Spizaetus

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Raptor Diversity in Peru

Morphnus guianensis in northern Brazil

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Cover Photo: Silhouette of a Greater Yellow-headed Vulture in the Madre de Dios lowlands, Peru © Renzo P. Piana/ACCA.

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The NRN is a membership-based organization. Its goal is to aid the research and conservation of Neotropical raptors by promoting communication and collaboration among biologists, raptor enthusiasts, and other conservationists working in the Neotropics. To join please e-mail the NRN coordinator, Marta Curti, at mcurti@peregrinefund.org, stating your interest in Neotropical raptor research and conservation.

High Diversity of Diurnal Raptors Along an Altitudinal Gradient in Southeast Peru

By **Renzo P. Piana**

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Harpy Eagles nest in emergent trees in the Madre de Dios lowlands yet they can be seen in secondary forests. Photo © Rich Hoyer.

With 72 species of birds of prey, including five which are migratory, Peru is among the countries with the most raptor diversity in the world (Schulenberg et al. 2007, Global Raptor Information Network 2016). Despite this, there is little information on raptor habitat use and how species aggregate or segregate in areas where diversity within this taxa is high.

Located in southeast Peru, the Madre de Dios River Basin extends from the upper reaches of the Andes above 5000 m, down to the Amazonian lowlands (250 masl), along the Manu Road. This region is characterized by a high diurnal raptor diversity. Of the 56 species, 35 belong to Accipitridae, 16 to Falconidae, four to Cathartidae and one to Pandionidae.

Among the Accipitridae, *Spizetus* species (*S. tyrannus, S. ornatus, S. melanoleucus* and *S. isidori*) are closely associated with forested habitats and the Black-and-Chestnut Hawk Eagle (*Spizaetus isidori*) inhabits montane and cloud forests above 1500 m (Valdez and Osborn 2004). The remaining species favor lowland forests and build their nests in large trees in lowland terraces (R. Piana pers.

A juvenile Broad-winged Hawk perched on an exposed branch in the upper reaches of the Madre de Dios gradient. Photo © Renzo P. Piana/ACCA.

obs.). Among Accipiter species, *A. collaris* and *A. striatus* are associated with cloud forests loaded with bromeliads and epiphytes, while *A. bicolor, A. poliogaster* and *A. superciliosus* frequent lowland forests close to river edges.

Migrant species within this family, like the Broad-winged Hawk (*Buteo platypterus*), are often seen flying over ridges or perched on exposed branches on mountainsides. Harpy Eagles (*Harpia harpyja*) and Crested Eagles (*Morphnus guianensis*) also nest in lowland terraces yet differences in habitat use and diet preferences between these species has not yet been studied in detail (Giudice et al. 2007, Piana 2007).

Within the Falconidae, Orange-breasted Falcons (*Falco deiroleucus*) can be observed below 2000 m, yet in June 2015, a juvenile was observed at 3000 m, close to Wayqecha Research Station, perched at the border of a landslide. Frequent observations of this species in January and February in

the city of Puerto Maldonado (260 masl) may support the hypothesis that the species performs altitudinal migrations in this portion of its range (Piana 2015). Orange-breasted Falcons coexist with migratory Peregrine Falcons (*Falco peregrinus*) in urban areas in the southeastern lowlands (Piana 2014). American Kestrels (*Falco sparverius*)are colonizing deforested lowland areas along roads and can be seen in small towns along the Kosñipata Valley (600 m) where forests have been cleared for agriculture.

Mountain Caracaras are a common sight in fields close to towns above 3000 m.
Photo © Renzo P. Piana/ACCA.

Of the four species of Caracaras, the Red-throated Caracara (*Ibycter americanus*) and the Black Caracara (*Daptrius ater*) are frequently seen and heard in the lowlands, the former more associated with forest interiors while the latter is frequently seen at river edges and beaches. The Mountain Caracara (*Phalcoboenus megalopterus*) is common in puna grasslands and recently ploughed fields close to towns where individuals can be seen feeding on terrestrial insects. The Southern Caracara (*Caracara plancus*) has recently colonized the lower part of the Madre de Dios River Basin and is associated with cleared areas used for goldmining (Piana et al. 2012). Five forest-falcon species (*Micrastur spp.*) are also known to occur in the Madre de Dios River lowlands. Mostly heard at dawn and dusk, these species were studied by Valdez (2009) at Los Amigos Research Station (350 masl), close to the Madre de Dios River.

The four species of Cathartidae are mainly observed below 1000 m, particularly along rivers, with the Black Vulture (*Coragyps atratus*) mainly associated with small towns. Greater Yellow-headed Vultures (*Cathartres melambrotus*) are frequently seen soaring low over lowland vegetation at river borders, while King Vultures (*Sarcoramphus papa*) soar high above the forest and feed at river beaches and forest interiors. In the higher portions of the basin, at close to 4000 m, Andean Condors (*Vultur gryphus)* are also expected, yet there are no recent reports for this species in

Orange-breasted Falcons are rare but can be seen from 1000 to 3000 m along the Madre de Dios gradient. Photo © Renzo P. Piana/ACCA.

the upper Kosñipata/Madre de Dios.

Intact forest areas that border Manu National Park, a set of biological stations that accommodate researchers along this gradient, and a road from Cusco to Pilcopata grant access to this gradient all year round. Raptor researchers interested in studying particular species, and more importantly, community assemblages and interactions between guilds should visit this area, as more research is urgently needed to preserve these species and their habitats.

