

Santa Cruz River Riparian Vegetation Mapping Project
Santa Cruz County, Arizona

2009

INDEX MAP SERIES



Santa Cruz County, Arizona



Prepared for Santa Cruz County

2009

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Acknowledgments

This project resulted from the efforts of many people and organizations. Funding for the project was provided by generous grants from the Environmental Protection Agency Wetlands Division and the Mead Foundation. Friends of the Santa Cruz River contributed significant time and expertise throughout the project. Aerial photographs were used to identify seasonal changes in vegetation and were taken during aerial flights provided by the volunteer-based aviation organizations Lighthawk and EcoFlight. Santa Cruz County staff provided historic aerial photographs and field assistance. Friends of the Santa Cruz River and Tucson Audubon Society provided valuable review of the final report.

Disclaimer: Roads and parcels are shown on all maps for reference only and may not always reflect existing conditions and/or actual boundary locations accurately. For most up to date information on road and parcel data, contact Santa Cruz County.

Introduction

The maps on the following pages display the results of the first riparian vegetation map created for the Upper Santa Cruz River from the US-Mexico border to the Pima County-Santa Cruz County line. Knowledge of the distribution, extent, and species composition of the riparian community along the Santa Cruz River provided in this map establishes a vital foundation from which to develop a comprehensive riparian conservation and floodplain protection program.

Riparian vegetation communities represent a small percentage of the land cover in Santa Cruz County but provide invaluable services, functions, and benefits to the region. Working in tandem, riparian vegetation and floodplain lands enhance livelihoods in Santa Cruz County by:

- Filtering effluent-dominated water prior to assimilation with ground water drinking supplies;
- Slowing flood waters;
- Reducing erosion potential along stream banks;
- Facilitating groundwater recharge;
- Sustaining resident and migratory wildlife species;
- Providing recreational opportunities for the local community (i.e. hiking, birding, picnicking);
- Increasing property values of properties adjacent to riparian lands;
- Attracting tourist dollars and new residents to the area.

For a complete summary of the map process and results, please see accompanying report, “**Santa Cruz River Riparian Vegetation Mapping Project, Santa Cruz County, Arizona**” (available at: www.co.santa-cruz.az.us/com_development).

Purpose: These maps were created to help landowners, stakeholders, and interested community members identify the riparian vegetation located in a particular area.

Definitions: The following is a list of terms and definitions for terms used in the making of the vegetation map.

- *Polygon:* a shape drawn about a particular area and used to delineate the location of an area of relatively uniform vegetation; a mapping unit.
- *Stratum:* term referring to one of three vegetation height classes, which generally coincide with plant life forms – trees, shrubs, or grasses (herbaceous).
- *Formation:* a vegetation type defined by the structural appearance of the dominant plant life form or stratum present, such as forest, shrubland, or savanna (grassland).
- *Alliance:* a vegetation classification unit defined by a characteristic species or group of species, one of which is typically in the dominant stratum of vegetation (eg. Cottonwood-Willow Forest). The order of species names reflect the order of dominance; names in brackets [Cottonwood-Willow] indicate co-dominance.
- *Agriculture:* any area with evidence of current or recent use for growing food plants or grazing of domesticated animals.
- *Developed woodland:* an area dominated by trees, but includes several buildings and roads, driveways, and/or parking lots that appeared to be maintained.
- *Strand:* an area dominated by sand with very little vegetation. Commonly found in dry portions of the river bed.

Guide to Maps

To locate the region of interest, start by looking at the index map. A yellow grid placed over the entire mapped region along the Santa Cruz River will identify which map page to turn to for a detailed map of that area. All map pages are labeled in the upper right hand corner with the corresponding label in the grid square of the index map.

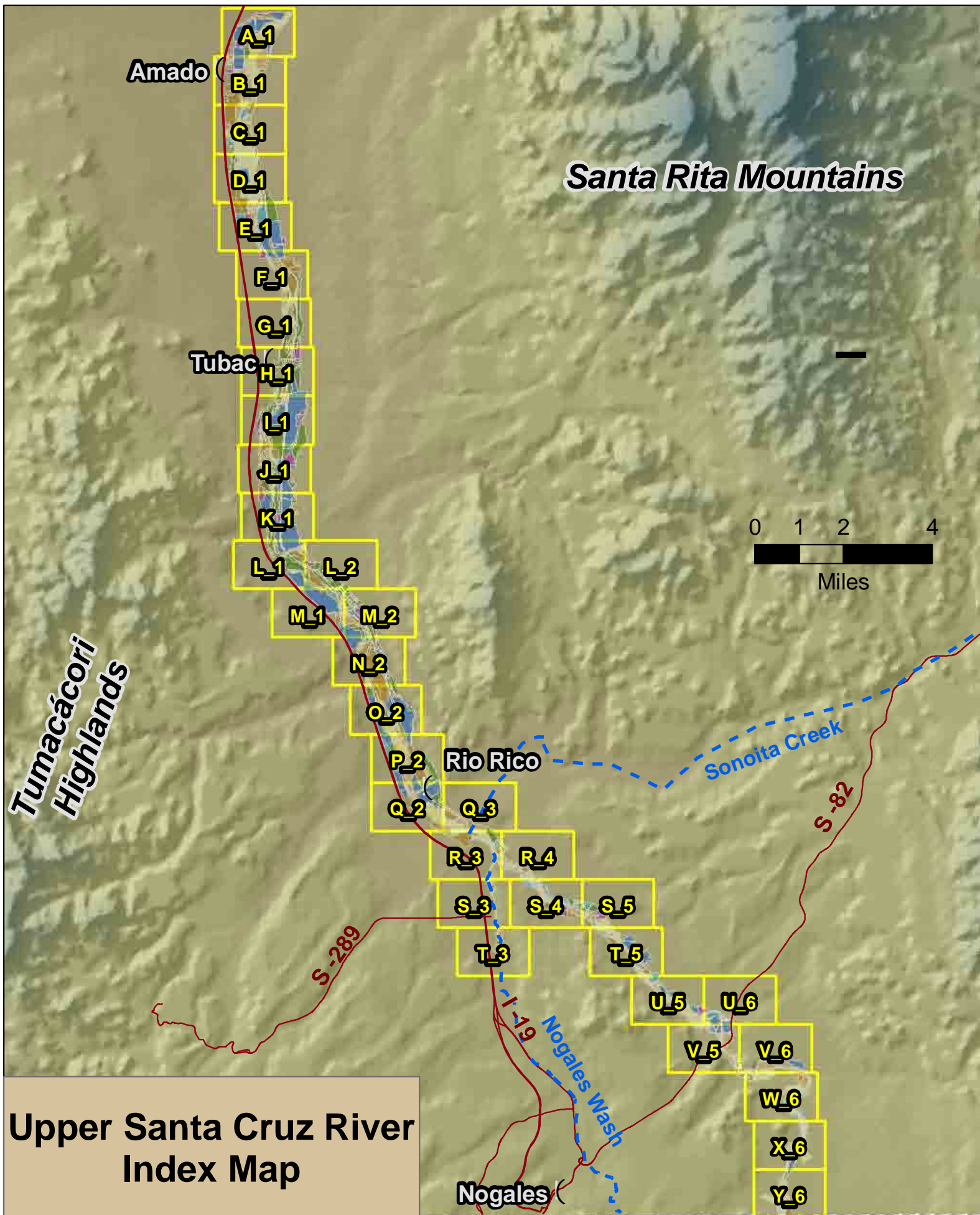
The maps display the vegetation formation (forest, woodland, etc.) located within a given polygon at the time the vegetation map was created. Each map page has a color key to aid in identification of the formation depicted.

In addition to formation, the map identifies the dominant riparian vegetation located in each polygon. All polygons have been labeled with a unique identification number. Each unique id consists of a numerical alliance code (**see adjacent table**) indicating the dominant riparian species, followed by a three-digit number to identify the particular polygon (e.g. 1.005, the fifth polygon of alliance type 1).

Riparian plant species were not identified in polygons of the agriculture or developed woodland formation. Leading codes of 50 or 60 refer to agriculture and developed woodland formations respectively, and not to alliances (e.g. 50.001 = the first polygon of agriculture).

Following the detailed maps, four regional maps depict the distribution of areas considered conservation priorities in the region mapped. For more information on how these areas were chosen, please reference the full report cited on the previous page.

Alliance Code	Alliance
1	Cottonwood-Goodding's Willow Forest
2	Cottonwood-[Velvet Mesquite-Elderberry] Forest
3	Tamarisk Forest
4	VelvetMesquite-[Elderberry-Netleaf Hackberry] Forest
5	VelvetMesquite-CatclawAcacia Forest
6	VelvetMesquite Forest
7	Cottonwood-Goodding's Willow-Tamarisk Woodland
8	Cottonwood-Goodding's Willow Woodland
9	Cottonwood-Velvet Mesquite Woodland
10	Cottonwood Woodland
11	VelvetMesquite-Catclaw Acacia Woodland
12	VelvetMesquite-Elderberry Woodland
13	VelvetMesquite-NetleafHackberry Woodland
14	VelvetMesquite Woodland
15	VelvetMesquite/CatclawAcacia Wooded Shrubland
16	VelvetMesquite/VelvetMesquite Wooded Shrubland
17	CatclawAcacia - Whitethorn Acacia- CatclawMimosa Shrubland
18	Hymenoclea Shrubland
19	Seepwillow Shrubland
20	Tamarisk Shrubland
21	VelvetMesquite - CatclawAcacia Shrubland
22	VelvetMesquite Shrubland
23	Cottonwood/Amaranth Tree Savanna
24	Cottonwood/NativeGrass Tree Savanna
25	Elderberry/Amaranth Tree Savanna
26	Tamarisk/Amaranth Tree Savanna
27	VelvetMesquite/Amaranth Tree Savanna
28	VelvetMesquite/NativeGrass Tree Savanna
29	VelvetMesquite/Tumbleweed Tree Savanna
30	Baccharis species/Amaranth Shrub Savanna
31	Baccharis species/Grass Shrub Savanna
32	Hymenoclea/Mixed Herb Shrub Savanna
33	VelvetMesquite/Mixed Herb Shrub Savanna
34	Amaranth Herbaceous
35	Forbs Herbaceous
36	Grass Herbaceous
37	Unknown Herbaceous
38	Cottonwood-Goodding's Willow Strand
39	Herbaceous Strand
40	Shrub Strand



