Spizaetus

Neotropical Raptor Network Newsletter

Issue 32

December 2021

Milvago chimachima in Colombia

Migratory raptor counts in Venezuela

Raptors of Mexico

Ictinia mississippiensis in Venezuela

Spizaetus

Neotropical Raptor Network Newsletter

Issue 32 © December 2021
English Edition, ISSN 2157-8958

Cover Photo
Milvago chimachima photographed in Panama
© Angel Muela, Whitehawk Birding & Conservation

Editors/Translators
Marta Curti

Graphic Design
Marta Curti

www.neotropicalraptors.org

THE PEREGRINE FUND

@neotropicalraptors.org

neotropicalraptor

Red de Rapaces Neotropicales

Table of Contents

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.

Mobbing behavior of the Yellow-headed Caracara (*Milvago chimachima*) against the Turkey Vulture (*Cathartes aura*) in the dry forest of the municipality of Villa de Leyva, Department of Boyacá, Colombia

By **Javier Ernesto Cortés-Suárez**[1]

[1]Investigador independiente. Km 7 vía Moniquirá, Finca El Rocío, Municipio de Santa Sofía, Boyacá, Colombia
email: javi1885@gmail.com

The Yellow-headed Caracara (*Milvago chimachima*) is a species of the Falconidae family, Falconinae subfamily, Caracarini tribe. It has a wide distribution that extends from southern Costa Rica to Colombia, the Guianas and Trinidad, extending to eastern Bolivia and Brazil, reaching Paraguay, northern Argentina, and Uruguay, with the exception of Chile (Del Hoyo et al. 1994, Rodríguez et al. 2006). In Colombia it is one of the most common raptors and is found throughout the country from 0-2,700 meters above sea level (m.a.s.l.) (Ayerbe 2018).

This raptor is common in open areas, and is frequently found perched in trees, walking on roads and paths, or along the banks of water bodies (Hilty and Brown 1986, Sazima 2007), as well as in urban areas, where it lives and nests (De La Ossa and De La Ossa-Lacayo 2011). It is an opportunistic omnivore with a varied diet that includes dead and live animal prey, as well as some vegetable matter (Hilty and Brown 1986, Márquez et al. 2005, Sazima 2007, Ayerbe 2018).

Mobbing is a behavioral strategy used in territorial defense, as well as in defense of nests and young (Curio 1978, Arnold 2000). It is a form of parental care (Osthreiher 2003) which works to divert possible predators. It has been documented that mobbing may also be used to obtain food by chasing larger birds and mammals away from a food source (Curio 1978, Alcock 2001). Sometimes several individuals of the same species work together, some to serve as a distraction while others quickly steal food (Tinbergen 1954, Curio 1978).

The few reports of *M. chimachima* mobbing vultures to keep them away from food have taken place on the ground, along roads where it is possible to find a good source of food, such as animals that have been hit by cars (Austin and Zima 2015). However, this behavior had not been recorded in flight. Therefore, the objective of this note is to report an event of an Yellow-headed Caracara mobbing a Turkey Vulture (*Cathartes aura)* in flight, in the dry enclave of the Municipality of Villa de Leyva, Department of Boyacá, Colombia.

On 1 May 2021, I observed and photographed an adult *M. chimachima* mobbing an adult *C. aura* (Figure 1) (Márquez et al. 2005, Ayerbe 2018) in the Vereda Monquira in the sub-xerophytic zone (Corpoboyacá 2015) of the municipality of Villa de Leyva, Boyacá (5º 38'30 "N; 73º 33'14" W, 2,102 m.a.s.l.). This dry ecosystem is located within the lower montane dry forest life zone (bs-MB; Holdridge 1987).

At 13:34 hrs. I observed two birds in flight – a Yellow-headed Caracara and a Turkey Vulture, the latter of which was carrying dead prey in its beak. The Yellow-headed Caracara was flying swiftly and in a straight line after the Turkey Vulture, which fled using soaring flight with few wingbeats. The mobbing event lasted approximately two to three minutes before the two species were out of sight. During that time, no vocalizations were recorded by either bird, nor was there an aggressive response behavior by *C. aura*. Likewise, although other Turkey Vultures were observed flying nearby, no other bird intervened. Photographs were taken using a Nikon P900 camera at approximately 200 meters distance.

The mobbing event reported for *M. chimachima* agrees with that documented by Curio (1978), Alcock (2001), and Austin and Zima (2015), as a behavior used to obtain food through the mobbing of large birds (e.g. *C. aura*) on the ground. According to Tinbergen (1954) and Curio (1978), there are reports of other species of scavenger birds, such as gulls, that use group mobbing and distraction to obtain food. However, although caracaras can be found in family groups (Ayerbe 2018), possibly facilitating the display of these two behaviors (Tinbergen 1954, Curio 1978), during my observation, the Yellow-headed Caracara was by itself.

Body size and food guild are two of the traits that best explain the participation of birds in a mobbing event (Hua et al. 2016, Lima et al. 2018). According to Petrides (1959). Competition for food among some species of vultures suggests that larger species dominate over smaller ones and are more successful in obtaining food. This does not coincide completely for *M. chimachima* and *C. aura*, since, although there is competition for food, there is no clarity on dominance, because, in this case, it is unknown which of the two species ended up with the food.

Figure 1. **A Yellow-headed Caracara (*M. chimachima)* mobbing a Turkey Vulture (*C. aura)* in the dry forest of the Villa de Leyva Municipality, Boyacá, Colombia. Photo © Javier E. Cortés-Suárez.**

Other authors suggest that smaller birds display stronger aggressive behavior to get food (Lima et al. 2018), however, competition for similar or different food resources can accentuate or reduce the level of aggressiveness (Child 1964). This may indicate a less aggressive competition for resources between these two birds, taking into account that *M. chimachima* has more varied feeding habits than *C. aura,* the former feeding on carrion, as well as live prey and some vegetables, among others (Márquez et al. 2005, Ayerbe 2018).

The rapid flight carried out by *M. chimachima* to mob *C. aura* partially coincides with the flight this same species uses to escape from the mobbing of other birds such as *Pitangus sulphuratus* (De La Ossa et al. 2018) and *Tyrannus melancholicus* (J. Cortés pers. Comm.). This type of fast flight, as part of a mobbing behavior, constitutes a new element in the behavioral biology of *M. chimachima*, since, unlike other raptors, *M. chimachima* is not fast-flying, and is therefore not classified as an aerial hunter (De La Ossa et al. 2018).

Additionally, the lack of vocalizations during the mobbing event by *M. chimachima* coincides with what has been reported for this raptor when it has been mobbed by other birds (De La Ossa et al. 2018), even though it is recognized as a vocal species with loud calls. In flight it emits a call described as short and sharp, without repetitions (Ayerbe 2018, De La Ossa et al. 2018).

Finally, this report contributes to the ethological knowledge of *M. chimachima* in Colombia, as well as its trophic ecology from the point of view of interspecific competition for food. It is suggested that further research be carried out on the mobbing behavior of this diurnal raptor, specifically in the identification of the different ways in which this behavior can vary, either for solitary individuals or in family groups, as well as taking into account its opportunistic omnivorous nature.

References

Alcock, J. 2001. Animal Behavior: An Evolutionary Approach (7th ed.). Sinauer Associates. Sunderland.

Austin, O.L. and H.S. Zima. 2015. Birds of The World. Golden Press. New York.

Ayerbe-Quiñones, F. 2018. Guía ilustrada de la Avifauna colombiana. Wildlife Conservation Society. Bogotá.

Child, G. 1964. Observations of aggressive competition for food among birds in the Kariba basin. Ostrich. 35(1): 55–57.

Corporación Autónoma Regional de Boyacá (CORPOBOYACÁ). 2015. Elementos del Medio Natural. pp. 34–77 En: Atlas Geográfico y Ambiental de Corpoboyacá. Rodríguez, C.G.G., N.D.A. Roa y V.O.H. Bernal (Eds.). CORPOBOYACÁ, Tunja, 260 pp.

Curio, E. 1978. The adaptive significance of avian mobbing. I. Teleonomic hypothesis and predictions. Z. Tierpsychologie. 48:175–183.

Del Hoyo, J., A. Elliott. and J. Sargatal. 1994. Handbook of the Birds of the World. Vol. 2. New World Vultures to Guineafowl. Lynx editions. Barcelona.

De La Ossa, V.J. and A. De La Ossa-Lacayo. 2011. Aspectos de la densidad poblacional e historia natural de *Milvago chimachima* (AVES: Falconidae) en el área urbana de Sincelejo (Sucre, Colombia). Universitas Scientiarum. 16(1): 63–69.

De La Ossa, V.J., A. De La Ossa-Lacayo, and V. Donicer Montes. 2018. Ethological annotations of *Milvago chimachima*, Vieillot, 1816 (Aves: Falconidae). Rev.MVZ Córdoba. 23(1): 6514–6522.

Hilty, S. and W. Brown. 1986. A guide to the Birds of Colombia. Princeton University Press. New Jersey.

