

**DOCKET**

**07-AFC-8**

DATE APR 02 2009

RECD. APR 02 2009

# Task 1. Modeling Baseline Conditions Of Habitat Suitability And Connectivity For Each Focal Species

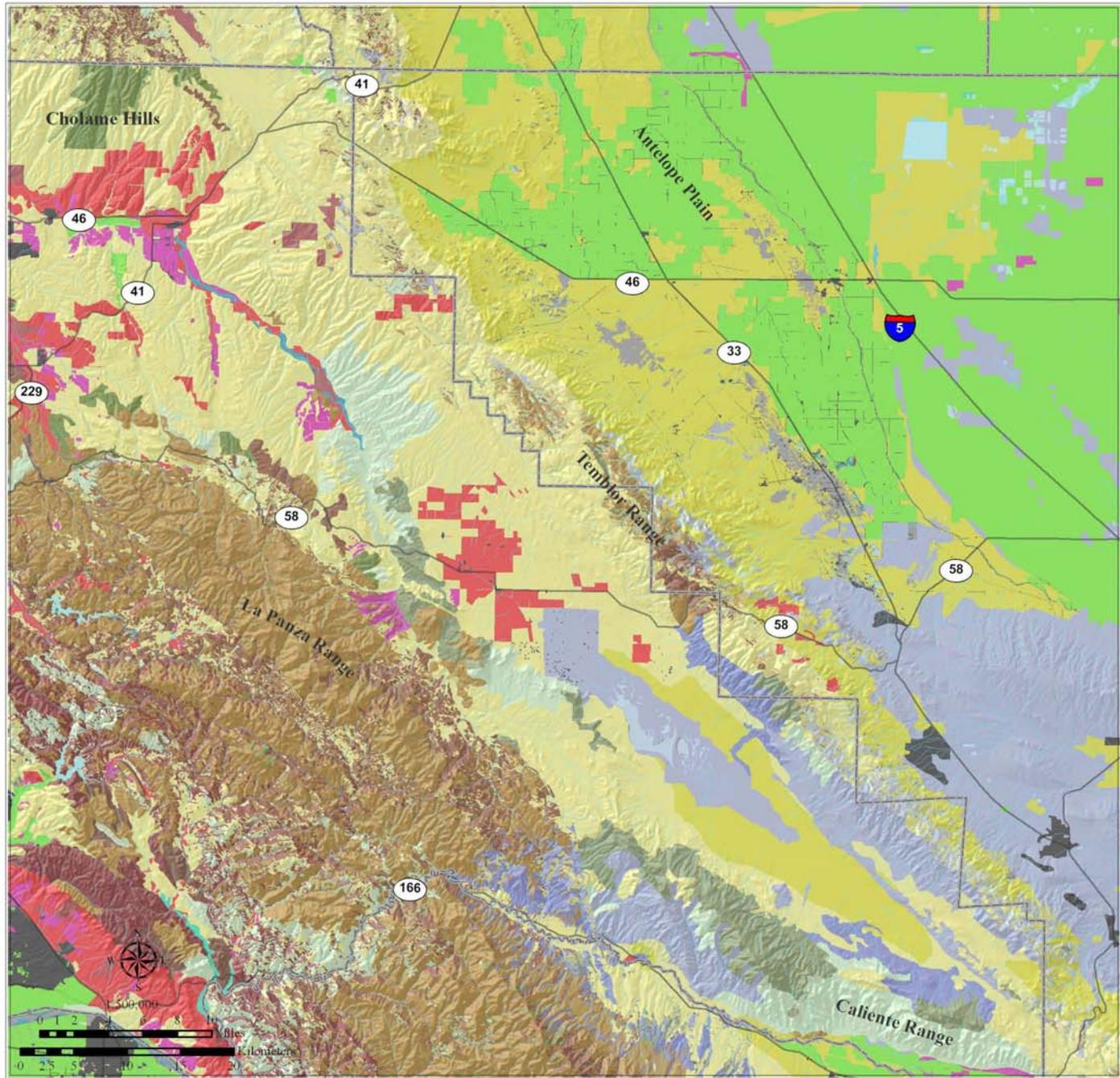
**Figure 1.**  
**Vegetation**  
**in the Study Area**

- Vegetation**
- Alkali Desert Scrub
  - Annual Grassland - Avena
  - Annual Grassland - Bromus
  - Barren
  - Blue Oak Woodland
  - Blue Oak-Foothill Pine
  - Chamise-Redshank Chaparral
  - Closed-Cone Pine-Cypress
  - Coastal Oak Woodland
  - Coastal Scrub
  - Cropland
  - Desert Riparian
  - Desert Wash
  - Dryland Grain Crops
  - Eucalyptus
  - Freshwater Emergent Wetland
  - Irrigated Row and Field Crops
  - Juniper
  - Lacustrine
  - Mixed Chaparral
  - Montane Chaparral
  - Montane Hardwood
  - Montane Hardwood-Conifer
  - Orchard and Vineyard
  - Pasture
  - Perennial Grassland
  - Pinyon-Juniper
  - Sagebrush
  - Sierran Mixed Conifer
  - Urban
  - Valley Foothill Riparian
  - Valley Oak Woodland
  - Vineyard
  - Wet Meadow
- Highways
- Rivers & Streams
- Hydrography
- County Boundaries

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**Figure 2.**  
**Roads in the**  
**Study Area**

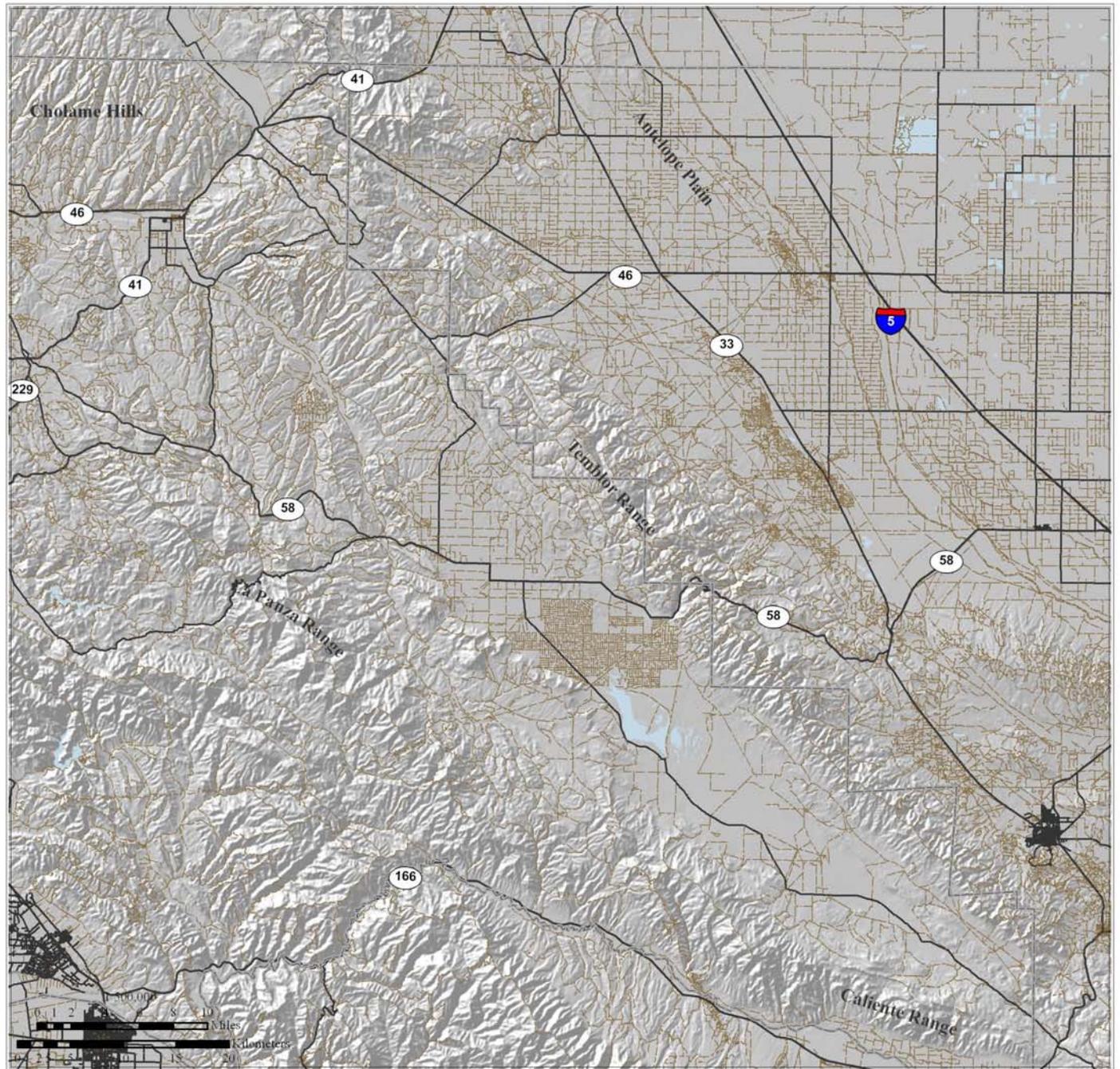
- Roads**
- Highway
  - Other Paved Roads
  - - - Dirt Roads
  - County Boundaries
  - Hydrography



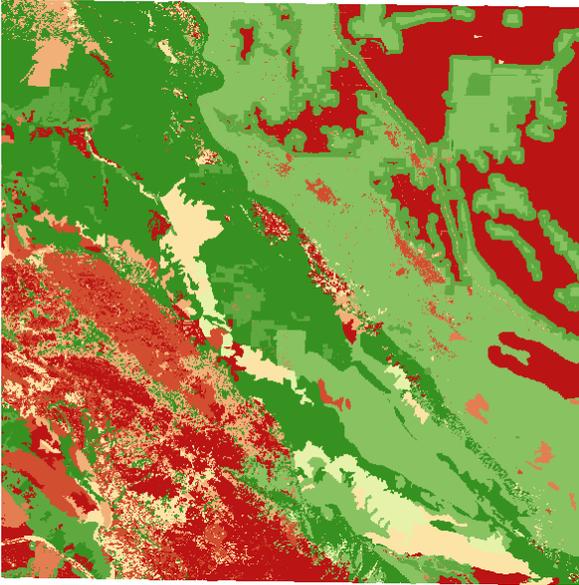
Map Produced By:



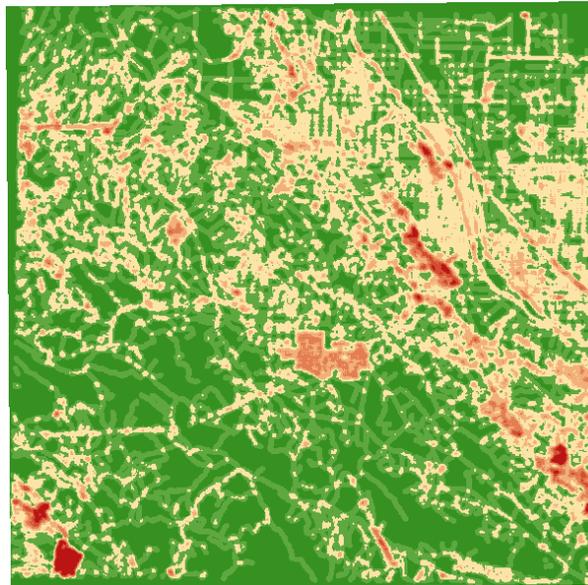
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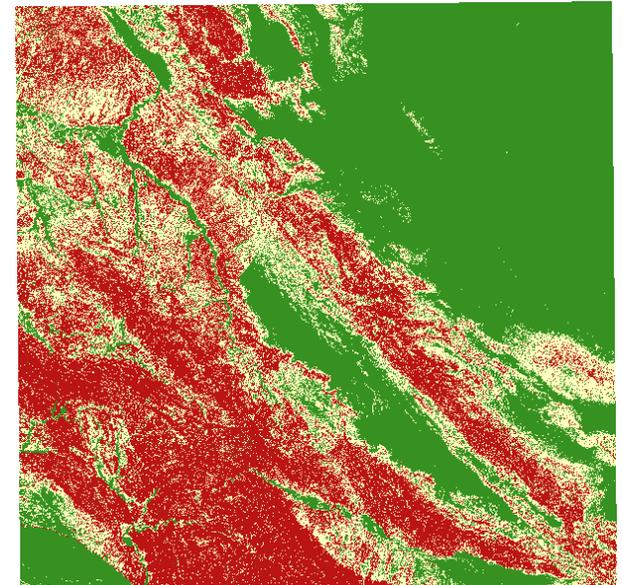
# Pronghorn Antelope: Habitat Suitability Inputs



Input: Vegetation Suitability



Input: Road Density Suitability



Input: Slope Suitability

## Weighted Geometric Mean

$$(\text{Vegetation Score}^{0.35}) * (\text{Road Density Score}^{0.10}) * (\text{Topography Score}^{0.55}) = \text{Habitat Suitability}$$

Output divided into five classes using natural breaks (low, low to medium, medium, medium to high, and high)

**Figure 4.**  
**Habitat Suitability**  
**for**  
**Pronghorn antelope**

**Degree of Suitability**

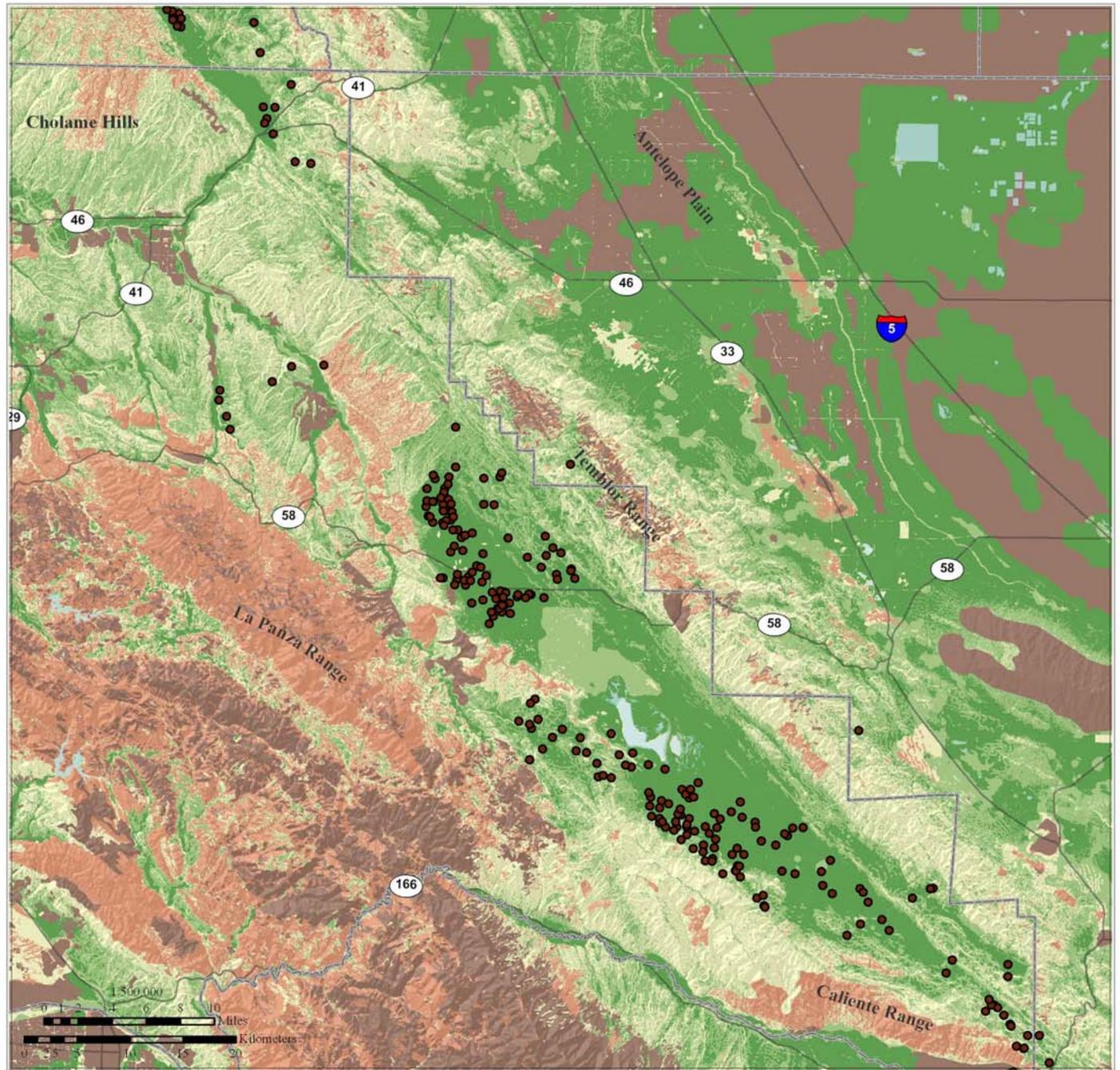
- High
- Med-High
- Med
- Low-Med
- Low
- Pronghorn Sightings
- Highways
- ▭ County Boundaries
- Hydrography



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**Figure 5.**  
**Potential Cores & Patches**  
**for**  
**Pronghorn antelope**

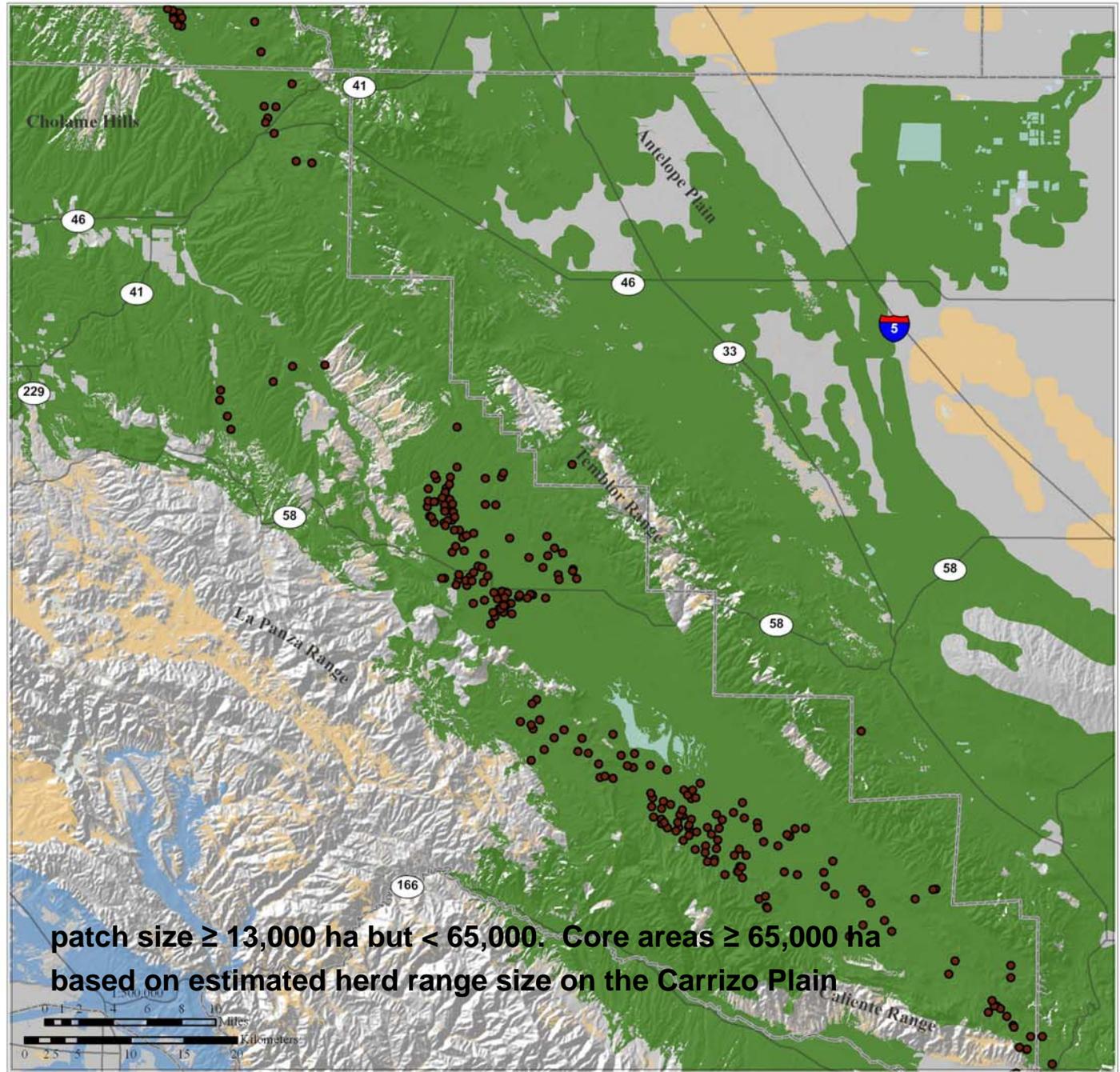
- Core
- Patch
- < Patch
- Pronghorn Sightings
- Highways
- County Boundaries
- Hydrography



Map Produced By:

