

Influences of Livestock Grazing on Greater Sage-Grouse Habitat: Context and Management

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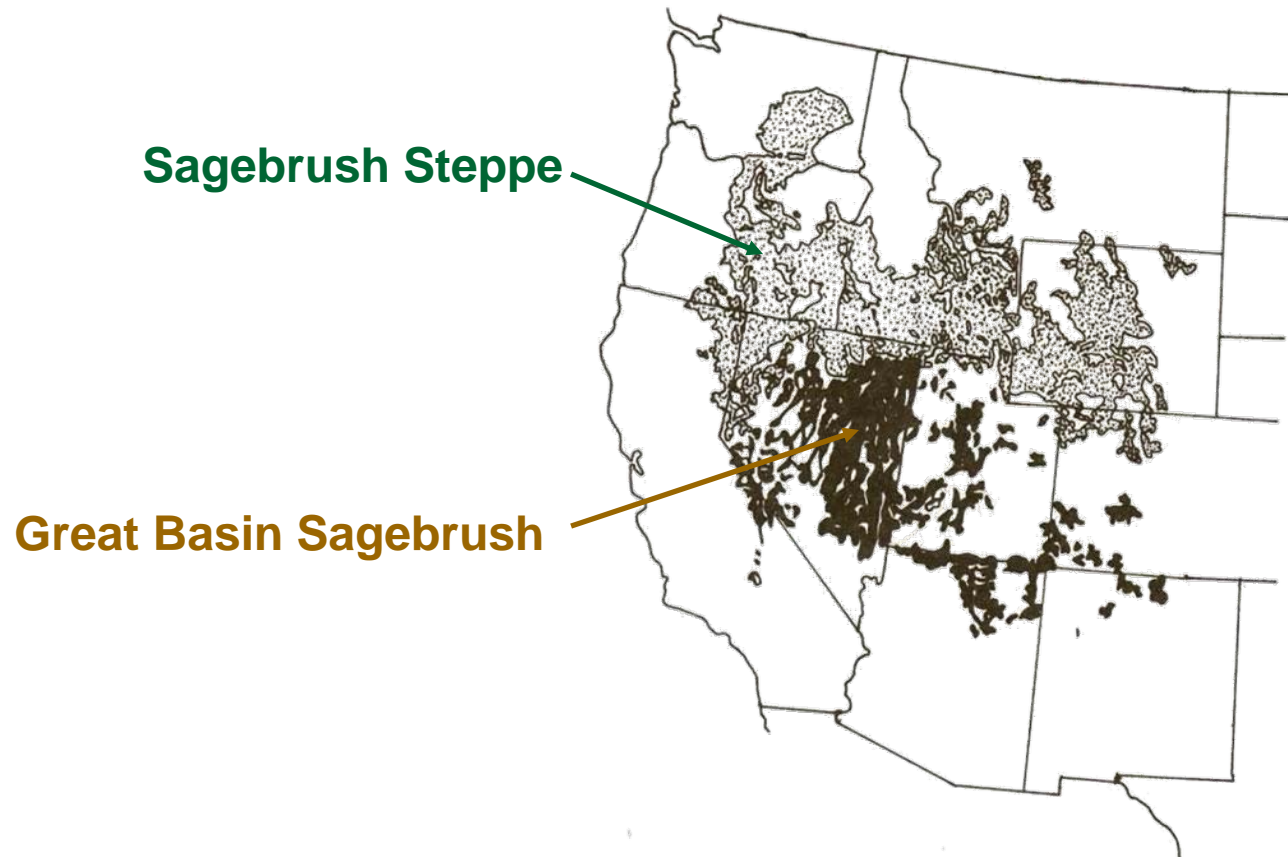
ACKNOWLEDGMENTS