Holdridge, L. 1987. Ecología basada en zonas de vida. Instituto Interamericano de Cooperación para la Agricultura. San José.

Hua, F. and K.E. Sieving. 2016. Understory avifauna exhibits altered mobbing behavior in tropical forest degraded by selective logging. Oecologia. 182: 743–754.

Lima, H.S., F.M.G. Las-Casas, J.R. Ribeiro, T. Gonçalves-Souza, and L. N. Naka. 2018. Ecological and phylogenetic predictors of mobbing behavior in a tropical dry forest. Ecology and Evolution. 8:12615–12628.

Márquez, C., M. Bechard., F. Gast, and V.H. Vanegas. 2005. Aves rapaces diurnas de Colombia. Instituto de Investigación de Recursos Biológicos Alexander von Humboldt. Bogotá.

Osthreiher R. 2003. Is mobbing altruistic or selfish behaviour? Animal Behaviour. 66:145–149.

Petrides, G.A. 1959. Competition for Food between Five Species of East African Vultures. Auk. 76: 104–106.

Rodríguez Mata, J., F. Erize, and M. Rumboll. 2006. Aves de Sudamérica: Guía de campo Collins. No Paseriformes. Letemendía Casa Editora. Buenos Aires.

Sazima I. 2007. Unexpected cleaners: Black Vultures (*Coragyps atratus*) remove debris, ticks, and peck at sores of capybaras (*Hydrochoerus hydrochaeris*), with an overview of tick-removing birds in Brazil. Revista Brasileira de Ornitologia. 15(3): 417–426.

Tinbergen, N. 1954. The herring gull's world: a study of the social behavior of birds. Lyons and Bulford. New York.

* * *

Raptors of the northern and eastern periphery of the metropolitan zone of Mexico City, Mexico

By **Jesús Oswaldo Gómez-Garduño[1], Rogelio Bautista-Trejo[1], Héctor Cayetano-Rosas[1]** and **Jorge E. Ramírez-Albores[2*]**

[1]Instituto de Ingeniería, Universidad Nacional Autónoma de México. Circuito Escolar, ciudad Universitaria., Coyoacán, Ciudad de México. C.P. 04510. México

[2]Instituto de Ciencias Agropecuarias y Rurales, Universidad Autónoma del Estado de México. El Cerrillo-Piedras Blancas, Toluca de Lerdo, Estado de México. C.P. 50200. México
e-mail: jorgeramirez22@hotmail.com

Mexico is one of the countries with the greatest raptor diversity in the world. It is home to 87 species, 60 of which are in some degree of threat according to national laws, and 34 have migratory populations (Ruelas-Inzunza 2010, SEMARNAT 2010, Berlanga et al. 2017). Like other raptors in the world, the raptors of Mexico have a low annual reproduction rate, require large territories to survive, and some species are very sensitive to the destruction and fragmentation of their habitat (Gregory et al. 2005, Thiollay 2007).

Thus, their ecological requirements mean that this group of birds is considered an excellent biological indicator. Their absence can mean great changes in the habitats where they usually live, which is why they have been used to evaluate and monitor conservation efforts in different environments or ecosystems (Gregory et al. 2005, Thiollay 2007, Sergio et al. 2008).

Raptors, like other predators, are a key group in the ecosystems to which they belong because they occupy the last level of the food chain. Therefore, they play an important ecological role as biological controllers (Gregory et al. 2005, Thiollay 2007, Sergio et al. 2008). The predation pressure they exert directly influences the population structure and dynamics of their prey (Menge et al. 1994). Because of this, these predators can promote high diversity or be spatially and temporally associated with it (Menge et al. 1994). Although many raptors depend on primary forest for food and nesting, some species can survive in large areas transformed into mosaics of different and changing types of secondary vegetation, or

Figure 1. **Cooper's Hawk (*Accipiter cooperi*) Photo © J.E. Ramírez-Albores**

even in areas of crops, grasslands or bare lands exposed to erosion (Vázquez- Pérez et al. 2009, Donázar et al. 2016). However, despite this, ecological and biological studies with raptors in Mexico are very limited (Rodríguez-Estrella and Rivera-Rodríguez, 2006).

The metropolitan zone of Mexico City (ZMCdMx) is located in the central part of the country, with an area of 5,954 km^2 (19 ° 03' and 19 ° 54' N and between 98 ° 38 'and 99 ° 31' W). It is made up of Mexico City, 59 municipalities in the state of Mexico and one in the state of Hidalgo. The northern and eastern periphery of this region have different types of vegetation (grasslands and xerophilous scrub) and land use, mainly urban use, and seasonal agriculture. There are more than 15 protected natural areas, recreational parks with different types of trees, as well as small remnants of natural vegetation and windbreaks with various tree species.

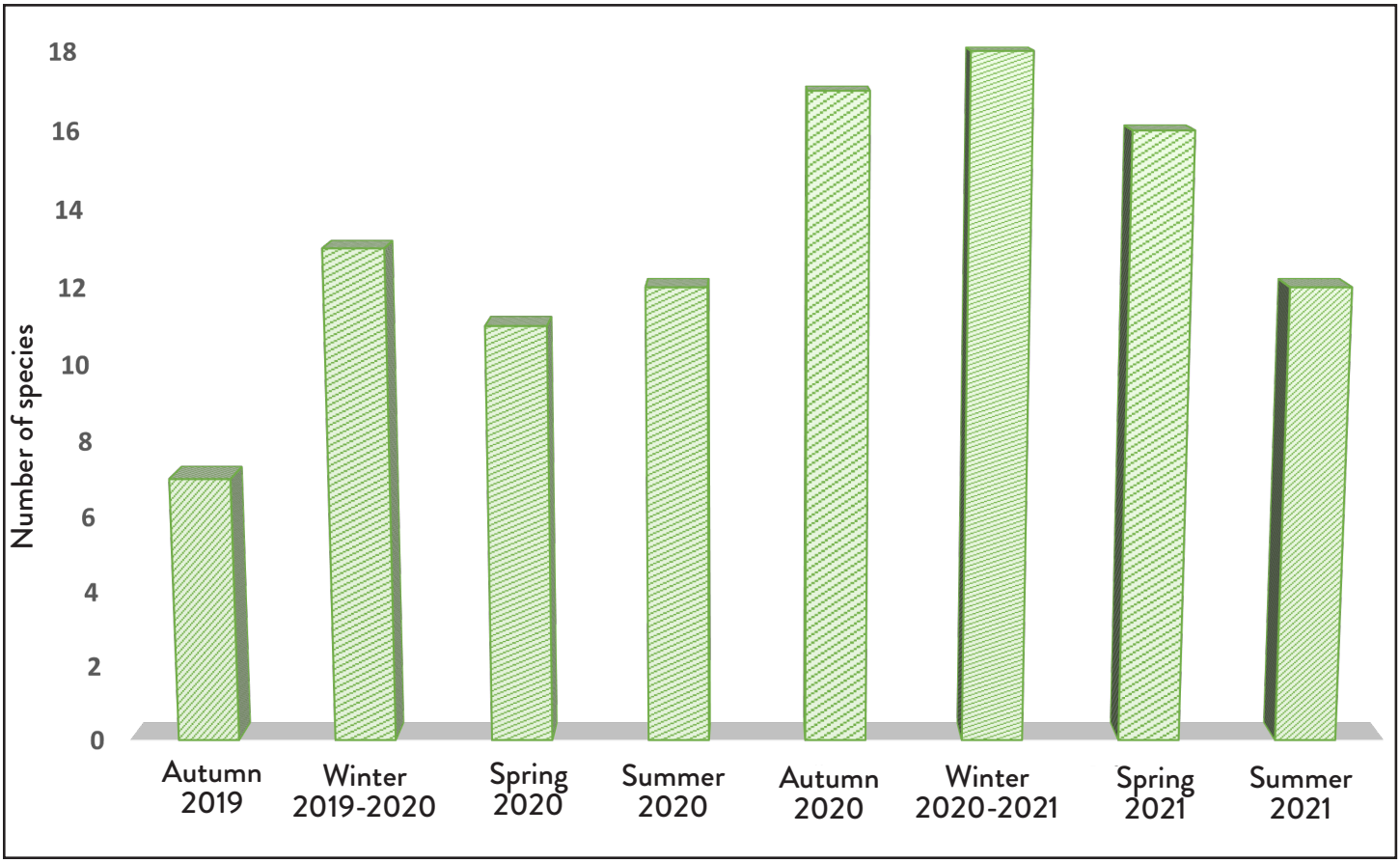
To determine the richness of birds of prey present in these areas of the ZMCdMx, field visits with visual and auditory records were made from late fall 2019 to summer 2021 in different sites, which were complemented with data from eBird (available at https://www.ebird.com/). The taxonomic order was based on the American Union of Ornithologists and supplements (Chesser et al. 2020). During the study, 31 of 87 raptor species reported for Mexico were detected (two or-

ders, four families, and 19 genera: *Accipiter, Asio, Athene, Bubo, Buteo, Buteogallus, Caracara, Cathartes, Chondrohierax, Circus, Coragyps, Elanus, Falco, Geranoaetus, Glaucidium, Megascops, Pandion, Parabuteo, Tyto*) (Table 1).

