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INTERAÇÃO TRÓFICA ENTRE *BUBO VIRGINIANUS* (GMELIN, 1788) (STRIGIFORMES; STRIGIDAE) E *JACANA JACANA* (LINNAEUS, 1766) (CHARADRIIFORMES; JACANIDAE) NO PANTANAL SUL-MATO-GROSSENSE

TROPHIC INTERACTION BETWEEN *BUBO VIRGINIANUS* (GMELIN, 1788) (STRIGIFORMES; STRIGIDAE) AND *JACANA JACANA* (LINNAEUS, 1766) (CHARADRIIFORMES; JACANIDAE) IN THE SOUTHERN PANTANAL OF MATO GROSSO DO SUL

INTERACCIÓN TRÓFICA ENTRE *BUBO VIRGINIANUS* (GMELIN, 1788) (STRIGIFORMES; STRIGIDAE) Y *JACANA JACANA* (LINNAEUS, 1766) (CHARADRIIFORMES; JACANIDAE) EN EL PANTANAL SUR DE MATO GROSSO DO SUL

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Resumo

Bubo virginianus (Gmelin, 1788), conhecido popularmente como coruja-orelhuda, apresenta ampla distribuição pelas Américas, ocorrendo desde o norte do Canadá até o extremo sul da América do Sul. Apesar dessa ampla distribuição, diversos aspectos de sua história natural permanecem pouco compreendidos, especialmente no contexto do Brasil e da região Neotropical. A maioria dos estudos ecológicos concentra-se em seus hábitos alimentares, os quais revelam uma dieta generalista e oportunista, dominada por aves e mamíferos, com variações associadas à disponibilidade de presas. Durante um levantamento noturno de herpetofauna realizado em 25 de agosto de 2025, por volta das 23h, em uma área rural de Aquidauana, Mato Grosso do Sul, Brasil, foi documentada uma

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interação trófica entre um indivíduo adulto de *B. virginianus* e um jovem *Jacana jacana* (Linnaeus, 1766). A coruja foi observada empoleirada no topo de uma árvore morta segurando a ave em suas garras antes de alçar voo. O evento ocorreu próximo a uma área úmida caracterizada por densa vegetação aquática, habitat propício à ocorrência de *J. jacana*, espécie previamente registrada no local durante atividades diurnas de forrageamento acompanhada de filhotes. Corujas de grande porte, como *B. virginianus*, apresentam elevadas demandas energéticas, necessitando de extensas áreas de forrageamento, as quais variam conforme a abundância de presas e a estrutura do habitat. No Pantanal, a diversidade de microambientes e a alta disponibilidade de presas especialmente pequenos mamíferos e aves podem reduzir a competição intraespecífica e a necessidade de amplas áreas de caça. Este registro constitui o primeiro caso documentado de predação de *J. jacana* por *B. virginianus* no Pantanal sul-mato-grossense. Registros oportunísticos como este contribuem significativamente para a compreensão das interações predador-presa envolvendo espécies de topo trófico, ampliando o espectro de presas conhecidas de *B. virginianus* na região Neotropical e enriquecendo o conhecimento sobre sua ecologia alimentar e dinâmica ecológica em ambientes úmidos do bioma Pantanal.

Palavras-chave: *Bubo virginianus*; *Jacana jacana*; predação; Pantanal; ecologia trófica.

