Post-wildfire considerations on ranches in annual rangelands

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Rangeland types (by acres) in Ventura and Santa Barbara Counties, California

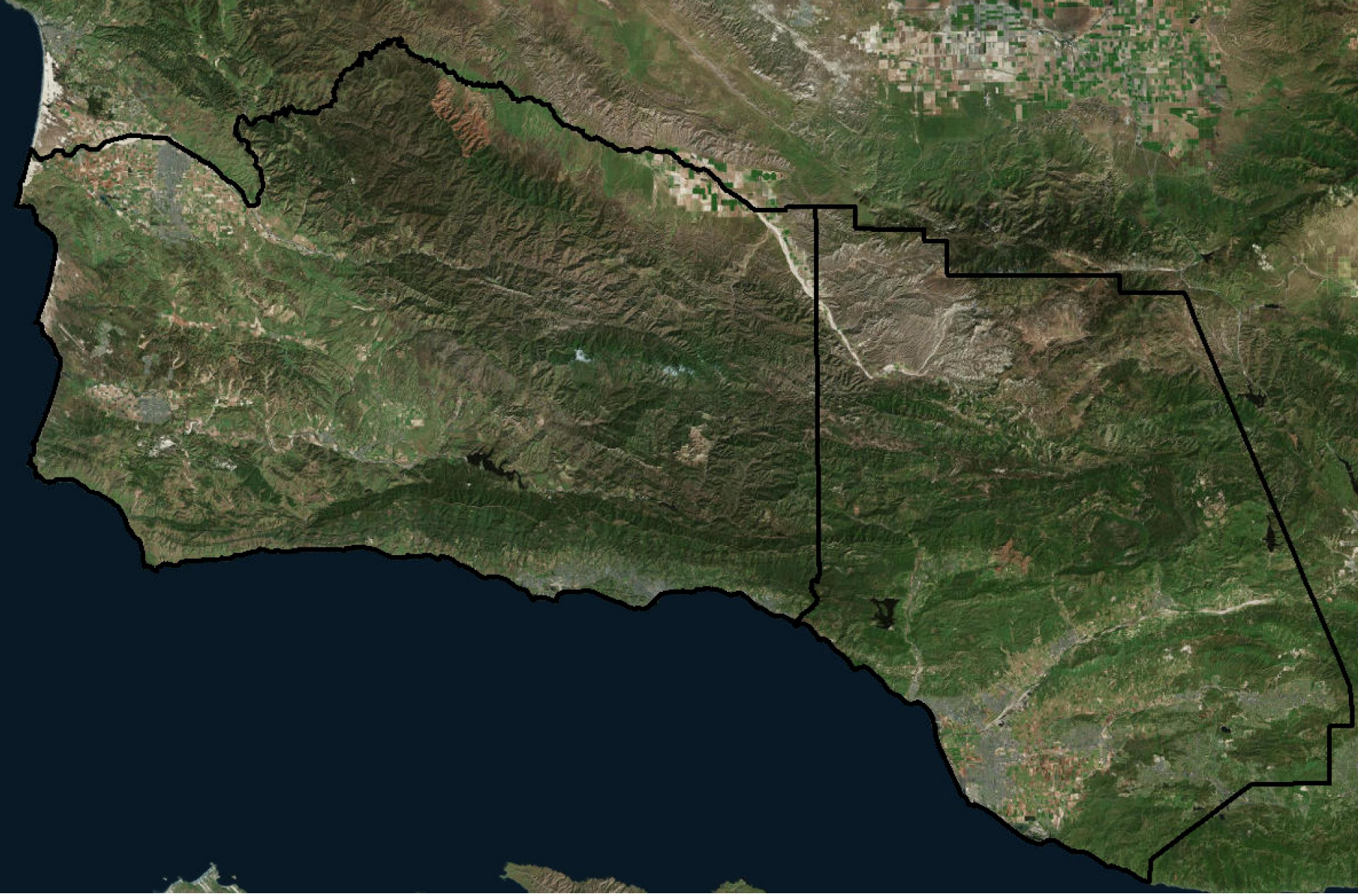
	Ventura	Santa Barbara
Total Land Area	**1,173,060**	**1,634,555**
Rangeland	**954,683**	**1,492,569**
Percent of county	**81.4%**	**91.3%**
Annual Grassland	48,835	234,196
Coast Oak Woodland	16,115	103,882
Blue Oak Woodland	0	21,143
Valley-Foothill Riparian	3,223	12,914
Valley Oak Woodland	0	37,456
Coastal Scrub	226,374	206,903
Chamise-Redshank Chaparral	313,977	312,326
Mixed Chaparral	167,422	482,087
Montane Riparian	36,536	37,752
Pinyon-Juniper	155,743	31,428
Juniper	9,398	35,856
Sagebrush	13,597	6,292

California Gap Analysis Project (GAP); habitat classes from the "California Wildlife Habitat Relationships" database; CA Fish & Wildlife Service and UCSB.

Range - land supporting vegetation that is either grazed or that has the potential to be grazed.

	Ventura	Santa Barbara
Rangeland	954,683	1,492,569
Grazing lands	197,859	579,054
Percent of county in grazing lands	16.9%	35.4%

Farmland Mapping and Monitoring Program (FMMP), California Department of Conservation



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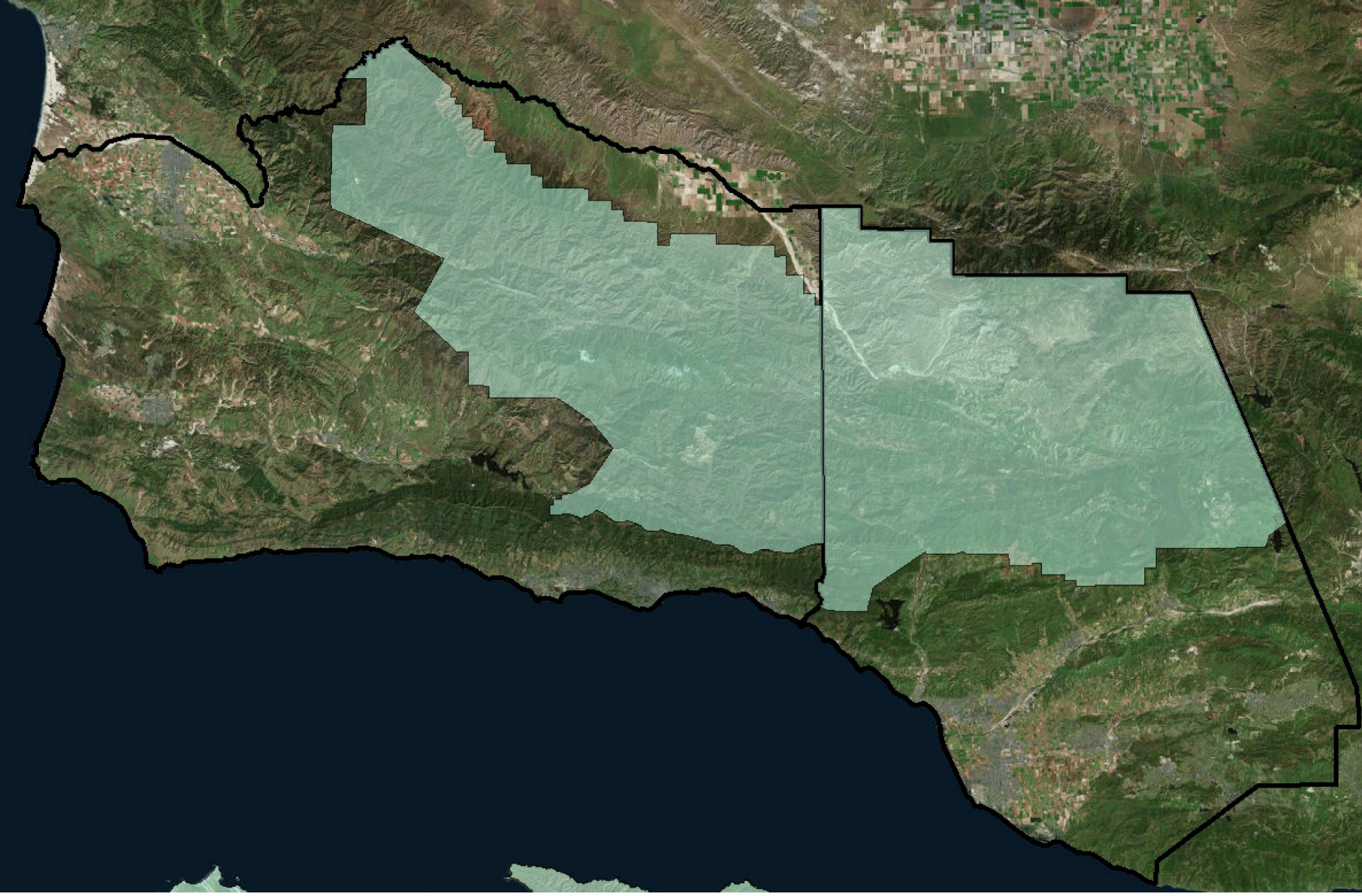

