## SPIZAETUS NEOTROPICAL RAPTOR NETWORK NEWSLETTER

Issue 17 June 2014

Accipiter striatus vennator in Puerto Rico

NEST RECORD OF ASIO STYGIUS IN GUATEMALA

**VULTUR GRYPHUS IN COLOMBIA AND ECUADOR** 

New Record of *Falco deiroleucus* in Colombia



#### Issue 17 © June 2014 English Edition ISSN 2157-8958

**Cover Photo**: Puerto Rican Sharp-shinned Hawk male, perched near its nest, Maricao Commonwealth Forest, Puerto Rico, 2013 © Julio C. Gallardo

Translators/Editors: Helena Aguiar-Silva, Greta Cerecedo, Hernan Vargas and Marta Curti Graphic Design: Marta Curti

Spizaetus: Neotropical Raptor Network Newsletter © June 2014.

www.neotropicalraptors.org

This newsletter may be reproduced, downloaded, and distributed for non-profit, non-commercial purposes. To republish any articles contained herein, please contact the corresponding authors directly.





## TABLE OF CONTENTS

| THE PUERTO RICAN SHARP-SHINNED HAWK (Accipiter striatus vennator): An endangered   |
|--|
| INSULAR SPECIES ON THE EDGE  |
| Julio C. Gallardo & Francisco J.Vilella2   |
|  |
| Nest Record of the Stygian Owl (Asio stygius) in Guatemala   |
| Denver Holt, Jesús Lucus Yuxó, Stephen Hiro & Omar Méndez14  |
|  |
| RECENT RECORDS OF THE ANDEAN CONDOR (VULTUR GRYPHUS) IN THE NORTHEASTERN COLOMBIAN ANDES. EVIDENCE OF ITS RECOVERY IN THE COUNTRY?                                     |
| Fausto Sáenz Jiménez, Francisco Ciri León, Jairo Paredes Gómez, Sandra Florez, Jairo Pérez Torres  |
| & Santiago Zuluaga Castañeda18   |
|  |
| New Record For Orange-BREASTED FALCON (FALCO DEIROLEUCUS) FOR BOGOTA, COLOMBIA<br>Julian Avila Campos Ang Milang Echaverry Arias & Naderabda Juliat Bonilla Sánchez 23 |
| Junan Avna-Campos, Ana Winena Echeverry-Arras, & Ivadeznaa Junet Bomna-Sanchez   |
| POPULATION STATUS OF ANDEAN CONDOR (VULTUR GRYPHUS) IN THE HIGH ANDEAN SYSTEM  |
| Volcán Chiles, in Nariño Department, Colombia and the Carchi Province, Ecuador   |
| Lorena Sofía Martínez Santacruz & Verónica Ortega  |
|  |
| Conversations from the Field   |
| Markus Jais  |
|  |
| OF INTEREST  |
|  |

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.

# THEPUERTORICANSHARP-SHINNEDHAWK(ACCIPITERSTRIATUSVENNATOR):ANENDANGEREDINSULAR SPECIES ON THE EDGE

By **Julio C. Gallardo,** Department of Wildlife, Fisheries and Aquaculture, Box 9690, Mississippi State University, Mississippi State, Mississippi, 39762, USA <u>jgallardo@cfr.msstate.edu</u>; and **Francisco J. Vilella**, U. S. Geological Survey, Mississippi Cooperative Fish and Wildlife Research Unit, Department of Wildlife, Fisheries and Aquaculture, Box 9691, Mississippi State University, Mississippi State, Mississippi, 39762, USA <u>fvilella@cfr.msstate.edu</u>



Puerto Rican Sharp-shinned Hawk male, perched near its nest, Maricao Commonwealth Forest, Puerto Rico, 2013 © Julio C. Gallardo

sland communities are known for higher levels of species extinctions than their mainland counterparts (Diamond 1984, World Conservation Monitoring Centre 1992). Since 1600, more than 75% of the world's animal extinctions have occurred on islands and are still ongoing (World Conservation Monitoring Centre 1992). Reasons for a higher extinction risk on islands are primarily related to biogeographic dynamics determined by island size, topography, disturbance regime and degree of isolation. However, anthropogenic influences have played a pivotal role in the last 500 years. These include habitat loss and degradation, over-exploitation and invasive species (World Conservation Monitoring Centre 1992, Frankham 1998).

The Sharp-shinned Hawk (*Accipiter striatus*) is a widespread bird-hunting raptor found in most forested habitats in North America. Approximately eight of ten described subspecies breed

in the Neotropics, including three insular endemic subspecies in the Antilles (Bildstein and Meyer 2000, Fergurson-Lees & Christie 2001). The Puerto Rican Sharp-shinned Hawk (*Accipiter striatus vennator*; hereafter SSHA) is an endangered woodland raptor known to inhabit mature and secondary montane forests and coffee plantations of Puerto Rico (USFWS 1997). The SSHA in Puerto Rico exhibits insular population traits, such as small clutches, reduced dispersion, low productivity, stable age structure, long breeding periods, and populations characterized by adult individuals (Delannoy 1984, Gliwicz 1980, Adler and Levins 1994, Stuchbury and Morton 2000). Available information on the SSHA indicates populations are small and mostly restricted to montane forest reserves; virtually no information exists of SSHA on private lands, particularly the coffee growing regions of the Cordillera Central. Based on limited available information, all Caribbean subspecies appear to be declining and in Puerto Rico the SSHA has exhibited a population reduction of 40% on public lands, where 240 individuals were estimated in 1985 and 150 in 1991 (Delannoy 1992, Bildstein and Meyer 2000, Fergurson-Lees & Christie 2001). During the last surveys (Delannoy 1997) conducted during 1991-1992, approximately 82 individuals were

Puerto Rican Sharp-shinned Hawk, immature male, Maricao Commonwealth Forest, Puerto Rico, 2012 © Julio C. Gallardo



recorded on five reserves encompassing 285.6 km2. The Puerto Rico-GAP Analysis predicted a total of 84,859 ha of SSHA habitat, of these 24.4% is federal or state-owned protected areas (Gould 2007). The Puerto Rico Ornithological Atlas documents the species as confirmed in four quadrangles, possible in three, probable in one, and observed in one (SOPI 2010).

Population decline in Puerto Rico may be a result of a series of factors namely habitat loss, forest fragmentation, high rate of nestling mortality from botfly parasitism (*Philornis spp.*), and post-

The adult female feeds her two chicks at the nest. © Mike Morel, 2011.



hurricane changes in forest vegetation structure and consequent effects on SSHA avian prey (Wiley 1986, Delannoy and Cruz 1988, Wiley and Wunderle 1993). Despite its legal protection and an approved recovery plan (USFWS 1997), information on SSHA population status has not been updated for over twenty years, and no conservation efforts have been implemented.

In 2011 we started research to derive population estimates (with precision) and identify important habitat characteristics for the SSHA. We selected the Maricao Commonwealth Forest (hereafter, Maricao Forest) as the primary study area since

> the region was documented to support the largest population of SSHA on the island (Delannoy 1991, Delannoy 1992). Our preliminary results suggest the status of the SSHA may be critical, necessitating an update of the status of the species along its known distribution, including public and private lands.

#### Study Site

Puerto Rico and its satellite islands (17°45' 18°30' N and 65°45', 67°15' W) represent the smallest and easternmost of the Greater Antilles, encompassing 8,740 km2 (Daly et al. 2003). The landscape of the main islands (Puerto Rico, Vieques and Culebra) is predominately mountain-

PAGE - 4



The Sharp-shinned Hawk in Puerto Rico shows a noticeable sexual dimorphism typical of birdhunting raptors, where the female is larger than the male. © Mike Morel, 2011.

ous, where altitude and rainfall define six bioclimatic life zones: subtropical dry forest, lowland moist forest, subtropical wet forest, lower montane wet forest, subtropical rain forest, and lower montane rain forest (Ewel and Whitmore 1973, Gould 2007). The SSHA in Puerto Rico is restricted to montane forests where breeding populations have been reported in the Maricao Commonwealth Forest, Toro Negro Commonwealth Forest, Guilarte Commonwealth Forest, Carite Commonwealth Forest, and the Caribbean National Forest (Delannoy 1997). Previous studies located 40 active nests in Maricao Forest associated with the Subtropical Wet Forest and Subtropical Lower Montane Forest in forests dominated by caobilla (*Podocarpus coriaceus*), caimitillo (*Microphoiis chrysophylloides*), and plantations of maria (*Calophyllum brasiliense*) between 400 to 900 m of altitude (Delannoy 1984, Delannoy and Cruz 1988, Delannoy 1997). One nest territory was found in subtropical moist forest in a maria plantation with similar structural characteristics of plantations at higher elevations (Delannoy 1984).

