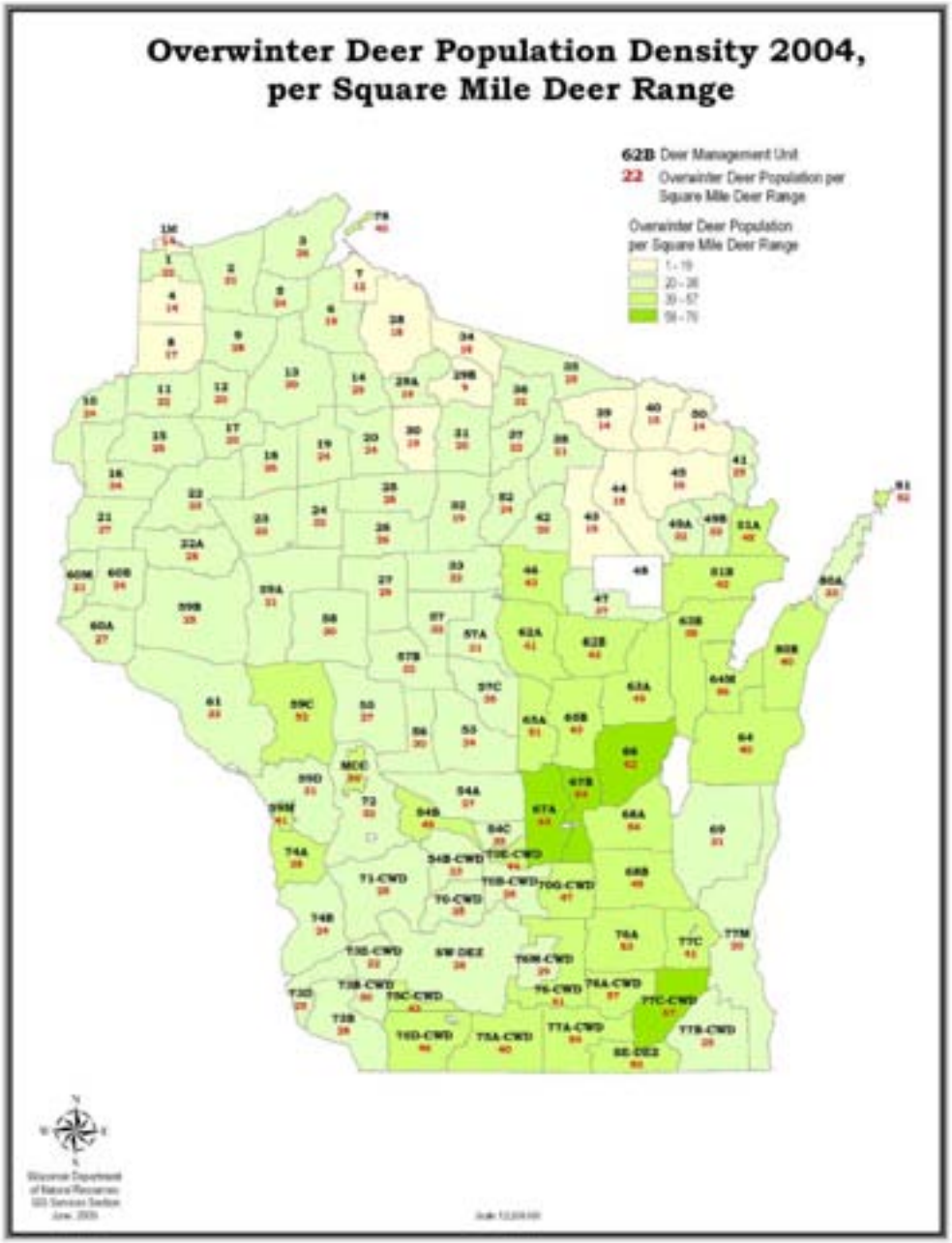
DEER - OVERABUNDANCE

Impacts on Forest Management & Ecology

Wisconsin Deer Population, 1960-2003
Prehunt Population
Posthunt Population
Posthunt Goal
Number of Deer
2,000,000
1,800,000
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
1960
1965
1970
1975
1980
1985
1990
1995
2000
Year


Overwinter Deer Population Density 2004,
per Square Mile Deer Range
62B Deer Management Unit
22 Overwinter Deer Population per Square Mile Deer Range
Overwinter Deer Population per Square Mile Deer Range
1 - 19
20 - 38
39 - 57
58 - 76