Abstract

Bubo virginianus (Gmelin, 1788), commonly known as the Great Horned Owl, exhibits a wide distribution throughout the Americas, ranging from northern Canada to southern South America. Despite its extensive range, many aspects of its natural history remain poorly understood, particularly within Brazil and the Neotropical region. Most ecological studies have focused on its feeding habits, revealing a generalist and opportunistic diet dominated by birds and mammals, with variations related to prey availability. During a nocturnal herpetofaunal survey conducted on August 25, 2025, at approximately 23:00 h, in a rural area of Aquidauana, Mato Grosso do Sul, Brazil, we documented a trophic interaction between an adult *B. virginianus* and a juvenile *Jacana jacana* (Linnaeus, 1766). The owl was observed perched atop a dead tree holding the prey in its talons before flying away. The event occurred near a wetland area characterized by dense aquatic vegetation, a suitable habitat for *J. jacana*, which had been previously observed foraging with chicks during daylight hours. Large owls such as *B. virginianus* have high energetic demands, requiring extensive foraging areas that vary according to prey abundance and habitat structure. In the Pantanal, the diversity of microhabitats and high availability of prey, particularly small mammals and birds, may reduce intraspecific competition and foraging range requirements. This observation represents the first documented record of predation on *J. jacana* by *B. virginianus* in the southern Pantanal. Opportunistic records such as this provide valuable contributions to the understanding of predator–prey interactions involving top trophic-level species, complementing indirect dietary studies based on pellet or fecal analyses. The record expands the known prey spectrum of *B. virginianus* in the Neotropical region, offering new insights into its feeding ecology and the

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ecological dynamics of wetland environments in the Pantanal biome.

Keywords: *Bubo virginianus*; *Jacana jacana*; predation; Pantanal; trophic ecology.

Resumen

Bubo virginianus (Gmelin, 1788), comúnmente conocido como el búho cornudo, presenta una amplia distribución a lo largo de las Américas, desde el norte de Canadá hasta el sur de Sudamérica. A pesar de su extensa distribución, muchos aspectos de su historia natural permanecen poco comprendidos, especialmente en Brasil y en la región Neotropical. La mayoría de los estudios ecológicos se han centrado en sus hábitos alimentarios, revelando una dieta generalista y oportunista, dominada por aves y mamíferos, con variaciones relacionadas con la disponibilidad de presas. Durante un muestreo nocturno de herpetofauna realizado el 25 de agosto de 2025, alrededor de las 23:00 h, en un área rural de Aquidauana, Mato Grosso do Sul, Brasil, se documentó una interacción trófica entre un individuo adulto de *B. virginianus* y un juvenil de *Jacana jacana* (Linnaeus, 1766). El búho fue observado empoleado sobre la copa de un árbol muerto, sosteniendo a la presa con sus garras antes de emprender el vuelo. El evento tuvo lugar cerca de un área húmeda caracterizada por densa vegetación acuática, un hábitat adecuado para *J. jacana*, especie previamente observada forrajeando con polluelos durante el día. Búhos de gran tamaño como *B. virginianus* presentan elevadas demandas energéticas, requiriendo amplias áreas de forrajeo que varían según la abundancia de presas y la estructura del hábitat. En el Pantanal, la diversidad de microhábitats y la alta disponibilidad de presas, especialmente pequeños mamíferos y aves, puede reducir la competencia intraespecífica y las necesidades de extensión del área de forrajeo. Esta observación representa el primer registro documentado de depredación de *J. jacana* por *B. virginianus* en el Pantanal sur. Registros oportunistas como este aportan información valiosa para la comprensión de las interacciones depredador–presa que involucran especies de alto nivel trófico, complementando estudios indirectos de dieta basados en análisis de egagrópilas o heces. El registro amplía el espectro conocido de presas de *B. virginianus* en la región Neotropical, ofreciendo nuevas perspectivas sobre su ecología alimentaria y la dinámica ecológica de los ambientes húmedos del bioma Pantanal.

Palabras clave: *Bubo virginianus*; *Jacana jacana*; depredación; Pantanal; ecología trófica.

1. Introduction

Bubo virginianus (Gmelin, 1788) exhibits a broad geographic distribution throughout the Americas, with documented occurrences ranging from northern Canada to the southernmost regions of South America (Houston et al., 1998; Konig & Weick, 2010; Sick, 1997). Despite this extensive range, many aspects of the species' natural history remain insufficiently elucidated (Marks et al., 1999),

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particularly within the context of Brazil and the Neotropical region (Motta-Junior et al., 2017). Regarding its ecology, most studies have focused on analyzing the species' feeding habits. Available information indicates a generalist diet, with birds and mammals representing the most frequently consumed prey, exhibiting variation according to environmental availability and abundance (Aragon et al., 2002; Jaksic & Marti, 1984; Marti & Kochert, 1996; Tomazzoni et al., 2004).

