Comparing Grazing Management Regimes for Oregon Spotted Frog Habitat

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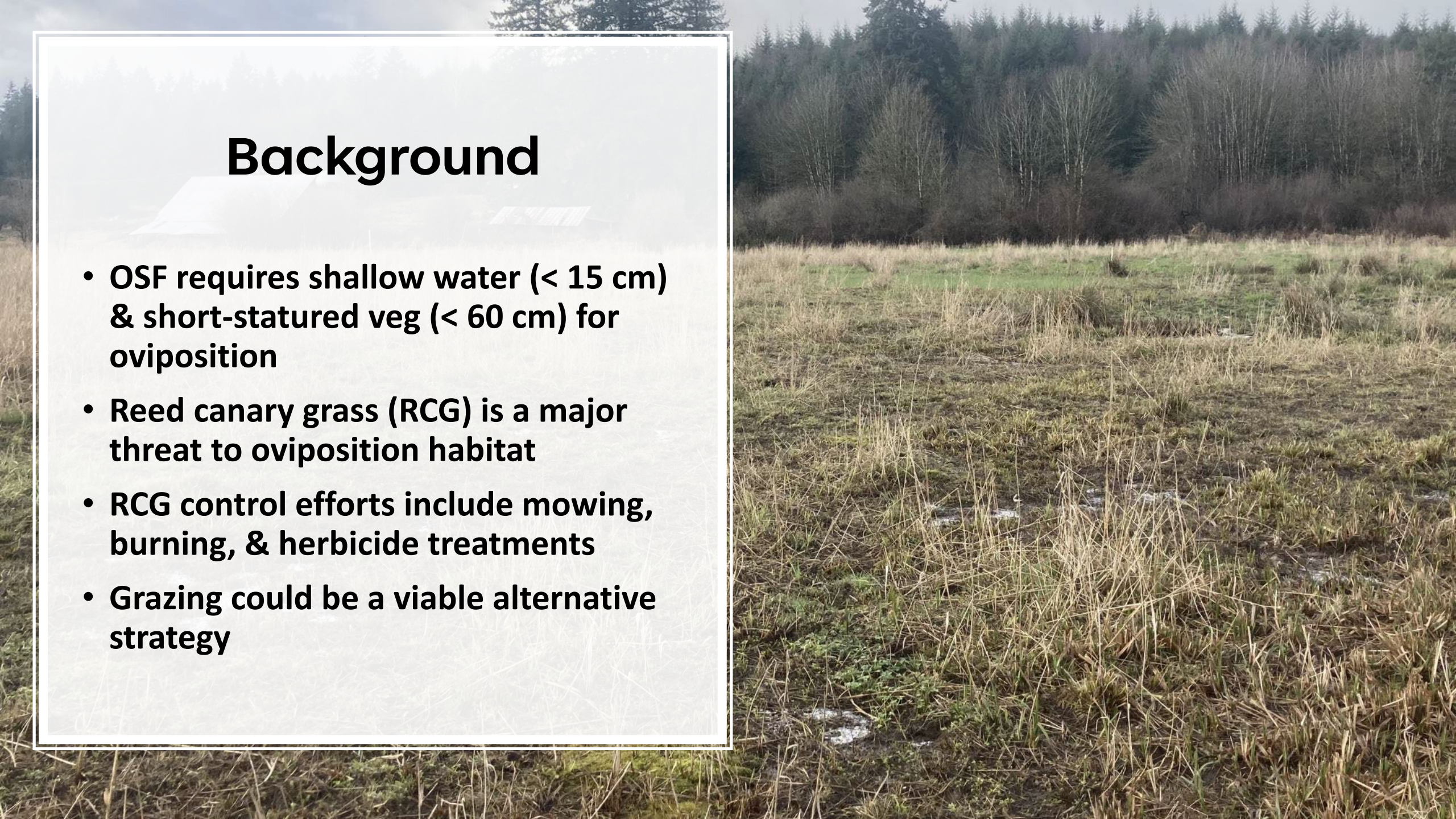
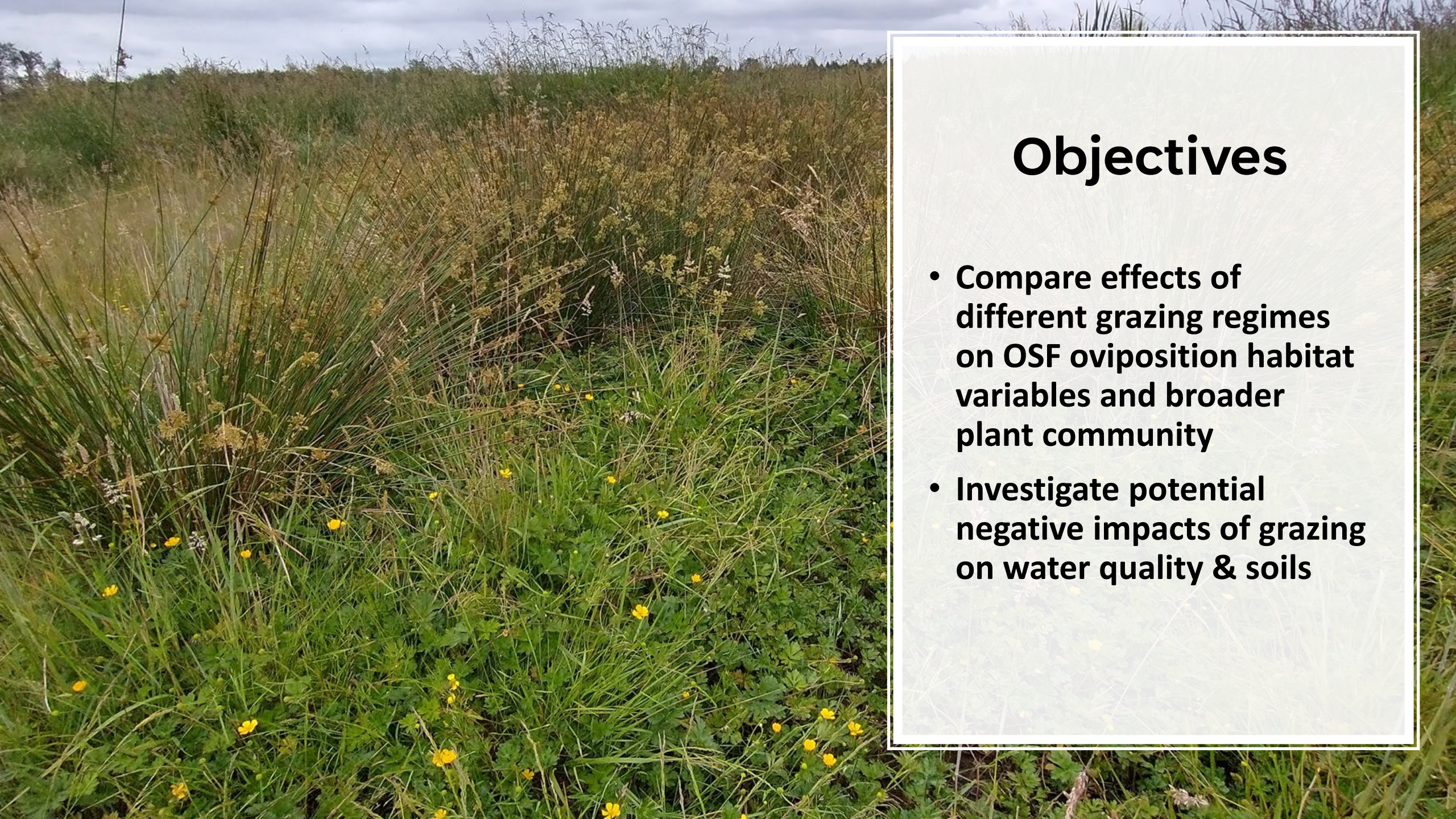
Background

