Promoting oviposition habitat for Oregon spotted frog using targeted seasonal grazing strategies

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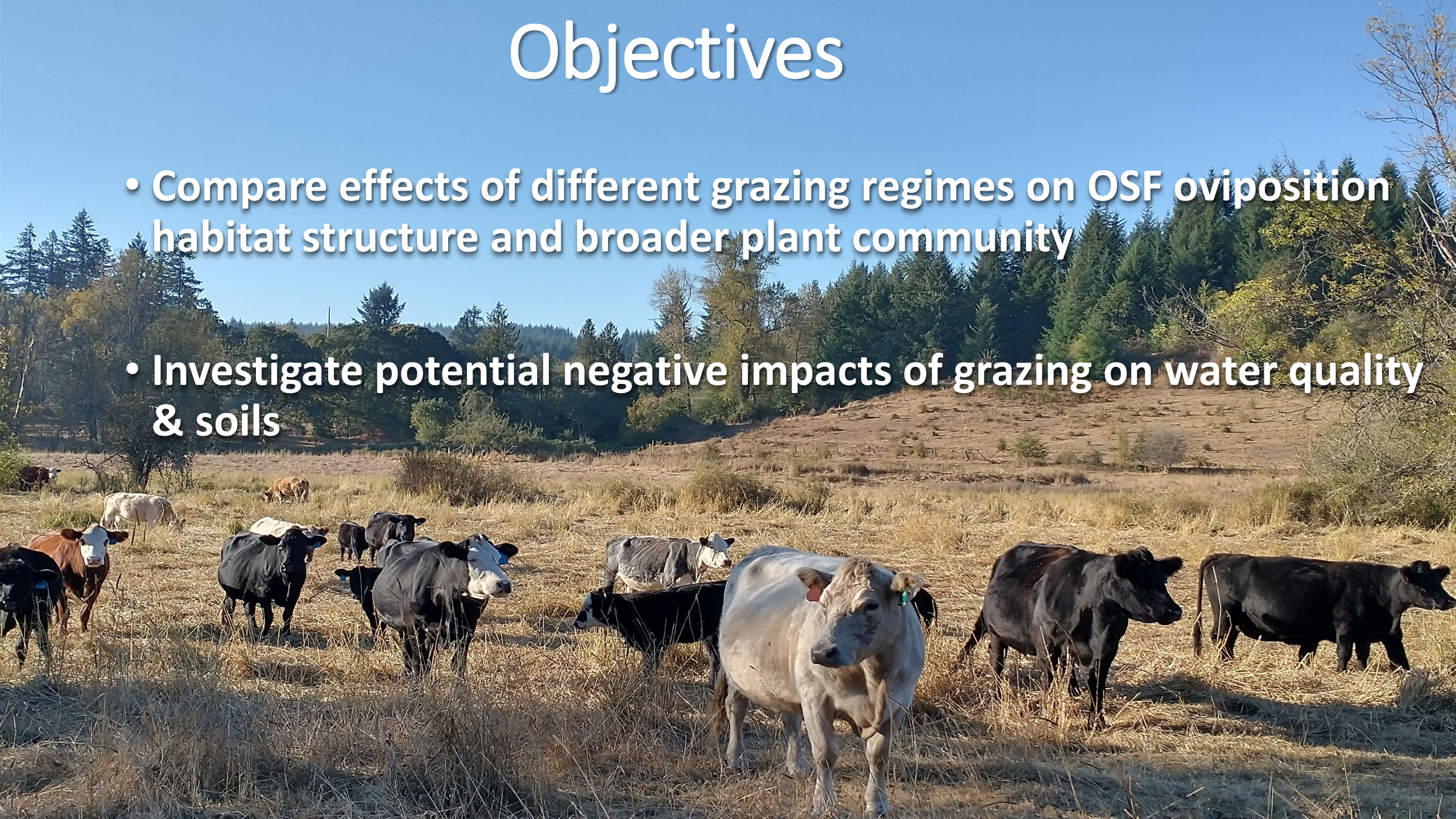
Background

- OSF status- federally threatened, endangered in WA state
- OSF need shallow water (< 15cm) & short stature veg (<60cm) for oviposition
- Reed canary grass (RCG) is a major threat to habitat
- RCG control efforts include mowing, burning, herbicide
- Grazing could be a viable alternative strategy

