

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



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**wra**

Landscape Restoration  
CSLB #1068767



**AG +  
OPEN  
SPACE**  
SONOMA COUNTY

LAND FOR LIFE







# 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

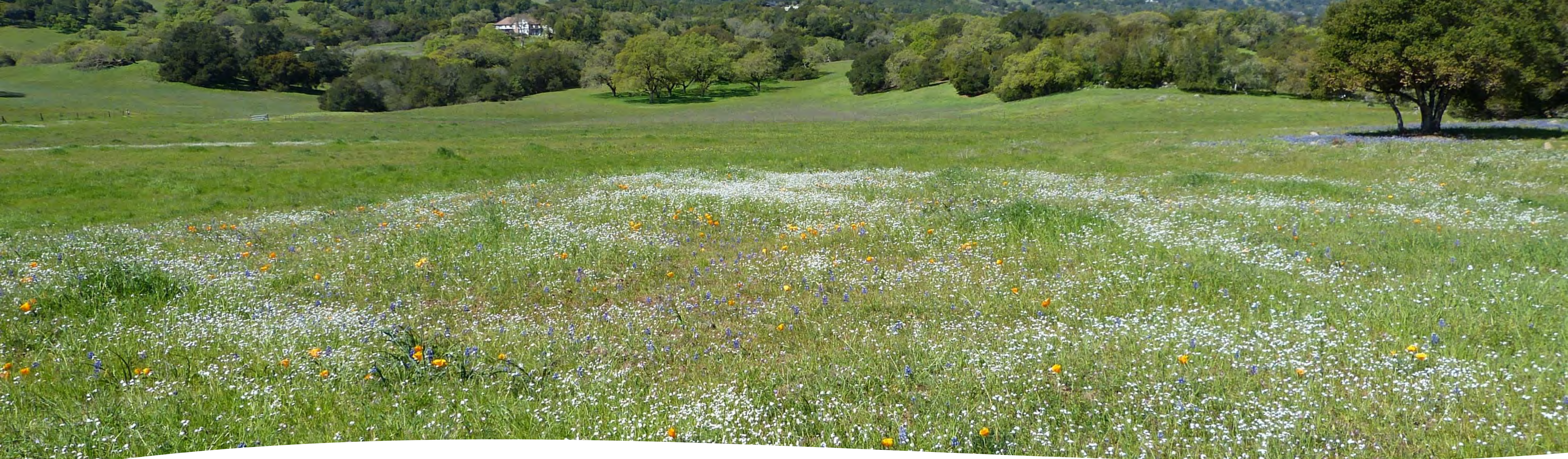
- Why Preserve Them- Ranching, Recreation, and Conservation – Carbon Sequestration, Water Quality & Biodiversity
- Active vegetation management for these objectives and fire fuel reduction
- Invasive species can be managed via manual, mechanical, chemical or cultural means
- Prescribed fire is a technique 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





**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**

## The Van Hoosear Wildflower Preserve





# 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



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*Fritillaria lilacea* 'Fragrant Fritillaria' 1B.2



