



# *Atlas of the Breeding Birds of Wisconsin*

Noel J. Cutright  
Natural Landscapes Conference  
February 17, 2007

*Wisconsin  
Society for  
Ornithology*



*For the birds and birdwatchers of the Badger State*

**Wisconsin Birdlife**

Population & Distribution - Past & Present



Samuel D. Robbins, Jr.



Roger

Chan

Sam

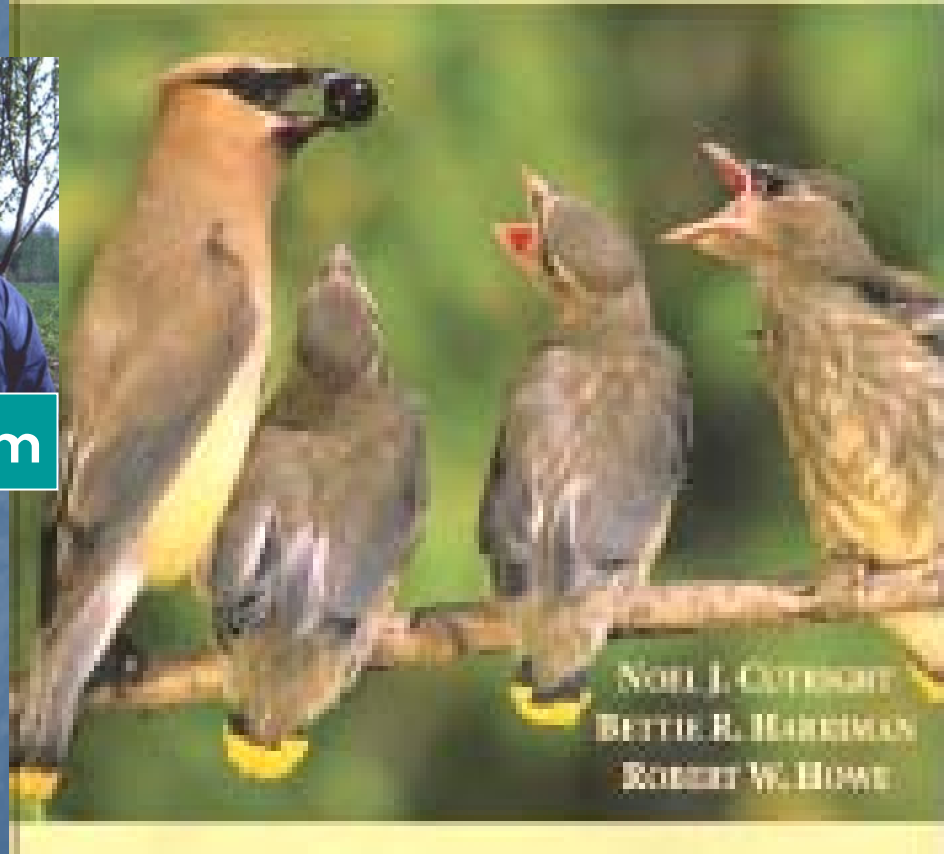
**Wisconsin Birdlife**

Population & Distribution - Past & Present



Samuel D. Robbins, Jr.

ATLAS of the  
**Breeding Birds**  
of **Wisconsin**



NOEL J. COTRIGHT  
BETTIE R. HARRISON  
ROBERT W. HOWE



**What is the species of  
berry on the front  
cover of the book?**





**Black Cherry**  
*Prunus serotina*





# Project Chronology

1993 – First Discussions

1994 – Planning & Organizing

1995-2000 – 6 Years of Field Work

2001-2002 – Data Submissions/Analysis

2003 – Writing, Data Presentation, Editing

2004 – Apr. – Manuscript Delivered to UW Press

2005 – Aug. – Manuscript Retrieved from UW Press

2005 – Fall - Hired Sans Serif Inc. for Design & Layout

2006 – Mar. - Hired Printer, Worzalla, Stevens Point

**2006 – May – 3,000+ Books Delivered**



# Atlas Contributions >\$500

## Government Agencies:

**WDNR**

**National Fish & Wildlife Fnd.**

**BLM**

**USFS**

**106  
Species  
Adopted**

## WI Foundations, NGOs, & Businesses:

**American Transmission Company**

**Arthur J. Donald Family Foundation**

**Bradley Foundation**

**Bradley Fund for the Environment**

**Consolidated Papers Foundation**

**Kaytee Avian Foundation**

**Madison Community Foundation**

**Society of Tympanuchus**

**Cupido Pinnatus**

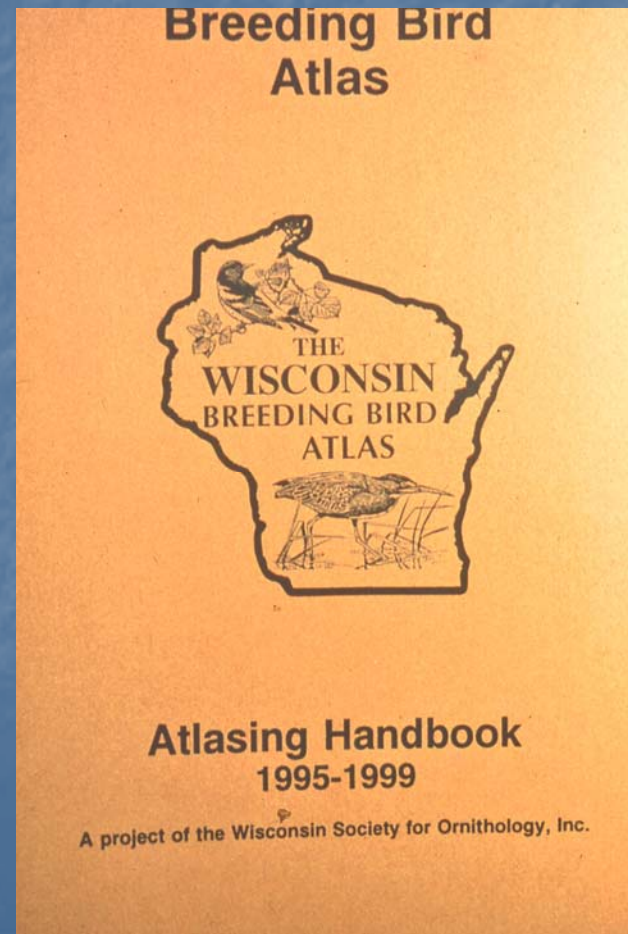
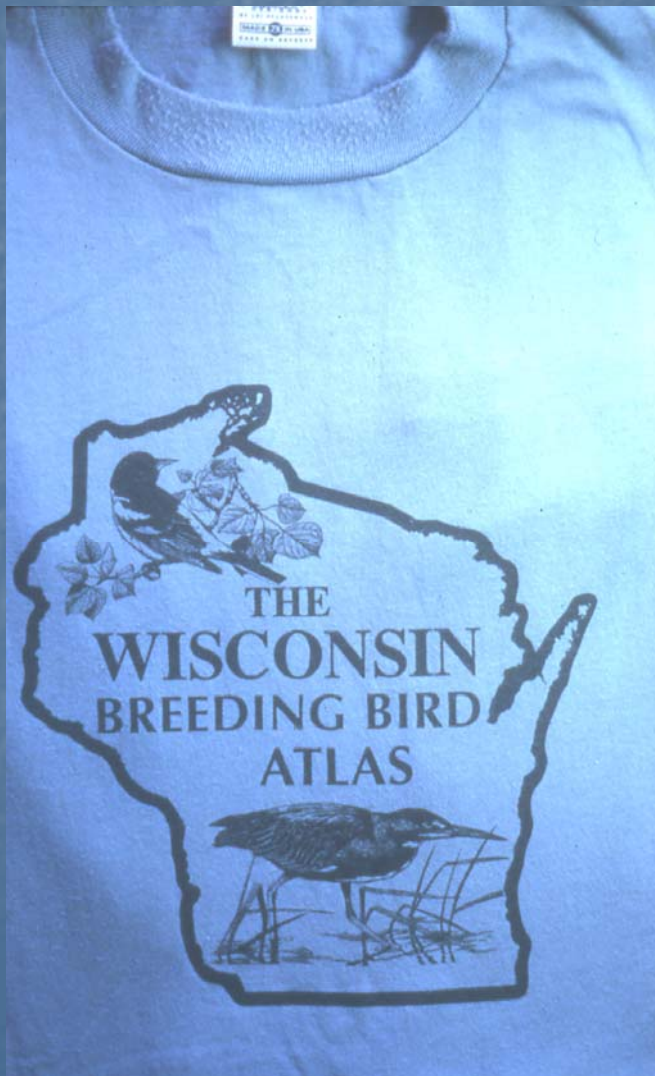
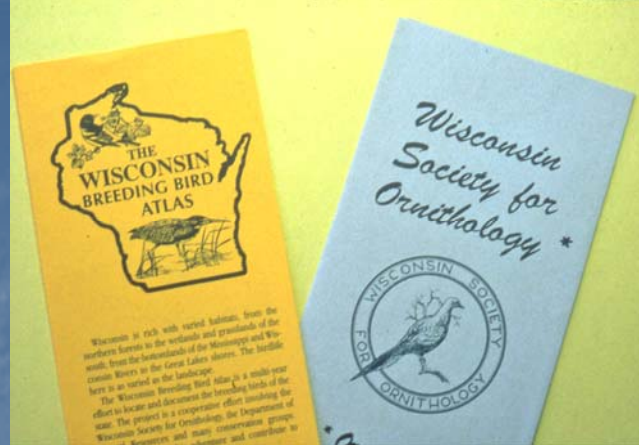
**The Nature Conservancy**

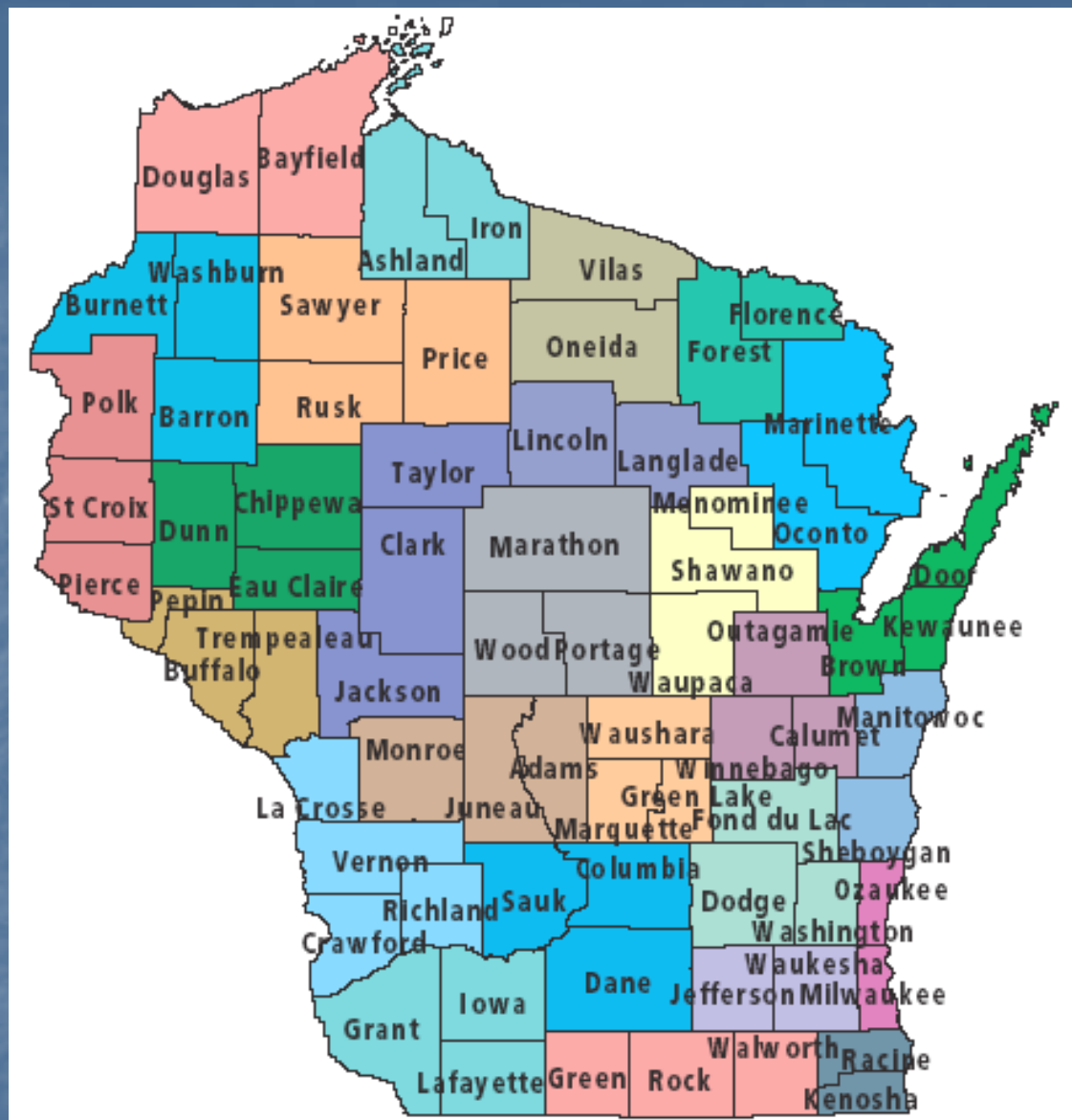
**We Energies**

**Weyenberg Charitable Trust**

**Windway Foundation**

**Zoological Society of Milwaukee**





27 Atlas Regions

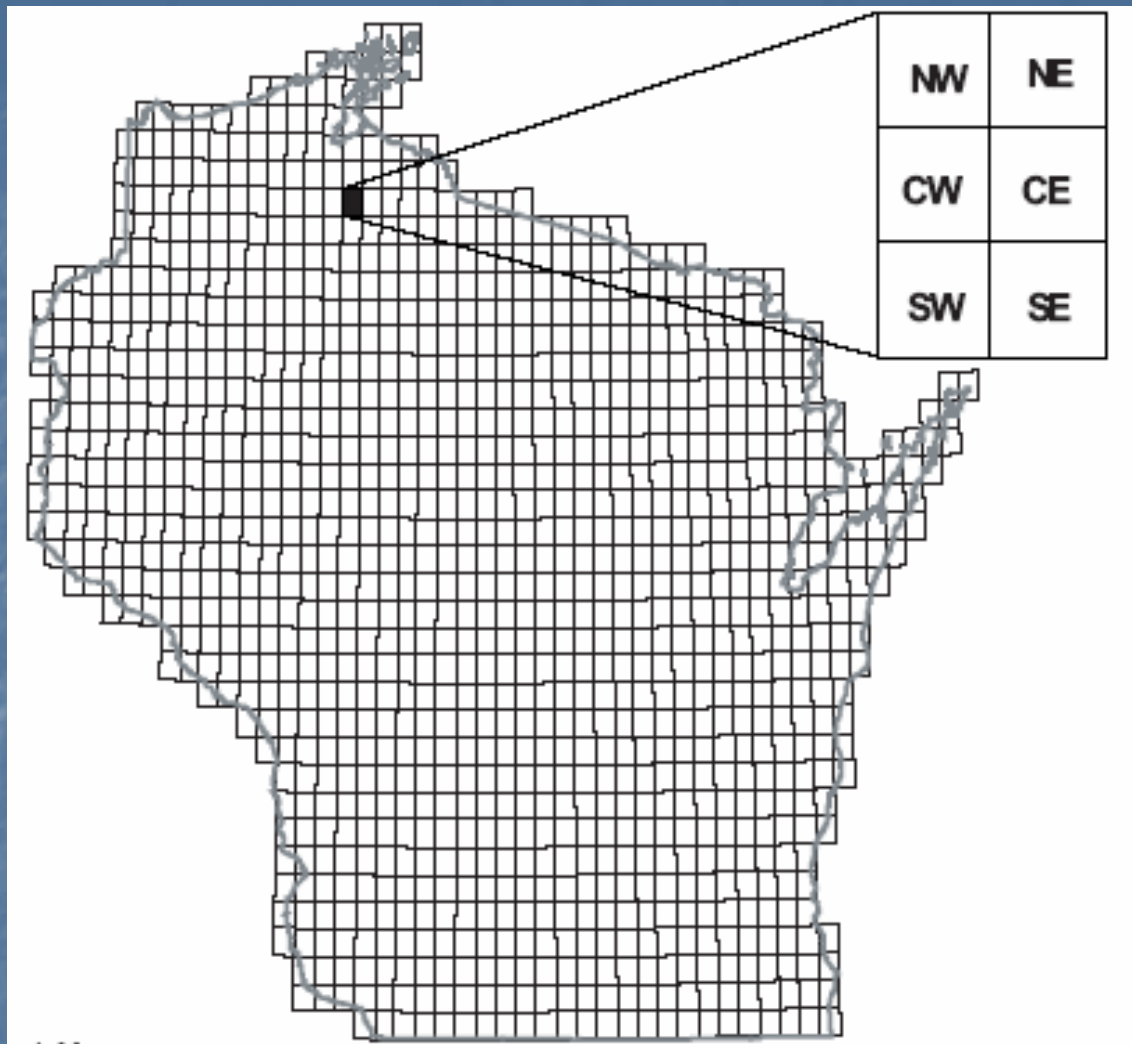




Wisconsin contains  
1,132 topo quads, for a  
max. of 6,692 blocks.

However, many blocks  
include >50% open  
water or are largely in  
a neighboring state &  
were not surveyed.

Atlas data were obtained  
from 3,854 blocks.



Quad and Block Map



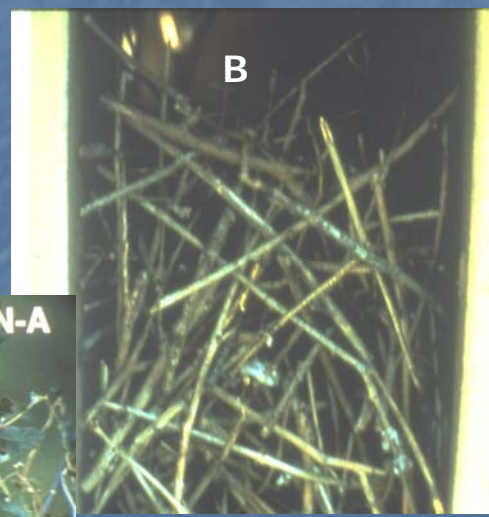
## Breeding Categories

- Observed
- Possible
- Probable
  - 8 Codes
- Confirmed
  - 11 Codes





# Probable Breeding Categories





**Confirmed Breeding Category**





**TABLE 1: Number of Submitted Field Cards/Casual Observation Forms by Year**

<b>Year</b>	<b>Casual Form</b>	<b>Field Card</b>	<b>Total</b>
1995	395	663	1058
1996	305	546	851
1997	352	713	1065
1998	306	694	1000
1999	442	748	1190
2000	267	176	443
<b>Totals</b>	<b>2067</b>	<b>3540</b>	<b>5607</b>



## ***Wisconsin Breeding Bird Atlas*** **Data Management Center**



**Richter Museum of Natural History, University of Wisconsin-Green Bay**



**226 species  
were Confirmed as breeding**

**9 species were  
indicated as  
Probable breeders**

**And 2 species were only  
Possible breeders**



**Which species was reported most frequently?**







**TABLE 2: Most frequently reported bird species by quad (topographic) map. All species reported from the quad are included, regardless of breeding status.**

Species	Number of Quads	% of Quads
American Robin	1081	95.7
Song Sparrow	1072	94.9
Red-winged Blackbird	1064	94.2
Common Yellowthroat	1044	92.4
Chipping Sparrow	1043	92.3
Black-capped Chickadee	1037	91.8
American Goldfinch	1018	90.1
Indigo Bunting	1003	88.8
Blue Jay	1000	88.5
Gray Catbird	989	87.5
Eastern Kingbird	985	87.2
Eastern Phoebe	968	85.7
Red-eyed Vireo	963	85.2
Cedar Waxwing	963	85.2
Eastern Wood Pewee	960	85.0



# What 4 youngsters are pictured?





Red-shouldered



Moorhen



Turkey Vulture



Barred Owl



## Notable Achievements

Because coverage was nearly complete across the state, numbers of species reported for each quad do not simply reflect field effort.

