Spizaetus

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Large raptors in Colombia

Spizaetus tyrannnus and Micrastur Semitorquatus in Mexico

Falco sparverius and *Morphnus guianensis* in Venezuela

Manual of good practices for observing raptors

Spizaetus

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Harpia harpyja photographed in Darien, Panama © Kike Arnal

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Red de Rapaces Neotropicales

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Reports on 5 large raptors in the department of Norte de Santander, Colombia

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Large birds of prey, a term that groups together the largest eagles in terms of body size, as opposed to medium-sized birds of prey such as those of the genus *Accipiter* or *Buteo*, in Colombia, they are mainly represented by the Accipitridae family, which includes large genera such as *Morphnus, Harpy* and *Spizaetus* (Márquez et al. 2005). Due to their large body size, trophic specialization and low population densities, these species, particularly the large eagles associated with forest environments, are among the most vulnerable to extinction (Márquez et al. 2005).

Additionally, large birds of prey exhibit low reproductive rates, extensive spatial requirements, and high sensitivity to habitat loss and fragmentation (Márquez et al. 2005). These ecological characteristics make them important biological indicators of ecosystem health, as their absence can reflect significant alterations in their habitats. For this reason, they have been widely used as tools for evaluating and monitoring conservation efforts in various ecosystems (Burnham et al. 1989, Márquez et al. 2005).

In the department of Norte de Santander, knowledge about large raptors is still limited, with very few specific studies on their distribution and population status in the region, which has generated a significant information gap. However, in recent years several studies have been carried out focused on the general knowledge of the department's avifauna (Peña et al. 2022, Socolar & Peña 2022, Peña et al. 2024a, Peña et al. 2024b, Donegan et al. 2025, Peña et al. 2025, Peña & Peña 2025), which have stimulated the exploration of new, previously little-studied locations.

Historically, access to several areas of the department has been restricted by the armed conflict, especially in regions such as El Sarare, the lower part of the Tamá National Natural Park, and the upper and lower sectors of the Catatumbo, including the Catatumbo Barí National Natural Park. In these territories, the presence of large birds of prey had been scarcely documented or even considered unknown.

However, recent explorations have yielded valuable records, such as those of the Harpy Eagle (*Harpia harpyja*), which extend the known distribution of the species towards northeastern Colombia (Angarita-Yanes et al. 2025).

At the national level, the Harpy Eagle is categorized as Near Threatened (NT) (Renjifo et al. 2016), included in Appendix I of CITES (UNEP-WCMC 2025), and at the global level it is classified as Vulnerable (VU) by the IUCN (BirdLife International 2021). Meanwhile, the Black-and-chestnut Eagle (*Spizaetus isidori*) is listed in Colombia as Endangered (EN) (Renjifo et al. 2014)

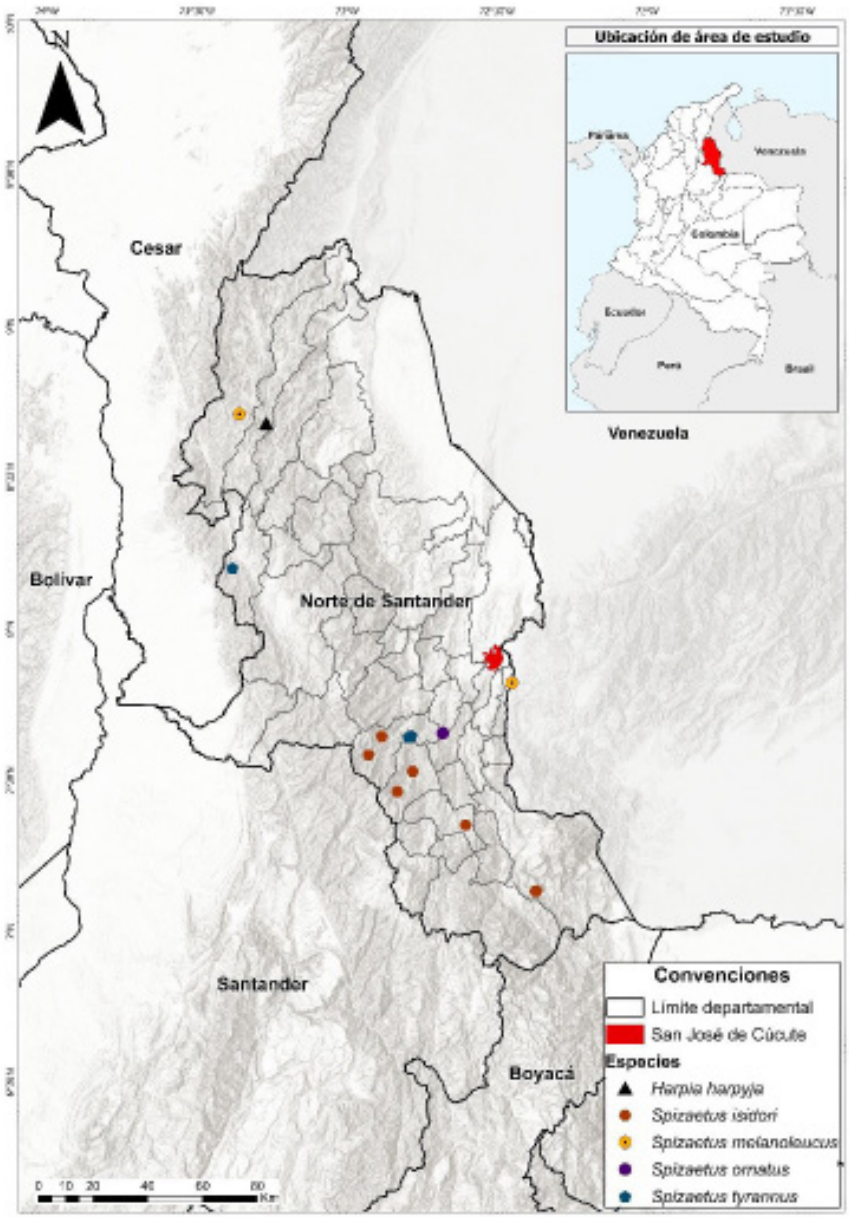

Figure 1. **Map of the Norte de Santander department showing the locations of new records of five species of large birds of prey from the Accipitridae family: harpy eagle (*Harpia harpyja)* (black triangle), Black-and-chestnut eagle (*Spizaetus isidori)* (orange hexagon), Black-and-white hawk-eagle (*Spizaetus melanoleucus)* (yellow circle), Ornate hawk-eagle Ornate Spizaetus (purple circle) and Black hawk-eagle (*Spizaetus tyrannus)* (blue pentagon). The upper right box indicates the location of the study area in the national context.**

and maintains the same category globally, in addition to being included in Appendix II of CITES (UNEP-WCMC 2025).

The Ornate hawk-eagle (*Spizaetus ornatus*) is not listed in any national threat category, but globally it is classified as Near Threatened (NT) by the IUCN (BirdLife International 2022), in addition to being included in Appendix II of CITES (UNEP-WCMC 2025). In contrast, the Black hawk-eagle (*Spizaetus tyrannus*) and Black-and-white hawk-eagle (*Spizaetus melanoleucus*) are not currently listed in national or global threat categories, although both species are included in Appendix II of CITES (UNEP-WCMC 2025).

As a result of these recent explorations, relevant data have been obtained that contribute to the knowledge of the avifauna of Norte de Santander. The particular interest in large raptors stems not only from the historical scarcity of information, but also from the need to document records that have been omitted from previous studies, despite the availability of evidence such as photographs, direct observations, audio recordings, and reports from local communities. These records are fundamental to understanding the assemblage and dynamics of these species in the region. This paper presents documented records of large raptors for the department of Norte de Santander, including reports of the Harpy eagle, the Black-and-chestnut Eagle, the Black Hawk-Eagle (*Spizaetus tyrannus*) and Black-and-White Hawk-Eagle, the first confirmed records, and the Ornate Hawk-Eagle (Fig. 1; Table 1).

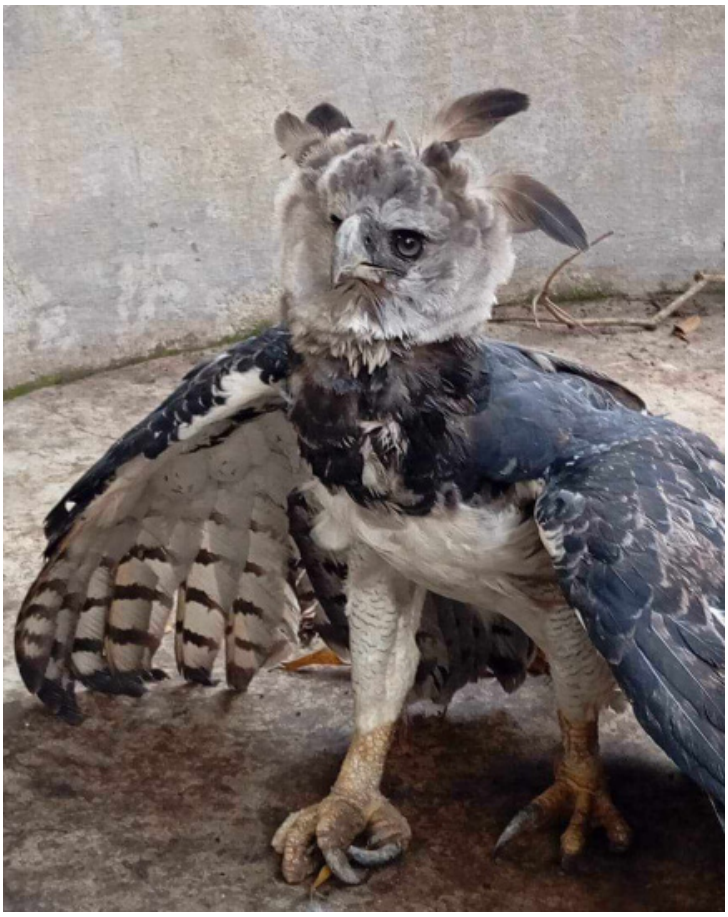

Figure 2. **Photographic record of an adult female Harpy Eagle (*Harpia harpyja*) found in the village of La Trinidad, municipality of Convención, department of Norte de Santander, Colombia. Photograph: residents of the village of La Trinidad.**

Harpy Eagle

The Harpy Eagle is the largest raptor in the Neotropics and one of the most powerful birds of prey in the world, distinguished by its imposing size and predatory capabilities (Hilty & Brown 1986, Vargas et al. 2006). The species is mainly distributed in lowlands, from sea level to approximately 800 m a.s.l., with occasional records at higher elevations, reaching 1,600 m a.s.l. (Hilty & Brown 2001). In Colombia, it has been reported in

northern Chocó, the upper and middle Magdalena Valley, the Amazon, Vaupés, and parts of the Meta Department (Hilty & Brown 2001), as well as indirect evidence associated with individuals hunted in the Amazon region (Echeverry-Galvis et al. 2016a).

Recently, Angarita-Yanes et al. (2025) documented the first formal record of the species for the department of Norte de Santander, associated with a negative human-wildlife interaction event in the rural area of the La Trinidad district. This finding is of significant importance, as it extends the known distribution of the harpy eagle into northeastern Colombia and suggests the possible existence of a population biogeographically linked to those of neighboring Venezuela (Angarita-Yanes et al. 2025).

Black-and-Chestnut Eagle

The Black-and-chestnut eagle is distributed along the Andes mountain range in Colombia (Ferguson-Lees and Christie 2001) and mainly inhabits large humid forests in mountainous areas, between 150 and 3,300 m above sea level (Flórez et al. 2004, Echeverry-Galvis et al. 2016b).

