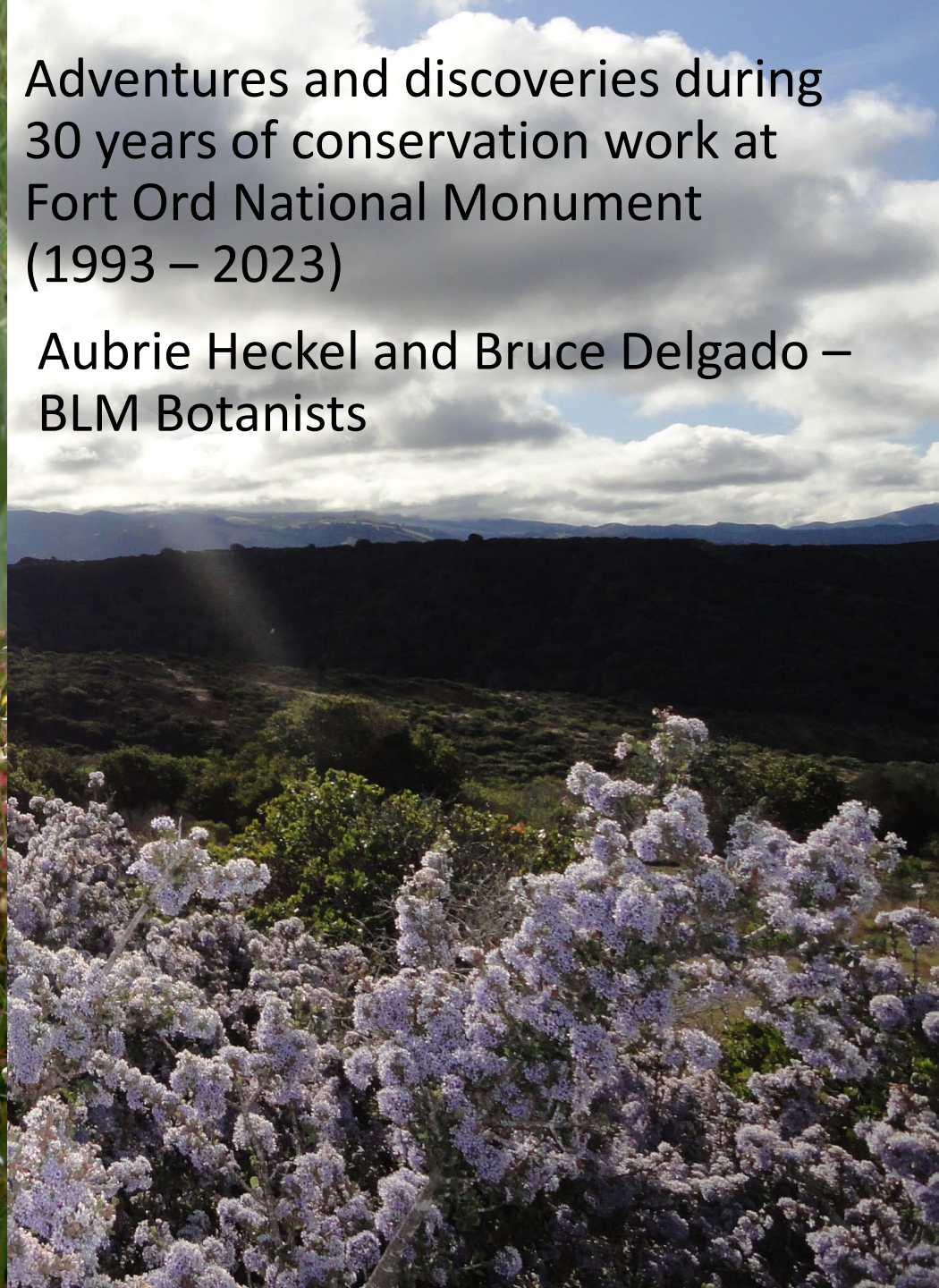
Adventures and discoveries during 30 years of conservation work at Fort Ord National Monument (1993 – 2023)