The family Jacanidae constitutes a small group of birds within the order Charadriiformes, comprising eight species of predominantly marsh-dwelling habits (Hayman et al., 1986). The Wattled Jaçanã (*Jacana jacana* Linnaeus, 1766) has a wide distribution across the Americas, occurring from the Guianas to Venezuela, Colombia, Brazil, Bolivia, Argentina, Ecuador, Peru, and Chile (Meyer de Schauensee, 1982). These birds are often observed in pairs or small flocks in marshes and flooded areas with floating vegetation. Their notably elongated lower limbs, with a leaden coloration, facilitate efficient locomotion among aquatic vegetation and wetland environments while foraging for insects, mollusks, fish, and seeds (Sick, 1997).

Adult individuals range from 20 to 25 cm in length. Both sexes display a black coloration on the head, chest, abdomen, and tail, while the back, wings, and flanks are reddish. The remiges are greenish-yellow with black tips, and a small yellow spur is present at the wing junction. Females are larger and exhibit more intensely red membranous lobes compared to males. Nestlings are nidicolous and, upon hatching, display a light brown dorsal plumage with dark streaks, which is later replaced by an upper coloration of brown and black tones and a ventral coloration of pale yellowish-white (Osborne & Bourne, 1977; Ferreira, 1984; Emlen & Wrege, 2004).

2. Results and discussion

On August 25, 2025, at approximately 23:00 h, during a herpetofaunal survey conducted in a rural area of the municipality of Aquidauana, Mato Grosso do Sul, Brazil, a trophic interaction was recorded between an adult *Bubo virginianus* (Great Horned Owl) and a juvenile *Jacana jacana* (Wattled Jacana) (Figure 1A). The event

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was observed when the owl was perched atop a dead tree, holding the bird firmly in its talons.

The observation site is located near a wetland area (Figure 1B) characterized by dense aquatic vegetation, a habitat suitable for the occurrence of *J. jacana*, a species previously recorded at the site accompanied by chicks during diurnal foraging activity (Figure 1C). The observation was brief, as the *B. virginianus* individual took flight carrying the prey in its talons.

