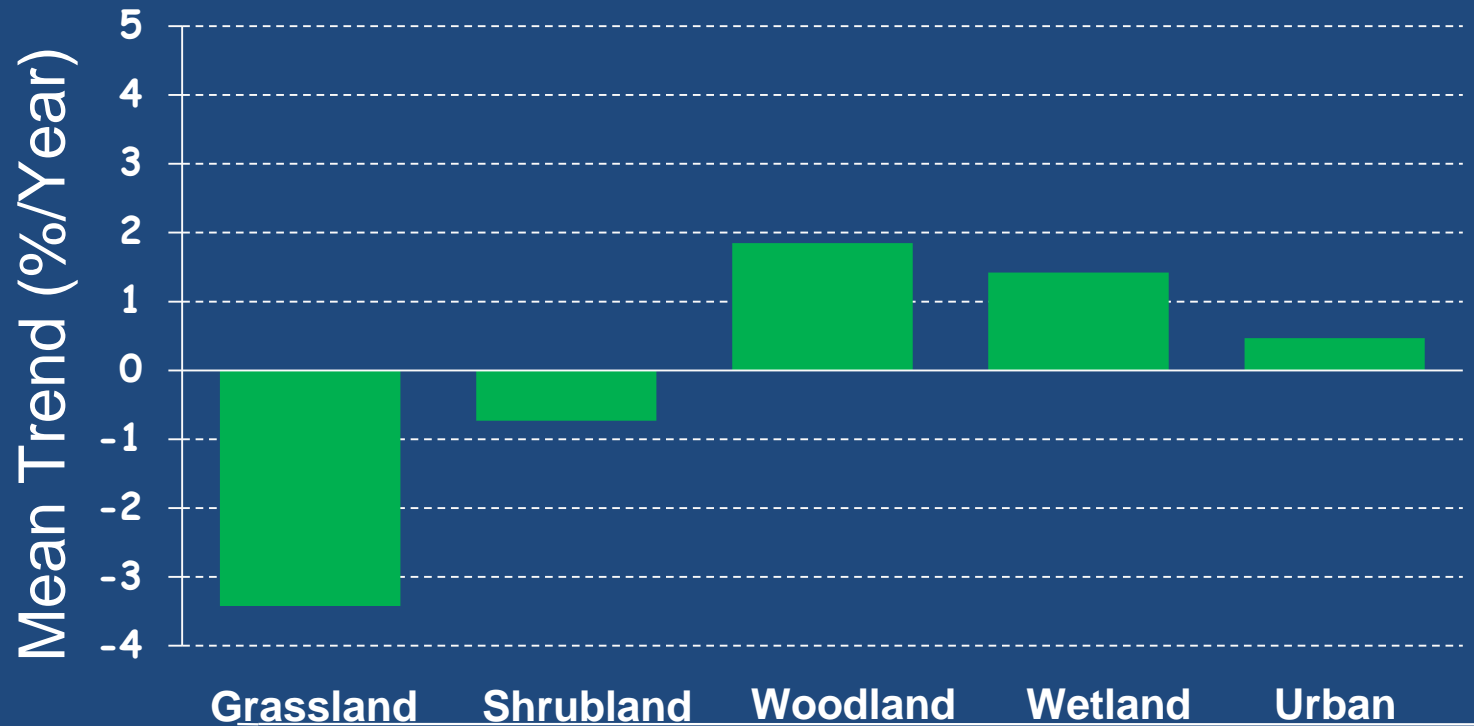


# Importance of Private Grasslands to Birds in Wisconsin



David Sample, Wisconsin DNR March, 2015

# Breeding Bird Population Trends 1966-2012

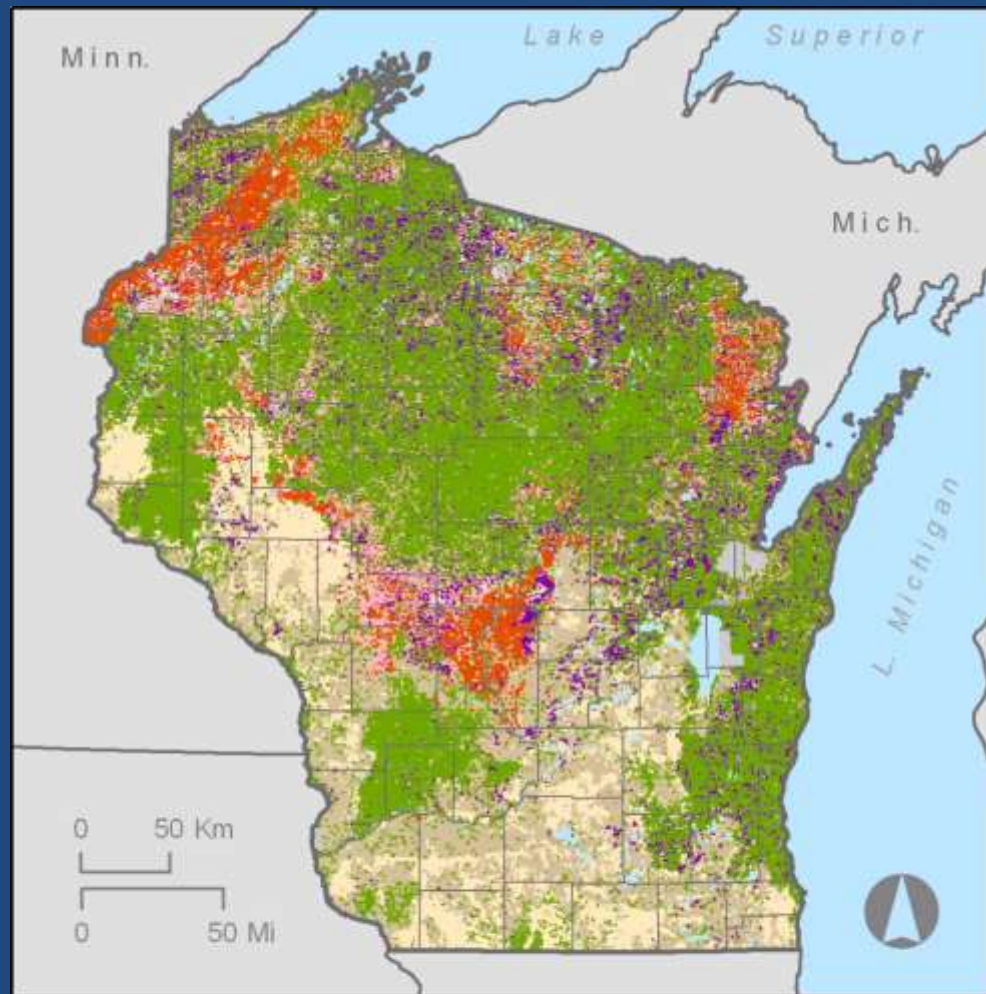


## Bird Guilds



BCR Region 23 - Prairie-Hardwood Transition – BBS Results c/o USGS Patuxent.

