Spizaetus

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The NRN is a membership-based organization. Its goal is to aid the research and conservation of Neotropical raptors by promoting communication and collaboration among biologists, ornithologists, raptor enthusiasts, and other conservationists working in the Neotropics.

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Spizaetus ornatus photographed in Arroyo Negro, Mexico.
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Arroyo Negro, México.
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Monoring of *Spizaetus ornatus* and Other Raptors in the Arroyo Negro Private Reserve, Mexico

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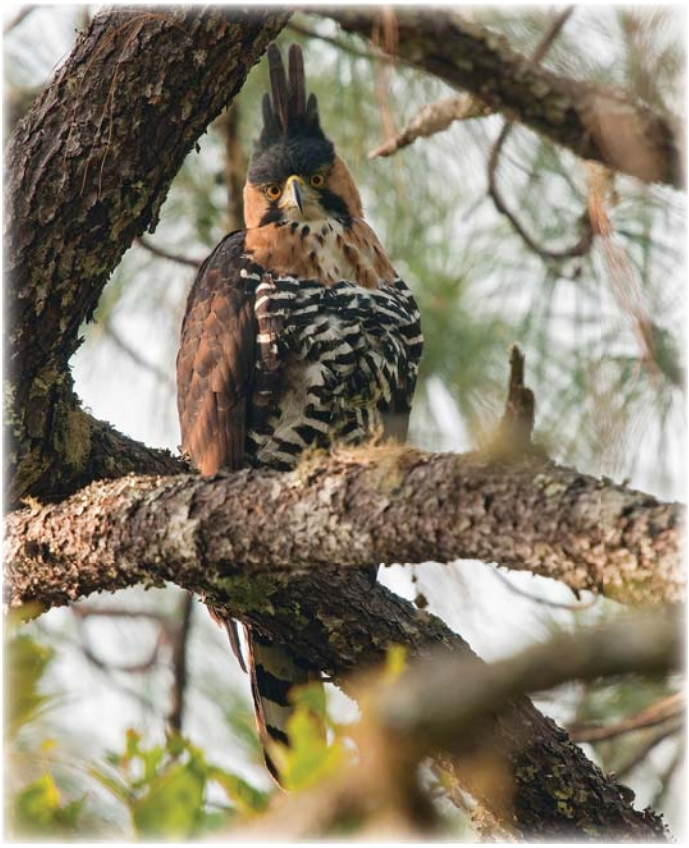
The Arroyo Negro Private Reserve, located in the Río Negrito basin in the Sierra Madre of Chiapas, La Concordia Municipality, in Chiapas, Mexico, is a high-quality coffee plantation committed to environmental protection. Of its 640 hectares, only 100 are utilized in the production of shade-grown coffee. In 2008, because of its management and environmental protection practices, Arroyo Negro was named as the only coffee plantation in the world to be producing "Conservation Coffee" by the United Nations and Rainforest Alliance. Part of Core Area 5's Buffer Zone of the El Triunfo Biosphere Reserve, it is home to at least 186 bird species and some rare mammals including Baird's tapirs (*Tapirus bairdii*), Neotropical river otters (*Lontra longicaudis*) and jaguars (*Panthera onca*).

Resident raptors include Ornate Hawk-Eagle (*Spizaetus ornatus*), Black Hawk-eagle (*Spizaetus tyrannus*), Common Black Hawk (*Buteogallus anthracinus*), Red-tailed Hawk (*Buteo jamaicensis*),

***Spizaetus ornatus*. Photo © Luznatura**



***Spizaetus ornatus*. Photo © Luznatura**

White Hawk (*Leucopternis albicollis*), Collared Forest-falcon (*Micrastur semitorquatus*), Laughing Falcon (*Herpetotheres cachinnans*), Bat Falcon (*Falco rufigularis*), Black Vulture (*Coragyps atratus*), Turkey Vulture (*Cathartes aura*) and King Vulture (*Sarcoramphus papa*), among others. Additionally one of the last Harpy Eagles (*Harpia harpyja*) reported in Mexico was captured in the area years ago.

Raptor Monitoring and Conservation

Beginning in 2007, we began a self-funded raptor monitoring program on the property, with special emphasis on studying the local population of *Spizaetus ornatus*. Although we have not used a specific monitoring methodology, our information is garnered from frequent field observations during which we try to gather as much data as possible on the diet and nesting habits of this species in this region of Mexico. When we reported our first *S. ornatus* nest to the Commission of Natural Protected Areas, they informed us that ours was the first record for this species in the area for more than 20 years.

Here, nesting season begins in November and to date we have located three *S. ornatus* pairs, all of which have utilized pine trees in which to build their nests. According to local workers, one of the nesting sites has been used for more than 25 years. This year, each pair has success-

***Spizaetus ornatus* juvenile**
Photo © J. Zenaido Canales Espinoza

Spizaetus ornatus **with its young. Photo © Luznatura**

fully raised only one chick. In fact, we observed an adult male throwing the younger of the two offspring out of the nest. Generally, the juvenile may stay in the parents' territory up to two years after fledging, and we have documented that the young bird sometimes helps to rebuild the nest, which usually measures about 1.5 m. As in other parts of their distribution, *S. ornatus* nests every other year.

We have observed several prey items being brought to the nest including: Emerald Toucanet (*Aulacorhynchus prasinus*), coatimundi (*Nasua narica*), Crested Guan (*Penelope purpurascens*), opossum *(Didelphis sp.*) and anteater (*Tamandua mexicana*).