Of the total species, 10 are listed (nine under special protection and one listed as threatened) in the NOM-059-SEMARNAT-2010(SEMARNAT 2010) and 11 present are possible winter local altitudinal migrants (Table 1). Most of the species are resident (19), seven are Neotropical migrants, three are transient, and two are introduced (Table 1). The most abundant species were the Turkey Vulture (*Cathartes aura*) and the Red-tailed Hawk (*Buteo jamaicensis*). During the autumn, winter, and spring a greater number of species were observed (Figure 2), and the composition and richness of these species varied temporally between the sites. Here are important ecological annotations for some species:

Gray Hawk (*Buteo plagiatus*). Lowland resident along both slopes of the country (Howell and Webb 1995). We observed an individual in Zumpango Lagoon (19 ° 46 'N and 99 ° 07' W), on 15 November and 11 December 2020. Also, one to two individuals were observed in Guada-

Figure 2. **Temporal distribution of species richness in the northern and eastern periphery of the metropolitan zone of Mexico City, fall 2019 — summer 2021.**



lupe Lake (19 ° 37 'N and 99 ° 15' W), from February to August 2021. These individuals were observed perching on the street light cables, making short flights along the wires and towards Casuarina (*Casuarina equisetifolia*) and Eucalyptus (*Eucalyptus* spp.) Trees found on the banks of water bodies. The records of this hawk in the region are relatively scarce, there are only a few previ-

Figure 3. **Photographic records of some raptors in the northern and eastern peripheries of the metropolitan zone of Mexico City: a) Turkey Vulture (*Cathartes aura*), b) Northern Harrier (*Circus hudsonius*), c) Merlin (*Falco columbarius*), d) American Kestrel (*Falco sparverius*), e) Red-tailed Hawk (*Buteo jamaicensis*), f) Gray Hawk (*Buteo plagiatus*). Photos © H. Cayetano-Rosas; g) Burrowing Owl (*Athene cunicularia*). Photo © J.O. Gómez-Garduño; h) Harris' Hawk (*Parabuteo unicinctus*), i) White-tailed Kite (*Elanus leucurus*), j) Great-horned Owl (*Bubo virginianus*), Osprey (*Pandion haliaetus*); and k) Barn Owl (*Tyto alba*). Photos © R. Bautista-Trejo.**

ous records: in the Sierra de Guadalupe (approx. 20 linear km), Ocuilan de Arteaga (approx. 93 linear km), Tlazala de Fabela (approx. 40 linear km) and in Central-Cuautitlán Park, (approx. 17 linear km), as well as other observations at different sites in the ZMCdMx and Hidalgo (Delgado 1994, Canales 2002, Ortega 2017). Therefore, this observation represents an important record of the species in the northern part of the ZMCdMx.

Mountain Pygmy-Owl (*Glaucidium gnoma)*. It resides in pine-oak forests in high mountains from Chihuahua and Coahuila to Oaxaca, and the central and southeastern part of Chiapas (Peterson and Chalif 1989, Howell and Webb 1995). On 22 April 2020, between 08:00-08:30 hrs, we heard an individual vocalizing to the southwest of the town of Temascalapa (19 ° 48' N and 98 ° 55' W). Additionally, on 23 January 2021, between 07:00-07:45 hrs, we heard an individual vocalizing in cultivation areas with scattered Lollipop Trees (*Schinus molle*), live fences of nopal (*Opuntia* spp.) and *Agave salmiana* located between the Mexico-Pachuca federal highway and the Fraccionamiento Hacienda de Paula to the southwest of the town of Temascalapa (approx. 4.5 linear km). There are previous records for this species in Toluca (approx. 95 linear km), Villa del Carbón (approx. 60 linear km), Nevado de Toluca (approx. 110 linear km), Valle de Bravo (approx. 140 linear km), Temascaltepec and San José Potrerillos (both localities approx. 140 linear km; Gómez de Silva 1997), but none exist in this region. Additionally, there are other records in the Tecomomulco Lagoon (approx. 53 linear km) in Hidalgo (Ortega 2017). Therefore, this observation represents an expansion of the known habitat for this species in the eastern part of the ZMCdMx.

Short-eared Owl (*Asio flammeus*). In Mexico, it is distributed from Baja California to central Mexico (Howell and Webb 1995). It is under special protection in NOM-059-SEMARNAT-2010 (SEMARNAT 2010). On 10 and 11 February 2019, an individual was registered at the Bordo Poniente Sanitary Landfill in the municipality of Texcoco (19° 27 'N and 99 ° 01' W). On both days the owl was perched on the ground around 16:00 hrs and then it flew. On 26 March 2020, an individual was sighted in an area of induced grassland west of the town of Tecámac and northwest of the Sierra Hermosa Ecological, Tourist and Recreational State Park. Another individual was observed on 26 January 2020. This individual was flying over grassland areas in the western part of the park (19° 42 'N and 98° 59' W). Furthermore, an individual was recorded in cultivation areas southeast of the town of Xaltocan in the municipality of Nextlalpan (19 ° 43 'N and 99 ° 02' W). At these sites the owl perched on the ground and later flew low (<5 m) to other sites. On 22 April 2020, an individual was perched on the ground in areas of abandoned crops as-

Table 1. **List of raptors present in the northern and eastern periphery of the metropolitan zone of Mexico City.**

Scientific Name	Residency Status	Status in the NOM-059-SEMARNAT-2010	Type of Record
Coragyps atratus	Resident		eBird
Cathartes aura	Resident		Field observation
Pandion haliaetus	Transitory		Field observation
Elanus leucurus	Resident		Field observation
Chondrohierax uncinatus	Resident	Special protection	eBird
Circus hudsonius	Winter visitor		Field observation
Accipiter striatus	Resident	Special protection	Field observation
Accipiter cooperii	Resident	Special protection	Field observation
Buteogallus anthracinus	Introduced	Special protectionl (in its natural geograhic distribution)	eBird
Parabuteo unicinctus	Introduced		Field observation
Geranoaetus albicaudatus	Resident	Special protection	eBird
Buteo plagiatus	Resident		Field observation
Buteo lineatus	Resident	Special protection	Field observation
Buteo platypterus	Transitory		Field observation
Buteo brachyurus	Resident		eBird
Buteo swainsoni	Transitory	Special protection	Field observation
Buteo albonotatus	Winter visitor	Special protection	eBird
Buteo jamaicensis	Resident		Field observation
Buteo regalis	Winter visitor	Special protection	eBird
Tyto alba	Resident		Field observation
Megascops kennicottii	Resident		eBird
Bubo virginianus	Resident		Field observation
Glaucidium gnoma	Resident		Field observation
Athene cunicularia	Resident		Field observation
Asio otus	Winter visitor		eBird
Asio flammeus	Winter visitor	Special protection	Field observation
Caracara plancus	Resident		Field observation
Falco sparverius	Winter visitor		Field observation
Falco columbarius	Winter visitor		Field observation
Falco peregrinus	Resident		Field observation
Falco mexicanus	Resident	Threatened	eBird

sociated with grassland induced with prickly pear (*Opuntia* spp.) and scattered trees of *Eucalyptus* spp. and *Schinus molle* to the southwest of the town of Temascalapa (19 ° 48 'N; 98 ° 55' W). On 26 June 2020, an individual was sighted in areas of induced grassland and reforestation areas near Nabor Carrillo Lake located southwest of Texcoco (19 ° 28 'N; 98 ° 58' W). The records of this owl in the eastern part of the State of Mexico are scarce (Gómez-Garduño et al. 2020), as in most of central Mexico. The records closest to ours are those from Ciénegas de Lerma and Tlachaloya (both localities approx. 60 linear km) in the central part of the country, in the Tecomomulco Lagoon in Hidalgo (Ortega 2017), and in the Bordo Poniente Sanitary Landfill east of the ZMCdMx (Gómez-Garduño et al. 2020).

Discussion

It is a complex undertaking to establish the conservation status of raptors, especially considering the degradation of the country's ecosystems. The relationship between habitat quality and population status of some species of raptors in open areas is not clear enough to determine whether these species are increasing or decreasing. Changes in land use in open areas have also implied a change in the availability of prey for raptors. As a result, many raptor species have probably modified their diets, perhaps affecting them to the point that their only way out has been emigration, causing local extinctions in some regions. Therefore, it is necessary to obtain a more precise approximation of raptor populations. This can be achieved if long-term monitoring is carried out that considers different aspects of the biology of the species (population trends, migratory movements, rates reproduction, survival, and mortality of individuals), as well as different sampling methods (Márquez et al. 2005, Martínez and Calvo 2006, Vázquez-Pérez et al. 2009, Carmona et al. 2017).

Acknowledgements

We thank SEDENA, the UNAM Engineering Institute, CONAGUA, the staff of the Sierra Hermosa Ecological, Recreational and Tourist State Park and the Nabor Carrillo Lake surveillance staff for the logistical support and facilities provided. To Max Valencia and Clemente Vázquez for their support in the field.