Karen Launchbaugh – University of Idaho

Mike Smith – University of Wyoming

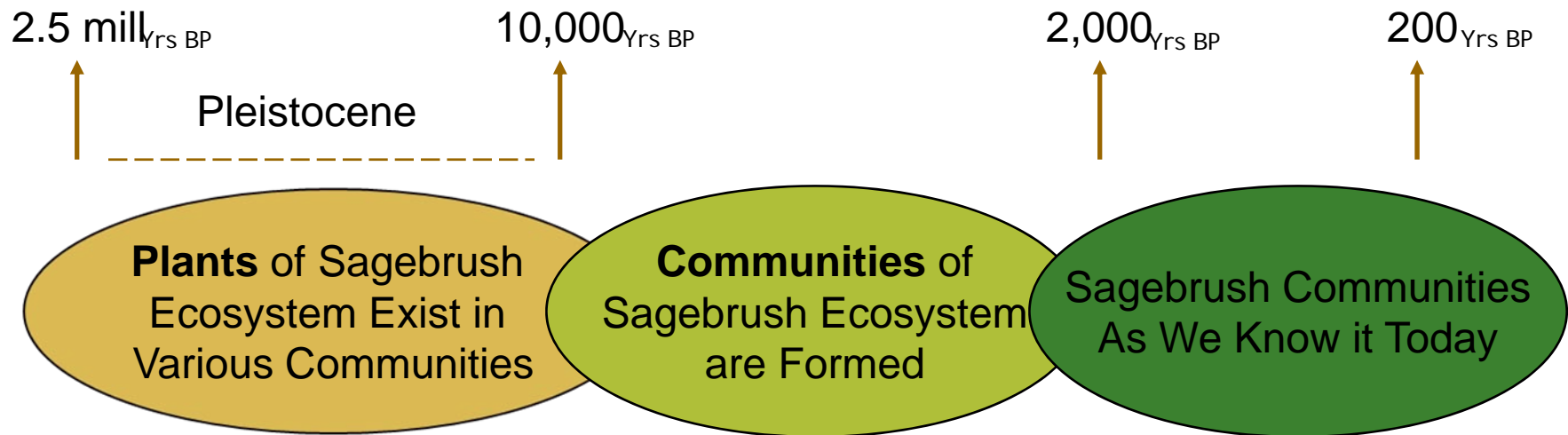
Grazing in the Sagebrush Steppe