Environmental Education

The visual documentation of the Arroyo Negro nests by wildlife photographers has contributed to a greater knowledge of birds of prey among the general public. Very soon, we hope to launch an education campaign among local communities that focuses on raptors. It is very important to raise awareness about the protection of birds of prey among the people, as evidenced by the recent seizure (April 19, 2011) by Arroyo Negro staff and the Federal Environmental Protection Agency (PROFEPA) of a juvenile *S. ornatus*. The hawk-eagle was caught by people from a neighboring farm and kept in appalling conditions for

a couple of months. Its left leg was broken and abscesses had formed. Unfortunately the report came too late and the bird died shortly after being seized.

It is very important that events like this do not occur again, and even though the Ornate Hawk-eagle is relatively abundant in Arroyo Negro, and is listed as "Least Concern" by the IUCN (IUCN 2010), its status in the rest of Mexico is unknown. It is listed in the NOM-059-SEMARNAT-2010 as "Endangered" (DOF 2010). Because of its low reproductive rate, the loss of a few individuals can have negative consequences for the population. Achieving a change of attitude toward birds of prey among the local people is vital.

Spizaetus ornatus
© J. Zenaido Canales Espinoza

Conclusion

Arroyo Negro is a place of great importance both for its biological richness and excellent state of preservation. It is also an example of sustainable economic development with respect to the environment. The monitoring program for birds of prey is generating information about the natural history of *S. ornatus* and other little known raptors and is the basis for environmental education projects that seek to spread greater awareness among local people about the importance of conserving these birds.

References

IUCN 2010. IUCN Red List of Threatened Species. http://www.iucnredlist.org/apps/redlist/details/144519/0

Diario Oficial de la Federación (DOF). 2010. NORMA Oficial Mexicana NOM-059-SEMARNAT-2010, Protección ambiental-Especies nativas de México de flora y fauna silvestres-Categorías de riesgo y especificaciones para su inclusión, exclusión o cambio-Lista de especies en riesgo. http://www.semarnat.gob.mx/leyesynormas/normas/Normas%20Oficiales%20Mexicanas%20Vigentes/NOM%20059%20SEMARNAT%202010%20PROTECCIÓN%20AMBIENTAL%20ESPECIES%20NATIVAS%20DE%20MÉXICO%20DOF%2030%20DIC%202010.pdf

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Raptor Mortality on Roads in Central and Northern Argentina: A Preliminary Analysis of the Problem

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A recent published review (Jacobson, 2005) highlighted the importance of roads and their impacts on birds. It listed the four most significant impacts as: direct mortality, indirect mortality, habitat fragmentation and ecosystem disturbance, although recently other, no less significant impacts have been mentioned, such as noise (Dooling & Popper 2007). Before this report, the majority of studies on roads and wildlife have been biased towards mammals, reptiles, amphibians and even arthropods. Birds were not previously considered, even though according to Erickson et al (2005) bird mortality caused by automobiles in the U.S. alone reaches 80 million birds/year. Based on a review of previous studies, Jacobson (2005) emphasizes the need to address both the impacts of roads on birds and the related mitigation measures, as the proposals to date and subsequent implemented changes have been directed toward the animal groups mentioned above. However, this study and others (Arroyave et al 2006) focus on this issue without taking into consideration such factors as socioeconomics and education, something that we are stressing when implementing mitigation measures in Argentina. No precedent has been set in this country, where the advance of agriculture in the last decades has, especially in the central and northern regions, gotten to such a point that half of the land surface of the country is covered by agricultural fields (Aizen et al 2009). Today, the largest crop is the so-called "cursed crop" (transgenic soy + Roundup) that occupies almost 50 % of the cultivated land. This has resulted in the massive loss of representative ecosystems such as the Chaco and Pampas grasslands, and of course has lead to a loss of biodiversity and massive fragmentation. Consequently, the local fauna either goes extinct or they

> There is a tendency to underestimate the impact of roads on bird populations. However, in the United States alone 80 million bird deaths a year are attributed to vehicle-related incidents (Erickson *et al* 2005).

