



Expanding the conservation portfolio:
reintroducing native plants to working lands
in western Washington

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Western WA Prairies

History:

- Formed by retreating glaciers
- Maintained by indigenous burning and food harvests
- Gravelly, well-drained, low nutrient soils
- Host several rare, threatened and endangered species





Photo: Chris Junck



Photo: Joe Rocchio



Photo: Sarah Hamman

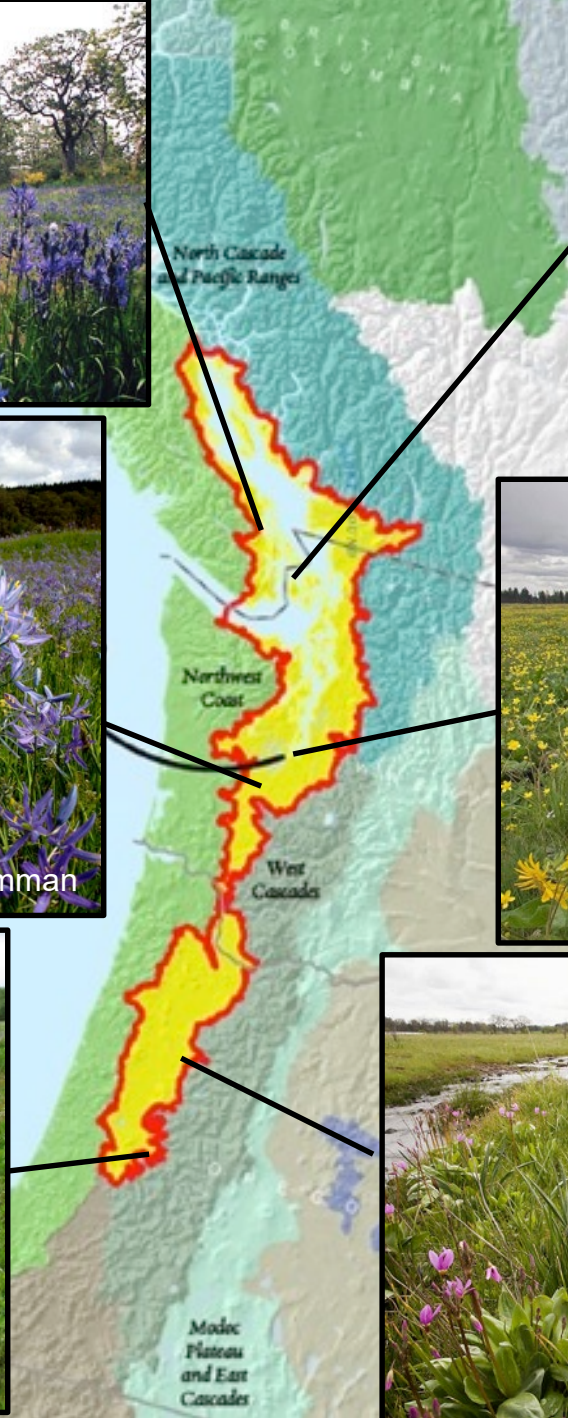
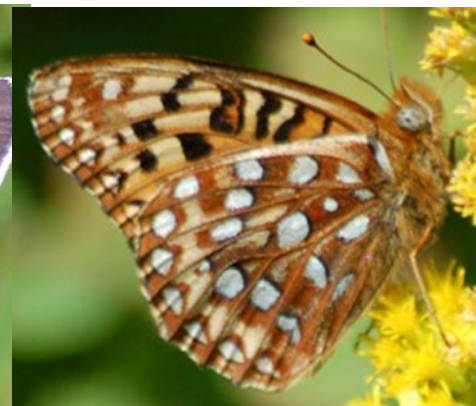


Photo: Rod Gilbert



PNW Prairie Rare Species



Threats

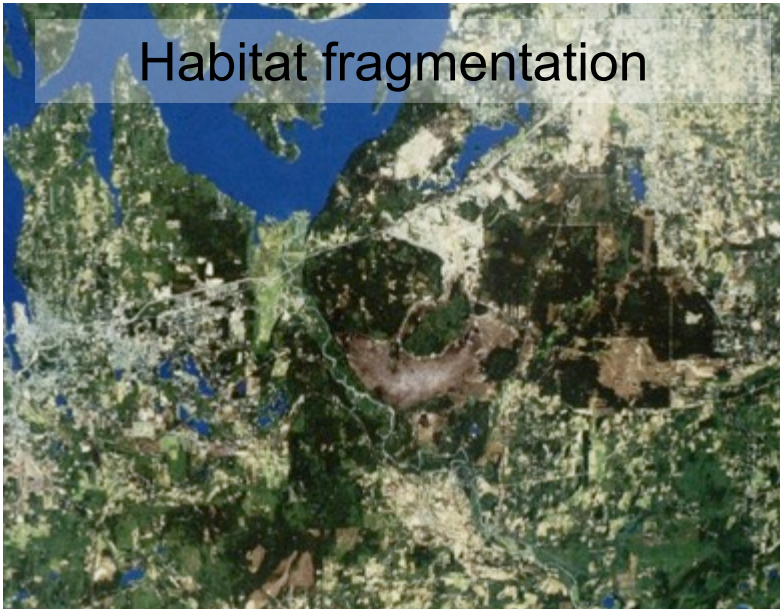
Conifer and non-native invasion



Altered fire regime



Habitat fragmentation



How can we conserve and restore biodiversity to the WPG prairies and oak woodlands?

