Red de Rapaces Neotropicales (RRN)

Neotropical Raptor network (NRN)

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Aging Characteristics of *Spizaetus melanoleucus*: First Photographic Documentation

Photos and Text by Ryan Phillips, Belize Raptor Research Institute, harpiabz@yahoo.com; and Yeray Seminario, The Peregrine Fund, yerasdy@gmail.com

Juvenile (first year) *Spizaetus melanoleucus*

The Black-and-white Hawk-Eagle (*Spizaetus melanoleucus*) has a wide, but patchy distribution across Central and South America and is considered rare in most locations (Ferguson-Lees and Christie 2001). Of the three neotropical hawk-eagles the Black-and-white has the smallest range and is considered the rarest (Birdlife International 2009). Between 1988-2000 Birdlife International and the IUCN considered the Black-and-white Hawk-Eagle Near Threatened, but de-listed it to Least Concern in 2000 due to insufficient data (Birdlife International 2009). Only five nests have been reported throughout its range (Strauch 1975, Anderson 2004, Canuto 2008, Phillips, 2009) with only one being described in detail (Canuto 2008) making any potential nesting site critical to the knowledge of the species.

Being able to identify the ages of raptor species is important when quantifying productivity within populations and can assist in locating active nest sites assuming dispersal has not yet occurred (Steenhof and Newton 2007). To date, a few field guides and papers describe the differences between ages of Black-and-white Hawk-Eagles, but they only note a few plumage characteristics and do not include a full description which includes non-plumage characteristics (Howell and Webb 1995, Ferguson-Lees and Christie 2001, Canuto 2008, Stiles and Skutch 1989). Through our literature

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research we were only able to find photographs of adult and nestling Black-and-white Hawk-Eagles, but none of post-fledged juvenile individuals.

Figure 1. Overall appearance of adult (left) and juvenile (right).

Here we present a full description of juvenile and adult differences supported by photographs of one juvenile, one nestling and five adults, along with field observations. When referring to juveniles we are referring to Basic I (first year) plumage according to Howell et. al. (2003) and will not be describing latter immature characteristics. The only reference to molting of Black-and-white Hawk-Eagles states that, "they attain adult plumage by completion of the first pre-basic molt at one year old," (Howell and Webb 1995) but further studies on molt scheme should be conducted as larger species from the Accipitridae family take 3-4 years to replace all juvenile feathers (Pyle 2009).

Distinguishing between juvenile and adult Black-and-white Hawk-Eagles can be challenging as plumage and non-plumage characteristics are very similar, but there are subtle diagnostic characteristics to distinguish between the ages. In the Mountain Pine Ridge area of Belize between July and September 2009 we observed on multiple occasions in the same location both a juvenile (Basic I) and an adult Black-and-white Hawk-Eagle, which inspired this paper. This occurred at an elevation of 740 meters in the transition zone of montane pine forest and broadleaf forest above a deep canyon stream. We are assuming that the juvenile was the offspring of the adult as frequent vocalization interactions and a prey exchange was observed between them. This would suggest that this may be a potential nest-site area, as other hawk-eagle species remain dependent on the adults for a minimum of one year post-hatching, and the juvenile does not move far from the nest within this period (Madrid et al. 1991).

Overall appearance of both adult and juvenile is very similar (Fig. 1), especially when observed in flight or at a far distance. Differences are subtle and need to be observed in detail with caution being taken. Characteristics that should be observed are the black crown, overall dorsal color, amount of white in the leading edge, width and number of tail bands, length of tail, underwing pattern, iris color, and overall structure of the flight feathers.

The easiest and the most reliable aging criteria is the completeness of the black crown and the presence or absence of white tips on the black crown feathers. In adults the black crown will completely cover the top of the head appearing as a skullcap, whereas juveniles will have an incomplete black cap with only a portion of the black crest feathers, which are tipped white (Fig. 2). The black crown feathers may not appear white-tipped in older juveniles as they may become worn.

Figure 2. Crown differences of the adult (left) and juvenile (right). Note size, number of feathers and white tips.

If the crown cannot be observed, the next reliable characteristic is the overall color of the rump, back, scapular and upperwing coverts. In adults this area is jet black with no white flecking in the lesser upperwing

Figure 3. Difference between adult (left) and juvenile (right) upperwing coverts. Note overall color and white spotting or flecking (colors not altered).

