

USING HOLISTIC MANAGEMENT To implement Holistic Planned Grazing on degraded farmland near the San Pedro River

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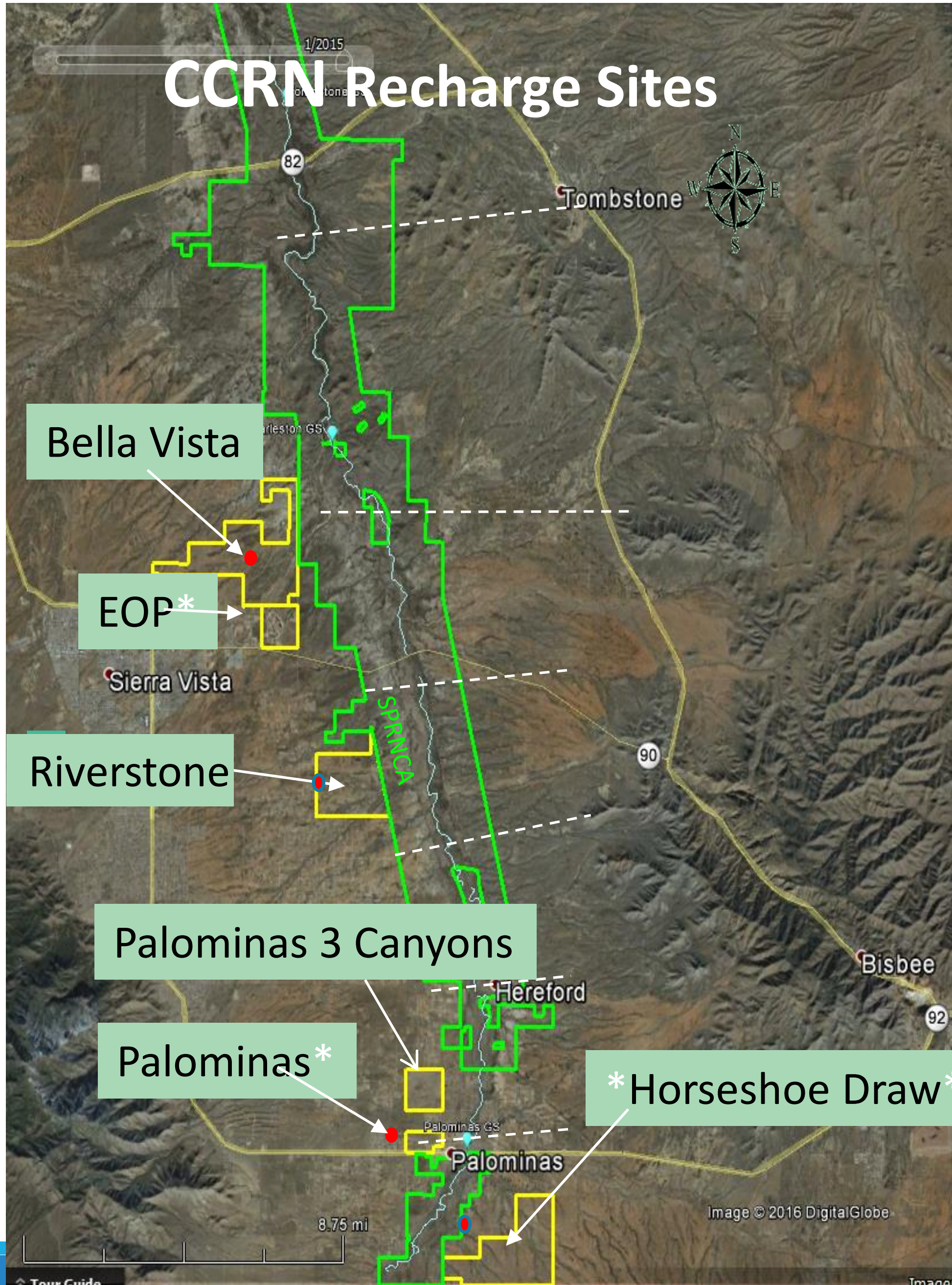
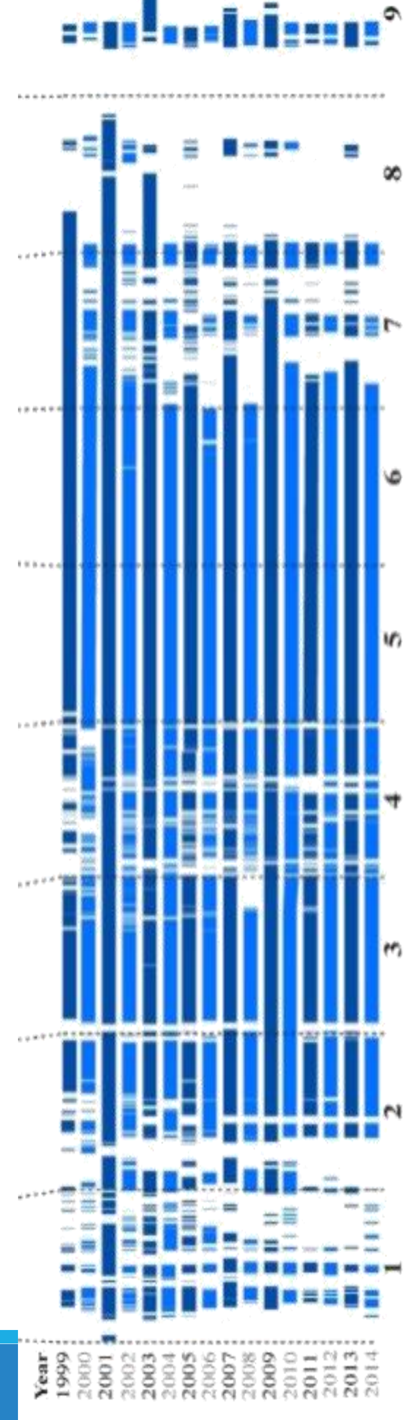
HOLISTIC ENGINEERING AND LAND MANAGEMENT