- In the Intermountain West



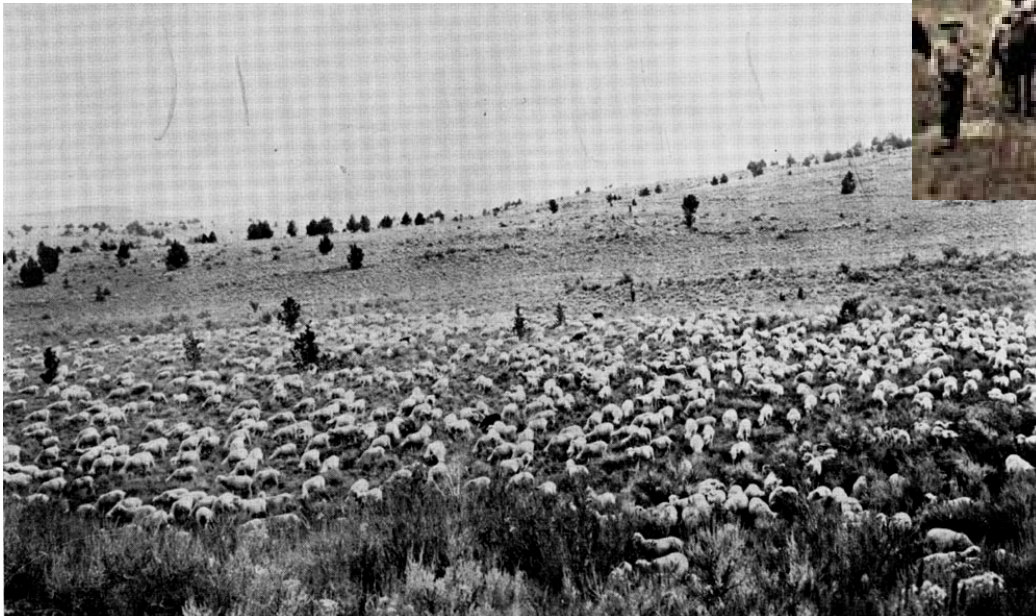
Historic Regime

■ Plant Communities

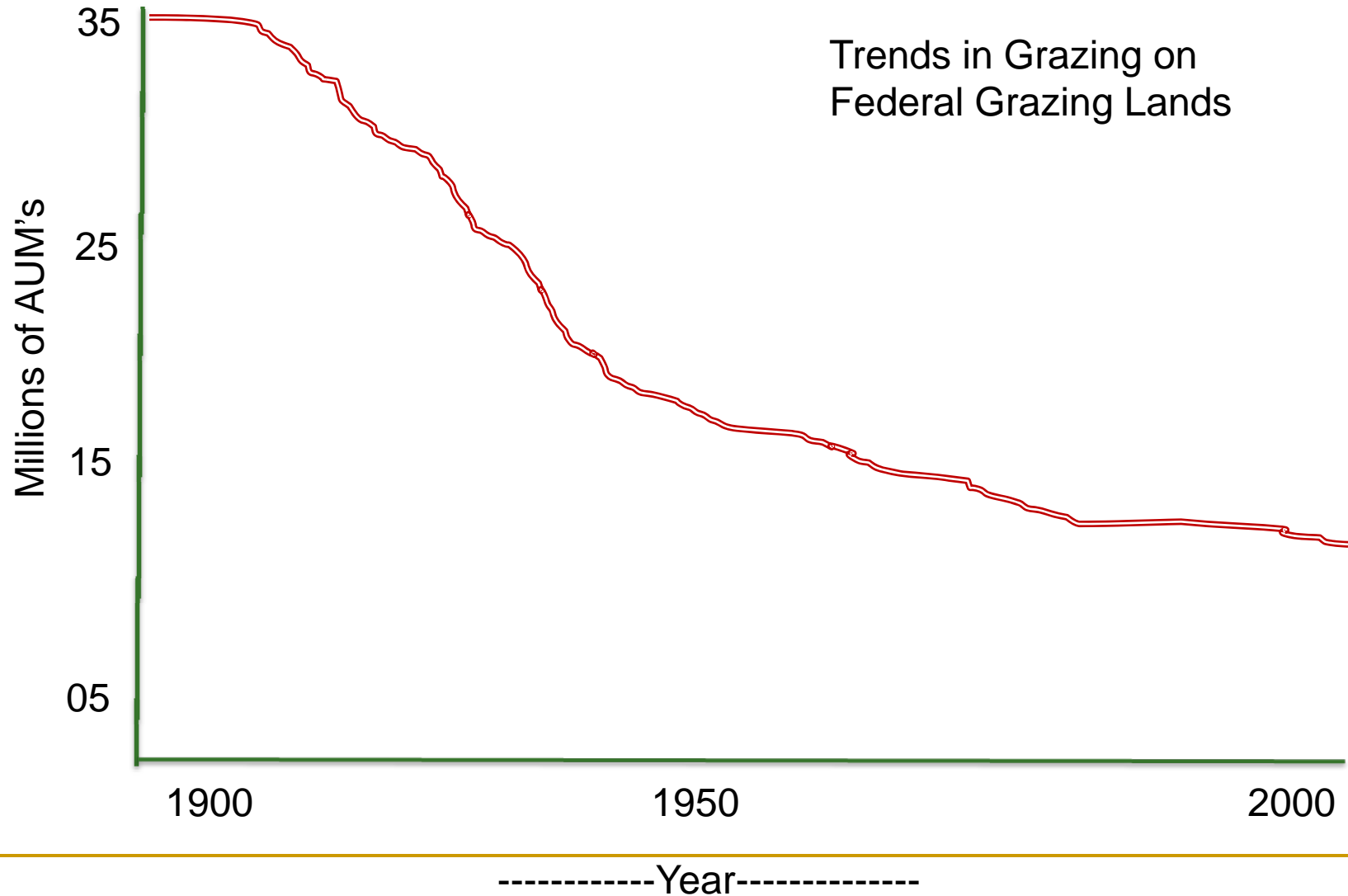