Figure 4. Differences in feather structure of adult (left) and juvenile (right). Note how narrow and tapered P6-10 are in the juvenile compared to the more broad and truncated adult primaries.

coverts, while the juveniles display a light brown appearance with the lesser upperwing coverts tipped white making the shoulder appear dotted (Fig. 3). However, if the lighting is poor the juvenile can appear very dark, so caution should be taken. In juveniles the leading edge of the wing is more extensively white with the feathers protruding onto the dorsal side (Fig. 3).

An important characteristic that is often overlooked when aging any birds, not only raptors, is feather structure (Pyle 2009). Structurally, juvenile and adult feathers, in particular flight feathers, are very different. Juvenile feathers are narrower and tend to be more tapered toward the tip, whereas basic feathers are much broader and often truncated (Pyle 2009). This can be observed in the outer five primaries (P6-10) when individuals are in flight (Fig. 4). As a result, juveniles have a long primary projection. If the dorsal side is observed while perched the primary projection is nearly doubled in juveniles and the primaries nearly extend the length of the tail (Fig. 5). With the juveniles having fresh plumage and no molt limits their feathers appear clean, crisp, and uniform where adults can display varied color and structure of feathers as a result of being worn, faded or freshly molted.

The underwing pattern can assist in determining age, but is not diagnostic as there can be a high variation in the number of bands on the flight feathers between individuals and populations. All adults we observed had considerably less banding on both the primaries and secondaries than juveniles. Adults have 2-4 bands on the flight feathers where juveniles have 4-6 (Fig. 4). The adult's subterminal band of the flight feathers is much

Figure 5. Dorsal view of tail band pattern differences between adult (left) and juvenile (right). Note width of bands, especially the subterminal band.

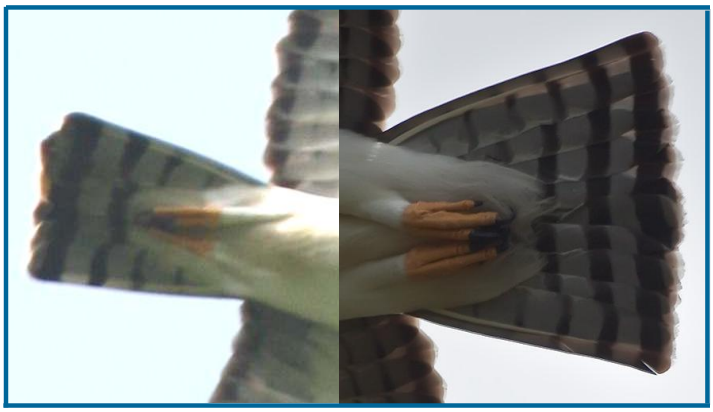

Figure 6. Ventral view of tail band pattern differences between adult (left) and juvenile (right). Note the width of the subterminal band, number of bands and how far the under-tail coverts reach.

thicker and darker than the juvenile (Fig. 4). A characteristic that may only be shown on juveniles is black spots on the greater underwing coverts, but further study needs to be conducted to eliminate intraspecific variation. However, this trait was not exhibited on any adults that we observed.

Age can be determined by observing the ventral side of the tail in detail in flight or perched. Juveniles seem to have a longer tail than adults and have 5-6 tail bands, whereas adults usually have 4. Also, it is important to note which band the undertail coverts reach. In juveniles the coverts reach the third band, whereas in adults it reaches the second band and extends well past the third band if the subterminal band is considered band one (Fig. 6).

Less subtle characteristics that are not reliable for aging consist of the thickness of the tail bands, iris color, and cere color. In adults the subterminal tail band is slightly thicker than in juveniles, but both ages can appear to be nearly the same width (Fig. 5). When viewing in flight and observing the ventral side of the tail the band width is difficult to observe, but can be seen at close distances (Fig. 6). The iris color in most raptors changes over the first year or two of life aiding in age identification, but caution should be taken as iris color can vary geographically or between the sexes (Bortolotti et al. 2003). It appears that the iris color in Black-and-white Hawk-Eagles changes fairly quickly, but a larger sample size is needed. In nestlings, the iris color is a light gray, whereas in juveniles it is a light yellow and is considerably less intense, depending on the age of the juvenile, than the brilliant yellow of the adult (Fig. 7). In the field, iris color appearance can vary with lighting and the observer's distance to the bird making this characteristic unreliable unless a recently fledged juvenile exhibits a gray iris color.

Figure 7. Head differences of adult (above) and juvenile (below). Note iris and cere color.