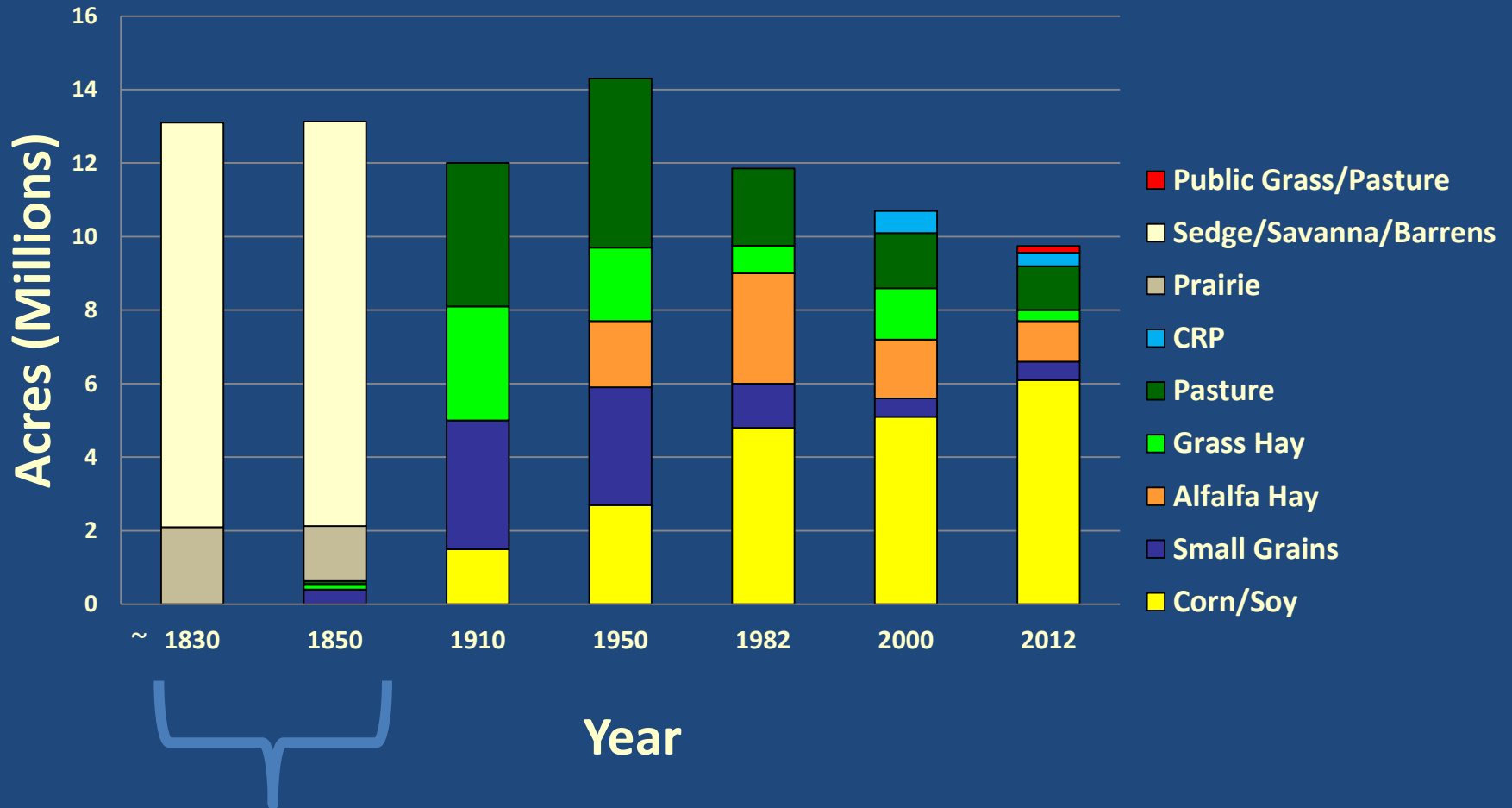
# Background - Presettlement Vegetation



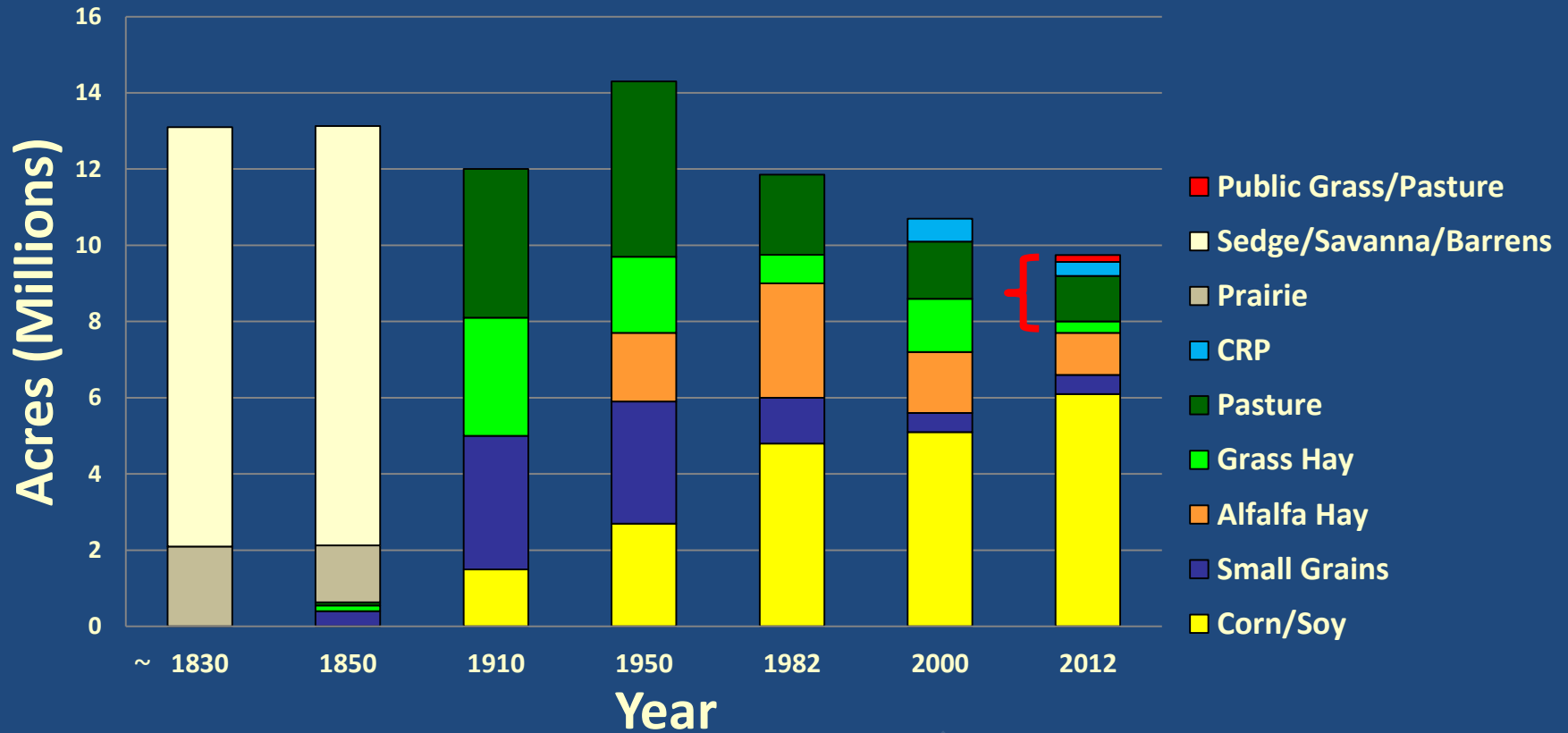
- |   |   |   |                 |
|---|---|---|-----------------|
|  | Hemlock, Yellow birch<br>Sugar maple, Basswood<br>Elm, Ash, Beech |  | Tamarack, Cedar |
|  | Red pine, Jack pine   |  | Oak             |
|  | White pine  |  | Prairie         |
|   |   |  | Water           |
|   |   |  | No data         |

