Cattle grazing to manage wildfire fuels in California rangelands: Combining practitioners' perspectives with the scientific literature

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About this project: rationale

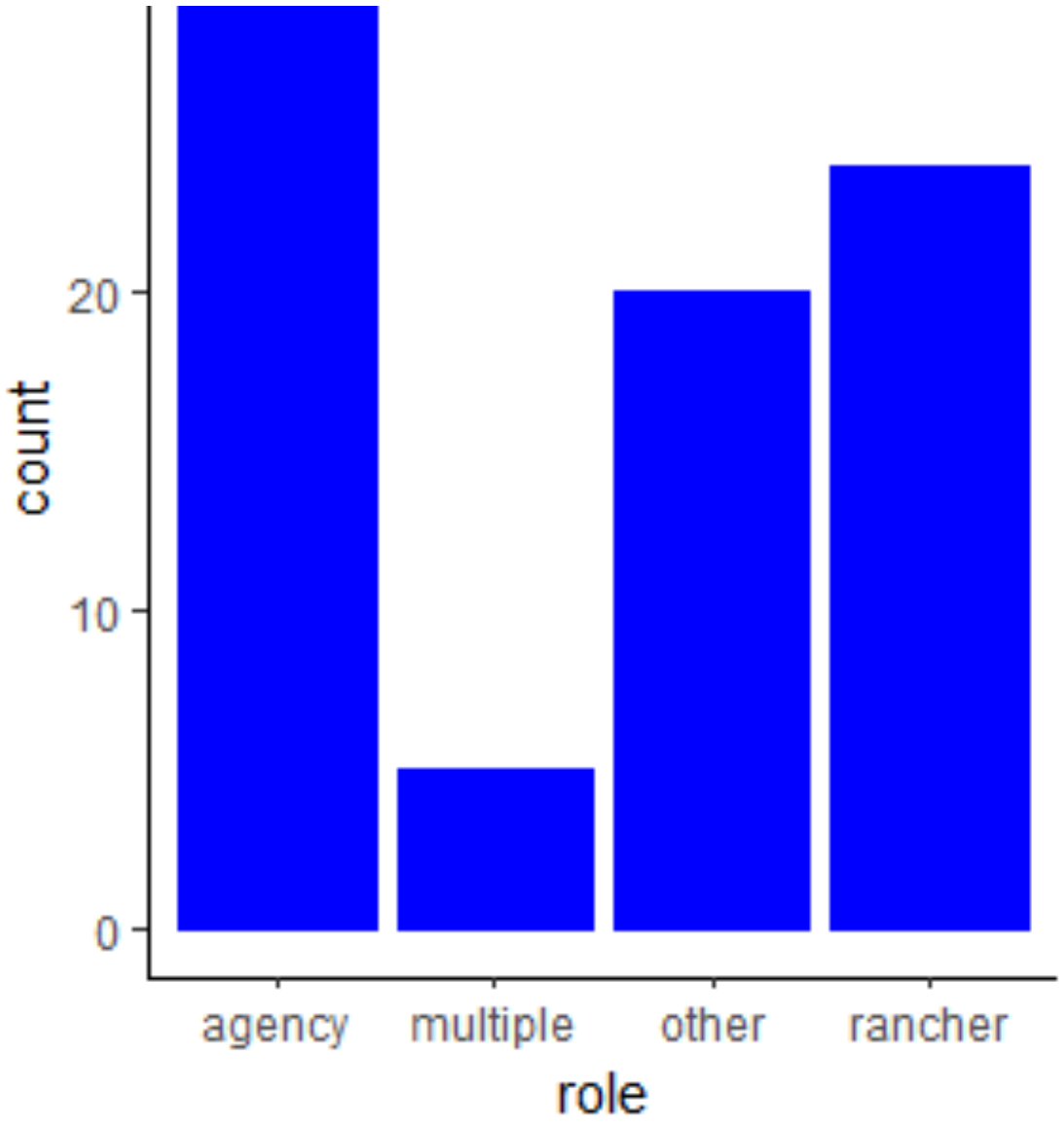
- Growing public interest in cattle grazing as tool for managing fuel on rangelands
- Even though we know that many people already use cattle grazing for this purpose, the specifics haven’t been publicized
- This project looks at how people are currently using grazing to reduce wildfire fuels on rangelands