The cere color can vary with health as well as age, so it is not a reliable characteristic when aging (Casagrande et al. 2007). Even though adults of Black-and-white Hawk-Eagle have a more intense orange than juveniles this is a very subtle difference and is not reliable when aging individuals (Fig. 2,7).

Differentiating between juvenile and adult Black-and-white Hawk-Eagles can be challenging, but using these guidelines can aid in proper identification. In the field, hawk-eagles are usually observed soaring high or perched at a far distance in poor light conditions, so a portion of the characteristics described here will be difficult to ascertain. If observed soaring focus on the underwing pattern, structure of the flight feathers, color of the dorsal side, number and width of tail bands, and how much of the tail the underwing coverts cover. When perched first take note of the black crown then observe the color of

USEFUL CLUES IN AGING BLACK-AND-WHITE HAWK EAGLES

In Flight

- Color of back, scapulars, rump; color and white tips on upperwing coverts
- Structure of flight feathers
- Underwing: banding pattern, spots on underwing greater coverts
- Number and width of tail bands
- Undertail coverts in relation to tail bands

Perched

- Crown: look for complete black or white tips on feathers
- Color of back, scapulars, rump; color and white tips on upperwing coverts
- Number of tail bands
- Primary Projection
- Cere, Eye Color (not reliable, should be used together with other traits)

the dorsal side, if there are any white "flecks" in the upperwing coverts, number and width of tail bands, and length of the primary projection. Future studies should be conducted on molting schemes and immature plumages, so all ages can be identified.

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Public Awareness supports Harpy Eagle (*Harpia harpyja*) Releases in Belize

by Sharon Matola, Belize Harpy Eagle Restoration Program and the Belize Zoo and Tropical Education Center, info@belizezoo.org

Background

The Belize Harpy Eagle Restoration Program (BHERP) began in 2003 to provide in-country assistance and support for The Peregrine Fund's Harpy Eagle (*Harpia harpyja)* Conservation Program. The Harpy Eagles, captive-bred and soft-released in Panama, are brought to Belize and hard-released into a more remote forest once they are independently hunting on their own. The most recent hard-released eagle - a male eagle hatched in 2005- brings the total of birds released in Belize to fifteen. This Harpy Eagle along with fourteen others, will make his new home in the forests of northwestern Belize, in the Rio Bravo Conservation Management Area (RBCMA), managed by Programme for Belize.

This area of tropical forest where the Harpy Eagles are released is part of the much larger "Selva Maya" which is the largest contiguous block of tropical forest north of the Amazon Basin. Encompassing approximately 22,000 km2, this forest stretches from Belize into Mexico and Guatemala, and includes the Peten region — a rich, biologically diverse forest system and home to some of the most famous and well-studied Mayan ruins. The Harpy Eagles released in the RBCMA have been shown to utilize the forest in all three nations.

Newly released Harpy Eagle in the Rio Bravo Management Area (Programme for Belize) of Belize.

Community Awareness

The main threat to the Harpy Eagle in the short term is humans with guns. Of the fifteen released eagles, nine are known to survive and four have been confirmed as killed by humans. Accordingly, public education is viewed as a vital component of BHERP's Harpy Eagle conservation efforts in Belize. Apart from visiting local schools, creating educational billboards and posters, and hosting environmental education activities at The Belize Zoo, it is of key importance to include community members in as many aspects of Harpy Eagle conservation as possible.

Children attend a celebration for the Harpy Eagle at the Belize Zoo

To that end, BHERP hosted a ceremony of appreciation to commemorate the release of the 15th Harpy Eagle to the area. The ceremony was held on the runway in the Blue Creek Community, a town adjacent to the release site. The Harpy Eagle, named "Hope", was flown to the town's small runway after his entry into Belize, and then, just before doing the "raptor road trip" to the final release site, the important presentation ceremony took place. A plaque, brought to the Mayor and members of the community council, was delivered "from the sky" by two skydivers who jumped from an airplane at 8,000 ft. The plaque, featuring the Harpy Eagle, cited the community's commitment to "Care for Creation." The community's school children have been engaged in "Harpy Eagle awareness" programs for some time, and for the two past releases, have provided names for the eagles.

The strategy to be proactive in this particular community is due to a past incident where one of the BHERP Harpy Eagles was shot and mutilated within the Blue Creek community lands. Involving these citizens in the conservation strategy is viewed as an imperative component to ensure the success of the program.

A child reads about the importance of the Harpy Eagle.

