

San Diego Co Regional Rare Plant Management & Monitoring Program



Sept. 17, 2020



California Department of
Fish and Wildlife



California Department of
Parks and Recreation



SAN DIEGO
NATURAL HISTORY
MUSEUM



SAN DIEGO AUDUBON



DUDEK



San Diego County - Rare Plant Hotspot

- **1 of 25 global biodiversity hotspots** (Myers et al. 2000)
- **Many threatened & endangered endemic plant species** (Dobson et al. 1997, Underwood et al. 2009)



Mark Dodero



Mark Dodero



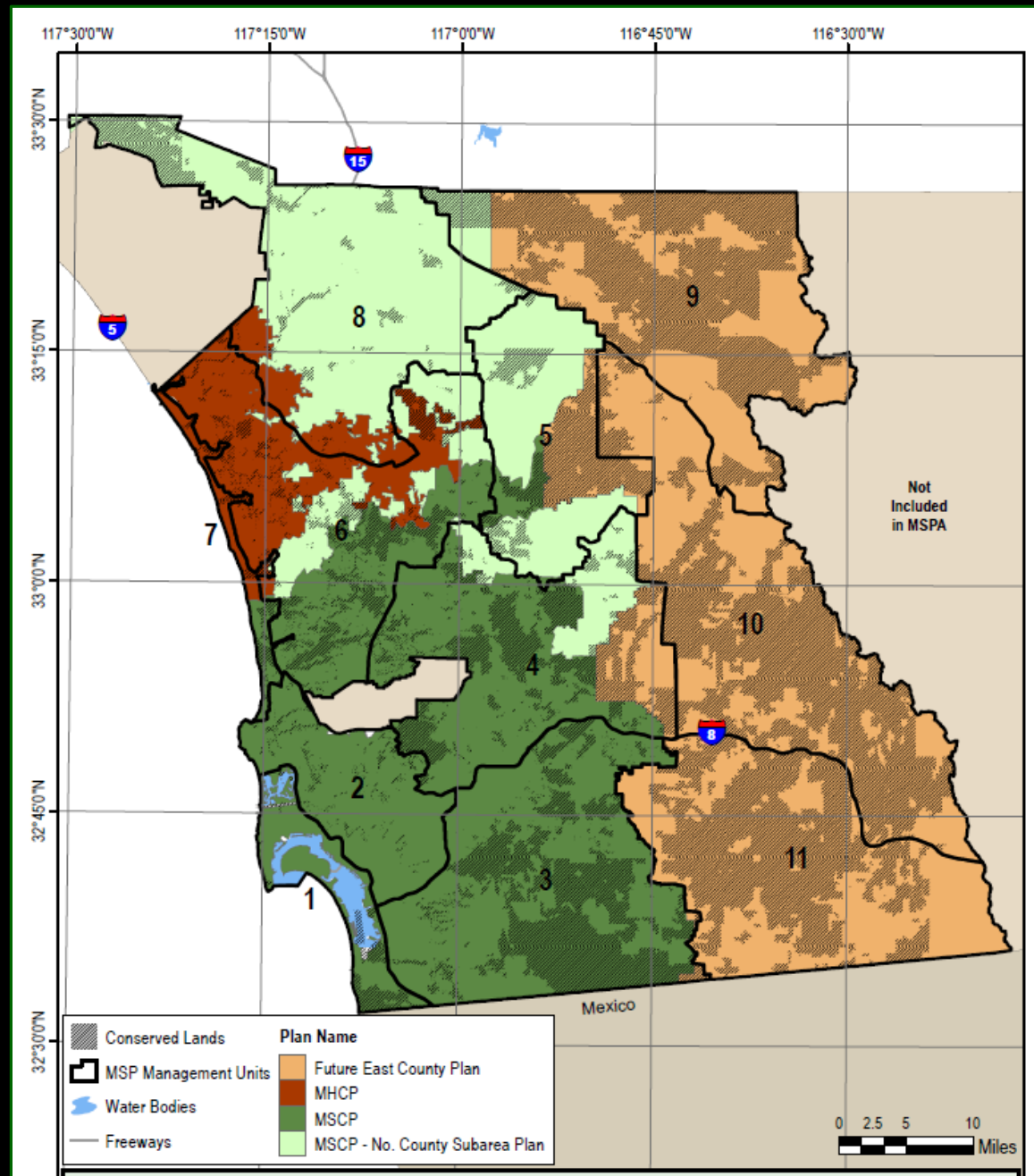
Patricia Gordon-Reedy



Jessie Vinje

Multiple Species Conservation Plans & Regional Coordination

- Natural Community Conservation Plans/HCPs
- 111 Plant & Animal Species



San Diego Management & Monitoring Program (SDMMP)



- **Initiated:** 2008
- **Funding:** TransNet Environmental Mitigation Program - \$4M/yr
- **Location:** U.S. Geological Survey - San Diego
- **Staff:** 6 - plus numerous partners*

*Partners

BLM, CDFW, CA LCC, CNPS, CDPR, CALTRANS, CNLM, City Carlsbad, City Chula Vista, City San Diego, CBI, County San Diego, EDI, EHL/EHC, LPLF, military, NCC, NROC, RCA, RSABG, SANDAG, SDAS, SDSU, SDZ-ICR, SDRVC, SELC, TNC, UCD-WHC, USFWS, USFS, USGS, plus others



Regional Mgmt & Monitoring

- **Strategic Mgmt. & Monitoring Plan**
- **Regional Monitoring Studies**
- **Centralized Database**
- **Transnet Land Mgmt. Grant Program**
- **Coordination & Technical Support**

MSP Roadmap

Goals & objectives =
San Diego's Regional
Rare Plant Mgmt. &
Monitoring Program

2017-2021
Planning Cycle