#### Methods

Recognizing that the SSHA in Puerto Rico naturally occurs in low densities, we developed a spatial model of suitable habitat in order to maximize effort. We used two habitat variables identified as important to SSHA from previous studies; a) canopy closure  $\geq 60\%$ , and b) elevation over 400 m (Delannoy 1984, Delannoy and Cruz 1988, Rivera-Milán 1995). To identify potential areas, we used percent canopy cover (Huang et al. 2004), elevation above 400 m (NOAA 2012), and land cover types from the Puerto Rico GAP Analysis (Gould et al. 2007). To facilitate SSHA detections, we used playback surveys as described in Henneman and Andersen (2009). This method has been used extensively to attract territorial forest raptors (including *Accipiter spp*.), especially during the breeding season (Rosendfield et al. 1988, Kimmel and Yhanel 1990, Bosakowski et al. 1992, Hargis and Woodbridge 2006). We set calling survey stations on public and private lands along

Left: In previous studies, the botfly (*Philornis spp*) was responsible for 30% of nest failures and a mortality rate of 90% in infested chicks. © Mike Morel, 2011. Right: Puerto Rican Sharp-shinned Hawk, immature male, Maricao Commonwealth Forest, Puerto Rico, 2012 © Julio C. Gallardo



Issue 17 • June 2014

2-4 km transect in forest roads and trails. Survey stations were placed every 0.4 km based on the average distance (365 m) between SSHA nests reported in previous studies (Delannoy 1984). Survey periods covered approximately 4 hours after sunrise (0630 to 1030). We used recordings of local SSHA on a game caller with a hand-held amplifier for broadcast and remained at each station for 20 min, recording data in four periods as described in Mosher et al. (1990) and King et al. (2011). As a complement to these surveys, we conducted searches for breeding indicators in historical territories and aerial displays searches from overlooks to identify active territories.

#### Preliminary results Maricao Forest, 2012-2014

Data collection was conducted from January to April of 2013 when SSHA more actively defend their territories (Delannoy 1984). We set 116 calling stations (58 on private lands and 58 on public lands) along 22 routes located mostly within the area identified by our GIS model. Monthly surveys conducted from January to April (308 person-hours) detected no more than 7 individuals. Also, we spent 179 hours searching for nesting activity in historical territories identified by Delannoy (1984) and were accompanied by Dr. Carlos Delannoy in some of our searches. We found a single territory previously identified during the calling stations surveys. No further evidence of territorial or breeding activity (i.e. old nests) was found in the remaining historical territories. We conducted 21 searches from overlooks located in historical territories, spending a total of 66 hours of observation. We detected SSHA activity three times from overlooks, but individuals were always observed going to or coming from previously identified territories.

One single adult male (SM territory) and two active nests (total of 5 individuals) were found within the boundaries of Maricao Forest, one immature male was sighted on private lands, and one adult male in the Río de Maricao Protected Area under the administration of the Puerto Rico Conservation Trust. Both active territories were found near the end of the breeding season of 2012 (summer). SSHA males were observed delivering avian prey to nesting females and chicks including; Puerto Rican Tanager (*Nesospingus speculiferus*), Bananaquit (*Coereba flaveola*), Puerto Rican Oriole (*Icterus portoricensis*), and Northern Parula (*Setophaga americana*).

During the current 2014 breeding season we have extended our searches to seven forests where the SSHA has been previously reported. To date, we have conducted 36 overlook searches and have surveyed approximately 95 calling stations, mainly in Toro Negro Forest, Guilarte Forest, El Yunque National Forest, Cayey Forest, Bosque Escuela La Olimpia and Bosque del Pueblo, and on private lands. From February to mid-March we found a total of two active territories in Toro



Apparently Sharp-shinned Hawks in Puerto Rico remain together year round; the male hunts and delivers food to the female and part of the breeding courtship. © Mike Morel, 2011.

Guilarte and a single male in Toro Negro, for a total of 11 individuals. The number of individuals detected in Maricao Forest is similar to our results from last year. Adults in the 2013 territories are incubating. However, in one of the territories there appears to be a solitary male vocalizing and rebuilding an old nest from 2011, but there is no evidence of a female in the area.

#### Potential explanations for decline and future perspective

The Sharp-shinned Hawk was first described in 1991-1992 SSHA populations exhibited a 40%

Negro, two in Bosque Escuela la Olimpia, one in Puerto Rico in 1917 (Friedmann 1959) at a time when approximately 94% of the island had been deforested. At present, approximately 40% of Puerto Rico is covered by mature (i.e.,  $\geq 60$ -year old) secondary forest (Grau et al. 2003). By 1976, the Conservation Committee of the American Ornithologists' Union reported an estimated 100-200 SSHA island-wide. This resulted in a petition to the US Fish and Wildlife Service for listing under the Endangered Species Act, but it was not until 1997 when the species was finally listed (AOU 1976, Delannoy 1986, USFWS 1997). By decline from 1986-1987 levels; however, no conservation actions were taken (Delannoy 1986, Delannoy 1991, Delannoy 1992, Delannoy 1997).

Our preliminary findings suggest a major SSHA decline, at least in its former stronghold, Maricao Forest. During 2012-2014 we have detected no more than 7 individuals after intensive and systematic searches within and beyond the boundaries of Maricao Forest. Previous studies estimated between 60-70 individuals in Maricao Forest by the late 1980s and 40 individuals by the early 1990s (Delannoy 1986, Delannoy 1992, Delannoy 1997). We located additional territories in other montane forests but these appear to be isolated, with individual territories more than 12 km apart, instead of the aggregated pattern observed during previous studies (Delannoy 1984, Delannoy 1992, Delannoy 1997).

The population collapse of SSHA in Maricao Forest may be a result of a combination of factors such as changes in prey availability, abandonment of coffee plantations after the "coffee crisis" of Puerto Rico during the 1980s, and termination during the late 1990s of silviculture management practices in timber plantations where Delannoy (1984) found the greatest number of nests. Moreover, a primary reason for the observed collapse may be related to changes in forest structure following hurricanes Hugo (1989) and George (1998).

Increased forest openings after hurricanes have an effect on bird communities with species depletions, increasing nest predation and parasitism (Wiley and Wunderle 1993). After hurricane Georges, bird populations in Maricao Forest exhibited a slow post-hurricane recovery and a rearrangement of forest strata use by some species (Tossas 2006). Hurricane Georges, which moved east to west across the Cordillera Central, may have resulted in remnant isolated patches of forest with suitable SSHA prey availability and adequate forest structure for nesting and hunting. Furthermore, there is no recent information on botfly (Philornis spp.) parasitism on SSHA. Delannoy (1984) reported high nest failure (72%) as a result of botfly parasitism on SSHA nestlings. Approximately 40% of SSHA nests were infested by botflies resulting in about 30% nest failures and a chick mortality rate of approximately 90% (Delannoy 1984). Beyond the potential effects of hurricanes on SSHA habitat, population traits resulting from adaptations to a tropical island (such as reduced dispersion and low productivity) may limit SSHA population recovery. On a fragmented landscape where suitable habitat may be isolated, immigration, colonization and location of suitable mates may place an undue burden on individual SSHAs. Movement of individuals between montane reserves has not been reported for the species (Delannoy pers. comm.).

Our preliminary results suggest the SSHA in Puerto Rico shows a significant population reduction in the former stronghold of the species (Maricao Forest) and an isolated distribution of breeding territories located along the Cordillera Central. Urgent conservation and management action must be taken to prevent the extinction of this native insular predator. The SSHA in Puerto Rico may be on the edge of extinction despite being listed as an endangered species by the U.S. Fish and Wildlife Service and classified as "Critically Endangered" by the Puerto Rico Department of Natural and Environmental Resources. Recovery plans and listing criteria are no guarantee against extinction. Therefore, research on the factors responsible for this marked population decline and management approaches to protect and recover this insular forest raptor are needed.

#### Acknowledgements

Funding for this research was provided by the U.S. Fish and Wildlife Service's Caribbean Field Office and the Consejo Nacional de Ciencia y Tecnología de México (CONACYT). We would like to thank the Forestry Division of the Puerto Rico Department of Natural and Environmental Resources, USDA Forest Service- El Yunque National Forest, and private landowners for permission to work on their lands. We are grateful to Parques Nacionales de Puerto Rico for providing housing at the Centro Vacacional Monte del Estado in Maricao, and the Caribbean Islands' National Wildlife Refuge for use of facilities. Special thanks to Carlos Delannoy for sharing his knowledge on the SSHA and unique perspective on the decline of this endangered species over the last 30 years. We are grateful to all those who have been part of this effort for their invaluable support, field assistance and sharing of ideas and comments. Thanks to Gail M. Moraru, Mike Morel, Arlene Matos, Oscar Diaz, Rafael González, Felipe Cano, Edwin Ávila, Gerardo Hérnandez, Gustavo González, Elizabeth Smith, Iván Llerandi, Danya Ramos, and Luis Serrano. Field procedures were conducted under the auspices of permits 2011-EPE-003 and 2014-EPE-003 from the Puerto Rico Department of Natural and Environmental Resources.

#### References

Adler, G. H., and R. Levins. 1994. The island syndrome in rodent populations. Quarterly Review of Biology, 69: 473-489.

American Ornithologist' Union, Committee on Conservation. 1976. Report of the Committee on Conservation. Auk, 93 (suppl.): 6DD.

Bildstein, Keith L. and Ken Meyer. 2000. Sharpshinned Hawk (*Accipiter striatus*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna. birds.cornell.edu/bna/species/482doi:10.2173/ bna.482. Boose, E. R., M. I. Serrano, and D. R. Foster. 2004. Landscape and regional impacts of hurricanes in Puerto Rico. Ecological Monographs, 74 (2): 335-352.

