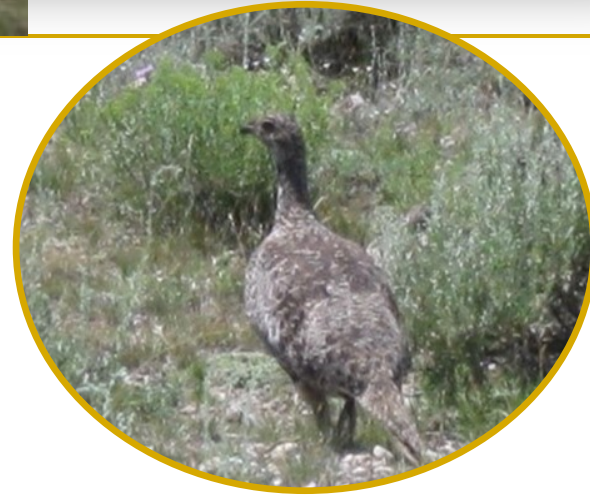


# Livestock Grazing & Sage-Grouse



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# Sagebrush Steppe – Decades of Change



Development



Juniper Invasion



Livestock Grazing



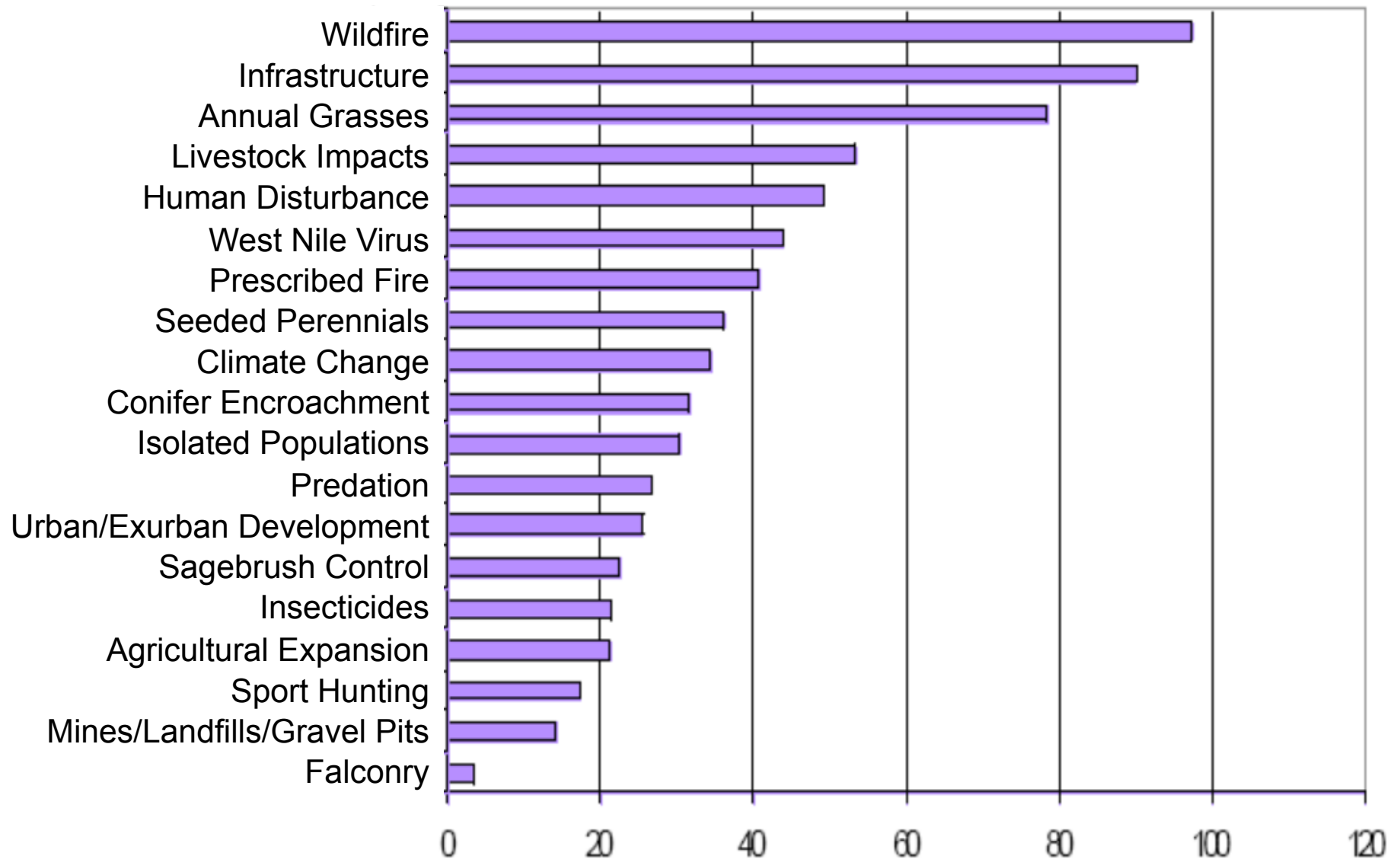
Annual Invasive Grasses



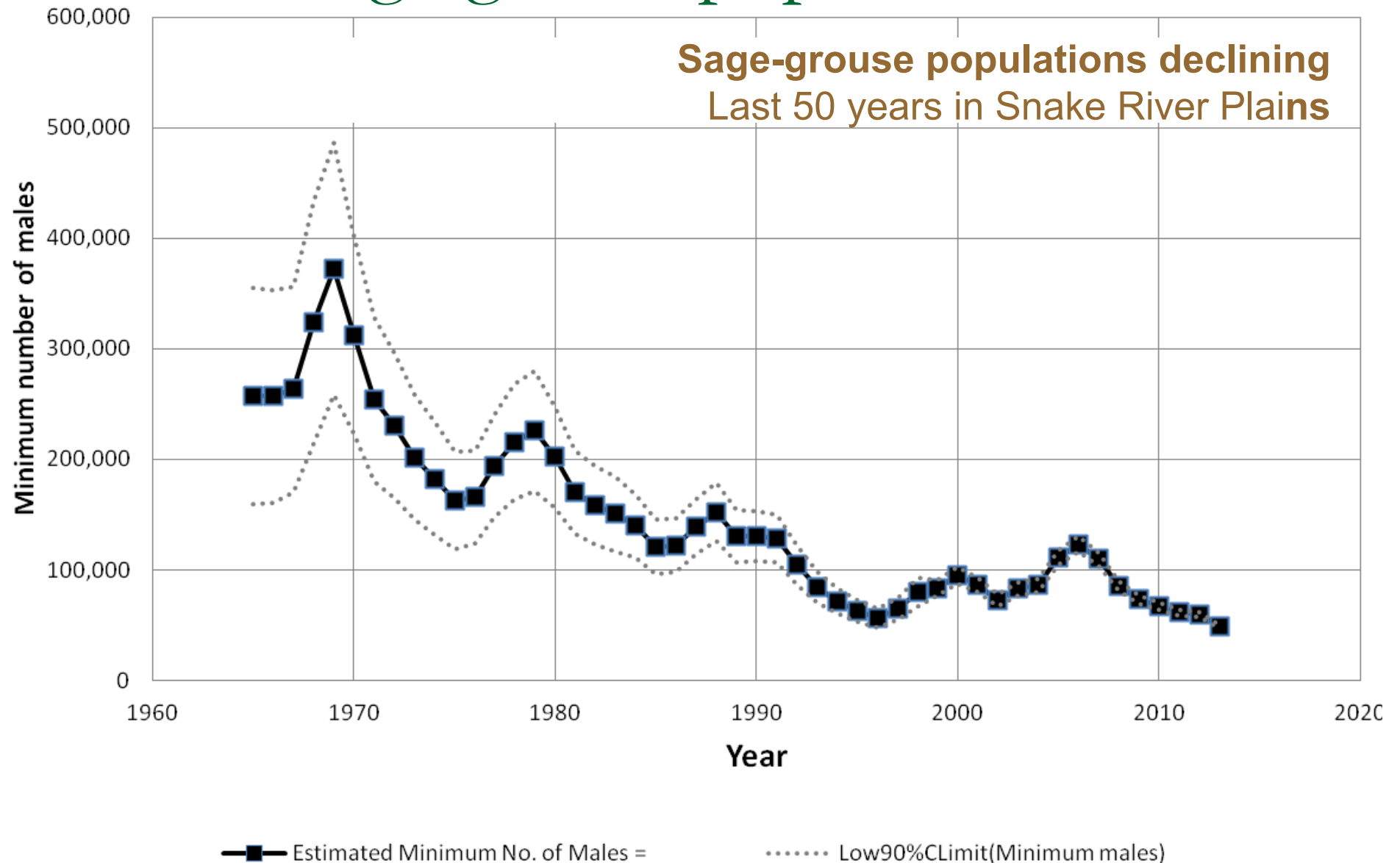
Wildfires