References

Berlanga H., Gómez de Silva H., Vargas-Canales V.M., Rodríguez-Contreras V., Sánchez-González L. A., Ortega-Álvarez R., and Calderón-Parra R. 2019. Aves de México: lista actualizada de especies y nombres comunes. México: CONABIO.

Canales, J.C. 2002. Contribución al conocimiento de la avifauna de La palma y transfiguración en el municipio de Tlazala de Isidro de Fabela en el Estado de México. Tesis de licenciatura, Los Reyes Iztacala, Estado de México (México): FES Iztacala, UNAM.

Carmona, R., L.F. Mendoza, D. Molina, L. Ortega, E. Miramontes and M. Cruz. 2017. Presencia espacial y temporal de aves rapaces diurnas (Aves: Accipitriformes, Falconiformes) en Marismas Nacionales, Nayarit-Sinaloa, México. Acta Zoológica Mexicana 33(1):27-38.

Chesser, R.T., S.M. Billerman, K.J. Burns, C. Cicero, J.L. Dunn, A.W. Kratter, I.J. Lovette, N.A. Mason, P.C. Rasmussen, J.V. Remsen Jr., D.F. Stotz and K. Winker. 2020. Check-list of North American Birds (online). American Ornithological Society. http://checklist.aou.org/taxa

Delgado, C.F. 1994. Estudio avifaunístico de la región de Ocuilan de Arteaga en el Estado de México. Tesis de licenciatura, Los Reyes Iztacala, Estado de México (México): ENEP Iztacala, UNAM.

Donázar, A.J., A. Cortés-Avizanda, J.A. Fargallo, A. Margalida, M. Moleón, Z. Morales-Reyes, R. Moreno-Opo, J.M. Pérez-García, J.A. Sánchez-Zapata, I. Zuberogoitia and D. Serrano. 2016. Roles of raptors in a changing world: from flagships to providers of key ecosystem services. Ardeola 63(1):181-234.

Gómez de Silva, H. 1997. Análisis avifaunístico de Temascaltepec, Estado de México. Anales del Instituto de Biología, UNAM serie Zoología 68:137-152.

Gómez-Garduño, J.O., R. Bautista-Trejo, J.C. Vázquez-Sánchez and J.E. Ramírez-Albores. 2020. Nuevos sitios de ocurrencia del Buhó sabanero (*Asio flammeus*) en el centro de México. Spizaetus 30: 22-26.

Gregory, R.D., A. van Strien, A.W. Meyling, D.G. Noble, R.P. Foppen and D.W. Gibbons. 2005. Developing indicators for European birds. Philosophical Transactions of the Royal Society B 360: 269-288.

Howell, S.N.G. and S. Webb. 1995. A guide to the birds of Mexico and northern Central America. New York, NY: Oxford University Press.

Márquez, C., M. Bechard, F. Gast and V.H. Vanegas. 2005. Aves rapaces diurnas de Colombia. Bogotá (DC): Instituto de Investigación de Recursos Biológicos "Alexander von Humboldt". p. 394.

Martínez, J.E. and J.F. Calvo. 2006. Rapaces diurnas y nocturnas de la región de Murcia. Serie técnica 1/06. Región de Murcia: Consejería de Industria y Medio Ambiente. Dirección General del Medio Natural.

Menge, B.A., E.L. Berlow, C.A. Blanchette, S.A. Navarrete and S.B. Yamada. 1994. The keystone species concept: variation in interaction strength in a rocky intertidal habitat. Ecological Monographs 64: 249-286.

Ortega, L.A. 2017. La evaluación de la avifauna de la Laguna de Tecomomulco y alrededores, Estado de Hidalgo: prioridades de conservación. Tesis de licenciatura, Ciudad de México: Facultad de Ciencias, UNAM.

Peterson, A.T. and E.L. Chalif. 1989. Aves de México. México, D.F.: Ed. Diana.

SEMARNAT (Secretaría del Medio Ambiente y Recursos Naturales). 2010. Norma Oficial Mexicana NOM-059-SEMARNAT-2010, Protección ambiental– Especies nativas de México de flora y fauna silvestres– Categorías de riesgo y especificaciones para su inclusión, exclusión o cambio– Lista de especies en riesgo. Diario Oficial de la Federación 30 diciembre, 2010.

Rodríguez-Estrella, R. and L.B. Rivera-Rodríguez. 2006. Raptor studies in Mexico: an overview. En: Rodríguez-Estrella, R. (ed.). Current raptor studies in Mexico, México, D.F.: Centro de Investigaciones Biológicas del Noreste y CONABIO. p. 1-32.

Ruelas-Inzunza, E. 2010. Aves rapaces migratorias. Biodiversitas 2:11-15.

Sergio, F., T. Caro, D. Brown, B. Clucas, J. Hunter, J. Ketchum, K. McHugh and F. Hiraldo. 2008. Top predators as conservation tools: ecological rationale, assumptions, and efficacy. Annual Review of Ecology, Evolution and Systematics 39:1-19.

Thiollay, J.M. 2007. Raptor communities in French Guiana: distribution, habitat selection, and conservation. Journal of Raptor Research 41:90-105.

Vázquez-Pérez, J.R., P.L. Enríquez and J.L. Rangel-Salazar. 2009. Diversidad de rapaces diurnas en la Reserva de la Biosfera Selva del Ocote, Chiapas, México. Revista Mexicana de Biodiversidad 80(1):203-209.

* * *

Recurrence of the Mississippi Kite (*Ictinia mississippiensis*) during the 2020 autumn migration in the Andes of Venezuela

By **María Escalona-Cruz**[1], **Luis A. Saavedra**[1] and **Carla I. Aranguren**[2]

[1]Departamento de Biología, Facultad de Ciencias, Universidad de Los Andes (ULA), Mérida, 5101, Venezuela
e-mail: luissc@ula.ve; maevelynec30@gmail.com

[2]Laboratorio de Ecología Animal A, Departamento de Biología, Facultad de Ciencias, Universidad de Los Andes (ULA), estado Mérida, 5101, Venezuela
e-mail: arangurencarla@gmail.com

The Mississippi Kite (*Ictinia mississippiensis*), Accipitriformes, nests from the eastern to southern United States, generally in the central and southern great plains of the country, along the Mississippi River, and to a lesser extent to the west in the states of Colorado and Arizona (Parker 1999, Wheeler 2018). This species is classified as a complete trans-equatorial migrant, due to the fact that about 90% of the total population leaves the breeding areas during the boreal autumn, travels more than 1500 km and reaches their wintering areas in South America, specifically in southern Bolivia, Paraguay, and northern Argentina (Bildstein 2004, Juhant and Areta 2013, Wheeler 2018).

The autumn migration of the Mississippi Kite occurs from the end of August to the beginning of October (Parker 1999, Areta and Seipke 2006, Juhant and Areta 2013, Wheeler 2018), while in spring, its return to the north begins in mid-February to mid-March (Olivo 2007, Juhant and Areta 2013). During their migrations, individuals may be observed on their own , in small groups, or in flocks of up to 10,000 individuals (Areta and Seipke 2006, Wheeler 2018). They use the Mesoamerican Terrestrial Corridor (Central America) and to a lesser extent, cross the Gulf of Mexico and the region of the Western Caribbean (Hayes and Thorstrom 2014, Hernández et al. 2016).

We present new confirmed records of the presence of the Mississippi Kite in Venezuela, more specifically in the Andes of Venezuela. A total of 33 individuals were registered between 11 October and 25 November 2020 (Table 1) northeast of the city of Mérida, Venezuela (08 ° 35'29 ”N; 71°08'38” W). The observations were made from the roof of a 15 m high building located in the middle of the city, using Raptor (8.5X32) and

Bushnell PowerView (7x35) binoculars, while the photographs were obtained with an Olympus E-camera. 520 (Fig. 1).

Individuals of this species were identified by their long, pointed wings, with the outermost primary much shorter than the longest feather on the wingtip, and a square or slightly forked tail. In the case of adults, a pale gray head, dark gray back and blue-gray underparts were observed, along with contrasting dark gray wings with pale gray inner secondaries and black tails without bands. The juveniles displayed a plumage with profusely striped rufous underside, rufous on the final part of wing coverts, and black tails with three whitish bands and a narrow white tip (Phelps and Meyer de Schauensee, 1979, 1994; Hilty and Brown, 2001; Hilty, 2003, Restall et al., 2006; Wheeler, 2018).

Other species observed in the city of Mérida when the Mississippi Kite observations were made include Turkey Vulture (*Cathartes aura*), Swainson's Hawk (*Buteo swainsoni*) (Fig. 2), Broad-winged Hawk (*Buteo platypterus*) and Osprey (*Pandion haliaetus*). This suggests that this site is located in the middle of an important route for migratory raptors that transit through the country, especially for the Turkey Vulture and Broad-winged Hawk.

The exact migratory route used by the Mississippi Kite in South America is little known, although there are records in Colombia, Ecuador, Peru, Brazil, Bolivia, Paraguay, and Argentina (Phelps and Meyer de Schauensee 1994; Hilty and Brown, 2001; Areta and Seipke 2006 ; Restall et al., 2006; Juhant and Areta 2013).

