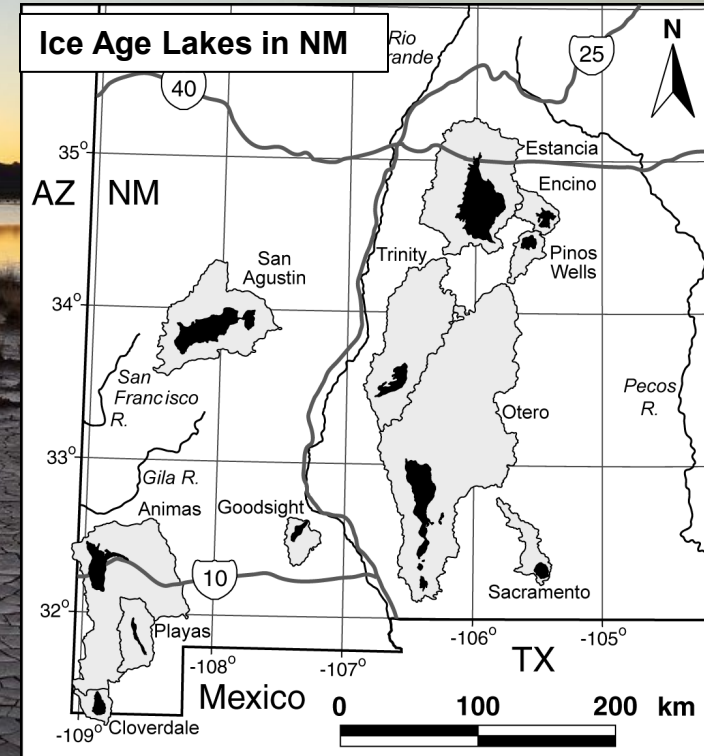


Lordsburg Playa Watershed Restoration to Reduce the Severity of Dust Storms on I-10

Trent Botkin & Bill Hutchinson

Updated May 2024


- Mineral soil flats wetland, located in a former perennial Pleistocene lakebed from the Wisconsin glacial period (100,000 – 11,000 YBP)
- Seasonally inundated in summer and winter dependent on precipitation runoff
- Wetlands degraded through surface erosion (pedestaled plants) & deposition (buried plants)
- Important pathway for migratory waterfowl



Lordsburg Playa Dust Storms

**1965 – Present: Over 40 Dust-visibility
Related Highway Deaths**

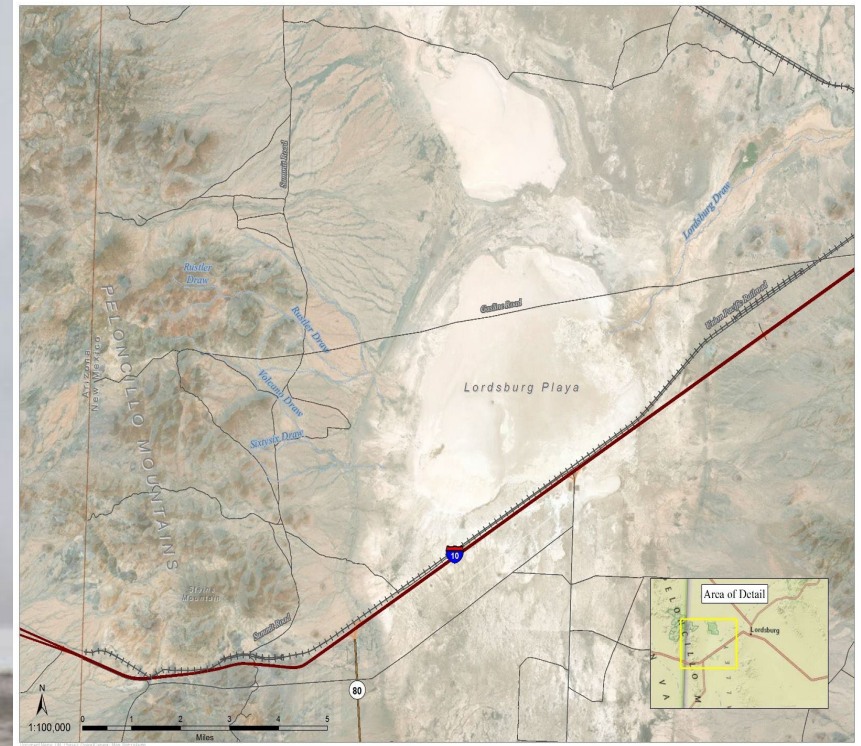
**2012 – Present: 21 Deaths
43 Closures of I-10
121 Dust Events Requiring
DPS/NMDOT Response**