Aubrie Heckel and Bruce Delgado – BLM Botanists



Overview

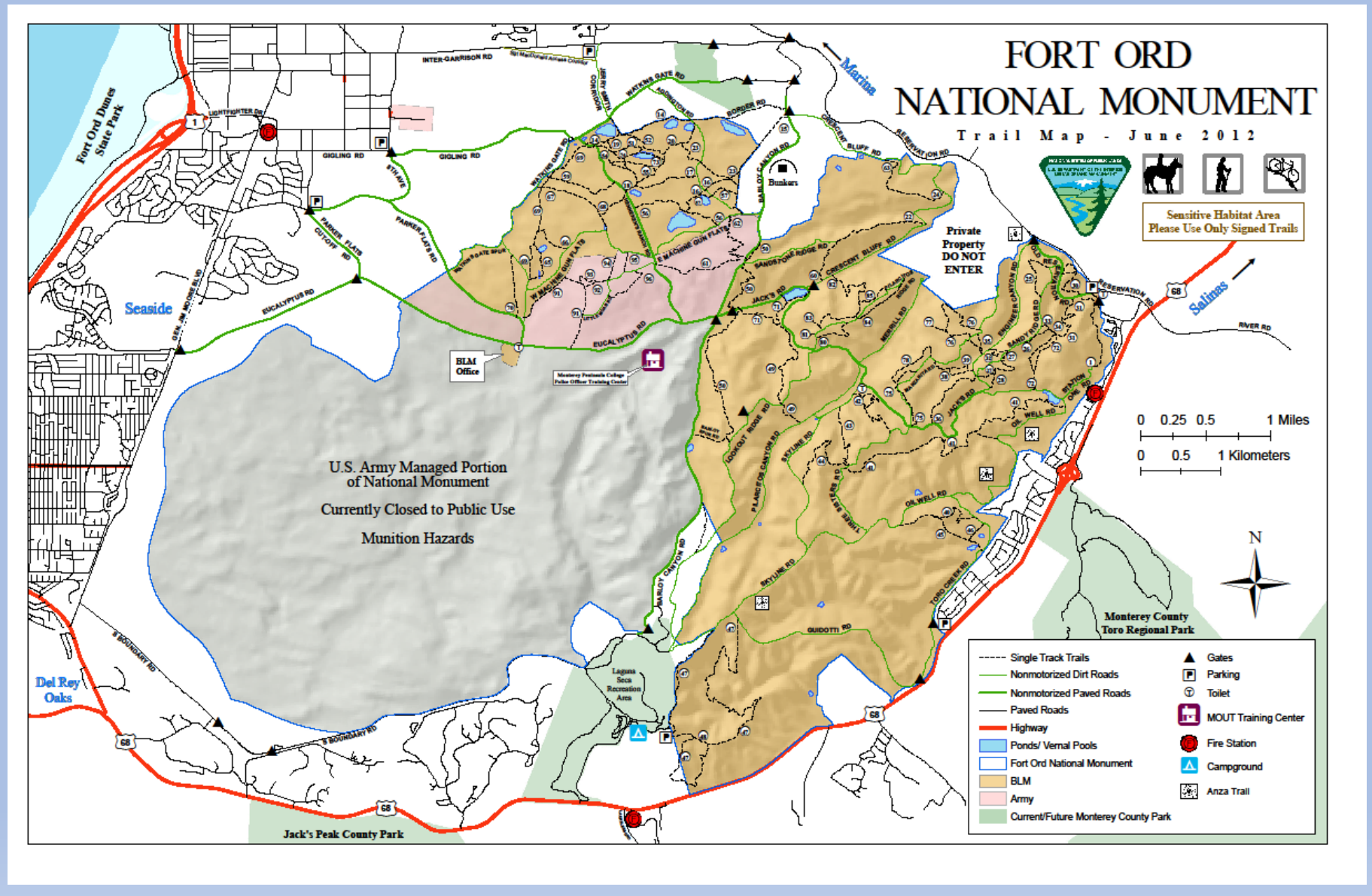
Monterey County

Former Fort Ord
= 28,000 acres= San Francisco

Fort Ord National Monument (FONM)
=14,800 acres

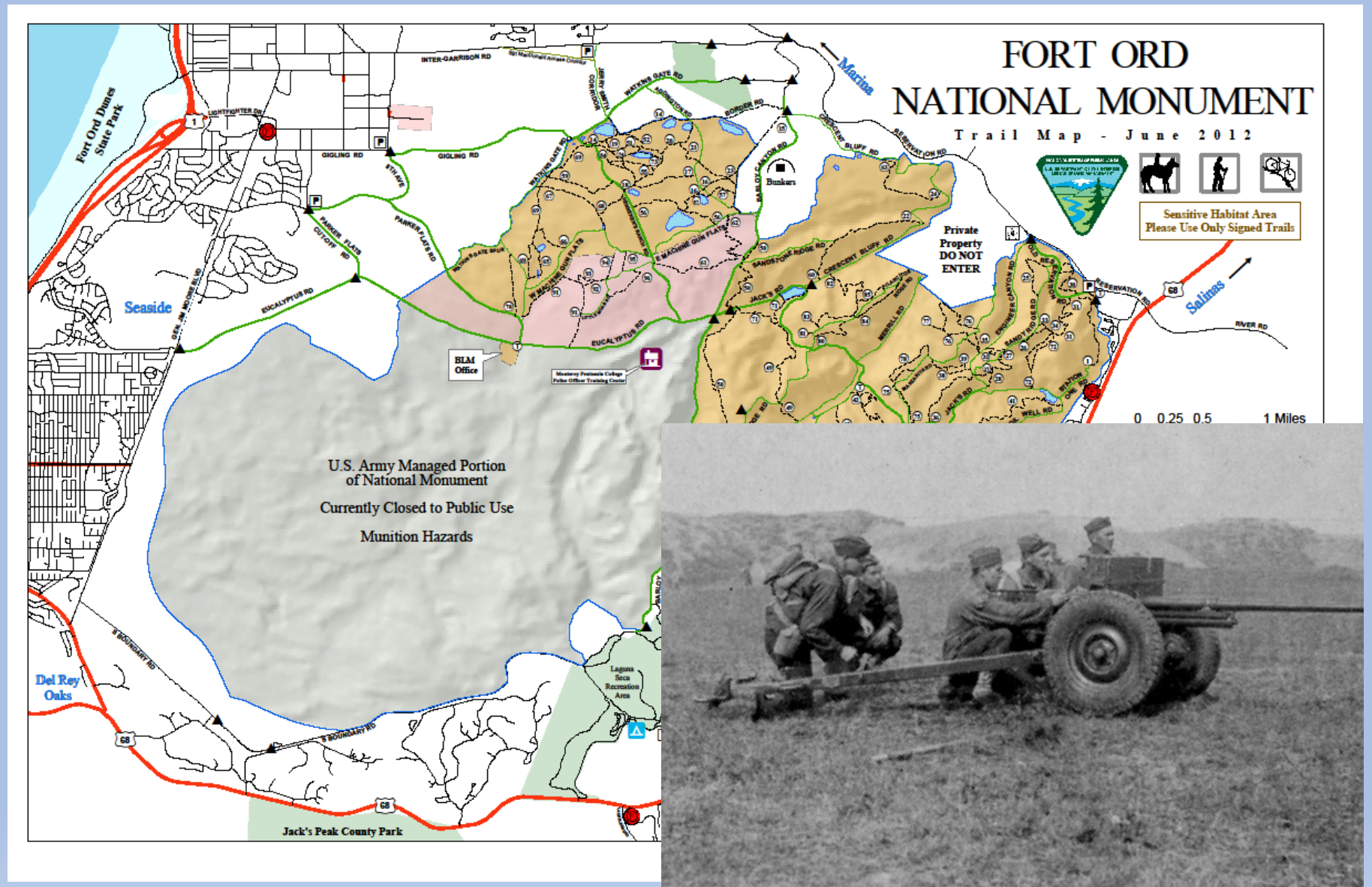
60% Former Fort Ord open space
in perpetuity
(conservation/passive recreation)

FONM 14,800 acres:
-7,200 BLM
-7,600 Army (to be transferred to BLM after UXO cleanup)



Army influenced the land:

-Fire
-Grazing
-Roads
-Little development




-1.2 million visitors annually
-86 miles of routes
Recreation

Dog pals

Equestrian use

Animal viewing (domestic and wild)

80 field trips and tours in 30 years
Thank you CNPS!

