

A photograph of a lush green prairie field with numerous yellow and blue wildflowers. Three brown cows are grazing in the field. One cow is in the foreground on the left, another is slightly behind it, and a third is on the right side of the frame. The background is a clear, bright sky.

Integrating Native Prairie Pastures in Grazing Systems

(or: You Can Have Your Prairie and Eat It Too)

A photograph of a grassy field with three brown cows. Two cows are on the left, one standing and one lying down. A third cow is on the right, also standing. The field is filled with tall green grass and many small yellow and purple wildflowers. The sky is overcast and grey.

**Why is MANAGED
livestock grazing good
for prairies?**

Maintenance & Restoration Processes

1. Invasive Species Control & Site Preparation

- Burning
- Mowing
- Strategic use of herbicide
- Hand pulling
- Soil amendments



Maintenance & Restoration Processes

What do these all have in common?

- People & equipment
 - both are expensive
- Equipment, burning & many herbicides
 - are not selective for species
 - burning & herbicides not always available as tools
- Prairie Restoration is not a single event
 - holding prairies at an early successional stage takes a constant input of resources (time & \$\$\$!)



A photograph of three brown cows in a lush green field. Two cows are on the left, one slightly behind the other, both looking towards the camera. A third cow is on the right, also looking towards the camera. The field is filled with tall green grass and numerous small yellow wildflowers. The sky is a pale, overcast blue.

Benefits of Managed Grazing:

Livestock are very selective as to what they eat

- How do they know what to eat?

A photograph of three brown cows in a lush green field filled with yellow wildflowers. Two cows are on the left, one slightly behind the other, and a third cow is on the right. The field is dense with green grass and numerous small yellow flowers. The sky is a pale, overcast blue.

Animal Behavior:

Animals learn what to eat and what to avoid by:

- Learning from others (like mothers)
- Physical feedback from eating different species

A photograph of three brown cows in a lush green field filled with yellow wildflowers. Two cows are on the left, one sitting and one partially visible behind it. A third cow is on the right, standing. The field is dense with green grass and numerous small yellow flowers. The sky is a pale, overcast blue.

Animal Behavior:

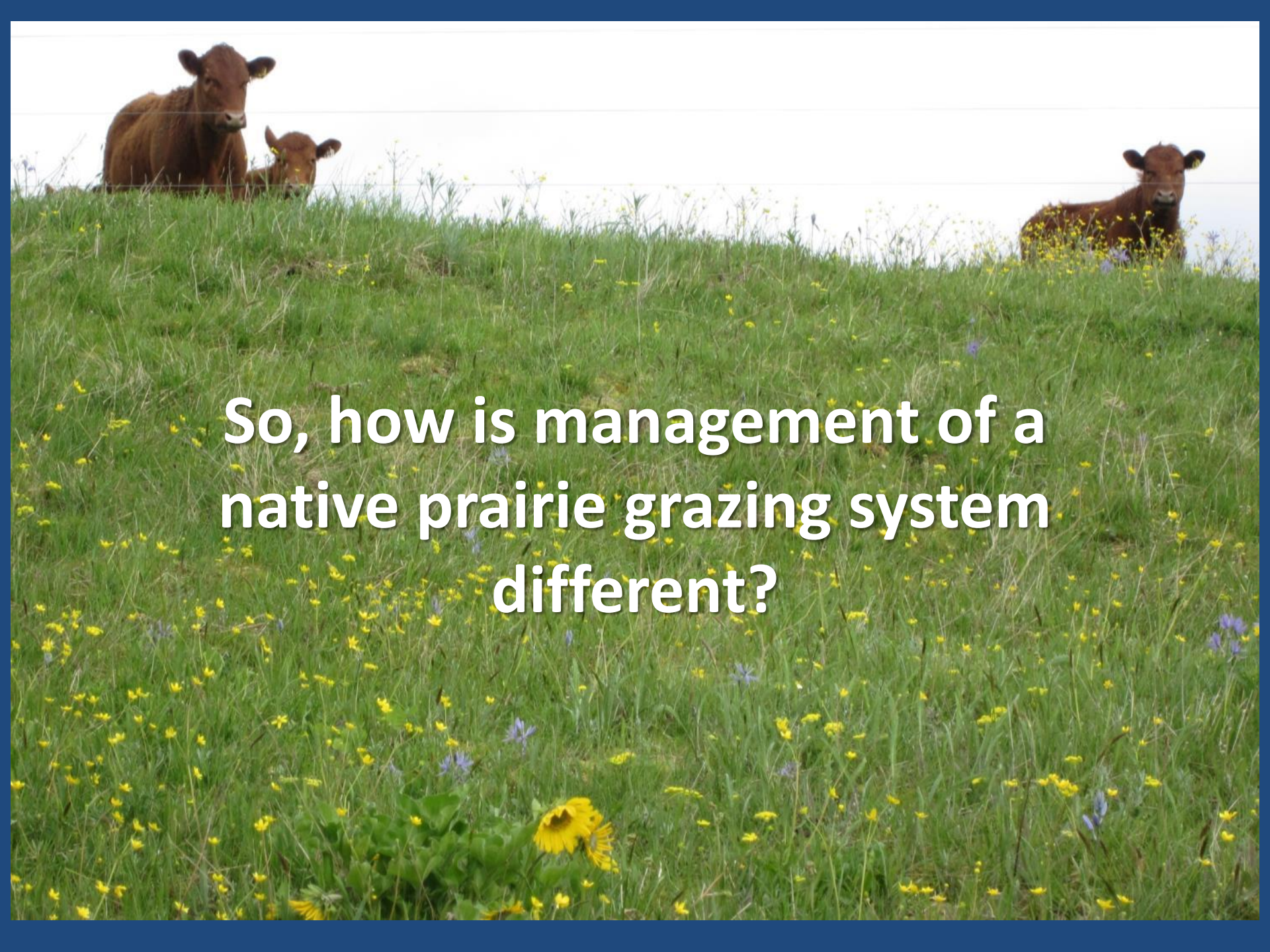
Physical feedback from eating different species

- Feedback can be good or bad (i.e. poisonous, bad taste, low nutritional quality)
- Results in avoidance or positive selection