Bosakowski, T., D. G. Smith, and R. Speiser. 1992. Status, nesting, and macrohabitat selection of Red-shouldered hawks in Northern New Jersey. The Wilson Bulletin, 104 (3): 434-446.

Daly, C., E. H. Helmer, and M. Quiñones. 2003. Mapping the climate of Puerto Rico, Vieques and Culebra. International Journal of Climatology. Int. J. Climatol. 23: 1359-1381.

Delannoy, C. A. 1984. The Puerto Rican Sharpshinned Hawk, *Accipiter striatus vennator*: the ecology and breeding biology of a neotropical bird of prey. Ph.D. Dissertation, University of Colorado. Boulder, CO, USA.

Delannoy, C. A. 1986. Status, breeding biology, and conservation needs of the Puerto Rican Sharp-shinned Hawk (*Accipiter striatus venator*). Final report submitted to the U.S. Fish and Wildlife Service as specified in work contract no. 14-16-0004-82-047.

Delannoy, C. A. 1991. Status surveys of the Puerto Rican Sharp-shinned Hawk (*Accipiter striatus venator*) and Puerto Rican Broad-winged Hawk (*Buteo platypterus brunnescens*). Second Technical Report submitted to the U.S. Fish and Wildlife Service. Delannoy, C. A. 1992. Status surveys of the Puerto Rican Sharp-shinned Hawk (*Accipiter striatus venator*) and Puerto Rican Broad-winged Hawk (*Buteo platypterus brunnescens*). Final report submitted to the U.S. Fish and Wildlife Service as specified in work contract no. 14-16-0004-91-031.

Delannoy, C. A. 1997. Status of the Broad-winged Hawk and Sharp-shinned Hawk in Puerto Rico. Caribbean Journal of Science 33: 21-33.

Delannoy, C. A., and A. Cruz. 1988. Breeding biology of the Puerto Rican Sharp-shinned Hawk (*Accipiter striatus vennator*). Auk 105: 649-662.

Diamond, J. M. 1984. Normal Extinctions of isolated populations. Pp. 191-246, in M. H. Nitecki, Ed. Extinctions. University of Chicago Press, Chicago.

Ewel, J. J. and J. L. Whitmore. 1973. The ecological life zones of Puerto Rico and U.S. Virgin Islands. U.S.D.A. Forest Service Research Paper no. ITF-18. 72pp, + map.

Fergurson-Lees, J., and D. A. Christie. 2001. Raptors of the World. Hougthon Mifflin Company. New York.

Frankham, R. 1998. Inbreeding and Extinction: Island Populations. Conservation Biology, 12 (3): 665-675.

Friedmann, H. 1950. The birds of North and Middle America. U.S. Natl. Mus. Pub. 50. Gliwicz, J. 1980. Island populations of rodents: their organization and functioning. Biology Review, 55:109-138.

Gould, W., C. Alarcón, B. Fevold, M. E. Jiménez, S. Martinuzzi, G. Potts, M. Solorzano, and E. Ventosa. 2007. Puerto Rico GAP Analysis Project – Final Report. USDA Forest Service, International Institute of Tropical Forestry, Rio Piedras, PR. 157 pp. and 8 appendices.

Hargis, C. D. and, B. Woodbridge. 2006. A design for monitoring Northern Goshawk at the bioregional scale. Studies in Avian Biology, 31: 274-287.

Henneman, C., and D. E. Andersen. 2009. Occupancy models of nesting-season habitat associations of Red-shouldered Hawks in central Minnesota. Journal of Wildlife Management 73(8): 1316-1324.

Huang, H. C. C., Yang, L., Wylie, B., and M. Coan. 2004. National Land Cover Database percent tree canopy coverage - Puerto Rico. Photogrammetric Engineering and Remote Sensing, 70 (7): 829-840.

Kimmel, J. T., and R. H. Yanher. 1990. Response of Northern Goshawks to taped conspecie and Great Horned Owl calls. The Journal of Raptor Research, 24 (4): 107-112.

King, J. C., Dubay, S. A., and J. E. Woodford. 2011. Distribution and nest selection of Redshouldered Hawk (*Buteo lineatus*) in forests of northern Wisconsin (USA). Forest Ecology and Management, 261: 169-177.

Mosher, J. A., Fuller, M. R., and M. Kopeny. 1990. Surveying woodland raptors by broadcast of conspecific vocalizations. Journal of Field Ornithology, 61 (4): 453-461.

NOAA (National Oceanic and Atmospheric Administration). 2012. Puerto Rico digital elevation model. http://ccma.nos.noaa.gov/ecosystems/ coralreef/summit\_sea/summit\_sea2.aspx

Rivera, M. 1997. Puerto Rican Broad-winged Hawk and Puerto Rican Sharp-shinned Hawk recovery Plan. A Report. U.S. Fish and Wildlife Service South Region, Atlanta, Georgia.

Rivera-Milán, F. F. 1995. Distribution and abundance of raptors in Puerto Rico. The Wilson Bulletin, 107 (3): 452-462.

Rosendfield, R. N., J. Bielefeldt, and R. K. Anderson. 1988. Effectiveness of broadcast calls for detecting breeding Cooper's hawks. Wildlife Society Bulletin, 16: 210-212.

SOPI (Sociedad Ornitológica Puertorriqueña). 2010. Atlas de las Aves de Puerto Rico,http:// www.aosbirds.org/prbba/SpeciesYBCR.html, accessed 13 may 2014. Stuchbury, B. J. M. and E. S. Morton 2000. Behavioral Ecology of Tropical Birds. Academic Press. London.

Tossas, G. A. 2006. Effects of Hurricane Georges on the resident Avifauna of Maricao State Forest, Puerto Rico. Caribbean Journal of Science, 42 (1): 81-87.

U. S. Fish and Wildlife Service. 1997. Puerto Rican Broad-winged Hawk and Puerto Rican Sharp-shinned Hawk Recovery Plan. U. S. Fish and Wildlife Service, Atlanta, GA. 30 pp. Wiley, J. W. 1986. Habitat change and its effects on Puerto Rican raptors. Birds of Prey Bulletin, 3: 51-56.

Wiley, J.W. and J. M. Wunderle Jr. 1993. The effects of hurricanes on birds, with special reference to Caribbean islands. Bird Conservation International, 3: 319-349.

World Conservation Monitoring Centre. 1992. Global biodiversity: status of earth's living resources. Chapman and Hall, London. the World. Christopher Helm, London, UK.

\* \* \*

## Nest Record of the Stygian Owl (Asio stygius) in Guatemala

By **Denver W. Holt**, Owl Research Institute, P.O. Box 39, Charlo, Montana, 59824, USA; **Jesús Lucus Yuxó**, Los Andes Private Nature Reserve, Santa Barbara, Suchitepéquez, Guatemala; **Stephen Hiro**, Owl Research Institute, P.O. Box 39, Charlo, Montana, 59824, USA; and **Omar Méndez**, 7 Calle 12 – 85 Zona 16 La Montaña, Guatemala, Guatemala. Corresponding author: Denver W. Holt, e-mail: <u>owlmontana@blackfoot.net</u>.

he Stygian Owl (*Asio stygius*) is a large owl, and distributed from the highlands of western Mexico, south and east through Central America (Belize, Guatemala, Honduras, and Nicaragua), the Caribbean (Cuba, Hispaniola, Isle of Pines) south to northwestern South America (Colombia, Ecuador, Peru, Venezuela), and central South America (Argentina, Bolivia, Brazil, Paraguay) (Holt et al. 1999, König and Weick 2008). It has been recorded from sea level to 3100 m elevation, associated with many types of forests, and perhaps occurs near natural openings, clearings, and farmlands (Holt et al. 1999, König and Weick 2008). The Stygian Owls' distribution appears discontinuous, but this may reflect a lack of distributional records. Based upon DNA evidence, four subspecies are currently recognized (König and Weick 2008). The Stygian Owl is believed to be closely related to the smaller Long-eared Owl (A. otus) of North America (Holt et al. 1999).

Due to its secretive diurnal roosting behavior, and nocturnal activity periods, very little is known



Stygian Owl (Asio stygius robustrus) photographed in the Mountain Pine Ridge, Belize. © Ryan Phillips, Belize Raptor Research Institute

about its overall ecology. Consequently, most information is the result of observations from few nests (Lopes et al. 2004, Phillips 2011). In fact, few nests have ever been found (Lopes et al. 2004), and only one nest has been studied thoroughly (Phillips 2011). It was previously thought Stygian Owls lay only two eggs, and nested from November through May (Holt et al. 1999) However, new data suggest the Stygian Owl may breed throughout the year, lay 2-3 eggs, and nest on the ground more commonly than previously known (Lopes et al. 2004, Phillips 2011).

In Guatemala, the subspecies (A. s. robustus) is rarely reported, and its distribution poorly known (Eisermann and Avendaño 2007). In fact, the Stygian Owl has been reported from only seven sites in all of Guatemala (Eisermann and Avendaño 2007), and is critically endangered on a national level (Eisermann and Avendaño 2006, Eiserman and Avendaño 2007). An observation and photographs by Claudia Avendaño, Knut Eisermann, and Jesús Lucas Yuxón, in Los Andes Private Nature Reserve on 16 July 2008, constitute the first documented observation for this species at Atitlán Volcano (Jones and Komar 2009). Herein we report the first confirmed nest record of Stygian Owl for Guatemala, in the same area as the 16 July 2008 observation.