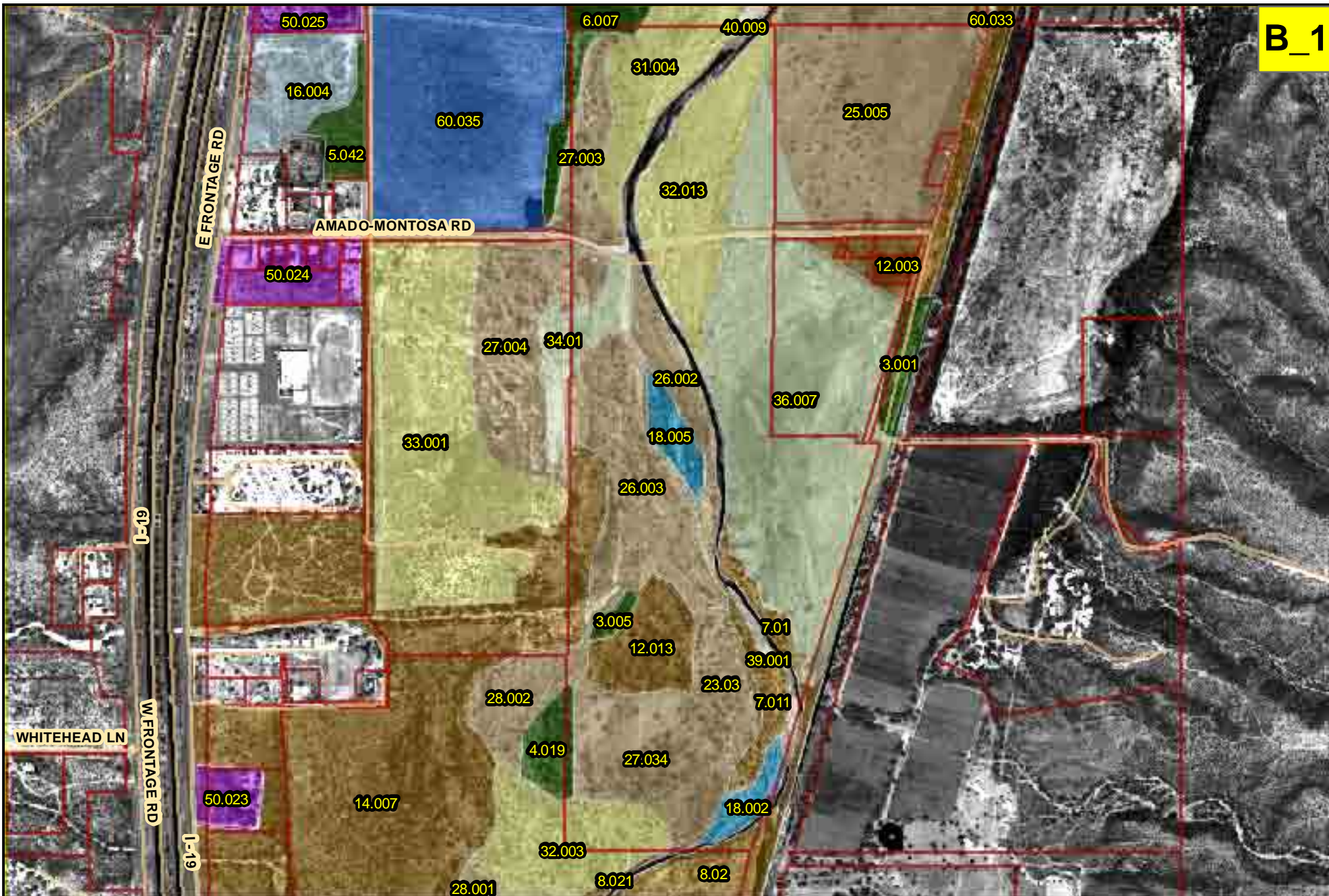
A_1



Legend

- | | | |
|-----------|------------------|--------------------|
| Parcels | Road | Polygon ID |
| Forest | Wooded Shrubland | Tree Savanna |
| Shrubland | Shrub Savanna | Developed Woodland |
| Woodland | Strand | Agriculture |
| | Herbaceous | |

0 0.125 0.25
Miles



Legend

- | | | |
|----------|------------------|--------------------|
| Parcels | Road | Polygon ID |
| Forest | Wooded Shrubland | Tree Savanna |
| Woodland | Shrubland | Herbaceous |
| | Shrub Savanna | Strand |
| | | Developed Woodland |
| | | Agriculture |

0 0.125 0.25
Miles

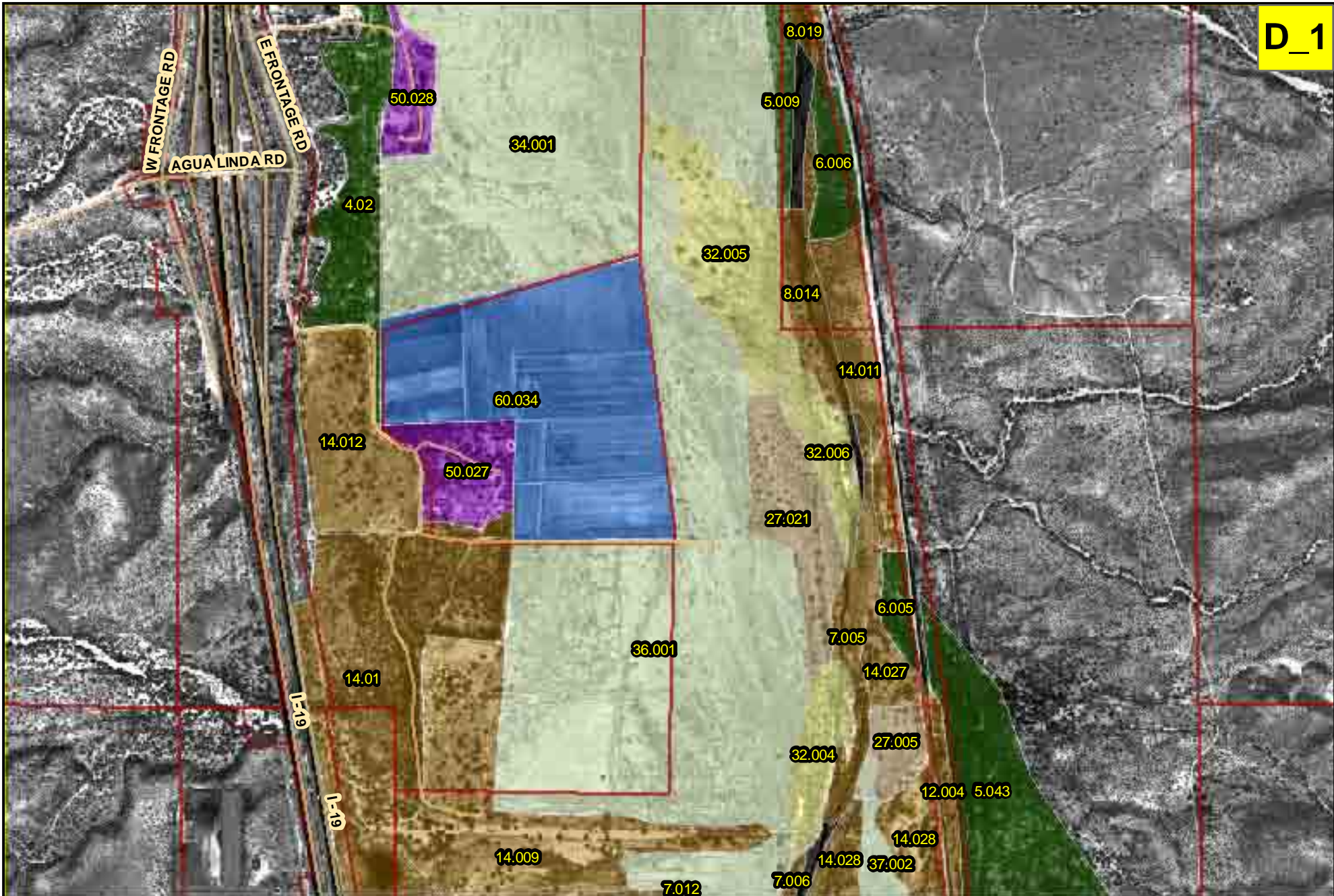
C_1



Legend

- | | | | |
|-----------|------------------|--------------|--------------------|
| Forest | Parcels | Road | Polygon ID |
| Woodland | Wooded Shrubland | Tree Savanna | Herbaceous |
| Shrubland | Shrub Savanna | Strand | Developed Woodland |
| | | | Agriculture |