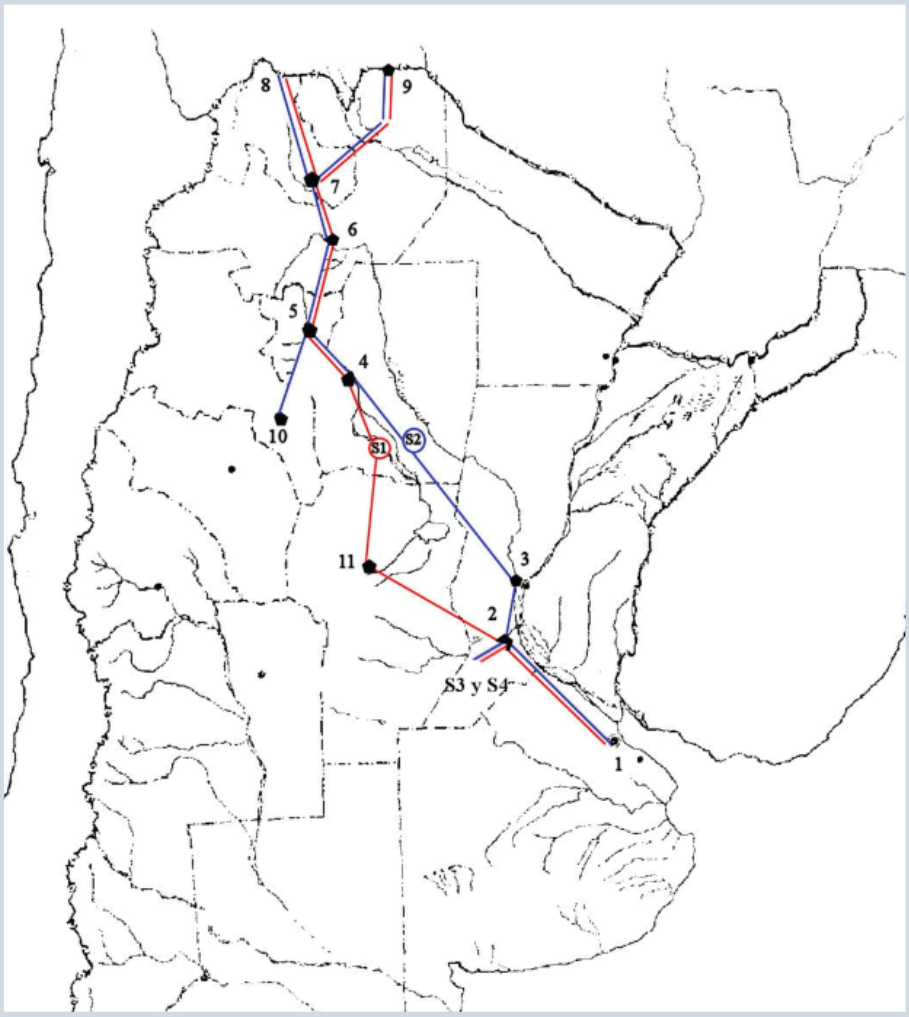
must look for new "islands" of habitat where they can continue to survive (if the carrying capacity allows). Although birds at least have better means to search for alternate habitats (flight), they are still affected by these changes. A perfect example is the case of Argentina's largest bird (*Rhea americana*). The massive deforestation of the Chaco has restricted its habitat, forcing individuals to inhabit areas modified by agriculture, where they end up shot (for eating seeds) (indirect mortality, *according to* Jacobson 2005) or, they must cross the roads in search of new habitat and often end up getting run over (direct mortality, *according to* Jacobson 2005).

Between 2007 and 2009 we conducted transects in the north and central regions of Argentina, two of them (Routes 9 and 34) are 1400 km each, and were surveyed eight times, and two other shorter routes (6 km: Provincial Route 92, from Casilda to National Route 33; and 56 Km: National Route 33, from the intersection at Rosario respectively to Santa Fe Province) were traveled 24 times in total (every 15 days, 2008).

During our study period, we collected an inventory of road-kill animals along the transects that, in number and diversity, unfortunately far exceeded our expectations. This has revealed a previously unconsidered problem: a lack of environmental, value-based, eduation, proper driver training, and a lack of respect for wildlife. We are currently analyzing the qualitative and quantitative data - however, among raptors, the species most affected by the roads are: *Coragyps atratus* (Cathartidae), *Caracara plancus* (Falconidae), *Athene cunicularia* and *Tyto alba* (Tytonidae). In this article, we will focus on the latter three.

Fig. 1: Left - two *Rhea americana* in an agricultural field, National Route 9. Right – an individual killed on the highway, National Route 34. Photos © E. Richard.

Athene cunicularia: This species has adapted well to agro-ecosystems and the resultant roads. In fact, many individuals are found near the highways that form part of the "soy route", so-named because of the continuous flow of trucks transporting this crop. Rodents are attracted to the area because they feed on the large amounts of soybeans that have fallen from the vehicles onto the road during transport. When the rodents come close to the road, they are exposed and become easy prey for this owl, which, unfortunately, is then often hit by passing vehicles. Additionally, the owls also congregate at the toll stations. These stations are very well lit, and, particularly in summer, attract large numbers of insects, mainly large beetles (*Coleoptera*), which are hunted by the owls. Near these toll stations, we have frequently seen many (n=25 over 18 toll stations monitored on Route 9) road-kill individuals. During just the first semester in 2008, we found a total of 28 road-killed Burrowing Owls along one of our transects (S2) Route 92 (6 km). All along our survey route, we regularly see this species perching on fence posts close to the road (Fig. 2). They are active both day and night. Their crepuscular behavior is of particular note. They search for their prey (normally rodents) while hovering in the air, relatively low to the ground. When they locate their quarry then they dive down onto the prey like a falcon. Because of the large availability



Map 1: Transects evaluated for this study. S1 = Segment of National Route 9. S2 = Segment of National Route 34. 1.- Buenos Aires, 2.- Rosario, 3.- Santa Fe, 4.- Santiago del Estero, 5.- San Miguel de Tucumán, 6.- Rosario de la Frontera, 7.- San Salvador de Jujuy, 8.- La Quiaca, 9.- Yacuiba, 10.- San Fernando del Valle de Catamarca, 11.- Córdoba.

Fig. 2: Upper left - *Athene cunicularia* perched close to the edge of Route 34. Upper right – nest and young of the same species, along the same route. Lower left and right: Individuals killed along Provincial Route 92 (S3). Photos © E. Richard.

of food nearby, the owls often choose to nest only a few meters from the road (between 10 and 25 m, n=65) (S1, S2, S3, S4), which has further consequences for the species. Being close to the road makes the young more vulnerable to being captured for the pet trade and they are periodically exposed to being sprayed with Glyphosate – a chemical used in the soy fields - the consequences of which need to be evaluated.

Tyto alba: This species is the least common of the three raptors we discuss in this paper. About two decades ago they were regular inhabitants of abandoned granaries, homes, and farms and were always seen in the rural areas of our study region. Once the production of soybeans began in Argentina the species has noticeably been disappearing in number and presence. They generally do not nest close to the road like the Burrow-

ing Owl, probably because their needs are different. However, they also travel close to the roads, mostly at dusk and at night, in search of rodents that go after the soybeans. This is when the Barn Owls are most often killed by vehicles.

