

Fire and Vegetation Trends and Cycles in the Southern Mayacamas

Distilled from: "Vegetation Trends & Cycles in the Fire-Prone Landscapes of Lake, Napa, and Sonoma Counties"
CALFIRE grant 19-FH-LNU-086



**Thorne Environmental
Landscape Analysis**

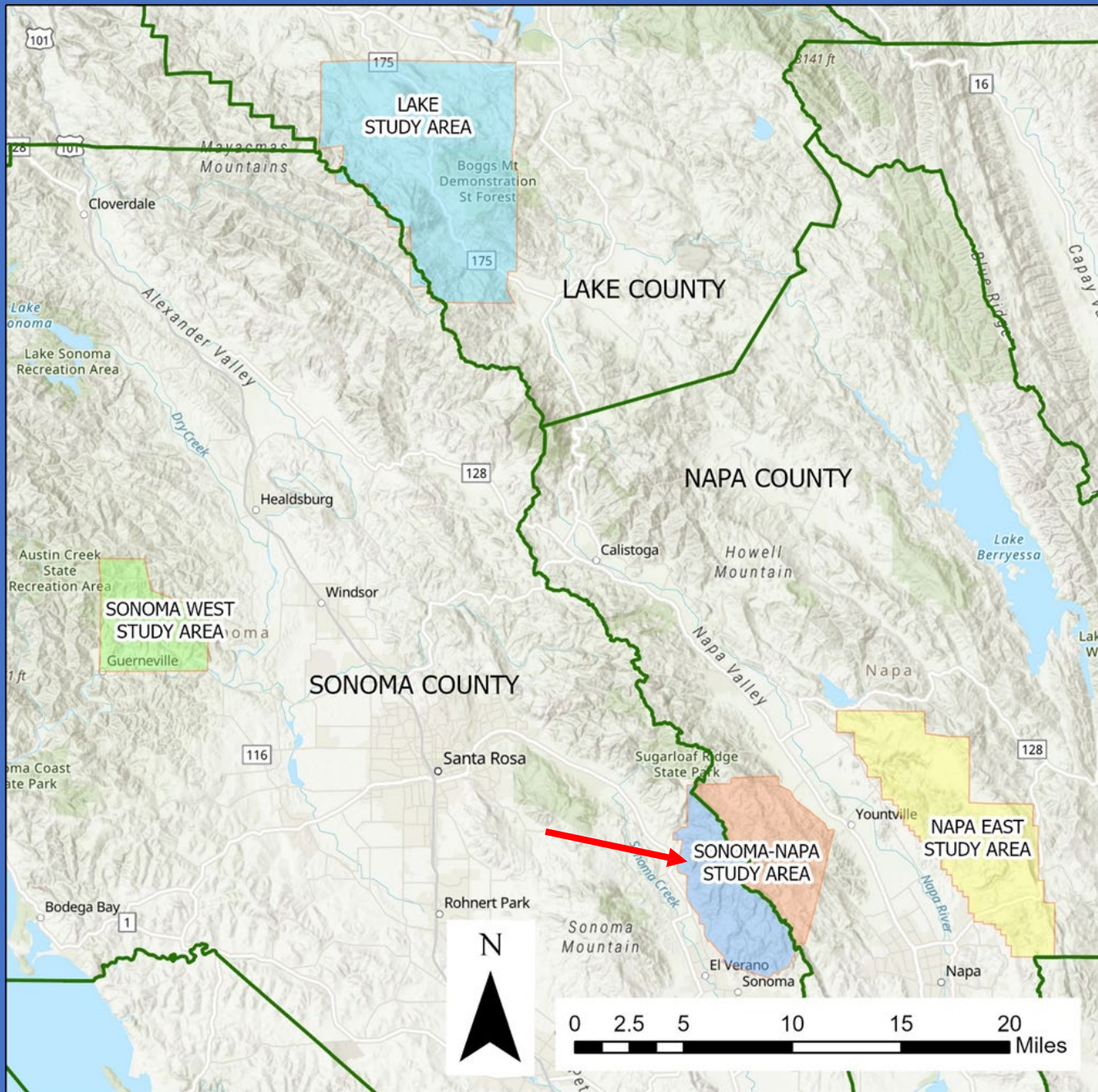
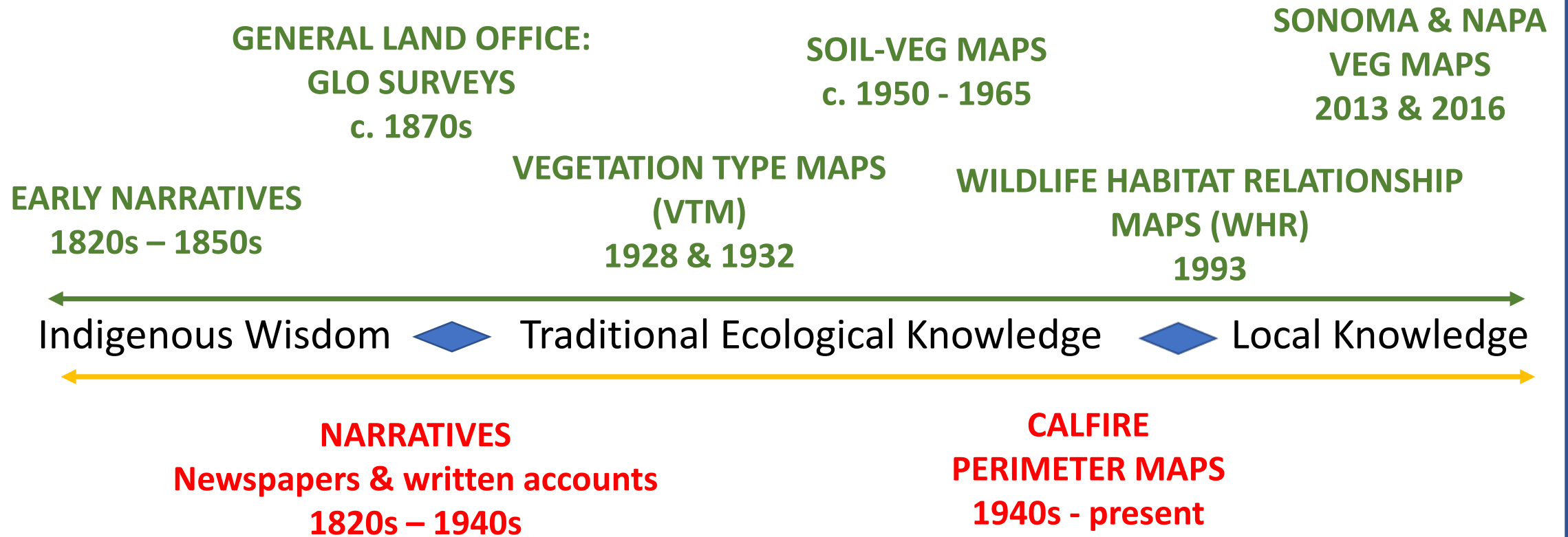


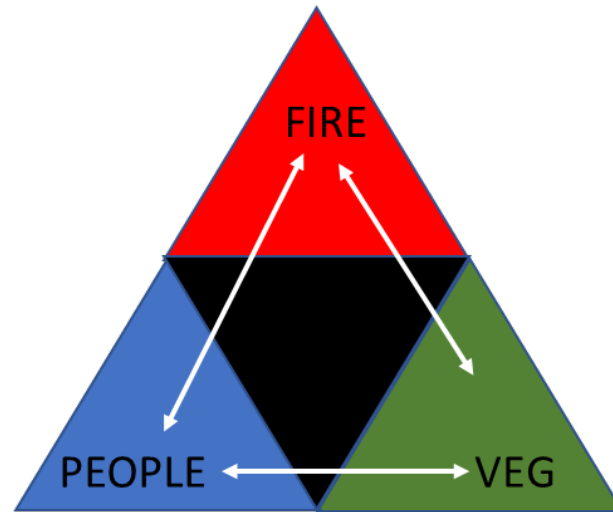
Table 1. Study Area Summary Characteristics

NAME	HUMAN IMPACTS	RECENT LARGE WILDFIRES	VEGETATION (≥2%, in order of abundance)
Napa East	Vineyards Rural development 16% footprint	Atlas fire 2017 Atlas fire 1981 Atlas fire 1965	Hardwoods Chaparral Grassland 2016
Sonoma-Napa	Vineyards Rural development 10% footprint	Nunns fire 2017 Nunns fire 1964	Hardwoods Conifers Chaparral Grasslands 2013/2016
Sonoma West	Past timber harvest Rural development 6% footprint	Walbridge fire 2020	Conifers Hardwoods Grassland Chaparral 2013
Lake	Past timber harvest Rural development 5% footprint	Valley fire 2015	Conifers Hardwoods Chaparral Grassland 1993

SOURCES

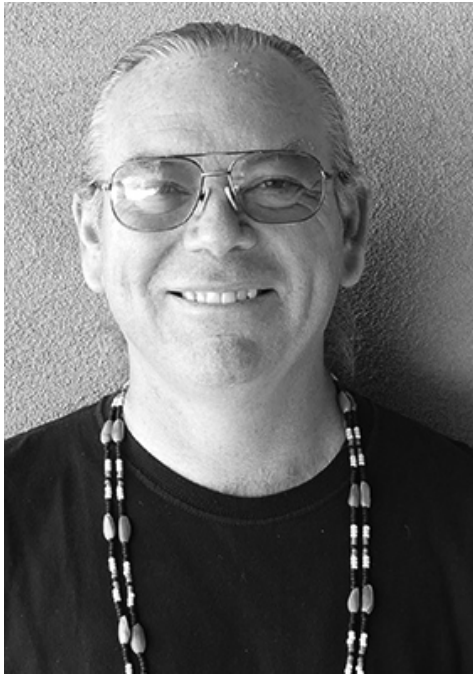


INDIGENOUS WISDOM





**Cultural burning
is intended to benefit
all the living things on
the land**



**Clint McKay
(Wappo, Pomo, Wintun)
Chair, Native Advisory Council,
Pepperwood Preserve**

**“We consider fire to be a member of the community,
one who is far wiser and more powerful than we are.”**

--Sara Moncada, Director, Heron Shadow
(Yaqui/Irish)



What is our proper role as human beings?