About this project: sources and methods

- Review of scientific literature
  - Journal articles, specifically focused on recent publications on California Central Coast region rangelands
  - Limited number of these: included articles on other Mediterranean climate regions and other grasslands in the Western US
  - Also included reviewing selected grazing management plans and state-level policy documents
- Survey
  - Online survey distributed to CCRC mailing list
  - Questions on using cattle grazing for wildfire fuel reduction
    - Specific practices and strategies, balancing with other rangeland management priorities, challenges/barriers

Survey Responses

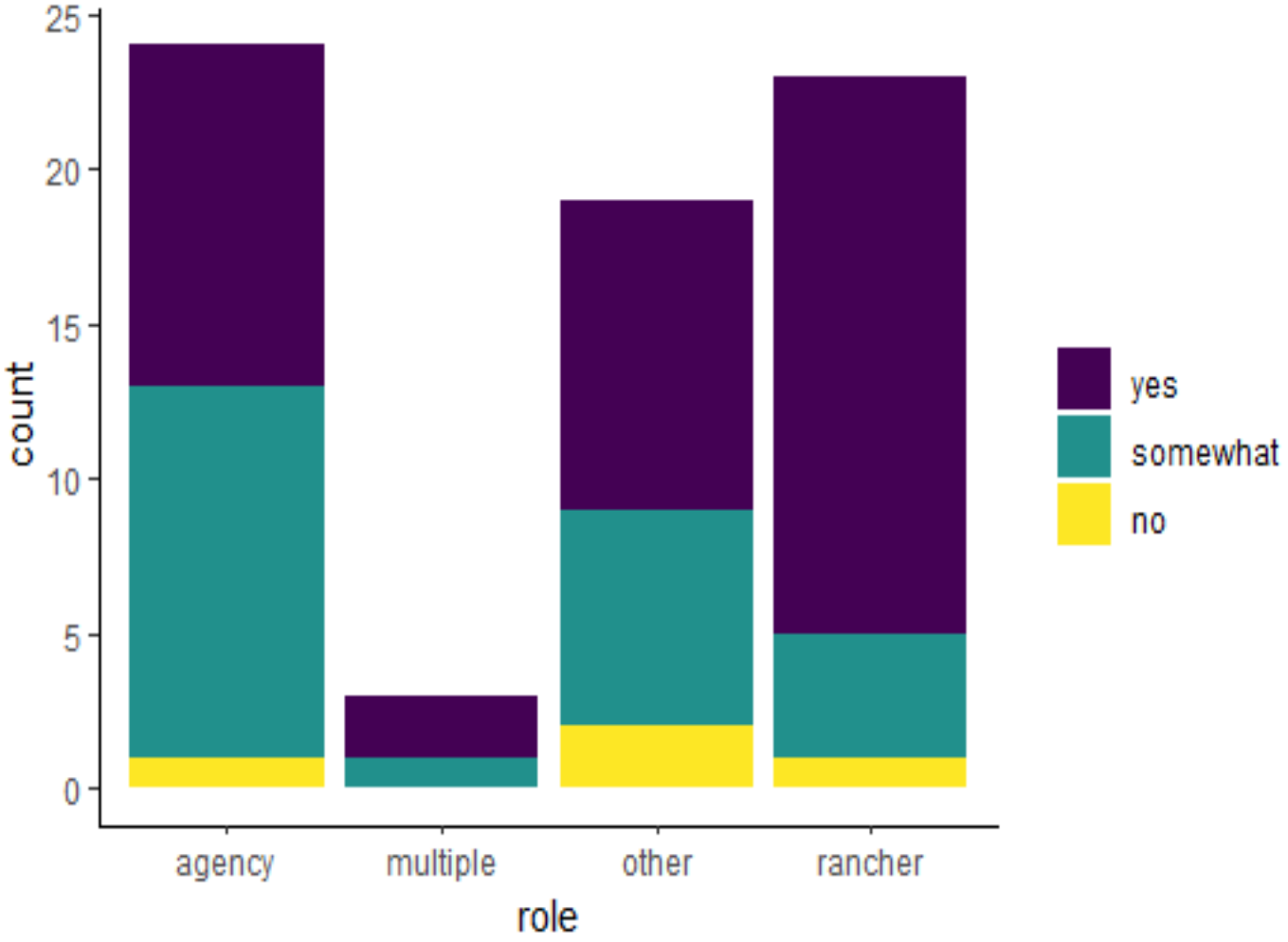
- 79 responses total: amazing breadth and depth of information and perspective
- Thanks to all of you who participated!
- Ranchers (about 35% of responses), agency land managers (about 38% of responses), and other roles (primarily consultants and technical service providers, land trust or NGO roles)
- Responses from all Central Coast counties where cattle grazing occurs



Survey results: who is using cattle grazing for wildfire fuel reduction?

