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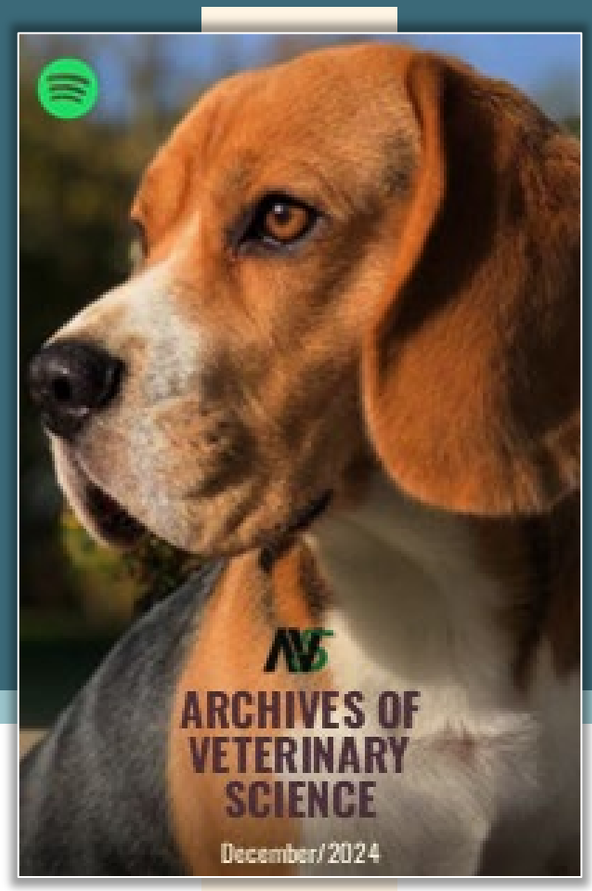

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Does size matter? Aspects (survival and seasonality) that influence birds with cranioencephalic trauma admitted at a wildlife rehabilitation center in Rio Grande do Sul, Brazil

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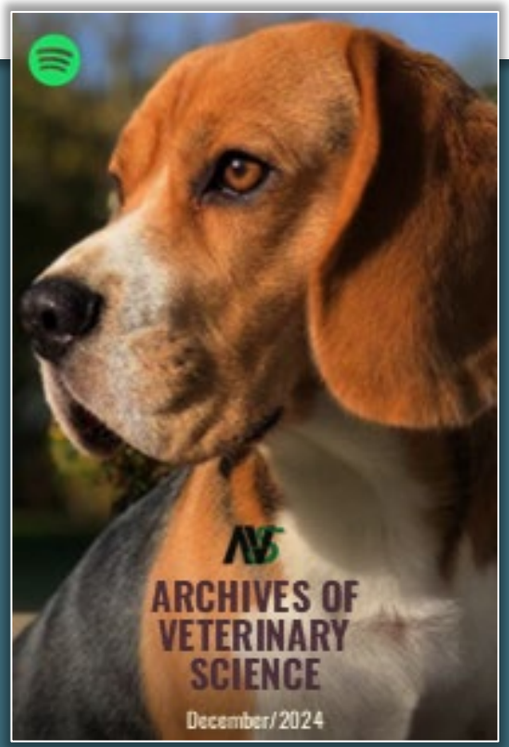

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ABSTRACT

Birds with cranioencephalic trauma suffer severe implications to their neurological function, and whereas the main treatment focuses on life support and analgesia, the recovery time is uncertain, often resulting in death within days. Collisions are the leading cause of brain injuries, with more than eight million birds being run over per year in Brazil and generalist synanthropic species being more affected by window impacts.

ABSTRACT

We used the chi-square test to analyze the relation between body size, season, and outcomes of 265 birds of 60 species with CET received at the Wildlife Study Group of the University of Passo Fundo (GEAS-UPF), southern Brazil, between 2015-2023. Passeriformes and Strigiformes were the most frequent orders, and species such as the Red-breasted Toucan, the Tropical Screech Owl, the Rufous-bellied Thrush, and the Monk Parakeet were the most recurrent.

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ABSTRACT

Most individuals succumbed to death (72%) on average three days after admission (60.7%). Body size seems to influence prognosis, with smaller birds having higher mortality rates (45%) than larger ones (20%), possibly due to more extensive internal damage and a more challenging rehabilitation. The predator guild was the most affected (72.8%), probably because their hunting behavior makes them more susceptible to fatal impacts.