Calochortus albus

Plant communities

Jesse Pluim, BLM


Maritime chaparral
Coast live oak woodland
Freshwater marsh

Habitat Restoration

From 1996 to 2023:
196 acres restored!


Habitat restoration primarily on formerly gullied roads
1966

Fort Ord Restoration Sites - Unique Site Codes

- Fort Ord Restoration Sites - Unique Site Codes
- BLM Dirt Roads
- BLM Paved Roads
- BLM Boundary
- Army Boundary

EcoCrew - Success Monitoring 65 of 250 sites

N

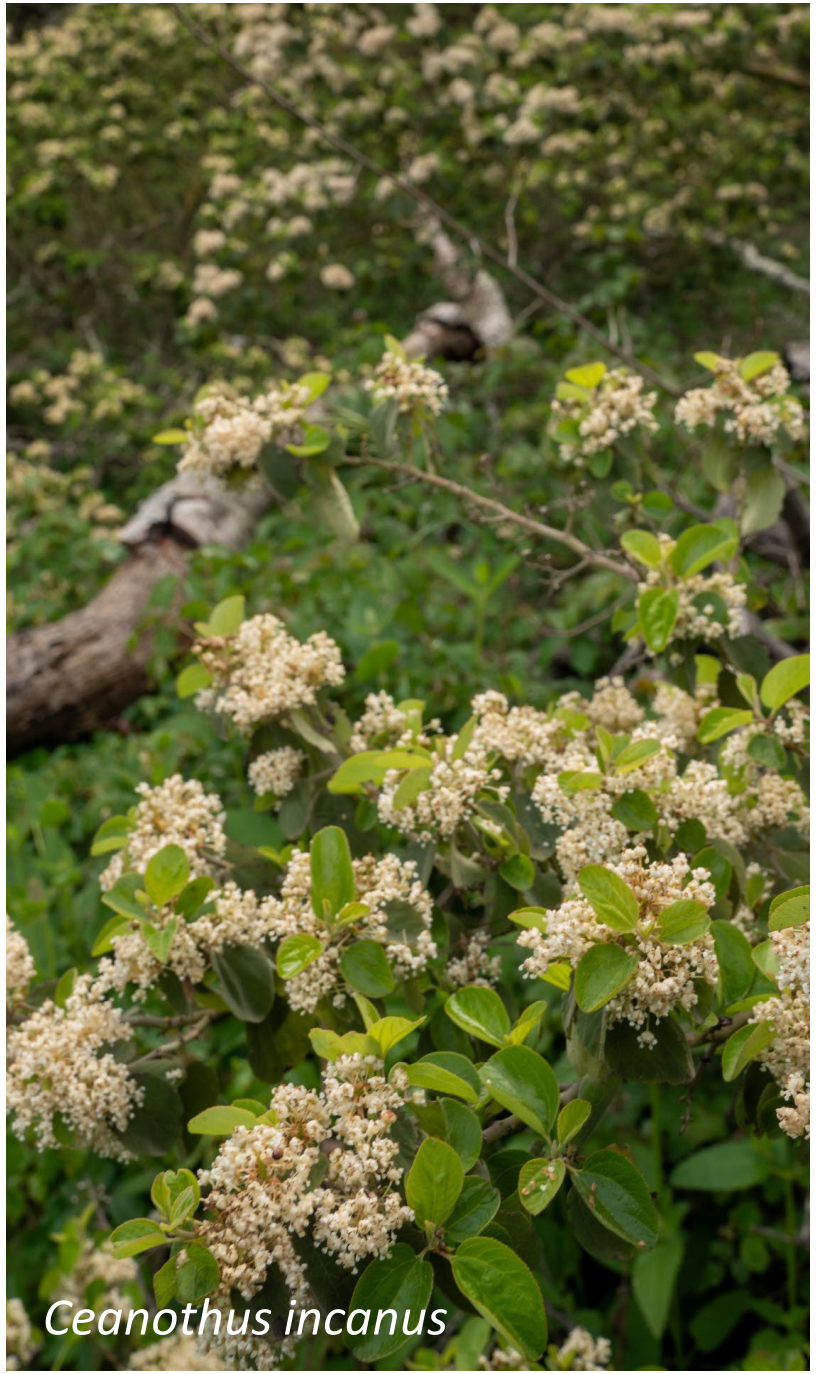
Restoration Acreage by Habitat Type (1996-2022)	
Habitat	**Acreage**
Annual Grassland	45.24
Blue Wildrye Grassland	0.14
Coast Live Oak Riparian Forest	0.37
Coast Live Oak Savanna	2.18
Coastal Coast Live Oak Woodland	9.32
Coastal Scrub	3.05
Inland Coast Live Oak Woodland	27.54
Maritime Chaparral	91.71
Mixed Riparian Forest	13.71
Ponds and Freshwater Marsh	0.19
Valley Needlegrass Grassland (10-30% Cover)	0.76
Valley Needlegrass Grassland (>30% Cover)	1.98
Vernal Pools	0.41
Total Restoration Acreage from 1996-2022	196.6

Castilleja foliolosa, Arctostaphylos spp., Adenostoma fasciculata

Maritime chaparral restoration comprises 46% of 196 restored acres

Increase suitable habitat for listed and other rare species through repairing mass erosion


