Big Bear Valley Rare Habitats Internship

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INLAND EMPIRE RESOURCE CONSERVATION DISTRICT

UNIVERSITY OF Redlands

FOREST SERVICE U.S. DEPARTMENT OF AGRICULTURE

BIG BEAR VALLEY EDUCATION TRUST

Program Overview
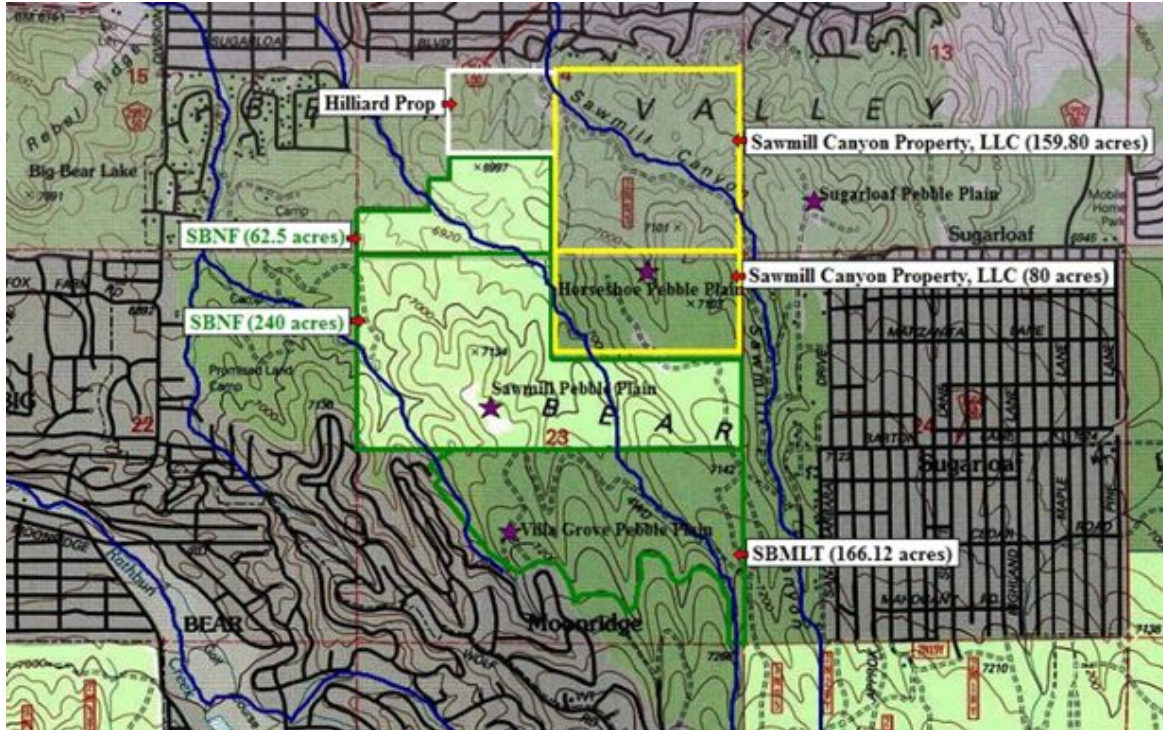
Pebble Plains Intern Program: collaboration between IERCD, USFS - Mountaintop District, Bear Valley Education Trust, and University of Redlands to better manage sensitive plant habitats including the 700-A pebble plain reserve.

Interns have included Zach Smith, Torrey Rotellini, Abigail Bohman, Madeline Catterson, and Sam Nielsen, collectively focused on assessing and mapping threats to habitat function, and teaching students of Big Bear HS local ecology and conservation

OHV Damage to Pebble Plains

Intern duties include mapping of threats to pebble plain function, and working to develop a management plan to protect and restore the "de-veg" pebble plain

Most significant threat: off-highway vehicle (OHV) use

Using Drones to Map Pebble Plains

- Interns used images captured from drones 150 feet in the air to stitch together high-resolution maps of pebble plains
- High school students were able to learn about practical applications of drone flying and experience the process of georeferencing, or attaching location coordinates to a flight

Restoration within the Sawmill Complex

- Mapped out the areas with the most severe OHV damage, as well as a suitable site for a restoration study, using drone imagery
- Collected seeds from Kennedy's buckwheat (*Eriogonum kennedyi* var. *austromontanum)* to disperse on experimental plots