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ABSTRACT

Most cases occurred during the breeding season (70%), as birds are more prone to collisions due to increased territorial activity. Interactions between birds and human structures can lead to instantaneous death or the development of cranioencephalic trauma; thus, data on birds with such injuries collected from wildlife rehabilitation centers over years of operation can provide valuable insights into the actual impacts of collisions on avian populations, especially in Latin America and Brazil, where information is scarce, underscoring the necessity for further studies.

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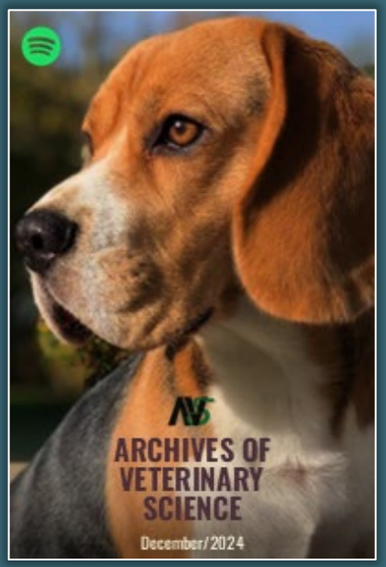
ABSTRACT

As Brazil is one of the world's richest countries in bird diversity, studies such as this are important to assess the real range of cranioencephalic trauma on Neotropical birds.

Keywords: avian conservation; head trauma; ornithology; survival rate; traumatic brain injury.

See figure 1 and 2 into the article.



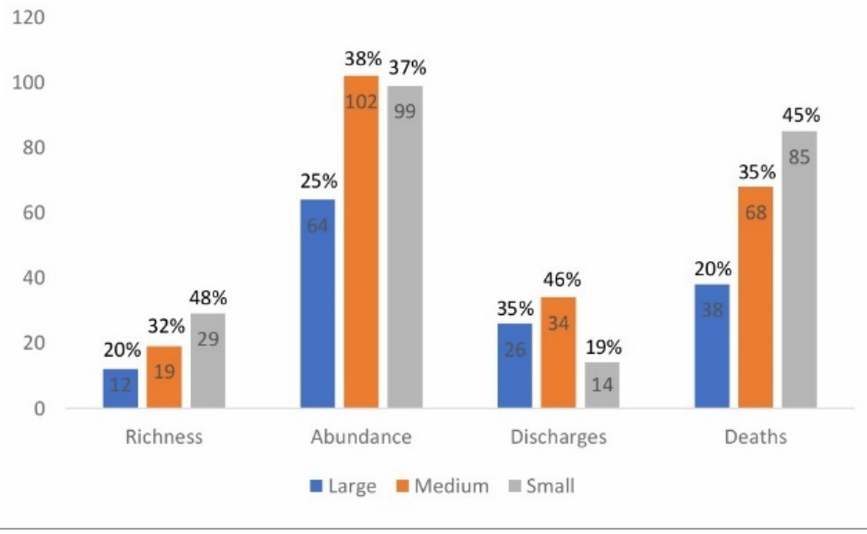


Figure 1. Species richness, number of individuals (abundance), numbers/frequencies of discharges, and deaths for each body size type of the birds with cranioencephalic trauma received at the wildlife rehabilitation center GEAS-UPF between 2015 and 2023.