Restoration Process



Increasing habitat quality and ecosystem resiliency

Restoring complex trophic structure and functioning requires combination of strategies

Restoration Process

1. Invasive species removal

- Mowing
- Strategic use of herbicide
- Hand pulling
- Prescribed fire

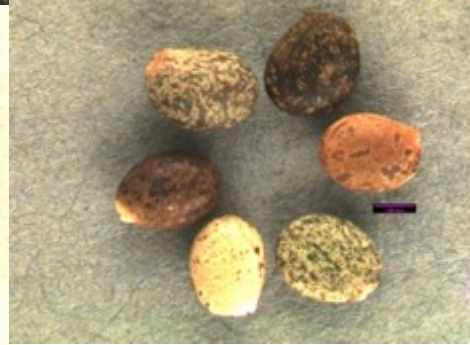
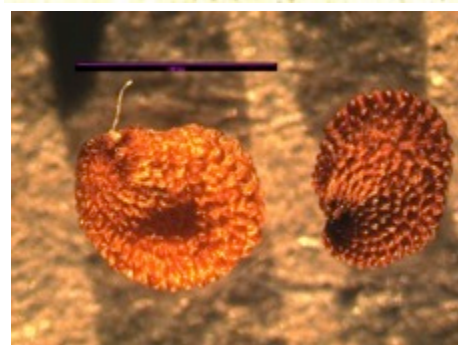
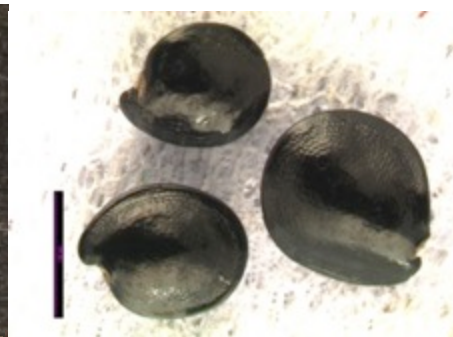
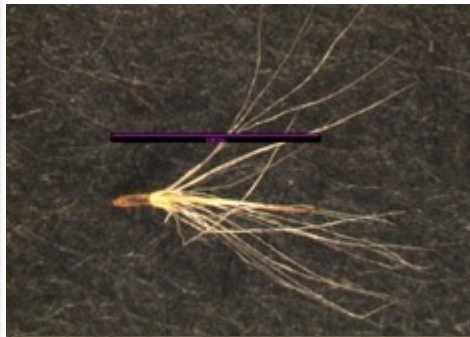
2. Site preparation

- Prescribed fire
- Soil amendments
- De-thatching

1. Native habitat enhancement

- Native seeding
- Native planting





Road to success for rare species



Golden paintbrush (*Castilleja levisecta*)

- On track to reach recovery goals



Taylor's checkerspot butterfly (*Euphydryas editha taylori*)

- Five new reintroduced populations



Streaked horned lark (*Eremophila alpestris strigata*)

- Populations steadily increasing

Legend

- ACUB Lands
- NRCS Easements
- Joint Base Lewis-McChord
- Current Grassland
- Historic Grassland
- Populated Area