Control?

or

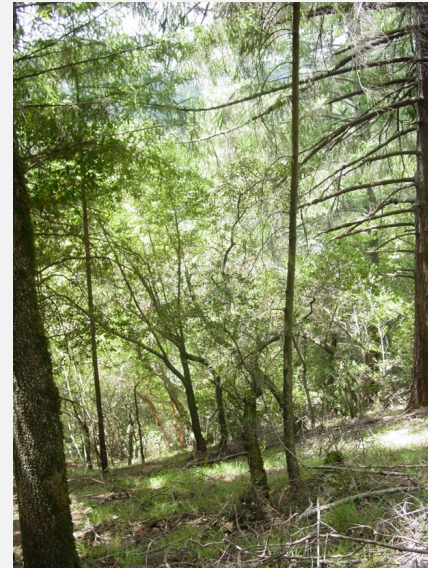
Relationship?

Tending and stewardship

Maintaining the balance

“This is how the land looks when it’s not being tended properly.”

--Redbird Willie, Stewardship Coordinator, Heron Shadow
(Pomo, Paiute, Wintu and Wailaki)



Survey line reported as “Covered with chemizal” in 1870

about 6-7 generations ago

FIRE DATA

Historical Record

NARRATIVES

Newspapers & written accounts

1820s – 1940s

CALFIRE

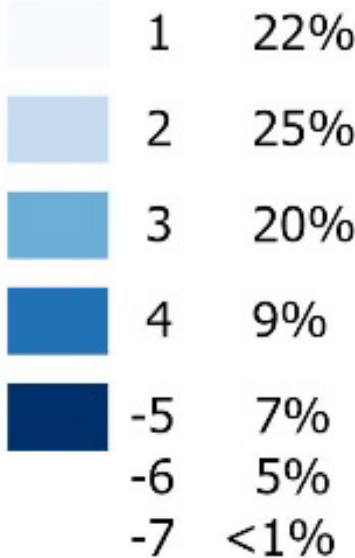
PERIMETER MAPS

1940s - present

SONOMA-NAPA STUDY AREA FIRE HISTORY

Documented Fires: 1870 - 2020

Fires, % of Study Area

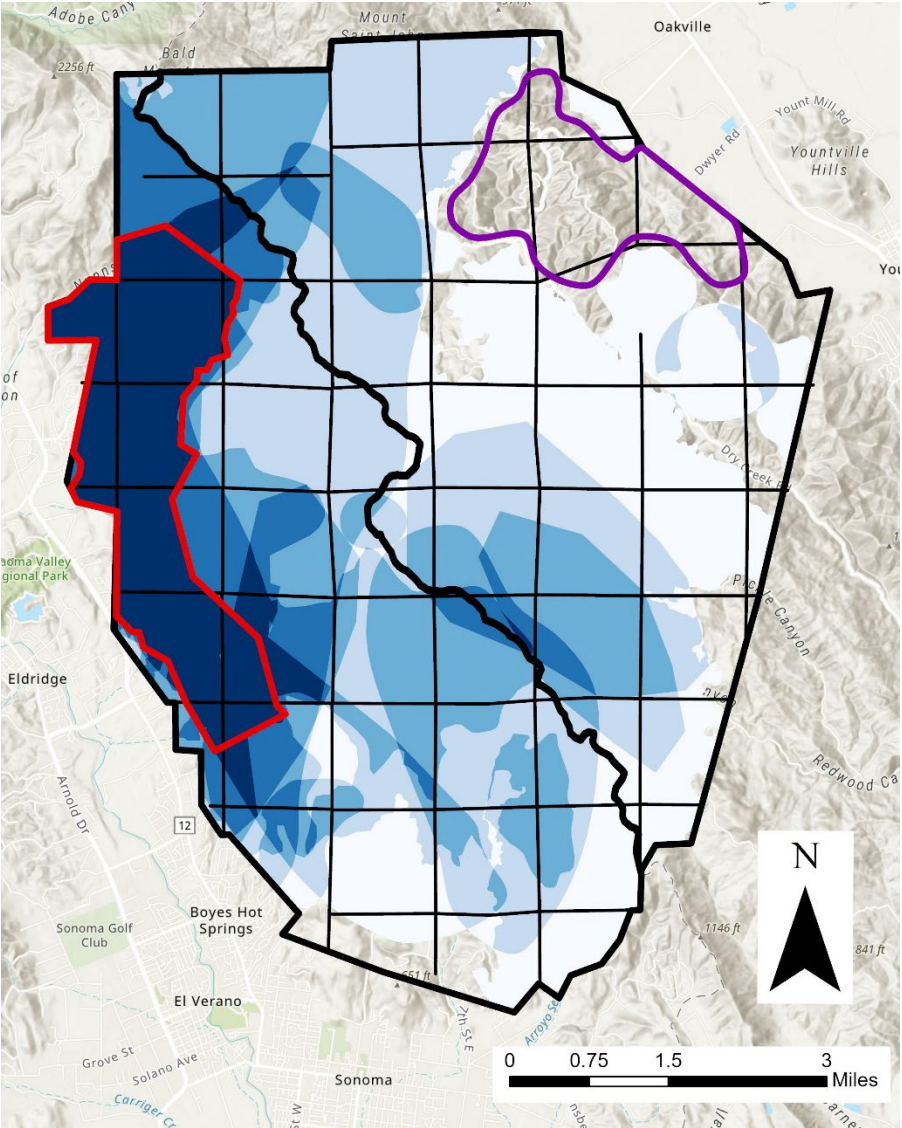


 Frequent Burn Zone
5-7 fires

No documented burn:
13%

Average # fires:
1-2

 Rare Burn Zone

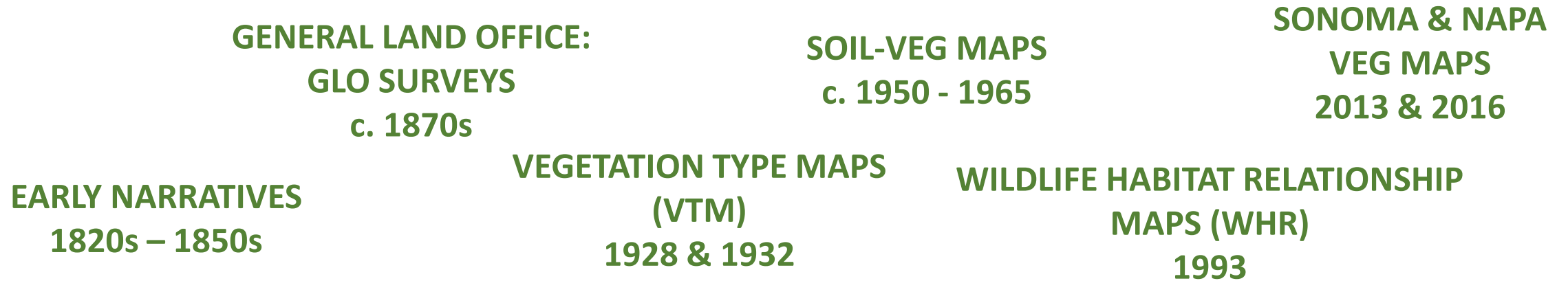


Township & Range Lines:
1 mile x 1 mile grid



VEGETATION DATA

Historical Record



Occam's Razor: **Fewer categories = less chance for error**

All records: **'in order of abundance'**

LIFEFORMS:

Grasslands (Herbaceous)

Shrublands (Chaparral)

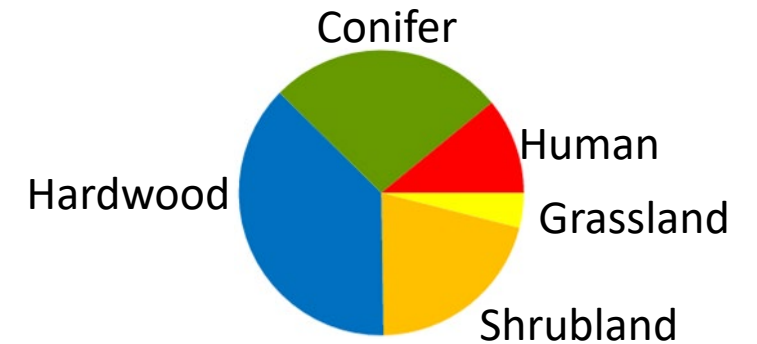
Woodlands (Forest)