Previously, in Venezuela there was only one unconfirmed report of a single adult observed together with a flock of Plumbeous Kites (*Ictinia plumbea*) and Swallow-tailed Kites (*Elanoides forficatus*), 20 km north of El Vigía, southwest

Figure 1. **Mississippi Kites (*Ictinia mississippiensis*) in the city of Mérida during the 2020 fall migration. Photos © Luis A. Saavedra**

Figure 2. **Some species observed together with Mississippi Kites (*Ictinia mississippiensis*) in the city of Mérida during the 2020 fall migration: Swainson's Hawk (*Buteo swainsoni*) (left) and Turkey Vulture (*Cathartes aura*) (right). Photos © Luis A. Saavedra**

of Mérida (Ryan 2000). Due to this, for a long time, it was believed that the species transited through the western region of the country during its migration, and the presence of the Mississippi Kite in Venezuela was classified as "hypothetical" (Phelps and Meyer de Schauensee 1979, Phelps and Meyer de Schauense 1994, Hilty and Brown 2001, Hilty 2003, Restall et al. 2006, Ascanio et al. 2017). Although later, León and Miranda (2017) and Ascanio et al. (2020) changed its status to "vagrant."

It is certainly possible that the individuals observed in the Cordillera de Mérida are vagrants that, for various reasons, have deviated from their main migratory route. Some of the factors responsible for migrant birds ranging out of their usual migration routes and wintering areas include disorientation caused by wind drift (Thorup et al. 2003, Bildstein 2004), deviant directional trends typical of some individuals (Newton 2008), increased breeding area due to climate change (Jiguet and Barbet-Massin 2013), reverse migration (Thorup 2004), population growth, (Veit 2000) or normal dispersal (Newton 2008).

In the case of the observations of the Mississippi Kite in Venezuela, these last two factors seem probable, especially when taking into account the population increase registered for this species (BirdLife International 2016).

Date	Number of Individuals
11 October	9
21 October	5
27 October	7
5 November	8
10 November	3
25 November	1
Total	***33***

Table 1. **Observations of Mississippi Kite (*Ictinia mississippiensis*) during the 2020 fall migration in Mérida, Venezuela**

However, the possibility that this species is a more common bird of passage than is generally thought for Venezuela should be considered, as suggested by the observations presented here and some photographic records in the páramo de Mucubají (3500 masl), to the northeast of Mérida (https://www.ebird.org).

In addition, it should not be ruled out that the few existing records are due to the low densities of individuals that use this route, the short period of time that they remain in the region, and the low coverage of raptor observers in the country, as was the case with the Swainson's Hawk (Ramoni-Perazzi et al., 2016). Even so, it is interesting that the Mississippi Kite has not been previously recorded during the bird inventory work carried out in Mucubají (Rengifo et al. 2005). It is evident that there is a need to carry out greater sampling efforts in some key points in the country, which include the Cordillera de Mérida, with the aim of clearly defining the routes that migratory raptor species follow in Venezuela. This will determine whether the Mississippi Kite regularly uses this route or if these records correspond to individuals who accidentally deviate from their path.

Acknowledgements

We wish to express our gratitude to Juana Díaz, Miguel Delgado, and Luis Ángel Niño Barreat for their logistical and bibliographic support and contributions to improve this note. We also send our thanks to the Cornell University Laboratory of Ornithology for allowing us access to the Birds of the World website.

References

Areta, J.I., and S.H. Seipke. 2006. A 10,000 Mississippi Kite flock observed in Fuerte Esperanza, Argentina. Ornitología Neotropical 17:433-437.

Ascanio, D., G. Rodríguez and R. Restall. 2017. Birds of Venezuela. Christopher Helm, London, UK.

Ascanio, D., Marantz C.A., Miranda J., Kvarnbäck J., Rodríguez G., León J.G., and Nagy A. (2020) Species lists of birds for South Ameri-

can countries and territories: Venezuela. [Version 22/Oct/2020]. http://www.museum.lsu.edu/~Remsen/SACCCountryLists.htm

Bildstein, K.L. 2004. Raptor migration in the Neotropics: patterns, processes and consequences. Ornitologia Neotropical 15 (Suppl.): 83–99.

BirdLife International. 2016. *Ictinia mississippiensis*. The IUCN Red List of Threatened Species 2016: e.T22695066A93488215. https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22695066A93488215.en. Downloaded on 19 January 2021.

eBird. 2021. eBird: An online database of bird distribution and abundance [web application]. eBird, Cornell Lab of Ornithology, Ithaca, New York. Available: http://www.ebird.org. (Accessed: Date [e.g., February 2, 2021]).

Hayes, T., and Thorstrom, R. 2014. First record of a Mississippi Kite (*Ictinia mississippiensis*) in the Dominican Republic. Journal of Caribbean Ornithology, 27, 25-26.

Hernández, A.P., Sosa, A.L., de la Cruz Mora, J.M., Padrón, L.Y. G., Montero, R.V., and Seijo, Y. 2016. Migración de *Ictinia mississippiensis* por el Cabo de San Antonio, Reserva de la Biosfera, Península de Guanahacabibes, Cuba. Revista ECOVIDA 6(2): 165-175.

Hilty, S.L. 2003. Birds of Venezuela. Princeton University Press, Princeton, USA.

Hilty, S.L., and W.L Brown. 2001. Guía de las Aves de Colombia. Universidad del Valle, American Bird Conservancy, Cali, Colombia.

Jiguet, F., and Barbet-Massin, M. 2013. Climate change and rates of vagrancy of S iberian bird species to E urope. Ibis, 155(1): 194-198.

Juhant, M.A., and J.I. Areta. 2013. Distribution and migration of Mississippi Kites in South America. Journal of Field Ornithology 84: 255–261.

León, J.G., and Miranda, J. 2017. Lista oficial de las aves de Venezuela por estados: Mérida. Versión Octubre 2017. http://uvo.ciens.ucv.ve/?page_id=3035. (Accedido diciembre 2020)

Newton, I. 2008. The Migration Ecology of Birds. Academic Press, London, UK

Olivo, C. 2007. Kite migration in eastern lowlands of Bolivia. Pp. 63–72 in Neotropical Raptors (K.L. Bildstein, D.R. Barber and A. Zimmerman, eds.). Issue 1 of Hawk Mountain Sanctuary raptor conservation science series. Hawk Mountain Sanctuary, Orwigsburg, PA.

Parker, J.W. 1999. Mississippi Kite (*Ictinia mississippiensis*). Pp. 402: 28 in The Birds of North America (A. Poole and F. Gill eds.). The Birds of North America Inc., Philadelphia, PA.

Phelps, W.H. (Jr) and R. Meyer de Schauensee. 1979. Una Guía de las Aves de Venezuela. Graficas Armitano, Caracas, Venezuela.

Phelps, W.H. (Jr) and R. Meyer de Schauensse. 1994. Una Guía de las Aves de Venezuela. ExLibris, Caracas, Venezuela.

Ramoni-Perazzi, P., C. Rengifo and I. A. Soto-Werschitz (2016). Further records for the Swainson's Hawk Buteo swainsoni in Venezuela. Revista Venezolana de Ornitología, 6, 52-54.

Rengifo, C., A. Nava and M. Zambrano. 2005. Lista de aves de La Mucuy y Mucubají, PNSN, Mérida-Venezuela. Editorial Venezolana, Mérida, Venezuela.

Restall, R., C. Rodner and M. Lentino. 2006. Birds of Northern South America. Volume 1: An Identification Guide. Christopher Helm, London, UK.

Ryan, R. 2000. Mississippi Kite *Ictinia mississippiensis* in Venezuela. Cotinga 14: 102.

Thorup, K. 2004. Reverse migration as a cause of vagrancy. Bird Study, 51(3), 228–238.

Thorup, K., T. Alerstam, M. Hake and N. Kjellén. 2003. Bird orientation: compensation for wind drift in migrating raptors is age dependent. Proceedings of the Royal Society of London B (Suppl.) 270: S8–S11.

Rengifo, C., Nava, A., and Zambrano M. 2005. Lista de aves de La Mucuy y Mucubají, Parque Nacional Sierra Nevada, Mérida-Venezuela. Editorial Venezolana, Mérida, Venezuela.

Veit, R.R. 2000. Vagrants as the expanding fringe of a growing population. The Auk 117(1): 242-246.

Wheeler, B. K. 2018. Birds of prey of the West: A field guide. Princeton University Press.

* * *

Establishment of the first observation and counting station for migratory raptors "Cinco Águilas Blancas" (Five White Eagles) in the Andes of the Cordillera de Mérida, Venezuela

By **Luis A. Saavedra**[1] and **María Escalona-Cruz**[1]

[1]Departamento de Biología, Facultad de Ciencias, Universidad de Los Andes (ULA), Mérida, 5101, Venezuela
e-mail: luissc@ula.ve

Counting stations for migratory raptors have been instrumental in studies related to migration, estimation of population size, and other important ecological aspects of many species. Furthermore, when raptor counts are combined with satellite banding and tracking, it is possible to delineate the geographic origin and destinations of the migrants (Bildstein et al. 2009). Traditionally, most raptor observation and monitoring points have been established in North and Central America in locations where more than a quarter of a million birds can be counted in a single day of effort (www.hawkcount.org). These data are of great importance for the conservation of these species (Bildstein et al. 2009).