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Records of Crested Eagle (*Morphnus guianensis*) Predation on Brown-throated Sloth and Golden-backed Squirrel Monkey in North Brazilian Amazonia

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A Crested Eagle nest with the male, female and approximately 2 month old nestling present. Manacapuru, Amazonia, Brasil. Photo © Felipe Bittioli R. Gomes

The Crested Eagle or "False Harpy Eagle" (in Brazil), (*Morphnus guianensis*) Daudin, 1800, is the second largest Brazilian forest eagle. It measures 89 cm long, has a 154 cm wingspan and can weigh up to 3 kg (Ferguson-Lees & Christie, 2001). Because of its wide distribution, from

southern Mexico to northern Argentina (Gomes & Sanaiotti, 2015), the species is classified by IUCN as Near Threatened (BirdLife International IUCN, 2015), however little is known about many different aspects of its biology, such as breeding and diet.

According to the general literature, *M. guianensis* feeds on small mammals, birds, reptiles and amphibians (Brown & Amadon, 1968; Sick, 1997; Bierregaard, 1984; Ferguson-Lees & Christie, 2001; Whitacre et al., 2012). Few studies exist that mention more detailed information about this species' feeding biology and foraging strategies (Bierregaard, 1984; Whitacre et al., 2012.), though there are some published notes by researchers studying other animal groups who witnessed attacks by *M. guianensis* on their study subjects, mainly primates and birds (Trail, 1987; Robinson 1994; Julliot, 1994; Gilbert, 2000; Oversluijs & Heymann, 2001).

Crested Eagle seen with Brown-throated Sloth *(Bradypus variegatus)*, in Victoria do Xingú, Pará, Brasil. Photo © Tiago Lisboa

Crested Eagle carrying off a Golden-backed Squirrel Monkey (*Saimiri ustus*) in the Bosque Nacion Jamari, Rondonia, Brasil.
Photo © Nathalia Fernandes Canassa

Our goal in this paper is to report two *M. guianensis* predation events: one on a Golden-backed Squirrel-monkey (*Saimiri ustus*, new record) and the other on a Brown-throated Sloth (*Bradypus variegatus*, unusual).

Methods and Results

On 4 September 2015, in the Itapua region, west of Rondonia, in Jamari National Forest (09 ° 11 '22.36 "S, 60 ° 89' 01,42" W), an area of dense tropical rain forest, we were traveling on foot when we observed an individual Crested Eagle flying up from the ground while carrying an adult Golden-backed Squirrel-monkey. The eagle lifted off and flew toward the forest. Unable to carry the prey more than one meter off the ground, we observed it flying very low before it disappeared into the forest.

On 25 September 2015, in the Vitoria do Xingú Region, Pará (03° 21'18.8"S, 052° 02'40.2"W) within a human-disturbed area (vegetation clearing) we observed an individual Crested Eagle moving around in a tree, about five m. high, while holding on to a young Brown-throated Sloth. The dead sloth was being held in the eagle's talons, and appeared to be intact (uneaten) indicating it had been recently captured.

We observed the eagle for about five minutes before it flew away into the forest.On both occasions, we watched the individual eagles only during the first moments of the hunting event, only minutes before they flew off with their prey. We were unable to make any other behavioral observations during those times.

Discussion

The Crested Eagle's diet consists mainly of small and medium-sized mammals, represented by the orders Rodentia (arboreal rodents), Procionidae (kinkajou), Marsupialia (opossums and woolly-opossums) and Primates (monkeys). It also includes birds such as Guianan Cock-of-the-rock (*Rupicola rupicola*), guans and curassows (C*rax spp., Pauxi spp.* and *Penelope spp.*), hawks (Accipitridae), owls (Strigidae), aracaris and toucans (Ramphastidae), as well as snakes, lizards (Squamata) and occasionally amphibians (Anura) (Trail, 1987; Sick, 1997; Bierregaard, 1984; Whitacre et al, 2012; Gomes, 2014).

Within the primates, predation by the Crested Eagle has been documented on the young of medium to large species such as Red-faced Spider Monkey (*Ateles paniscus*) (Julliot, 1994), Sakis (*Pithecia pithecia*) (Gilbert, 2000), and small species such as marmosets, *Saguinus geoffroyi, S. mystax, S. fuscicollis* (S. *weddelli*) and *S. midas* (Oversluijs-Vasquez et al., 2001; Vargas et al, 2006; Gomes, 2014), and tamarins including *Saimiri sciureus* (Robinson, 1994) and Golden-headed Lion-tamarin (*Leontopithecus chrysomelas*) (Costa Araújo et al., 2015).

Our confirmed record of Crested Eagle predation on a Golden-backed Squirrel-monkey adds a new species to the known diet of *M. guianensis,* however it is mainly a biogeographic addition, since there was a previous record of a Crested Eagle preying on a different species of the same genus (*S. sciureus*), but within a distinct geographical distribution.

Although sloths are very common in the diet of Harpy Eagles (*H. harpyja*), (Aguiar-Silva et al., 2014), sloth predation by *M. guianensis* has been reported only once, during observations made by Vargas et al., (2006), when an individual Crested Eagle was seen providing food (feeding) for a Harpy Eagle nestling in Panama. Our observations confirm the rarity of sloths as a food resource for Crested Eagles, as noted by Vargas et al., (2006).