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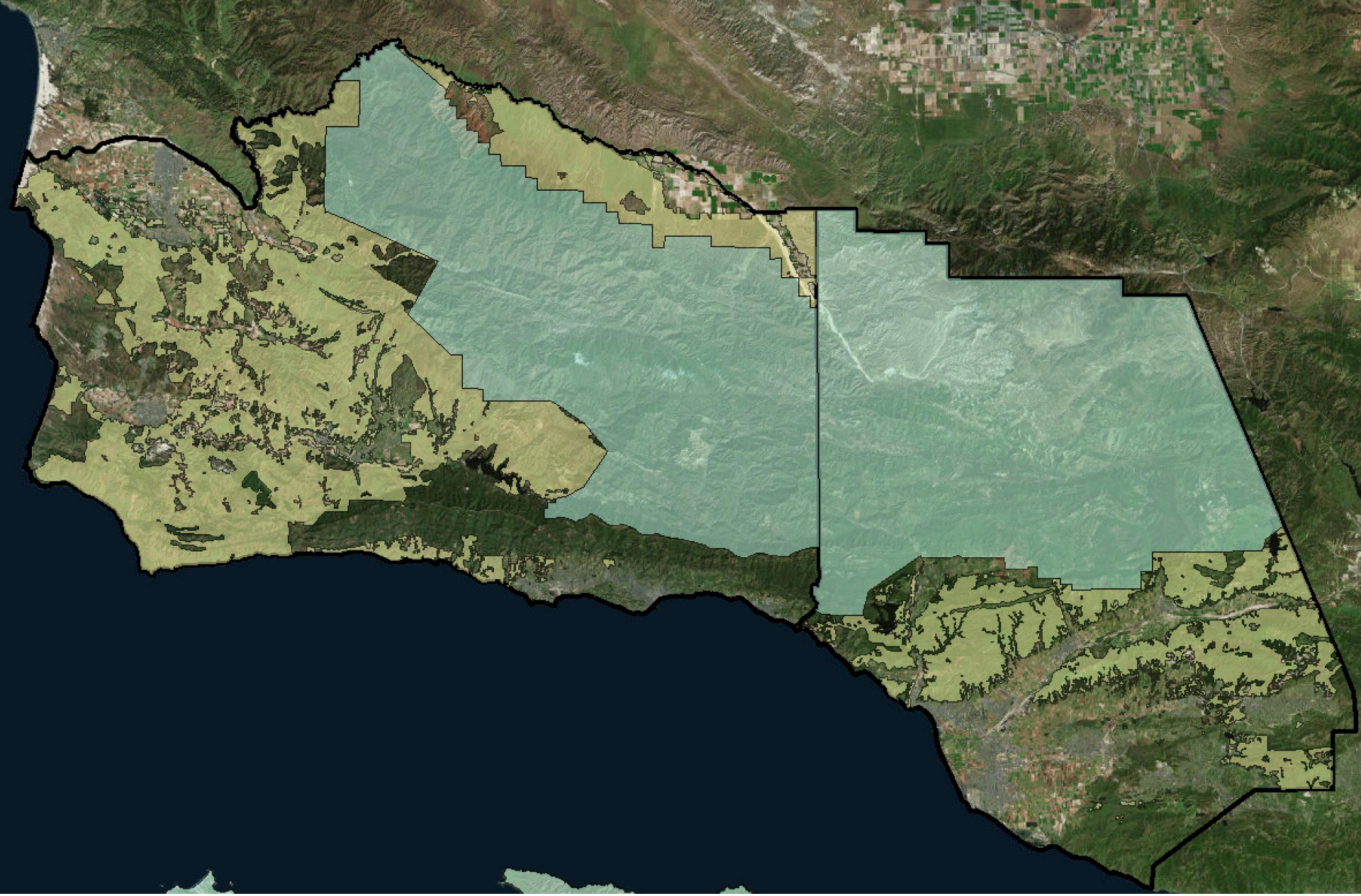

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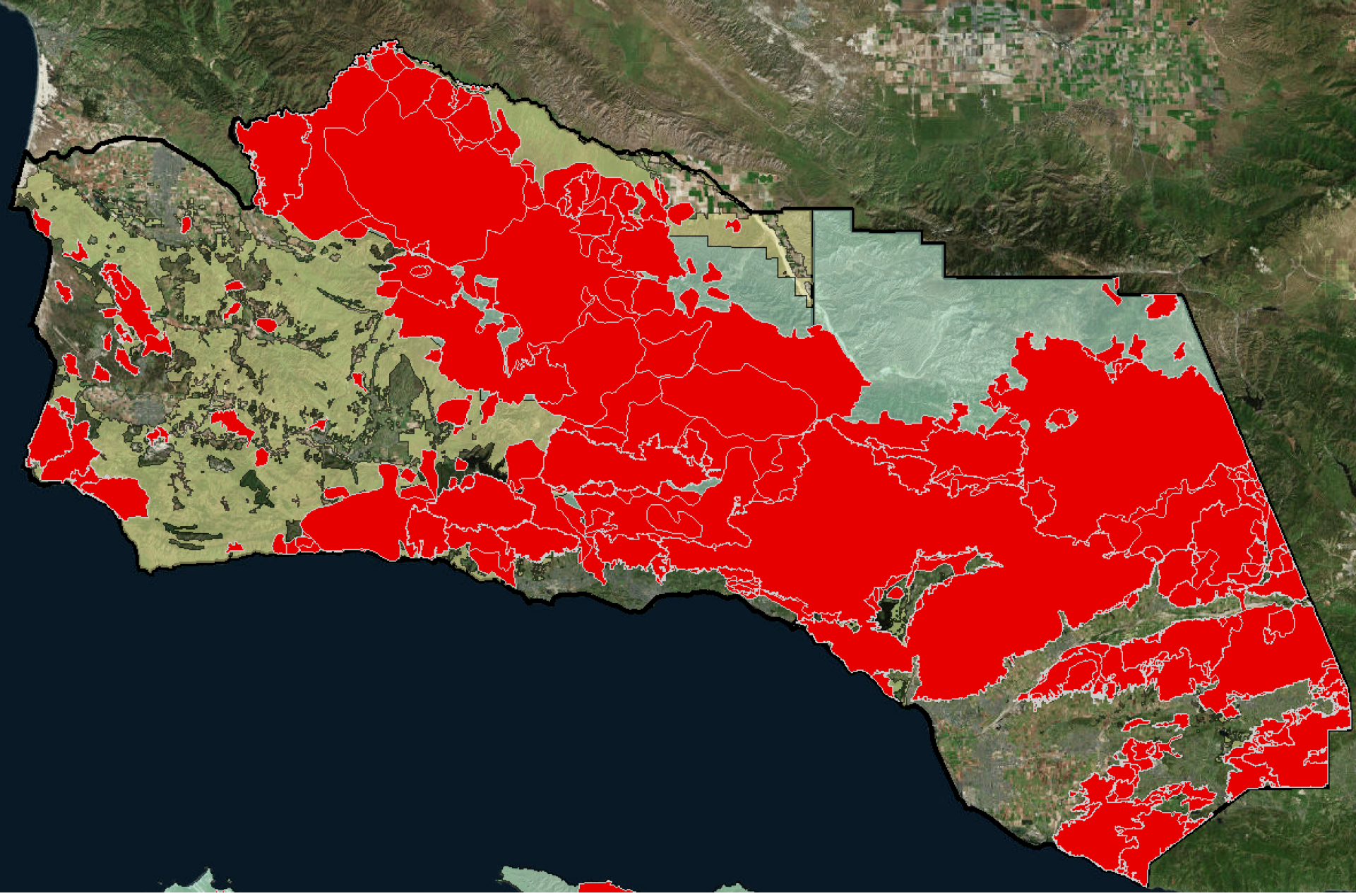

