

# Birds and highways: effects on species diversity and road-kills in southern Brazil

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Between November 2008 and April 2009 we conducted monitoring of birds in three wetlands along highway BR 392 in southern Brazil, by means of bimonthly samplings, totaling three sampling periods in each wetland. Each period consisted of three consecutive days of sampling. The “Domain Area” (DA) was in a circle with a radius of 150 m that was centered on the highway; the “Control Area” (CA) was a circle of equal size located 300 m from the highway. Each area was monitored for 10 minutes, and all species identified visually or by sound were recorded. Concurrently, we conducted weekly monitoring of wildlife road-killed along 60 km of the same highway, that included the three wetlands. The richness ranged from 52 to 62 species, with a Simpson’s evenness ranging from 0.19 to 0.36, demonstrating a high dominance of some species. Lower evenness values were found in the DA (Mean=0.23), compared with 0.34 for the CA. The structure of birds was compared between the DA and CA, within each area, and among the wetlands. We analyzed the data using ANOVA with 10,000 resamplings. There was no difference in the communities when comparing DA and CA for each wetland, but there was some difference between the areas ( $N=3$ ,  $p=0.019$ ), i.e., between the Capão Seco Wetland and other areas. We found 67 birds killed along the highway (0.09 ind./km of 26 different species). The three species most affected were *Passer domesticus* (0.01 ind./km), *Nothura maculosa* (0.007 ind./km), and *Furnarius rufus* (0.006 ind./km), all are common or synanthropic species. The structure of the bird community was similar, regardless of the distance from the highway. However, the evenness differed, indicating the inability of some species to adapt to the presence of the highway. Abundant, generalist species were most likely to be killed along the highway, with no significant implications for ecological processes.