Deer Impacts on Wisconsin's Forests

Dr. Dustin Bronson
Wisconsin DNR

WISCONSIN
DEPT. OF NATURAL RESOURCES

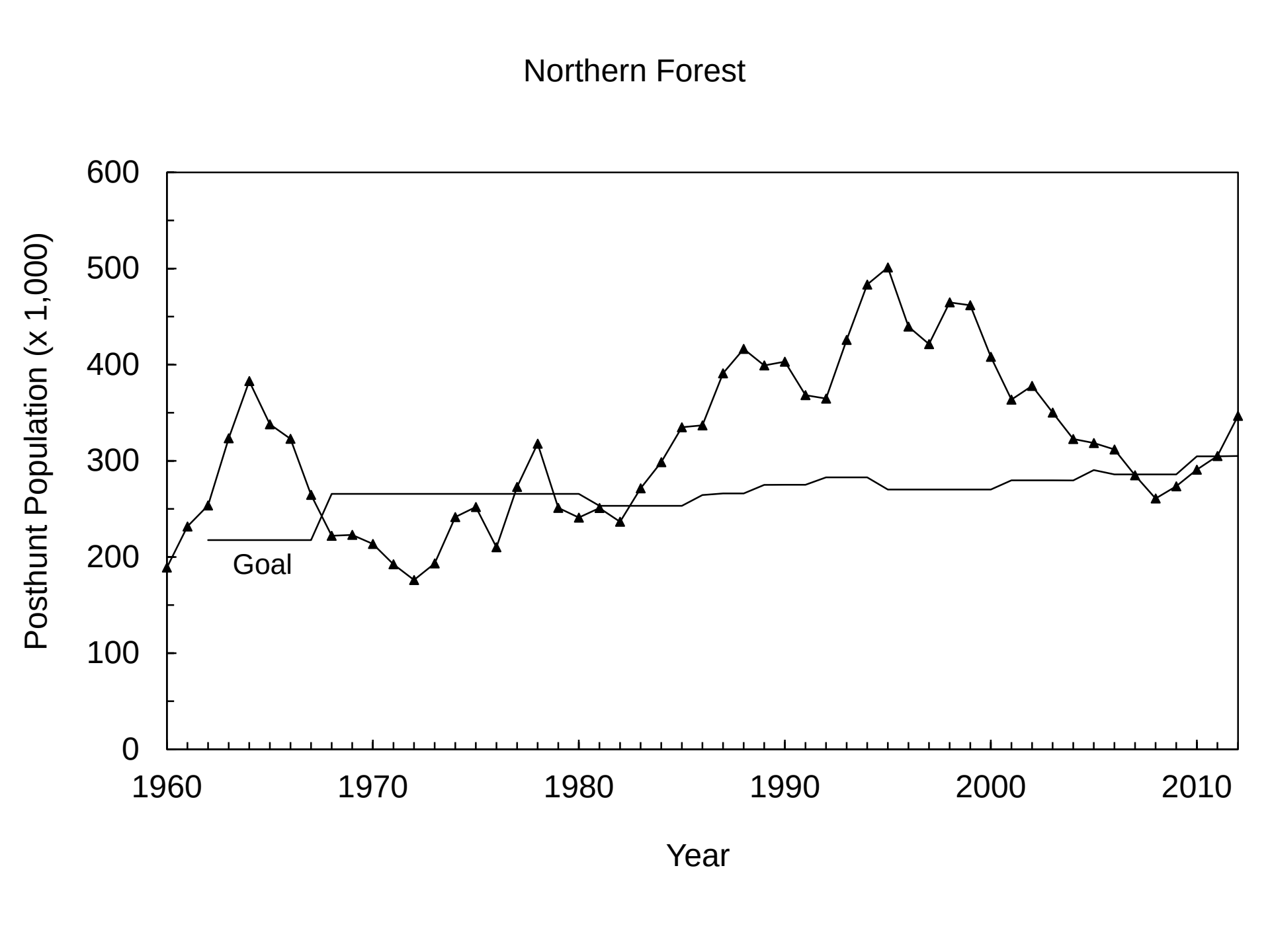
1947

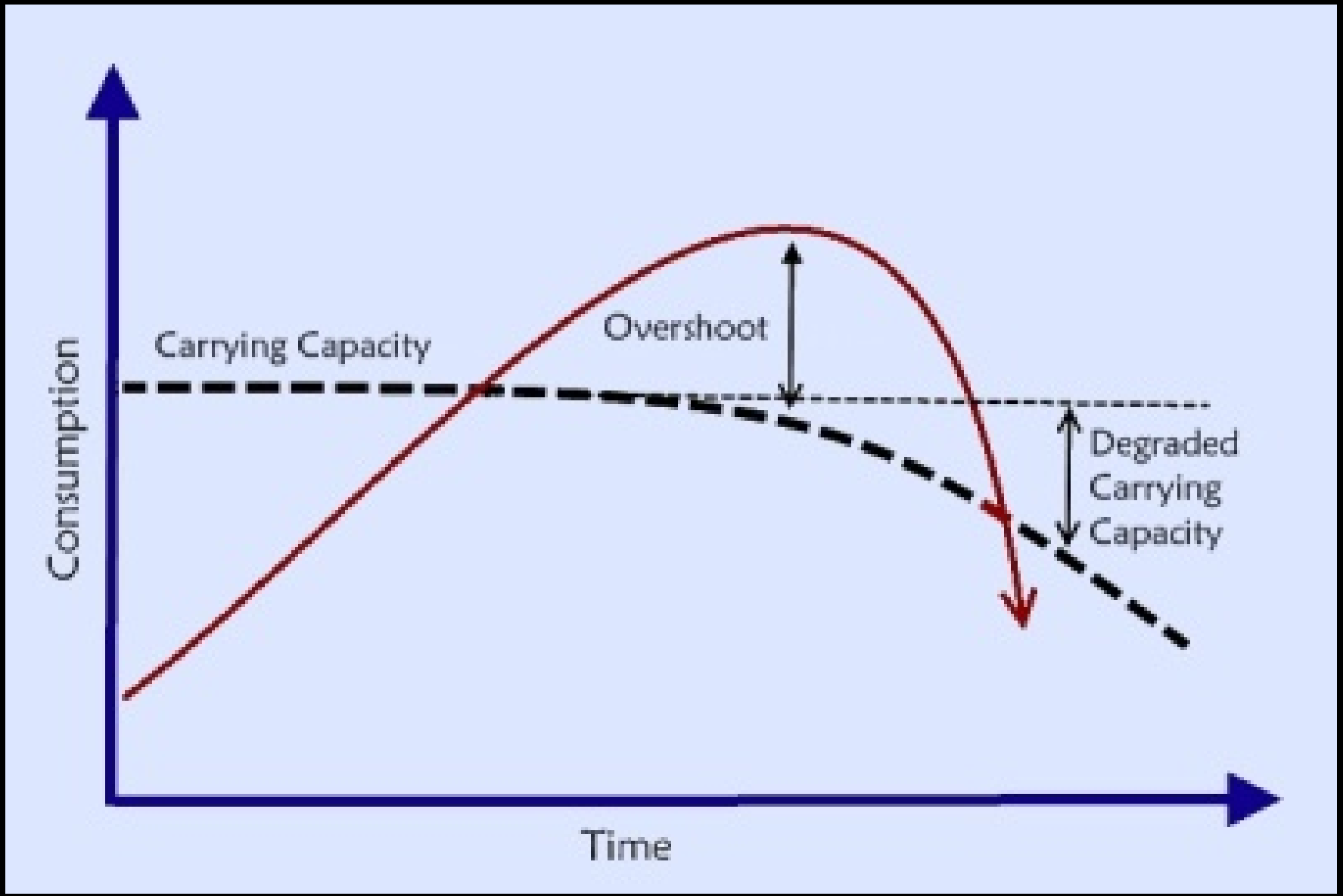
A SURVEY OF OVER-POPULATED DEER RANGES IN THE UNITED STATES

Aldo Leopold, Lyle K. Sowls, and David L. Spencer

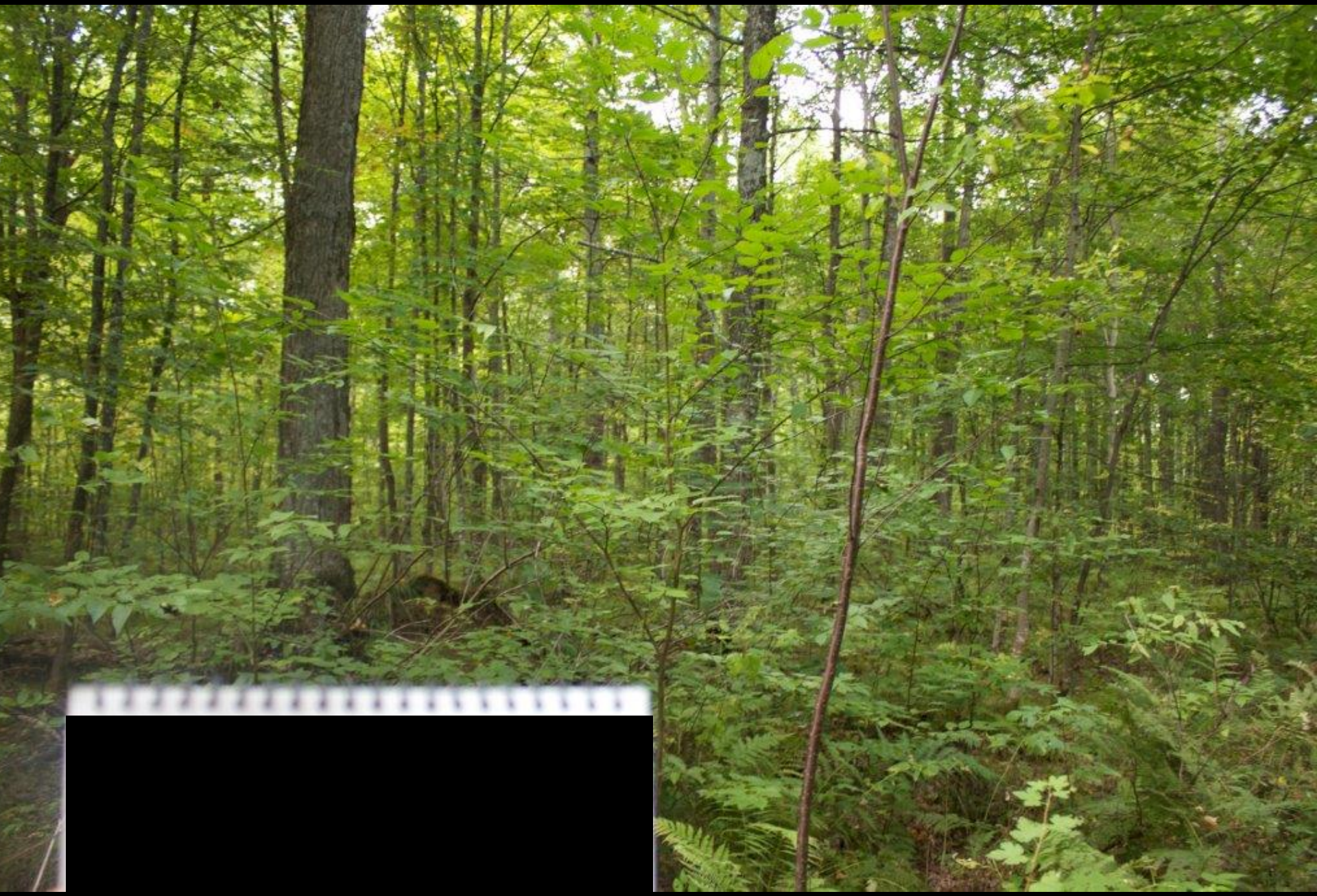
This survey was first undertaken for the purpose of compiling a country-wide map of deer problem areas for use

We are indebted to our correspondents for their patient cooperation in this enterprise.