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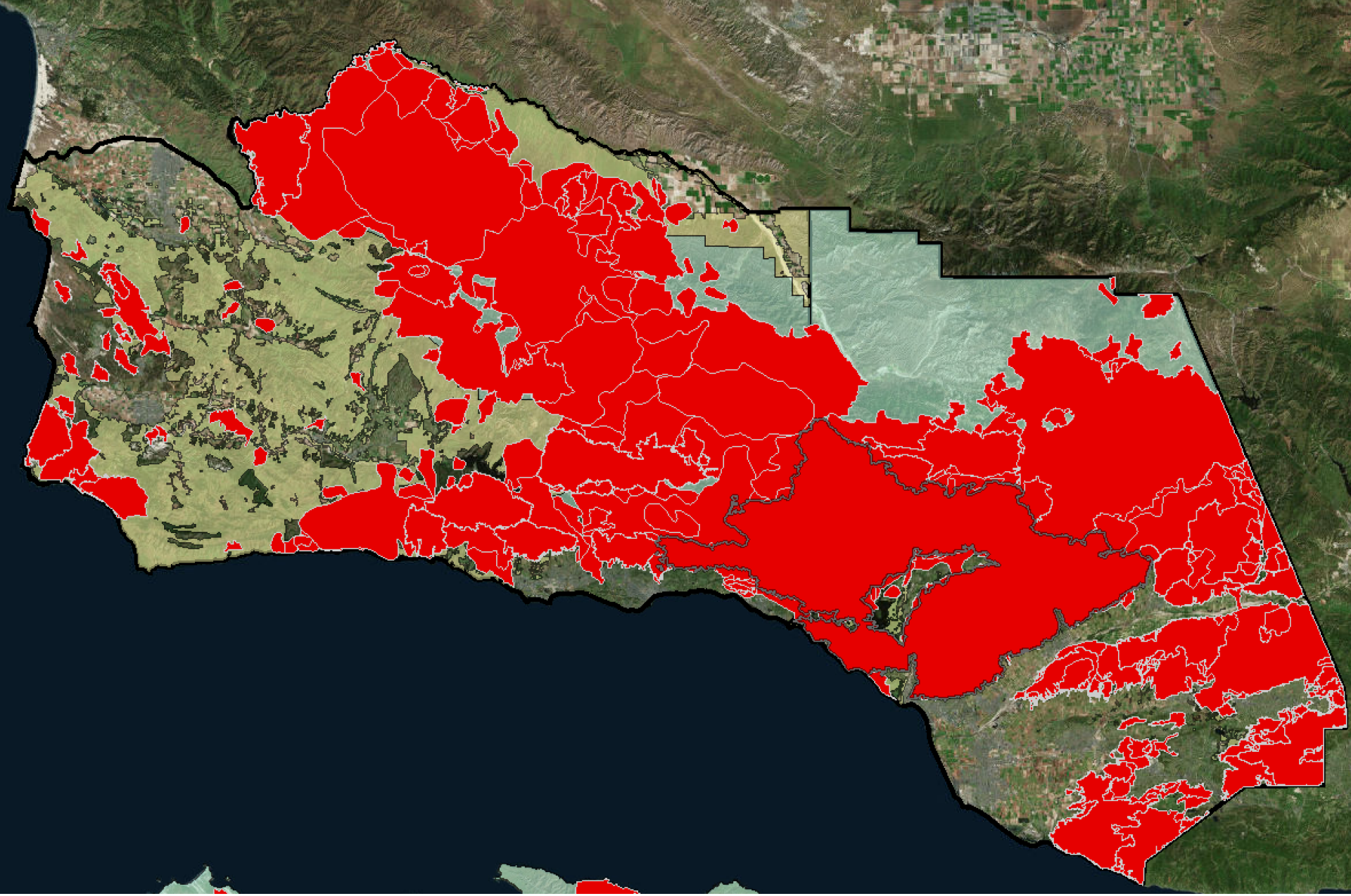

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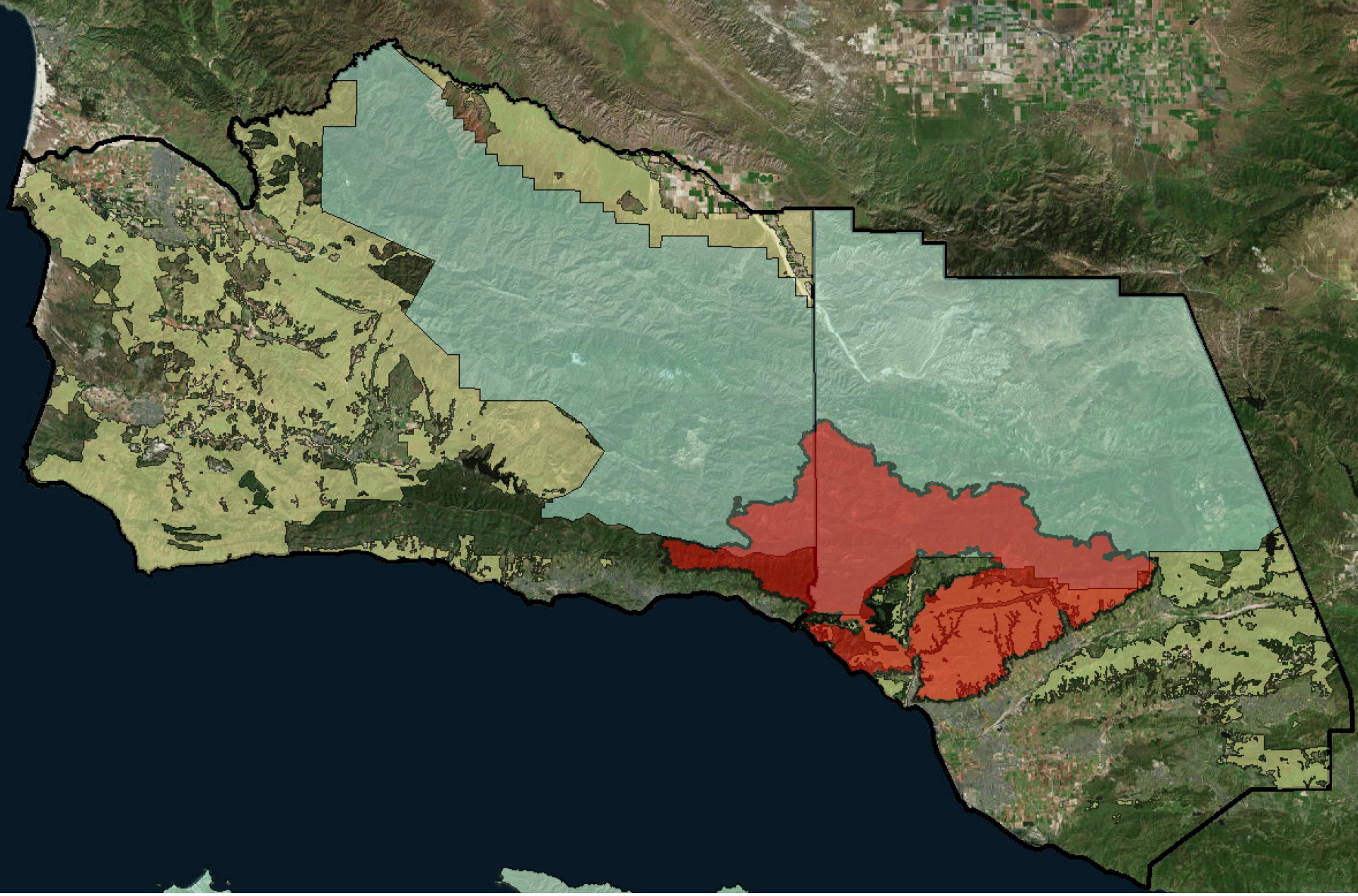

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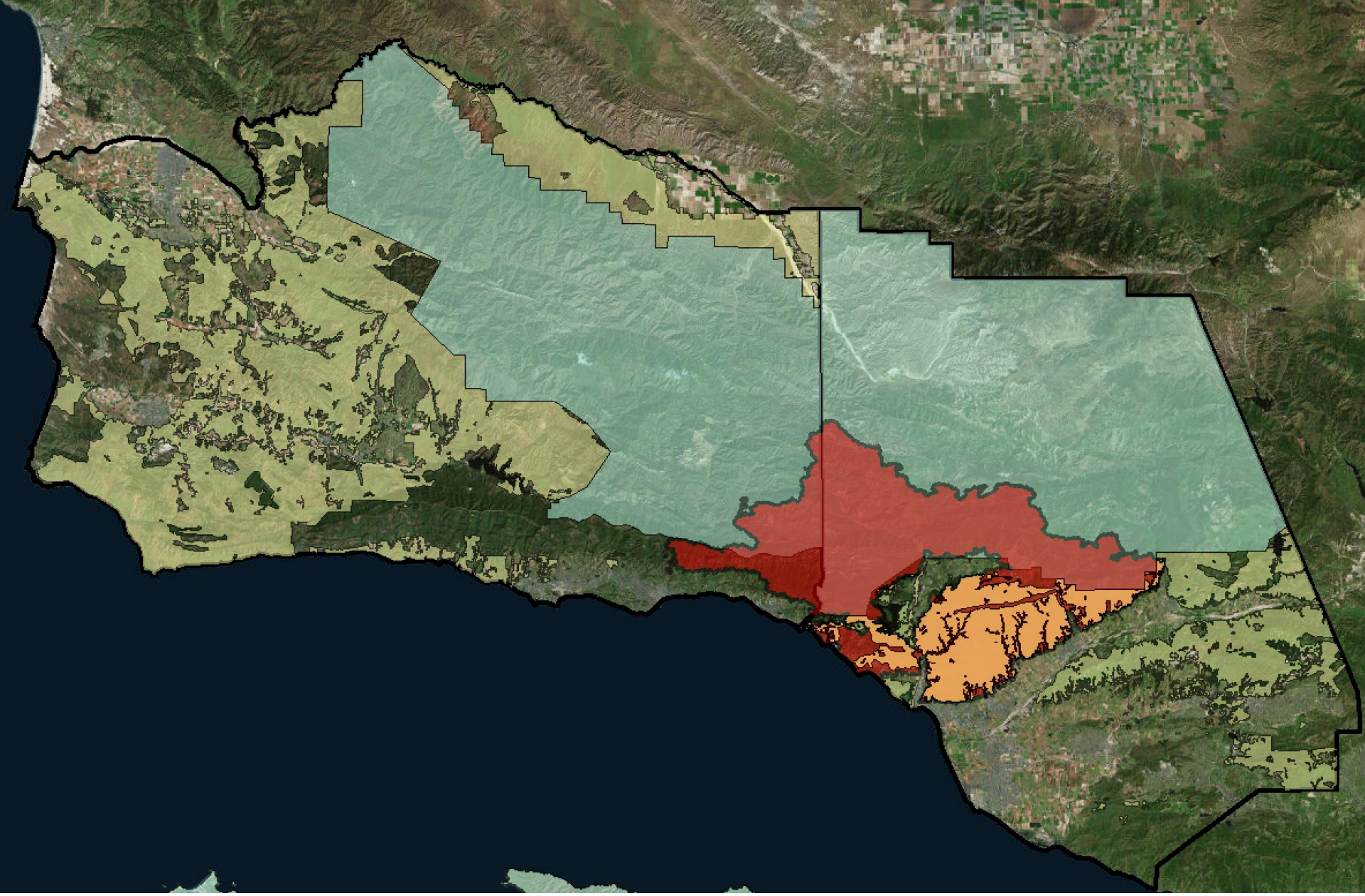