The first records of the species for the department of Norte de Santander date back to 2002, collected under the number IAvH-A-12091, in areas influenced by the Sisavita Regional Natural Park (Córdoba-Córdoba et al. 2008). Subsequently, approximately two decades later, the species was reported again through visual sightings in this same area, suggesting the local persistence of the species in the region.

Additionally, negative human-wildlife interaction events have been documented. In August 2016, in the rural area of Pamplona, La Lejía sector, a juvenile individual was found stuffed and "crucified" on a farm, presumably as a response to attacks on domestic chickens, constituting a clear case of direct persecution of the species (Fig. 2A).

During 2021, several additional records were obtained, primarily visual observations. In January, an adult individual was reported in the Santa Inés highlands, municipality of Toledo, exhibiting internal injuries apparently associated with a pulmonary disease. The individual was turned over to the environmental authority and subsequently died (Fig. 3B).

In February of the same year, community members reported the presence of two adult individuals perched in trees near the site where the sick specimen had been found. In July, in the Castro sector, municipality of Arboledas, a recording was obtained of a juvenile individual vocalizing alongside its parents in a nest, near the Santurbán Regional Natural Park (see ML362051051 in Table 1). Finally, in August, in the San Miguel village, also in Arboledas, photographic records were obtained of a juvenile individual (Fig. 3C) and of an adult near a farm.

Figure 3. **Photographic records of *Spizaetus isidori*. A. Juvenile specimen found desiccated; the event would have occurred several years before the date of the find and may have been associated with attacks by the bird on domestic chickens. Photo © Alberto Peña. B. Adult specimen with internal wounds associated with pulmonary disease, whose death was later confirmed. Photo © Luis Felipe Lizcano, C. Juvenile specimen seen near a farm. Photo © Leonardo López.**

Black Hawk-eagle

The Black hawk-eagle in Colombia is mainly distributed in lowlands, where it is usually found below 500 m a.s.l. and can be relatively abundant (Hilty & Brown 1986). However, there are altitudinal records that reach at least 1,300–1,500 m a.s.l. (Acevedo-Charry et al. 2015). The species inhabits tropical dry and humid forests, generally associated with mosaic landscapes with patches of forest, and often frequents open or partially disturbed areas (Márquez et al. 2005).

In the department of Norte de Santander, records of the Black Hawk-Eagle come primarily from premontane vegetation zones. Compared to the other eagles included in this study, this species appears to be observed more frequently in the region, suggesting a relatively higher detectability. The first documented records for the department date back to 1911, corresponding to an individual preserved in the bird collection of the Field Museum of Natural History (code 43210), collected near the city of Cúcuta (Grant et al. 2024). Subsequently, an individual was collected in 1948 in the village of Petrólea, 7 km east of the Sardinata River, in the municipality of Tibú (Márquez et al. 2005).

Subsequently, in 2018, two observations were made of a pair flying over a rural area of the municipality of Arboledas. In 2021, the species was again recorded in rural areas of the same municipality through visual observations (Fig. 3). Additionally, in 2022, an acoustic recording was obtained of continuous vocalization in a rural area of the municipality of Ocaña, near the Torcoroma Nature Reserve. These records contribute to the knowledge of the local distribution of the Black hawk-eagle and confirm its presence in different areas of northeastern Colombia, highlight-

ing the importance of premontane environments for the species in the department. This pattern agrees with previous reports from the foothills of the Oriental mountain range, including records in the department of Arauca (Acevedo-Charry et al. 2015).

Black-and-White Hawk-Eagle

It has been considered a rare species with a local distribution in Colombia, with records mainly up to 1,700 m a.s.l., and only exceptionally at higher altitudes, reaching 2,900 m a.s.l. (Hilty & Brown 1986, Márquez et al. 2005). In the northeastern region of the country, the species was known only from nearby records on both flanks of the Serranía de Perijá and in the state of Táchira, Venezuela (eBird 2024).

The first documented sighting of the Black-and-White Hawk-Eagle in the department of Norte de Santander was recorded on 23 May 2020. An injured individual, presumably from a collision with power lines, was photographed in the La Parada sector, municipality of Villa del Rosario, at approximately 400 m above sea level (Fig. 5). Subsequently, on 20 May 2024, a second injured individual was rescued by local residents in the Santa Inés village, municipality of El Carmen, at approximately 1,000 m above sea level.

In both cases, the specimens were cared for by the Regional Autonomous Corporation of the Northeastern Border (CORPONOR) for their recovery. However, the individual recorded in the Santa Inés village did not survive (Angarita-

Figura 4. **Adult *Spizaetus tyrannus* in flight, recorded in the company of another adult (not visible in the image), near a farm in the municipality of Arboledas, Norte de Santander. Photo © Alberto Peña.**

Yanes et al. 2025). These records constitute the first confirmed reports of the Black-and-White Hawk-Eagle for the department and expand its known distribution in northeastern Colombia, also highlighting the need to strengthen monitoring and management efforts for the species in the region.

Ornate Hawk-Eagle

It is a rare and poorly detectable Neotropical raptor, and is considered an apex predator in well-preserved tropical forests (Brown 1976; Ferguson-Lees & Christie 2005; Bierregaard Jr. et al. 2018). It is primarily associated with humid, rain, and cloud forests, although it has also been recorded in mature secondary forests and landscapes with continuous tree cover (Iliff 2020). The species ranges from lowlands to approximately 1,200–1,800 m a.s.l., with occasional records at higher elevations (Stiles & Skutch 1989; Iliff 2020).

In Colombia, records of the Ornate Hawk-Eagle are scarce and scattered both temporally and spatially. Documented evidence exists from at least 2006, including recordings obtained in San Agustín (Huila) and deposited in the Macaulay Library (2006), as well as more recent observations in the Valle del Cauca (2022 record). Additionally, the species has been reported in departments such as Caquetá, Putumayo, Vaupés, Risaralda, and Chocó, primarily from observation lists and online databases (Macaulay Library; eBird; pajarear.co). On 18 January 2026, the first documented record of the Ornate hawk-eagle for the department of Norte de Santander was obtained, corresponding to an adult individual re-

Figure 5. **Adult *Spizaetus melanoleucus* individuals. A. Individual rescued after colliding with a power line and subsequently released in the municipality of Villa del Rosario (photograph: Environmental Police, North Santander Section). B. Individual rescued with pellet wounds in a rural area of the municipality of El Carmen. Unfortunately, it did not survive (photograph: residents of the Santa Inés village.**

corded in the Santa Helena village, a rural area of the municipality of Durania (Fig. 6). This record was confirmed by acoustic evidence, and on 21 February of the same year, photographic evidence was obtained, which constitutes the first verifiable report of the species for this region. The finding extends the known distribution of the species northward in the Eastern Cordillera, exceeding the previously documented limits, consistent with the lack of prior records noted by several authors (Ayerbe-Quiñones 2022; McMullan 2023).

Discussion

The five large eagle species reported for the department of Norte de Santander include some of the largest raptors in the Neotropics (Márquez et al. 2005, Córdoba-Córdoba et al. 2008). This group is widely recognized as an indicator of the conservation status of ecosystems, due to its high sensitivity to habitat loss and fragmentation, as well as its high trophic requirements, which include large prey and extensive areas of well-preserved forest (Márquez et al. 2005).

In general, large eagles depend on extensive areas of continuous forest. However, landscape configuration and connectivity emerge as determining factors for key ecological processes such as reproduction, territory establishment, and the dispersal of juveniles (Márquez et al. 2005, Córdoba-Córdoba et al. 2008, Acevedo-Charry et al. 2015). Nevertheless, the Black hawk-eagle exhibits greater tolerance to disturbed environments, being able to inhabit fragmented landscapes, which suggests greater ecological plasticity in the face of habitat transformation (Acevedo-Charry et al. 2015). Consequently, it is considered the species of the genus *Spizaetus* with the widest

Figure 6. **Adult *Spizaetus ornatus* recorded in the municipality of Durania, Norte de Santander. Photo © Oswaldo Cruz.**

distribution and greater relative abundance compared to its congeners (Hilty & Brown 1986).

Despite the ecological importance of these species, knowledge about birds of prey in the department of Norte de Santander and the northeastern region of Colombia remains incomplete. The lack of basic information on their distribution and ecology can contribute to human-wildlife conflicts, such as those documented in this study (Table 1), reflecting the limited local knowledge about these species. In this context, the implementation of environmental education programs is essential. However, factors such as the armed conflict in regions like Catatumbo and El Sarare have historically limited community work and research efforts in these areas.

Some of the records presented here, including reproductive evidence such as in the case of the Black-and-chestnut eagle, highlight the importance of the Norte de Santander department as a key area for the conservation of large raptors. Consequently, a more comprehensive assessment of local populations is needed to guide the development of a regional management plan, especially considering that the Black-and-chestnut eagle is categorized as Endangered (EN) both nationally and globally.

The Harpy eagle sightings presented by Angarita-Yanes et al. (2025), along with those of the Ornate Hawk-Eagle and the Black-and-White Hawk-Eagle documented in this study, constitute novel reports for the department, as there were no previous documented records of any of the three species in this region. The historical absence of reports does not necessarily reflect a real absence of these raptors, but is probably associated with their low detectability, cryptic behavior, and broad spatial requirements—characteristics common in large forest raptors. In this context, the future presence of the Crested Eagle (*Morphnus guianensis*) cannot be ruled out of the department, given that there are historical records of the species on the Venezuelan side of the Catatumbo (Gomes & Sanaiotti 2015), a biogeographically continuous area with northern Norte de Santander. If confirmed, Norte de Santander would then harbor all the largest raptor species reported for Colombia, reinforcing the importance of this region as a priority area for their conservation.

The Ornate hawk-eagle and the Black-and-white hawk-eagle have been reported in adjacent departments and in regions with similar ecological conditions, suggesting that their presence in the study area is biogeographically plausible (A. Peña, personal communication). In this context, the new records expand our knowledge of the regional distribution of the Harpy eagle, the Ornate hawk-eagle, and the Black-and-white hawk-eagle. These findings provide evidence suggesting a continuity of functional habitat between the eastern slopes of the Oriental mountain range

Table 1. **Records of the five species of large raptors documented in the department of Norte de Santander.**

Species	Coordinates	Record Type	Date	Site	Age	Personal Commentaries
Harpia harpyja	8°40'53.2"N	photographic	24-Apr-24	Comunidad de la Trinidad Convención	1 adult	The bird was found with wounds to its right wing, presumably caused by gunfire from local residents after it was observed preying on a cat and a goat on private property. The bird did not survive. This event is classified as a case of negative human-wildlife interaction.
Spizaetus isidori	7°21'10.5"N	photographic	11-Aug-16	La Legía, Pamplona	1 juvenile	A juvenile was found dessicated; the event is believed to have occurred several years prior to the discovery. According to local information, the incident may have been related to attacks by the bird on domestic chickens. The record was obtained at 2,600 meters above sea level. The event is classified as a negative human-wildlife interaction.
Spizaetus isidori	7°08'07.1"N	photographic	29-Jan-21	Alto de Santa Inés, Toledo	1 adult	An adult with internal injuries associated with lung disease. The specimen was turned over to the environmental authority (CORPONOR); its death was later confirmed.
Spizaetus isidori	7°08'01.7"N	fotográfico avistamiento	7-Feb-21	Alto de Santa Inés, Toledo	2 adults	Community reports indicate the presence of two adult individuals perched in trees, in the vicinity of the area where the sick individual was previously found.
Spizaetus isidori	7°38'45.9"N	sound recording (call)	18-Jul-21	Sector de Castro, Arboledas	1 juvenile	Vocalization of a juvenile individual associated with interaction with its parents in a nest, recorded near the Santurbán Regional Natural Park (Macaulay Library: ML362051051).(https://macaulaylibrary.org/asset/362051051)
Spizaetus isidori	7°35'06.7"N	photographic	30-Aug-21	San Miguel, Arboledas	1 juvenile	Record of a juvenile individual in the vicinity of a farm.