Historic Regime

- Livestock arrived in mid 1800's



Number of Livestock



Historic Grazing Impact

1938



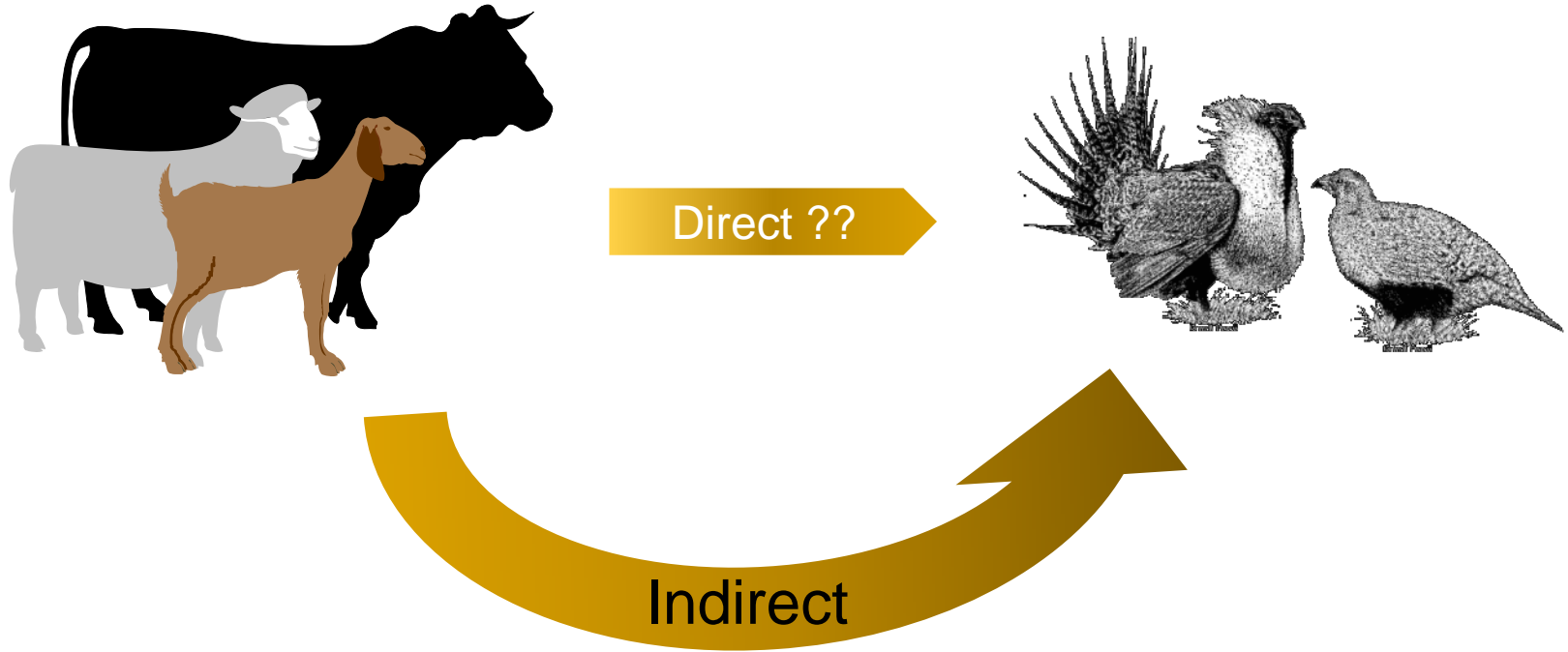
1956



