Fine Tuning CRP for Biological Diversity and Native Wildlife

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CRP Management

- Manage in the context of the landscape
- Target the potential native plant community using NRCS Ecological Site Guides
- Address limiting factors for prairie indicator species
- Manage with appropriate tools

Grazing distribution is determined by hierarchically nested decisions driven by the fire-grazing interaction

Landscapes

Communities

Patch

Feeding Station

Plant

Plant Part

Senft et al. 1987, Stuth 1991

Highly Diverse Ecosystems

- Contained organisms (plants and animals) that can be classified as
  - Habitat Generalists
    - Adapted to many different habitat conditions
  - Habitat Specialists (indicator species)
    - Not well adapted to change, requires specific habitat conditions (e.g. many species of prairie birds are declining rapidly)

The Niche-Gestalt

- James, F. C. 1971. Ordinations of habitat relationships among breeding birds. The Wilson Bulletin 83:215-236.
- Concept - predictable relationships exist between the occurrence of a bird (e.g. habitat specialist as an indicator species) and its characteristic vegetational (structural and compositional) requirements. A basic configuration of the ecological niche.

The Niche-Gestalt

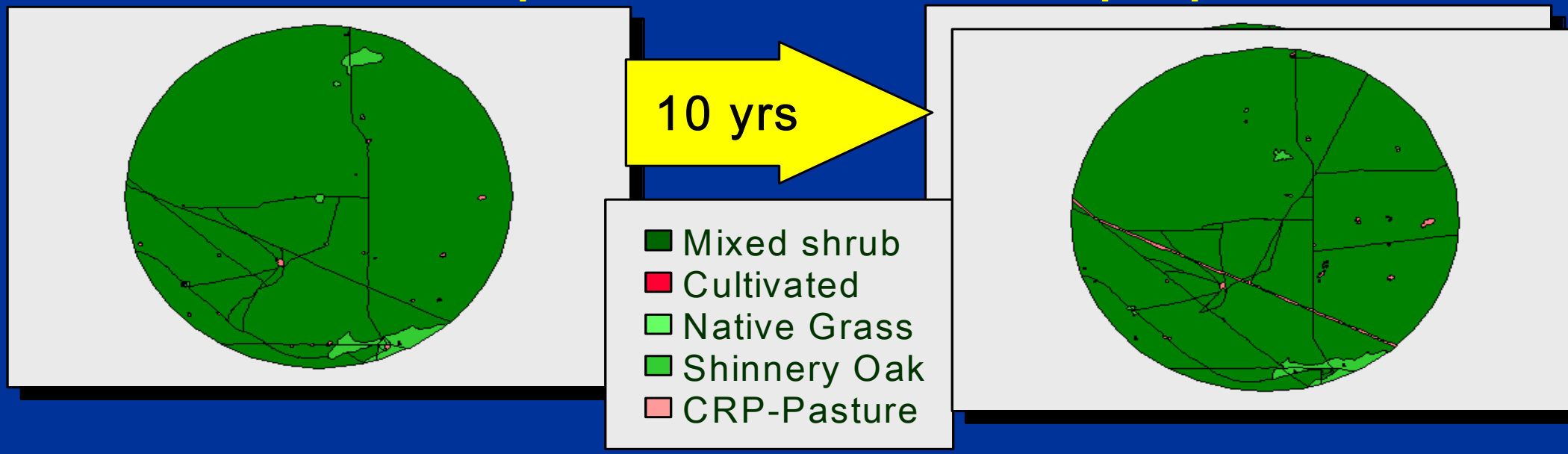
- Each species has a characteristic perceptual world
- Each species responds to its perceptual field as an organized whole
- It has a predetermined set of specific search images