Conifer

Hardwood

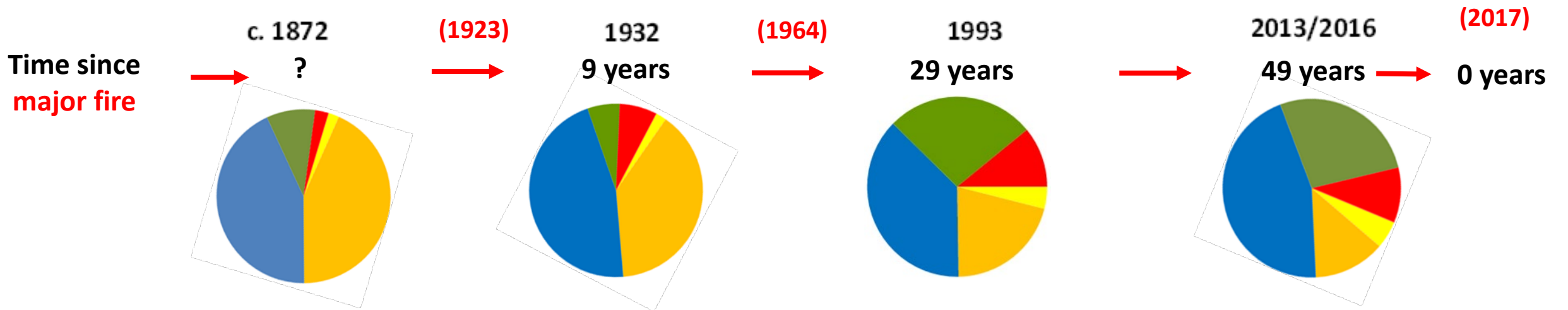
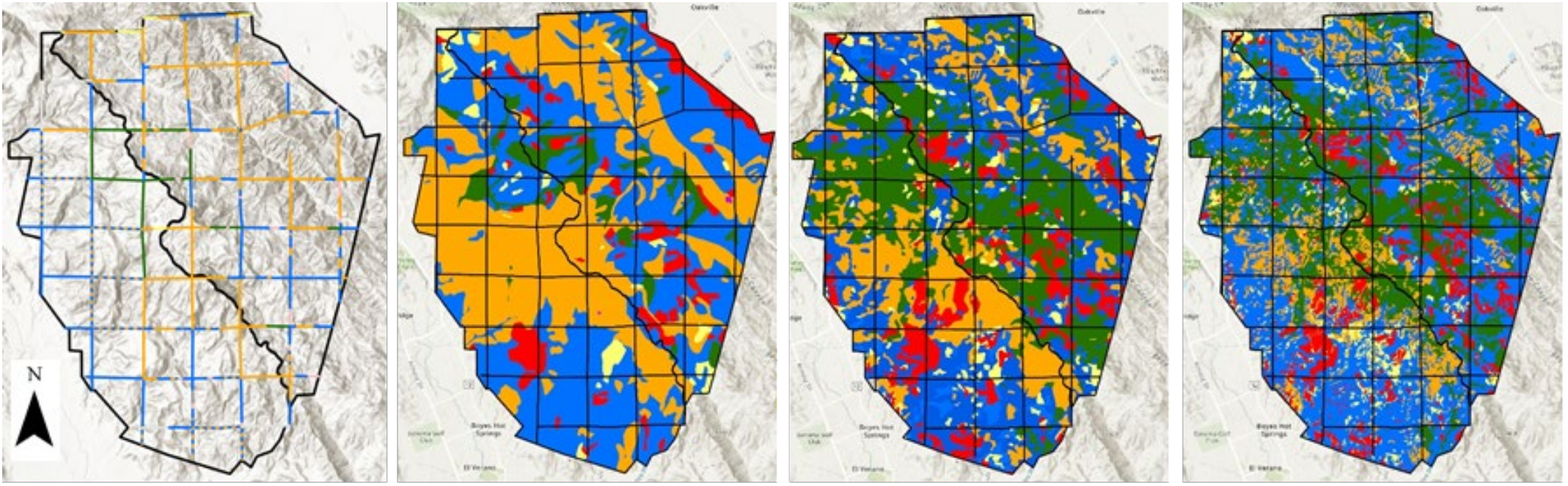
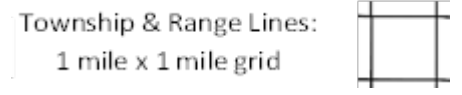
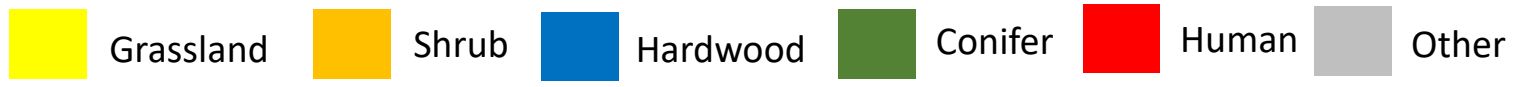
Human

Other (rock, water, barren etc.)



CAVEATS

Sonoma-Napa Study Area, Vegetation Lifeforms



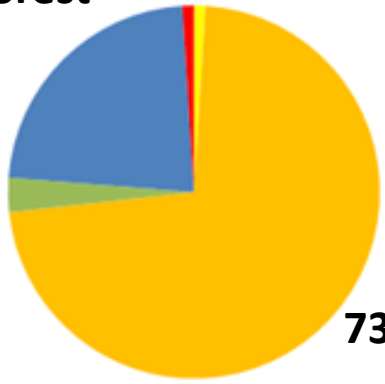
INTEGRATION

VEGETATION & **F**IRE DATA

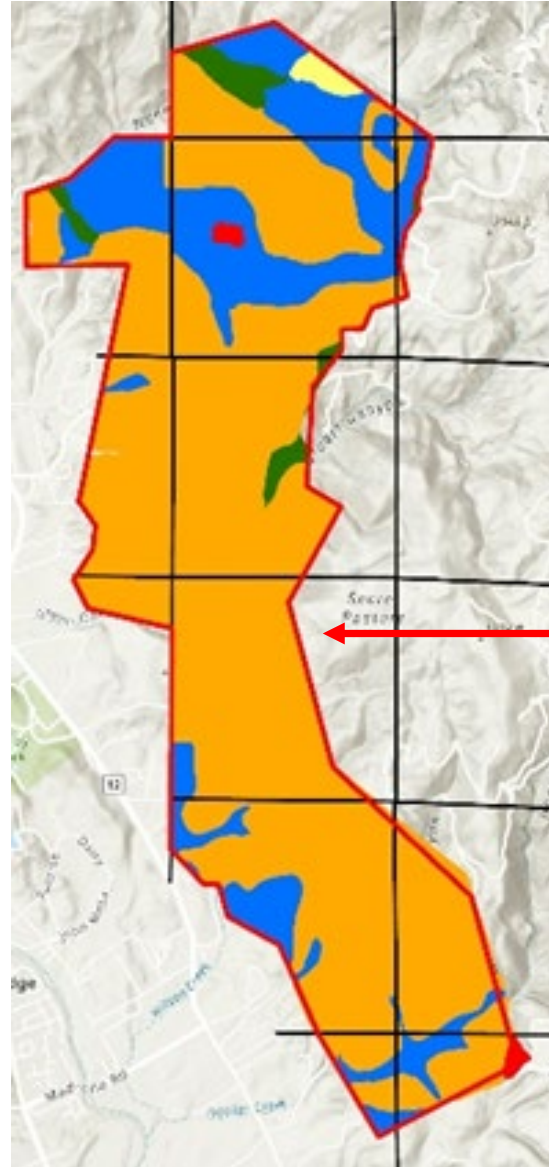
POST-FIRE REVEGETATION SONOMA-NAPA FREQUENT BURN ZONE (FBZ)