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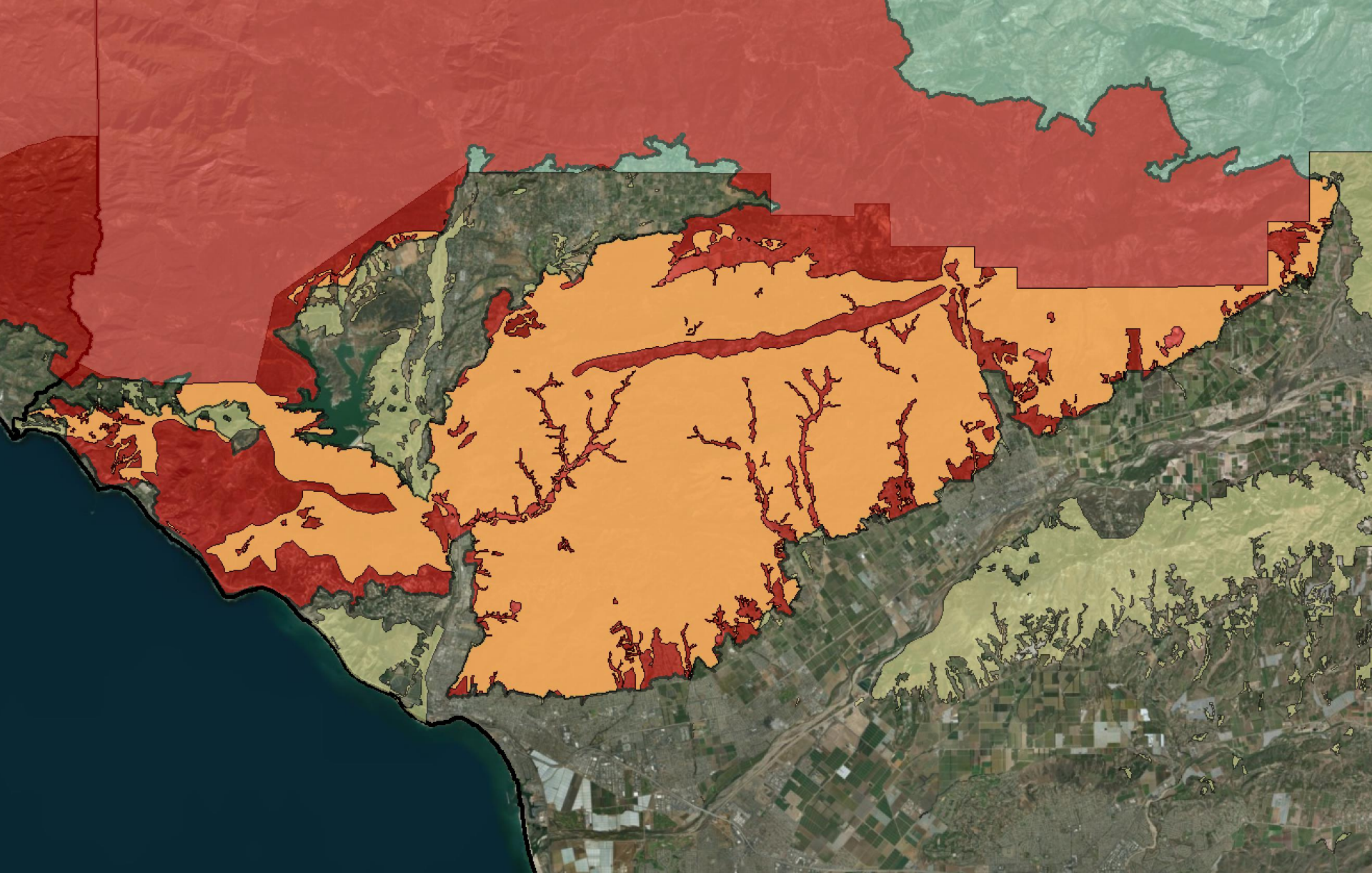

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temperature
humidity
wind direction
slope/aspect
soil texture
fuel type / moisture
grazing history

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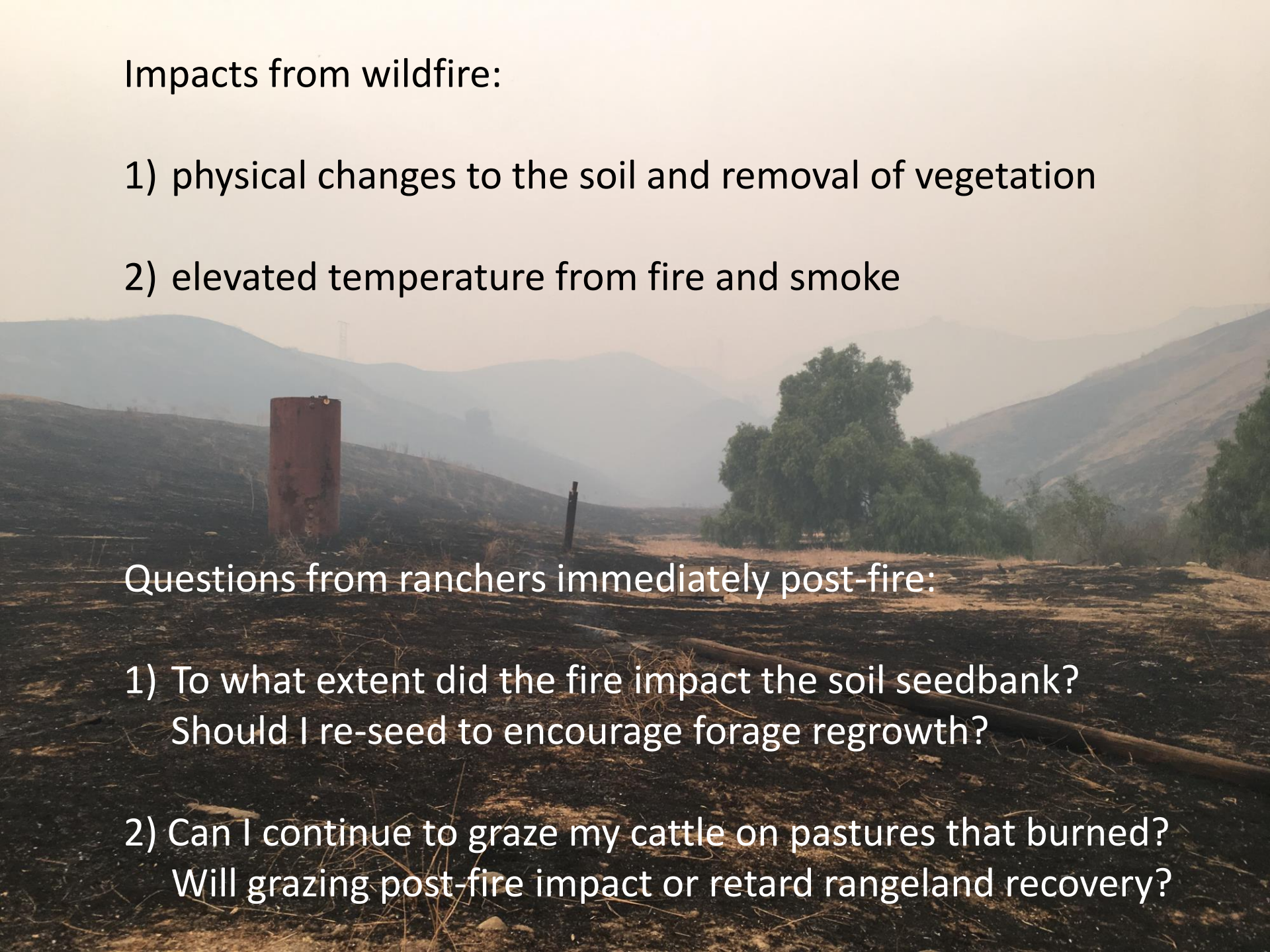
Cañada Larga Ranch, Ventura County