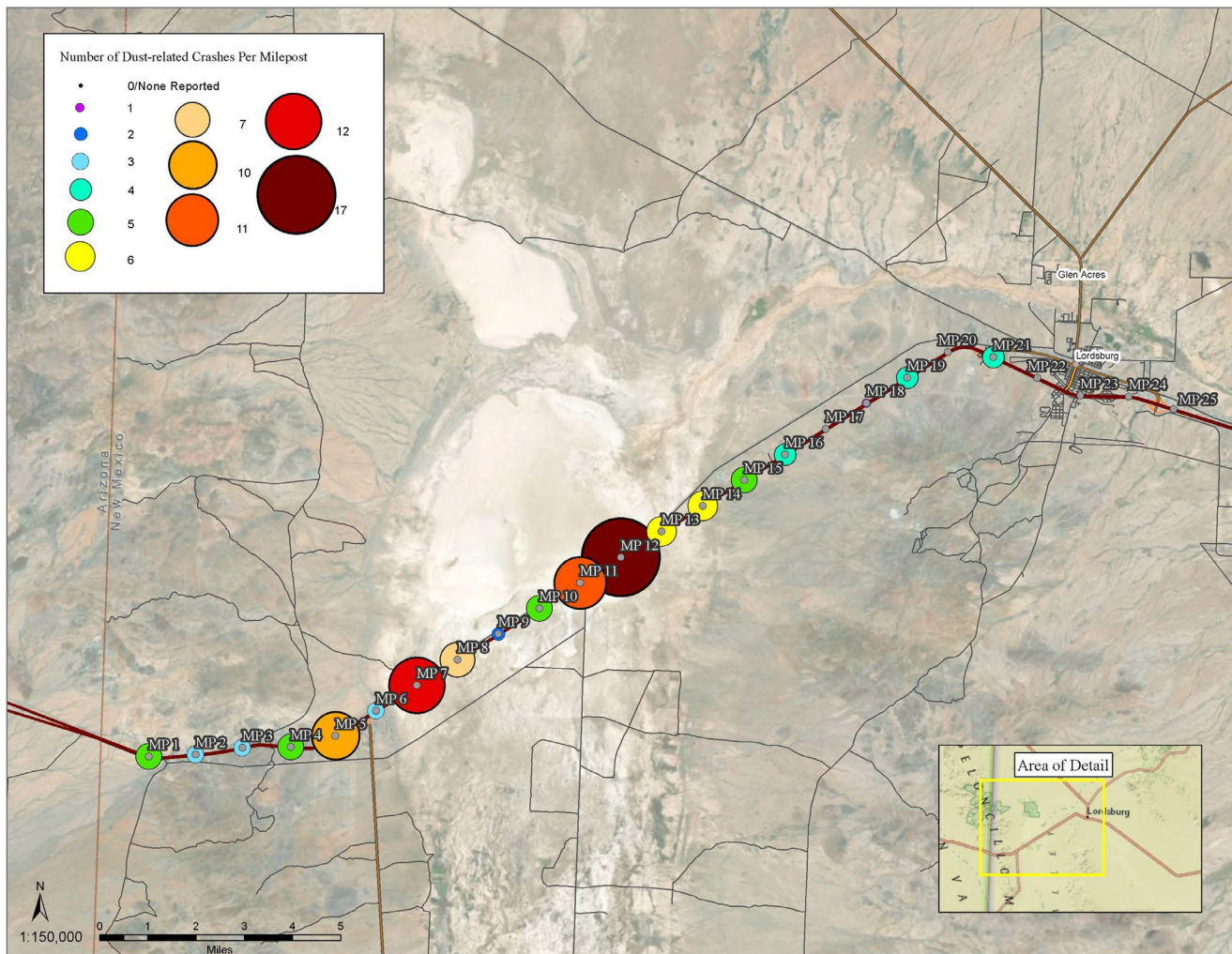
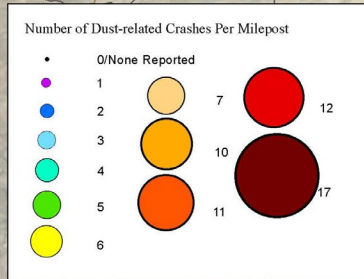


The map displays the Lordsburg Playa area in southeastern New Mexico. Key features include the Colorado River to the west, the Lordsburg Playa itself, and Interstate 10 running diagonally across the lower half. The map also shows the Pecos River, Lordsburg Draw, and the Lordsburg Mountains. A scale bar indicates distances from 0 to 5 miles. An inset map in the bottom right corner shows the location of the study area within the state of New Mexico, with a yellow box highlighting the specific region.