What effect does cattle grazing have on wildfire fuels?

- From the literature (as well as survey responses):
- Impacts in two different time frames:
- Over a growing season:
- Reducing fine fuels over the span of a growing season
- Over years-decades:
- Reducing shrub encroachment onto rangelands



Survey: Is grazing for wildfire fuel reduction effective?

- Most say yes overall, at least somewhat
  - Ranchers most likely to say yes, agency least likely

Exploring survey responses on effectiveness

- Perspectives differed on effectiveness/impact of grazing for wildfire fuel reduction:
- Some have personal experiences that suggest clear benefits:
- “Cal Fire stopped [a major wildfire] on our property and credited our grazing program for creating the conditions that allowed for the suppression efforts to be successful.”
- Others thought that grazing would need to be to extremely low RDM in order to have a significant impact

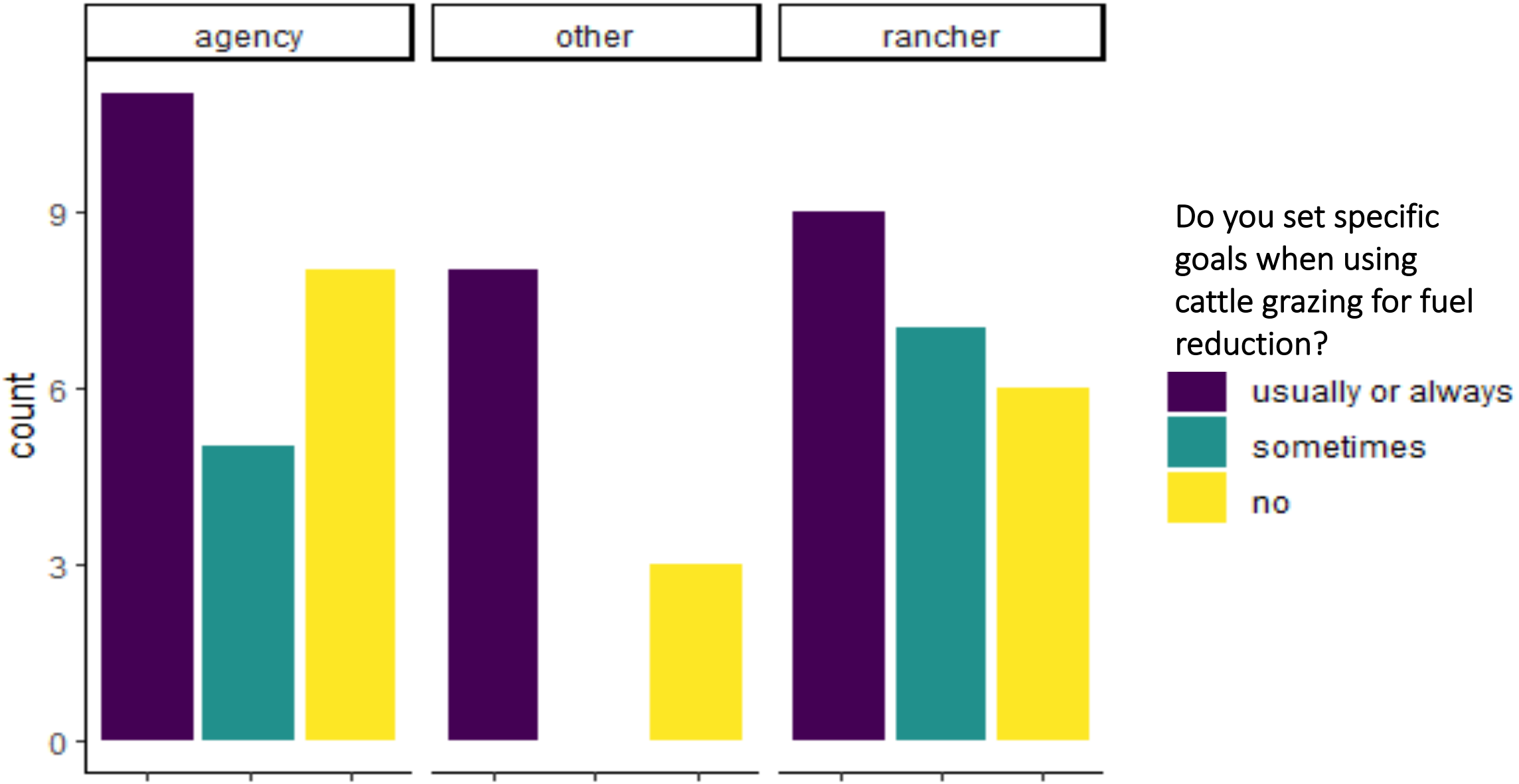
Key question: how much does fine fuel reduction matter?

