

Historical and recent records of the Harpy Eagle (*Harpia harpyja*) in the Cerrado biome of the state of Goiás, Brazil

Diego Afonso Silva¹, Fabiano Rodrigues de Melo^{1,2,4}, and Izaltino Gonçalves Guimarães Júnior³

¹ Universidade Federal de Goiás, Campus Jataí, Br 364, km 192, no. 3.800, Parque Industrial, Jataí, GO.

² Centro de Estudos Ecológicos e Educação Ambiental – CECO, Praça dos Estudantes, 23, Santa Emília, Carangola, MG.

³ Av. Professor Izaltino Gonçalves Guimarães, 298, Setor Epaminondas, Jataí, GO.

⁴ Corresponding author: fabiano_melo@ufg.br

Received on 27 August 2012. Accepted on 20 November 2013.

ABSTRACT: We report on a historical record of *Harpia harpyja* for the Cerrado biome, in the municipality of Jataí, southwestern Goiás and on a recent record from Cocalzinho (central Goiás) obtained in 2012. There is no current evidence supporting the occurrence of this species in the southern and southwestern portions of the State of Goiás, suggesting that it may be considered regionally extinct there, probably as a result of the extensive deforestation that took place in the region over the last 50 years. The recent Cocalzinho record revealed that at least small isolated populations of *Harpia harpyja* might persist in more densely forested regions of the state.

KEY-WORDS: Cocalzinho; Geographic distribution; forest; Jataí; Range extension.

The Harpy Eagle (*Harpia harpyja*) is the largest species among raptors in the Neotropical region, occurring from southern Mexico to Central and South America (Ferguson-Lees & Christie 2001, Vargas *et al.* 2006). In Brazil, it has been recorded in almost all states, with the exception of a few regions in the northeast, and most of the remaining populations are currently concentrated in the Amazon (Vargas *et al.* 2006). The occurrence of this species became extremely rare in other biomes such as the Atlantic Forest and the Cerrado, where few recent records have been obtained (Hilty & Brown 1986, Galetti *et al.* 1997, Sick 1997, Pacheco *et al.* 2003, Scherer-Neto & Ribas 2004, Silveira *et al.* 2005, Oliveira & Silva 2006, Srbek-Araújo & Chiarello 2006, Aguiar-Silva *et al.* 2012).

One of the rare exceptions with potential for population stability outside of the Amazon is the Atlantic Forest region in southern to Bahia, where multiple individuals have been recorded in recent years (Silveira *et al.* 2005, Srbek-Araújo & Chiarello 2006, ICMBio 2008), and the first release of this species in the wild occurred in Brazil (C. E. A. Carvalho *pers. comm.*). Regions close to southern Bahia such as the municipality of Bandeira, in the state of Minas Gerais, which still present remnants of Ombrophylus Dense Forests, also shelter resident individuals of *Harpia harpyja* (Melo 2004).

This species has been threatened by habitat destruction, hunting, practice of captivity by humans, and natural vulnerability resulting from low population densities and low reproductive rates (Hilty & Brown 1986, Trinca *et al.* 2008). In addition, *Harpia harpyja* is considered as near threatened with extinction (BirdLife International 2013), and it is not protected by specific legislation in Brazil (Pivatto *et al.* 2006). In Brazil, formal protection is only present in states where the species figures in published red lists such as in Minas Gerais and Espírito Santo (Passamani & Mendes 2007, Drummond *et al.* 2008).

Silva (1995) and Sick (1997) report *Harpia harpyja* in the Brazilian Cerrado, and Hidasí (1983) collected specimens in the state of Goiás (municipality of Aragarças), in the decades of 1950 and 1960. Silva (1995) points out that several bird species with occurrence in the Cerrado are dependent on forests, which is the case of the Harpy Eagles, reinforcing the importance of these types of environments for large raptor species. Nevertheless, records of the Harpy Eagle in savannah-like environments exist, despite being scarce, with the latest ones obtained in 2006 (Oliveira & Silva 2006, Zorzín *et al.* 2006).