#### Study area and methods

The observation took place at Los Andes Private Nature Reserve (LAPNR), which is part of Los Andes Coffee and Tea Plantation, Santa Barbara, Suchitepéquez, Guatemala (14.528° N : 91.191° E). The plantation is a private property approximately 608 ha located on the southern slopes of Atitlán Volcano, in western Guatemala's volcanic chain. Elevation ranges from 900 to 1800 m. Los Andes is planted with coffee, tea, macadamia, and rubber. However, approximately 60% of the plantation remains as original primary tropical forest habitat, with higher elevations reaching cloud forest habitat. Annual precipitation is 4500 mm.

In 2001, LAPNR became part of the Association of Private Nature Reserves of Guatemala (AP-NRG, www.reservasdeguatemala.org). The AP-NRG was founded by coffee plantation owners. Its mission is the conservation of the environment and to contribute to bird and wildlife conservation, among other interests. For example, LAPNR maintains a certified organic product status, and is dedicated to protecting the Resplendent Quetzal (*Pharomachrus mocinno*), and other tropical forest wildlife species. We observed the owls for approximately 30 minutes, using binoculars and a 20-60 power Nikon Field Scope.

#### Results

In January 2011, Jesús Lucas Yuxón (JLY) located one or more Stygian Owls roosting in a Eucalyptus tree (*Eucalyptus torreliana*) at approximately 1300 m elevation, on the LAPNR. JLY intermittently observed the owls throughout January and February. On 28 February while serving as our birding guide, JLY showed the owls to our group. The observation was made during daylight hours. We observed one adult and one young Stygian Owl roosting approximately 10 m high. The owls were roosting in the same tree as in previous visits. The adult was identified by its dark brown plumage, few light colored spots and bars on the back and scapular feathers, yellow eyes, and distinctive ear-tufts, originating from the center of the forehead, and curved inward. The young owl was identified by a significant amount of down plumage on the head, lack of completely developed ear-tufts, and flight feathers.

#### Discussion

The ecology of the Stygian Owl is one of the least known of all Central America owls (Enriquez et al. 2012). Although the nest was not located, our observation of a chick that had recently left the nest, but may have not attained sustained flight, constitutes the first confirmed nesting of the Stygian Owl for Guatemala (Eisermann and Aveñdano 2013). However, previous observations from Los Andes by JLY indicate Stygian Owls have bred there in other years.

Available literature from Central and South America indicate the Stygian Owl breeding period could range from December to June and coincide with both dry and wet climatic seasons. The estimated December nesting of the Stygian Owl from Los Andes coincides with the dry sea-

son (December-February) from that region. This is in agreement with other studies (Kirkconnel et al. 1999, Phillips 2011). On the other hand, other studies indicate breeding at the end of the dry season/beginning of the wet season (Lopes et al. 2004) and wet season (Frantz 1991, Oliveiria 1981, Neto 1985). Thus, the Stygian owl breeding season may be influenced by food abundance, not just climatic conditions.

The senior author herein (DWH) has studied the congeneric Long-eared Owl for twenty-seven years in Montana, U.S.A. Thus, if Stygian Owls are similar to Long-eared Owls, then based on DWH's years of experience, the young owl was estimated to be at least 4 weeks old. If correct, then back dating estimates of 4 weeks old, preceded by about 25 day incubation period, preceded by about 6 day egg laying interval for 3 eggs, and perhaps 7 days for courtship, would mean the owls probably bred in mid-to-late December.

Los Andes owners were some of the founding members of a Private Nature Reserve network established by plantation owners to conserve tropical forests, and encourage nature tourism, such as bird watching. Los Andes is one of the few places in the world where coffee and tea are grown on the same site. The plantation is environmentally friendly and produces certified organic tea (USDA Certified) and certified responsible coffee (UTZ Certified). It is now home to one of the rarest breeding owl species in Guatemala.

#### Acknowledgements

We thank the Hazard family for their conservation interests, and providing an opportunity for eco-tourists to view wildlife on their Los Andes Private Nature Reserve. We thank Knut Eisermann for reviewing the initial draft of this manuscript, and making many helpful suggestions.

#### References

Eisermann, K. and Avendaño, C. 2006. Diversidad de aves en Guatemala, con una lista bibliográphíca. Pp. 525-623 In: E. Cano (ed.) Biodiversidad de Guatemala. Vol. 1. Universidad del Valle de Guatemala, Guatemala.

Eisermann, K., and Avendaño, C. 2007. Lista comentado de las aves de Guatemala – Annotated checklist of the birds of Guatemala. Barcelona, Lynx Edicions.

Eisermann, K,. and Avendaño, C. 2013. (in print) Los búhos de Guatemala. In: P.L. Enríquez (ed.) Los búhos neotropicales: diversidad y conservacion. México: ECOSUR, CONABIO.

Enríquez, P.L., Eisermann, K. and Mikkola, H. 2012. Los búhos de México y Centroamérica: necesidades en investigación y conservación. Ornit. Neotrop. 23, Suppl.: 251-264.

Franz, M. 1991. Field observations on the Stygian Owl, *Asio stygius* in Belize, Central America (Abstract). J. Rap. Res. 25:163.

Jones, H. L., and Komar, O. 2009. The nesting season, June through July 2008.: Central Ameri-

ca. N. Am. Birds 62:626-628.

Holt, D.W., Berkey, R., Deppe, C., Enríquez-Rocha, P.L., Olsen, P.D., Petersen, J.L., Rangel-Salazar, J.L., Segars, K.P., and Wood, K.L.. 1999. Species accounts for Strigidae, In del Hoyo, J., Elliott, A., and Sargatal, J. (eds). 1999. Handbook of the birds of the world. Volume 5: owls to hummingbirds. Barcelona, Lynx Edicions.

Kirkconnel, A., Wechsler, D., and Bush, C. 199. Notes on the Stygian Owl (*Asio stygius signapa*) in Cuba. El Pitirre 12:1-3.

König, C., and Weick, F. 2008. Owls of the world. 2nd edition., New Haven, CT, Yale University Press.

Lopes, L.E., Goes, R., Souza, S. and de Melo Ferreira, R. 2004. Observations on a nest of the Stygian Owl (*Asio stygius*) in the central Brazilian Cerrado. Ornit. Neotrop. 15:423-427.

Oliveiria, R.G. 1981. A ocorrência do "Mochodiabo" (*Asio stygius*) no Rio Grande do Sul. Ann. Soc. Sul-Riograndense Orn. 2:9-12.

Phillips R. 2011. Studying the Stygian Owl (*Asio stygius robustrus*) in Mountain Pine Ridge, Belize. Spizaetus 12:2-6.

Neto, P.S. 1985. Notas bionômicas sobre o "Mocho-diabo" (*Asio stygius* Wagler, 1832), no Paraná. Ann. Soc. Sul-Riograndense Orn. 6:15-18. 2008.

\* \* \*

## RECENT RECORDS OF THE ANDEAN CONDOR (VULTUR GRYPHUS) IN THE NORTHEASTERN COLOMBIAN ANDES. EVIDENCE OF ITS RECOVERY IN THE COUNTRY?

By Fausto Sáenz – Jiménez<sup>1,2,</sup> Francisco Ciri - León<sup>1</sup>, Jairo Paredes - Gómez<sup>3</sup>, Sandra Florez<sup>3</sup>, Jairo Pérez – Torres<sup>2</sup> & Santiago Zuluaga - Castañeda<sup>1</sup>

<sup>1</sup>Fundación para el Manejo y Conservación de los Ecosistemas Neotropicales – NEOTROPICAL. Bogotá – Colombia. <sup>2</sup>Laboratorio de Ecología Funcional – Pontificia Universidad Javeriana <sup>3</sup>Grupo Ambiental Fauna Libre Colombia e-mail: <u>fsaenzj@gmail.com;</u> <u>fundacionneotropical@gmail.com</u>

Historically, in Colombia, the Andean Condor (*Vultur gryphus*) was distributed along the three mountain ranges, the Perijá and the Sierra Nevada de Santa Marta (Olivares 1963). However, by the late 1980s their populations had dropped considerably. They had disappeared from the majority of their historic range, and their geographic distribution was restricted to the Sierra Nevada de Santa Marta and Chiles Volcano on the border with Ecuador (Rodríguez et al., 2006, Negret 2001).