Northern Forest
Posthunt Population (x 1,000)
600
500
400
300
200
100
0
1960
1970
1980
1990
2000
2010
Year
Goal


Consumption
Carrying Capacity
Overshoot
Degraded
Carrying
Capacity
Time


LAND FOR SALE
WHITETAIL
DREAMS
REAL ESTATE LLC
PROPERTY SALES & LAND MANAGEMENT
920.819.1338



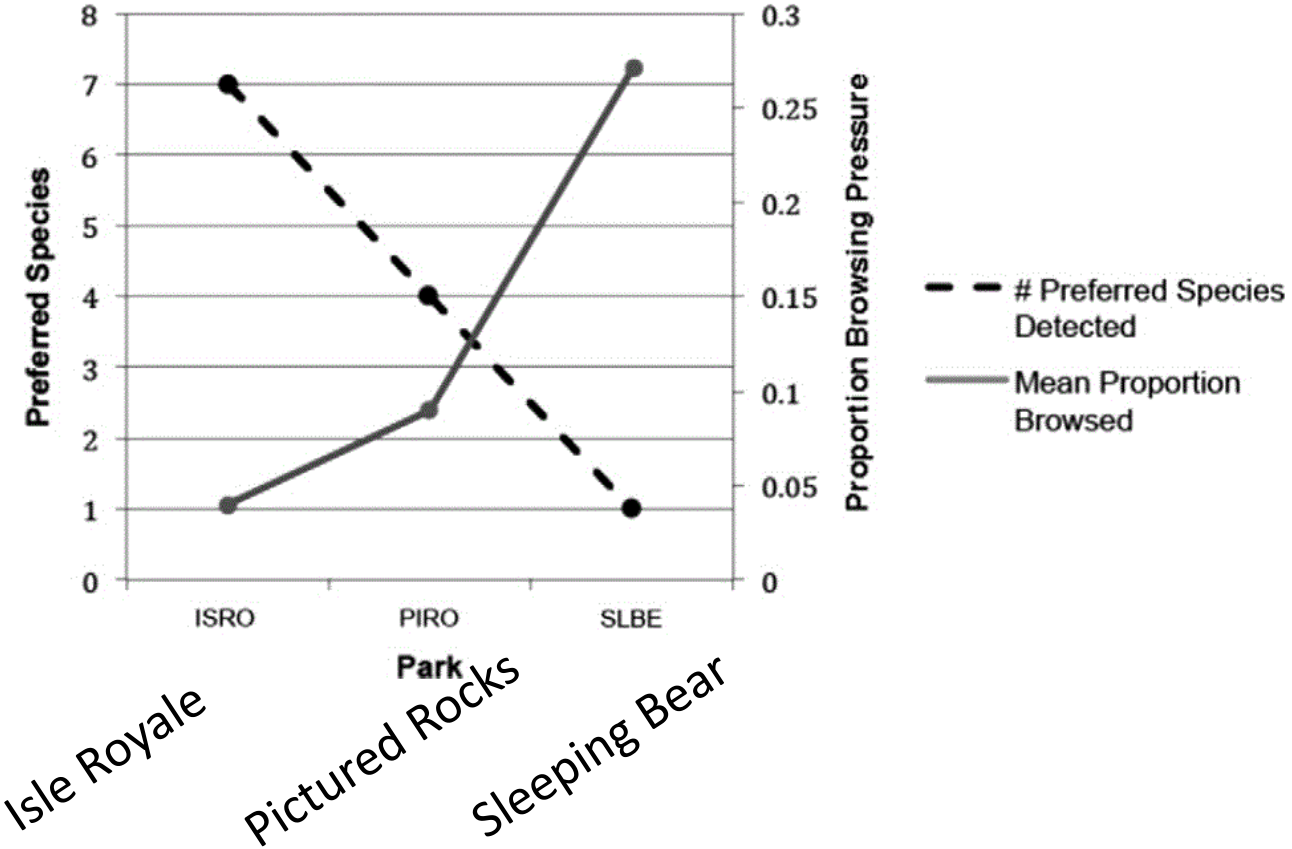
Forest Metrics

Browsing rates and ratios provide reliable indices of ungulate impacts on forest plant communities

Katie Frerker *, Grégory Sonnier [1], Donald M. Waller [1]

Department of Botany, University of Wisconsin – Madison, 430 Lincoln Drive, Madison, WI 53706, USA

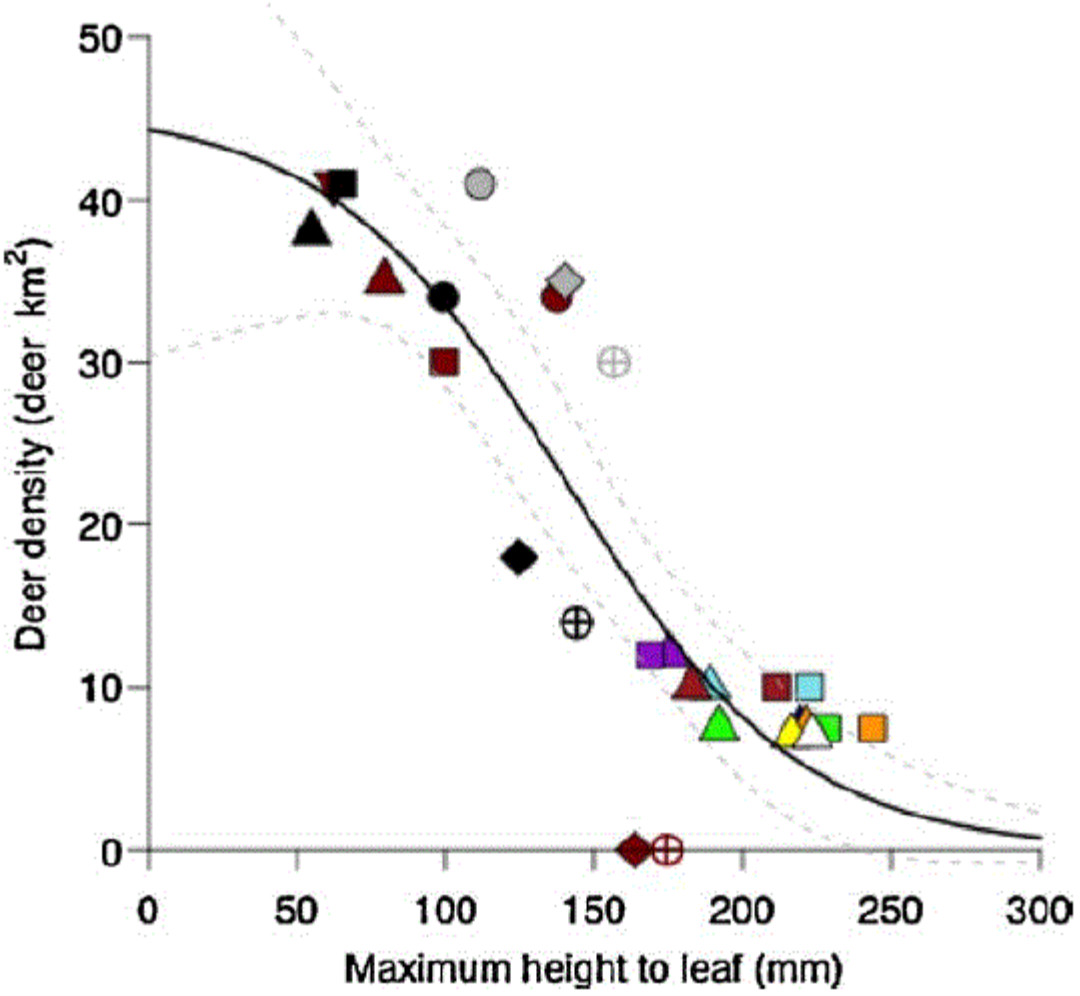
Preferred species are less abundant in areas with extensive browse preference



Morphological Plant Measures

Trillium grandiflorum height is an indicator of white-tailed deer density at local and regional scales

Saewan Koh [a,1,*], Dawn R. Bazely [a], Andrew J. Tanentzap [a,2], Dennis R. Voigt [b], Eric Da Silva [a]



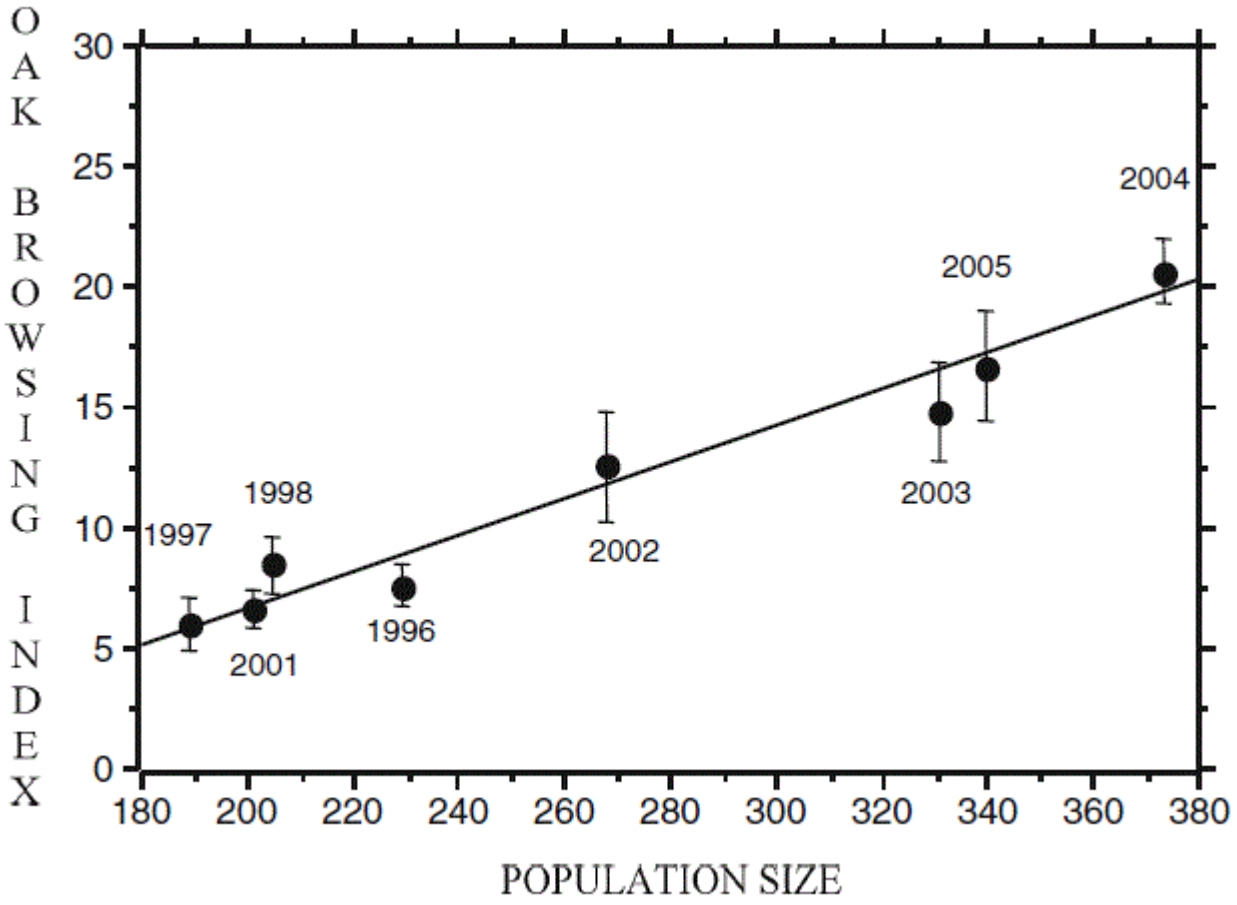
Stem Browse Index

Browsed Stems : Total Stems

The oak browsing index correlates linearly with roe deer density: a new indicator for deer management?