0 0.125 0.25
Miles

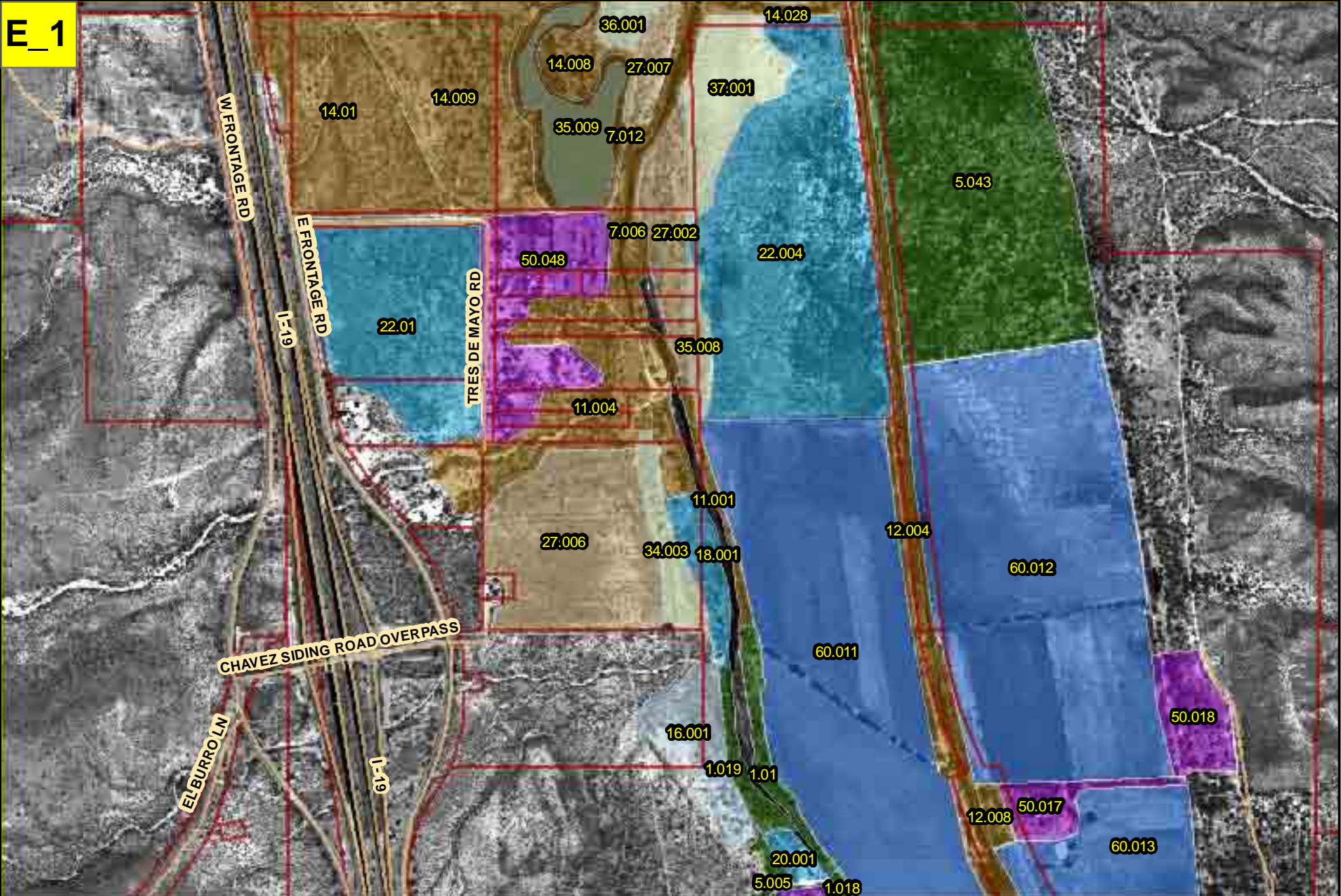


Legend












- | | | |
|----------|------------------|--------------------|
| Parcels | Road | Polygon ID |
| Forest | Wooded Shrubland | Tree Savanna |
| Woodland | Shrubland | Herbaceous |
| | Shrub Savanna | Strand |
| | | Developed Woodland |
| | | Agriculture |

0 0.125 0.25
Miles

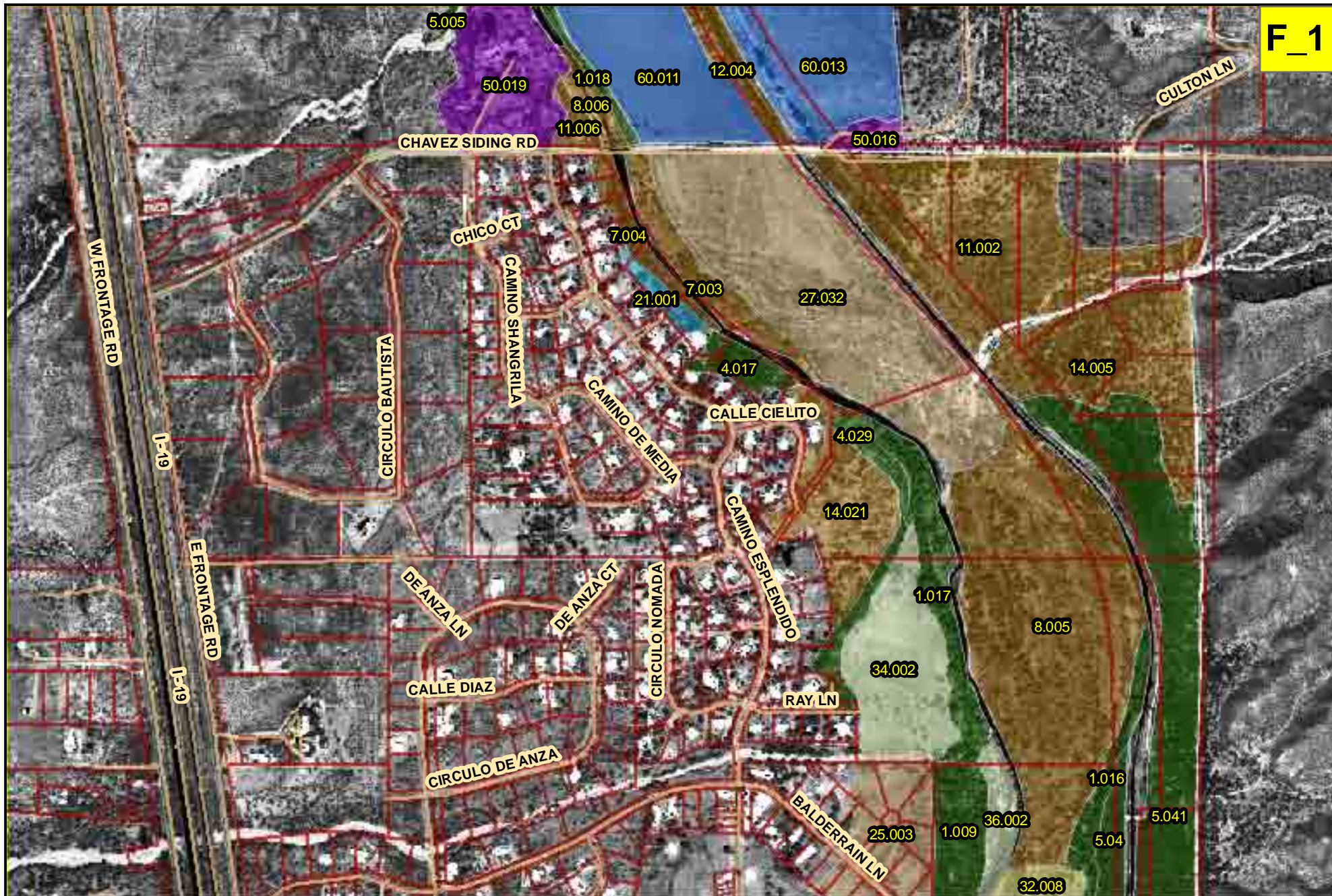
E_1



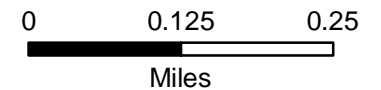
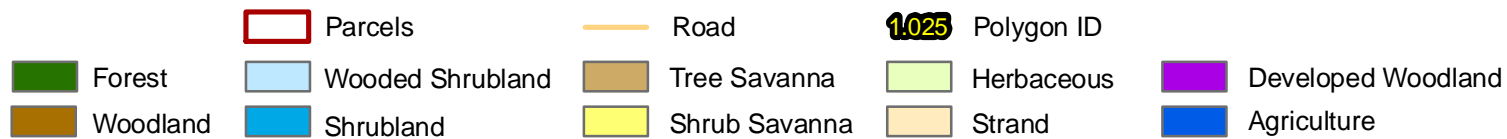
Legend

-  Parcels
  Road
  Polygon ID
-  Wooded Shrubland
  Tree Savanna
  Herbaceous
  Developed Woodland
-  Shrubland
  Shrub Savanna
  Strand
  Agriculture

A horizontal scale bar with a black background. It is marked with '0' at the left end, '0.125' at the midpoint, and '0.25' at the right end. The word 'Miles' is centered below the bar.