# Threats to Sage-Grouse in Idaho

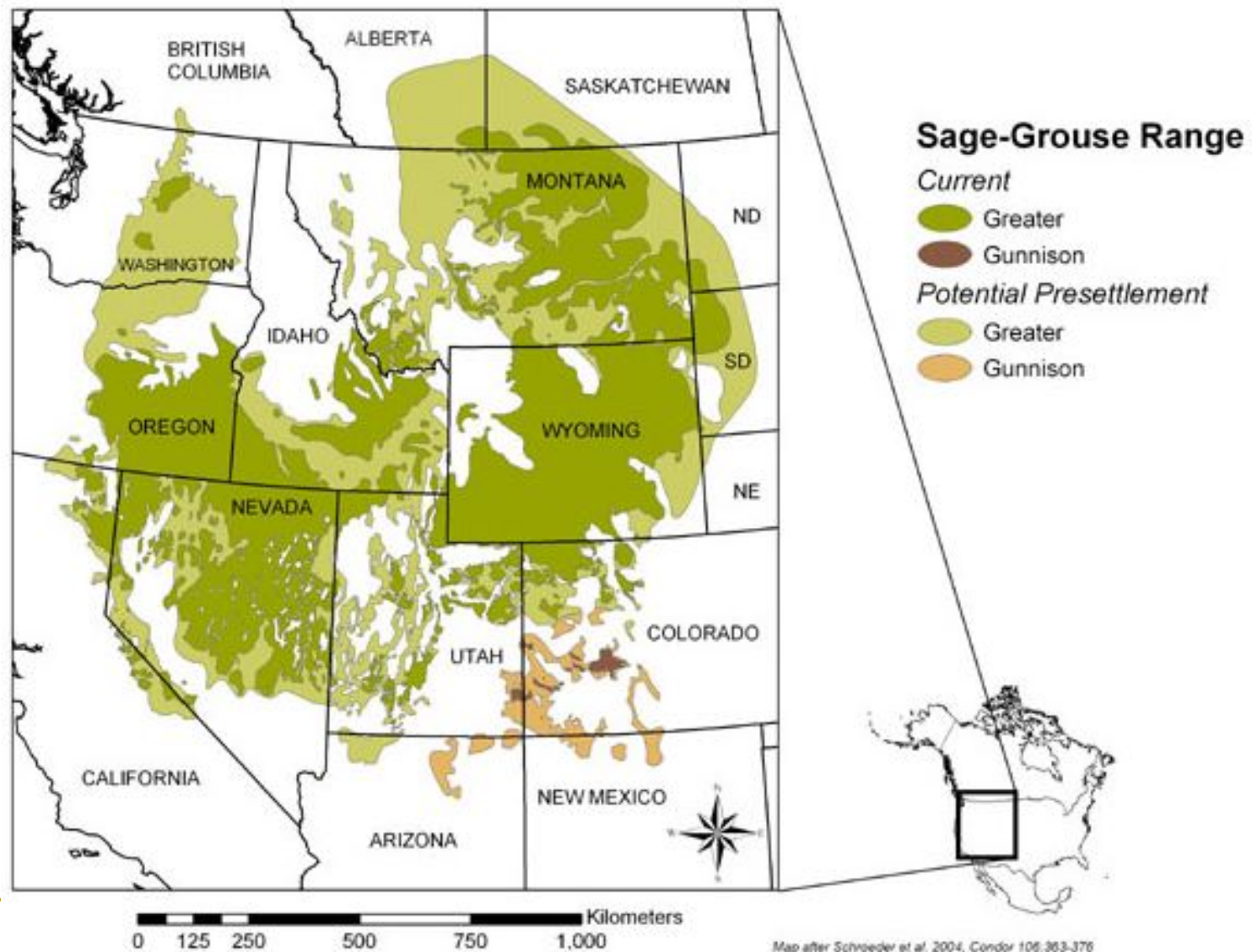


# Greater sage-grouse populations

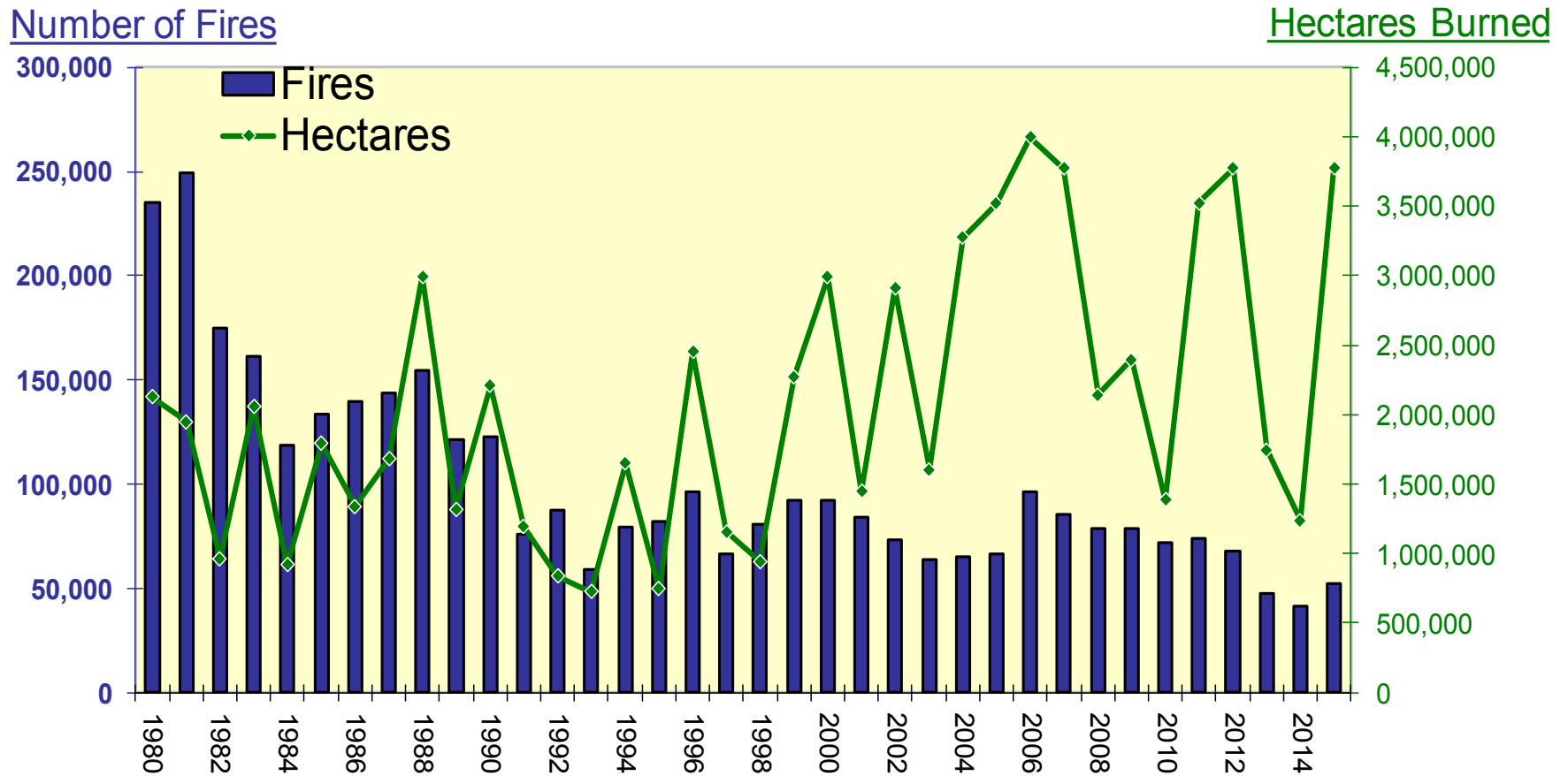


Garton et al. 2011. Studies in Avian Biology, 38:293-381

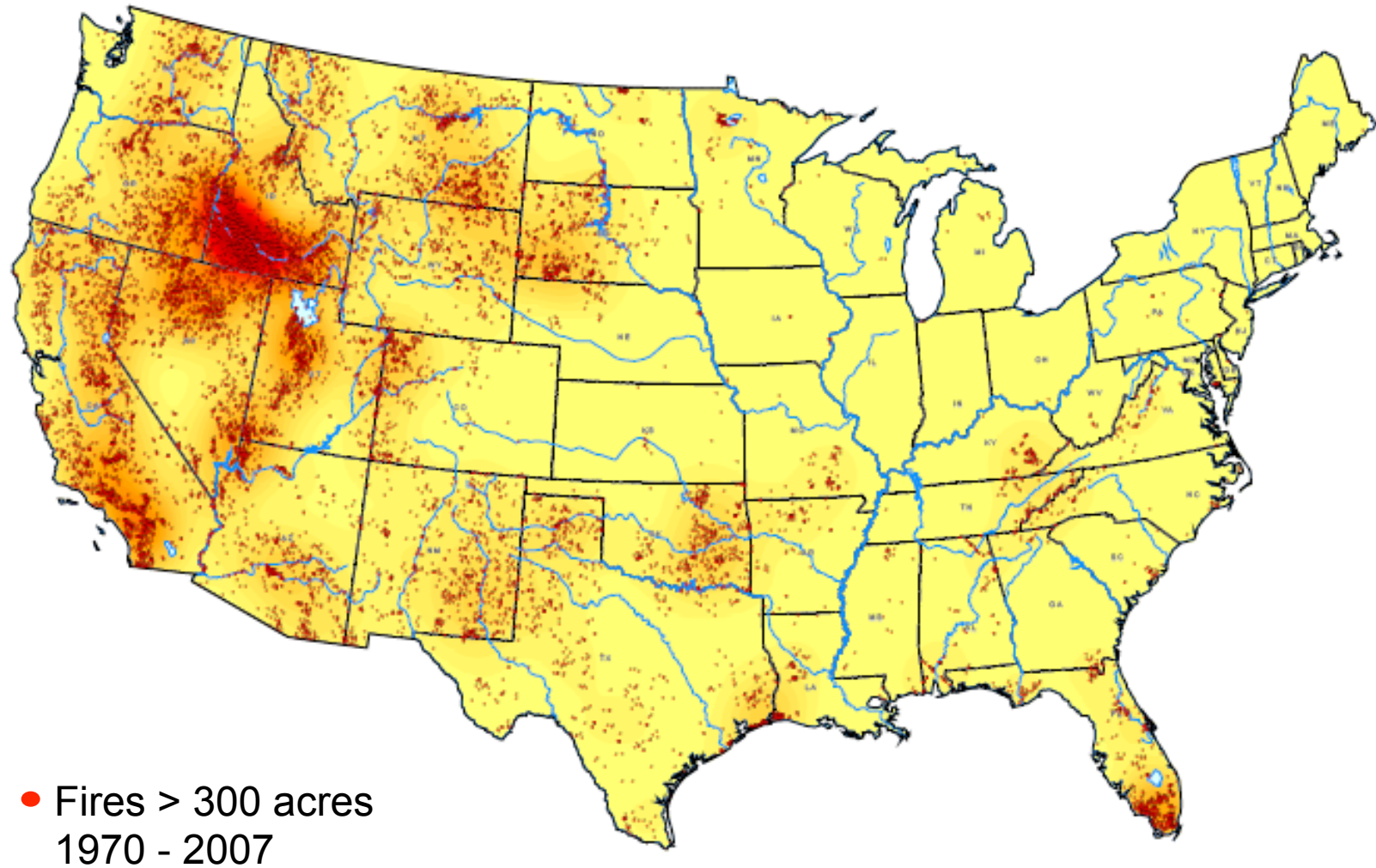
# Greater Sage-Grouse



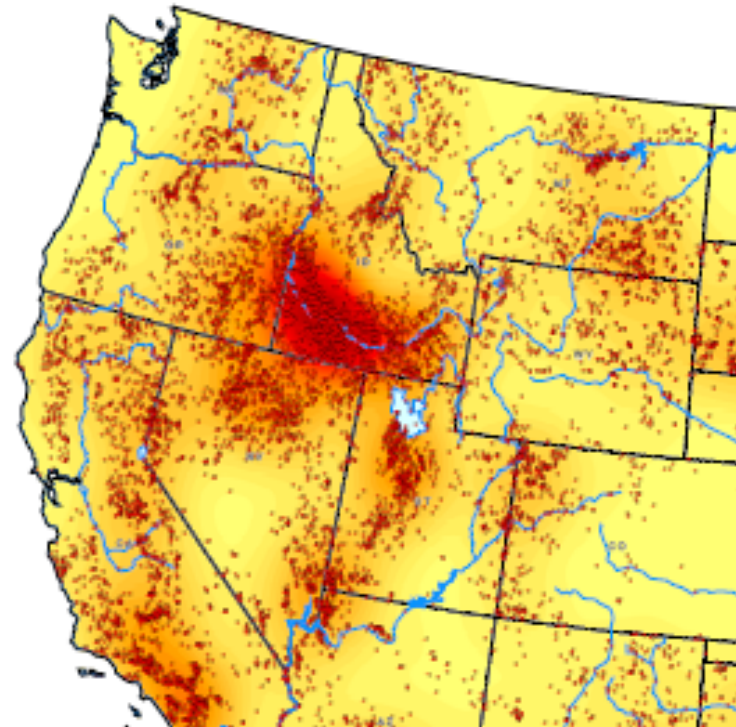
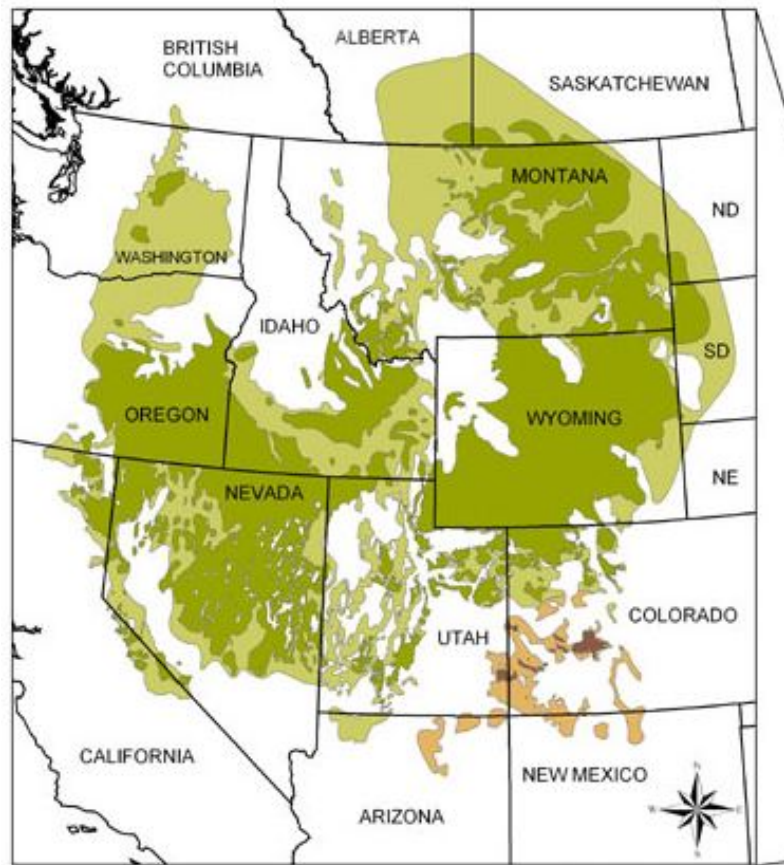
# Wildland Fires