Total number of species observed was correlated strongly with the number of probable or confirmed species



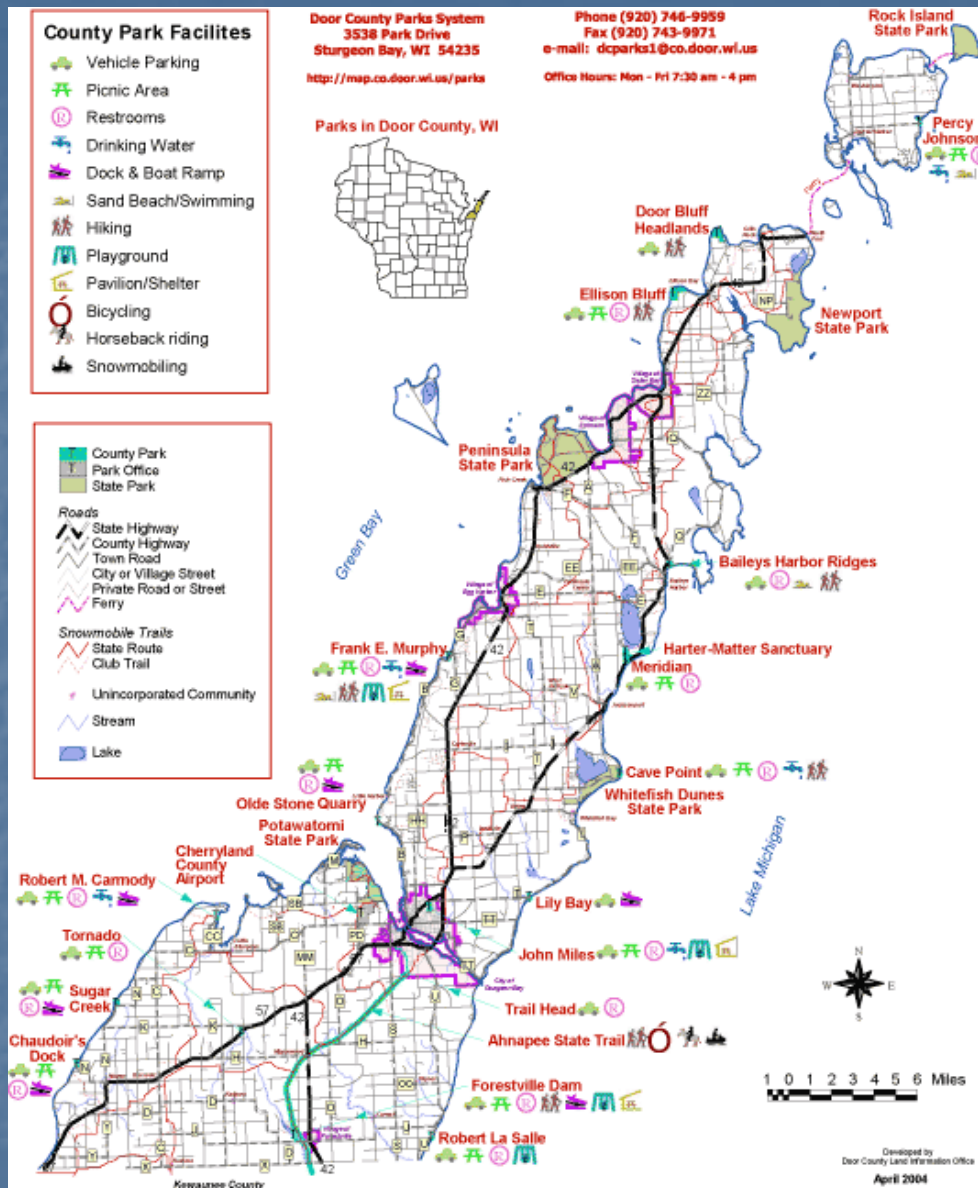
# Species Richness Patterns

**Ave. # species/quad = 83.5 species**  
**46 conf.**  
**24 prob.**  
**13 poss.**



**From what county was the largest number of species reported?**

**How many species?**



How many species?

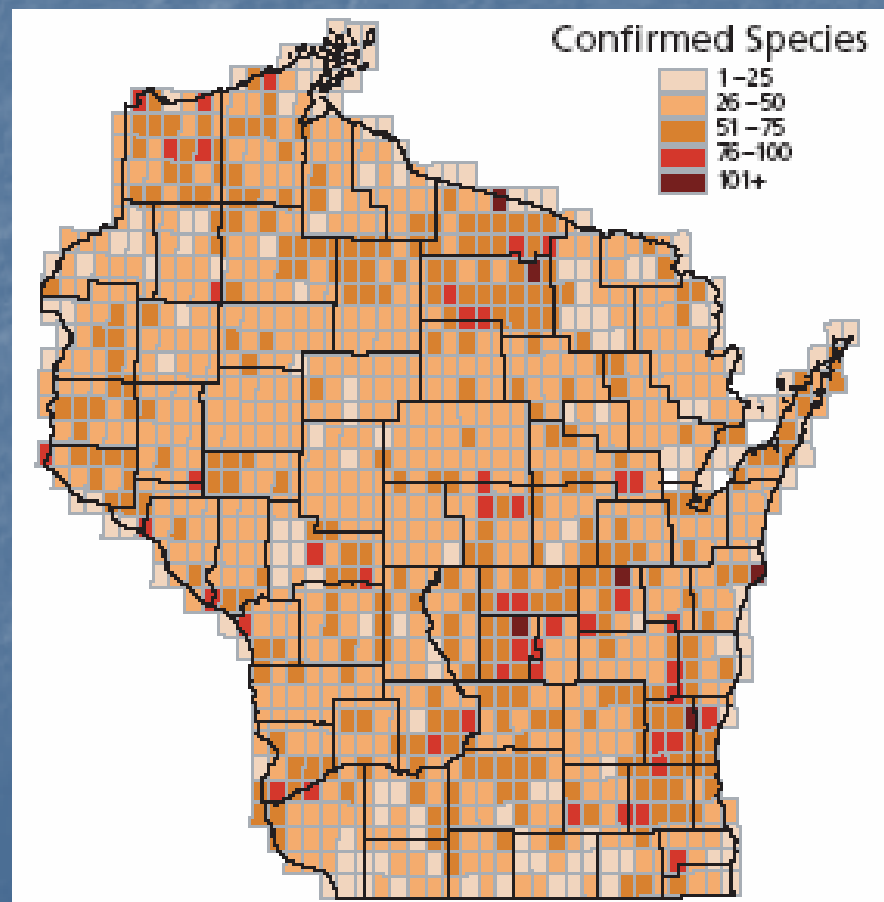
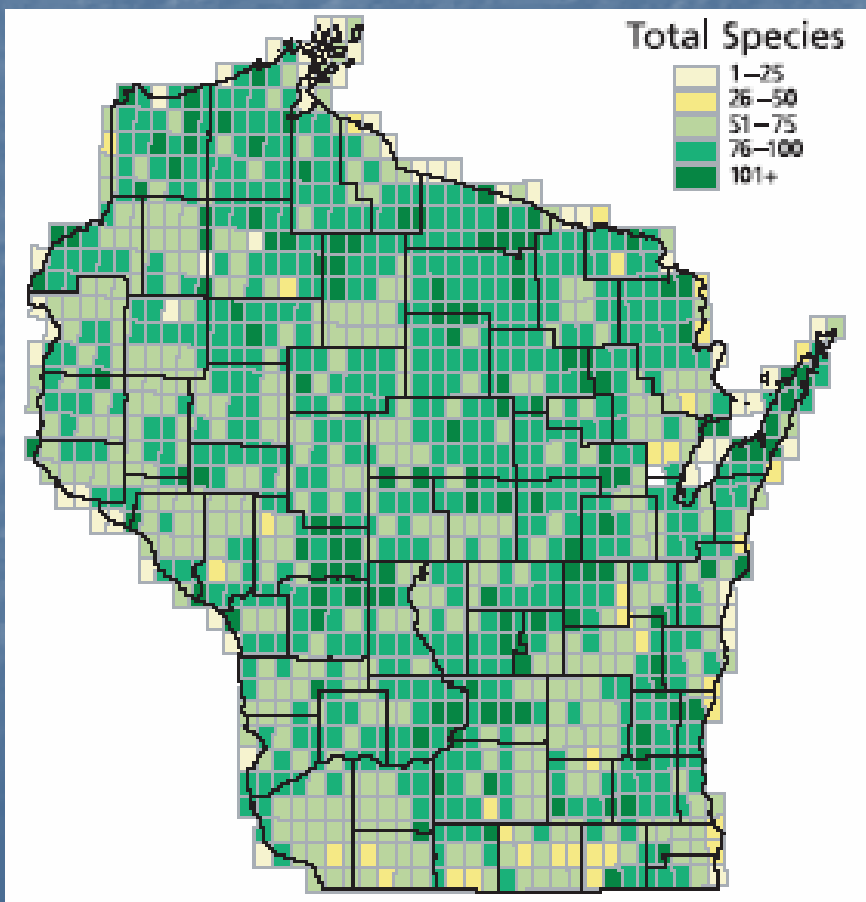
184

Followed by: Shawano (182), Oneida (180), Douglas (176), & Ashland/Vilas (173)





# Which quads had the greatest number of species?





## Northern

Three Lakes 144

Eagle River West 140

## Lake Michigan Coast

Two Rivers 139

Sturgeon Bay East 139

## Wetlands

Germania (Germania Marsh) 136

Kewaskum (Horicon Marsh) 125

## Rivers

Prescott (Miss. River) 136

Randall (St. Croix River) 135

## Lakes

Oshkosh NE (L. Winnebago) 138

Bark Bay (L. Superior) 128

## Others

Baraboo (Baraboo Hills) 135

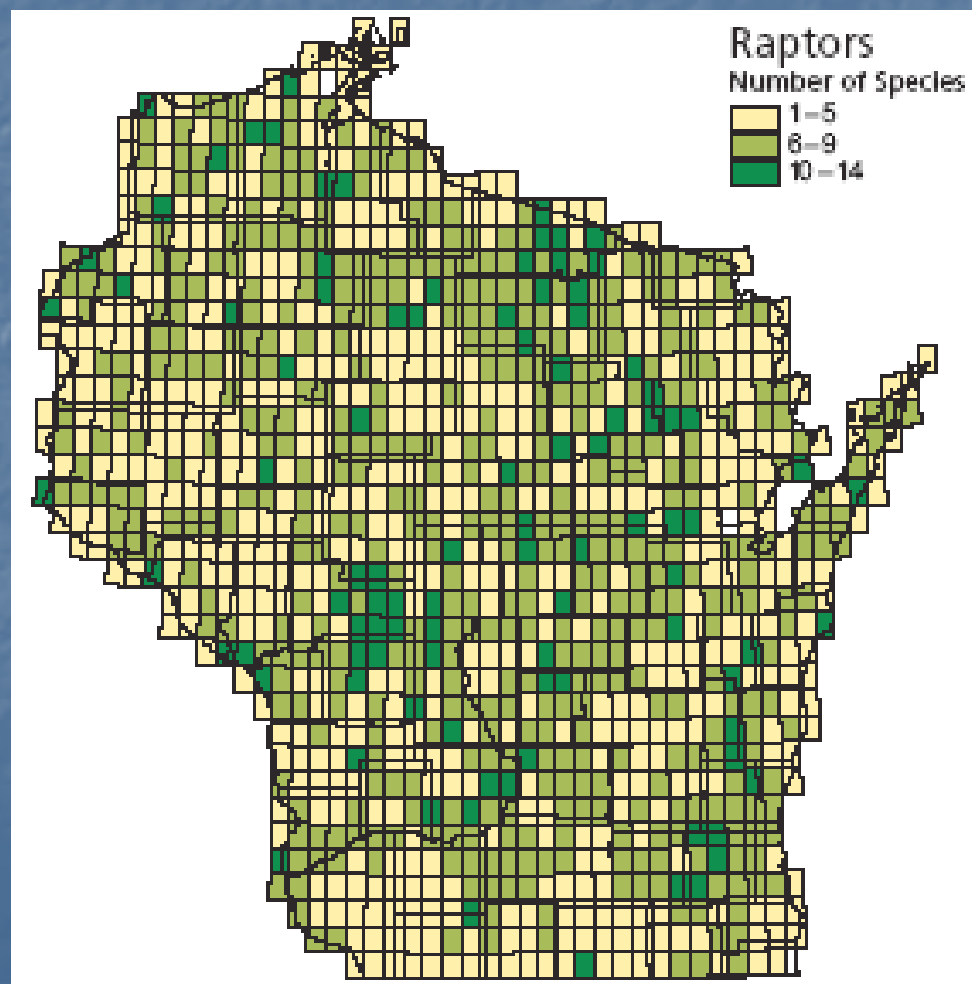
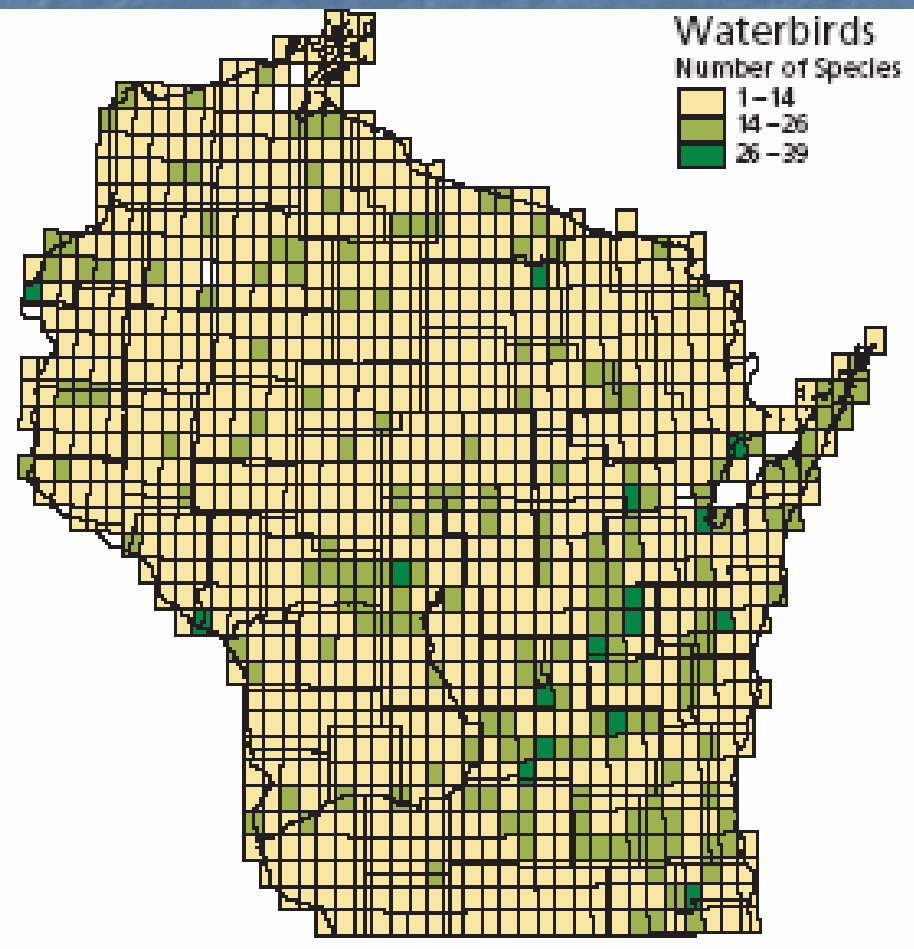
Lunds (Navarino SWA) 130

Warrens (Necedah NWR) 127

Newburg (Cedarburg Bog) 127

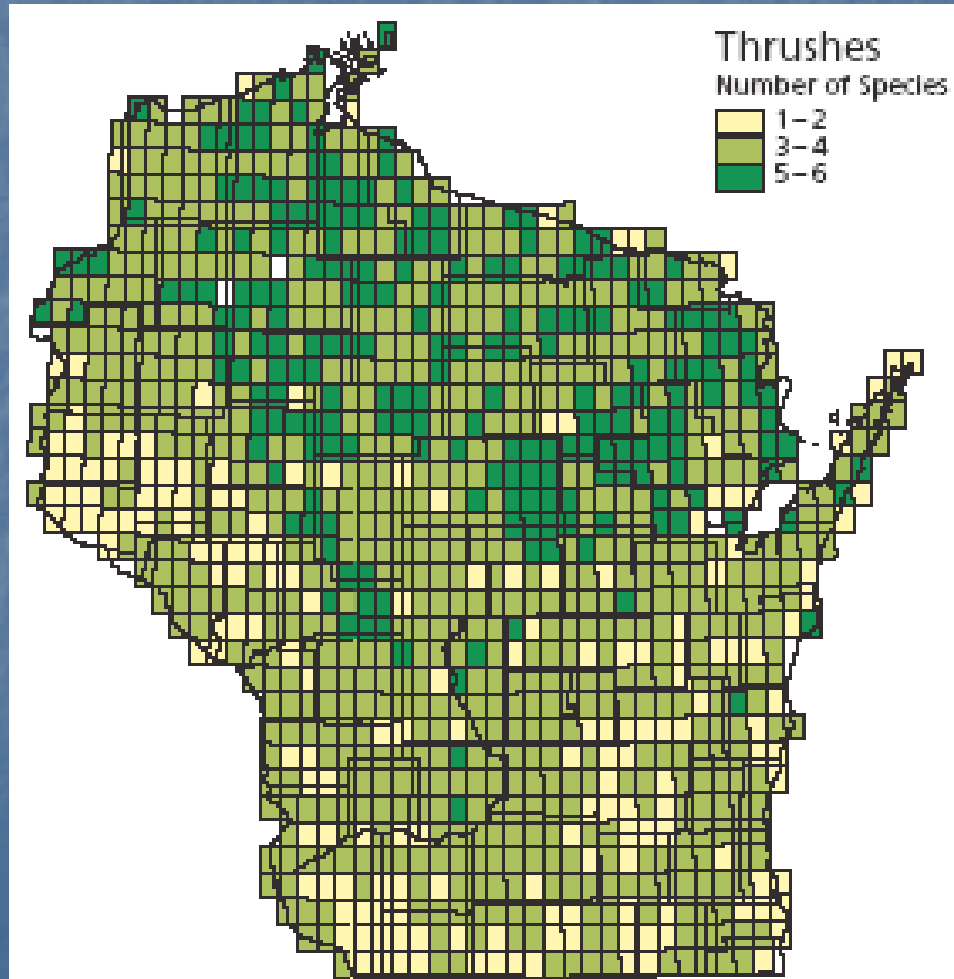
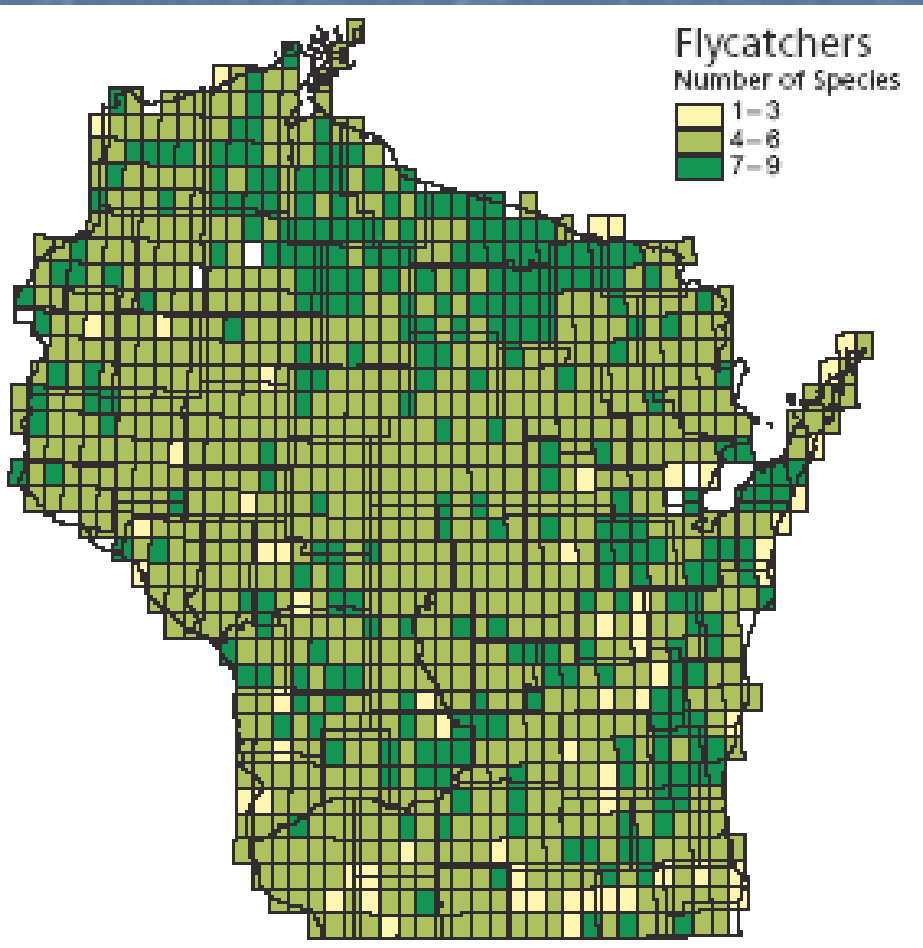