9 years post fire
1932

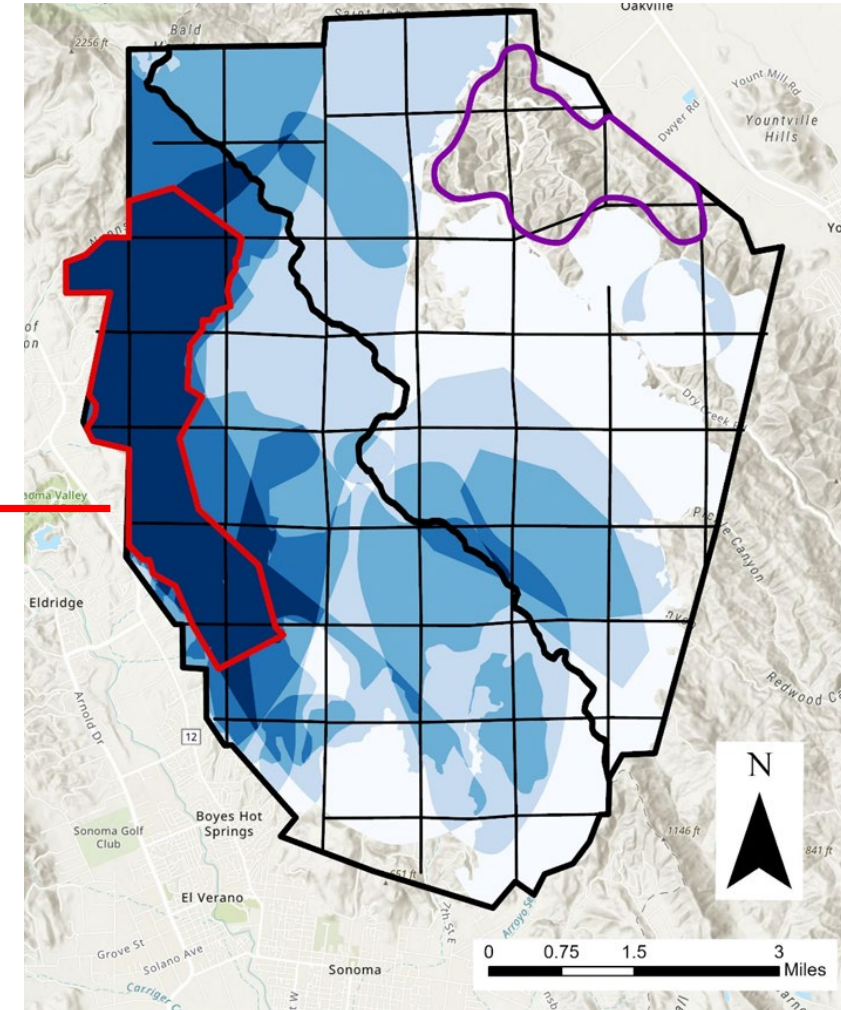
26%
Forest



73% Shrub

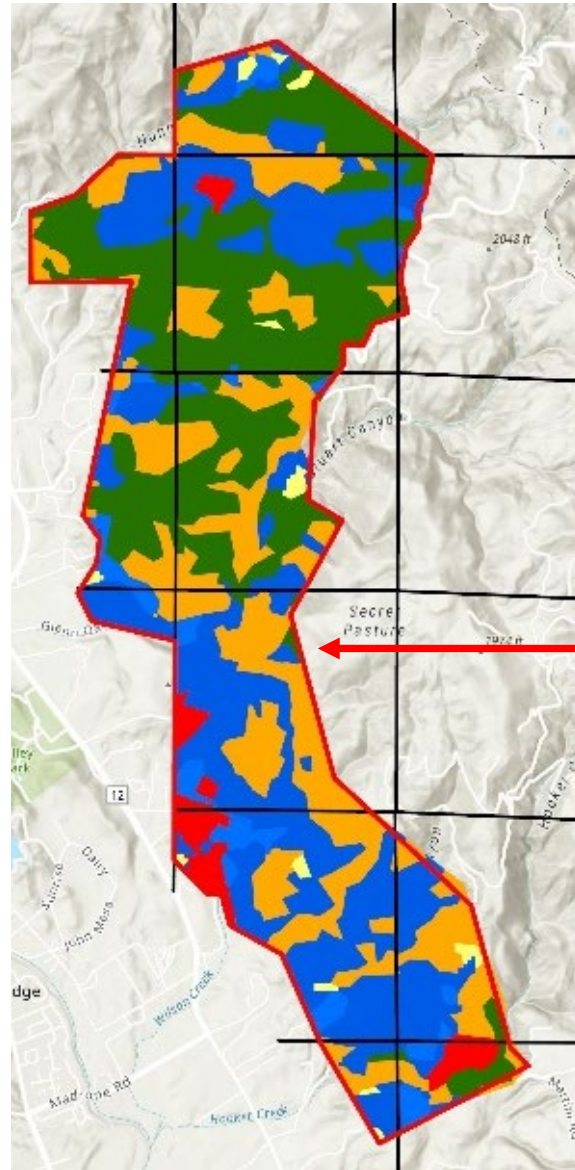
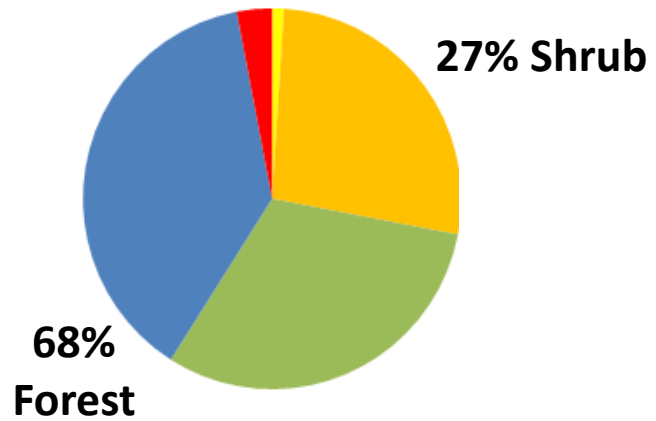


MAJOR FIRES:
1880, **1923**, 1964, 2017

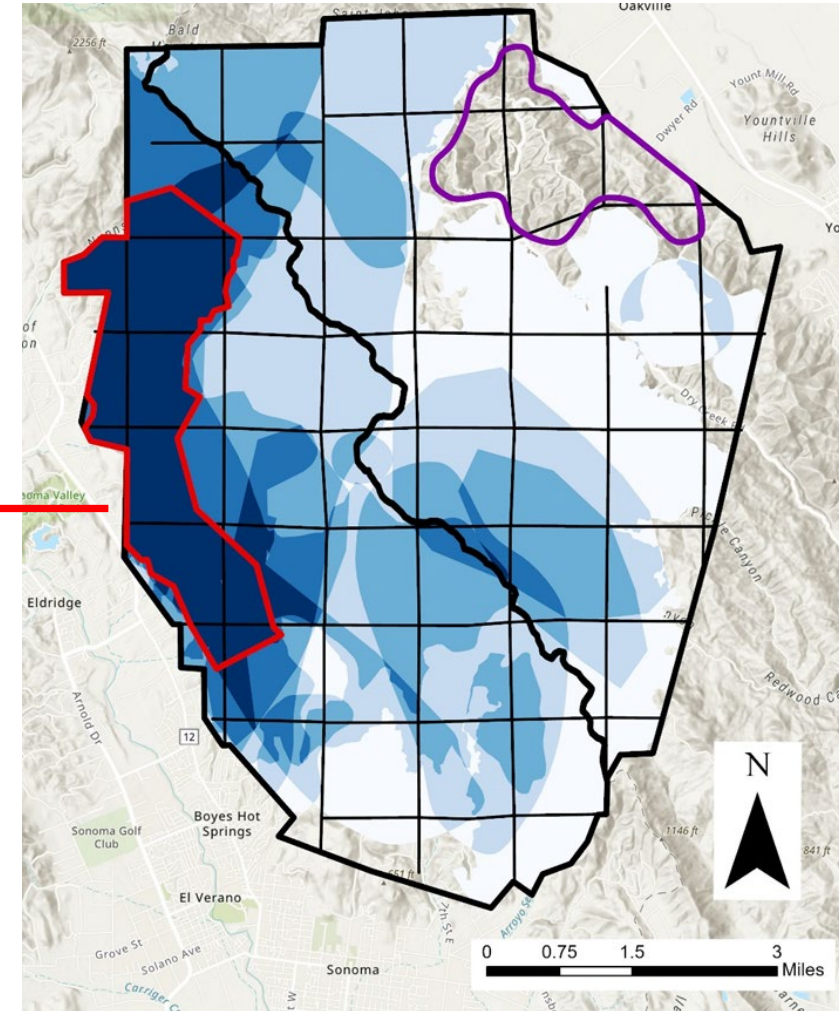


POST-FIRE REVEGETATION SONOMA-NAPA FREQUENT BURN ZONE (FBZ)

29 years post fire
1993



MAJOR FIRES:
1880, 1923, 1964, 2017



POST-FIRE REVEGETATION SONOMA-NAPA FREQUENT BURN ZONE (FBZ)

