Project Update: August 2014

In February 2014, 10 Xerente indigenous villages (Figure 1) were chosen to start the participatory hunting monitoring using self-monitoring datasheets and ethnographic investigation. Five months after the beginning of the project, there are already 49 Xerente hunters and two non-Indians. These two hunters are living in a village, thus, were considered in this study, and are cooperating with the hunting monitoring. In total, 51 hunters, representing 82% of the hunters in the 10 villages, from which 40 Xerente hunters were chosen to respond questions about traditional use, cultural importance, food preferences, taboos dietary and traditional hunting of game-fauna. For 27 Xerente hunters we performed participatory mapping of hunting areas. To estimate the population density of the most valuable game species using the distance sampling technique, it was necessary to open six transects in forested areas (three transects in forest with light hunting and three transects in forest with heavy hunting,) and six roads in *Cerrado* areas were chosen for be the line transect (three transects in *Cerrado* with light hunting and three transects in *Cerrado* with heavy hunting).



Figure 1: Map of localization of Xerente Villages.

During this period, we have collected 63 data sheets, representing 48 successful events, with a total of 43 animals killed that represent almost 275 kg of biomass harvest. However, the unsuccessful hunts may be underestimated because of the lack of data due to incorrect information provided by the hunters (personal observation). Maybe due to cultural reasons (concerning status of be a good hunter), but they are being encouraged to monitoring these failure hunting events, where we explain the importance these data for our study, and that the name of the hunter won't be revealed. A preliminary analysis shows that the most valuable game-species are: *Ozotoceros bezoarticus, Pecari tajacu, Cuniculus paca* and *Dasypus novemcinctus* respectively.

Already, 214 km of line transects were walked in *Cerrado* and forested areas. The data about density of the four species is not available now, because the population census is not finished.

Preliminary analysis of ethnographic investigation identified 120 game species (69 birds, 40 mammals, 10 reptile and one amphibian), but the food preferences of Xerente hunters are medium and large sized mammals as shown always in the preliminary analysis of hunt monitoring. The traditional use of these species include the following broad categories: food (40 mammals, 59 birds, eight reptile and one amphibian); zoo therapy or traditional medicine (20 mammals, one bird and seven reptile); cultural: craft convection, tools, symbolic, body decorations and concepts cosmological (35 birds, 10 mammals and one reptile); pet (13 birds, 11 mammals and one reptile); conflict: attack of livestock and crop and risk to the your health (13 mammals, six birds and six reptile); other uses: bait for fishing and feeding pets (seven birds and one reptile). Dietary taboos are related with hunter's age, food preferences, disease caused by some species, pregnancy and lactation (for instance: hunters in adulthood avoid eating certain parts such as the brain).

The traditional hunting tools include use of bow, stick or *borduna*, spears and *badogue* (a kind of bow that shot stones). Traditionally, the hunting trips were long, and the usage of fire for hunting was common. However, currently the traditional hunting is becoming less frequent. Today the gunfire is the main weapon utilised. Long trips for hunting and use of fire are limited because the Xerente Territory is demarcated, and limited. In their hunting activities, many Xerente hunters now use motor vehicles, especially motorcycles, which facilitates access to hunting areas, far away from the villages. Despite this relative abandoning of traditional hunting, the Xerente hunters preserve an amazing knowledge of biological and ecological trait of each game species that are used to choose the best technique to be employed (for instance: ambushes, attraction, dogs and traps).

The participatory hunting monitoring, together whit ethnographic research, is already revealing not only the influence of hunting activity on the population of game species, but also the interaction between cultural aspects, traditional ecological knowledge and use of "new technologies" (for instance: gunfire and motorcycles) that will be utilised for decision making for continuous access to these natural resources by Xerente people.

Another important aspect to be considered is the activity of hunting of non-indigenous hunters within the indigenous Land. The Territory Xerente have borders with five municipalities and their access is facilitated by roads that pass through the Indian Territory or for rivers. Hunting is a forbidden activity, except for indigenous and traditional people cultures, and its monitoring is almost impossible. Thus, we cannot estimate its influence and its relation with our participatory monitoring of illegal activities. This can lead to an underestimation of harvest data of these species.

Additionally, we started recording of the bird and mammal faunas using camera traps. Eight camera traps have been installed in *Cerrado* and forested areas. The use of camera traps was necessary, because the *caciques* (tribe's leaders) and hunters requested photographic record of the species. Preliminary analysis showed the record of 16 mammals and eight birds. The more important records were: *Priodontes maximus, Chrysocyon brachyurus, Panthera onca*,

Leopardus pardalis that are threatened species in Brazil and *Tayassu pecari* that is a threatened species (IUCN Red List) and it has a has a drastic reduction its range-wide in Brazilian *Cerrado*.

Next Steps

- August: Fieldwork: population census, record fauna, interviews and participatory monitoring.
- October-December: Pre-analysis of data of population census, record fauna, interviews, participatory mapping and participatory monitoring.
- November: Presentation of preliminary data in X Ethnobiology and Ethnoecology Symposium (Minas Gerais, Brazil).
- January 2015: End of the first year of the participatory hunting monitoring, validation of interviews data and participatory monitoring, analysis of data of population census and record fauna.
- February: Presentation of data for Xerente community.



Photos: A) Xerente Indigenous Cerrado landscape; B) Participatory mapping; C) Interview with an old Xerente hunter; D) Xerente hunters employing tracking techniques; E) Kind of trap used by Xerente hunter: *Trabuco* (a kind of gun fire improvised); F) Game-species being prepared for food: *Pecari tajacu*. Photos A, D, E and F by Milton de Paula and B and C by Valcir Xerente.



Photos: A) Hair of *Myrmecophaga tridactyla* used in Xerente traditional medicine; B) Tooth of *Hydrochoerus hydrochaeris* used for craft convection; C) Xerente children with your pet: *Nasua nasua*; D) Xerente woman with your pet: *Tamandua tetradactyla*; E) Body painting representing the *M. tridactyla* F) Line transect in forest area. Photos by Milton de Paula.



Photos: A) Line transect in *Cerrado* area; B) *Ozotoceros bezoarticus*; C) Some records of camera traps. 1: *Priodontes maximus*, 2: *Chrysocyon brachyurus*, 3: *Leopardus pardalis*, 4: *Tayassu pecari*. Photos A and B by Milton de Paula.



Photos: Some records of camera traps (cont). : 5: *Puma concolor*, 6: *Tapirus terrestris*, 7: *Mazama americana*, 8: *Mazama gouazoubira*, 9: Cariama cristata, 10: *Crax fasciolata*.