Caracara plancus: This species is probably the most versatile of the Falconidae in regards to its dietary habits and it is, perhaps, the one that has best adapted to and taken advantage of the expansion of the agricultural frontier. This caracara is almost always present near roads where it feeds on the remains of road-killed animals. Unfortunately, it often falls victim to the same fate as we have confirmed that it is unscrupulously run over by both truck and car drivers with expert precision. The caracaras, when finding a dead animal on the asphalt, normally try as a group - and probably as a result of experience - to move the prey onto the shoulder or to a perch, where

Fig. 3: Left - *Tyto alba* killed on National Route 33, Right and Below – individuals killed on National Route 34. Photos © E. Richard

they begin to feed without the least concern for the nearby traffic. However, for too many drivers, running over animals on the road seems to be a source of amusement. Some drivers deliberately swerve onto the shoulder to purposefully run over animals they find there. We have been able to document eight individual *Caracara plancus* being hit by a vehicle driven at high speeds onto the shoulder on Route 34 (Santa Fe) where these birds were feeding on the remains of a gray brocket deer (*Mazama gouazoubira*). We saw the same thing happen at least four times during our study period. We took down vehicle license plate numbers and reported the incidents; however, this only elicited smiles from the authorities…

Conclusions and Recommendations

According to the literature review, numerous measures and solutions have been proposed and implemented, especially in the United States (Jackson 2001), and Europe (Banks et al 2001). These involve structural solutions (fencing systems, signage, reflectors, noise barriers, underpasses, overpasses, etc.) and non-structural solutions (olfactory repellents, ultrasound, lighting systems, habitat modification, etc.). However, it is important to note that: 1) the majority of these measures have been designed with land animals in mind (amphibians, reptiles, mammals), 2) few follow-up studies exist to measure the effectiveness of these actions, 3) studies indicate that any given measure has varied, relative effectiveness depending on which of the different groups of animals is being considered and to date, there are no measures that equally help all of the fauna involved, 4) there are no mitigation measures specifically for birds (except perhaps, informative signs). Apparently, their ability to fly has caused them to be generally ignored, 5) none of the proposed solutions take into consideration those species, and above all the birds, that have adapted to include roads as part of their hunting grounds, such as in the cases documented here. That is to say, they have not contemplated or studied the

***Caracara plancus*, a magnificent bird that has been able to adapt, like few others, to the agricultural frontier and has been able to diversify its hunting habits. As a consequence of its search for carrion on the roads, it encounters another cause of its mortality. Casilda, Santa Fe, Panasonic Lumix FZ 50, Zoom Leica vario Elmarit 35 – 420 mm + Flash de relleno. Photo: © E. Richard.**

Fig. 4:Top left - *Caracara plancus* with the remains of a Southern Lapwing (*Vanellus chilensis*) killed on the road. Top right - the same individual preparing to eat its prey while perched on a light post along Route 34 (Santa Fe). Lower left - five of eight individuals run over on purpose on Route 34 (Santa Fe) while feeding on *Mazama gouazoubira*. Lower right - four individuals (out of eight) in the "line of fire." Panasonic Lumix FZ 50, Zoom Leica vario Elmarit 35 – 420 mm. Photos © E. Richard

new population dynamics of those species that have not only adapted to anthropogenic developments (agriculture) but also to the dynamic of these activities in conjunction with the resulting highways. In the cases mentioned here, the owls find a never-ending food source in the rodents that go in search of the soybeans dropped by the trucks along the roads, and *Caracara plancus* and *Coragyps atratus* find their food in the road-killed animals along these routes. In both cases, the

road becomes, for those species, a cause of death. It begs the question: would it be appropriate to design or propose structural mitigation measures that would bar those species that clearly fulfill an important ecological function on the roads (rodent control, consumption and clean-up of dead animals, etc.)? What is certain is that the problem we are seeing hasn't been addressed. Unfortunately, we can confirm that vehicle impacts on the species involved are due to: 1) drivers that don't respect speed laws, even though the speed limit is clearly signed. In fact, on the majority of our transects, maximum speed limits are between 80 - 90 km but we have verified that most drivers go over 140 km/h, - a speed at which it is easy to lose control of the vehicle, and 2) drivers that intentionally swerve to hit animals. There exists no adequate awareness about the dangers involved in this, not only for the animals but for humans as well. This is reflected in the official statistics. In 2010 in Argentina there were an average of 21 traffic-related deaths/day and 7,659 in the year (http://www.luchemos.org.ar/es/estadisticas/muertosanuales/muertos2010).

Based on the above information we strongly believe that an educational program must be developed that addresses this problem. It should be mainstreamed and even included as part of the driver's exam. This should be accompanied by a massive media campaign and integrated into formal and informal environmental education programs. To date, at least in Argentina, this topic is not covered by any educational program. In relation to these wonderful birds – "we do not love what we don't understand, we don't conserve what we do not love." We need a state education policy by and for Argentina that promotes love and respect for our natural heritage, which helps people identify with and feel a sense of ownership toward the nation's wildlife... Until this happens, until we realize what we have and come to appreciate it, these birds, as well as the remaining biodiversity, will be destroyed without anyone caring. We believe it is essential to develop an awareness in people that helps them recognize what the roads have to offer in terms of biodiversity and wildlife. This is important not only for the conservation of species, but at least for us biologists, paying attention to the road helps keep us awake and alert; important factors to avoid accidents. Finally, as an accompanying structural measure, it would be appropriate to include signs on the roads alerting drivers to the presence of the animals and cautioning them to drive with care. Other signs should also be erected that briefly explain the importance of these species.

