

Registration of the species *Crax fasciolata* Spix, 1825 (Bare-faced curassow) in a Conservation Unit in the city of Franca - SP, Brazil

Registro da espécie *Crax fasciolata* Spix, 1825 (Mutum-de-penacho) em Unidade de Conservação na cidade de Franca - SP, Brasil

Registro de la especie *Crax fasciolata* Spix, 1825 (Pavón maitú) en una Unidad de Conservación en la ciudad de Franca - SP, Brasil

Received: 04/16/2022 | Reviewed: 04/23/2022 | Accept: 04/29/2022 | Published: 05/01/2022

Renata Alves de Barros

ORCID: <https://orcid.org/0000-0002-3067-1505>
University of Franca, Brazil

E-mail: renata.foster@hotmail.com

Andresa Talita de Mattos

ORCID: <https://orcid.org/0000-0001-5720-6534>
University of Franca, Brazil

E-mail: andresamattos91@gmail.com

Maísa Ziviani Alves

ORCID: <https://orcid.org/0000-0001-9395-082X>
University of Franca, Brazil

E-mail: maisaziviani@yahoo.com.br

Marcela Aldrovani Rodrigues

ORCID: <https://orcid.org/0000-0002-5734-3042>
University of Franca, Brazil

E-mail: marcela.rodrigues@unifran.edu.br

Alex Luiz de Andrade Melo

ORCID: <https://orcid.org/0000-0002-7770-8379>
University of Franca, Brazil

E-mail: alex.melo@unifran.edu.br

Vinícius Thomaz da Silva Almeida

ORCID: <https://orcid.org/0000-0003-4030-5864>
University of Franca, Brazil

E-mail: vinithomaz2001@hotmail.com

Fernanda Gosuen Gonçalves Dias

ORCID: <https://orcid.org/0000-0001-6072-4789>
University of Franca, Brazil

E-mail: fernanda.dias@unifran.edu.br

Abstract

Cracids represent one of the most threatened groups of birds in Latin America, in which more than a third of the species are in danger of extinction, especially the bare-faced curassow (*Crax fasciolata*), classified as critically endangered in the State of São Paulo. In this context, measures are necessary to guarantee its conservation, such as the evaluation of areas with occurrence of the species, as well as the conservation of the last remnants of semideciduous forest in the State. Thus, this article aims to present the records of specimens of the *Crax fasciolata* species, obtained through photographic trapping, in the year 2019, in a Municipal Conservation Unit located in the urban area of the municipality of Franca, São Paulo. Four specimens were visualized, three females and one male, in an area of Semideciduous Seasonal Forest. Thus, it is concluded that the protected area is characterized as a favorable environment for the survival of the species, pointing out the extreme importance of the Conservation Unit.

Keywords: Cracids; Trap camera; Threatened birds.

Resumo

Os cracídeos representam um dos grupos de aves mais ameaçados da América Latina, no qual mais de um terço das espécies estão em perigo de extinção, destacando-se o mutum-de-penacho (*Crax fasciolata*), classificado como criticamente em perigo no Estado de São Paulo. Nesse contexto, fazem-se necessárias medidas que garantam sua conservação, como a avaliação de áreas com ocorrência da espécie, assim como a conservação dos últimos remanescentes de mata semidecídua do Estado. Assim, o presente artigo tem como objetivo apresentar os registros de exemplares da espécie *Crax fasciolata*, obtidos através de armadilhamento fotográfico, no ano de 2019, em uma Unidade de Conservação Municipal localizada na zona urbana do município de Franca, São Paulo. Foram

visualizados quatro espécimes, sendo três fêmeas e um macho, em área de Floresta Estacional Semidecidual. Dessa forma, conclui-se que a área protegida se caracteriza como um ambiente favorável para a sobrevivência da espécie, apontando a extrema importância da Unidade de Conservação.

Palavras-chave: Cracídeos; Câmera trap; Aves ameaçadas.