Impacts from wildfire:

1) physical changes to the soil and removal of vegetation

2) elevated temperature from fire and smoke

Questions from ranchers immediately post-fire:

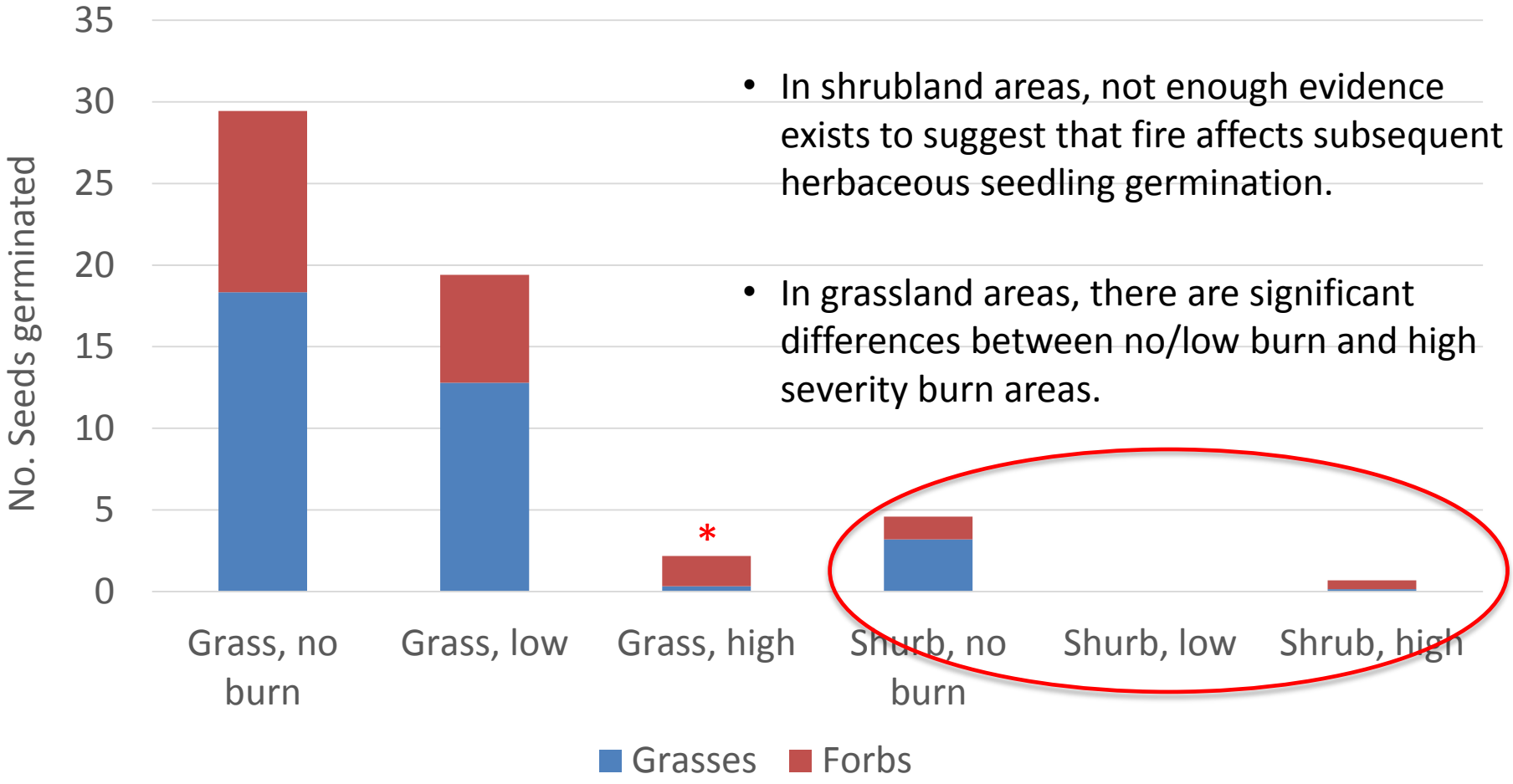
1) To what extent did the fire impact the soil seedbank? Should I re-seed to encourage forage regrowth?

2) Can I continue to graze my cattle on pastures that burned? Will grazing post-fire impact or retard rangeland recovery?


January 8, 2018

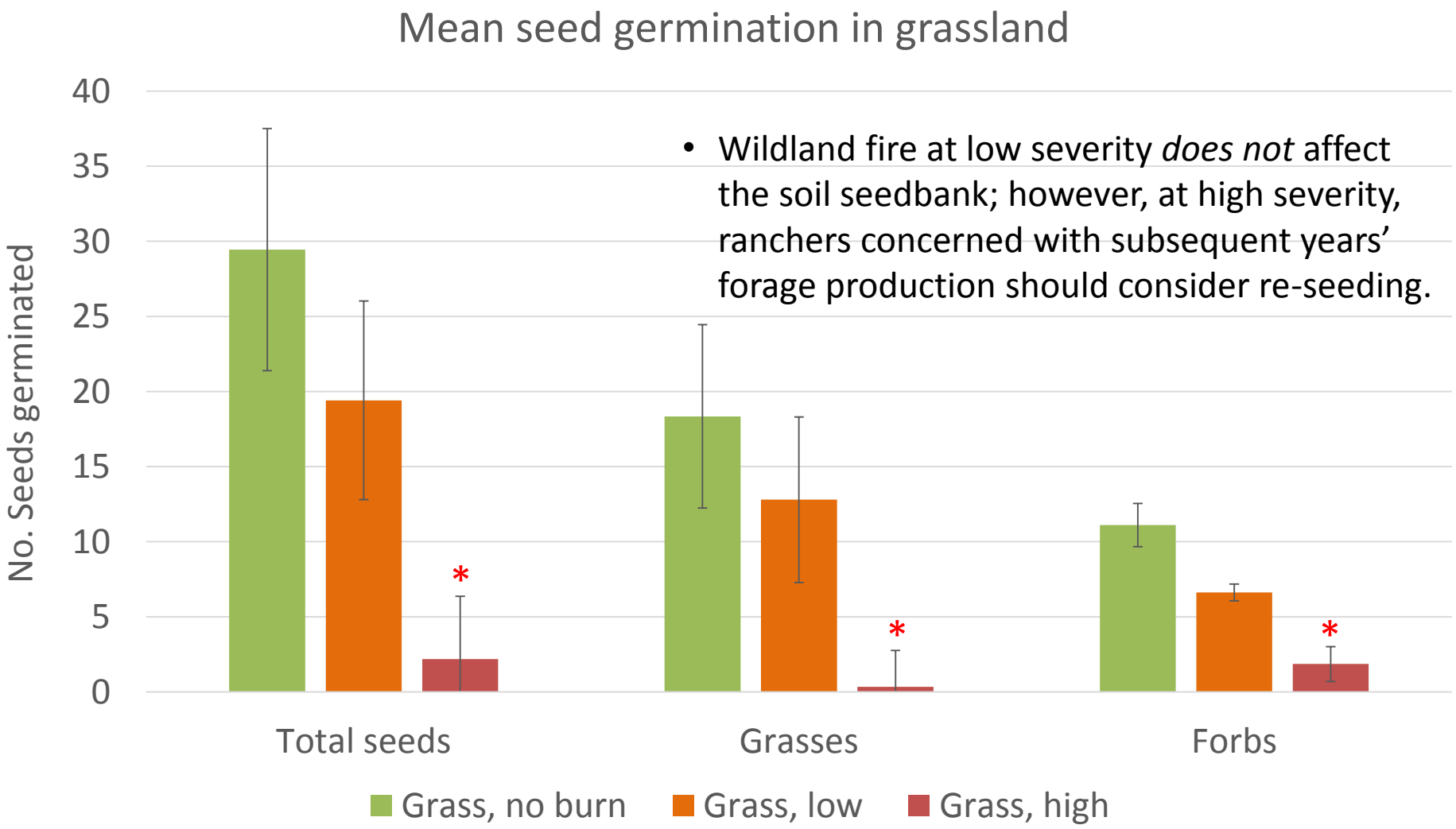

January 26, 2018

Mean seed germination, by veg type and burn severity



- In shrubland areas, not enough evidence exists to suggest that fire affects subsequent herbaceous seedling germination.
- In grassland areas, there are significant differences between no/low burn and high severity burn areas.