Though all releases are important, this specific release was given a great deal of attention and press due to the fact that the eagle's reintroduction was tied into the imperative issue of Climate Change. Scientific research has reinforced the need to protect forest habitat in order to reduce the negative impacts of climate change. Protecting forest habitat is also key in sustaining the Harpy Eagle.

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New Research on the Rufous-tailed Hawk (*Buteo ventralis*) in Southern Chile

by: Tomás Rivas [1], Heraldo Norambuena [2,1], Víctor Raimilla [2,2]

[1] Escuela de Ciencias, Universidad Austral de Chile, e-mail: peucomapu@gmail.com., [2] Escuela de Ciencias Ambientales Universidad Católica de Temuco, E-mail: [1] buteonis@gmail.com & [2] phalcoboenus@gmail.com

The Rufous-tailed Hawk (*Buteo ventralis*) is endemic to the temperate forests of austral South America and is found between 36º-55ºS in Chile and Argentina. It has been suggested that this hawk is dependent on very specific habitat (Trejo et al. 2006), and thus its conservation is threatened due to the progressive increase in the substitution of native forests for exotic species plantations (pine and eucalyptus) and the conversion of soils for agricultural use. Both of these threats have been taken into consideration by the IUCN, which has categorized this species as NT (Near Threatened). In Argentina, one of the countries within this species' distribution, there have been no nesting records for this species nor have studies been done regarding its natural history (Trejo 2007). In Chile, the situation has changed only within the last decade, beginning with a study on its diet (Figueroa et al. 2000) and currently with a study on its reproductive biology. Since the spring of 2007, the first author, with the help of Ricardo Figueroa, began to research breeding territories of *B. ventralis* in the Nahuelbuta Mountain Range (between the regions of Bio-bío and la Araucanía), finding 11 nesting territories (observations of adults as well as fledglings), and three active nests. Continuing in the breeding period of 2008-09, the study area expanded to the depression halfway between the regions of la Araucanía and los Ríos. With the participation of Javier Medel, the first author searched other areas in the Costa Mountain Range in los Ríos. During 2008-09 11 more territories were found, within which two more active nests were located, bringing the total to five new nests. Most of the pairs were found in primary laurifolia forest, either contiguous or fragmented (>80ha). During the 2007-08 and 2008-09 seasons, in the region of la Araucanía, the first author collected hundreds of prey remains and pellets, which are currently being analyzed.

Buteo ventralis (immature female), Valdivia Coast, Southern Chile

Nest with three chicks, Valdivia Coast, Southern Chile

A second work group composed of the second and third authors worked during two breeding periods (2008-10), and has monitored a nesting pair in the Cerro Ñielol Natural Monument. To date they have logged more than 350 observation hours with the objective of characterizing parental care and the interactions of this pair with other sympatric raptors. The team will also evaluate the degree of superposition in the diet and habitat use of this species with its congener, the Variable Hawk (*B. polyosoma*), in this small fragment of 89.5 hectares.

Of the six nests being studied five are new nests from those that had already been described in the 1940's

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(Housse 1945, Goodall et al. 1951, Behn 1947, Figueroa et al 2000).

Based on an initial understanding of the nesting habitat requirements it can be said that this species uses a forested vegetation structure that is multilayered with trees of varying ages and that contains tall trees for perching and nesting. However, it can use fragments of altered forest with open areas of scrub grasslands and humid zones.

As a result of these on-going studies we have gained important information about i) reproductive biology ii) reproductive behavior iii) habitat use, iv) hunting behavior, v) trophic ecology, vi) structure and morphology of the nest, viii) interactions with other raptors and ix) state of permanence within nesting territories and of local migratory activity.

During the current and upcoming breeding seasons we hope to intensify the search for breeding territories and nests, thereby increasing our knowledge of the aspects mentioned earlier and beginning long-term studies on its populations.

Research Groups:

Tomás Rivas, Ricardo Figueroa and Javier Medel – Regions of: Bio-bío, Araucanía and Los Ríos, Chile.

Heraldo Norambuena and Víctor Raimilla – Cerro Ñielol Natural Monument, Araucanía Region, Chile.