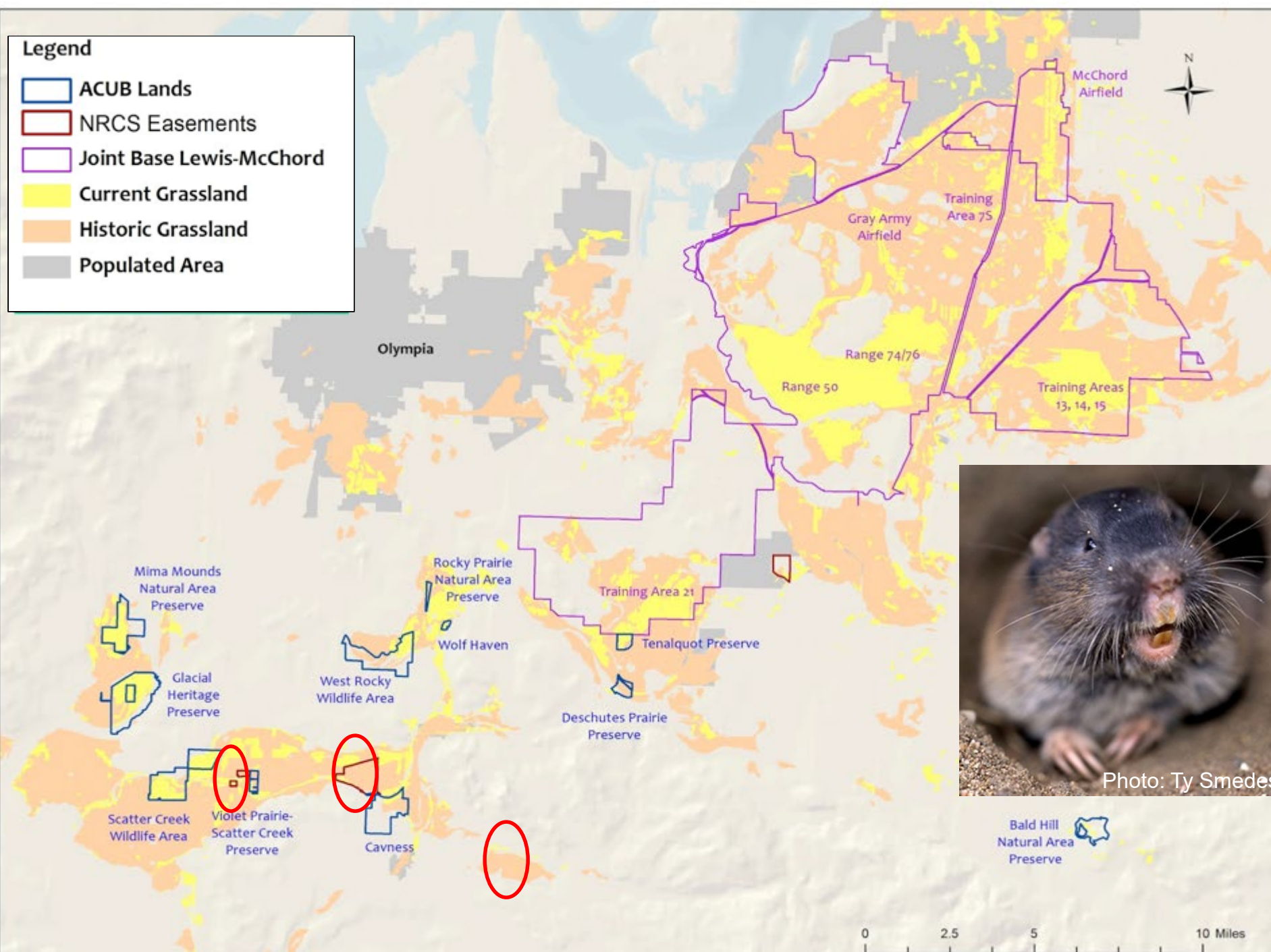
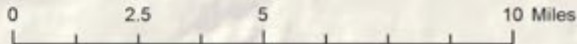


Photo: Ty Smedes

Bald Hill Natural Area Preserve

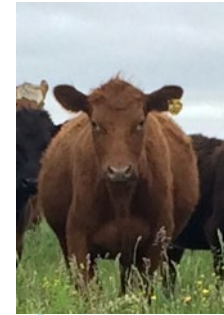
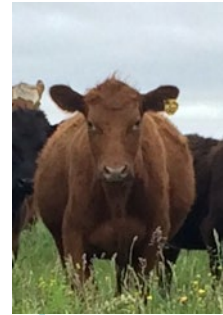
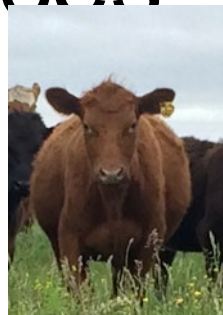
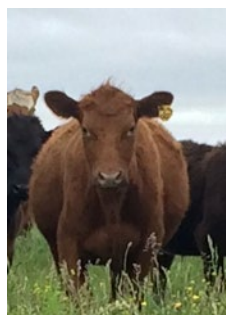


Conservation Grazing

A black cow is standing in a lush green field, looking towards the camera. The background shows a vast landscape with rolling hills, a few buildings, and a blue sky with scattered white clouds.

- *Ecological* – evaluate effects on plant community, productivity, butterfly behavior, pocket gopher activity
- *Economic* – quantify costs/benefits associated with shift in practice
- *Social* – collect input from farmers & ranchers on incentive programs that they need to implement conservation grazing practices

Conservation Grazing Practices



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Sustainably graze,
moving cattle
every 1-2 days.
Maintain stubble
height ~3 inches

'Rest' pastures,
completely
removing cattle
while native plants
bloom and set seed

Sustainably graze,
moving cattle
every 1-2 days.
Maintain stubble
height ~3 inches