# Geographic distribution of waterbird and raptor species



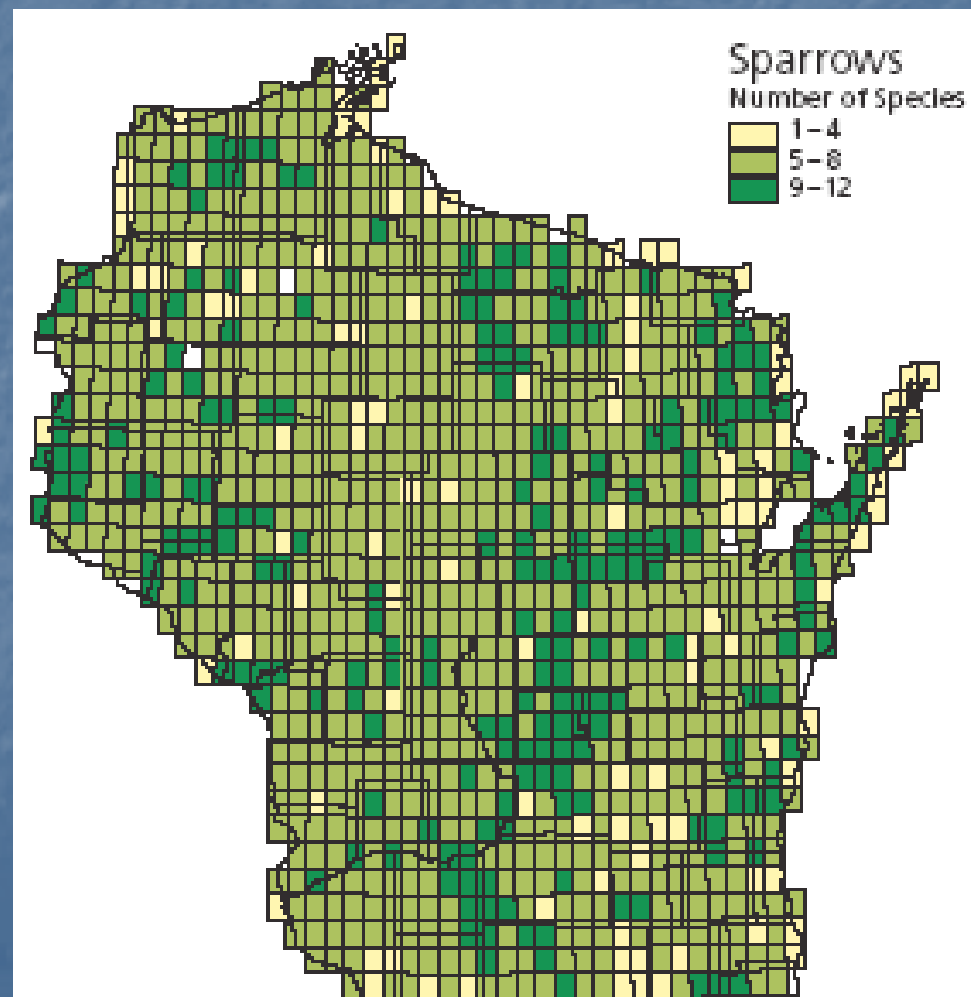
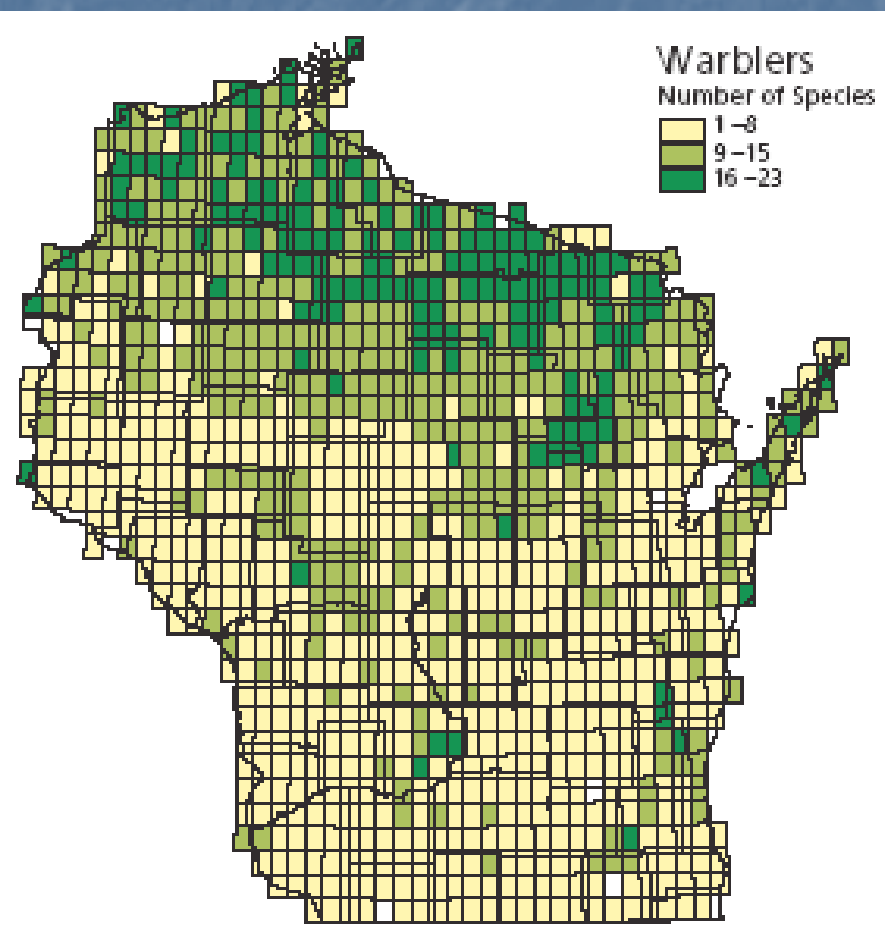


# Geographic distribution of flycatcher and thrush species



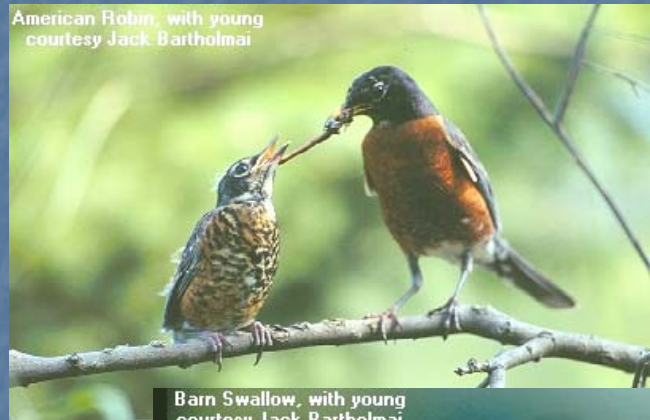
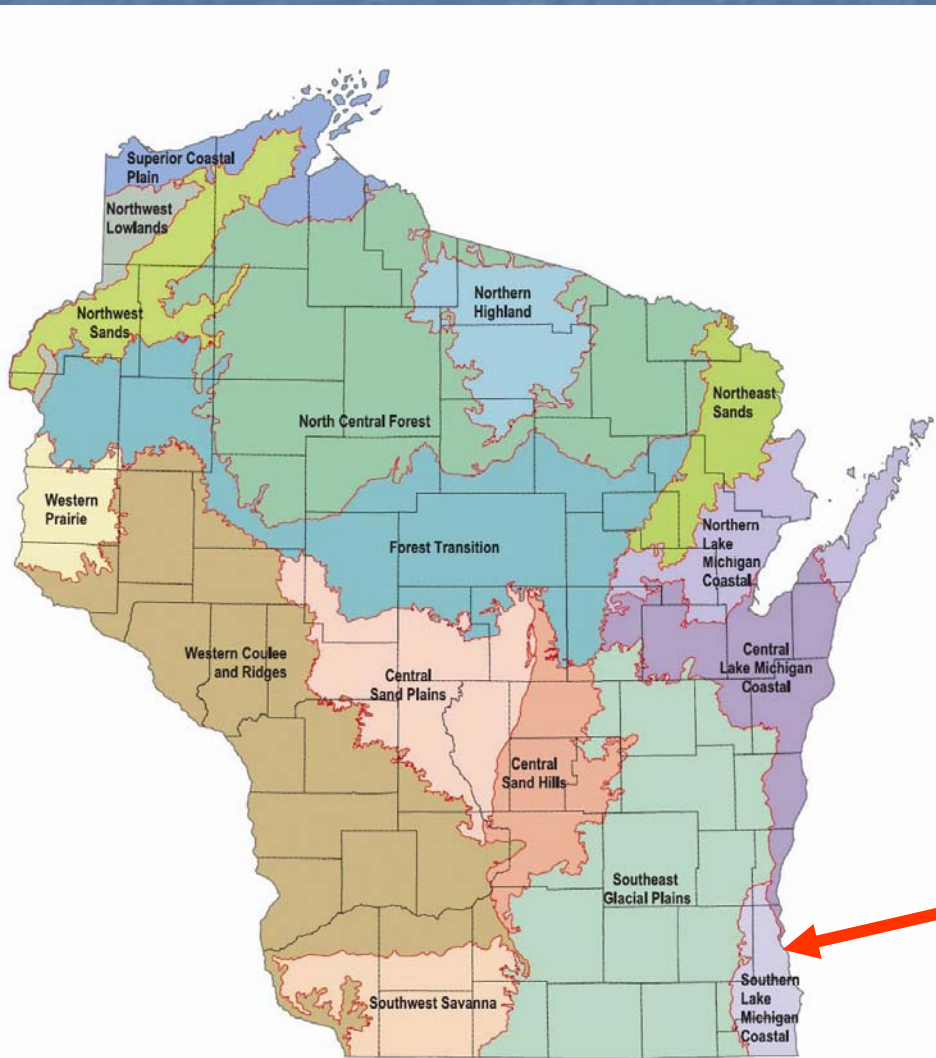


# Geographic distribution of warbler and sparrow species





# 16 Ecological Landscapes of Wisconsin



Southern Lake Michigan Coastal

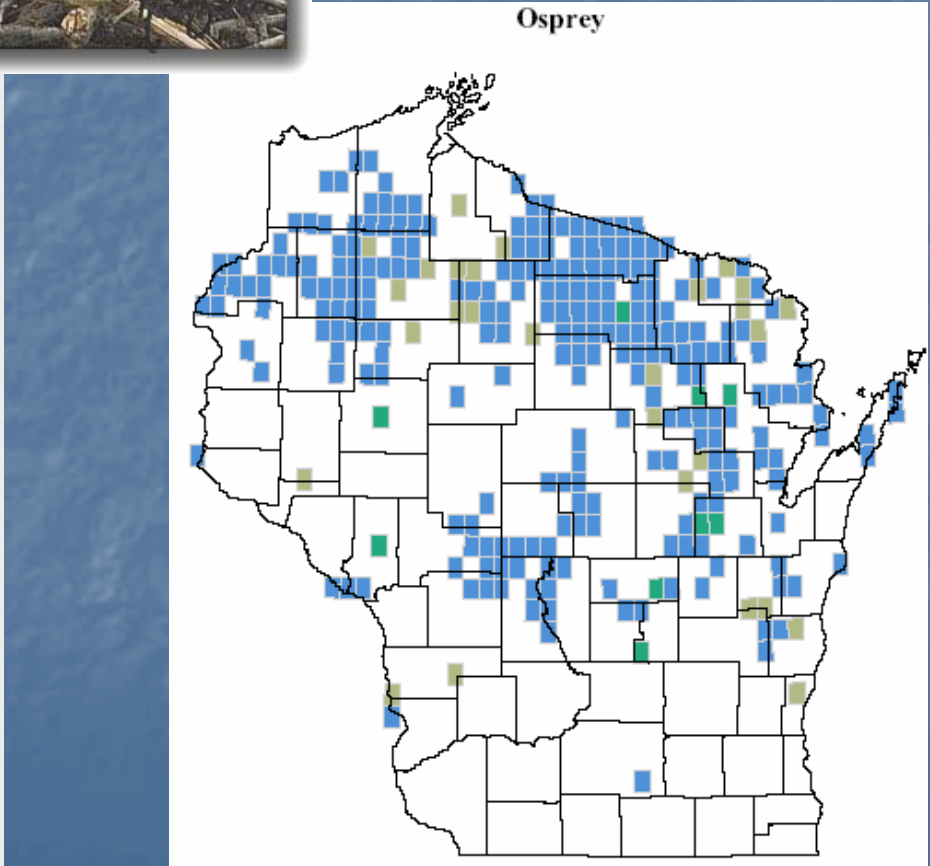
Birds typical of urban environments

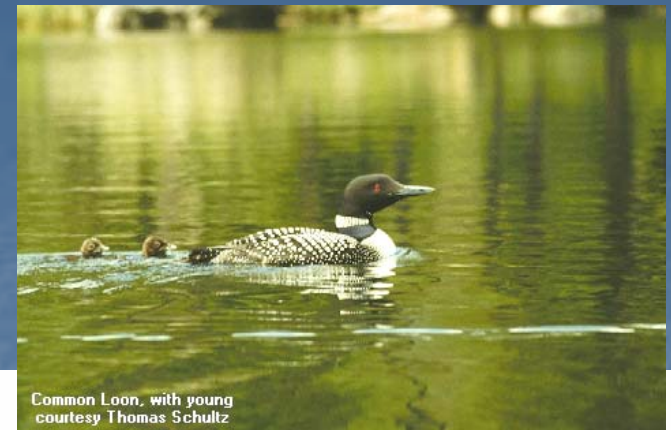
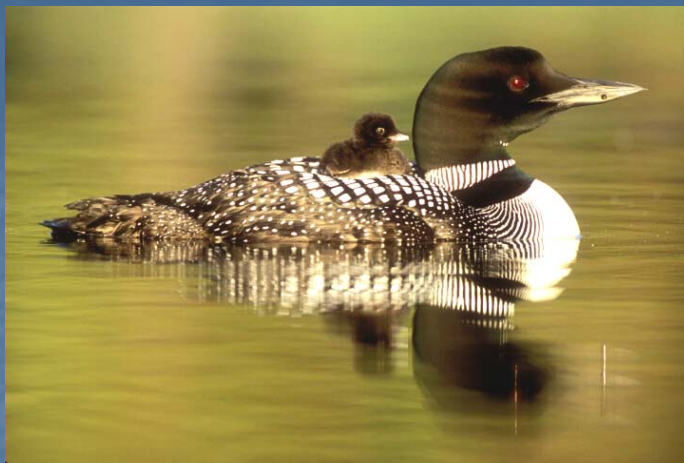


Osprey

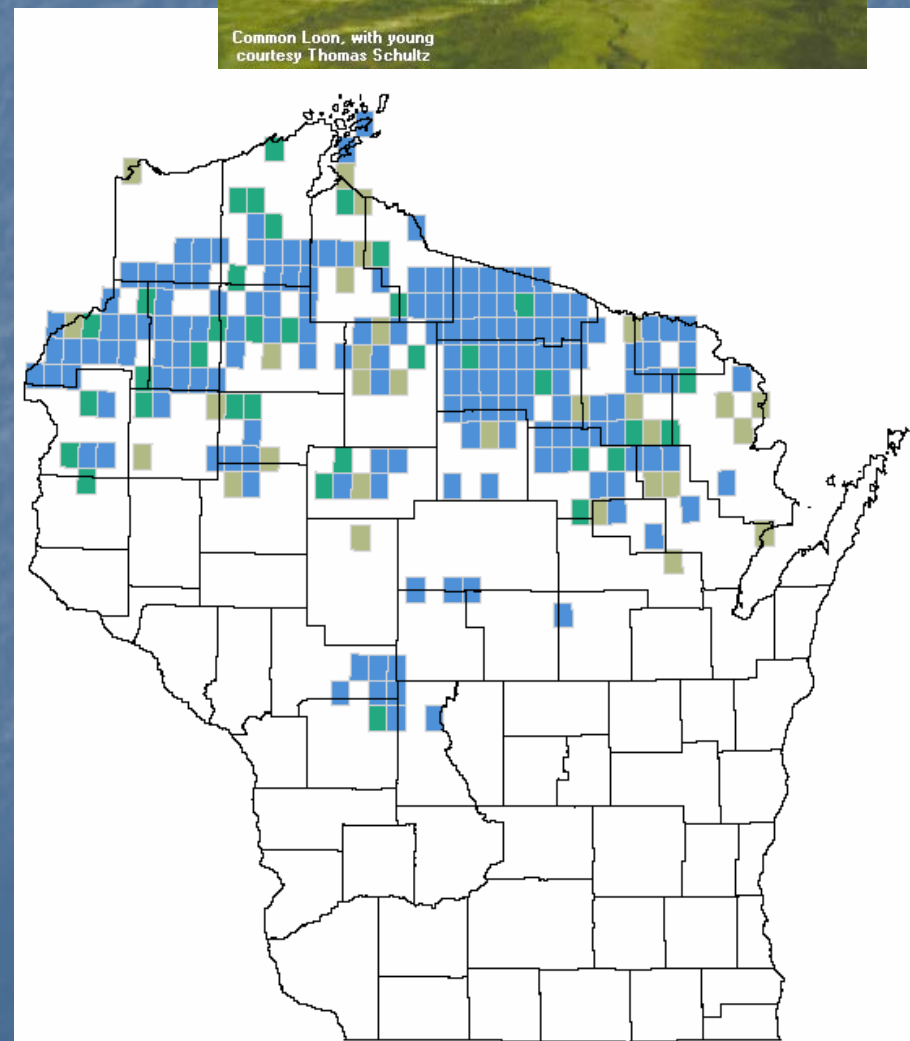
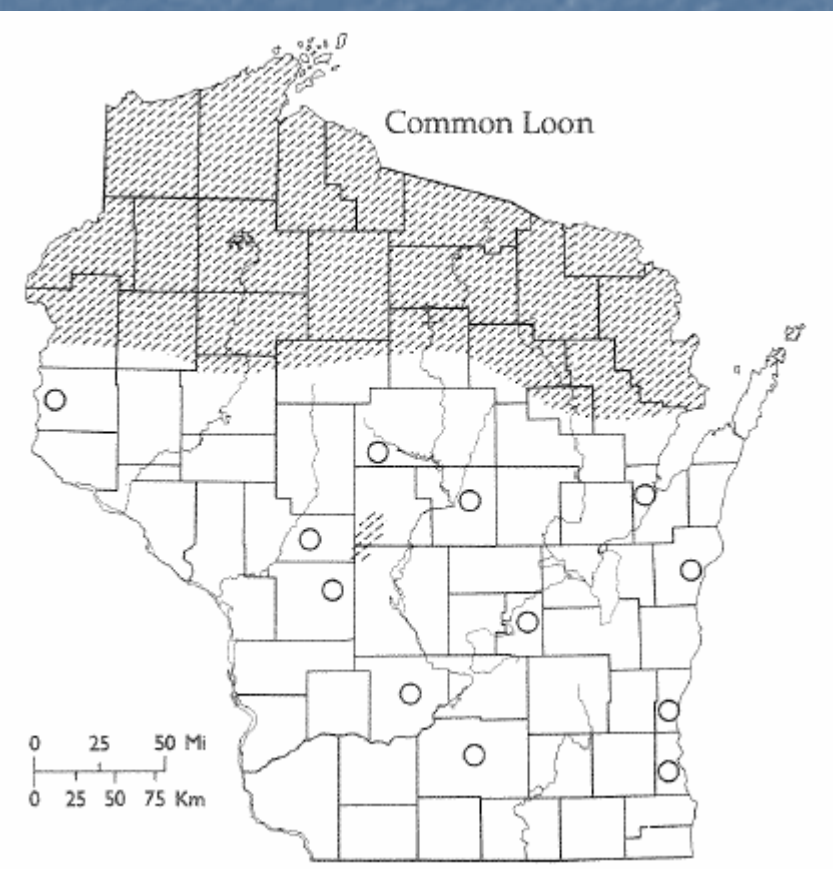