Objectives

- Compare effects of different grazing regimes on OSF oviposition habitat structure and broader plant community
- Investigate potential negative impacts of grazing on water quality & soils



Project Design

- Mima Creek Preserve
- 2019- established 3 treatment paddocks
  - Different grazing regimes
    - Continuous- access to entire paddock (4 wks)
    - Rotational- targeted, short duration (1-2 wks per subunit)
    - Control- ungrazed

  - Upland & Wetland zones

Grazing Implementation

Grazing Regime	2019	2020	2021	2022
Continuous	24 cows 2 wks Oct	11 cows 4 wks July-Aug	43 cows 4.5 wks Aug-Sept	36 cows 4.5 wks Aug-Sept
Rotational	-	12 cows 2-3 wks/unit Aug-Oct	43 cows 1-2 wks/unit Sept-Oct	36 cows 1-2 wks/unit Sept-Oct
Ungrazed	-	-	-	-

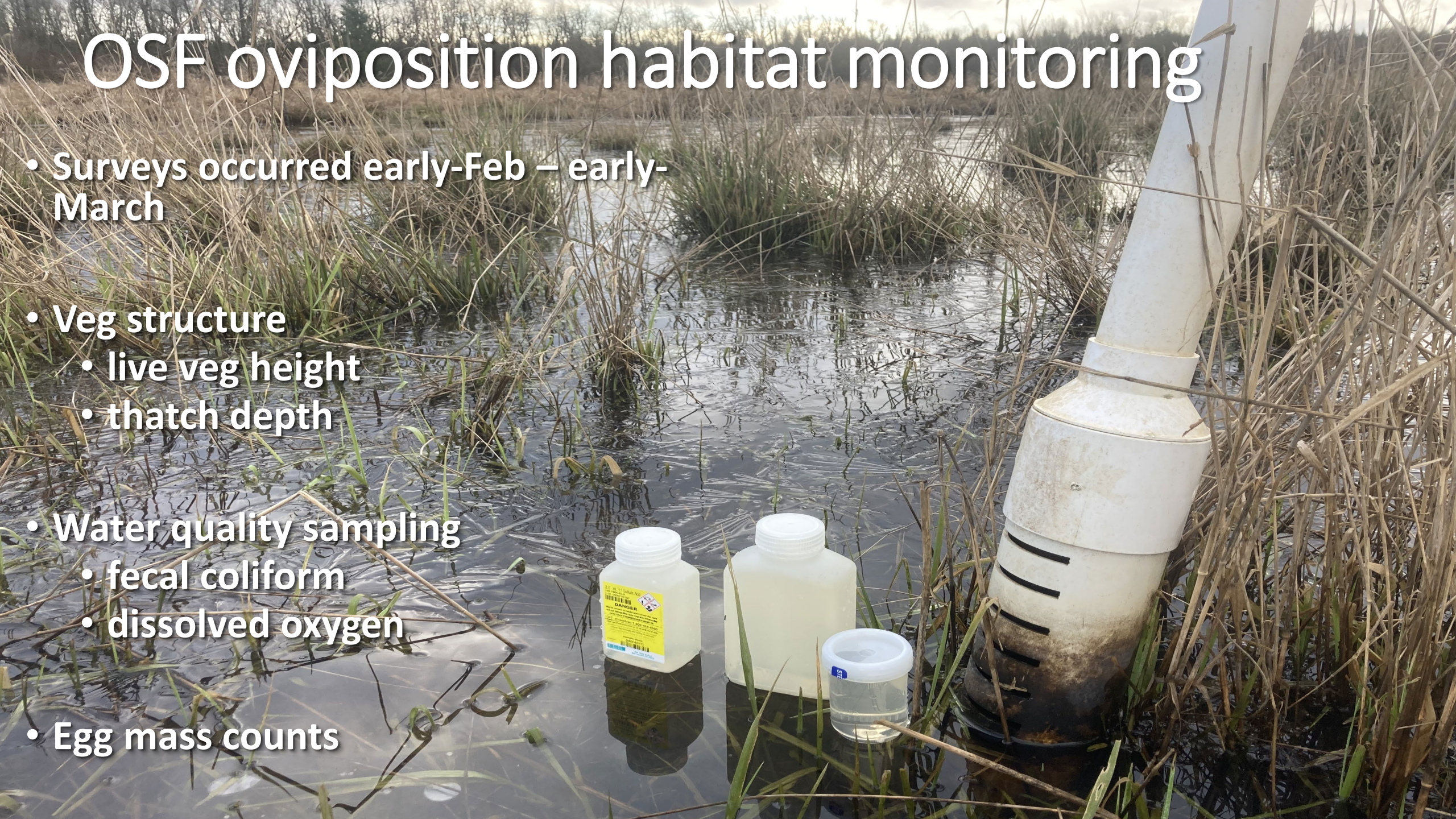
OSF oviposition habitat monitoring

- Surveys occurred early-Feb – early-March

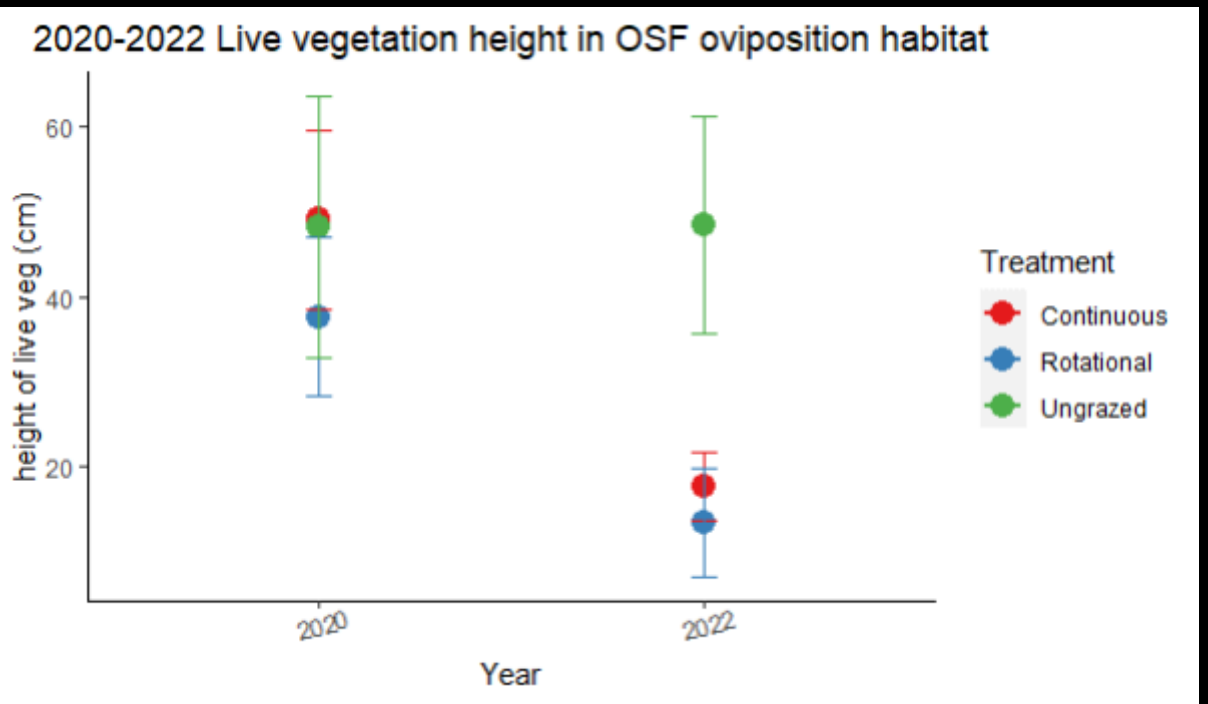
- Veg structure
  - live veg height
  - thatch depth