- OSF requires shallow water (< 15 cm) & short-statured veg (< 60 cm) for oviposition
- Reed canary grass (RCG) is a major threat to oviposition habitat
- RCG control efforts include mowing, burning, & herbicide treatments
- Grazing could be a viable alternative strategy





Objectives

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

Project Design

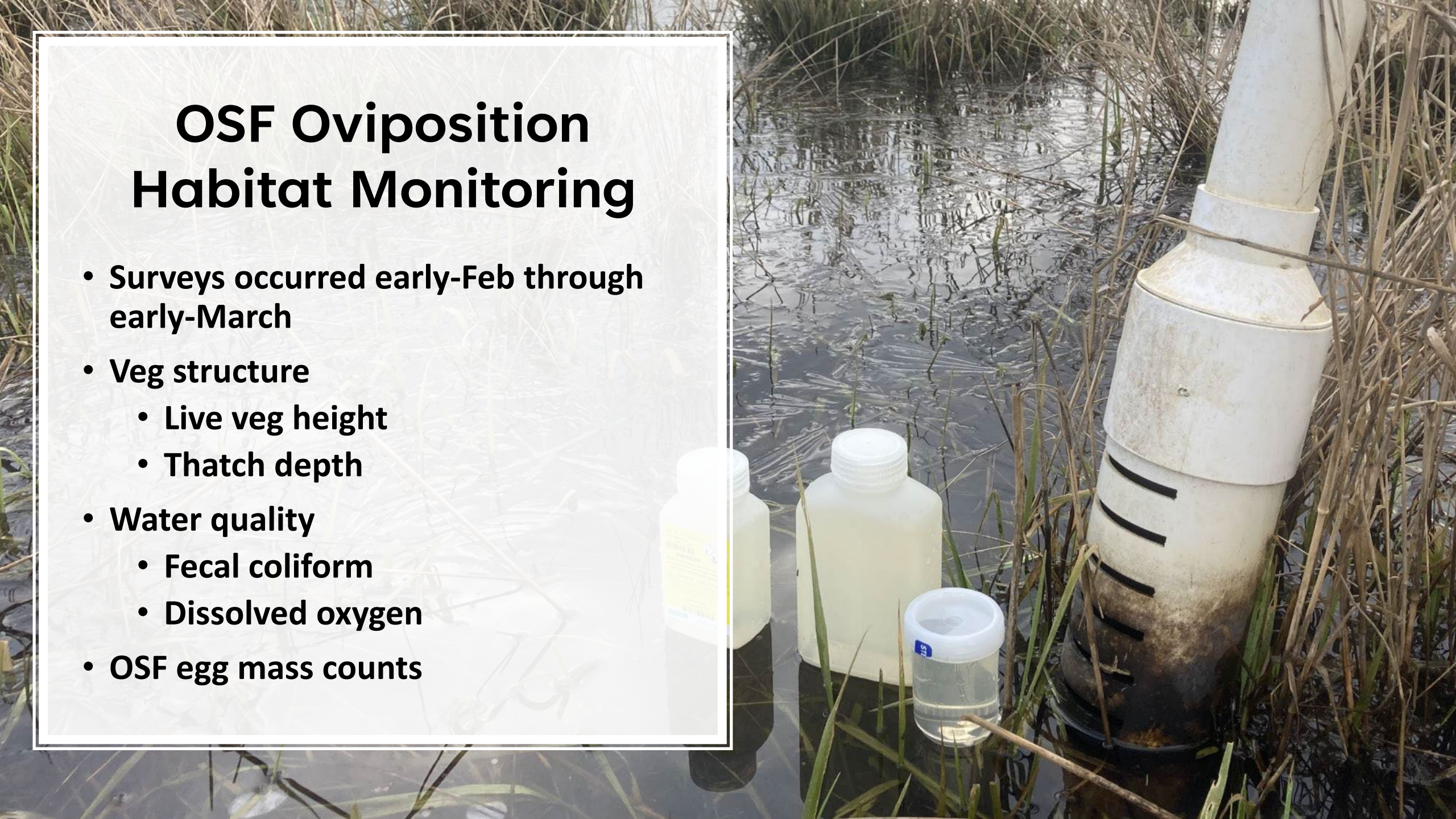
- Mima Creek – tributary of Black River near Olympia, WA
- 2019 – established 3 treatment paddocks
  - Different grazing regimes
    - Continuous – access to entire paddock (4 wks)
    - Rotational – targeted, short duration (1-2 wks/unit)
    - Control – ungrazed
  - Upland and wetland zones