49 years post fire
2013

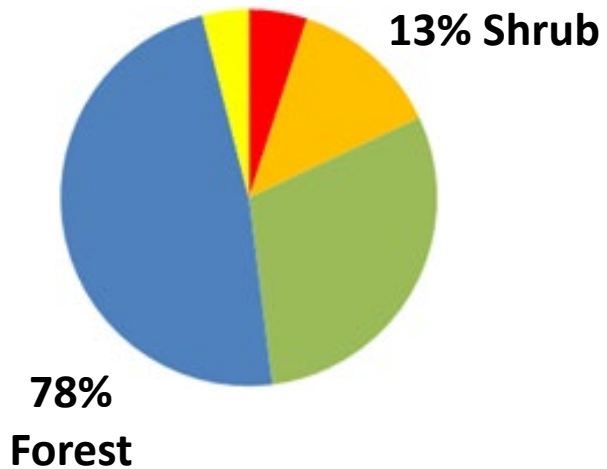
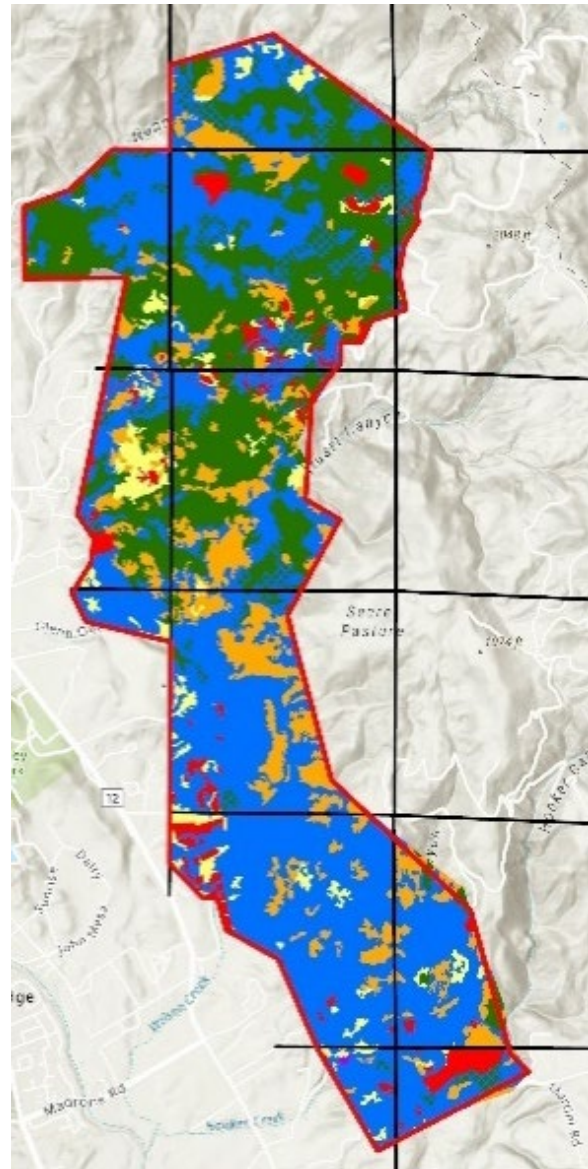
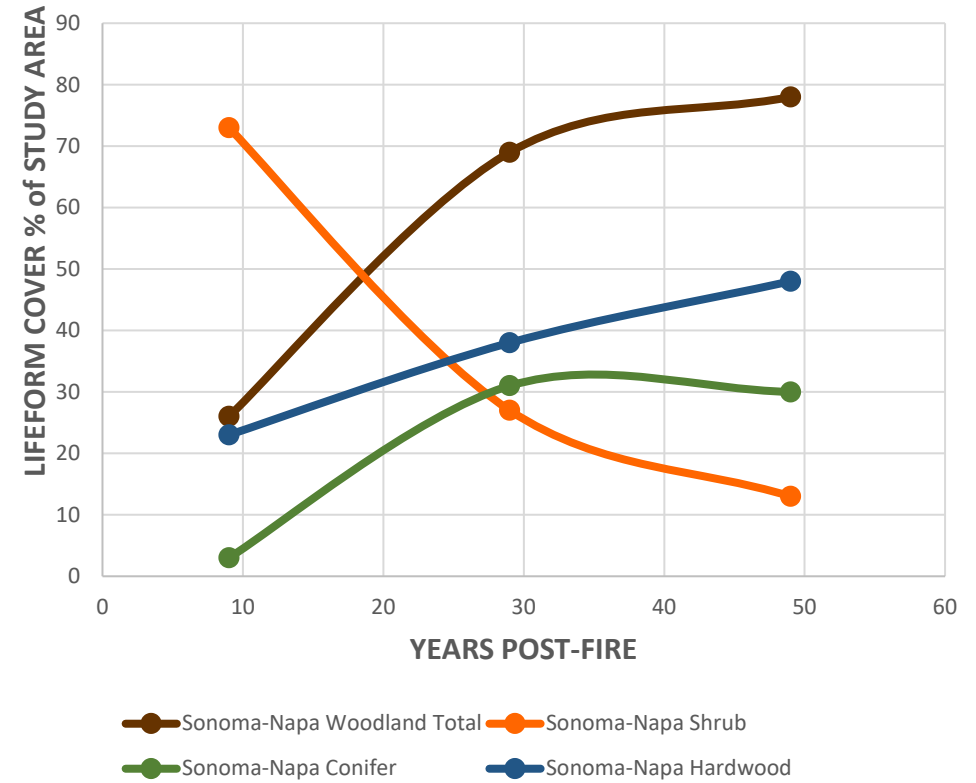


Figure 33. Sonoma-Napa FBZ Lifeform Transitions
9-49 Years Post Fire





“We had a fire thirty years ago [1964], burned that whole ridge down to Sonoma. The second year the grass is there, fourth year the brush is back.

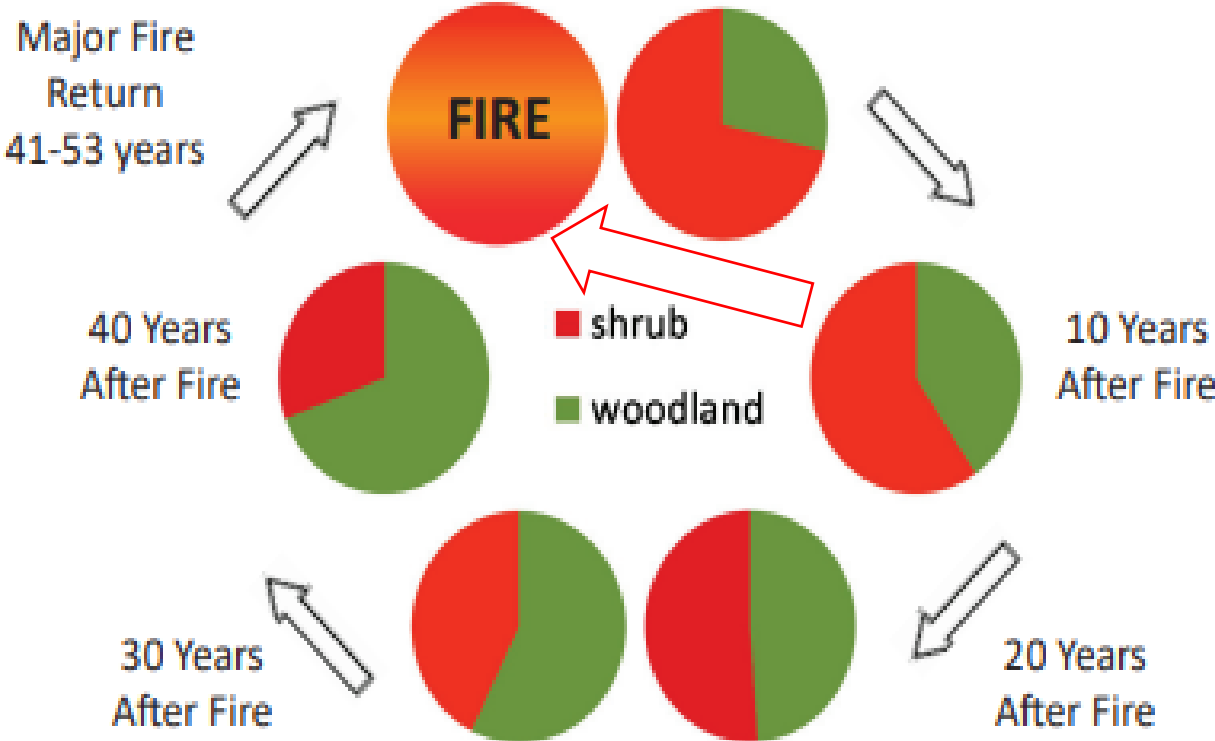
...it’s pretty quick.”

—Bill Basileu, 2000



Photos from Glen Oaks Ranch,
Spring 2018.
6 months after the Nunns Fire.
(Sonoma-Napa Study Area)

Fire → Shrub → Forest → Fire Cycle

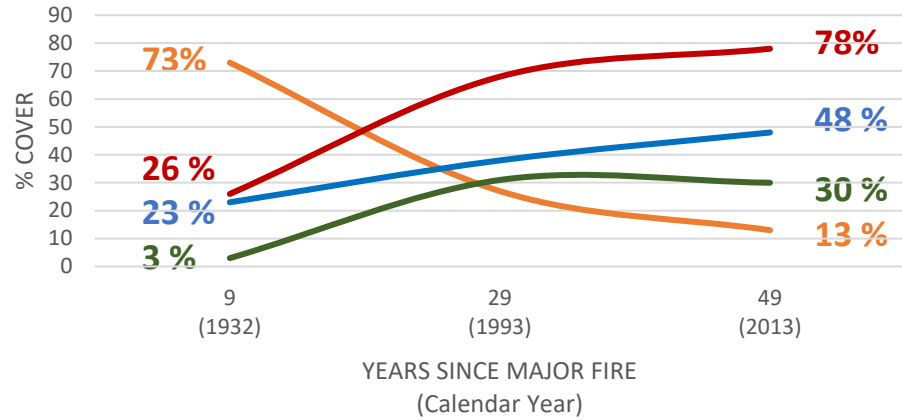


← 'Untended' cycle

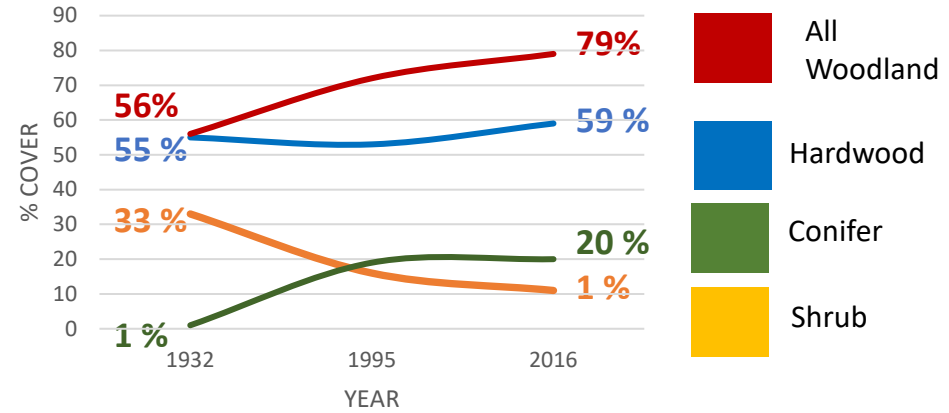
← Cultural burning cycle



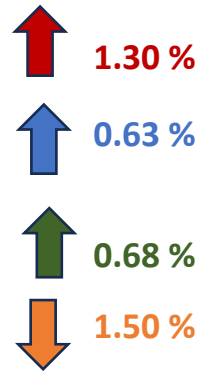
Sonoma-Napa Frequent Burn Zone (FBZ)
Vegetation Change