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References

Aizen, M., L. Garibaldi y M. Dondo. 2009. Expansión de la soja y diversidad de la agricultura argentina. Ecología Austral 19: 45 – 54. Argentina.

Arroyave, M., C. Gómez, M. Gutiérrez, D. Múnera, P. Zapata, I. Vergara, L. Andrade y K. Ramos. 2006. Impactos de las carreteras sobre la fauna silvestre y sus principales medidas de manejo. Revista EIA (5): 45-57. Colombia.

Banks, F. G., C. Iriwn, G. Evink, M. Gray., S. Hagood, J. Kinar, A. Levy, D. Paulson, B. Ruediger, R. Sauvajot, D. Scott, y P. White. 2002. Wildlife habitat connectivity across European highways. American Trade Initiatives, reporte No. FHwA-Pl-02-011. Alexandria.

Dooling, R. y A. Popper. 2007. The effect of highway noise on bird. The California Department of Transportation Division of Environmental Analysis. 74 p. USA

Erickson, W., G. Johnson y D. Young Jr. 2005. A summary and comparison of bird mortality from anthropogenic causes with an emphasis on collisions. USDA Forest Service Gen. Tech. Rep. PSW-GTR-191: 1029 – 1042. USA.

Jackson, S. D. 2001. Overview of transportation impacts on wildlife movement and populations. pp. 7 - 20. En: Wildlife and highways: seeking solutions to an ecological and socio-economic dilemma. 7th Annual Meeting of The wildlife Society. Nashville, Tennessee. 178p.

Jacobson, S. 2005. Mitigation measures for highway caused impact to bird. USDA Forest Service Gen. Tech. Rep. PSW-GTR-191: 1043 – 1050. USA.

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Taphonomic Studies of Raptor Prey in Argentina

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Classically, the analyses of skeletal remains recovered from pellets produced by diurnal and nocturnal raptors focuses on their evaluation mainly from a taxonomic point of view. However, taphonomic studies of recovered bones help establish the different patterns of change that each predator makes on the remains of its prey.

Several years ago, known taphonomic studies were carried out on collections produced by raptors of North America, Europe and Africa. Studies that involve South American raptors are still scarce. (Saavedra y Simonetti, 1998; Gómez, 2005, 2007).

One of the objectives of the project being developed at the Faculty of Natural Sciences (Universidad Nacional de La Pampa, Argentina) that evaluates taphonomic accumulations produced by different predators is to categorize various South American birds of prey. All skeletal remains recovered from pellets of diurnal and nocturnal raptors will be examined. The methodology used will analyze the anatomical representation, the degree of fracture and the degree of digestion of the skeletal elements recovered (Andrews, 1990; Fernández Jalvo y Andrews, 1992). The project thus seeks to establish diagnostic features that allow for the categorization of each predator, so that these results can be used as analogs for understanding the formation processes of fossil records.

These analyses are based on material collected in eastern La Pampa (central Argentina) and in Patagonia, Argentina. Studies in La Pampa are carried out in the vicinity of Santa Rosa (36 ° 37 'S, 64 ° 19' W). The vegetation of the area belongs to the espinal ecoregion (Cabrera 1994), which is dominated by Calden (*Prosopis caldenia*). The environment has been altered to include expanded agro-ecosystems with fragments that preserve some elements of the espinal (Calden and some bushes). Patagonia's flora is composed mainly of *Nassauvia glomerulosa*, and plants in the genera *Stipa, Festuca, Carex* and *Poa*. The most common shrub in the area is *Junellia tridens*, which is typical of the Patagonia Steppe, along with other shrubs

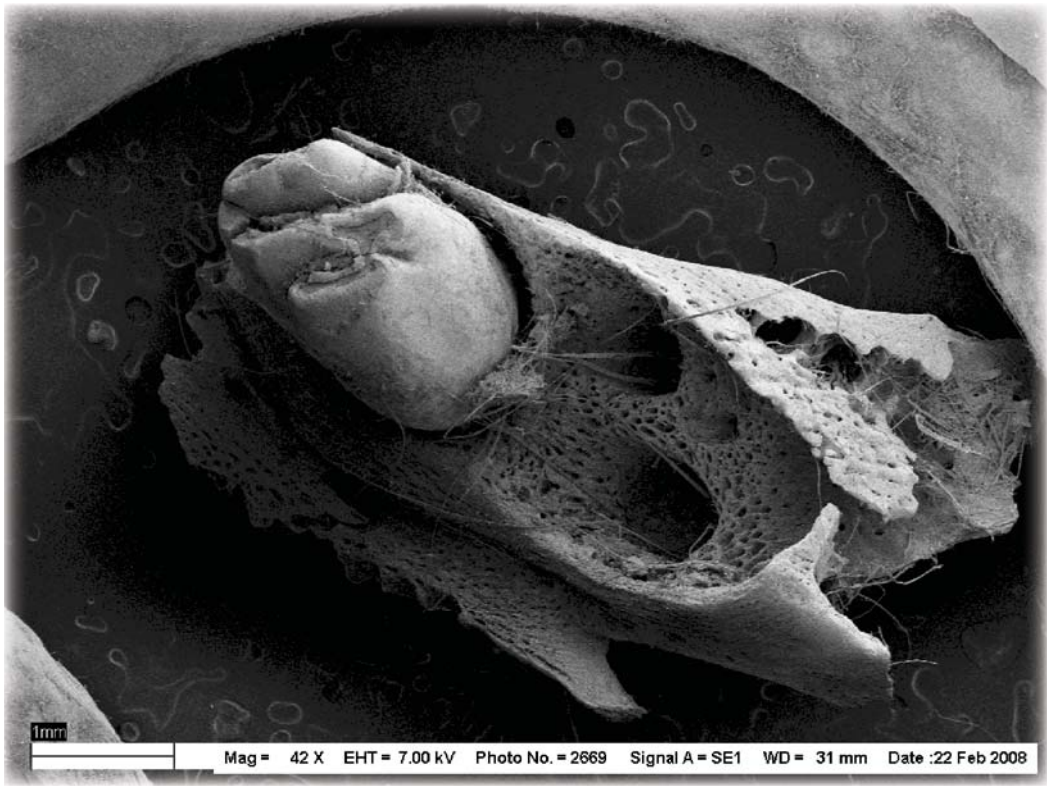

Fig. 1. Degree of digestion in skeletal elements (mandible of cricetidae rodent from *Buteo polysoma* pellet observed in our studies).