1998



Livestock and Sage-Grouse

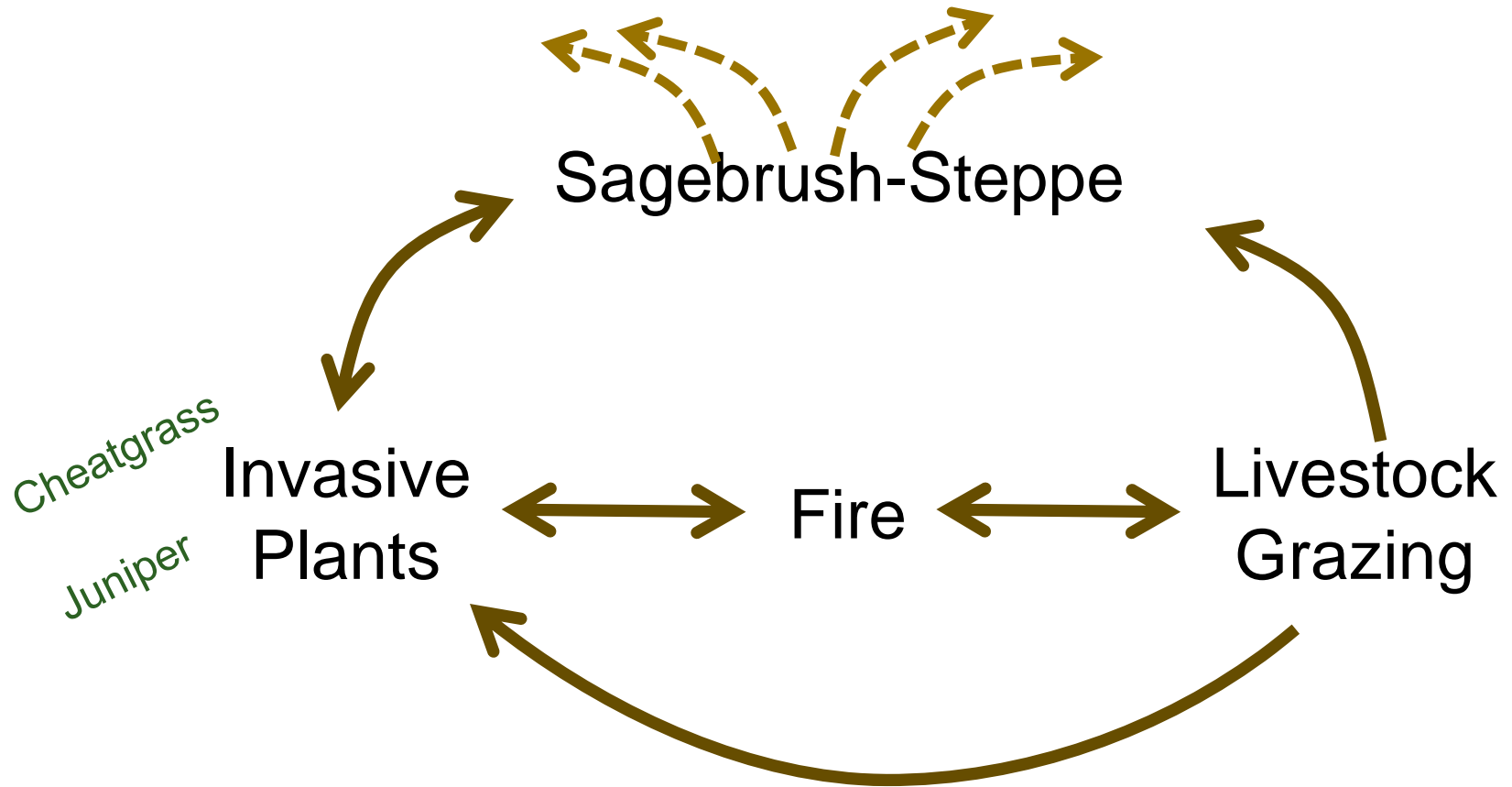


Livestock Grazing in the Sage-Steppe

Implications (Beck and Mitchell 2000)