Osprey





# Common Loon







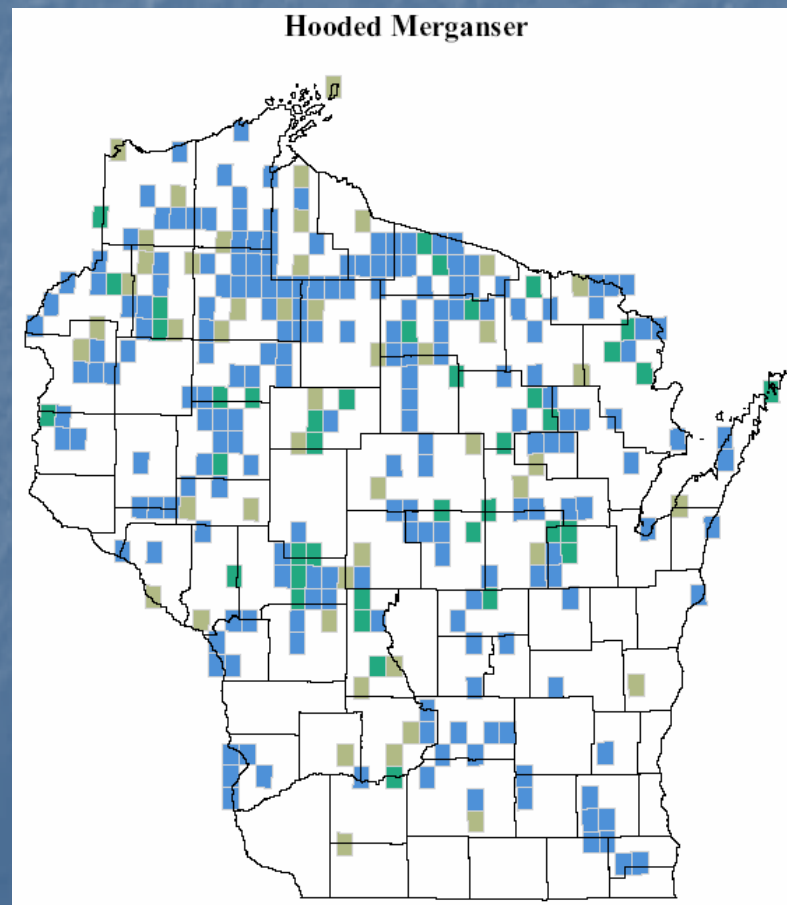
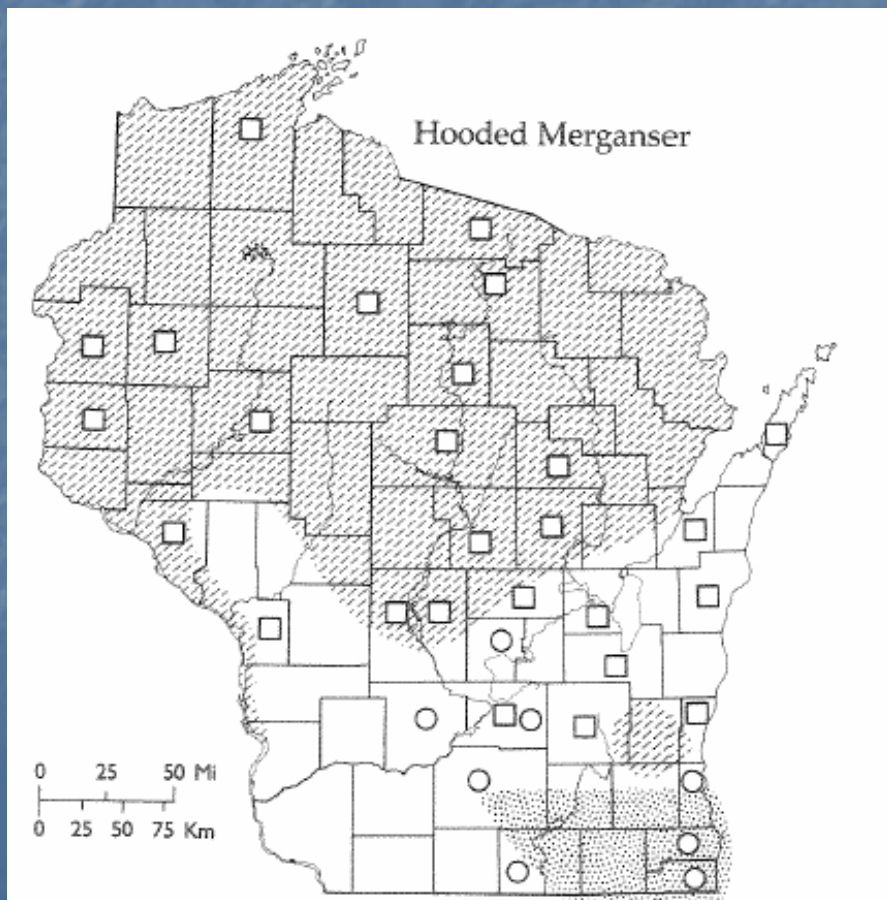
Hooded Merganser, male  
courtesy Jack Bartholmai



Hooded Merganser, female  
courtesy Thomas Schultz



# Hooded Merganser

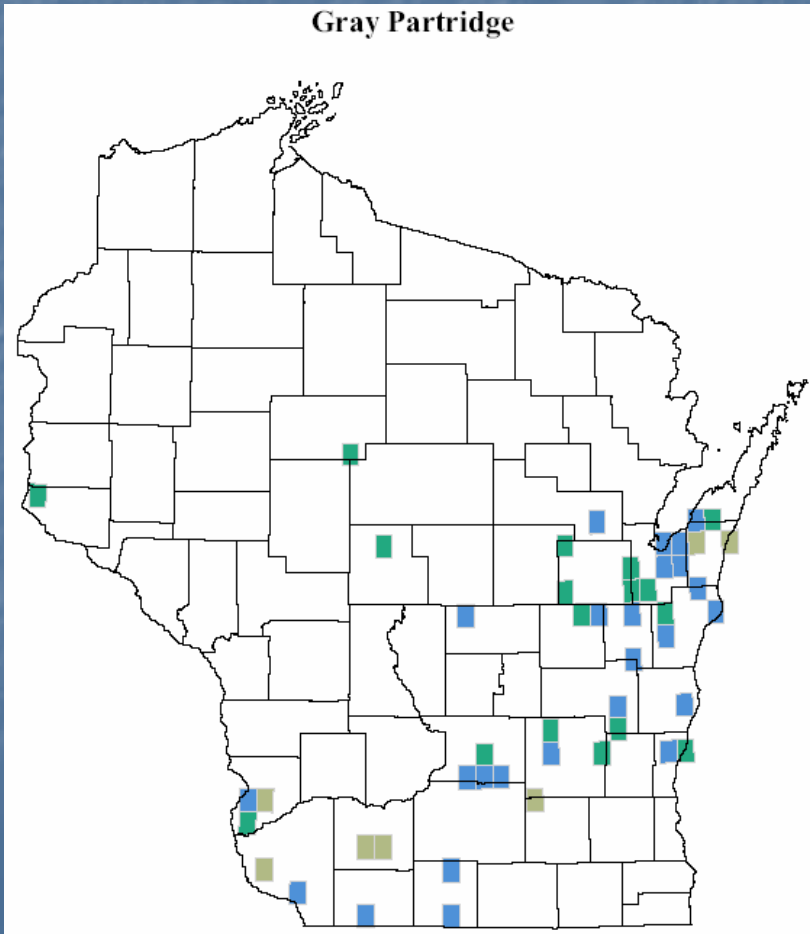
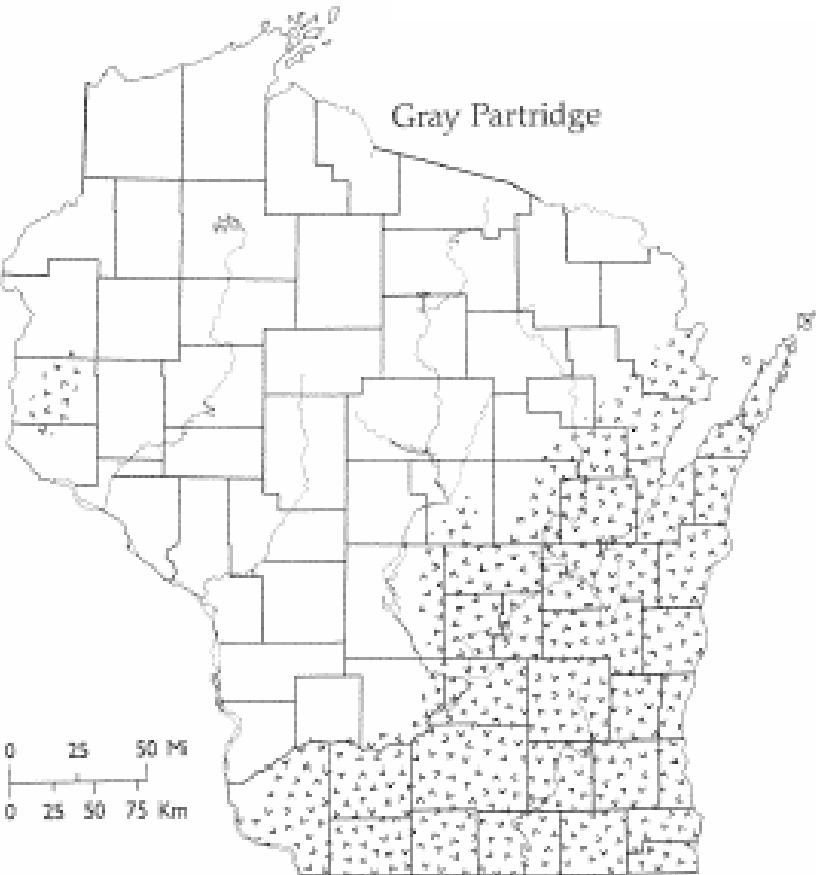




-14.8% WI  
-4.0% US  
1980-2005



**Gray Partridge**

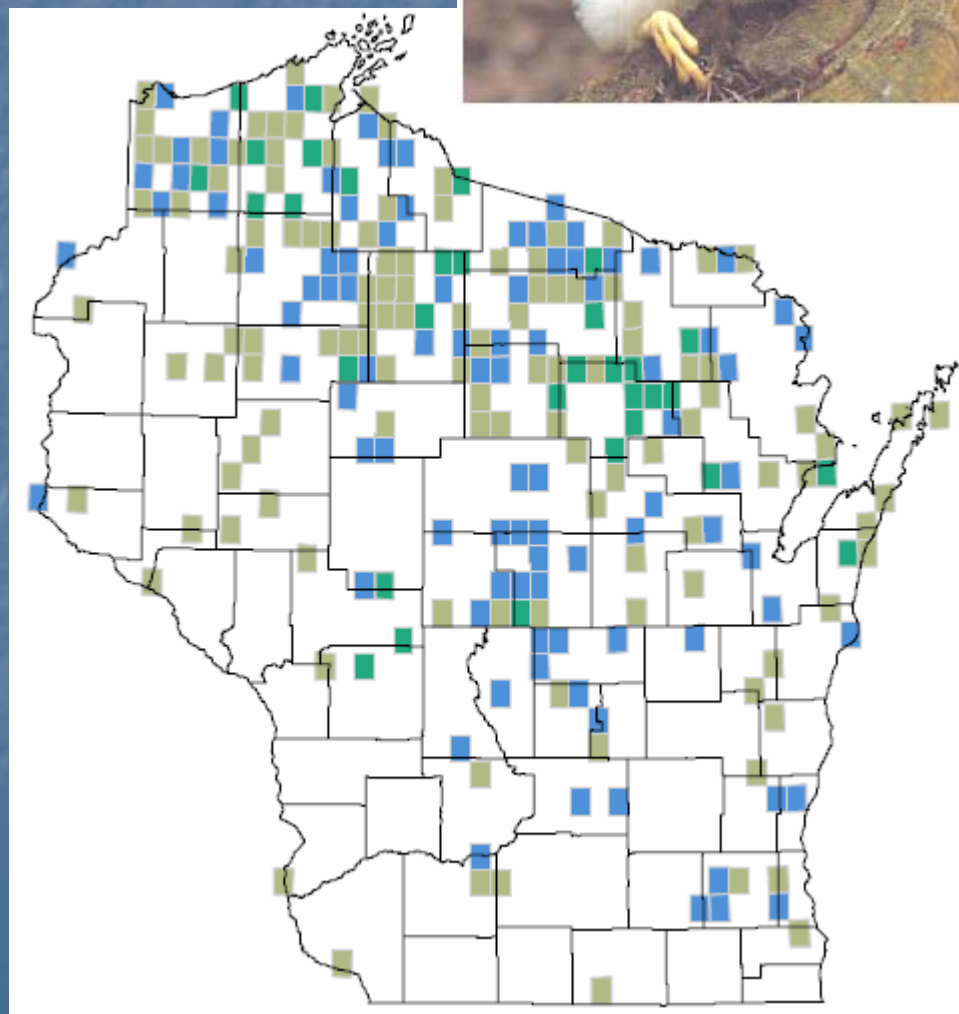
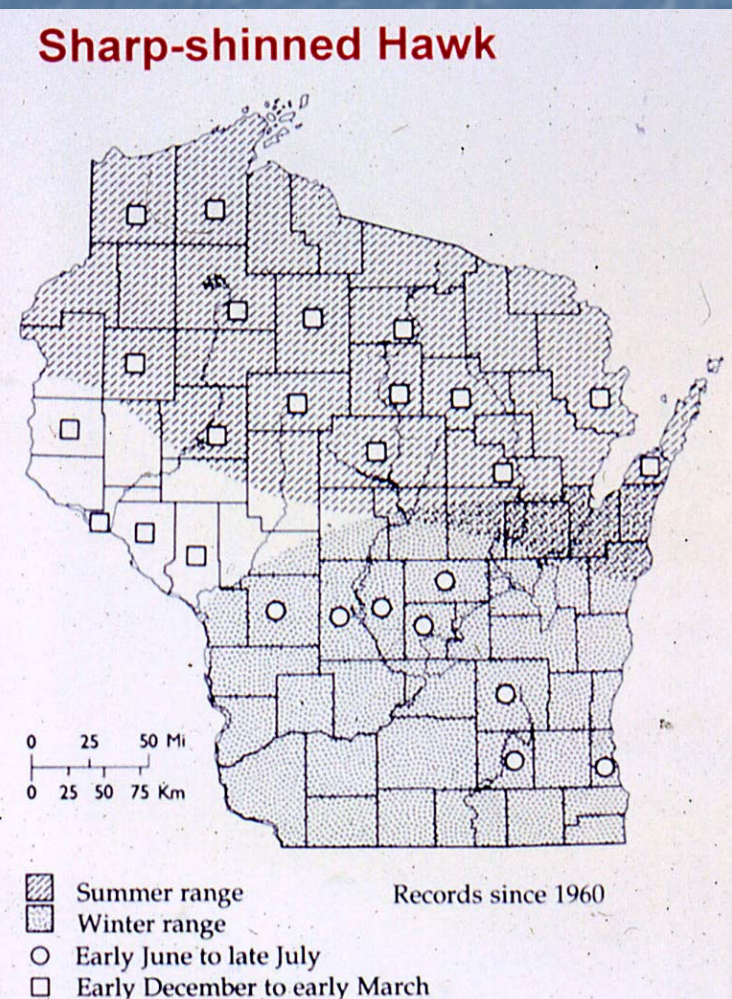




# Sharp-shinned Hawk

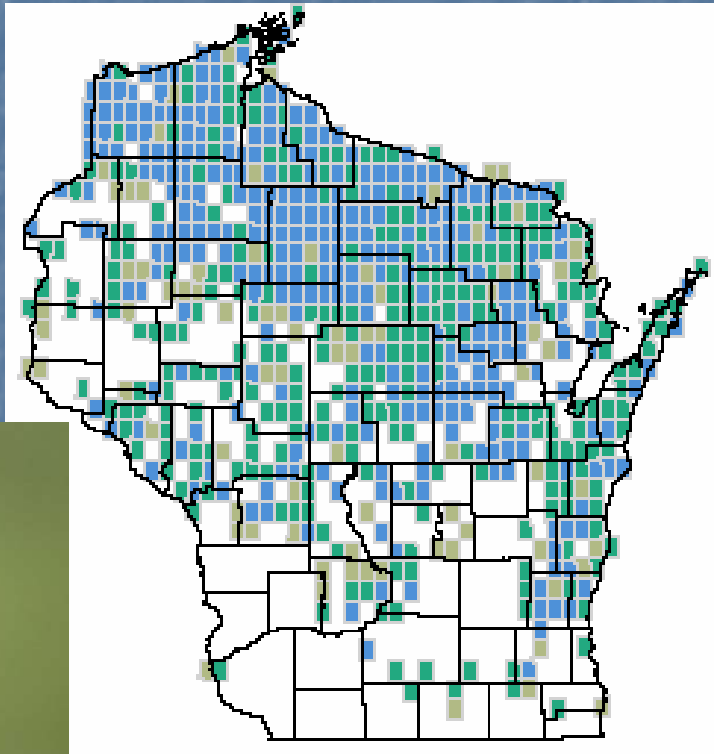
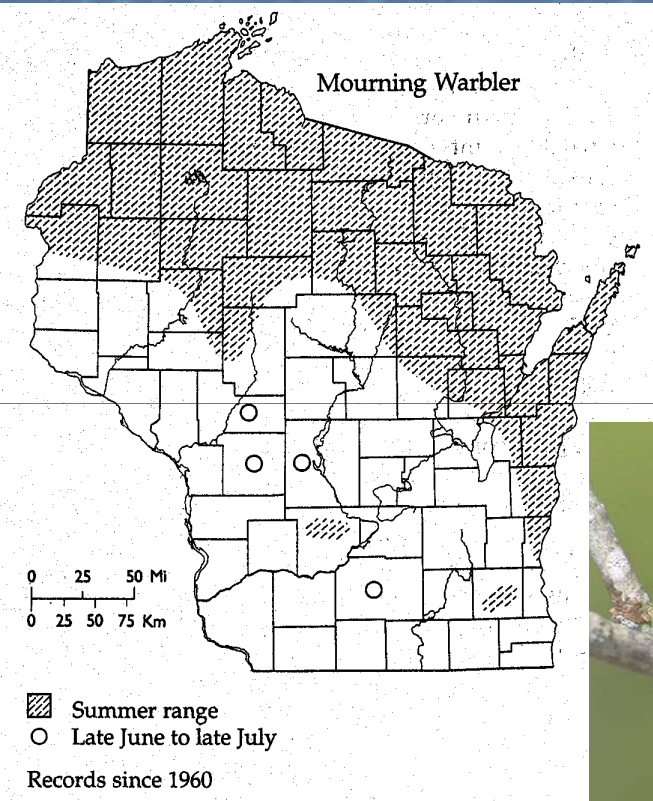


