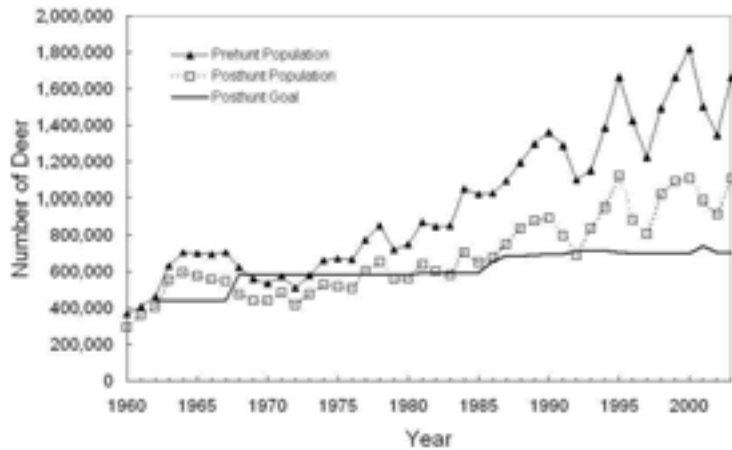


# DEER - OVERABUNDANCE

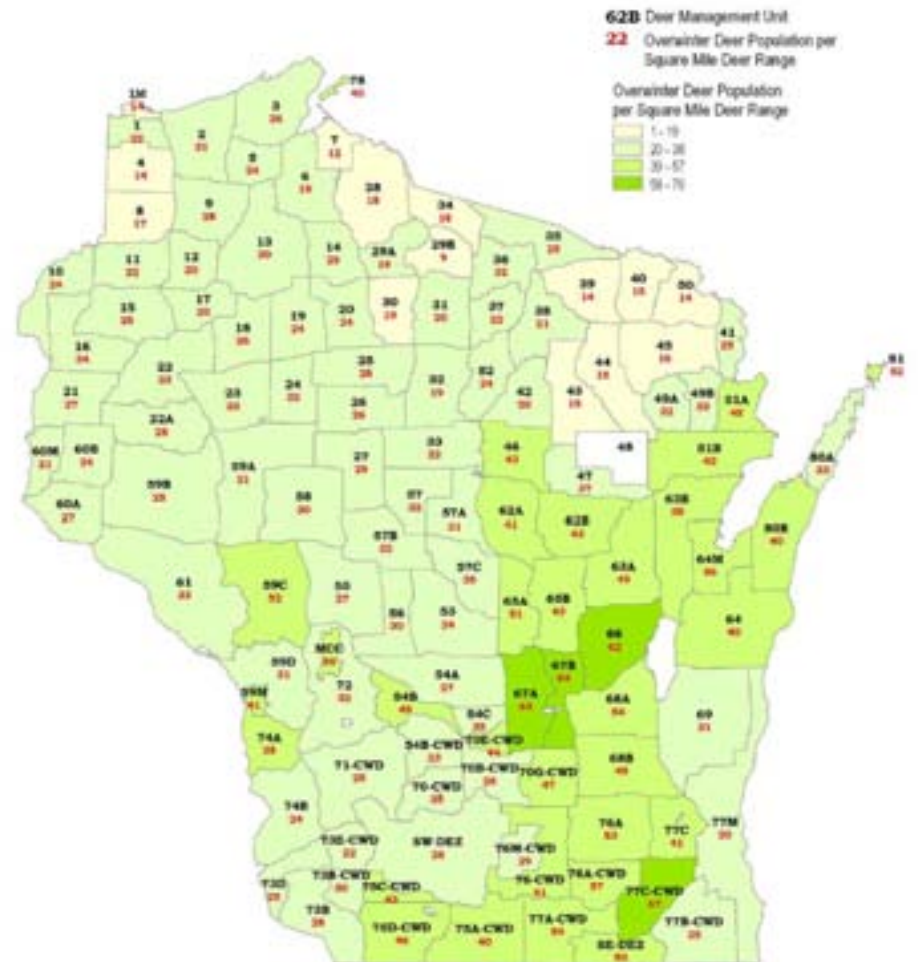
## Impacts on Forest Management & Ecology