Despite the lack of incentives to study the natural history of Brazil's wildlife species (fish to mammals) and the reluctance of the Academy to develop such programs, information obtained from anecdotal records has been very important and helps to fill knowledge gaps about the biology of most Brazilian species.

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Flight Paths of Andean Condor (*Vultur Gryphus*) in the Andes along the Colombia-Ecuador Border

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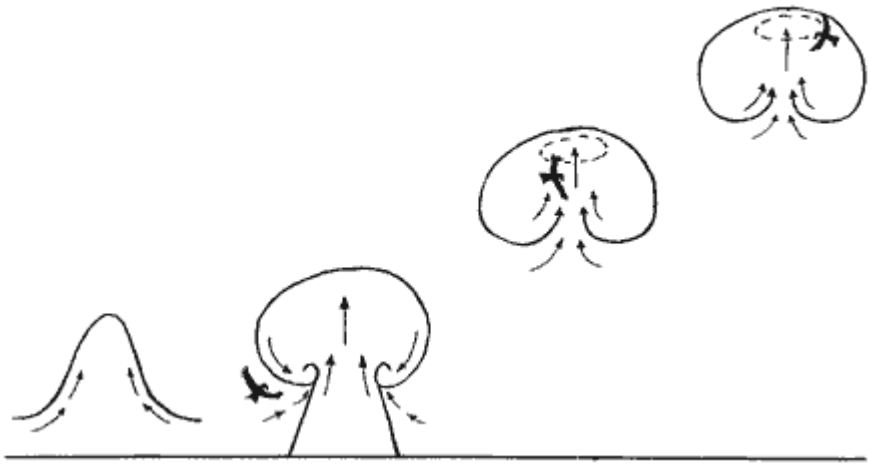
In Latin America, there is a growing interest in the current status of the Andean Condor (*Vultur gryphus*) and the reasons for its decline, which range from alteration of ecosystems where they live, their slow reproductive rate, expansion of human activities (agriculture), poaching, ingestion of toxic baits and lead ammunition, collision with power lines, competition for food and snare traps.

Approximately 160 years ago, the condor's distribution reached as far as the Colombian Atlantic Coast. Today it is worth noting that it is only found in some protected areas of the country (Gordillo, S., 2000).

The Andean Condor is currently distributed in Colombia from the Nudo de Los Pastos and along the Western, Central and Eastern mountain ranges. Although listed as Near Threatened and included in CITES I (BirdLife International, 2016 ; IUCN, 2016), the condor population in

Warm air currents (thermals) exploited by soaring birds such as *Vultur gryphus*. Fuente: Navarro, A & Benítez, H. 1995



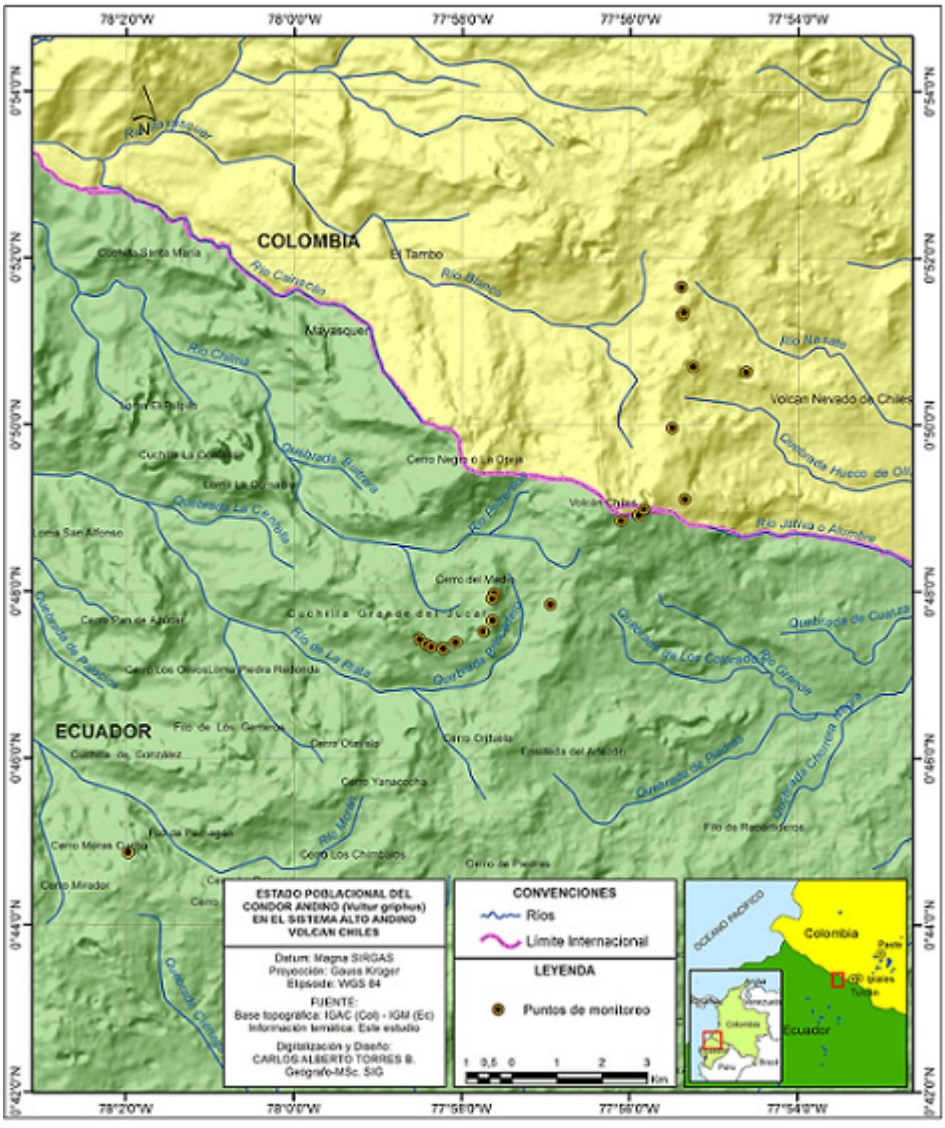
southern Colombia has been little studied and today, there are still many aspects about its biology which remain uknown. This study aims to contribute to the knowledge about the flight path used by the species along the Colombia-Ecuador border in the high systems of Chiles Volcano and Páramo El Ángel, respectively.

