BioOne COMPLETE

Observations of the Post-fledging Behavior and Prey of the Solitary Eagle (Harpyhaliaetus solitarius)

Authors: Seminario, Yeray, Phillips, Ryan, and Curti, Marta

Source: Journal of Raptor Research, 45(3) : 261-264

Published By: Raptor Research Foundation

URL: https://doi.org/10.3356/JRR-11-08.1

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

Downloaded From: https://bioone.org/journals/Journal-of-Raptor-Research on 29 Mar 2024
Terms of Use: https://bioone.org/terms-of-use

J. Raptor Res. 45(3):261–264
© 2011 The Raptor Research Foundation, Inc.

Observations of the Post-fledging Behavior and Prey of the Solitary Eagle (*Harpyhaliaetus solitarius*)

Yeray Seminario[1]
The Peregrine Fund, 5668 West Flying Hawk Lane, Boise, ID 83709 U.S.A.

Ryan Phillips
Belize Raptor Research Institute, 1298 West Hacienda Avenue, Campbell, CA 95008 U.S.A.

Marta Curti
The Peregrine Fund, 5668 West Flying Hawk Lane, Boise, ID 83709 U.S.A.

Key Words: *Solitary Eagle*; Harpyhaliaetus solitarius; *behavior*; *Belize*; *diet*; *feeding*; *habitat*.

The Solitary Eagle (*Harpyhaliaetus solitarius*) is a rare and local resident with a small population size within its broad distributional range from northern Mexico to northwest Argentina (Ferguson-Lees and Christie 2001, Clark et al. 2006, BirdLife International 2008). Due to a combination of a small population, low density, low fecundity, deforestation, habitat degradation, poaching, and restricted habitat, the Solitary Eagle is listed as Near Threatened, but may be listed as Vulnerable based on further evidence of decreasing population size and trends (BirdLife International 2008).

Most aspects of the natural history, breeding biology, and population demographics are virtually unknown for this species, making any new information valuable for understanding the ecology of this rare eagle (Bierregaard 1998). Only two nests have been discovered for this species (Harrison and Kiff 1977). Both of them were in steep terrain within the vicinity of the transition zone between pine forest and broadleaf forest in Mexico, and in both cases, either the adults or eggs were collected

[1] Email address: yerasdy@gmail.com or harpiabz@yahoo.com

Downloaded From: https://bioone.org/journals/Journal-of-Raptor-Research on 29 Mar 2024
Terms of Use: https://bioone.org/terms-of-use

before any detailed observations could be made (Harrison and Kiff 1977). Therefore, incubation and fledging periods for this species are unknown (Ferguson-Lees and Christie 2001).

Here we present the first observations of the post-fledging dependence period of the Solitary Eagle, including interactions between a juvenile and adults, prey use, and habitat use.

STUDY AREA AND METHODS

Observations were made in the Cayo District of Belize (17°03′N, 88°50′W), 6 km from the Mountain Pine Ridge Forest Reserve. The terrain was a combination of a gently rolling upland plateau and a rugged escarpment with steep slopes and deep canyons (Means 1997). The area was sparsely populated by humans, with low human disturbance, except for the occasional training exercises carried out by the British military. Observations were made in the transition zone between submontane pine forest and submontane broad-leaved forest at an elevation of 720 m (Meerman and Sabido 2004) during the rainy season that occurs from June through November (Hartshorn et al. 1984). Mean annual precipitation in the Mountain Pine Ridge region was 2003 mm (Means 1997).

From 7 July to 10 October 2009, a team from The Peregrine Fund conducted a release of Orange-breasted Falcons (*Falco deiroleucus*) in the area. During this period, at least one person from the release team was present at the release site from 06:00 H to 18:30 H daily, watching the falcons, taking notes on their behavior, and recording other wildlife sightings. Weather conditions were recorded every hour. Observations were made using 10-×-42 binoculars and a 65-mm spotting scope from a small portable cabin on top of the highest point on the ridge. For every encounter with Solitary Eagles in the area, we recorded the date, time, location, number of eagles, their ages, whether the birds were perched or soaring, behaviors, and type of prey, if any.

RESULTS AND DISCUSSION

Between 9 July and 10 October 2009, we made 45 observations of either the adults or the juvenile, or one adult with the juvenile, in the study area. We first sighted an adult Solitary Eagle on 9 July. It was carrying an unidentified snake and flew low (approx. 50 m aboveground) past us, down into a canyon. We observed two adults together on two occasions. The first time, on 27 July, one of the adults flew in to the suspected nest area with an unidentified prey item. The other adult, who was vocalizing loudly, joined it. They landed together in a pine tree, and then flew down, presumably to the nest. The second and last time, on 18 August, both adults were soaring together and then flying far to the northwest, at least 1 km away from the study area.

We first observed the juvenile on 31 July 2009. It was perched in a Caribbean Pine (*Pinus caribaea*), picking at an epiphyte and hopping clumsily between the branches. This was the same location where we observed both adults on 27 July 2009. Based on the juvenile's behavior and fresh Basic I plumage (Fig. 1), we believe it had recently fledged and was close to the nest tree. The next day we observed the juvenile vocalizing and perched on a snag on top of the ridge 300 m away from the previous day's observation. During subsequent sightings, we noted an obvious improvement in its flying abilities.



Figure 1. A vocalizing juvenile Solitary Eagle, with characteristic Basic I plumage.

We observed this juvenile nearly every day from 31 July to 11 August and nine times from 12 August to 10 October. The juvenile was vocalizing each time we observed it. Its vocalizations were much harsher and raspier than the adults', making it easy to distinguish between them.