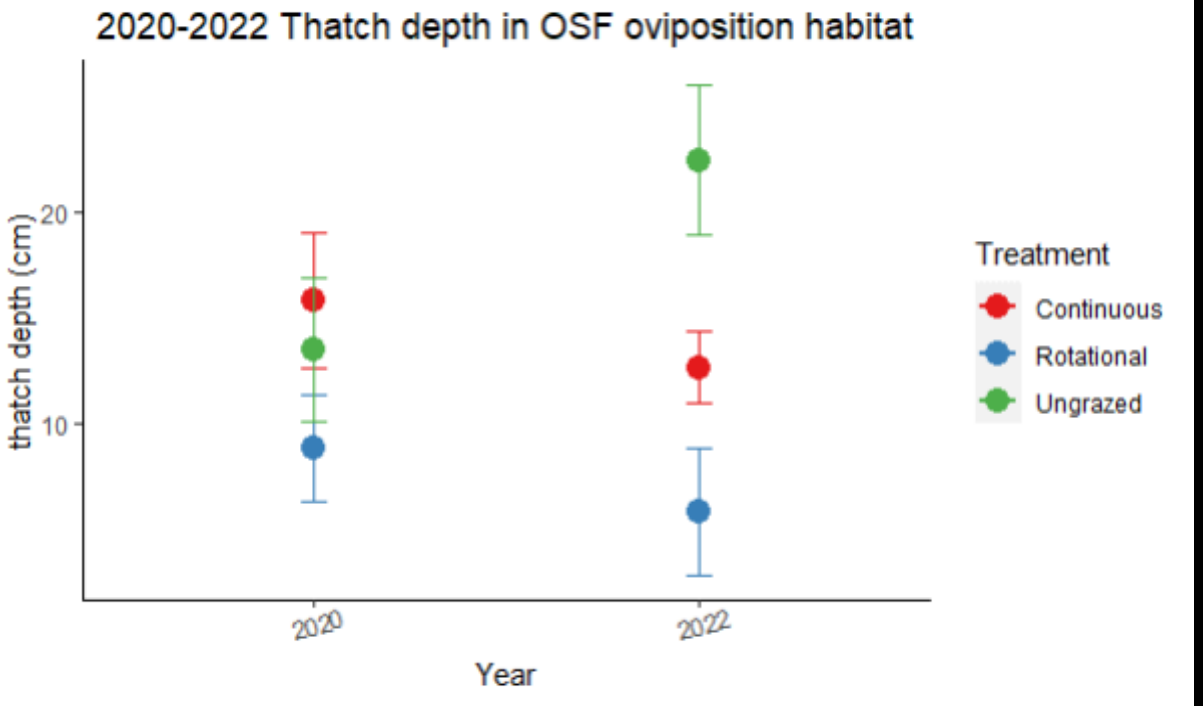
- Water quality sampling
  - fecal coliform
  - dissolved oxygen

