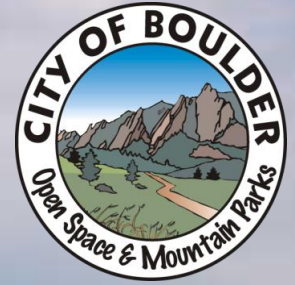


Striving to Maintain and Enhance Biodiversity on Agricultural Landscapes of Boulder Open Space



Heather Swanson
Boulder Open Space and Mountain Parks







OSMP Charter

“the preservation of agricultural uses and land suitable for agricultural production”

“the preservation of water resources in their natural or traditional state”



Water resources in a “traditional state” include the use of water rights for agricultural production.

Primary Agricultural Activities

Livestock grazing

- Dryland and irrigated (11,319 acres)

Hay production

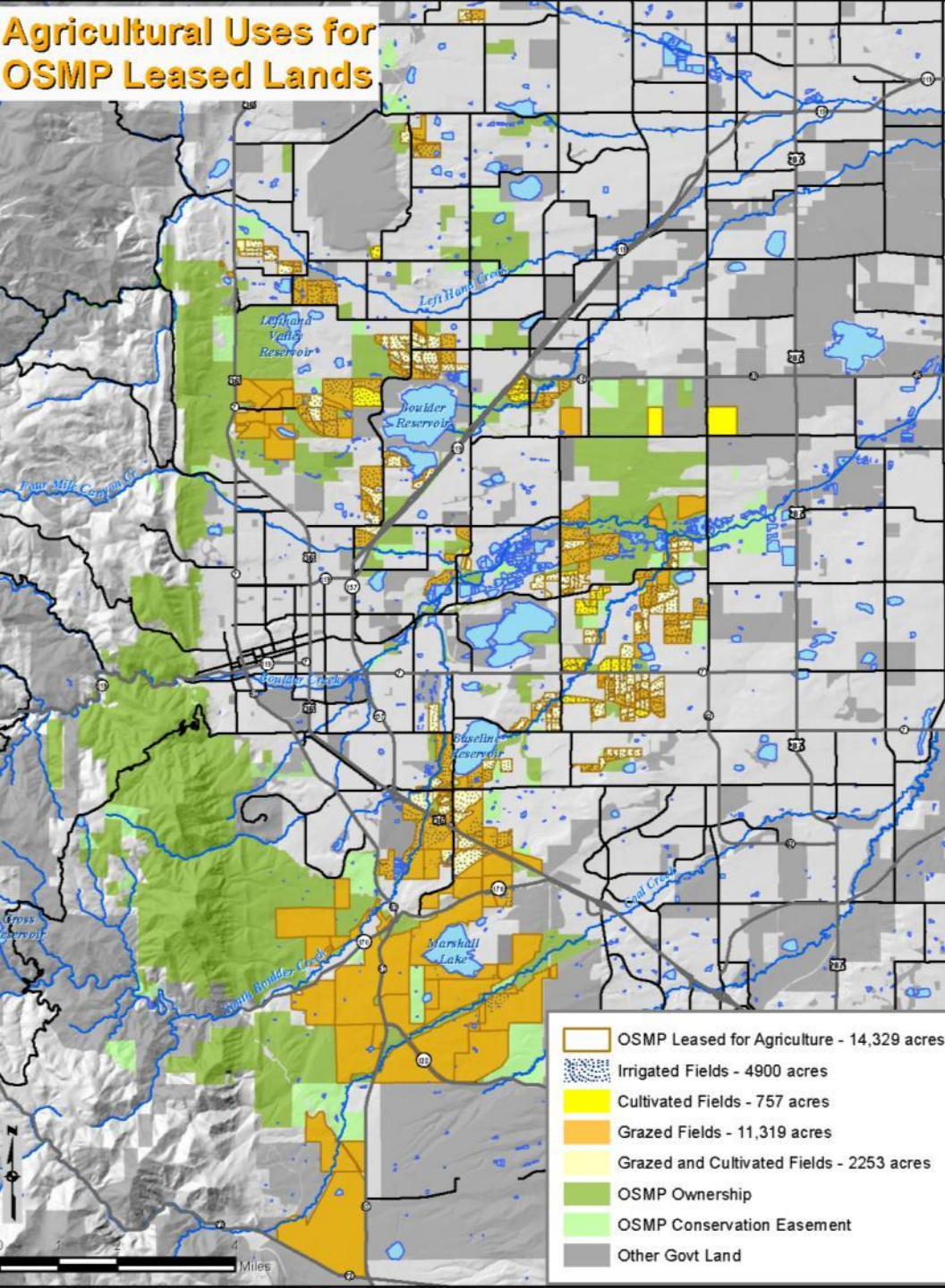
- Grass, grass-alfalfa, alfalfa

Annual crops

- Commodity row crops
- Diversified vegetables



Agricultural Uses for OSMP Leased Lands



14,329 acres leased for agricultural production

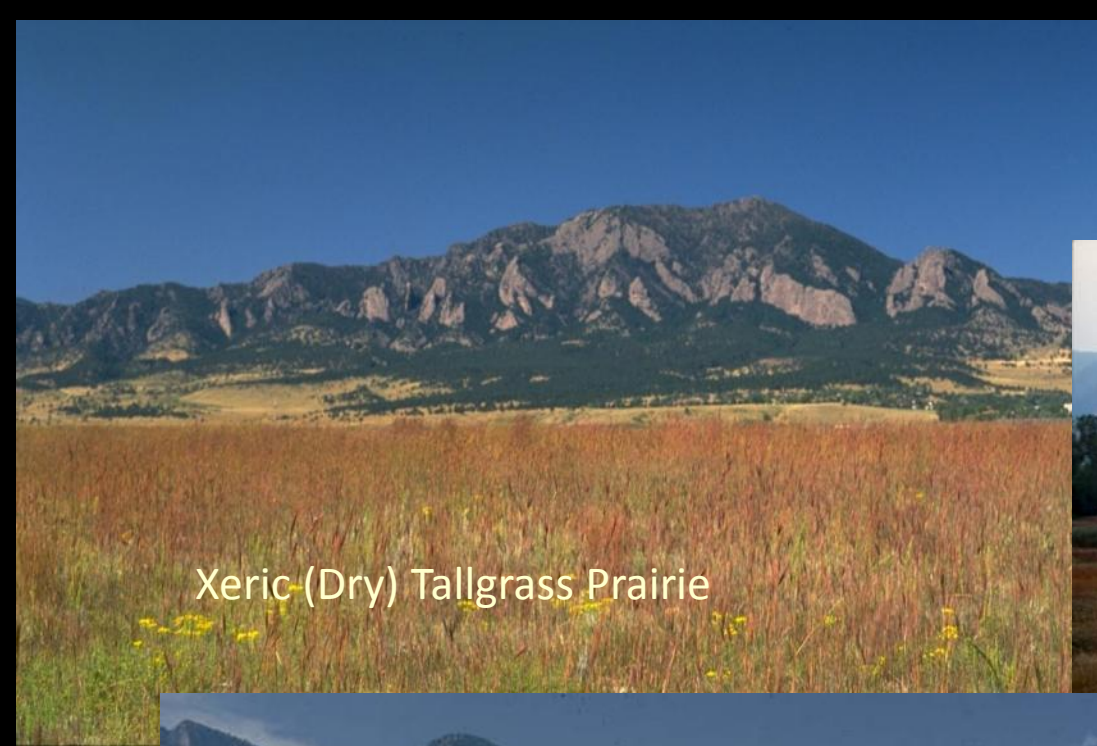
4,900 irrigated acres

OSMP Charter

“Preservation or restoration of flora, or fauna that is unusual, spectacular, historically important, scientifically valuable, or unique, or that represent outstanding or rare examples of native species”

“Preservation of ... wildlife habitats, or fragile ecosystems”