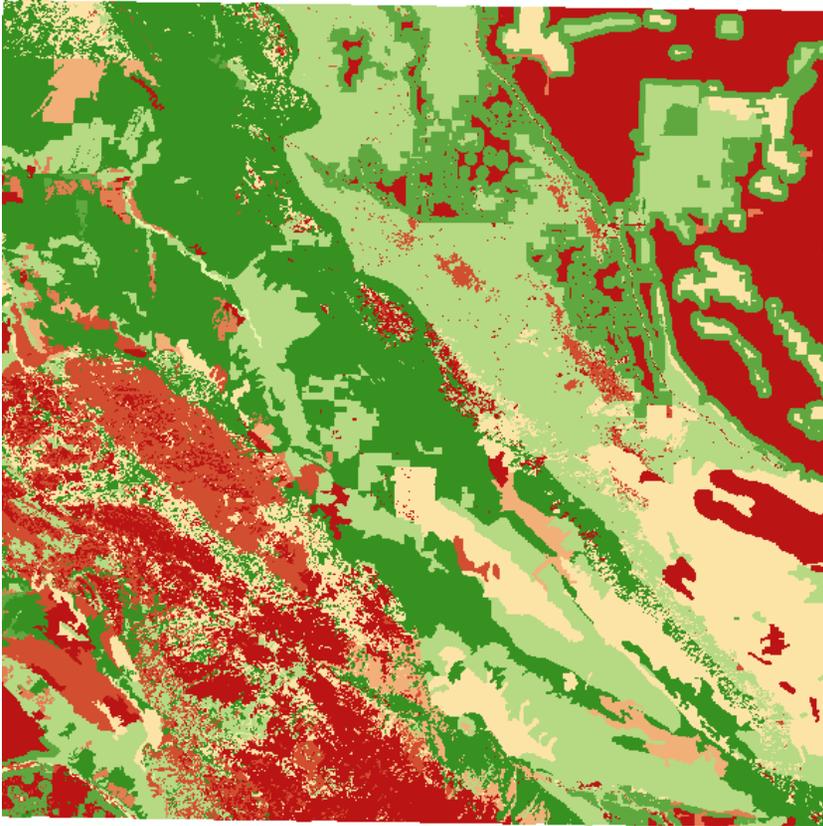


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**patch size  $\geq 13,000$  ha but  $< 65,000$ . Core areas  $\geq 65,000$  ha  
 based on estimated herd range size on the Carrizo Plain**

## Tule Elk: Habitat Suitability Inputs



Input: Vegetation Suitability



Input: Road Density Suitability

Weighted Geometric Mean

$$(\text{Vegetation Score}^{0.50}) * (\text{Road Density Score}^{0.50}) = \text{Habitat Suitability}$$

Output divided into five classes using natural breaks (low, low to medium, medium, medium to high, and high)

**Figure 6.**  
Habitat Suitability  
for  
Tule elk

**Degree of Suitability**

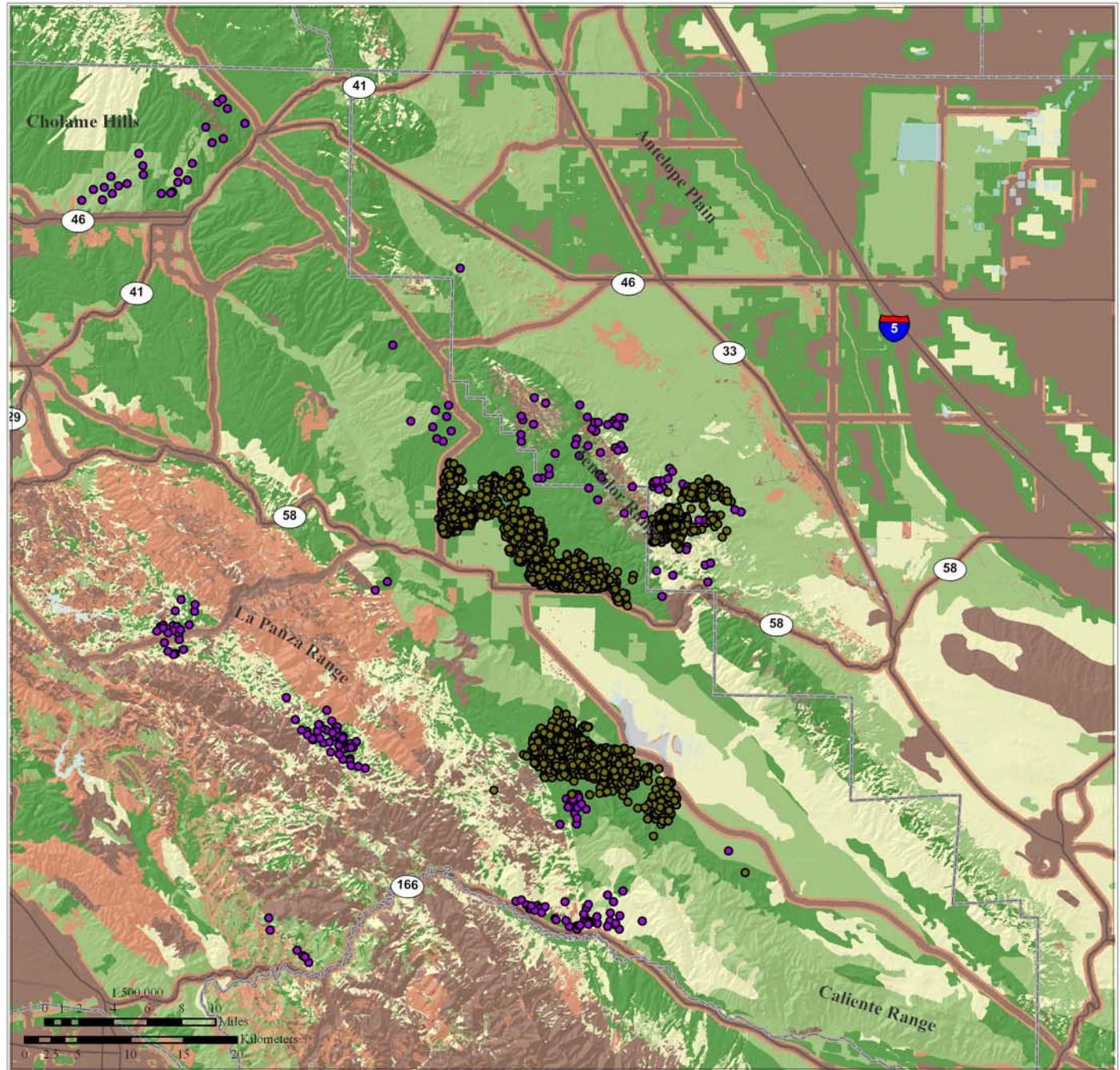
- High
- Med-High
- Med
- Low-Med
- Low
- Collared Sightings
- Flight Sightings
- Highways
- County Boundaries
- Hydrography



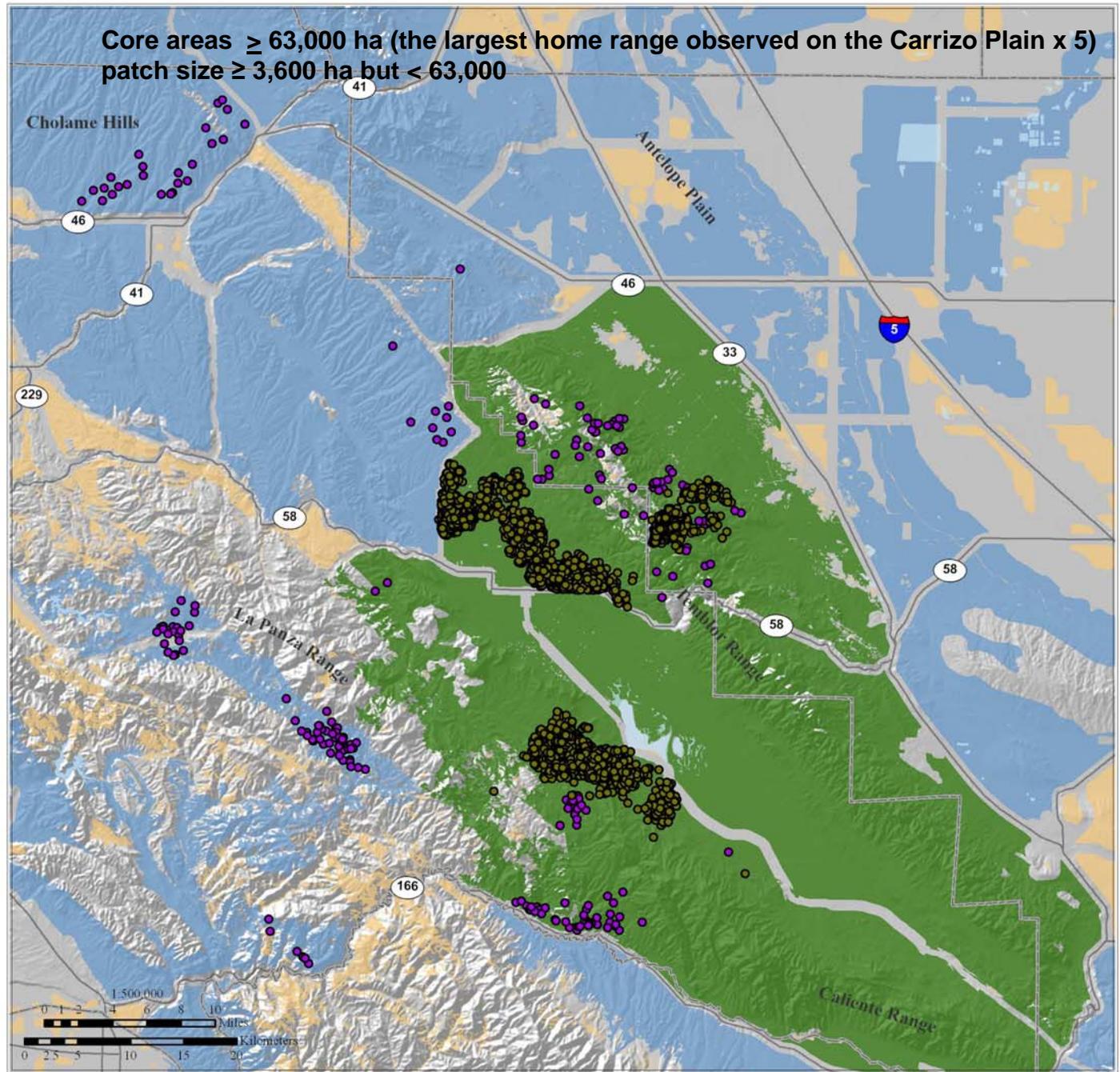
Map Produced By:



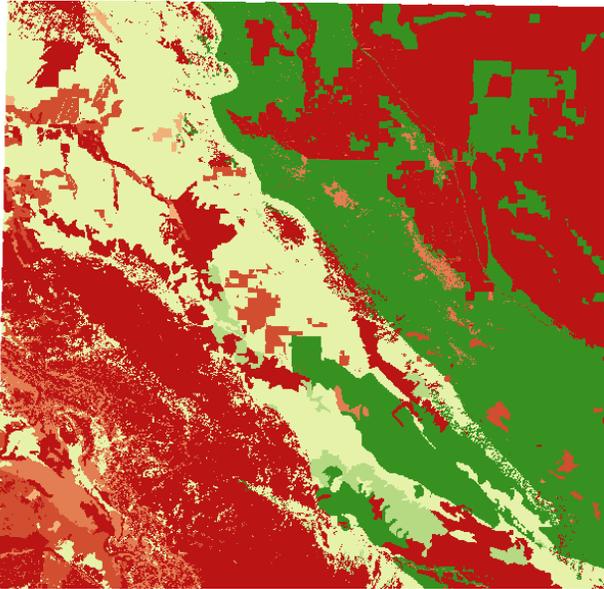
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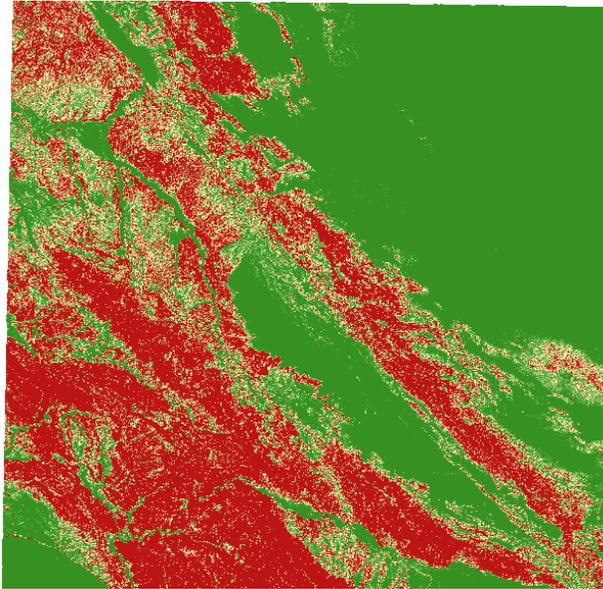
**Figure 7.**  
**Potential Cores & Patches**  
**for**  
**Tule elk**