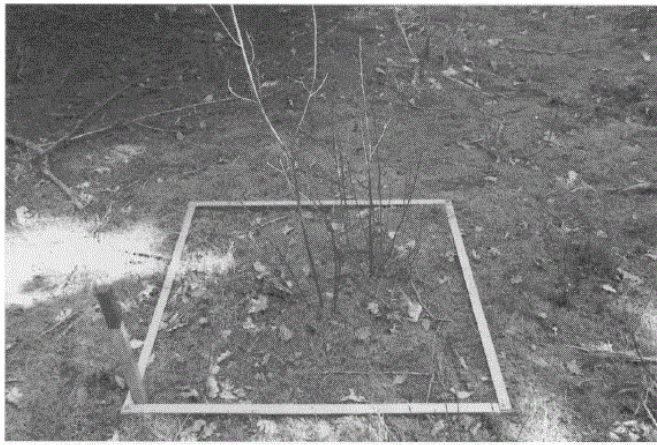
Thierry Chevrier · Sonia Saïd · Olivier Widmer · Jean-Pierre Hamard · Christine Saint-Andrieux · Jean-Michel Gaillard

Browse Index related to the population size



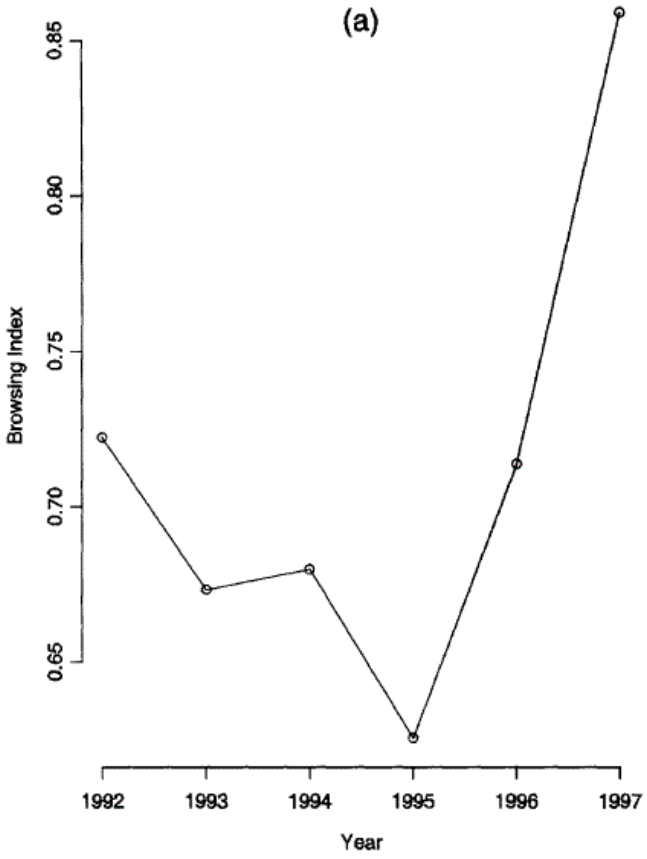
The browsing index: new tool uses browsing pressure to monitor deer populations

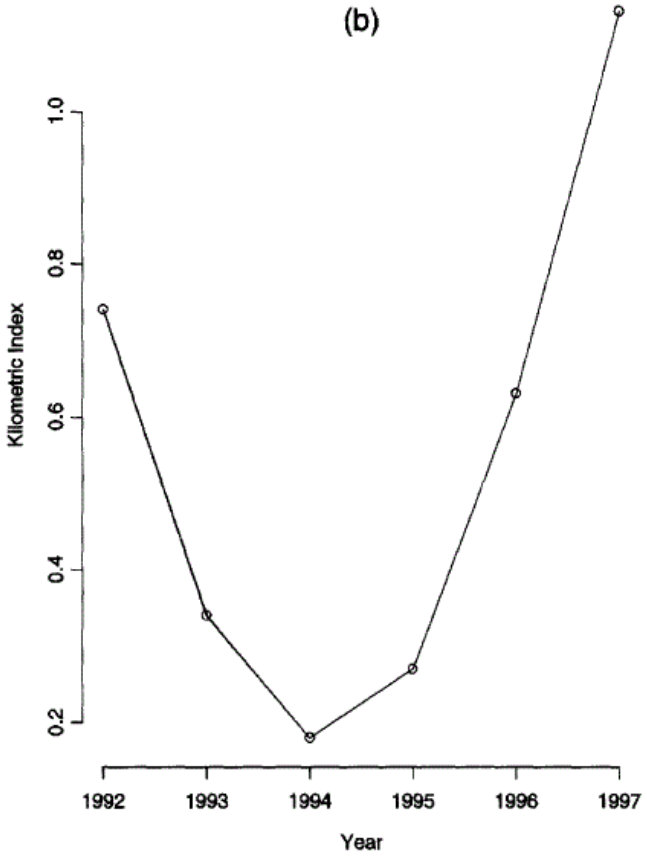
Nicolas Morellet, Stéphane Champely, Jean-Michel Gaillard, Philippe Ballon, and Yves Boscardin



Example of the sampling plot, a quadrat.

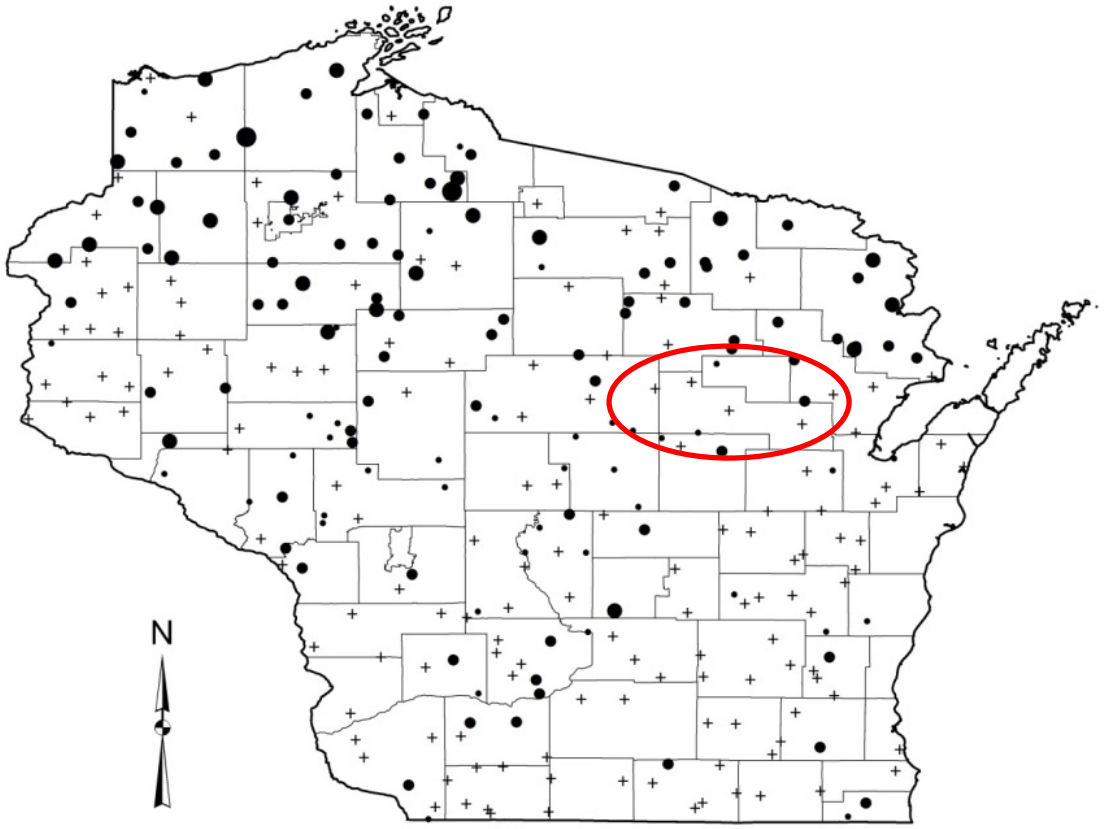
Browse Index matches the kilometric "deer-sighting" index





Category of browse level

1 = No Browse
2 = Light Browsing
3 = Moderate Browsing
4 = Heavy Browsing
5 = Severe Browsing



Browse Impact

- Low
- Medium
- High
- Very High
- Non-forest

Miles

0 20 40 80 120 160

(All Plot Locations are Approximate)

