 2022). However, in the last half century, Burrowing Owl populations in some countries have decreased, which is why it is on the List of Endangered Species with Special Protection in Canada and Mexico (Poulin et al. 2020). In its North and South American ranges, the species is fairly common (Del Hoyo et al. 2014). It inhabits dry, open areas with few trees such as grasslands, savannas, or deserts, although it can thrive in urban areas (Shuford and Gardali 2008). Burrowing Owls usually nest in burrows dug by small mammals; they rarely dig their own (Klute et al. 2003). These burrows are generally

occurs throughout the Americas, from west-central North America to Florida, the Caribbean islands, central Mexico, and South America (Chaparro-Herrera et al. 2017, Poulin et al. 2020). Some authors suggest it is a migratory species (Eisermann and Avendaño 2017; Jones and Meerman 2015; Pérez et al. 2017; Poulin et al. 2020; Trejo and Lezama-López 2017). For example, there is information on migration in California, Arizona, New Mexico, Texas, Louisiana, Florida, and Mexico (Thompson and Anderson 1998; Poulin et al. 2020). In contrast, other authors suggest that populations do not migrate in Florida, California, and Mexico (Shuford and Gardali 2008).

This terrestrial owl is active during the day and at night. It can be seen on the ground or perched on top of mounds of earth, trees, rocks, or poles.



found in open areas with sparse and short vegetation, and few bushes and trees. Nests are found in residential and industrial areas (Poulin et al. 2020).

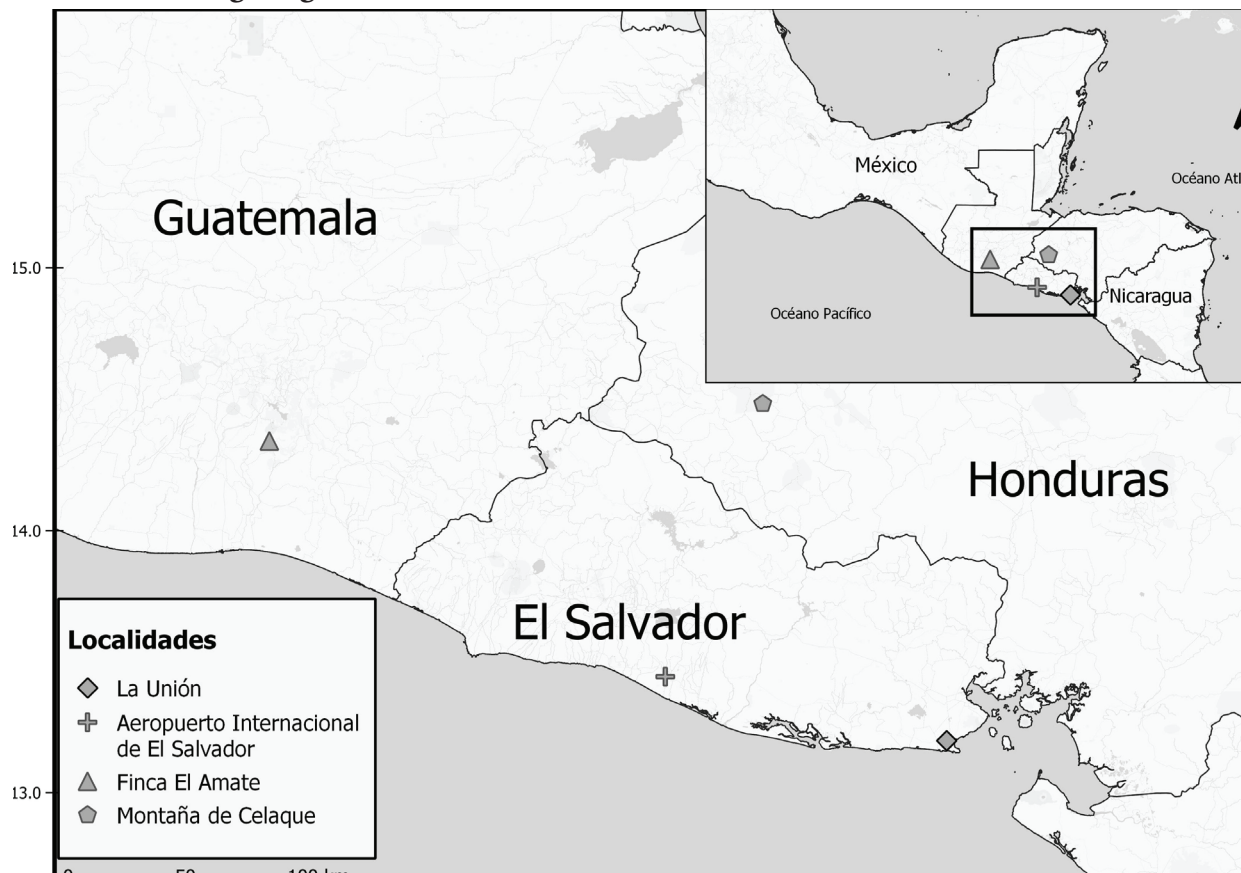
There is little information on this species' distribution in Central America. Our objective for this manuscript is to document the recent records of the species in El Salvador, Guatemala, and Honduras. The records from December 2019 and December 2021 in El Salvador, January 2020 to January 2022 in Guatemala, and March 2020 in Honduras contribute to the knowledge of the occurrence of this species in Central America.