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# Top Threats

*Centaurea solstitialis*



*Aegilops triuncialis*



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

*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



Advantages/Disadvantages  
Risk vs. Reward  
Permitting

**Prescribed (Rx) 'Good' Fire:**  
**Spring vs. Fall Burn**  
**Considerations**

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








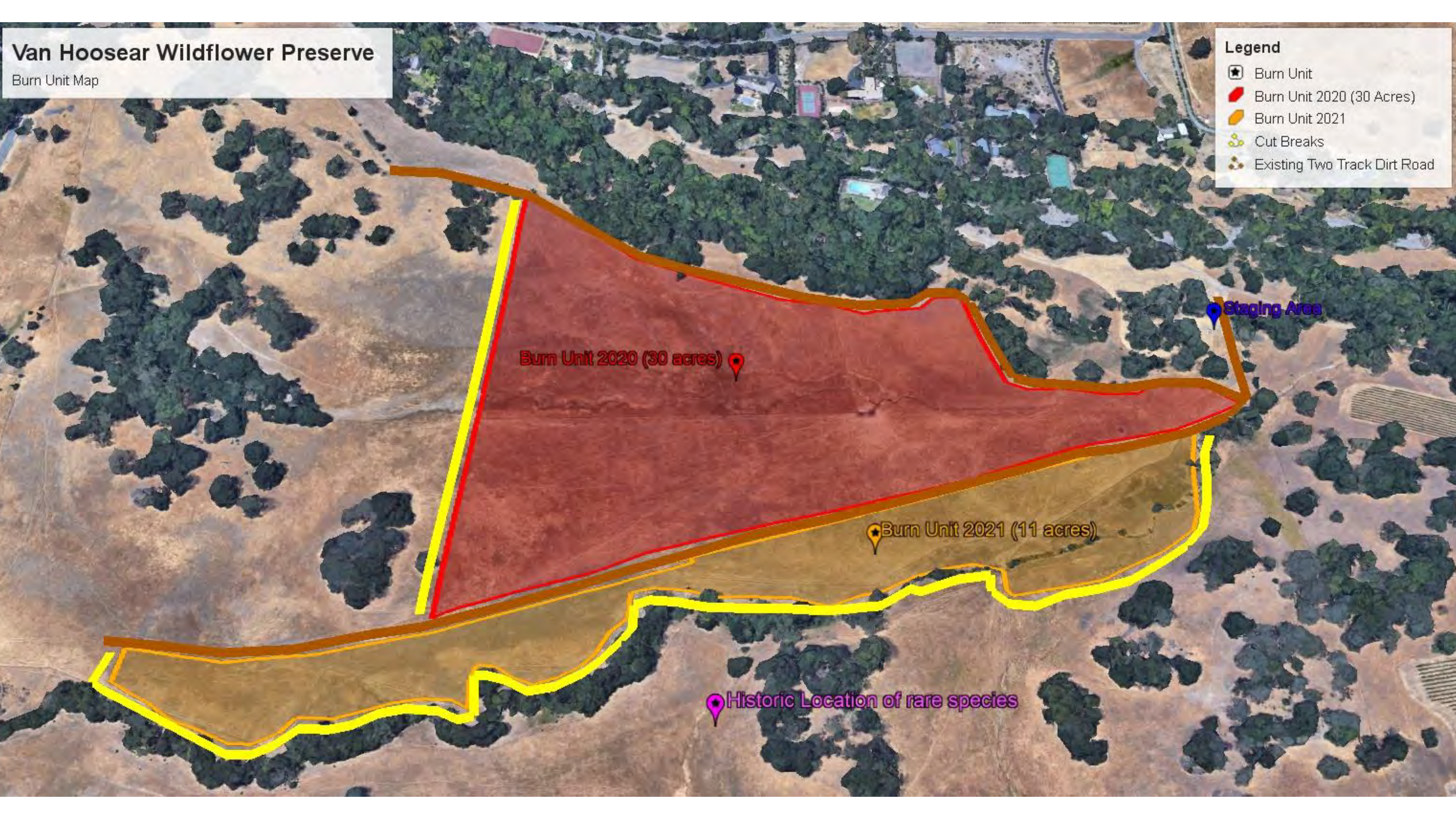


# Van Hoosear Wildflower Preserve

Burn Unit Map

**Legend**

-  Burn Unit
-  Burn Unit 2020 (30 Acres)
-  Burn Unit 2021
-  Cut Breaks
-  Existing Two Track Dirt Road





# 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!

2020 burned  
unburned

2021



**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



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*Navarretia cotulifolia* 'Cutaleaf Pincushionplant' 4.2