Legend

Study Area

Restoration Actions

Soil Prep

Recontour

Seed Collection
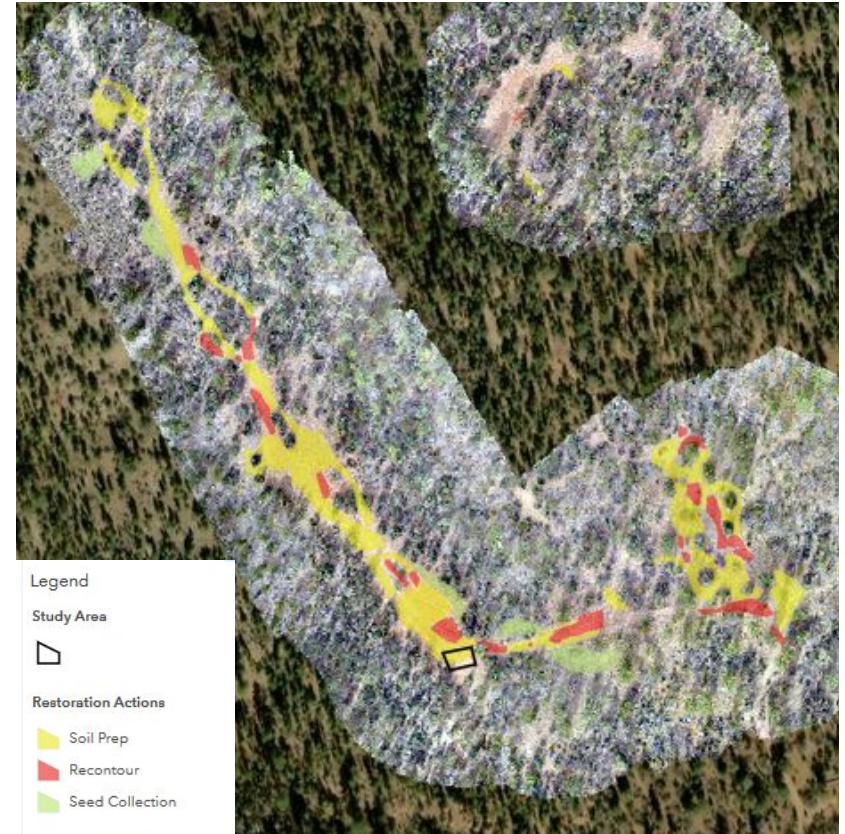
Restoration within the Sawmill Complex

- The next step will be to work out the details of the experimental design (with students from Big Bear HS), and set up different treatments to test effectiveness of restoration methods
- The study area has been fenced off and will be monitored by students each spring for the density and growth of *Eriogonum kennedyi* and other species
- This type of restoration study has never been done for pebble plains before, and this information can be used to inform larger restoration projects in the future

Big Bear High School and Education Trust Partnership

- We meet every 1-2 weeks with STEAM (Science, Technology, Engineering, Art, and Math) students, usually at a pebble plain, to discuss conservation issues and practice hands-on methods of:
  - GIS data collection
  - Field sampling
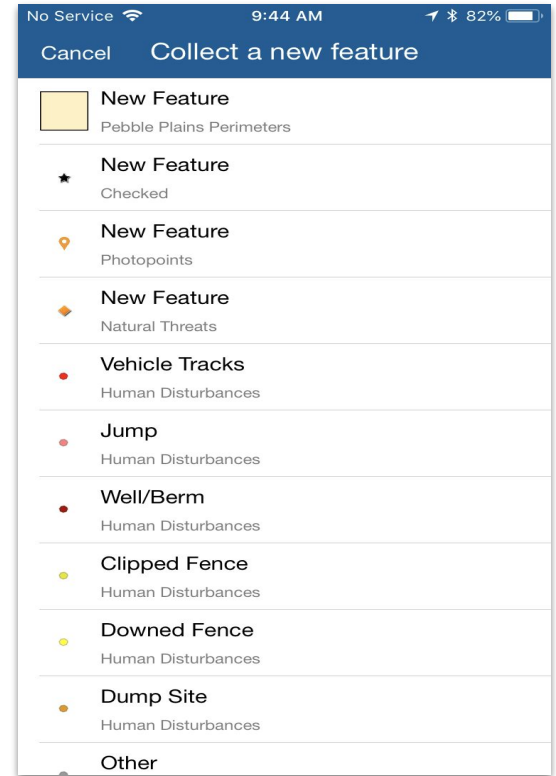 - Plant identification
  - Restoration monitoring