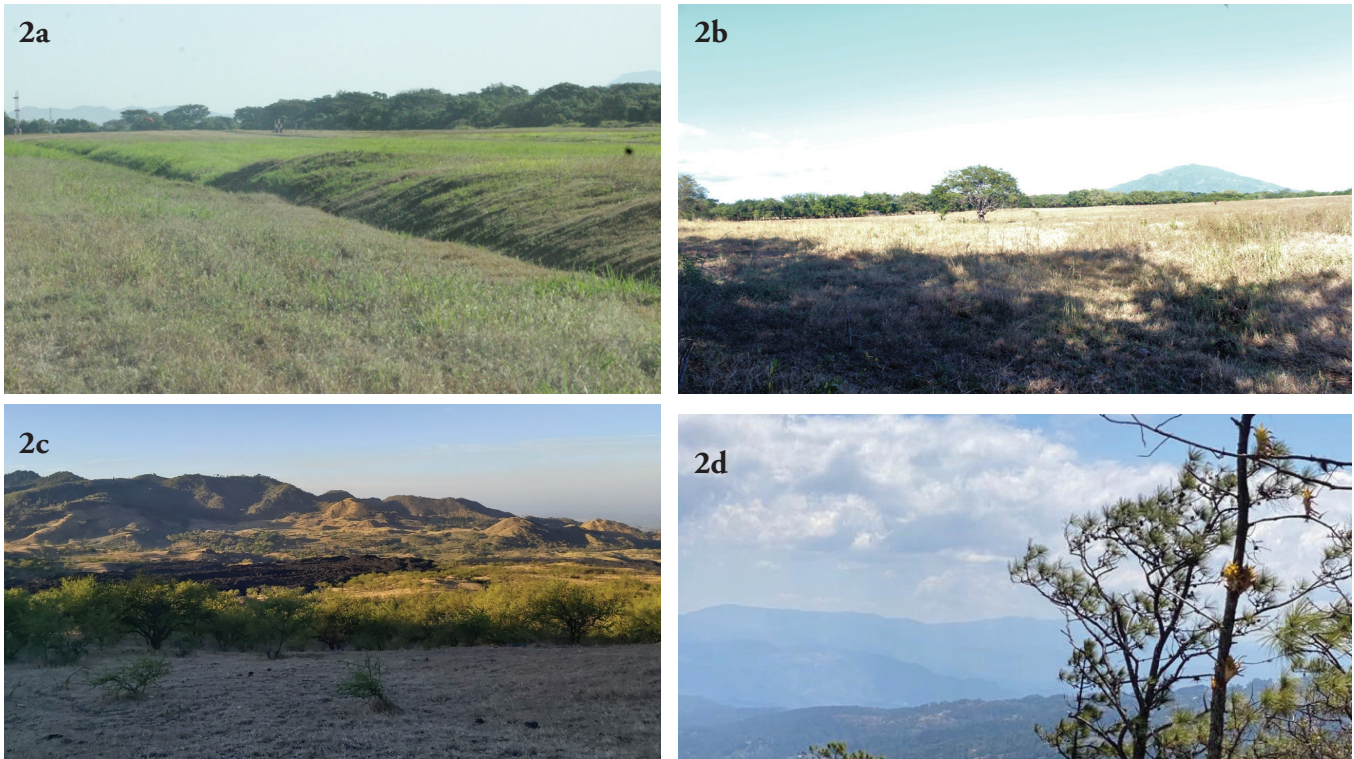
## Study Areas

Sightings in El Salvador occurred in two locations. The first at the El Salvador International Airport, (31 m.a.s.l.), which is located in the municipality of San Luis Talpa, department of La Paz, 40 km from the city of San Salvador (13°26'30" N; 88°3'2"W, Fig. 1). The soil at this site is sandy and sandy loam. Existing vegetation is comprised of grasslands in the runway area, deciduous forest around the passenger and cargo terminals, and semi-deciduous forest subject to temporary flooding to the west and south (Fig. 2a).

The second sighting in El Salvador occurred in the Piedra Blanca canton, located in the municipality of Conchagua, department of La Unión

**Figure 1. Locations of sightings of *Athene cunicularia* in El Salvador, Guatemala, and Honduras**





**Figure 2.** Photograph of habitat where Burrowing Owls were observed in El Salvador (a), Photo © Ricardo Ibarra Portillo, and (b), Photo © Josué Efraín González, in Guatemala (c), Photo © Alfredo Valle, and Honduras; (d), Photo © Edwin Miranda Mejía

(13°11'55.63"N; 87°56'49.42"W) (Fig. 1). The area includes jaraguá grasslands (*Hyparrhenia rufa*) where cattle graze (Fig. 2b). The two records from El Salvador are in the Subtropical Humid Forest (bh-ST) life zone. The average precipitation is 1,613 mm and the temperature ranges between 27-36° C (Holdridge 1987).

The record for Guatemala occurred at the El Amate farm, located in the village of Los Pocitos, Villa Canales, department of Guatemala at an altitude of 1,300 m.a.s.l. (14°20'32.05"N; 90°36'13.91" W, Fig. 1). The farm is located in the Tropical Premontane Humid Forest life zone (IARNA-URL 2018). It has an average precipitation of 1,731 mm. The annual average minimum and maximum temperatures range between 18

and 24 °C. The habitat is pine-oak forest, dry forest, grassland, and tropical dry forest. The farm is located on the slopes of the Pacaya Volcano, one of the most active volcanoes in the country. In 2010, lava began to erupt on the southern slope, covering part of the farm's land. The individual Burrowing Owl was observed in one of the dry lava river beds, which it was using as a burrow (Fig. 2c).

