How are gray brocket deer, *Mazama gouazoubira*, populations
affected by different land use practices in the arid Chaco of
Argentina?

**Detailed results**

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## INTRODUCCION

In the last decade, agriculture in the center of Argentina has encroached on almost every corner of the country. The landscape has been modified to form a mosaic of soybean, potato, corn and wheat plantations interspersed with patches of pasture and land managed for timber. Primary forest has been reduced to all but a few isolated patches surrounded by privately owned farms which exert daily pressures on the native flora and fauna, with little thought to long-term sustainability. Our goal is to evaluate the response of the gray brocket deer, *Mazama gouazoubira*, to different land-use regimes (primary forest, secondary forest, mixed shrubland, larrea shrubland, logged shrubland, implanted agriculture) in order to design appropriate recommendations for the local community on how best to balance their needs with those of wildlife.

We see Chancaní Reserve as a patch of pristine forest submerged in a matrix of cultivated land. We think that the results of our study will help shed light on the adaptability of the brockets to this changing environment which will in the future help us secure their populations. Regionally, the area of the Reserve is bound to the north by salt marshes, to the east by drylands, to the south by a sizeable city and to the west by a small mountain range. We perceive that the expansion of intensive land use and urban areas will make or break the brocket´s future; right now we have a poor understanding of how deer utilize surrounding landscapes, and what the primary conservation threats to the animals are in these modified areas. In order to ensure a viable future for the deer beyond the reserve area, we need to expand the boundaries for conservation beyond protected areas into agricultural lands, similar to other Community-based Natural Resource Management projects elsewhere in the world.
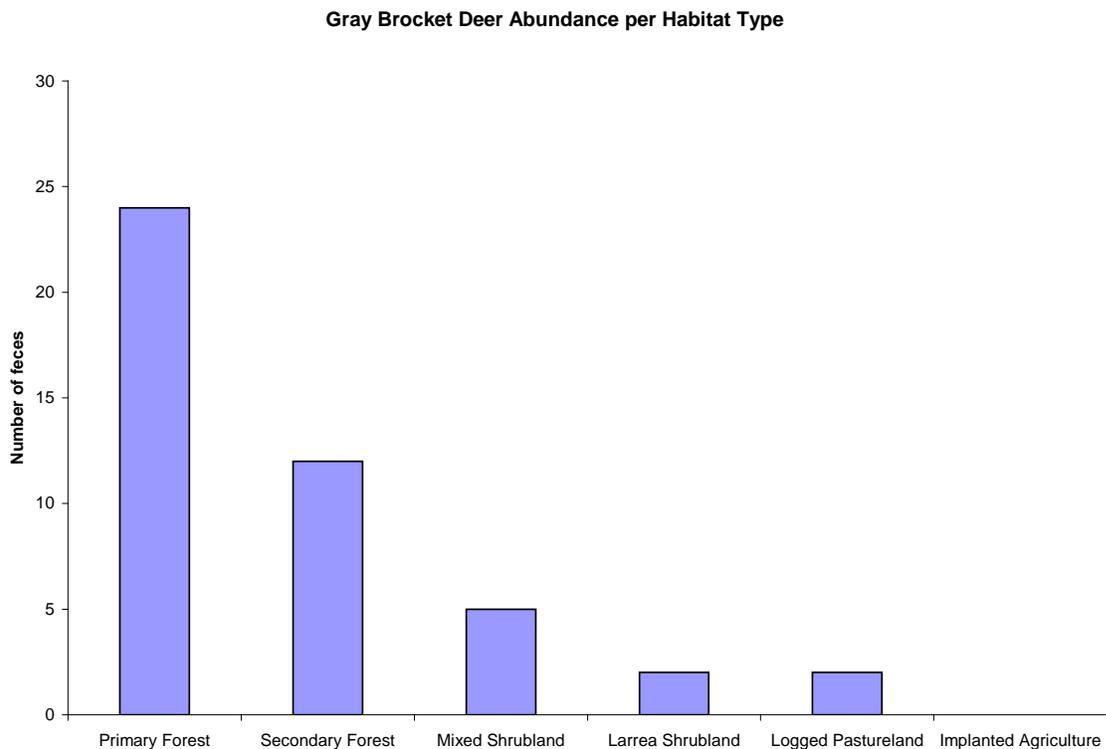
## METHODS

Four plots were set up in each of the six habitat types in and around Chancaní Reserve (primary forest, secondary forest, mixed shrubland, larrea shrubland, logged shrubland, implanted agriculture). Fresh pellet samples were collected throughout the year and vegetation characteristics were measured in four points in each plot. The micro-histological study of the pellets was carried out in Mendoza and dietary components were determined.