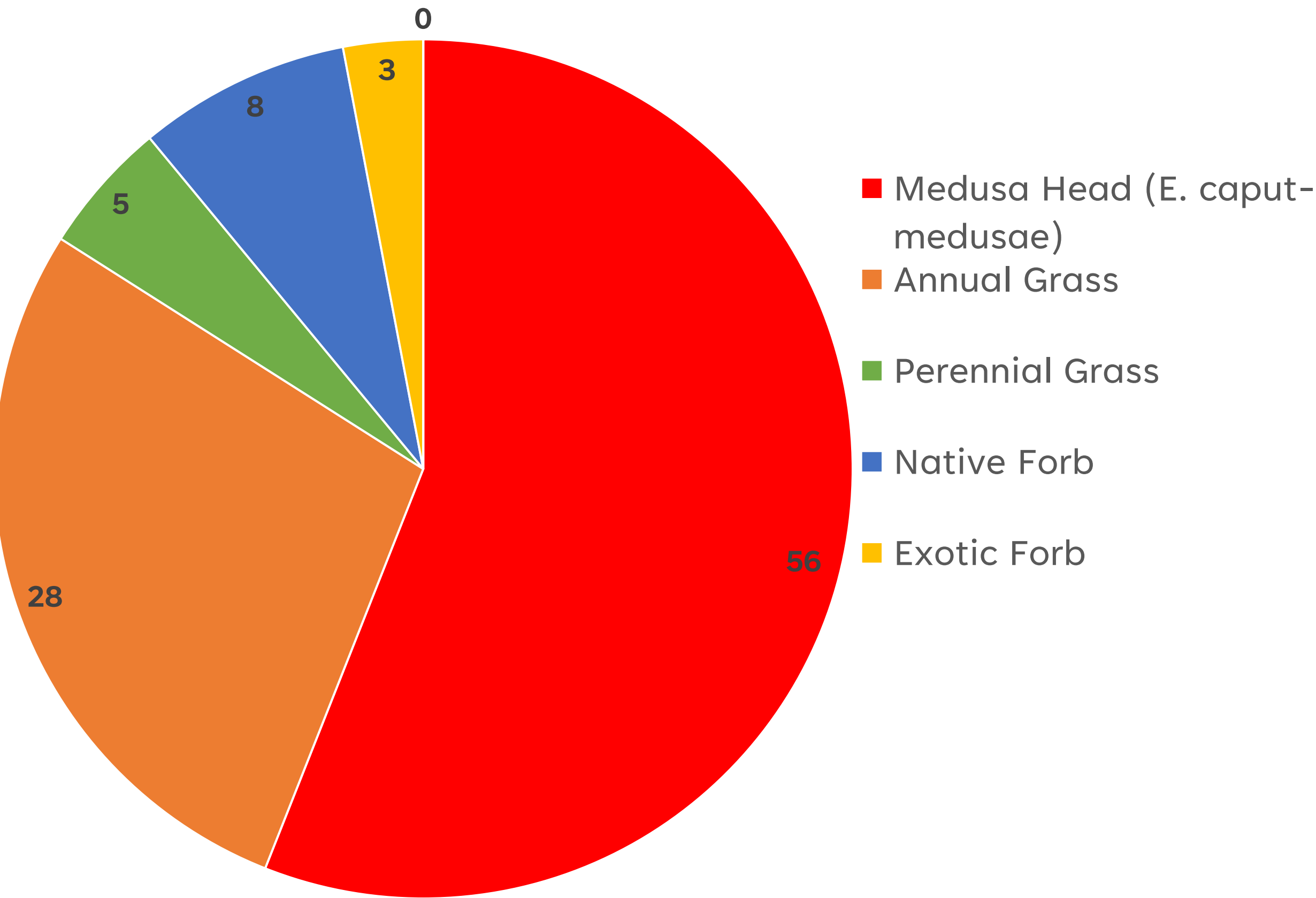


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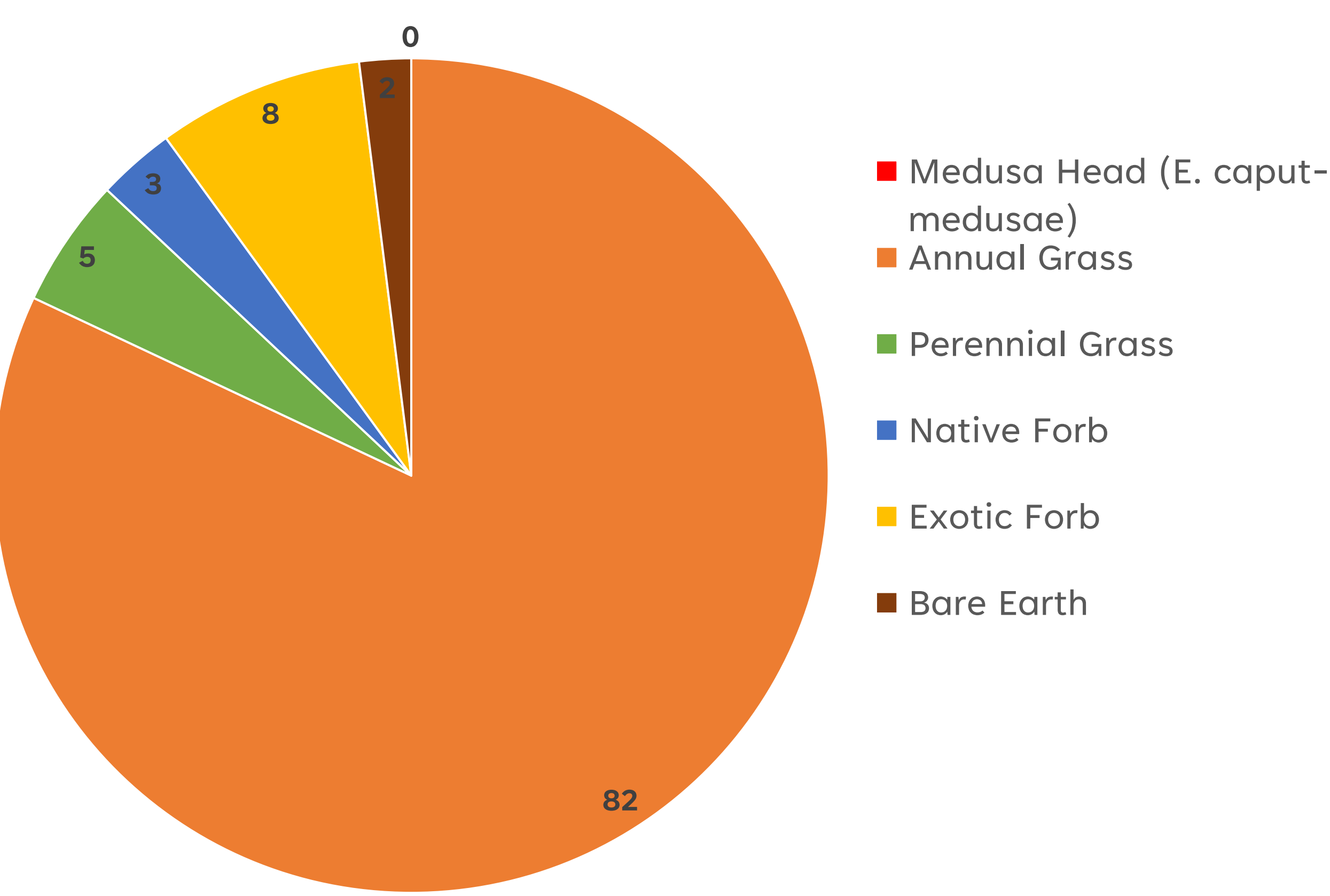


# Result Tables

Pre Burn 2019 % Cover Distribution



Post Burn 2022 % Cover Distribution





# 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.....

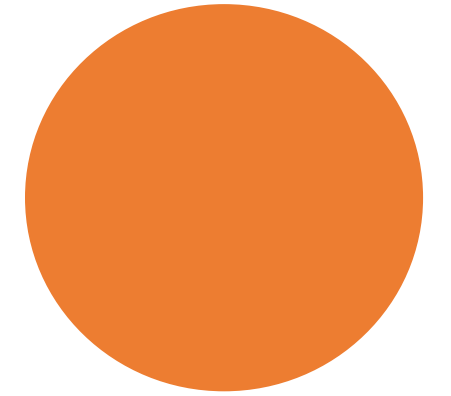




- **Hero's in conservation made this place possible:**

Van Hoosear Ranch purchased by the family in 1930s

Preserved by the next generation family in 2004 and continues



**Rest in Peace:**

**Phyllis Fabor 1928-2023 (left)**

**Marilyn Goode 1930-2022 (top, right)**







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**THANK YOU  
SERCAL!**

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