KAREN RIGGS

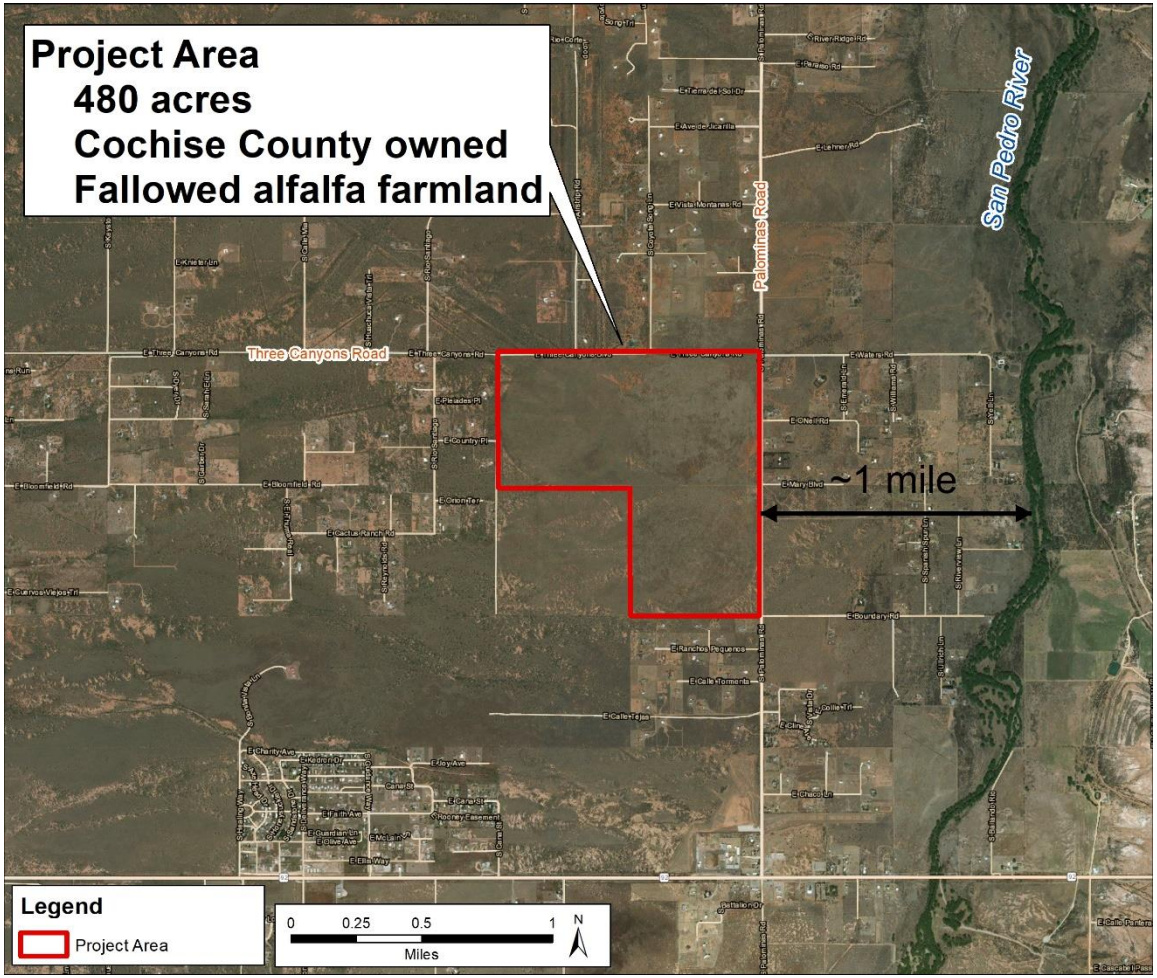
COCHISE COUNTY


CCRN Recharge Sites
Tombstone
Bella Vista
EOP*
Sierra Vista
Riverstone
SPRNCA
Palominas 3 Canyons