**RESULTS**

Vegetation cover varied significantly (p<0,0104) throughout the year over the course of four field trips. Primary and secondary forests were considered most different (Kruskal-Wallis test) from implanted agriculture and logged pastureland.

We were able to collect 42 samples of fresh, individual gray brocket deer feces over the course of 18 months. Of these, over 50% were found in primary forest (Chancaní Reserve) and none were found in implanted agriculture (of varying crops including soybean, potato, sunflower and wheat) (Figure 1).

**Gray Brocket Deer Abundance per Habitat Type**



According to Pairwise Multiple Comparison Procedures (Student-Newman-Keuls Method), significant differences can be seen between primary forest and all other habitat types.

We examined the collected fresh feces utilizing the micro-histological technique described by Dacar & Giannoni (2001) (see reference guide for explanation).The dietary components varied in the different habitat types, with woody plants being an important component of the diet in primary and secondary forest (Figure 2). As woody plants decrease in the diet, they seem to be replaced with herbs, being the primary component in more altered habitats such as mixed shrubland, larrea shrubland and looged shrubland. Cacti are included in

almost all habitats, but at a significantly lower proportion. These findings are concur with that found in our 2nd RSG grant which showed almost exact results for the primary forest habitat analyzed. We were able to distinguish 21 different plant species, inlcuding 11 woody plants, 8 herbs and 2 cacti.

**Gray Brocket Deer Diet in Different Habitat Types**
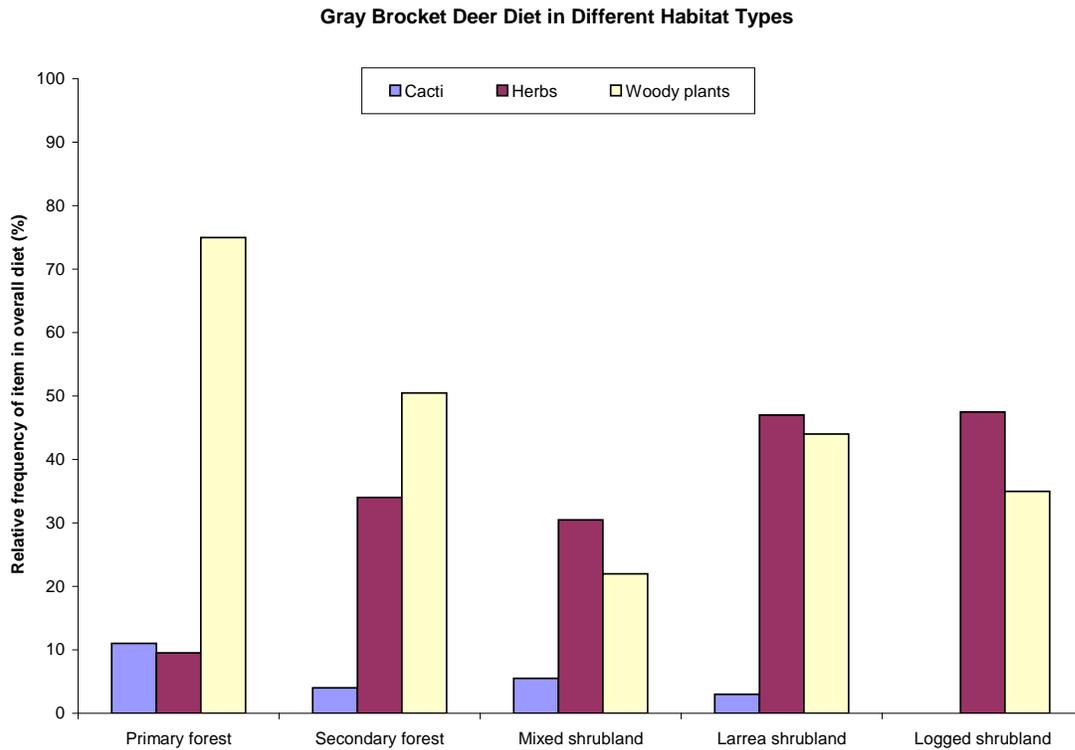


**CONCLUSIONS**

Although the gray brocket deer seems to be a generalist when it comes to food, replacing the lack of woody plants with herbs, we can see that there is a marked decrease in presence as we go from a more stable primary forest to a more degraded, unstable logged shrubland. It is therefore extremely important that continued research take place in trying to determine what this decrease is attributed to. Is it the lack of habitat for food or space? Is it the roads that fragment patched of forest? Or is it the illegal and uncontrolled hunting? We are currently in our 4th year of research and are trying to answer these questions. What other species are sharing this same dilemma? Are we hunting and displacing our native fauna to extinction? Stay tuned as we continue to monitor these populations as well as other native fauna. Our goal is conservation through science and we hope to continue working in the area and with the local communities for the wellbeing of all involved.