<https://portal.sdmmp.com/>

San Diego Management & Monitoring Program

[Home](#)[Portal ▾](#)[Resources ▾](#)[News ▾](#)[About ▾](#)

Applying science to conservation through collaboration

The SDMMP's mission is to coordinate science-based biological management and monitoring of lands in San Diego that have been conserved through various conservation planning and mitigation efforts.

MSP Portal

Management Strategic Plan: Goals, Objectives & Actions

The Management Strategic Plan provides goals, objectives and actions for species, vegetation communities, and threats/stressors. Use the MSP Portal to search this information spatially, by keywords, or by progress/status.

Enter portal

Projects

Project Profiles & Associated Reports, Data, and Maps

Numerous management and monitoring efforts are taking place across the South Coast Ecoregion. Search Projects to obtain more information on these efforts and view and download associated project reports, data, and maps.

View projects

Maps

Advanced GIS Viewer

Create maps using an advanced online ArcGIS software program which displays a specific set of spatial layers that allows users to access tools to investigate the layers interactively. SDMMP has numerous spatial layers available for users.

Access viewer

Library

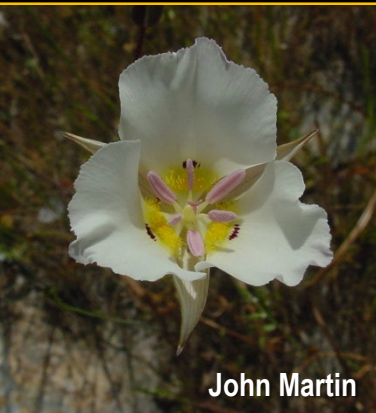
Reports & Other Documents

Hundreds of reports and documents exist that describe conservation efforts in San Diego County and the region, and the plants and animals of conservation concern. Search the library to view and download documents.