The record in Honduras occurred in the Celaque Mountains at an altitude of 1,800 m.a.s.l. (14°29'1.2"N; 88°40'6.7"W, Figure 1). It is located in the buffer zone that borders the Naranjito community, San Manuel de Colohete, Department of Lempira (Fig. 2d). The terrain is a mixture of sandstone and mostly patches of soil



created by the organic matter produced by the vegetation. The forest is pine-oak and mostly scrub. The life zone in which the observation was made was in the subtropical Lower Montane Humid Forest (bh-MBS). It has a mean annual temperature between 12 and 18° C, and precipitation is between 1,000 and 2,000 mm (IHT-AECI-CLAP 2007).

## Methods

We made a bibliographic review to find the records of Burrowing Owls for all of Central America. We reviewed scientific articles, books, and museum specimens, as well as personal com-

munication to gain information on unpublished data. In addition, eBird online databases ([www.ebird.org](http://www.ebird.org)) were reviewed. Field observations in El Salvador are from a wildlife viewing tour and biodiversity inventory. In Guatemala, the data collected comes from a field trip during the celebration of the Christmas count at the Pacaya Volcano. In Honduras, the sighting was made during a birdwatching excursion as part of a guided tour.

## Observations

On 18 December 2019, during a birdwatching excursion with personnel from the El Salvador International Airport of the Autonomous Execu-

**Figure 3.** (a) Individual Burrowing Owl observed in El Salvador on 18 December 2019, Photo © Ricardo Ibarra Portillo; (b) one individual seen on 9 December 2021, Photo © Josué Efraín González; (c) an individual observed in Guatemala on 5 January 2010, Photo © Alfredo Valle; and (d) an individual observed in Honduras on 12 March 2020, Photo © Edwin Miranda Mejía.





tive Port Commission (CEPA), we observed an immature Burrowing Owl in a burrow located in a ditch approximately 500 m long by 1.30 m deep. The individual's plumage was brown with fine white streaks on the head. It had yellow eyes, a light gray bill, sparse white eyebrows, white throat, and a white-spotted breast (Figure 3a). A second individual of undetermined age was seen in El Salvador on 9 December 2021. The bird was in a burrow on the south side of a rock surrounded by jaraguá grass (*Hyparrhenia rufa*) (Fig 3b).