Lesser Prairie Chicken: An indicator of a healthy rangeland ecosystem

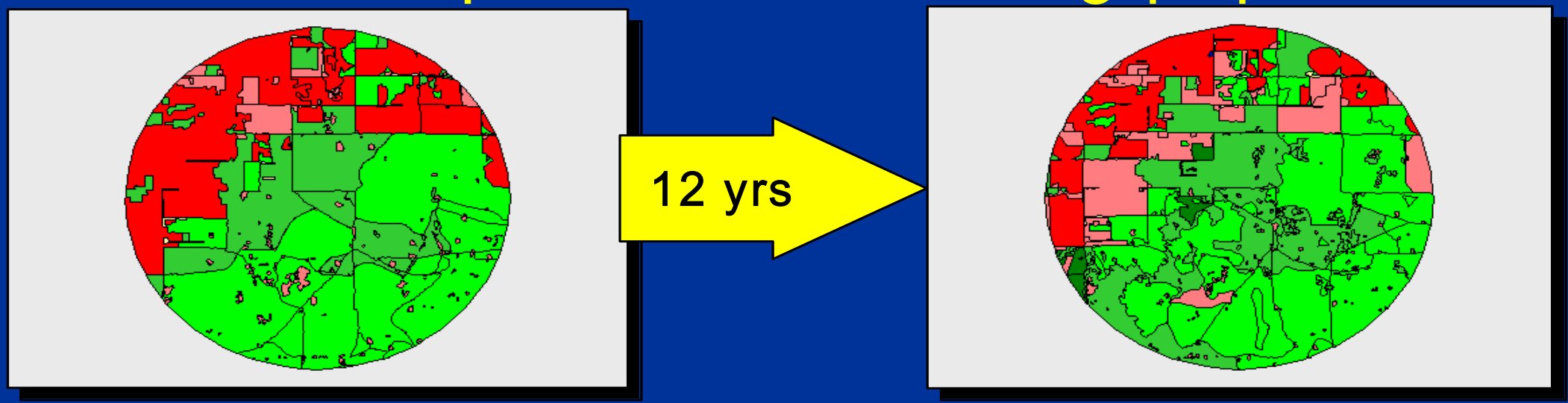
Causes of Population Decline

- Habitat fragmentation
- Conversion of native prairies and shrublands to agricultural crops, tree plantings, and introduce forages
- Fire suppression
- Overgrazing/overuse/underuse by cattle

Landscape with a stable population



Landscape with a declining population



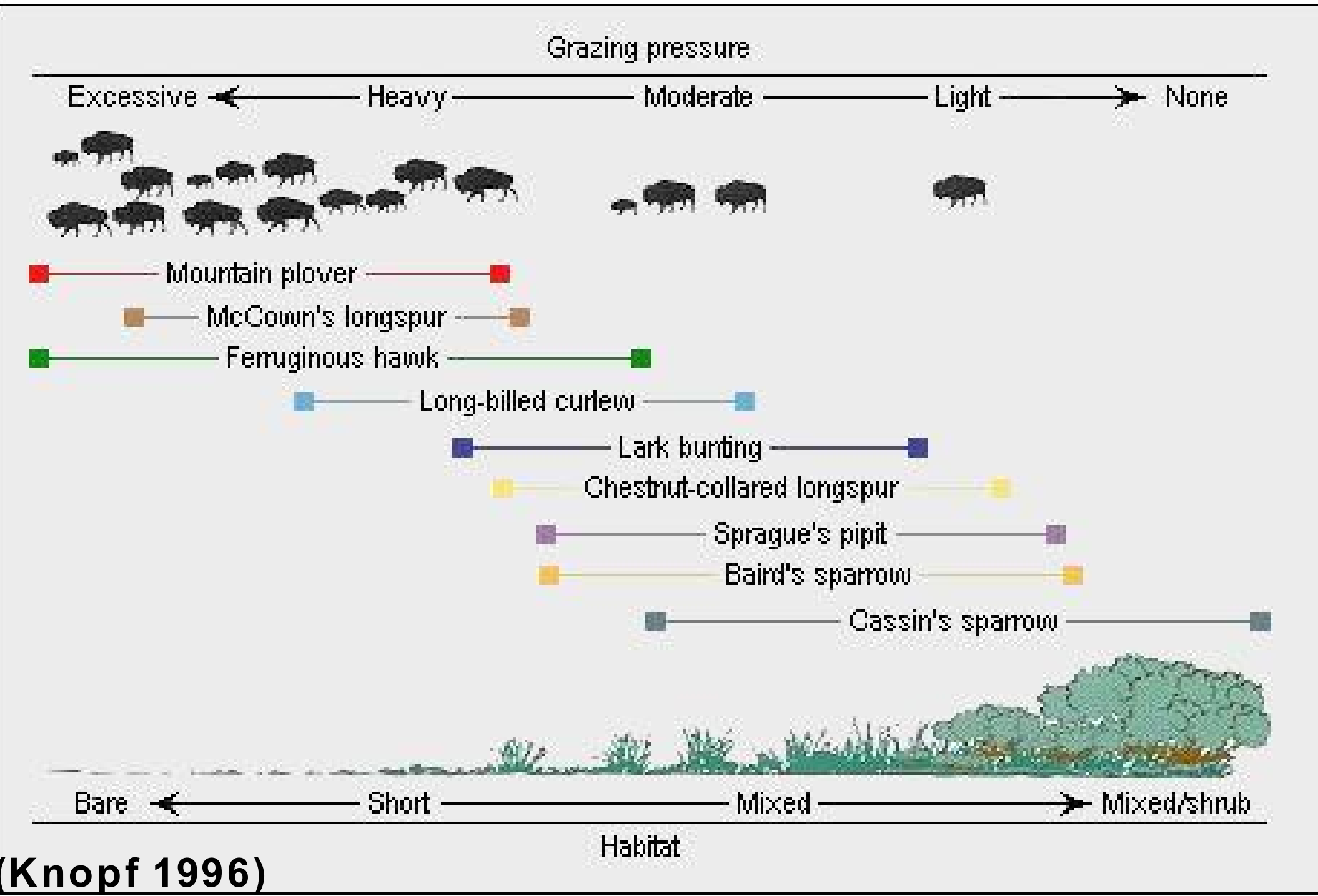
Is this good or bad?