Resumen

Los crácidos representan uno de los grupos de aves más amenazados de América Latina, en el que más de la tercera parte de las especies se encuentran en peligro de extinción, en especial el pavón muitú (*Crax fasciolata*), catalogado como en peligro crítico de extinción en el estado de São Paulo. En ese contexto, son necesarias medidas para garantizar su conservación, como la evaluación de áreas con presencia de la especie, así como la conservación de los últimos remanentes de selva semicaducifolia en el Estado. Así, este artículo tiene como objetivo presentar los registros de especímenes de la especie *Crax fasciolata*, obtenidos a través de trampas fotográficas, en el año 2019, en una Unidad de Conservación Municipal ubicada en el área urbana del municipio de Franca, São Paulo. Se visualizaron cuatro ejemplares, tres hembras y un macho, en un área de Bosque Estacional Semidecidual. Así, se concluye que el área protegida se caracteriza por ser un ambiente favorable para la supervivencia de la especie, señalando la extrema importancia de la Unidad de Conservación.

Palabras clave: Cracídeos; Cámara trampa; Aves amenazadas.

1. Introduction

The Cracidae (Galliformes) family is composed of curassows, guans, and chachalacas, constituting a considerable group of frugivorous forest birds (Brooks, 2002a), which play a fundamental role in the maintenance of tropical forests, standing out as important seed dispersers and acting in forest regeneration (Brooks & Fuller, 2006). Cracids are known as a Neotropical group, although they are widely distributed, inhabiting from southern Texas to northern Argentina and Uruguay (Sick, 1997; Brooks & Fuller, 2006).

Crax fasciolata (Bare-faced curassow) is distributed across southwestern and central Brazil, Paraguay and northern Argentina (Clay & Oren, 2006), occurring mainly in semideciduous forests, gallery forests and edges of dense forests (Stotz et al., 1996; Sick, 1997; Wallace et al., 2001; White, 2001). Considered an important biological indicator of the state of conservation of ecosystems, it has terrestrial habits and shows preference for proximity to water bodies (Wallace et al., 2001), requiring large areas of primary or secondary forests in an advanced state of regeneration (Silveira et al., 2008).

Due to the destruction of tropical forests and illegal hunting, cracids represent one of the most threatened groups of birds in Latin America, with more than a third of the species in danger of extinction (Sick, 1997). Furthermore, they are important game birds, used as a food source by peasants and traditional indigenous communities, with a high number of slaughtered individuals (Brooks & Fuller, 2006). The bare-faced curassow reproductive strategy cannot compete with these threats, as its sexual maturity is late, from two to three years of age (Silveira et al., 2008). As a consequence, in recent decades, many cracid species have had their population size reduced, joining the list of endangered species (Laganaro, 2013), in addition, several species have already become locally extinct, even in regions theoretically dedicated to conservation (Peres, 2000).

The species *Crax fasciolata* was once considered practically extinct (Bressan et al., 2009) and is currently in the “Critically Endangered” category, according to the latest listing of threatened species in the State of São Paulo (Decree 63,853/2018). Thus, measures are necessary to guarantee its conservation, such as the evaluation of protected areas in Brazil where there may be specimens of the species, as well as the preservation of the last remnants of semideciduous forest in the State, in addition to ex-situ conservation, aiming at the reintroduction of this species in nature (Brooks & Strahl, 2000; Bressan et al., 2009).

Given this context, the present work aimed to present records of specimens of the *Crax fasciolata* species, photographed in the Zoobotanical Garden, Municipal Conservation Unit, located in the municipality of Franca, in the interior of São Paulo.

2. Methodology

From May to July 2019, in the Zoobotanical Garden, Municipal Conservation Unit of Franca (area of 26 ha), interior of São Paulo State (20°28'37.7"S 47°24'10.9"W) a trap was set photograph (Model HC 700 mg 16MP) on the trunk of a tree, with an approximate height of 30 cm from the ground. The place was provided with baits (cinnamon, bacon, banana, apple, papaya, guava, coarse salt, peanut butter, sardines or tuna) to attract the animals present.

Usually used in studies of medium and large mammals, camera traps provide the identification of species that are often not possible to be sampled by footprints, in addition to being useful in the study of nocturnal, stealthy or low-density animals (Karanth et al., 2003; Tomas & Miranda, 2003). However, camera traps are considered appropriate for studies of large ground-dwelling birds such as cracids and pheasants (O'Brien & Kinnaird, 2008). In this sense, its applications include documenting the occurrence of rare species and registering new species.