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Buteo ventralis (male) Cerro Ñielol Natural Monument, Temuco, Southern Chile

Occurrence of the Black-banded Owl (*Strix huhula)* in the Urban Area of Niteroi, Rio de Janeiro State, Brazil

by Môsar Lemos, ABFPAR Associação Brasileira de Falcoeiros e Preservação de Aves de Rapina, lemosmosar@hotmail.com and Andréa de Andrade Rangel de Freitas, Faculdade de Veterinária. Universidade Federal Fluminense, andreaarfreitas@hotmail.com

There are two described sub-species of *Strix huhula,* - an owl endemic to South America: *S. huhula huhula* is found on this side of the Andes in the north portion of South America, from the extreme north (west colombiano to Guianas) to the Brazilian Amazon and the adjacent northeast (north of Maranhão and Piauí Status in Brazil); and *S. huhula albomarginata* found in the southeast of Brazil from Rio de Janeiro State to the State of Santa Catarina, and southeast of the State of Minas Gerais, the latter being restricted to the Atlantic forests in the southeast of Brazil, east of Paraquay and northeast of Argentina (Gonzaga and Castiglioni 2004). This owl measures 31 to 36 cm and has a black facial disk with white concentric lines. It utilizes the upper stratus of high tropical forests and humid subtropical forests (Duncan 2003).

Strix huhula

The species was described by Daudin in 1800 and according to Alves *et al.* (2000) it is not very abundant. The existing data from the State of Rio de Janeiro are insufficient to determine its conservation status. The majority of large owls are naturally rare, occurring in low densities with relatively extensive home ranges. They nest principally in natural cavities (Sick 1997) which are not easily available and are in demand by many animals. Also, their nocturnal habits makes it difficult to pinpoint this species' home range (Antunes *et al* 2006). Gonzaga and Castiglioni (2004) noted the presence of this species in the dense forests of Tijuca, in the city of Rio de Janeiro based on vocalization records from one individual. According to these authors, this was the first documented record of *S. huhula* in Rio de Janeiro City ruling out any doubts about the existence

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of this species in the region. It is not included in the list of raptors observed by Lemos (2000) in Niterói.

On 4 August, 2007 at 22:30 we first saw a large, dark silhouette of a bird trying to catch bats, which were feeding on nectar inside a bottle hanging approximately 2.5 meters above the ground. A short time later, during a second hunting attempt, the bird passed the garage, grabbing a bat, allowing us to see that it was a Black-banded Owl. At 23:50 the bird perched about six meters above in a branch of *Delonix regia* in the patio of the house, focusing its attention on where the bats were concentrated. It remained nearby for 10 minutes, which allowed us to confirm its identification and take a photographic record with a digital camera.

Strix huhula has been principally associated with areas of low altitude, up to 500 msnm, rarely reaching 1,400 meters. It inhabits humid forests with high trees (including the forests of Araucaria), but on occasions it is found in human-altered habitats such as banana and coffee plantations. The altitude and time at which we observed the species coincides with observations by Gonzaga and Castiglioni (2004) in the dense forest of Tijuca. It is well-known that nocturnal species more actively hunt during crepuscular hours and at night, until approximately 2100 hours. It has been suggested that a possible change in this schedule occurs on those nights when the moon is full, since visibility improves and there is a greater production of shadows as occurred on the night of our encounter with this species. The diet of Brazilian Strigidae is primarily made up of insects; however they also capture rodents, marsupials, bats, lizards and frogs. They prefer forests with open understories in which to hunt, often utilizing forest edges (Sick 1997). This is the first photographic record of the species in Rio de Janeiro State and demonstrates that small fragments of Atlantic Forest are important for maintaining biodiversity and should be preserved in urbanization projects.

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WHAT'S NEW IN RAPTOR LITERATURE

Compiled by Lloyd Kiff, The Peregrine Fund, lkiff@peregrinefund.org

MG. BIOTA is a technical scientific bulletin published by the Instituto Estadual de Florestas in Belo Horizonte, Minas Gerais, Brazil. An entire issue (vol. 1, no. 5; 2008) was recently devoted to the results of long-term surveys by members of the group, S.O.S. Falconiformes, of the raptors of Rio Doce State Park, where important remnants of Brazil's legendary Atlantic Forest still survive. This attractive, glossy-magazine format publication contains excellent photos and tightly written species accounts with factual information of interest to all Neotropical raptor enthusiasts. In addition the high production values of this publication make it a suitable tool for environmental education programs in Minas Gerais and other parts of Brazil. It provides an excellent model that could be emulated by raptor groups in other parts of the Neotropics. The specific papers include:

Pp.4-43, Carvalho Filho, E.P.M., G. Zorzin, M. Canuto, C.E.A. Carvalho, and G.D.M. Carvalho. Aves do rapina diurnas do Parque Estadual do Rio Doce, Minas Gerais, Brasil [Diurnal raptors of Rio Doce State Park, Minas Gerais, Brazil].