County Deer Advisory Council
Deer Metrics

Fall 2014

Douglas County

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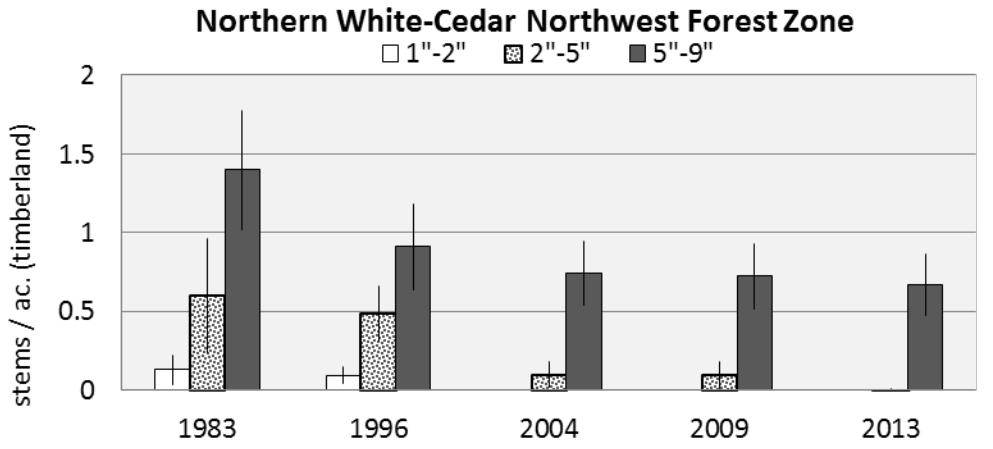
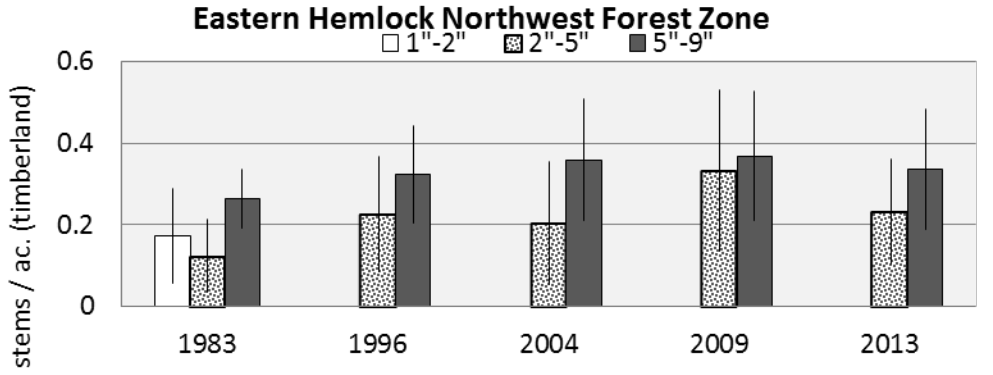
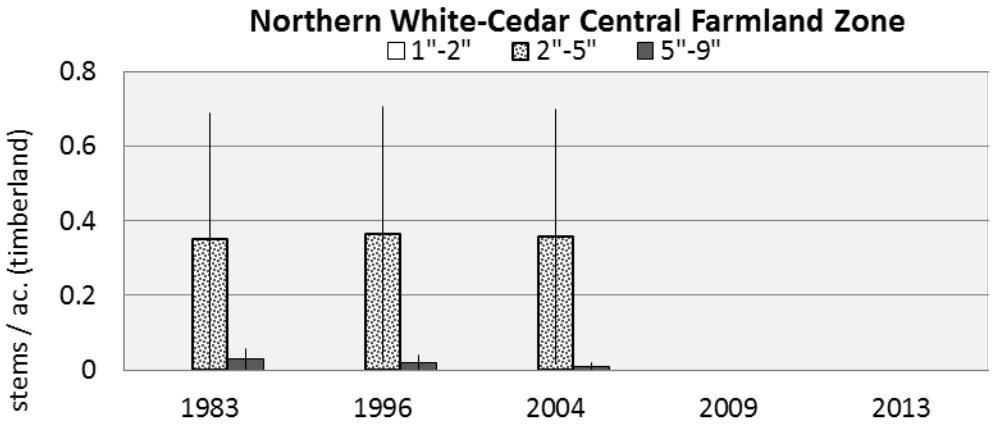

Northern White-Cedar Northwest Forest Zone
1"-2"
2"-5"
5"-9"
stems / ac. (timberland)
2
1.5
1
0.5
0
1983
1996
2004
2009
2013

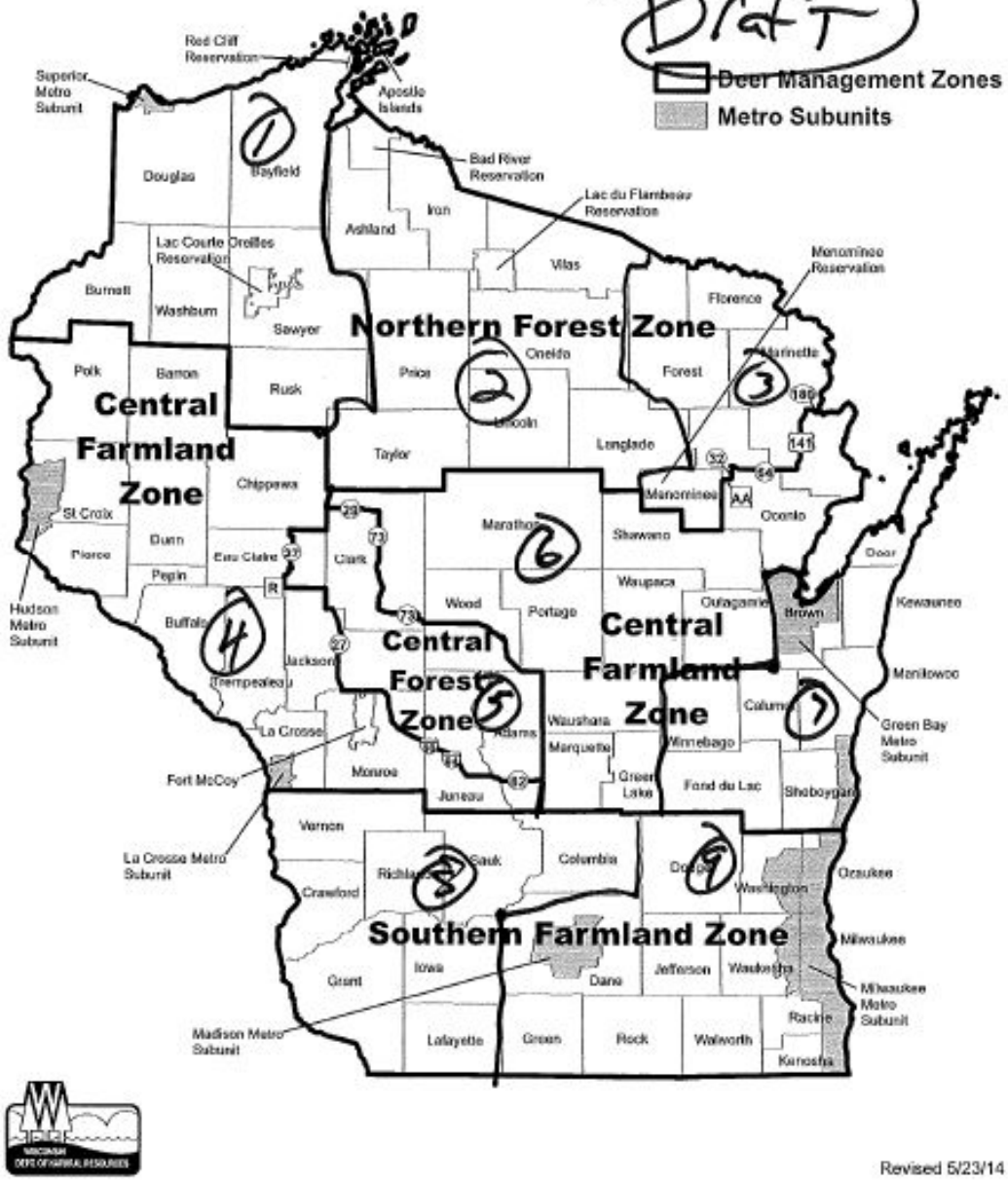

Eastern Hemlock Northwest Forest Zone
1"-2"
2"-5"
5"-9"
stems / ac. (timberland)
0.6
0.4
0.2
0
1983
1996
2004
2009
2013


Northern White-Cedar Central Farmland Zone
1"-2"
2"-5"
5"-9"
stems / ac. (timberland)
0.8
0.6
0.4
0.2
0
1983
1996
2004
2009
2013