Xeric (Dry) Tallgrass Prairie



Mesic (Wet) Bluestem Prairie



Mixed Grass Prairie Mosaic

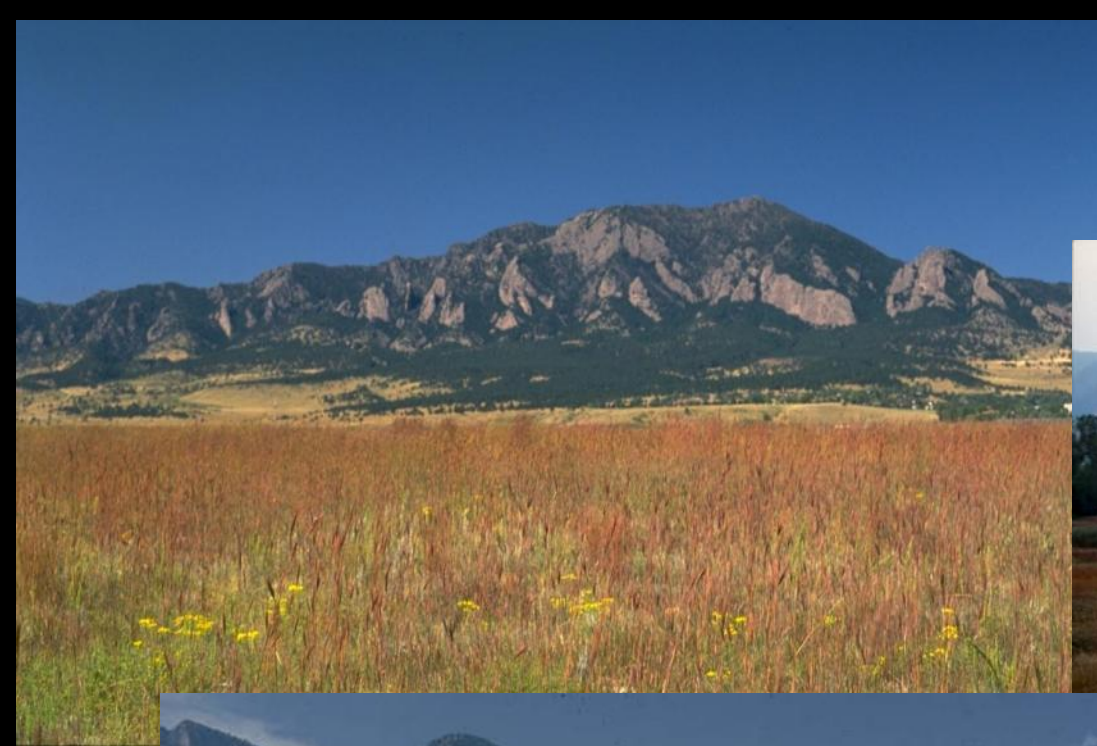












Evolutionary History





Grazing Management

- Manage invasive plant species
- Maintain disturbance
- Increase diversity and heterogeneity
- Agricultural production goals

Set Goals – first Attributes & Indicators

Mixed Grass Prairie Mosaic



Key Attribute	Indicator
Fire Regime	<ul style="list-style-type: none"> • % of target burned during the past 5-30 years
Plant Composition	<ul style="list-style-type: none"> • Native species richness (number of native species) • Relative cover <ul style="list-style-type: none"> –by native/exotic plant species –by bare ground and litter • Rare plant population status
Animal Composition	<ul style="list-style-type: none"> • Breeding bird species richness • Bird Conservation Score for song birds • Butterfly native species richness



Grazing Management

- Timing
 - Duration
 - Intensity (size of area and # animals)
 - Rotation
-
- Plant community
 - Sensitive resources
 - History both natural and cultural









Irrigation





Ute-ladies tresses Orchid



Spiranthes diluvialis
described in 1984 by Dr.
Charles Sheviak, type
location is in Golden

45 species in the genus
Spiranthes world wide, 23
occur in North America

Federally listed as
Threatened (ESA) in 1992

Long-lived perennial – may live many decades

Floodplain and riparian ecosystems

In transition area from higher to lower velocity stream flows.



Habitat Maintained by Moderate Levels of Disturbance and Irrigation

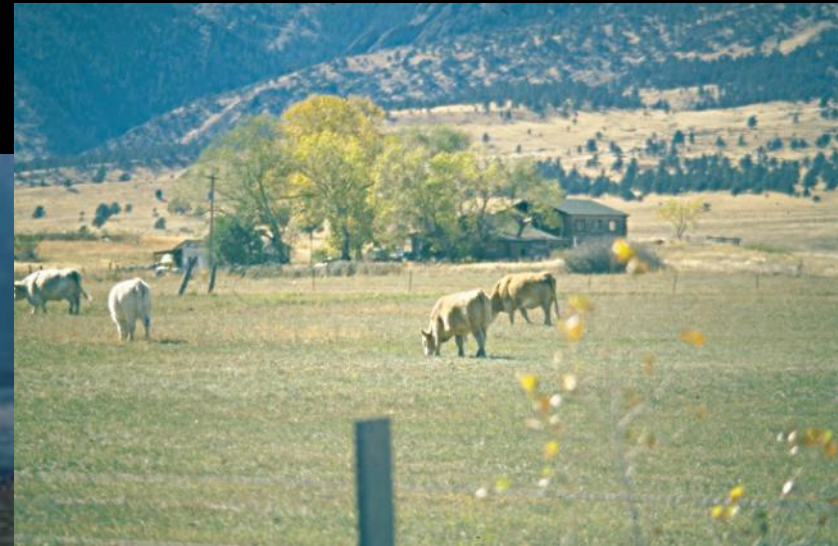


Seasonal Grazing

Haying

Flooding,
Irrigation

Fire



Grassland Plan Strategy

Manage Ute ladies'-tresses orchid habitat with compatible grazing, haying and irrigation practices.