The record in Guatemala was of an adult with a well-marked eyebrow and heavily mottled chest (Figure 3c). The individual was observed from 5 January to 20 March 2020. Another individual was seen again from 11 November 2020 through 18 April 2021, and another was observed on 22 October 2021. All individuals observed were adults.

The sighting in Honduras occurred on 12 March 2020 at 11:18 hrs. The owl was perched in an oak tree (*Quercus* sp.) at a height of seven meters from the ground. The individual was light brown. Its bill had a dark base and the upper part was a greenish color. It had white eyebrows and throat, extensive white spots on the wings, a barred chest, and a pale brown facial disc (Figure 3d). In El Salvador and Honduras, it was only possible to observe individuals on one occasion.

## Discussion

For Central America there are few reports for the species. In Guatemala, several skins have been collected and observations made from 1905 to 1941 (Salvin and Godman 1905; Dearborn 1907; Griscom 1932; Dickey and van Rossem 1938; Land 1962; Wetmore 1968; GBIF 2002). In 2020, an individual was observed in a warehouse at the La Aurora International Airport (B. Bosarreyes pers. comm.). An individual has been regularly seen there since then (B. Bosarreyes, pers. comm.).

In El Salvador, few records of the species are known, including four in the departments of Morazán, Cuscatlán, La Unión and La Libertad (Dickey and van Rossem 1938; Ibarra Portillo 2012; Pérez et al. 2017). In Honduras, there is only one record from 1931 (Monroe 1965). Records also exist for other Central American countries. In Belize, there are historical records from 1901 (Russell 1964), and it is one of the countries that had recent sightings in the years 1998, 2016, 2017, and 2021 (Jones et al. 2000; Jones and Meerman 2015; eBird 2020; GBIF 2022). In Nicaragua, recent Burrowing Owl records on the eBird platform occurred in the years 2016 and 2017 (eBird 2020; GBIF 2022). In Costa Rica, there is a collected specimen dated 20 December 1900 (Camacho-Varela and Arguedas-Porras 2017; GBIF 2022) and one more recently in 2020 (eBird 2020; GBIF 2022). In Panama there

is a record of a collection on 13 December 1900 (Wetmore 1941; Jiménez-Ruíz et al. 2017).

These records show that the species has an extended distribution in Central America, although there is no data to verify from which northern population the individuals come. The documented records for this species in this study occurred from November to April, which indicates that these individuals may disperse, explore or engage in nomadism at the population level. However, more systematic monitoring needs to be done to corroborate this. Through the information provided in this manuscript, we update the knowledge of records of the Burrowing Owl in El Salvador, Guatemala, and Honduras.

### Acknowledgments

To Ever Alfaro, Máximo and Adelio Palma Gómez and to the entire team of the El Salvador International Airport of the Autonomous Executive Port Commission (CEPA) for their support in the field trip logistics. To Miguel Gallardo, General Director of Ecosystems and Biodiversity, to Jordi Segura and Noemí Guerra, from the Ministry of the Environment and Natural Resources. To Don Gilber Barrillas for conserving and protecting the forest on the El Amate farm. To the entire birding community of Guatemala for supporting conservation. To Varinia Sagastume for organizing the Christmas count at the Pacaya Volcano, to Jorge Rodríguez from Viatori for promoting the re-discovery of the Burrowing Owl in Guatemala.

To the Honduran Association of Ornithology (ASHO) for promoting the observation and conservation of birds. To Fernando Gonzalez García, INECOL, Mexico, for the bibliography.