Table 1 **Records of the five species of large raptors documented in the department of Norte de Santander.** ***Continued)***

Species	Coordinates	Record Type	Date	Site	Age	Personal Commentaries
Spizaetus isidori	7°35'06.7"N 72°55'42.7"W	Sighting	4-Sep-21	San Miguel, Arboledas	1 adult	Adult observed by a local informant, who described morphological characteristics compatible with the species; the specimen could correspond to one of the parents of the juvenile recorded in the same locality.
Spizaetus isidori	7°27'50.5"N 72°49'59.6"W	Sighting	10-May-22	Cucutilla, Parque Regional Natural Sisavita.	1 adult	Adult observed by a local informant, described as a dark-colored specimen, recorded near the Sisavita Regional Natural Park.
Spizaetus isidori	7°31'49.8"N 72°46'57.1"W	Sighting	5-Nov-23	Cucutilla, cercanías al casco urbano	1 juvenile	An individual observed by local residents, described as a juvenile white-crested eagle, was reported attacking domestic chickens on a farm near the town. The event is classified as a negative human-wildlife interaction.
Spizaetus tyrannus	7°38'56.8"N 72°47'11.5"W	Photographic	18-Oct-18	Zona rural de Arboledas	2 adults	Two adults observed in flight and vocalizing.
Spizaetus tyrannus	7°38'44.1"N 72°47'45.2"W	Photographic	18-Aug-21	Zona rural de Arboledas	1 adult	An adult observed perched in a fragmented habitat area.
Spizaetus tyrannus	8°12'11.0"N 73°22'48.1"W	Auditory	10-Apr-22	Cercanías a la reserva Torcoroma, Ocaña	1 adult	Adult recorded vocalizing inside the forest.
Spizaetus melanoleucus	7°49'25.1"N 72°27'12.5"W	Photographic	23-May-20	La parada, villa del rosario	1 adult	Record of an individual rescued after colliding with an electrical network and subsequently released, in the municipality of Villa del Rosario.
Spizaetus melanoleucus	8°42'44.6"N 73°21'25.3"W	Photographic	20-May-24	Vereda Santa Inés zona rural del municipio El Carmen	1 adult	A possible case of negative human-wildlife interaction. The bird was rescued by residents of the Santa Inés village, a rural area in the municipality of El Carmen, in a collaborative effort with the authors of this report and the local bird-keeping community. The bird did not survive the rescue operation.
Spizaetus ornatus	7°39'25.8"N 72°40'57.9"W	Photographic	18-Jan-26	Vereda Santa Helena, zona rural del municipio de Durania	1 adult	An adult observed perched in a patch of forest, around a farm, where fragmented habitat can be seen.

and other previously documented areas. They also highlight the importance of functional landscape connectivity in the department, particularly in forest fragments and potential corridors that facilitate the movement and dispersal of species. Knowledge of the fauna of the Catatumbo and El Sarare regions remains limited. However, the records presented here demonstrate the potential of these regions to harbor species of great ecological and conservation value, underscoring the need to strengthen scientific research and environmental management and education strategies in northeastern Colombia.

Acknowledgments

We extend our special thanks to the rural communities of Norte de Santander who live in the areas where the large raptors included in this study were reported. In particular, we thank the residents of the Santa Inés hamlet (municipality of El Carmen) and the La Trinidad hamlet (municipality of Convención), who contributed significantly by providing photographic evidence and information related to various sightings.

We also give special recognition to Andrés Jumí, whose curiosity and interest in learning about the birdlife on his property made the recording of sightings of *Spizaetus ornatus* possible, which constitutes the first report with documented evidence for the department. We also thank Leonardo López and Luis Felipe Lizcano for their photographic contributions of individual *Spizaetus isidori*, and to the Environmental Police of Norte de Santander for their support in the rescue and documentation of affected individuals.

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First documented record of a Black Hawk-Eagle (*Spizaetus tyrannus*) in the state of Queretaro, Mexico; Notes on its distribution and conservation

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The Black-Hawk-eagle (*Spizaetus tyrannus*) is one of three Neotropical eagle species of the genus *Spizaetus* found in Mexico (Clark and Schmitt 2017). Elegant and dignified in appearance, it is a relatively large raptor with an erect crest, broad, rounded wings, a long tail, and feathered tarsi. It is an apex predator that typically feeds on arboreal mammals, reptiles, and medium-sized birds (Whitacre et al. 2012).

Its diet includes squirrels (*Sciurus* sp.), opossums (*Didelphis* sp.), coatis (*Nasua* sp.), and porcupines (*Sphiggurus* spp.); birds such as chachalacas (*Ortalis* sp.) and toucans (*Ramphastos* sp.); reptiles such as arboreal snakes (*Oxybelis* sp.) and common iguana (*Iguana iguana*), among others (Whitacre et al. 2012, Rivas-Fuenzalida et al. 2025a).

The Black-Hawk-Eagle has a wide distribution in the tropical forests of the Americas. It inhabits lowland and mid-elevation tropical forests from central Mexico to northern Argentina (Rivas-Fuenzalida et al. 2025a). Within its range, it is considered uncommon to relatively common, and is the most frequently recorded Neotropical eagle of the genus *Spizaetus* in Mexico (eBird 2025).

Despite being more abundant than the Ornate Hawk-Eagle (*Spizaetus ornatus*) and the Black-and-white Hawk-Eagle (*Spizaetus melanoleucus*), the Black-Hawk-eagle faces significant threats to its conservation, to the point that Mexican environmental laws list it as an "endangered" species (Íñigo-Elías, E. 2000, SEMARNAT 2019), in addition to being considered one of the five pri-

ority Neotropical raptor species for conservation in Mexico (SEMARNAT 2018).

In Mexico, the known distribution of the Black-Hawk-Eagle along the Atlantic slope (0-1200 m above sea level), includes the states of Tamaulipas, San Luis Potosí, Veracruz, Hidalgo, Puebla, Oaxaca, Chiapas, Tabasco, Campeche, Quintana Roo, and Yucatán. On the Pacific slope, its range includes Nayarit, Jalisco, Guerrero, Oaxaca, and Chiapas (Howell and Webb 1995, Clark and Schmitt 2017, eBird 2025).

In this note, we describe the first documented record of a Black-Hawk-Eagle in the state of Querétaro. This record is notable because it involves a raptor species that is endangered nationally and because it was recorded outside the ecoregion reported for the species. The documented individual died due to human-caused conflict, highlighting the need for attention to coexistence with this priority raptor.

Methods - Record Collection

During surveillance, inspection, training, and community outreach conducted by staff of the Sierra Gorda Biosphere Reserve in Querétaro (RBSG), records of species of interest are collected, particularly priority conservation species (Gibert-Isern and Monroy-Ojeda 2015), species listed under some category of risk (NOM-059-SEMARNAT-2019, SEMARNAT 2019), and/or invasive species. This record was obtained through an interview with a local farmer from the Ejido Ayutla, municipality of Arroyo Seco, Querétaro. The details of the record were obtained from the interviewee's testimony and the collected photographs.

The area of the record corresponds to the northwestern zone of the RBSG in the municipality of Arroyo Seco, Querétaro, in the foothills of the Sierra Madre Oriental mountain range (Fig. 1). It is characterized by a warm semi-arid to warm sub-humid climate, with an average annual rainfall of 600-900 mm. The predominant vegetation is tropical deciduous forest, with riparian forests in the canyons and oak forests in the higher elevations (SEMARNAT-INECC 1998). The RBSG is located at the confluence of the Nearctic and Neotropical biogeographic regions, which, combined with its altitudinal gradient and climatic variation, generates very high beta diversity (SEMARNAT-INECC 1998).

As an additional source of information to that collected in the field, we reviewed the data and records contained in platforms such as eBird (2025) and iNaturalistMX (2025), and available potential distribution maps (Navarro-Sigüenza and Peterson 2007, Navarro-Sigüenza and Gordillo-Martínez 2018) in order to corroborate the relevance of the present record with respect to what is known about the distribution of the species in Mexico.

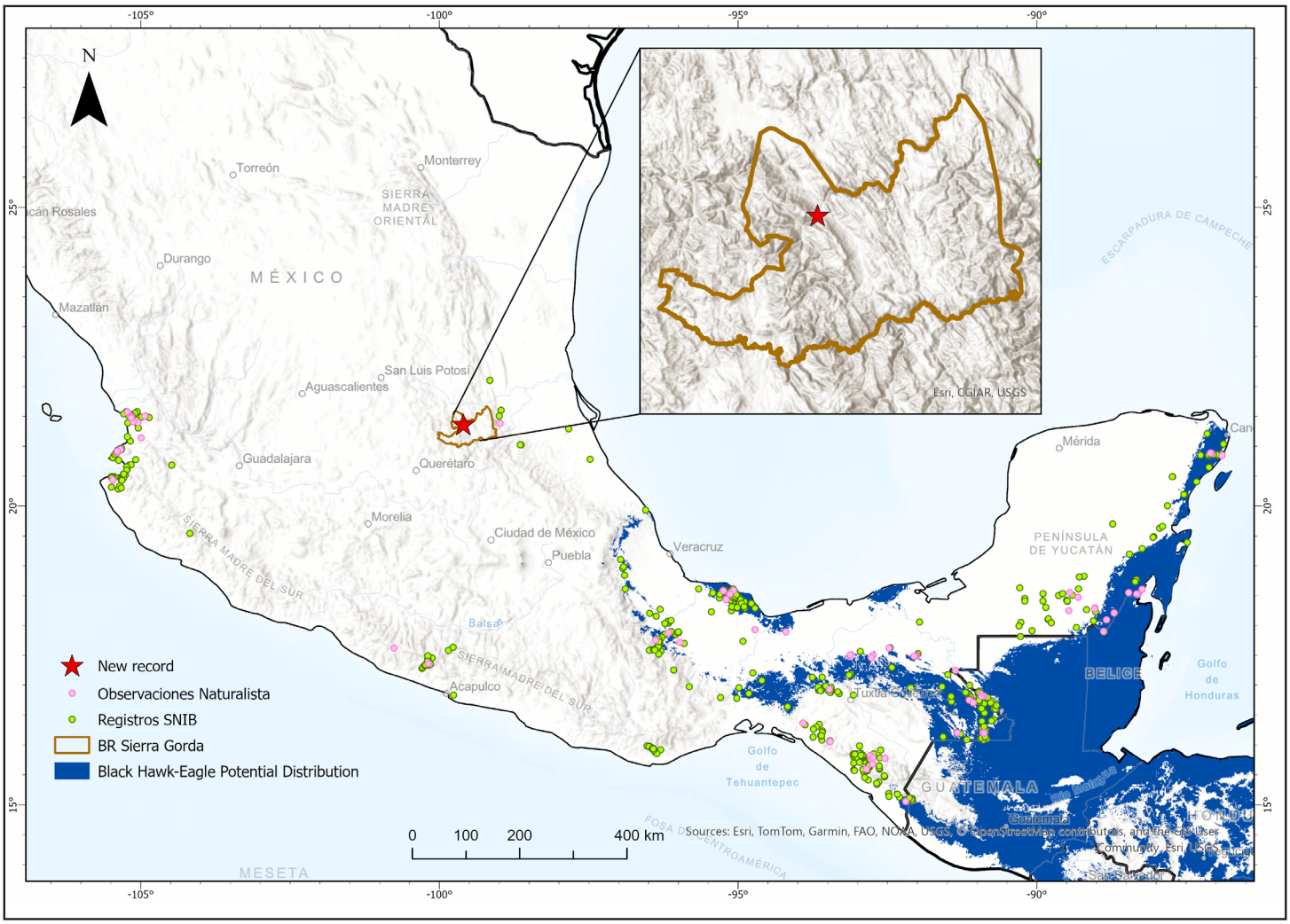

Figura 1. **Distribution of the Black Hawk-eagle (*Spizaetus tyrannus*) in Mexico. The base map is the digital elevation model (Hydro 1K). The potential distribution of the species, based on Navarro-Sigüenza and Gordillo-Martínez (2018), is shown in blue. The red star indicates our record within the Sierra Gorda Biosphere Reserve, Querétaro (orange polygon); the green and pink dots represent records obtained from the SNIB and Naturalista, respectively.**

Results

On 21 February 2024, in the Ejido of Ayutla, municipality of Arroyo Seco, Querétaro, Mexico, a Black Hawk-eagle was captured by a farmer after it attempted to hunt a chicken inside a henhouse. The eagle became trapped in the chicken wire during its attempt, allowing the farmer to capture it. The eagle was kept in a cage and remained in the farmer's care for approximately five days, after which it died due to lack of proper care and feeding. The farmer took photographs of the bird while it was alive, which he later showed to RBSG staff. The photographs (Fig. 2) show a large eagle with black upperparts, neck, and head. A crest of black feathers with a white base is visible on its crown. The eyes are golden. The breast, belly, and underwing coverts are black barred with white, and the tarsi are feathered. The undersides of the primary and secondary feathers are marked with distinct black and white barring. The legs are yellow.