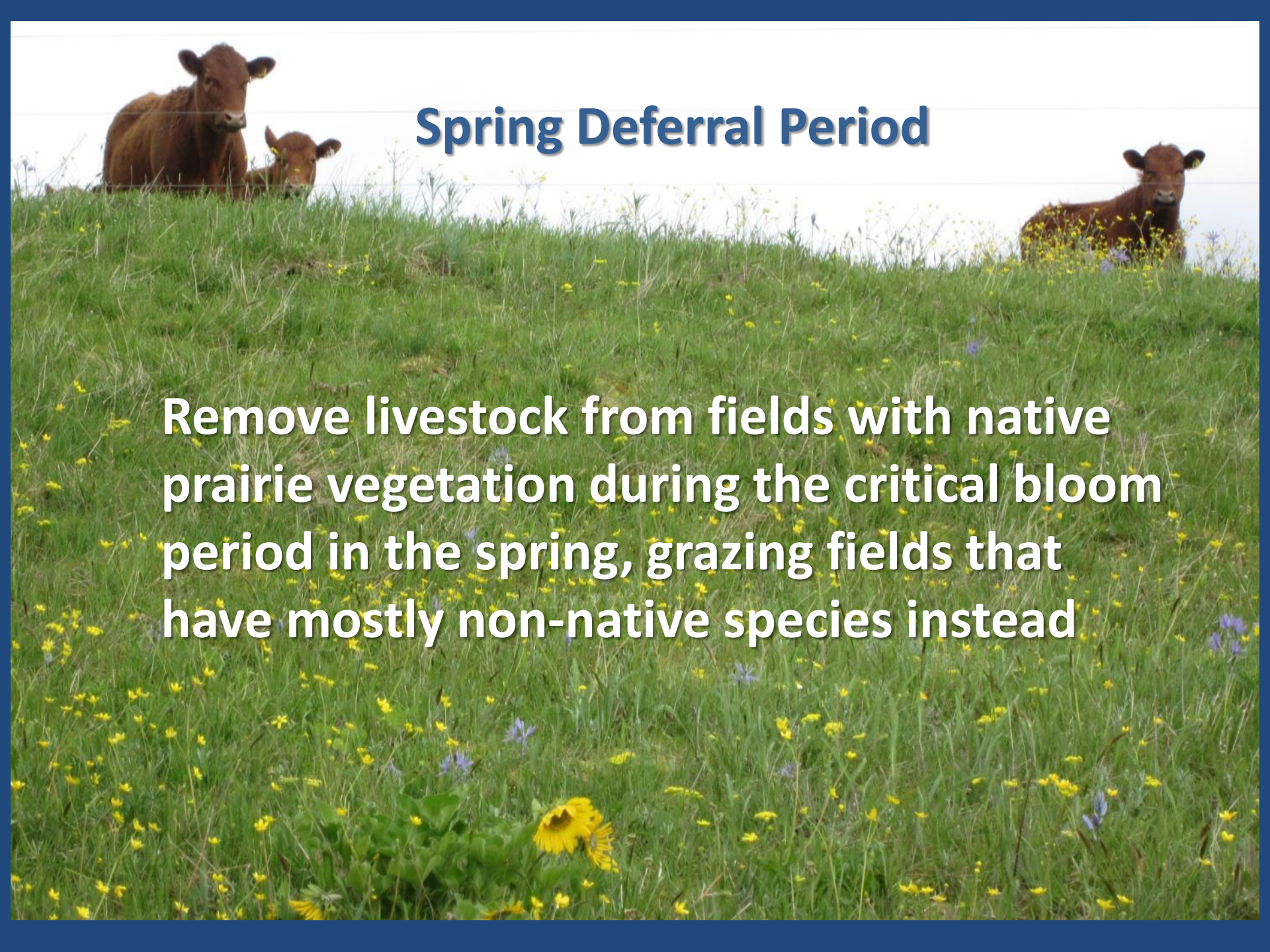
A photograph of a grassy field with three brown cows. Two cows are on the left, one adult and one calf, both looking towards the camera. A third cow is on the right, also looking towards the camera. The field is filled with tall green grass and numerous small yellow and purple wildflowers. The sky is a pale, overcast blue.

More Benefits of Managed Grazing:

- Livestock reduce standing litter & their hooves break up thatch (site prep for seeding??)
- Livestock recycle and redistribute nutrients.
- Grazing keeps the prairie in the desired early successional state.

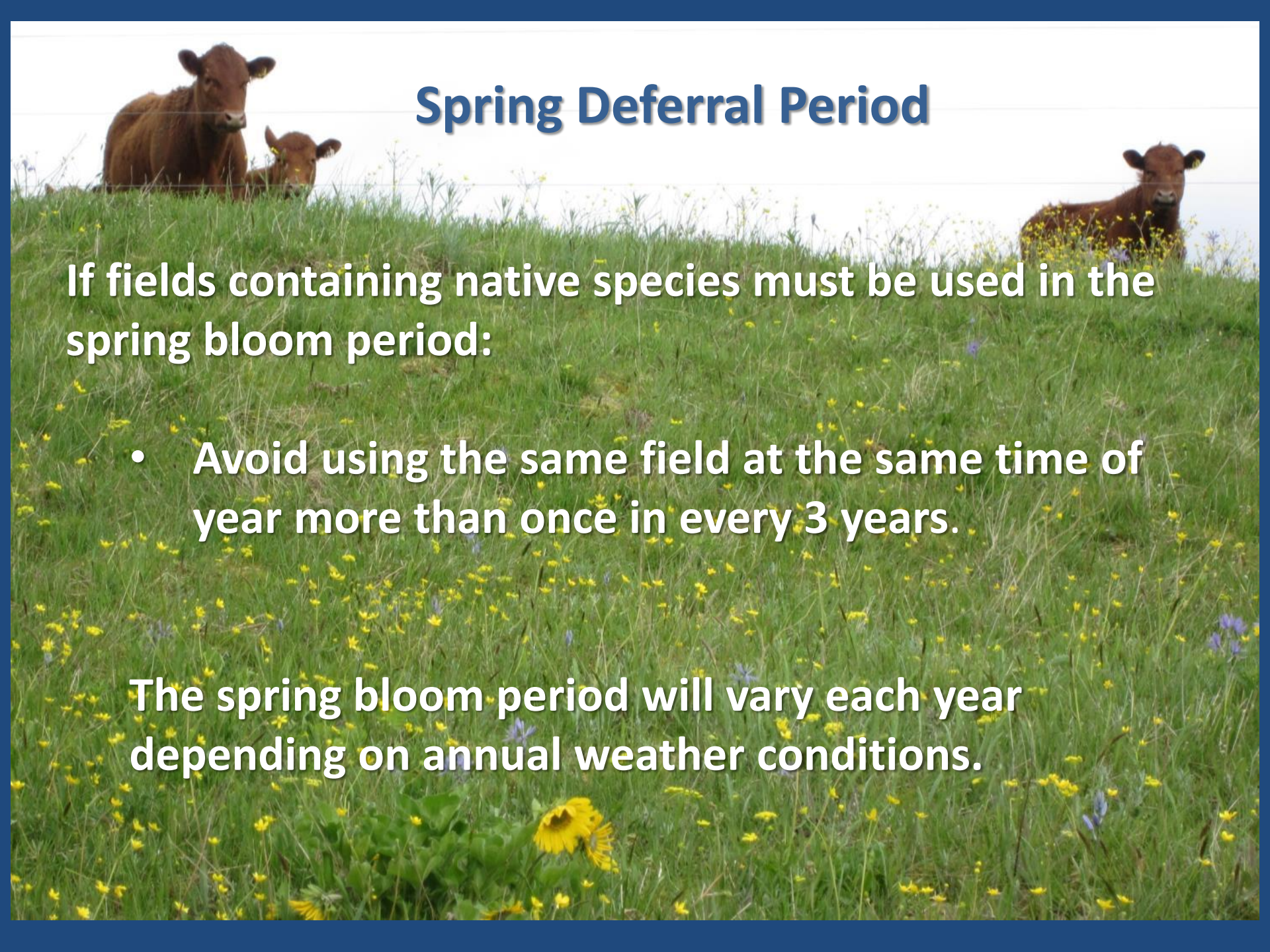
A photograph of a grassy field with three brown cows. Two cows are on the left, one standing and one lying down. A third cow is on the right, also standing. The field is filled with tall green grass and numerous small yellow and purple wildflowers. The sky is overcast and grey.