3. Results and Discussion

In the established period, individuals of *Crax fasciolata* were recorded near one of the springs of the Pouso Alto spring, in an area of seasonal semideciduous forest. Three females and one male were photographed and filmed together on June 25, 2019 (Figure 1) and an isolated female was recorded on June 26 of the same year (Figure 2).

As observed in the records, sexual plumage dimorphism is present in this species, the male being characterized by black plumage with a white belly region, while the female has white bands on the black forelock, black head and neck, cinnamon chest and beige belly, coinciding with the scientific descriptions by Frank-Hoeflich et al. (2007) and WikiAves (2021).

The group was recorded in the morning (9:55 am to 10:01 am) and afternoon (2:06 pm to 3:15 pm). The isolated female was recorded in the morning of the following day (8:46 am to 8:49 am).

Picture 1. Photographic record of three females and one male of the *Crax fasciolata* (Bare-faced curassow) species at the Franca Zoobotanical Garden in June 2019.



Source: Personal archive (2019).

Picture 2. Photographic record of a female *Crax fasciolata* (Bare-faced curassow) at the Franca Zoobotanical Garden in June 2019.



Source: Personal archive (2019).

In addition to these records made with the aid of the camera trap, a female and a male were also occasionally viewed and photographed by this same team, on October 14 and 17, 2019, in an area close to the administrative headquarters of the Conservation Unit (Figure 3). Subsequently, employees of the Franca Zoobotanical Garden reported seeing a female and a calf, during the months of November and December of the same year, in areas close to the camera trap records, so the records presented earlier appear to precede the reproductive period, which varies across the wide distribution range of the species (Senič, 2020).

Picture 3. Photographic record of a couple of the species *Crax fasciolata* (Bare-faced curassow) at the Franca Zoobotanical Garden in October 2019.



Source: Personal archive (2019).

In the scientific literature, most observations have shown that these birds tend to live alone or in pairs (Clay & Oren, 2006; Gomes et al., 2018), although there are rare reports of small family groups or only males (Lowen, 1996); White, 2001; Wallace et al., 2001; Desbiez & Bernardo, 2011).

The municipality of Franca is in the transition between the Atlantic Forest and Cerrado biomes (São Paulo, 2017), however, only 16.6% of the territory is composed of native vegetation (Nalon et al., 2020), resulting from the intense expansion agricultural frontier from the 19th century onwards (Lima, 2009), which can directly affect the occurrence of the species, as cracids are particularly susceptible to habitat destruction and other disturbances such as hunting, fires, as well as domestic species (Brook & Fuller, 2006), also recorded during the sampling period.

The aforementioned photographic records are relevant, because in the municipality of Franca there are only two other documents of the species, submitted to the Wikiaves Virtual Encyclopedia, but all without reference points of the exact location of the sighting. The first record is from June 2014, where only one female was seen (Meleti, 2014). The most recent record is dated July 2021, in which a female accompanied by a calf was observed (Veronez, 2021).

4. Final Considerations

The Franca Zoobotanical Garden, despite being a relatively small protected area, is home to native tree species in an advanced state of regeneration, as well as two springs and an affluent watercourse of Ribeirão Pouso Alto, characterizing itself as a favorable environment for the survival and possible mating area of the bare-faced curassow.

Thus, the records point to the extreme importance of the Conservation Unit and given the conservation status of the bare-faced curassow, we suggest as a focus deeper and sequential studies, covering different methodologies, aiming over time, the verification of parameters such as abundance, as well as behavioral studies of the species.

Acknowledgments

University of Franca, Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES, Finance Code 001) and Franca Zoobotanical Garden.