Figure 2. **Adult Black Hawk-Eagle (*Spizaetus tyrannus*) documented in the Reserva de la Biosfera Sierra Gorda, after her capture in a chicken coop. 21 February 2024. Photos © Pablo Loredo Suarez**

Based on the farmer's description and the morphological characteristics observed in the collected photographs (Fig. 2), we were able to definitively determine that the raptor was an adult Black Hawk-eagle, at least three years old, based on the characteristics described by Howell and Webb (1995), Clark and Schmitt (2017), and Rivas-Fuenzalida (2025a). In addition to the photographs and the farmer's testimony, no samples or body measurements could be taken because the specimen was buried, and therefore the sex of the individual could not be determined.

The site where the event occurred is located within a ranchería (small rural settlement) inside the forest, on the slopes of the Ayutla River Canyon, at an approximate altitude of 585 meters above sea level (21° 22'00"N, 99°35'57"W). The surrounding area is a mountainous landscape belonging to the Sierra Madre Oriental mountain range, with an altitudinal variation ranging from 520 meters (the rural settlement of the Ayutla Ejido) to 2,100 meters at the highest point of the mountains, within a 10-kilometer radius of the recording site.

The vegetation is typical of tropical deciduous forest, and the dominant tree species include: *Bursera simaruba* (chacá), *Capparis incana* (palo cenizo), *Esenbeckia berlandieri* (jopoy), and *Lysiloma microphylla* (palo de arco), among others. Above 800 meters above sea level, the predomi-

nant vegetation consists of oak forests, with tree species such as *Quercus mexicana, Q. castanea*, and *Q. polymorpha*. The record was made within the "buffer zone and sustainable use of natural resources" of the RBSG (Regional Biosphere Reserve of the Sierra Gorda), just 100 meters from the core area "Cañón del Río Ayutla," which covers 1,649 hectares. The record site is located 3 kilometers from the ejido (communal land) seat, and the village has an approximate population of 250 people.

Discussion

This sighting of the Black Hawk-eagle is notable in several ways. First, it occurred in a location outside its known range (Rivas-Fuenzalida et al. 2025a). According to potential distribution maps developed by Navarro-Sigüenza and Gordillo-Martínez (2018), the potential range only extends to the central region of Veracruz as its northern limit on the Atlantic slope (Fig. 1), a linear distance of 338 km from the present sighting site.

In contrast, the distribution map described by Rivas-Fuenzalida et al. (2025a) extends this range through the tropical forests of the northern mountain foothills of Veracruz and Hidalgo, defining its northern distribution limit in the tropical forests of southeastern San Luis Potosí (Fig. 1). If we add the records obtained by birdwatchers and uploaded to citizen science platforms such as eBird (2025), the data show that the species' current distribution encompasses the tropical forests in the foothills of the Sierra Madre Oriental, in the region known as the Huasteca Potosina, reaching its northern limit in El Cielo, Tamaulipas (eBird 2025) (Fig. 1). Based on the above data, we consider that the species' current distribution is closer to the potential distribution proposed by Navarro-Sigüenza and Peterson (2007), which follows precisely this range until reaching the tropical forests of the central Sierra Madre Oriental in Tamaulipas.

This is relevant because this distribution would be much larger than previously reported (Navarro-Sigüenza and Gordillo-Martínez 2018, Rivas-Fuenzalida et al. 2025a), and very similar to that of its relative,the Ornate Hawk-eagle (Howell and Webb 1995, Rodríguez-Ruíz et al. 2025). Both raptors share a wide habitat range and distribution in neotropical forests of southern Mexico, Central, and South America. The increase in birdwatcher records (eBird 2025) confirms that the northern limit of the distribution of these two raptors of the genus *Spizaetus* is more similar than previously reported (Howell and Webb 1995, Clark and Schmitt 2017).

This record is notable because it occurs even outside the area defined in the preceding paragraphs, which, to the north, includes Tamaulipas, San Luis Potosí, Hidalgo, and Veracruz (Navarro-Sigüenza and Peterson 2007). Our record location is in the state of Querétaro, 54 km from the nearest known distribution in the Huasteca Potosina re-

gion (eBird 2025, Rivas-Fuenzalida et al. 2025a), and in a vegetation type marginal for the species. The Huasteca Potosina region, characterized by its humid, semi-deciduous tropical forests, contrasts with the record site, which is characterized by a tropical deciduous forest, surrounded by oak forests to the south and xerophytic scrublands to the northwest.

Given that the Black Hawk-eagle is a large species with a wide range and a varied diet (Rivas-Fuenzalida 2025a, Whitacre et al. 2012), it is possible that this individual came from a source population originating in the Huasteca Potosina region or the tropical forests of the Sierra Gorda on the Querétaro side. Even without certainty about the individual's exact origin, it is noteworthy that the species is rarely recorded in the region in general. Its rarity could be due to its low abundance, its accidental presence in the region, and/or the lack of trained personnel monitoring the avifauna in the area. Training community guides and systematic monitoring in the RBSG region could help to understand the true abundance and distribution of the species in this area.

This record is relevant, moreover, given the documentation of a cause of mortality in this threatened species originating from a conflict of coexistence with humans. The Black Hawk-eagle attacked domestic fauna (chickens) inside a rustic chicken coop, which was the reason for its capture. Lack of knowledge about the species and its specific handling led to improper care, resulting in the death of the individual in question. An analysis of the conflict between neotropical raptors and farmers due to the hunting of domestic animals (Rivas-Fuenzalida et al. 2025b) mentions only two instances in the Neotropics where the species has been documented attacking domestic birds.

This case adds to previous evidence of predation on domestic birds and highlights the need to address this cause of coexistence conflict for the conservation of this predator. It is worth noting that the communication between the RBSG staff and community members made it possible to recover the information for this important record. Finally, we believe that the Black Hawk-eagle should be included in the avifauna lists of the state of Querétaro, and particularly those of the RBSG (Regional Biosphere Reserve of the Gualeguaychú), which to date do not include it (Navarro et al. 1993, Rojas-Soto et al. 2001, Gutiérrez 2002, Pineda-López et al. 2010). This record documents its presence.

Additionally, we consider the tropical rainforests of the Huasteca region, in the Querétaro portion, to be ideal habitat for the presence and distribution of this species, consistent with documented records from the neighboring Huasteca region in San Luis Potosí, as shown in the potential distribution map by Navarro-Sigüenza and Peterson (2007).

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Experience of Translocating an American Kestrel (*Falco sparverius*) nest in an agro-industrial area in Venezuela

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Translocation is a conservation tool used to relocate wildlife populations from at-risk environments to new, threat-free habitats, or to areas where the species has become locally extinct in order to restore its presence (Priddel et al. 2006). In birds, some experiments involve moving eggs or chicks from their original nest to an artificial one (Bardo and Bird 2009).

Although translocation has been applied to different types of raptors, falcons of the genus Falco have been of great interest because they are known for exhibiting a relatively high tolerance to human disturbances compared to other raptor species, making them ideal subjects for this type of research (Lambrechts et al. 2012).

Translocations have been carried out in *F. novaeseelandiae* (Kross et al. 2012), *F. peregrinus* (Watts and Watts 2016), *F. mexicanus* (Bird et al. 1985), *F. punctatus* (Jones et al. 1995), *F. naumanni* (Bux et al. 2008, Lambrechts et al. 2012, Pomarol 1996), F. tinnuculus (Charter et al. 2007, Lambrechts et al. 2012) and *F. sparverius* Lambrechts et al. 2012; Smallwood et al. 2009).

The American Kestrel (*Falco sparverius*) is a small raptor species whose males average 111 g in weight, while females average 120 g (Smallwood and Bird 2020). Males also have bluish-gray patchy wings and a rufous tail with a single broad black subterminal band. Females have a more uniform coloration with reddish wings and back entirely covered in black barring (Smallwood and Bird 2020).

This species has a wide distribution throughout the Americas, occurring in diverse environments and ecosystems, but always associated with open areas with grasslands or scrublands. This broad

distribution has resulted in the American Kestrel having different ecotypes and subspecies that vary with latitude and altitude (Santillán et al. 2018, Smallwood and Bird 2020). In Venezuela, populations inhabiting low-altitude, warmer environments have been found to be lighter in color and smaller in size than those found at higher altitudes and in colder environments (Balgooyen 1989, Phelps and Meyer de Schauensse 1994).

The American kestrel has been considered a model species, with its habits and reproductive behavior being a particular focus of interest (Bardo and Bird 2009). In North America, studies have been conducted on incubation behavior and nesting success (Kellner and Ritchison 1988), as well as on nesting on electric transmission towers (Maney and Parrish 2007). In South America, nesting (De Lucca and Saggese 1993), parental care and reproductive behavior (Liébana et al. 2009), and chick development and parental care behavior (Salazar et al. 2012) have been evaluated. In addition, the effects of environments contaminated by chemicals such as DE-71 and HBCD on pair behavior, bond quality, and reproductive behavior in both sexes have been evaluated (Fernie et al. 2008), as well as the number of eggs produced, their hatching time, and shell quality (Fernie et al. 2011). The effect of lead ingestion on nestling survival and development has also been studied (Hoffman et al. 1985).

Regarding the use of artificial nests, studies have evaluated cohabitation in Monk Parakeet (*Myiopsitta monachus*) nests (De Lucca 1992), reproductive success (Rusbuldt et al. 2006, Wheeler 1992), incubation behavior and egg hatching patterns (Bortolotti and Wiebe 1993), the use of these nests as traps for males to promote reproduction (Plice and Balgooyen 1999), fidelity to breeding

Figure 1. **Location of the nesting sites of the American Kestrel (Falco sparverius). A) Original cavity in the arm of the TEREX RT-555 crane. B) Structure of the building where the artificial nest was installed after the emergency translocation. Photos © José Ferrebuz Meneses**

sites (Miller and Smallwood 2009), reproductive ecology in the selection of nesting sites, reproductive investment and success (Greenwood and Dawson 2011a), the influence of predation on reproductive investment (Greenwood and Dawson 2011b), the modification of nesting phenology and migration by winter temperatures (Heath et al. 2012), as well as the reproductive parameters of non-migratory individuals (Morrow and Morrow 2021).