1965 –Present: Over 40 Dust-visibility Related Highway Deaths

2012 – Present: 21 Deaths
43 Closures of I-10
121 Dust Events Requiring
DPS/NMDOT Response



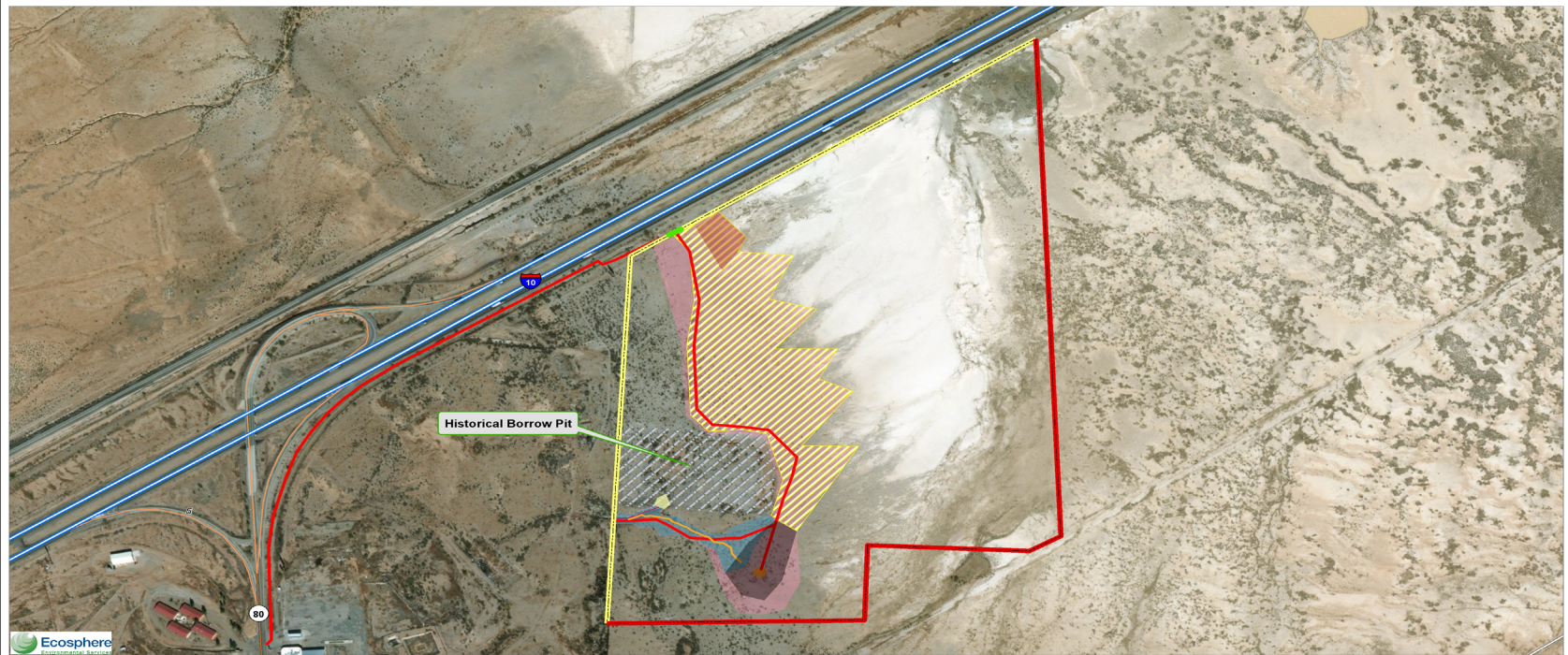


Phase 2: I-10 MP 6 Road Forks

- Site of Multiple Crash Fatalities
- Sediment Accumulation in small dry lake (playa)
- Opportunity to reduce the amount of available dust near the roadway



Road Forks Dust Mitigation Area Final Design



- | | | | |
|------------------|----------------------|---|---------------------------|
| — Access Road | — Trash Removal Area | — Rock Staging Area | — Microbism Concentration |
| — Existing Fence | — Historical Channel | — Media Luna Impact Area | — Imprinting and Seeding |
| — Access Gate | — Headcutting Arroyo | — Imprinting, Seeding, and Tackifier Application Area | |
| — Proposed Fence | — Channel Work | | |

Coordinate System: NAD 1983 UTM Zone 13N

0 500 1,000 1,500 2,000
Feet

1:6,000



Road Forks/Lordsburg Playa Dust Mitigation Project

Hidalgo County, New Mexico

Sections 6 & 7, Township 24S, Range 20W
Sections 1 & 12, Township 24S, Range 21 W
N.M.P.M.