**So, how is management of a
native prairie grazing system
different?**



Spring Deferral Period

Remove livestock from fields with native prairie vegetation during the critical bloom period in the spring, grazing fields that have mostly non-native species instead

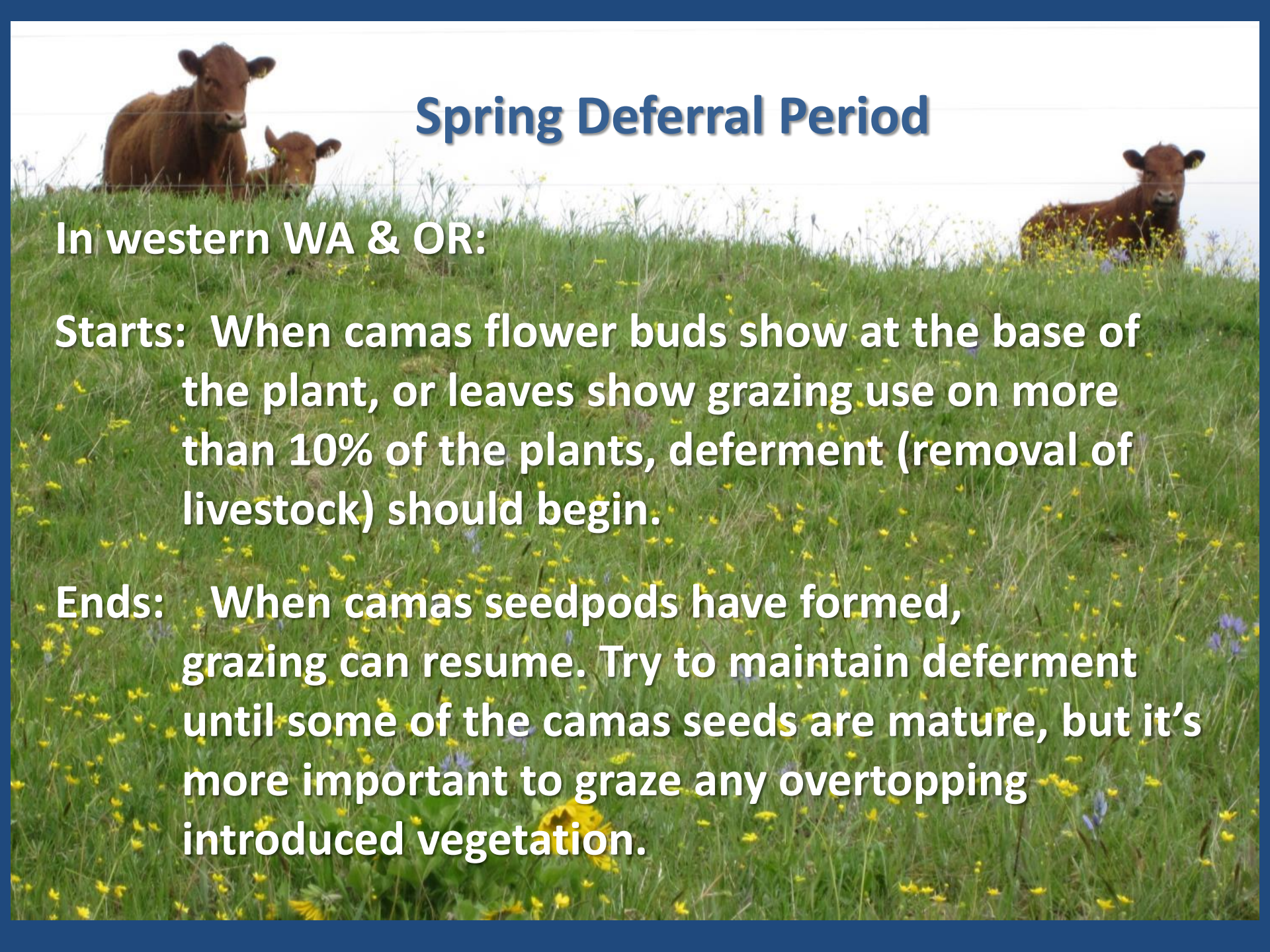


Spring Deferral Period

If fields containing native species must be used in the spring bloom period:

- Avoid using the same field at the same time of year more than once in every 3 years.

The spring bloom period will vary each year depending on annual weather conditions.



Spring Deferral Period

In western WA & OR:

Starts: When camas flower buds show at the base of the plant, or leaves show grazing use on more than 10% of the plants, deferment (removal of livestock) should begin.

Ends: When camas seedpods have formed, grazing can resume. Try to maintain deferment until some of the camas seeds are mature, but it's more important to graze any overtopping introduced vegetation.

A photograph of a grassy field with yellow wildflowers. Three brown cows are visible: one on the left, one in the middle ground, and one on the right. The sky is overcast.

Spring Deferral Period

However!

When soils are dry enough in the late winter and spring, it's critical to graze native pastures before the bloom period, in order to reduce biomass of the non-native forage plants which are actively growing at this time.

A photograph of three brown cows in a lush green field. Two cows are on the left, one standing and one partially visible behind it. A third cow is on the right, standing. The field is filled with tall green grass and numerous small yellow wildflowers. The sky is a pale, overcast blue.

During the remainder of the year, manage grazing of both native and introduced-species pastures using basic grazing management guidelines.

This managed use will keep the more palatable non-native species in balance with the native species and reduce litter buildup while not adversely affecting native species. Most native plants are semi-dormant to dormant during this period, but invasive grasses and weeds are actively growing.

A photograph of a grassy hill with three brown cows. Two cows are on the left, one sitting and one lying down. A third cow is on the right, also sitting. The hill is covered in green grass with many small yellow and blue wildflowers. The text "Except..." is overlaid in the center of the image.

Except...

A photograph of three brown cows in a lush green field filled with yellow wildflowers. One cow is lying down on the left, another is partially visible behind it, and a third is standing on the right. The background is a clear sky.

Native Prairie Pastures

Also follow these guidelines:

Don't apply additional fertilizers & compost to native fields, so that competition from introduced grasses & forbs is further reduced.

On upland sites, when feeding hay, move the feeding location every day or two, and don't feed on any particular site more than once per winter. This way, any nutrient concentrations and weed seed establishment areas are minimized.

On wet prairies, winter feeding should be avoided, as they will generally be too wet to support livestock and vehicle traffic at this time of year.