Hereford
Bisbee
Palominas*
Horseshoe Draw
Palominas
Image © 2016 DigitalGlobe
8.75 mi
Tour Guide



Location

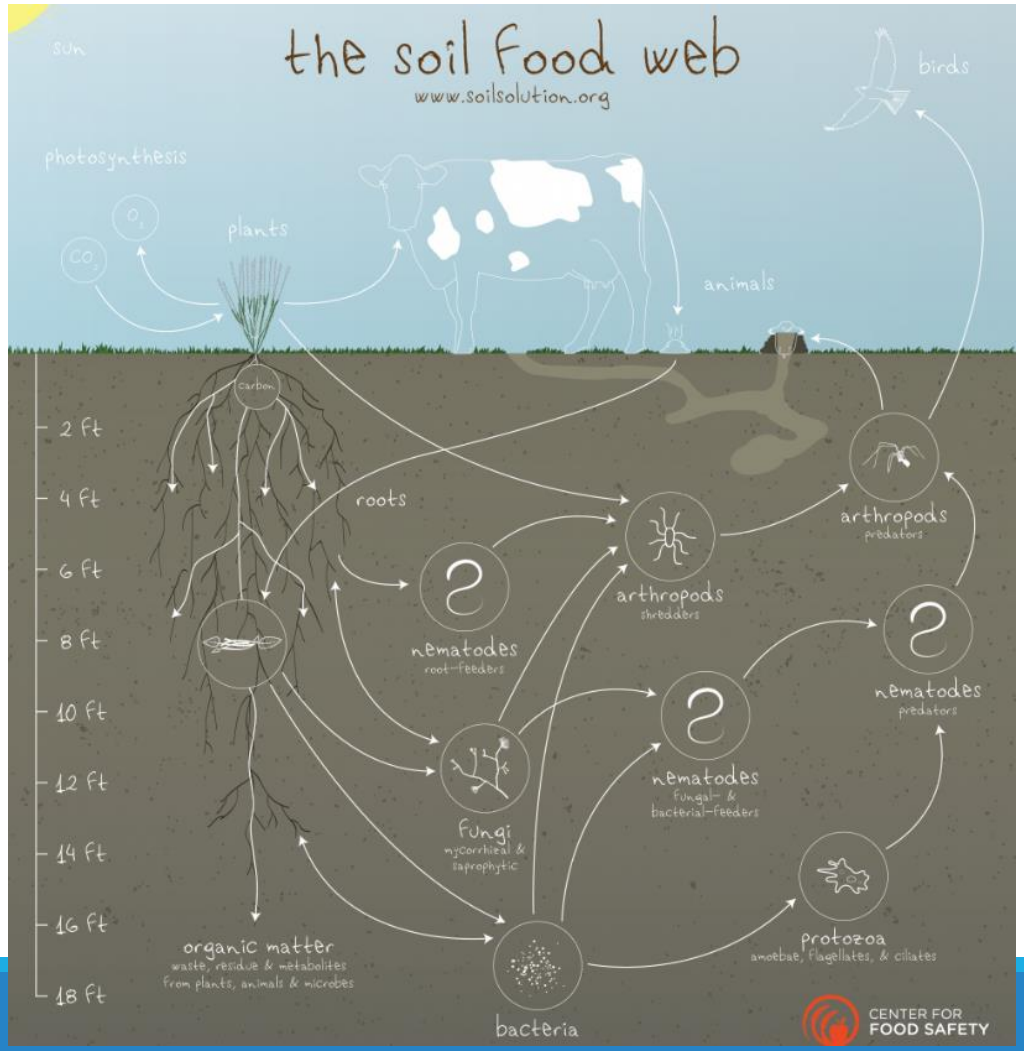
Project Location Map:



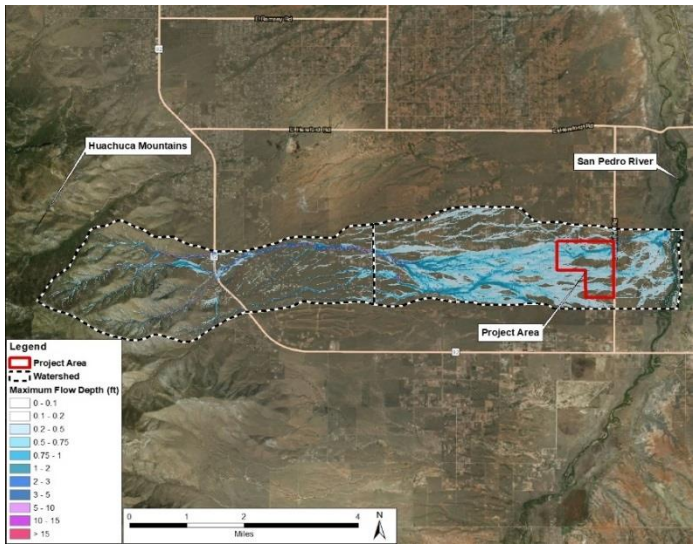
Project Description

- **Implement Holistic Management on 480 acre County property.**
- **Range improvement practices: planned grazing and monitoring.**
- **Propose to increase rainfall infiltration/recharge, reduce flooding and mitigate stormwater quality impacting the San Pedro River.**
- **Learning Laboratory for Regenerative Agriculture**

Holistic Management
What is it and why use it?
Management vs. Technology



What we've accomplished: Phase I Work



- Drainage Modeling
- Ecological Monitoring
- Soil Sampling
- Holistic Management Training
- Recommended Land Restoration Alternative

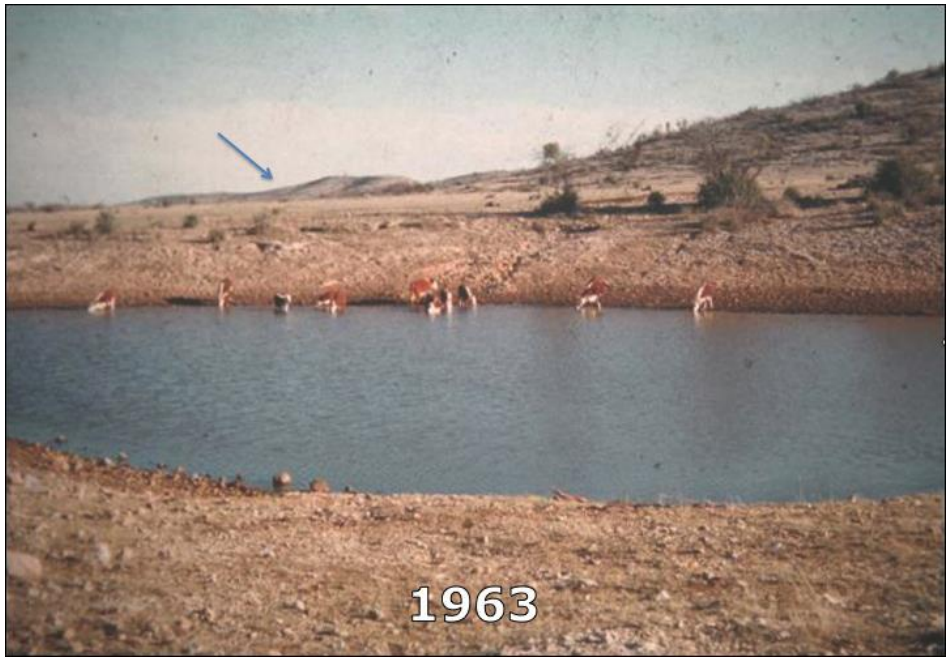
Holistic Planned Grazing Support

Coconino County, AZ

Holistic Planned Grazing Support

Eastern Cape in South Africa (Karoo country). Conventional grazing on the right and holistic planned grazing since the 1970s on the left. Average rainfall is ~9 in/yr.