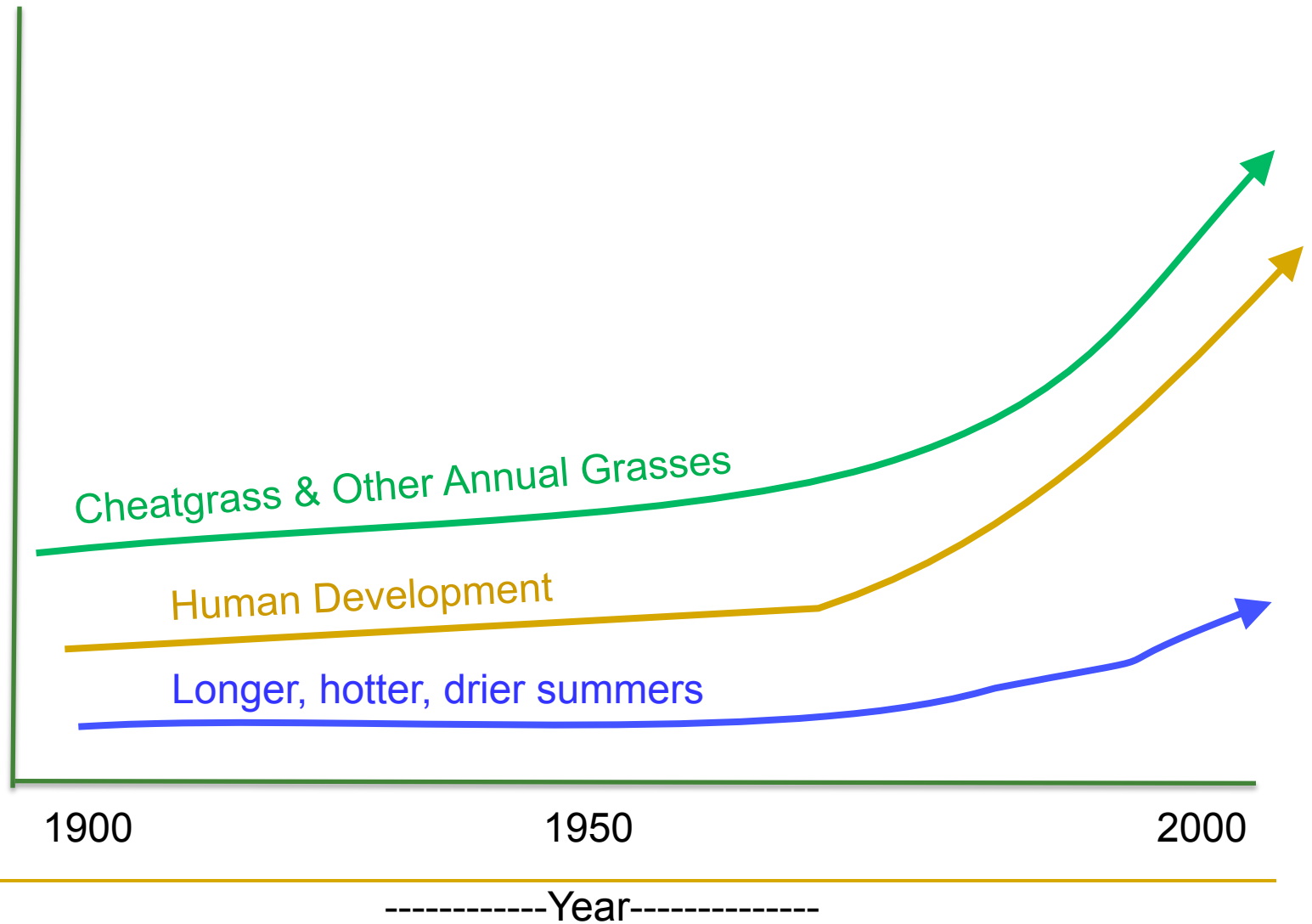
# Wildland Fires



# Wildfire Affects Sage-grouse Habitat

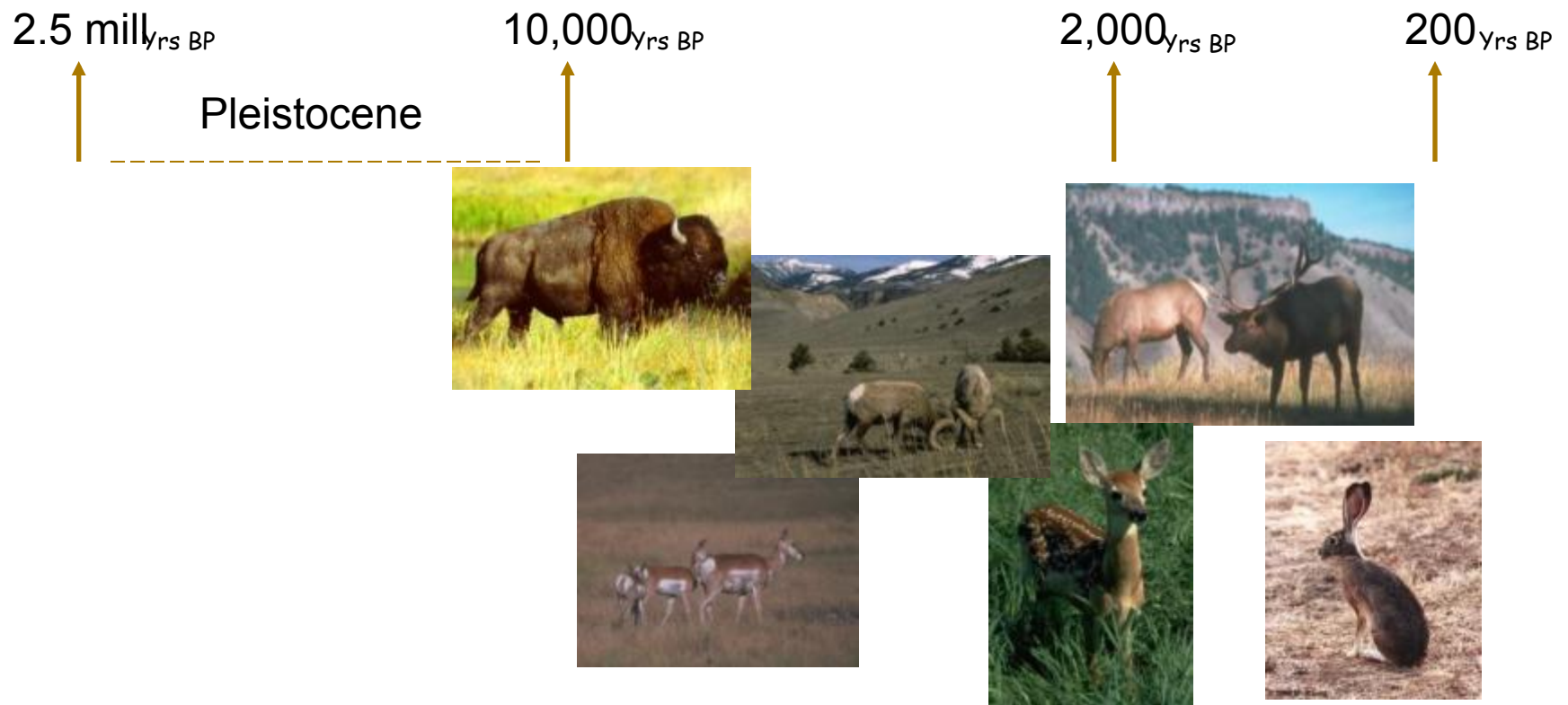


# Other Threats



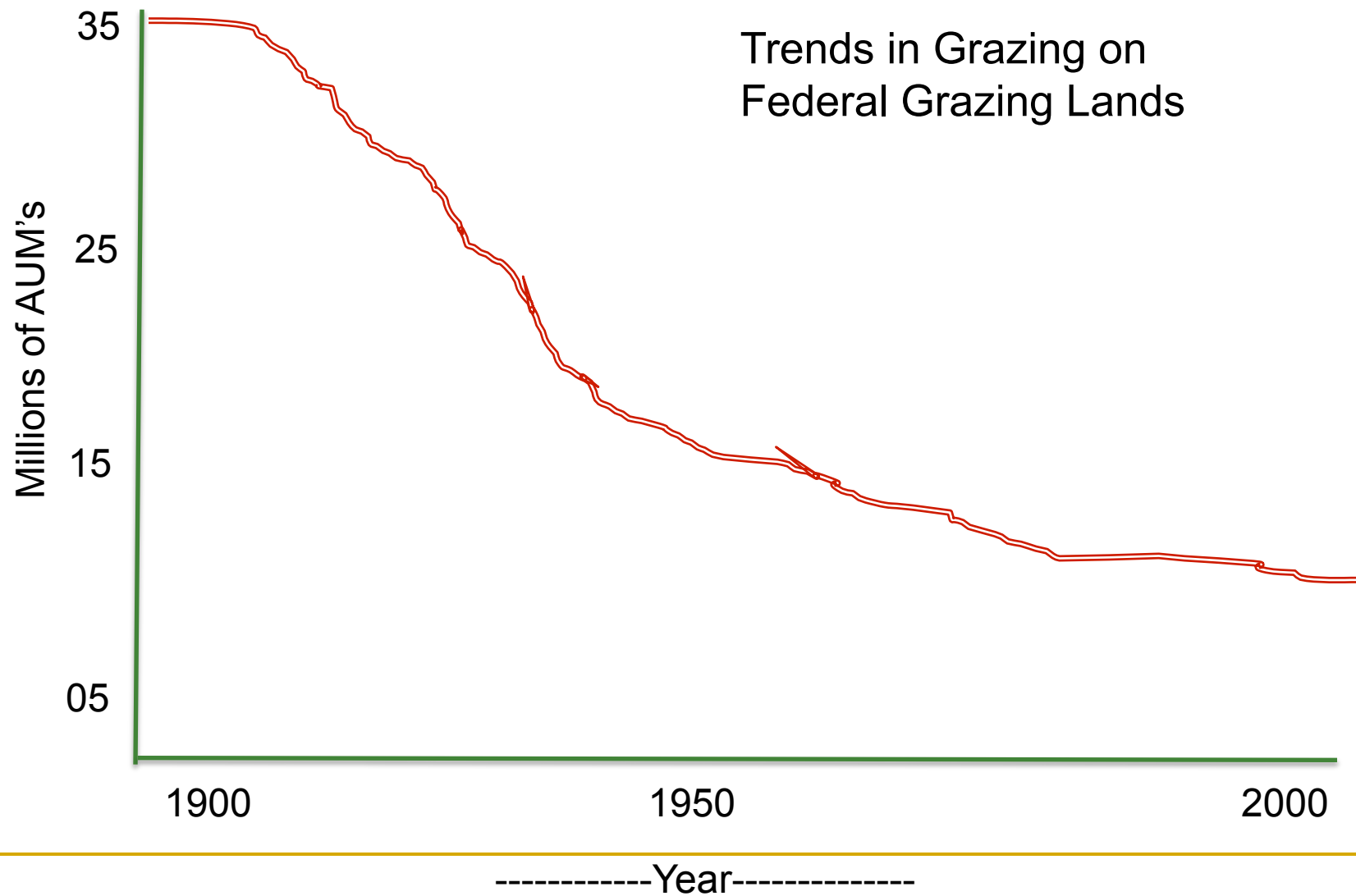