Interactions Between Juvenile and Adults. We observed three interactions between the juvenile and an adult; two consisted of the juvenile food-soliciting and flying at the adult, and the third comprised an adult vocalizing, then delivering prey to the juvenile. Frequently, we could hear vocal interactions between the juvenile and the adults. These vocalizations consisted of a long series of characteristic whistling, during which we often could only visually locate one of the individuals, while the other remained out of sight.

Downloaded From: https://bioone.org/journals/Journal-of-Raptor-Research on 29 Mar 2024
Terms of Use: https://bioone.org/terms-of-use



Figure 2. An adult Solitary Eagle with a partially consumed tropical rat snake (*Spilotes pullatus*).

Feeding Habits and Food Exchange. We observed the adult eagles with prey on six occasions: one time with an unidentified item, four times with medium- to large-sized snakes, and one time with an unidentified lizard measuring approximately 30 cm from the tip of the tail to the snout. From a photograph, we identified one prey item as a tropical rat snake (*Spilotes pullatus*), an arboreal snake (Fig. 2). The only food exchange we witnessed in its entirety occurred on 23 August, when the adult female approached the area while vocalizing and carrying a large unidentified snake, approximately 1 m long, in her talons. The juvenile, who was perched nearby, began vocalizing and flew up to meet the adult above the canopy. The adult perched in a pine tree near the top of the ridge and the juvenile perched beside her. The juvenile took the snake and remained in the same tree to eat, while the adult stayed for 2 min and then flew off.

Although we did not find a nest, our observations give some insight into the nesting habitat, prey items, and the postfledging stage of the Solitary Eagle. Our observations of the Solitary Eagle pair and fledgling all occurred within a transition zone between broadleaf and pine forest. Our observations suggest that the juvenile was dependent on its parents for food for at least 2.5 mo. Our observations of prey deliveries, consisting of four snakes and one lizard, supported the notion that Solitary Eagles have a specialized diet of reptiles.

OBSERVACIONES DEL COMPORTAMIENTO DURANTE EL PERÍODO POSTERIOR AL EMPLUMAMIENTO Y SOBRE LAS PRESAS DE *HARPYHALIAETUS SOLITARIUS*

RESUMEN.—El águila *Harpyhaliaetus solitarius* es una rapaz neotropical poco conocida y escasa. Con sólo dos nidos descubiertos para esta especie, existen pocos datos sobre su biología reproductiva, hábitat de anidación, período de emplumamiento o su dispersión juvenil. Observamos a una pareja con un juvenil volantón durante un período de tres meses, desde julio hasta octubre de 2009. Tuvimos un total de 45 observaciones en Mountain Pine Ridge, Belice, incluyendo interacciones entre el juvenil y un adulto, observaciones de presas capturadas, de intercambio de comida, de encuentros territoriales con otras rapaces y de uso de hábitat. Esta pareja de *H. solitarius* utilizó el área de transición entre el bosque siempre-verde y el de coníferas, en una región con pendientes abruptas. El juvenil dependió de los adultos durante los 3 primeros meses después del emplumamiento.

[Traducción del equipo editorial]

ACKNOWLEDGMENTS

We thank George and Melina Headley for their continuous support of our research and for conservation of wildlife in Belize. Thanks to the Roe family and the Hidden Valley Inn staff for being an invaluable help during our research. Jenn Sinasac and Aldo Ortiz were volunteering on the Orange-breasted Falcon releases and greatly contributed to the observations and gathering of the data. Thanks to Bill Clark, Jack Eitniear, and Jan Meerman for reviewing and adding important comments to the manuscript. The Orange-breasted Falcon work was made possible thanks to funding from Wolf Creek Charitable Foundation.

LITERATURE CITED

BIERREGAARD, R.O. 1998. Conservation status of birds of prey in the South American tropics. *Journal of Raptor Research* 32:19–27.

BIRDLIFE INTERNATIONAL. 2008. *Harpyhaliaetus solitarius*. IUCN Red List of Threatened species, Version 2010.3. www.iucnredlist.org (last accessed 15 September 2010).

CLARK, W.S., H.L. JONES, C. BENESH, AND J. SCHMITT. 2006. Field identification of the Solitary Eagle. *Birding* 38:66–74.

FERGUSON-LEES, J. AND D. CHRISTIE. 2001. Raptors of the world. Houghton Mifflin Company, Boston, MA U.S.A.

HARRISON, E.N. AND L. KIFF. 1977. The nest and egg of the black Solitary Eagle. *Condor* 79:132–133.

HARTSHORN, G.S., L. NICOLAIT, L. HARTSHORN, G. BEVIER, R. BRIGHTMAN, J. CAL, A. CAWICH, W. DAVIDSON, R. DUBOIS, C. DYER, J. GIBSON, W. HAWLEY, J. LEONARD, R. NICOLAIT,

Downloaded From: https://bioone.org/journals/Journal-of-Raptor-Research on 29 Mar 2024
Terms of Use: https://bioone.org/terms-of-use

D. WEYER, H. WHITE, AND C. WRIGHT. 1984. Belize country environmental profile: a field study. USAID Contract No. 505-0000-C-00-3001-00. Robert Nicolait and Associates Ltd., Belize City, Belize.

MEANS, B. 1997. Natural history of Mountain Pine Ridge. Bull Run Overseas, Ltd., Cayo, Belize.

MEERMAN, J. AND W. SABIDO. 2004. Belize broad ecosystems map. Biodiversity and Environmental Resource Data System of Belize, San Ignacio, Belize.

Received 26 January 2011; accepted 15 April 2011
Associate Editor: Carol L. McIntyre

Downloaded From: https://bioone.org/journals/Journal-of-Raptor-Research on 29 Mar 2024
Terms of Use: https://bioone.org/terms-of-use