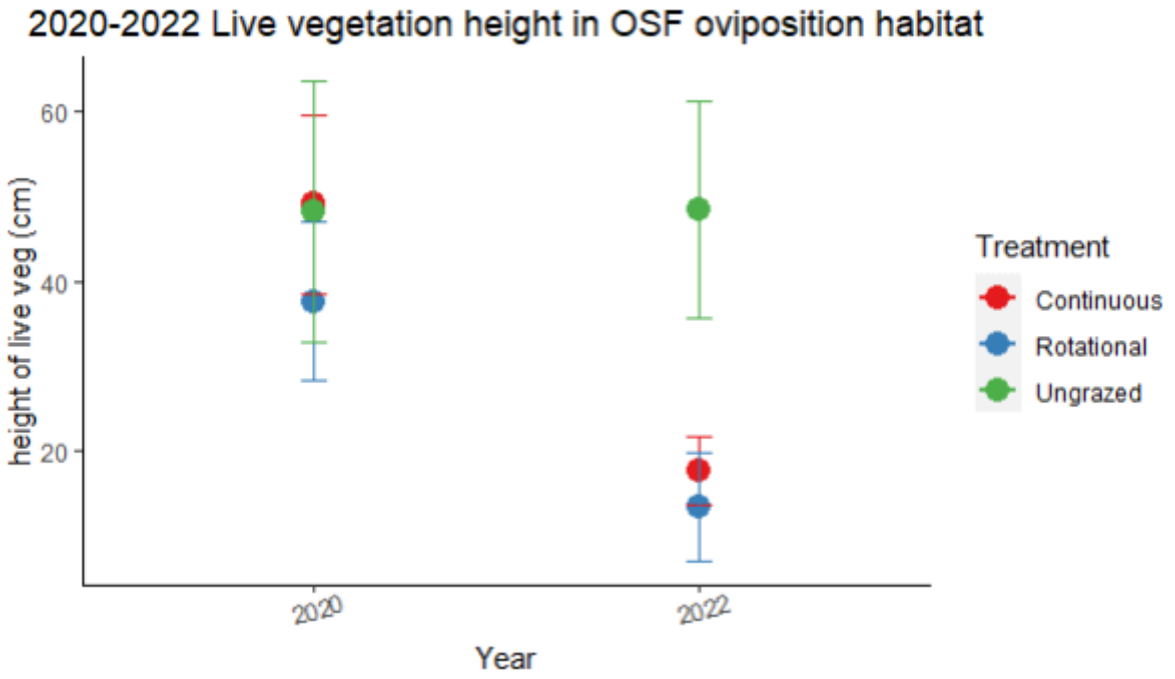
Grazing Implementation

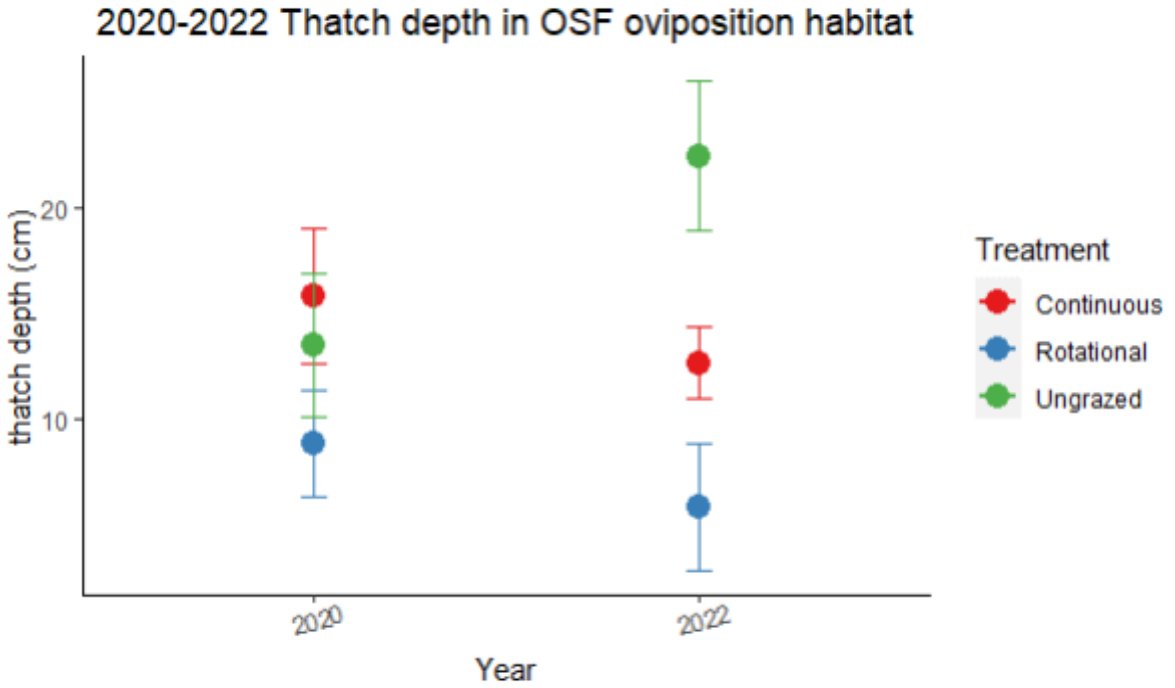
Grazing Regime	2019	2020	2021	2022
Continuous	24 cows 2 wks Oct	11 cows 4 wks July-Aug	43 cows 4.5 wks Aug-Sept	36 cows 4.5 wks Aug-Sept
Rotational	-	12 cows 2-3 wks/unit Aug-Oct	43 cows 1-2 wks/unit Sept-Oct	36 cows 1-2 wks/unit Sept-Oct
Ungrazed	-	-	-	-