# Grassland/Agricultural Land Use in Wisconsin 1830-2012:

Change is the only constant



# Grassland/Agricultural Land Use in Wisconsin 1830-2012



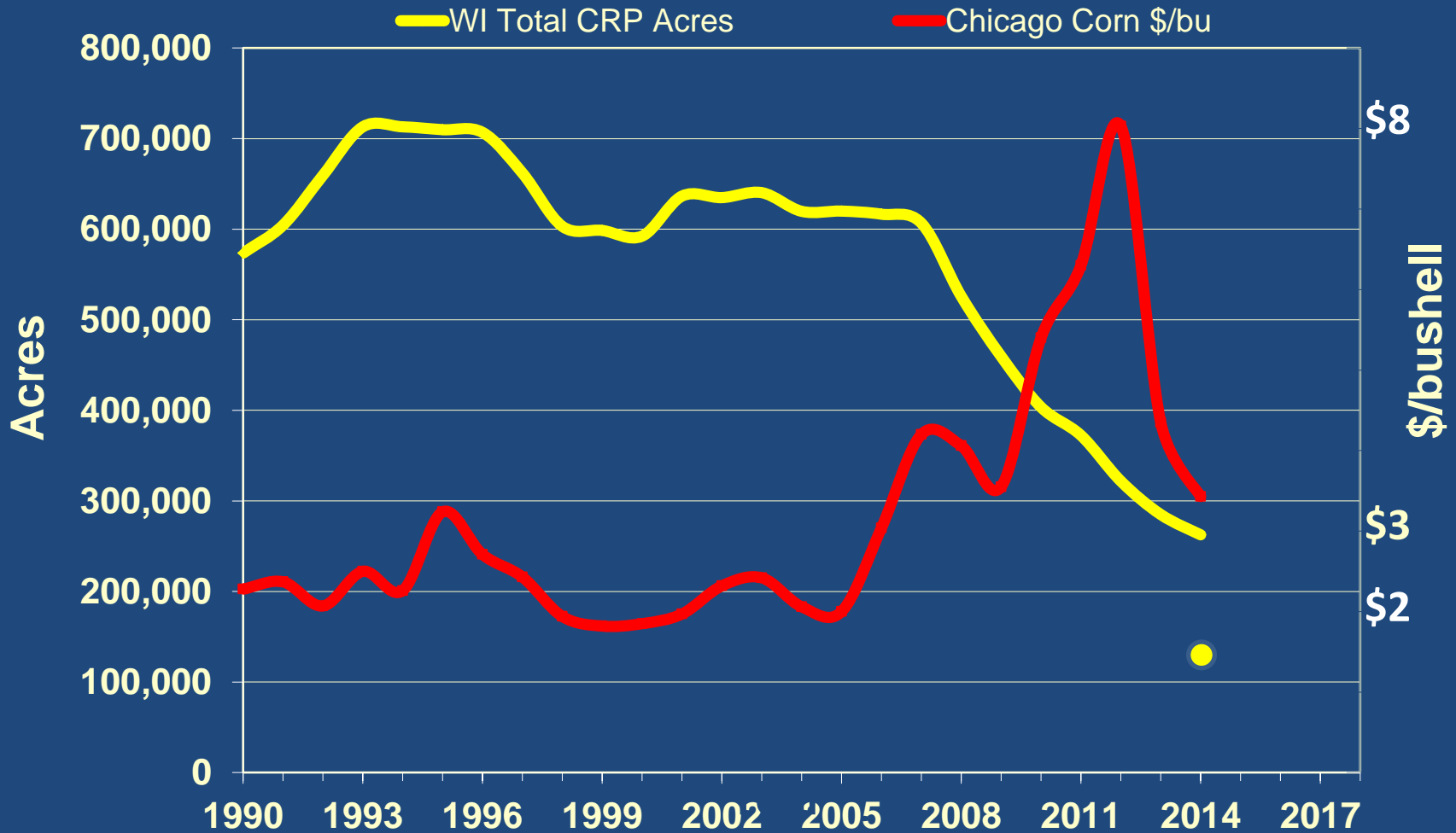
Over time: Ag intensification



Amount of Grassland



# Volatility: CRP vs. Corn Price in WI





Public  
grasslands



Public  
