

Project Update: February 2019

During September and October 2018, we carried out a systematic survey of deer (*Axis axis* and *Blastocerus dichotomus*) indirect signs (tracks, feces) in the lower delta of the Paraná River. The study area was divided in 91 grids (henceforward "sites") of 9 km², of which, 81 sites were sampled. At each site, we completed between two and five visits (spatial replicates), with an average of 3.86 visits per site, obtaining a total of 313 sampling points. During the visits we registered indirect signs of the two deer species and other mammals (*Dasybus novemcinctus*, *Cerdocyon thous* and *Hydrochoerus hydrochaeris*). Additional to the presence/no detection data of the species, at each point, we registered a set of variables: habitat type, coverage percentage of bare soil, leaf litter and herbaceous stratum, presence of dogs, cattle, human settlements and/or human activity. Once collected these data and created a database, we will calculate the detection and occupancy probability of each species in the study area.

To achieve this, we will also generate a set of explanatory variables from a land use map and impact maps of two extraordinary climatic events. The first includes the effects on the study area of intensive fires occurred in the Delta of Paraná in 2008, which, according to local people, coincides with the first sightings of axis deer. The second one comprises the sites affected by the extraordinary flood of 2016, that we believe have influenced the current distribution of *A. axis*, probably delaying its expansion.

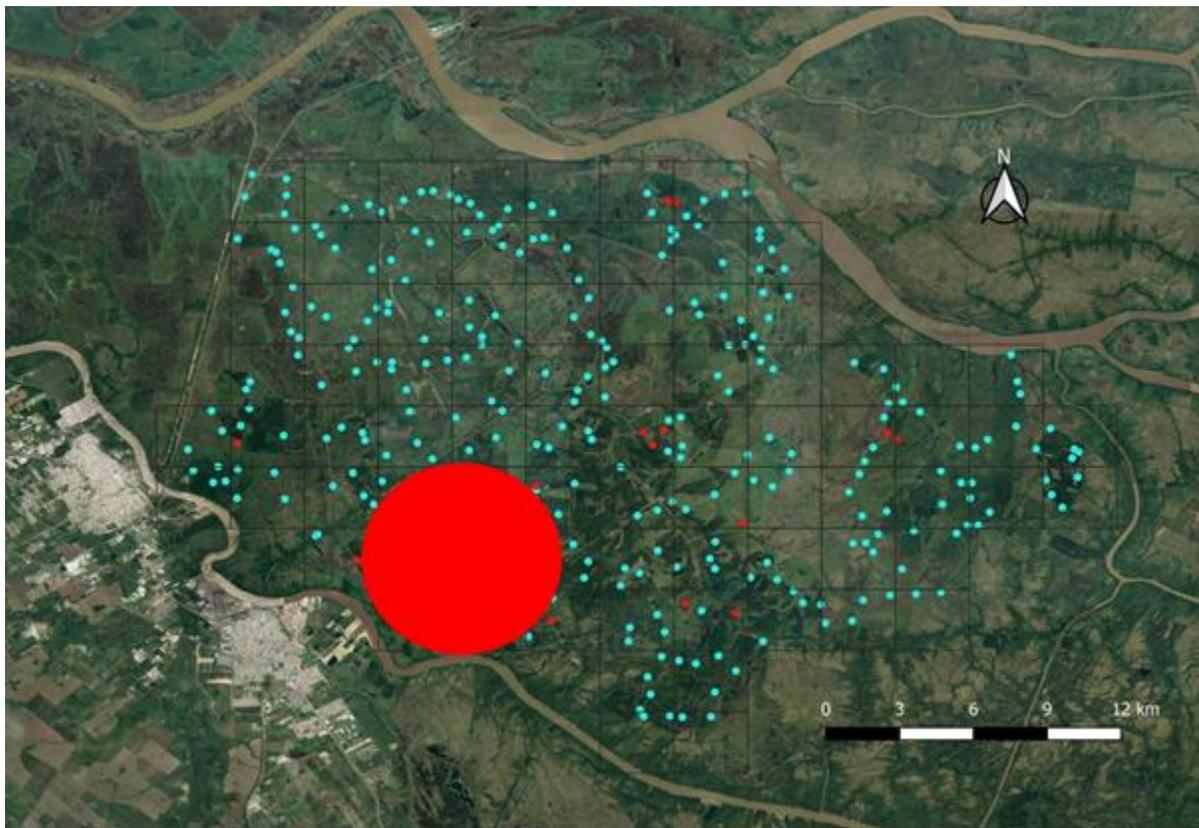


Figure 1. Study area with the 81 sample sites (Grids). The red points show the visits where

presence of axis deer was positive and the blue points where this species was not detected. The red ellipse shows the known "nucleus of invasion".

Figure 1 illustrate the 81 sampled sites. In 16 sites we registered the presence of axis deer, accounting a total of 26 "presence points" and 287 "absence points". Although we expected to find a low number of positive records, because the invasion is recent, we found, contrary to our expectations, a slightly higher number of presences and several sites far from the known "nucleus of invasion".

On the other hand, 51 of the 81 sites sampled recorded the presence of marsh deer, accounting a total of 121 "presence points" and 192 "absence points". Due to the critical conservation status of this population and the fact that illegal hunting is one of its main threat, we decided not to show the map with the precise points where this species was detected.



Figure 2. Axis deer footprint and feces.



Figure 3. Marsh deer footprint and feces.



Figure 4. Part of "Proyecto Pantano" (Marsh Project) team in a typical forestry plantation.