According to biotic and abiotic conditions present in the paramo ecosystem, it is expected that the condors found here have their basic needs met, including sufficient food, roosting and nesting sites. According to Wallace & Temple (1987), the Andean Condor has a far-ranging flight path. Some individuals have been recorded traveling about 200 km in a straight line, from one roost to another, or in search of food, in a single day. Within these flight paths, the condor uses specific areas in which to roost communally, to form pairs and to nest.

Climate is the result of the interaction of biophysical factors (altitude, latitude, topography, vegetation) and weather (temperature, precipita-

Below: The crew who participated in this study, monitoring the flight route of the condors.

Right: Map showing the location of the flight route. Source: this study

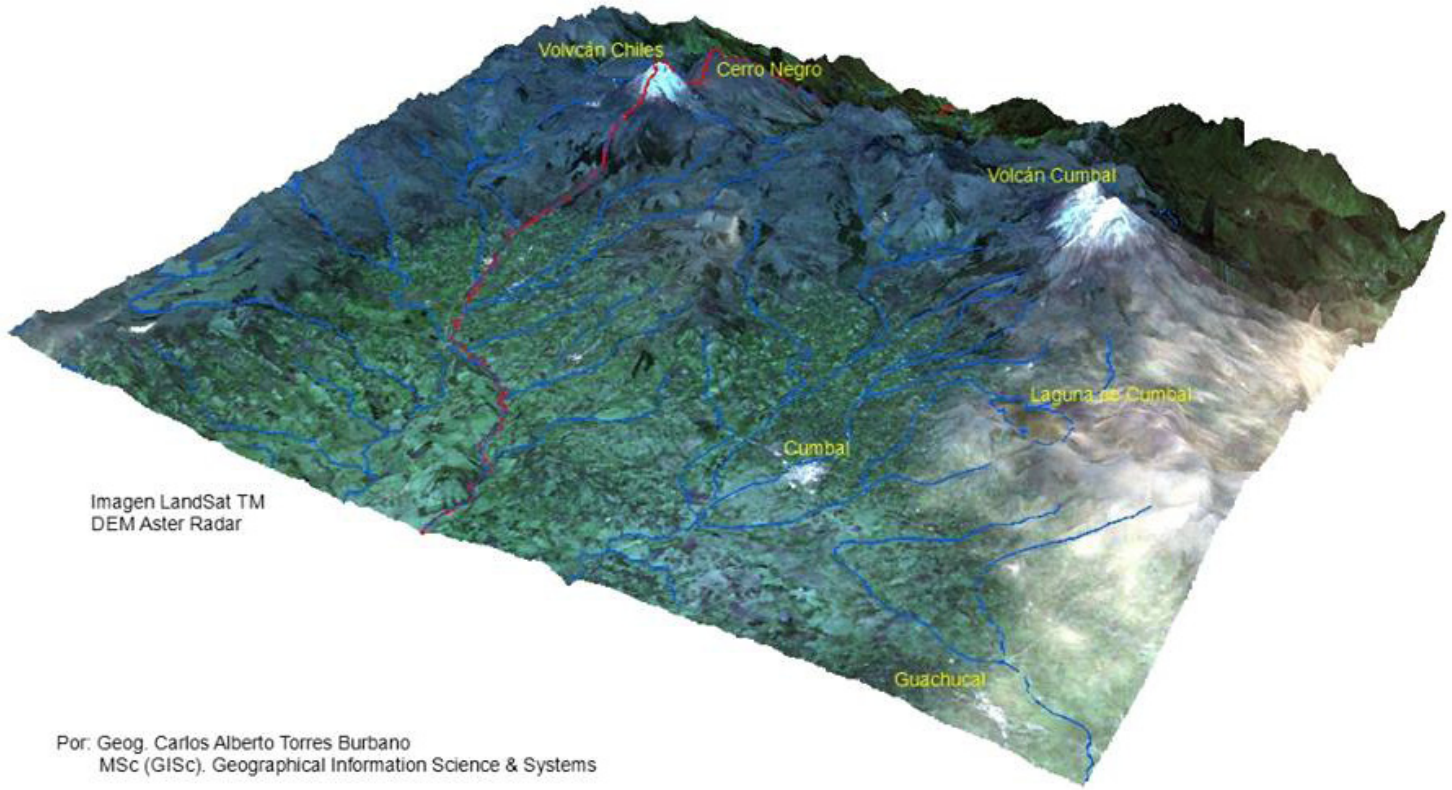


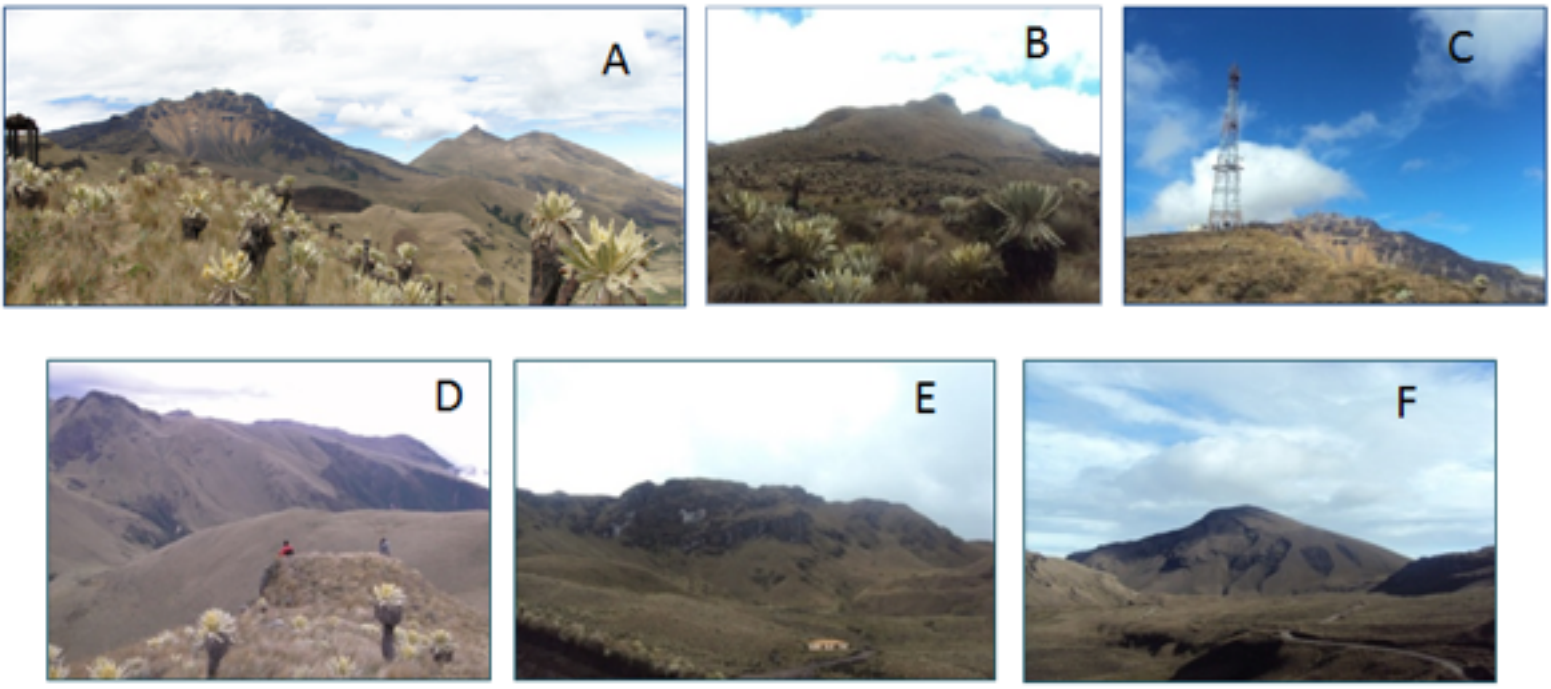
tion, humidity, sunshine and wind) that together determine homogeneous zones commonly called life zones (Holdridge, 1978). The region of southern Colombia and northern Ecuador is influenced by factors that characterize it as an Intertropical Convergence Zone (ICZ), an area located near the equator with converging masses of weak, constant and moisture-laden trade winds which arise from high pressure subtropical zones. The influence of the ICZ and the humidity from the Pacific Ocean create heavy rainfall on the western side of the Western range.

Climate and relief are related in such a way as to affect the distribution of condors along their flight paths. When the wind is favorable, the condor's flying speed in a straight line can reach 60-70 km/h, while in circular flights the speed is usually less (50 km/h). The maximum altitude recorded for an Andean Condor is 4600- 6500 masl (McGahan, 1972; Snyder y Snyder, 2000).

During flight, condors take advantage of the warm air masses (thermals) which, because they are lighter than cold air masses, form above the earth's surface and begin to rise. These thermals allow the condors to soar at great heights and to save energy, especially since their large size

Flight path of *Vultur gryphus* **in southern Colombia**





Monitoring Points. Colombia: (A) La Puerta 3971 masl; (B) La Cresta 3728 masl; (C) La Antena 4065masl. Ecuador: (D) Palacios 3982 masl; (E) Cerro del medio 4102 masl; (F) Azuay 4049 masl.

makes it difficult for them to continuously flap their wings while airborne. The energy gained when soaring in air currents is considered similar to that available in their food (Lambertucci & Shepard 2012). Once a condor enters a thermal, it uses it to gain altitude before soaring into another one. In this way it travels effortlessly across the landscape (Fig . 1).