Browse library

SD Regional Rare Plant Mgmt. Program Goal

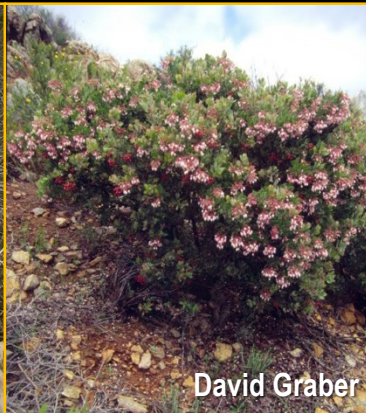
Maintain or enhance existing species' occurrences & establish new occurrences, as needed, to ensure multiple conserved self-sustaining populations for increased resilience to environmental & demographic stochasticity, maintaining genetic diversity, & improving chances of persistence over the long term (>100 years).



John Martin



Jessie Vinje



David Graber



John Martin



Patricia Gordon-Reedy

SD Regional Rare Plant Mgmt. Program

- **Species prioritization & mgmt categories**
- **Inspect & Manage (IMG)**
- **Studies → inform critical uncertainties**
- **MSP Seed Collection, Banking & Bulking Plan**
- **MSP Rare Plant Management Plan**
- **Implement plans**



Species Prioritization & Mgmt. Categories

2017-2021: 57 MSP Plant Species

- 32 Species level mgmt.
(highest priority)
- 20 Vegetation focus mgmt.
- 5 Low priority

Photo: Kris Preston

Species Prioritization & Mgmt. Categories

2022-2026: 68 MSP Plant Species

- 46 Species level mgmt.
(highest priority)
- 17 Vegetation focus mgmt.
- 5 Low priority

Photo: Kris Preston

Inspect & Manage (IMG) Obj – 30 Spp & ~50 partners

Photos: Patricia Gordon-Reedy, Jessie Vinje, Keir Norse, Mark Doderer, City of San Diego



Studies → Inform Critical Uncertainties

- 
- A photograph of a person wearing a hat and a backpack, standing in a field of dry grass and shrubs. The person is looking down at the ground. In the background, there are rolling hills and some buildings. A semi-transparent white box is overlaid on the image, containing a list of five items, each preceded by a right-pointing arrowhead.
- **Genetics**
 - **Best management practices**
 - **Habitat - field & modeling**
 - **Regional population structure**
 - **Post-fire recovery**