grasslands



Private  
grasslands





Public  
grasslands

Permanence,  
Predictability,  
Control



Private  
grasslands

Impermanence,  
Uncertainty,  
Less control



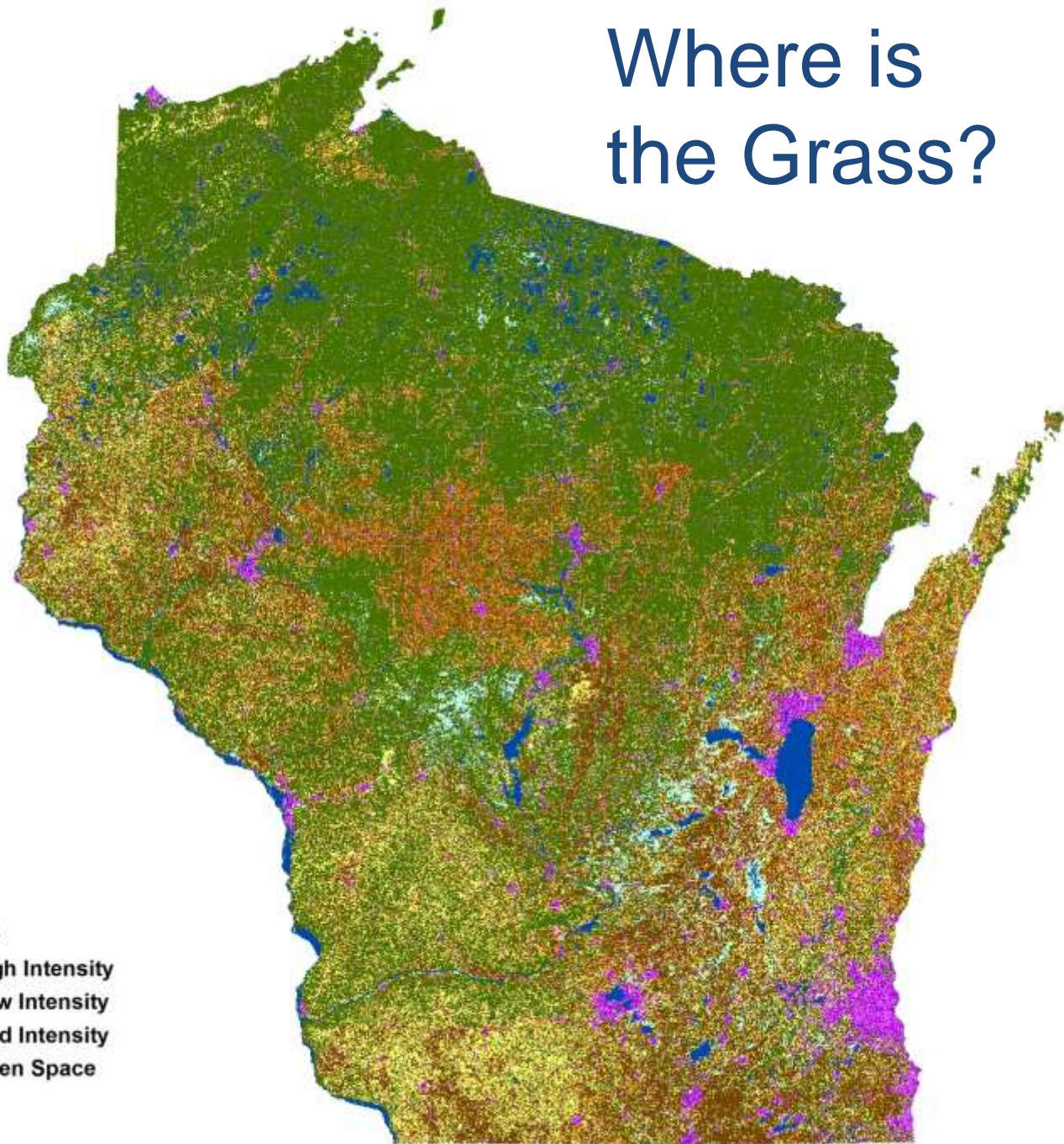
Public  
grasslands



Private  
grasslands

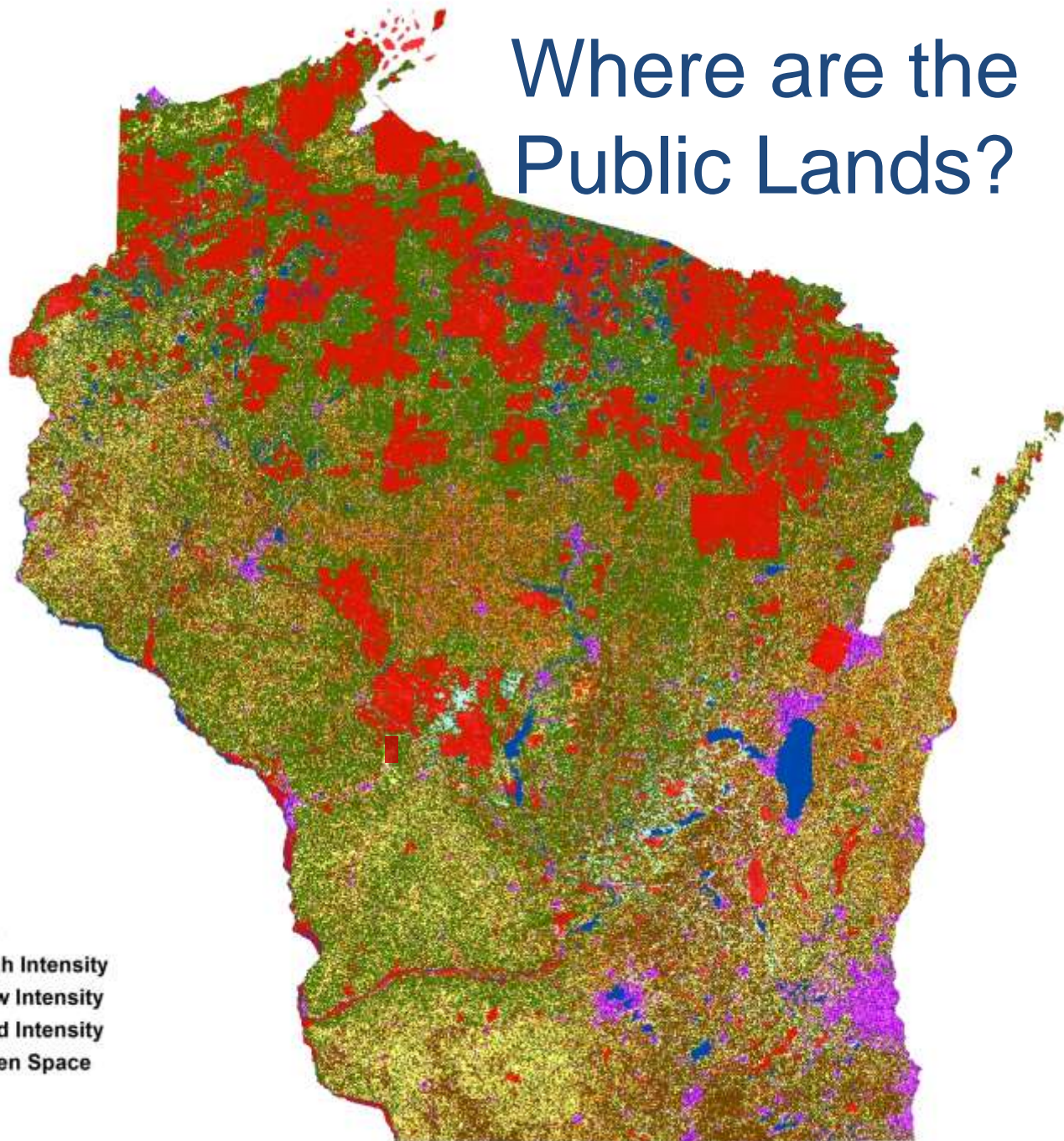
How do we keep the car on the road?