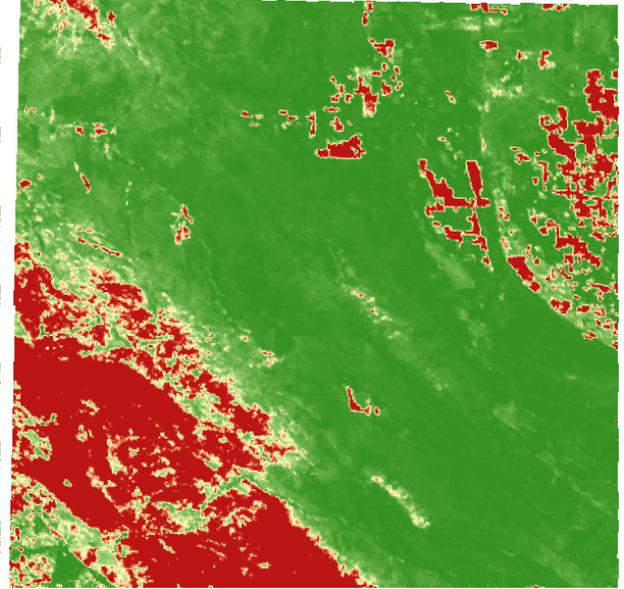
# Kit Fox: Habitat Suitability Inputs



Input: Vegetation Suitability



Input: Terrain Ruggedness Suitability



Input: Vegetation Density Suitability

## Weighted Arithmetic Mean

$$\text{(Vegetation Score * 50\%)} + \text{(Terrain Ruggedness Score * 25\%)} + \text{(Vegetation Density Score * 25\%)} = \text{Habitat Suitability}$$

The output was divided into three defined classes: high ( $\geq 0.9$ ); medium ( $\geq 0.6$  but  $< 0.9$ ); and low ( $< 0.6$ )

model source: Cypher et al. 2007

**Figure 8**  
**Habitat Suitability**  
**for**  
**San Joaquin kit fox**

**Degree of Suitability**

■ High

■ Med

■ Low

● Kit Fox Sightings

● ESRP Kit Fox Sightings

● Spotlight observations

● Incidental observations

● Telemetry locations

● Car Sightings

○ CNDDDB Kit Fox

— Highways

□ County Boundaries

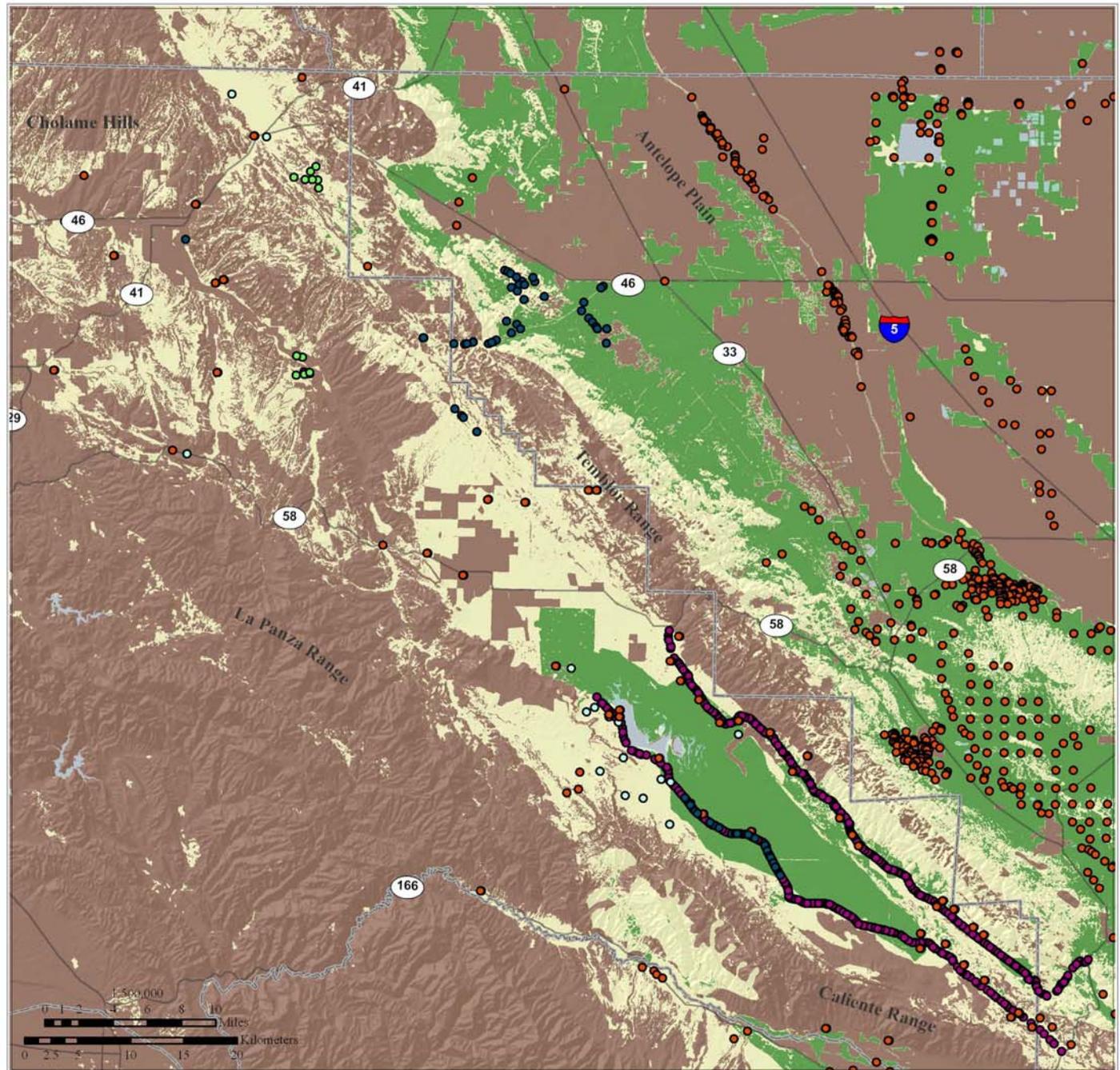
■ Hydrography



Map Produced By:

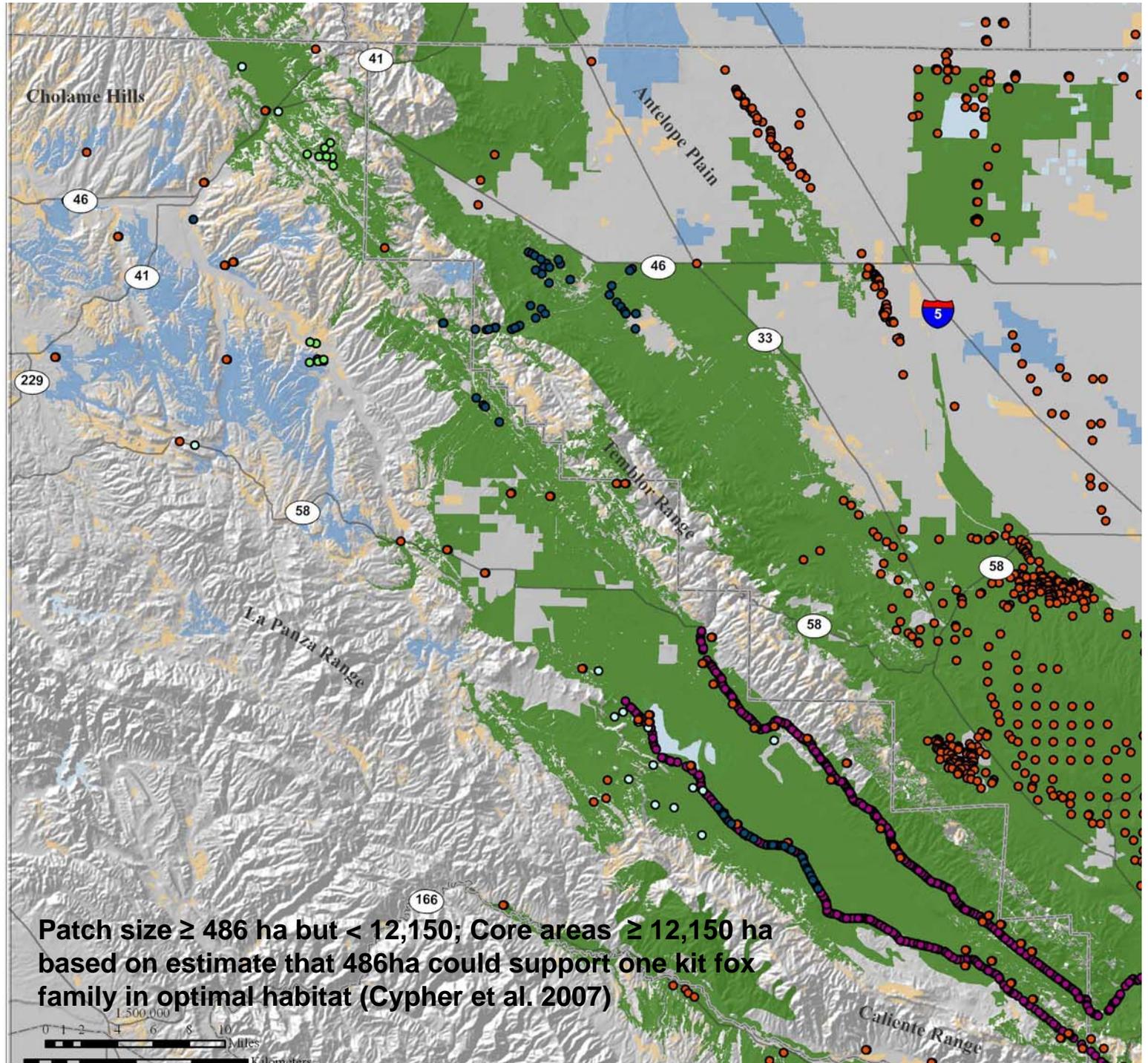


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Potential Cores & Patches  
for  
San Joaquin kit fox

- Core
- Patch
- < Patch
- Kit Fox Sightings
- ESRP Kit Fox Sightings
- Spotlight observations
- Incidental observations
- Telemetry locations
- Car Sightings
- CNDDDB Kit Fox
- Highways
- County Boundaries
- Hydrography