Survey responses mentioned key insights/findings also present in the recent literature:

- Increasing patchiness of fuels slows fire spread
- Importance of removing herbaceous ladder fuels
- Even moderate grazing has an impact in reducing flame length

Key question: how much does fine fuel reduction matter?

- Recent papers:
- (Ratcliff et al, 2022): estimating amount of fine fuels cattle grazing removes statewide; also modeling effect on fire behavior
  - Even moderate reductions in fuel can lead to more manageable fire behavior
- (Siegel et al, 2022): grazing intensity and burn probability in North Bay, Central Coast, Central Valley and Foothills
  - Even low-moderate grazing reduced probability of burning


agency
other
rancher
count
0
3
6
9
Do you set specific goals when using cattle grazing for fuel reduction?
usually or always
sometimes
no

Common goals when grazing for fuel reduction

- RDM (residual dry matter): almost ¾ of survey respondents who set goals used measurement or observation of RDM
- Some listed specific RDM targets or ranges:
- Examples include 800-1500 lbs/ac, 1000 lbs/ac, 800-2000 lbs/ac, “minimum RDM standard plus 30%”

Common goals when grazing for fuel reduction

- Another common type of response was balancing multiple priorities when setting goals
  - Leaving enough forage, soil health, varying RDM targets for different habitat types, wildlife and plant conservation goals
  - Another frequent response was prioritizing specific locations

Grazing for fuel reduction: when and where are the top priorities?

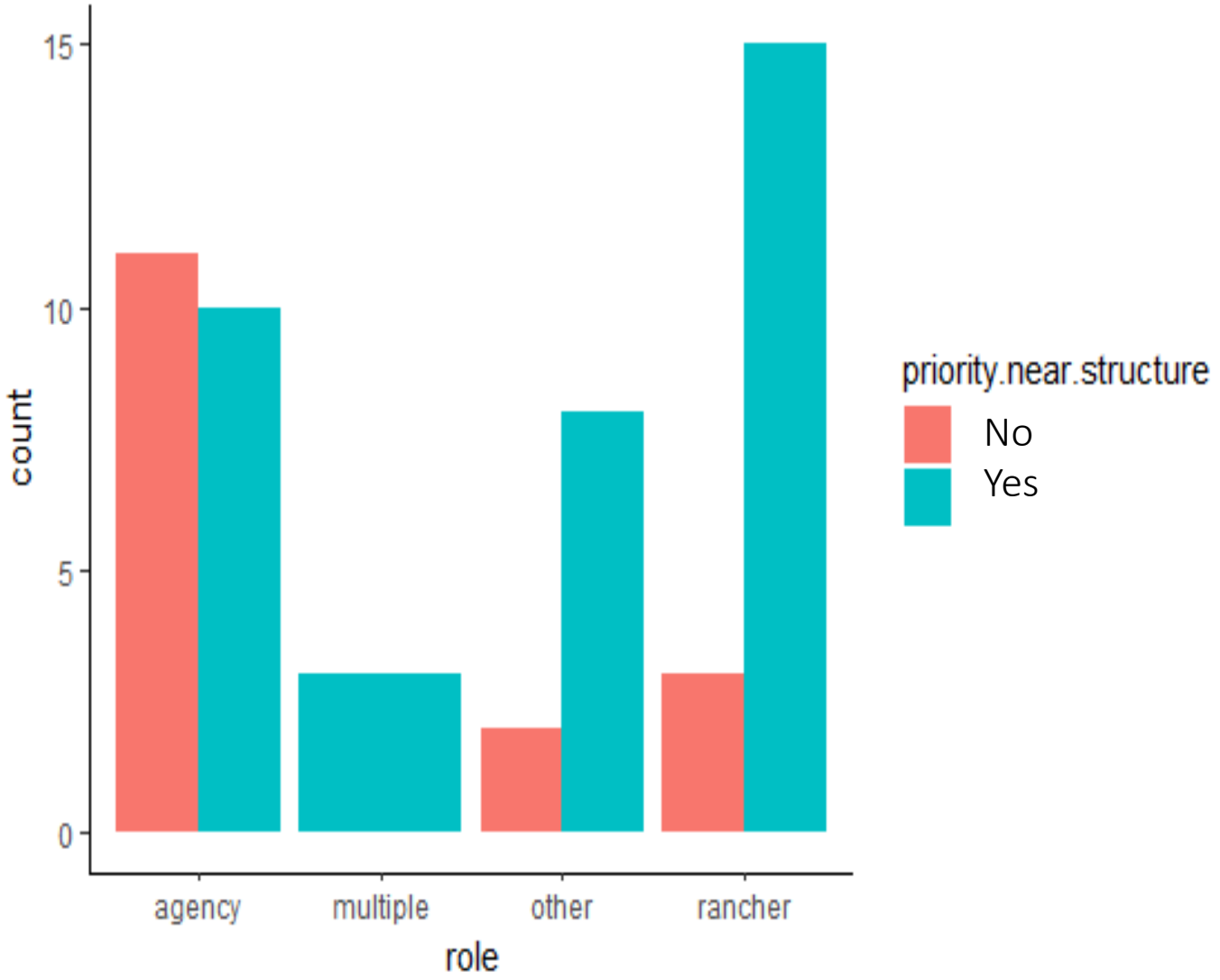
1. Year-round or early summer (tied)
2. Spring
3. Late summer
4. Winter
5. Season isn't important—relatively few people thought that season wasn't important