## Sharp-shinned Hawk





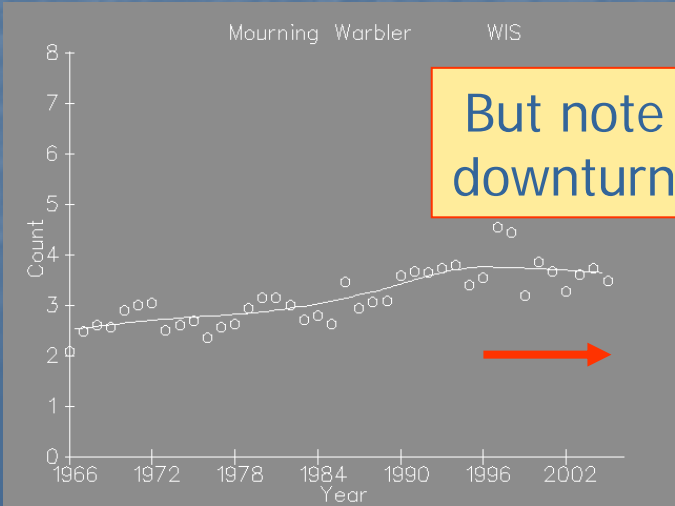
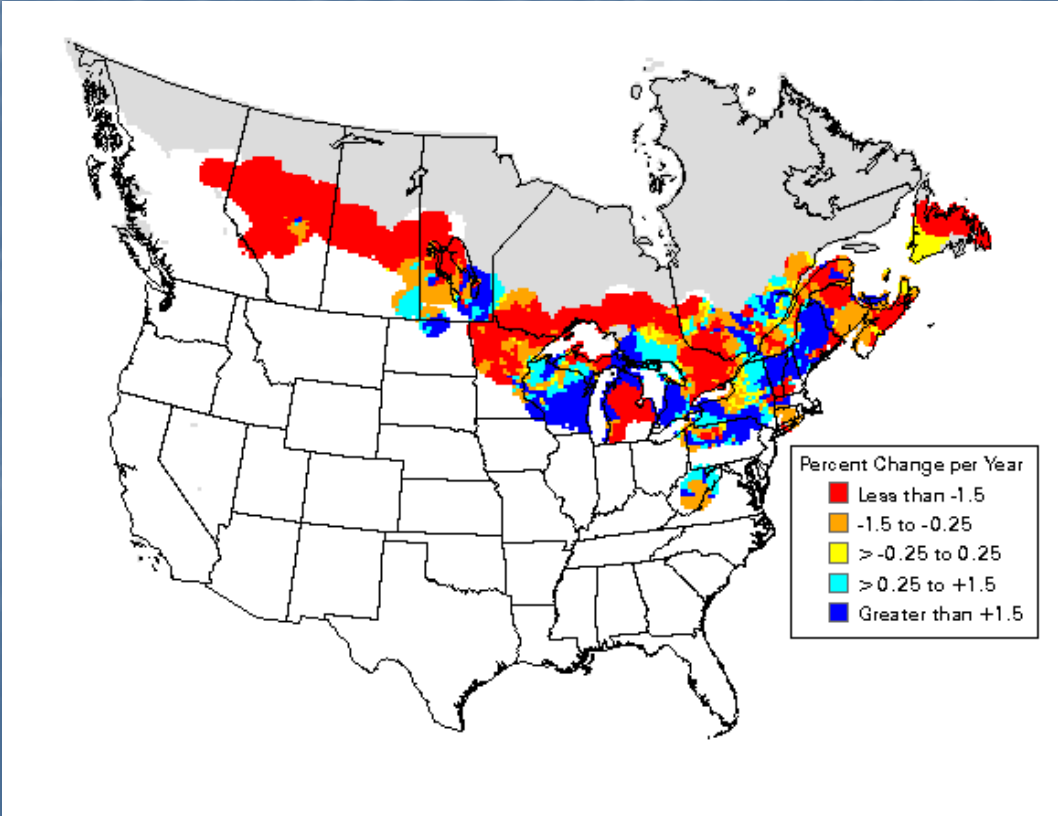
# Comparing Sam's map with the Atlas map, the species showing the greatest range expansion





# Mourning Warbler

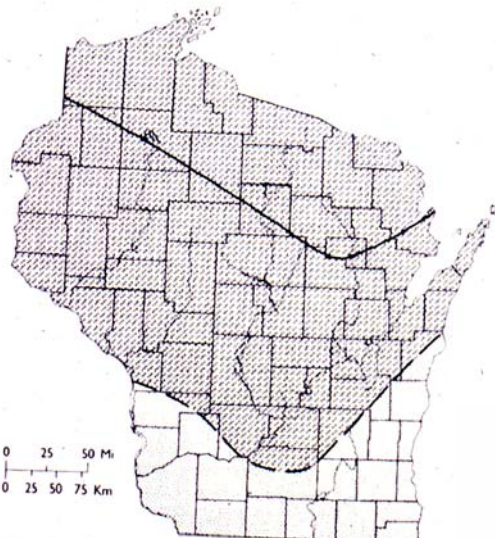
WI +1.1%  
63 WI rtes  
MN -1.2%





# Pine Siskin

## Pine Siskin

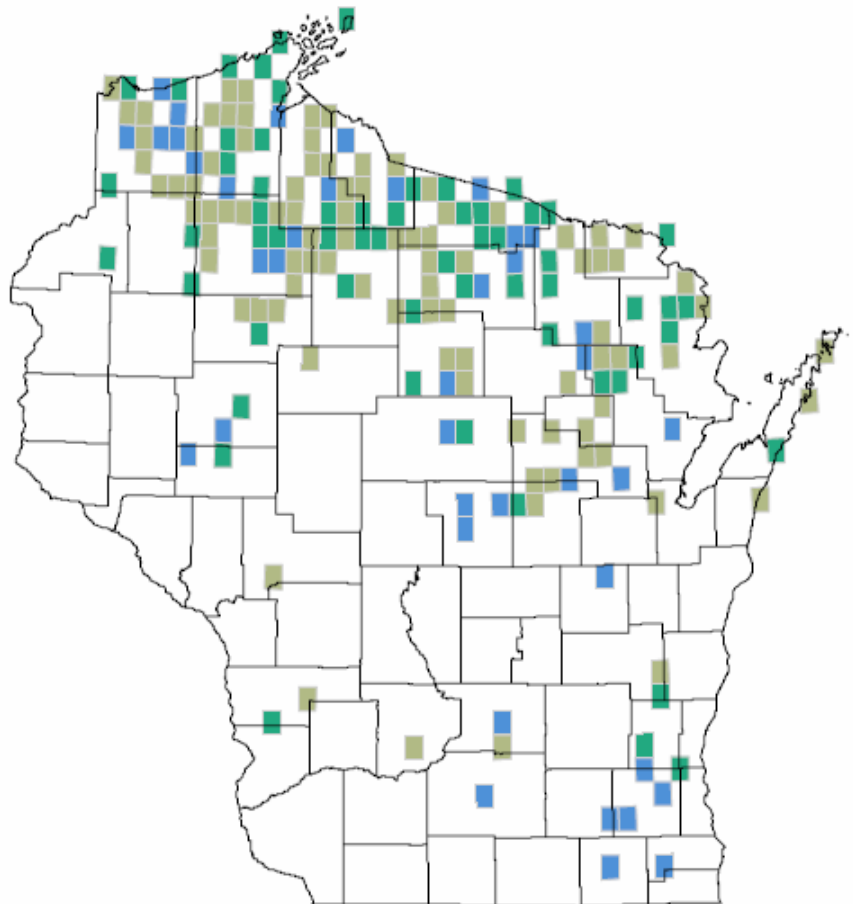
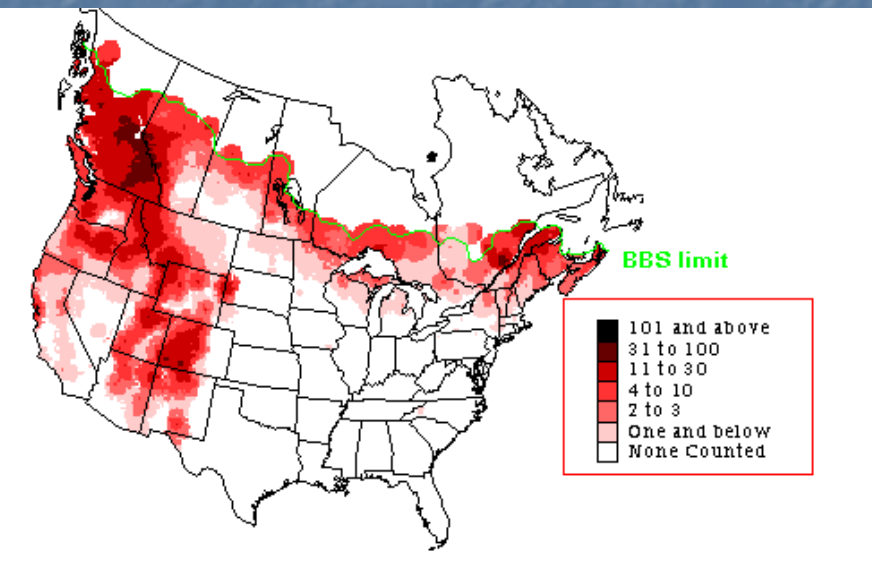
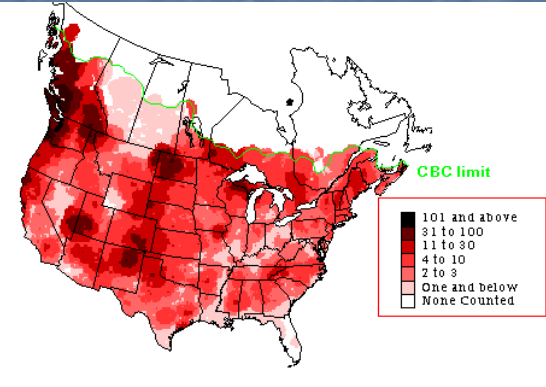


Records since 1960

- ▨ Summer range  
North of solid line: regular  
North of dashed line: irruptive
- ▨ Winter range



Pine Siskin





**Is the annual BBS trend for these 10 species significantly positive or negative from 1966-2005 for Wisconsin?**

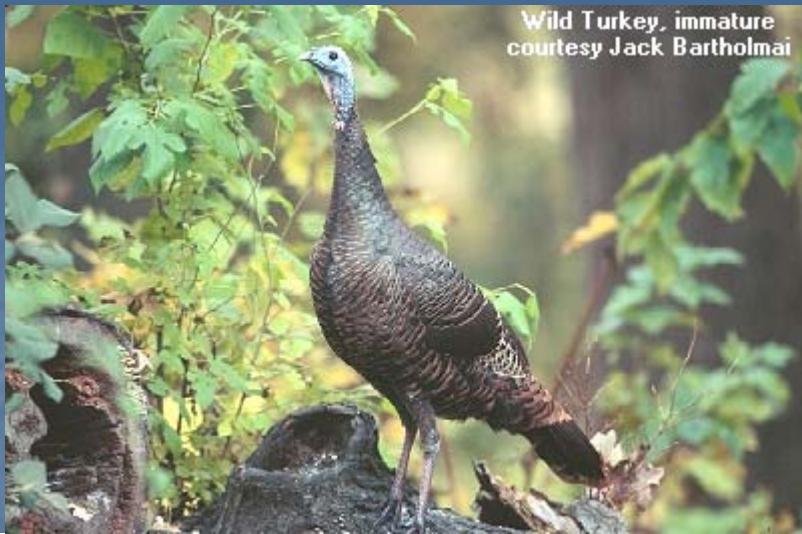
**Red-tailed Hawk  
Willow/Alder Flycatcher  
Brown-headed Cowbird  
House Sparrow  
Yellow-rumped Warbler  
Black-capped Chickadee  
Hermit Thrush  
Spotted Sandpiper  
Blue-winged Teal  
Savannah Sparrow**



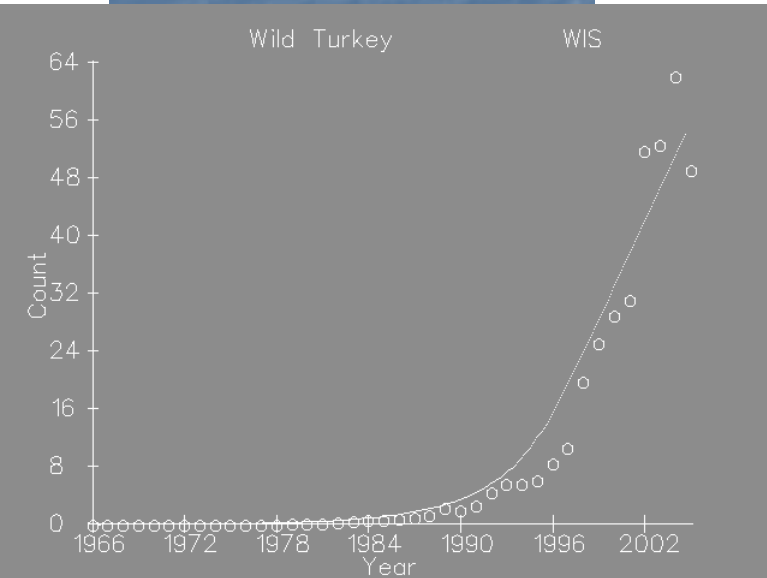
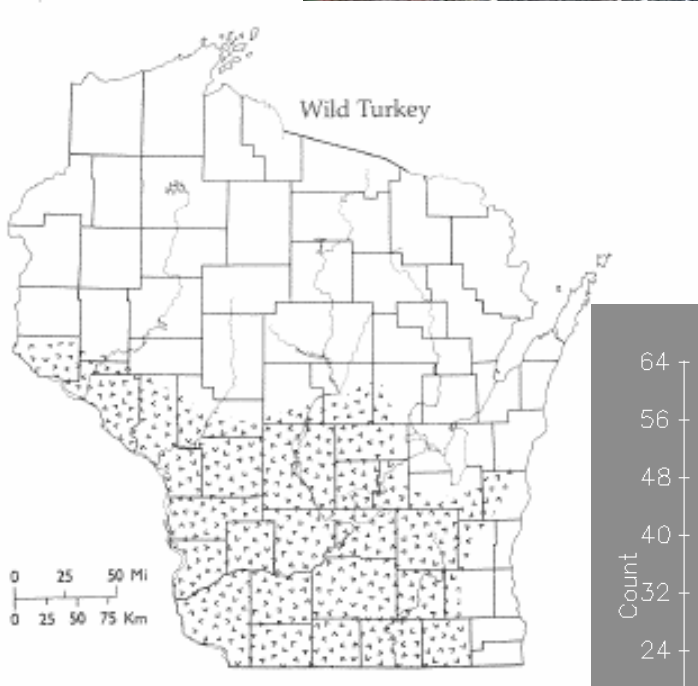
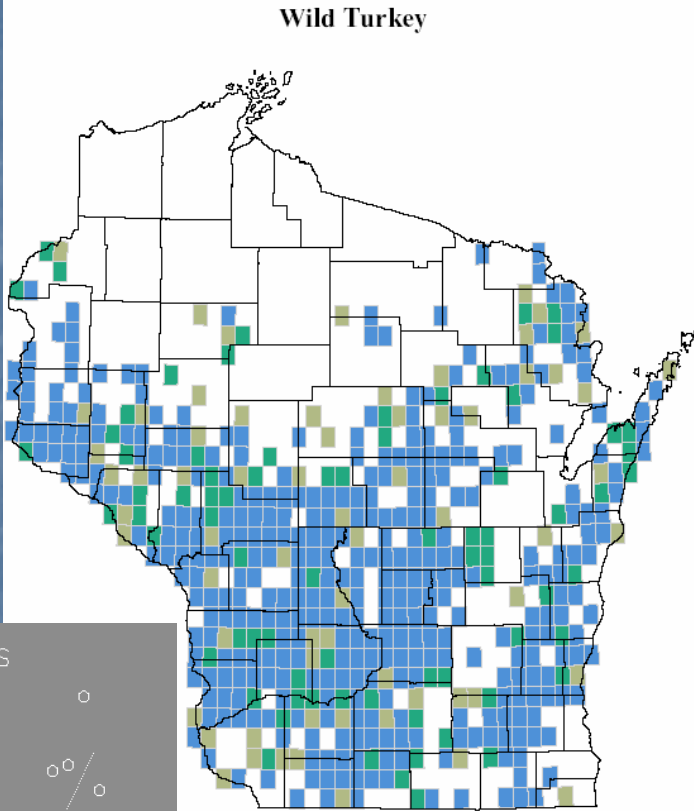
**Red-tailed Hawk**  
**Willow/Alder Flycatcher**  
**Brown-headed Cowbird**  
**House Sparrow**  
**Yellow-rumped Warbler**  
**Black-capped Chickadee**  
**Hermit Thrush**  
**Spotted Sandpiper**  
**Blue-winged Teal**  
**Savannah Sparrow**