- Direct positive ($n = 4$)
 - Light and moderate grazing stimulating forbs and use of grassy meadows
 - Direct negative ($n = 6$).
 - Trampling nests and nest desertions
 - Sheep bed grounds removed sagebrush on ridges used by grouse in winter
 - Overgrazing degraded meadow hydrology and use of meadows by grouse
 - Densities of nest-depredating ground squirrels likely increased following heavy grazing
 - Indirect positive ($n = 2$)
 - Sage-grouse created new leks at sheep salting sites
 - Browsing can reduce dense sagebrush, thereby stimulating herbaceous plants used by grouse in summer
 - Indirect negative ($n = 5$)
 - Livestock grazing promoted introduction of invasive weeds
 - Efforts to increase grassy forage for livestock reduced grouse food forbs and shrub cover
-

Where Grazing Fits In



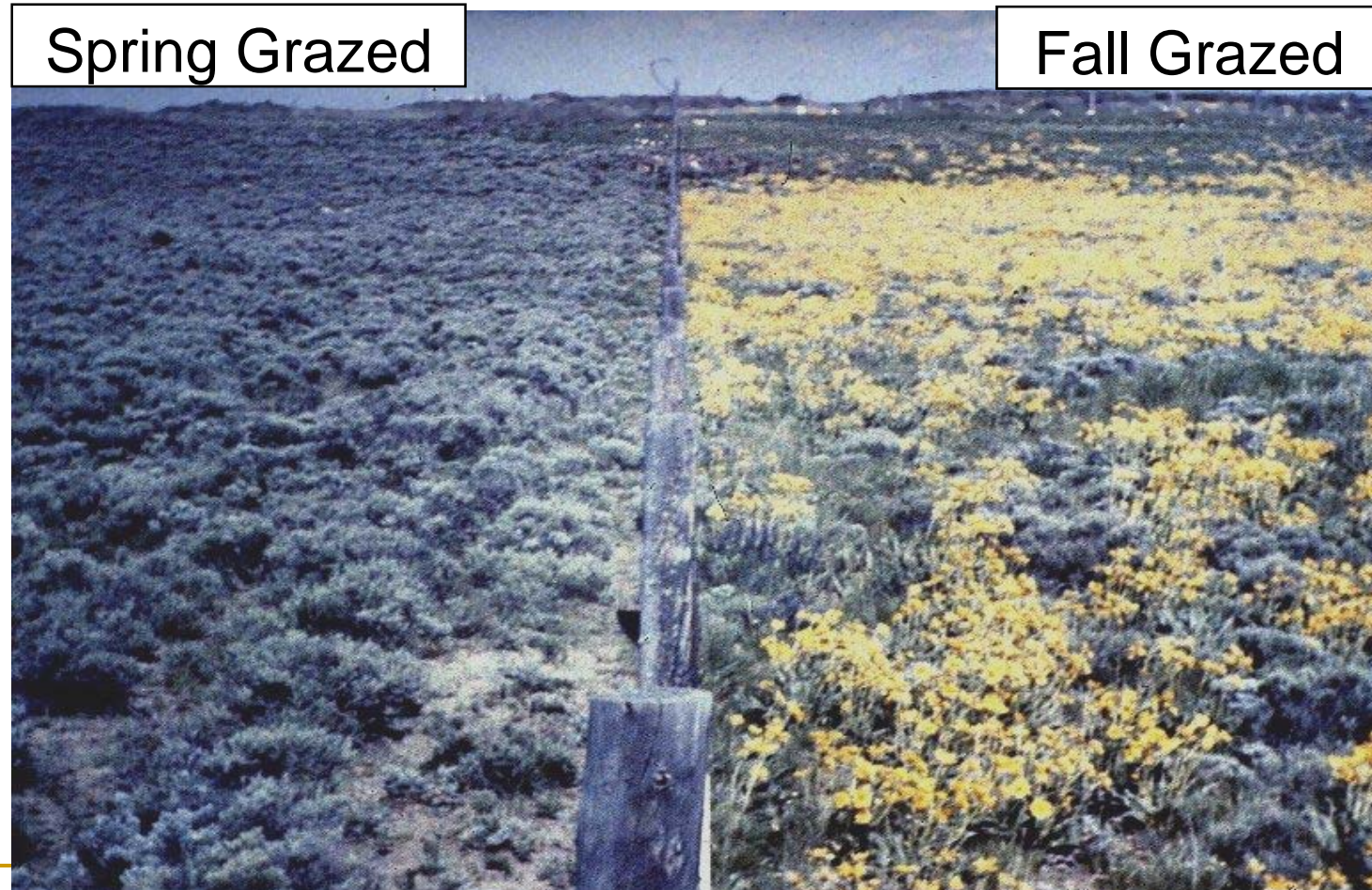
Restoring Sagebrush Communities

"...game (wildlife) can be restored by the creative use of the same tools which have heretofore destroyed it- axe, cow, plow, fire, and gun." ".....Management is their purposeful and continuing alignment."