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# FIRST NEST RECORD AND OBSERVATIONS OF NESTING PEREGRINE FALCON (*FALCO PEREGRINUS CASSINI*) IN THE AMAZON SLOPE OF PERU

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The Peregrine Falcon (*Falco peregrinus* Tunstall 1771) is a medium to large bird of prey (Falconiformes) (total length: male 36-49 cm, female 45-58 cm; weight: male 410-1060 g, female 595-1600 g; wingspan 79-114 cm. Ferguson-Lee and Christie 2001). It is distributed on all continents except Antarctica. Likewise, it is described as absent in large areas of some continents where it is distributed (for example, in much of the Amazon, the Saharan region of North Africa, Central China, and most of the Pacific islands) (Ferguson-Lee and Christie 2001).

Globally, about 19 Peregrine Falcon subspecies have been described (White et al. 2020). Three subspecies are recognized in South America: two boreal migrants (*F. p. anatum* and *F. p. tundrius*, Beingolea and Arcilla 2020) and one resident (*F. p. cassini*). The reproductive biology of the latter is not fully known in the extreme north of its

distribution (Beingolea and White 2003). While its distribution in Chile and Argentina is well known, there have not been many formal studies on its reproduction (Vasina 1975, Ellis and Peres 1983, Ellis et al. 2002, White et al. 2013, De Lucca 2014). Further north in South America, breeding sites were not confirmed until the early 1980s (Jenny et al. 1981, Schoonmaker et al. 1985, White 1989).

In Peru, Peregrine Falcon nesting sites have been reported for the coastal region in the north and center of the country (Schoonmaker et al. 1985, Beingolea and White 2003). Kéry (2002), based on observations of plumage and behavior details, suggested the presence of reproductive pairs on the south coast (south of Pisco) and in the interior of the country (Colca Canyon, Machu Picchu, Calca, and near Cusco), although these breeding sites have not been confirmed.

Likewise, pairs have been observed in San Ramón (Junín) (Gochfeld 1977) and Yauli (Huancavelica) in the jungle and central highlands of Peru, respectively (Morrison 1939). Despite these contributions, there are still important information gaps regarding the species' natural history, mainly on reproductive aspects of the Peregrine Falcon in South America. Below, I report the first evidence of reproduction and nesting site characteristics of a pair of Peregrine Falcons on the eastern slope of Peru.

### Nest Characteristics

The nest was located in August 2021, in the Huancabamba district in the Pasco region, at an altitude of 1,560 m.a.s.l. It was located on a rocky slope above a road that cuts through a southwest-facing cliff (Fig. 1). The nest was built on a spacious, slightly sloping rocky platform with some small rocks, herbaceous plants, and small ferns on its edge.

The characteristics of the site were taken through a hand-held clinometer. The nest measurements, using the individual falcon as a reference, are summarized in Table 1. The type of habitat in the upper part of the cliff was dominated by herbaceous plants and small bushes; however, the slopes in front of the cliff where the nest was located were dominated by mature forest with the presence of trees of approximately 15 to 20 m.

**Table 1. Characteristics of Peregrine Falcon (*Falco peregrinus cassini*) nest in central Peru.**

Characteristics	Measurements
Approx. nest diameter (cm)	75
Cliff slope (°)	83.2
Approx. cliff height (m)	470
Distance of nest from Huancabamba River (m)	218
Distance of nest from cliff peak (m)	252

**Figure 1 (left).** Peregrine Falcon nest location on a cliff on the eastern slope of Peru. Photo ©Daniel Orizano.  
**Figure 2 (right).** Site where adult Peregrine Falcons rested. Photo ©Daniel Orizano





## Observations

On 1 August 2021 at 16:37 hrs., I observed two nestlings and heard them vocalizing, while the female was feeding them a pigeon of the genus *Leptotila*. Meanwhile, the male was perched about 80 m from the nest. The observation lasted until 17:03 hrs, during which time the female remained with the nestlings in the nest (Fig. 2). Near the nest, about two meters away, there was a cluster of branches and dry grass with a protruding perch. Below this was an abundance of droppings. It is likely that this site is used by adult falcons, mainly the male, for rest and roosting overnight (Fig. 3).

On 11 August 2021, I observed the nest between 10:01 and 12:16 hrs. During this period, the female fed the nestlings twice, with two different prey that could not be identified, but both were remains of birds (Fig. 4). At this time, the male

was perched near the nest in the initial moments of the observation, then moved towards the wooded slopes in front of the site where the nest was located.