Mapping Pebble Plains & Disturbances in Bear Valley

Pebble plain border

Broom Flat Complex

ArcGIS Collector App

Pebble Plains Indicator Species

Strong Indicators

Bear Valley Sandwort (*Eremogone ursina*)

Kennedy's Southern Mountain Buckwheat
(*Eriogonum kennedy*i var. *austromontanum)*

"Rat-tails" (*Ivesia argyrocoma*)

Pebble Plains Indicator Species

Moderate Indicators

Erigeron aphanactis ssp. *congestus*

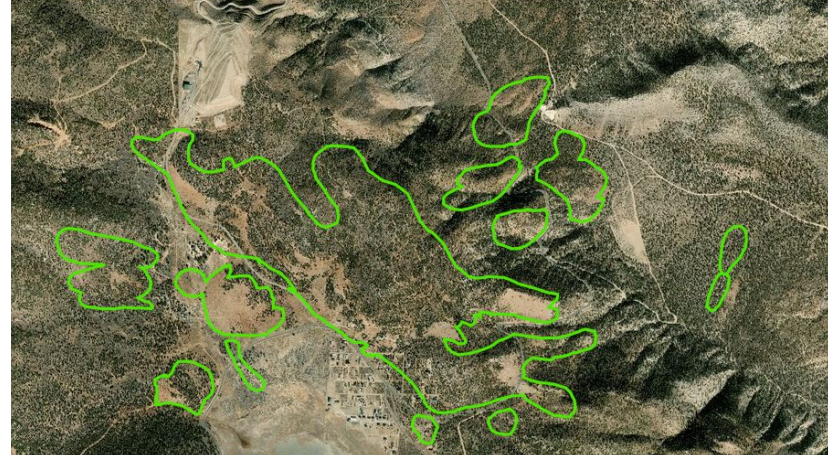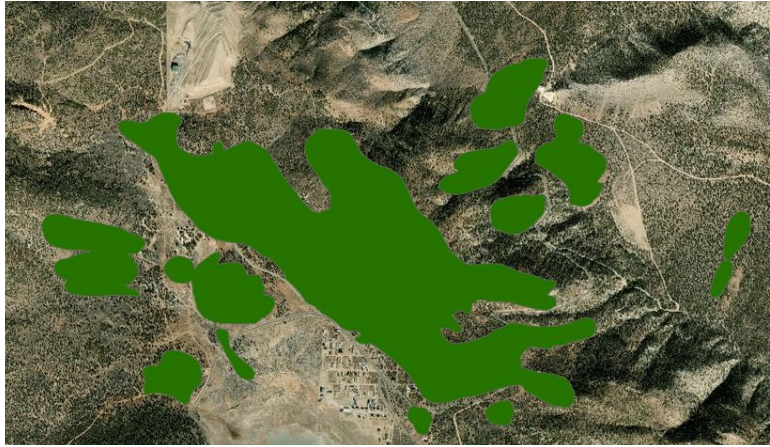
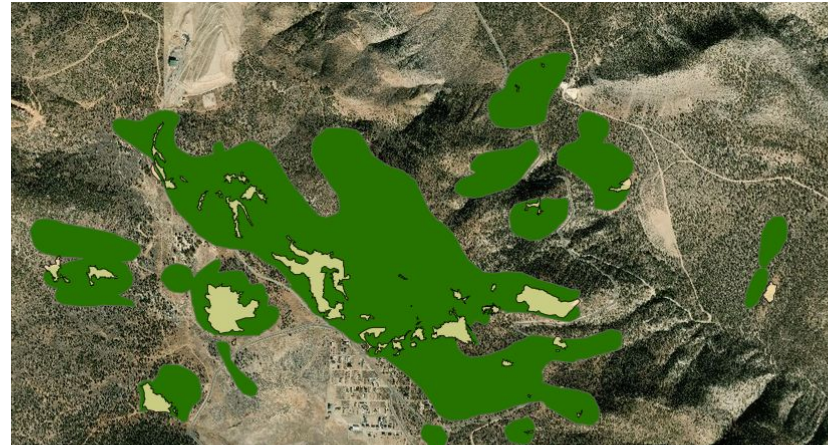*Dudleya abramsii* ssp. *affinis*

Castilleja cinerea

Echinocereus engelmannii

Refined Pebble Plains Perimeters: Baldwin Lake Complex

Using a combination of existing spatial data, satellite imagery, and field data collection, we have updated the distribution map to show where true pebble plain areas are

Thank you!!