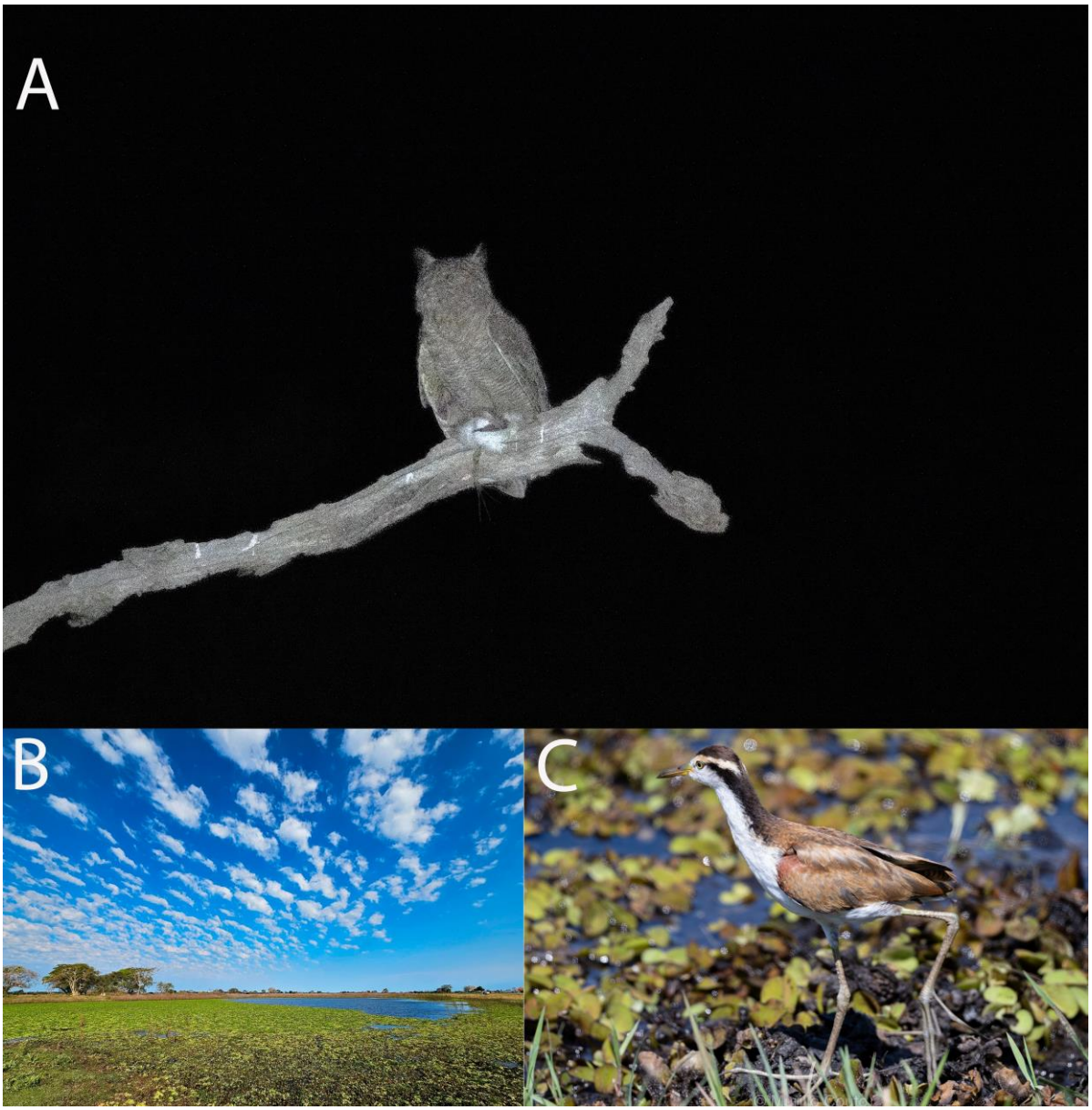

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Figure 1. (A) *Bubo virginianus* preying on a juvenile *Jacana jacana*. (B) Aquatic environment near the predation site. (C) Juvenile *Jacana jacana* previously recorded in the same aquatic environment. Photo by R.M.P. Couto.

Large-bodied owls exhibit high energetic demands, which necessitate extensive foraging areas. The size of these territories can vary substantially among species, ranging from approximately 1 ha in *Micrathene whitneyi* (Cooper, 1861) (Gamel & Brush, 2001) to around 2,046 ha in *Strix occidentalis* (Xántus, 1860) (Forsman et al., 2005). In the studied region, the heterogeneity of microhabitats promotes both the abundance and diversity of potential prey, including small mammals and birds, which constitute the primary food base of *B. virginianus*.

The widespread availability of wetland areas in the Pantanal may reduce the need for extensive hunting territories, minimizing intraspecific competition and supporting higher population densities of the species. According to Dias and Kasper (2023), the home range of *B. virginianus* varies between 35 and 41 ha, with most foraging activity occurring within a radius of approximately 1 km². In the Pantanal, solitary individuals or pairs are commonly observed at short distances from one another, likely reflecting the high availability of food resources and low territorial competition.

The main dietary items reported for *B. virginianus* include mammals and birds, whose occurrence is directly related to prey availability and the nutritional demands of the predator (Jaksic & Marti, 1984; Marti & Kochert, 1996; Aragón et al., 2002; Tomazzoni et al., 2004, Couto, 2025a). As a large-bodied species, its metabolic requirements necessitate diets rich in energy and nutrients. Mammals and birds, due to their high nutritional value, form the core of the diet of top predators, providing a complete and balanced source of nutrition (Couto, 2025b).