Grazing for fuel reduction: when and where are the top priorities?

1. Near structures/wildland-urban interface (WUI)
2. Areas with high fine fuel loads
3. Steep areas; where other strategies are in use; as only strategy
4. Locations near woody vegetation

Location priorities: near structures and WUI

- Ranchers and people in other roles prioritized grazing near structures far more than people in agency roles

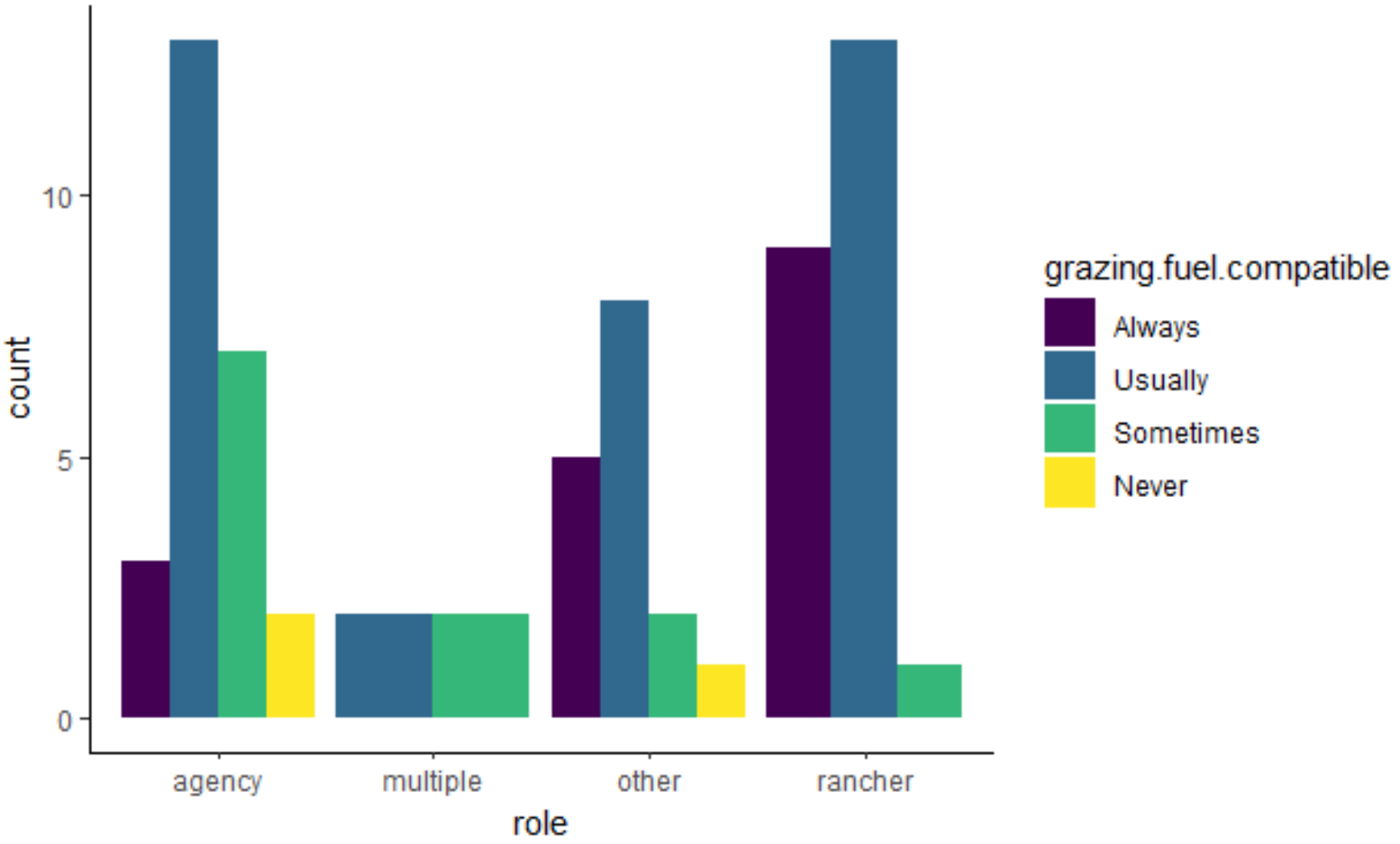


Balancing fuel reduction with other rangeland management priorities

- Frequent concern in survey responses
- Not explicitly addressed in California literature for the most part
- Explored the survey results to see how different priorities ranked, and how compatible grazing for wildfire fuel reduction was
- Asked about a range of key range management goals:
  - Invasive species control, livestock health, economics, soil erosion, water quality, native plant conservation, wildlife conservation, shrub encroachment, carbon sequestration, conflict with recreational use

Compatibility with other priorities

- Ranchers and people in other roles generally found fuel reduction was always or usually compatible with other management goals
- People in agency roles more often saw conflict with other goals



Key themes from questions on current challenges and barriers:

Practical barriers:

- Physical infrastructure for grazing is a major need!
- Water and fencing
- Both ranchers and people in agency roles mentioned this
- Conflicts with other important goals—especially water quality, soil health, species conservation, recreational use on park lands

Policy and institutional barriers:

- Attitude of both institutions and public toward cattle grazing for fuel reduction is an important factor
- Survey respondents report encountering both helpful and unhelpful attitudes
