Rx Fire for Medusa Head (*Elymus caput-medusae*) control and impacts to species composition in an invaded California Grassland

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Current State of Grasslands in California

• Thought to be largely overlooked for preservation
• May be the most degraded ecosystem in California
• As little as 1% left of native species in most grasslands today
• Heavy grazing thought to have led to our current state
• Conversion to non-native annuals largely from Europe
Grassland Management

• Why Preserve Them - Ranching, Recreation, and Conservation – Carbon Sequestration, Water Quality & Biodiversity

• Active vegetation management for these objectives and fire fuel reduction

• Invasive species can be managed via manual, mechanical, chemical or cultural means

• Prescribed fire is a technique that has been shown to effectively reduce invasive species while increasing native plant diversity
Indigenous Use and Fire Regimes

• Grasslands were actively managed with fire as a tool for over 10,000 years
• Before the time of the equipment and livestock
• Used to stimulate new growth and attract game
Van Hoosear Wildflower Preserve
Located in the foothills of Sonoma Mountain in the Sonoma Valley

• Acquired through a Sonoma County Agricultural and Open Space Easement Acquisition.
• Wonderful program to prioritize and preserve remaining open lands in Sonoma County
• In some cases properties are passed over to the Regional Park District or other entities for continued management
• In other cases landowners are responsible for management
• SEC began management in 2003 – several interpretive hikes each year
• Investment funds through the Marin Community Foundation
• Interests generated between 8-15,000 annually for active management
The Van Hoosear Wildflower Preserve

163 Acres
Riparian Forest 13%
Oak Savanna 13%
Grasslands 68%
Wet Meadows 8%

Over 100 acres of grasslands
With over 250 native species
2 rare species
Many introduced ‘naturalized’ species
Some top invasive threats
Species Composition

• Land Use History
  • Revealed in the flush
• Grazing Adapted Species (*Ranunculus* sp., *Lupinus* sp., *Amsinkia* sp.)
• Fire Adapted Species - Invasive and Native
• Many Geophytes Hang On and Persist
• Annuals rely on seasonal conditions and seed storage banks
Rare species of VH Preserve

*Calochortus uniflorus* ‘Pinnk Star Tulip’ 4.2  
*Fritillaria lilacea* ‘Fragrant Fritillaria’ 1B.2
Top Threats

- Yellow Star Thistle (3 years)
- Barbed Goat Grass (3 years)
- Medusa Head (1 and almost done!)

*Centaurea solstitialis*  
*Aegilops triuncialis*  
*Elymus caput-medusae*
Grassland Rx Fire Dynamics

- Timing is everything
- Standing Seed?
- RDM Thatch build up
- Residence Time
- Wind Conditions
- Back Burning
- Consecutive Burns

2020 Jason Matthias Mills
Prescribed (Rx) ‘Good’ Fire:
Spring vs. Fall Burn
Considerations

Advantages/Disadvantages
Risk vs. Reward
Permitting

Target Invasive Seed
Non-Native Annual Flush
Reseeding Treatments

Rx fire in Vacaville with CalFire
Rx fire with Dr. Maslin and Hankins
Prescribed Fire Flow Chart

1. Independent Burn Boss to conduct burn
2. CAL FIRE support
3. Write and Submit Burn Plan, Map Burn Unit, and IAP
4. Gather Volunteers and Engines
5. Collect neighbors contact information and notify them
6. Site Access
7. CAL FIRE to conduct burn
8. Maintain Communication on Dates and Access
9. Rx Burn Yes or No?
10. Cut/Mow Breaks
11. Document and Report Wind Patterns (3-7 days)
12. Rx Burn Mop Up 24 hr sign off
13. Stage Equipment Water Supplies
14. CAL FIRE LE 7 Liability Waiver
15. Public Notifications
16. Air Quality Permit (PFIRS)
Mowing the Breaks

-It’s all in the prep work
Burn Day Roundup

Personnel
1. Burn Boss
2. Firing Boss
3. Holding Boss
4. Fire Monitor
5. Visitor Manager
6. Phone Line Manager
7. Firing Team
8. Holding Team

Equipment
1. 3 Type 3 Engine’s
2. 2 Type 6 Engine’s
3. 2 700 gallon Water Buffalo’s
4. 2,000 gallon water pumpkin

Materials
1. Port-O-Potties
2. Lunch and Drinks!
Fire it UP! (2020)
Feeling the Post Burn...
Results of the burn!
Fired it UP again in 2021!
Pre-Post Fire Transect Data
Results of the burn - Rarities

NEW Location! Within Burn Unit 1

*Calochortus uniflorus* ‘Pink Star Tulip’ 4.2  *Navarretia cotulifolia* ‘Cutaleaf Pincushionplant’ 4.2
Result Tables

Pre Burn 2019 % Cover Distribution

- Medusa Head (E. caput-medusae): 56%
- Annual Grass: 8%
- Perennial Grass: 3%
- Native Forb: 8%
- Exotic Forb: 5%
- Bare Earth: 0%

Post Burn 2022 % Cover Distribution

- Medusa Head (E. caput-medusae): 0%
- Annual Grass: 82%
- Perennial Grass: 5%
- Native Forb: 3%
- Exotic Forb: 8%
- Bare Earth: 0%
Resource Allocation

- Not equal ground - at a disposition
- Natives can compete when given the chance
- Often requires ‘active’ restoration
- Can’t just focus in on the ‘bad guys’ if you want to preserve the ‘good guys’
TAKE AWAYS

• Goals - Desired outcomes
• Long term planning - Assess resources
• Map populations - track changes
• Gather resources
• Strategic timing
• Propagate/Direct Seed
• And repeat.....
• Hero’s in conservation made this place possible:

Van Hoosear Ranch purchased by the family in 1930s
Preserved by the next generation family in 2004 and continues

Rest in Peace:
Phyliis Fabor 1928-2023 (left)
Marilyn Goode 1930-2022 (top, right)
THANK YOU SERCAL!

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