Road Forks Dust Mitigation Area

Sept. 2018: Keylining, Imprinting, Tackifier, Fence



Road Forks Dust Mitigation Area

February 2019 (**5 months** after Implementation)



Revegetation Area



**Channel Restoration
Area**



**Crust Re-Establishment
From Grazing Exclusion**

Road Forks Dust Mitigation Area

Revegetation and Soil Stabilization Success

January 2019 (**16 months** after Implementation)



Revegetation Area

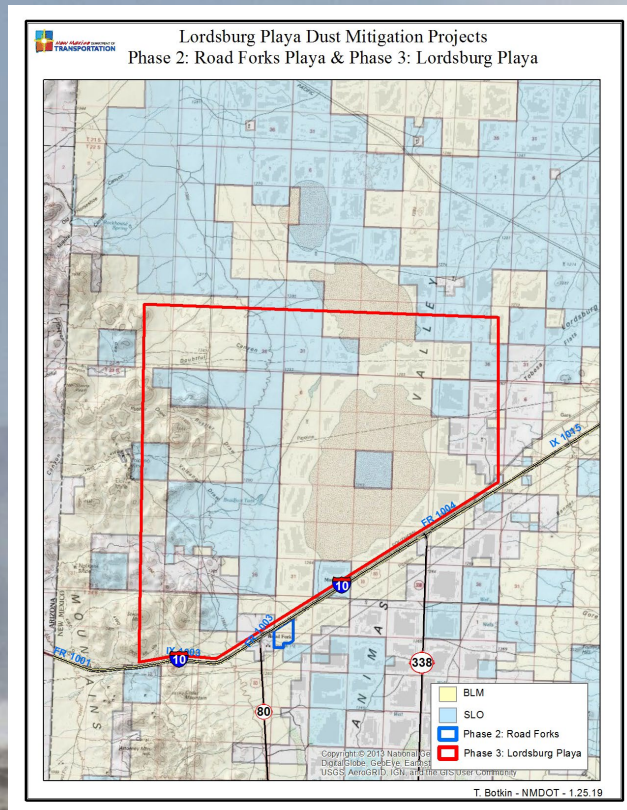


**Channel Restoration
Area**



**Crust Re-Establishment
From Grazing Exclusion**

Phase 3: Lordsburg Playa

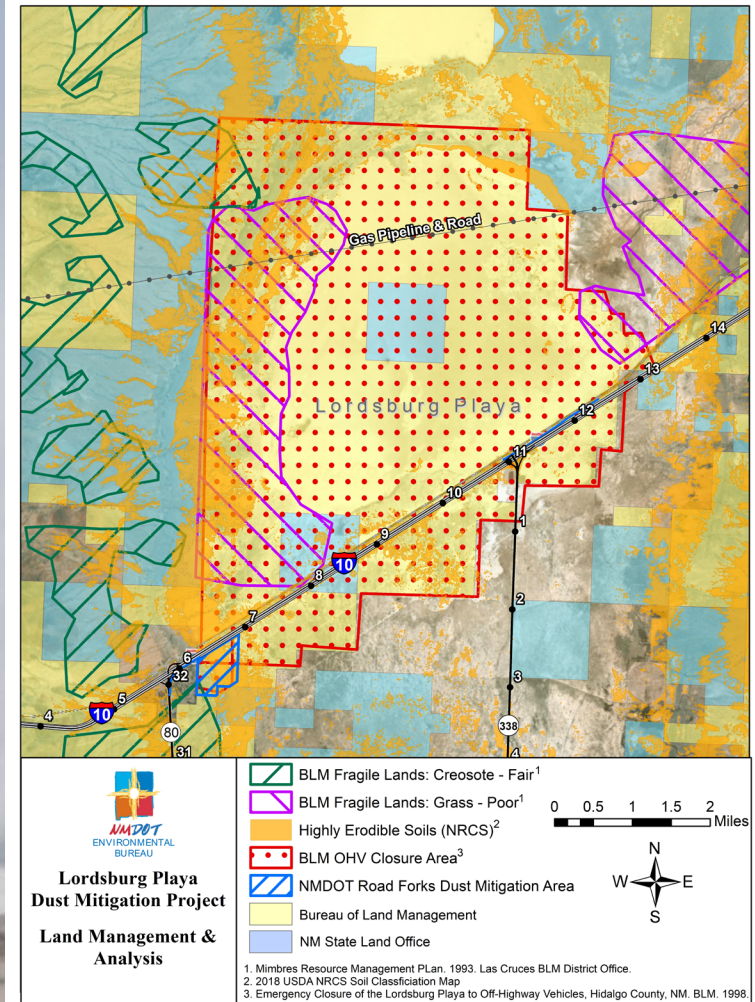


- 16+ Square Miles of Playa Floor
- 35+ Square Miles of Watershed
- Eroding playa surface & western watershed
- Land managed primarily by BLM & SLO