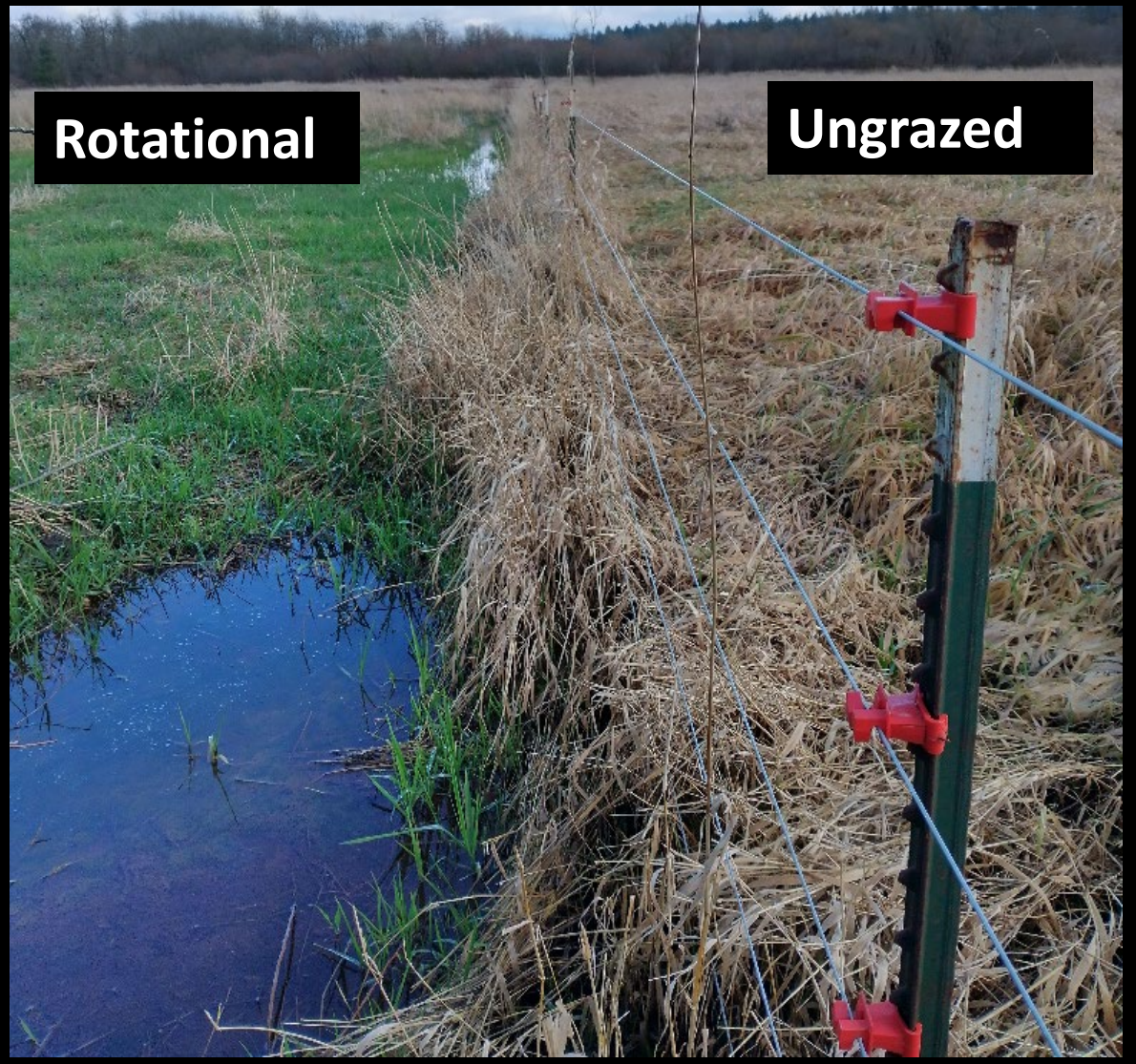
- Egg mass counts