- Multiple responses mentioned a recent shift toward more helpful-to-grazing attitudes particularly at the state-level
- Lack of emphasis on fine fuels reduction vs woody fuels at broader level
  - Leading to reduced funding opportunities and focus
- Difficulty of navigating current policies (CEQA, NEPA, location-specific grazing restrictions) and existing funding sources (CalFire, NRCS)

Key Takeaway Points

- Cattle grazing specifically for wildfire fuel reduction is widely practiced by ranchers and agencies on Central Coast rangelands already
- Most who use cattle grazing for this purpose set specific goals at least some of the time
  - Common goals include RDM targets, and location and seasonal priorities
- Recent literature and majority of survey responses agreed that cattle grazing can be an effective tool for reducing wildfire fuels
- Barriers or areas of uncertainty included:
  - How to balance fuel reduction with other range management priorities
  - Practical barriers: lack of funding for physical infrastructure (water, fences)
  - Lack of focus on rangelands and fine fuels

Next Steps

- For this project:
- Submit the report on literature and survey results in a peer-reviewed journal
- Make key findings available and accessible to both the rangeland management community and to those developing wildfire policy and grazing policy
- Using the insights—gaps in current knowledge and resources—to spur new research that collaborates with stakeholders in learning how to better use cattle grazing in managing California's fire-adapted landscapes
  - Understand how cattle grazing can work as a tool alongside others

Acknowledgements

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- Everyone who took the survey!

Questions?

- If you'd like to discuss this project more, feel free to email me: rwpeterson@ucdavis.edu