Native Prairie Pastures

Finally, some lessons learned:

- Manage by plant growth stage, not the calendar. Each year has been different and the grazing system needs to be adjusted in real-time to match the vegetation
- An intensive grazing system enhances plant health on both native and introduced species pastures. None of this can happen without proper infrastructure – fencing and water
- Introduced-forage fields in the grazing system are important – livestock need a place to graze when native pastures are being seasonally deferred or are dormant. Also, since fields managed for native species produce less forage, introduced-species fields must be kept productive to make up the difference

A photograph of three brown cows in a lush green field. Two cows are on the left, one slightly behind the other, both looking towards the camera. A third cow is on the right, also looking towards the camera. The field is filled with tall green grass and numerous small yellow wildflowers. A few purple flowers are also visible. The sky is a pale, overcast blue.

**Adaptive management is critical –
it's important to keep track of what was
done each year, and how it worked, or
didn't work.**

**Try new things on a small scale and
keep improving the system.**

Infrastructure is critical:

- Good boundary fences
- Internal fencing – often temporary electric
- Drinking water for livestock



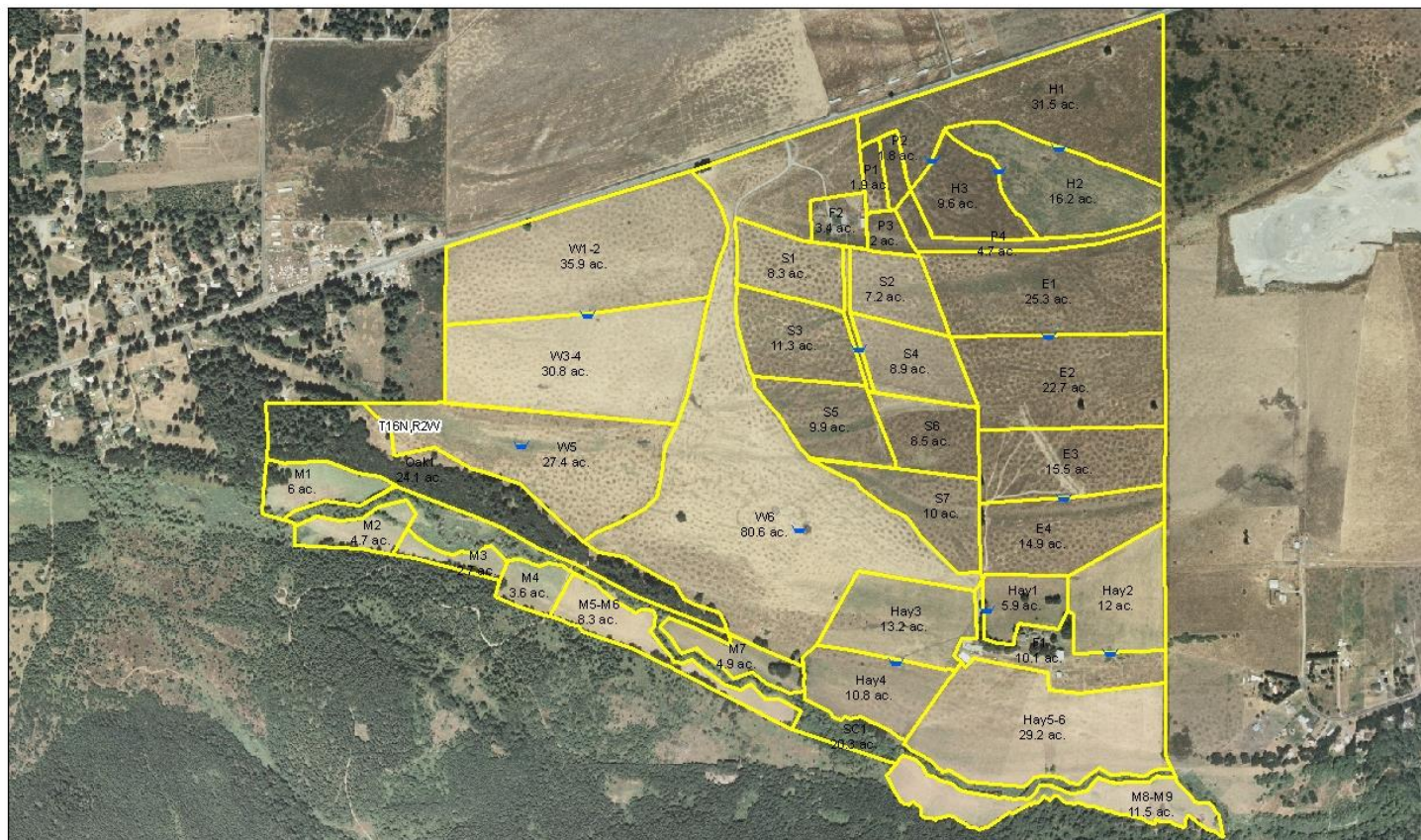
Grazing Plan Map

Customer(s): FRED A COLVIN JR

Approximate Acres: 895.4

Legal Description: S26, 35, T16N, R2W

Date: 10/21/2010
Field Office: OLYMPIA SERVICE CENTER
Agency: USDA-NRCS
Assisted By: JEFFREY SWOTEK
State and County: WA, THURSTON