However, there are still many questions about the routes used by Nearctic migratory raptor species in South America. In the case of Venezuela, data are scarce, despite the fact that this country constitutes a wintering area for populations of Osprey (*Pandion haliaetus*), Turkey Vultures (*Cathartes aura*), Broad-winged Hawks (*Buteo platypterus*), Peregrine Falcons (*Falco peregrinus*), and Merlins (*Falco columbarius*), as well as a passage area for species such as the Swainson's Hawk (*Buteo swainsoni*) (Haines et al. 2003, Hilty 2003, Hedlin et al. 2013, Ramoni-Perazzi et al. 2016, Bildstein et al. 2009, Terife and Lentino 2019). This knowledge gap may be due to the small number of observers and researchers dedicated to studying migratory raptors in the country.

The Cordillera de Mérida extends about 450 km long by 80 km wide in a northeast direction between latitudes 7°30' and 10°10'N and longitudes 69°10' and 72°20' W. Additionally, it has an altitudinal range that goes from 200 meters above sea level to just under 5000 meters above sea level (Araroff and Sarmiento 2004). These characteris-

tics make it an important geographic barrier for migratory boreal raptor species that seek to reach their southernmost wintering areas on the South American continent. However, the great variability in the relief of this region, with the presence of fluvial and glacial valleys that function as migratory corridors, facilitates the movement of raptors between the Lake Maracaibo basin and the Orinoquía basin (Llanos de Venezuela), the latter being an essential wintering area for the Turkey Vulture (*Cathartes aura*) (Hedlin et al. 2013), and the Broad-winged Hawk (*Buteo platypterus*) (Haines et al. 2003).

Within the Cordillera de Mérida, the Chama River Valley has been identified as an important migratory corridor. The city of Mérida, located within this valley, is established on an alluvial terrace, with an average altitude of 1600 m.a.s.l. between the Sierra Nevada de Mérida and the Sierra de la Culata (Silva 1999, Segnini and Chacón 2017). These characteristics make this locality an ideal site for the observation of migratory raptors, since the narrow width of the valley at this point is approximately 4 km, functioning as a "bottleneck" that facilitates the counting and identification of individuals. However, despite the importance of the Chama River Valley for the migrations of raptors in Venezuela, there is still a great lack of knowledge about the general aspects of these movements in the country, especially in the Andes of Venezuela. For this reason, in 2020 our team, made up of students and professionals from the Universidad de Los Andes (ULA), began monitoring the migration of raptors during the boreal autumn in the city of Mérida. The main objective of this pilot project was to carry out an assessment of the relative richness and abundance of the raptor species that use the Chama River Valley as part of their migration route between the months of October and December.

As a counting station, we used the roof of a 15 m high building northeast of the city (08 ° 35'29 "N; 71 ° 08'38" W) with a 360 ° view of the Chama River Valley (Fig 1). This station is baptized with

Figure 1. **View of the Chama River Valley from the Cinco Águilas Blancas raptor observation and counting station in the city of Mérida, Mérida State, Venezuela. (A) northeast direction, (B) southwest direction. Photos © Luis A. Saavedra**

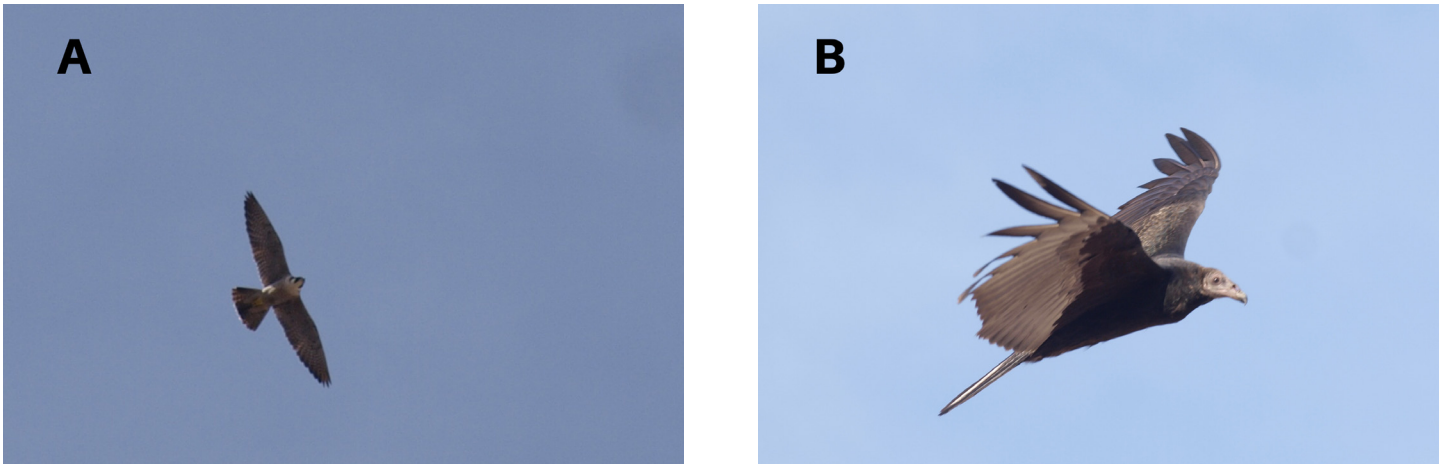


Figure 2. **Some species reported at the Cinco Águilas Blancas Raptor Observation and Counting Station; (A) Peregrine Falcon (*Falco peregrinus*) and (B) Turkey Vulture (*Cathartes aura*). Photo (A) © Luis A. Saavedra, Photo (B) © María Escalona-Cruz**

the name of "Cinco Águilas Blancas," honoring a legend of indigenous origin from the Andes of Merida (Rodríguez 2017). As guidelines for data collection, the protocols established by the Hawk Migration Association of North America (HMANA 2006) were followed. During the counts, two observers were present who worked as a team to carry out the tasks of identification, counting, recording the data on field sheets, and photography. The data collected included species, number of individuals, flight direction, and minutes of observation. Every hour, environmental data such as temperature (°C), as well as wind speed and direction, cloud cover, and precipitation were collected, according to the criteria established in HMANA protocol I. The monitoring was carried out in the afternoon hours almost daily from 11 October to 11 December, with a total of 100 sampling hours.

This pilot station turned out to be an important observation point. 19,762 individuals were counted, representing the following species: Merlin, Peregrine Falcon, Osprey, Turkey Vulture (Fig. 2), Broad-winged Hawk, and also some rare species for the country such as Swainson's Hawk (Fig. 3). We also had evidence this route is used by other raptors that until recently were considered as hypothetical for Venezuela, such as the Mississippi Kite (*Ictinia mississippiensis*) (Hilty, 2003, Ascanio et al., 2017). It is important to highlight that 98% of the individuals were Turkey Vultures, which is the raptor that makes the most use of this route.

Finally, thanks to the support of different organizations, the monitoring of the 2021 autumn raptor migration along this route continues (Fig. 4). This opportunity allows us to collect more relevant data that contributes to the knowledge and conservation of raptors in Venezuela and America. All the information obtained will be analyzed for subsequent publication in peer-reviewed journals, positioning the Cinco Águilas Blancas Rap-

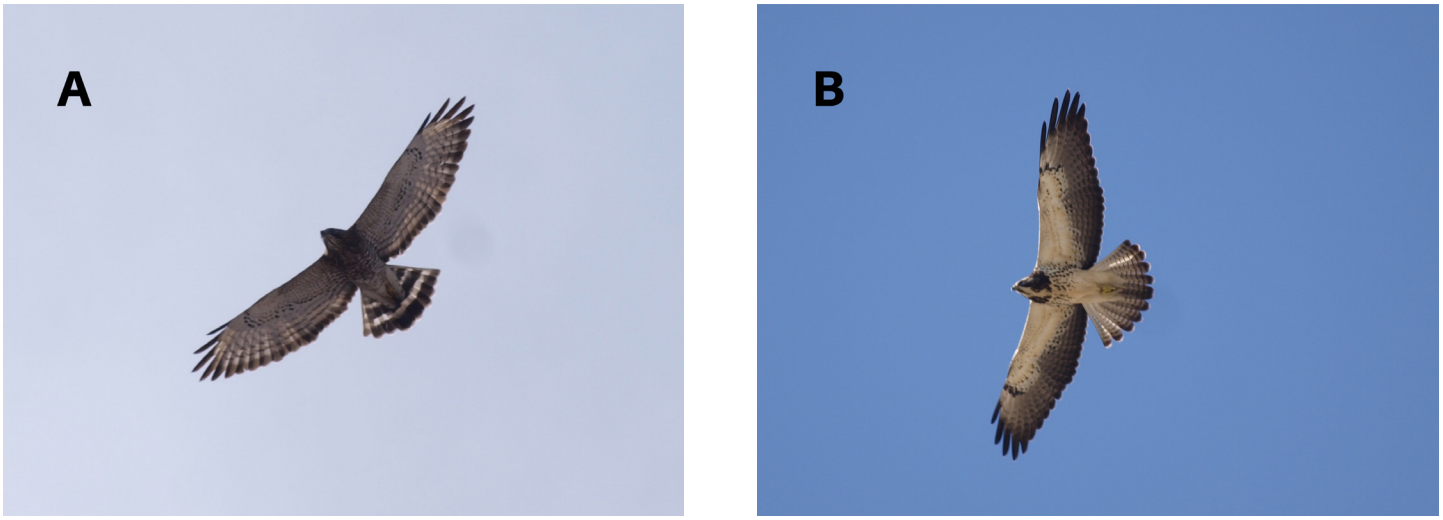


Figure 3. **Some species reported at the Cinco Águilas Blancas Raptor Observation and Counting Station (A) Broad-winged Hawk (*Buteo platypterus*) and (B) Swainson's Hawk (*Buteo swainsoni*). Photos © Luis A. Saavedra**