# Where is the Grass?

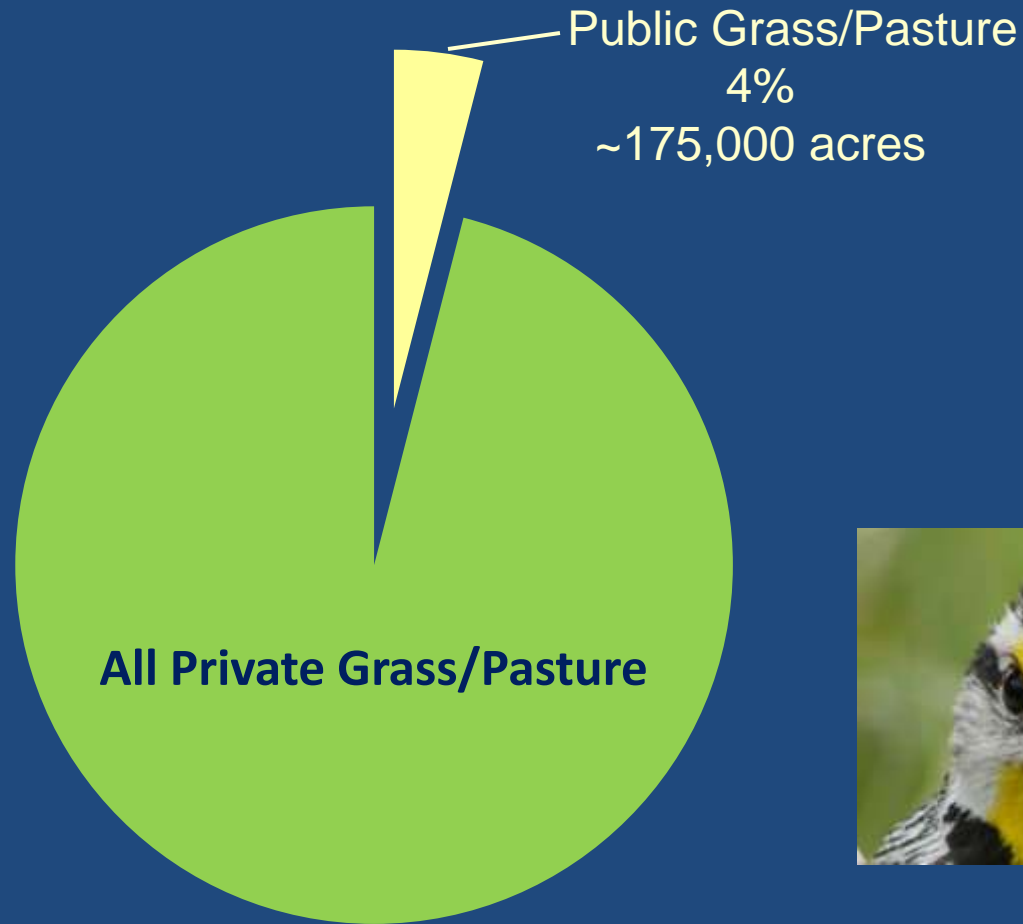


USDA Crop  
Data Layer  
2012

# Where are the Public Lands?

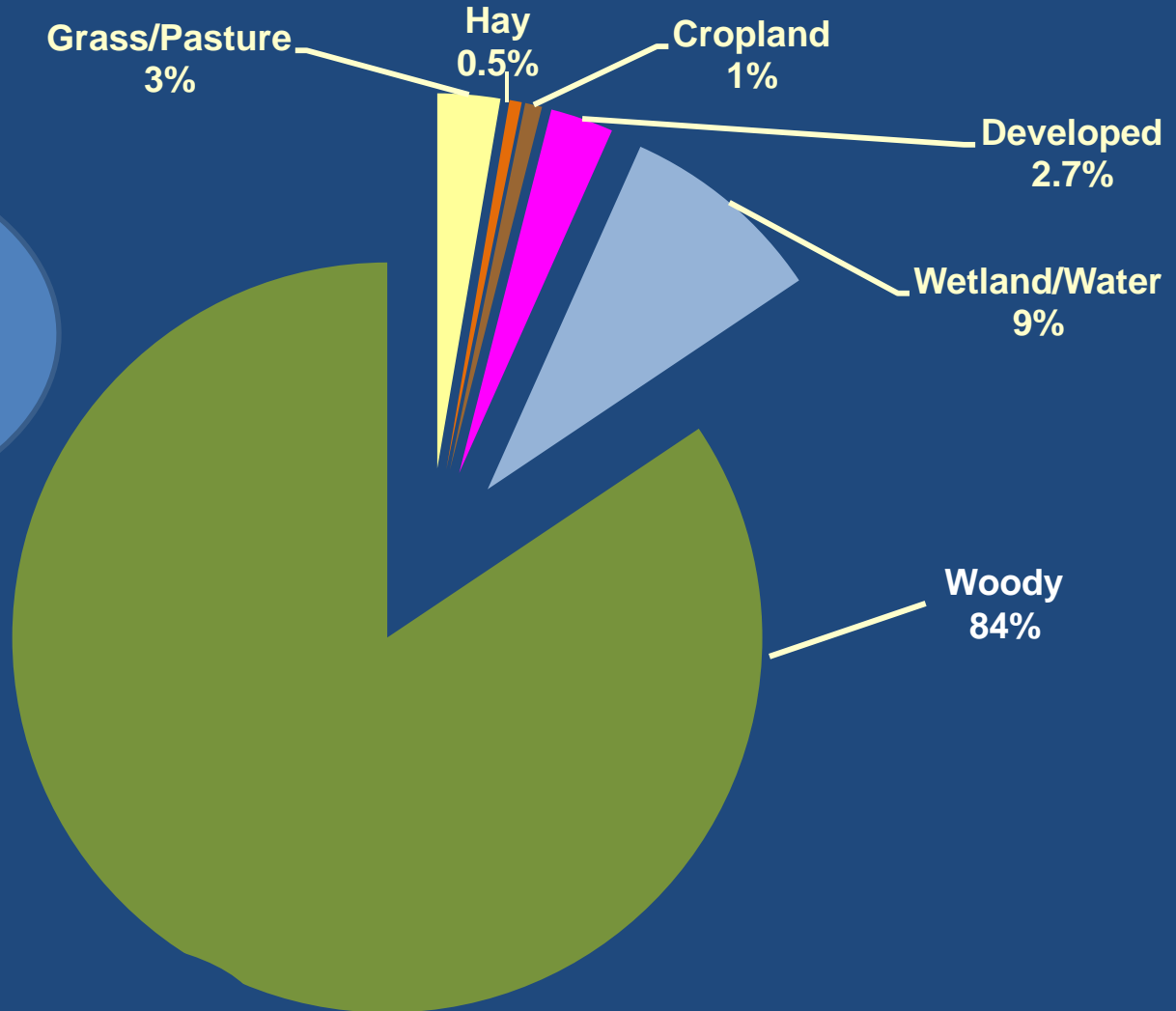


# % of All WI Grasslands on Public Lands



There are about 4.3 million acres of grassland in Wisconsin

# Vegetation Cover in WI Public Lands



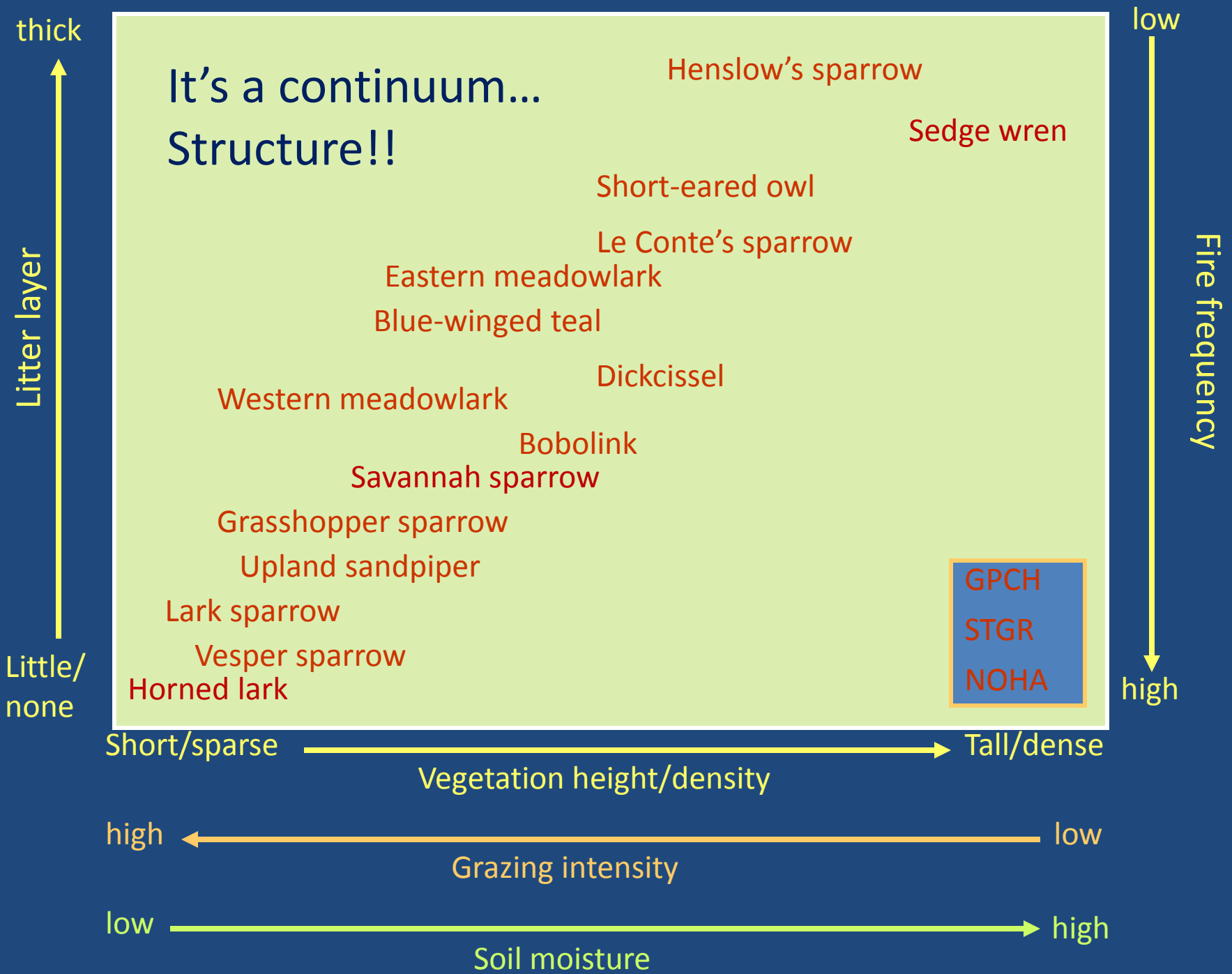
Where's the  
Grass?!?



There are over 6.5 million acres of public land in Wisconsin

# Understanding Grassland Bird Ecology: A Brief History

- The patch – bird habitat needs: vegetation structure
- The patch – size (area sensitivity)
  - What is a patch to birds?
- The importance of landscape
- Predators and birds and landscape structure
  - Habitat fragmentation
- Importance of both landscape and patch
  - Need to work at large scales
- Role of Working and Protected lands; “can’t buy it all”
- BCA Model – creating and maintaining a landscape matrix of private/public conservation