The Andean Condor is currently listed as an endangered species, and it is believed the the population in Colombia today is comprised on no more than 60 individuals (Renjifo et al. 2002). In an effort to restore the species, the National Institute of Renewable Natural Resources and the Environment (INDERENA), with the support



Male Andean Condor released in Mosco Moor, Boyacá, Colombia (2013). © Fausto Sáenz-Jiménez, April 2013.

of the Zoological Society of San Diego, began a reintroduction program for the species in 1989. Since then they have released 71 condors in seven release areas along the Colombian Andean Region (Lieberman et al. 1993, Rodriguez et al., 2006). Despite these efforts, it is still not clearly understood how successful these reintroductions

| Location   | Description of Individual Observed   | Observer  | Year         |
|--|--|---|--------------|
| El Cocuy NP  | A adult male, an adult female, one juvenile<br>of undetermined sex and two reintroduced<br>females (wingtags # 29 and #34) | Javier Suescún,<br>Miguel Barrera,<br>Víctor Silva                    | 2006<br>2010 |
| Páramo de Tasajeras,<br>Tasco, (Boyacá)                          | Two introduced males<br>(wingtags #33 and #36)   | FUNDETROPICO  | 2008         |
| Área de influencia del<br>Santuario de Flora y<br>Fauna Guanentá | One reintroduced female (wingtag #29)<br>and a juvenile female   | Germán Grismaldos,<br>Betsy Rodríguez                                 | 2008<br>2011 |
| Sector Rechíniga,<br>Chita, (Boyacá)                             | One female and one juvenile male   | Elias Rojas   | 2012         |
| Sector Mundo Nuevo,<br>Mongua, (Boyacá)                          | Two reintroduced females (wing tags #31<br>and #332)   | Víctor Ríos   | 2012         |
| Sector La Cercada,<br>Chiscas, (Boyacá)                          | Two juveniles and two adults of undetermined sex   | Vicente Molina  | 2012         |
| Páramo del Mosco,<br>Güicán, (Boyacá)                            | One adult male, one adult female, and a juvenile of undetermined sex   | Fausto Sáenz,<br>Manuel López   | 2013         |
| Páramo de Guerrero,<br>Cáchira, (Norte de<br>Santander)          | Ten individuals, both adults and juveniles,<br>observed simultaneously   | Jairo Paredes,<br>Sandra Florez                                       | 2013         |
| Municipio de Betulia,<br>(Santander)                             | An adult condor, sex undetermined  | Jairo Paredes,<br>Sandra Florez                                       | 2013<br>2014 |
| Municipio de Carcasí,<br>Santander                               | A juvenile female  | Francisco Ciri  | 2013         |
| Sector Angosturas,<br>Cerrito, Santander                         | Five condors (four adults of undetermined<br>sex and one male subadult)  | Fausto Sáenz,<br>Jairo Paredes,<br>Sandra Florez,<br>Santiago Zuluaga | 2014         |
| Vereda Mata de Lata,<br>Guaca, (Santander)                       | Adult female and juvenile female   | Fausto Sáenz  | 2014         |

Recent records (2006-2014) of Andean Condor in the Northeastern region of the Colombian Andes

have been, mainly due to the intermittent monitoring activities and the lack of surveys that reveal the condition of the native condor populations.

To help contribute to the knowledge and assessment of the conservation status of the Andean Condor in Colombia, we present information on condor sightings between 2006 and 2014 in the Northeastern Colombian Andes, which is considered to be the principal dispersion corridor for the species in the country (Rodríguez et al. 2006). Sighting information was compiled by Fundación Neotropical and the environmental group Fauna Libre Colombia.

#### Methods

We conducted interviews in local communities in several locations in the Northeastern Colombian Andes to identify areas of frequent condor sightings between 2006 and 2014. We corroborated this information through direct observations made between 0600hrs and 1800 hrs. We recorded the number of observed individuals, as well as sex and age when possible. We also documented any observed behavior (perching, flying, feeding, and courtship) (Rios-U and Wallace 2007).

#### Results

Through direct observation of native and/or reintroduced condors, we were able to corroborate their presence in 12 locations reported by community members in different parts of the Northeastern Region of the Colombian Andes. Particularly noteworthy is the presence of juveniles in eight of the twelve localities, which is clear evidence of recent reproduction within the population. During the interviews, there were recurrent comments among community members that condor sightings have become more frequent since 2000. Moreover, in most of these places condors had not been seen since the 1950s.

#### Discussion

The existence of recent records of Andean Condors of different sexes and ages in several locations in the Northeastern region of the Andes is encouraging news for the conservation of the species in the country. These records highlight the importance of this region as a corridor for Andean Condor populations in three regions that were previously isolated: 1) north (Sierra Nevada

Left: Juvenile female rescued by the police in Carasí, Santander, Colombia. © Pedro Durán, Cdte. de Policía, Carcasí. July 2013.



Issue 17 • June 2014

de Santa Marta, Serranía del Perija), 2) the reintroduction sites in the center and south (Natural National Park (NNP) Los Nevados, Chingaza NNP, Puracé NNP and Chiles Indian Reservation, where to date records of native individual condors are rare, and 3) Cordillera de Mérida in Venezuela where they have historical records for the species (Swann 1921, Del Hoyo et al. 1994).

These new records generated several doubts about the causes of this increase in condor sightings: have the condor reintroductions, which began over 20 years ago in the country, contributed to the recovery of the species? Is this a result of re - dispersion where existing condors in northern populations (Sierra Nevada de Santa Marta and the Serrania Perija ) act as a gene pool for other regions of the country?

Answering these questions will involve much follow-up work in the field to gain information on population numbers, the structure of local



Jairo Paredes. Febrero de 2014; Bottom right: Juvenile female observed in the Almorzadero Moor, Santander, Colombia. © Fausto Sáenz-Jiménez, March 2014.







WWW.NEOTROPICALRAPTORS.ORG

populations, the interaction between native and reintroduced individuals and to study movement patterns and distribution of the species.

It is essential to focus conservation efforts toward reducing the most critical threats to the species. Decreasing the poisoning of carrion, shooting, collision with electrical lines and competition with dogs (Lambertucci 2010) will help ensure the permanence, and increased reproductive success of individuals in these new populations.

#### References

Del Hoyo, J., A. Elliott, y J. Sargatal. 1994. New world vultures to guineafowl, Hand book of the birds of the world. Lynx Ediciones, Barcelona.

Olivares, A. 1963. Monografía del Cóndor. Rev. Acad. Col. Cien. 12:21-34.

Lambertucci, S. A. 2010. Size and spatio-temporal variations of the Andean condor *Vultur gryphus* population in north-west Patagonia, Argentina: communal roosts and conservation. Oryx 44:441-447.

Lieberman, A., J. V. Rodríguez, J. M. Paez, y J. Wiley. 1993. The reintroduction of the Andean Condor into Colombia, South America: 1989-1991. Oryx 27:83-90.

Negret, A. 2001. Aves en Colombia amenazadas de extinción. Serie estudios de la Naturaleza. Editorial Universidad del Cauca. Popayán, Colombia.

Renjifo, L. M., A. M. Franco - Maya, J. D. Amaya – Espinel, G. H. Kattan, y B. López - Lanús [eds.]. 2002. Libro rojo de aves de Colombia. Instituto de Investigación de Recursos Biológicos Alexander von Humboldt & Ministerio del Medio Ambiente, Bogotá, Colombia.

Rios–U, B., y R. B. Wallace. 2007. Estimating the size of the Andean Condor population in the Apolobamba Mountains of Bolivia. J. Field Ornithol 78:170–175.

Rodríguez, C. L., M. Barrera-Rodríguez, y F. Ciri-León [eds.]. 2006. Programa Nacional para la Conservación del Cóndor Andino en Colombia: Plan de Acción 2006 - 2016. Ministerio de Ambiente, Vivienda y Desarrollo Territorial - COR-POBOYACA, Bogotá, Colombia.

Swann, H. K. 1921. Notes on a collection of Accipitres from the Merida District, W. Venezuela. Auk 38:357-364.

\* \* \*

## New Record for Orange-Breasted Falcon (FALCO DEIROLEUCUS) FOR BOGOTA, COLOMBIA

By Julian Avila-Campos<sup>1,2</sup> Ana Milena Echeverry-Arias<sup>1,3</sup> & Nadezhda Juliet Bonilla-Sánchez<sup>2</sup>

<sup>1</sup> Jardín Botánico de Bogotá José Celestino Mutis. Av 63 # No. 68-95, Bogotá, D.C., Colombia; <sup>2</sup> Grupo de Ornitología de la Universidad Nacional de Colombia (GOUN) jueavilaca@unal.edu.co, njbonillas@unal. edu.co; <sup>3</sup>Médica Veterinaria, Universidad Nacional de Colombia, anaecheverry@gmail.com

leucus) is scarce and discontinuously distributed of the least known falcons in the world (Baker from southern Mexico through Central America 2000). In Colombia, this species has been reportto Colombia, south to southern Brazil, Bolivia, ed in the altitudinal gradient between 100 and northern Argentina and Paraguay extending east 2400 masl (Hilty and Brown 1986), but has been to the Guianas (Brown and Amadon 1968, del observed at up to 2900 masl (Carrion and Var-

he Orange-breasted Falcon (Falco deiro- Hoyo et al. 1994). This species is possibly one

A clear injury along the cere © Carlos Forero – José Celestino Mutis Botanical Garden





The female Orange-breasted Falcon after rescue © Carlos Forero – José Celestino Mutis Botanical Garden

gas 2008). There are records of Orange-breasted Falcons having been either collected or sighted within the three mountain ranges of Colombia, including from the areas of Tres Esquinas River (Caquetá), Puerto Asis (Putumayo), Munchique (Cauca), Purification (Tolima), Moscopán River (Cauca), Hope (Magdalena) and the Serrania de la Macarena (Meta) (Hilty and Brown 1986, The Peregrine Fund 2014). This species has been classified as Data Deficient in the Red Book of Threatened Birds of Colombia (Renjifo et al., 2002) and internationally it is considered Near Threatened.