Wisconsin Deer Population, 1960-2003



Overwinter Deer Population Density 2004, per Square Mile Deer Range



Wisconsin Department of Natural Resources  
 623 Science Center  
 June, 2005

July 12, 2005

# Forestry Impacts

- **Failure of regeneration**
- **Increased regeneration costs**
- **Reduced tree and stand growth rates and timber productivity**
- **Altered composition of plant communities**
  - **Trees**
  - **Understory plants**
- **Altered composition of animal communities**

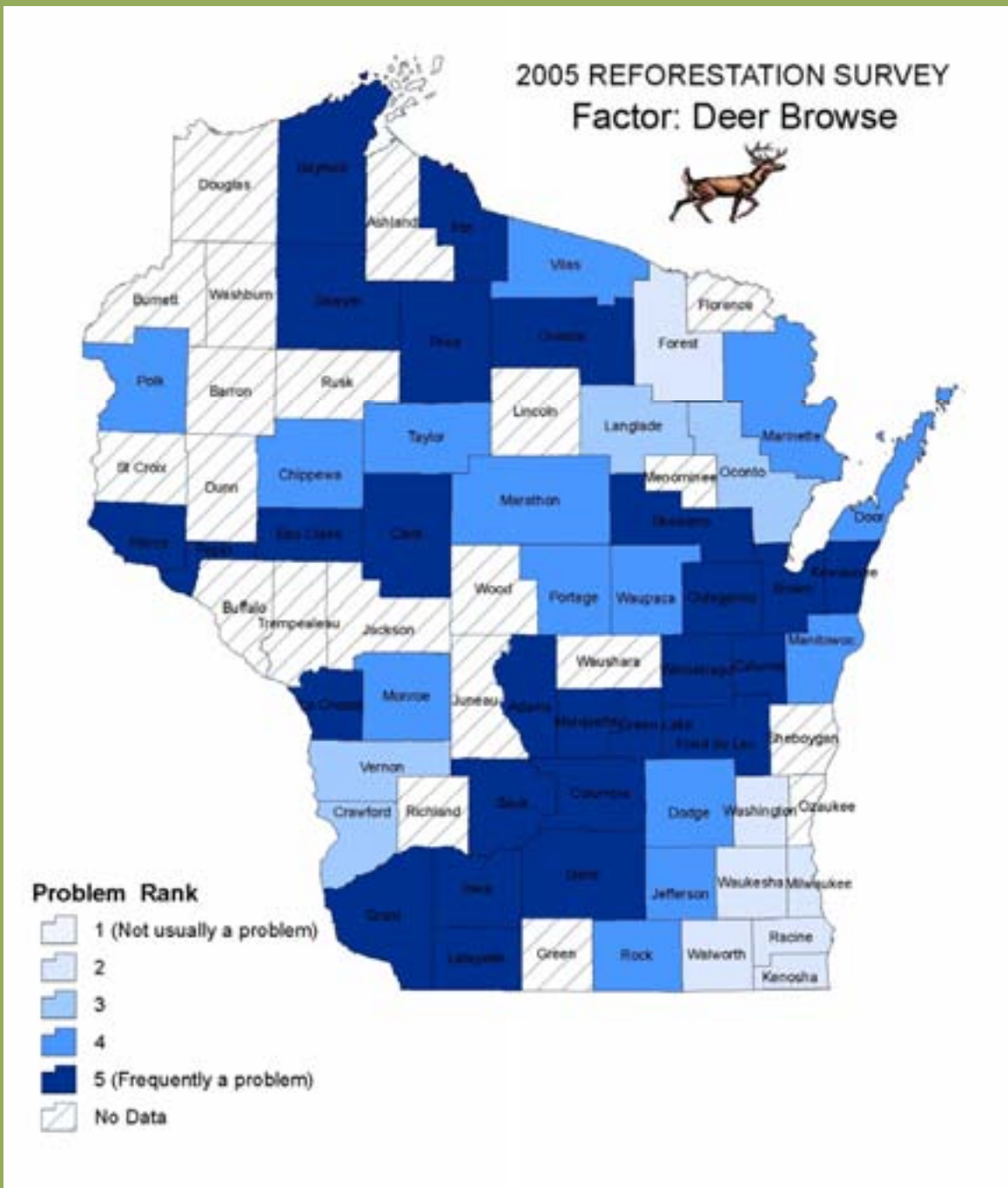
# Increased deer populations = Increased impacts