Pp. 44-57, Zorzin, G., M. Canuto, E.P.M. Carvalho Filho, and C.E.A. Carvalho. Aves de rapina noturnas do Parque Estadual do Rio Doce, Minas Gerais, Brasil [Nocturnal raptors of Rio Doce State Park, Minas Gerais, Brazil],

Pp.58-59, Canuto, M. Gavião-pombo-pequeno (*Leucopternis lacernulatus*) [White-necked Hawk [(*Leucopternis lacernulatus*)].

Fabio Raposo do Amaral, Frederick H. Sheldon, Anita Gamauf, Elisabeth Haring, Martin Riesing, Luis F. Silveira, and Anita Wajntal. 2009. Patterns and processes of diversification in a widespread and ecologically diverse avian group, the buteonine hawks (Aves, Accipitridae) . Molecular Phylogenetics and Evolution 53(3):703-715. Among several important studies of the molecular phylogenetics of raptors published in 2009, this paper was probably the one of greatest interest to Neotropical researchers. Based on sequences from mitochondrial markers and one nuclear intron from 54 species, the authors concluded that the genus *Buteo* originated in South America in the Miocene and subsequently expanded to the Nearctic and then to the Old World. Migratory behavior in this group evolved several times, contributing to the derivation of insular species and dispersal to the Holarctic. Of particular interest is further confirmation of the senior author's earlier conclusions (Amaral et al. 2006) that the widespread Neotropical genus *Leucopternis* is not monophyletic and that the species traditionally placed in it actually belong to three separate clades. This finding, which was also confirmed by Heather Lerner at the University of Michigan, still awaits appropriate action by the leading classification committees. It is of interest that the authors of this impressive paper are on the staffs of three laboratories on three different continents, a testimony to the growing trend for international collaboration in ornithology, particularly in the fast-moving field of molecular genetics.

Raptor researchers based in Mexico and Central America should be aware of the gold mine of significant raptor distributional information included in the quarterly *North American Birds* columns on Mexico (edited by Hector Gómez de Silva) and Central America (edited by Lee Jones, based in Belize, and Olivar Komar, based in El Salvador), for nearly a decade. For those interested in recent and ongoing raptor range expansions in the Central American region, this is the best place to find a blow-by-blow account. All of the raptor records in the Central America columns were recently added to the distribution sections of the GRIN species accounts (in the country-by-country summaries), and the ones for Mexican states and territories will be incorporated into GRIN in the near future. *North American Birds* is now published by the American Birding Association and an electronic file of the issues back to 1973 was recently added to the "SORA" website at http://elibrary.unm.edu/sora/NAB/index.php#.

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UPCOMING CONFERENCES

COS/AOU/SCO JOINT MEETING 7-11 February 2010, San Diego, California, USA **For more information visit:** http://www.birdmeetings.org/cosaousco2010/default.htm

BIRD MIGRATION AND GLOBAL CHANGE 17-20 March 2010, Strait of Gibraltar, Algeciras, SW Spain **For more information visit:** http://www.fundacionmigres.org/congresos/globalchange/Presentation.html

25th INTERNATIONAL ORNITHOLOGICAL CONGRESS 22-28 August 2010, Campos do Jordão, Sao Paolo, Brazil. **For more information visit:** http://www.ib.usp.br/25ioc/

GYRFALCONS AND PTARMIGAN IN A CHANGING WORLD 1-3 February 2011, Boise, Idaho, USA **For more information visit:** http://www.peregrinefund.org/Gyr_conference/

IX NEOTROPICAL ORNITHOLOGICAL CONFERENCE 2012, Peru. **For more information visit:** http://www.neotropicalornithology.org/

Harpyhaliaetus solitarius © Yeray Seminario

Neotropical Raptor Network

www.neotropicalraptors.org

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, ornithologists, raptor enthusiasts, and other conservationists working in the Neotropics.

To join the NRN please send an email to **mcurti@fondoperegrino.org**, introducing yourself and stating your interest in Neotropical raptor research and conservation.

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Articles were edited and/or translated by Saskia Santamaría, Angel Muela, Yeray Seminario, Edwin Campbell and Marta Curti.

NRN Coordinator: Marta Curti mcurti@fondoperegrino.org