* Significant at p = 0.05



- Wildland fire at low severity *does not* affect the soil seedbank; however, at high severity, ranchers concerned with subsequent years' forage production should consider re-seeding.

* Significant at p = 0.05

Takeaway:

Seeding areas of severely burned grassland and shrubland **may** expedite rangeland recovery since forage species seem to be seedbank limited in those soils post-fire.

To seed or not to seed?

- protect against soil erosion (?)
- increase forage production (?)
- shift species composition (?)


N1085T

Examining the effects of post-wildfire grazing on working rangeland in California

UC ANR Opportunity Grant, December 2017

Project team:

Matthew Shapero
Jeremy James
James Bartolome
Stephanie Larson
Sheri Spiegel

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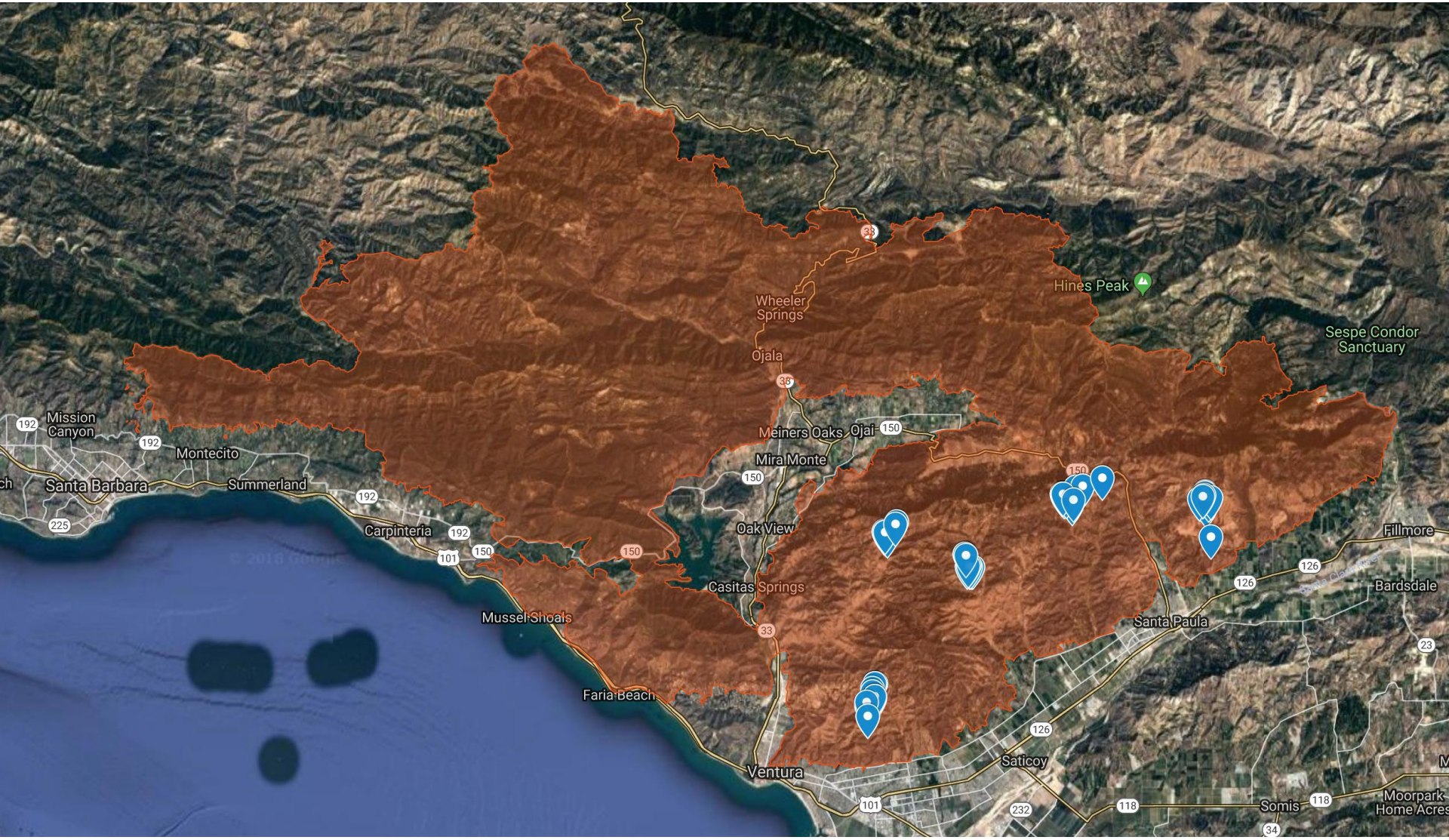

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5 ranches
14 exclosures/ranch
- 6 shrubland
- 6 grassland
- 2 no burn
(grassland)


SR B6
4-30-18


SR B6


SR NB1
4-30-18


SR NB1


SR NB


OC G3


OC G3

Takeaway:

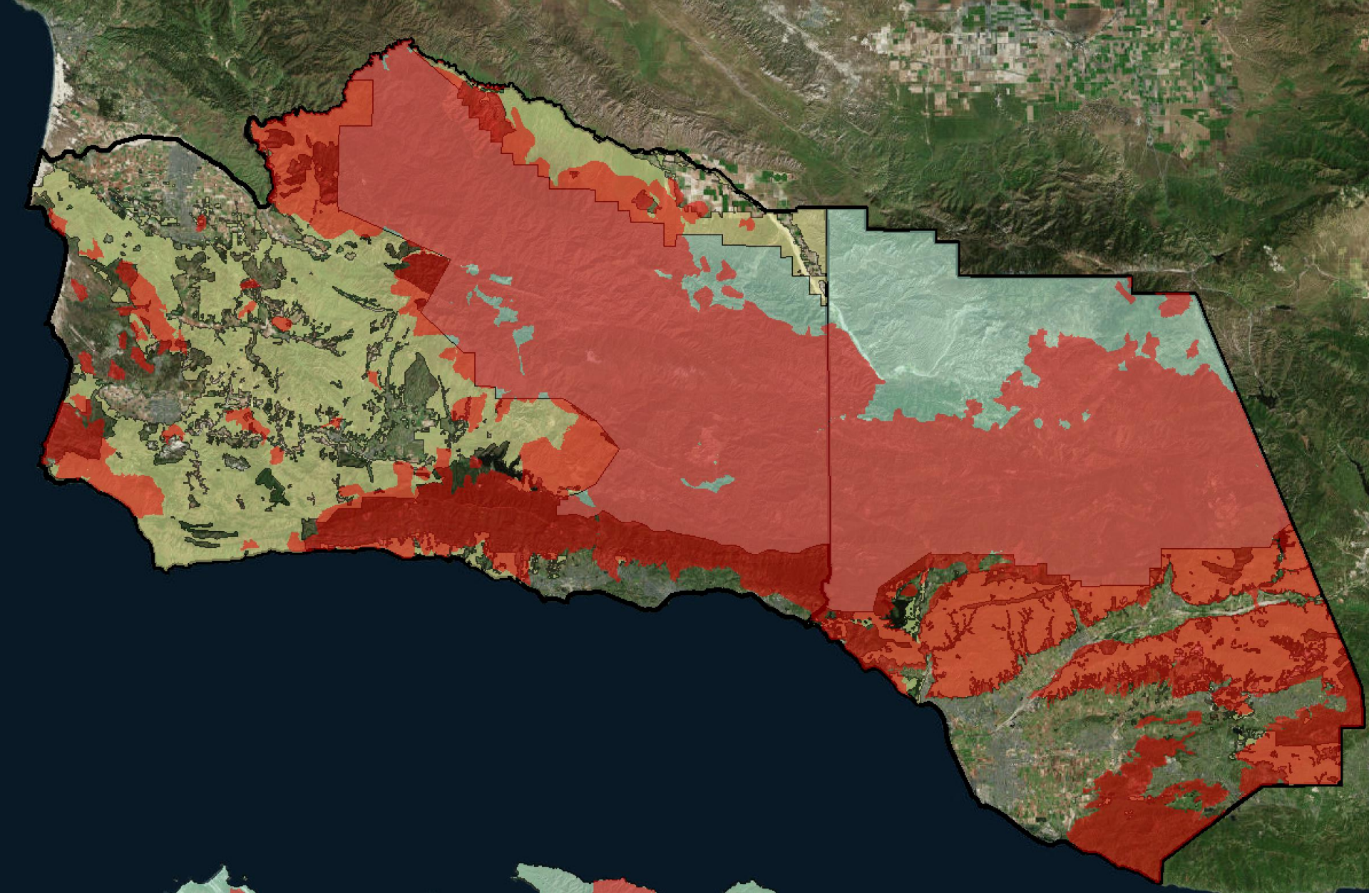
Study needs more years of data collection. Analysis will focus on species composition, forage production, and shrub recovery.