Dudleya farinosa


Ceanothus incanus


Lepechinia calycina


2002

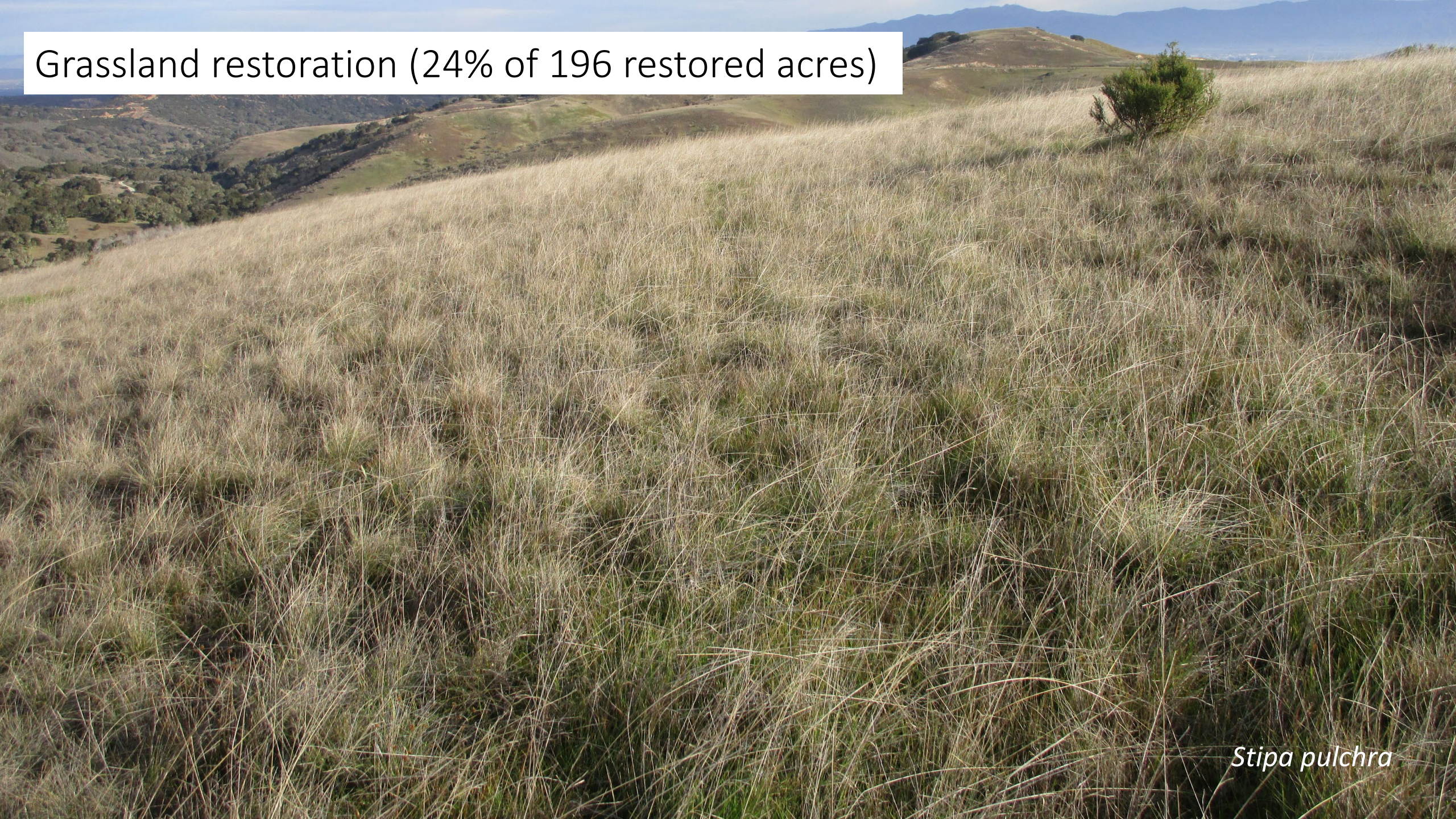

2002


Sterile barley grass
2003


2022

Relatively easy to do chaparral restoration on FONM

Grassland restoration (24% of 196 restored acres)



Stipa pulchra

Grassland restoration: most difficult plant community to succeed with native vegetation

We were not able to change the plant community, but we were able to stabilize the soil

Grassland Grazing and research

-Using 1100 – 3000 goats/sheep in a WUI since 1996
-Four research studies (we'll discuss 2)
-Goat's favorite food = CA's state lichen *Ramalina menziesii*
-#2 goat fav = Coast Live Oak leaves

As far as we know, no one in CA, including us, has been able to shift expansive non-native grasslands to a primarily native grass and native forb plant community.

1. Is goat grazing effective at converting Coyote Brush Scrub back to Coastal Grasslands? (12 Pairs [Graze/No Graze] Shrub Plots)