tor Observation Station as the first monitoring site for birds of prey in Venezuela.

Acknowledgements

We wish to express our gratitude to the Hawk Migration Association of North America (HMANA), Idea Wild, Ave Zona, Birds Caribbean, Bird Conservation Partnership, and Optics for the Tropics whose contributions and support has been essential for the establishment of the Five White Eagles Raptor Observation and Counting Station. We also thank Carla I. Aranguren, John Gerwin, Juana Díaz, Katie O'Brien, Miguel Matta, Jesus Salvador Stanley, and Nuris Cruz who have provided optical equipment and vital logistical support. We also thank Marco Contreras, Luis A. Niño, Valeria Chacón, and Alejandra Sánchez for their participation as volunteer accountants.

Figure 4. **Volunteers in species identification and counting activities at the Cinco Águilas Blancas station during the 2021 fall migration (A) Marco Contreras (B) Luis A. Niño (right) and María Escalona-Cruz (left). Photos © Luis A. Saavedra**

References

Ascanio, D., G. Rodriguez and R. Restall. 2017. Birds of Venezuela. Christopher Helm, London, UK.

Ataroff, M., and L. Sarmiento L. 2004. Las unidades ecológicas de los Andes de Venezuela. Pp. 9–26 en La Marca E., and Soriano P. (eds). Reptiles de Los Andes de Venezuela. Fundación Polar, Codepre-ULA, Fundacite-Mérida, Biogeos, Mérida.

Audemard, M.F. 2003. Geomorphic and geologic evidence of ongoing uplift and deformation in the Mérida Andes, Venezuela. Quaternary International. 101-102, 43–65.

Haines, A.M., M.J McGrady, M.S Martell, B.J. Dayton, M.B. Henke, and W.S. Seegar. 2003. Migration routes and wintering locations of Broad-winged Hawks tracked by satellite telemetry. The Wilson Journal of Ornithology. 115(2): 166-170.

Hawk Migration Association of North America (HMANA). 2006. Data collection protocol. Documento en línea. URL: https://www.hmana.org/data-submission/. Visitado: febrero 2021.

Hedlin, E.M., C.S. Houston, P.D. McLoughlin, M.J. Bechard, M.J Stoffel, D.R. Barber and K.L. Bildstein. 2013. Winter ranges of migratory Turkey Vultures in Venezuela. Journal of Raptor Research. 47(2): 145–152.

Hilty, S.L. 2003. Birds of Venezuela. Princeton University Press, Princeton, USA.

Ralph, C.J., G.R. Geupel, P. Pyle, T.E. Martin, D.F. DeSante and B. Milá. 1996. Manual de métodos de campo para el monitoreo de aves terrestres. Gen. Tech. Rep. PSW-GTR159. Albany, CA: Pacific Southwest Research Station, Forest Service, U.S. Department of Agriculture.

Rodríguez F. 2017. Cuento breve recomendado: Las cinco águilas blancas. Narrativa breve. Documento en línea. URL: https://narrativabreve.com/2015/02/leyenda-cinco-aguilas-blancas-tulio-febres-cordero.html. Visitado: Marzo 2021.

Seeland, H.M., G.J. Niemi, R.R. Regal, A. Peterson and C. Lapin. 2012. Determination of raptor migratory patterns over a large landscape. Journal of Raptor Research. 46(3): 283-295.

Segnini, S., and M.M. Chacón. 2017. Capítulo 2: El Chama: un río andino en riesgo. Pp. 29–58 en Rodríguez-Olarte D. (ed). Ríos en Riesgo de Venezuela. Volumen 1. Colección Recursos hidrobiológicos de Venezuela. Universidad Centroccidental Lisandro Alvarado (UCLA). Barquisimeto, Lara, Venezuela.

Silva, G.A. 1999. Análisis hidrográfico e hipsométrico de la cuenca alta y media del río Chama, estado Mérida, Venezuela. Revista. Geográfica Venezolana. 40: 9–41.

* * *

Conversations from the Field: Interview with Doctor Paula L. Enríquez

By **David Ricardo Rodríguez-Villamil[1]**
[1]Grupo de Ornitología de la Universidad Pedagógica Nacional (UPN-O).
E-mail: bionaturaldavid@gmail.com

Establishing dialogues with people who have worked for the conservation of biodiversity generates enormous motivation for those of us who are just starting out on these social and investigative processes, especially when we become familiar with their experiences and the challenges of working with Neotropical raptors. There is no doubt that raptors are faced with various anthropic pressures that make them vulnerable and at risk of extinction. An example of this are the nocturnal raptors (owls), which for many people are considered birds of bad omen and, therefore, are subjected to persecution due to cultural and social conflicts, which put their lives at risk.

In this issue of *Spizaetus: the Neotropical Raptor Network Newsletter*, we want to address some questions about the ecological and cultural importance of Neotropical owls together with Dr. Paula L. Enríquez, who is considered one of the most dedicated researchers in the study and conservation of owls in Mexico and in the Neotropics.

Dr. Paula L. Enríquez is a Mexican researcher at the Biodiversity Conservation Department of El Colegio de la Frontera Sur (ECOSUR). She has

Figure 1. **Doctor Paula L. Enríquez holding a *Megascops trichopsis*. Photo © Paula Rangel**

spent more than 25 years studying owls, mainly in Mexico, Costa Rica, and Colombia. She has studied at least 15 species of Strigiformes and has worked to motivate students in the study and conservation of these nocturnal birds.

In 2011, within the framework of the IX Neotropical Ornithology Congress held in Cusco (Peru), Dr. Paula L. Enríquez organized the "1st Symposium on Neotropical Owls: State of knowledge, distribution and conservation," where the idea of publishing a book about owls in the Neotropics was born. In 2015, this initiative was reflected in the publication of the book "Neotropical Owls: Diversity and Conservation" with the collaboration of researchers from 19 countries. Its English version was published by the Editorial Springer in 2017 (Dr. Paula will tell us later how this project was carried out).

Likewise, she organized the II and III Neotropical Owls Symposium within the framework of the IV Congress of Neotropical Raptors and the XI Neotropical Congress of Ornithology, both held in Costa Rica in 2016 and 2019, respectively.

In 2019 she was recognized with a Champion of the Owls Award in Houston (USA) during the International Festival of the Owls, which has a "World Owl Hall of Fame" whose purpose is to give public recognition to owls and to the people who have done great things to make this world a better place for them. The Champion of the Owls Award is given to individuals who have had a broad geographic impact, generally at least across the continent, on owls in multiple fields such as conservation, science, law, education, or rehabilitation throughout their life (with a history of 20 years or more of working with owls).

Recently, together with Colombian researchers Sergio Chaparro Herrera and Andrea Lopera, in 2021 she published the book: Owls of Colombia: Illustrated Guide, which will undoubtedly serve as a reference for many of those interested in knowing and studying the owls of that country.

Next, Dr. Paula L. Enríquez will share her opinion regarding the following questions:

David Ricardo Rodríguez-Villamil (DR): *Why were you interested in studying owls?*

Dra. Paula L. Enríquez (PE): Birds are among the best known vertebrates, and studying them has allowed us to understand many ecological patterns and questions of nature. However, within birds, nocturnal birds are the least studied and perhaps the least understood. Of course, they are wonderful birds, and within the nocturnal birds we have the Strigiformes (owls) and the Caprimulgiformes (i.e. nightjars, nighthawks). Ornithologists generally study daytime birds, but a few of us are interested in nocturnal ones. I became interested in studying owls because there are many knowledge gaps about this group, mainly in tropical environments. Owls are nocturnal

birds of prey that fulfill important functions in ecosystems by being predators and keeping their prey populations at low densities. Studies with them have allowed us to understand population dynamics and an important mechanism in nature such as predation.