**+2.4%**  
**+2.3%**  
**-2.4%**  
**-1.6%**  
**+2.3%**  
**+1.7%**  
**+1.8%**  
**-3.9%**  
**-3.0%**  
**-2.3%**





# Wild Turkey

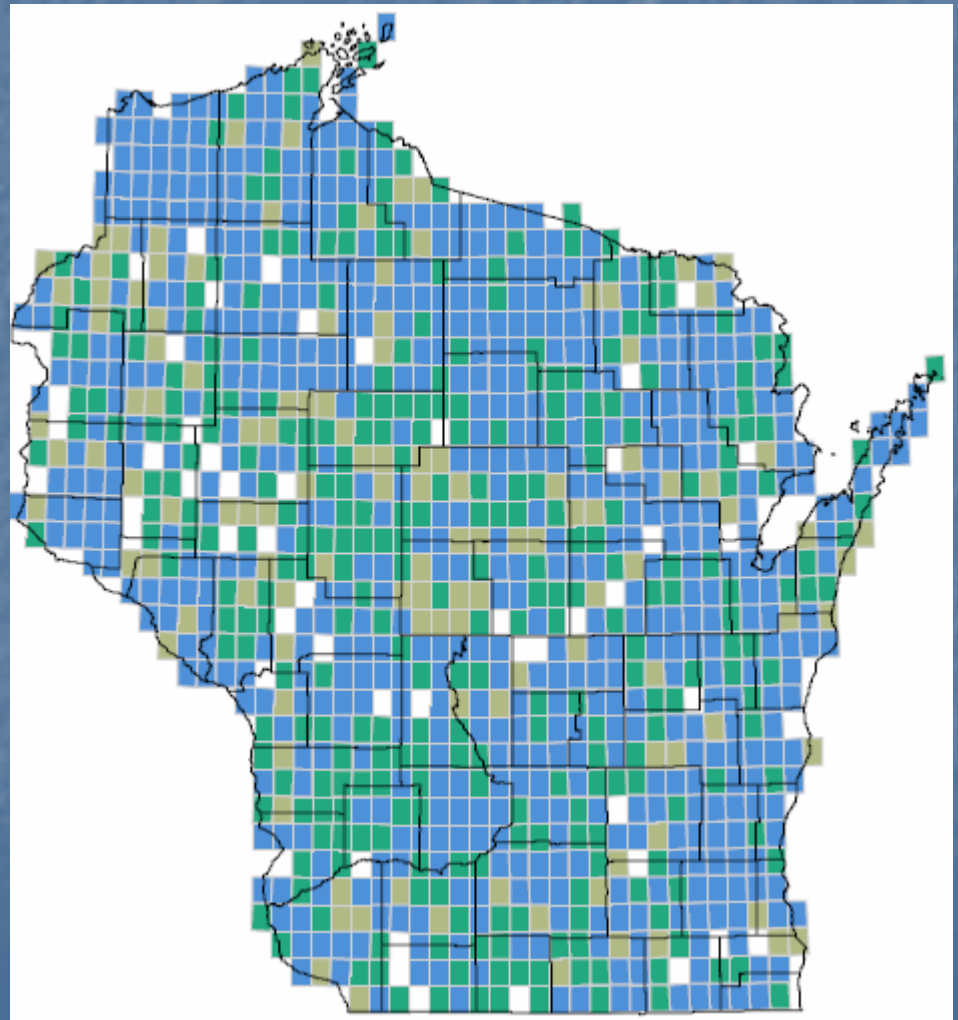




Northern Flicker, male at nest cavity  
courtesy Jack Bartholmai

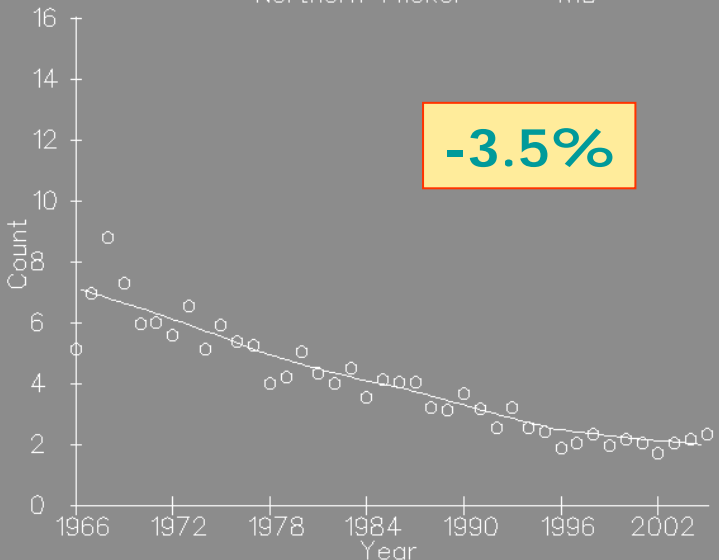


# Northern Flicker



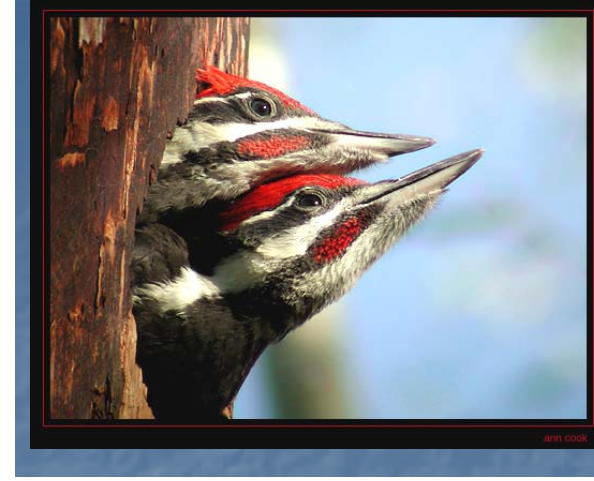
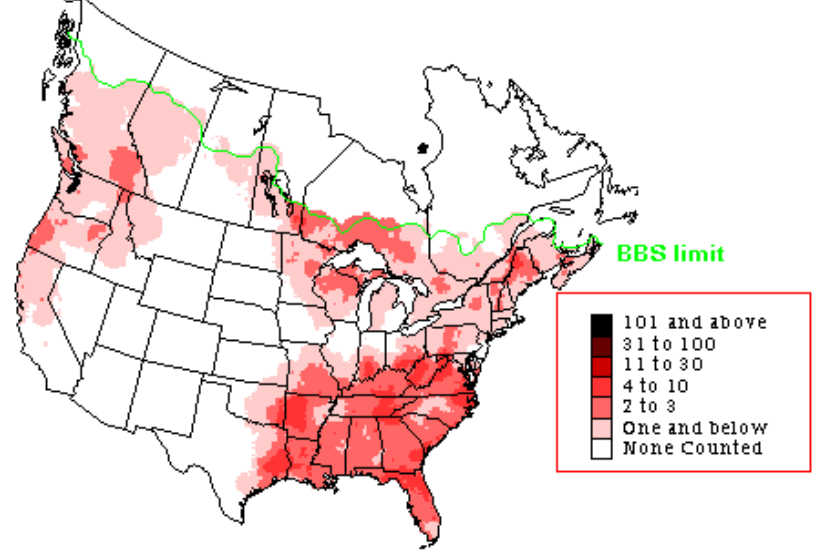
Northern Flicker WIS

**-3.5%**

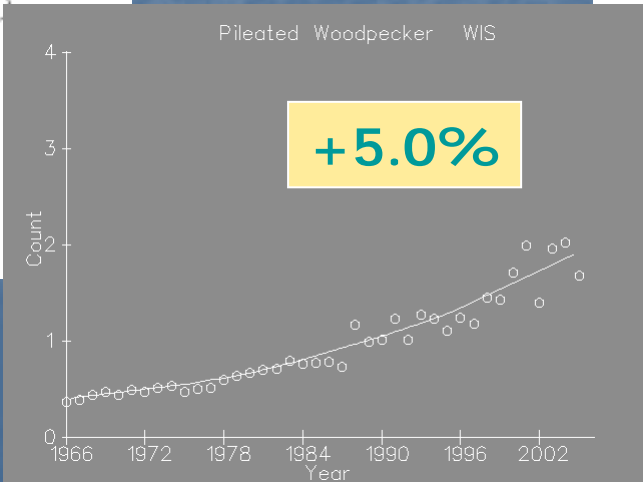
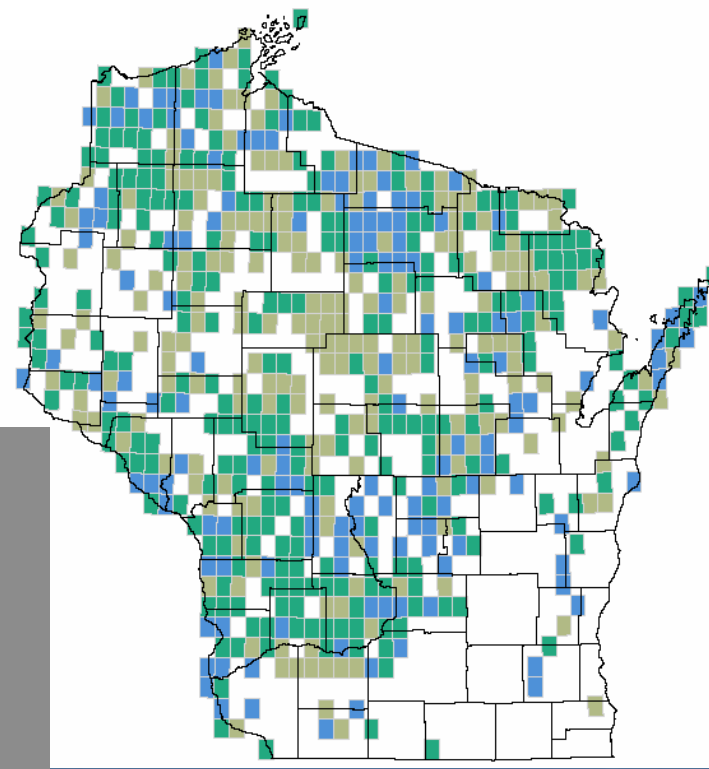
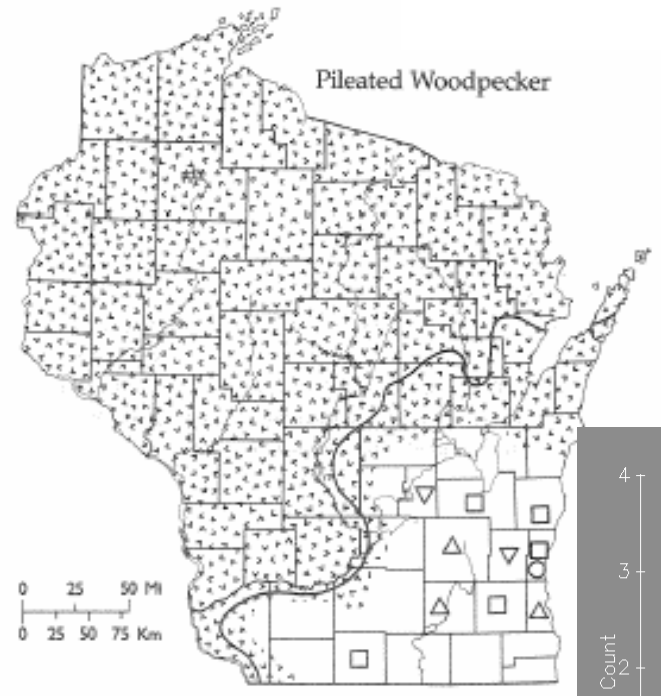




# Pileated Woodpecker



Pileated Woodpecker

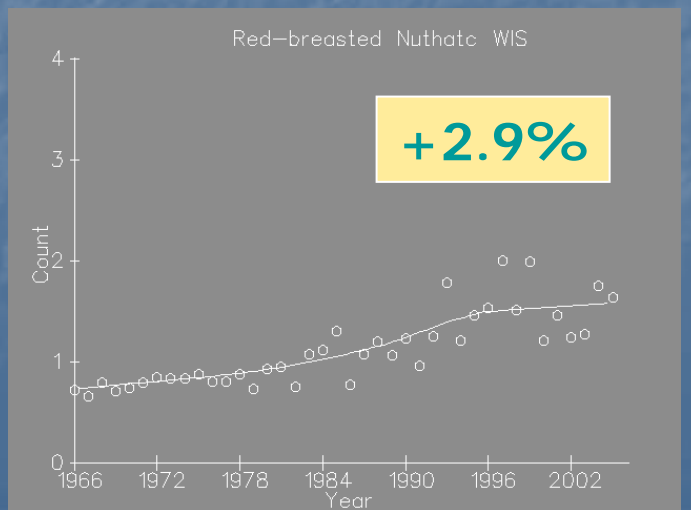
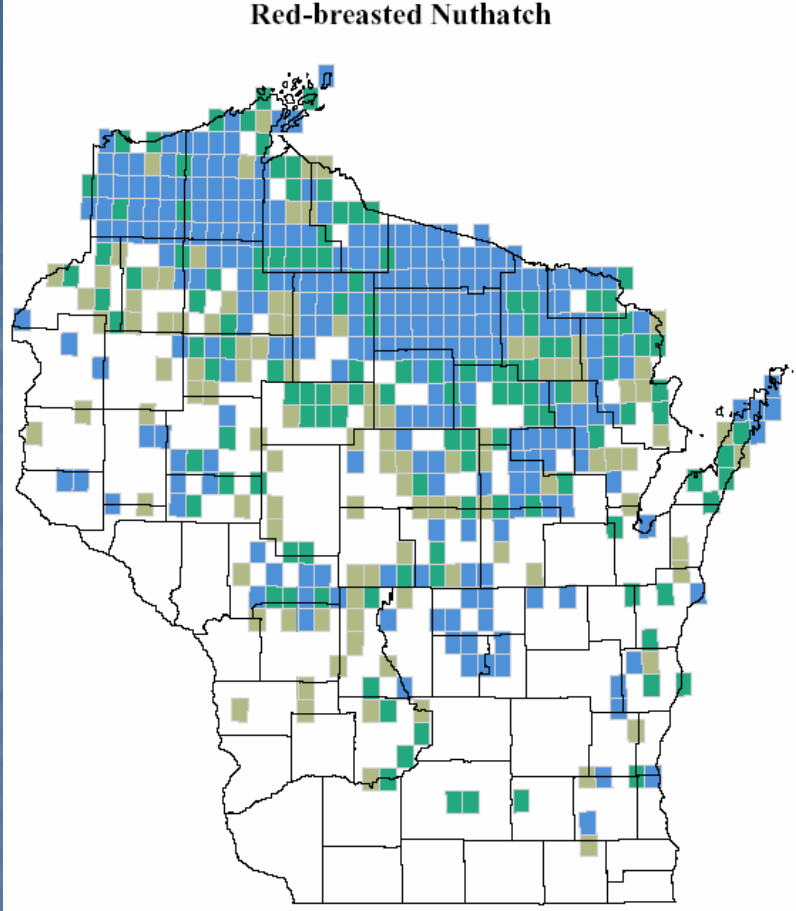
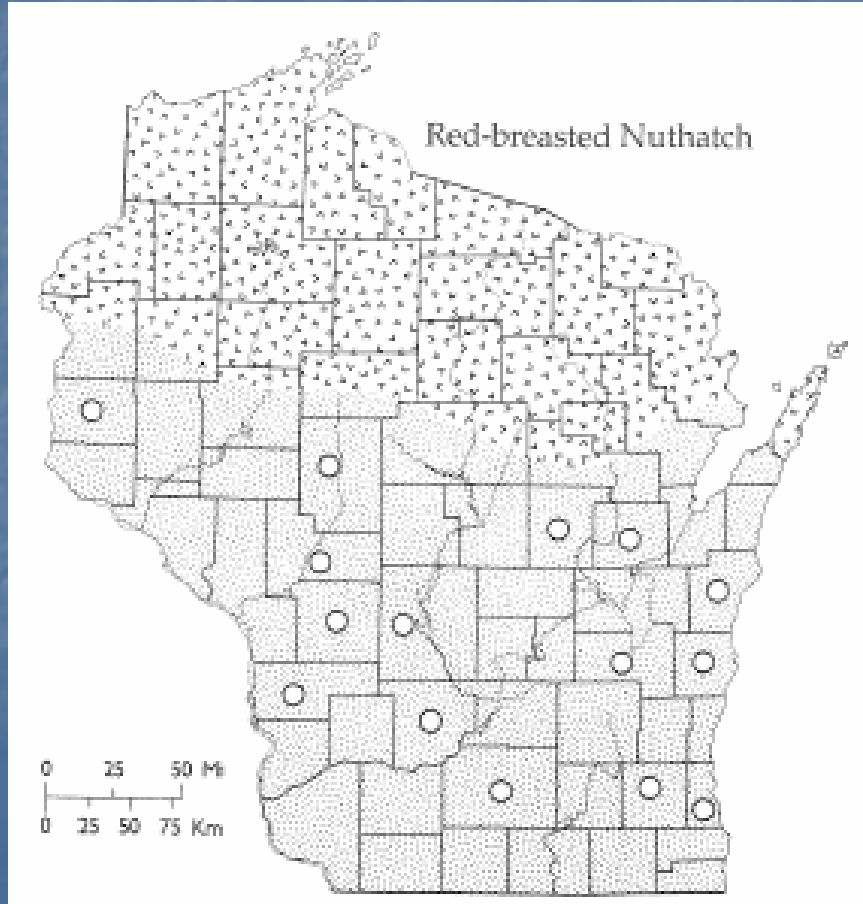




Red-breasted Nuthatch  
courtesy Jack Bartholmai

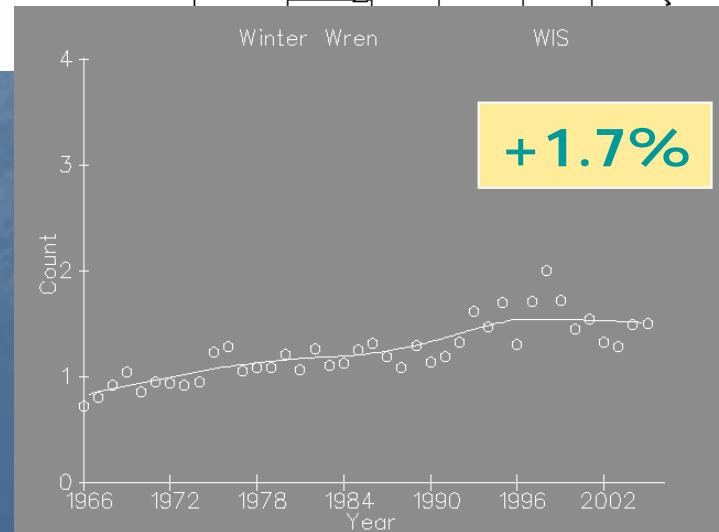
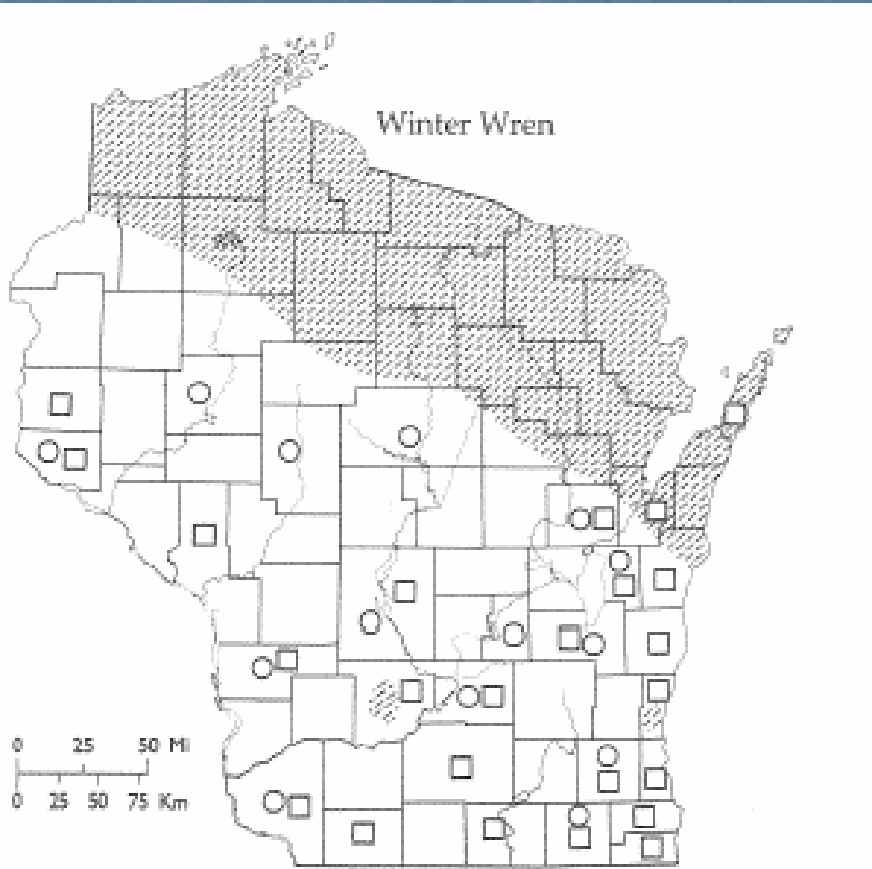
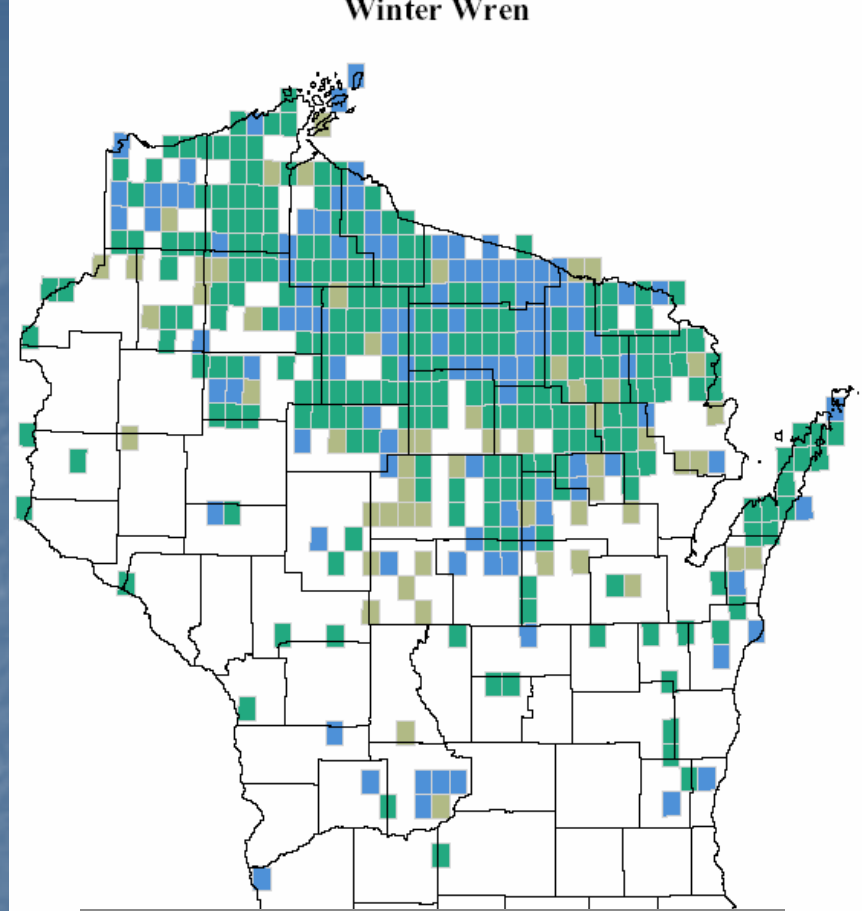