Semi trucks on Fort Ord National Monument

Unloading goats

Grazing coyote brush scrub

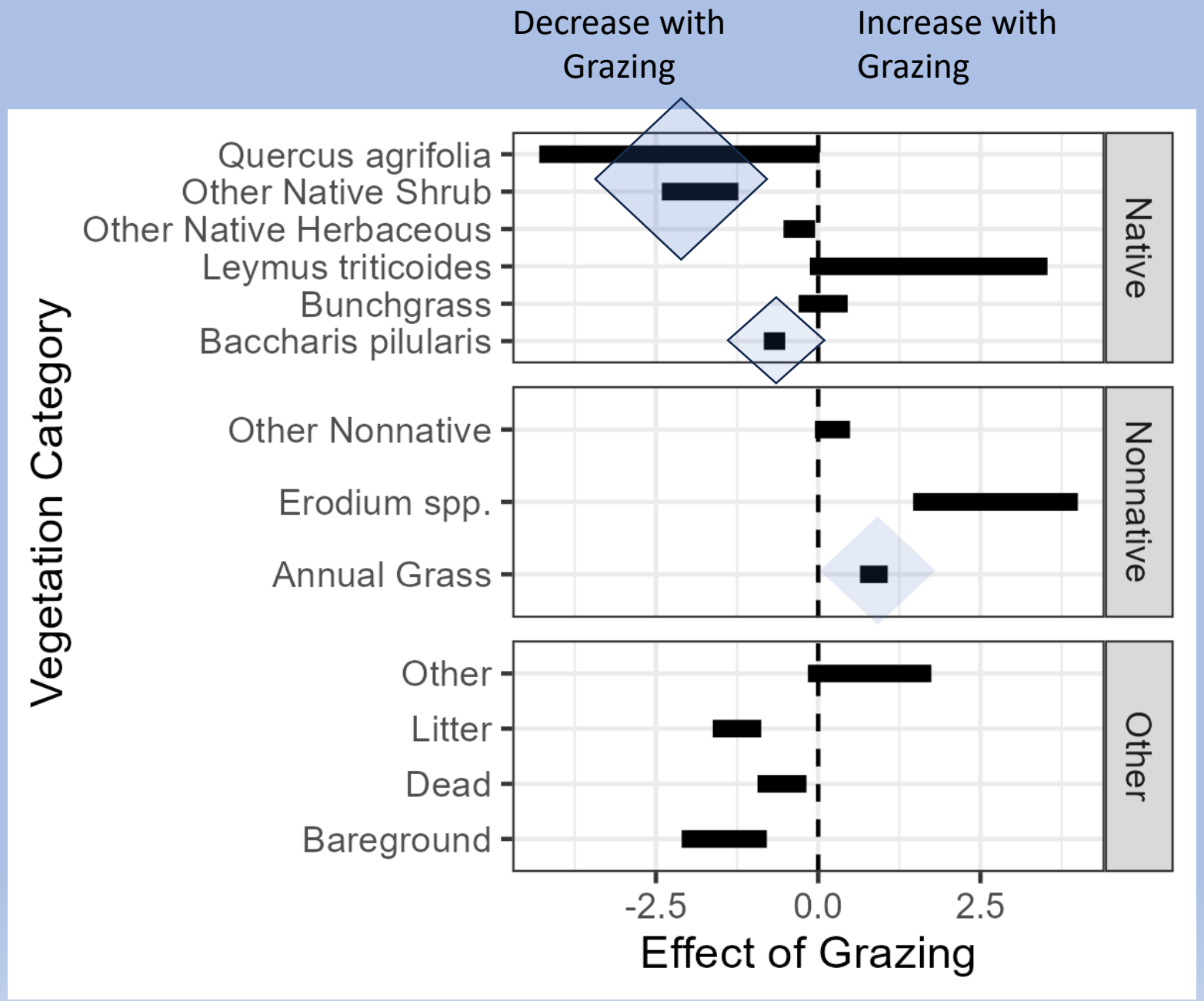
Goat exclusion plot

-3 transects x 24 plots

-Point intercept method

Step 1. Replace Coyote Brush Scrub with Coastal Grassland.
Not hard.

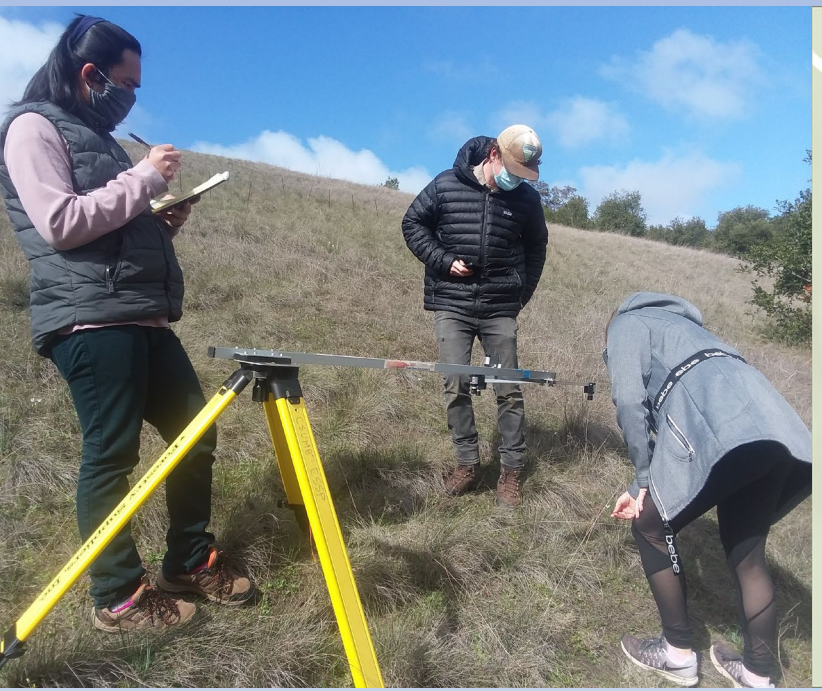
Step 2. Increase native grass and forb abundance and their diversity.
Difficult.