Deforestation and habitat fragmentation are its principal threats (Birdlife International 2012). In Colombia, in 2008, the Reserva Natural de las Aves Halcón Colorado (The Orange-breasted Falcon Natural Reserve) was created by Fundacion ProAves to preserve and investigate this species in the piedmont plains of the country.

The Orange-breasted Falcon can be found in various habitats such as lowland forest, savanna edges, and some regions with lower rainfall, as well as on slopes and cliffs in the subtropical mountains where it has been reported to build its nests. This species is uncommon in urban landscapes that have been affected by strong human intervention, occurring in these areas only if there is mature forest coverage which provides habitat suitable in both size and resources (Berry et al., 2010).

Though there are no reports so far in the literature of *F. deiroleucus* in Bogota or its surroundings., on 19 January 2014 around 19:00 hrs, we found an Orange-breasted Falcon - which appeared to have been stunned, possibly by a collision that left a small wound on its cere - in the José Celestino Mutis Botanical Garden in Bogota, Colombia (4 ° 39'58 .46" N / 74 ° 5'57 .68 "W).

Veterinarians from the Bogota Botanical Garden veterinarians cared for the bird. They gave the falcon a complete physical examination and there were no abnormal findings. They also took morphometric measurements which indicated that the individual was a female, as she was within the range of size and weight as recorded by Márquez *et al* (2005). The falcon was kept under observation overnight. The following day, 20 January, 2014, after feeding it and testing its flying abilities, the falcon was released.

On 26 April 2014, during a day of bird watching by the National University of Colombia Ornithology Group, an individual Orange-breasted Falcon was observed passing over the moors (2,610 m) of the Botanical Gardens flying from west to east. This region of the Botanical Gardens is where the highest number of bird species have been recorded during the surveys that we done so far in 2014 (53 species).

#### **Discussion and Conclusions**

Finding this falcon in the Botanical Gardens has

allowed us to highlight their conservation and research efforts on behalf of plant and animal species. Located at 2555 meters above sea level, the Botanical Gardens are located in the heart of the city and contain 19.5 hectares of diverse vegetation including some of the most representative species of the Bogota savannah and Colombian flora. The garden provides resources for many bird-eating species. It is hoe to a large number of small birds, such as the Common Dove (*Zenaida auriculata*), which is a common prey species for the Orange-breasted Falcon (Márquez 2005).

Similar initiatives to those of the Botanical Gardens elsewhere in the city and a significant increase in vegetation cover could mean new opportunities for establishment and survival of species such as the Orange-breasted Falcon which have complex ecosystem requirements. The botanical gardens are a haven and place of passage for more than 80 species of resident and migratory birds (Zerda *et al* 1992). Studies and efforts to promote awareness of this and other bird species will contribute to our knowledge - another step towards the conservation of these species.

Table 1: Morphometric measurements (in mm) and observations of condition of individual Or-ange-breasted Falcon: <u>BL</u>: Beak Length; <u>BW</u>: Beak Width; <u>Rec</u>: Rectis; <u>Tar</u>: Tarsus; <u>W</u>: wing; Tail,<u>TL</u>: Total Length; <u>Wt</u>: weight

| BL   | BW   | Rec  | Tar | W   | Tail | TL  | Wt  | Plumage                                |
|------|------|------|-----|-----|------|-----|-----|--|
| 33.6 | 17.6 | 27.3 | 46  | 287 | 158  | 389 | 545 | Fresh, adult, with no evidence of molt |

#### References

Baker, A. J., D. F. Whitacre., O. A. Aguirre-Barrera y C. M. White. 2000. The Orange-breasted Falcon *Falco deiroleucus* in Mesoamerica: a vulnerable, disjunct population? Bird Conservation International, 10, 29-40.

Berry, R. B., C. W. Benkman., A. Muela., Y. Seminario. y M. Curti. 2010. Isolation and decline of a population of the Orange-breasted Falcon. Condor 112: 479-489.

BirdLife International 2012. *Falco deiroleucus*. In: IUCN 2013. IUCN Red List of Threatened Species. Version 2013.2. <www.iucnredlist.org>. Downloaded on 22 January 2014.

Brown, L. y D. Amadon. 1968. Eagles, hawks and falcons of the world. New York: McGraw-Hill.

Carrión J. M., F. H. Vargas. 2008. First record of the Orange-breasted Falcon (*Falco deiroleucus*) in Quito. Neotropical Raptor Network Newsletter 5: 2. del Hoyo, J., A. Elliott., J. Sargatal. 1994. Handbook of the Birds of the World, vol. 2: New World Vultures to Guineafowl. Lynx Edicions, Barcelona, Spain.

Hilty S. L. y W. L. Brown 1986. A Guide to the Birds of Colombia. Princeton University Press. Princeton, New Jersey. USA.

Marquez C., M. Bechard, F. Gast, V. H. Vanegas. 2005. Aves rapaces diurnas de Colombia. Instituto de Investigación de Recursos Biológicos "Alexander von Humboldt". Bogotá, D.C. - Colombia. 394 p.

The Peregrine Fund. Global Raptor Information Network. Orange-breasted Falcon. http://www. globalraptors.org/ Consultado: 23-01-2014

Zerda E, 1992 "Guia de las aves en el Jardin Botanico "José Celestino Mutis" 154p.

\* \* \*

## Population Status of Andean Condor (Vultur gryphus) in the High Andes System in Volcán Chiles, Nariño Department, Colombia And Carchi Province, Ecuador

By Lorena Sofía Martínez Santacruz, Investigadora Fundación NEOTROPICAL, Bogotá-Colombia, e-mail: lorenasofia88@gmail.com & Verónica Ortega, e-mail: veronicae.ortegag@gmail.com

Throughout the history of biodiversity conservation in Colombia, many species' populations have plummeted due to human actions - including the development of agriculture and livestock activies and urban expansion - particularly in the Andean region.

The Colombian Andes is characterized by its wide range of thermal levels - making it rich in renewable natural resources, flora and fauna. Wildlife species associated with this region are recognized for their extraordinary ecological, biological and cultural characteristics.

Juvenile male condor and juvenile Carunculated Caracara (*Phalcoboenus carunculatus*), engaging in heirarchical behavior at the feeding site © Lorena Sofía Martínez S. November, 2012.





Map 1: Monitoring area of the Andean Condor in the Resguardo Indígena de Chiles, Colombia and Carchi Province, Ecuador. © Lorena Sofía Martínez S.

The Andean Condor (*Vultur gryphus*) is one such species. It is considered a patriotic emblem in 5 South American nations and serves as an inspiration for sacred myths in several Andean cultures in the region.

This species, regarded as "the messenger of the Sun" by some cultures, is listed by IUCN as Near Threatened (NT) on a global scale. In Colombia it is categorized as endangered (EN). (Rodriguez and Orozco 2002, BirdLife International 2013),

In Colombia, the Andean Condor once lived along the western, central and eastern cordilleras. Today, it is mainly confined to a few ancestral strongholds - some of which are protected as National Parks, Protected Areas or indigenous reserves. The Andean Condor has one of the lowest reproductive rates in birds, it lays one egg every two years, is monogamous, and reaches sexual maturity at around 6-7 years of age. These features make this bird very sensitive to anthropogenic disturbance as the species requires a long time to recover individuals within the population. Thus a massive loss of individual Andean Condors could bring the population to a critical state.

In 1989 an Andean Condor Reintroduction program began in Colombia through an international cooperative agreement between Fundación RenaSer, el Instituto Nacional de Recursos Naturales (INDERENA) and The Zoological Society of San Diego. The goal of this effort was to repopulate condors in some moorland and mountain slopes of the Colombian Andes (IN-DERENA 1990). The San Diego Zoo bred Andean Condors in their facilities located in California. Captive-bred juvenile condors were then sent to Colombia for release in five core areas where the species once existed and where some wild individuals still remained. This reintroduction project facilitated the study of the behavior of wild individuals and reintroduced birds, and allowed for an estimation of the rate of population recovery.

Between 1991 and 1995, biologists monitered 8 condors that had been released in the High Andean Chiles Volcano System. In 1995, monitoring efforts were suspended in this core area due to the likely displacement of the condors to the El Ángel Paramo, the Cotacachi and Imbabura Hills and the Cayambe Volcano in northern Ecuador (Barrera & Feliciano, 1994; Foundation RenaSer, 1995).

Rt: La Antena Sector: an adult female feeding from the platform. October, 2012. © Lorena Sofía Martínez S; Lt: Environmental education with the Instituciones Educativas del Resguardo Indígena de Chiles and Comuna La Esperanza.© Lorena Sofía Martínez S. Diciembre, 2012.



In 2001, 39 condors were released, each one fitted with a wing tag. (Fundación NEOTROPICAL, 2010). However, no one had been monitoring the condors in the area until 2009 when the Ministry of Environment and Sustainable Development (MADS) signed an agreement with Fundacion NEOTROPICAL to assess the current status of Andean Condor in the reintroduction sites in the High Andean Chiles Volcano System.

Considering the importance of understanding the dynamics of the Andean Condor populations in the south of the country, in 2012 and after three years without records, we initiated this study to determine the current population status of this species in the Andes of southern Colombia and northern Ecuador, extending the monitoring and tracking range in the High Andean Chiles Volcano System

#### Methods

The research took place in the reintroduction areas of Nariño Department, Resguardo Indígena de Chiles in southern Colombia and in La Esperanza, Municipality of Tulcán Parish Tufiño, Carchi Province, Ecuador.