MSP Seed Collection, Banking & Bulking Plan & Rare Plant Mgmt. Plan Objectives

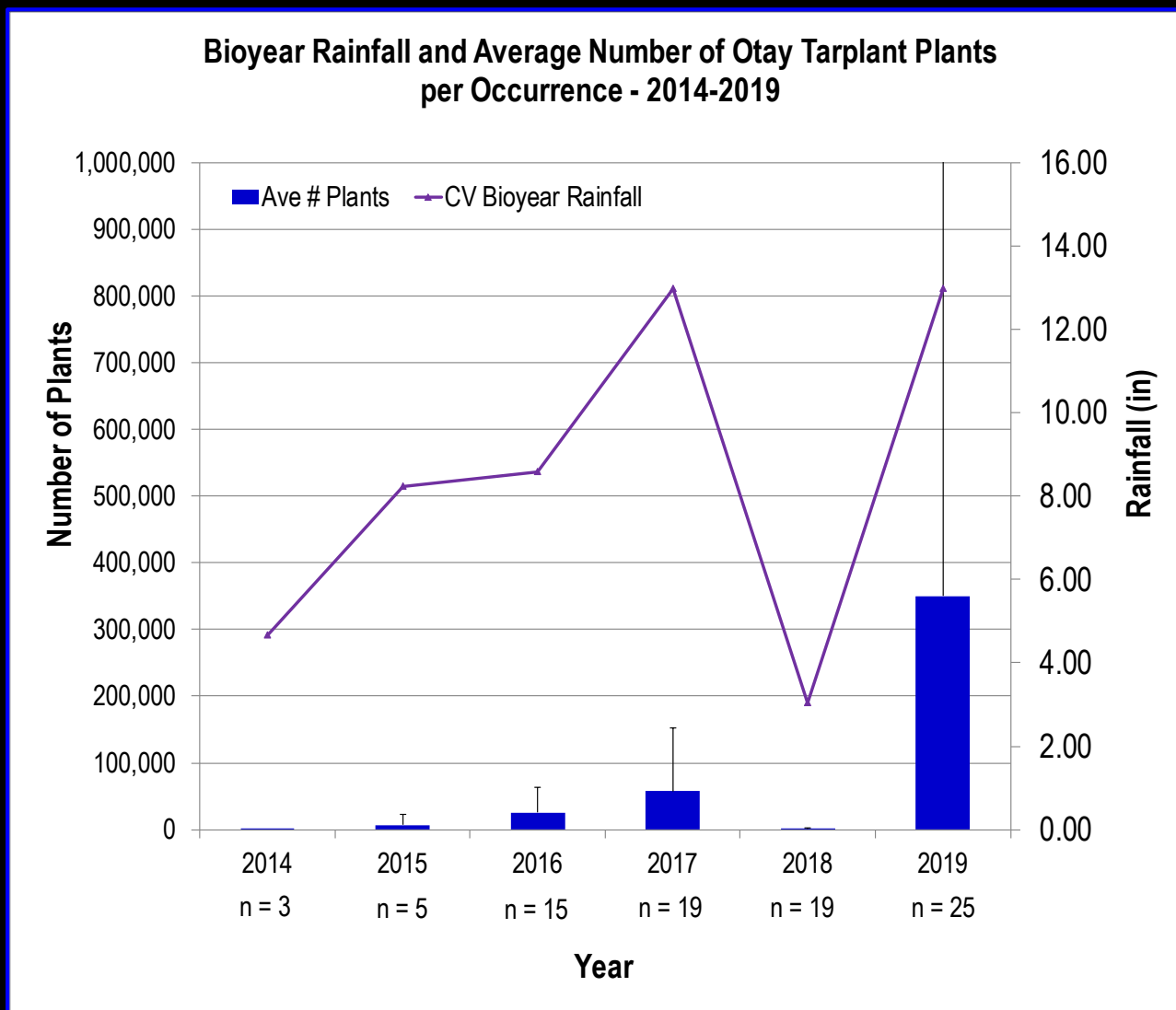
Otay tarplant (*Deinandra conjugens*) ex.



Kris Preston

Otay Tarplant (*Deinandra conjugens*) (FT, CE)

IMG Data



Otay Tarplant (*Deinandra conjugens*) (FT, CE)

IMG Data



Threats (2016):

- Nonnative grasses & forbs (53% occ. \geq 75% extent)
- Trails (100% occ.)
- Dumping (40% occ.)
- Erosion (33% occ.)

Otay Tarplant (*Deinandra conjugens*) (FT, CE) Genetic Study



- 18 popns. sampled
- Expert workshop

A
REPORT
OF
GENETIC SAMPLE COLLECTIONS AND CURATION
FOR SIX RARE PLANTS
WITHIN THE SAN DIEGO MSPA
SAN DIEGO COUNTY, CALIFORNIA

Prepared for:

San Diego Association of Governments
401 B Street, Suite 800
San Diego, California 92101

Prepared by:

Botany Department
San Diego Natural History Museum
P.O. Box 121390
San Diego, California 92112
Point of Contact: Margie Mulligan
(619) 851-4419

March 8, 2018

theNAT
SAN DIEGO NATURAL HISTORY MUSEUM



Prepared in cooperation with the San Diego Association of Governments

Population Genomic Surveys for Six Rare Plant Species in San Diego County, California



Open-File Report 2018-1175

U.S. Department of the Interior
U.S. Geological Survey



Otay Tarplant (*Deinandra conjugens*) (FT, CE)