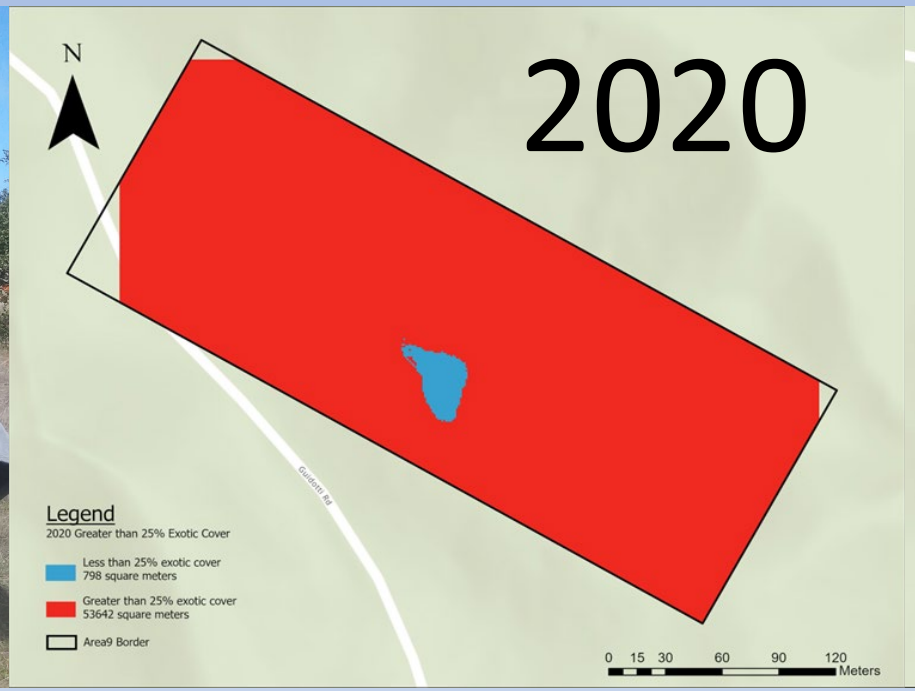


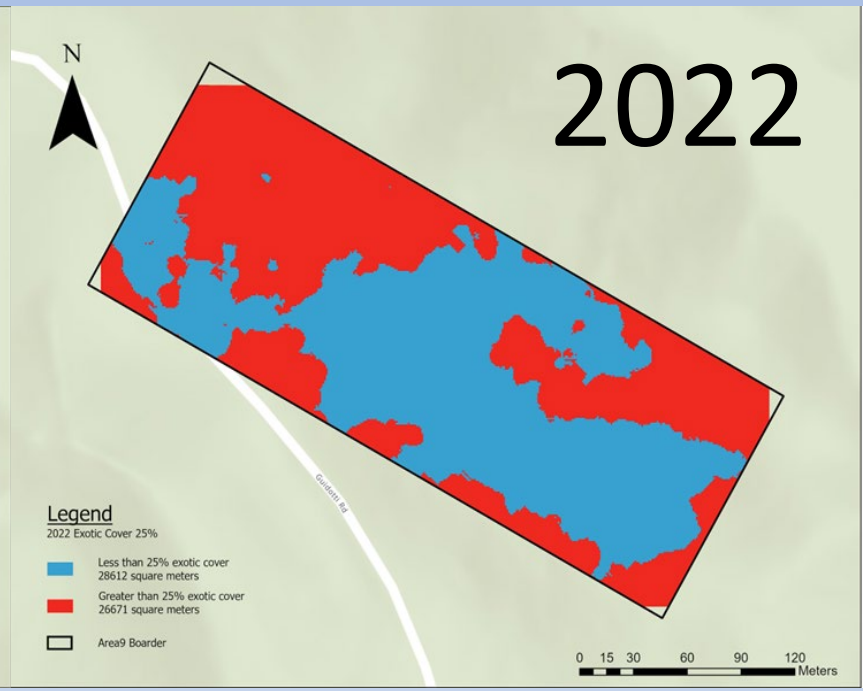
2. Can grazing convert primarily non-native grasslands to primarily native coastal grasslands with lower fuel loads?

15 acre study area. Increase in area with <25% exotic cover (Blue area mostly ripgut brome and wild oats) between 2020 and 2022 after 3 years of higher frequency goat grazing treatment.

This results in higher suitability for native bunchgrasses and forbs – moving the needle.







Grazing take home message

-Biggest challenge is to match livestock availability with need for timely grazing of dense ripgut brome/wild oats more than 1x per year when their seedheads in milky or soft starchy phenology.

-It’s been a great experience engaging with goats, sheep, South American herders and their dogs, to better manage grasslands with many university students and faculty, 2 masters theses, and lots of community volunteers of all ages.