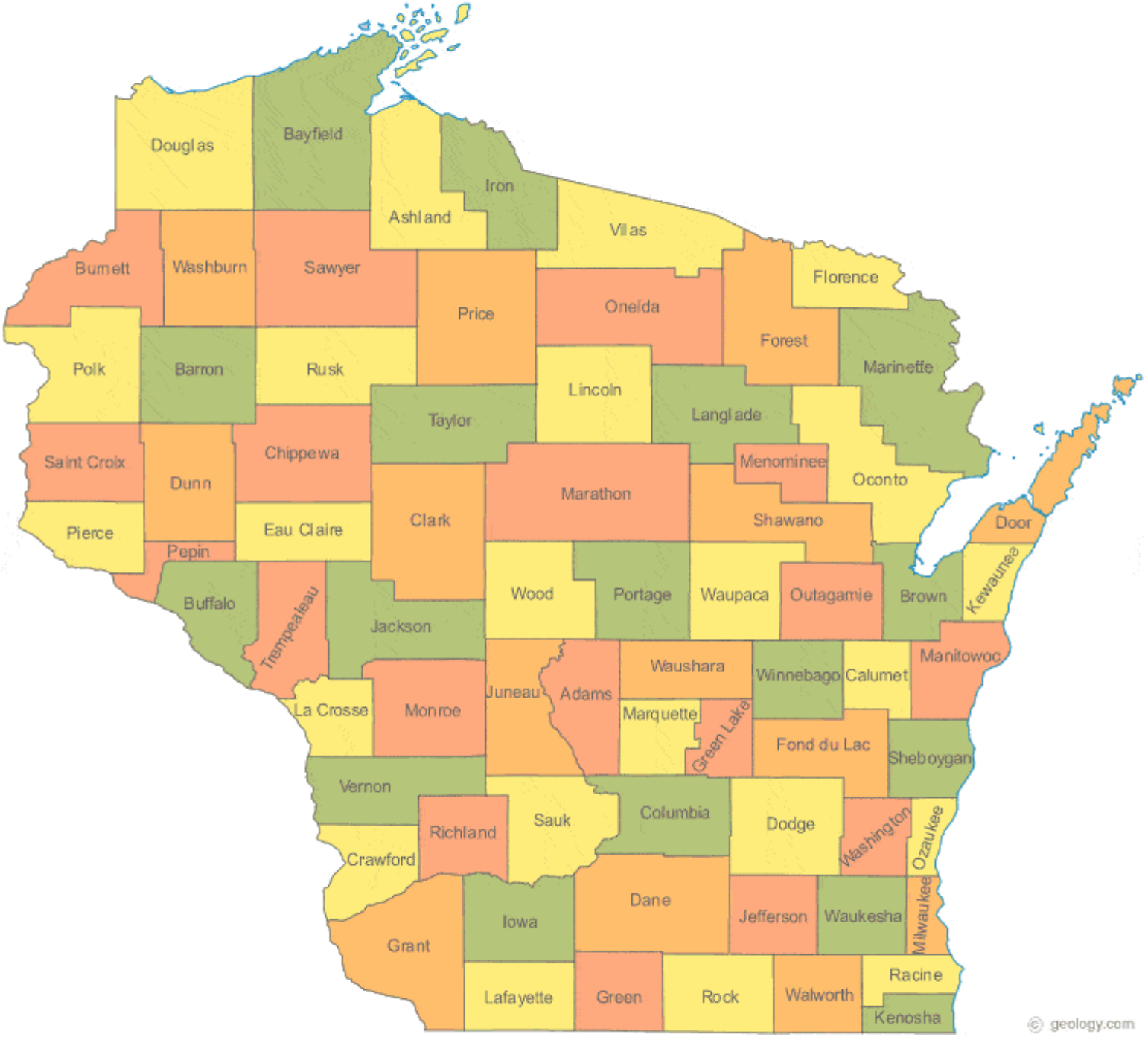
Dear Metrics reporting zones

Deer Management Zones

Draft



Revised 5/23/14


Douglas
Bayfield
Iron
Ashland
Vilas
Florence
Burnett
Washburn
Sawyer
Price
Oneida
Forest
Marinette
Polk
Barron
Rusk
Lincoln
Langlade
Taylor
Oconto
Saint Croix
Dunn
Chippewa
Menominee
Marathon
Shawano
Door
Pierce
Eau Claire
Clark
Pepin
Wood
Portage
Waupaca
Outagamie
Brown
Kewaunee
Buffalo
Trempealeau
Jackson
Waushara
Winnebago
Calumet
Manitowoc
Juneau
Adams
La Crosse
Monroe
Marquette
Green Lake
Fond du Lac
Sheboygan
Vernon
Sauk
Columbia
Dodge
Washington
Ozaukee
Richland
Crawford
Dane
Iowa
Jefferson
Waukesha
Milwaukee
Grant
Racine
Lafayette
Green
Rock
Walworth
Kenosha
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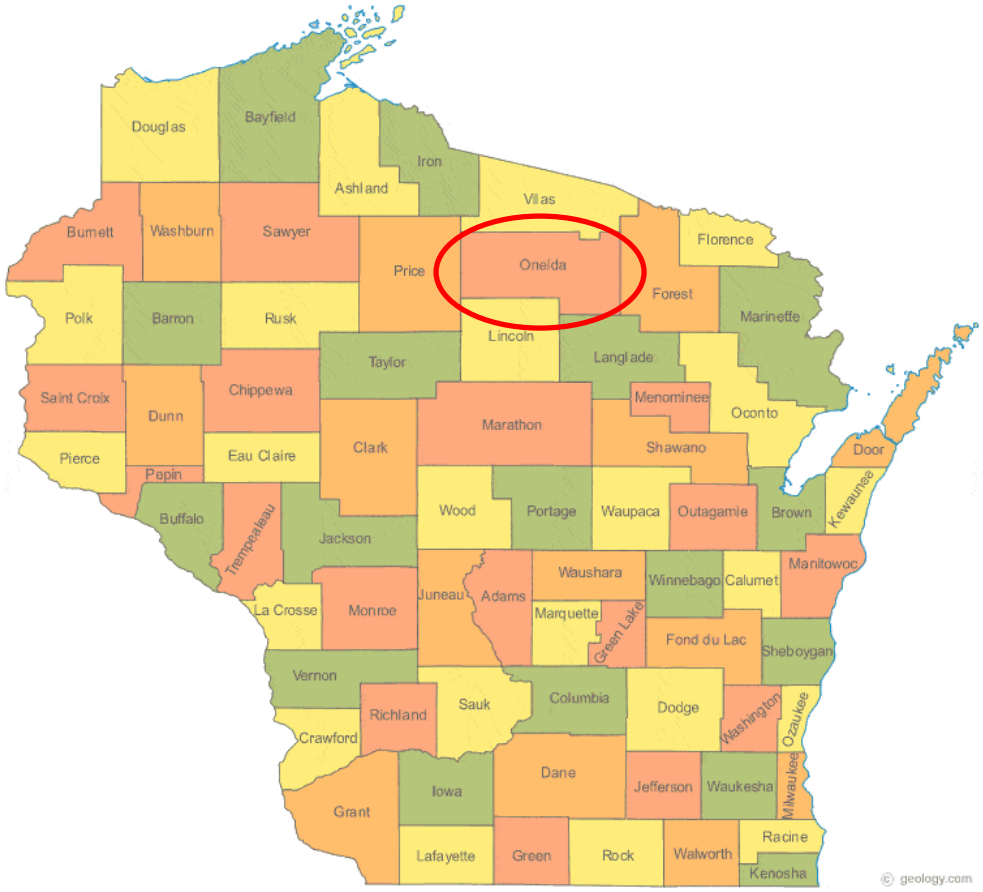
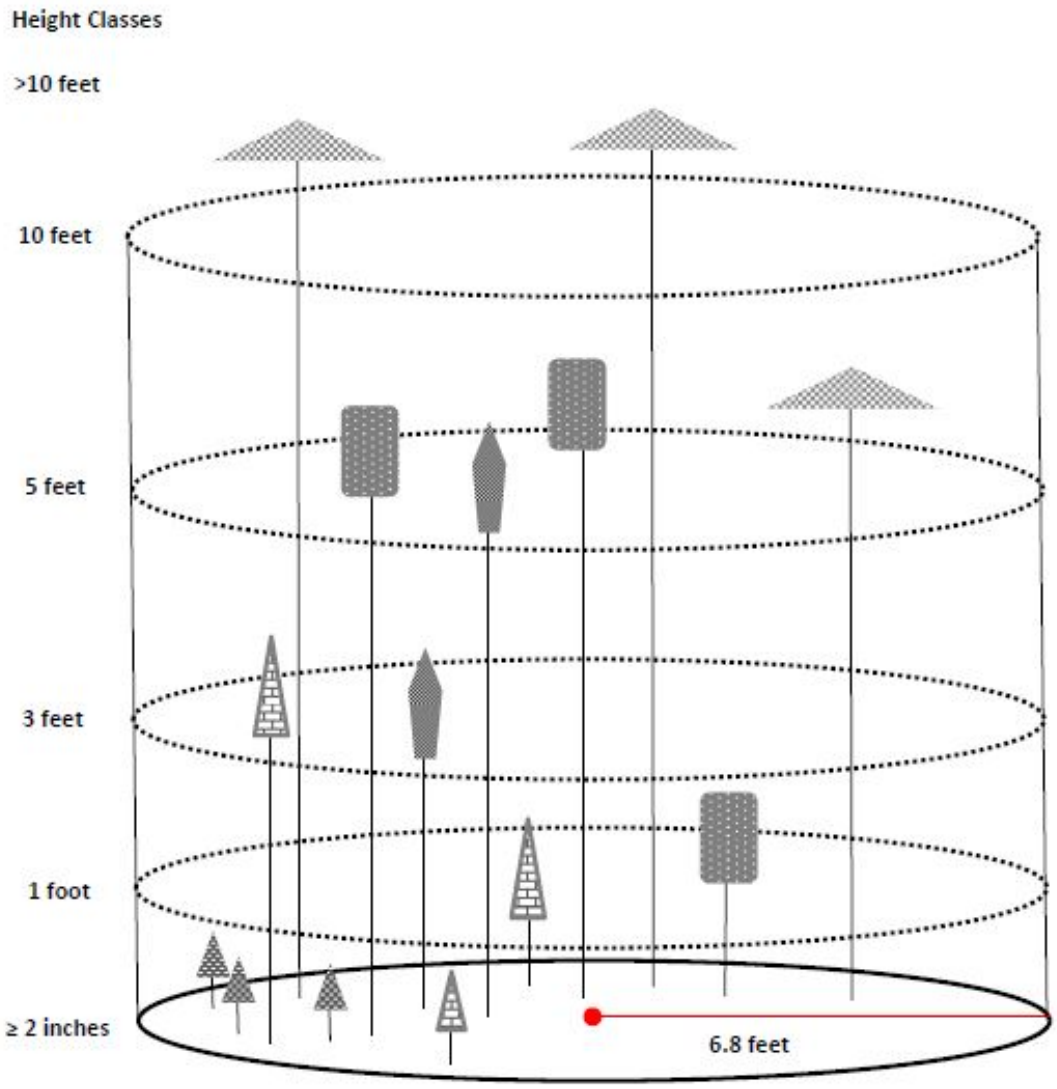