Holistic Planned Grazing Support



Las Pilas Ranch in Coahuila, Mexico. Holistic Planned Grazing since 1978. Springs are now running year-round. Average rainfall is ~22 in/yr.

Holistic Planned Grazing Support: Water Quality

Union of Concerned Scientists
Science for a healthy planet and safer world

SEARCH

[BLOG] UNION OF CONCERNED SCIENTISTS

Regenerative Farming Trailblazers: How Reintegrating Livestock and Restoring Soils Can Lead to More Resilient Farms

MARCIA DELONGE, SENIOR SCIENTIST | MARCH 29, 2018, 4:26 PM EDT

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Across the United States, more farmers are finding that practices that have worked in the past are no longer cutting it. Persistent low prices for common crops (especially corn) paired with high production costs (for example, expensive equipment and fertilizers) have made it hard to stay afloat. At the same time agriculture has also moved increasingly toward systems dominated by a few annual crops—typically corn and soybeans—often with fields left bare between growing seasons. This trend has degraded core resources like soil and water, endangering the long-term viability of many farms.

Faced with growing pressures, some farmers are exploring their options, including testing regenerative farming practices that can rebuild soil health, conserve water, improve water quality, and more. For example, farmers are diversifying their crops and animals, implementing more complex crop rotations, and protecting soil year-round by using cover crops. Such changes come with both challenges and opportunities.

Integrating regenerative agriculture and livestock can be a smart path to more profits

Take Del Ficke, a fifth-generation farmer from Pleasant Dale, Nebraska, for example. In Ficke's words, "Regenerative farming is a no-brainer. Most of the soil in the country is on life support and it'll only respond to synthetic chemicals..." However, as he has shown on his own farm, regenerative agriculture can turn things around. By adopting cover crops, reintegrating livestock, and using livestock to fertilize fields, Ficke estimates that the organic matter in his soils has increased substantially, reaching 4 percent or more, in some places. This is great news for the long-term health of his farm, as well as for other farmers looking to follow in his footsteps.

USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

save ENERGY save MONEY

Conservation Practices that Save: Prescribed Grazing Systems

For producers who manage cattle operations, prescribed grazing systems offer an effective way to reduce energy use, decrease costs, and improve animal health and productivity. Well-managed grazing systems improve the health and vigor of plants, enhance the quality and quantity of water, and reduce accelerated soil erosion and improve soil condition on the land.

Prescribed grazing allows producers to alternate between resting and grazing two or more grazing units in a planned sequence that takes several factors into consideration, including the rate of plant growth, level of vegetative cover, needs of the grazing animal, and other environmental inputs. The availability of water throughout the grazing areas is also important because it minimizes concentrated areas of livestock and enhances nutrient distribution.

It takes 40 pounds of nitrogen and about 1.35 gallons of diesel fuel to raise, harvest, store, and feed a ton of grass hay. At today's costs of $0.40 per pound of nitrogen and $2.41 per gallon of fuel, there are direct energy savings of $10.70 per month per cow for each month cows remain on pasture. Most cost savings arise from using less fuel to harvest hay, store it, and transport it to feeding locations. In dairy operations, leaving cows on pasture also reduces the need for electricity to moderate the climate of freestall barns, and decreases labor costs associated with feeding cattle in confinement and associated manure handling, storage, and spreading.

Grazing management helps reduce energy related inputs by farmers and ranchers.

In addition to energy savings, prescribed grazing has been shown to improve the profitability of cattle operations. In Missouri, beef cattle raised and finished on high quality pasture that is thick and lush have been shown to have a rapid average daily gain of two or more pounds and reach a marketable weight within just 20 months at a cost of $27 per hundred-weight of gain, versus $60 in confinement. By applying grazing management, dairies in New York and Wisconsin found that pastured lactating dairy cows consistently show a higher net farm income from operations over a 4-year period when compared to confined cows, whether measured per cow or per hundred-weight of milk.

There are 634 million acres of non-Federal grazing lands in the United States. Making prescribed grazing part of a resource management system also benefits the overall health of the environment by:

- Minimizing soil compaction due to trampling and enhancing soil quality;
- Providing vegetative cover to help reduce soil erosion and sediment runoff;
- Enhancing wildlife habitat;
- Improving water yield and quality; and
- Sequestering atmospheric carbon in the soil.

NRCS supports conservation practices that save producers money and improve the environmental health of the Nation. For more information on energy-saving conservation practices, visit the NRCS "Save ENERGY, Save MONEY" Web site at www.nrcs.usda.gov.