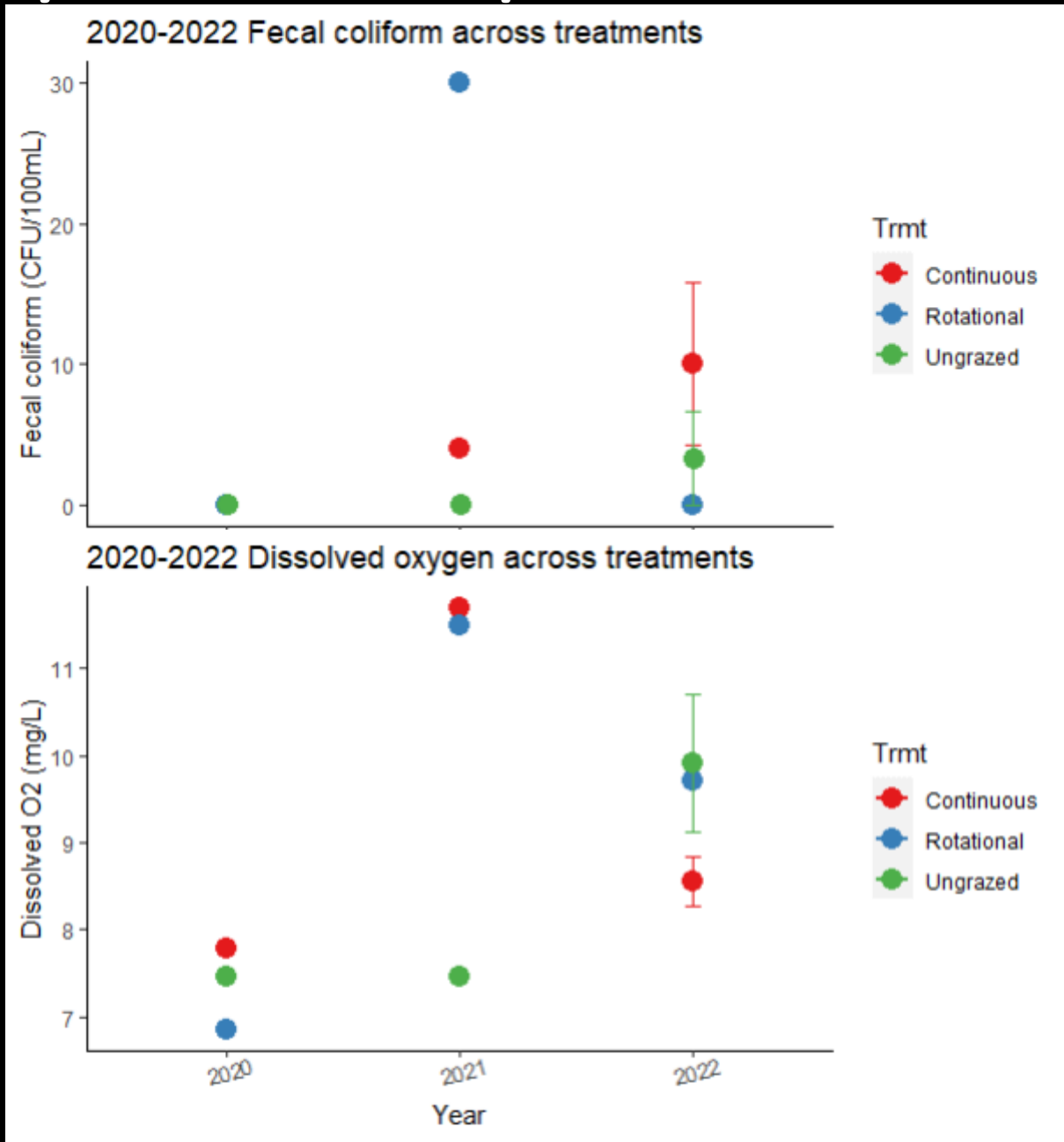
Grazing improves veg structure for OSF breeding