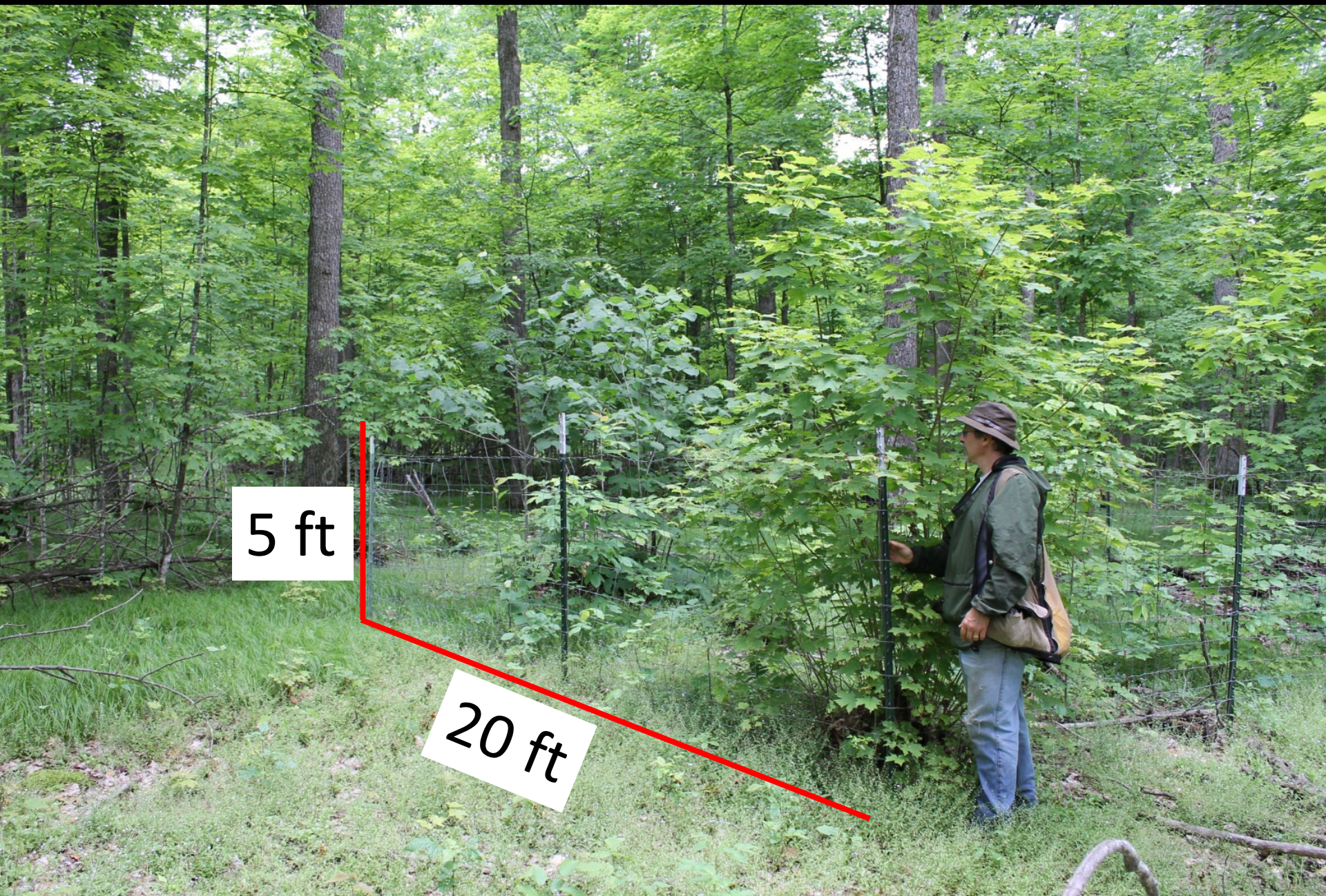
Oneida County

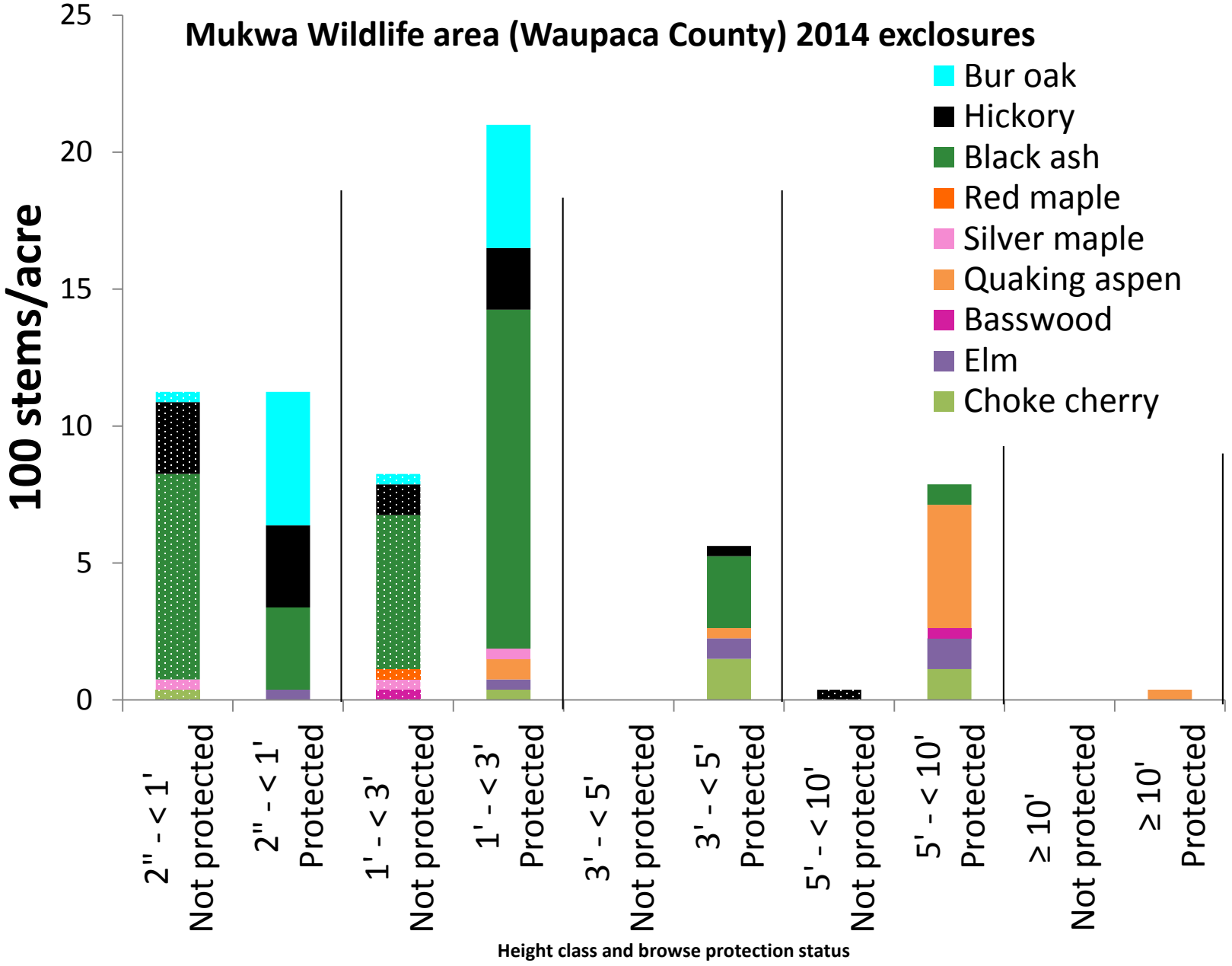
Cover	Total	Private	County	State	Federal
Oak/Hickory	103	82	8	13	0
Maple/Birch	101	69	18	14	1

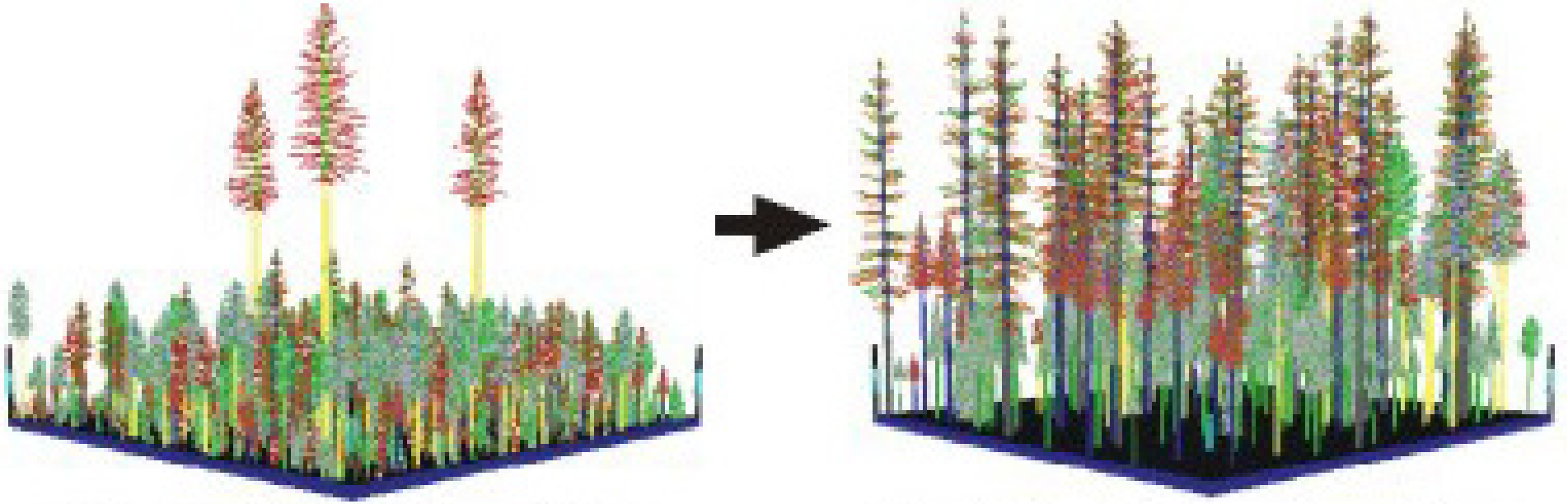
Forest Regeneration Metric



Exclosures




Mukwa Wildlife area (Waupaca County) 2014 exclosures
100 stems/acre
25
20
15
10
5
0
Bur oak
Hickory
Black ash
Red maple
Silver maple
Quaking aspen
Basswood
Elm
Choke cherry
2" - < 1' Not protected
2" - < 1' Protected
1' - < 3' Not protected
1' - < 3' Protected
3' - < 5' Not protected
3' - < 5' Protected
5' - < 10' Not protected
5' - < 10' Protected
≥ 10' Not protected
≥ 10' Protected
Height class and browse protection status



Current Stand Conditions

Predicted Future Conditions

Questions

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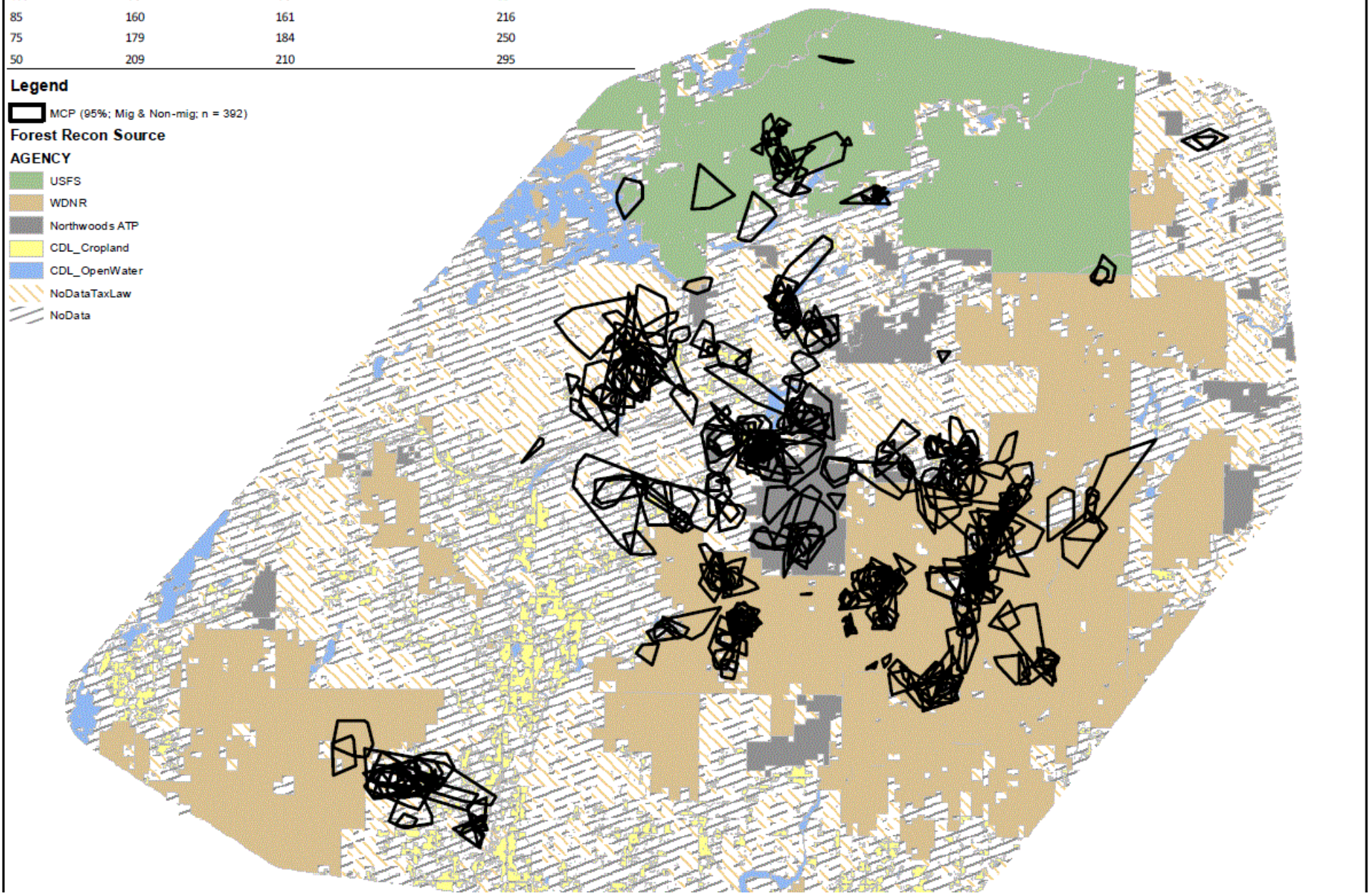
Wisconsin DNR
Forest Research Scientist
Dustin[dot]Bronson[at]WI.GOV