Legend



G_1



Legend

 Parcels

 Road

 Polygon ID

 Forest

 Wooded Shrubland


 Tree Savanna

 Herbaceous

 Developed Woodland

 Woodland

 Shrubland

 Shrub Savanna














 Strand

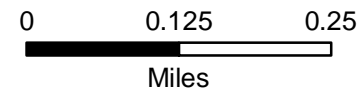
 Agriculture

0 0.125 0.25
Miles

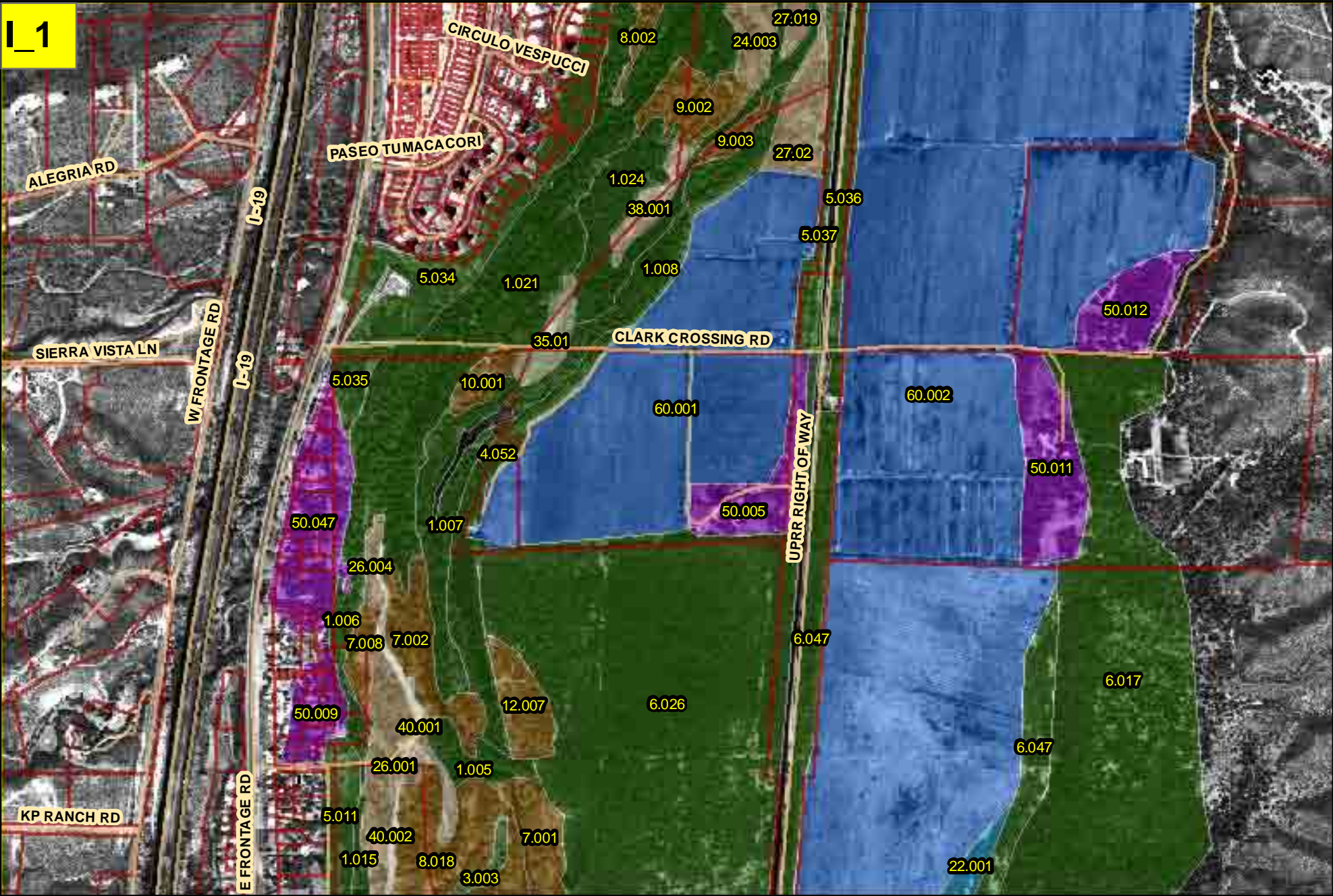


Legend

	Parcels		Road		Polygon ID		Herbaceous		Developed Woodland
	Forest		Wooded Shrubland		Tree Savanna		Shrub Savanna		Agriculture
	Woodland		Shrubland		Strand				



I_1





Legend



- Parcels



- Wooded Shrubland
Shrubland

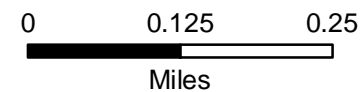
- Road

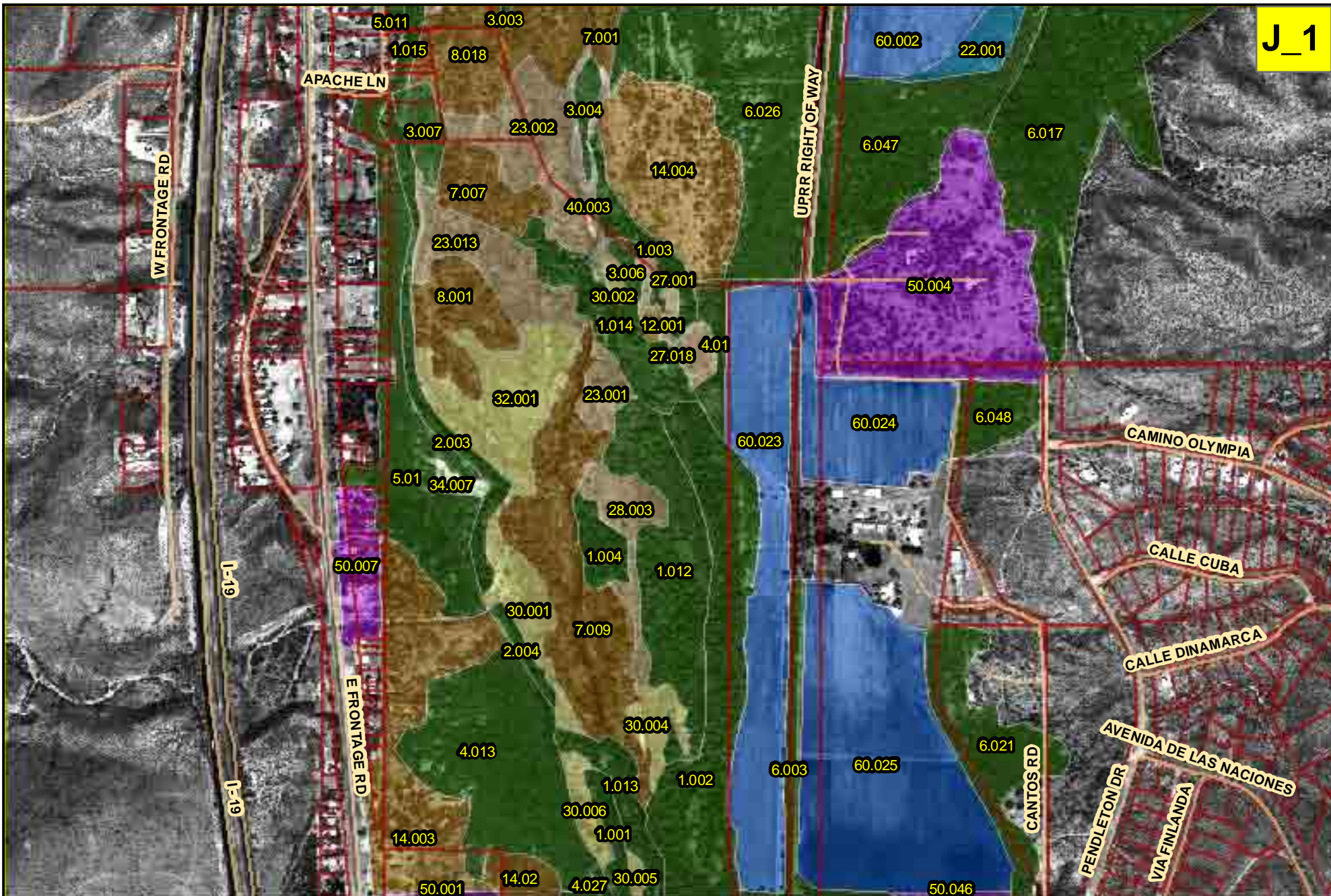
-  Tree Savanna
 Shrub Savanna

- 1.025** Polygon ID

-  Herbaceous
 Strand

-  Developed Woodland
 Agriculture



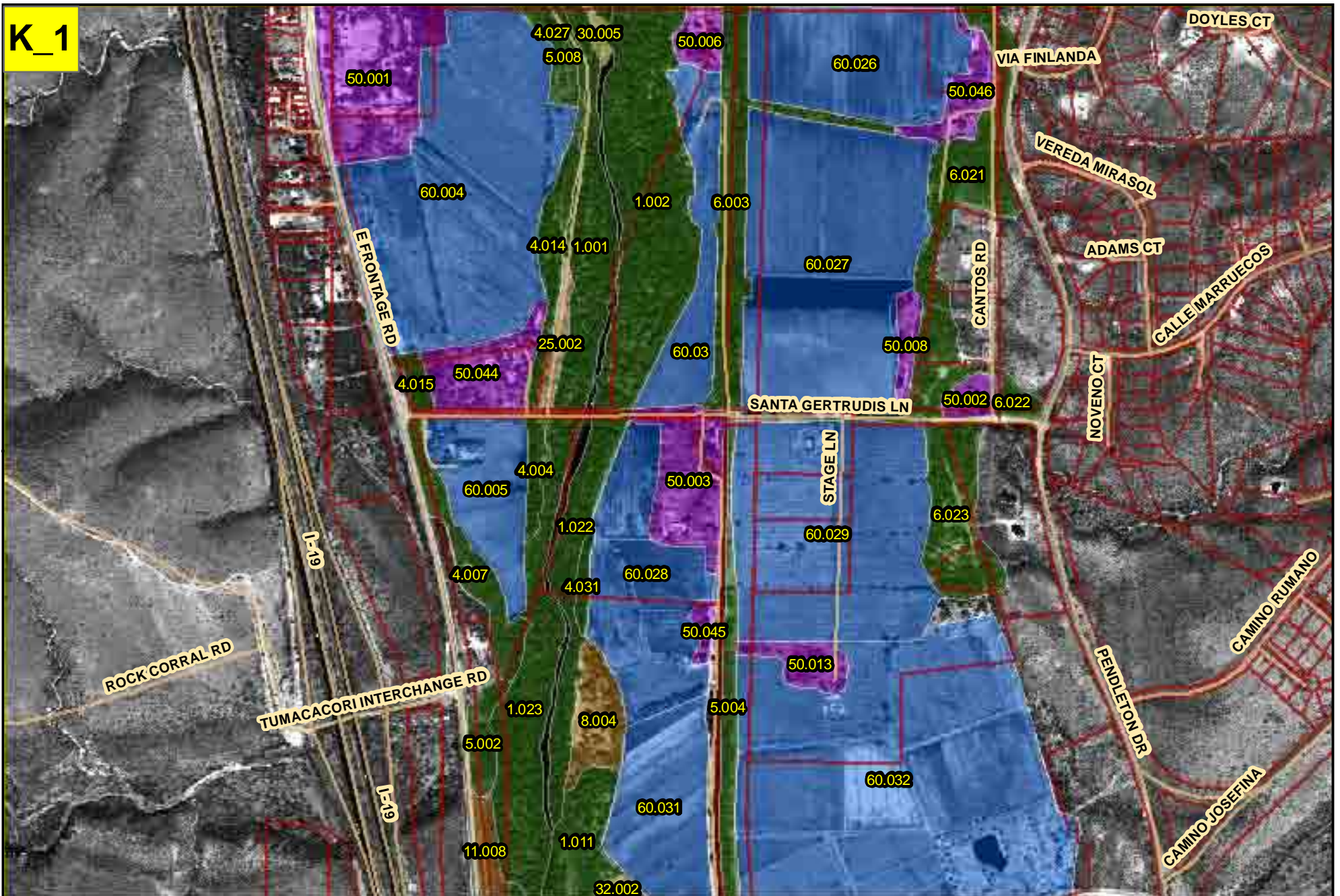


Legend

- | | | |
|----------|------------------|--------------------|
| Parcels | Road | Polygon ID |
| Forest | Wooded Shrubland | Tree Savanna |
| Woodland | Shrubland | Shrub Savanna |
| | | Herbaceous |
| | | Strand |
| | | Developed Woodland |
| | | Agriculture |