April 2006

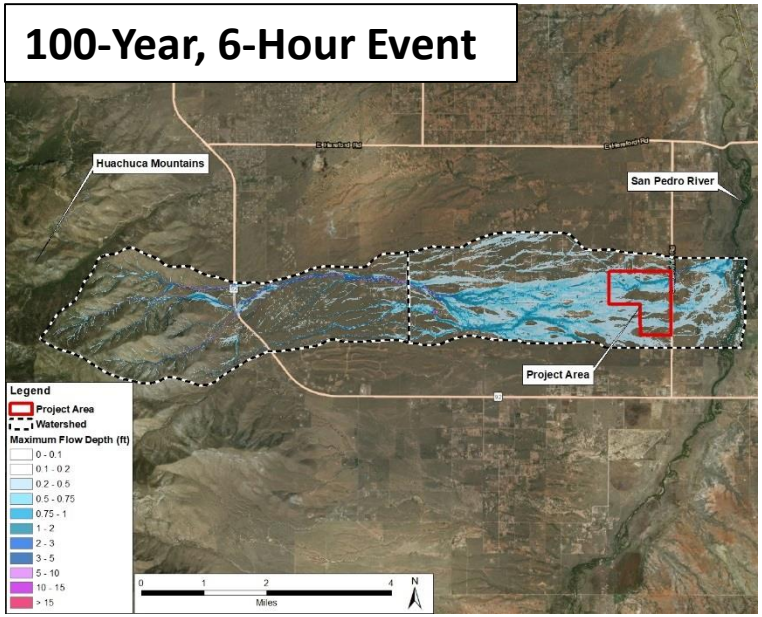
Planned Outcome: Effective Water Cycle

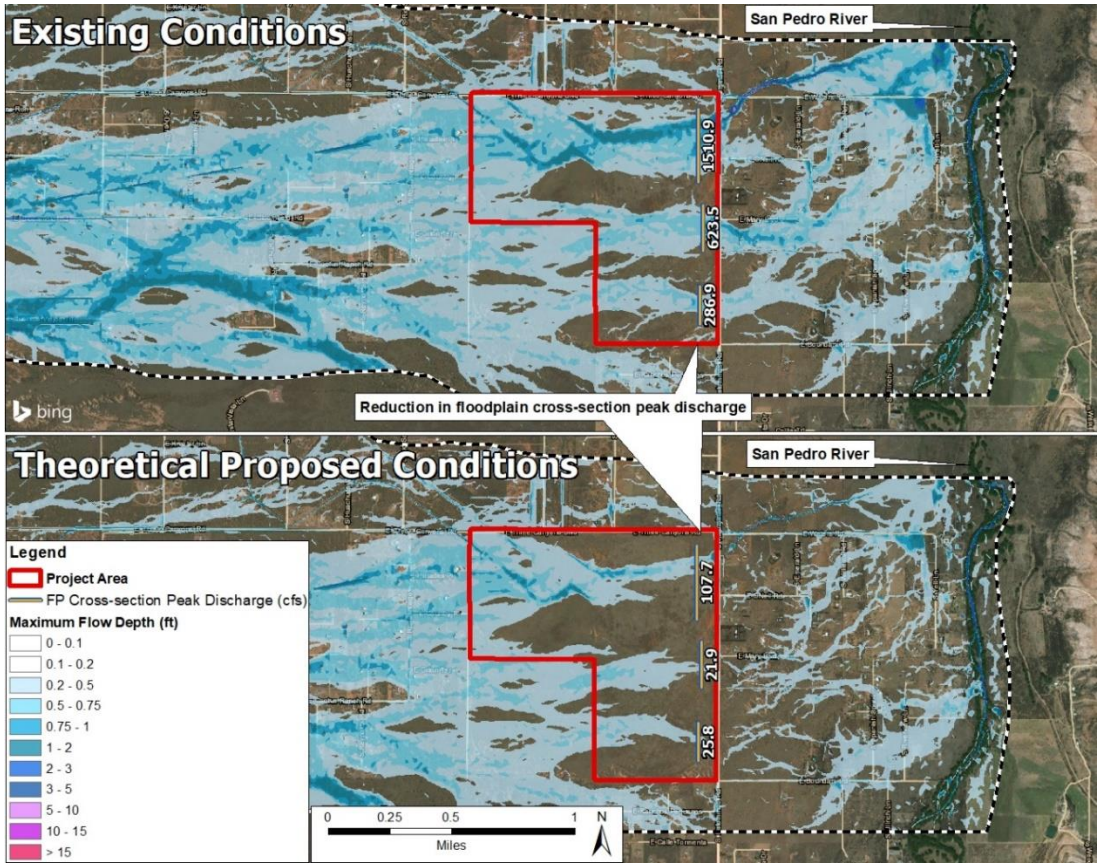
Soil Organic Matter 1.7%
Next Day - Practically no infiltration