OSF Oviposition Habitat Monitoring

- Surveys occurred early-Feb through early-March
- Veg structure
  - Live veg height
  - Thatch depth
- Water quality
  - Fecal coliform
  - Dissolved oxygen
- OSF egg mass counts

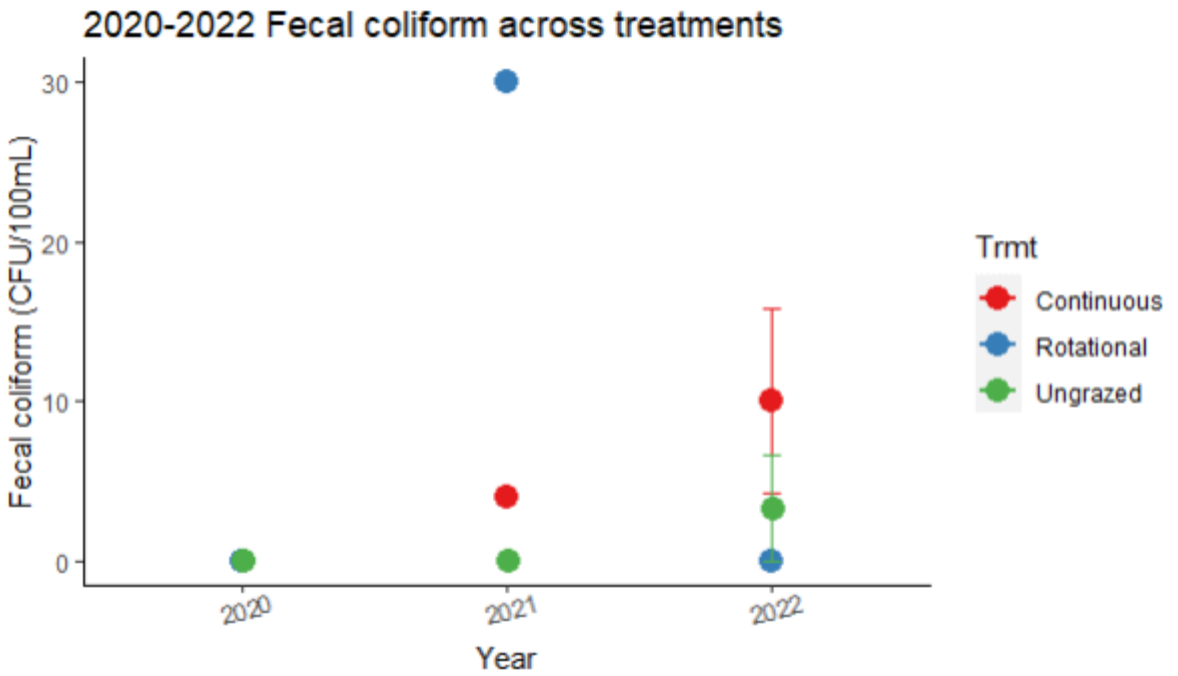


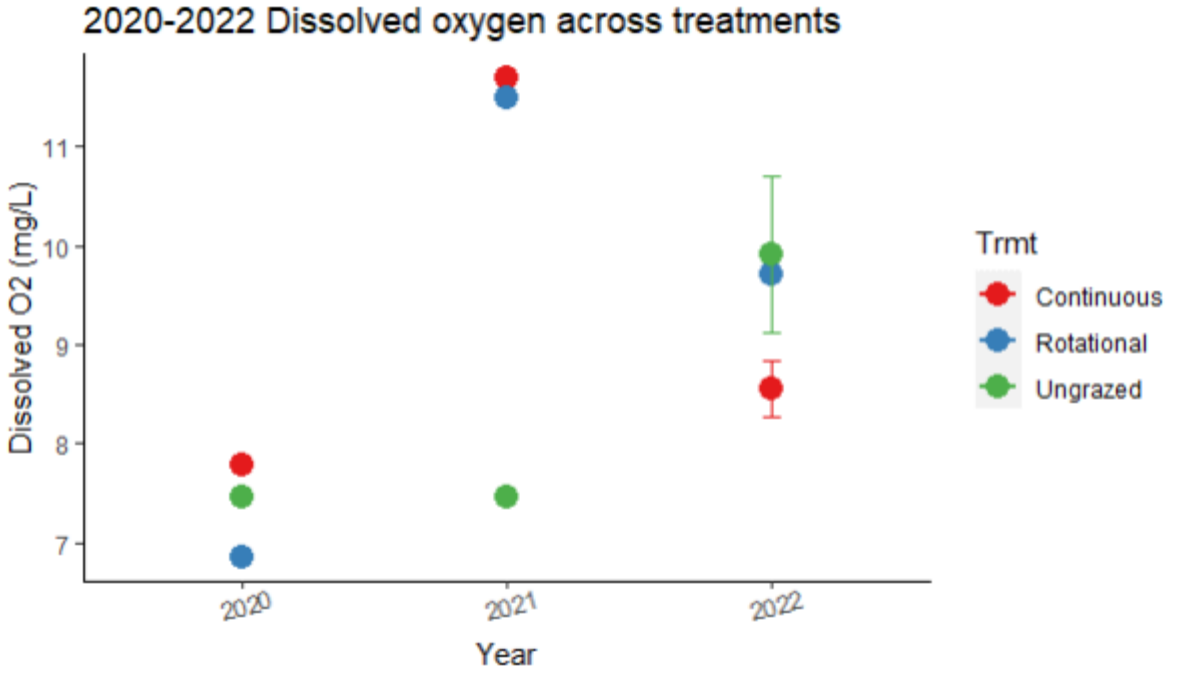

2020-2022 Live vegetation height in OSF oviposition habitat
height of live veg (cm)
60
40
20
2020
2022
Year
Treatment
Continuous
Rotational
Ungrazed


2020-2022 Thatch depth in OSF oviposition habitat
thatch depth (cm)
20
10
2020
2022
Year
Treatment
Continuous
Rotational
Ungrazed