Sonoma-Napa Rare Burn Zone (RBZ)
Vegetation Change

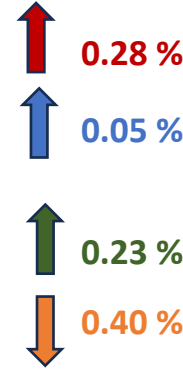


FBZ, by years since fire

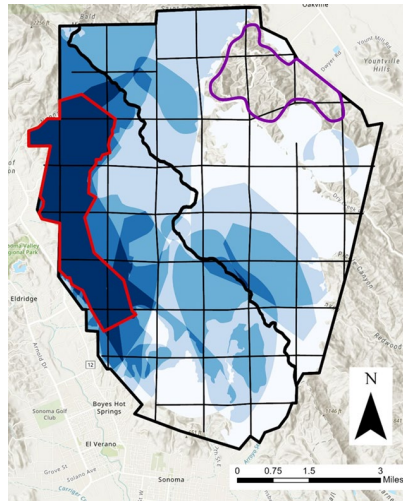
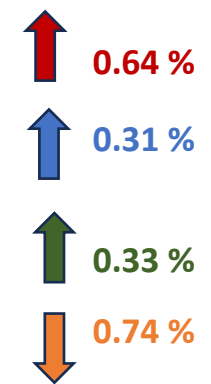


Annual Rate of change is
3x faster (or more)
in the Frequent Burn Zone

RBZ, by calendar years

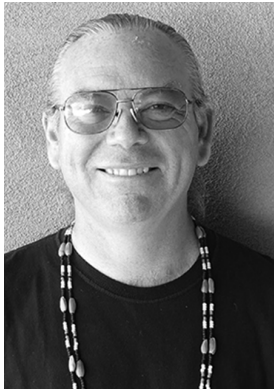


FBZ, by calendar years



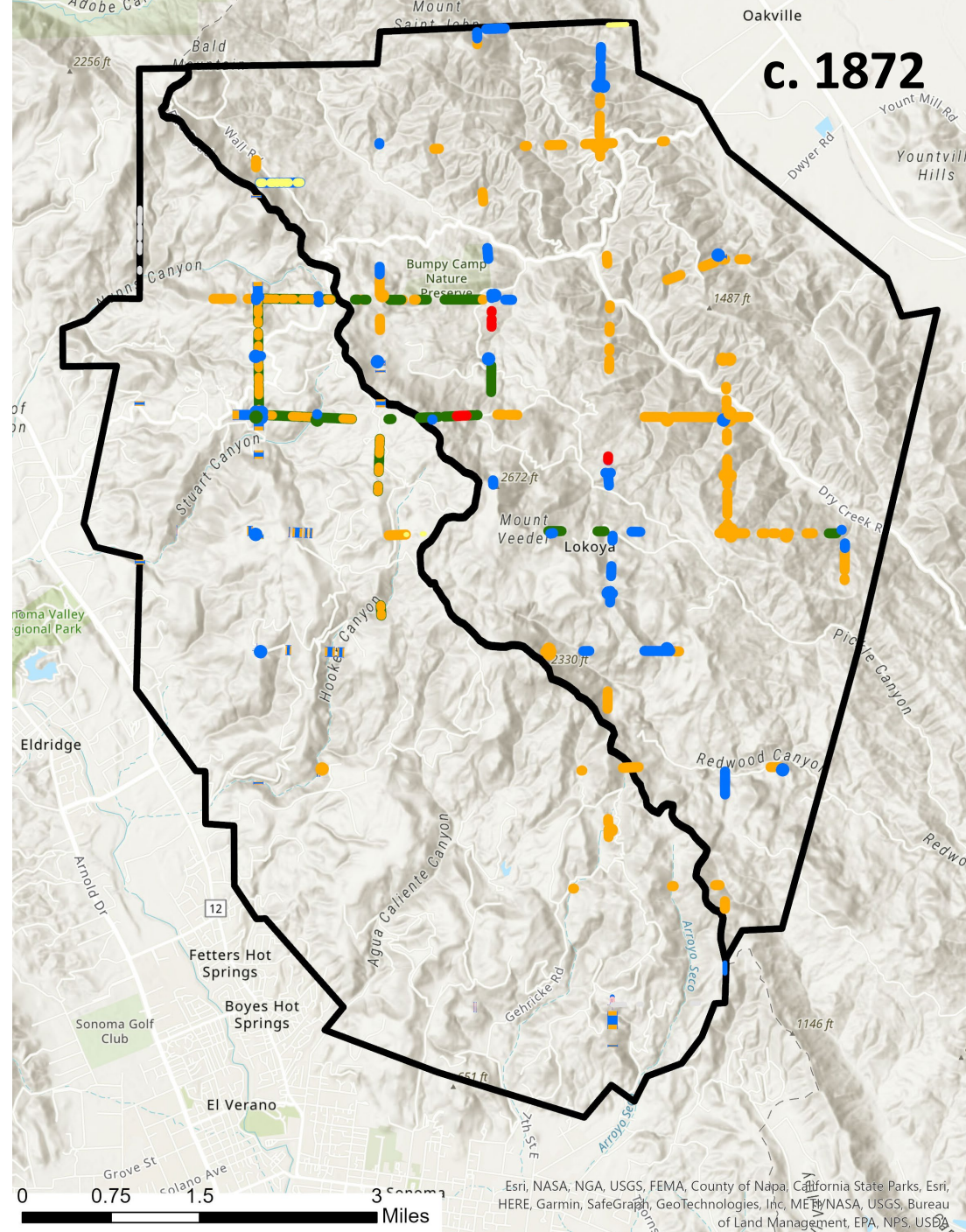
ANNUAL RATES OF CHANGE
(rounded)

Annual Rate of change is
1.4 x faster (or more)
in the Frequent Burn Zone

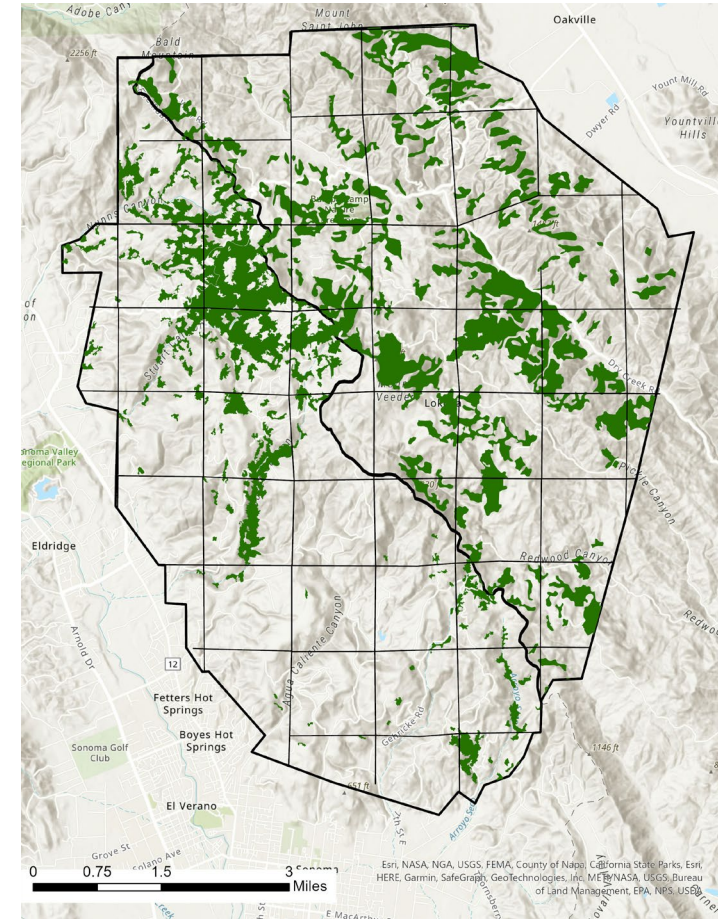


Cultural burns were usually set at the bottom of a slope and burned uphill.