On 25 August 2021, I observed the nest between 14:28 and 17:46 hrs. By this date, the two young were completing the first moult or juvenile plumage. By observing the size of the young, it was possible to determine the sex: the female was much larger than the male. The male was about 6 m from the nest, where the hillside was made up of herbaceous plants, which made observation difficult. However, from time to time it vocalized. The female was close to the nest (below) emitting vocalizations, and when there was wind it flapped its wings agitatedly (Fig. 5).

**Figure 3. Adult female feeding two Peregrine Falcon nestlings that are approximately one week old. 01/08/2021. Photo ©Daniel Orizano**







**Figure 4 (upper left).** Female Peregrine Falcon feeding the nestlings. 11/08/2021.

**Figure 5 (upper right).** Juvenile female Peregrine Falcon starting her first flights. 25/08/2021.

**Figure 6 (lower left and right).** Juvenile female lands on the road after her first flight. 25/08/2021.

Photos ©Daniel Orizano

On two occasions on that day, I observed the arrival of the adult female at the nest with prey in her talons. She vocalized and suddenly, without releasing the prey, moved in flight very close to the female nestling (motivating her to fly). Finally, on this same day, I observed both nestlings make their first flights (Fig. 6).

On 20 June 2022, I visited the site again, observing an adult falcon chasing a pigeon of the genus *Leptotila* at the top of the cliff where the nest had been located in 2021. The chase lasted several minutes until I lost sight of them behind the cliff. Apparently the hunt was unsuccessful, as the individual returned and joined its mate. Finally, both individuals headed towards



the wooded hillside near the nesting site. This observation confirms the presence of the pair of Peregrine Falcons near the reproductive site throughout the year.

### Final Notes

Knowledge about the reproductive aspects of the South American Peregrine Falcon is still limited (De Lucca 2014, 2016). In Peru, the few studies of this subspecies come exclusively from the coastal region of the country, in which reproductive sites of the species have been reported (Kéry 2002, Beingolea and White 2003). This observation is the first record of successful reproduction of the Peregrine Falcon in the Amazonian slope of the country.

The Peregrine Falcon, like all members of its genus, does not build a nest, but rather lays its eggs on ledges, rocky crevices or tree cavities, in nests of other species, or on the ground (White et al. 2020). Incubation lasts an average of 30 days (De Lucca 2014, 2016), from which it can be deduced that the pair in this report incubated approximately the entire month of July, with the hatching of two nestlings in the last week of July. This observation agrees with that reported by Schoonmaker et al. (1981) in northwestern Peru, where they located three nesting sites between 1981 and 1984, with the pairs of Peregrine Falcons breeding between the last days of May and mid-August. This differs from the reproductive season reported for Ecuador, which

is between October to February (Jenny et al. 1981) and the period from September to December reported for Patagonia (Ellis and Peres 1983, De Lucca et al. 2013, De Lucca 2014, 2016).

Numerous studies on the feeding habits of the Peregrine Falcon indicate an almost exclusively ornithophagous diet, also observed in the *cassini* subspecies (Santillan et al. 2010, García et al. 2014). For this report, few prey were documented, through the observed prey remains and hunting observations correspond exclusively to birds (two pigeons of the genus *Leptotila*).

These observations constitute the first published documentation of the nesting of *F. peregrinus cassini* on the eastern slope of Peru. Decades-old observations of pairs of this subspecies in this part of the country, and recent observations of juveniles (Rivas-Fuenzalida pers. comm.), suggest that a breeding population of the species is found in this part of the country. The documentation of breeding sites is important for the conservation of birds and can serve as a basis for future research and conservation studies of the species.

### Acknowledgments

Thanks to the Club de Observadores de Aves of Oxapampa for the valuable birding outings. To the editors of *Spizaetus* for their valuable contributions and suggestions to the manuscript.

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# DR. JOSÉ HERNÁN SARASOLA, RECIPIENT OF THE TOM CADE AWARD 2022

By Jennifer Coulson<sup>1</sup>

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The Raptor Research Foundation (RRF) presented its premiere conservation award to Dr. José Hernán Sarasola at the RRF Conference in Fort Lauderdale on 7 October 2022. The Tom Cade Award recognizes an individual who has made significant advances in the conservation of raptors, including: advances in captive propagation and reintroduction techniques, identifying conservation biology problems and solutions, and implementing population restoration programs.

