

Appendix 1. Spatial data processing used to determine study area

We converted all layer's coordinates into South American Datum 1969 (SAD69_Alberts) projection using ArcGIS (version 10.6.2; ESRI, Redlands, CA). To set the limits of my study area, we used two boundary layers, Salta province and dry Chaco region. We clipped all layers of this study against this study area's boundary. We obtained the boundary layer of Salta province from the National Geographic Institute. To define the dry Chaco's boundaries, we intersected layers from the National Parks Administration and The Nature Conservancy because of boundaries disparity between them. We used a property layer (hereafter cadastral layer) of Salta from IDERA (Infraestructura de Datos Espaciales de la República Argentina) as our base layer and also to identify forest owner's properties.

We then followed three steps to identify critical public protected areas in our study area. First, we created a layer of current protected areas located in Salta using the cadastral base layer and a protected area layer from the World Database. This layer included Provincial Reserve Los Palmares and Provincial Reserve Dragones. Second, we created a layer of new protected areas in Salta using the cadastral layer and the parcels that the 616/18 Decree incorporated into the protected areas system. Third, we merged the layers of current and new protected areas into a unique layer, clipped against my study area boundary layer, and excluded the following areas:

- private protected areas because our criterion was to choose areas with governmental protection, namely, Private Reserve Inversora Juramento.
- areas located far away (> 20 Km) from other protected areas or completely surrounded by deforested lands. Namely, the properties identified in the decree's annex as: 18-7544, 02-6935, 23- 2433, 23-6489, 23-6490, 23-6492, 23-6493, 23-27507, 23-6497, 23-6496, 23-6487, 23- 6486, 23-6485, 23-29655, and 23-486.

To identify properties adjoining critical public protected areas (i.e., buffer zones), we delineated a 12-km buffer around each critical public protected area using the cadastral layer as a base layer. We employed a 12-km buffer with the intention of reducing human impacts on peccaries (*Artiodactyla: Tayassuidae*) and the two top predators in the Chaco, the jaguar (*Panthera onca*) and the puma (*Puma concolor*) (Canevari and Vaccaro 2007). We based this width on movement distances and home ranges for peccaries, pumas and jaguars (Silver et al. 2004, Kelly et al. 2008, Figel et al. 2011, Noss et al. 2012, Piquer-Rodriguez et al. 2015) and distances into forests that humans exert hunting pressure on these species (Altrichter 2005, Espinosa et al. 2014, 2018).

We used the Linkage Mapper toolbox for ArcGIS (McRae and Kavanagh 2011) to map ecological corridors and identify the properties connecting the critical public protected areas. We used the same width criteria used for the buffer zone and defined a 12-km corridor. We employed a cost layer developed by Fundación Proyungas. We adopted a (minimum) cost-weighted distance metric instead of a linear Euclidean distance metric to characterize wildlife movement because the Euclidean distance metric does not account for land cover heterogeneity that affects movement. Then, we intersected the layer of properties that adjoin and connect the critical public protected areas with a Land Management Order for Native Forests (Ordenamiento Territorial de los Bosques Nativos - OTBN) layer provided by the Argentine Ministry of Environment. This step allowed us to discriminate between forested and deforested properties.

For simplicity, we chose to exclude properties with less than 50% of forested area. Finally, we used a layer of PES plans provided by the Argentine Ministry of Environment to spatially locate all the properties enrolled in the PES program in Salta. The cadastral layer allowed us to obtain unique parcel numbers for the 3,024 properties adjoining and connecting the critical public protected areas. Using these parcel numbers, we obtained the following information from the land registry office: type of owner (public or private; individual, corporate, NGO, etc.), type of ownership (i.e., shared or sole), and owners' identification numbers. Using this identification number, we then gathered information on primary economic activity and tax address from an open-access tax governmental database.

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