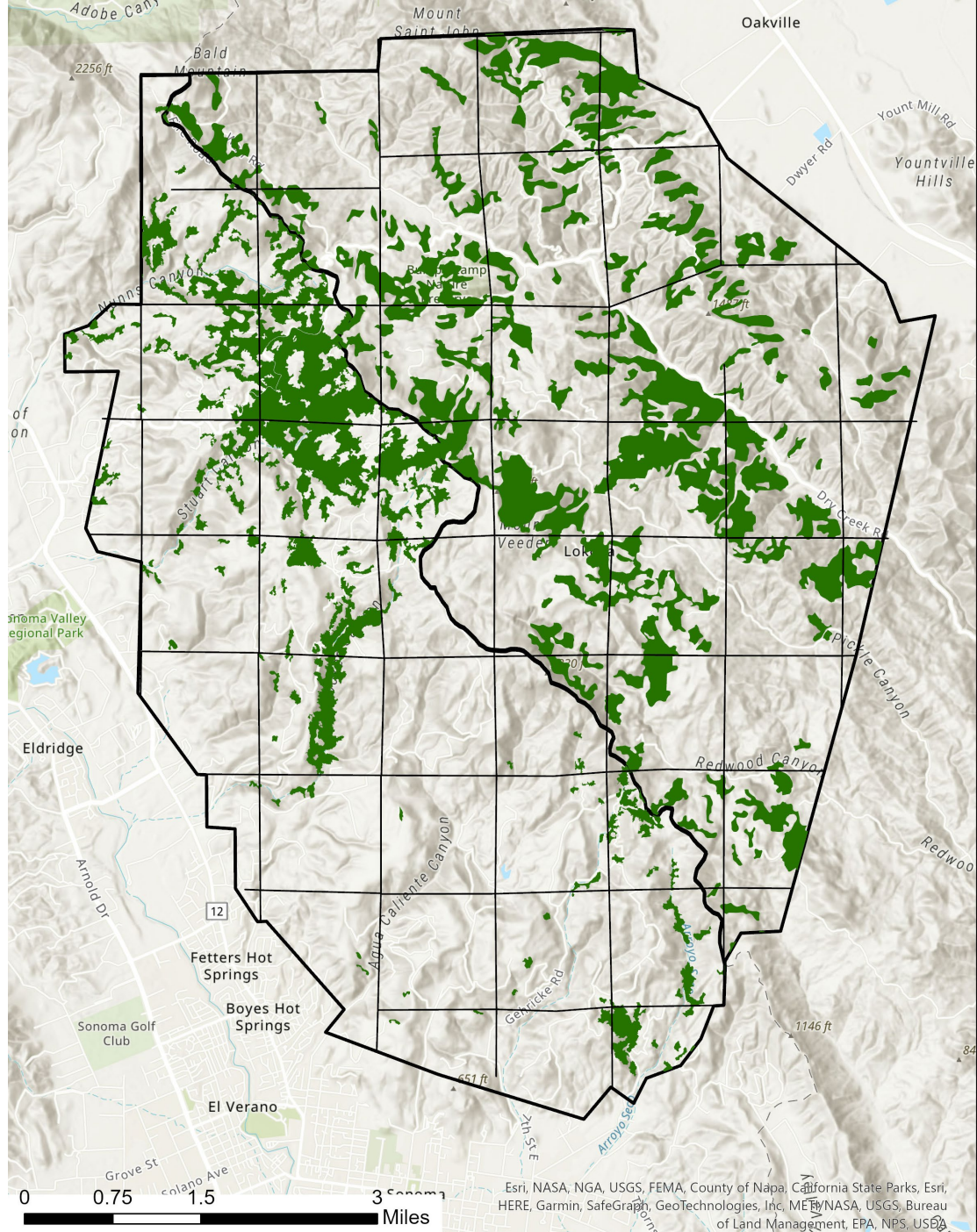
Douglas fir were mostly found on the ridgetops, which act as a natural fire break.



Douglas fir are uncommon in 19th-century survey records.

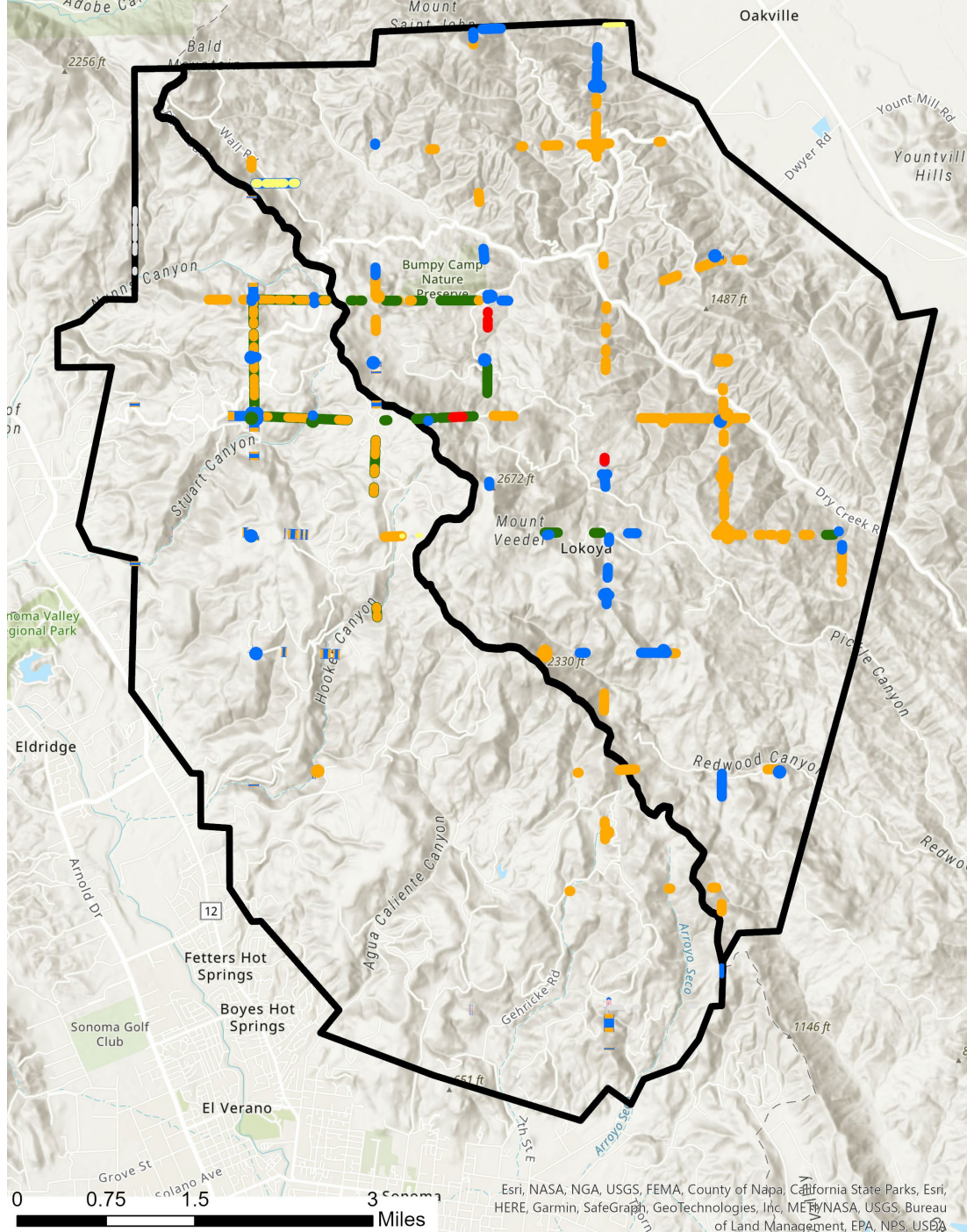


2013/2016

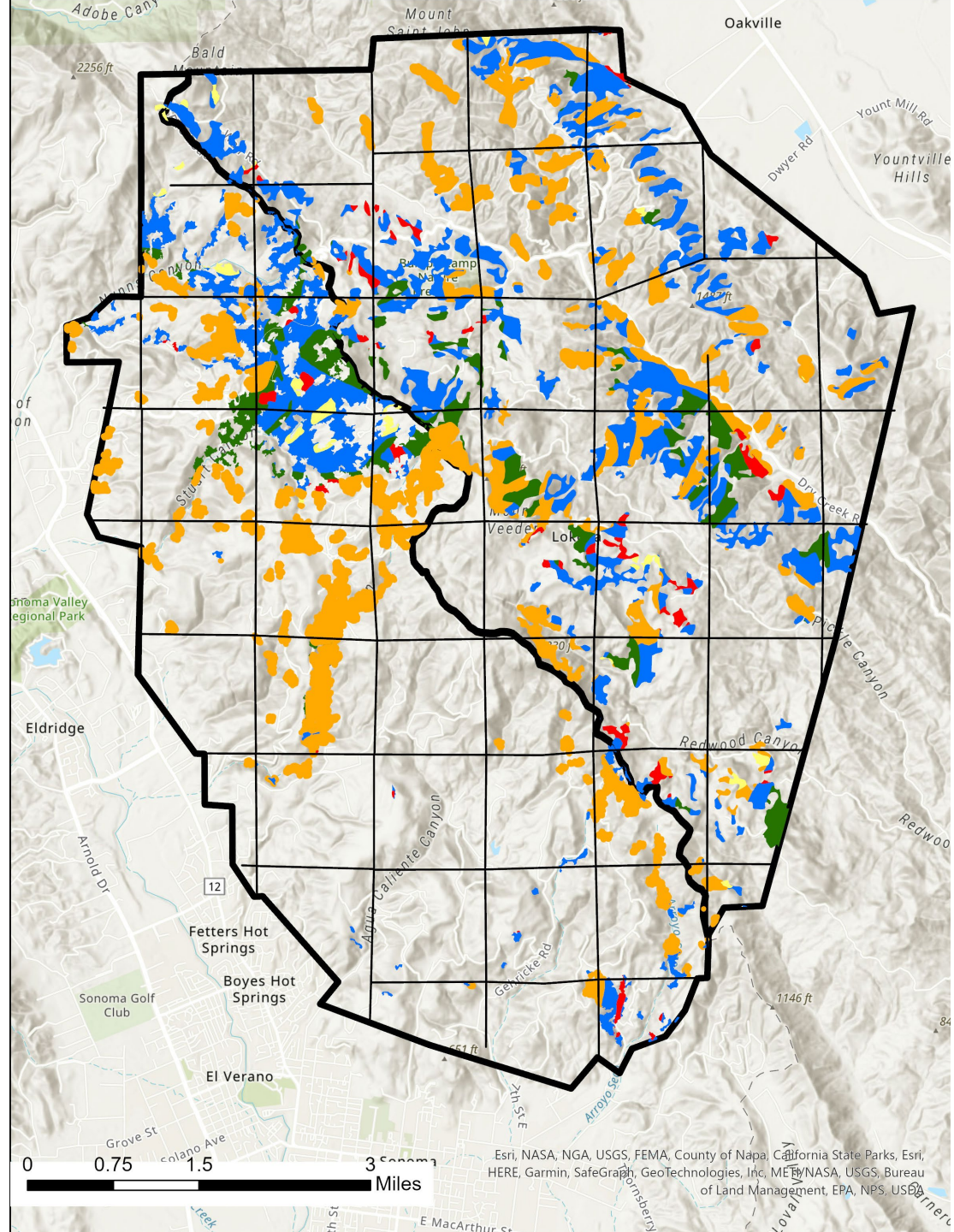


2013/2016

What did the Douglas fir replace?