Legend

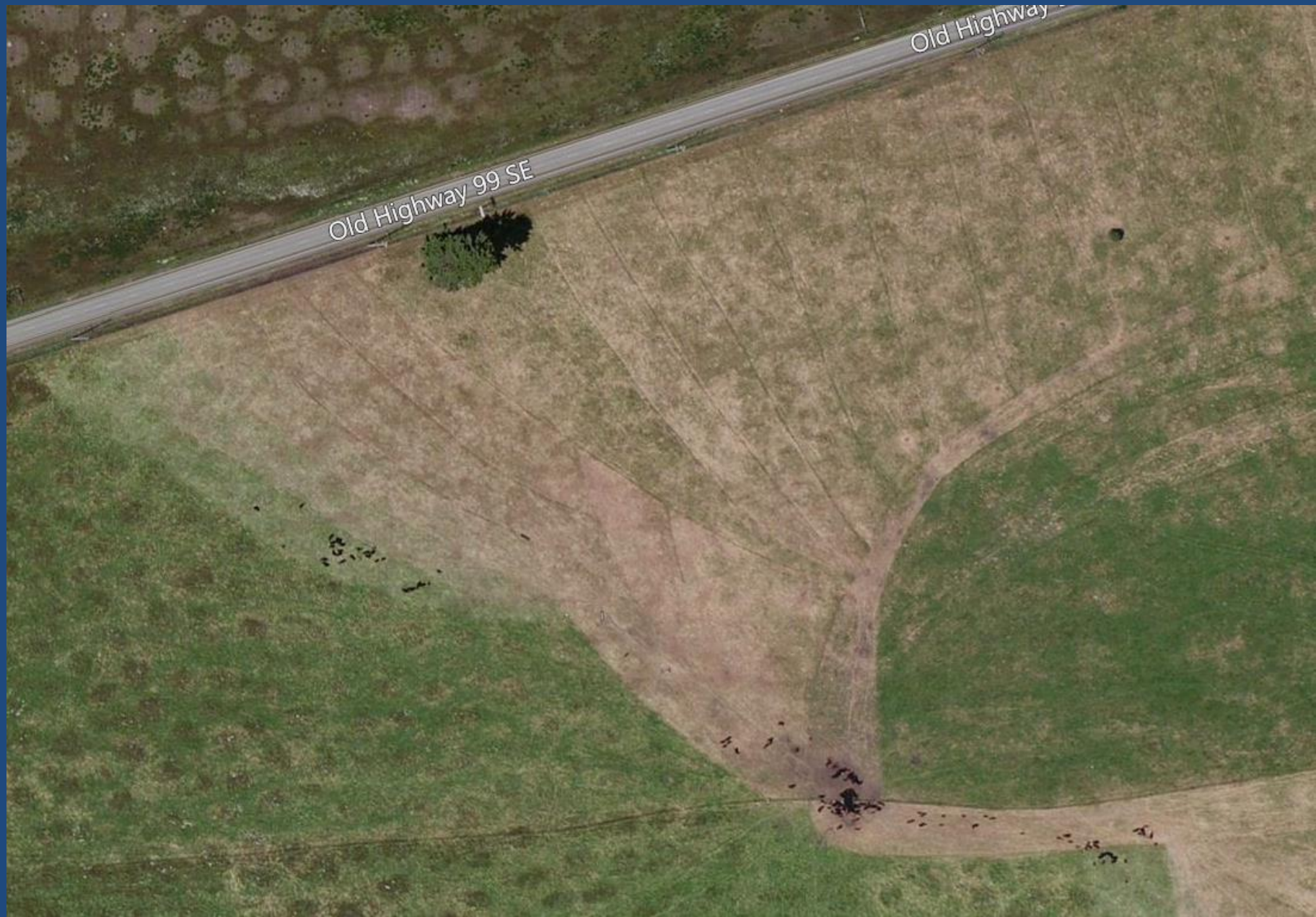
LABEL

- Tank
- Grazing Plan
- Townships



640 0 640 1,280 1,920 2,560
Feet





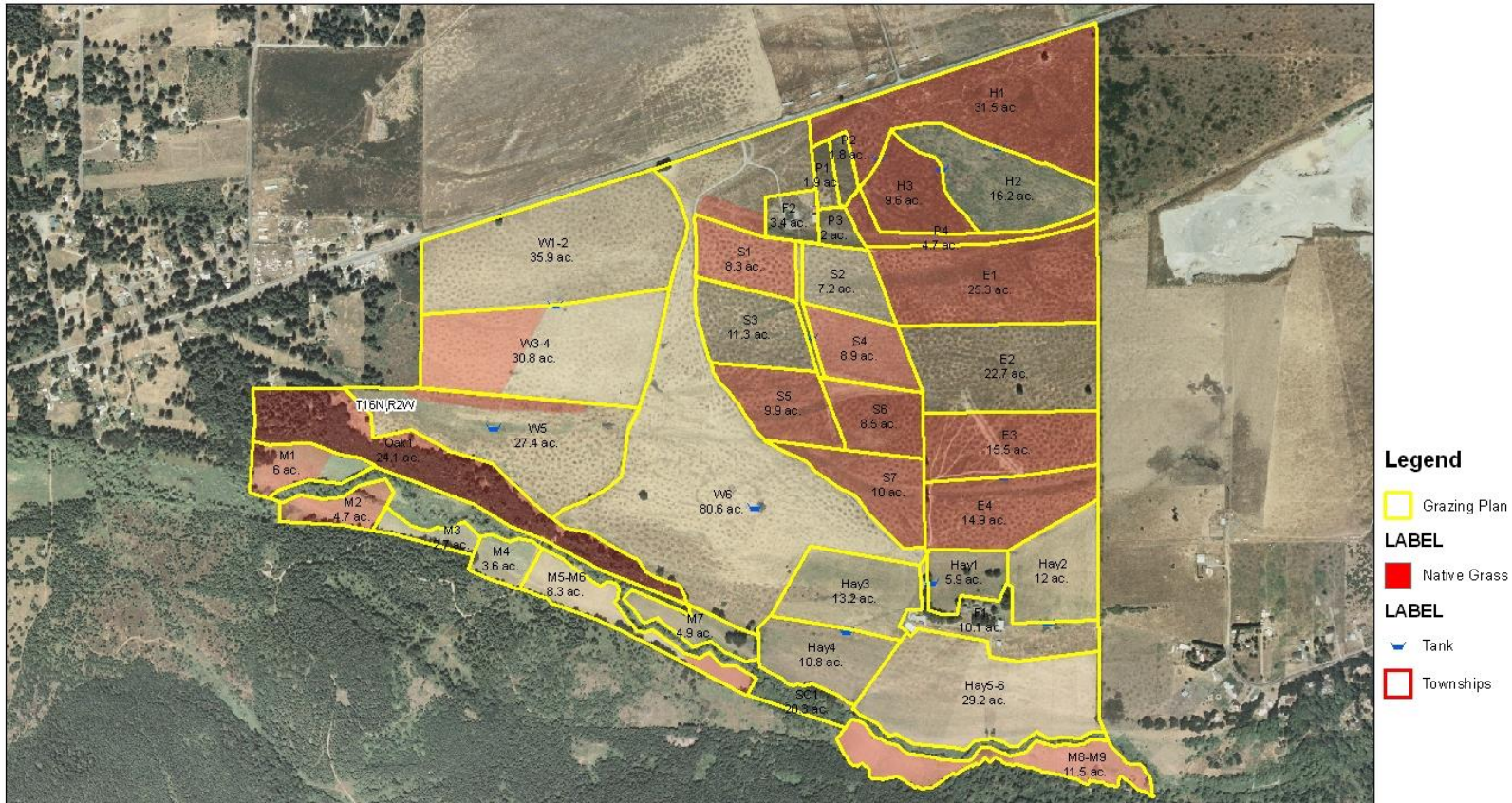
Grazing Plan Map

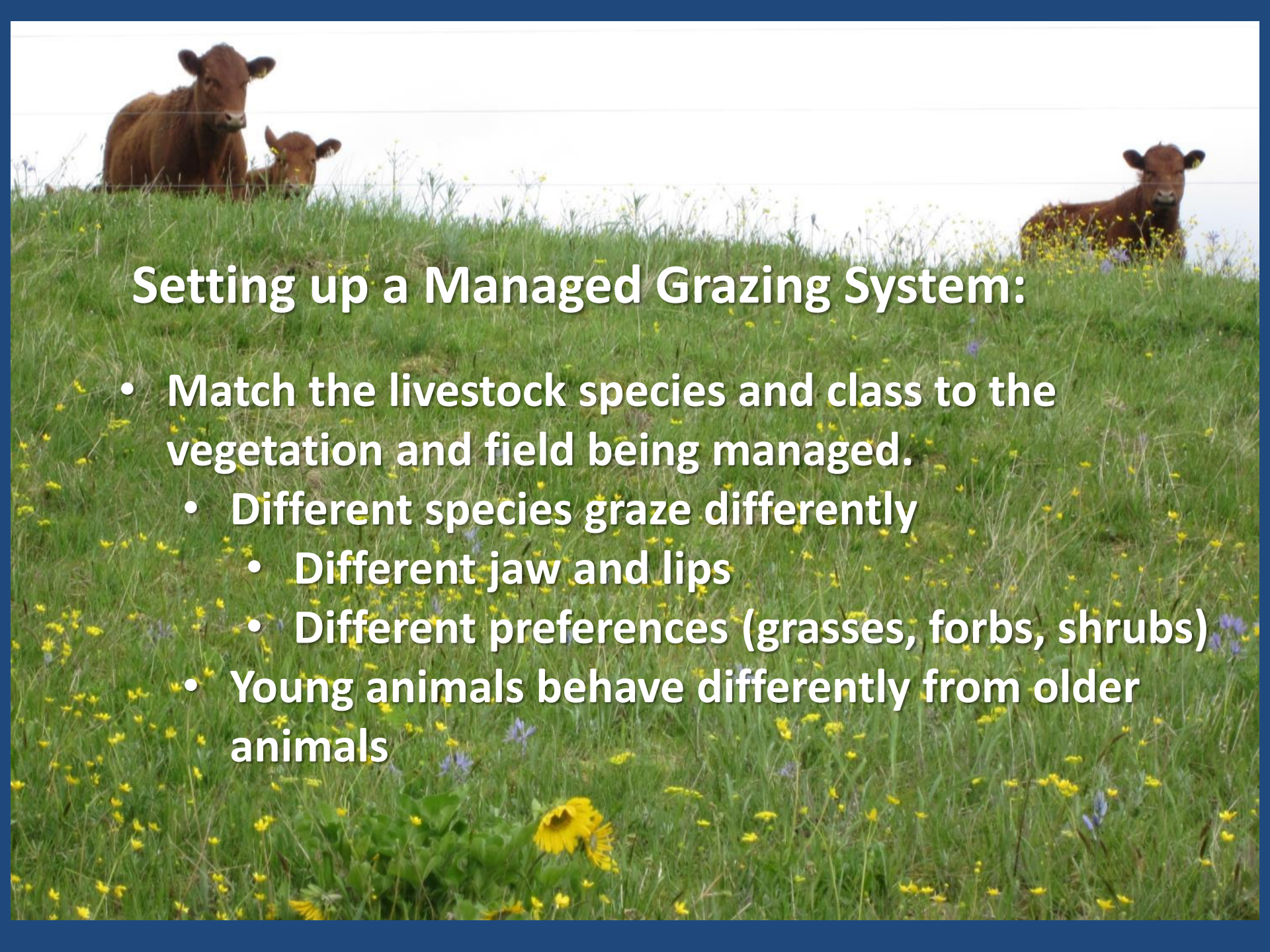
Customer(s): FRED A COLVIN JR

Approximate Acres: 943.5

Legal Description: S26, 35, T16N, R2W

Date: 10/21/2010
Field Office: OLYMPIA SERVICE CENTER
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A photograph of three brown cows in a lush green field filled with yellow and purple wildflowers. Two cows are on the left, one standing and one partially visible behind it. A third cow is on the right, standing and facing the camera. The field is dense with tall grass and various wildflowers, including a prominent yellow daisy in the foreground. The sky is overcast and grey.