# Historic Grazing Regime

- Grazing – *always part of sagebrush ecosystems*





# Livestock Grazing



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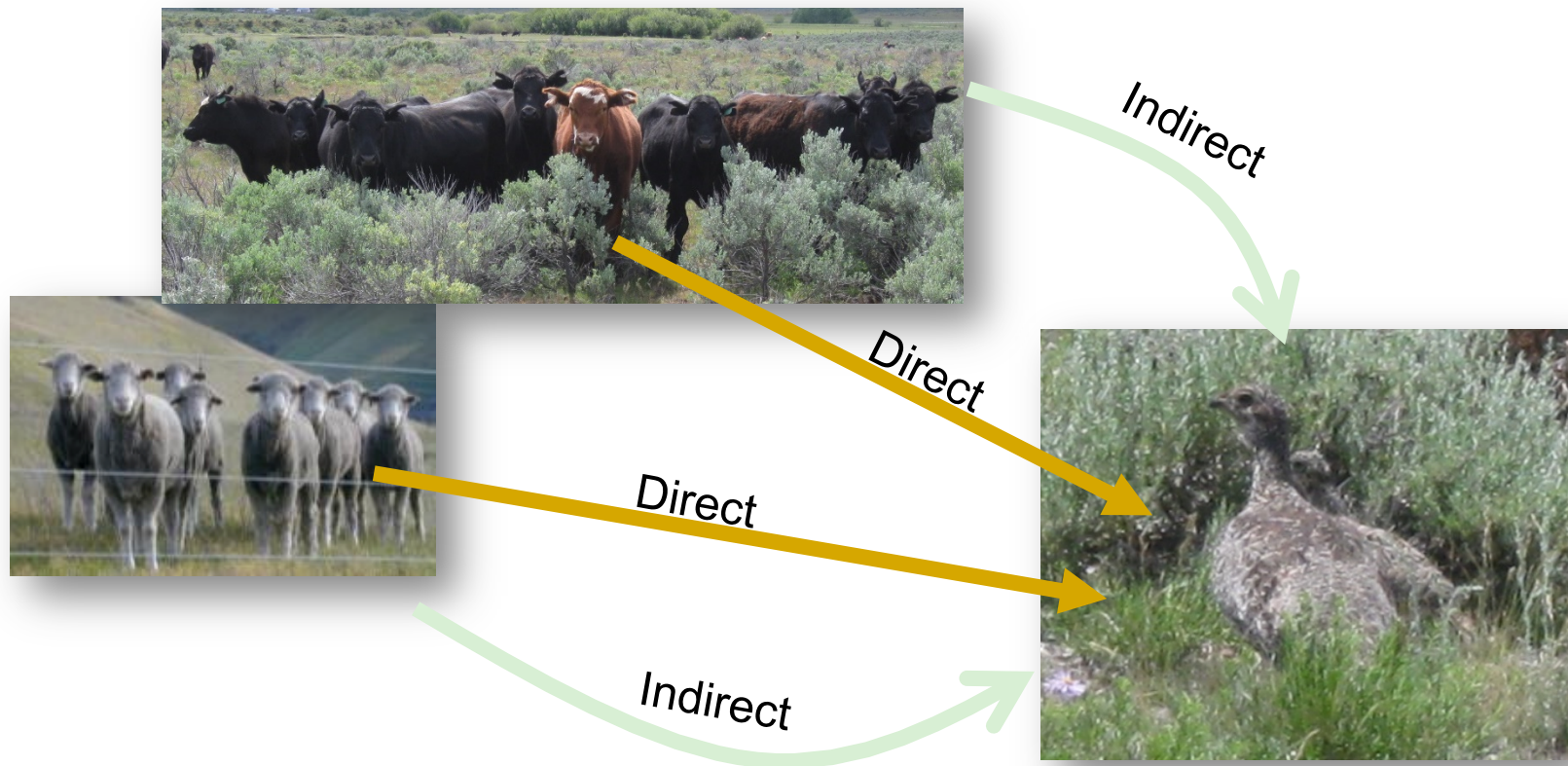
# Modern Grazing Regime