How about this?

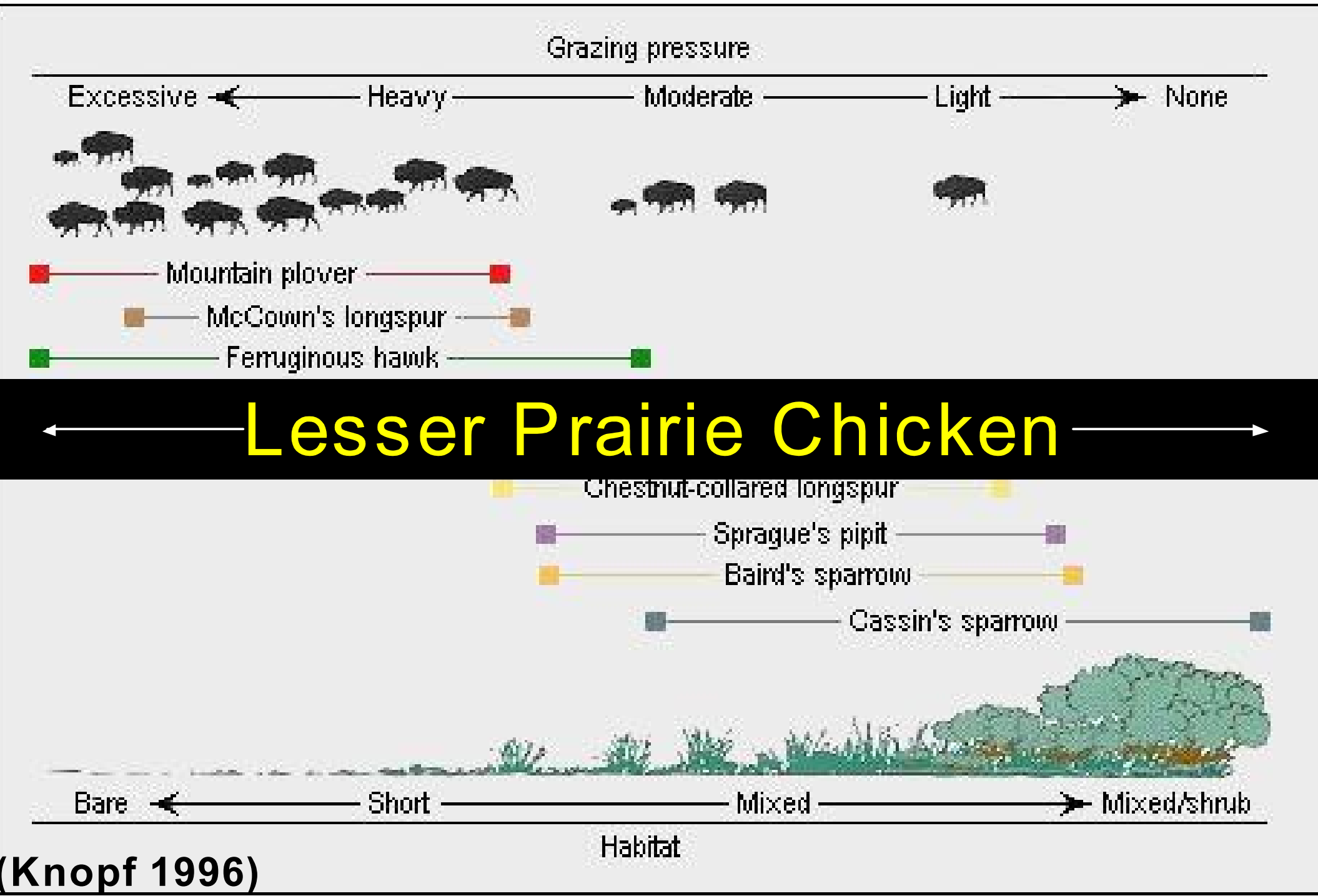
Tree invasion or tree planting is incompatible with prairie birds and other prairie wildlife.

Research has shown that one tree per acre can cause the site to be unusable for some prairie birds.


Is this overgrazing or overuse?
Is this good or bad?
It depends!