Grazing improves veg structure for OSF breeding
Rotational
Ungrazed

Water Quality in OSF Oviposition Zones



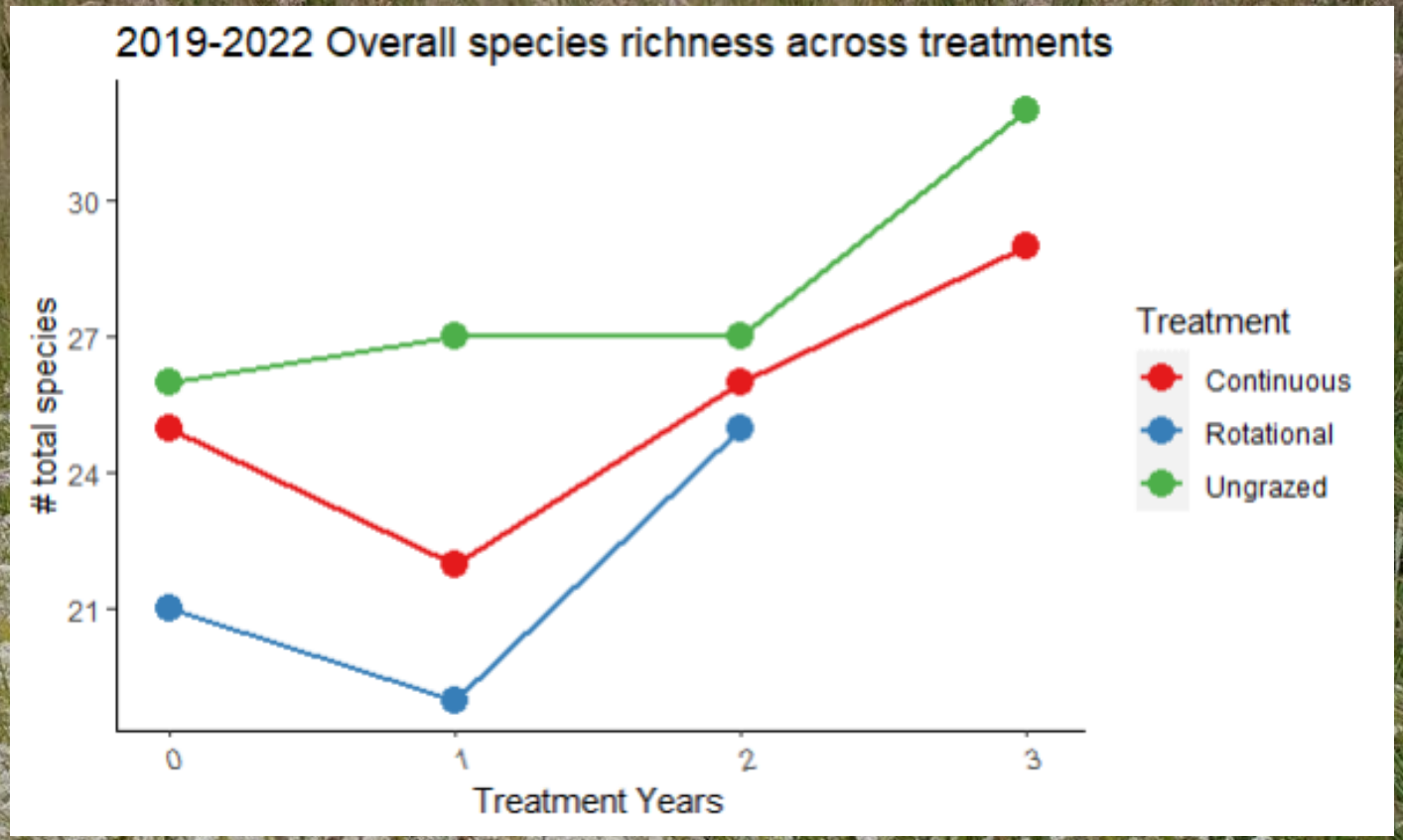


OSF Egg Mass Counts

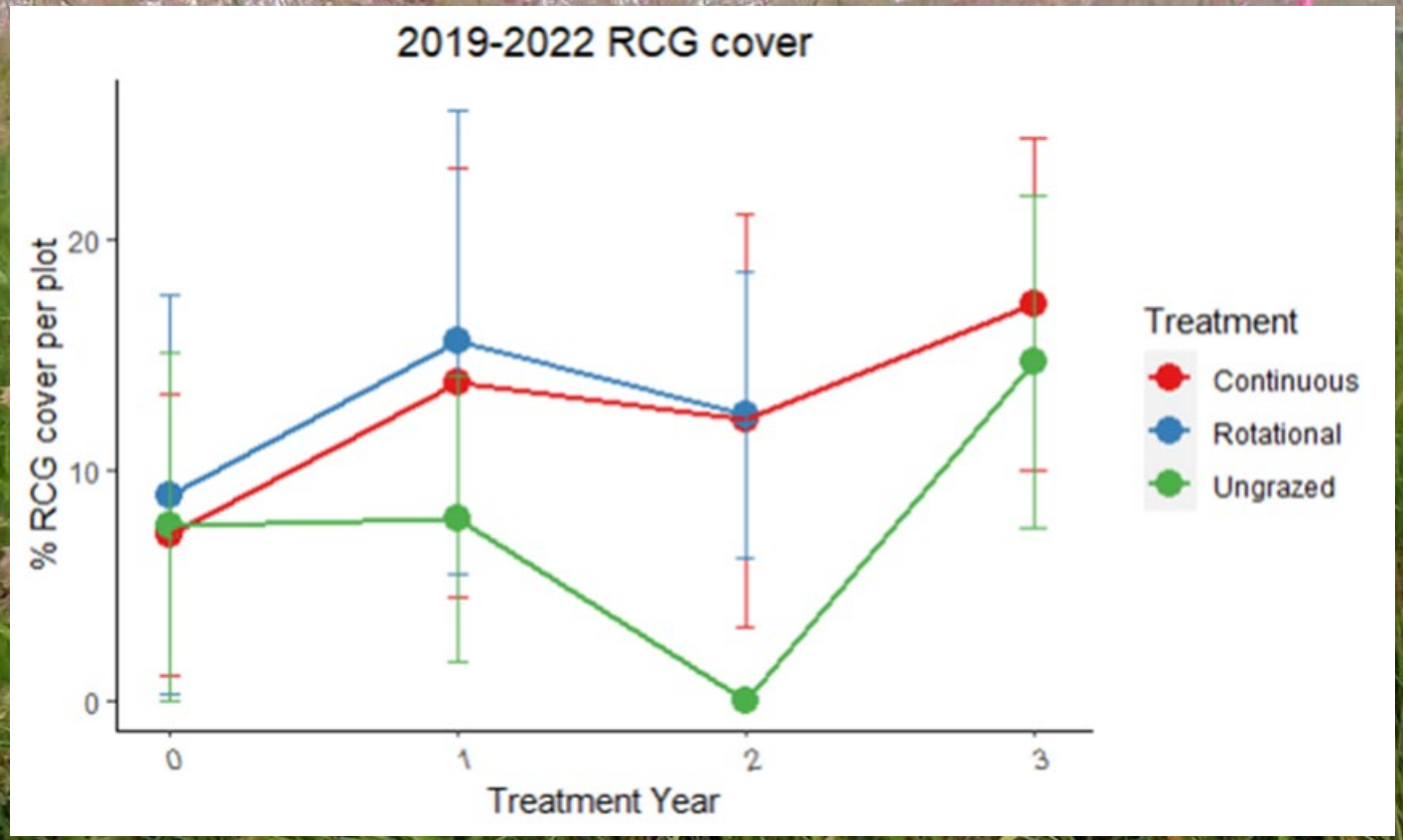