NMDOT Land Management Assessment

- 1993 BLM Resource Management Plan identifies playa shoreline as fragile soils with poor grass and all grazing allotments in unsatisfactory conditions
- 1998 Off-Highway Vehicle Closure Area due to recreational vehicle use causing dust responsible for 4 fatalities
- 2018 NRCS Soil Survey
- 2020 NMDOT Surface Disturbance Analysis to Determine if Dust Source is Anthropogenically-Enhanced



Surface Disturbance Analysis Conclusions

Watershed

Historic and modern ranching practices are increasing the amount of sediment transported to the playa through erosion of soil & channels, breached tanks & berms, and grazing is restricting vegetation recovery

Playa Surface

Current livestock use destabilizing playa surface crust, increasing the amount of available dust

Breached Berm Causing Grassland Erosion and Depositing Sediment on Playa



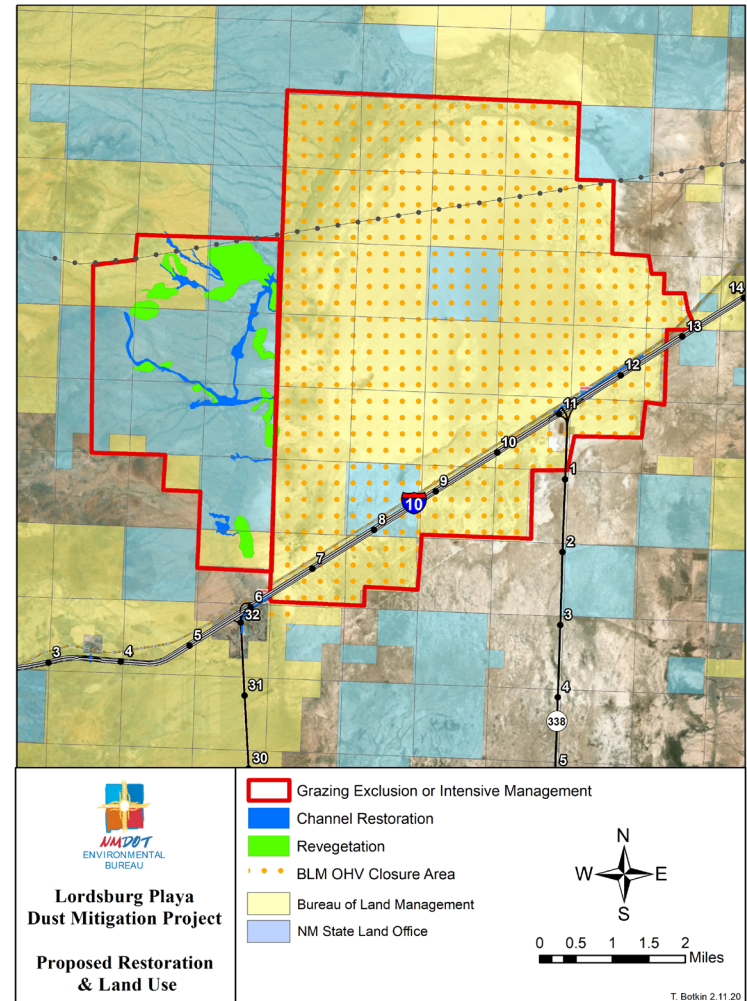






NMDOT Proposed Restoration & Land Use To Reduce Dust Storm Intensity and Improve Roadway Visibility