and low trees such as *Anartrophyllum rigidum, Schinus polygamus* and *Berberis heterophylla.* (Oliva et al. 2001). The locations of the study are the Petrified Forest National Monument (47 ° 66 'S, 67 ° 99' W) and Ria Deseado (47 ° 45 'S, 65 ° 56' W) in the province of Santa Cruz.

For this type of taphonomic analysis, large samples are sought of pellets and/or prey remains, so that there are enough bone elements to make the assessments relative. Recovered bones are observed under a Leica Ms5 stereomicroscope and those of greatest interest are photographed with a taphonomic scanning microscope (Fig. 1)

Currently, evaluations are being done on samples produced by Barn Owl (*Tyto alba*), Variable Hawk (*Buteo polyosoma*), American Kestrel (*Falco sparverius*), Peregrine Falcon (*Falco peregrinus*), Aplomado Falcon (*Falco femoralis*) and Austral Pygmy Owl (*Glaucidium nanum*) from the areas previously described.

So far, results have been obtained that allow for an assessment of the changes that *Athene cunicularia* provokes on the bones of its amphibian and rodent prey. This analysis was based on bones recovered from 132 pellets and allowed for the categorization of this raptor as a predator that

causes mild to moderate changes in the bones of its prey (Montalvo and Tejerina 2009). An additional 1,486 rodent bones were analyzed from 67 pellets produced by *Caracara plancus*. These results were compared with the changes that this predator made in the undigested remains of rodents. Findings suggest that the *Caracara plancus* produces two types of remains, one with bones that are greatly modified through digestion and breakage; and another that includes the bones of discarded body parts, which shows strong modifications due to breakage, but no corrosion due to digestion (Montalvo and Tallade, 2009, 2010).

Taphonomic studies are also being conducted on 1,699 rodent (mainly sigmodontine) bones obtained from 70 White-tailed Kite (*Elanus leucurus*) pellets. The representatives of the genus *Elanus* have many attributes that make them similar to Strigiformes, such as flight feathers with velvety barbules; zygodactyly; forward facing, large eyes; perioral bristles; thick, short tarsi; and equality in size and compactness of the pellets. It has been suggested that this is the result of evolutionary convergence in species which occupy similar ecological niches (Black et al. 2006). However, results of taphonomic evaluations confirm previous suggestions (Leveau et al. 2002) which indicate that *Elanus leucurus* causes strong to extreme changes in the bones of their prey, clearly different from those that are caused by Strigiformes.

Assuming that birds of prey could have contributed to the formation of bone accumulations in the past, and that remains of medium to small vertebrates represent an important part of the zooarchaeological and fossil records, these evaluations, which place these raptors in different categories based on the levels of modification they cause in the bones of their prey, can be used as current analogues that will help us to better understand the processes and agents that may have been involved in the formation of such records (Andrews, 1990, Fernández Jalvo y Andrews, 1992). Particularly, these studies help to interpret the possible accumulation mechanisms of the remains of small and medium vertebrates, common in the fossil record of Neogene deposits in Argentina

References

Andrews, P. 1990. Owls, caves and fossils. Predation, preservation, and accumulation of small mammal bones in caves, with the analysis of the Pleistocene cave faunas from Westbury-sub-Mendip, Somerset, UK, Natural History Museum Publications, London, pp. 231.

Cabrera, A. 1994. Regiones Fitogeográficas Argentinas. Enciclopedia Argentina de Agricultura y Jardinería, Primera Reimpresión, Tomo II, Fascículo I, Editorial Acme, Buenos Aires, Argentina.

Fernández Jalvo, Y. and Andrews, P. 1992. Small mammal taphonomy of Gran Dolina, Atapuerca (Burgos), Spain, Journal of Archaeological Science 19 (1992) 407-428.

Gómez, G. 2005. Analysis of bone modifications of *Bubo virginianus*' pellets from Argentina, Journal of Taphonomy 3 (1): 1-16.

Gómez, G., 2007. Predators categorization based on taphonomic analysis of micromammals bones: a comparison to proposed models. Taphonomy and Zooarchaeology in Argentina edited by M.A. Gutierrez, L. Miotti, G. Barrientos, G. Mengoni Goñalons and M. Salemme. ISBN 9781407300184 BAR S1601 (British Archaeological Report).

Leveau, L. M., C. M. Leveau and Pardiñas U. F. J. 2002. Dieta del Milano Blanco (*Elanus leucurus*) en Argentina. Ornitología Neotropical 13: 307-311.

Montalvo, C.I. and Tallade, P. 2009. Taphonomy of the accumulations produced by Caracara plancus (Falconidae). Analysis of prey remains and pellets. Journal of Taphonomy 7(2-3):235-248.

