SUPPLEMENTARY DATA (SD3): METHODS FOR THE CREATION OF A LANDCOVER MAP OF THE STUDY AREA IN THE ORGAN MOUNTAINS, NEW MEXICO.

We developed a landcover map for our study area in the Organ Mountains, NM so that we could evaluate habitat selection by the Organ Mountains Colorado chipmunk (*Neotamias quadrivittatus australis*). We incorporated previous literature and field-collected data to develop the map. We conducted a literature review to determine landcover types present in the Organ Mountains (Townsend 1893; Dick-Peddie and Moir 1970; Dick-Peddie 1993).

We first defined four landcover types based on similarly described vegetation communities in the literature (Townsend 1893; Dick-Peddie and Moir 1970; Dick-Peddie 1993). The literature uses inconsistent terminology for defining the vegetation communities. For example, Townsend (1893) described five vegetation "life zones" present in the Organ Mountains: tornillo/cottonwood, mesquite, scrub oak, juniper, and pine while Dick-Peddie and Moir (1970) described four "vegetation zones": upper desert grassland, savanna and woodland, chaparral, and deciduous woodland. Despite the discrepancy in the nomenclature, the specific plants included in the zones are similar and delineate four distinct communities in the Organ Mountains. Therefore, based on the literature, we chose to define four landcover types: arid, montane scrub, riparian, and pine-oak woodland (Table SD3.1). The woodland landcover in our study was a Ponderosa pine and Gambel oak association and is a montane coniferous forest biotic community type (Dick-Peddie 1993).

As part of micro-habitat data collection, we recorded numbers of trees and shrubs by species (See Materials and Methods in main text). We created additional variables that were totals of trees and shrubs by our landcover types. We conducted a principal component analysis (PCA) to examine the composition of plant communities at sites of chipmunk presence and absence. We then examined PC1, PC2, and PC3 and determined that the composition of plant communities at chipmunk sites reflected our defined landcover types, suggesting that these landcover types represented the vegetation in our study area (Figure SD3.1). We then assigned each micro-habitat site to a landcover type based on the PCA results.

We used GPS to record the location of eight tree species, 12 shrub species, and five ground cover classes (Table SD3.2). We recorded the nearest tree, shrub, or ground cover class every ca 50 m while in the field, for ca 250 vegetation locations. We used 1 m satellite imagery available from the National Agriculture Imagery Program and mapped micro-habitat sites and the vegetation locations. We used the Fishnet tool in ArcGIS to create a grid of 10 x 10 m squares over the study area. Using the ground-truthed vegetation locations and micro-habitat sites as references for the satellite imagery of each landcover type, we assigned each pixel in the grid to a landcover type (Figure SD3.2). We used the Aggregate tool to rescale the map from 10 m to 30 m and 90 m.

LITERATURE CITED

DICK-PEDDIE, W. A. 1993. New Mexico vegetation. University of New Mexico Press. Albuquerque.

TOWNSEND, C. H. T. 1893. On the life zones of the Organ Mountains and adjacent region in southern New Mexico, with notes on the fauna of the range. Science 22:313–315.

Table SD3.1. Landcover types and key characteristics included in a landcover map of the study area in the Organ Mountains, NM. We defined landcover types based on descriptions of plant communities from Townsend (1893), Dick-Peddie and Moir (1970), and Dick-Peddie (1993).

Landcover type	Key species or characteristics
Arid vegetation communities	Low in elevation or on south-facing slopes and Abundance of grass or Scattered small evergreen shrubs or Compact evergreen and deciduous shrubs
Montane scrub	Alligator juniper (*Juniperus deppeana*) Cliff fendlerbush *(Fendlera rupicola*) Gray oak (*Quercus grisea*) Mountain mahogany *(Cercocarpus montanus*) Netleaf hackberry (*Celtis laevigata*) Rock sage *(Salvia pinguifolia*) Wright's silktassel (*Garrya wrightii*)
Riparian	In arroyo or arroyo slopes Apache plume (*Fallugia paradoxa*) Banana yucca *(Yucca baccata*) Desert willow (*Chilopsis linearis*) Fremont's cottonwood (*Populus fremontii*) Pricklypear (*Optunia* spp.) Skunkbush sumac (*Rhus trilobata*) California brickellbush (*Brickellia californica)* Common hoptree (*Ptelea trifoliata)* Goodding willow (*Salix gooddingii*) Netleaf hackberry (*Celtis laevigata*) Velvet ash (*Fraxinus velutina*)
Pine-oak woodland	Common snowberry (*Symphoricarpos albus)* Gambel oak (*Quercus gambellii*) New Mexico locust *(Robinia neomexicana*) Trumpet gooseberry (*Ribes leptanthum*) Ponderosa pine *(Pinus ponderosa*)

Table SD3.2. Tree and shrub species and ground cover classes included in ground-truthed GPS locations in the Organ Mountains, Doña Ana, New Mexico.