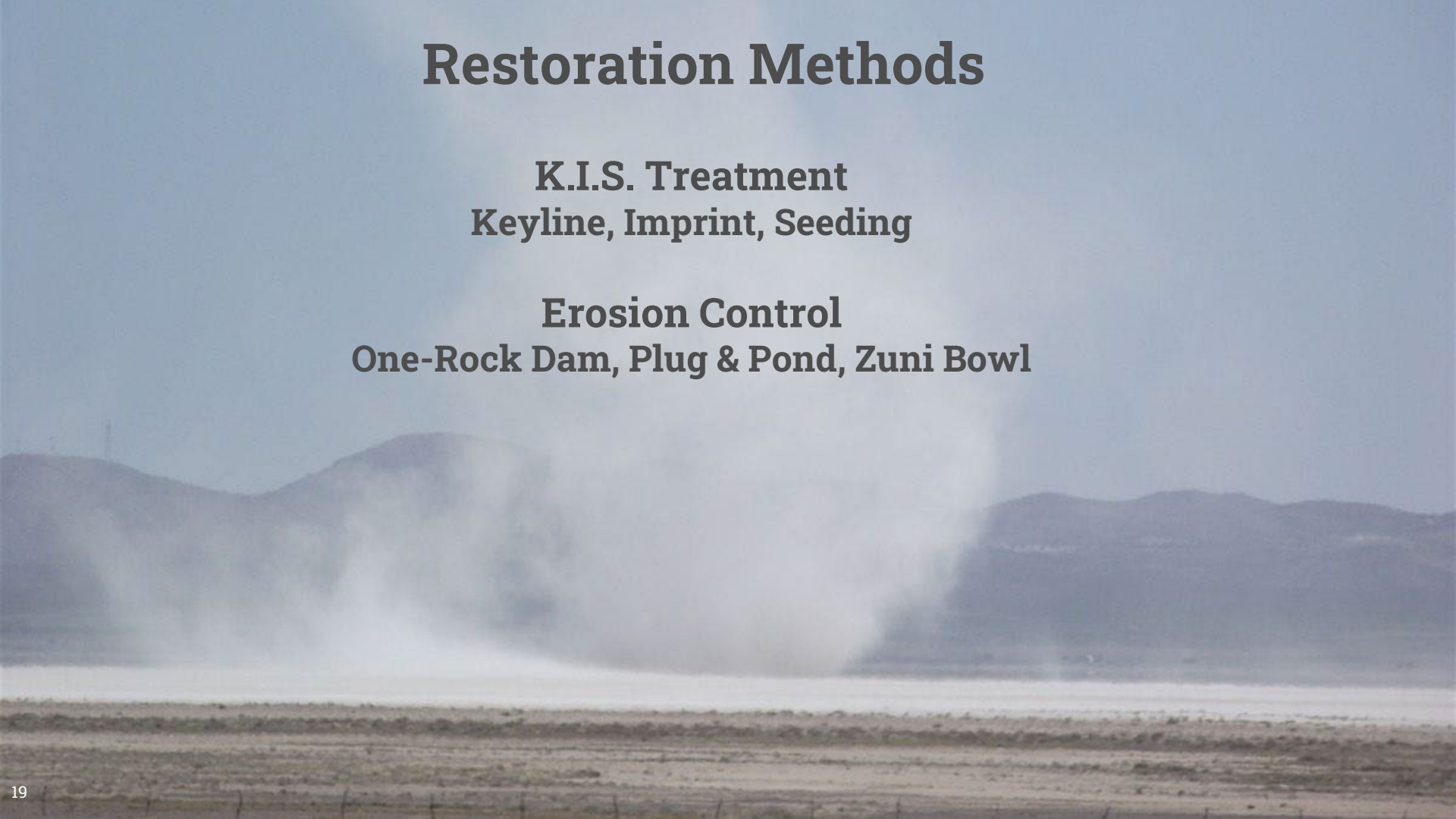
- Restoration of channels and revegetation of grasslands
- Grazing Management on Restoration Project & OHV Closure Area (24,000 acres/38 sq. mi)



Restoration Methods

K.I.S. Treatment
Keyline, Imprint, Seeding

Erosion Control
One-Rock Dam, Plug & Pond, Zuni Bowl









About Esha Chiocchio

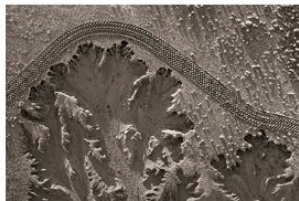
Esha Chiocchio is a visual artist based in Santa Fe, New Mexico who is passionate about environmental conservation, sustainable communities, and the preservation of traditional wisdom. Her work celebrates committed individuals who collaborate to protect and restore the land. Esha hopes her photographs will raise awareness of our universal role as stewards of the earth. National Geographic recently named her a National Geographic Explorer, supporting her documentation of the restoration of the Lordsburg Playa grasslands in Southwest New Mexico. In 2022, Esha received the Environmental Award from CENTER for Good Earth, a multimedia project on regenerative agriculture. An exhibition of award winners is on view through November, 2023 at the Turchin Center for the Arts, Appalachian State University in Boone, NC.