Materials and Methods

In 2012 we collected data in southern Colombia, within the Chiles Indian Reservation, Nariño Department; and in Ecuador in the province of Carchi, Tulcán Township, in the Parroquia de Tufiño, La Esperanza and in the Paramo El Angel Ecological Reserve. Our study covered both the summer and winter seasons. We monitored the condors between 07:00 and 17:00 whenever climate conditions were conducive to sightings. We used a pair of Pentax® 10x50 mm binoculars and 10x24 mm Natureview® Bushnell binoculars. For keeping photographic records, we used a Sony digital camera DSC- H300® 20.1 Mega Pixels zoom and took location data using a GPS Garmin eTrex 20.

The Chiles Volcano Altoandino system is located 86 km SW of the city of Pasto. It has an altitude ranging from 3000-4770 masl. It is characterized by altoandino ecosystems which form part of the volcanic complex covering an area of 5,626 hectares (Ingeominas, 2000). La Esperanza is located in the northern highlands of Ecuador, bordered to the north with Colombia, to the south by the

El Angel Ecological Reserve, to the west by subtropical lands sloping down towards the Pacific, and to the east with the eastern portion of the Canton Tulcán in the interandino alley (Andean Páramo Project , 2004).

The Chiles Volcano altoandino system covers the Chiles Indigenous Reserve in Colombia and Commune La Esperanza in Ecuador, which together present a mountainous landscape located on the western range with several orographic features, such as Páramo El Ángel, Cañón de Palacio, Cerro del Medio, Cerro Negro, Cerro Cangüil, Cerro La Cresta, Volcán Chiles and Volcán Nevado Cumbal.

Andean Condors move across a broad geographic range within the Andes. To best observe these birds, we set up six fixed observation points, which were chosen after traveling throughout the study area to identify the places in which condors were spotted by locals. In Colombia the observation points were: La Antena, La Cresta and La Puerta; and in Ecuador: Palacios, Azuay and Cerro del Medio. The information collected during our study was included in a database indicating: the fixed point of observation and geographic coordinates which were entered into maps using ArcGIS 9.3.1; climate data (precipitation, temperature, cloud cover and sunshine); and behavioral observations. To create maps of the condors' movements we used Geographic Information System (GIS), and for digitizing and editing we used Landsat to indicate the condors' identified flight paths.

Results and Discussion

Vultur gryphus is one of the largest birds in the world and weighs approximately 16 kilograms. Evolutionarily it has been restricted to habitats where it can take advantage of the updrafts formed by the Andean geography which is characterized by hillsides, mountains and high mountain ecosystems where the temperature and other features produce the conditions that create optimal thermals for soaring. Snyder & Snyder (2000) have identified three habitat requirements for the Andean Condor: (1) updrafts of warm air optimal for flying at great heights; (2) foraging environments that are clear, in order for the condors to identify and reach carrion and (3) food sources.

Our observations of individual birds flying in the same direction coincides with the idea put forth by Bayer (1982), wherein the choice of flight direction could be a response to the formation of thermals used for easier lift-off, for ease in flying into certain areas, for arriving to roosting sites, and for generally flying with less effort while foraging. We observed birds flying over the Chiles Volcano mountain chain (4729 msnm) and Cumbal (4764 msnm) in Colombia (Fig. 2); and over areas of forest covered with trees of the Rosaceae family (*Polylepis incana)* and a matrix of grasses and sub-shrubs (*Calamagrostis effusa* and *Espeletia pycnophylla*) in the paramo of Comuna La Espe-

ranza. The condors often searched for food in areas with grassland characteristics which were occupied by cattle and llamas (*Lama glama*) which have been introduced into the area.

Along the flight paths used by the condors, we also found accessible paths for humans into the paramo ecosystem - both in Colombia and in Ecuador. Condors can be very sensitive to small changes in the landscape, and may be moving to other areas in search of less altered habitat, and thus establishing new flight routes. This might suggest that Andean condors may avoid the areas surrounding roads as mentioned in the study of Speziale , K., Lambertucci , & S., Olsson, O., (2008).

The most frequently used flight direction coincided with the areas of greatest slope, and thus the most optimal thermals. At the six monitoring sites, we observed the condors traveling over Cerro Negro, Cerro Cangüil, Volcán Chiles and Cumbal (Fig. 3). The south-traveling flight path was flanked to the east by La Puerta (3971msnm) and to the west by Cerro La Cresta - which is characterized by flatter areas (3728 msnm). Palacios, in Ecuador (3982 msnm), also has a flatter area that is frequented by wild cattle. The geographic interaction between areas with greater slopes and lowlands (grasslands and livestock pastures) seems to be ideal for the formation of good thermals. At the observation points in La Puerta, La Antena, Palacios and Azuay we had the greatest number of sightings, with most of the activity in La Puerta occurring between 15:00 to 17:00, in a flight direction of North – South. It is important to mention that a nesting site was documented in Comuna Morán (outside the study area) and that there was an additional site located by community members in the Páramo El Ángel Reserve, specifically in Palacios, where a female chick was observed two years ago.

Conclusion

• The Andean Condor makes daily movements within its habitat as necessitated by the interaction between its own characteristics and those of the environment around it. Because the six study sites represent only a portion of the entire area that the species can occupy along the Colombian-Ecuadorian border, the flight routes could be extended along the Cordillera de Los Andes according to supply and demand for resources.