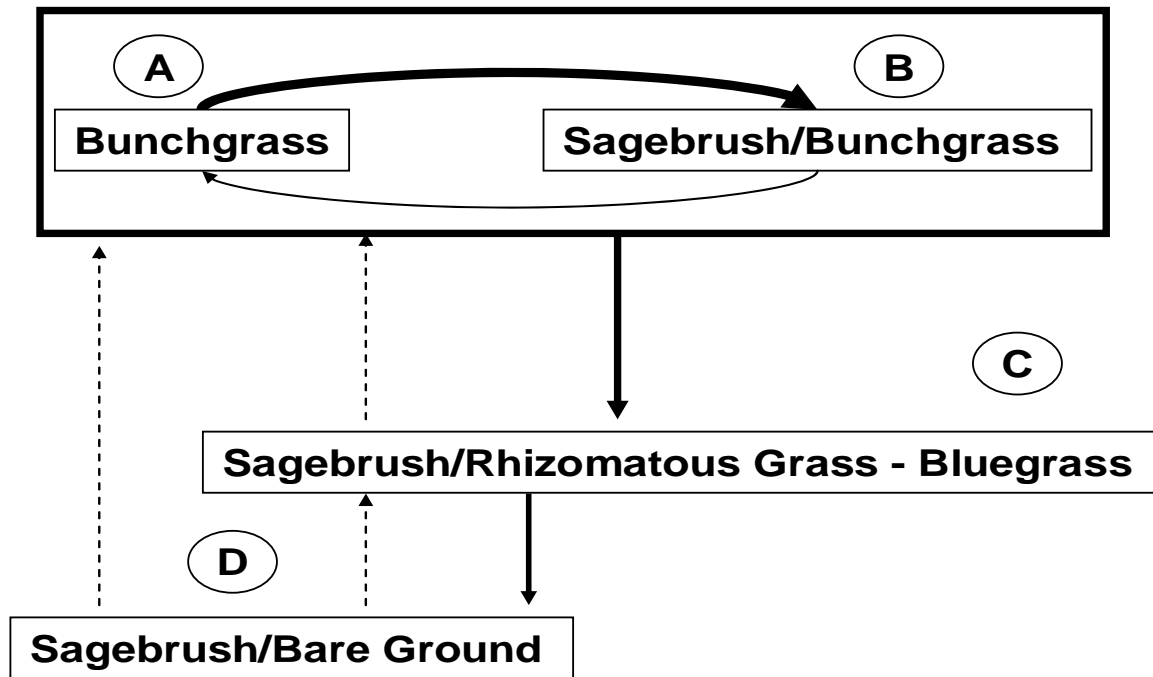
Aldo Leopold, *A Sand County Almanac* (1949)

Grazing Forbs

- All repeated spring grazing can affect forbs



Simplified State and Transition Model for Wyoming Big Sagebrush Ecosystems of the Wyoming Basin (10 to 14 inch precipitation, sandy and loamy ESD)



Bold solid arrows depict natural progression with time and various types of grazing. Light solid arrows depict changes that require disturbance. Light dashed arrows depict changes that require disturbance and may take generations to occur.

“Overall, livestock grazing appears to most affect productivity of sage grouse populations. Residual grass cover following grazing is essential to conceal sage grouse nests from predators.”