Impacts to ranching from the Thomas Fire

Impacts from Thomas Fire:

- Lost livestock
- Lost dry forage from previous spring's growth
- Lost future forage
- Infrastructure damage (fencing, water troughs, etc.)
- Disrupted cash flow
- Genetic loss in cattle

Tools for the future…?
Grazing and prescribed fire



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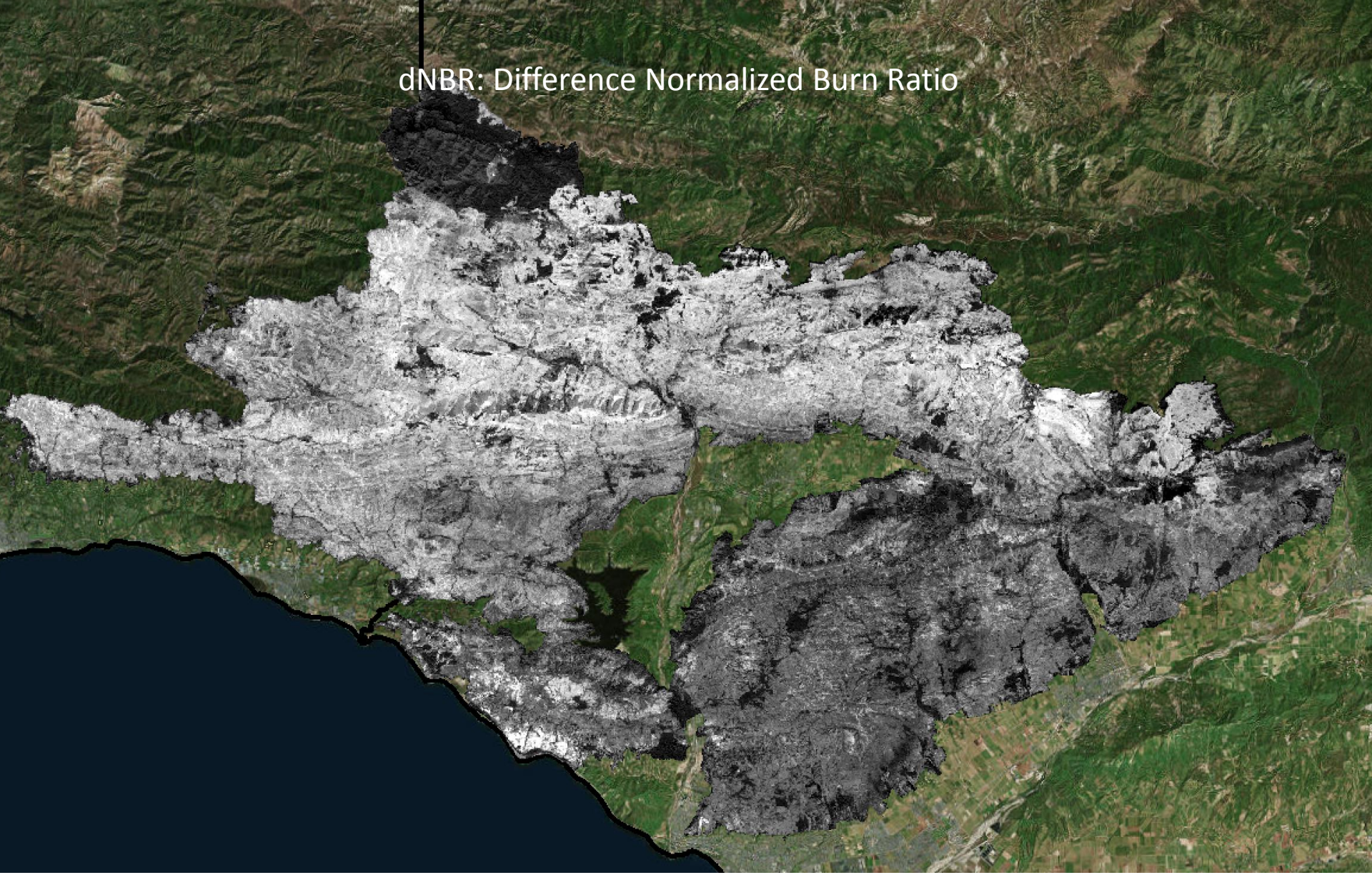
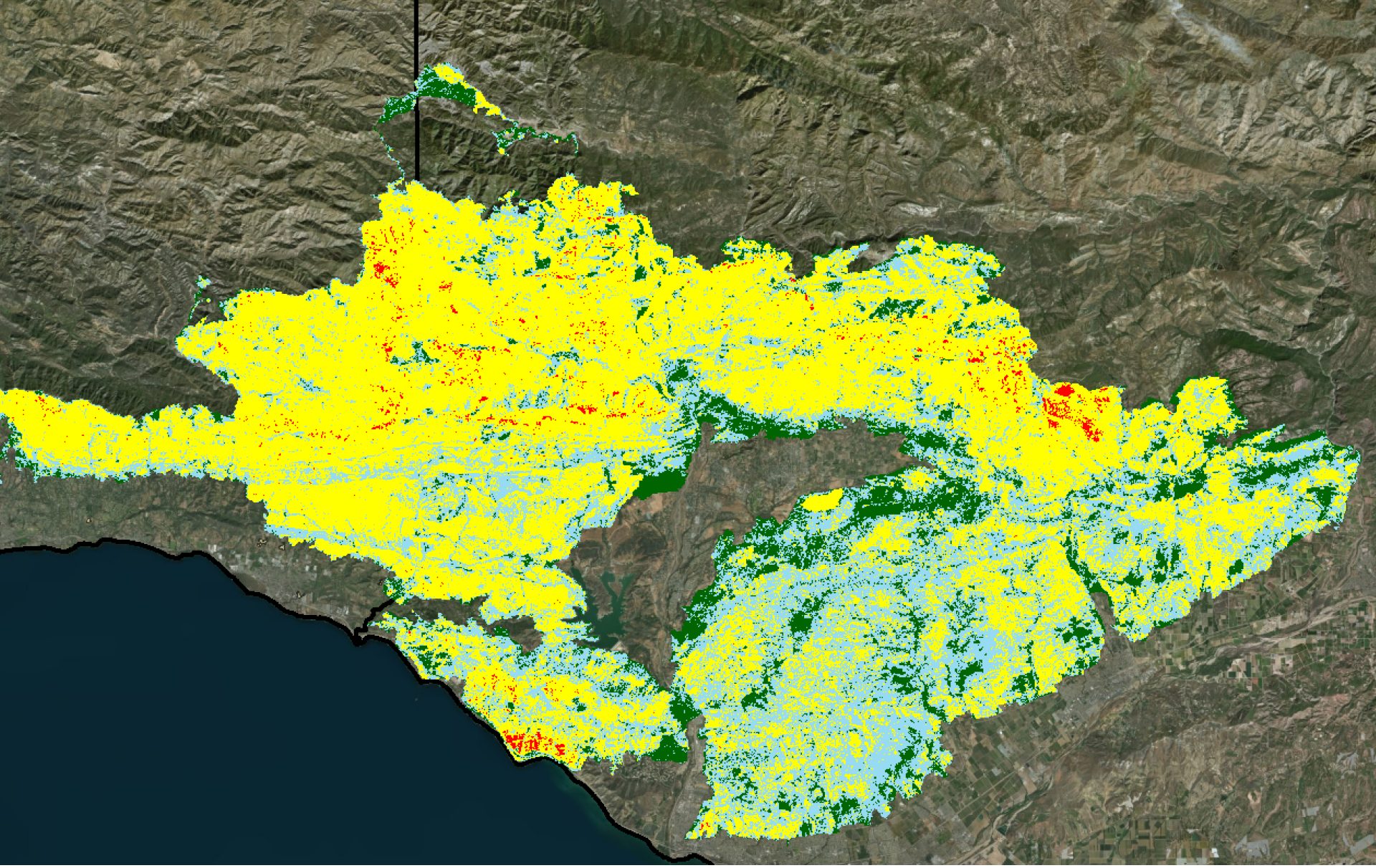