In particular, records on the reproductive biology of the American Kestrel in Venezuela are still scarce. Balgooyen (1989) notes that, in the Llanos region, the species uses cavities or open nests between January and April, with clutches of 2 to 5 eggs. Morales et al. (2004) reported clutches of 2 eggs on Margarita Island between April and May, with incubation and rearing periods of 28 days. Saavedra et al. (2025) also documented a nest in a tree cavity 2.5 m high, which contained four eggs in March.

To date, there are no documented records of raptor nest translocation in Venezuela. This lack of data represents a gap in our understanding of the reproductive plasticity and acceptance of artificial structures by the American kestrel in the country. Consequently, this study aims to present the first record of a nest translocation of this species in Venezuela.

The experiment was conducted at the Agrodirecto C.A. shrimp farm, located in the municipality of La Cañada de Urdaneta in the state of Zulia, Venezuela (10.202253, -71.867043). This farm covers an area of 1,322 hectares, divided into 229 ponds. It is situated within the Maracaibo estuary plain, in the La Cañada de Urdaneta watershed. The area has a flat topography and a semi-arid climate, with average annual temperatures of 29.30 °C and rainfall of 696.9 mm. The predominant vegetation consists of shrublands, grasslands, and herbaceous vegetation (Pérez-Albornoz et al. 2017).

Figure 2. **Pair of American Kestrels (*Falco sparverius*) near their original nest prior to translocation. A) Adult female. B) Adult male. Photos: José Ferrebuz Meneses**

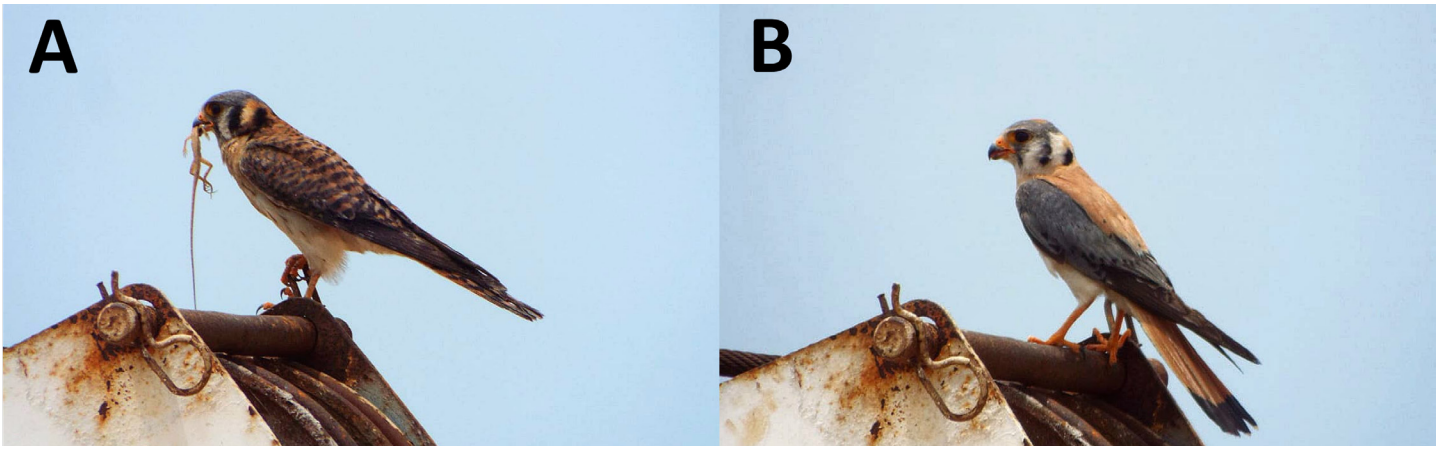

Figure 3. **Nest of American Kestrels (*Falco sparverius*). A) Cavity in the crane arm prior to translocation. B) Artificial nest after translocation. Photos A) © José Ferrebuz Meneses, B) © Armando Villalobos.**

On April 3, 2024, an American Kestrel nest was found in a 20x20 cm metal cavity on the arm of a TEREX RT-555 crane at a height of 2 m (Fig. 1A). During the initial inspection, the female was observed entering the cavity carrying a Cnemidophorus sp. lizard (Fig. 2A). Four days later, on April 7, the first chick, approximately 7 cm long and covered in white down, was recorded, actively calling. Finally, on April 10, the presence of a complete brood of four chicks was confirmed (Fig. 3A).

Due to the resumption of operations and the imminent relocation of a crane, all the chicks were translocated on April 15. They were carefully removed and placed in a temporary plastic container while being moved to an artificial nest constructed from a 20 L white plastic container (bucket), 50 cm deep with a 30 x 40 cm opening (Fig. 3B). The new nest was placed on a building 10 meters high, approximately 20 meters away from the crane (Fig. 1B). The translocation took approximately 3 hours, and the parents were attentive throughout the procedure. Of the four chicks moved, only three successfully completed the process (75%).

Following relocation, the adult pair and the development of the clutch were monitored. Eight days later, on April 23, the chicks began molting, with progressive down replacement observed. By April 25, the individuals had lost 50%, 70%, and 90% of their natal plumage, respectively (Fig. 3B). Throughout the monitoring period, both parents actively guarded the chicks within a 30-meter radius and provided constant care.

The response of the American Kestrel pair to the relocation of their nest suggests an adaptive capacity to incidental disturbances and remarkable behavioral plasticity, possibly reinforced by the

birds' prior experience in an environment with constant human activity. Although human interference at nesting sites is a documented risk factor for abandonment, the partial success of this experiment is consistent with the findings of Fyfe and Olendorff (1976), who state that it is unusual for raptors to abandon their young once the chicks have hatched. This is also because, at this stage of the life cycle, parental tenacity and the intensity of nest defense typically increase significantly, which likely facilitated the acceptance of the new location 20 meters from the original nest (Fyfe and Olendorff 1976).

This experience demonstrates that it is possible to mitigate the risks of abandonment and accidents that often result from human interference in active nests. This suggests that, even under emergency operational conditions, it is possible to maintain the integrity of the parent-chick biological nucleus if relocation to a nearby nest is prioritized. Traditionally, in the face of imminent risks in disturbed areas, the response is usually to rescue and transfer the chicks to rehabilitation centers; however, this approach carries risks of behavioral imprinting and deprives the birds of natural parental learning. Therefore, translocation represents a viable and preferable alternative to the complete removal of clutches for human rearing in situations where it is not possible to maintain the integrity of the original nest.

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On the trail of the Crested Eagle (*Morphnus guianensis*): an ecological assessment in an unexplored territory in northwestern Venezuela

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Rare or elusive species are those that possess cryptic behaviors that make them difficult to detect (Williams 2016). This condition generates significant obstacles and challenges for their study and monitoring, because the probability of observation varies greatly spatially and temporally (Clarke et al. 2003, Thompson 2004, Williams et al. 2018).

Williams (2016) describes four main categories to characterize rare or elusive species: (1) visually cryptic, (2) behaviorally cryptic, (3) spatially cryptic, and (4) temporally cryptic. The first category corresponds to organisms that, due to their appearance, manage to camouflage themselves in their environment. The second encompasses species with solitary habits, limited distribution, and evasive nature. The third refers to those species that impose logistical barriers by inhabiting inaccessible areas. Finally, temporally cryptic species are those whose detectability is limited to a very short period of time. Many raptor species are difficult to study, primarily because they nest at relatively low densities, tend to have wide distributions, move across large territories, and in some cases avoid areas with human activity (Fuller and Mosher 1981). This means that some species can be defined within one or more of the categories of rare or elusive. This is particularly true for several species of large Neotropical raptors with forest habits, such as those of the genera *Spizaetus, Harpia*, and *Morphnus*, which can be categorized as behaviorally and spatially cryptic.

The Crested Eagle (*Morphnus guianensis*) is a large species that can reach 89 cm in total length and 1750 g in weight (Smith 2020). It is characterized by its blackish dorsal plumage, pale belly, and a

prominent occipital crest (Hilty 2003). It has two morphs: a dark one, with a black head and dark ventral barring; and a paler, more common one, with a gray head and reddish barring. It differs from the Harpy Eagle (Harpia harpyja) in its smaller size, ventral barring, and lack of a black collar. However, juvenile individuals of both species are noticeably pale and similar to each other, so their identification in the field depends on differences in size and silhouette (Smith 2020).

The species is distributed in a fragmented manner from southern Mexico to northern Argentina, exhibiting low densities, and is therefore classified as rare to very rare (Gomes and Sanaiotti, 2015). In Venezuela, the Crested Eagle has a diffuse and markedly fragmented distribution, comprising five non-overlapping populations. The core population with the greatest proportion of suitable habitat, and which accounts for the majority of records nationwide, is located south of the Orinoco River, encompassing the states of Amazonas, Bolívar, and Delta Amacuro (Sharpe 2015).

In contrast, north of the Orinoco, the species is extremely rare and scarce, with isolated reports restricted to four areas: to the northeast in the Paria Peninsula, Sucre state; to the north-central in the Cordillera de la Costa, specifically in Henri Pittier National Park, Aragua state; to the west, in the Obispos municipality and the Caparo Forest Reserve, Barinas state (Duque, pers. comm.); and to the northwest, in the Sierra de Perijá at the Alto del Cedro hill, Zulia state (Hilty 2003, Vargas et al. 2010).

Globally, the species is listed as Near Threatened (NT) due to habitat loss from the logging of mature forests for the expansion of agricultural and livestock frontiers (BirdLife International 2017). Nationally, the Red Book of Venezuelan Fauna (2015, 4th ed .) classifies it as Vulnerable (Sharpe 2015). In Venezuela, the main threats are the loss of forest cover. The habitats facing the greatest human pressure are located in the Cordillera de la Costa and the Sierra de Perijá. In the Cordillera de la Costa region, the species faces serious threats, such as the high frequency of forest fires, agricultural development, and human settlement. In the Sierra de Perijá, these same pressures converge, exacerbated by extractive mining focused on the exploitation of coal, copper, limestone, clay, phosphates, and barite (Sharpe 2015).

Information on the Crested Eagle in Venezuela is extremely limited, with almost no research or conservation efforts. This lack of studies is likely due to its low detectability, which hinders the recording of the species, even in areas where greater abundance would be expected. Furthermore, the lack of information on populations north of the Orinoco River is critically important, as these are the populations facing the most significant threats. A clear example of the general lack of knowledge about the species occurred on June 27, 2017, when an immature individual was

sighted in the Burro Negro Hydraulic Reserve, in the northeastern region of the Lake Maracaibo basin, Zulia state (Moran et al. 2017). This finding represented a significant extension of its distribution into northwestern Venezuela, highlighting the urgent need to increase field surveys in this region.

Based on this record and motivated by its importance, an expedition was planned to conduct a rapid ecological assessment in the reserve. The objectives were to obtain a new report of the presence of the Crested Eagle and to evaluate whether the area has the appropriate conditions to support a viable population, thus generating more information to contribute to the future design of conservation plans for the species in the area.

Methodology

The Burro Negro Hydraulic Reserve is a protected forested area that includes a reservoir and a recreational area on its periphery (10.14°–10.47° N and 70.75°–70.8°3 W) (Fig. 1). It is located in the central-eastern region of the Lake Maracaibo Basin, Zulia State. It was declared a reserve in 1974, covering an area of 75,000 ha and serving as the main source of water supply for the main cities on the eastern shore of the Lake (Pietrangeli et al. 2011).

The area has an altitudinal range between 120 and 1800 m above sea level. The vegetation consists of tropical dry forests and premontane rainforests (Pietrangeli et al. 2011). Average annual temperatures range from 17°C to 28°C, and rainfall rang-

Figure 1. **Study area and sampling points in the Burro Negro Hydraulic Reserve, Zulia State, Venezuela.**

es from 1200 mm to 1500 mm. The area exhibits a bimodal rainfall pattern characterized by two distinct precipitation peaks, the first in May and the second between August and October (Silva et al. 2017).

