Project Update: December 2010

In November 2010 we concluded the experiment of seed removal. During six bimonthly sampling sessions, and with a total sampling effort of 13760 trap-nights, we had 2747 captures of 1023 individuals from at least 12 species of small mammals. We tracked movements of 127 individuals and had 534 records of time of capture of animals. We also quantified seven variables describing vegetation structure surrounding 368 live traps, to study habitat selection by small mammals. A total of 534.0 kg of *Araucaria* seeds were collected at the four removal sites (mean of 133.5 ± 43.0 kg per site), indicating that ca. 61 ± 11% of the seeds produced at each site were removed. Abundance of the rodent *Delomys dorsalis* was negatively affected by seed harvesting, but populations recovered after the end of seed production period (April-July). Preliminary analyses indicated that harvesting did not affect individual movements, body mass or activity patterns. Effects on communities are still being evaluated because species of the genus *Akodon* (which are cryptic) are being identified in laboratory (DNA barcoding technique). Medium and large mammals were not studied, because sampling areas were considered too small to properly study effects of seed harvest on those animals.

In 2011, an important modification in the project will be carried out to increase its scope and value to biodiversity conservation. The original idea was to repeat the experiment of seed removal in the same areas studied in 2010. However, we are confident that our 2010 samplings are sufficient to evaluate the impacts of seed harvest on small mammals. This is because studied animals have a short generation time and reproduce during all year, and because we had a high capture success (20%) ensuring adequate sample sizes.

We will perform a complementary experiment necessary to determine if *Araucaria* seeds are indeed a keystone resource for small mammals. Such an experiment comprises the addition of seeds to forests were *Araucaria angustifolia* was removed for timber production. Eight 0.56 ha areas will be studied between January and November 2011, four controls (without seeds) and four addition areas (with experimental addition of seeds). The hypothesis is that the lack of seeds in those areas is limiting the abundance and richness of small mammals. If this is true, our study would evidence the need to re-establish the *A. angustifolia* in areas where it was removed, which is the case of most of the few remnants of the highly threatened Araucarian forest ecosystem. Such management action would help to conserve small mammals and probably other animal species, besides *A. angustifolia* (which is Critically Endangered).