Setting up a Managed Grazing System:

- Match the livestock species and class to the vegetation and field being managed.
 - Different species graze differently
 - Different jaw and lips
 - Different preferences (grasses, forbs, shrubs)
 - Young animals behave differently from older animals

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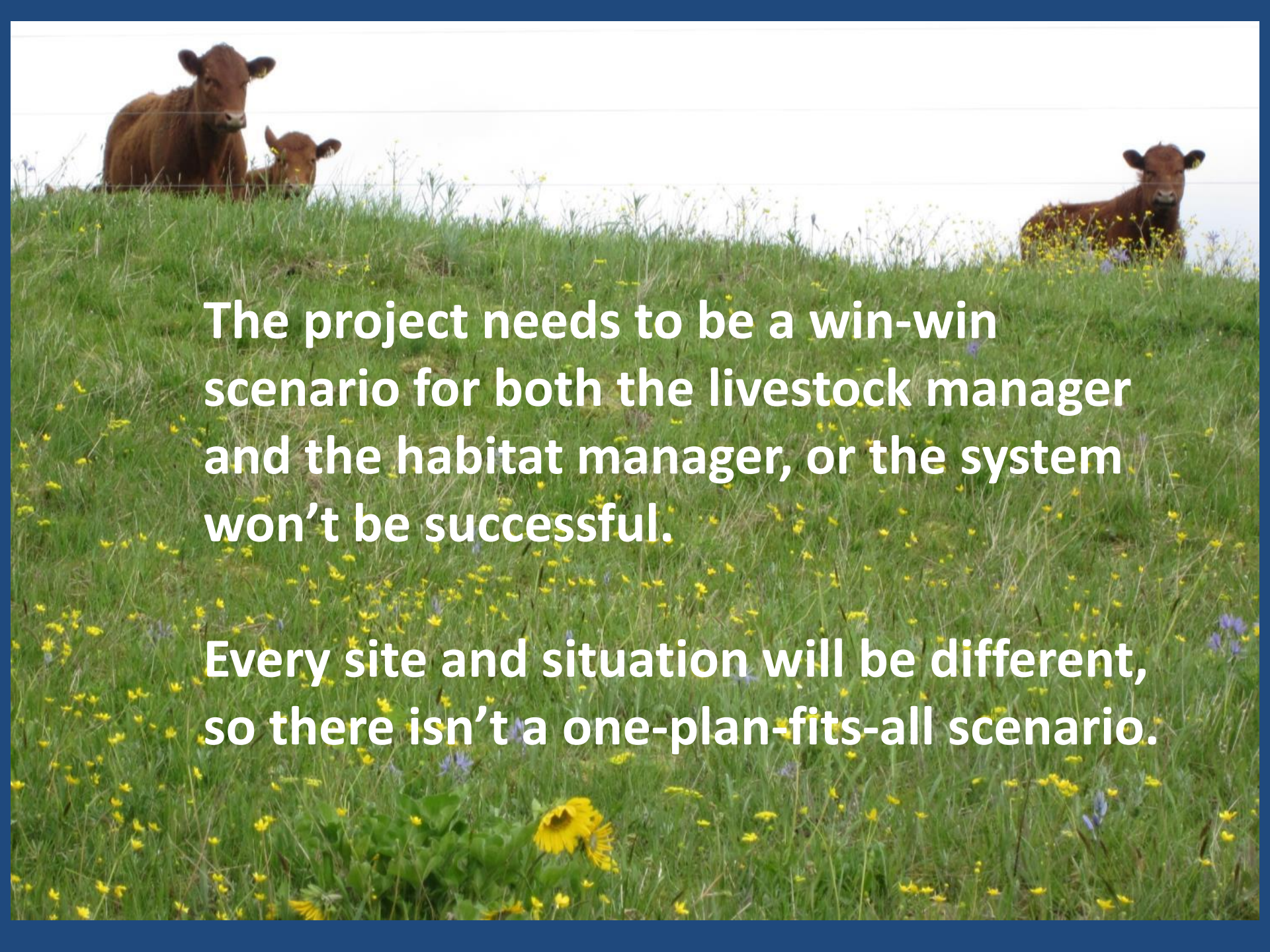
Setting up a Managed Grazing System:

- Find a livestock producer who will work in partnership to develop a mutually beneficial grazing plan
- Initial costs for infrastructure (fence and livestock water)
- Long-term lower costs because livestock producer's time is offset by livestock sales, and less labor is involved than with mowing, spraying, burning, etc.