• Anthropogenic activities within the paramo ecosystem are considered to be some of the causes for habitat loss for the species within this high mountain ecosystem. Land use in the Chiles Volcano has transformed the area into agricultural and cattle fields, which has caused native species to displace to zones farther from human inhabited areas. Because of this, flight routes may fluctuate according to human actions, particularly those related to the maintenance of agricultural and cattle pastures, such as fires, moving livestock into the wilderness and the incursion of hunters.

• Roads, poaching, and wildfires started in the paramo with the goal of expanding grazing land may influence the habitat use of the Andean Condor, causing it to disperse to areas farther away, which could cause the species to disappear from the Chiles Volcano Antoandino ecosystem.

Recommendations

• It is important to carry out simultaneous monitoring of the species to help better understand its flight paths as well as the number of individuals that can be identified in a day, with observers both in southern Colombia and northern Ecuador, trying to minimize re-counting of the same individuals.

• Flight paths may help detect areas of importance for the species, such as roost sites, nests, and foraging areas throughout its distribution. This knowledge will help determine the actual conservation status of Andean Condors and the ecosystem.

• The study and understanding of Andean Condor flight paths in southern Colombia and northern Ecuador may provide an incentive for the creation of reserves and/or other protected areas that make up portions of biological corridors and that provide for the protection of condors and mitigation of habitat fragmentation. Without these protections, the species may be obligated to travel to and remain in other areas, making it absent locally.

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New Record of Stygian Owl (*Asio stygius*) in Tegucigalpa, Honduras

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The Stygian Owl (*Asio stygius*) is a large owl that measures 38 to 43 cm in length and can weigh between 460 and 685 g. It inhabits cloud forests, pine forests, pine-oak forests and tropical forests at elevations ranging from 0-3100 masl (Enriquez et al. 1993, Howell y Webb 1995, AOU 1998). Its distribution extends from northern Mexico to Argentina, with occasional sightings in the U.S. (Howell y Webb 1995, Wright y Wright 1997). The species is considered rare in Mexico and Central America, with very few records in the region (Howell y Webb 1995, Rodríguez-Ruiz y Herrera-Herrera 2009, Enriquez et al. 2012).

In Honduras, this species has been reported in areas within the Departments of Gracias a Dios, Cortes, Francisco Morazán, Atlántida and Olancho (Collart 2012, Gallardo 2014, ebird 2016). In this paper we report the presence of a Stygian Owl in Tegucigalpa, an area with no previous documented sightings of this species. Tegucigalpa is located in the central part of Honduras, in the Department of Francisco Morazán, at an altitude between 900 and 1050 masl. The lowlands are characterized by a rainy tropical climate and the highlands are characterized by humid temperate climates with average temperatures ranging from 19 to 24^{o}C (Carias 2013).

On 15 September 2015 in an urban area of Tegucigalpa, on the premises of the Empresa Nacional de Artes Gráficas de Honduras (14.072733, -87.20055), security guards working at this government institution confiscated an owl which had been tied up and was being carried by some kids. After the guards seized the owl, it was transported to the Rosy Walther Zoo, where it was identified as a Stygian Owl based on the descrption provided in Howell and Web (1995). Morphometric measurements were also taken: total body length was 450 mm, wing chord was length 510 mm, beak measured 37.9 mm, tail was 180 mm, tarsus

Asio stygius **rescued by personnel from the Rosy Walther Zoo,Tegucigalpa 2016 © Francisco Aceituno.**

measured 43 mm and it weighed 760 g.

Subsequently, a clinical evaluation was performed to determine the health of the owl. The examination didn't reveal any lesions on the wings, and the owl seemed to be free of ectoparasites or skin conditions. During the physical examination, though the individual held itself in a normal posture, it could not fly and its left leg showed signs of a fracture. This diagnosis was confirmed after an X–ray was taken, at which time it was determined that the specimen suffered a fracture of the tibio-tarsus.

To treat the fracture and restore normal alignment of the bone, we used a splint to immobilize the bird. In addition, we administered meloxicam (0.1g/kg) and enrofloxacin (0.1g/kg). We then transferred the individual to a recovery enclosure which was 2.5m long by 2.5m wide and 3m high. During this time, the bird seemed to adapt well to the presence of the splint, but it did not eat on

its own. We fed it mice (*Mus musculus*) by hand. On October 6 the individual died. We performed a necropsy, but no relevant macroscopic findings were detected. The owl was placed in a plastic bag and frozen, and then brought to the Museum of Natural History of the National Autonomous University of Honduras.

Discussion

The Stygian Owl is considered a rare species and observations are infrequent (Enriquez et al. 2012). At the same time, documented records in several countries within its range, including this one, are of individual owls with traumas or dead specimens (Bodrati et al. 2006, Tello-Alvarado 2011, Monroy-Ojeda y Pedraza-Ruiz 2015, Pardo y Peralta 2015).

Consistent with these reports, and as a result of the conflict between man and raptors, the reasons for which birds of prey are admitted to wildlife rescue centers mostly originate as a consequence of actions of anthropogenic origin - either involuntarily (collisions with vehicles or fences, elec-

Left. *Asio stygius* **- when it was admitted to the zoo it was unable to fly. 2016 Photo © Francisco Aceituno. Right. Ventrodorsal radiograph of the left lower limb. 2016 Photo © Rosy Walther Zoo**

trocutions) or deliberate (shooting, other injuries from human contact, illegal trafficking) (Deem et al. 1998, Rodriguez et al. 2010, Molina 2013). Between 2013 and 2015, 19 raptors were admitted to the Rosy Walther Zoo. Of these, 11 were of the order Strigiforme and 8 of the order falconiforme. Most of these specimens were admitted voluntarily by individuals who rescued these birds from various traumas or accidents (Aceituno 2016).