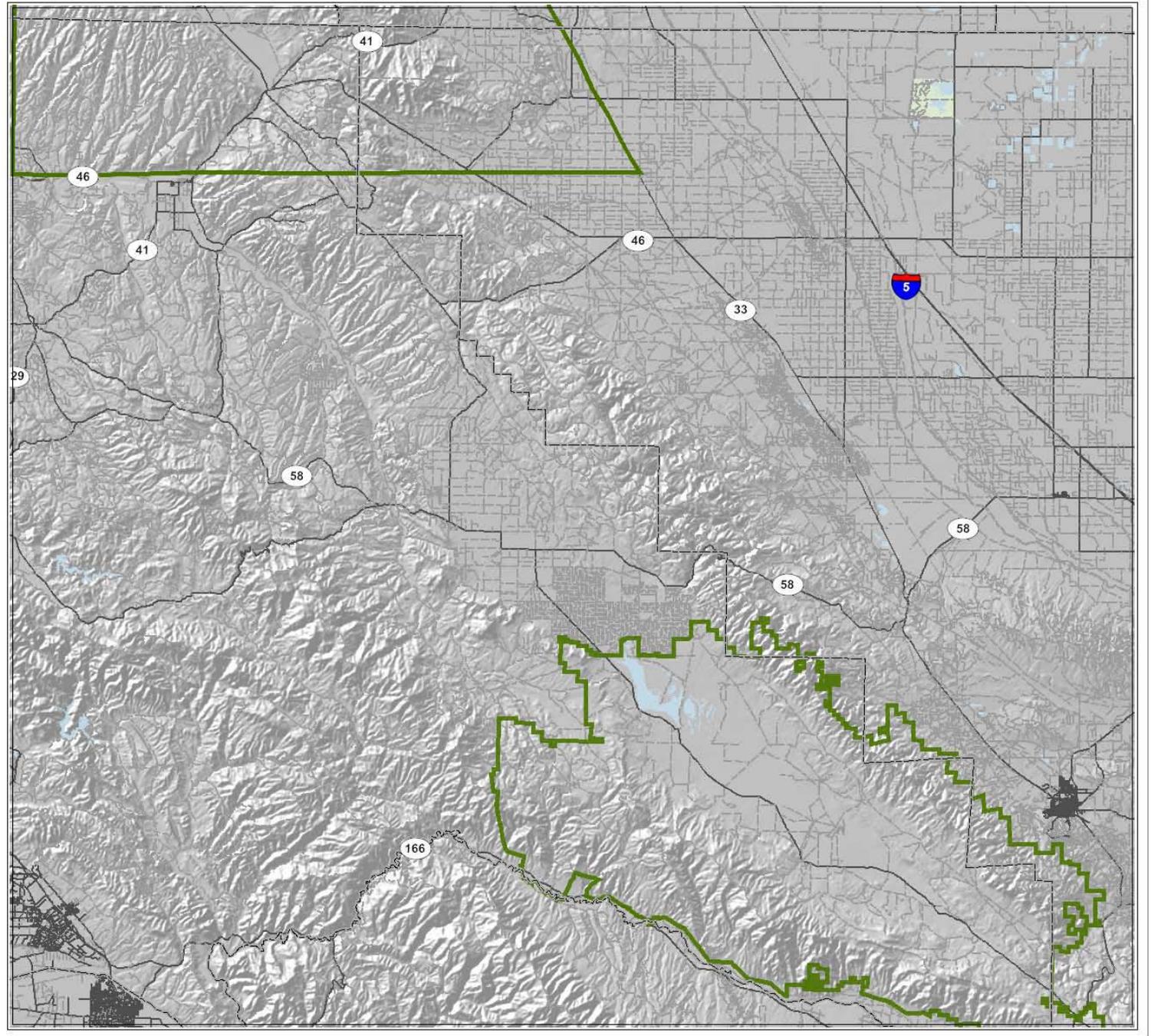


Patch size  $\geq 486$  ha but  $< 12,150$ ; Core areas  $\geq 12,150$  ha based on estimate that 486ha could support one kit fox family in optimal habitat (Cypher et al. 2007)

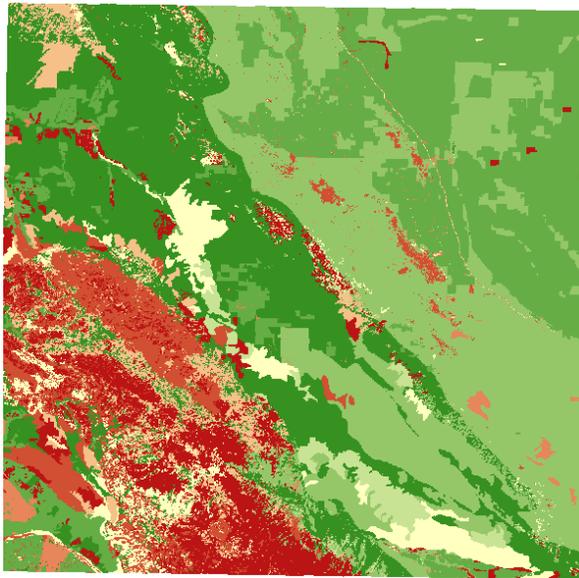
Map Produced By:



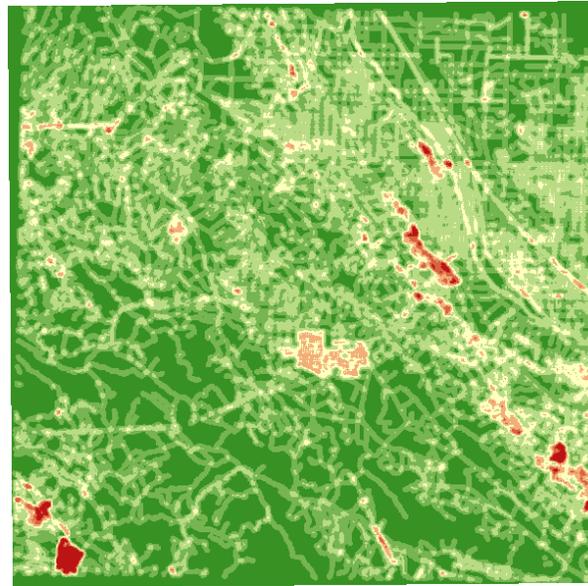
# Target Zones for Landscape Permeability Analyses



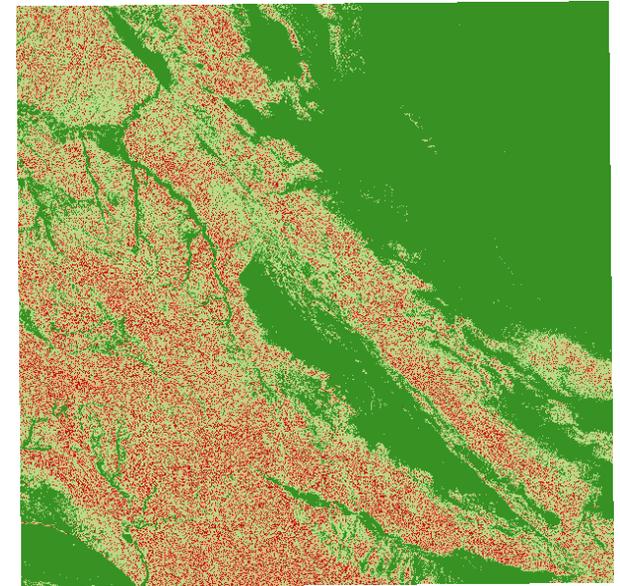
# Pronghorn Antelope: Landscape Permeability Inputs



Input: Vegetation Permeability

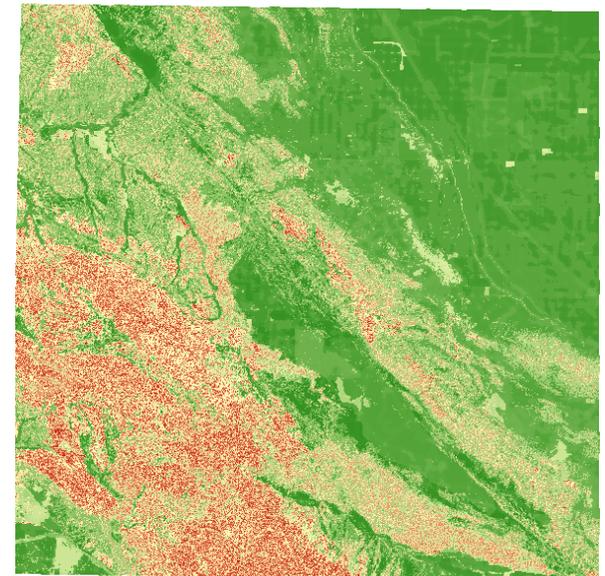


Input: Road Density Permeability



Input: Topography Permeability

$$\text{(Vegetation Score * 35\%)} + \text{(Road Density Score * 10\%)} + \text{(Topography Score * 55\%)} = \text{cost}$$