Montalvo, C. I. and Tallade, P.O. 2010. Análisis tafonómico de restos no ingeridos de roedores presa de *Caracara plancus* (Aves, Falconidae). Zooarqueología a principios del siglo XXI: aportes teóricos, metodológicos y casos de estudio, editado por M. De Nigris, P. M. Fernández, M. Giardina, A. F. Gil, M. A. Gutiérrez, A. Izeta, G. Neme and H. D. Yacobaccio (editores): 419-428.

Montalvo, C. I. and Tejerina, P. 2009. Análisis tafonómico de los huesos de anfibios y roedores depredados por Athene cunicularia (Strigiformes, Strigidae) en La Pampa, Argentina. En "Mamül Mapu: pasado y presente desde la arqueología pampeana" M. Berón, L. Luna, M. Bonomo, C. Montalvo, C. Aranda y M. Carrera Aizpitarte (editores), Tomo 1: 323-334.

Oliva, G., Gonzales L., Rial P. and Livraghi E.. 2001. Áreas ecológicas de Santa Cruz y Tierra del Fuego. Pp 41-82. En: P. BORRELLI AND G. OLIVA [EDS.]. Ganadería ovina sustentable en la Patagonia Austral. Tecnología de manejo extensivo. Convenio INTA-UNPA-CAP. Río Gallegos, Santa Cruz, Argentina.

Negro, J.J., Pertoldi C., Randi E., Ferrero J. J, López-Caballero J. M., Rivera D., and Korpimäki E. 2006. Convergent evolution of Elanus kites and the owls. Journal of Raptor Research 40(3):222-225.

Saavedra, B. and Simonetti, J., 1998. Small mammal taphonomy: intraspecific bone assemblage comparison between South and North American barn owl, *Tyto alba*, populations. Journal of Archaeological Science 25: 165-170.

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Neotropical Raptor Literature Notes

By **Lloyd Kiff,** The Peregrine Fund, lkiff@peregrinefund.org

Recent publications of interest to Neotropical researchers and students include the following popular title:

"Aves rapaces de Uruguay, Argentina, Brasil y Paraguay," by Fernando Perez PiedraBuena - a nice addition to the Mercosur raptor literature. This 64-page volume contains brief notes on the status, distribution, habitat, breeding biology, diet, and conservation of about 80 species of diurnal birds of prey and owls. The strongest feature of the book is the abundance of color photos (some of captive birds) of most of the species covered, and these should be a useful tool for field identification of the raptors in the region. The price of this book is $32 for Latin American countries outside of Uruguay and $34 for U.S. and European customers. It can be purchased at www.guyunusa.com, and payment can be made via PayPal. (Text in Spanish)

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Since its description in 1922, the White-collared Kite (*Leptodon forbesi*) of the humid forests of northeastern Brazil has been considered to be one of the most enigmatic and rarest raptor species in the world. Both its status as a separate species (from the more common Gray-headed Kite) and even its very survival have been regularly questioned over the past few decades. Surveys were conducted in the states of Alagoas and Pernambuco in October 2007 and February 2008 by an international team of raptor superstars to confirm the presence of the White-collared Kite and to gain some idea of its population size.

Two exciting and important papers have recently reported the major results of this work:

Dénes, F.V., L.F. Silveira, S. Seipke, R. Thorstrom, W.S. Clark, and J.-M. Thiollay. 2011. The White-collared Kite (*Leptodon forbesi* Swann, 1922) and a review of the taxonomy of the Grey-headed Kite (*Leptodon cayanensis*). Wilson Journal of Ornithology 123(2):323-331. (Text in English)

This paper is based in large part on the Master's thesis of Francisco Dénes, which he completed at the Universidade de São Paulo under the direction of Dr. Luis Silveira. Francisco and his co-authors made a detailed morphological analysis of the handful of specimens known of this species and provided a very convincing argument for the validity of the White-collared Kite as a separate species. The paper also includes the most

thorough analysis to date of the taxonomy of the closely related Gray-headed Kite, and the authors concluded that it is best treated as a monotypic species.

Seipke, S. H., F. V. Dénes, F. Pellinger, R. Thorstrom, J.-M. Thiollay, L. F. Silveira, and W. S. Clark. 2011. Field identification of White-collared Kite *Leptodon forbesi* and similar-looking species in north-east Brazil. Neotropical Birding 8:29-39. (Text in English).

This very detailed and well illustrated paper reports the major results of the field surveys and includes a wonderful color plate showing various views of the White-collared Kite and several similar sympatric species. The latter should be an invaluable aid to birders and researchers who visit northeastern Brazil in search of the White-collared Kite. Like the Dénes et al. paper, this one leaves little doubt that *Leptodon forbesi* is a "good" species. The authors took ca. 750 photographs of at least 20 individual kites, which provides some cause for hope that this species can be saved from extinction.

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Another recent paper with taxonomic and life-list consequences is:

Millsap, B.A., S.H. Seipke, and W.S. Clark. 2011. The Gray Hawk (*Buteo nitidus*) is two species. Condor 113:326-339. (Text in English with Spanish resumen)

As is the case with the *Leptodon* species, the taxonomy of gray hawks has been argued for decades at the generic, specific, and subspecific levels. In this paper, these three authoritative authors compared the plumage, morphology, and alarm calls of Gray Hawks from north and south of a distributional gap in the overall range in Costa Rica. On the basis of these characters, they concluded that two species should be recognized, including the Gray-lined Hawk (*Buteo nitidus*) south of Costa Rica and the Gray Hawk (*Buteo plagiatus*) north of Costa Rica. This interpretation coincides with the mitochondrial DNA study of Riesing et al. (2003), so it is anticipated that the pertinent North and South American Check-list Committees will adopt the authors' recommendations. (It is a total certainty that these hawks will be treated as two species in the field guides being published in the near future by Bill Clark and Sergio Seipke, respectively).