# Red-breasted Nuthatch



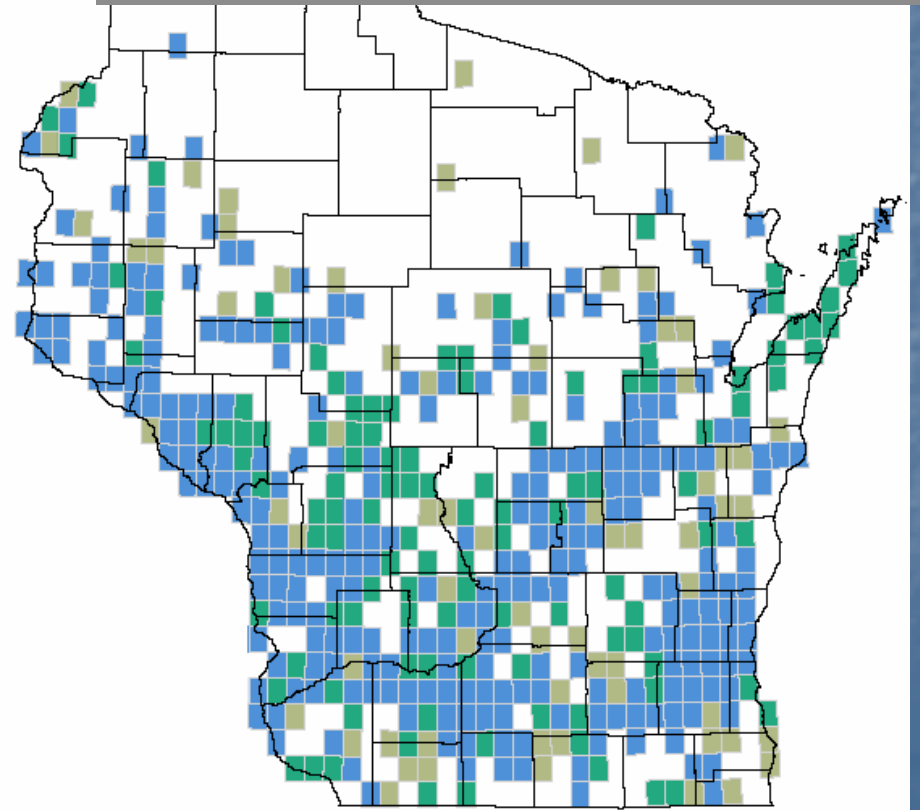
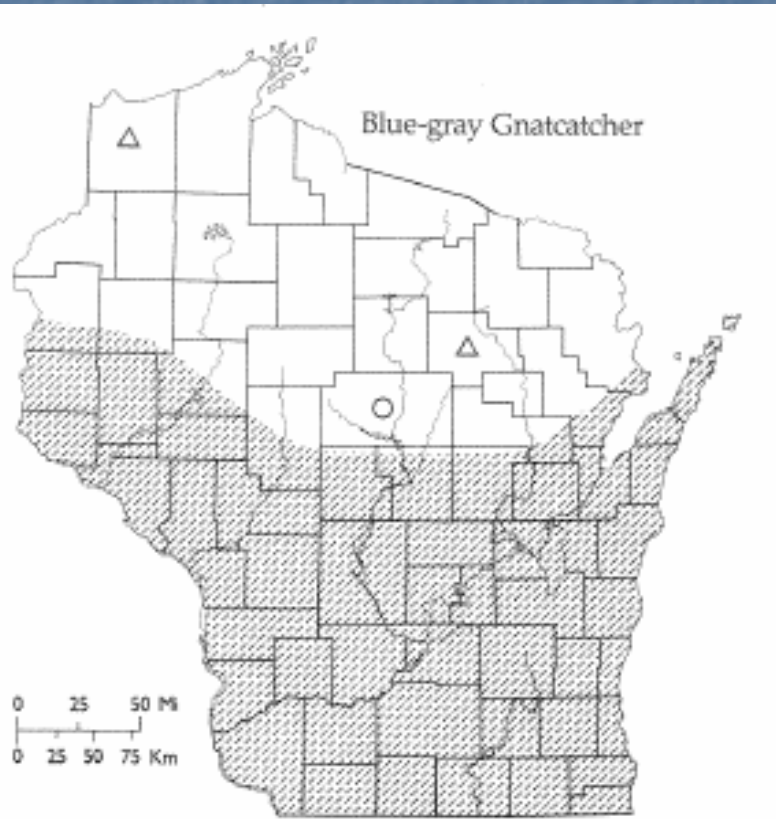
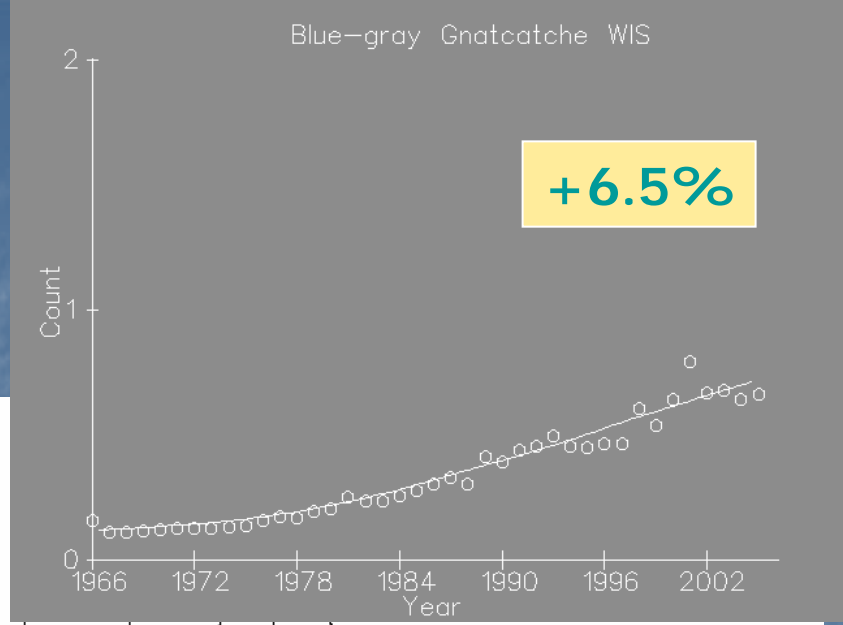


**Winter Wren**



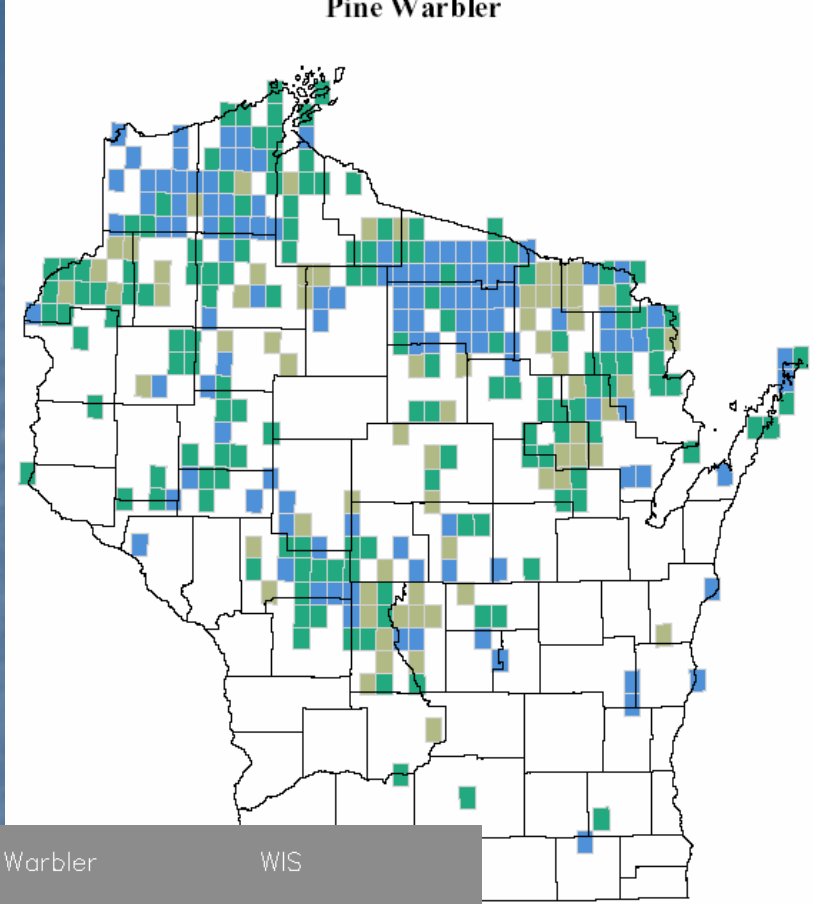


# Blue-gray Gnatcatcher

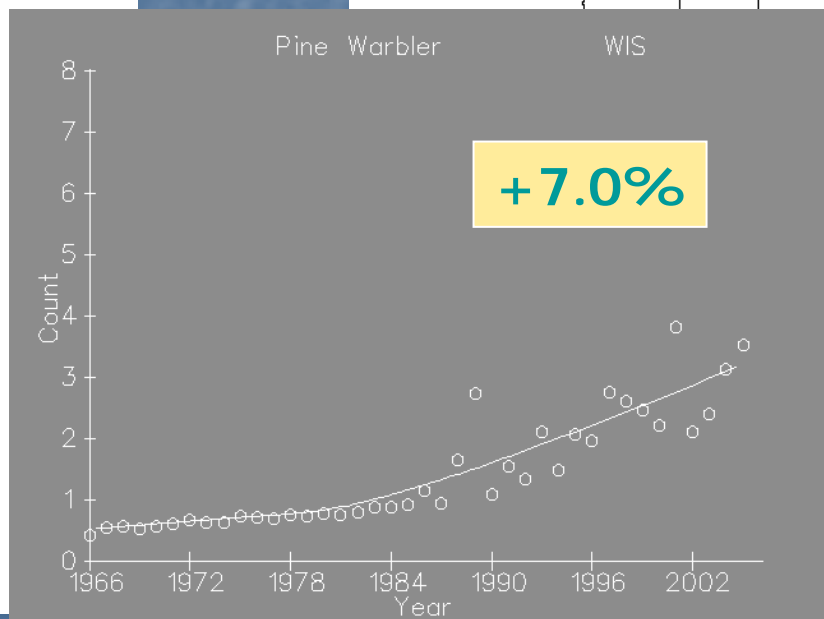
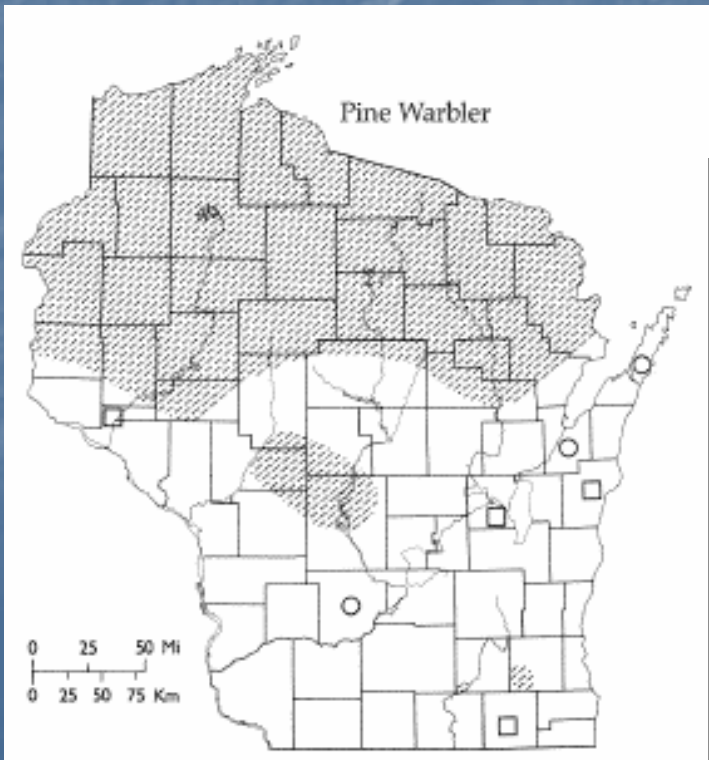




Pine Warbler  
courtesy Dennis Malzer



**Pine Warbler**



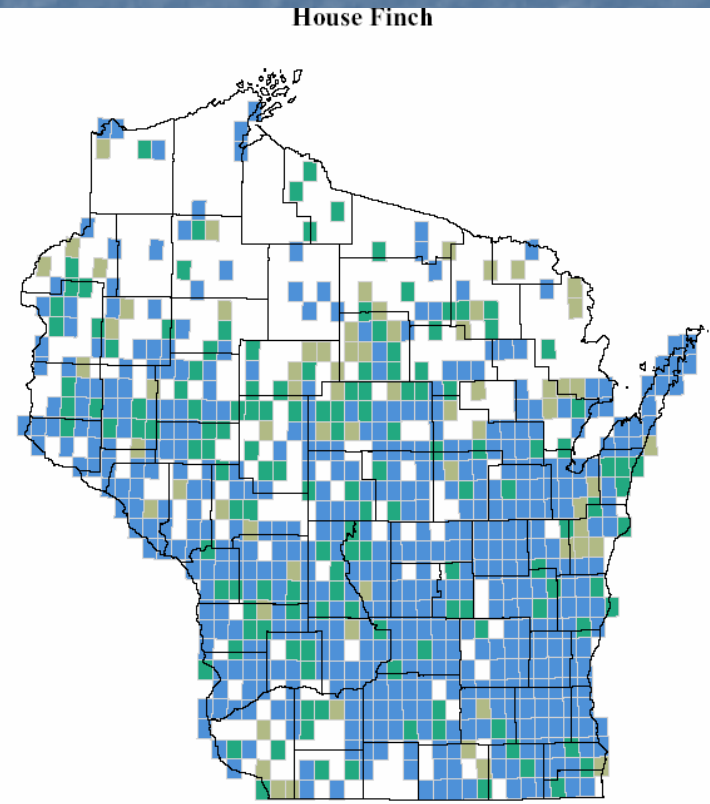


House Finch, male  
courtesy Jack Bartholmai



House Finch, nest with eggs  
courtesy Brian Boldt

# House Finch



First confirmed breeding in 1986!



House Finch, female  
courtesy Jack Bartholmai



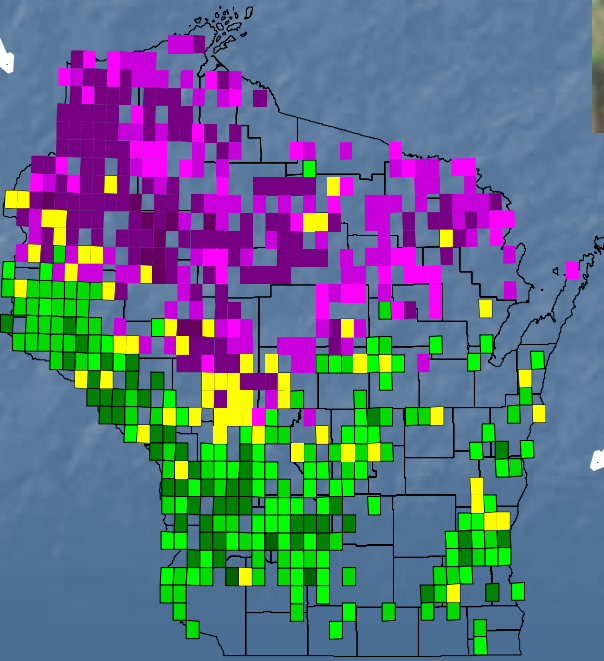


# Golden-winged & Blue-winged Warblers

Golden-winged Warbler, male  
courtesy Dennis Malueg



**WI BBS**  
G-w -1.8%  
B-w +3.1%



Rapidly shifting ranges

Large zone of hybridization

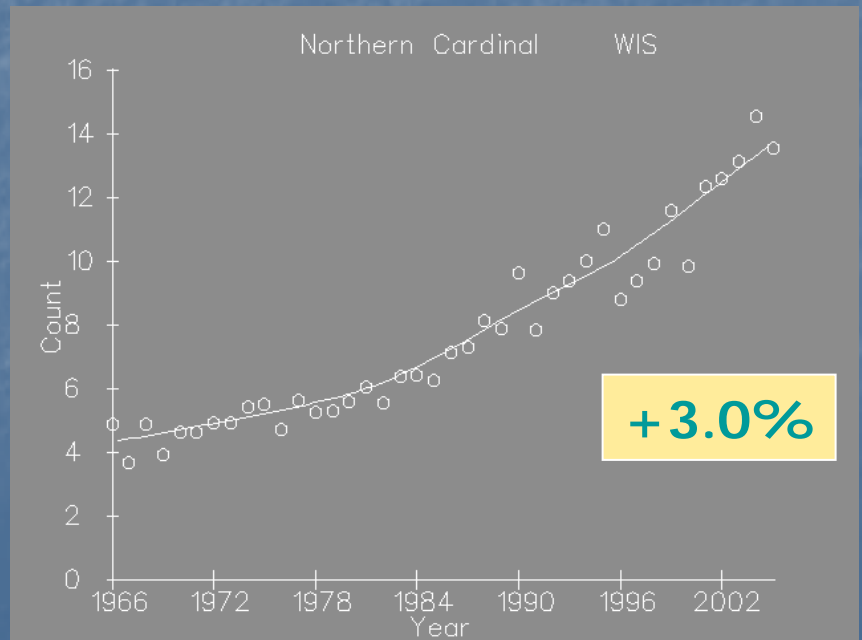
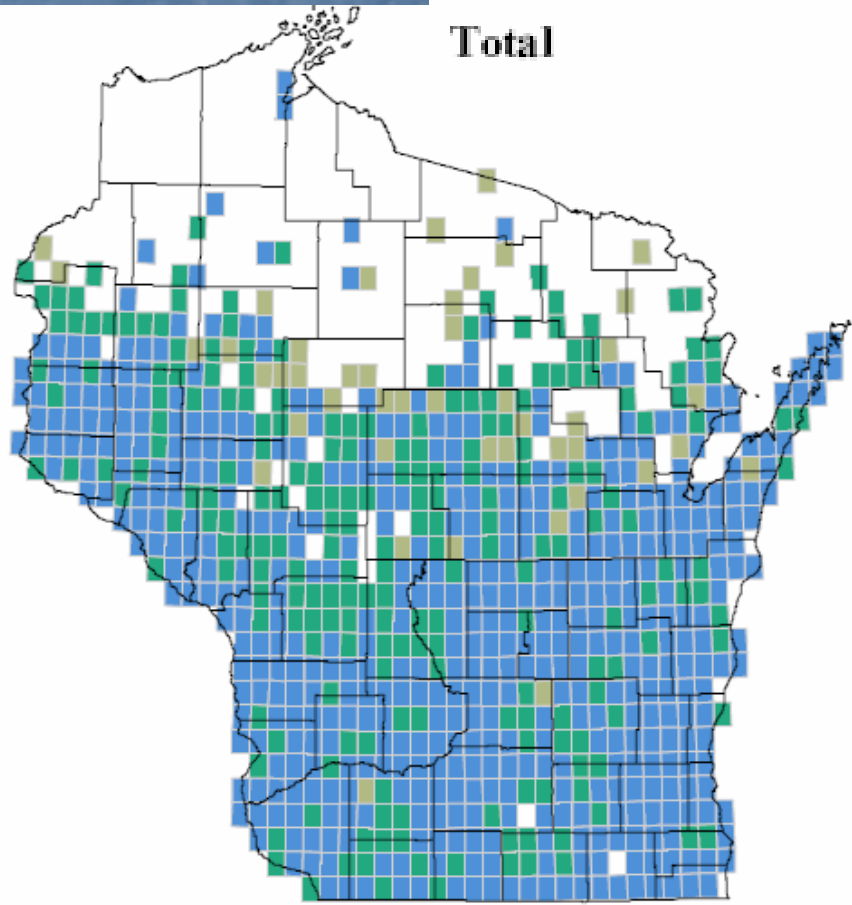
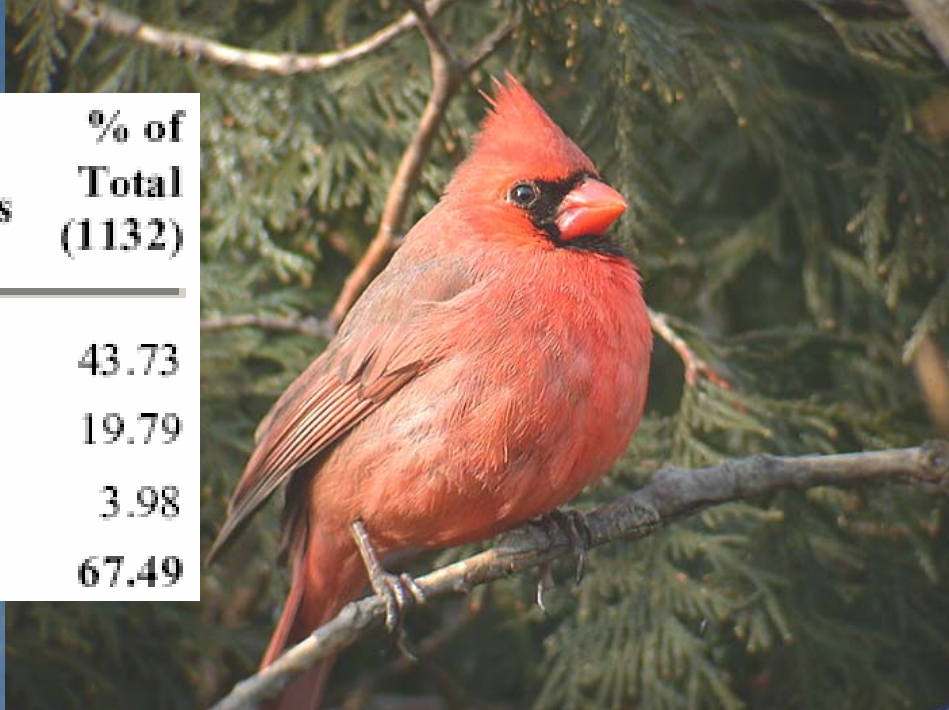
Causes?