Grazing impacts- water quality in OSF oviposition zone

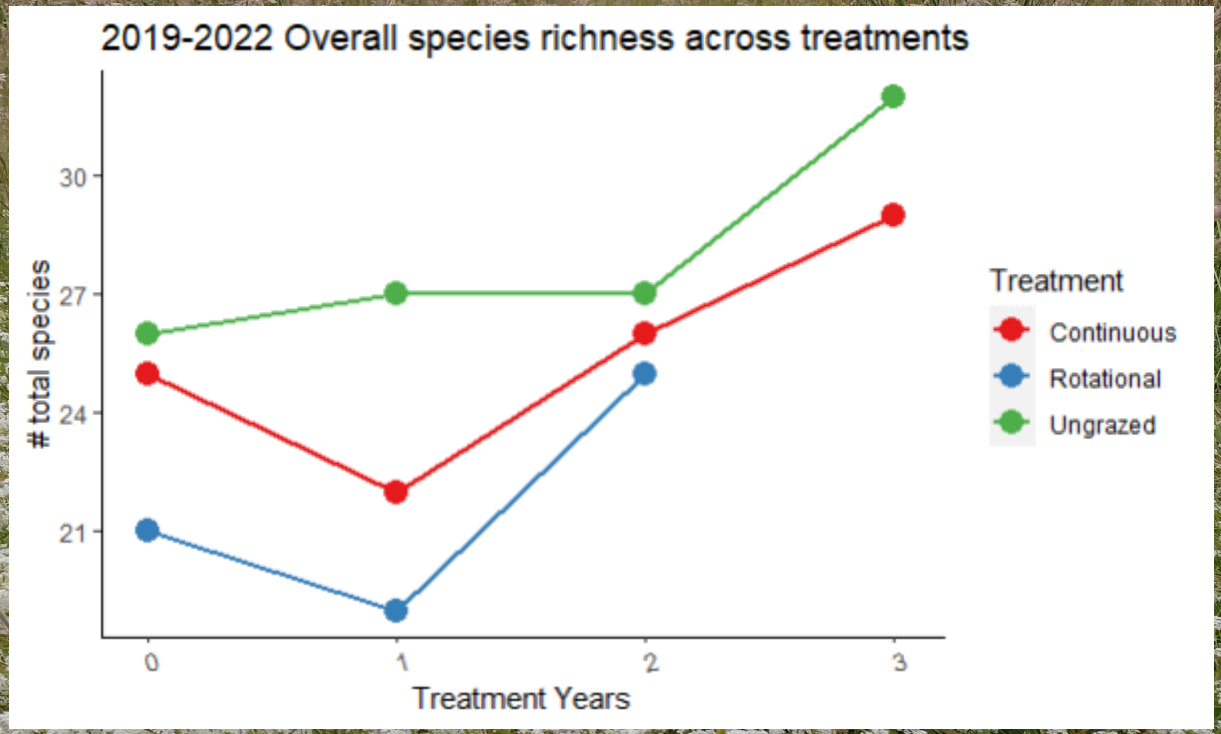


OSF egg mass counts

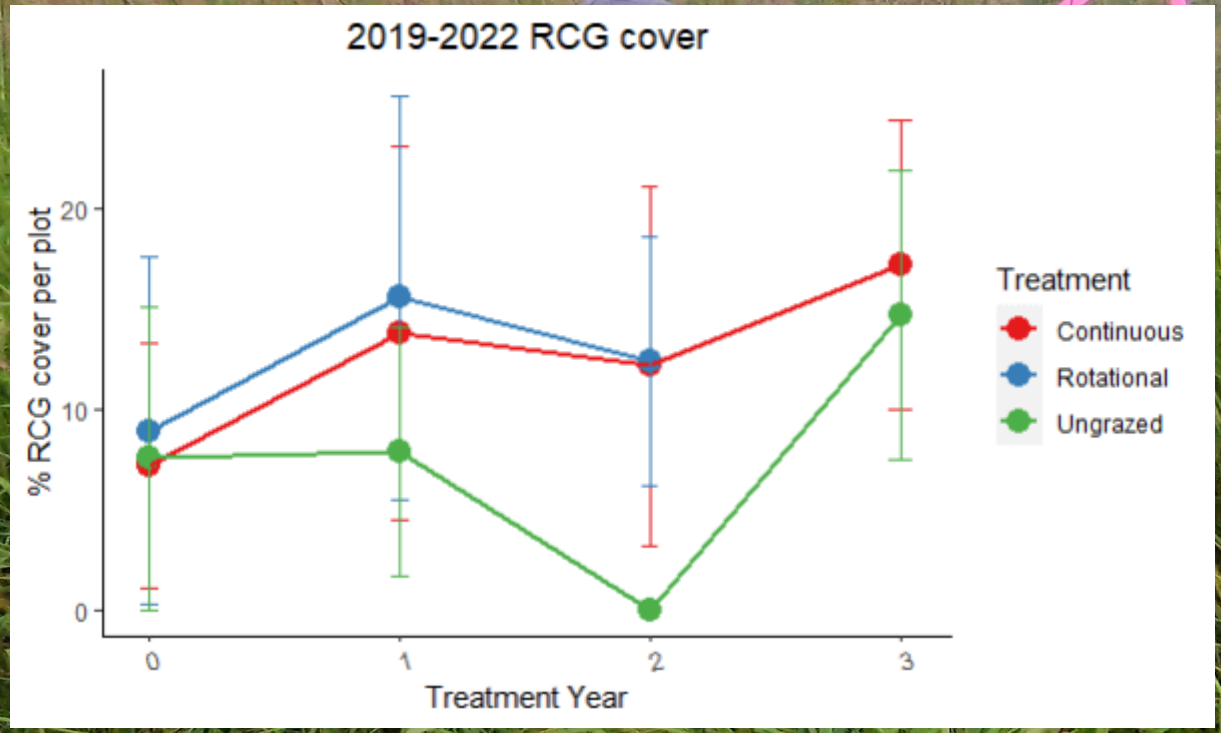
Year	Continuous	Rotational	Ungrazed	Total