0 0.125 0.25
Miles

K_1



Legend

Parcels

Road

Polygon ID

Forest

Wooded Shrubland

Tree Savanna

Herbaceous

Developed Woodland

Woodland

Shrubland

Shrub Savanna

Strand

Agriculture

0 0.125 0.25
Miles

L_2



Legend

 Parcels

 Road

 Polygon ID

 Forest

 Wooded Shrubland


 Tree Savanna

 Herbaceous

 Developed Woodland

 Woodland

 Shrubland

 Shrub Savanna














 Strand

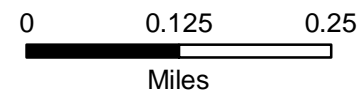
 Agriculture

0 0.125 0.25
Miles



Legend

	Parcels		Road		Polygon ID		Developed Woodland
	Forest		Wooded Shrubland		Herbaceous		Agriculture
	Woodland		Shrubland		Shrub Savanna		Strand
			Tree Savanna				





Legend

Parcels

Forest

Woodland

Wooded Shrubland

Shrubland

Tree Savanna

Shrub Savanna

Road

1.025

Polygon ID

Herbaceous

Strand

Developed Woodland

Agriculture

0

0.125

0.25

Miles

O₂



Legend

Parcels

— Road

1.025 Polygon ID


 Forest

 Wooded Shrubland

 Tree Savanna

☐ Herbaceous

 Developed Woodland

 Woodland Shrubland Shrub Savanna














 Strand

 Agriculture

A horizontal scale bar with a black segment from 0 to 0.125 miles and a white segment from 0.125 to 0.25 miles. The label "Miles" is centered below the bar.



Legend

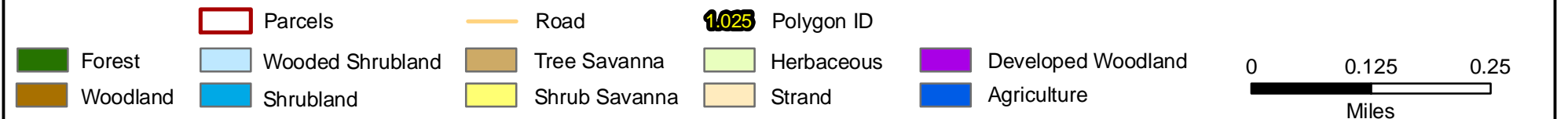
- | | | | |
|--|--|---|--|
|  Parcels |  Road |  Polygon ID |  Developed Woodland |
|  Forest |  Wooded Shrubland |  Tree Savanna |  Herbaceous |
|  Woodland |  Shrubland |  Shrub Savanna |  Agriculture |
| | |  Strand | |

0 0.125 0.25
Miles

Q_2
















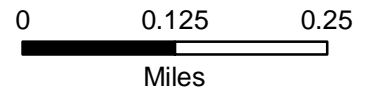
Legend





Legend












- | | | | | | | | |
|--|---|---|---|--|--|---|--|
|  Parcels |  Road |  Polygon ID |  Forest |  Wooded Shrubland |  Tree Savanna |  Herbaceous |  Developed Woodland |
|  Woodland |  Shrubland |  Shrub Savanna |  Strand |  Agriculture | | | |

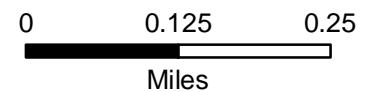


R_3



Legend

-  Parcels
  Road
  Polygon ID
-  Wooded Shrubland
  Tree Savanna
  Herbaceous
  Developed Woodland
-  Shrubland
  Shrub Savanna
  Strand
  Agriculture



R_4



Legend

-
- Forest
 Woodland
 Wooded Shrubland
 Shrubland
 Tree Savanna
 Shrub Savanna
 Road
 Strand
 Herbaceous
 Developed Woodland
 Agriculture
- 0 0.125 0.25 Miles

S_3



Legend

 Parcels

 Road

 Polygon ID

 Forest

 Wooded Shrubland


 Tree Savanna

 Herbaceous

 Developed Woodland

 Woodland

 Shrubland

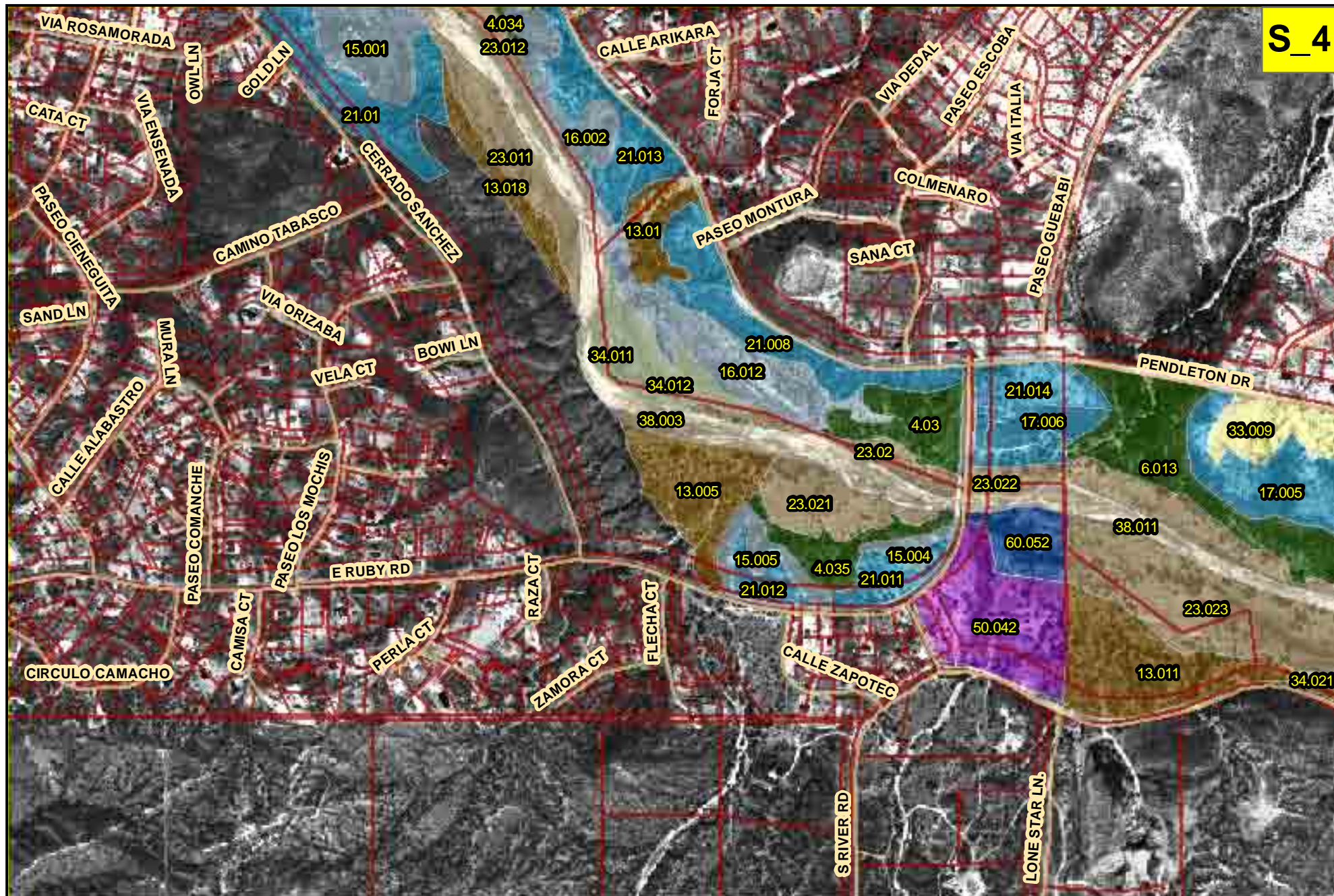
 Shrub Savanna

 Strand














 Agriculture

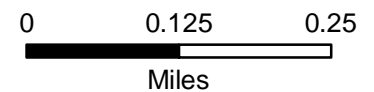
0 0.125 0.25
Miles

S_4



Legend

-  Parcels
  Road
  Polygon ID
-  Forest
  Wooded Shrubland
  Tree Savanna
  Herbaceous
  Developed Woodland
-  Woodland
  Shrubland
  Shrub Savanna
  Strand
  Agriculture