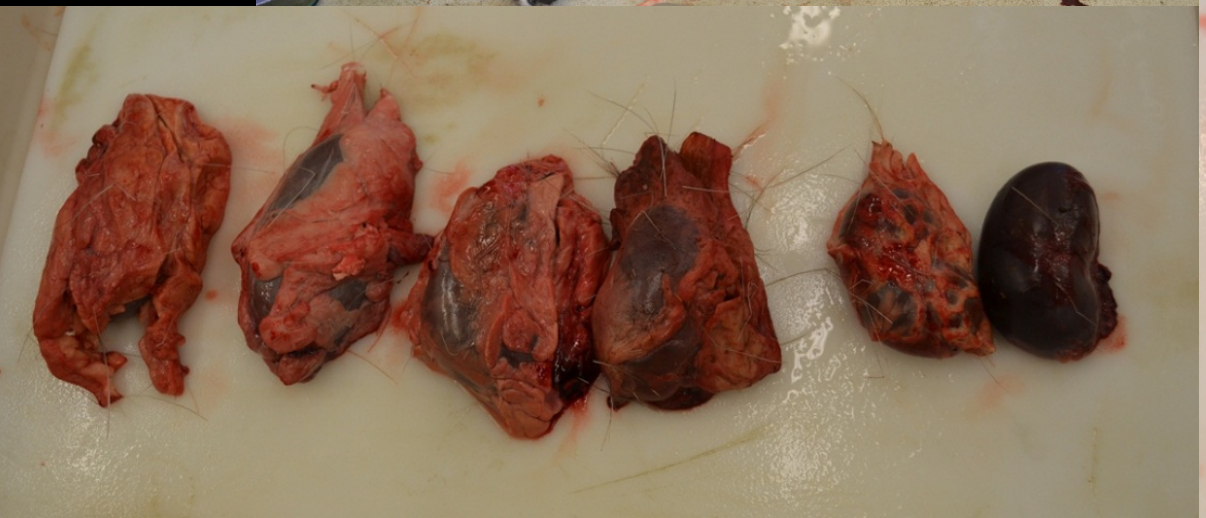
Installing GPS collars on deer

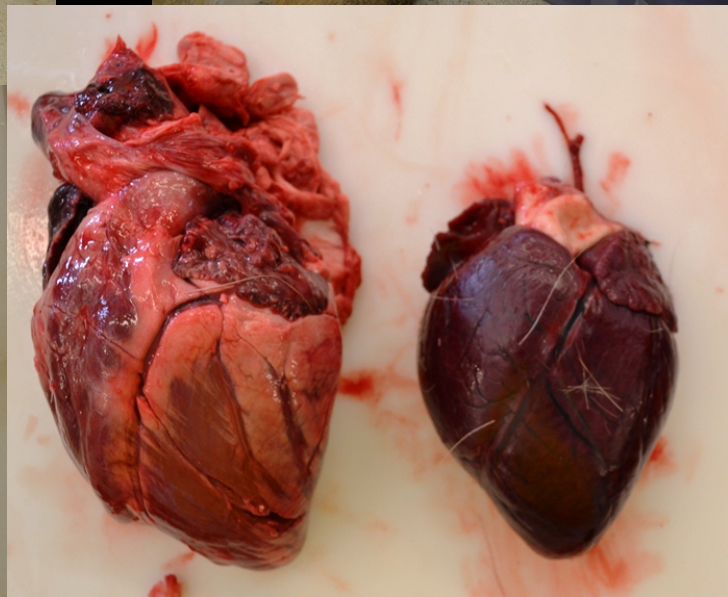
Recon Data Summary

% Coverage	Count (Recon Only)	Count (Include Cropland/Water)	Count (Include Cropland/Water/NoDataMFL)
100	96	96	117
85	160	161	216
75	179	184	250
50	209	210	295



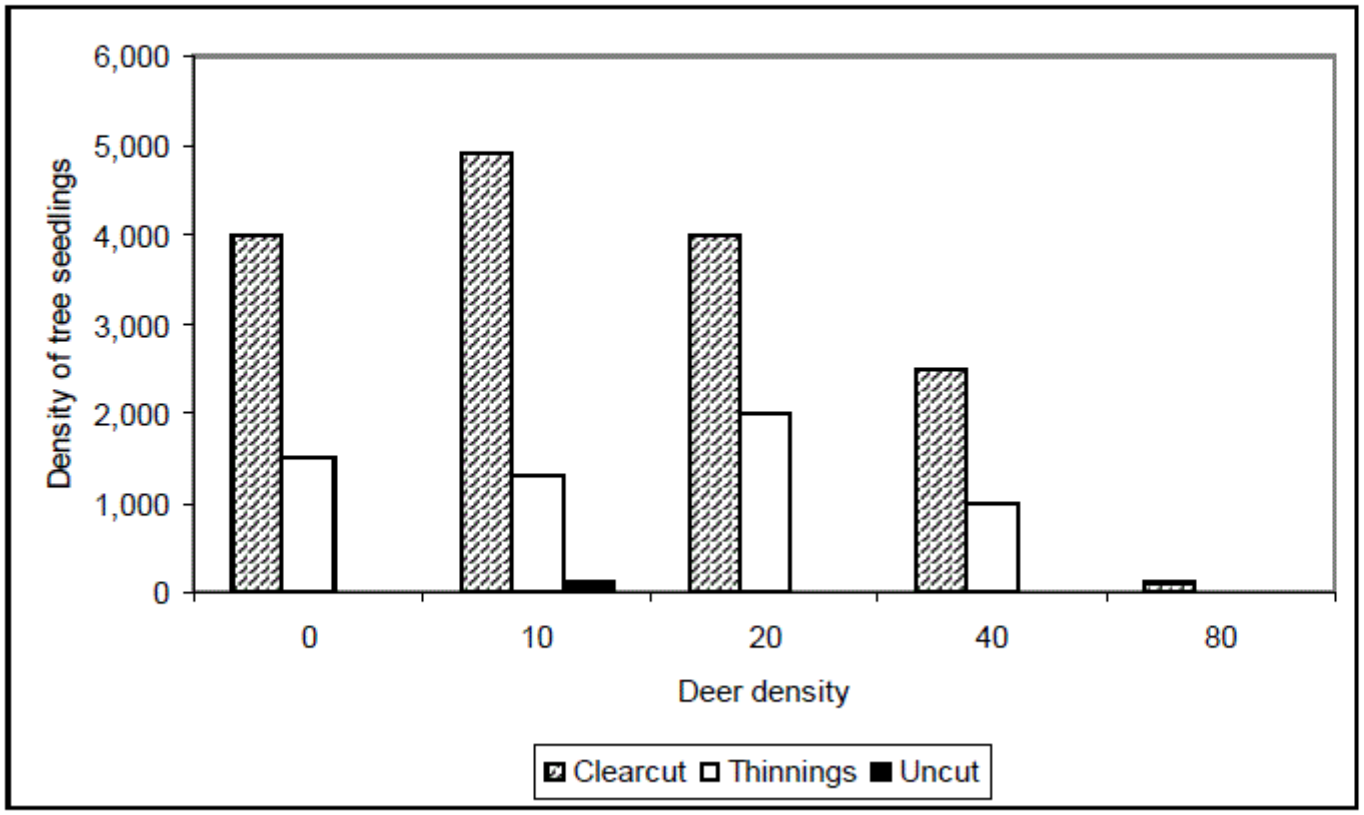
Evaluating fat reserves





Pennsylvania Deer Density Study

Figure 11. Density of seedlings (seedlings per ha) at specific deer densities (deer per square mile) for 3 different forestry treatments (clearcut, thinning, uncut). Results based on sensitive-commercial species seedlings >0.9m from Tilghman 1989.