thick

low

It's a continuum...

Henslow's sparrow

Sedge wren

Short-eared owl

Private lands provide habitat for a wide variety of grassland birds: pasture, oldfield, prairie remnants, CRP, mixed hay fields. But, issues with timing and intensity of disturbance

Litter layer

Fire frequency

Little/  
none

high

Western meadowlark

Grasshopper sparrow

Upland sandpiper

Lark sparrow

Vesper sparrow

Horned lark

- GPCH
- STGR
- NOHA

Short/sparse

Tall/dense

Vegetation height/density

high

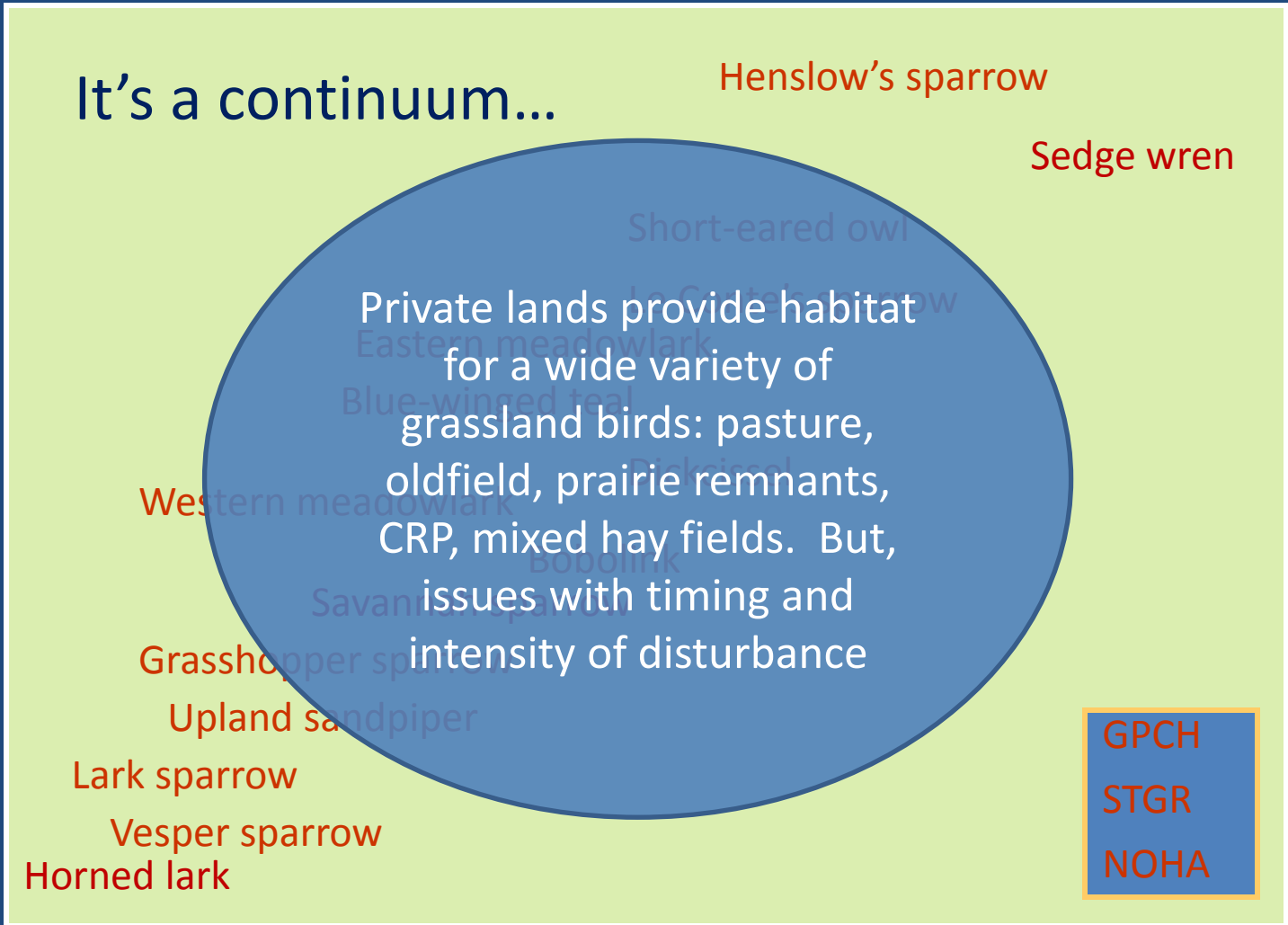
low

Grazing intensity

low

high

Soil moisture



# Area Sensitivity: Evidence for grassland birds

- Studies of 32 species of grassland birds across the Midwest
- 8 were found to be consistent in positive relationship of density with area of the patch



# What is a patch in a grassland system, and how big should it be?

Where's  
the @%\*&  
Patch???