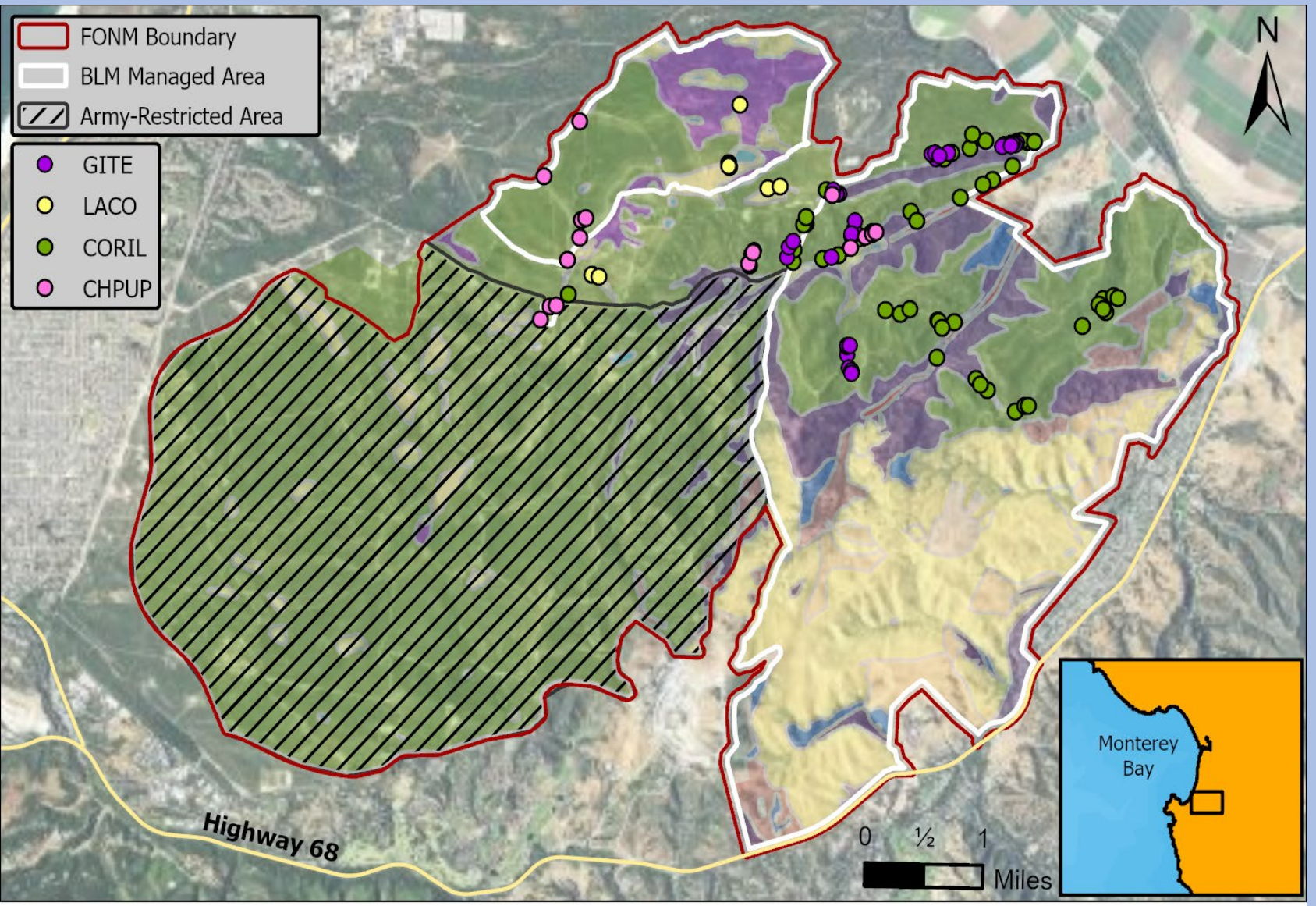
Rare plants

Cordylanthus rigidus ssp. littoralis

Gilia tenuiflora ssp. arenaria

Lasthenia conjugens

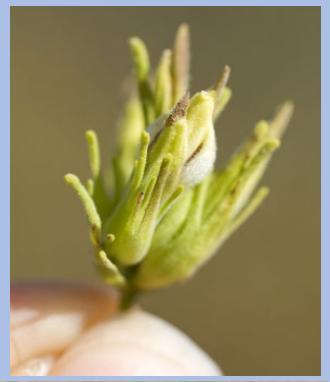
Chorizanthe pungens var. pungens

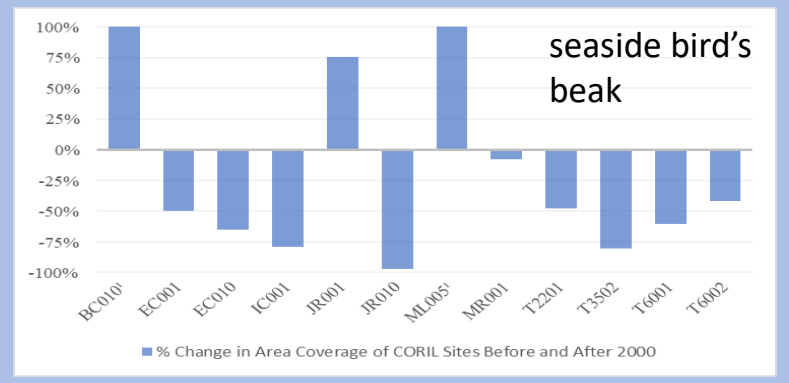


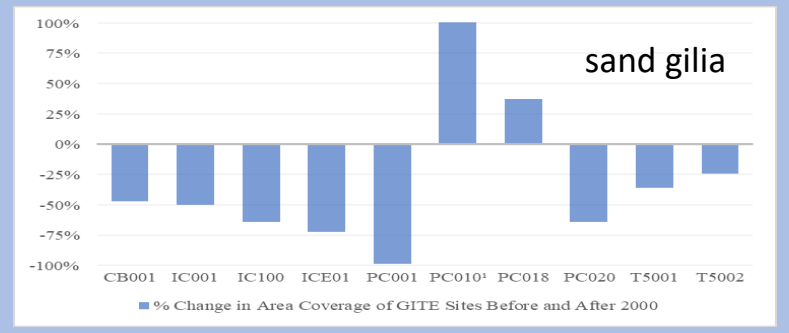
Field team mapped the occupied acreages of rare plants in 2021 and 2022

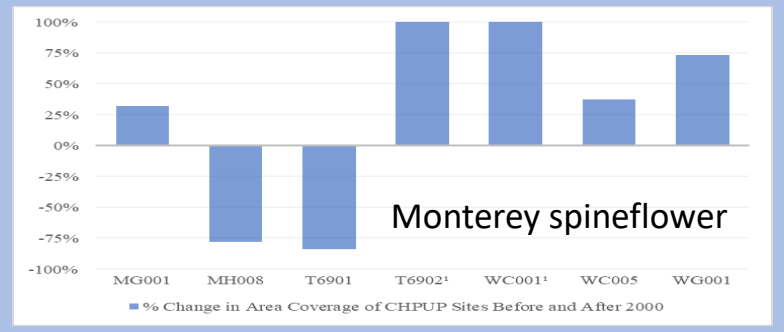
Compared these plant surveys to those completed in the 1990's

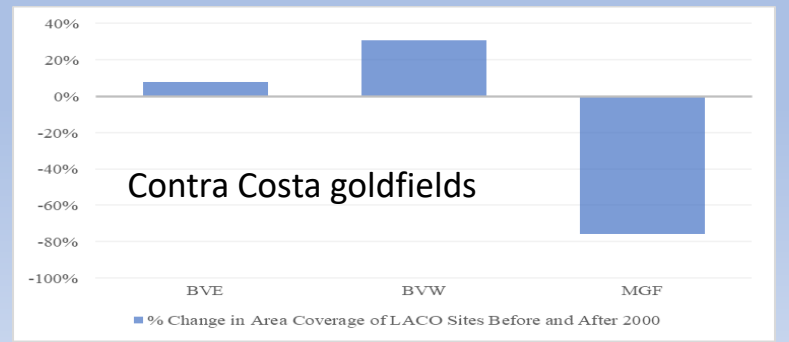
Species	Trend 2021/22 compared to 1990's	Potential cause
Cordylanthus rigidus ssp. littoralis	Declining	Brush encroachment
Gilia tenuiflora ssp. arenaria	Declining	Brush encroachment
Chorizanthe pungens var. pungens	Increasing; dense	Brush encroachment where in decline
Lasthenia conjugens	Stable; dense; except for one site that was extirpated	Unknown