Best mgmt. practices



Otay Tarplant Habitat Experimental Project



Prepared for
San Diego Association of Governments

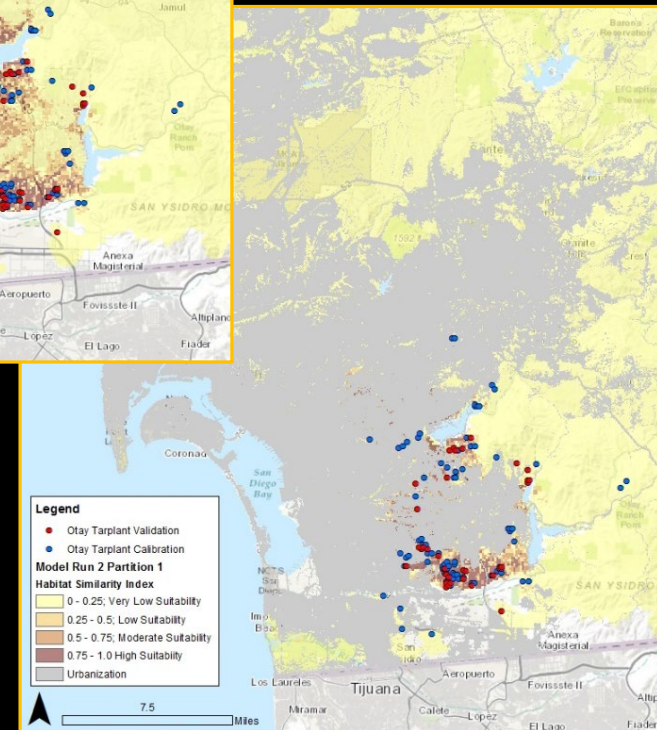
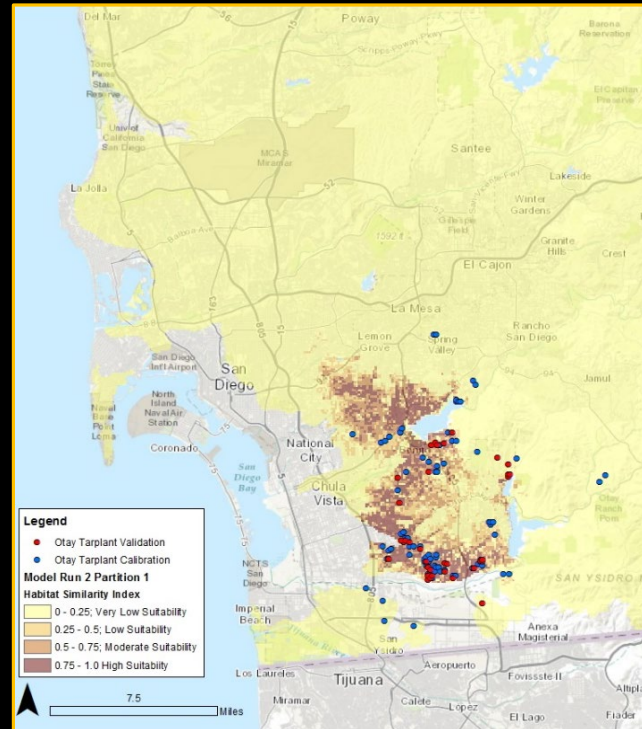
Prepared by
Conservation Biology Institute
November 2017

Otay Tarplant (*Deinandra conjugens*) (FT, CE)

Habitat & Regional Popn Structure



- Regional Popn Structure Study
- Habitat - field & modeling
- Strong edaphic relationships
- No habitat - future climates



Otay Tarplant (*Deinandra conjugens*) (FT, CE)

MSP Seed Plan Objective



MGT-PRP DEICON-9

Regional

SBPL

2018-2018

SS

 View map

Management units: 3

In 2018, begin preparing a section for Otay tarplant in the MSP Seed Collection, Banking and Bulking Plan to preserve genetic diversity and rescue occurrences in case of catastrophic disturbance. The plan should incorporate best science and management practices (e.g., Wall 2009, KEW 2016) and provide guidelines for collecting and storing seeds over the long term at a permanent, established conservation seed bank (e.g., Institute for Conservation Research Native Plant Seed Bank, Rancho Santa Ana Botanic Garden Seed Conservation Program) and for providing a source of seeds for management purposes. The plan should include recommendations for: collecting and storing seeds for conservation banking; management oriented research; rescuing occurrences after catastrophic disturbances; and seed bulking and out-planting to augment extant occurrences or to establish new occurrences with consideration of genetic implications for population sustainability.