Herein, we report on a new record of the Harpy Eagle for the Cerrado biome in southwestern Goiás.

One sub-adult specimen of *Harpia harpyja* was hunted down in 1965 in the region known today as “Mata do Suluca” (17°57’S; 51°46’W), a forested area near the municipality of Jataí (Goiás) (Figure 1). This locality is only about 250 km south of Aragarças, where Hidasi (1983) collected specimens around the same time when the Jataí bird was shot. The Jataí bird was shot with a firearm and not consumed as food. It is not possible to establish the exact reasons for this kill because the people involved have passed away. It is known that some potential Harpy Eagle preys still live in this area such as coatis (*Nasua nasua*), Capuchin monkeys (*Cebus libidinosus*), baby deers (*Mazama* spp.), armadillos (*Dasyus* spp., *Cabassous unicinctus*, and *Euphractus sexcinctus*), Red-legged seriemas (*Cariama cristata*), Bare-faced curassows (*Crax fasciolata*), and Rusty-margined guans (*Penelope superciliaris*). There is no evidence of occurrence of sloths (*Bradypus* spp. and *Choloepus* spp.) in this region regardless of these animals being considered one of the favorite Harpy Eagle preys in tropical forests (Galetti & Carvalho Jr. 2000, Touchton *et al.* 2002).

Our hypothesis is that Harpy Eagles were present

in the past in southwestern Goiás based on the past predominant presence in this region of phyto-physiognomies that are typical of Seasonal Deciduous and Semi-deciduous forests (Veloso *et al.* 1991, Oliveira-Filho & Ratter 2002, Scariot & Seville 2005, Sano *et al.* 2008). However, these forests practically no longer exist, except for the presence of forest remnants such as in the municipality of Jataí. Oliveira-Filho & Ratter (2002) point out that 40,000 km² of these two forest typologies were decimated before the consolidation of modern agriculture in the Cerrado region. In early 2000s, it was possible to go through more than 1,400 km between Goiás and Tocantins passing through about 50% of forest stretches originally known as “Mato Grosso de Goiás” (Oliveira-Filho & Ratter 2002). Nowadays, these forests are almost completely decimated as the result of the level of deforestation practiced and reached in Goiás (Carvalho *et al.* 2009); few significant areas remained untouched, in portions of isolated hills, in south-central Goiás. Because of the degree of fragmentation in the area, it is unlikely that this forest typology could hold a minimal Harpy Eagle population.