The High Andean Chiles Volcano System is located 86km southwest of the city of Pasto (Nariño Department's capital), in the geographic coordinates 0  $^{\circ}$  49 'N and 77  $^{\circ}$  56' W. It is located at an altitude extending from 3000 to 4770 masl. The area is composed of high Andean paramo

ecosystems and is part of the volcanic complex covering an area of 5,626 hectares. (INGEOMI-NAS, 2000).

The town of La Esperanza is located in Sierra Norte, Ecuador. To the north it borders with Colombia, to the south with the Reserva Ecológica El Ángel, to the west with subtropical lands that reach the Pacific and to the east with the eastern portion of the inter-Andean area of Tulcán. The geographical coordinates of Tufiño are 00°49' N and 77°51' W. (Proyecto Páramo Andino, 2004).

We collected data in the geographical unit corresponding to the high Andean Chiles Volcano paramo ecosystem during 2012, covering both the summer and winter months. We recorded field data monthly. (Dry period: January, February, June, July, August and December; Rainy Period: March, April, May, September, October and November). We monitored and tracked individuals flying over the area, in both Colombian and Ecuadorian territories. We also conducted interviews with local community members in both countries.

We recorded data from between 3500 and4770 masl covering 5626 hectares of the Chiles Volcano moor or 56.2% (3164 ha) of the monitoring area; and 9000 ha of La Esperanza, Ecuador, or 49.5% (4457 ha) of the monitoring area. During these surveys we took into account certain parameters such as flight paths in the Andean biological corridor, the status of the paramo ecosystem, expansion of the agricultural frontier and commnity knowledge about the ecological function of the Andean Condor.

Observations were made between 08:00 and 17:00 using PENTAX  $10 \times 50$  mm and Tasco 10x40 mm binoculars. We located six high points for observation: La Puerta - 3971 m; La Antena - 4065 m; La Cresta - 3728 m; Palacios - 3982 m; Cerro del Medio - 4102 m; and Azuay - 4049 m. At two of these sites (La Puerta and Antenna) platforms were built to bait the condors in, thus allowing us to identify reintroduced individuals by way of their wing tags.

Data were collected taking into account weather conditions, associated fauna, and behavior of the observed individuals. Behavior consists of a series of continuous events which are identified and constitute part of the data collection. (Zerda, 2004). The observation of the ethology of the individuals involved the description of patterns of behavior observed during monitoring which were placed in a behavioral category: flight, feed-

ing, foraging, nesting, perching and interacting with other birds.

#### Results

We observed 7 Andean Condors over the year of the study, which took place in the Resguardo Indígena de Chiles (Colombia), La Esperanza and El Ángel (Ecuador). Individuals were seen alone, in pairs, in groups of three (a pair and a juvenile female) and in groups of four in flight (a pair, a sub-adult and a juvenile female). We observed the behavior of two condors - one adult female and one juvenile male of approximately three years of age, perched and feeding at the bait station platforms. We documented the juvenile male flying alone, unlike a juvenile female of about a year and a half old, which we observed traveling in the company of adults.

We were also able to study competition and heirarchical behavior during feeding at the baitedplatform placed at La Puerta. We observed a juvenile Caranculated Caracara (*Phalcoboenus carunculatus*) chasing the juvenile male condor in flight over the platform. The caracara prevented the condor

Core release sites since 1989. Source: MAVDT, (2006); updated by Fundación NEOTROPICAL, (2010).

| Repopulation Site            | Males | Females | Total | Feasible Survivors |
|------------------------------|-------|---------|-------|--------------------|
| Chingaza National Park       | 5     | 8       | 14    | 10                 |
| Resguardo Indígena de Puracé | 6     | 6       | 12    | 8                  |
| Resguardo Indígena de Chiles | 5     | 3       | 8     | 6                  |
| Paramo de San Cayetano       | 3     | 3       | 6     | 5                  |
| TOTAL                        | 19    | 20      | 39    | 29                 |

from landing by stooping it and attacking it with its talons, destabilizing the condor's flight.

Once the food was placed on the platforms (calves and cows that died of natural causes) the caracaras were the first to arrive and to feed. We recorded up to 10 adult and juvenile *P. carunculatus*, whose presence helped the condors detect the food faster. An adult female condor was the first to fly over the platform at La Puerta and days later she descended to the platform to feed. An adult male was observed feeding and then a juvenile male descended to the platform. Afterwards, the adult caracaras returned to finish eating followed by the juveniles.

#### Discussion

The field observations show that part of the difficulty in determining the population status of the Andean Condor is due to the logistical problems at the time of monitoring a species with a small population size. Human activities and the subsequent changes generated in the ecosystem have led the species to a degree of threat and vulnerability which implies a greater investment of time over greater distances to locate and observe individuals in the field.

According to Hutchinson (1978), population size has often been used as a measure of the health of a species. It is a retrospective tool that indicates the existence of a population change after it has already taken place. Identifying the causes of this change requires not only information on the size of the population and its demographics including data on its composition and internal dynamics. (Temple and Wiens 1989).

Climate patterns are critical in determining the characteristics of the vegetation and the presence of wildlife within a given ecosystem. The climatic influence in the paramo ecosystem is very active, especially in the large diurnal temperature swings and constant humidity. These factors are important for development of the behavior and habitat use of living things. (Hedberg, 1964). Any modification of the paramo ecosystem, this species' habitat, could generate a decline in the health and reproduction of the condor causing the birds to migrate into other regions or even more serious, it could cause the population to become decimated to the point of extinction.

Like other species occupying the paramo ecosystem, the Andean Condor plays an important role within the food chain. Thus conservation of this species will contribute to the protection of other species within its range including the Andean bear (*Tremarctos ornaments*), white-tailed deer (*Odocoileus virginianus*), little red brochet deer (*Mazama rufina*), mountain tapir (*Tapirus pinchaque*), and puma (*Puma concolor*) among others.

The results of the research conducted within the High Andean Chiles Volcano System demonstrate the need to continue binational efforts for the conservaion and study of the Andean Condor. We can infer that the number of individuals observed during the monitoring year is representative of the population of this species in southern Colombia and northern Ecuador and that without community engagement for their protection, condors could disperse from the area or worse, become extinct locally.

Currently supported by the Ministry of Environment of Ecuador (MAE) Provincial Directorate of Environment of Carchi and Fundación NEO-TROPICAL - Colombia, we continue to make systematic visits to the study area to observe the ethology of the condor in the wild, their movement patterns in response to rural-urban growth, and to conduct environmental education in local communities. These efforts strengthen their commitment to the Andean Codnor and help to generate conservation strategies and respect for the species.

#### Acknowledgements

To Mr. Álvaro Játiva and family; Florentino Chenás and family; Cristian Silva and family; Oscar Canacuán and the other members of the community Resguardo Indígena de Chiles, as well as Don Ernesto Tatamués, the president of La Esperanza, for his kindness and support. To Francisco Ciri and Fausto Sáenz of Fundación NEOTROPICAL and Marta Curti for their comments on this manusript. To Damián Ponce of the Ministerio de Ambiente de Ecuador (MAE), Dirección Provincial del Ambiente del Carchi. anda biologist Verónica Ortega for your technical and professional support.

#### Referencias

Amaya, E., G. Kattan, B. Lopez, L. (eds.). 2002. Libro Rojo de Aves de Colombia. Serie Libros Rojos de Especies Amenazadas de Colombia. Instituto de Investigación de Recursos Biológicos Alexander Von Humboldt y Ministerio del Medio Ambiente. Bogotá, Colombia.

Birdlife International. 2013. IUCN Red List for birds. Downloaded from http://www.birdlife.or-gon 13/03/2013.

Ciri, F. & M. Barrera. 2010. Informe Técnico Final de Ejecución. Convenio de Asociación No. 154 de 2009 entre el Ministerio de Ambiente, Vivienda y Desarrollo Sostenible Territorial –MAVDT y la Fundación para el Manejo y Conservación de los Ecosistemas Neotropicales – NEOTROPICAL, Bogotá.

Hutchinson, G.E. 1978. An introduction to population ecology. New Haven, CT: Yale University Press.

INGEOMINAS. 2000. Atlas de Amenaza Volcánica en Colombia. http:// http://www.sgc.gov. co/Pasto/Volcanes/Volcanes-Chiles---Cerro Negro/Generalidades.aspx 08/04/2012. del Cóndor Andino en Argentina. Hornero 22(2): 149–158.

Lambertucci, S. 2007-2012. Biología y conservación del Cóndor Andino (Vultur gryphus) en Argentina. Laboratorio Ecotono, Centro Regional Bariloche, Universidad Nacional del Comahue - CONICET. Quintral 1250, 8400 San Carlos de Bariloche, Río Negro, Argentina. Hornero 22(2):149–158.

Lambertucci, S. 2009. Size and spatio-temporal variations of the Andean condor Vultur gryphus population in north-west Patagonia, Argentina: communal roosts and conservation. Laboratorio Ecotono, Centro Regional Universitario Bariloche, Universidad Nacional del Comahue, INI-BIOMA-CONICET, Quintral 1250, Bariloche, Argentina.

Lieberman, A., J.V. Rodriguez, J.M. Paez & J. Wiley. 1993. The reintroduction of the Andean condor into Colombia, South America: 1989-1991. Oryx 27:83–90.