2019	11	0	0	11
2020	3	0	0	3
2021	4	5	0	9
2022	24	5	1	30

Grazing impacts on plant community and soils?

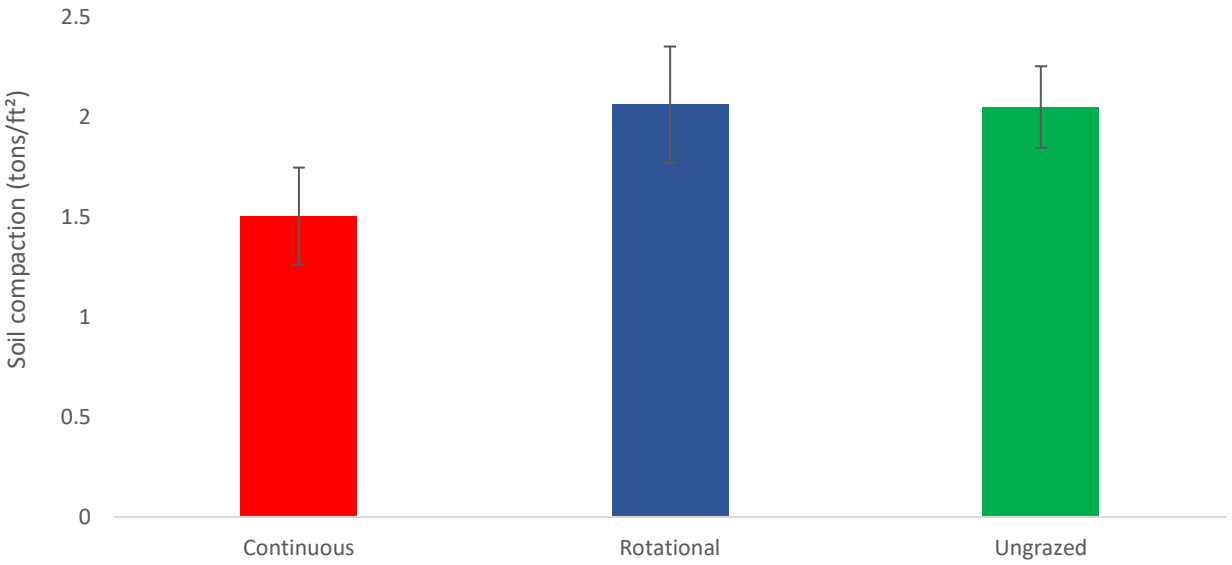
Plant diversity across grazing treatments