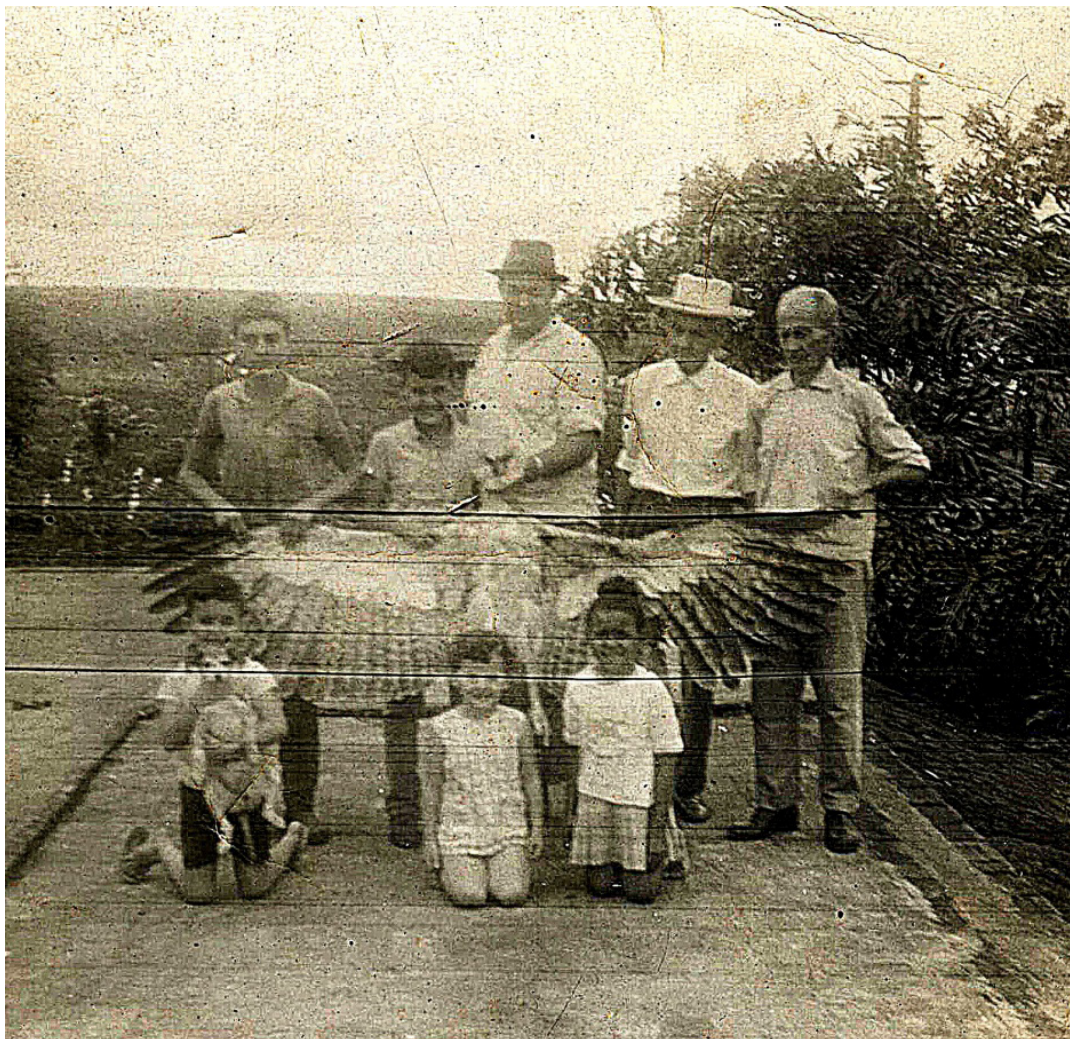


FIGURE 1. Sub-adult individual of a Harpy Eagle (*Harpia harpyja*) photographed in 1965 after being hunted near the municipality of Jataí, Goiás. Photo taken by: Izaltino Gonçalves Guimarães *in memoriam*.

The historical record reported herein contributes to a better understanding of the Harpy Eagle's distribution and knowledge on the past avifauna of the state of Goiás. The Harpy Eagle is considered a good indicator of little disturbed ecosystems (Albuquerque 1995), however, with the Cerrado destruction and advancement of agriculture and farming, Harpy Eagle populations that inhabited this region in the past were likely extinct. Nevertheless, one recent report in Goiás revealed that even small isolated populations might persist in more densely forested regions. In 2012, one adult female was shot with a firearm ("cartucheira"), captured by the Forest Police Battalion in the city of Cocalzinho, in the central region of Goiás state (15°46'10"W; 48°46'10"S), and taken to the Screening Center for Wild Animals (CETAS) at the Brazilian Institute for the Environment and Natural Resources (IBAMA), located in Goiânia. This Harpy Eagle was examined by a veterinary team, treated to recover, and will probably be released when ready to re-enter its natural habitat. The reason for this shooting is unknown (L. C. F. da Silva *pers. comm.*). This recent record is extremely important because it is the most recent confirmation of the presence of this species in the state of Goiás. Furthermore, it indicates that this region and probably also the northern part of the state, might be hosting small Harpy Eagle populations, and hence can be regarded as priority areas for scientific research on this species.