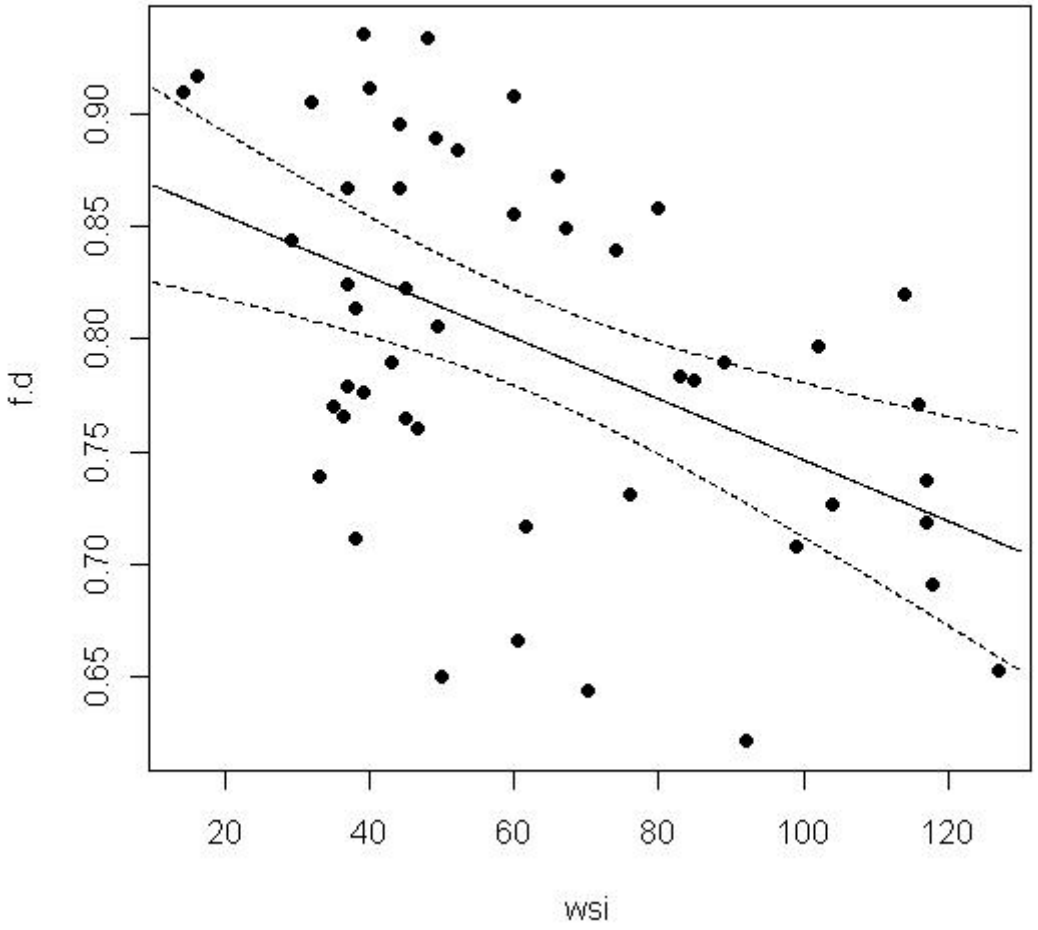


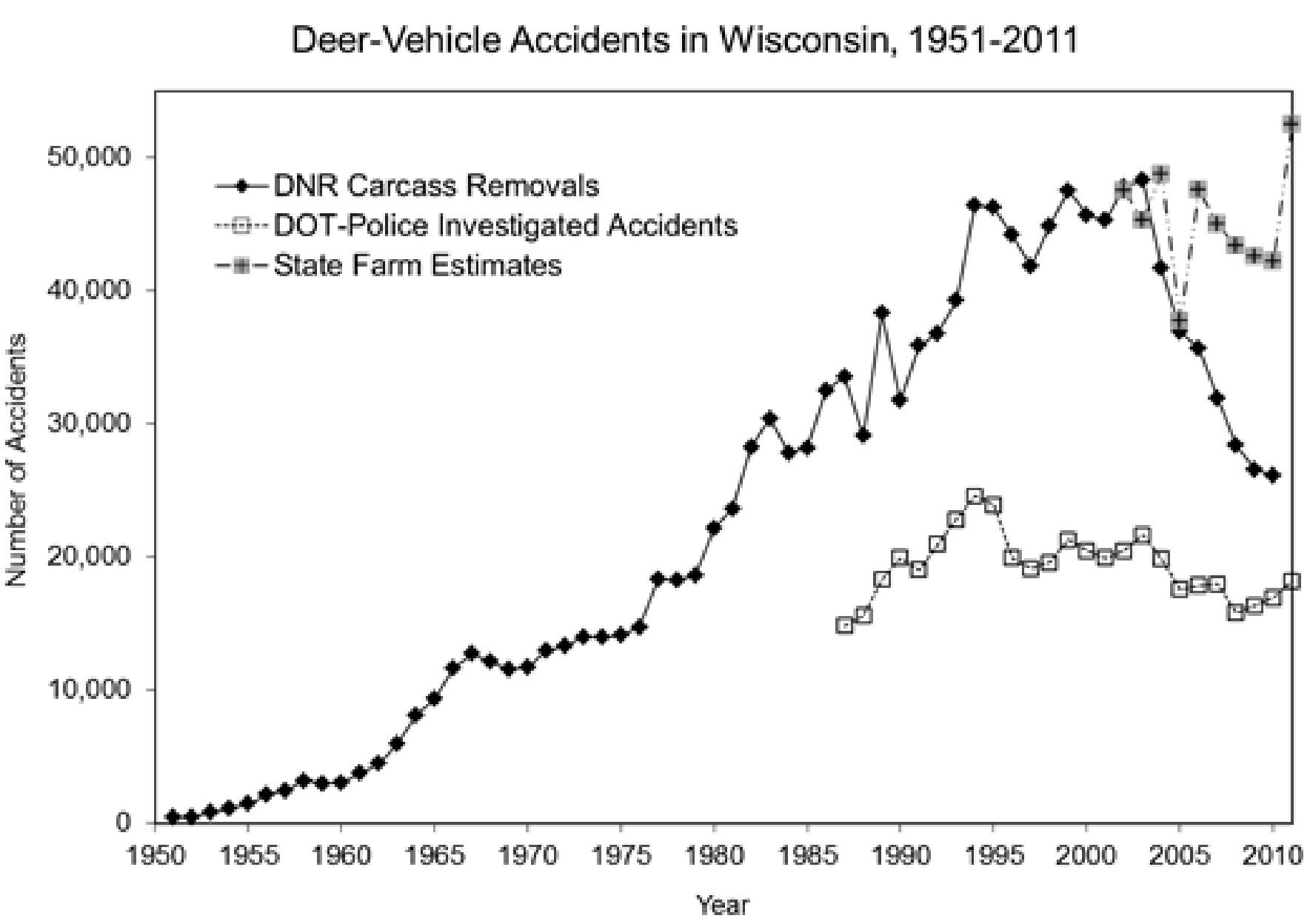
Fecal glucocorticoid metric

Non-invasive techniques for stress assessment in white-tailed deer

Joshua J. Millspaugh, Brian E. Washburn, Mark A. Milanick, Jeff Beringer, Lonnie P. Hansen, and Tamara M. Meyer

Fawn:Doe vs Winter Severity Index

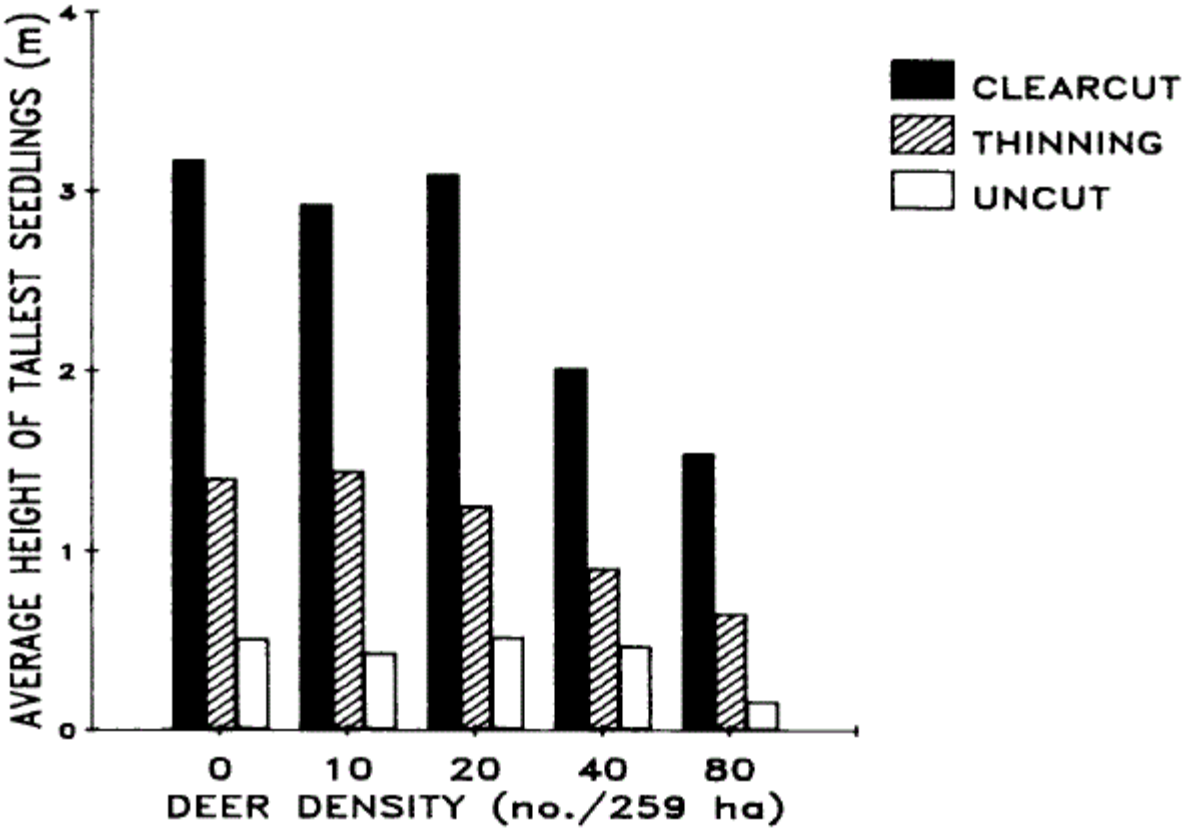


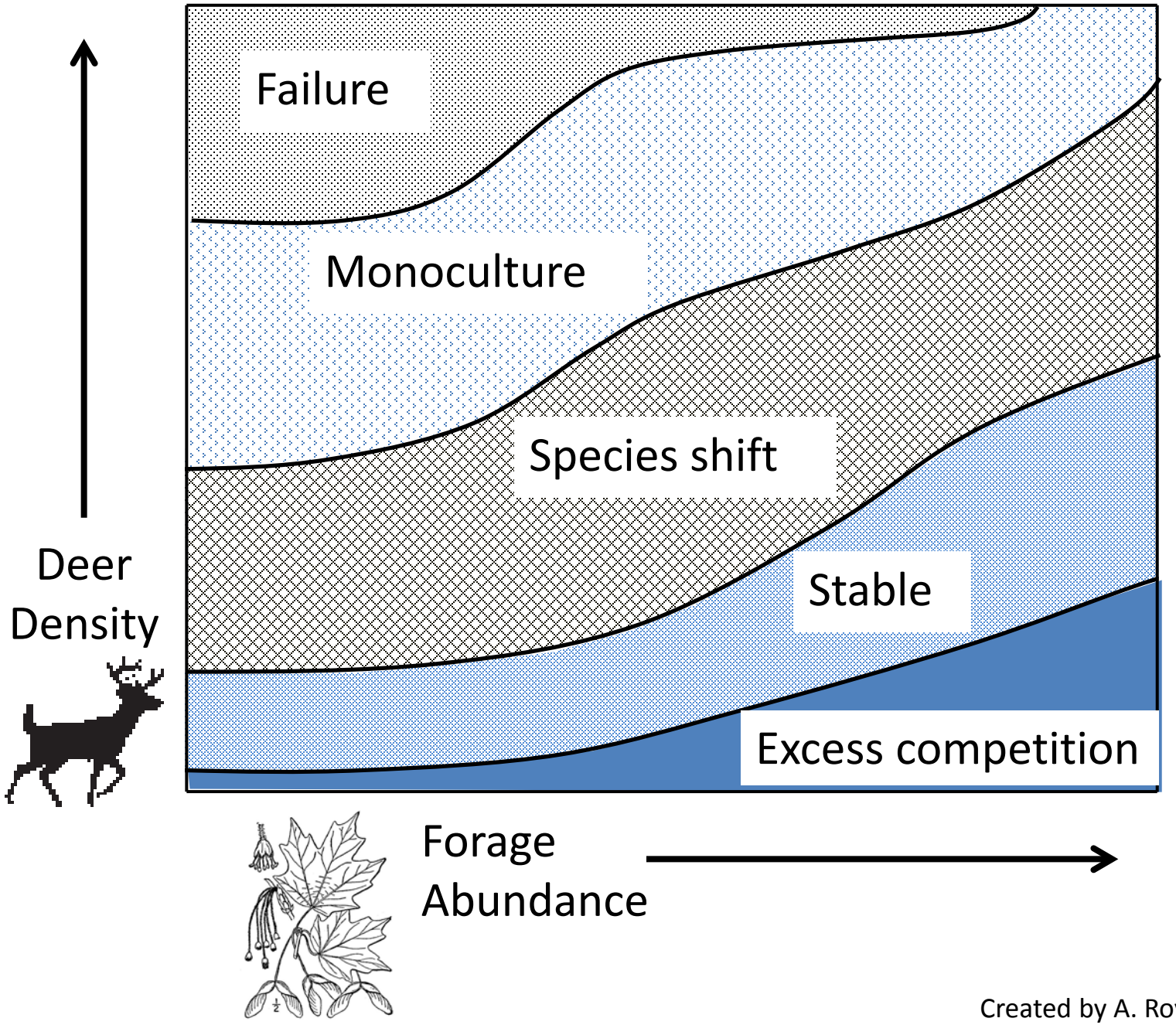

Deer-Vehicle Accidents in Wisconsin, 1951-2011
DNR Carcass Removals
DOT-Police Investigated Accidents
State Farm Estimates
Number of Accidents
0
10,000
20,000
30,000
40,000
50,000
1950
1955
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
Year

IMPACTS OF WHITE-TAILED DEER ON FOREST REGENERATION IN NORTHWESTERN PENNSYLVANIA

NANCY G. TILGHMAN,[1] U.S. Forest Service, Northeastern Forest Experiment Station, Box 928, Warren, PA 16365

Stem height was significantly reduced by deer browsing





Created by A. Royo (USFS)