Otay Tarplant (*Deinandra conjugens*) (FT, CE)

MSP Seed Plan Actions

[Home](#)[Portal▼](#)[Resources▼](#)[News▼](#)[About▼](#)

Action

Statement

- | | |
|-------|---|
| PRP-1 | Consult the San Diego County Rare Plant Working Group made up of plant ecologists, geneticists, rare plant experts, land managers, restoration practitioners, seed banking and bulking practitioners, wildlife agencies, and other stakeholders to provide input and recommendations for the Otay tarplant section in the MSP Seed Collection, Banking and Bulking Plan. |
| PRP-2 | Prepare a seed collection plan to collect seeds over multiple years, collect seeds several times within a season, accumulate seeds across populations, and to sample among habitats and ecological niches. Include guidelines for collecting and storing seeds along maternal lines from small occurrences (<1,000 plants) and to provide propagules to be used in management experiments, enhancement of existing occurrences, and establishment of new occurrences. |
| PRP-3 | The seed collection plan should include guidelines for collecting seeds from occurrences of sufficient size to accommodate harvest and based on genetic studies as available. Include provisions for collecting seed from unconserved populations planned for development. |
| PRP-4 | Include protocols and guidelines for collecting voucher specimens and submitting to the San Diego Natural History Museum (McEachern et al. 2007). |
| PRP-5 | Include guidelines for testing seeds for viability and to obtain information on dormancy and germination rates. |
| PRP-6 | Submit project metadata and MSP Seed Collection, Banking and Bulking Plan to the MSP Web Portal. |

Otay Tarplant (*Deinandra conjugens*) (FT, CE) MSP Mgmt Plan Objective



MGT-PRP DEICON-6

regional

MGTPPL

2018-2018

SS

 View map

Management units: 3

In 2018, begin preparing an Otay tarplant section in the MSP Rare Plant Management Plan that prioritizes management actions to maintain and expand conserved occurrences based upon an assessment of data on occurrence status, habitat and threats. Minimum criteria for enhancement are to reduce invasive annual nonnative plants and thatch to less than or equal to 20% absolute cover within the occurrence.

Otay Tarplant (*Deinandra conjugens*) (FT, CE)

MSP Mgmt Plan Actions



[Home](#)

[Portal](#) ▾

[Resources](#) ▾

[News](#) ▾

[About](#) ▾



PRP-1 Consult the San Diego County Rare Plant Working Group made up of plant ecologists, geneticists, rare plant experts, land managers, restoration practitioners, seed banking and bulking practitioners, wildlife agencies, and other stakeholders to provide input and recommendations for Otay tarplant in the MSP Rare Plant Management Plan.

PRP-2 Develop a conceptual model that identifies management actions to effectively reduce threats to Otay tarplant occurrences.

PRP-3 Prioritize occurrences for management based upon an assessment of occurrence size, the potential for management to significantly reduce identified threats, and the availability of adjacent suitable habitat for occurrence expansion.

PRP-4 Develop an implementation plan for Otay tarplant that prioritizes management actions for the next 5 years and details tasks, lead entities, responsibilities, and timelines, budgets.

PRP-5 Submit project metadata, project datasets, and the MSP Rare Plant Management Plan to the MSP Web Portal.