Soil Organic Matter 5%
Next Day - Practically total infiltration

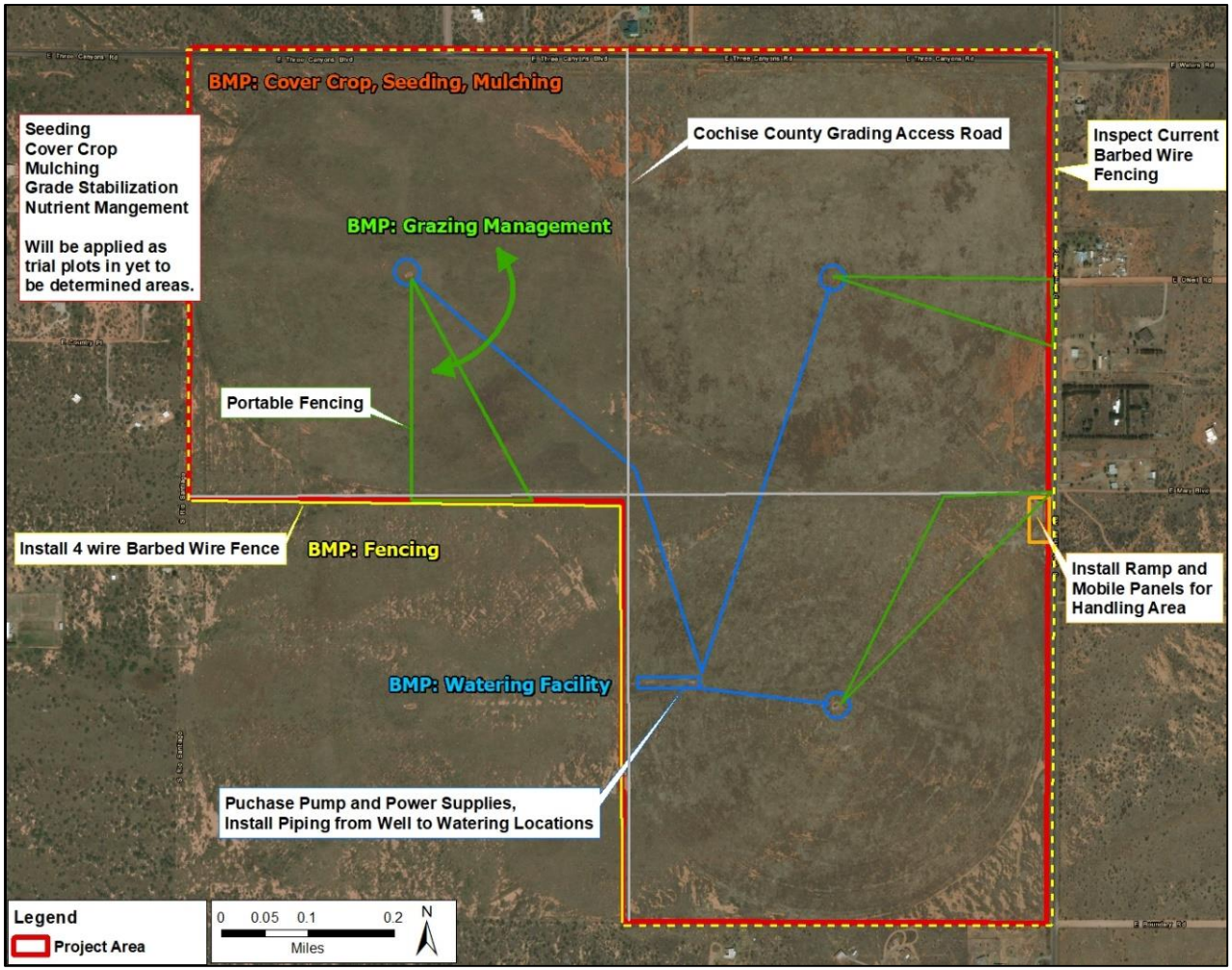
- **Soil Organic Matter (SOM) and Soil Water Holding Capacity**

Planned Outcomes





Methods (developed in Ph. 1)