Take home message:

- Regularly reverse brush encroachment using fire-based treatments or manual techniques
- Implement a seed collection and dispersal program to reintroduce Contra Costa Goldfields to the extirpated Machine Gun Flats location

Sand gilia after brush clearance and 2023 high rainfall

Agrostis lacuna-vernalis
Vernal pool bent grass

Peterson & Soreng (Peterson et al. 2011)

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Eryngium montereyense
Monterey button celery

Taylor, D.W. and R.E. Preston. 2022

Chorizanthe minutiflora
Fort Ord Spineflower

Morgan et al. 2014

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Vernal pool conservation

Castilleja ambigua var. insalutata


California tiger salamander larvae


native


Non-native


native

Artificial vernal pools created to study native and invasive salamanders in relation to hydroperiod

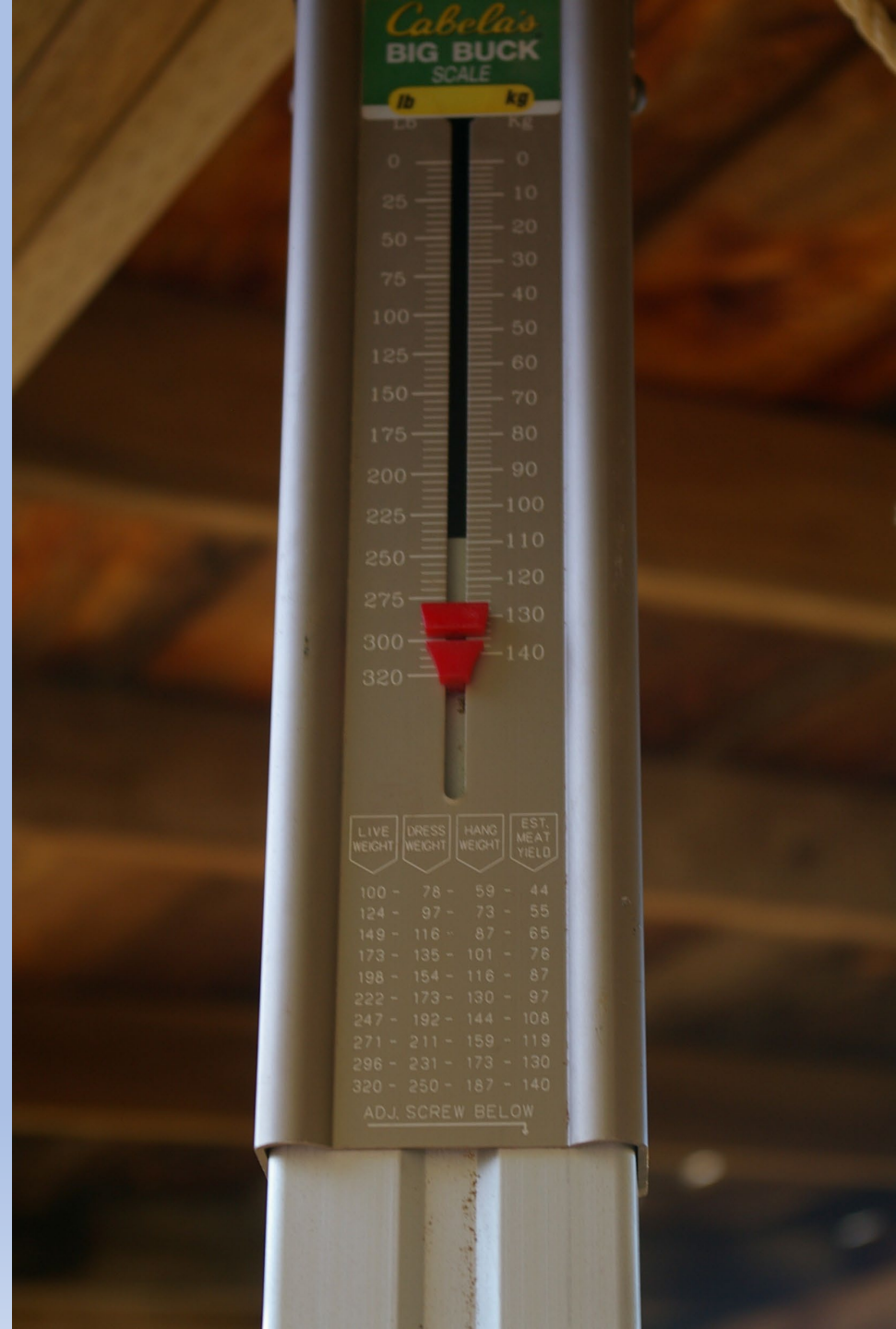
Vernal Pool conservation & wild pig removal

Cute but …

Before pigs …

Endangered Contra Costa goldfields colony after pigs

Take home message for wild pig abatement
-110 wild pigs removed 2006 – 2017
-10lbs - 300 lbs
-Mostly traps, important not to scare or hurt a pig until it is secure in a trap
-Engage the community for volunteers and public support
-Wild pig abatement extremely important for vernal pool conservation




Taraxia ovata

-Shoutout to our Seeds of Success collection crews!

-15 years of work collecting many vernal pool and other species' seeds for long- term storage and conservation on FONM

Volunteers!

EcoCrew!

Liz Smith, Rachel Kirk, Sarah Jeffries, Judith Elvira, Luis Leon, Danijela Jozinovic, Denise Drachenberg, Sarah Beilman, Jacqueline Brenton, Duncan Miller, Trent Baker, Kevin Edmondson

Let’s go!

Questions?

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