MAVDT. Ministerio de Ambiente, Vivienda y Desarrollo Territorial. Programa Nacional para la Conservación del Cóndor Andino en Colombia. Plan de Acción 2006 – 2016.

Lambertucci, S. 2007. Biología y Conservación Programa Cóndor Andino. 1991. El Cóndor vuelve a casa. Fundación RenaSer. Bogotá

> Proyecto Páramo Andino. 2004. http://www. condesan.org/ppa/ 20/10/2012

> Rodríguez-M. J. V., R. H. Orozco, 2002. Vultur gryphus. En Renjifo, L. M., A. M. Franco-M., J. D.

> Temple, S. & J.A. Weins. 1989. Bird populations and environmental changes: can birds be bio-indicators? American Birds 43:260-270.

> Wallace and S. Temple. 1987. Releasing captive reared Andean Condors to the wild. Journal of wildlife Management 51:541-550.

> Wegener, A. 1983 [1915]. El Origen de los continentes y océanos pp. 94. Madrid: Ediciones Pirámide S.A Ciencias del hombre y la naturaleza. pp. 230. ISBN 84-368-0233-0.

> WWF - Colombia. Proyecto Páramo Andino Transfronterizo. "Consolidación del Manejo Ambiental del Resguardo Indígena de Chiles". Informe Final: Contratista, Yuri Sinsajoa Pasuy. Convenio TP 31 de 1 de Noviembre 2007 WWF.

> Zerda, E. 2004. Comportamiento animal: Introducción, métodos y prácticas. Universidad Nacional de Colombia, Facultad de Ciencias. Bogotá.

> > \* \* \*

### Conversations from the Field

#### By Markus Jais

— Markus Jais has been interested in nature since he was a kid. His main interests are the ecology and conservation of predators like big cats, wolves and large birds of prey, particularly eagles. He runs the www.europeanraptors.org website and is a contributor to www.africanraptors.org. He recently interviewed Thomas Hayes, of The Peregrine Fund, about his work with *Buteo ridgwayi* in Dominican Republic. —

#### Markus Jais: Where does the Ridgway's Hawk (Buteo ridgwayi) occur?

**Thomas Hayes:** The Ridgway's Hawk is an island endemic which historically has been found throughout the island of Hispaniola and a few surrounding satellite islands. The current distribution is isolated to Los Haitises National Park (LHNP) in eastern Dominican Republic. A small number of additional birds reside in two areas where The Peregrine Fund (TPF) has been conducting experimental releases of the species.

## **MJ**: How many Ridgway's Hawks are alive today in the wild?

**TH**: The current estimated population of Ridgway's Hawks is roughly 300 individuals. The species is listed as critically endangered making active conservation measures a necessity. Their isolation to a 1,600 km<sup>2</sup> national park leaves them extremely



Adult Buteo ridgwayi © The Peregrine Fund

vulnerable to catastrophic events such as hurricanes or disease outbreaks.

#### MJ: What is the preferred habitat for Buteo ridgwayi?

TH: Historically Ridgway's Hawks have been found in a wide variety of habitats throughout His-



Christine Hayes and Thomas Hayes banding and weighing a nestling Ridgway's Hawk in Los Haitises National Park © The Peregrine Fund

paniola. The habitat on this island has been dramatically altered over the last several centuries which leave many questions as to what the ideal habitat for the species is. From our experience they require sections of intact forest for hunting and prefer to nest on forest edges or disturbed forest areas. The species is highly adaptable which makes them a good candidate for conservation activities.

#### **MJ**: What is the species' main diet?

**TH**: Ridgway's Hawks seem to prey on just about anything that is available. Their primary food source is reptiles such as anoles, skinks, and snakes, but they also readily prey on frogs, bats, rats, mice, small birds and even insects.

#### MJ: What are the main threats this species is facing?

**TH**: As with most endangered species, Ridgway's Hawks are facing several anthropogenic threats. Habitat loss due to agricultural activities and especially clearing forested areas with unontrolled fires. In Dominican Republic, as in many countries, raptors are persecuted by locals to protect their chickens and to be used as a food source too. Currently, we are monitoring a large nesting population of Ridgway's Hawks for infestations by an ectoparasitic fly, *Philornis pici*. We have documented these infestations to be lethal on many occasions and have now begun to take proactive measures to treat nestlings. Whether these parasites have increased in numbers due to climate change or habitat alteration is unknown, but they are considered a serious threat to the species. We have also documented many Ridgway's Hawk nests falling during both the incubation and the nestling periods. Usually, nests which have been built in Hispaniola Royal Palms natural shed their fronds, and these nests have the potential to fall at any time depending on the individual nest tree. An additional threat for the species is that they are now isolated to Los Haitises National Park, and it is not at all protected as one might think for a national park. Thousands of small agricultural plots (conucos) are scattered throughout the park and parts of the forest are burned every year to make room for more conucos. The Dominican government is still trying to figure out how to make LHNP a secure national park and also how to handle the humanitarian problem of either moving existing villages outside the park or cooperating to help them form economies which fall in line with the protection of the national park.

#### **MJ**: What is the general attitude of the local people towards the Ridgway's Hawk?

TH: The general attitude of most Dominicans towards raptors is to kill them to protect their chick-

A local biologist from Los Limones, trained and employed by The Peregrine Fund © The Peregrine Fund



ens or for food. You have to understand that the average Dominican family makes very little in the way of income so they are highly dependent on their domestic crops and livestock or poultry for food. The good news is we have found that the people are generally willing to change their attitudes after learning about conservation and in some cases we have provided materials and helped people to build chicken coops to help resolve the conflicts with the hawks eating their young chickens. In the areas where we have a real presence such as in the town of Los Limones, the people have begun to embrace the hawk as a treasure and have become an important part of protecting the species.

#### **MJ**: What are the main goals of your project?

TH: Our main goals are to protect the remaining population of Ridgway's Hawks through hands on management, education and build other self-sustaining populations through our assisted dispersal experimental release. Also, research which helps us understand the species and the effect that our conservation efforts are making on this critically endangered species.

#### MJ: How do you see the future of the Ridgway's Hawk?

TH: We feel that the Ridgway's Hawk has a good chance for recovery as long as conservation organizations continue to work with the species. Several of the reasons that the species has suffered such a decline are also reasons why it should be able to be recovered. Ridgway's Hawks are very adaptable so depending on pristine native habitat is not necessarily an issue. Ridgway's Hawks are known to be very tame and often nest and hunt in close proximity to humans. This makes persecution of the species a real problem, but for this reason as long as humans are not killing the hawks then habitat close to people is suitable. One possible reason for the species decline is it's a non-migratory nature. As populations have been wiped out over the last century, they have been unable to become re-established in other areas because the species does not disperse or range from their natal areas. For this reason, the assisted dispersal releases into suitable habitats is essential for creating new self-sustaining populations. Ultimately, education will be an essential conservation activity to help protect the species in the future.

Left: The first pair of Ridgway's Hawks that formed as a result of The Peregrine Fund's assisted dispersal program in Punta Cana, Dominican Republic. © Thomas Hayes; Inset: The pair's offspring, a male, is alive and well one year after fledging. This year, the pair has two young nestlings. © Daniel Nuñez.



Page - 38

## Of Interest...

#### Grants

#### **Ornithological Council**

http://ornithologyexchange.org/forums/files/ download/31-oc-small-grants-program-call-forproposals-2014/\_

The Ornithological Council has initiated a small grants program for projects that integrate ornithological research and conservation. Research projects that improve the likelihood of success of a specific conservation project in the region from Mexico in North America, through Central America and the Caribbean to South America are eligible to compete for funding.Applications must be submitted by **31 July 2014**.

#### The Wilson Ornithological Society

http://www.wilsonsociety.org/awards/wosawards.html

The Wilson Ornithological Society offers a number of research grants in the area of ornithology including the Louis Agassiz Fuertes Grant; the George A. Hall/Harold F. Mayfield Grant; the Wilson Ornithological Society Research Grants Grant; and the Paul A. Steward grants. Citizens of any country may apply. Membership to the WOS is not required for most grants. Awards vary between \$1,000 and \$2,500 US annually.

Application are due by **1 February** of each year.

#### Pamela & Alexander F. Skutch Research Award

#### http://www.afonet.org/grants/index.html

The Pamela & Alexander F. Skutch Research awared supports projects that conduct "minimally invasive research into the life histories, especially social relations and reproduction, of little known birds of the continental Neotropics." Applications may be submitted in English, Spanish, or Portuguese. One award of up to \$10,000 US is given each year. Applications are due on **15 July.** One must be a member of the Association of Field Orntithologists to be eligible to apply.

#### Conferences

#### Raptor Research Foundation 24-28 November, Corpus Christi, Texas USA

http://www.raptorresearchfoundation.org/conferences/upcoming-conferences

The event will be held at the Emerald Beach Hotel, on Corpus Christi Bay. The Caesar Kleberg Wildlife Research Institute at Texas A&M University – Kingsville, will be hosting the event. They are the leaders in providing the science behind wildlife conservation and management in South Texas and related environments. HawkWatch International, an organization researching raptors and their habitats since 1986, is also hosting.



#### Neotropical Raptor Network www.neotropicalraptors.org



Issue 17, June 2014