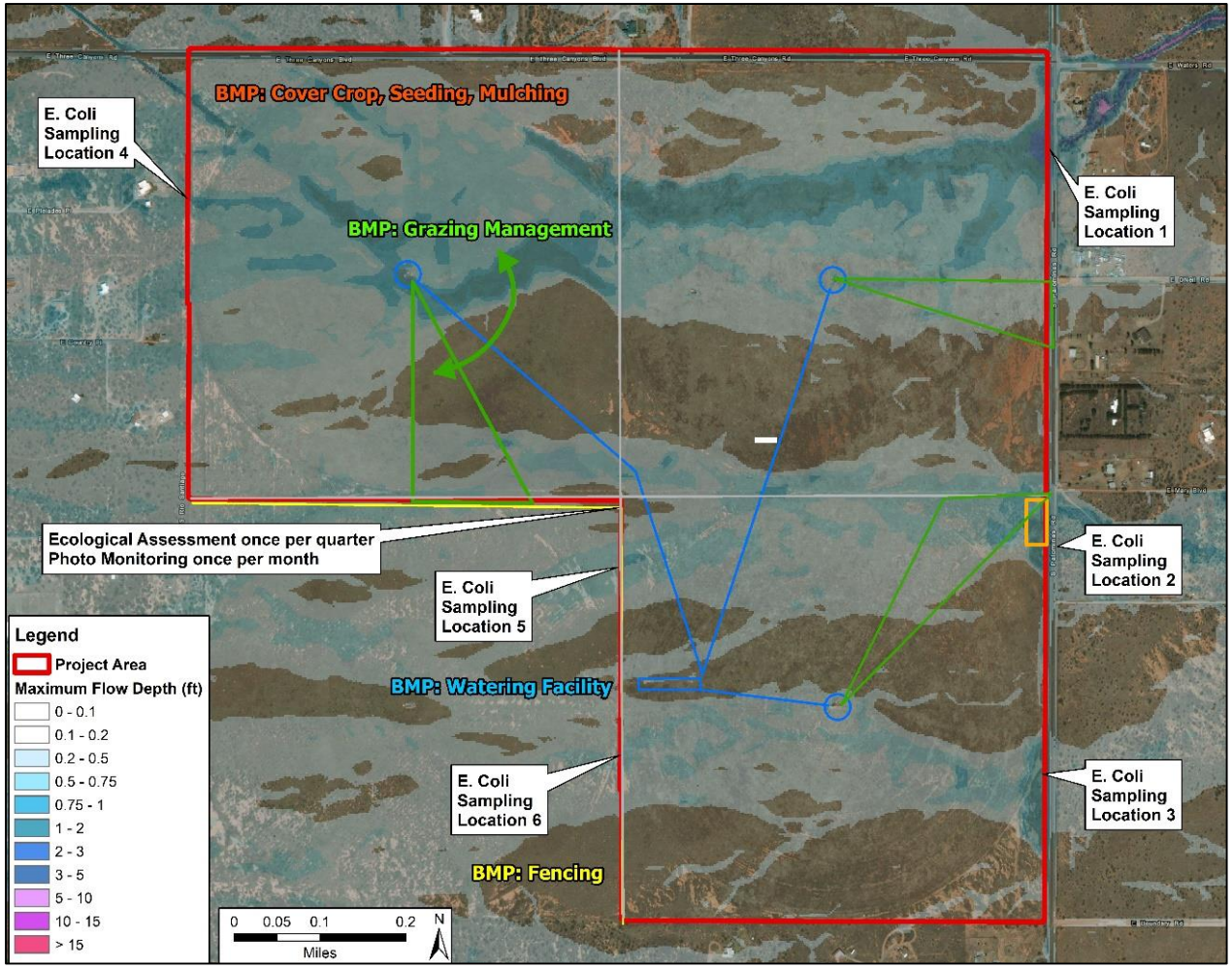


- **Grazing Management**
- **Fencing**
- **Watering Facilities**

- ***Monitoring***

- ***All infrastructure and monitoring equipment/testing will be funded by part of remaining Palominas recharge grant funds (as approved by WFF).***

Monitoring



- **E. coli sampling at 6 locations**
  - With rainfall
- **Photo monitoring**
  - Once per month
- **Ecological monitoring**
  - Once per quarter
  - Vegetation Cover
  - Soil Life
- **Soil Sampling**
  - Once per quarter
  - Soil Organic Matter
  - Infiltration
  - Groundwater monitoring



Questions

THANK YOU

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