## ➤ Ideal habitat – landscape mosaic – farm & forest

- Cropland
- Fields
- Shrublands
- Mixed hardwood and conifer forest with patches of different ages, especially with forest <10 years old



- Regeneration failure
- Increased costs of regeneration
- Reduced growth and productivity
- Altered tree composition





# Failure of Regeneration

- Unsustainable forest management
- Certification standards not met





### **3 years following clear cut**

- **successful regeneration**
- **grassy field**

## Increased regeneration costs

- To ensure adequate composition and stocking
- Repeated silvicultural treatments
- Protection of regeneration
  - Fencing
  - Tree shelters
  - Bud caps
  - Repellents

# Fencing



- Fencing (exclosures) may be only recourse for protecting valuable landscape features
- Woven wire and electric fences
- Very expensive to install and require maintenance





**Tube Shelters**

# Bud Caps



# Repellents

Work best when changed frequently, where deer densities are fairly low, and when integrated into a larger damage abatement program.



# Reduced Growth Rates and Productivity

- Regeneration failure & delayed establishment
- Understocked stands – less production
- Slower growth following browsing
- Less productive species composition





**Fools Creek, PA**  
**5 years following clear cut**  
**10 deer/mi<sup>2</sup> and 65 deer/mi<sup>2</sup>**

# Altered Composition of Plant Communities - Trees

## ➤ Natural regeneration

- Preferential browsing can influence composition
- Some tree species are preferred, some less favored, some generally avoided

## ➤ Artificial regeneration

- Preferential browsing can alter composition
- Plant species unpalatable to deer



## Preferred Browse:

- hemlock, white cedar
- maples, basswood, birches, oaks
- aspen
- many other trees, depending on availability of preferred species



## Generally not preferred:

- spruce, beech, red pine



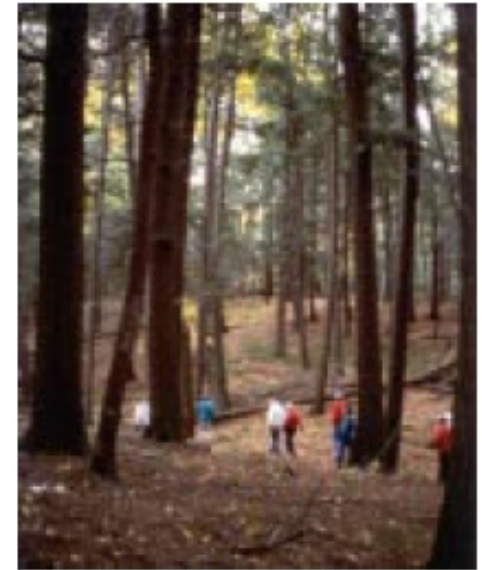
# Altered composition of plant communities – Understory Plants

- Barren ground, grasses and sedges, ferns
- Lilies and orchids
- Endangered species





*Edward Kemp (third from left) and friends along the shore of Tomahawk Lake. Notice the deep and extensive ground vegetation. Photo circa 1900.*



*The understory at Kemp Station, 1990. A new research project will investigate the impact of deer browsing on ground flora.*

## **Kemp – 1900 and 1990**



# Browse on forest shrubs and herbaceous plants

- Canada yew, witch hazel, dogwood, and others
- Many herbaceous plants, especially lilies and orchids



# Altered Composition of Animal Communities

- Altered habitat – food and shelter – plant community composition and structure
  - e.g. shrub nesting birds
  - e.g. species preferring cedar or hemlock