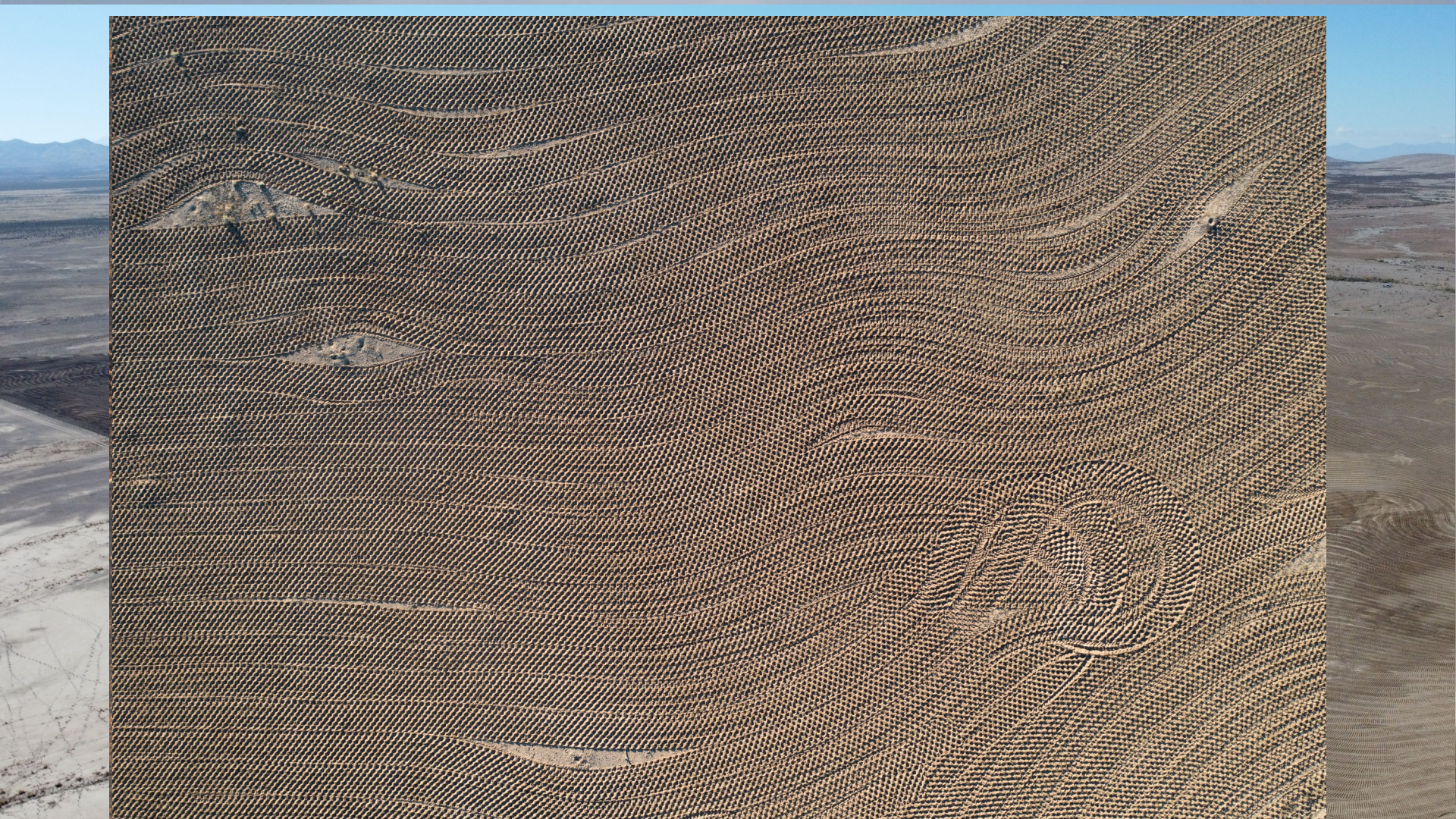
► Read more

► Press

► Installation images

Available Work





Keyline, Imprint & Seeding on Degraded Grassland

December 2020



July 2021



Keyline, Imprint & Seeding Around Erosion Headcut

December 2020

July 2021



Plug & Pond to Restore Sheet Flow

December 2020



1-Rock Dams Stop Downcutting, Restores Sheet Flow & Infiltration

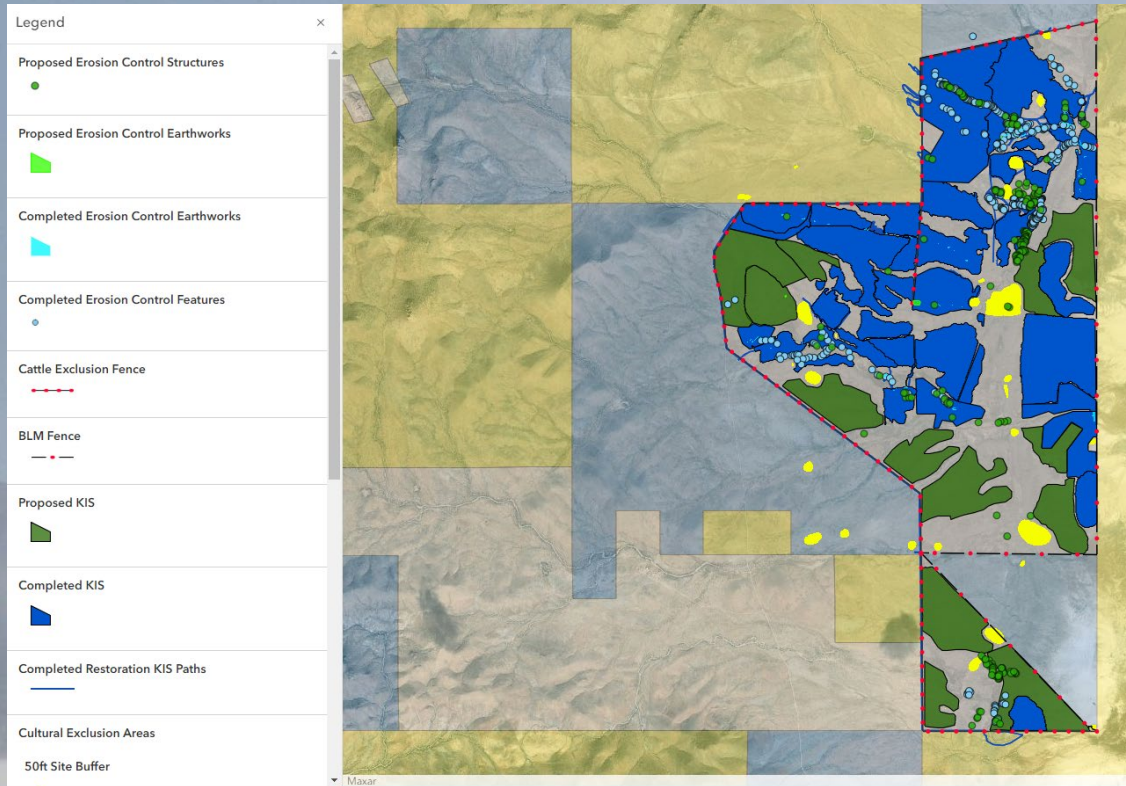


Cattle Disturbance on Playa Surface



BLM, SLO and NMDOT are in Cooperation with Lessee Ranchers to Implement a Grazing Plan to Prevent Erosion





Phase 3 Metrics

- >1,200 acres imprinted and seeded
- >1,500 erosion control structures
- 3,000 acres fenced for cattle exclusion while grazing plan is in development

Re-nomination of BLM Designation : Area of Critical Environmental Concern (ACEC)*

***ACEC Designation would allow for special management conditions**

Relevance: Natural Hazard (unstable soils); a hazard caused by human action may meet the relevance criteria if it is determined through the RMP process that it has become part of a natural process.

Importance:

- a) Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare.
- b) Poses a significant threat to human life and safety or to property.

Two Lithium brine mine proposals have been submitted to the BLM and regulatory agencies proposing extraction wells on the playa

NMDOT Environmental Bureau Dust Mitigation Projects

\$3.9 Million FHWA Highway Safety Improvement and PROTECT Programs: Dust Mitigation Actions

\$185K FHWA/NMDOT Research Bureau: USDA Jornada/NMSU Dust Monitoring/Research

\$248,000 FHWA/NMDOT Funding: Seed Development for Restoration



Project Collaboration

Consultants: Stream Dynamics, High Desert Plants, Barr Engineering (formerly Ecosphere), Tooley's Trees

BLM: Stakeholder and contributor

State Land Office: Stakeholder and contributor

NM DPS: Provide first-hand experience and crash data

Landowners/Lessees: Provide long-term knowledge of range conditions

NMDOT: District 1 (Deming), Research Bureau, & Management Support

NRCS: Soil Survey

NMSU: State Climatologist Dr. Dubois conducting intensive dust storm analysis using NMDOT Research Bureau funding

USDA-Jornada Experimental Range: Interagency research as part of the National Wind Erosion Research Network

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