Year	Continuous	Rotational	Ungrazed	Total
2019	11	0	0	11
2020	3	0	0	3
2021	4	5	0	9
2022	24	5	1	30

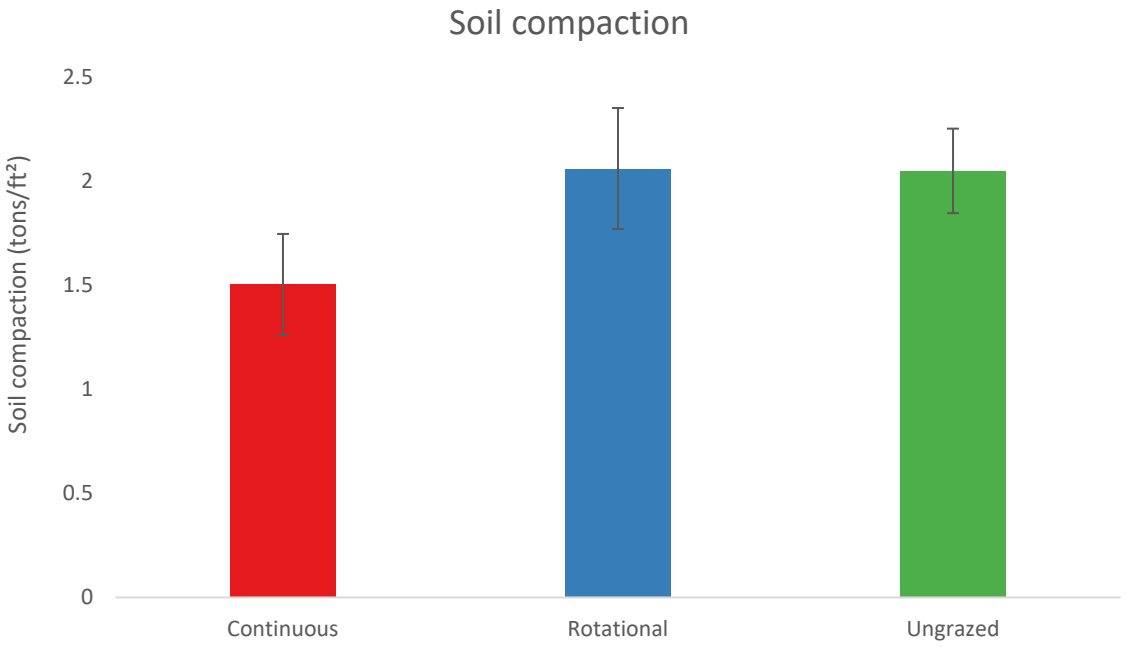
Grazing Impacts on Plant Community & Soils