Otay Tarplant (*Deinandra conjugens*) (FT, CE) Implement Seed & Mgmt Plans



Otay Tarplant (*Deinandra conjugens*) (FT, CE) TransNet Land Management Grant Program



- 7 projects funded (2006-2017)
- Enhancement (3)
- Restoration planting (4)
- BMPs

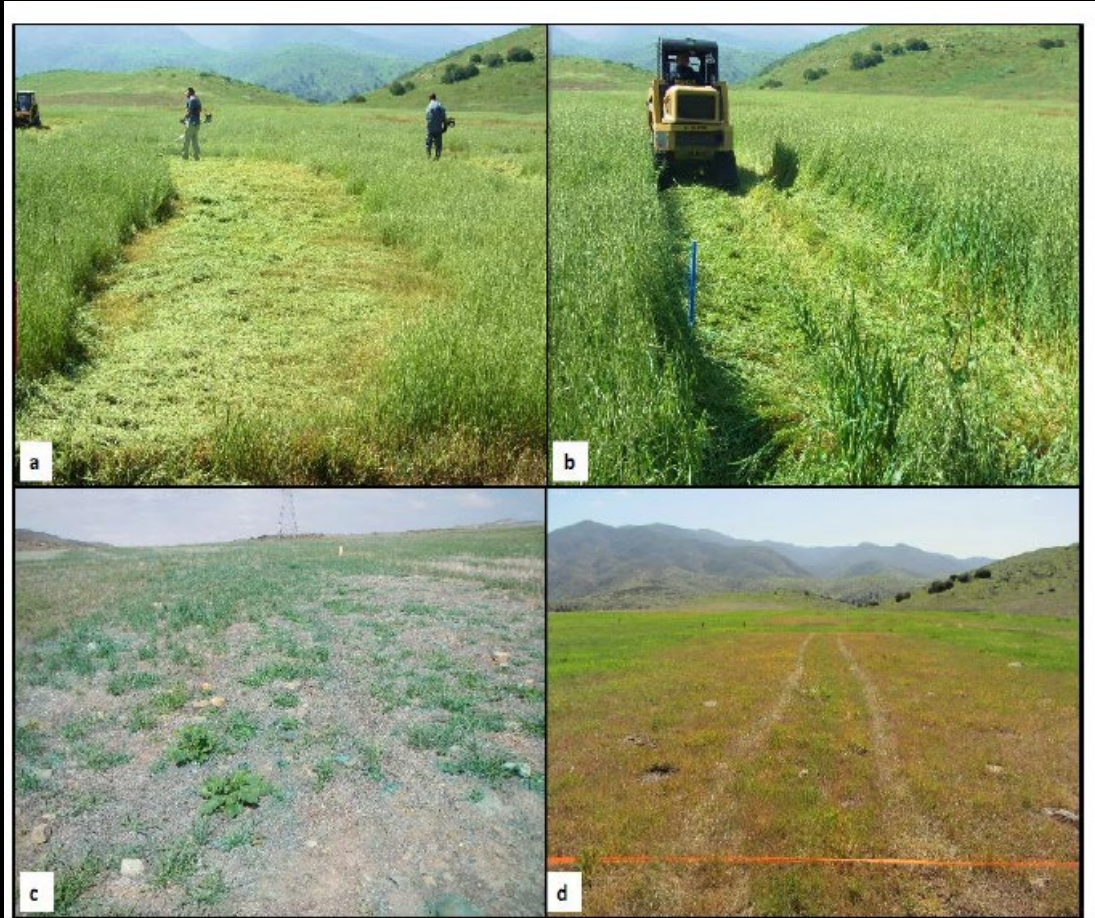


Figure 3. Plot Treatments. (a) line trim plot, (b) mow plot, (c) herbicide spot treatments, and (d) post-Fusilade II[®] treatment. Photo credits: Jessie Vinje.

Exploring Online Rare Plant Resources

- MSP Web portal
- Rare plant IMG monitoring
- Edaphic endemic plants report
- Rare plant genetics study
- Best Management Practices
- Management and seed plans