S_5



Legend


 Parcels

 Road

 Polygon ID

 Forest

 Wooded Shrubland


 Tree Savanna

 Herbaceous

 Developed Woodland

 Woodland

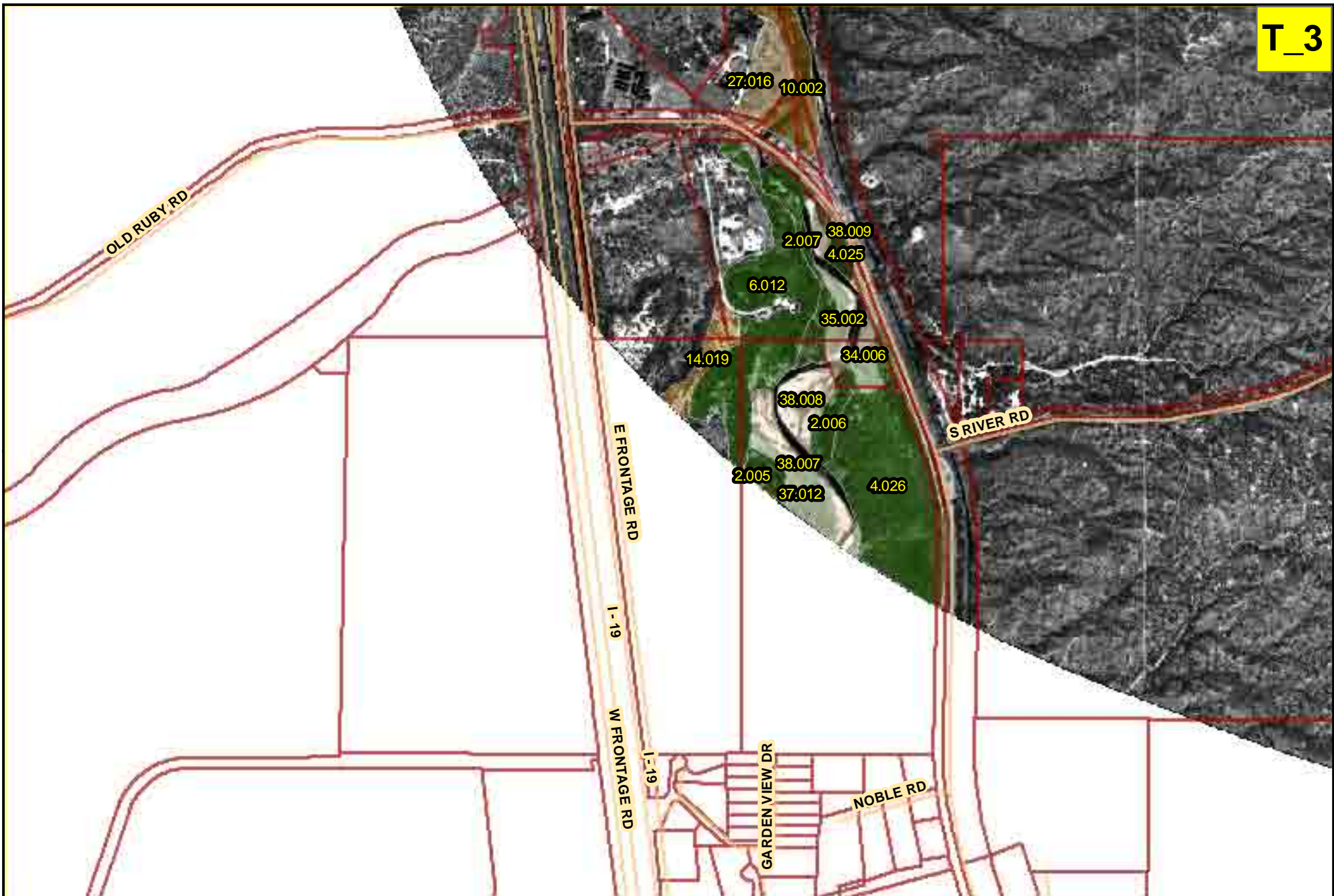
 Shrubland

 Shrub Savanna













 Strand

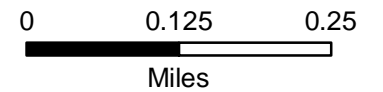
 Agriculture

0 0.125 0.25
Miles



Legend













 Parcels	 Road	 Polygon ID
 Forest	 Wooded Shrubland	 Tree Savanna
 Woodland	 Shrubland	 Shrub Savanna
		 Strand
		 Developed Woodland
		 Agriculture



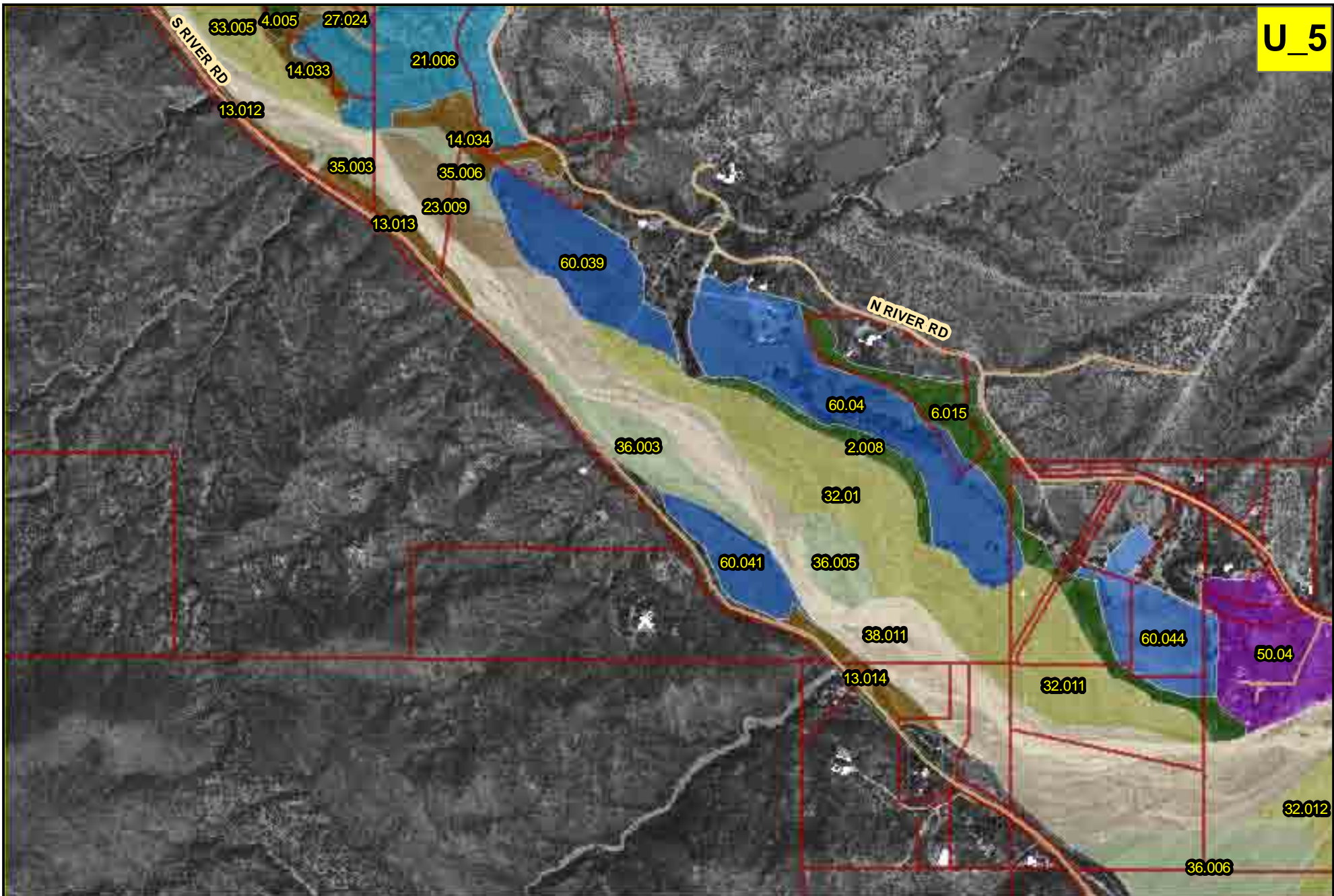
T_5








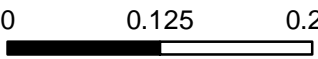








Legend

- | | | |
|---|--|--|
|  Parcels |  Road |  Polygon ID |
|  Forest |  Wooded Shrubland |  Tree Savanna |
|  Woodland |  Shrubland |  Shrub Savanna |
| | |  Strand |
| | |  Developed Woodland |
| | |  Agriculture |

0 0.125 0.25
Miles
















Legend

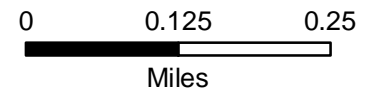
 Forest	 Parcels	 Road	 Polygon ID	 Developed Woodland	 0 0.125 0.25 Miles
 Woodland	 Wooded Shrubland	 Tree Savanna	 Herbaceous	 Agriculture	
 Shrubland	 Shrub Savanna	 Strand			