Tree species	Shrub species	Ground cover class
Alligator juniper (*Juniperus deppeana*)	Cliff fendlerbush *(Fendlera rupicola*)	Bare
Desert willow (*Chilopsis linearis*)	Mountain mahogany *(Cercocarpus montanus*)	Cactaceae/Asparagacae
Fremont's cottonwood (*Populus fremontii*)	Netleaf hackberry (*Celtis laevigata*)	Grass
Gambel oak (*Quercus gambellii*)	Rock sage *(Salvia pinguifolia*)	Herbaceous
Goodding willow (*Salix gooddingii*)	Wright's silktassel (*Garrya wrightii*)	Rock
Gray oak (*Quercus grisea*)	Apache plume (*Fallugia paradoxa*)	
Ponderosa pine *(Pinus ponderosa*)	Skunkbush sumac (*Rhus trilobata*)	
Velvet ash (*Fraxinus velutina*)	California brickellbush (*Brickellia californica)*	
	Common hoptree (*Ptelea trifoliata)*	
	Common snowberry (*Symphoricarpos albus)*	
	New Mexico locust *(Robinia neomexicana*)	
	Trumpet gooseberry (*Ribes leptanthum*)	

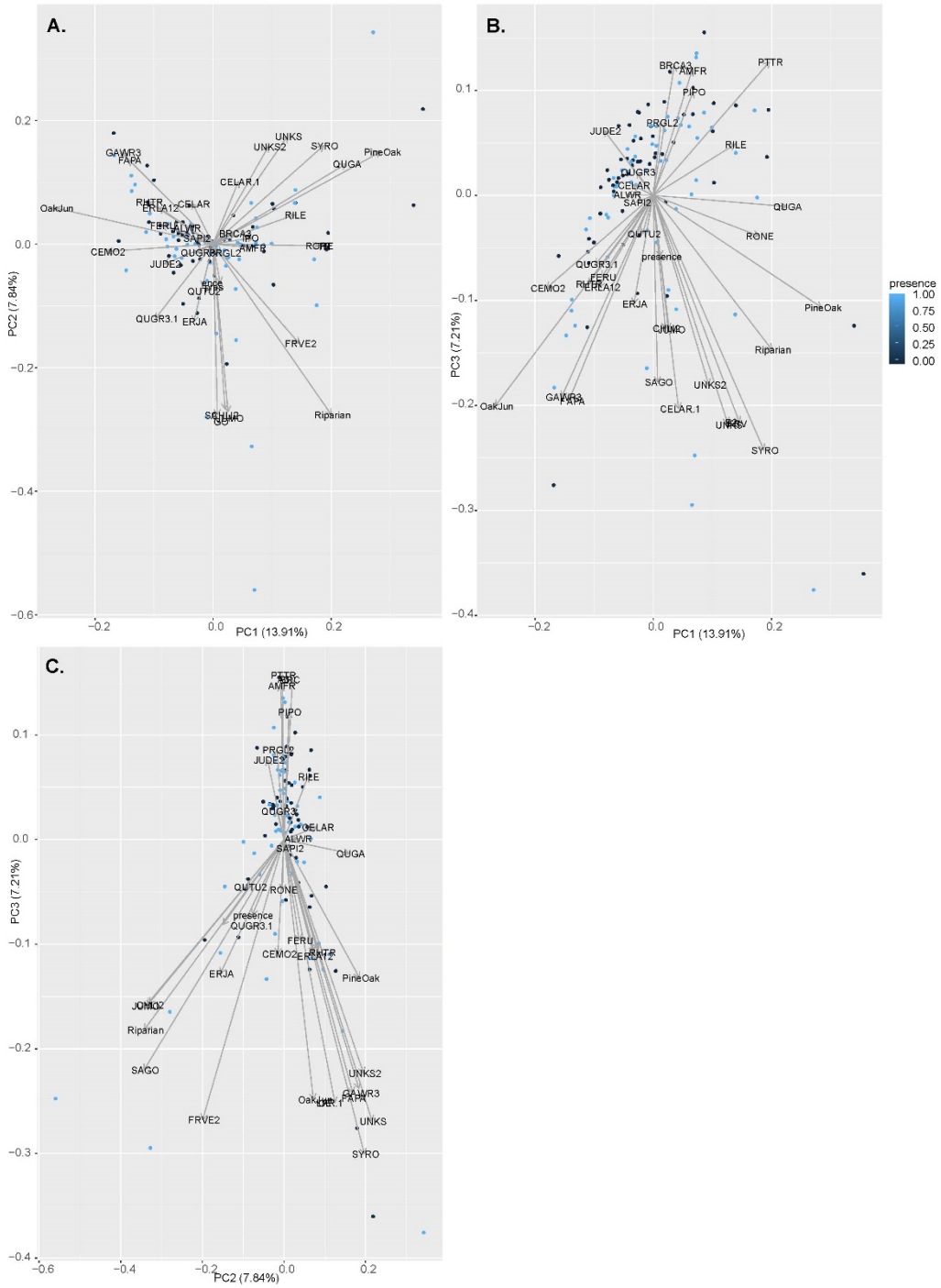

Figure SD3.1. Principal component analysis results of tree and shrub species at Organ Mountains Colorado chipmunk (*Neotamias quadrivittatus australis*) presence and absence sites collected from July 2018 – July 2019. A) Principal component (PC) 1 vs. PC2. B) PC1 vs. PC3. C) PC2 vs. PC3. Percentage of variance explained by each PC in parentheses. Chipmunk presence sites shown in light blue and absence sites shown in dark blue.

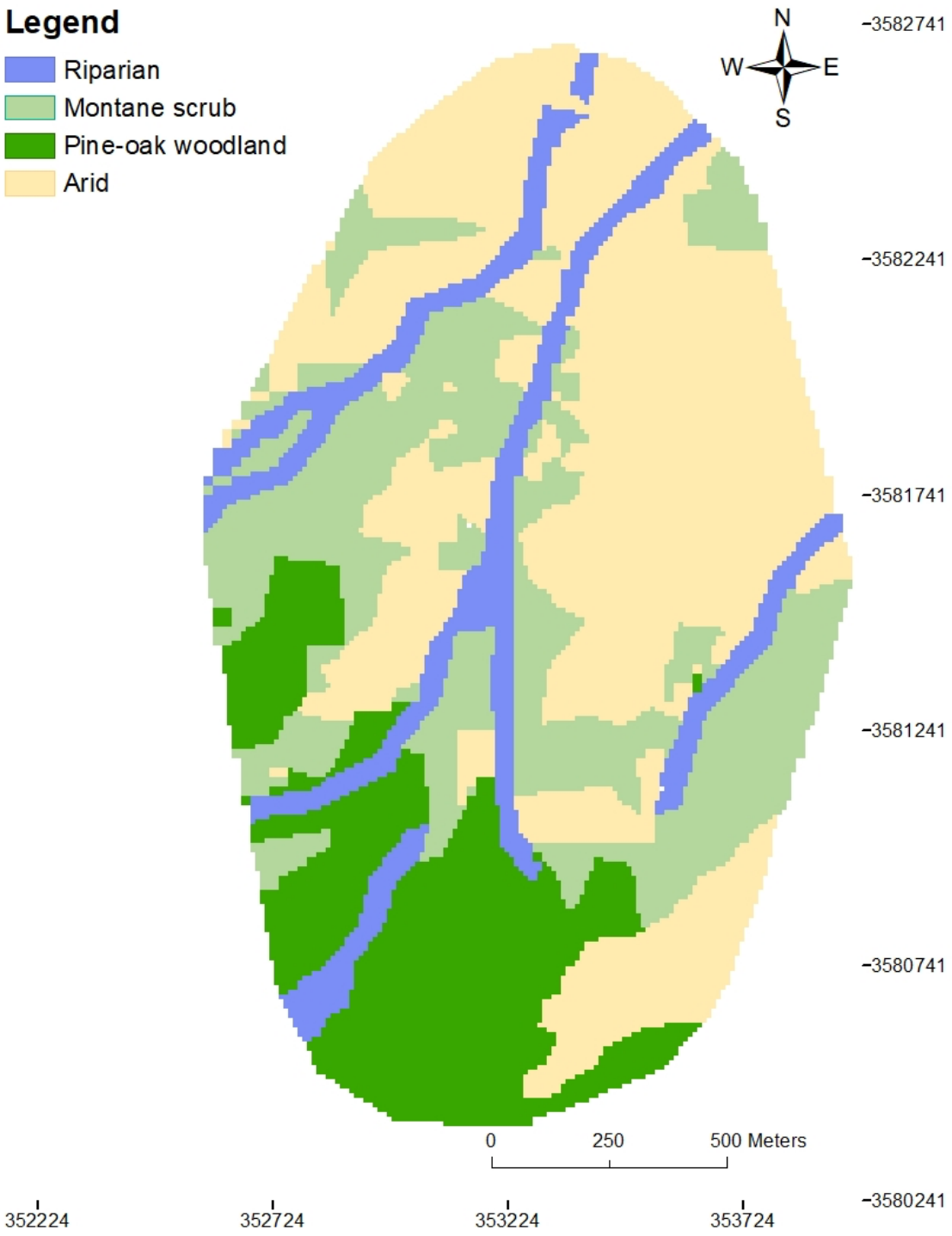

Figure SD3.2. Landcover map of the study area in the Organ Mountains, Doña Ana, New Mexico at 10 m spatial resolution.