References

- Bressan, P. M., Kierulff, M. C. M., & Sugieda, A. M. (2009). *Fauna Ameaçada de Extinção no Estado de São Paulo: Vertebrados*. Fundação Parque Zoológico de São Paulo, Secretaria do Meio Ambiente. http://arquivos.ambiente.sp.gov.br/fauna/2016/12/livro_vermelho2010-1.pdf
- Brooks, D. M. (2002a). Curassows, Guans and Chachalacas. In M. Hutchins, J. A. Jackson, W. J. Bock & D. Olendorf (Eds.), *Grzimek's Animal Life Encyclopedia, Birds I* (2nd ed, pp. 413-424). Gale Group.
- Brooks, D. M., & Fuller, R. A. (2006). Biologia e Conservação de Cracídeos. In S. L. Pereira, D. M. Brooks (Eds.), *Conservando os Cracídeos: a família de aves mais ameaçadas das Américas*. (6th. ed, pp. 9-15). Misc. Publ. Houston Mus. Nat. Sci.
- Brooks, D. M., & Strahl, S. D. (Compilers). (2000). *Curassows, Guans and Chachalacas: Status Survey and Conservation Action Plan for Cracids 2000–2004*. IUCN/SSC Cracid Specialist Group. <https://www.iucn.org/es/content/curassows-guans-and-chachalacas-status-survey-and-conservation-action-plan-cracids-2000-2004>
- Clay, R. P., & Oren, D. C. (2006). Cracídeos Quase Ameaçados. In S. L. Pereira, D. M. Brooks (Eds.), *Conservando os Cracídeos: a família de aves mais ameaçadas das Américas*. (6th. ed, p. 49-55). Misc. Publ. Houston Mus. Nat.
- Desbiez, A. L. J. & Bernardo, C. S. S. (2011, September). Density estimates of the Bare-faced Curassow (*Crax fasciolata*) in the Brazilian Pantanal. *Revista Brasileira de Ornitologia*, 19(3), 385-390. <http://www.revbrasilornitol.com.br/BJO/article/view/4409/0>
- Frank-Hoeflich, K., Silveira, L. F., Estudillo-López, J., García-Koch, A. M., Ongay-Larios, L., & Piñero, D. (2007). Increased taxon sampling of molecular and osteological data resolves disagreements in Cracid phylogeny. *Journal of Zoological Systematics and Evolutionary Research*, 45, 242-254. <https://doi.org/10.1111/j.1439-0469.2007.00396.x>
- Gomes, A. P. N., Fornitano, L., Costa, R. T., Angeli, T., Morais, K. D. R., Olifiers, N., & Bianchi, R. C. (2018). The importance of protected areas for conservation of bare-faced curassow (*Crax fasciolata* spix, 1825) (Galliformes: Cracidae) in the São Paulo State, Brazil. *Biota Neotropica*, 18(3), Article e20180524. <https://doi.org/10.1590/1676-0611-BN-2018-0524>
- Karanth, K. U., Nichols, J.D., Cullen Júnior, L. (2003). Armadilhamento fotográfico de grandes felinos: algumas considerações importantes. In: L. Cullen Jr, R. Rudran e C. Valadares-Pádua (Eds.). Métodos de estudos em biologia da conservação e manejo da vida silvestre (pp. 269-284). Curitiba: UFPR
- Laganaro, N. M. (2013). *Análise de variabilidade genética do mutum-de-penacho (Crax Fasciolata) (Aves, Cracidae)*. [Master's thesis, Federal University of São Carlos]. UFSCar Institutional Repository. <https://repositorio.ufscar.br/handle/ufscar/1529>
- Lima, M. M. (2009). *Zoneamento geoambiental do município e região de Franca-SP*. [Undergraduate thesis, São Paulo State University] Universidade Estadual Paulista, Instituto de Biociências de Rio Claro. Unesp Institutional Repository. <http://hdl.handle.net/11449/119652>
- Lowen, J.C. (1996). *Biological surveys and conservation priorities in eastern Paraguay: The Final Reports of Projects Canopy '92 and Yacutinga '95*. CSB Cons. Publ.
- Meleti, D. F. (2014). [WA1347996, *Crax fasciolata* Spix, 1825]. (2014, June 5). *A Enciclopédia das Aves do Brasil* [Online forum post]. Wiki Aves. <http://www.wikiaves.com/1347996>
- O'Brien, T. G. & Kinnaird, M. F. (2008). A picture is worth a thousand words: the application of camera trapping to the study of birds. *Bird Conserv Int*, 18, 144-162.
- Peres, C. A. (2000) Effects of subsistence hunting on vertebrate community structure in Amazonian forests. *Conservation Biology*, 14(1), 240-253, fev. 2000. <https://acervo.socioambiental.org/acervo/documentos/effects-subsistence-hunting-vertebrate-community-structure-amazonian-forests>
- Pereira, S. L., & Brooks, D. M. (Eds.). (2006). *Conservando os Cracídeos: a família de aves mais ameaçadas das Américas*. (6th. ed). Misc. Publ. Houston Mus. Nat. Sci.
- São Paulo. (2018). *Declara as espécies da fauna silvestre no Estado de São Paulo regionalmente extintas, as ameaçadas de extinção, as quase ameaçadas e as com dados insuficientes para avaliação, e dá providências correlatas* (Decreto nº 63.853, de 29 de novembro de 2018). Diário Oficial Estado de São Paulo, São Paulo. http://www.imprensaoficial.com.br/DO/GatewayPDF.aspx?link=/2018/executivo%20secao%20i/novembro/29/pag_0001_b7b1e1ba7b93f650707cc67012e01b90.pdf>
- São Paulo. Secretaria do Meio Ambiente. (2017). *Institui o Mapa de Biomas do Estado de São Paulo e dá outras providências* (Resolução SMA nº 146, de 08 de novembro de 2017). Diário Oficial do Estado, São Paulo.
- Senič, M. (2020). *Camera trap based data analysis of the Bare-faced Curassow (Crax fasciolata) life history patterns in the northern Pantanal, Brazil*. [Master's thesis, University of Primorska]. University of Primorska Repository. <https://repositorij.upr.si/IzpisGradiva.php?id=12757&lang=slv>
- Sick, H. (1997). *Ornitologia Brasileira*. Nova Fronteira.