Grazing pressure
Excessive
Heavy
Moderate
Light
None
Mountain plover
McCown's longspur
Ferruginous hawk
Long-billed curlew
Lark bunting
Chestnut-collared longspur
Sprague's pipit
Baird's sparrow
Cassin's sparrow
Bare
Short
Mixed
Mixed/shrub
Habitat

(Knopf 1996)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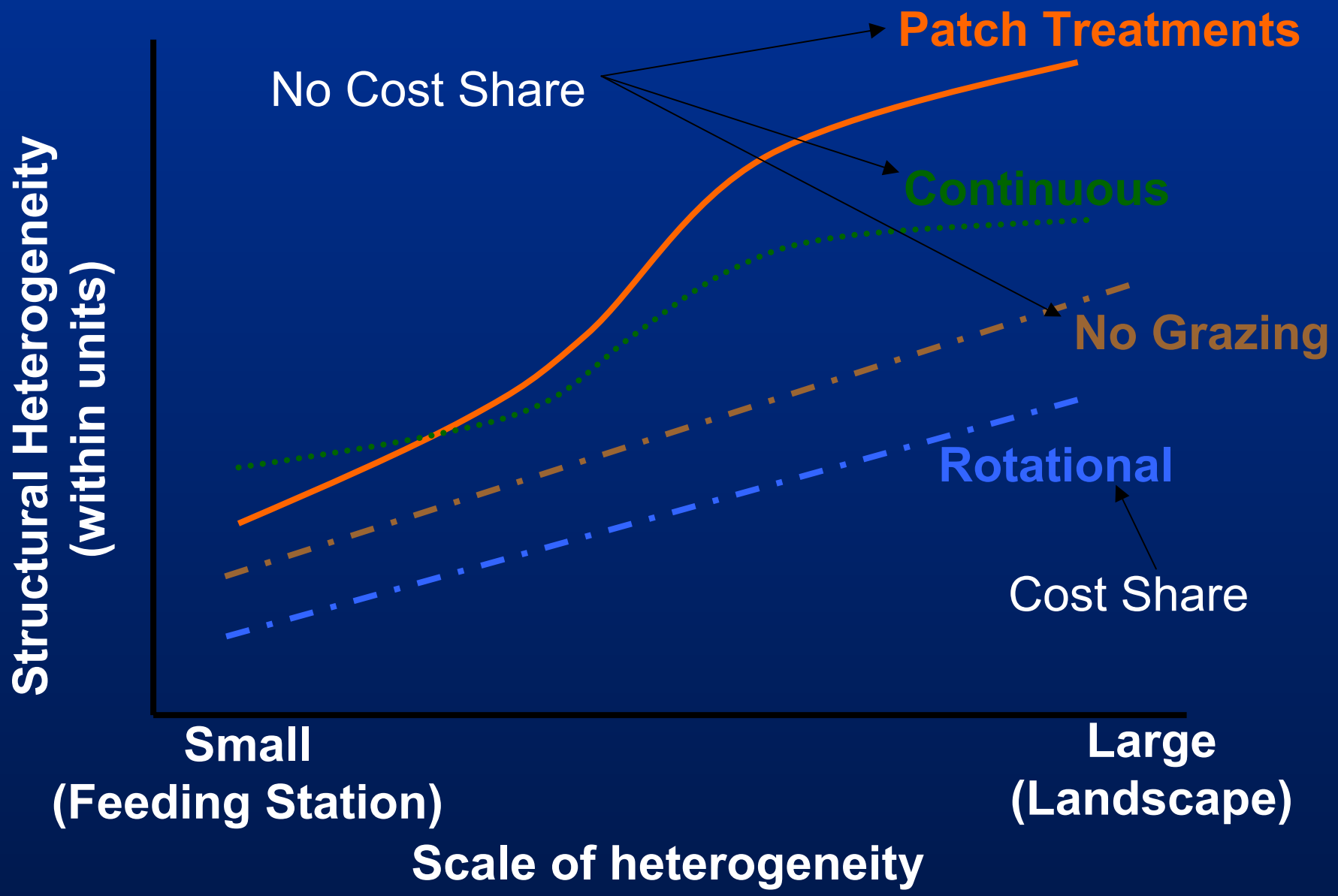
(Knopf 1996)

	Spatial Variability of Units		
	Homogeneous	Heterogeneous	Shifting Mosaic
Traditional			
Continuous Grazing		X	
Rotational Grazing	X		
Herbicide Application	X		
Multi-species Grazing	X		
Area Burns	X		
Improved Water Distribution	X		
Restoration			
Patch Burning			X
Patch Herbicide Application			X
Patch Fertilization			X
Focused grazing disturbances			X
Shifting attractants (salt, etc.)			X



Fuhlendorf and Engle 2001. Bioscience 51: 625-632.

Ecologically Based Habitat Maintenance and Restoration on CRP

- Manage in the context of the landscape
- Use USDA-NRCS Ecological Site Guides
- Address limiting factors for prairie obligate indicator species – i.e. habitat specialists
- Apply patch burning (i.e. rotational grazing without fences as needed)