

Project Update: February 2016

The growing energy demand in Brazil, along with its high untapped potential in hydropower, especially in the Amazonian basin, has led the Brazilian Government to invest massively in the construction of large hydroelectric dams. As a result, large tracts of pristine forest are flooded causing habitat loss and habitat fragmentation, two major threats to biodiversity.

The study has been undertaken in the Balbina Hydroelectric Dam landscape, located in the county of Presidente Figueiredo, state of Amazonas, Brazil. This landscape is formed by roughly 4,000 islands of different sizes and degrees of isolation, and continuous forest on both banks of the reservoir.

From July to December 2015, I surveyed birds through two complementary techniques: mist netting and autonomous audio recording. Mist nets (12 x 2.5 m, 32 mm mesh size) were set in the forest understorey along pre-existing trails in 38 study sites, 33 of them being islands (treatments) and five continuous forest sites (pseudo-controls). Sixteen mist nets were used in each site and they were kept open from 06:00 to 15:00 for two consecutive or semi-consecutive days, resulting in a total sampling effort of over 10,000 net-hours. Virtually all captured birds were ringed with standardised aluminum rings provided by the Brazilian Centre of Research and Bird Conservation (CEMAVE). Autonomous recording units were left unattended and programmed to record bird vocal activity for 5 consecutive days in all sites surveyed with mist nets as well as an additional set of recording stations. The number of recording stations per site was proportional to site size, varying from one (small islands < 25 ha) to 10 (continuous forest site), totaling 151 recording stations. The quantity of recordings yielded was astonishing, representing over 3,600 hours.

We had 1,270 captures of 1,173 individuals belonging to 103 species. However, according to the species rarefaction curve (figure 1a), this number is probably underestimated. Thus, more sampling effort should be employed to reach the total number of species that use the understorey. We also noticed that few species were abundant while many were rare, which reflects a general pattern in tropical assemblages (figure 1b).

In summary, the 1st year of fieldwork was a great success. I got a vast amount of data and I could count on a hard-working team which was decisive to conclude the surveys satisfactorily. In addition, the support from the Uatumã Biological Reserve was invaluable as they were always ready to provide assistance whenever needed. All of this makes me very confident to succeed in the 2nd year of fieldwork from July to December 2016.

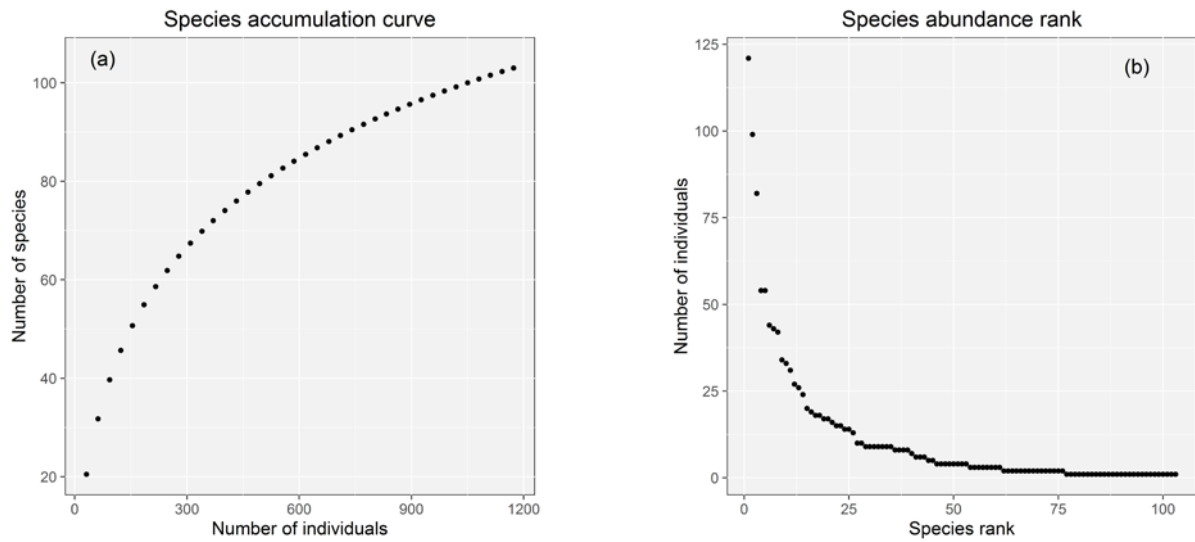
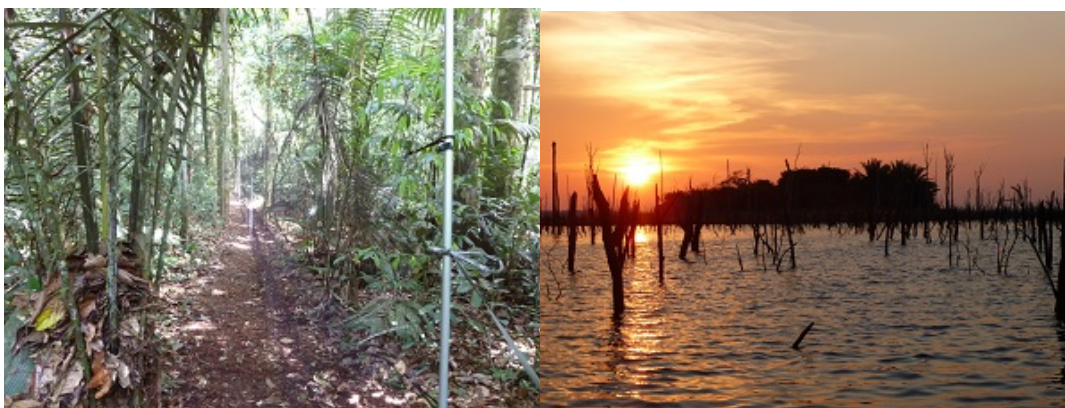


Figure 1. Expected mean number of species according to sampling effort measured in number of individuals (a), and number of individuals per species, where each number on the x-axis represents a different species (b).



Left: Long-billed Woodcreeper (*Nasica longirostris*). Right: White-tailed Trogon (*Trogon viridis*).



Left: Mistnets. Right: Sunset.