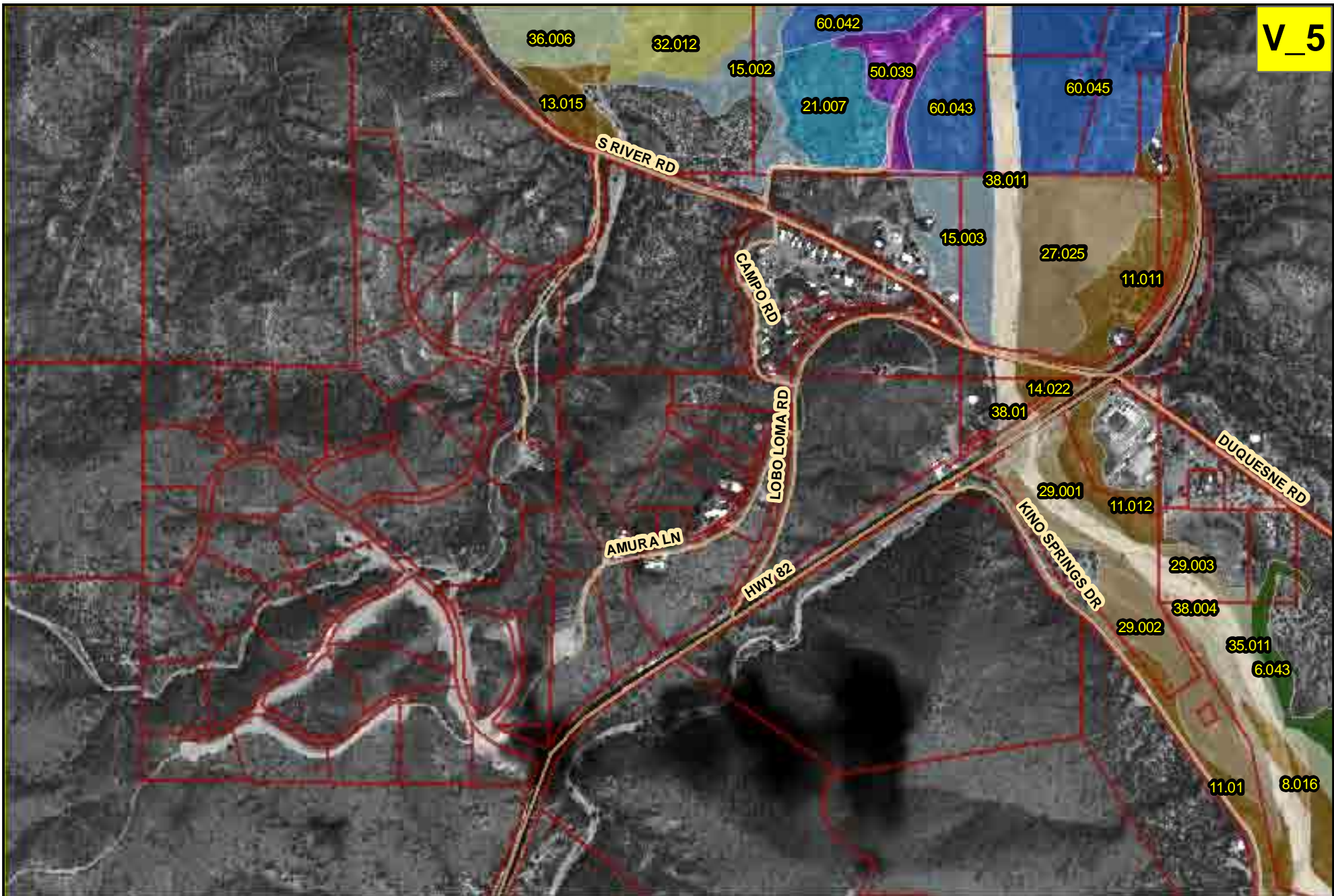
U_6
















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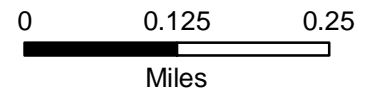
- | | | | |
|---|--|--|--|
|  Forest |  Parcels |  Road |  Polygon ID |
|  Woodland |  Wooded Shrubland |  Tree Savanna |  Herbaceous |
|  Shrubland |  Shrub Savanna |  Strand |  Developed Woodland |
| | | |  Agriculture |





Legend














 Parcels	 Road	 Polygon ID	
 Forest	 Wooded Shrubland	 Tree Savanna	 Herbaceous
 Woodland	 Shrubland	 Shrub Savanna	 Developed Woodland
		 Strand	 Agriculture

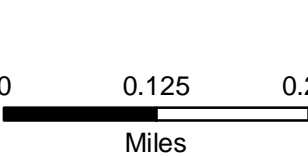


V_6



Legend














 Parcels	 Road	 Polygon ID	
 Forest	 Wooded Shrubland	 Tree Savanna	 Herbaceous
 Woodland	 Shrubland	 Shrub Savanna	 Developed Woodland
		 Strand	 Agriculture

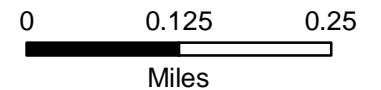


0 0.125 0.25
Miles



Legend

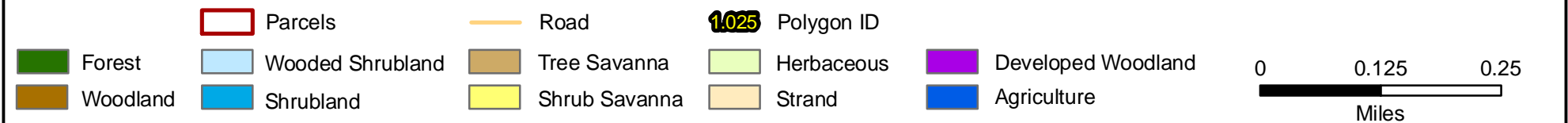
- | | | |
|--|--|--|
|  Parcels |  Road |  Polygon ID |
|  Forest |  Wooded Shrubland |  Tree Savanna |
|  Woodland |  Shrubland |  Shrub Savanna |
| |  Herbaceous |  Developed Woodland |
| |  Strand |  Agriculture |



X_6
















Legend

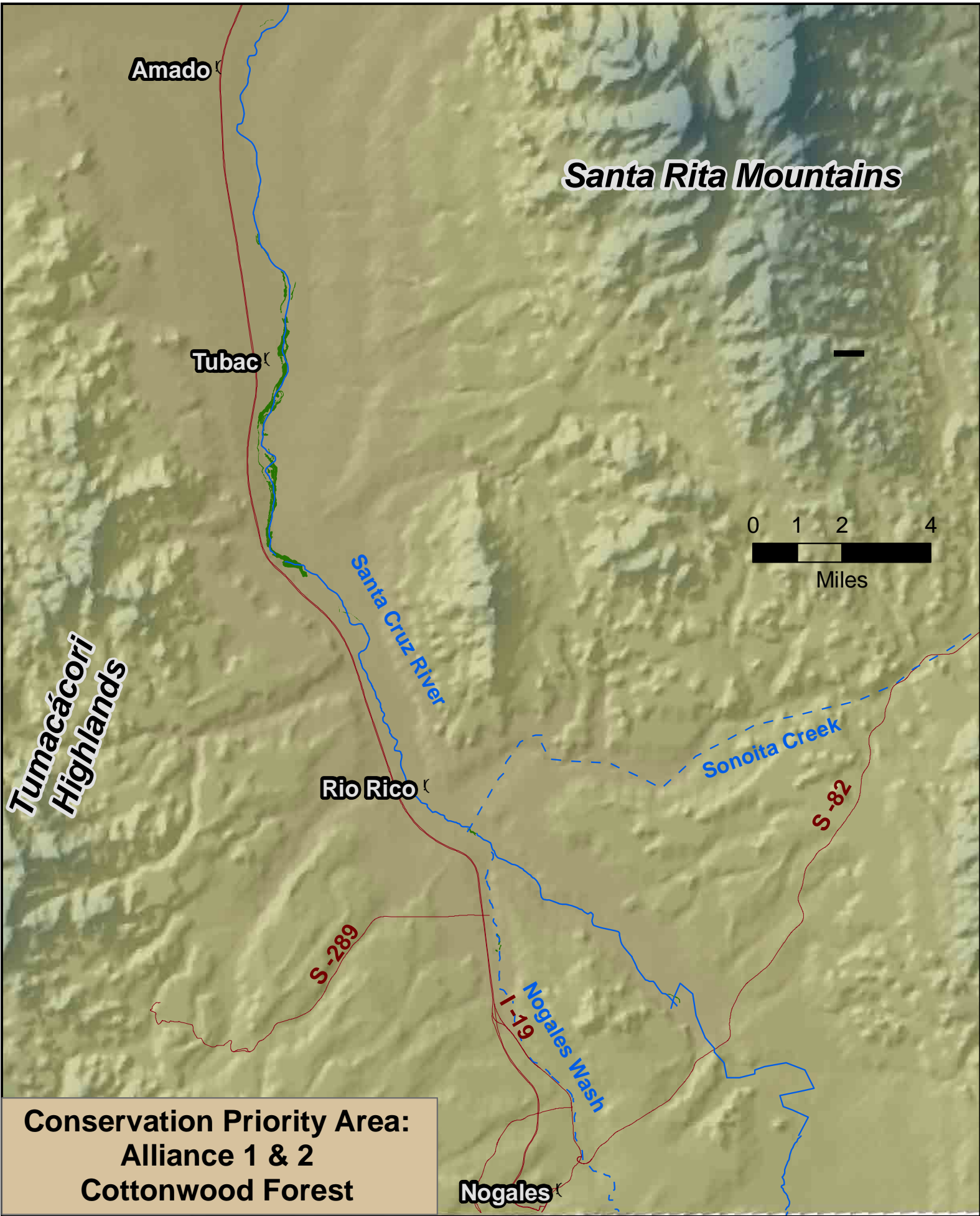




Legend

 Parcels	 Road	 Polygon ID	 Forest	 Wooded Shrubland	 Tree Savanna	 Herbaceous	 Developed Woodland
 Woodland	 Shrubland	 Shrub Savanna	 Strand	 Agriculture			