In this context, it is important to note that the general attitude people have toward owls is considered a threat to their populations. The perception that these species are harmful and attract bad luck persists in certain areas throughout the Stygian Owl's range (Enriquez and Rangel -Salazar 2004, Restrepo and Henriquez 2014). Taking this into account, it is clear that education and environmental awareness about raptors is very important as a preventive mechanism to prevent the abuse and the hunting of these birds.

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10-13 October
Arenal Manoa Hotsprings & Resort
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IV Conference on Neotropical Raptors 2016

You're Invited!

Join us for the IV Neotropical Raptor Conference in the Arenal Manoa Hotsprings & Resort in La Fortuna, Costa Rica, from 10 to13 October 2016.

Biologists, students, falconers, educators, and conservationists will come together to share their latest research results, successes and challenges. The conference will also act as a meeting point to foster discussion and collaboration on solutions to both present and future conservation issues such as habitat destruction, electrocution, human persecution of raptors and climate change. For more information please visit ***nrn.peregrinefund.org*** or write to ***mcurti@peregrinefund.org***

Photo © Chris Jiménez

Courses and Workshops

Apart from 3 days of scientific plenary sessions, there will be a full day of Raptor Skills Courses offered including workshops in biomedicine, raptor handling techniques and a two day course at the Kèköldi Reserve on the ecology, monitoring and identification of migrating raptors.

Accessing Raptor Nests in Trees

Covering the following topics: safety; selection and use of equipment; basic knots; ascending and descending, and rescue.

Handling, Management and Taking Biomedical Samples in Raptors

Learn to safely handle birds of prey while taking biomedical samples (blood, fecal, etc.).

Raptor Trapping

Covering proven methods used in the field to trap birds of prey in tropical environments.


Photo © Luis Villagrán

Marking and Radio Tagging of Raptors

This course will cover banding techniques, as well as methods for safely placing radio transmitters on birds of prey - including backpack harnesses, tail mounts and leg mounts.

Introduction to Data Analysis

The aim of this course is to provide an introduction to data analysis techniques commonly used in monitoring programs and habitat/resource selection studies.

Monitoring Migratory Raptors

This course is designed to be taught over two full days, and will include lectures and field trips. The course will cover ecology and migration strategies, ecology and conservation of migratory raptors, identification of raptors in flight, estimation protocols for counting birds in flight, and the collection and analysis of data. Lodging will be in a local hostel, while the fieldwork will take place at the Kèköldi Hawk Watch site.

Call for Papers

Anyone registered for and planning to attend the conference is invited to submit a paper and contribute to the scientific sessions. We welcome presentations on all aspects of raptor conservation, including captive breeding and release, behavioral studies, environmental education techniques and eco-tourism projects, with a strong emphasis on projects being carried out in the Neotropics or with potential to be adapted to the Neotropical environment. If you are interested in submitting an abstract and presenting this information either in oral or poster format at the IV NRN Conference, please follow the submission guidelines presented at nrn.peregrinefund.org.

IMPORTANT DATES - 2016
Registration Opens – 15 January
Abstract Submission Deadline – 10 July
Early Registration Deadline – 10 August
Full Paper Submission – 13 October


Photo © Angel Muela

Best Student Presentation Awards

The Best Student Presentation Awards will be given to the top three oral or poster presentations given by students at the Neotropical Raptor Conference. This award can only be given to a student currently enrolled in a higher degree, such as master's or doctorate. The awards are valued at US$250, $150, and $100 for the top three students. Students wishing to be considered for this award should indicate their interest in their email when they submit their abstract. In addition, students presenting papers for consideration should submit a second extended abstract (up to 3 pages) or full paper for publication in the conference proceedings.

Of Interest...

Grants

Club 300 Grant

http://www.club300.se/Birdprot/Birdprotection.aspx

They fund projects aimed at birds listed as Critically Endangered (CR), Endangered (EN), Extinct in the Wild (EW) or Data Deficient (DD) on the IUCN Red List of threatened species. Contact birdprotection@club300.se for more information. The application should be written in English. The deadline to apply is **31 July of each year**.

Oklahoma City Zoo and Botanical Garden

http://www.okczoo.org/conservation/can-grant-program/

The Oklahoma City Zoo and Botanical Garden are committed to support endangered species, habitats, and surrounding communities through conservation, research and education. The Zoo is offering small competitive grants of up to no more than $ 2,500.00 each.
Grants will be focused on the following programs:
Conservation Education - Building awareness of conservation programs/issues to create positive change.
Scientific Investigation - Research projects that have a direct impact on the conservation of an endangered species or habitat.
Species Conservation - Direct efforts to work with an endangered species in - situ or ex situ - which results in an improved ability to conserve this species in its natural habitat.
Grants are awarded every December and application materials will be available late summer or early fall.

The Darwin Initiative

https://www.gov.uk/government/groups/the-darwin-initiative

Darwin-funded projects usually aim to help preserve biodiversity and the local community that lives within it. Most projects include one or more of the following:

- building environmental awareness
- capacity building
- investigation
- implement international agreements on biodiversity

Check the website for more information on how to apply and deadlines.