ACKNOWLEDGEMENTS

The authors are grateful to Carlos Eduardo A. Carvalho for providing important data for the contribution, and to Fábio Olmos for reviewing an early version of this manuscript.

REFERENCES

- Aguiar-Silva, F. H.; Sanaiotti, T. M.; Jaudoin, O.; Srbek-Araujo, A. C.; Siqueira, G. & Banhos, A. 2012.** Harpy Eagle sightings, traces and nesting records at the "Reserva Natural Vale", a Brazilian Atlantic Forest remnant in Espírito Santo, Brasil. *Revista Brasileira de Ornitologia*, 20(2): 148-155.
- Albuquerque, J. L. B. 1995.** Observations of rare raptors in southern Atlantic rainforest of Brazil. *Journal of Field Ornithology*, 66: 363-369.
- BirdLife International. 2012.** *Harpia harpyja*. In: IUCN 2013. IUCN Red List of Threatened Species, version 2013.1. www.iucnredlist.org (access on 11 September 2013).
- Carvalho, F. M. V.; De Marco, P. & Ferreira, L. G. 2009.** The Cerrado into-pieces: Habitat fragmentation as a function of landscape use in the savannas of central Brazil. *Biological Conservation*, 142: 1392-1403.
- Drummond, G. M.; Machado, A. & Martins, C. 2008.** *Listas vermelhas das espécies da fauna e da flora ameaçadas de extinção em Minas Gerais*, 2ª ed. Belo Horizonte, Fundação Biodiversitas.
- Ferguson-Lees, J. & D. A. Christie 2001.** *Raptors of the world*. New York: Houghton Mifflin Company.
- Galetti, M. & Carvalho Jr., O. 2000.** Sloths in the diet of a harpy eagle nestling in eastern Amazonia. *Wilson Bulletin*, 112(4): 535-536.
- Galetti, M.; Martuscelli, P.; Pizo, M. A. & Simão, I. 1997.** Records of Harpy and Crested Eagles in the Brazilian Atlantic forest. *Bulletin of the British Ornithologists' Club*, 117: 27-31.
- Hidasi, J. 1983.** *Lista preliminar das aves do Estado de Goiás*. Goiânia: Fundação Museu Ornitológico de Goiânia, Goiânia.
- Hilty, S. & W. L. Brown. 1986.** *A Guide to the Birds of Colombia*. Princeton University Press, Princeton.
- ICMBio – Instituto Chico Mendes de Conservação da Biodiversidade, Coordenação-Geral de Espécies Ameaçadas. 2008.** *Plano de ação nacional para a conservação de aves de rapina*. Série Espécies Ameaçadas, 5. Brasília: ICMBio. .
- Melo, F. R. 2004.** *Primatas e áreas prioritárias para a conservação da biodiversidade no vale do rio Jequitinhonha, Minas Gerais*. PhD. dissertation. Belo Horizonte: Programa de Pós-Graduação em Ecologia, Conservação e Manejo de Vida Silvestre, ICB / UFMG.
- Oliveira, A. L. & Silva, R. S. 2006.** Registro de Harpia (*Harpia harpyja*) no cerrado de Tapira, Minas Gerais, Brasil. *Revista Brasileira de Ornitologia*, 14(4): 433-434.
- Oliveira-Filho, A. T. & Ratter, J. A. 2002.** Vegetation Physiognomies and Woody Flora of the Cerrado Biome, p. 91-120. In: Oliveira, P. S. & Marquis, R. J. (eds.). *The Cerrados of Brazil Ecology and Natural History of a Neotropical Savanna*. New York: Columbia University Press.