Moreover, some species may exhibit ontogenetic dietary shifts, adjusting prey selection according to life stage or reproductive period, often prioritizing prey with higher caloric value (Sazima, 1991; Marques et al., 2004; Caldart et al., 2011; Couto et al., 2025). Opportunistic predation records are particularly relevant for top predators, whose diets are frequently inferred through fecal or pellet analyses

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(Peters et al., 2009). While informative, these methods typically allow prey identification only at higher taxonomic levels, with species-level determination being rare.

The present study constitutes the first documented record of a trophic interaction between *Bubo virginianus* and *Jacana jacana* in the southern Pantanal of Mato Grosso do Sul, adding a new bird species to the known prey spectrum of this predator in the region. This record enhances the understanding of the feeding ecology of *B. virginianus* and broadens knowledge of trophic interactions within the wetland ecosystems of the Pantanal biome.

3. Conclusion

The record presented in this study constitutes the first documented evidence of predation on *Jacana jacana* by *Bubo virginianus* in the southern Pantanal of Mato Grosso do Sul, thereby expanding the known prey spectrum of this raptor species in the Neotropical region. This occurrence reinforces the generalist and opportunistic nature of *B. virginianus* diet, highlighting its high trophic plasticity and ability to exploit different prey groups according to environmental availability. The observation of this event in a wetland habitat typical for *J. jacana* demonstrates the predator's remarkable ecological adaptability, capable of utilizing distinct microhabitats within its foraging range.

Opportunistic records of this kind hold considerable ecological relevance, as they complement conventional dietary analyses based on pellets, enabling prey identification at more refined taxonomic levels. Furthermore, they provide valuable insights into trophic interactions involving top predators, which play a critical role in regulating biological communities and maintaining ecosystem balance.

Thus, this study significantly contributes to the understanding of the feeding ecology of *Bubo virginianus* in the Pantanal, emphasizing the importance of observational and opportunistic records for enhancing knowledge of trophic dynamics and biodiversity within this complex and unique biome.

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5. Bibliographical references

Aragon, E. E.; Castillo, B. & Garza, A. 2002. Roedores em la dieta de los aves rapaces nocturnas (*Bubo virginianus* y *Tyto alba*) em el noroeste de Durango, México. Acta Zoológica Mexicana 86:29-50.

Caldart, V. M., S. Iop, M. C. Rocha, and S. Z. Cechin. 2011. "Diurnal and nocturnal predators of Crossodactylus schmidti Gallardo, 1961 (Anura, Hylodidae) in Southern Brazil." North-Western Journal of Zoology 7: 342–345.

Couto, R. M. P. (2025a). Jantar Romântico: Presentes nupciais como investimento reprodutivo em *Bubo virginianus* (Strigiformes: Strigidae) no Pantanal, Brasil. *REVISTA DELOS*, *18*(69), e5908-e5908.

Couto, R. M. P. 2025b. Valores nutricionais de presas inteiras congeladas utilizadas na alimentação de animais de cativeiro. Dissertação, UNESP.

Couto, R. M. P., dos Santos, P. S., & Saturno, G. 2025. Feeding behavior of Guira guira during parental care and trophic interaction with anurans. *Cuadernos de Educación y Desarrollo*, *17*(6), e8524-e8524.

Dias, J. P., & Kasper, C. B. 2023. Área de vida, nidificação e dieta de *Bubo virginianus* (Strigiformes: Strigidae) no pampa brasileiro. *Iheringia. Série Zoologia*, *113*, e2023015.

Emlen, S.T. e Wrege, P.H. 2004. Division of labour in parental care behaviour of a sex-role-reversed shorebird, the wattled jacana. Anim. Behaviour 68:847-855.