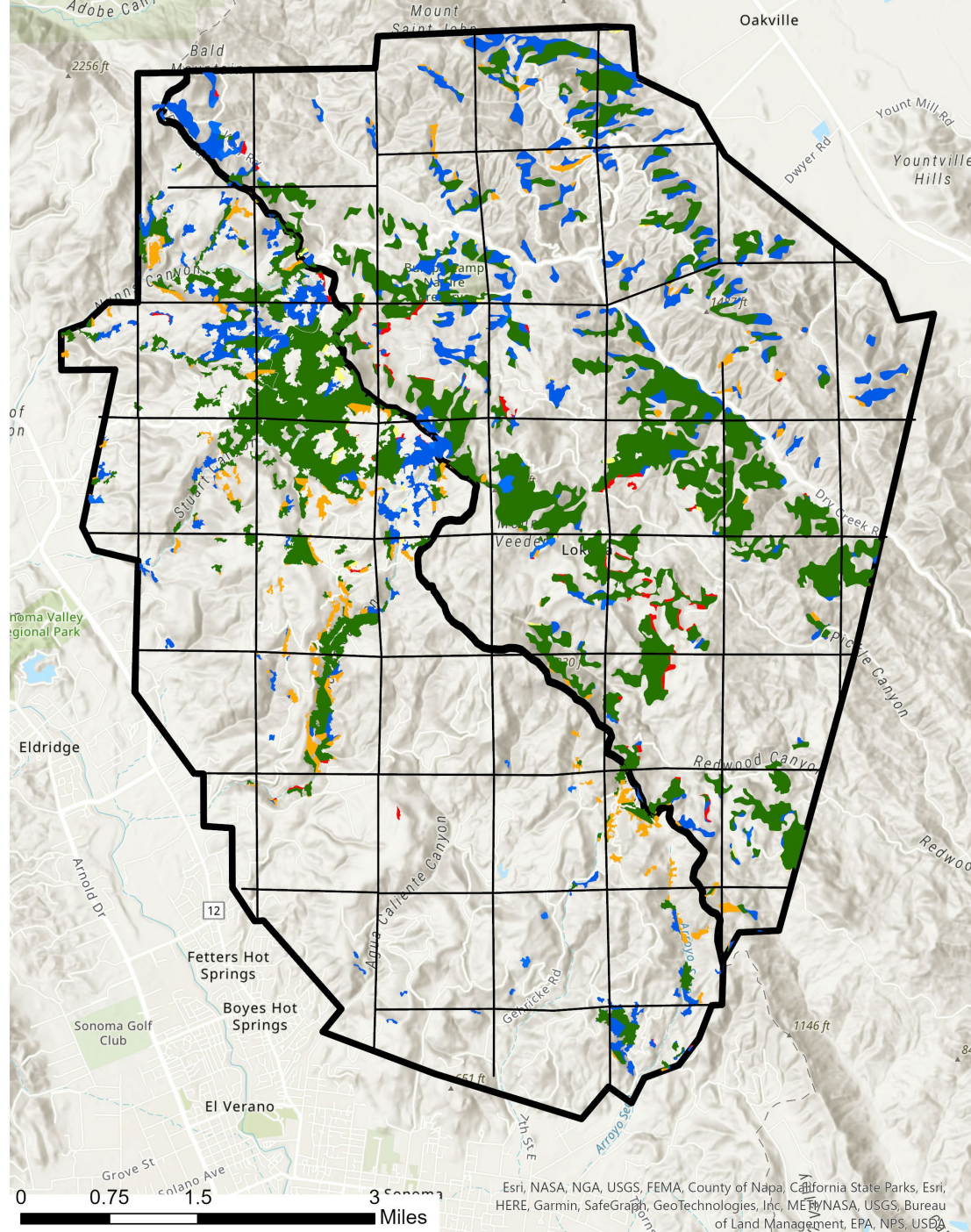
c. 1872



1932

0 0.75 1.5 3 Miles

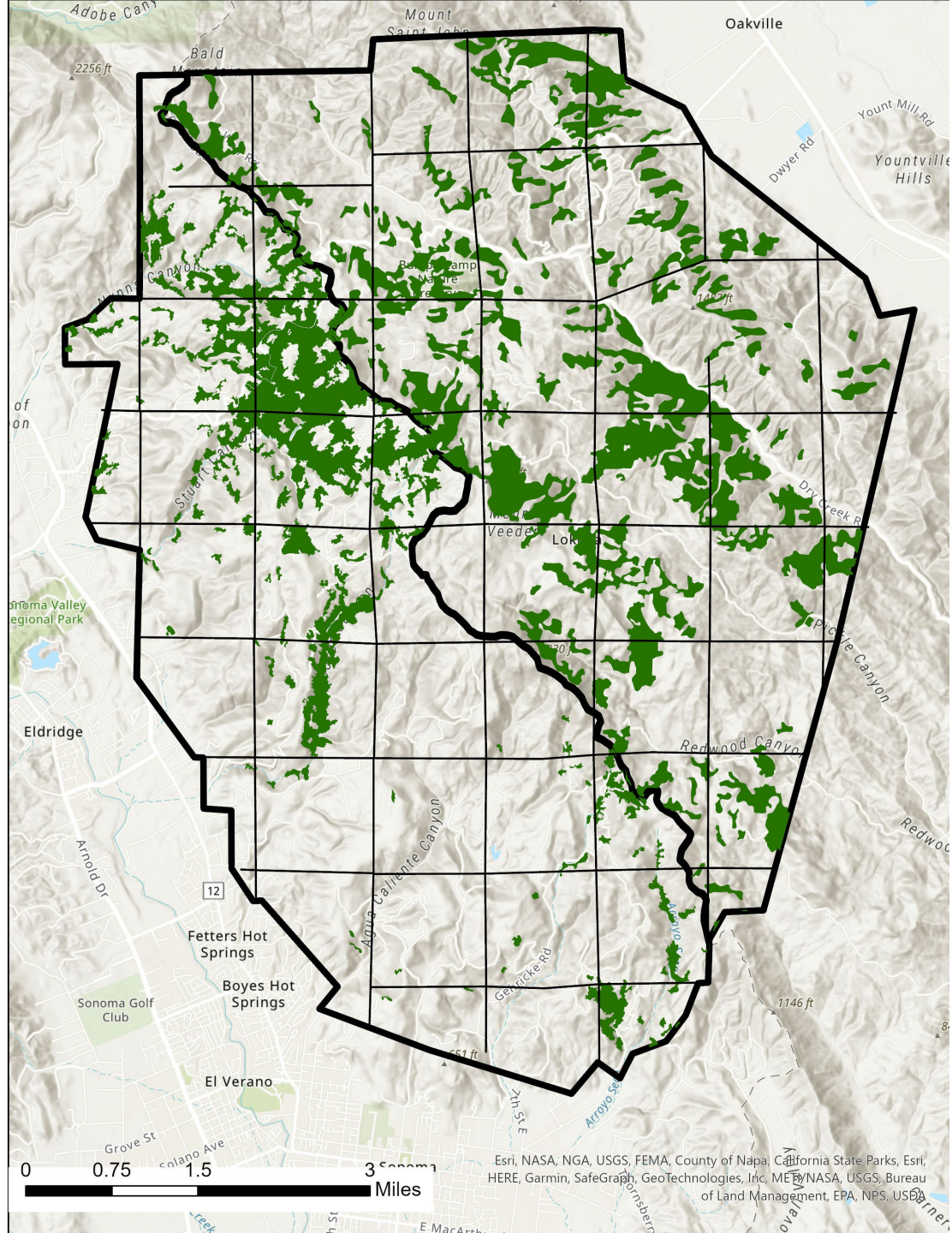
Esri, NASA, NGA, USGS, FEMA, County of Napa, California State Parks, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, HERE, NASA, USGS, Bureau of Land Management, EPA, NPS, USGS



1993

0 0.75 1.5 3 Miles

Esri, NASA, NGA, USGS, FEMA, County of Napa, California State Parks, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, MET/NASA, USGS, Bureau of Land Management, EPA, NPS, USGS



2013/2016