Between February 12 and 16, 2026, an assessment of habitat suitability for the Red-rumped Eagle was conducted, along with the identification of potential prey and the diagnosis of anthropogenic threats present in the area. Ten points were visited, distributed between the recreational area (n = 5) and the protected zone (n = 5) (Fig. 1). The sampling effort was carried out by a team of four researchers, who conducted foot surveys at each point.

Bird detection was based on direct observation and bioacoustics identification. Vortex 10x32 binoculars were used, and playback was employed via a Cubitt speaker. Digital cameras (Nikon P950 and Canon R100) and cell phones were also used to capture photographic and audio records. Each survey covered approximately 4 km.

To enhance knowledge of the area's raptors, an inventory of all observed species was compiled. For habitat assessment, attributes of vegetation structure and the availability of nesting strata were qualitatively recorded through direct observation. The presence of large, mature emergent trees was assessed, noting the existence of robust primary forks, bifurcated branches, and natural

Figure 2. **Vegetation types present in the ecological assessment area of the Burro Negro Hydraulic Reserve, Zulia State, Venezuela. A) Evergreen forests. B) Riparian evergreen forests. C) Semi-deciduous forest. D) Understory of the semi-deciduous forest. Photos: Luis A. Saavedra.**

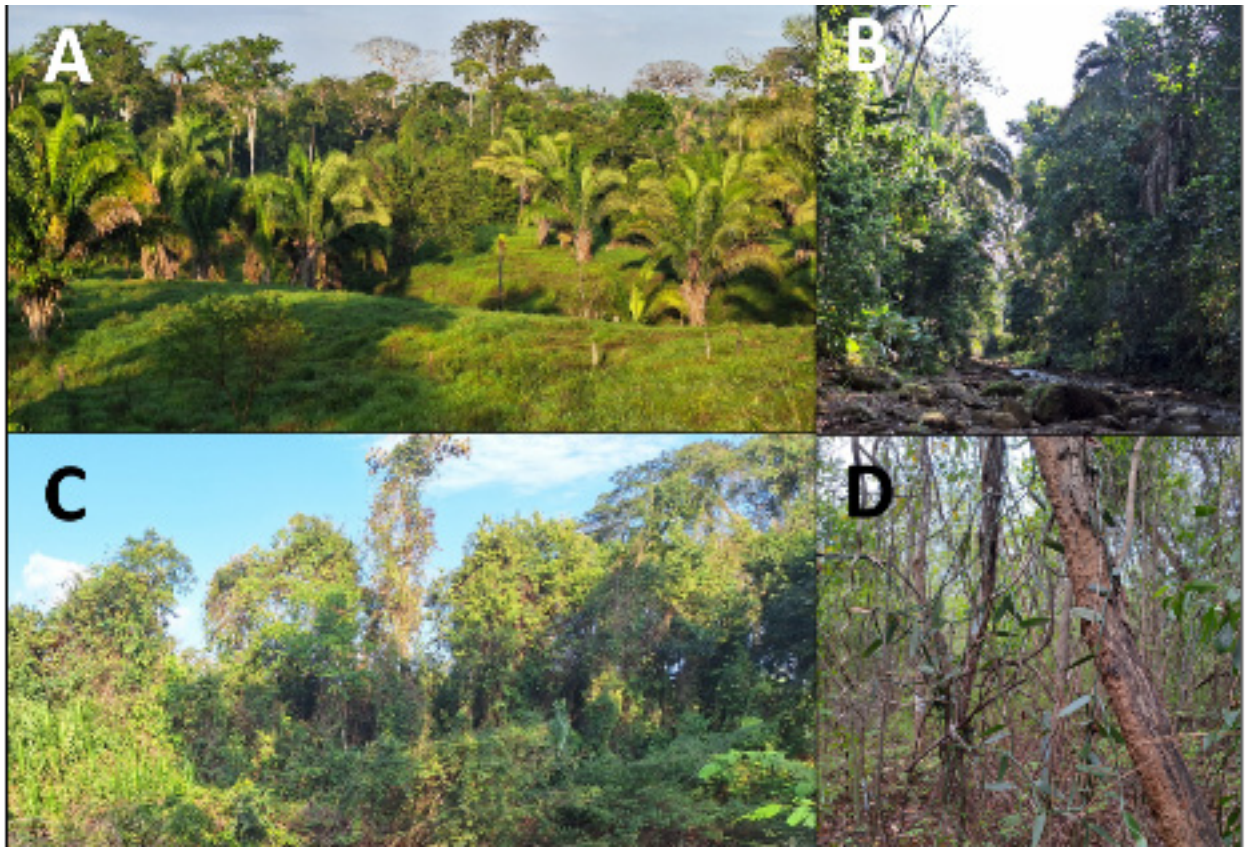

Figure 3. **Some potential prey species for the Crested Eagle (*Morphnus guanensis*) recorded in the Burro Negro Hydraulic Reserve, Zulia State, Venezuela. A) Brown Spider Monkey (*Ateles hybridus*). B) White-necked puffbird (*Notharchus hyperrhynchus*). C) Crested Guan (*Penelope purpurascens*). D) Channel-billed toucan (*Ramphastos vitellinus*). Photos: José Ferrebuz-Meneses**

platforms suitable for supporting large nests. The presence of prey guilds (arboreal mammals, reptiles, and birds) was also recorded, along with anthropogenic threats and the degree of alteration of the natural environment. The classification of vegetation types follows Pietrangeli et al. (2011). To identify the historical loss of forest cover in the study area, a multi-temporal qualitative assessment of land cover was conducted. This analysis was based on the visual interpretation and chronological comparison of satellite images extracted from the Google Earth Pro platform (2026), covering a 20-year period with three time windows: 2000, 2010, and 2020 (Fig. 4).

Discussion

Despite the sampling effort, no visual or auditory record of the Crested Eagle was obtained. However, the previous report of an immature individual within the reserve could suggest the existence of a resident population. Although juveniles of related species such as the Harpy Eagle have a high capacity for natal dispersal (Urios et al. 2017), the marked geographic isolation of Burro Negro (confined by Lake Maracaibo, semi-arid zones, and a fragmented ecosystem) makes migratory flow from other continuous forest blocks unlikely. Furthermore, habitat characterization confirms that the area still retains environments with the necessary structural complexity to support the species.

The physiognomic assessment of the vegetation revealed an environmental difference between the recreational area and the protected zone. In the vicinity of the recreational area, the vegetation consists of deciduous forest with a sparse understory, although it retains emergent trees. In contrast, the protected zone and the areas associated with the Grande and Chiquito river basins exhibit greater ecological integrity, characterized by evergreen forests and riparian forests with emergent trees that can exceed 25 m in height. This environment is distinguished by a more continuous

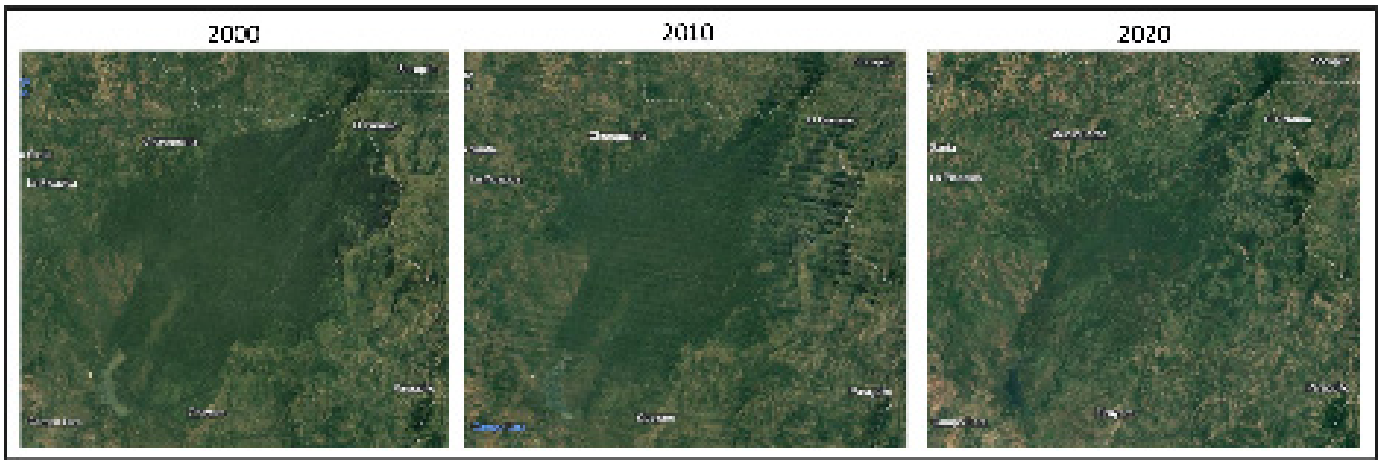

Figure 4. **Multitemporal analysis of forest cover in the Burro Negro Hydraulic Reserve, Zulia state, during the period 2000–2020. Comparative images were obtained through the Google Earth Pro platform (2026).**

and lush canopy and understory (Fig. 2). Among the tallest tree species present were *Anacardium excelsum*, *Astronium graveolens*, and *Ceiba pentandra*.

The protected area represents the only sector of the reserve that maintains the ecological integrity necessary for the persistence of the Crested Eagle, which is known to depend on mature tropical forests (Smith 2020). Within this area, the riparian and evergreen forests associated with the Grande and Chiquito river basins stand out, exhibiting a continuous and lush canopy. This characteristic aligns with the species' preference for establishing itself near watercourses (Wetmore 1965, Brown and Amadon 1968). Additionally, the forest architecture, characterized by emergent trees exceeding 25 m in height, provides ideal nesting sites for Astronium graveolens, a tree species with recorded nesting activity (Smith 2020).

The faunal characterization of the reserve revealed a congruence between the availability of local prey and the documented diet of the Crested Eagle (Smith 2020). Among the mammals, the record of two troops of Northern Spider Monkey (*Ateles hybridus*) of 12 and 25 individuals stands out. The observation of infants in both groups is crucial, a determining factor given that the literature reports predation of juveniles of this genus (Julliot 1994).

The avifauna was represented by the Cracidae family with the Crested Guan (*Penelope purpurascens*) and Rufous-vented Chachalaca (*Ortalis ruficauda*), Ramphastidae with the Channel-billed toucan (*Ramphastos vitellinus)*, Buconidae with the White-necked puffbird (*Notharchus hyperrhynchus*) and Accipitridae with the Roadside Hawk (*Rupornis magnirostris*) and the Gray-headed kite (*Leptodon cayanensis*) (Fig. 3).

Among the reptiles, the Green Iguana (*Iguana iguana*) was recorded. As with the primates, all these records correspond to genera reported as components of the diet of the Crested Eagle

Family	Species
Cathartidae	*Sarcoramphus papa*
	Coragyps atratus
	Cathartes aura
	Cathartes burrovianus
Accipitridae	*Gampsonyx swainsonii*
	Elanus leucurus
	Leptodon cayanensis
	Busarellus nigricollis
	Rostrhamus sociabilis
	Ictinia plumbea
	Buteogallus anthracinus
	Buteogallus meridionalis
	Buteogallus urubitinga
	Rupornis magnirostris
	Parabuteo unicinctus
	Buteo nitidus
	Buteo albonotatus
Strigidae	*Pulsatrix perspicillata*
	Megascops choliba
	Glaucidium brasilianum
	Strix virgata
	Strix nigrolineata
Falconidae	*Herpetotheres cachinnans*
	Micrastur semitorquatus
	Caracara plancus
	Daptrius chimachima
	Falco sparverius
	Falco femoralis

Table 1. **Species of birds of prey recorded in the Burro Negro hydraulic reserve, Zulia state, Venezuela.**

(Whitacre et al. 2012, Gomes et al. 2021). This variety of potential prey suggests that the reserve harbors the minimum taxonomic richness necessary to support the presence of the Crested Eagle. In addition, 28 species of birds of prey were recorded (Table 1). This high richness suggests ecological integrity in the study area. Furthermore, the number of taxa suggests a diversified food web and a wide availability of niches, which could reflect that the reserve still retains sufficient structural complexity and habitat quality to support key ecological processes.