It Depends...

# Patch size depends on surrounding Landscape

**Grass matrix**



**Forest matrix**





Both the patch and landscape matter. The more grass in the surrounding landscape, the better (and, the less woods). We need to work at large scales.

# Landscape Structure – Habitat Fragmentation

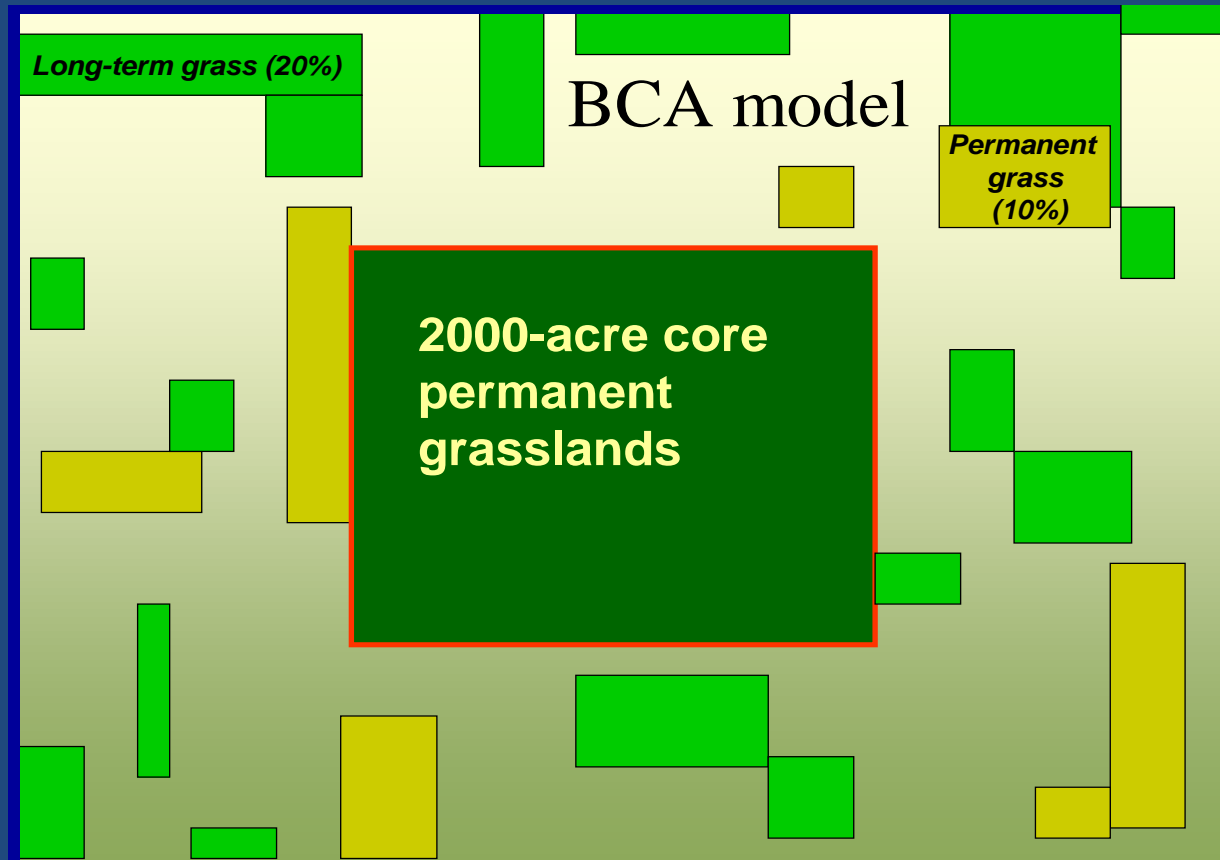
Predator populations:  
a complex picture



Hey, wait your turn!!!



# The Bird Conservation Area Model



- Landscape scale management (> 10,000 acres)
- Combines grassland conservation and working agriculture - “we can’t buy it all”
- Private lands play a critical role

# Identifying the Challenge: Connecting birds to landowner decisions

$$\frac{\Delta \text{ birds}}{\Delta \text{ grass}} \times \frac{\Delta \text{ grass}}{\Delta \text{ landowners}} = \frac{\Delta \text{ birds}}{\Delta \text{ landowners}}$$

Grassland conservation on private lands is a sociological, economic, and political puzzle with major biological implications