Beck and Mitchell (2000)

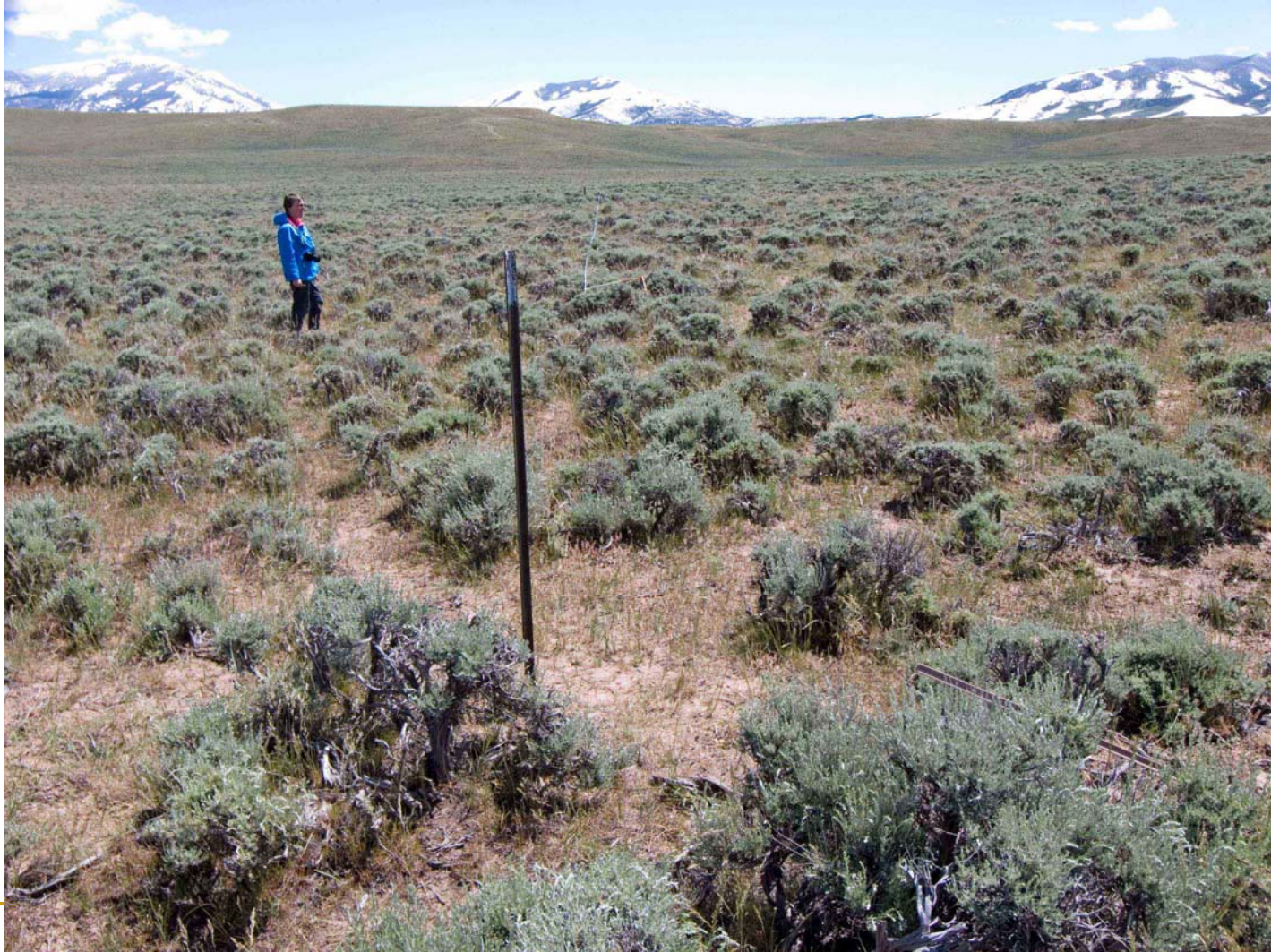
Sagebrush/Bunchgrass (State B)



Bunchgrass (State A)



Sagebrush/Rhizomatous Grass - Bluegrass (State C)



Sagebrush Bare Ground (State D)



Sage-Steppe without Ranching?