- Grazing – *managed and controlled*
  - Grazing systems
  - Deferment & rest
  - Reduced stocking rates
  - Ways to assess grazing effects
- Rangelands are in better condition now than since livestock introduced.
- Major threats to rangeland
  - Wildfire
  - Invasive Plants



# Livestock Effects

- Direct or Indirect



# Livestock Effects

## ■ Direct Effects

- Trampling of birds or eggs
- **Nest Disturbance**



# Livestock Effects

## ■ Indirect Effects

- Reduce hiding cover
- Reduce fuels
- Change vegetation mix
- Alter insect community



Indirect

Indirect



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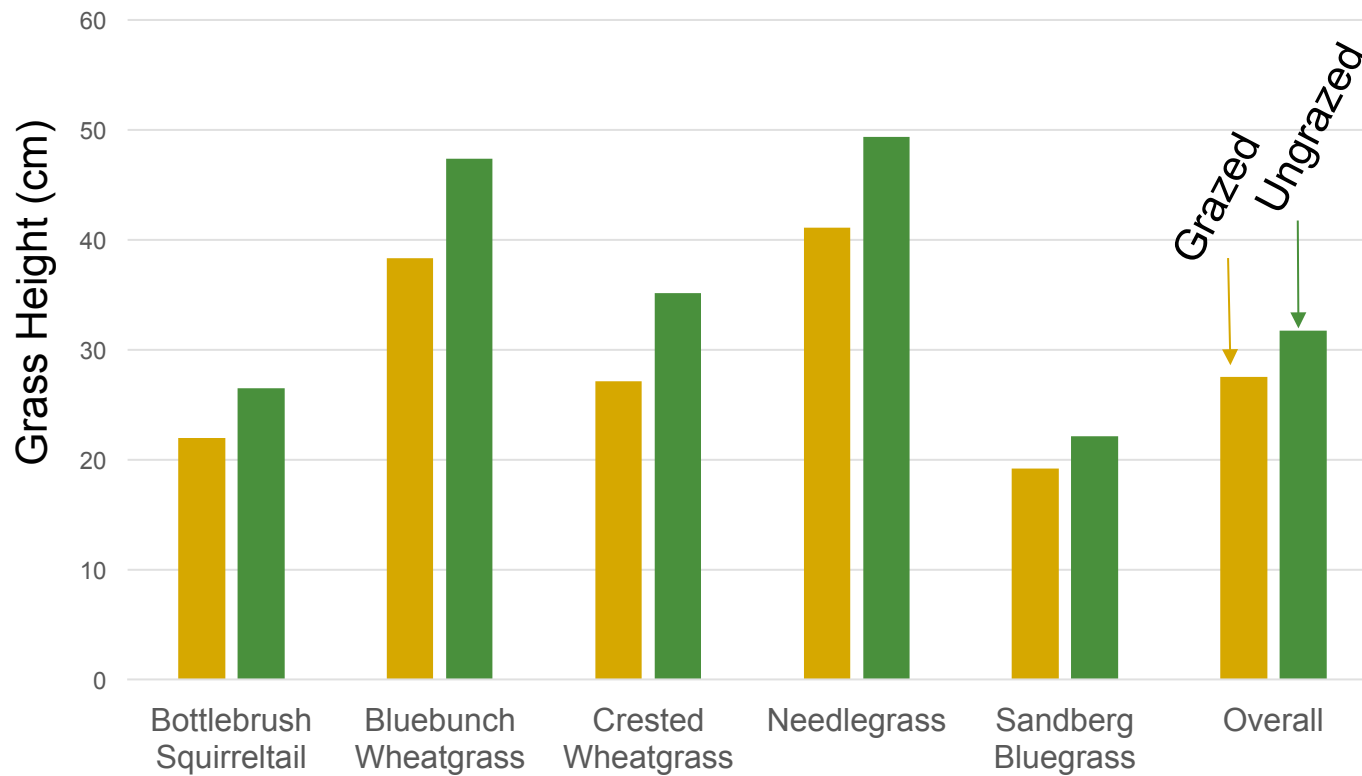
## Indirect Effects ... *Reduce Hiding Cover*