Ferreira, I. 1984. Comportamento reprodutivo da Jaçanã, *Jacana jacana* (L., 1766) (Aves, Charadriiformes, Jacanidae) no Estado do Rio de Janeiro. Dissertação de Mestrado. Rio de Janeiro, Universidade Federal do Rio de Janeiro.

REMUNOM
ISSN 2178-6925

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Forsman, E. D.; Kaminski, T. J.; Lewis, J. C.; Maurice, K. J.; Sovern, S. G.; Ferland, C. & Glenn, E. M. 2005. Home range and habitat use of Nouthern Spotted Owls on the Olympic Peninsula. Journal of Raptor Research 39:365-377.

Gamel, C. M. & Brush, T. 2001. Habitat use, population density and home range of elf owls (*Micrathene whitneyi*) at Santa Ana National Wildlife Refuge, Texas. Journal of Raptor Research 35:214-220.

Hayman, P.; Marchant, J. e Prater, T. 1986. Shorebirds: an identification guide. Boston, Houghton Mifflin Co.

Houston, C. S.; Smith, D. G. & Rohner, C. 1998. Great Horned Owl (*Bubo virginianus*). In: Poole, A. & Gill, F. eds. The birds of North America: The Birds of North America. Washington, D.C., Academy of Natural Sciences, Philadelphia and American Ornithologists' Union. 372p.

Jaksic, F. M. & Marti, C. D. 1984. Comparative food habits of Bubo owls in Mediterranean-type ecosystems. The Condor 86:88-296.

Konig, C. & Weick, F. 2010. Owls of the world. London, A & C Black. 528p.

Marks, J. S.; Cannings, R. J. & Mikkola, H. 1999. Family Strigidae (Typical Owls) *In*: Del Hoyo, J.A.; Elliot, A. & Sargatal, J. eds. Handbook of the birds of the world. Barn owls to humming bird. Barcelona, Lynx Edicions, p. 76-151.

Marques, O. A. V., C. A. Falcetti, R. A. K. Ribeiro, and D. N. Pereira. 2004. "*Bothrops jararacussu* (Jararacussu). Ophiophagy." Herpetol. Rev 35: 58.

Marti, C. D. & Kochert, M. N. 1996. Diet and trophic characteristics of Great Horned Owls in Southwester Idaho. Journal Field Ornithology 67:499-506.

Meyer de Schauensee, R. 1982. A guide to the birds of South America. Academy of Natural Sciences. Philadelphia.

Motta-Junior, J. C.; Braga, A. C. R. & Granzinolli, M. A. M. 2017. The owls of Brazil. *In:* Enriquez, P., ed. Neotropical owls. Cham, Springer, p. 97-158.

REMUNOM
ISSN 2178-6925

Received: 25/10/2025 - **Accepted:** 17/11/2025
Vol: 20.02
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Pages: 1-10

Osborne, D. R. e Bourne, G.R. 1977. Breeding behaviour and food habits of the Wattled jacana. Condor 79:98–105.

Peters, F. B., de Oliveira Roth, P. R., Jeronimo, A. A., da Silveira Pereira, M., Poerschke, F., Machado, L. F., & Christoff, A. U. 2009. PREDAÇÃO DE Lepus europaeus (LAGOMORPHA: LEPORIDAE) POR *Bubo virginianus* (STRIGIFORMES: STRIGIDAE) NO EXTREMO SUL DO BRASIL. *Biodiversidade Pampeana*, *7*(1).

Sazima, I. 1991. “Caudal Luring in two Neotropical Pitvipers, *Bothrops jararaca* and B. jararacussu.” Copeia 1991: 245–248.

Sick, H. 1997. Ornitologia brasileira. Rio de Janeiro, Nova Fronteira. 912p.

Tomazzoni, A. C.; Pedó, E. & Hartz, S. M. 2004. Food habitats of Great Horned Owls (*Bubo virginanus*) in the breeding season in Lami Biological Reserve Southern Brazil. Ornitologia Neotropical 15:279-282.