dNBR: Difference Normalized Burn Ratio



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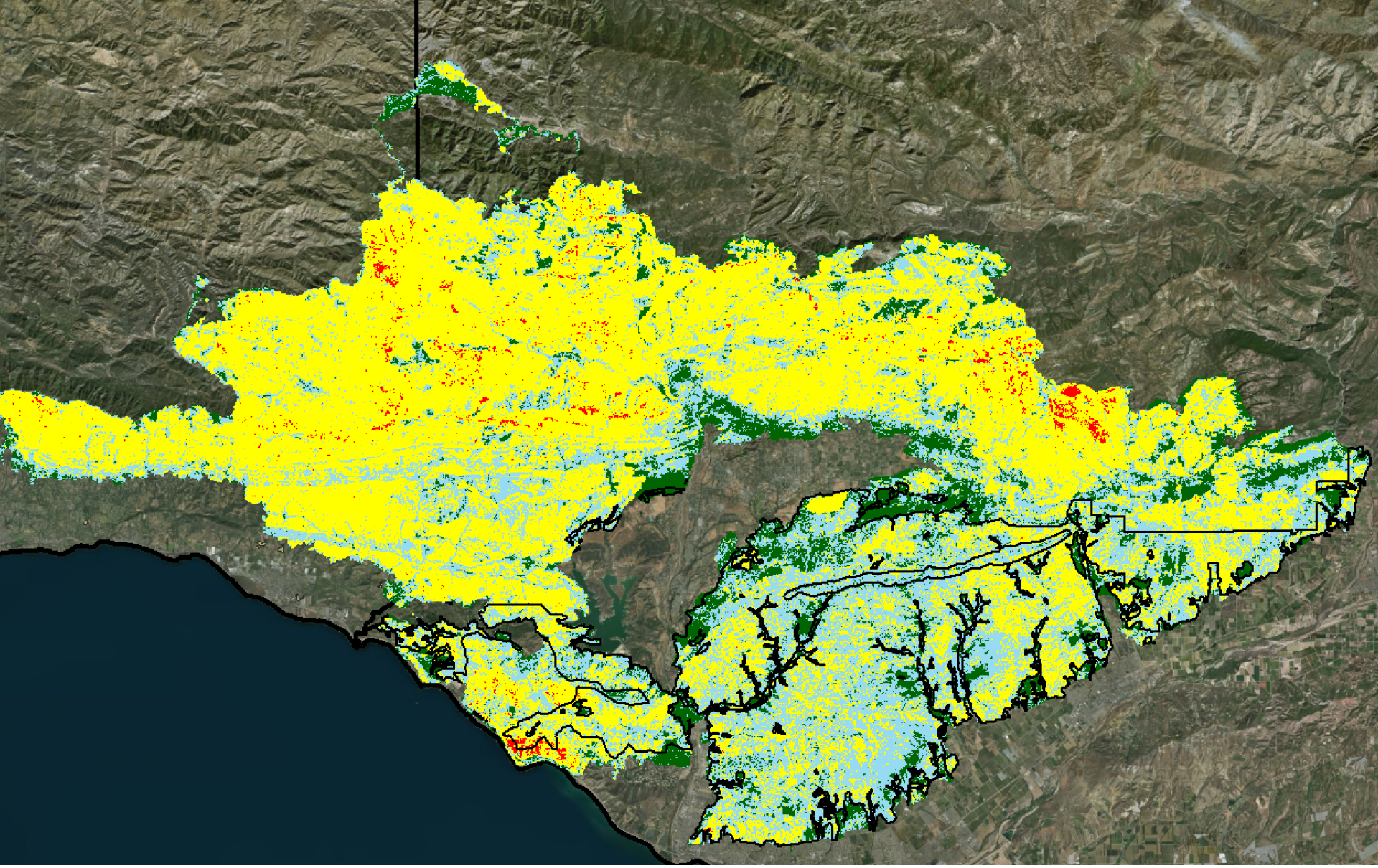


Total fire perimeter:

No burn: 11%

Low severity: 31%

Moderate severity: 56%

High severity: 2%

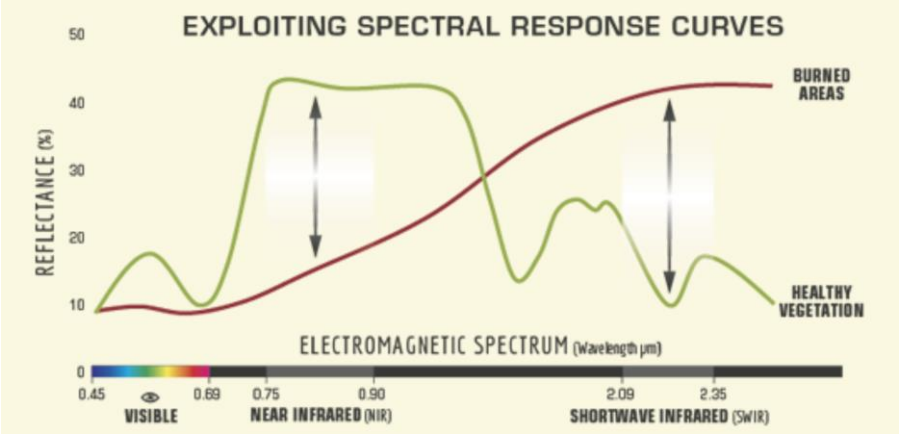
Grazed lands:

No burn: 12%

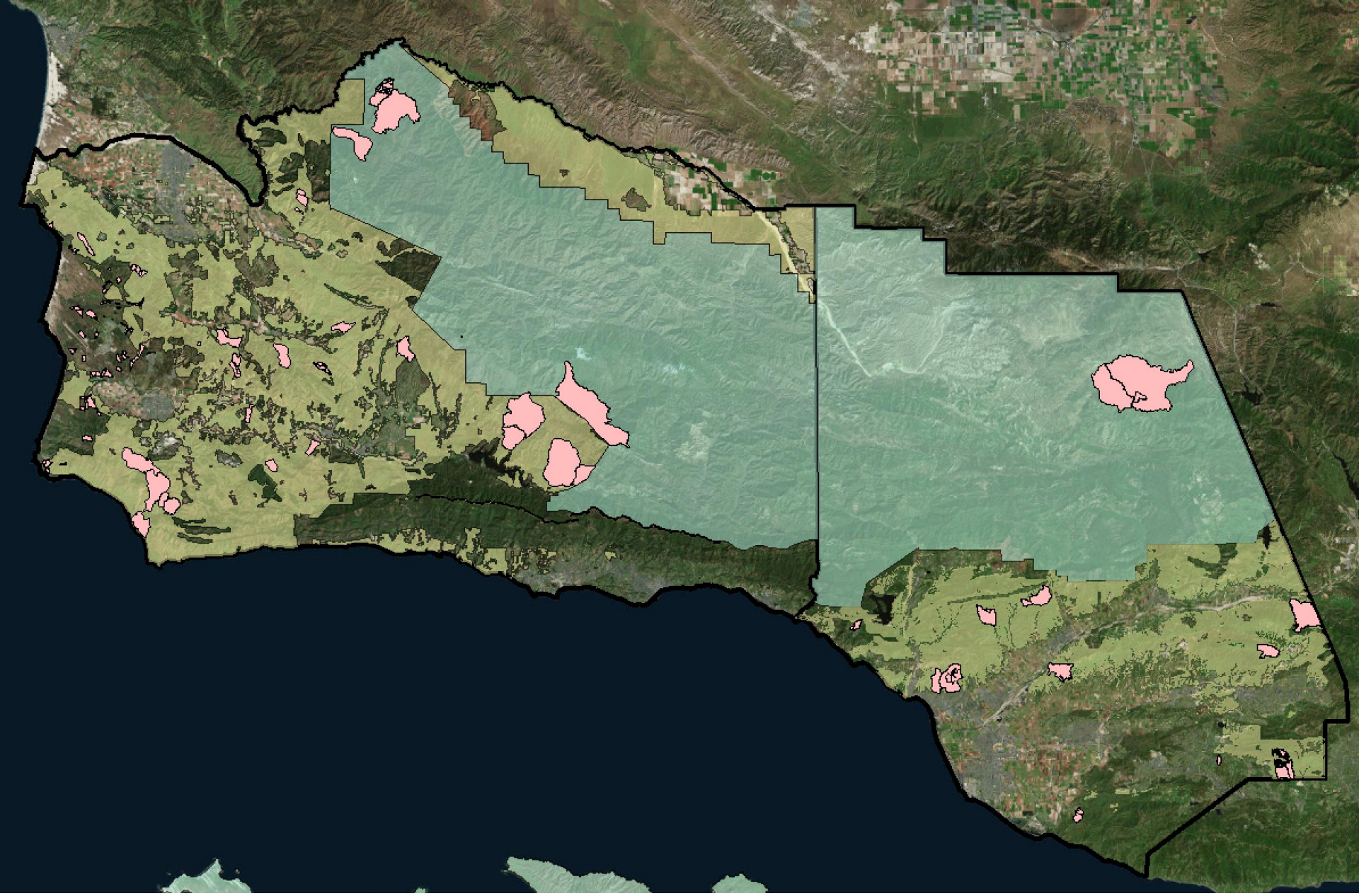
Low severity: 52%

Moderate severity: 36%

High severity: 0%



U.S. Forest Service
Geospatial Technology and Applications Center
Burned Area Reflectance Classification



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The good news…


January 17, 2018


March 24, 2018


April 14, 2018


April 14, 2018


April 14, 2018


April 26, 2018

April 26, 2018

April 30, 2018


May 1, 2018

Thinking about the future…

Grazing and **prescribed fire** can and should be used as **land management tools** to promote wildlife habitat, biodiversity, the livestock industry, and a responsible fuels management strategy in California.

Questions?

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