Study Design

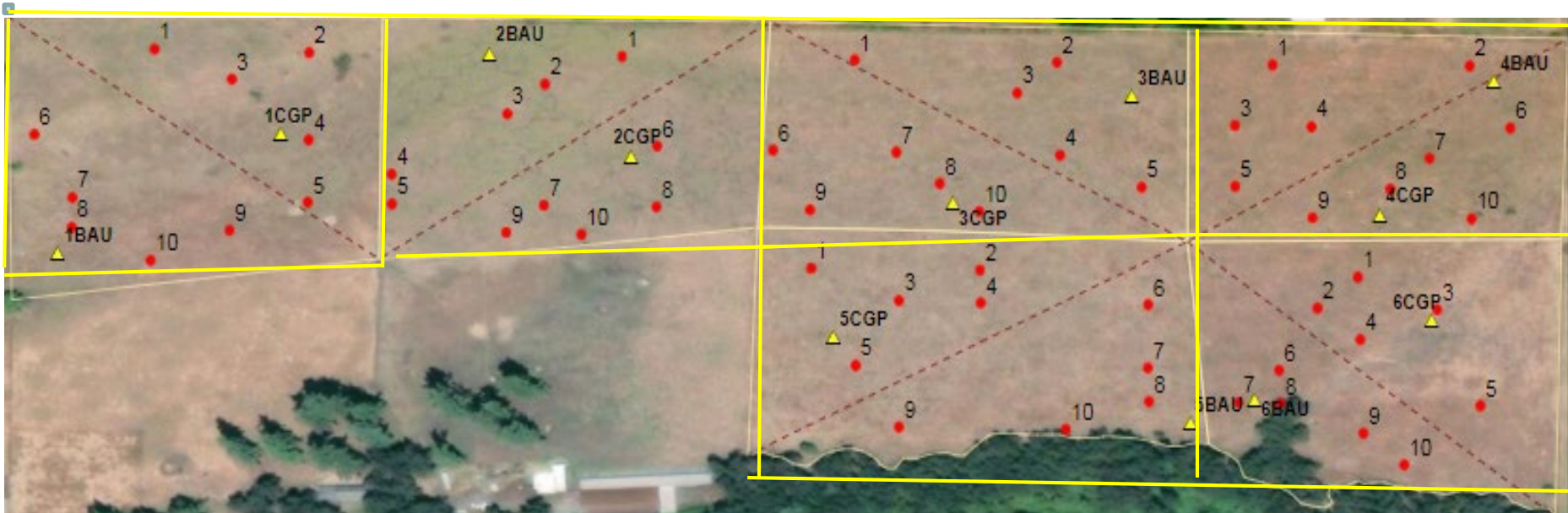
- Measure response to Conservation Grazing Practices (CGP) compared to Business as Usual (BAU) across 3 cattle ranches

Farm Site	BAU Treatment	CGP Treatment
Colvin Ranch	Long-term Rotational grazing with spring rest	Native seeding
Fisher Ranch	Recent Rotational grazing with spring rest	Native seeding
Riverbend Farm	Continuous grazing	Rotational grazing with spring deferment; native seeding