- Perennial Grass Cover



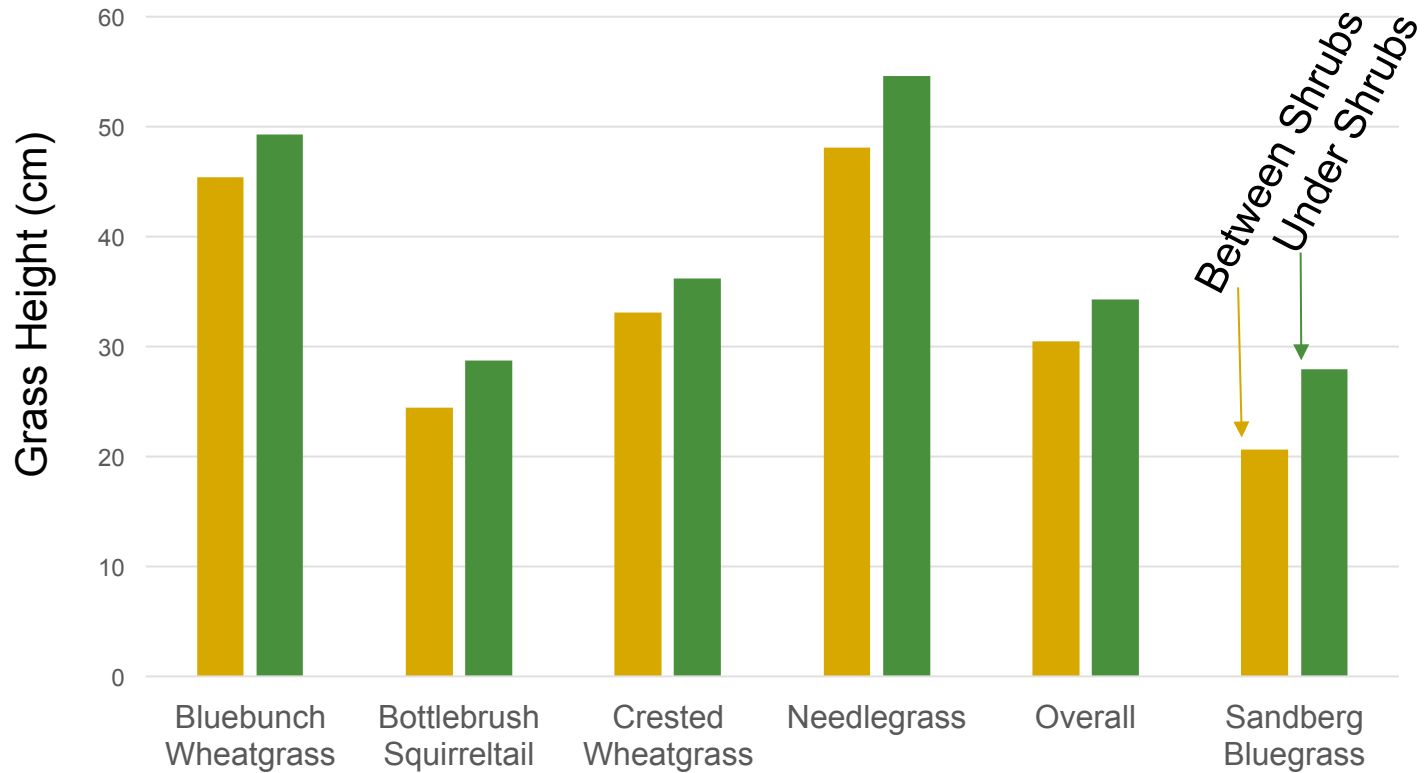
# Perennial Grass Height

Droop Height Grazed or Ungrazed Grasses

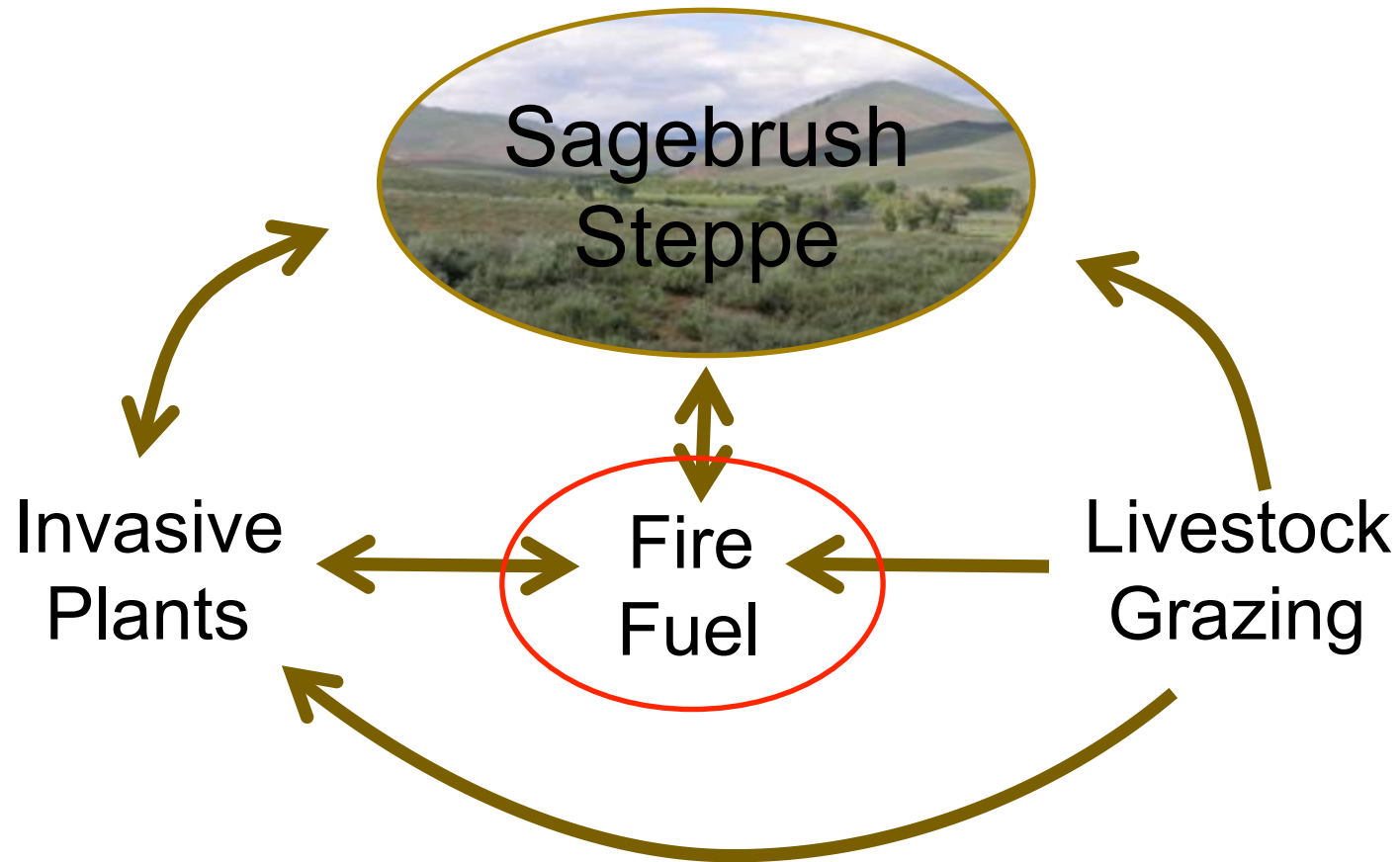


# Perennial Grass Height

## Droop Height Between or Under Shrubs



## Indirect Affects ... *Reduce Fuels*



# Indirect Affects ... *Reduce Fuels*

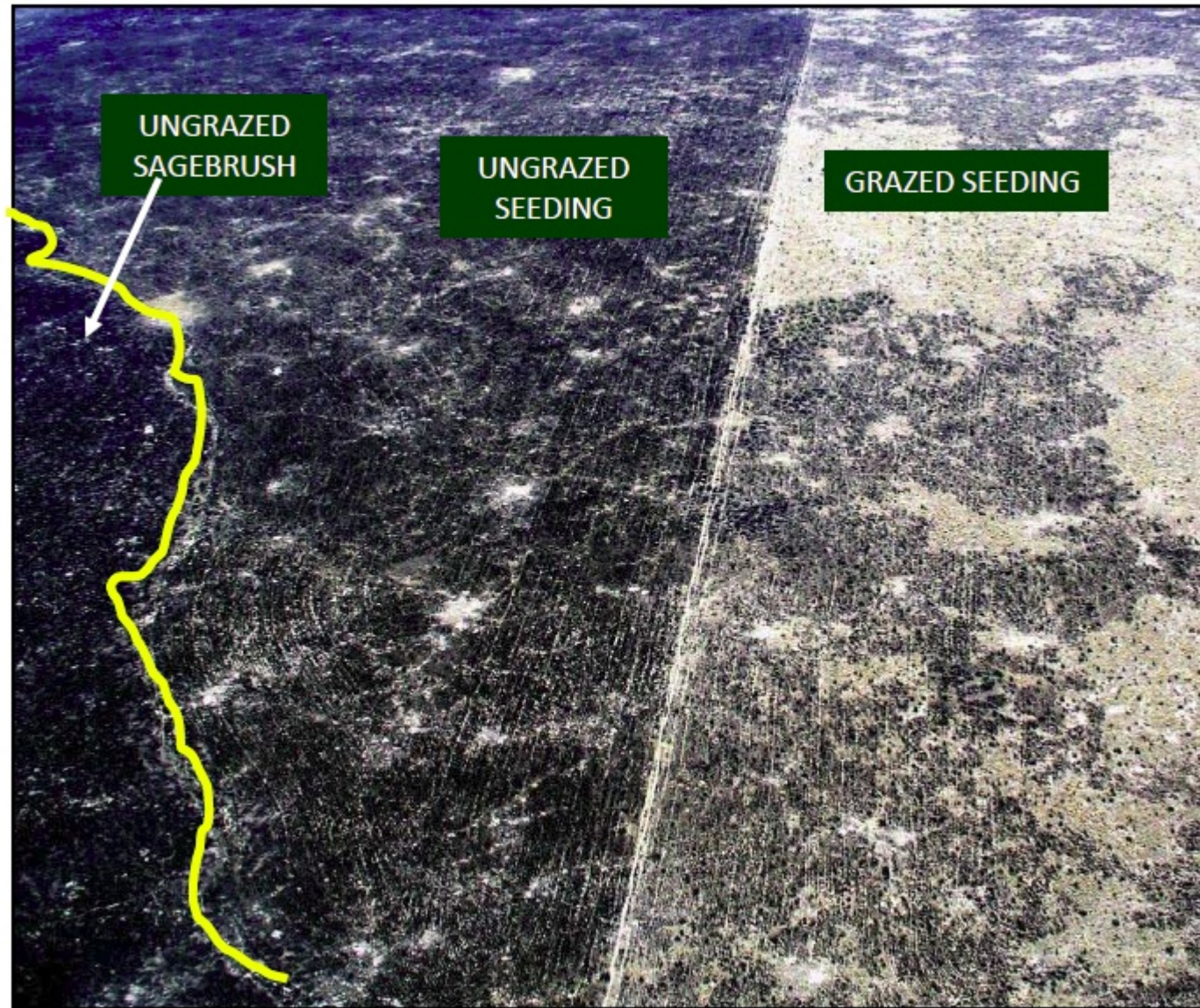
## ■ Grazing Affects Wildland Fuels

- Perimeter or Extent
- Intensity
- Patchiness
- Flame Length

Will not affect Risk or Potential

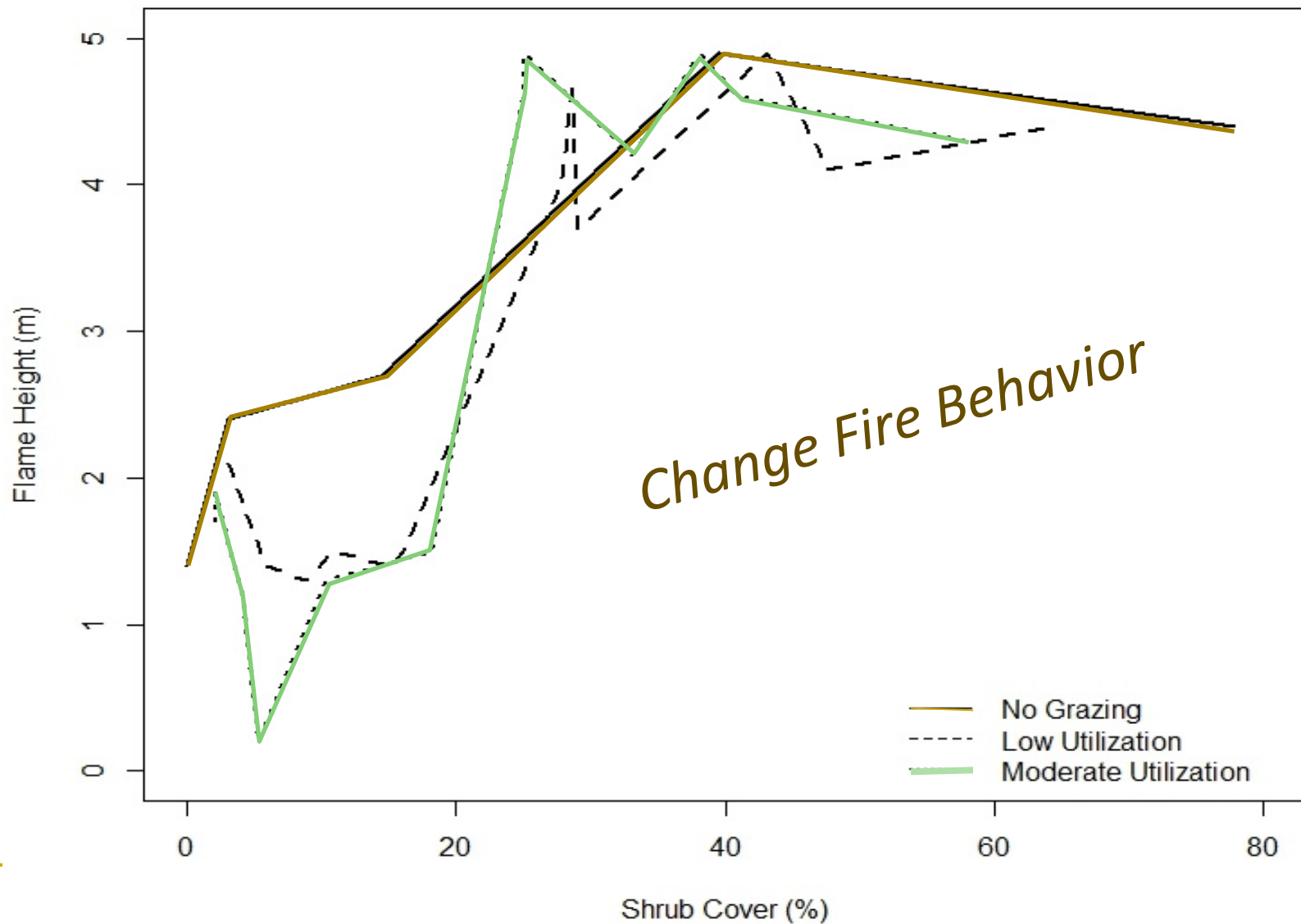