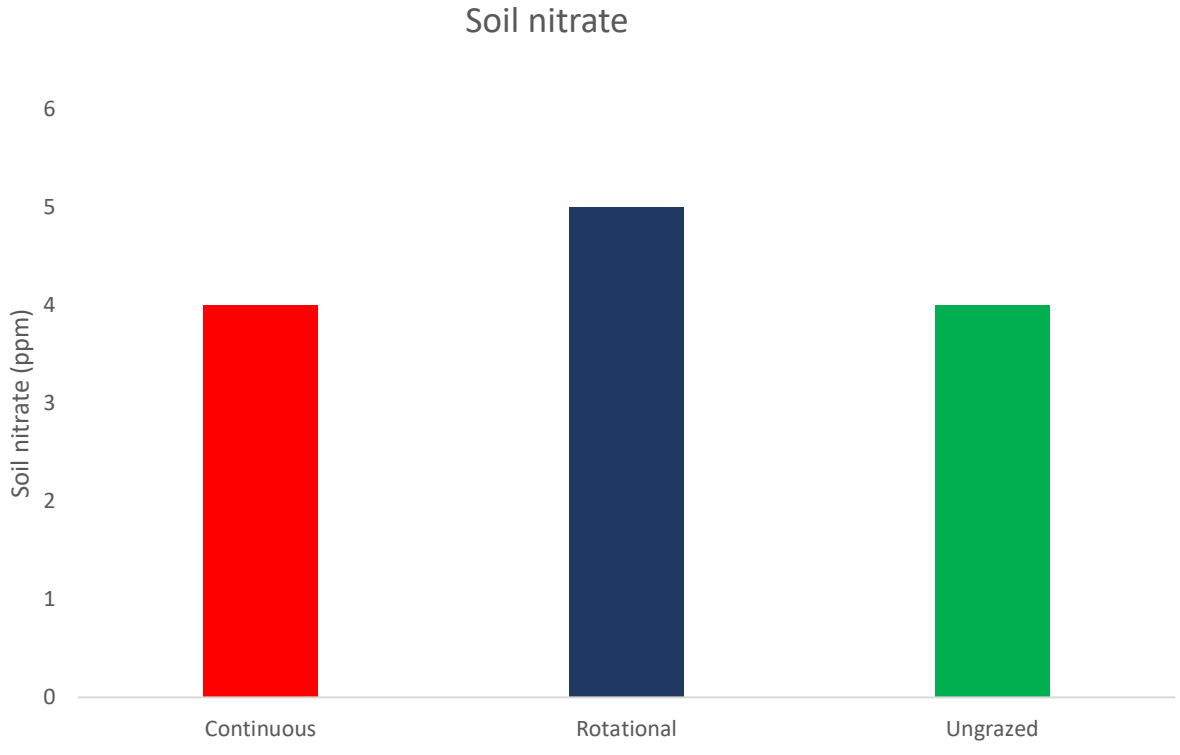


Reed canary grass response



Soil compaction & nitrate





Takeaways

1. Grazing improves veg structure for OSF oviposition (similar outcomes with continuous & rotational regimes)
2. Water quality impacts are within acceptable range
3. Grazing decreases plant richness over the first year, but it rebounds over time
4. Combine grazing with native seeding (upland) and plugging (wetland)
5. Grazing is not reducing RCG cover
6. Negligible effects of grazing on soil nitrate & compaction

Acknowledgements

- Jake Yancey- Tracking Y Ranch

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  - Evergreen interns
  - CNLM folks