Plant Diversity

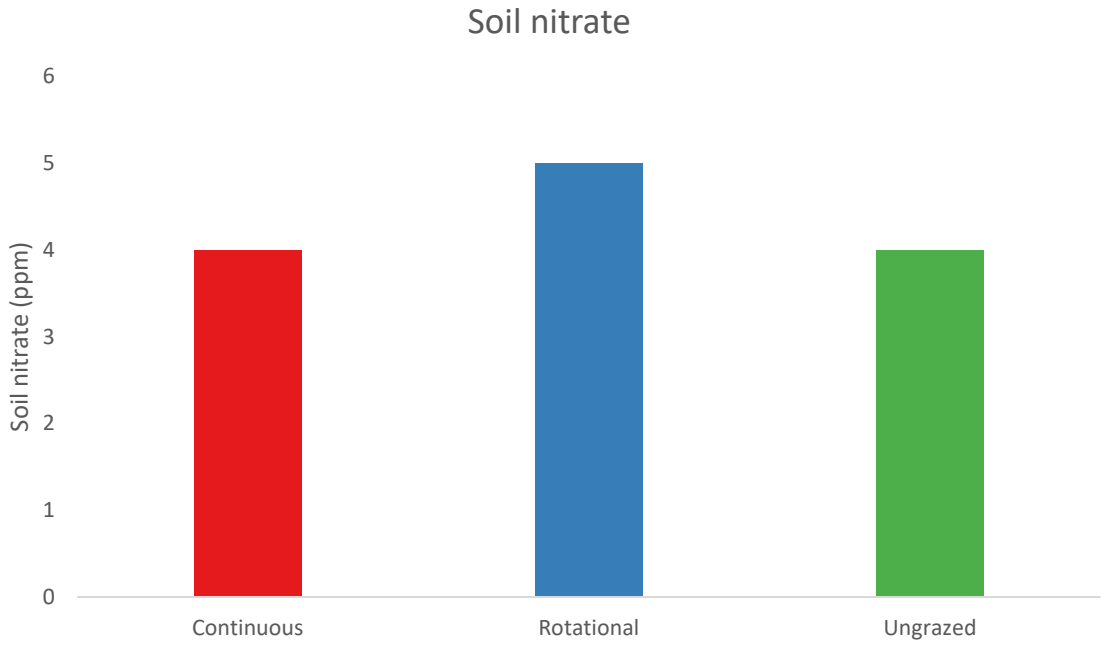


Reed Canary Grass




Soil compaction
Soil compaction (tons/ft²)
2.5
2
1.5
1
0.5
0
Continuous
Rotational
Ungrazed


Soil Compaction & Nitrate


Soil nitrate
Soil nitrate (ppm)
6
5
4
3
2
1
0
Continuous
Rotational
Ungrazed

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

- Tracking Y Ranch
- AmeriCorps
- Evergreen State College
- Center for Natural Lands Management

Frogs on the Farm

Nick George

About the Partnership

- **Formal partnership between the Partners for Fish and Wildlife Program (PFW) & Thurston Conservation District (TCD)**
- **Collaborative, community-based approach that partners with groups such as CNLM, NRCS, Ecostudies, and private landowners**
- **Objectives include enhancing OSF habitat, agricultural viability, community outreach, etc.**

Problems

Vegetation

Reed canary grass has excluded most of the native vegetation and has left little open water habitat, even at high water

Costs

Maintaining grass height on an annual basis takes both time and money

Sustainability

Funding programs/grant managers prioritize restoration practices that require minimal follow up and maintenance

Usability

When left unchecked, breeding habitats that have shallow water (≤ 30cm), short vegetation, and full sun exposure with relatively stable hydrology and aquatic connectivity to permanent waters do not exist

Solution

Cows

Cows eat grass, which creates the desired habitat structure

Cost Savings

After the initial infrastructure (fencing and water), little to no costs should be incurred for the lifespan of those practices

Ag. Viability

Incentivizing habitat restoration practices on our local working landscapes is a “win-win” when it comes to rare species and community relations

Mima Creek – Phase 2

Cassie Doll

Implemented Practices

Fencing

- Expanded habitat/pasture by 20 acres, allowing for more management flexibility and ecological uplift
- Several wildlife crossings

Watering Facilities

- About 1,100’ of pipeline was installed
- Multiple hydrants along the pipeline allow for intense prescribed grazing to responsibly occur