## Indirect Affects ... *Reduce Fuels*

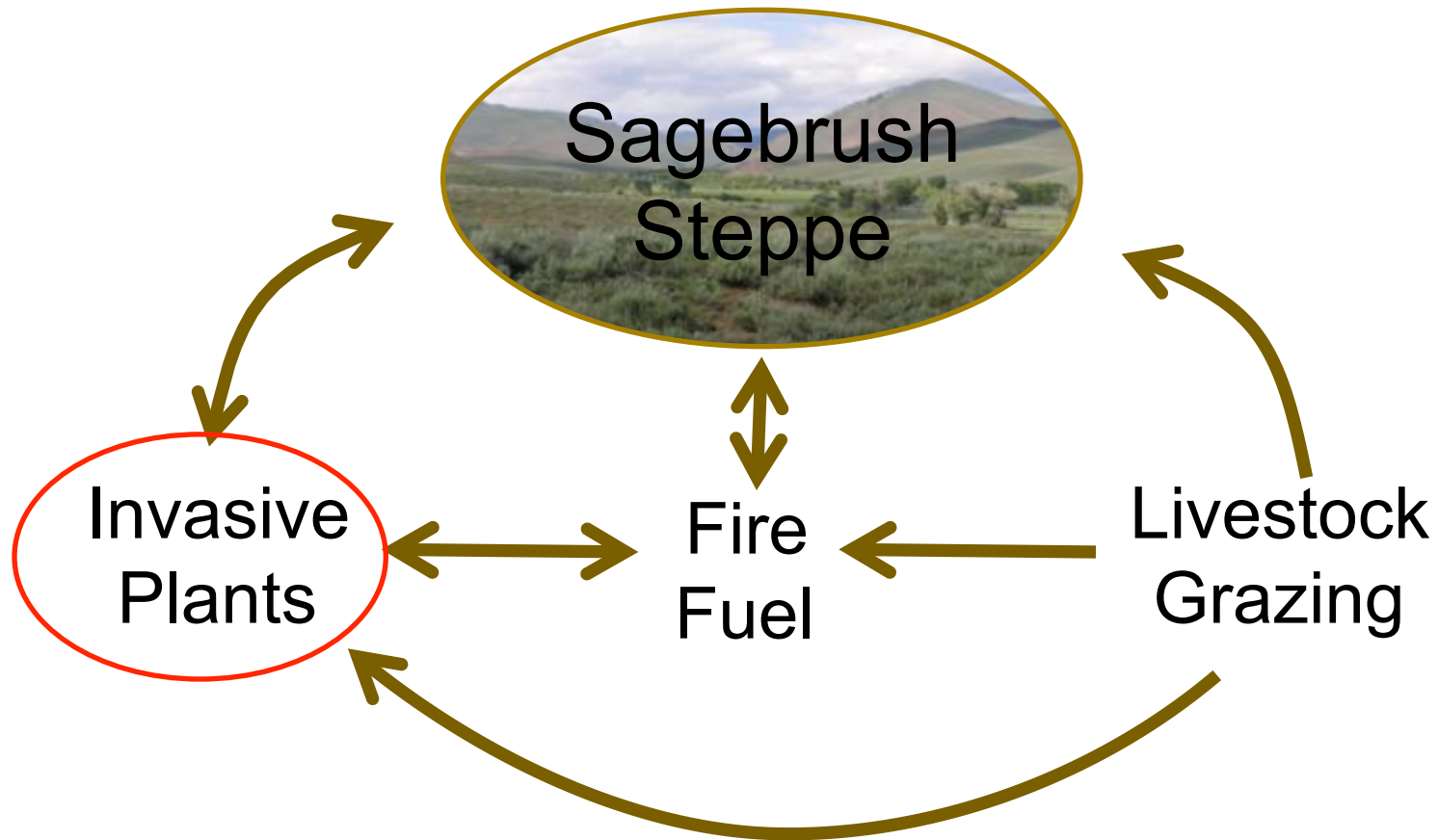


M. Pellant

## Indirect Affects ... *Reduce Fuels*



## Indirect Affects ... *Reduce Invasive Grasses*

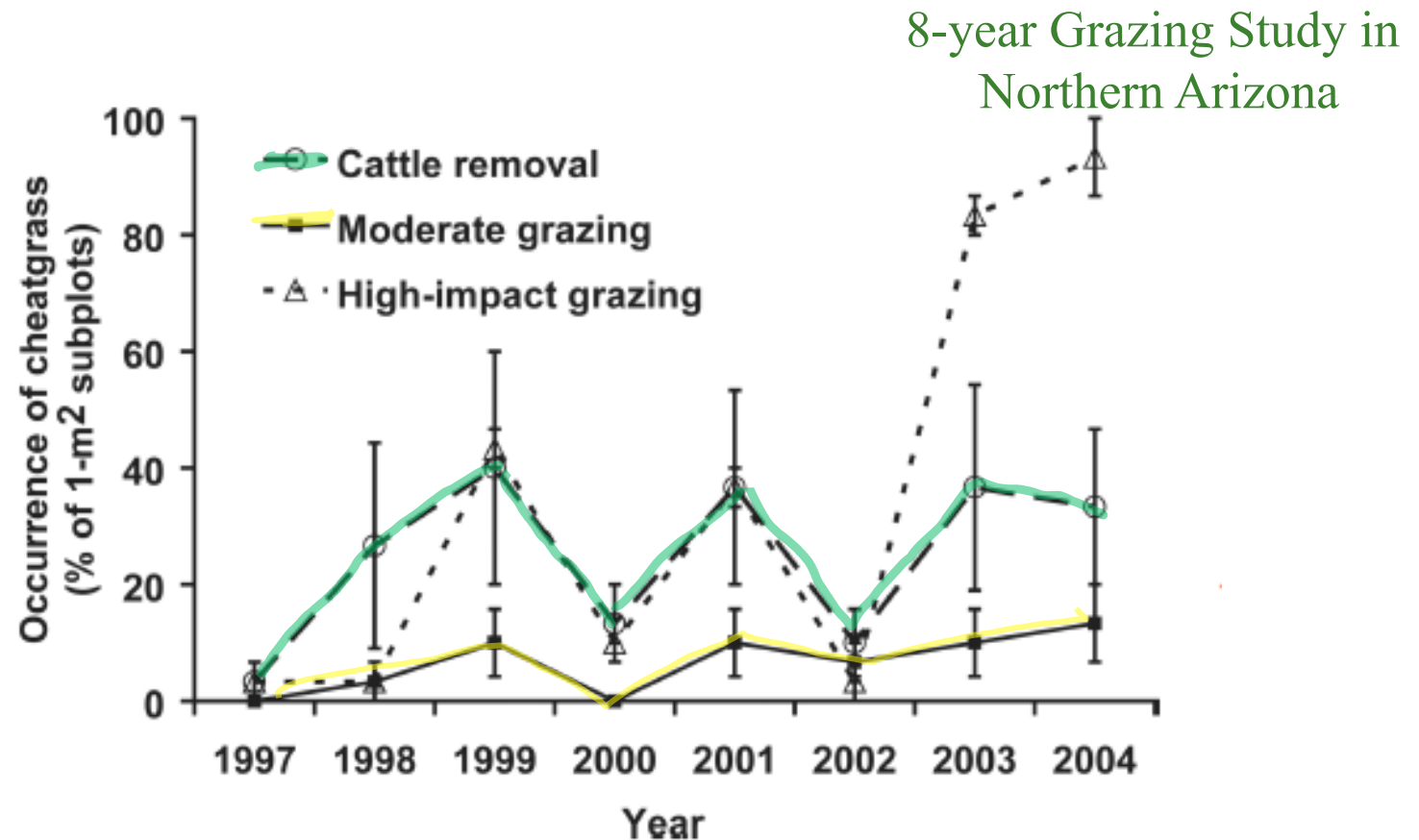


# Indirect Affects ... *Affect Invasive Grasses*

- Introduction of Annual Grasses – late 1800's
  - ❑ Cheatgrass
  - ❑ Medusahead
  - ❑ Red Brome
- Fine textured & easily ignited
- Affect on fire
  - ❑ Early maturing - Extend fire year
  - ❑ Increase ignition risk
  - ❑ Decrease fire return interval

