

## Associations between prevalence of hemoparasites with biomass and body condition of wild birds from Brazilian Cerrado

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Protozoans hemosporids of the genus *Haemoproteus* and *Plasmodium* parasite several species of birds and may adversely affect the survival and reproductive success of hosts. There are records of wide interspecific variation in the prevalence of these parasites, and these may be related to biological and ecological aspects of host species, as factors that provide the differential exposure of birds to dipterous vectors. The present study aimed to determine the prevalence of *Haemoproteus* and *Plasmodium* in species of birds from Cerrado and to verify if there is a relationship between these prevalence with the biomass and body condition averages of the species. In four forest fragments, 549 individuals from 56 species were captured, which were weighed and had their tarsus measured. Blood samples were removed by tarsal vein puncture and 1,098 blood smears (two per individual) were made, which were fixed in methanol, stained with Giemsa and analyzed in light microscopy. To estimate the body condition, the Relative Mass Index (RMI) was calculated by simple linear regression between the logarithmic values of the right tarsal length and the biomass of the birds. The residual values of the regression were used as RMI. In total, 109 (19.85%) individuals from 33 species were infected, 13 (2.36%) by *Haemoproteus* and 103 (18.76%) by *Plasmodium*. Seven individuals were simultaneously infected by both parasite genera. Among bird species, prevalence ranged from zero to 100%. Positive and significant correlations were observed between the prevalence of hemosporids and biomass ( $r=0,492$ ;  $df=22$ ;  $p=0,014$ ) and body condition ( $r=0,679$ ;  $df=22$ ;  $p=0,001$ ) averages. Species with higher biomass and body condition averages were associated with higher prevalence of parasites, so it is expected that birds may be more susceptible to vector action because Dipterous detect hosts by the emission of carbon dioxide (CO<sub>2</sub>), and the bigger the organism, the greater the emission. In addition, it is estimated that birds in better body condition, because they have higher energetic reserves, can tolerate parasites better than those in worse body condition. Thus, it was concluded that both the variables used (biomass and body condition) were efficient in explaining the interspecific variation in the prevalence of hemosporids found, therefore, the information found in this study may be considered useful for the understanding of host-parasite relationships.

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