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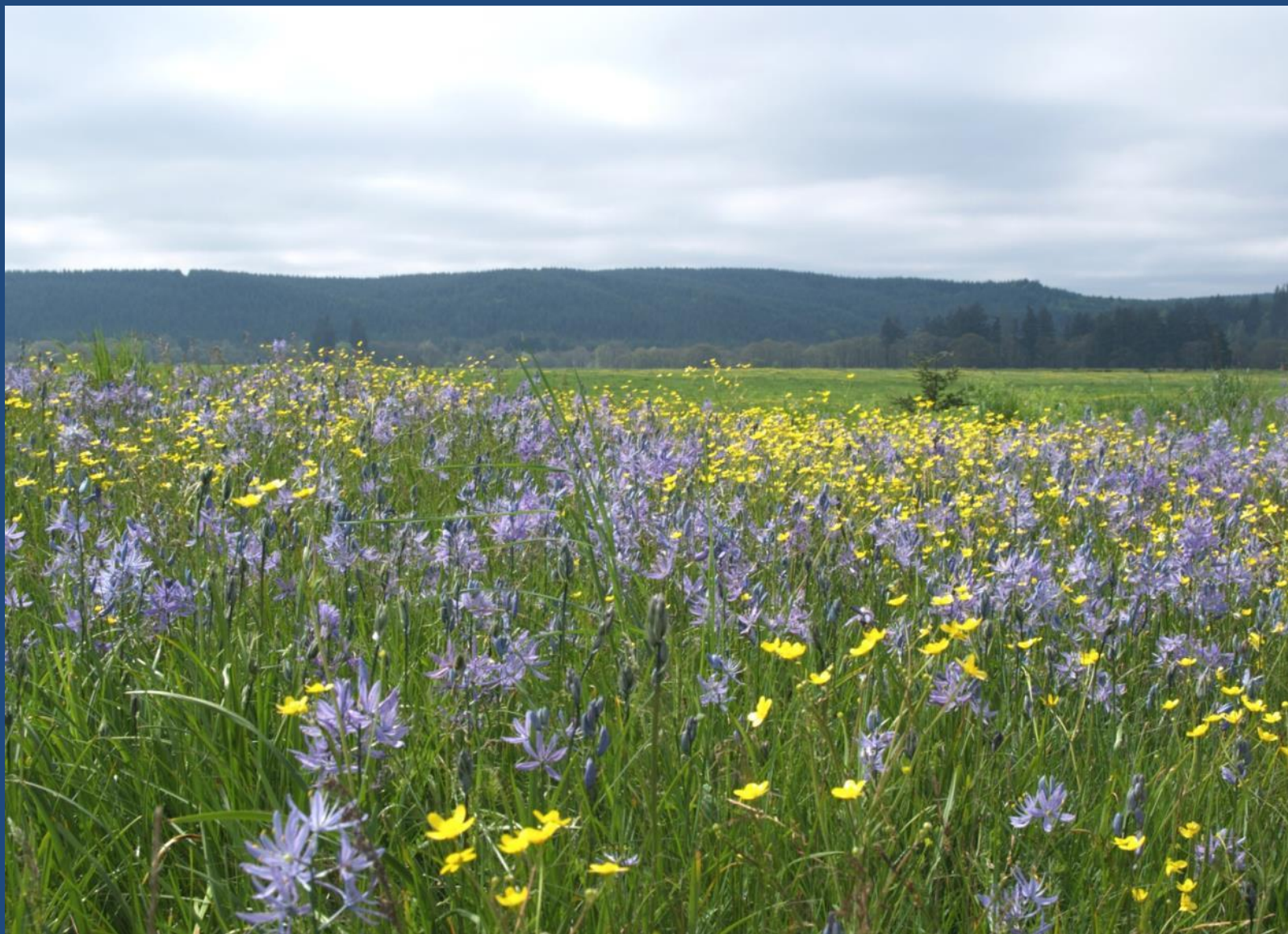
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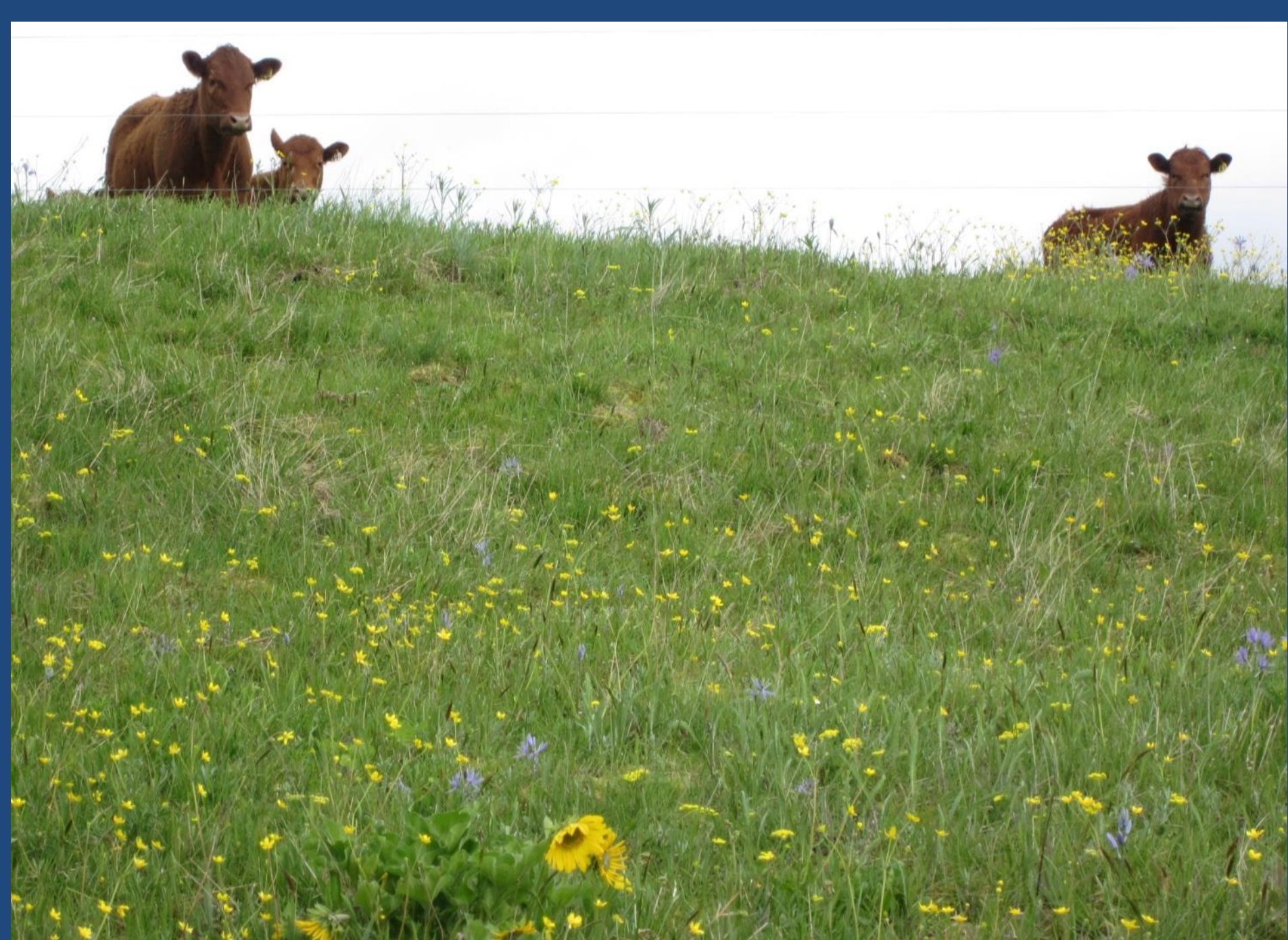
- Match the livestock forage needs with the forage available in the field.
 - Neither overgrazing or undergrazing will meet anyone's goals
 - Don't overstock animals/acre ("mob stocking")