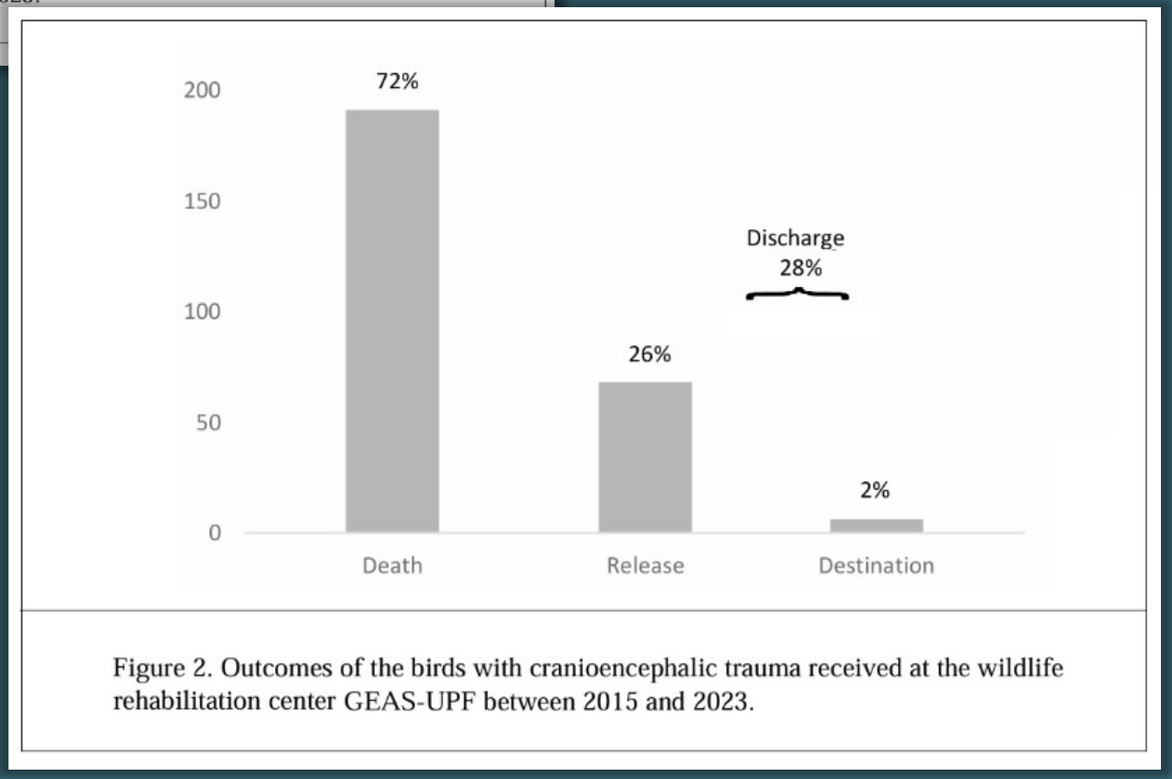


Figure 2. Outcomes of the birds with cranioencephalic trauma received at the wildlife rehabilitation center GEAS-UPF between 2015 and 2023.

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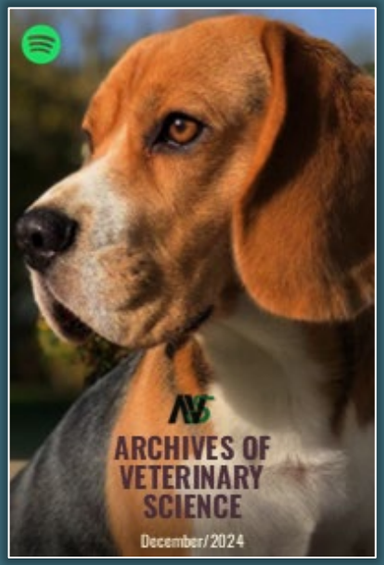
See figure 3 and 4 into the article.



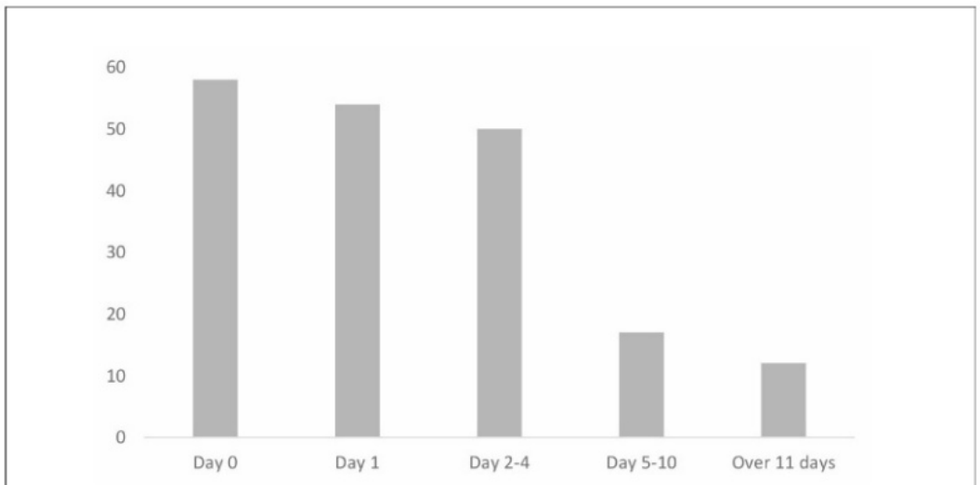


Figure 3. Survival time of the birds with cranioencephalic trauma received at the wildlife rehabilitation center GEAS-UPF between 2015 and 2023 whose condition progressed to death.