Although the Burro Negro water reserve still maintains the ecological integrity necessary to support a small population of Crested Eagle in northwestern Venezuela, the area is not free from threats to the species. Progressive destruction of the primary forest was evident due to indiscriminate logging and burning to establish livestock production systems. This change in land use has transformed the surrounding forest matrix into a mosaic of grasslands and shrublands that cause recurrent forest fires and increase erosion rates on the slopes of the watershed. Furthermore, analysis of multi-temporal satellite imagery reflects a considerable loss of forest cover over the last 20 years (Fig. 4).

This alarming rate of vegetation loss places the Crested Eagle population in the area in a state of critical vulnerability. The fragmentation dynamics, driven by the expansion of the agricultural frontier and uncontrolled colonization, compromise not only the availability of nesting sites, but also the stability of vertebrates dependent on forest stands necessary for the species' survival. Therefore, it is imperative that regional authorities and environmental governing bodies

strengthen the mechanisms for monitoring and effective protection of the reserve, as well as the sustainability of the technical implementation of the Management and Territorial Planning Plan of the reserve, which is fundamental to mitigating anthropogenic pressures and guaranteeing the connectivity of habitats.

Finally, our observations confirm the Burro Negro Hydraulic Reserve as a refuge with potential for the preservation of the Crested Eagle in northwestern Venezuela. The conservation of this area is essential to prevent the local extinction of the species in the northern region of Venezuela, while also ensuring that the forested corridors along the eastern shore of Lake Maracaibo continue to function as biodiversity reservoirs. Therefore, it is vital to increase efforts to determine the population status of the species within the reserve, implement monitoring plans to detect new populations in surrounding regions, and mitigate threats to preserve the last remaining Venezuelan populations of the Crested Eagle north of the Orinoco River.

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First Record of the Collared Forest-Falcon (*Micrastur Semitorquatus*) in a Cocoa Agroforestry System in Tabasco, Mexico

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The Collared Forest-Falcon (*Micrastur semitorquatus* [Vieillot]) is the largest of the seven species in the genus, with a distribution ranging from Mexico to Argentina, from sea level to 1800 meters above sea level (Howell and Webb 1995, Ferguson-Lees and Christie 2001). It inhabits the interior of forested ecosystems, including lowland tropical evergreen forest, tropical deciduous forest, gallery forest, scrubland, and dense secondary vegetation (Howell and Webb 1995, Stotz et al. 1996, Ferguson-Lees and Christie 2001). It commonly remains in the understory, flitting from perch to perch, and rarely flies in open fields or across clearings (Ferguson-Lees and Christie 2001). It is an elusive species that generally vocalizes from high in the canopy, and is more often heard than sighted (Howell and Webb 1995).

In Mexico, *M. semitorquatus* is distributed from Sinaloa in the northwest and Nuevo León in the northeast, south and southeast, to the Yucatán Peninsula (CONABIO 2026). In the state of Tabasco, there are 15 specific records of this raptor, distributed across seven of the state's 17 municipalities, almost all of them in or near protected areas: Pantanos de Centla Biosphere Reserve (Centla), Wanha' Biosphere Reserve (Balancán and Tenosique), Cañón del Usumacinta Flora and Fauna Protection Area (Tenosique), Sierra de Tabasco State Park (Tacotalpa and Teapa), Chontalpa Ecological Park (Cárdenas), and Agua Selva Ecological Reserve (Huimanguillo) (Sánchez-Soto 2022, CONABIO 2026).

These records were made in native forest vegetation, primarily in evergreen tropical rainforest. In this work we present the first record of *M. semitorquatus* in a cacao (*Theobroma cacao* L.) agroforestry system. In this agricultural ecosystem, the cacao plants are established under the shade of a canopy, so its structure is similar to that of a tropical forest (Larrea 2008, Castañeda et al. 2013).

Description of the Area

The cacao agroforestry system where this species was recorded. It corresponds to a 67 ha plantation, belonging to the Hacienda Jesús María, located in the ranchería Sur 5a. Sección, municipality of Comalcalco, Tabasco (18°10'55.99''N, 93°14'49.99''W, 6 msnm). The trees that provide shade for the cacao include species that reach at least 20 m in height, including breadnut (*Artocarpus camansi* Blanco), mahogany (*Swietenia macrophylla* G. King), cedar (*Cedrela odorata* L.), ceiba (*Ceiba pentandra* [L.] Gaertn.), fig (*Ficus* sp.), hog plum (*Spondias mombin* L.), rosy trumpet tree (*Tabebuia rosea* [Bertol] A.DC.), gumbo limbo (*Bursera simaruba* [L.] Sarg.), and the mamey sapote (*Pouteria sapota* [Jacq.] H.E.Moore & Stearn) (Figure 1A).

The plantation is located in a landscape composed mainly of other cacao plantations, pasture land for cattle ranching, and human settlements established primarily along roads and paths. It is also located in the physiographic sub province Llanuras and Pantanos Tabasqueños, which has a warm humid climate with abundant summer rains, and isothermal and rainfall variations of 26 to 28°C, and 2000 to 2500 mm, respectively (INEGI 2017).

Description of the Observation

On 27 February 2025, we visited the plantation to observe birds. At approximately 10:40 a.m., using a mobile phone (Xiaomi Redmi Note 11 model 2201117TL), we played back a vocalization of M. semitorquatus obtained from Xeno-canto (https://xeno-canto.org/). Seconds later, an individual of this species appeared flying under the canopy. It perched for a few moments in a shady tree located approximately 5 m from us. Then it flew to another tree. At a distance of approximately 40 m, where it perched for several

***Figure 1*. Partial view of the cacao agroforestry system (A). Individual of Micrastur semitorquatus (B). Hacienda Jesús María, Comalcalco, Tabasco, Mexico. February 27, 2025. Photos: Saúl Sánchez Soto**

seconds, allowing for some photographs to be taken with a digital camera (Nikon Coolpix P610) (Figure 1B). Subsequently, the bird retreated to a more distant point where it vocalized for a few minutes in response to the playback. It then fled into the interior of the plantation, besieged by a group of Brown Jays (*Psilorhinus morio*).

Discussion

Due to the bird's rapid response to the playack, we inferred that it was located close to us. A few minutes earlier, about 70 m away, we observed two Laughing Falcons (*Herpetotheres cachinnans*) vocalizing energetically while perched in a tree. This pair likely attracted the attention of the Collared Forest-Falcon (M. semitorquatus), which approached the site, as this forest raptor exhibits marked territorial behavior (Domínguez-Pompa et al. 2023).

This is the first record of the presence of *M. semitorquatus* in a cacao agroforestry system in the state of Tabasco, as it does not appear in avifaunal studies carried out in this system in that state (Greenberg et al. 2000, Ibarra et al. 2001, Trejo-Pérez 2007, Guzmán-Canul et al. 2025). Only one study, conducted in the state of Chiapas, was found in the literature, recording individuals of *M. semitorquatus* in landscapes that combine medium-height evergreen forest with cacao plantations, secondary vegetation, and pastures, adjacent to the Montes Azules Biosphere Reserve (Ramírez-Albores 2006).

This record is important because *M. semitorquatus* is listed as a threatened Mexican species under the category of "Subject to Special Protection" (SEMARNAT 2010). Furthermore, this particular cacao plantation, due to its size (67 ha), could serve as a refuge for this bird in this highly transformed area of Tabasco, which lacks any remaining tropical forest.

The nearest site where this raptor has been recorded is located approximately 41 km to the southwest, in the Chontalpa Ecological Park (CONABIO 2026), a 277-hectare protected natural area with predominantly medium-height evergreen forest vegetation (Sánchez-Soto 2012). It is unknown whether the *M. semitorquatus* individual recorded at the Jesús María Hacienda originated from this protected natural area. It likely resides in the local cacao agroecosystem, which, with an area of 8,897.4 hectares in Comalcalco (26% of the total state area) (DGSIAP 2026), could provide the necessary vegetation structure for its foraging and resting.

Perhaps this raptor was not detected in the cacao agroecosystem in previous avifaunal studies (Greenberg et al. 2000, Ibarra et al. 2001, Trejo-Pérez 2007, Guzmán-Canul et al. 2025) due to its possible absence in relatively small plantations or the study method, which did not use playback recordings. Considering that it is a difficult species to spot and because its vocalization is similar to that of the Laughing Falcons (Peterson and

Chalif 1989, Howell and Webb 1995), it could have been confused with this species. In addition, there is possibly a relatively small population of *M. semitorquatus* in the area of the record, which would make the sighting less likely.

Final Consideration and Recommendation

In the agroecosystem of Tabasco, 165 bird species have been recorded, 10 of which are birds of prey (*Coragyps atratus, Cathartes aura, Elanus leucurus, Rupornis magnirostris, Buteo plagiatus, Glaucidium brasilianum, Strix virgata, Herpetotheres cachinnans, Caracara plancus*, and *Falco rufigularis*) (Guzmán-Canul et al. 2025). This is the most important agricultural ecosystem for bird conservation in this Mexican state. Therefore, a specialized study is recommended to determine whether *M. semitorquatus* survives in this agroecosystem in the area, in order to consider measures for its protection.

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* * *

Manual of good practices for the observation of birds of prey for tourism purposes in nesting areas

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Nature tourism has become a strategic tool for conservation, promoting the appreciation of ecosystems and generating economic benefits for local communities when developed under principles of sustainability (Stronza et al. 2019). It has the capacity to actively engage the scientific community, rural communities, and even promote the creation of state policies in favor of conservation. Despite this, it can also have detrimental effects on wildlife and ecosystems if control measures are not established in a timely manner to ensure the sustainable use of these environmental attractions (Steven et al. 2015, Stronza et al. 2019).

Birdwatching, also known as avian tourism, is an activity that has become increasingly popular in Colombia due to the country's great biodiversity and the constant discovery of new species (Ocampo-Peñuela and Wintom 2017, Ocampo-Peñuela 2023). In fact, Colombia is considered a megadiverse country and has positioned itself as the birdwatching mecca of Latin America, boasting more than 1,960 bird species (20% of all the world's birds). This makes it a truly attractive option for international visitors, who have the opportunity to spot 79 endemic and 193 near-endemic species (Garzón and Myers 2016, Steven et al. 2018, Hilty 2021, Ayerbe-Quiñones 2022). Thus, birdwatching plays an important role in environmental conservation, as it brings together and directs different human efforts toward the protection of species and the natural areas they inhabit.

The rapid growth of birdwatching tourism in Colombia has generated new economic opportunities for rural communities, local guides, tour operators, and sectors associated with nature tourism. At the same time, this boom has increased public and private sector interest in the conservation of birds and their habitats, since the sustainability of this activity depends directly on the health of ecosystems (Winton and Ocampo-Peñuela 2018, Ocampo-Peñuela 2023). However, it also presents new challenges and potential threats that require management and the establishment of standards or guidelines for the proper development of birdwatching tourism projects. While

important documents have been published, such as the Manual of Good Practices for Birdwatching Tourism in Colombia (MINCIT 2017), birdwatching focused on nesting areas of large raptors requires special measures due to the sensitivity of the species and their nesting cycles.