0 0.125 0.25
Miles



Amado

Santa Rita Mountains

Tubac

0 1 2 4

Miles

***Tumacácori
Highlands***

Santa Cruz River

Rio Rico

Sonolita Creek

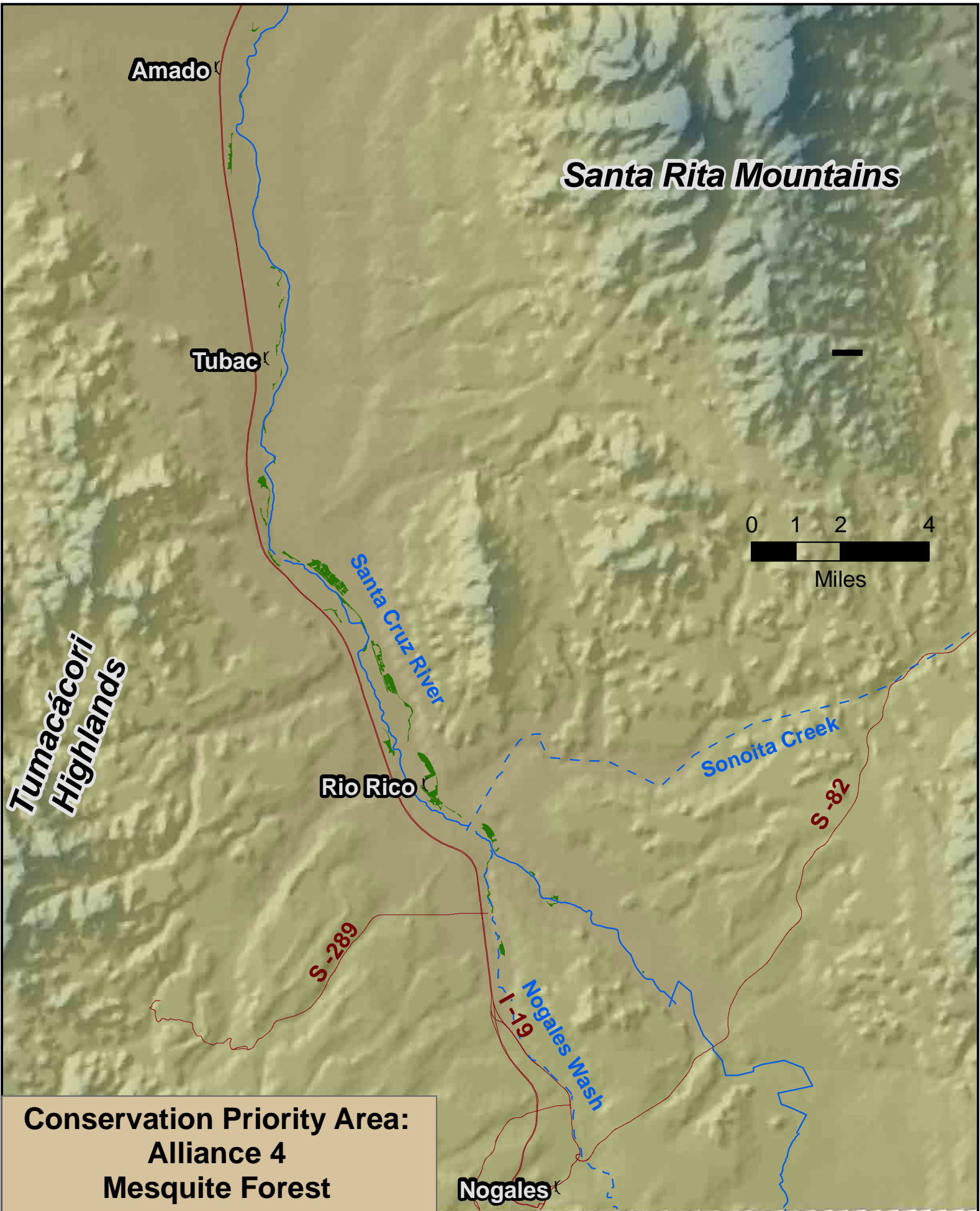
S-82

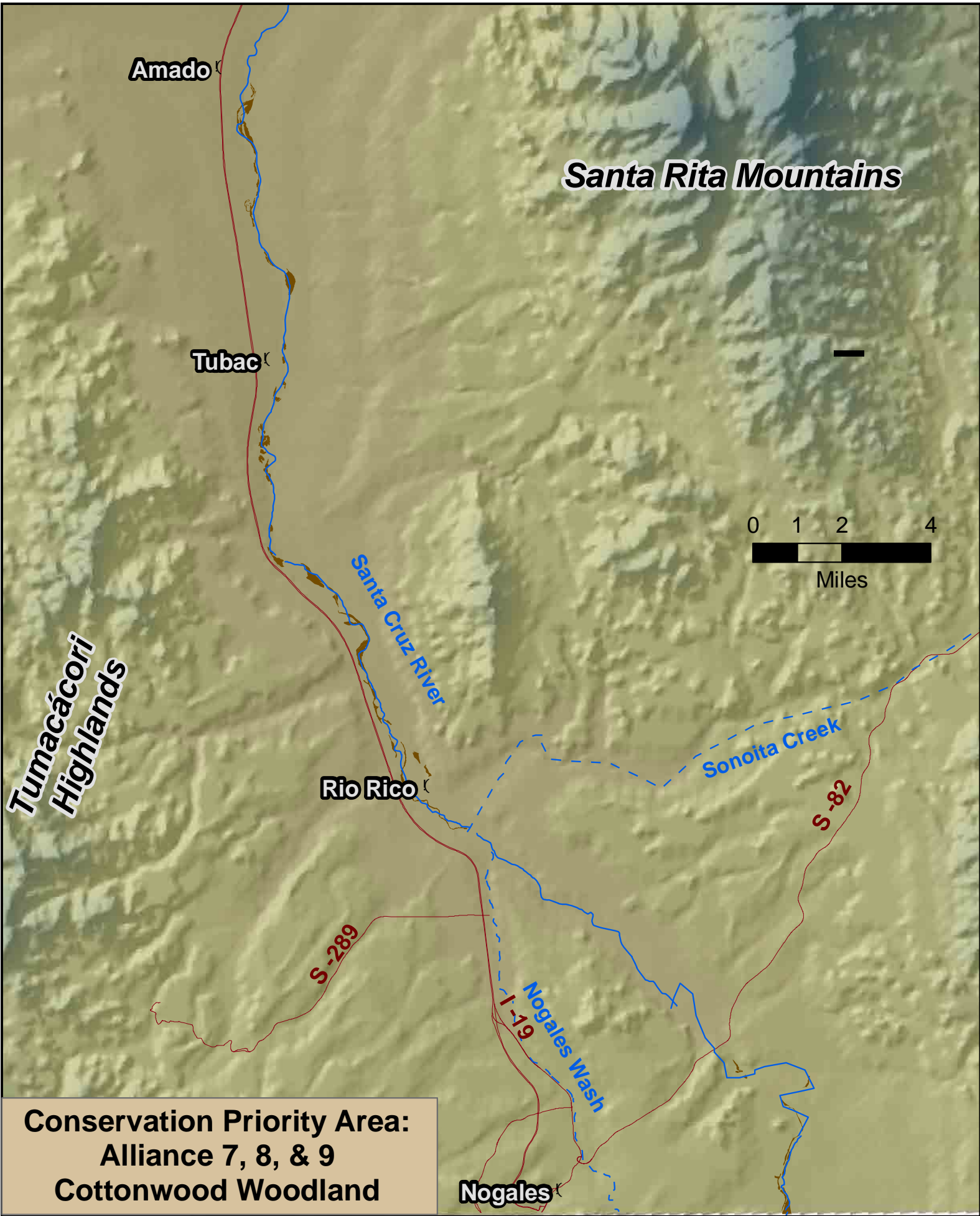
S-289

***I-19
Nogales Wash***

**Conservation Priority Area:
Alliance 4
Mesquite Forest**

Nogales





Amado

Santa Rita Mountains

Tubac

Santa Cruz River

0 1 2 4
Miles

***Tumacacori
Highlands***

Rio Rico

Sonolita Creek

S-82

S-289

**I-19
Nogales Wash**

**Conservation Priority Area:
Alliance 7, 8, & 9
Cottonwood Woodland**

Nogales

Amado

Santa Rita Mountains

Tubac

0 1 2 4

Miles

***Tumacácori
Highlands***

Santa Cruz River

Rio Rico

Sonolita Creek

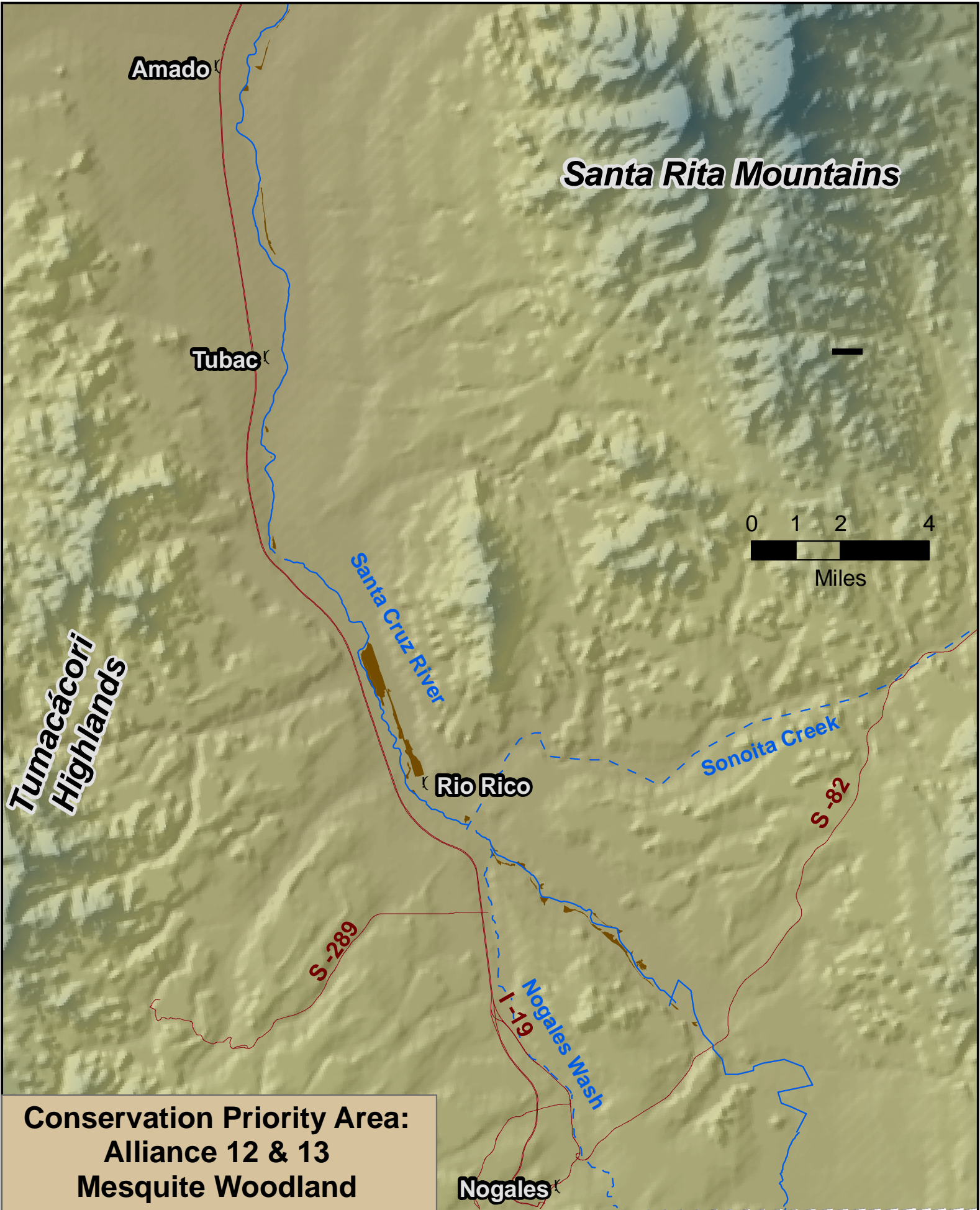
S-82

S-289

***I-19
Nogales Wash***

**Conservation Priority Area:
Alliance 12 & 13
Mesquite Woodland**

Nogales



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