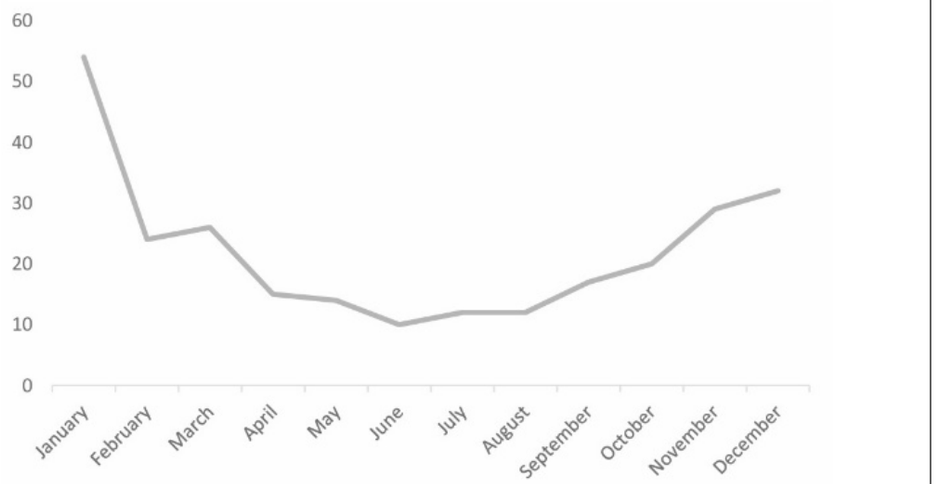


Figure 4. Seasonality of cases of birds with cranioencephalic trauma received at the wildlife rehabilitation center GEAS-UPF between 2015 and 2023.

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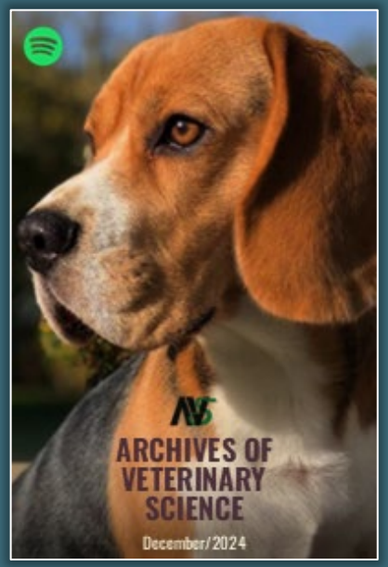
See figure 5 into the article.