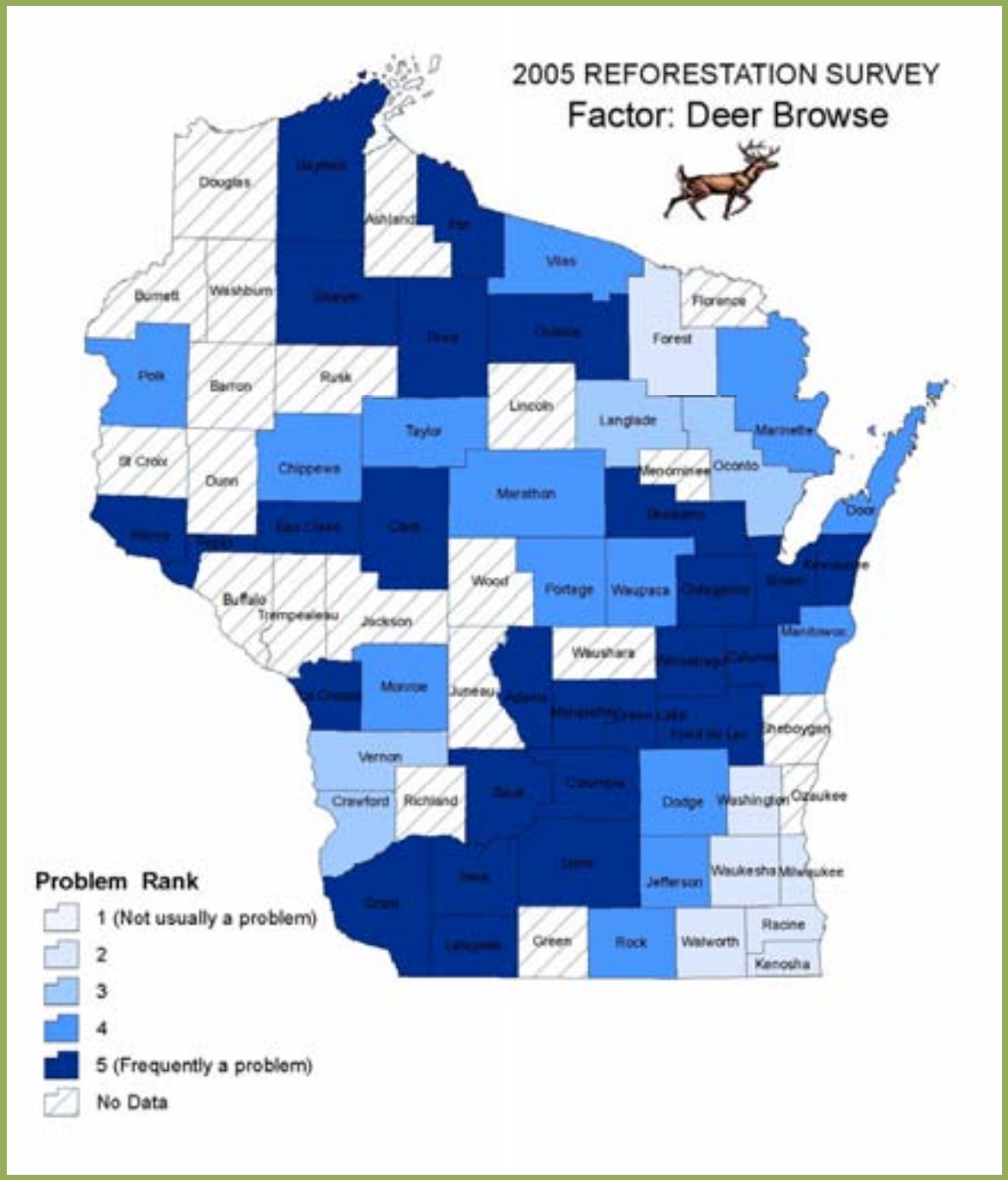
Forestry Impacts

- **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

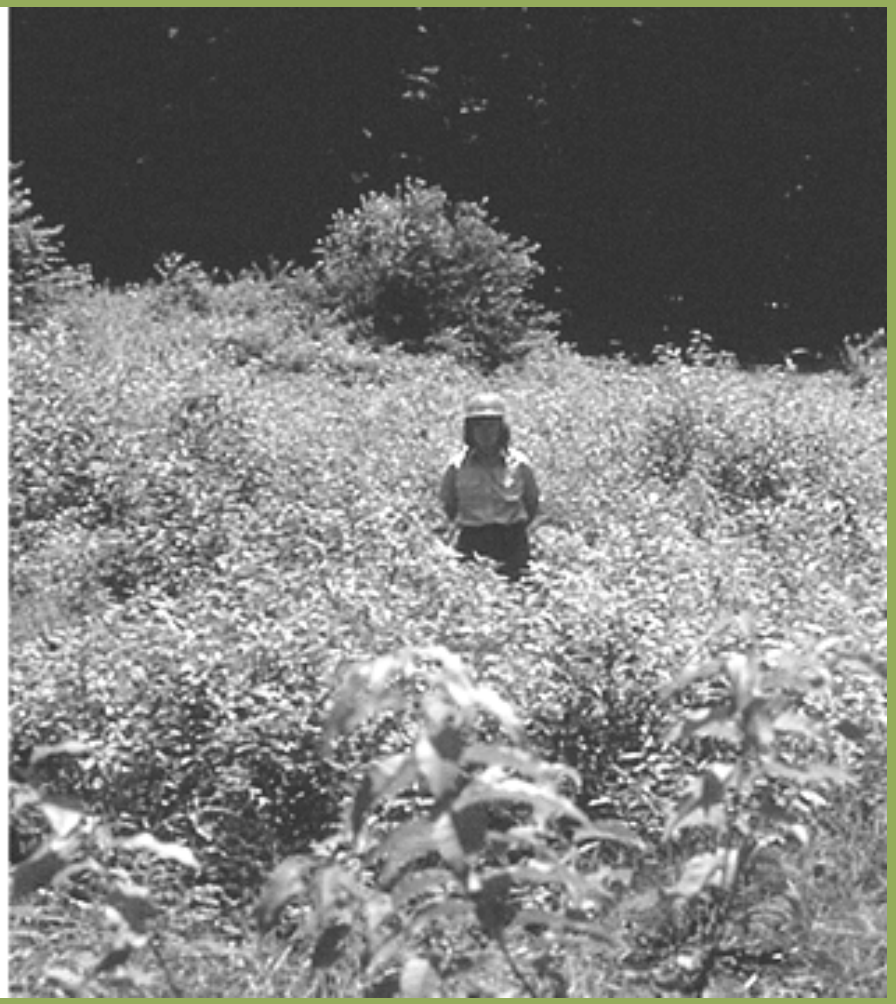
Bud Caps

Repellants

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^2 and 65 deer/mi^2

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

Thomas Meyer, WDNR

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