**Figure 10.**  
**Landscape Permeability**  
**for**  
**Pronghorn antelope**

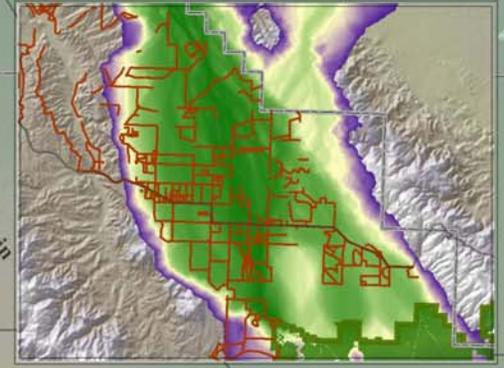
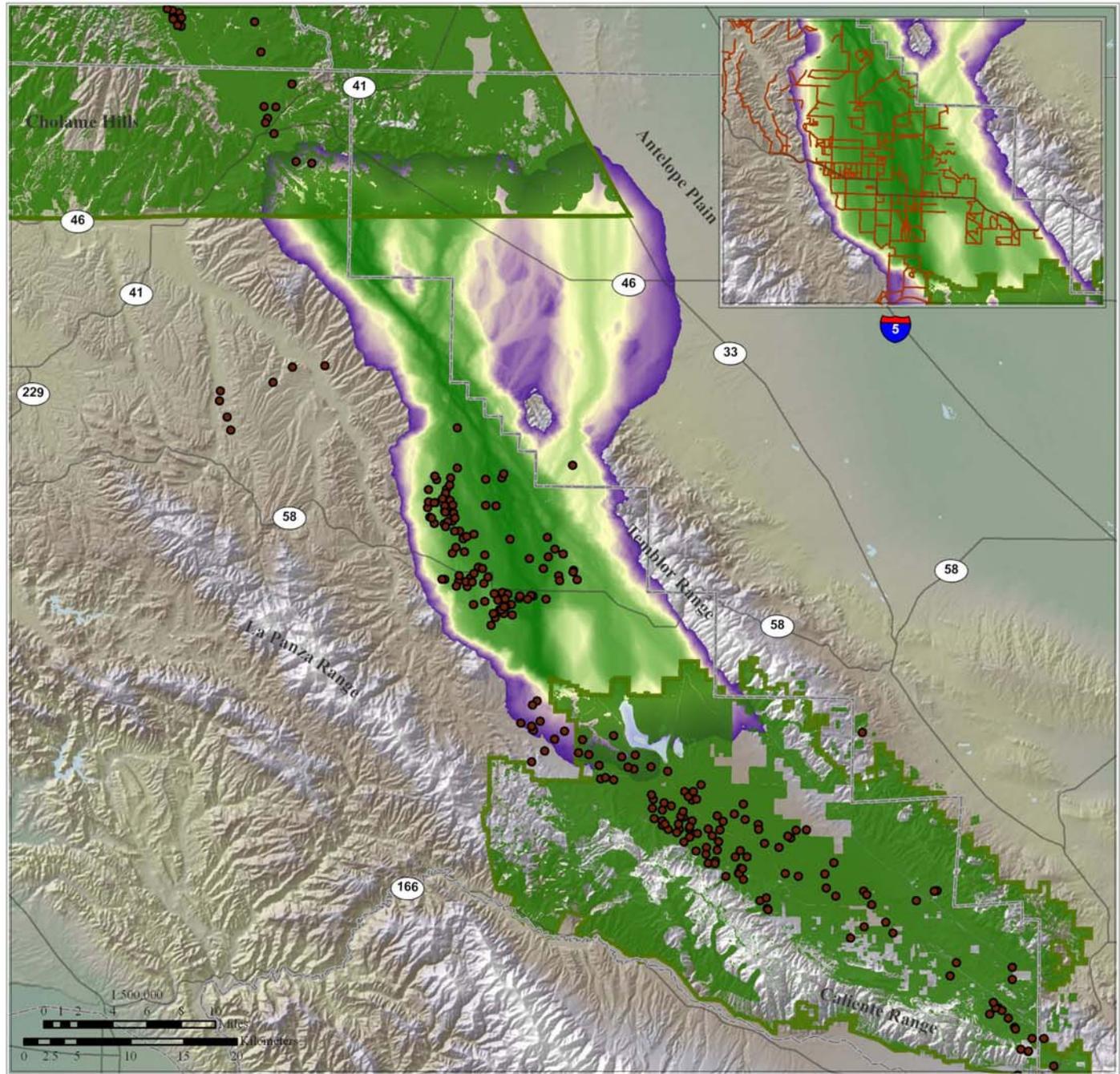
-  Highly Permeable
-  Less Permeable
-  Targeted Core Areas
-  Core Targets
-  Pronghorn Sightings
-  Highways
-  Fence Lines
-  County Boundaries
-  Hydrography



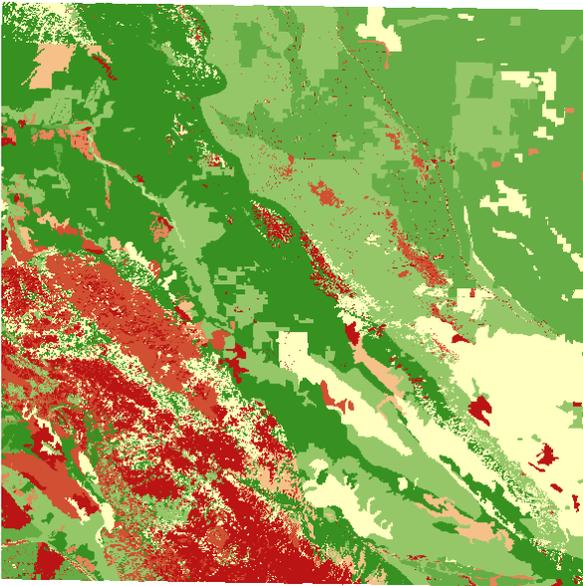
Map Produced By:



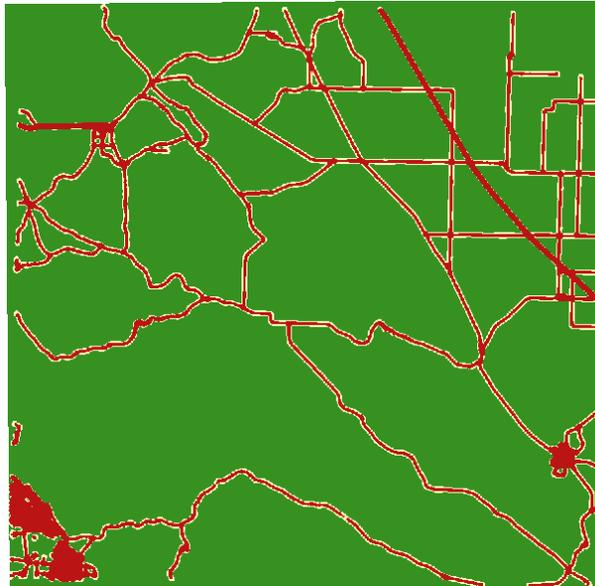
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# Tule Elk: Landscape Permeability Inputs

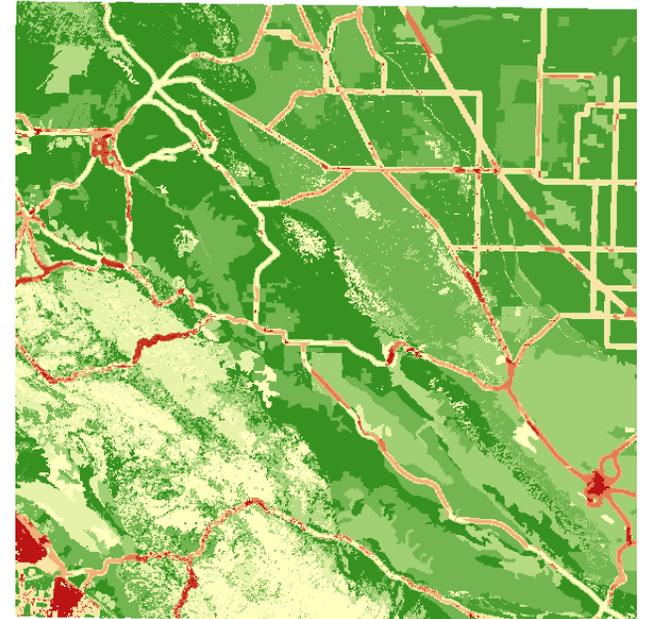


Input: Vegetation Permeability



Input: Road Density Permeability

$(\text{Vegetation Score} * 50\%) + (\text{Road Density Score} * 50\%) = \text{cost.}$



**Figure 11.**  
**Landscape Permeability**  
**for**  
**Tule elk**

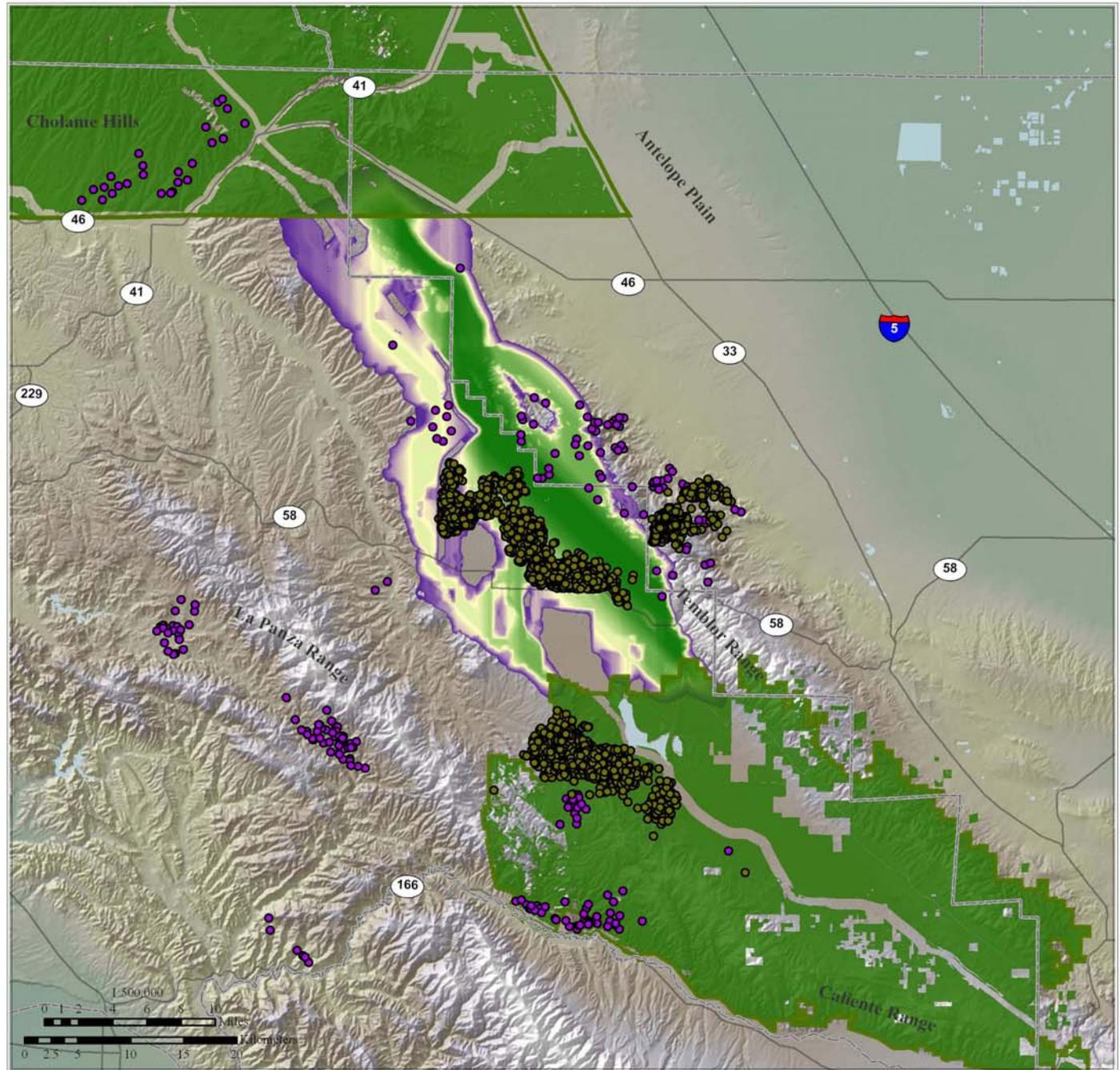
-  Highly Permeable
-  Less Permeable
-  Collared Sightings
-  Flight Sightings
-  Targeted Core Areas
-  Core Targets
-  Highways
-  County Boundaries
-  Hydrography



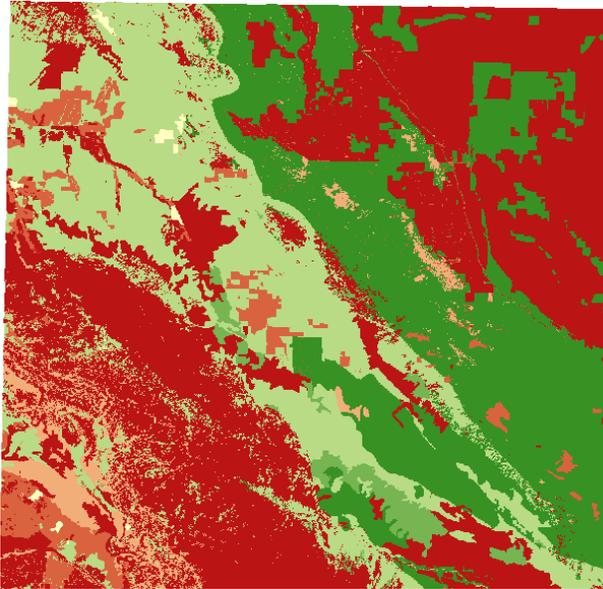
Map Produced By:



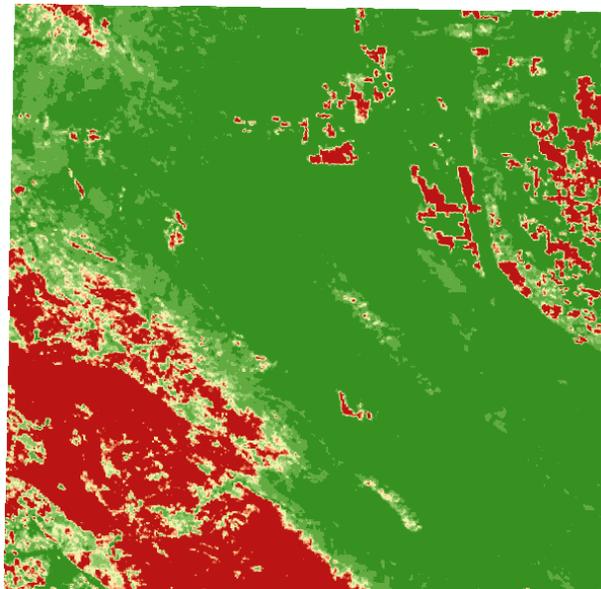
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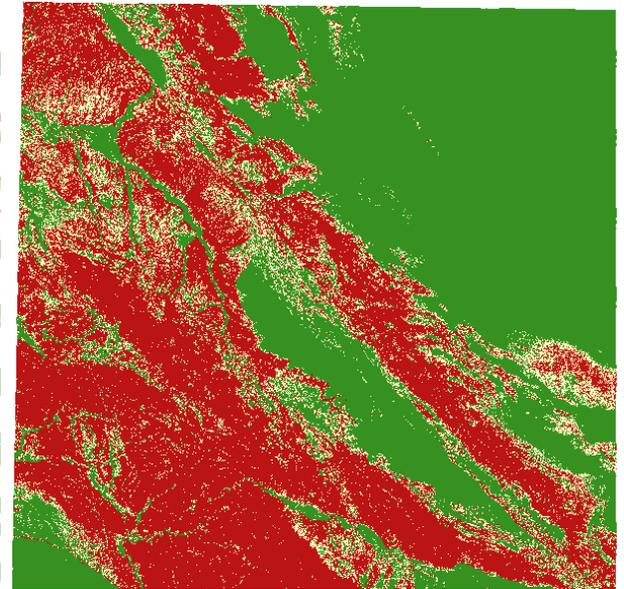
# Kit Fox Permeability inputs based on Suitability Ratings



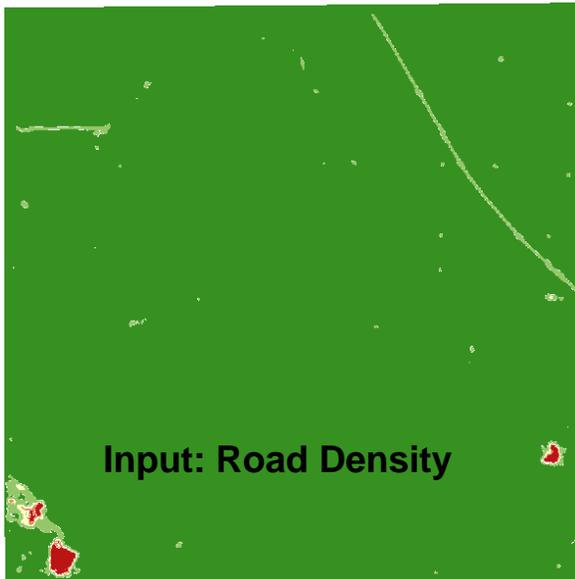
Input: Vegetation



Input: Vegetation Density

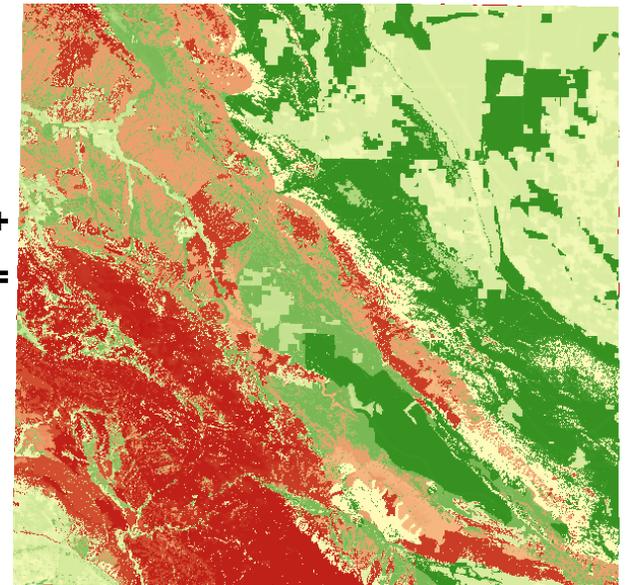


Input: Terrain Ruggedness



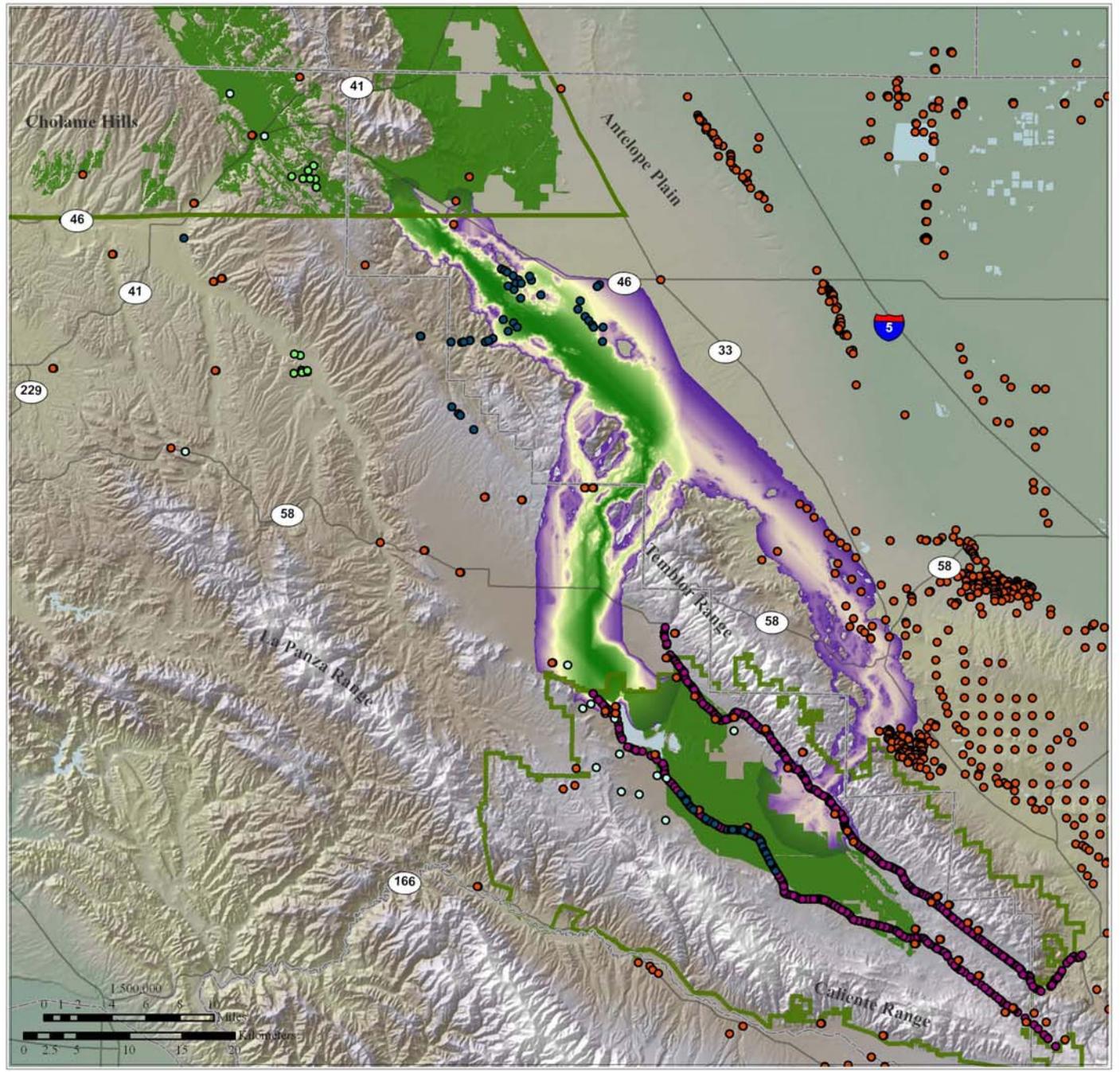
Input: Road Density

$$\begin{aligned} &(\text{Vegetation Score} * 40\%) + \\ &(\text{Road Density Score} * 5\%) + \\ &(\text{Terrain Ruggedness Score} * 50\%) + \\ &(\text{Vegetation Density Score} * 5\%) = \\ &\text{cost} \end{aligned}$$



**Figure 12.**  
**Landscape Permeability**  
**for**  
**San Joaquin kit fox**  
**(based on suitability ratings)**

-  Highly Permeable
-  Less Permeable
-  Core Targets
-  Targeted Core Areas
-  Kit Fox Sightings
-  ESRP Kit Fox Sightings
-  Spotlight observations
-  Incidental observations
-  Telemetry locations
-  Car Sightings
-  CNDDDB Kit Fox
-  Highways
-  County Boundaries
-  Hydrography

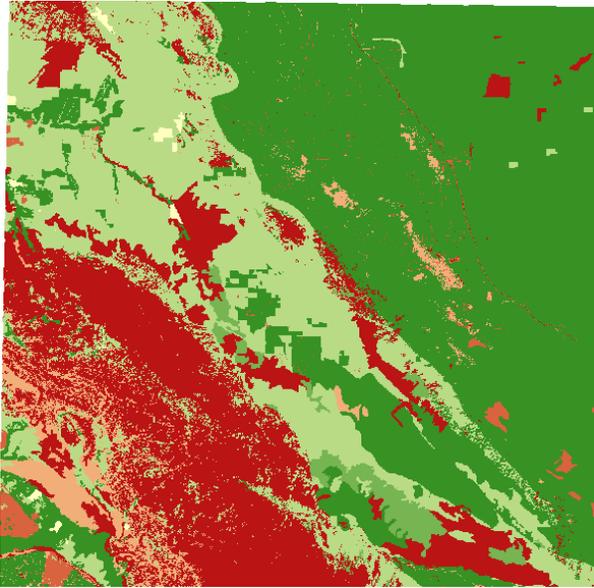


Map Produced By:

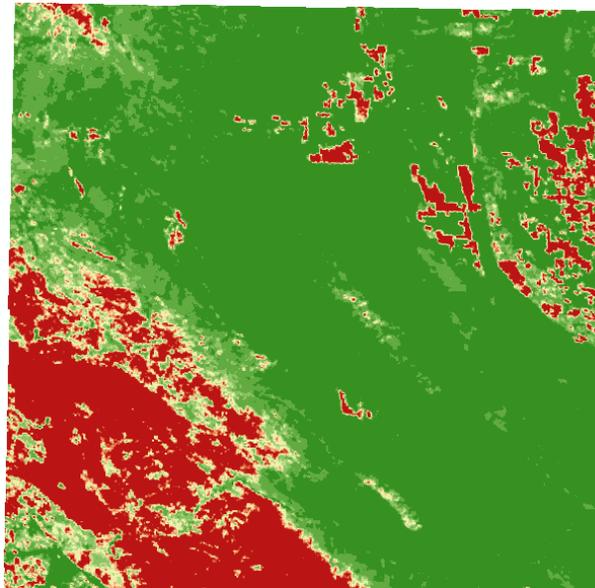


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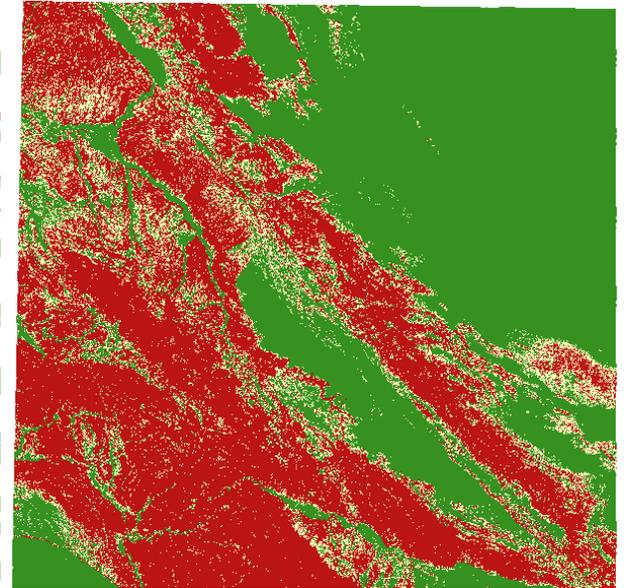
# Kit Fox Permeability inputs based on Permeability Ratings



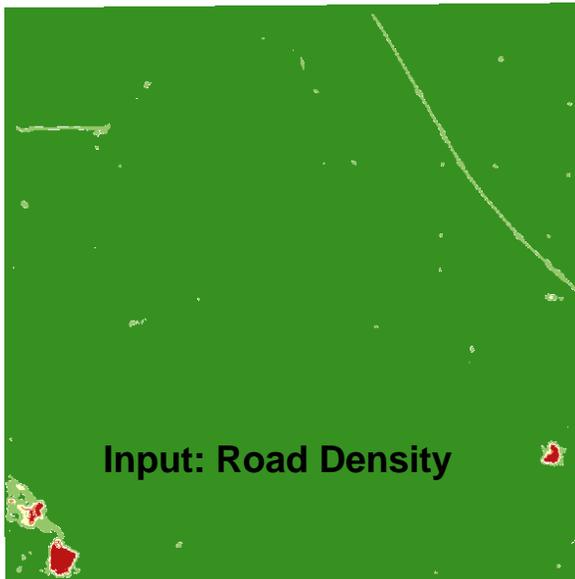
Input: Vegetation



Input: Vegetation Density

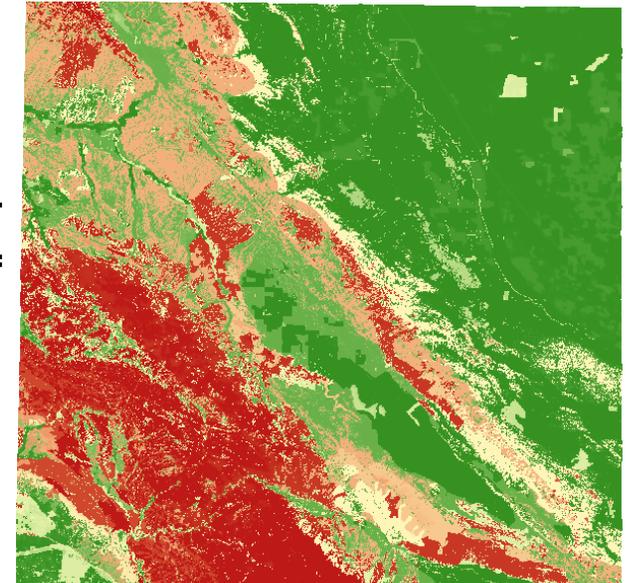


Input: Terrain Ruggedness



Input: Road Density

$$\begin{aligned} &(\text{Vegetation Score} * 40\%) + \\ &(\text{Road Density Score} * 5\%) + \\ &(\text{Terrain Ruggedness Score} * 50\%) + \\ &(\text{Vegetation Density Score} * 5\%) = \\ &\text{cost} \end{aligned}$$



**Figure 13.**  
**Landscape Permeability**  
**for**  
**San Joaquin kit fox**  
**(based on permeability ratings)**

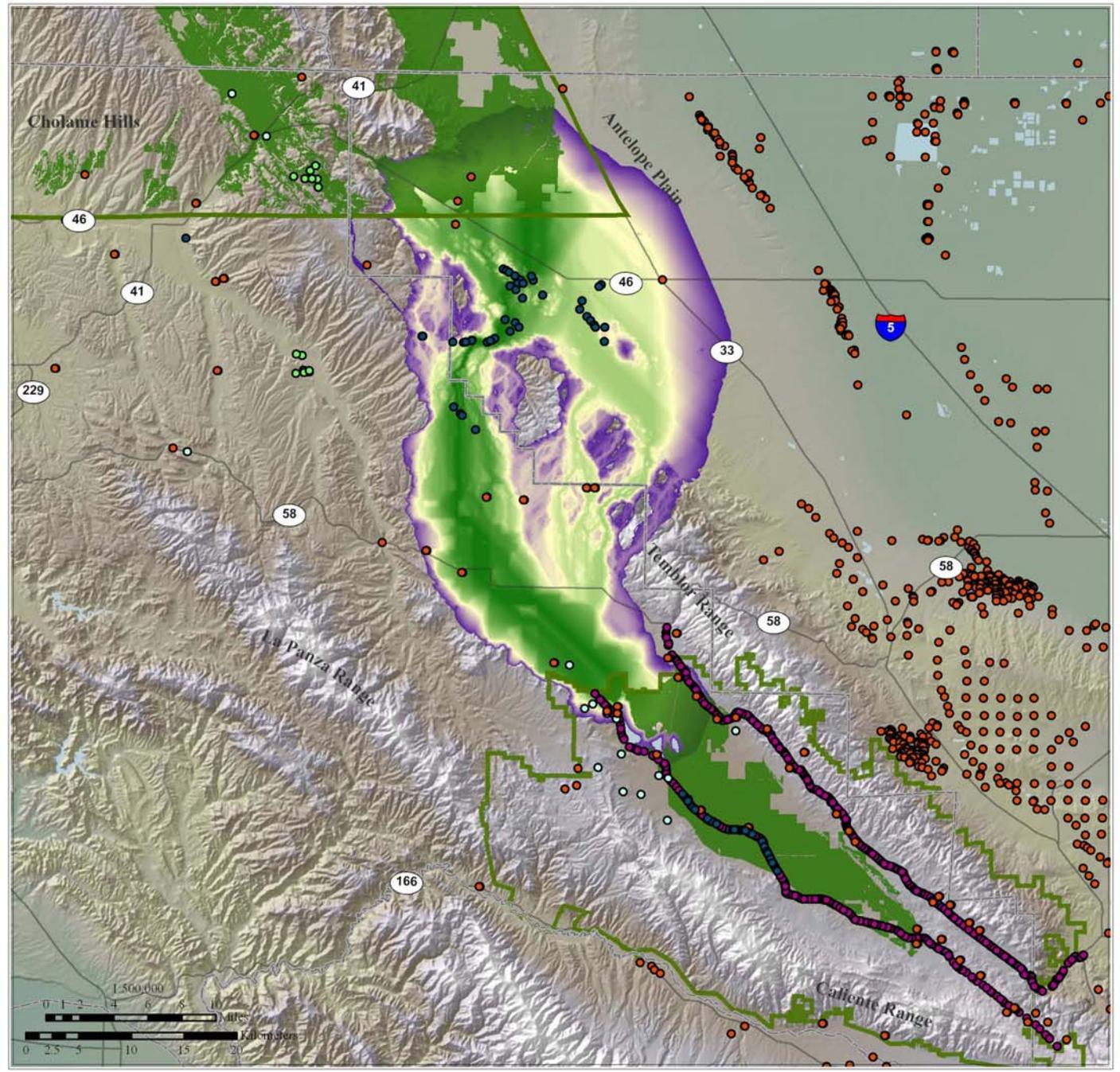
-  Highly Permeable
-  Less Permeable
-  Core Targets
-  Targeted Core Areas
-  Kit Fox Sightings
-  ESRP Kit Fox Sightings
-  Spotlight observations
-  Incidental observations
-  Telemetry locations
-  Car Sightings
-  CNDDDB Kit Fox
-  Highways
-  County Boundaries
-  Hydrography



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**BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT  
COMMISSION OF THE STATE OF CALIFORNIA  
1516 NINTH STREET, SACRAMENTO, CA 95814  
1-800-822-6228 – [WWW.ENERGY.CA.GOV](http://WWW.ENERGY.CA.GOV)**

**APPLICATION FOR CERTIFICATION  
FOR THE CARRIZO ENERGY  
SOLAR FARM PROJECT**

**Docket No. 07-AFC-8  
PROOF OF SERVICE  
(Revised 2/18/2009)**

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Elena Miller  
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\*indicates change

**DECLARATION OF SERVICE**

I, Hilarie Anderson, declare that on April 2, 2009, I served and filed copies of the attached Presentation Slides for Task 1 Webinar. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at:

**[<http://www.energy.ca.gov/sitingcases/carrizo/index.html>]**. The document has been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

***(Check all that Apply)***

**For service to all other parties:**

sent electronically to all email addresses on the Proof of Service list;

by personal delivery or by depositing in the United States mail at Sacramento, California with first-class postage thereon fully prepaid and addressed as provided on the Proof of Service list above to those addresses **NOT** marked "email preferred."

**AND**

**For filing with the Energy Commission:**

sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (**preferred method**);

**OR**

depositing in the mail an original and 12 paper copies, as follows:

**CALIFORNIA ENERGY COMMISSION**

Attn: Docket No. 07-AFC-8  
1516 Ninth Street, MS-4  
Sacramento, CA 95814-5512

[docket@energy.state.ca.us](mailto:docket@energy.state.ca.us)

I declare under penalty of perjury that the foregoing is true and correct.

**Original Signature in Dockets**  
**Hilarie Anderson**