- Pacheco, J. F.; Fonseca, P. S. M. & Parrini, R. 2003.** Coletânea cronológica de registros recentes de *Harpia harpyja* (L.) para os estados do Rio de Janeiro e Espírito Santo. *Atualidades Ornitológicas*, 111: 7.
- Passamani, M. & Mendes, S. L. 2007.** *Espécies da fauna ameaçadas de extinção no Estado do Espírito Santo*. Vitória: IPEMA.
- Pivatto, M. A. C.; Manco, D. D. G.; Straube, F. C.; Urben-Filho, A. & Milano, M. 2006.** Aves do Planalto da Bodoquena, Estado do Mato Grosso do Sul (Brasil). *Atualidades Ornitológicas*, 129: 1-26.
- Sano, E. E.; Dambrós, L. A.; Oliveira, G. C. & Brites, R. S. 2008.** Padrões de cobertura de solos do Estado de Goiás, p.91-106. In: Ferreira Jr., L. G. (org.). *A encruzilhada sócio-ambiental: biodiversidade, economia e sustentabilidade no cerrado*. Goiânia: Editora UFG.
- Scariot, A. & Sevilha, A. C. 2005.** Biodiversidade, estrutura e conservação de florestas estacionais decíduais no cerrado, p.121-140. In: Scariot, A.; Sousa-Silva, J. C. & Felfili, J. M. (orgs.). *Cerrado: ecologia, biodiversidade e conservação*. Brasília: MMA.
- Scherer-Neto, P. & Ribas, C. F. 2004.** Registro de harpia *Harpia harpyja* no litoral sul do Brasil. *Atualidades Ornitológicas*, 122: 4-8.
- Sick, H. 1997.** *Ornitologia Brasileira*. Rio de Janeiro: Editora Nova Fronteira.
- Silva, J. M. C. 1995.** Birds of the Cerrado Region, South American. *Steenstrupia*, 21: 69-92.
- Silveira, L. F.; Develey, P. F.; Pacheco, J. F. & Whitney, B. M. 2005.** Avifauna of the Serra das Lontras-Javi montane complex, Bahia, Brazil. *Cotinga*, 24: 45-54.
- Srbek-Araújo, A. C. & Chiarello, A. G. 2006.** Registro recente de harpia, *Harpia harpyja* (Linnaeus) (Aves, Accipitridae), na Mata Atlântica da Reserva Natural Vale do Rio Doce, Linhares, Espírito Santo e implicações para a conservação regional da espécie. *Revista Brasileira de Zoologia*, 23 (4): 1264-1267.
- Touchton, J. M.; Hsu, Y. & Palleroni, A. 2002.** Foraging ecology of reintroduced captive-bred subadult harpy eagles (*Harpia harpyja*) on Barro Colorado Island, Panama. *Ornitologia Neotropical*, 13: 365-379.
- Trinca, C. T.; Ferrari, S. F. & Lees, A. C. 2008.** Curiosity killed the bird: arbitrary hunting of Harpy Eagles *Harpia harpyja* on an agricultural frontier in southern Brazilian Amazonia. *Cotinga*, 30: 12-15.

- Vargas, J.; Whitacre, D.; Mosquera, R.; Albuquerque, J.; Piana, R.; Thiollay, J. M.; Márquez, C.; Sánchez, J. E.; Lezama-López, M.; Midence, S.; Matola, S.; Aguilar, S.; Rettig, N. & Sanaiotti, T. 2006. Estado y distribución actual del Águila Arpia (*Harpia harpyja*) em Centro y Sur América. *Ornitología Neotropical*, 17: 39-55.
- Veloso, H. P.; Rangel Filho, A. L. R. & Lima, J. C. A. 1991. *Classificação da vegetação brasileira adaptada a um sistema universal*. Rio de Janeiro: IBGE.
- Zorzin, G.; Carvalho, C. E. A.; Carvalho-Filho, E. P. M. & Canuto, M. 2006. Novos registros de Falconiformes raros e ameaçados para o estado de Minas Gerais. *Revista Brasileira de Ornitologia*, 14(4): 417-421.

Special Associate Editor: Aureo Banhos dos Santos