- Three Native Ungrazed Prairies (NUP) were used as habitat reference sites

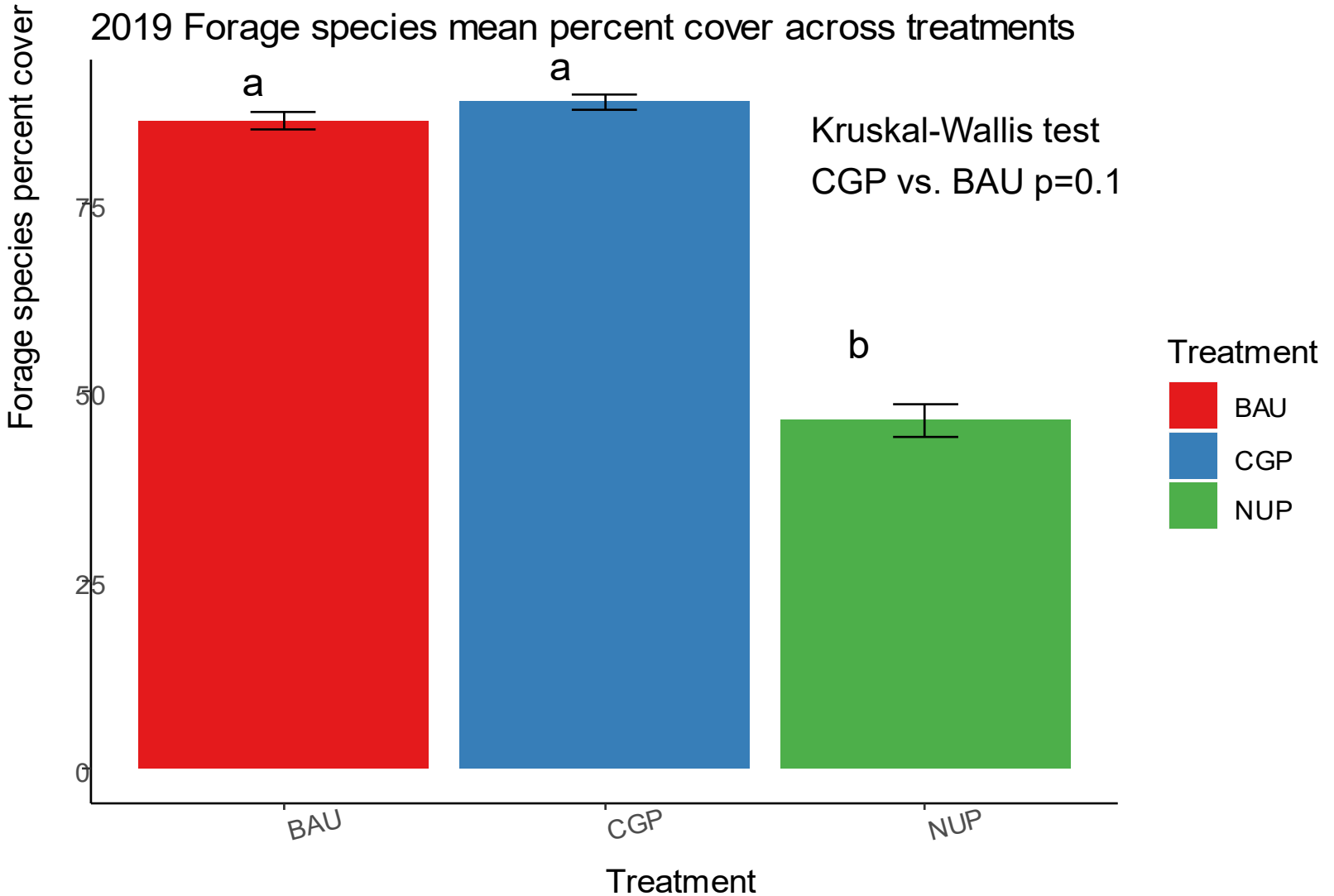
Study Design

- Each farm was divided into six paddocks
- Paddocks were split into 1-acre CGP & BAU treatments
- Vegetation data collected from subplots
- Treatments implemented in 2018