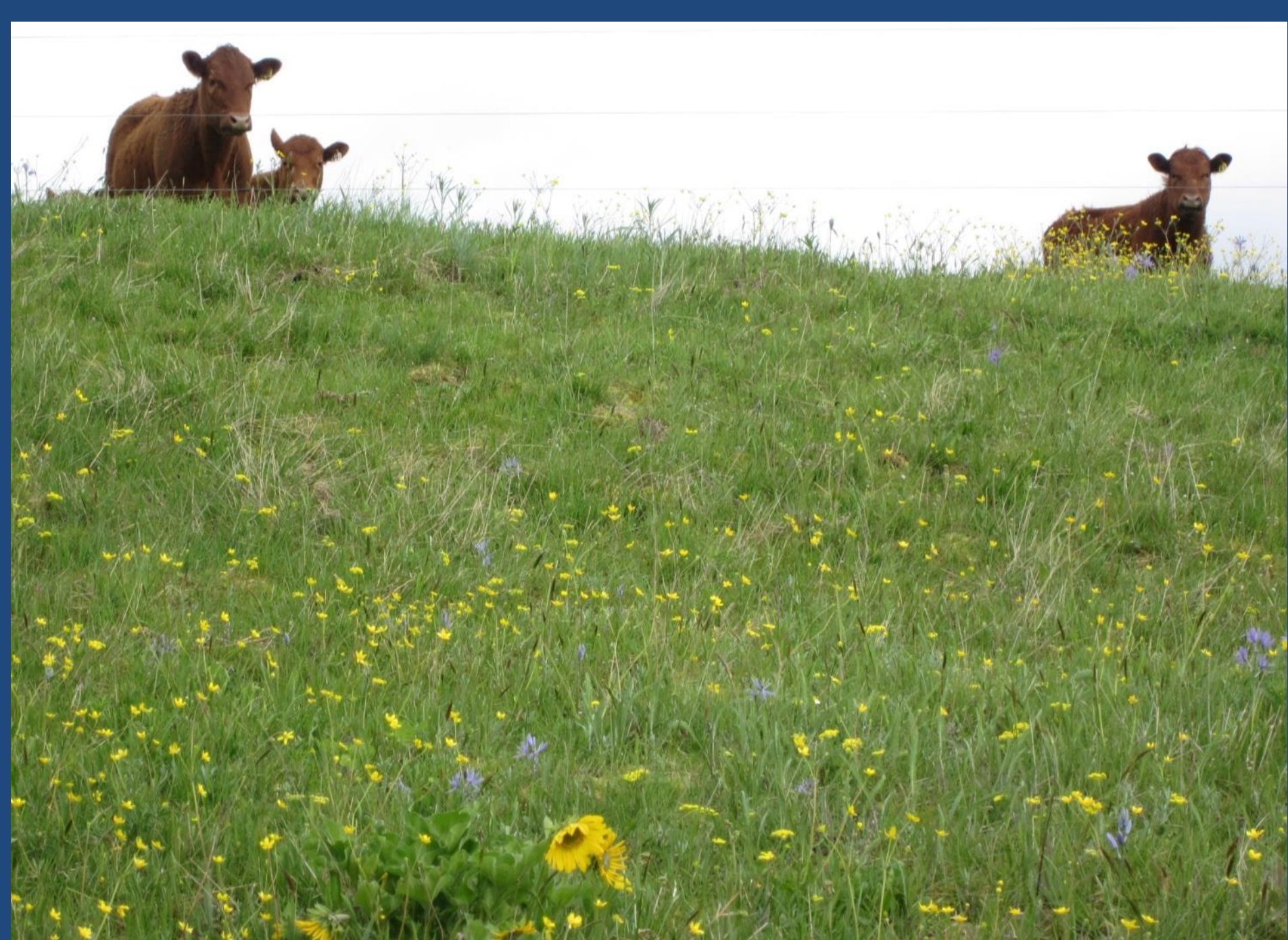
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The project needs to be a win-win scenario for both the livestock manager and the habitat manager, or the system won't be successful.

Every site and situation will be different, so there isn't a one-plan-fits-all scenario.







Animal Behavior – avoiding problems when learning a new pasture

- Don't put hungry animals into a new paddock with unfamiliar dangerous plants.
- Don't increase palatability of dangerous plants by fertilizing or cutting them.
- Don't leave livestock in a paddock until there is so little vegetation left that they are forced to eat vegetation that will sicken them, and they would normally avoid.
- Add strange animals to the herd to break up undesirable grazing habits.
- If there are animals in the herd with bad habits, eliminate them from the herd.
 - **Eliminate them also if they like to graze in sensitive areas**



Animal Behavior – learning to eat new forages

- Familiarity –Put new animals in with experienced herd mates so that they can learn to eat (or avoid!) local species.
- Leave young animals with their mothers to learn local vegetation.
- When moving animals to an unfamiliar pasture, move them with familiar herd mates.
- Fence paddocks into smaller units so that animals have a chance to taste and learn new plants.
 - Monitor use because different types of animals graze differently
- Provide a mixture of forage species so animals can select a balanced diet for nutrition & balance of anti-quality factors.
- Nutrients increase palatability – fertilizing an underutilized area should increase use of the area (and vice-versa!).
- Can train animals to eat or avoid certain species with feedback triggers – aversion therapy or positive reinforcement (a reward for altering behavior)



Animals behave the way they do because:

They learned to
do it.

**They never
learned to do it.**



Camas (*Camassia quamash*)