Silveira, L. F., Soares, E. S., & Bianchi, C. A. (2008). *Série Espécies Ameaçadas: Plano de ação para conservação de Galliformes ameaçados de extinção (aracuaãs, jacus, jacutingas, mutuns e urus)* (6th. ed.). Instituto Chico Mendes de Conservação da Biodiversidade, Ministério do Meio Ambiente.

Stotz, D. F., Fitzpatrick, J. W., Parker III, T. A., & Moskivits, D. K. (1996). *Neotropical birds: ecology and conservation*. University Chicago Press.

Tomas, W. M. & Miranda, G. H. B. (2003). Uso de armadilhas fotográficas em levantamentos populacionais, 243-267. In: L. Cullen Jr, R. Rudran & C.Valladares-padua (Eds). Métodos de estudo em biologia da conservação e manejo da vida silvestre. Curitiba, UFPR.

Veronez, M. (2021). [WA4399849, *Crax fasciolata* Spix, 1825]. (2021). A *Enciclopédia das Aves do Brasil* [Online forum post]. Wiki Aves. <https://www.wikiaves.com/4399849>

Wallace, R. B., Painter, R. L. E., Rumiz, D. I., Sainz, L., & Taber, A. B. (2001). Comparative ecology of cracids in northern Dpto. Santa Cruz, Bolivia. In D. M. Brooks, F. Gonzalez Garcia (Eds.). *Cracid Ecology and Conservation in the New Millenium*. (2nd ed., pp. 68-86). Misc. Publ. Houson Mus. Nat. Sci. https://www.researchgate.net/publication/268577669_Comparative_Ecology_of_Cracids_in_Northern

White, E.E. (2001). Estancia Guaycolec como un área importante para la conservación de *Crax f.fasciolata* y *Penelope o. obscura* en el Chaco húmedo de Formosa, Argentina. *Bulletin of the IUCN/BirdLife/WPA Cracid Specialist Group*, 13, 14-18.

Wikiaves. (2021). *Mutum-de-penacho Crax fasciolata*. WikiAves, a Enciclopédia das Aves do Brasil. <https://www.wikiaves.com.br/wiki/mutum-de-penacho>