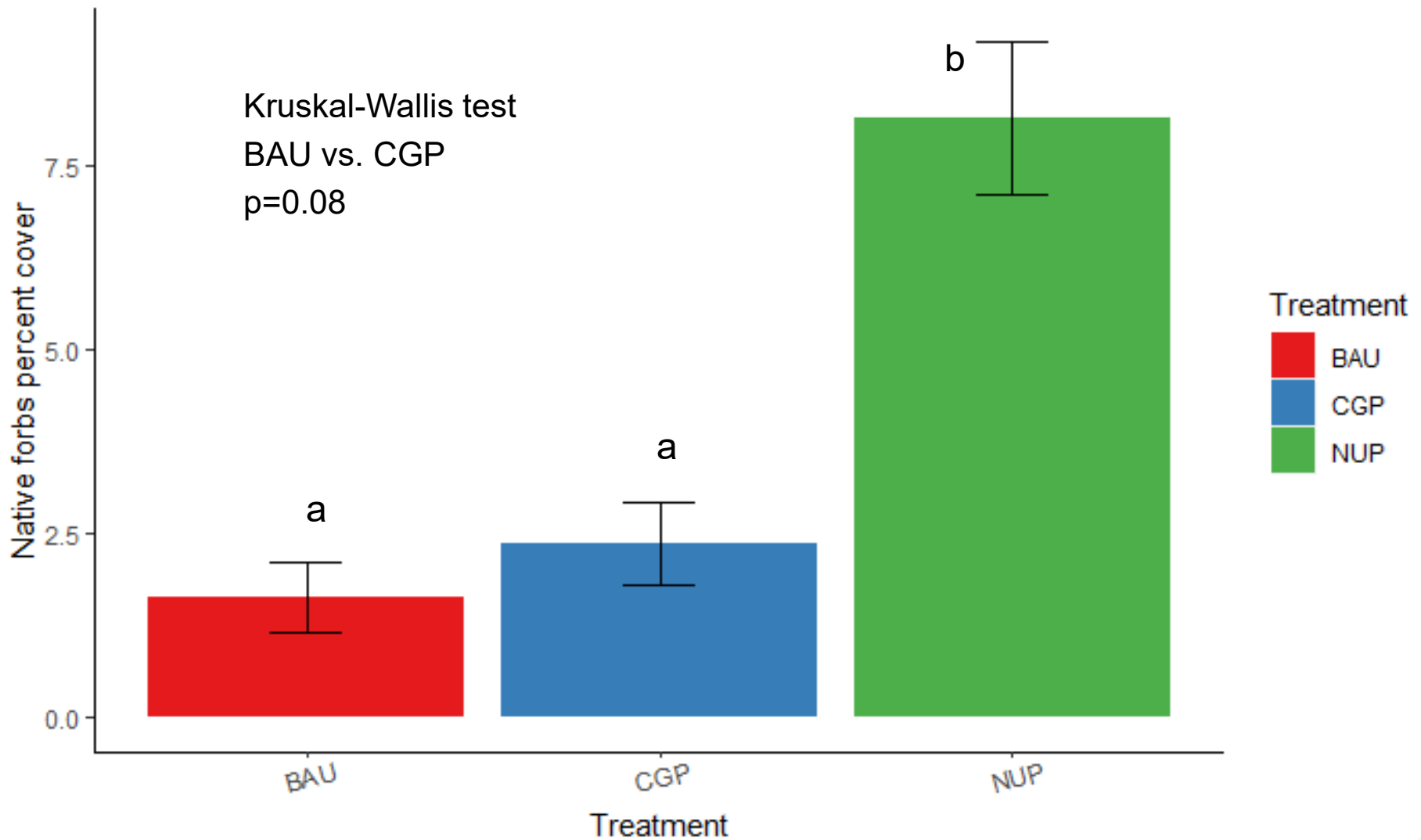


Effect of CGP on forage cover



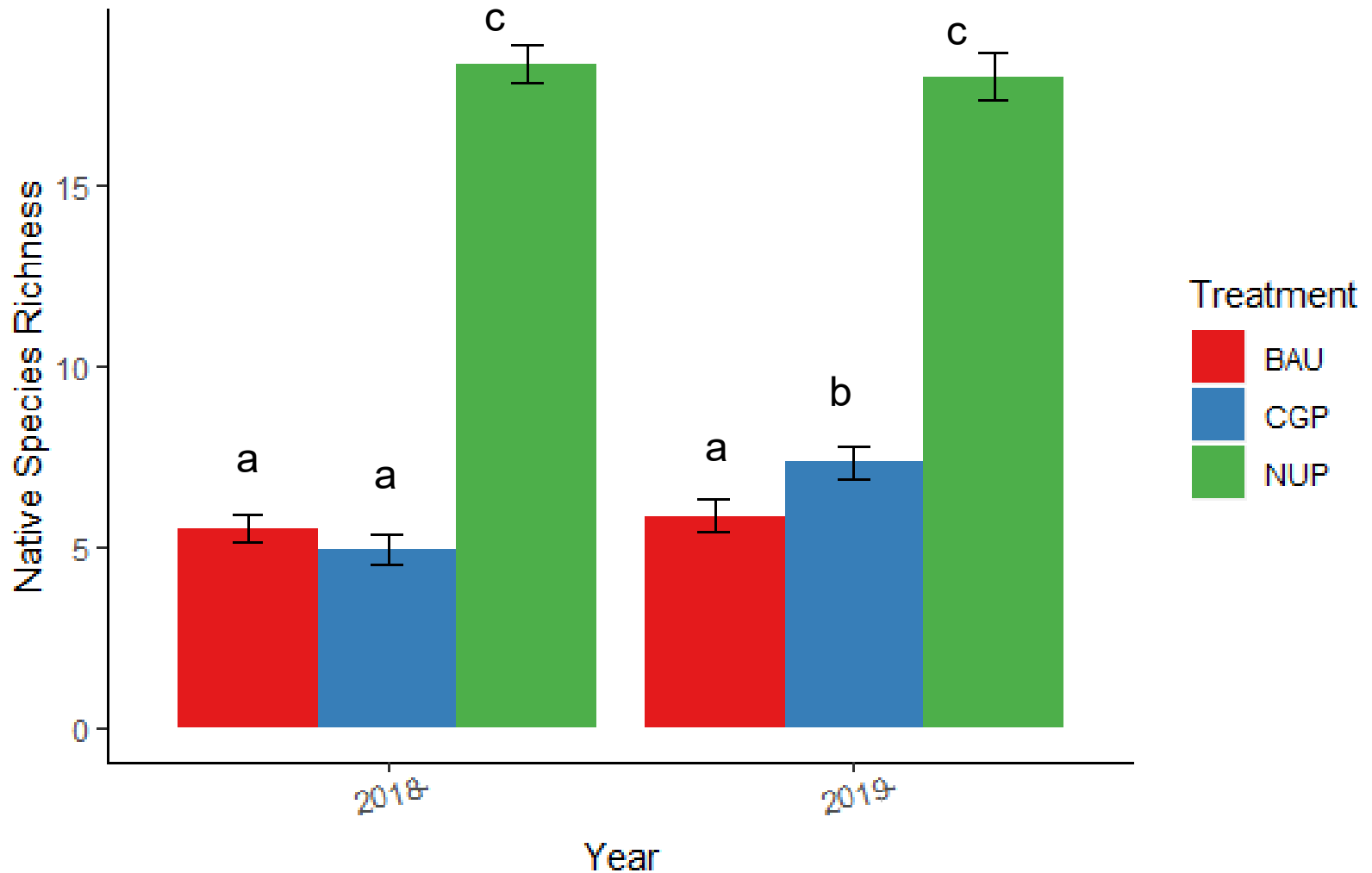
Effect of CGP on native forb cover

2019 Native forb mean percent cover across treatments



Effect of CGP on native species richness

2018-2019 Mean native species richness across treatments



Native Seeding Success

- Seeded 10 species with early season phenology, ability to establish in grazing systems, diverse life histories
- Some success in 4 out of the 10 species, thus far