DR: *What are the main characteristics that differentiate owls from other raptors?*

PE: The morphological characteristics of owls which differentiate them from other birds are that they have eyes directed forward like we do. They are the only birds with this characteristic, so their vision is stereoscopic, that is, they see a single image in three dimensions in relief and depth. They also have large eyes and their ears are very well developed. The eyes have evolved to be able to see at low intensities of light, while they can hear at low frequencies of sound. This allows them to hunt successfully at night because most species are nocturnal or crepuscular.

The ears in some species are asymmetrical, meaning the right ear is higher than the left, and they have large openings, which helps them to determine with great accuracy the origin of their prey. Also, their eyes are fixed so they can move or turn their head 270 ° for greater visibility. This is possible because their bone structure and their circulatory system have adapted to support their heads that are large in proportion to their bodies. Another important characteristic is that its flight is silent, its plumage is so soft and the structures of the feathers so particular that they avoid making noise when flying like other birds. So all of these evolutionary adaptations have allowed them to survive in primarily nocturnal environments, making them a unique group.

DR: *There is a popular saying that says: when the owl sings, the Indian dies. How true is this situation?*

PE: The popular saying in Mexico says "when the owl sings, the Indian dies, it will not be true, but it happens." For this reason in many towns, owls are seen as birds of ill omen or bad luck. "If an owl comes to sing near your window or near your house, it indicates that something bad will happen, and it is better to kill it before it sings." And if by coincidence something bad happens, they associate it with the owl that came to warn them. This association of owls and death is deeply ingrained in various Mesoamerican cultures.

DR: *Where do owls live?*

PE: Owls and barn owls live in virtually every ecosystem, from hot deserts, to cold tundras, and humid jungles. They also live at different elevations, from sea level to mountain forests or moors at more than 4000 m.a.s.l. They are not found in Antarcica and some Oceanic islands.

DR: *Are there differences between owls of the northern hemisphere, southern hemisphere and owls of the neotropics?*

PE: There are widely distributed species such as Short-eared Owl (*Asio flammeus*), and some migratory species with extended distributions due to this migratory behavior. Each species is adapted to the environment where it lives. Such as the Snowy Owl (*Bubo scandiacus*) that lives in the Arctic tundra, or the Great Gray Owl (*Strix nebulosa*) that lives in the temperate Nearctic forests. However, most owl species are tropical and have restricted ranges. One of the most widely distributed Neotropical species is the Mottled Owl (*Ciccaba* or *Strix virgata*), but other species, like the smaller owls, have very narrow distributions, such as several species of *Megascops* or *Glaucidium.*

DR: *The owls of the tropics and the southern hemisphere are much less studied than those of the northern hemisphere. Why do you think this is?*

PE: I consider that there are several reasons for this. First, because the diversity of owls in the tropics or neotropics is much higher, with approximately 80 species, compared to 19 in North America. Second, most are species with restricted distribution and are from uncommon to rare, this makes their detectability and therefore their study difficult. Third, most are nocturnal species, so entering jungles and forests at night is not easy, especially when studying rare species.

Fourth, financing for owl projects is difficult or very limited, and fifth, the lack of interest by ornithologists to study these species in the Neo-

Figure 2. **A pair of *Megascops barbarus* photographed in Mexico. Photo © José Luis Rangel**

tropics; although in recent years this interest has been increasing. But it is a challenge to study them, it is not easy.

DR: *What has been the biggest challenge in organizing the Neotropical Owl Symposium?*
PE: The biggest challenge is the financial support for the participants.

DR: *Tell us about your experience studying the Bearded Screech-Owl* (Megascops barbarus).
PE: Studying owls is a challenge, they are generally rare species, most of them with nocturnal activity, and many species live in jungle or wooded environments, which makes it difficult to detect and even hear them. The Bearded Owl is an endemic species and very restricted to the highlands of Guatemala in the Cuchumatanes and the highlands of Chiapas. It is a rare species and little biological and ecological information had been generated. In addition, it inhabits humid oak and pine-oak forests, as well as mesophilic forests that are highly threatened by their conversion to environments for agriculture, livestock, or urban areas. Studying it was very interesting because, although I described its nest, I did not record pellets, neither in the nest or at its roost sites, but I was able to analyze the excreta of individuals captured in nets. It is an insectivorous species due to the remains of the prey in its excreta. I was also able to place radio transmitters and estimate their areas of action, although following them at night and finding their daytime roosting places was very difficult in the wooded environments where they live. The experience was unique.

DR: *Why are the Strigiformes so important?*
PE: Owls are predators, that is, they have an interspecific relationship where they capture and hunt animals that are their prey and consume them as food. This predation mechanism is important in ecosystems, as predators keep the density of their prey low. For example, they have been used as biological controllers of pests such as rodents in agroecosystems. In addition, studying their action areas in the temperate forests of the Northwest of North America has also made it possible to define the size of protected natural areas.

DR: *What advice can you give about studing owls?*
PE: Study basic ecological aspects of populations or communities, because we lack this basic information of the species. For example, record their vocalizations in a systematic way to determine patterns of abundance over time or year periods. Associating the records with types of vegetation in a temporary way tells us a lot about the habitat selection of the species. Describe nests or roosting sites, and, if pellets are found, analyze them. It is also possible to record their calls or vocalizations and perform acoustic analysis.

DR: *How was the publication of the book Neotropical Owls: Diversity and Conservation born?*
PE: I had been working with the idea years before. Since the publication I made in 2006: Enríquez,

P.L., D.H. Johnson, & J.L. Rangel-Salazar. 2006. *Taxonomy, distribution and conservation of owls in the Netotropics: a review*. Pp. 254-307. In R. Rodríguez-Estrella (Ed.). *Current Raptor Studies in Mexico*. Centro de Investigaciones Biológicas del Noroeste and CONABIO. Mexico, D.F. After this publication, I thought it would be better to do the analysis with owl experts in their countries or regions to have first-hand information on the situation of these birds of prey. I began to develop the project in 2006, which took me nine years to complete. Because the book was published online in 2015, during the first Symposium I organized in Cusco, I had the idea of meeting more colleagues that would help fill the gaps for countries I still needed information for. But there were already colleagues invovled in the project from Argentina, Ana Trejo and Susana Bó, from Ecuador, Juan Freile, from Brazil, José Carlos Motta Jr, and from Chile, Ricardo Figueroa and Sergio Alvarado, who participated in the 1st Symposium. I met some colleagues at the Neotropical Raptor Congress that was held in Iguazú, Argentina in June 2006.

DR: *Finally, to end this interview, tell us what is the most unforgettable thing that has happened to you studying owls?*

PE: I consider that when you like what you do and enjoy it a lot, it seems that each situation is unforgettable when studying them, and above all of great privilege. I can tell you an anecdote trying to capture the Spectacled Owl (*Pulstrix perspicillata*) at La Selva Biological Station in Sarapiquí, Costa Rica. The Spectacled Owl is the largest owl in the Neotropical area, measuring approximately 50 cm and weighing more than one kilo. The project was to determine their movements and areas of action, as well as their habitat use. For this we had to capture individuals to place radio transmitters on them. We already had some experience catching some species of owls, but not such a large species. I decided that using two sampling techniques would work, mist nets and luring individuals into the net with a bal-chatri trap (we included a hen in the trap). We had to do this outside the reserve in an area of pasture and secondary vegetation, since we could not bring the hen to the station. We knew where an individual was who had a nest in a tree on the edge of that pasture and adjacent to the reserve. To our surprise, both techniques worked, but the owl caught us off guard and although it fell into the net, it could not be caught and flew off in a majestic and impressive way. We tried for three more months to capture them but without any success.

* * *

Of Interest...

Grants

INTERNATIONAL ORNITHOLOGICAL CONGRESS
https://iocongress2022.com/

Full costs of virtual attendance for the International Congress in Durban August 2022 will be covered for 75 students (Masters or PhD) or early career researchers based in low income countries. You must first have a contribution to the IO Congress accepted (either virtual poster or talk). Please register and submit your abstract to the congress https://iocongress2022.com/congress-contributions/. Please then email Will Cresswell, Chair of the Scientific Program Committee wrlc@st-and.ac.uk when your contribution has been accepted to apply.

NEOTROPICAL GRASSLAND CONSERVANCY
http://conservegrassland.org/

The Neotropical Grassland Conservancy helps launch careers in conservation by providing scholarships and equipment to students and scientists working in grassland habitats in Central and South America. They offer grants for research, conservation, and equipment (GPS, binoculars, etc.). There are several grants available with different amounts and deadlines.

NEOTROPICAL BIRD CLUB
http://www.neotropicalbirdclub.org/conservation/conservation-fund/conservation-fund-guidelines/

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

Resources

CELEBRATE URBAN BIRDS
https://celebrateurbanbirds.org/resources/resources-for-latin-america-el-caribe/

We share some resources from the Cornell Lab of Ornithology, and other organizations, institutions and groups that collaborate with them. They offer resources and their links for free download: 1) packages of educational materials, field guides, manuals, books, and more, 2) educational materials from Colombia, 3) resources to use eBird and much more.