Kawasaki

Next Steps

Mara Healy

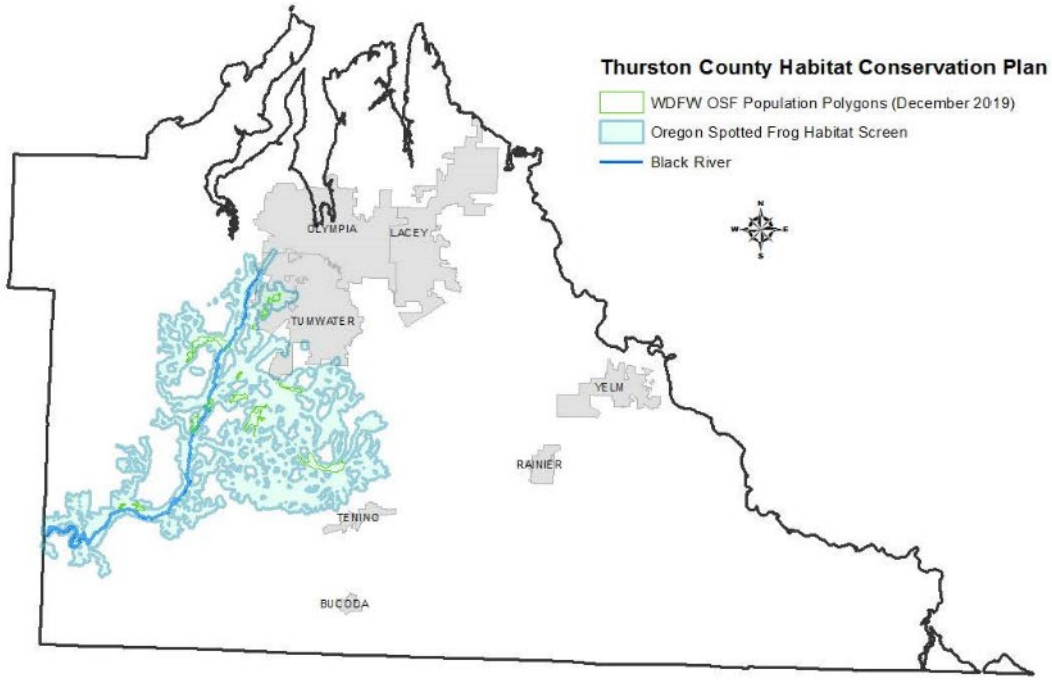
Next Steps

Spatial Modeling

- Identify priority parcels using data on land use, habitat type, and species presence

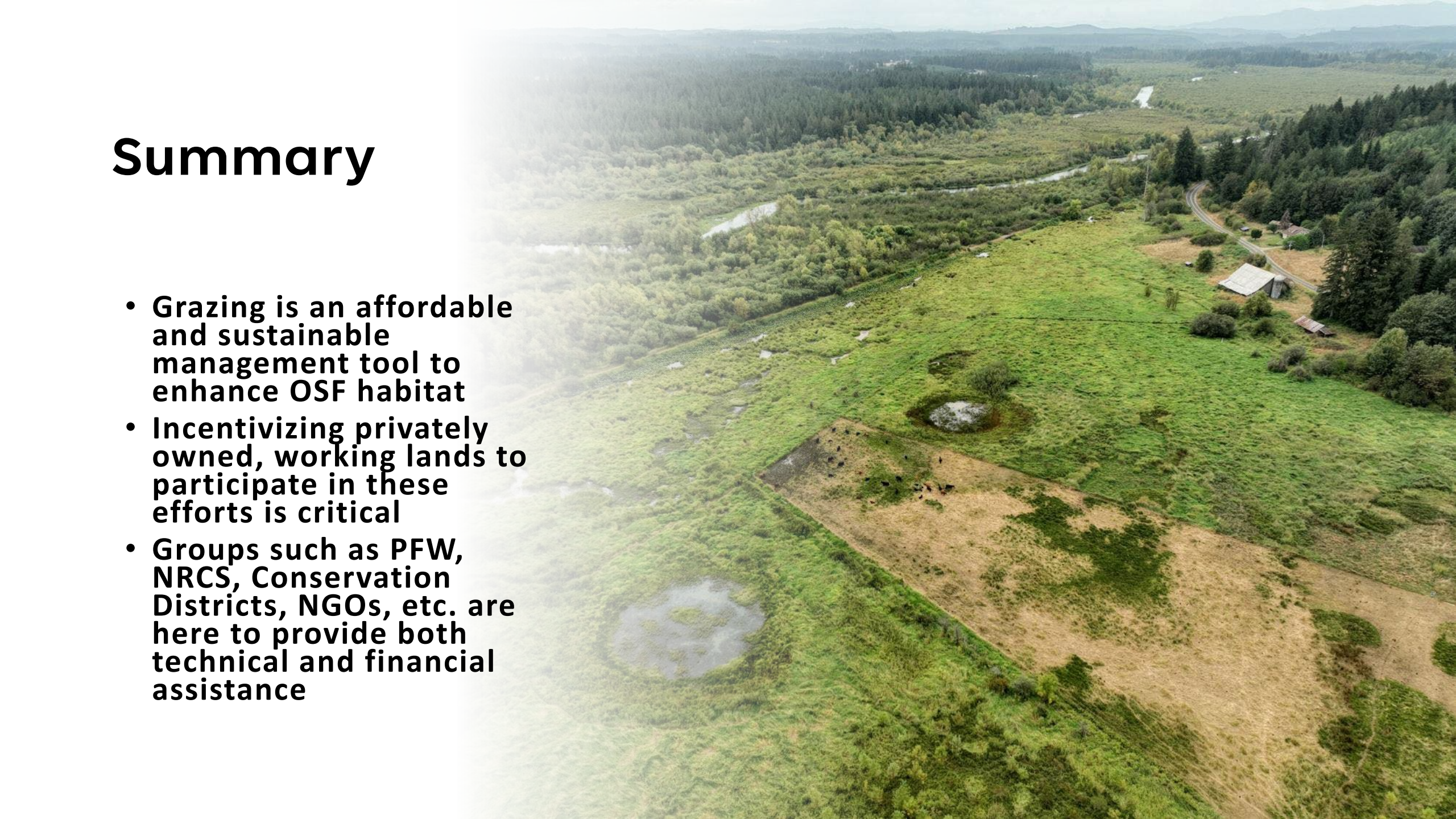
Landowner Outreach

- Workshops
- Survey



Summary

- Grazing is an affordable and sustainable management tool to enhance OSF habitat
- Incentivizing privately owned, working lands to participate in these efforts is critical
- Groups such as PFW, NRCS, Conservation Districts, NGOs, etc. are here to provide both technical and financial assistance



Questions?