*Collinsia
parviflora*
(annual)



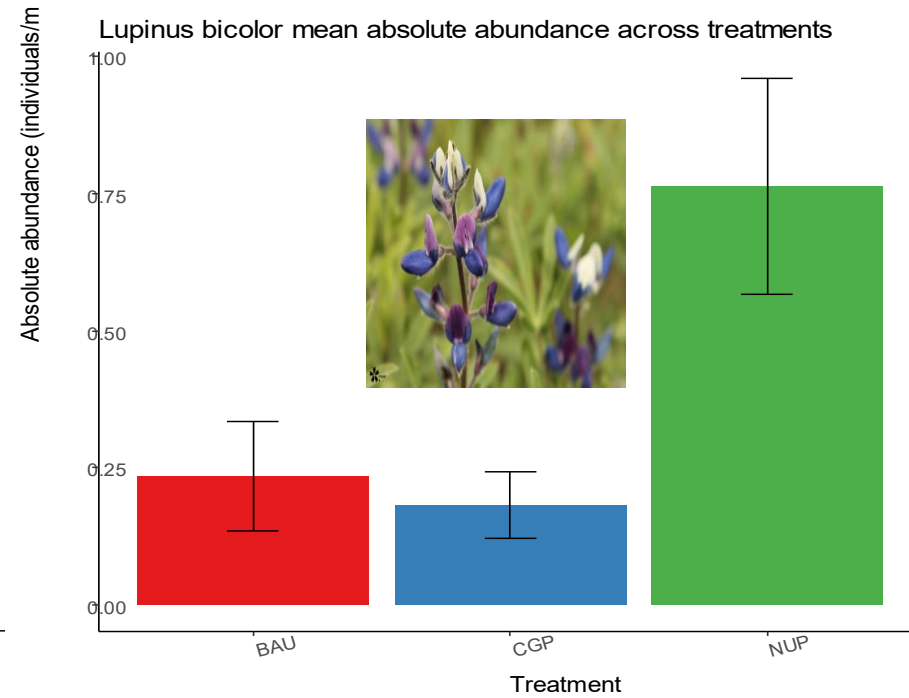
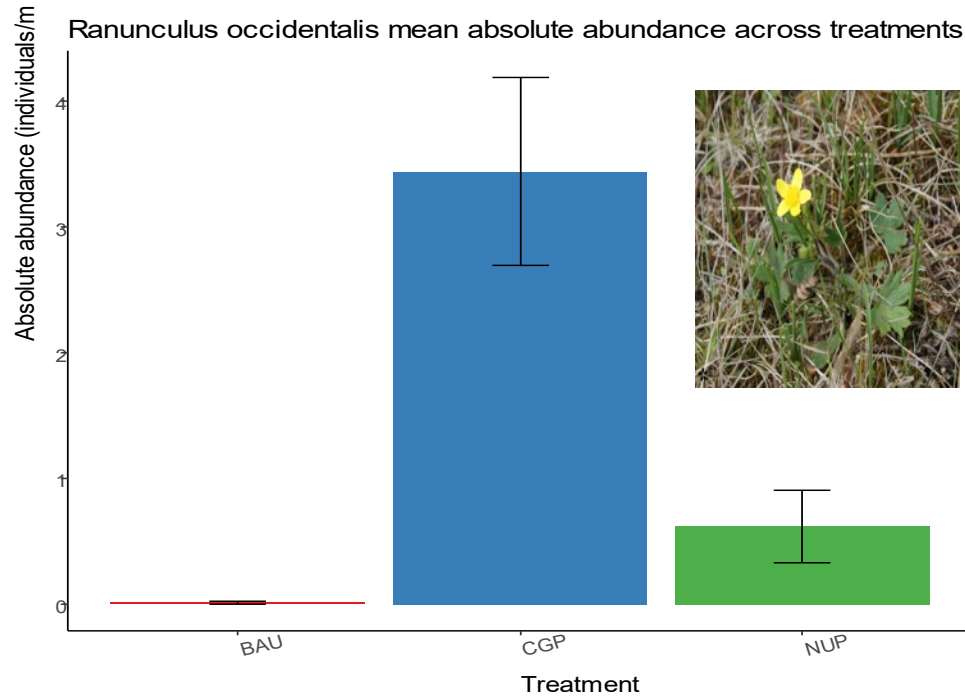
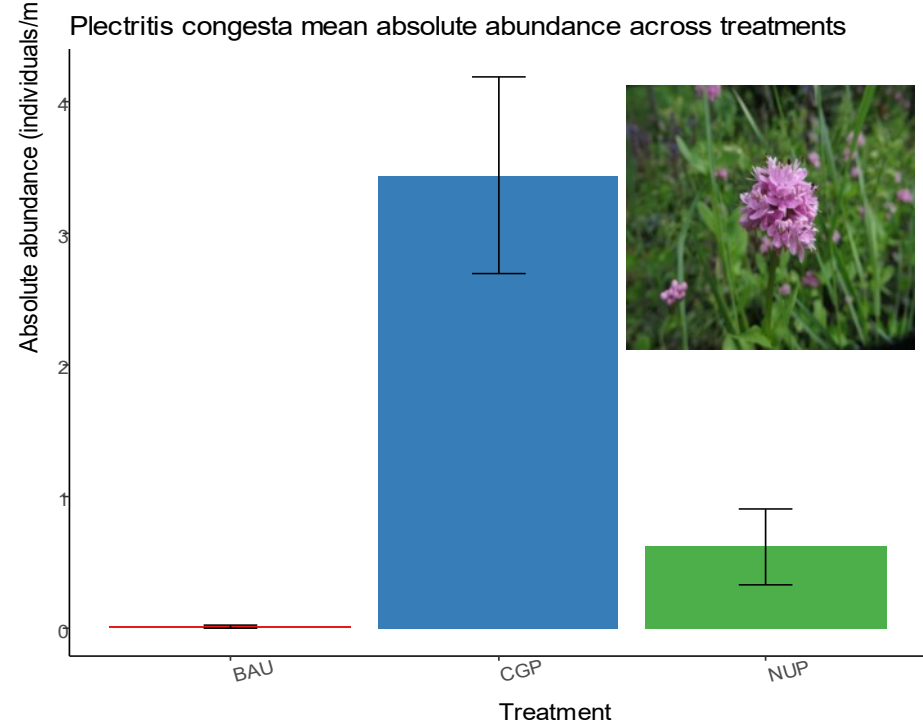
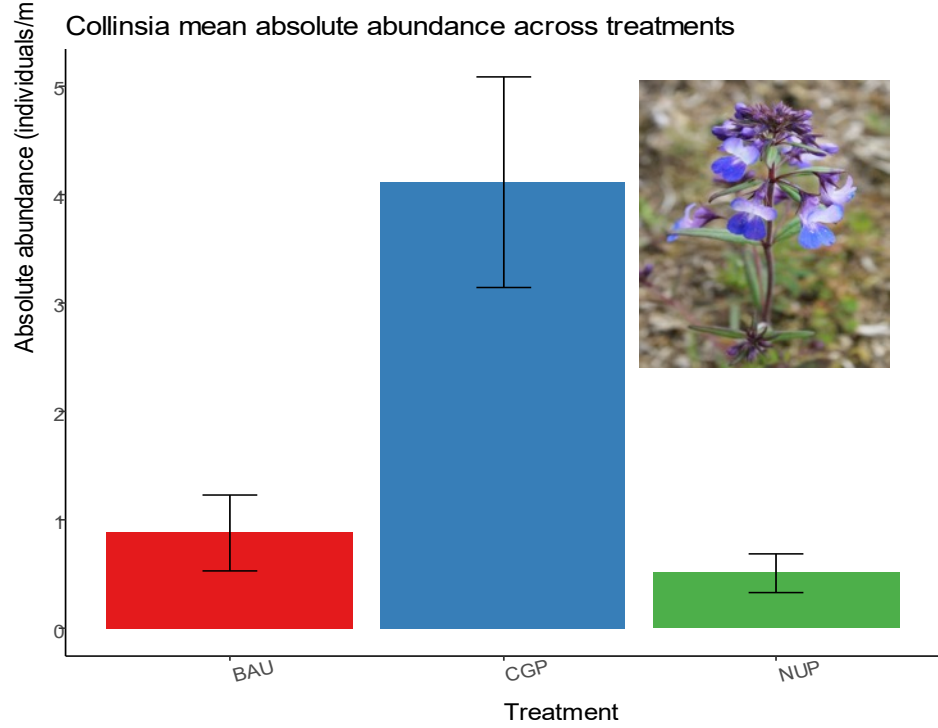
*Plectritis
congesta*
(annual)



*Ranunculus
occidentalis*
(perennial)



*Lupinus
bicolor*
(annual)



Conclusions

- Starting to see benefits from CGPs but it may take few years to reach full potential.
- No significant treatment effects on forage cover or native forb cover
- Conservation grazing practices increased native species richness compared to business as usual practices.
- Rancher-centered incentive programs should provide adequate support to implement conservation actions

Partnerships for prairie conservation

- Think beyond conservation preserve model
- Create opportunities for collaborative, transdisciplinary partnerships that provide reciprocal benefits
- Recognize cultural values in addition to ecological values of the conservation landscape

Questions? Comments?

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