Diego Gallego tricked his professor into Zooming in at a late hour by convincing him that he,

Dr. Sarasola's student, was receiving an award. Dr. Sarasola is a leader in the field of raptor conservation biology. In 2001, he co-founded the Center for the Study and Conservation of Birds of Prey in Argentina (CECARA), a pioneer research and conservation center for Neotropical raptors. He served as its Vice-Director from 2006 to 2012 and then as its Director since 2012. CECARA has received local and international awards for its exemplary conservation work.

Dr. Sarasola is well known for his research focused on the ecology and conservation of Swain-



**Figure 1: Dr. José Hernán Sarasola during his research with *Buteo swainsoni*. Photo © José Hernán Sarasola**



**Figure 2: Dr. José Hernán Sarasola during his work with *Buteogallus coronatus*. Photo © José Hernán Sarasola**

son's Hawks (*Buteo swainsoni*) in Argentina. His research on this long-distance migrant, affected by massive mortalities during the middle 1990s, represented one of the most comprehensive studies on the species on its non-breeding grounds.

Another of Dr. Sarasola's major conservation contributions involves his work on the Chaco Eagle (*Buteogallus coronatus*), one of the largest and most endangered eagles in the Neotropics. Little was known about the species when Dr. Sarasola started this project 20 years ago. Thanks to his long-term research, the biology of the species is now relatively well known in many aspects, in-

cluding social behavior, demography, movement ecology, and population genetics. Most relevant to the Cade Award, he identified electrocution as a major threat to the Chaco Eagle and mitigated the problem through more focused research, public outreach, education and stakeholder involvement. His research was one of the first to systematically examine raptor electrocutions in southern South America.

He has also conducted field research on other raptors in South America and Europe emphasizing raptor population ecology, migration, and conservation. Many of these studies focused on species of conservation concern, including American Kestrels (*Falco sparverius*), Aplomado Falcons (*Falco femoralis*), and Andean Condors (*Vultur gryphus*).

In addition, Dr. Sarasola has also co-edited a book on raptor biology and conservation and has published over 100 peer-reviewed papers, monographs, book reviews, and book chapters. He has also supervised more than 25 students working on raptor ecology and conservation in South America.

\* \* \*



# OF INTEREST...

## Grants

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### WEEDEN FOUNDATION

<https://weedenfoundation.org/applications/>

The Weeden Foundation awards grants for the conservation of biodiversity in forest ecosystems, riparian corridors, and river and aquatic environments of ecological importance. One of Weeden's international priorities is the Patagonia region of Chile. The average grant amount is between \$15,000 and \$20,000. The Foundation requests Letters of Inquiry (LOI) at least one month before the proposal deadline. The next deadline for applications (English, Spanish) is December 30, 2022. Find details.

### IDEA WILD

<https://ideawild.org/application/>

You can apply for an IDEA WILD equipment following these THREE STEPS: 1) Download Application Guidelines. Read thoroughly and review Frequently Asked Questions (FAQs), 2) Download the Application Form (choose either Word Document or PDF), 3) Email your complete application materials to [ideawild@ideawild.org](mailto:ideawild@ideawild.org). An email reply will be sent to you to confirm receipt of your materials within 10 working days.

### NEOTROPICAL BIRD CLUB

<http://www.neotropicalbirdclub.org/conservation/conservation-fund/conservation-fund-guidelines/>

The NBC Conservation Awards Program invites applications for one of three categories: 1) Small Grants - up to \$1,500: available for projects implementing direct conservation action or research, 2) Medium Grants - up to \$3,000, 3) Juan Mazar Barnett Award - up to \$5,000: seeks to encourage neotropical bird conservationists and researchers.

### GLOBAL RAPTOR RESEARCH AND CONSERVATION GRANT

<https://hawkwatch.org/grrcg>

Funds projects up to \$2,500 USD that are: 1) Located in high priority countries for raptor research and conservation (including Latin America); 2) Focused on a single raptor species recognized as a high priority species for research and conservation; and 3) Led by an applicant who is a citizen of the country and who is associated with an NGO and/or university registered in the country where the project will take place. Deadline: December 31, 2022.



Neotropical Raptor Network  
[www.neotropicalraptors.org](http://www.neotropicalraptors.org)

Issue 34, December 2022