PDFs of these papers and hundreds of others can be found on the Global Raptor Information Network (GRIN), www.globalraptors.org; on the homepages of the authors; and in the GRIN bibliography.

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BELIZE RAPTOR RESEARCH INSTITUTE (BRRI)

Neotropical Raptor ID Workshop


Orange-breasted Falcon


Solitary Eagle

Thursday - Sunday: 11 -14 Aug. 2011
Course Instructor: William S. Clark
Location: Hidden Valley Inn, Belize

You are cordially invited to register for BRRI's first Neotropical Raptor Identification workshop. It will be conducted by International Raptor Expert and Author Bill Clark, in the Central American gem, Belize.

To register, or for more information, **please contact Ryan Phillips, harpiabz@yahoo.**com

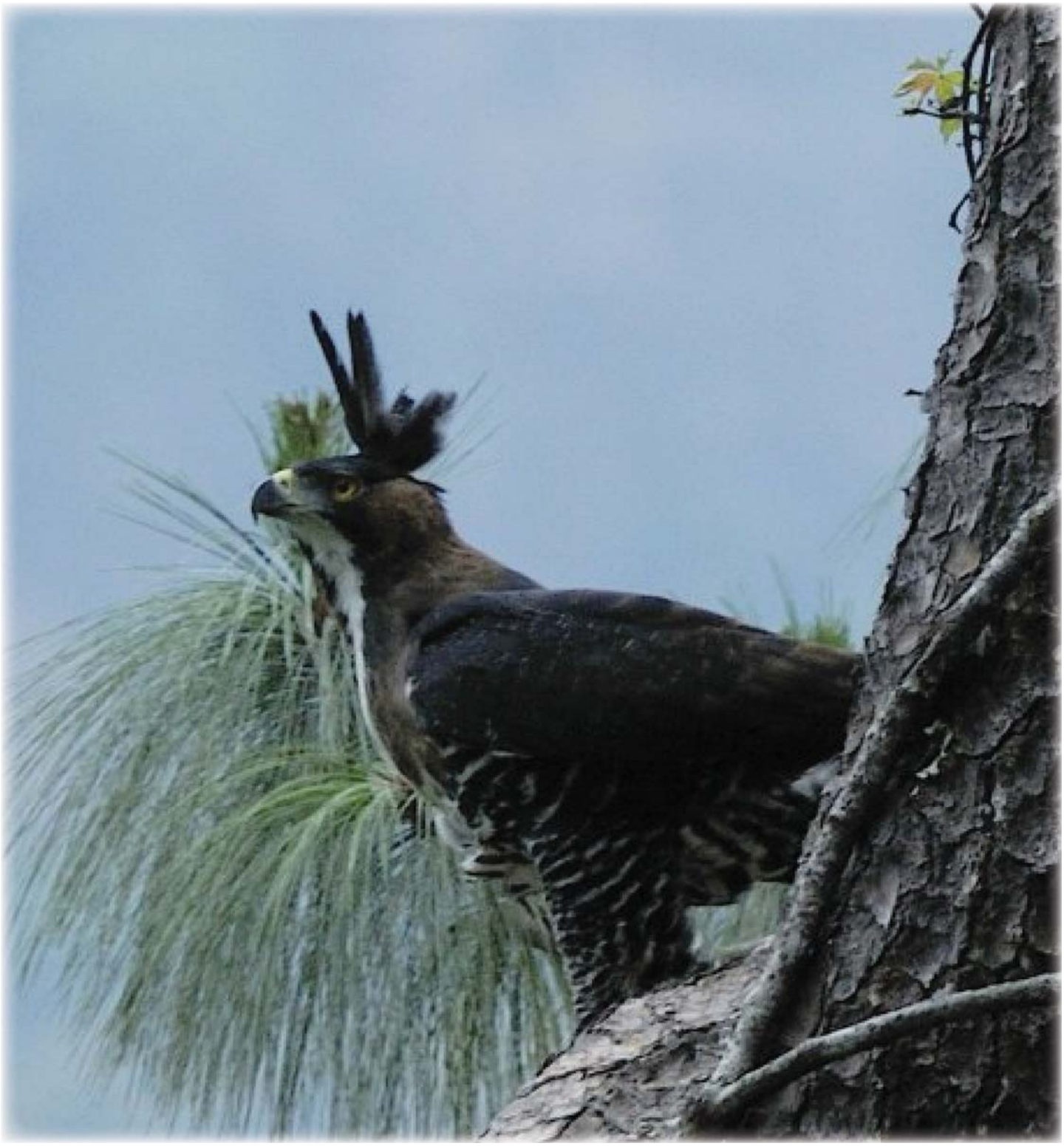
Upcoming Conferences

IX NEOTROPICAL ORNITHOLOGICAL CONFERENCE 8-14 November 2011 Cusco, Peru. http://www.neotropicalornithology.org/

MEETING OF THE AMERICAN ORNITHOLOGISTS' UNION 24-29 July 2011 Jacksonville, Florida, United States. http://www.birdmeetings.org/aou2011/

V NORTH AMERICAN ORNITHOLOGICAL CONFERENCE 14-18 August 2012 Vancouver, British Columbia, Canada. http://www.naoc-v2012.com/

A proposal is currently being considered to hold a joint **RAPTOR CONFERENCE in Bariloche, Argentina** in October 2013. Participating groups will likely include RRF, NRN & WWGBP. Confirmation and further details will be available later this year



To join the Neotropical Raptor Network please send an e-mail to Marta Curti at mcurti@peregrinefund.org, introducing yourself and stating your interest in Neotropical raptor research and conservation.