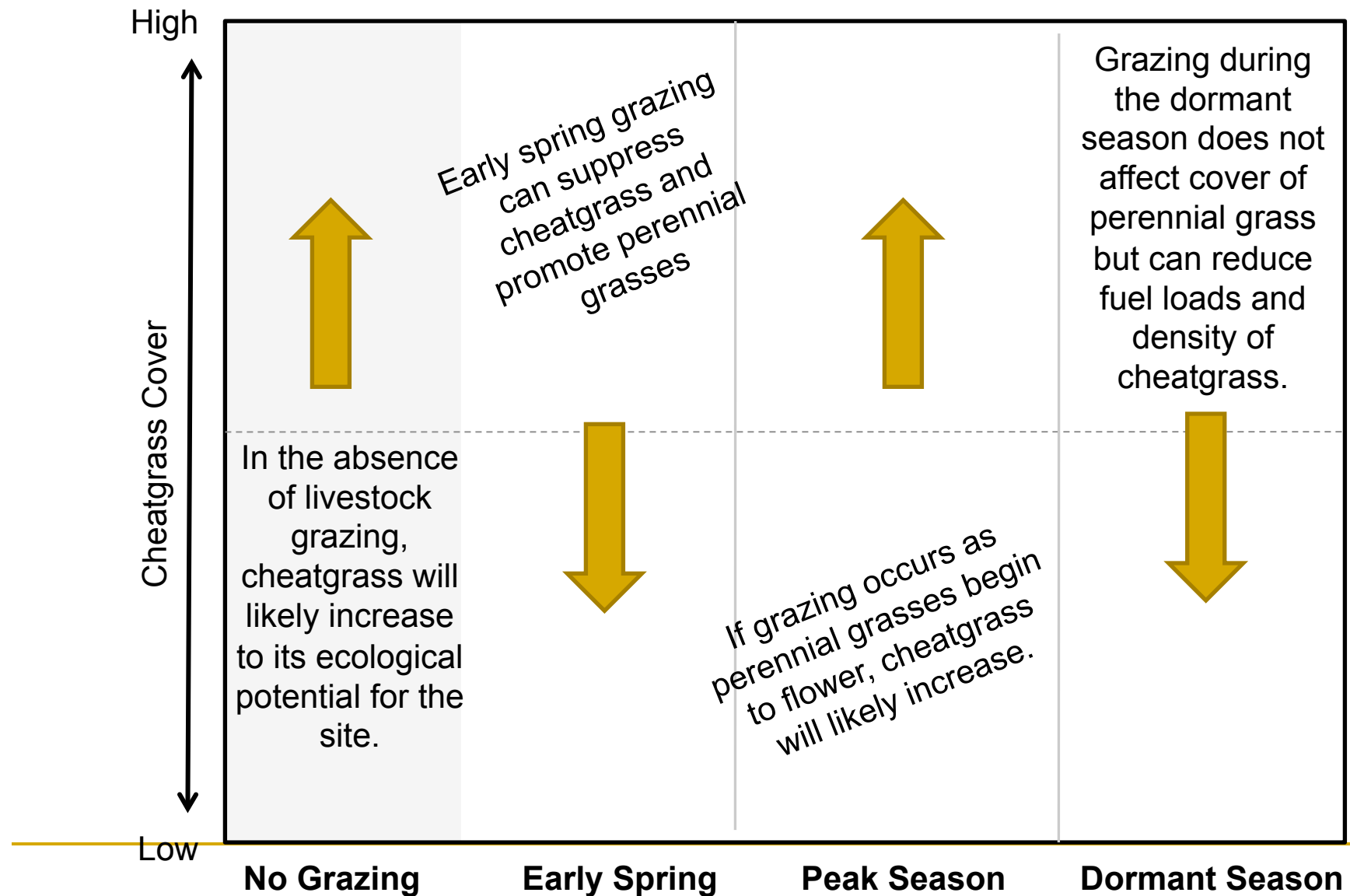


# Indirect Affects ... *Affect Invasive Grasses*

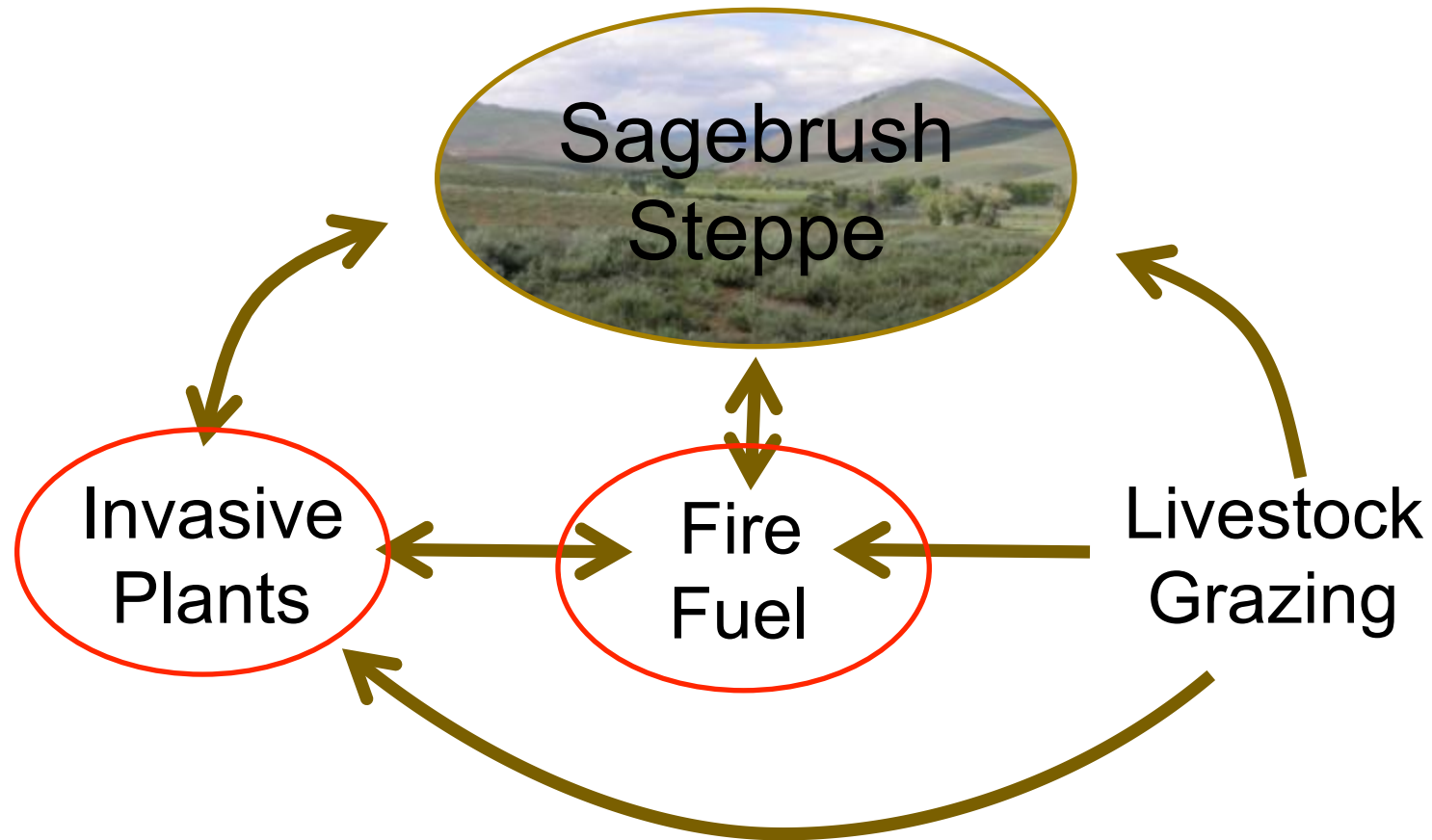


- Moderate grazing had less cheatgrass than no grazing
- Moderate grazing also had less cheatgrass than heavy high-impact grazing
- High-impact grazing caused a great increase in cheatgrass after drought year.

# Indirect Affects ... *Affect Invasive Grasses*



## Indirect Affects ... *Fire and Invasives*



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## Indirect Affects ... *Change Vegetation Mix*

- ↓ or ↑ ... **Grass**
- ↓ or ↑ ... **Shrubs**
- ↓ or ↑ ... **Forbs**



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## Indirect Affects ... *Change Insect Community*

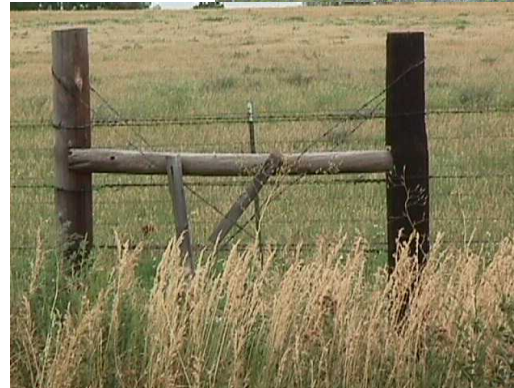
- Primary insects eaten by sage grouse include:
  - Ants
  - June/dung beetles
  - Darkling beetles
- Grazing could change
  - Type of insects
  - Distribution
  - Abundance
- Grazing effects no yet well understood



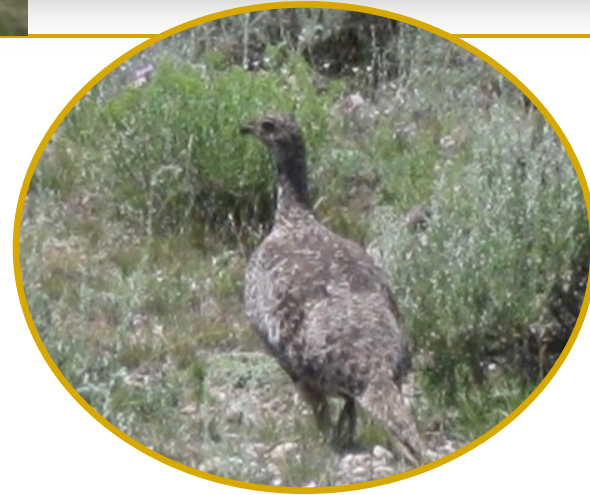
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# Indirect Affects ... *Ranching*

- Fences
- Water tanks
- Roads
- Activity
- Fragmentation



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