Large birds of prey, such as those belonging to the genera *Harpia, Morphnus, Spizaetus*, and *Buteogallus*, are highly sensitive to human presence, with cryptic habits, large territories, and low population densities, making them extremely difficult to spot (Hilty 2021, Ayerbe-Quiñones 2022). This, combined with their allure as apex predators, makes them highly sought-after species for birdwatching (Schulenberg 2020; Smith 2020; Phillips 2023; Rivas-Fuenzalida 2024).

During the breeding season, they are much easier to spot, as they spend long periods on the nest building, incubating, feeding, and raising their young, allowing for more comfortable observation (pers. obs.). In addition, the extended months of parental care and dependence of the

***Figura 1*. Aviturismo desarrollado de forma correcta en área de anidación de Águila Harpía en el departamento del Meta, Colombia**

young provide a perfect window of time for the development of birdwatching in the nesting area.

Breeding site fidelity is high in these species, and they often use the same tree to build their nest for several seasons, sometimes for decades (Schulenberg 2020, Rivas-Fuenzalida 2024); thus, the nest is, in most cases, the center of their territory. Therefore, nests are a key and easy location for spotting these elusive species, but at the same time, they make them vulnerable to hunters, traffickers, and poor birdwatching practices. The Large Raptors Project Colombia (PGRC) and researchers from the Eagles of the Andes Foundation (FADA) have witnessed unfortunate cases in Colombia and other Latin American countries where poorly managed birdwatching in large raptor nesting areas has had negative impacts. These include the abandonment of nests under construction or in the incubation process, the death of juvenile individuals, and the subsequent abandonment of the nest by the parents, causing significant harm to these sensitive populations.

In Colombia, numerous cases of juvenile large raptors being hunted in their nesting areas have been documented (pers. obs.), highlighting the vulnerability of these birds in these locations and during the early stages of their development. However, to date, there are no reports of any raptors dying as a result of poorly managed birdwatching tourism. Despite this, numerous potential and direct threats to the lives of eagles involved in unethically managed birdwatching activities have been identified. These include, for example, birdwatching during critical stages of the nesting cycle, disproportionate groups of observers, proximity to nests, and a lack of community agreements, which leads to a negative perception of eagles within communities and, in other contexts, has resulted in eagles being shot and nest trees being felled.

Therefore, acting under the precautionary principle to safeguard the lives of our species and, more importantly, their nesting areas, this document lists 32 recommendations based on the national and international experience of the PGRC and its partners. It also benefited from the review of expert international researchers with more than 20 years of experience working with large raptors to include elements not usually found in published literature but which are part of basic field knowledge.

Some of the recommendations listed below have published support from other authors, such as items 4 and 5, regarding the use of drones and play black, where several authors have documented that their use has an impact on bird ecology (although not necessarily with large raptors) (Vas et al. 2015, Watson et al. 2019, Weston et al. 2020, Whitehouse 2024). However, other items, such as 12, regarding the observation distance, are novel suggestions, obtained from experience, trial and error, as well as the observation of stress

and calm behaviors in the observation and monitoring of nests, in addition to conversations between the authors and other researchers who have worked on the field monitoring of large raptors in Colombia and other countries. This best practices manual will allow the development of birdwatching tourism in nesting areas of large birds of prey, taking into account the reality and needs of the species, the communities and their territories, while maximizing the nesting success of the species and their permanence in the ecosystems.

What to consider when thinking about birdwatching near nests

1. Ecological priority: The well-being of birds at all life stages (adults, chicks, juveniles, and subadults), as well as the integrity of the nest tree and its surrounding vegetation, constitute the highest priority. All activities must guarantee their protection with the least possible impact..

2. Conservation-based tourism: Visits to nesting areas will only be authorized when there are active conservation and scientific monitoring programs, with direct participation of local communities in their protection and management.

3. Legal framework: It is essential to have specialized scientific advice and knowledge of the current environmental and tourism regulations of the country or location where the nest is situated. The PGRC and its partners offer guidance to meet these requirements.

4. Drone regulations: The use of drones by observers or any other aerial device is not permitted within a 1 km radius around the nesting area, due to the documented risk of collisions, acute stress and possible abandonment of the territory by the birds.

5. Acoustic restrictions: The use of recordings or imitations of vocalizations (playback) throughout the observation session is completely prohibited, as it can interfere with the birds' natural communication, alter their behavior patterns, and expose them to greater risks of predation.

6. Responsible photography: Photographs must be taken exclusively with long-range equipment (telephoto lenses of 400 mm or higher), always avoiding the use of flash or any artificial light source that may affect the vision of the birds, especially during low light conditions.

7. Prohibited substances: The consumption or possession of alcohol, tobacco, psychoactive substances or any element that may alter the behavior or perception of visitors is not allowed, thus guaranteeing the seriousness and safety of the activity.

8. Domestic animalss: Pets or companion animals are not allowed in the nesting area, as they may introduce pathogens, alter the behavior of wild birds, or suffer accidents with local wildlife.

9. Use of attractants: The use of baits or lures to attract birds is prohibited, as this can alter their

natural behaviors and the performance of their role in the ecosystem.

10. Use of laser pointers: Laser pointers may only be used by certified guides, and exclusively to point out plant or geographical features. Under no circumstances should they be pointed at birds or their eyes, to avoid damaging their vision or causing stress.

11. Delimitation of the critical area: A protection area of 500 meters is established around the nest tree where only interpretive trails and camouflaged observatories will be allowed, with extractive activities or activities that modify the ecosystem being strictly prohibited.

12. Observation distances: The minimum distance for observation is 50 meters to the nest tree, although it is recommended to maintain distances between 70 and 100 meters depending on the species, its behavior and the terrain conditions (more details in Additional Resources, item 1).

13. Delineated trails: Access paths will be clearly marked, and visitors must remain on them at all times, without opening new routes or shortcuts that affect the environment.

14. Protection of nest site: It is strictly forbidden to approach the base of the nest tree, handle any part of it, or collect biological materials (feathers, prey remains, or pellets). This area must remain completely undisturbed to ensure the birds' safety.

15. Habitat conservation: The extraction, removal, or damage of any natural element of the area is prohibited, whether flora (leaves, branches, bark) or fauna (bone remains, feathers, pellets). The ecosystem must remain undisturbed.

16. Restriction periods: Tourist activities will be suspended during the critical phases of courtship, nest building, egg laying and incubation, due to the high risk of parental abandonment that these disturbances entail.

17. Constant evaluation of behavior: If any signs of stress are observed in the birds (alarm vocalizations, defensive postures, or attempts to escape), the group must be withdrawn immediately and visits must be suspended for at least 24 hours..

18. Avian anti-stress protocol: If the birds exhibit altered behavior (abrupt flights, alarm calls, or defensive postures), visitors should leave immediately but calmly, avoiding sudden movements that could intensify the disturbance. The local guide will assess the need to temporarily suspend visits.

19. Interaction with juveniles: If a juvenile approaches, visitors should remain still, avoid chasing it, and limit photography to the use of telephoto lenses, without attempting direct contact.

20. Specialized observatories: Camouflaged structures of 4x5 meters maximum should be built, strategically located to observe frequent perches without disturbing the birds.

21. Additional platforms: If required, they will not exceed 2.5x1.5 meters and must be located no less than 50 meters from the nest, subject to prior approval by the project's scientific team.

22. Necessary equipment: It is suggested to equip each observatory with quality binoculars (10x42 minimum) and telescopes with adapters for remote photography, thus avoiding unnecessary movements.

23. Guide authority: The decisions of the guide responsible in the field are final, especially in situations involving the welfare of the birds, adverse weather conditions, or compliance with safety protocols.

24. Role of the local guide: Every group of visitors must be accompanied at all times by a certified local guide, who will have the authority to modify itineraries, suspend activities or restrict access in case of detecting risks to birds or visitors.

25. Capacity control: Groups will be limited to 8 birdwatchers at a time. If there are larger groups, they will be organized into subgroups with staggered visit times.

26. Timing: Tourist sightings will only be allowed once the chicks have passed the first month of life post-hatching, thus guaranteeing their survival in the most vulnerable stage.

27. Visitor preparation: Observers should come properly equipped with clothing in discreet colors (earth tones, greens or camouflage), unscented sunscreen, sufficient hydration and any necessary personal medication, after notifying the guide.

28. Rules of silence: Visitors should keep their voices low at all times, especially avoiding loud noises such as whistling, clapping, or shouting that could disturb the birds' natural behavior or mask important warning signals.

29. Zero waste policy: It is forbidden to discard any type of waste in the observation area, including organic waste. Visitors must take all waste generated during their visit with them.

30. Informative signage: Visible panels will indicate rules of conduct, minimum distances, and alerts about sensitive periods of the reproductive cycle.

31. Conservation fees: Access to the nesting area will be subject to a fee, which will be used to support local communities, scientific monitoring programs, local environmental education, and observation infrastructure. If you are not charged a fee, please inquire about it. Community exclusion is the number one cause of failure for these types of projects.

32. Geographic confidentiality: The exact location of the nests may not be shared publicly on social media, birdwatching platforms, or any other means that could expose the birds to risks of human disturbance or illegal activities.

33.Findings protocol: Any unusual discoveries (invasive species, traps, unauthorized equipment, or atypical bird behavior) must be reported immediately to the responsible guide for evaluation and follow-up.

34. Continuous evaluation The visitation program will be re-evaluated quarterly using scientific indicators (reproductive success, levels of hormonal stress in birds) and social indicators (impact on the local community), adjusting the rules according to the results obtained.

People who enjoy birdwatching must always respect wildlife, the environment, and their rights. In case of conflict, the bird and its habitat take priority.

Additional resources:

For large raptor genera such as Harpía, Spizaetus, and Morphnus, there is little literature on safe observation distances in nesting areas. This information is more common for genera like Aquila and Haliaeetus , which have been more extensively studied and where distances between 200 and 800 meters are reported for safe observation (Cruz J et al. 2018, Dunker, H. and T. Slagsvold 2025). However, this is likely due to the open ecosystems they inhabit. In Latin America, harpy eagle tourism has developed, with platforms constructed between 25 and 40 meters from the nest (Miranda et al. 2022). Although there is no further information on the impacts or consequences of these interventions, we believe there is a potential risk in using such short distances and such large structures in nesting areas.

Therefore, based on our own experiences monitoring these different genera of large raptors in tropical forests, we suggest distances between 50 and 100 meters as ideal, which, added to the other recommendations, can guarantee an ethical process and good sightings.

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Of Interest...

Conferences

BIRDSCARIBBEAN

https://birdscaribbeanconference.org/

The conference will take place from July 23-27, 2026 in Trinidad and Tobago

We are pleased to welcome you to the 25th Birds-Caribbean International Conference, which brings together scientists, wildlife professionals, conservationists, educators, decision-makers, ecotourism stakeholders, students, and bird lovers from across the Caribbean and beyond.

Join a vibrant community to participate in enriching sessions, forge valuable connections, and discover new perspectives. Whether you are looking to learn, collaborate, or be inspired, this is your opportunity to be part of a collective effort to advance bird science and conservation.

Theme: Birds, People, Prosperity: Leveraging the Caribbean's Natural Advantage. This timely conference challenges the outdated "development versus environment" narrative, demonstrating that conservation and nature tourism are investments that can boost local economies, strengthen communities, and protect ecosystems, while ensuring a sustainable future for the region.

INTERNATIONAL ORNITHOLOGICAL CONGRESS 2026

https://internationalornithology.org/blog/10898

The congress will be held from November 29 to December 5, 2026 in the beautiful city of Mérida, Yucatán, Mexico

The International Ornithological Union (IOU), together with the Society for the Study and Conservation of Birds in Mexico (CIPAMEX), is pleased to announce the XXIX International Ornithological Congress (IOCongress2026) and the XXIII Congress for the Study and Conservation of Birds in Mexico (CECAM).

IOCongress 2026 Highlights:
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