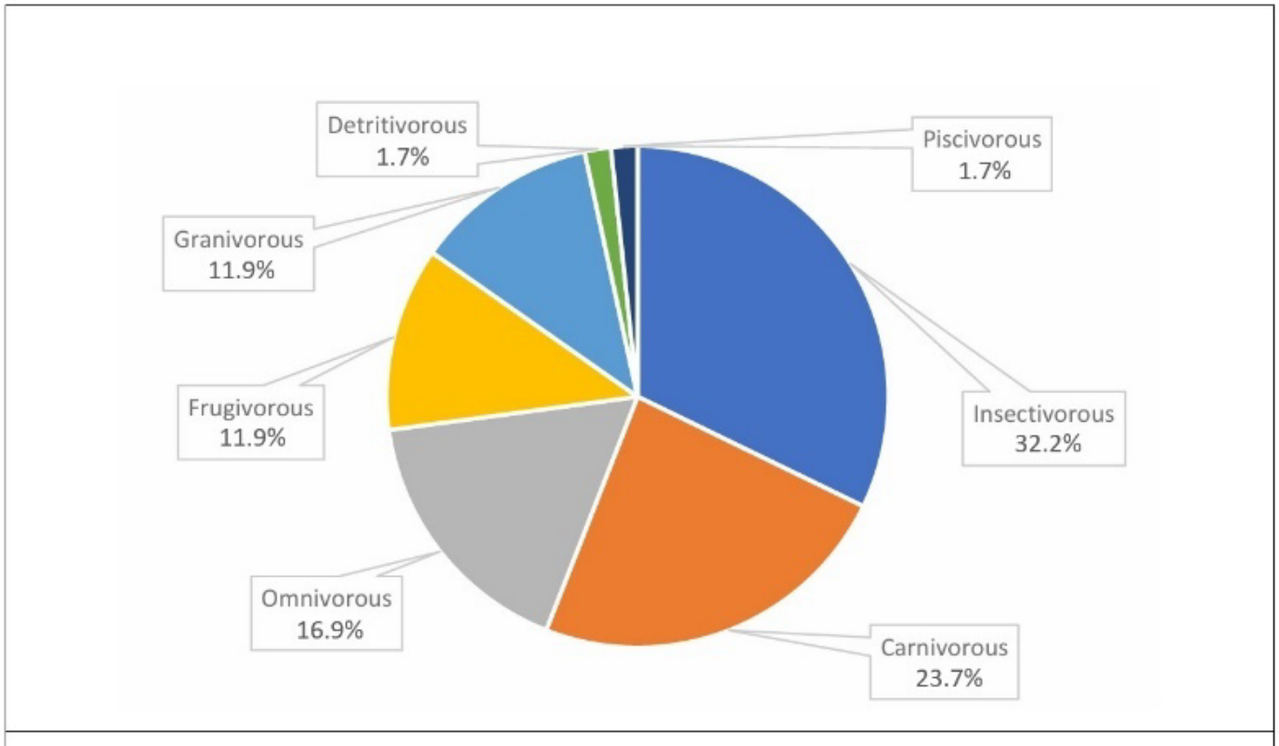


Figure 5. Feeding guild of the birds with cranioencephalic trauma received at the wildlife rehabilitation center GEAS-UPF between 2015 and 2023.

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CONCLUSION

CET affects bird species of all physical sizes and dietary guilds. Due to being more common in urban environments and more sensitive to injuries and veterinary management, small-sized birds appear to be the main victims with a higher mortality rate. Unfortunately, the chances of survival after brain trauma are small, usually resulting in immediate death or an average survival of only three days after the injury. Predator species seem to be the most affected, possibly due to their hunting habits, which increase the likelihood of being struck by vehicles or colliding with windows.

CONCLUSION

Additionally, admittances occurred mainly during the breeding season, the period of highest bird activity, making them more prone to collisions. Wildlife rehabilitation centers collect years of crucial data on epidemiological casuistry and species occurrences; however, such data is still underutilized. These datasets should be further explored, particularly in Brazil, where information on the impact of bird collisions is scarce or almost nonexistent.

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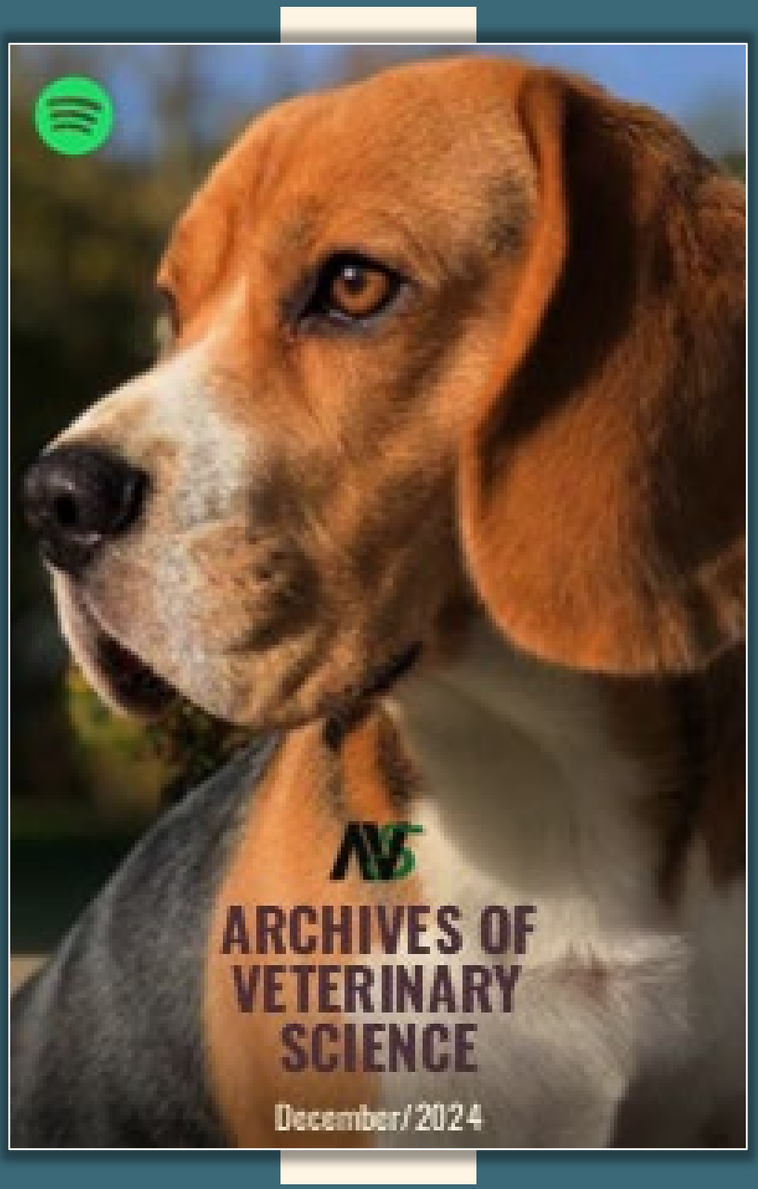

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