Nate Schipper



Preble's meadow jumping mouse



- Listed as threatened in 1998
- Foodplains, riparian areas, ditches
- Shrubs- especially willows
- Upland grassland foraging
- South Boulder Creek Critical Habitat



Preble's meadow jumping mouse



- Water management to support habitat
- Vegetation management- ditch maintenance





Northern leopard frog

- Declining across west
- Wetlands, ponds, ditches, meanders of streams
- Single season metamorphosis
- Highly mobile



Northern leopard frog

Threats:

- Non-native amphibians
- Disease
- Predatory fish
- Invasive plants

- Water management
- Vegetation control and management

- Maintain movement habitat



Bobolink

- Wet meadows
- Mesic tallgrass prairie
- **Irrigated hayfields/
floodplains**
- Declining
- Habitat loss
- Nesting period/haying



Grassland Plan Strategy

- Establish Class A Bobolink Management Areas and refrain from mowing each year until after bobolink fledging (July 15) in all years
- Establish Class B Bobolink Management Areas and refrain from mowing each area one year out of three.



Adaptive Management

Background:

- Literature
- On-the-ground experience
- Monitoring
- Research
- Set targets/goals



Selected Key Attributes & Indicators Mixed Grass Prairie Mosaic



Key Attribute	Indicator
Fire Regime	<ul style="list-style-type: none"> • % of target burned during the past 5-30 years
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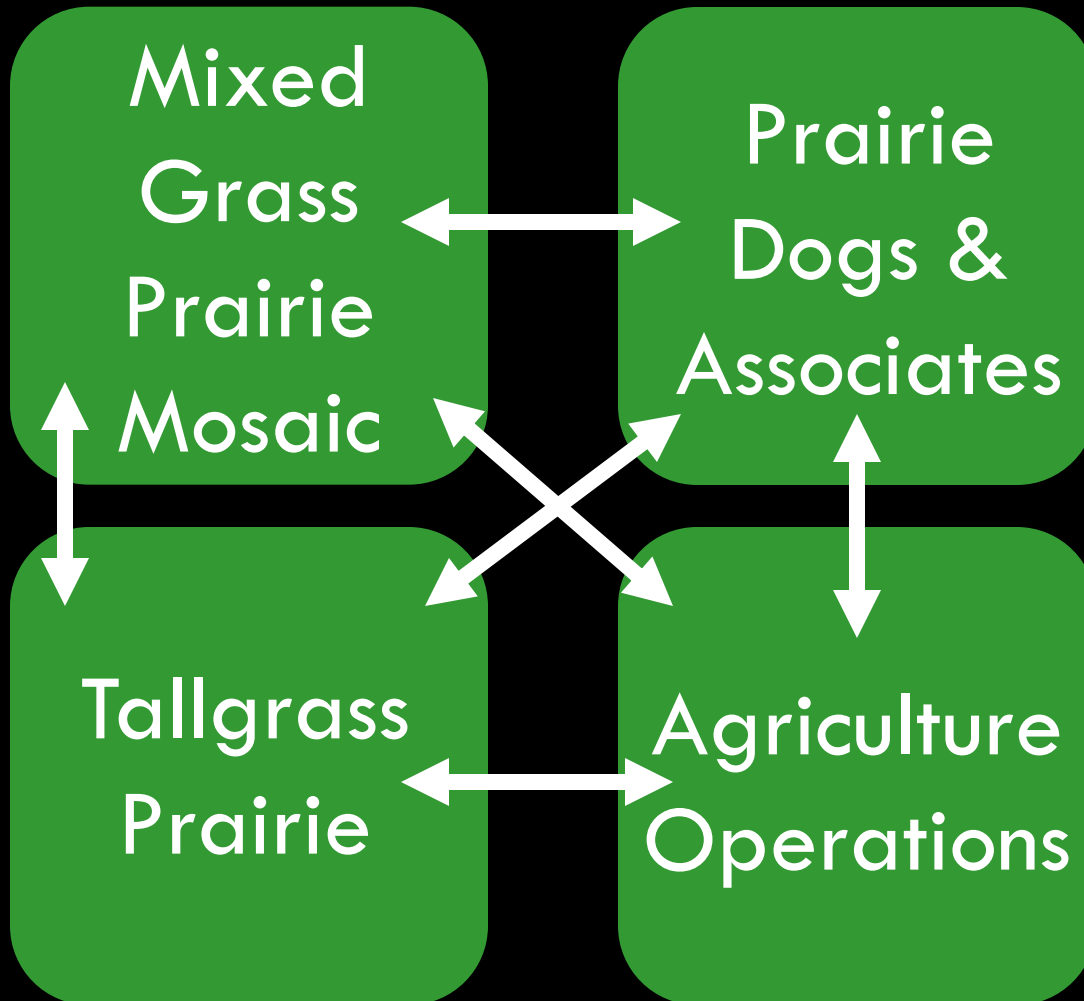


Adaptive Management

- Manage
- Monitor
- Adapt management
- Monitor...



Ecosystem Management Focus



While individual elements are addressed, a structure is built that support the elements *and* the system.