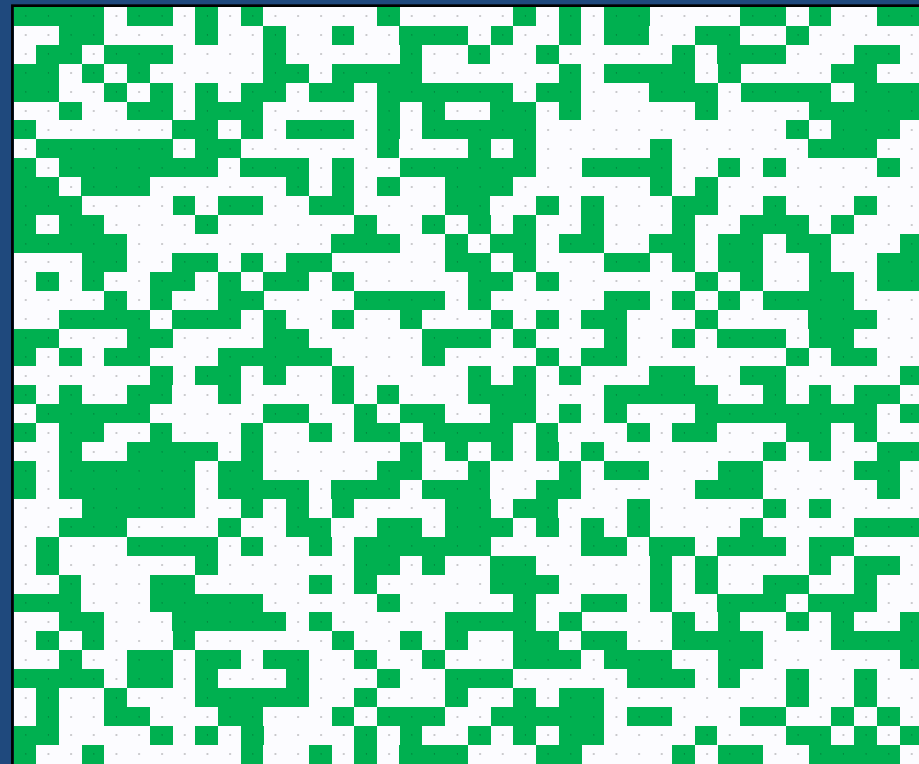
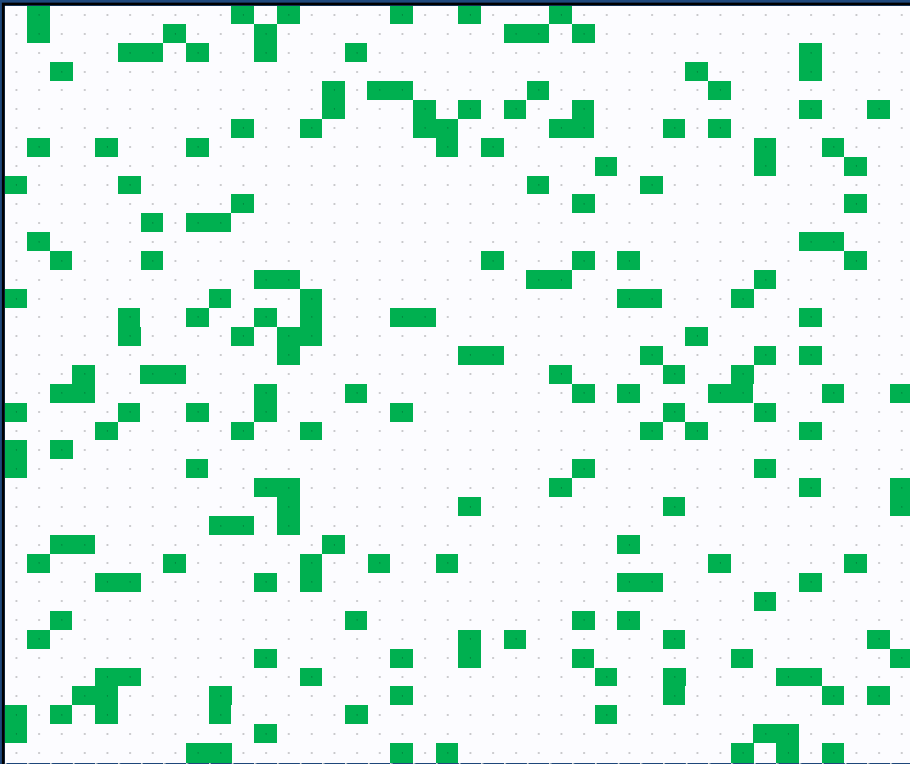


The Conundrum of Private Lands: With individual landowner decisions being made at the farm scale, how can we achieve the objectives for grass habitat at the larger, landscape scales necessary for sustaining bird populations?

Ag landscape – some grass



Grassy Ag landscape

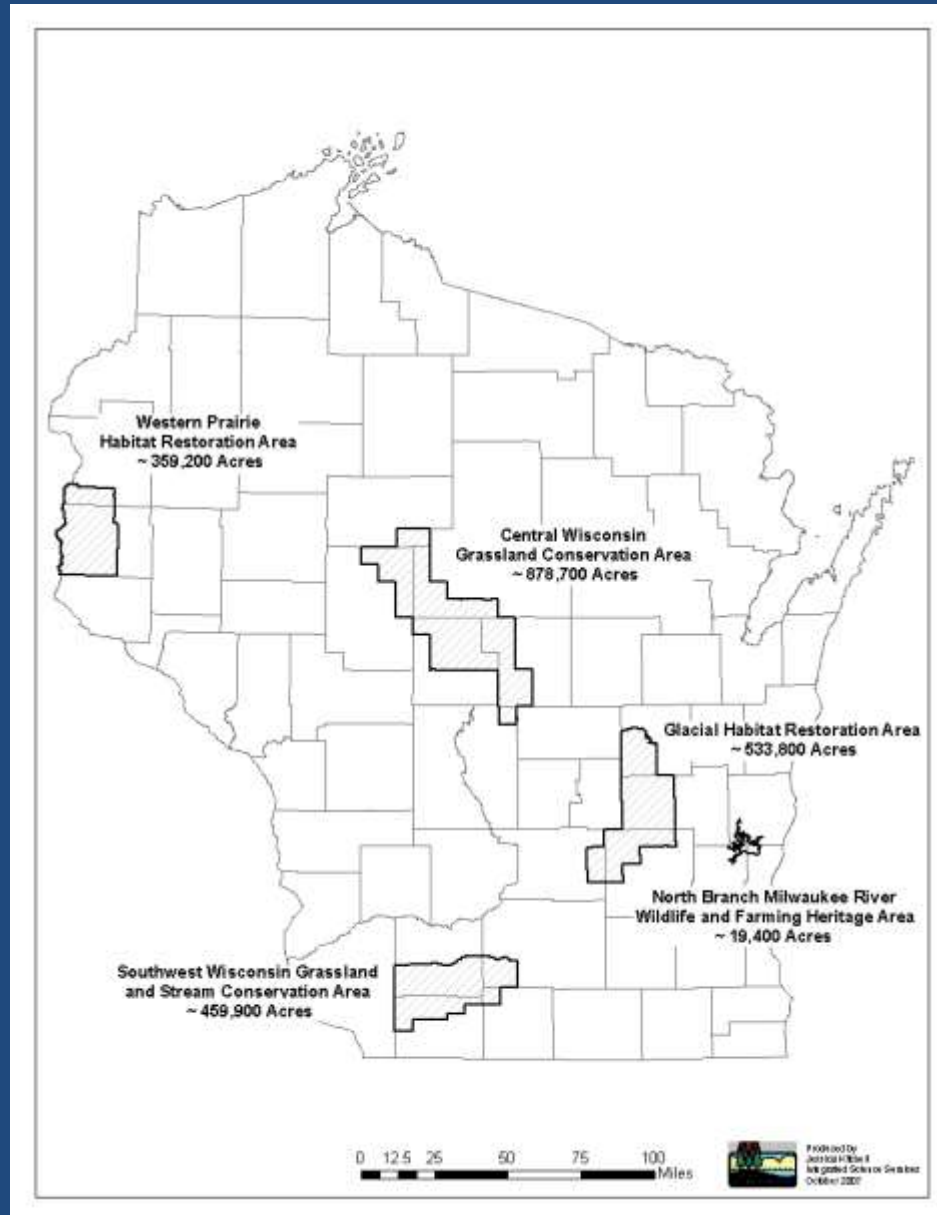


# E.g., how can we solve the age-old problem of how to marry agriculture with effective grassland conservation?

- Policy – (Federal Farm Bill, Energy Bill)
- Targeting of priority grassland areas
- Economic incentives
- Outreach, marketing
- Education
- Conservation partnerships
- Landowner cooperatives
- Best Management Practices
- Improved conservation design
- Arranged marriage??



# WDNR Grassland Landscape Project Areas



Private lands are critical for maintaining populations of grassland birds in Wisconsin and the upper Midwest. Conservation success over the long term will depend partly on ecological know-how, but more importantly on societal choices regarding the trade-offs in values between competing ecosystem services.