What will this map look like  
in the next *Atlas*?

# Northern Cardinal



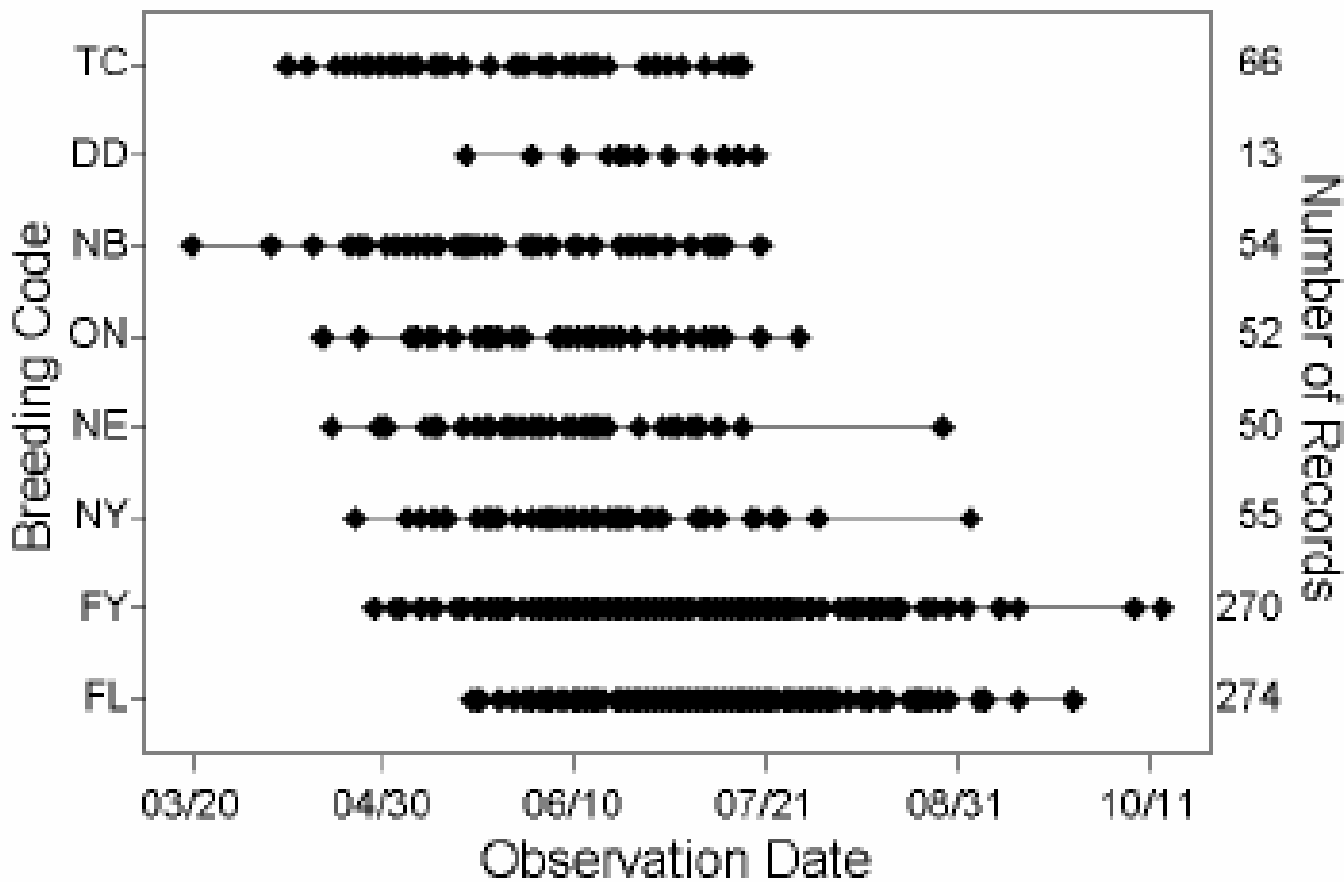
Breeding Status	# of Quads	% of Total (1132)
Confirmed	495	43.73
Probable	224	19.79
Possible	45	3.98
<b>Total</b>	<b>764</b>	<b>67.49</b>





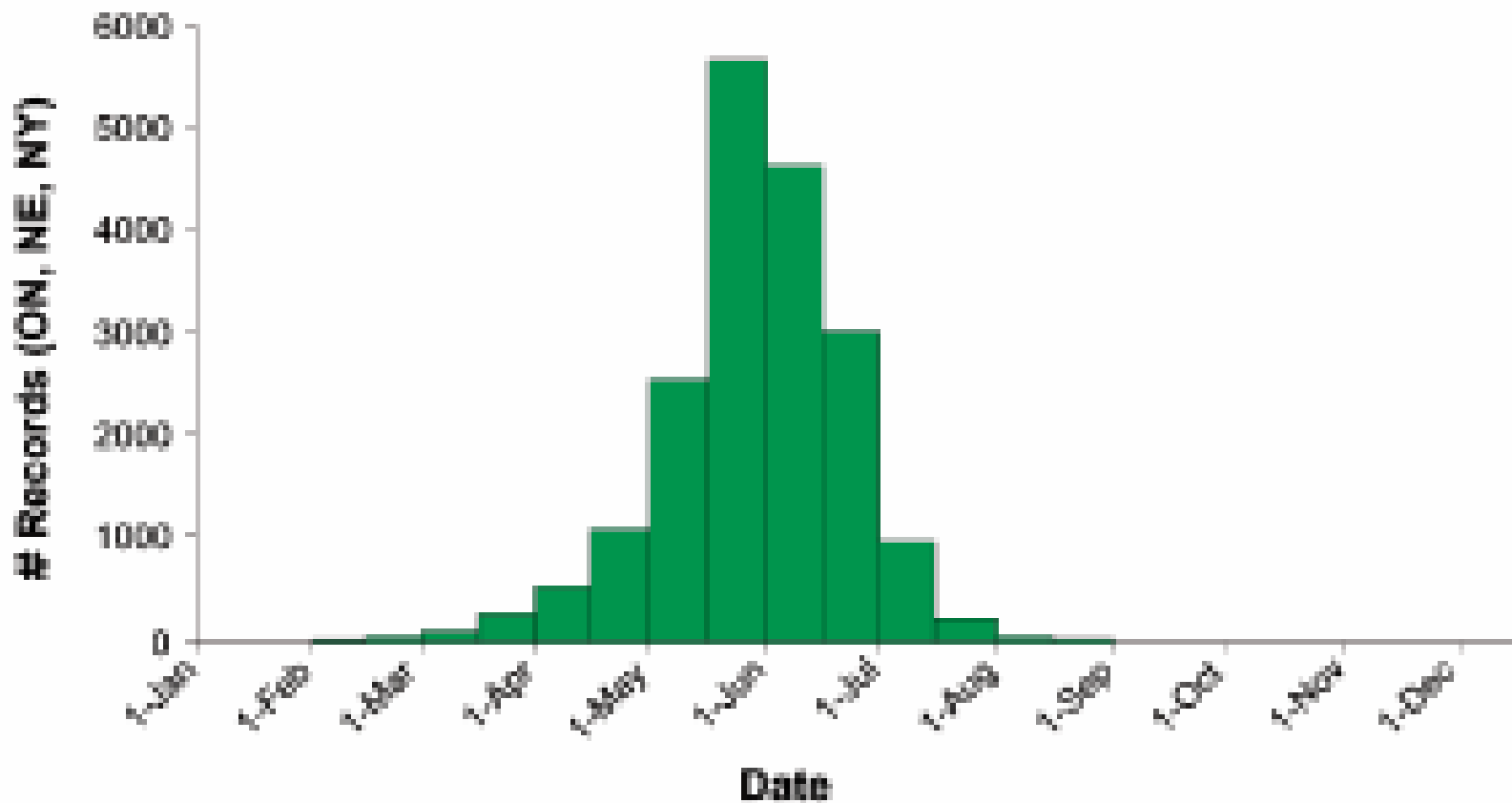
**Phenology** - a branch of science dealing with the relations between climate and periodic biological phenomena (as bird migration or plant flowering)

## Breeding Phenology





# Seasonal distribution of Confirmed nesting records

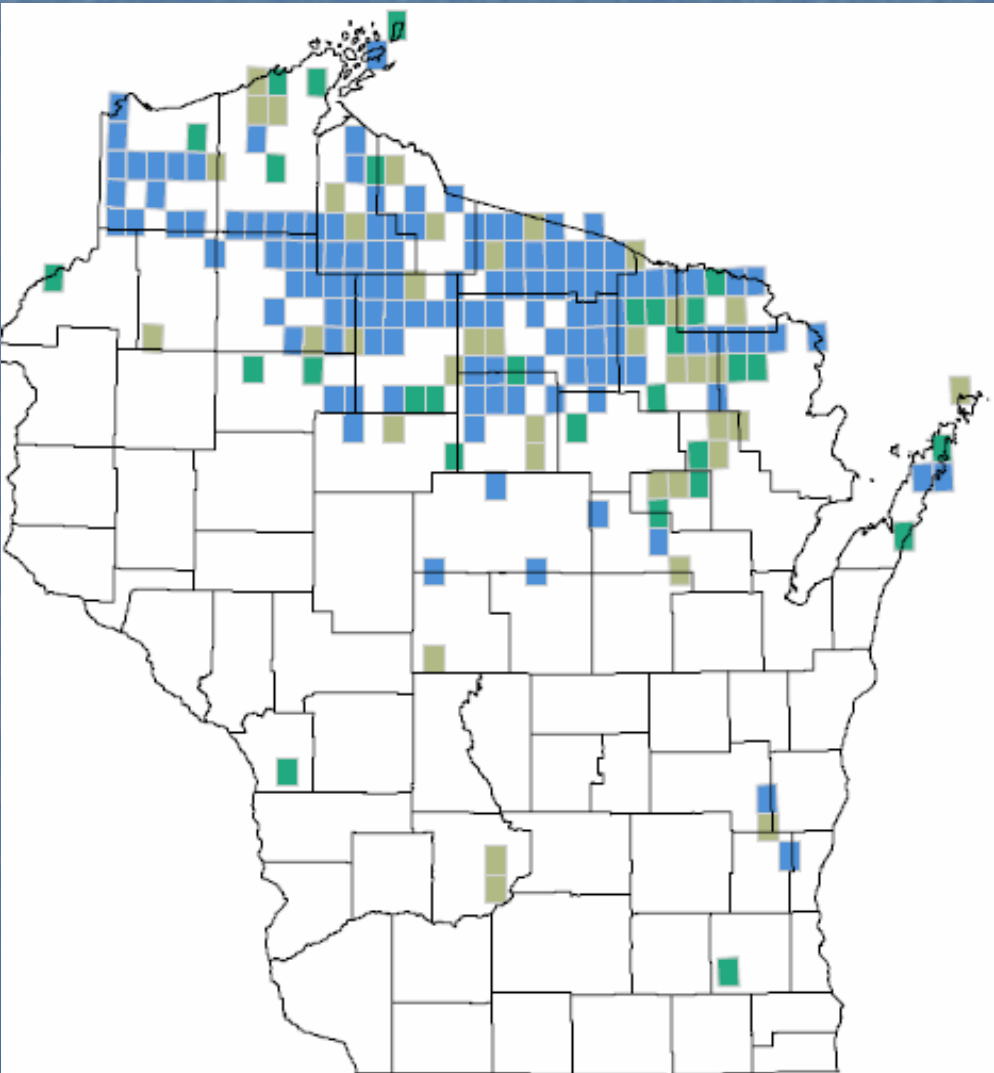




# Golden-crowned Kinglet



Golden-crowned Kinglet  
courtesy Thomas Schultz

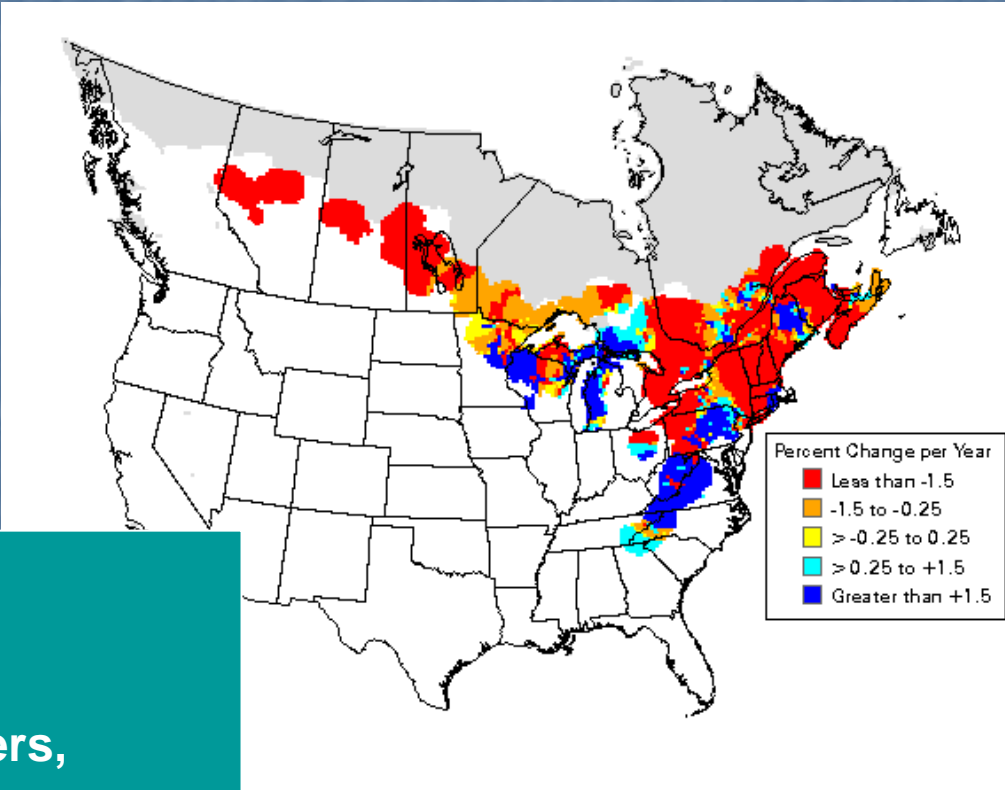
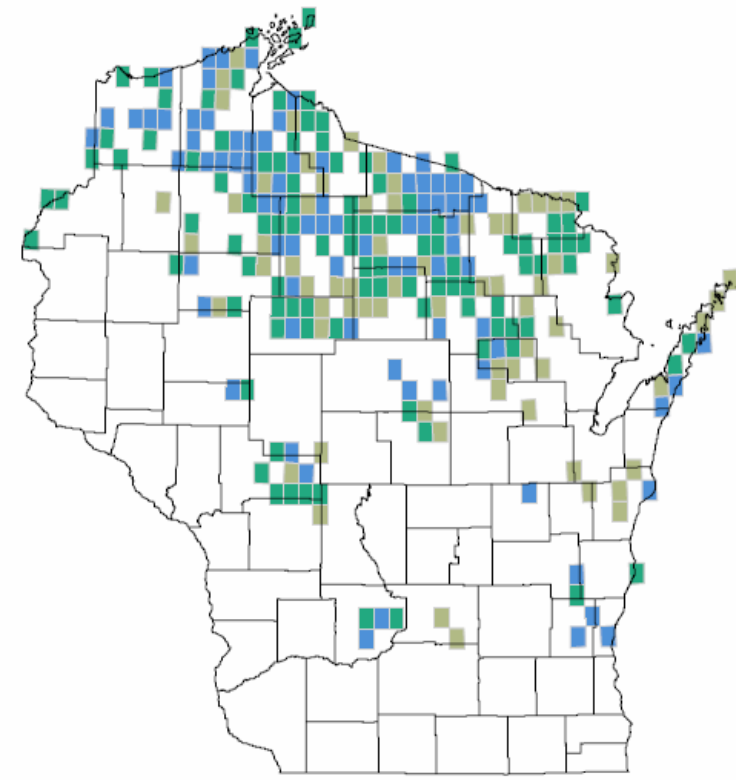




# Canada Warbler



-12/+3 states  
WI -0.1%  
US -1.8%  
Can -2.2%



"Determining the factors responsible for the Canada Warbler's long-term decline is a high priority for researchers, conservationists, and birders." – Eric Epstein



# Noel's Rule of Thirds

**1/3 of species have declining populations**

**1/3 of species have increasing populations**

**1/3 of species have stable populations**



WBBA employed a pragmatic, hierarchical system of habitat classification consisting of 4 levels of resolution:

4 → 9 → 31 → 75

e.g.,



Forest: Lowland Hardwoods (FLH)

Common species:

- Warbling Vireo
- Black-capped Chickadee
- Great Crested Flycatcher
- Baltimore Oriole
- American Redstart
- Downy Woodpecker
- Blue-gray Gnatcatcher



Two species with most records in upland hardwood forests:

**1** -northern



**2** -southern

**2**



**1**





Habitat	# of Records
Forest Upland	44
Forest Lowland	16
Shrub Upland Hardwood	114
Shrub Upland Mixed	42
Shrub Upland Conifer	22
Shrub Lowland Hardwood	23
Shrub Lowland Mixed	7
Shrub Lowland Conifer	5
Open Upland Agriculture	198
Open Upland Native	47
Open Upland Uncropped	121
Open Lowland Agriculture	17
Open Lowland Native	19
Open Lowland Uncropped	17
Open Lowland Wetland	12
Urban	432
<b>Total</b>	<b>1136</b>

Habitat	# of Records
Forest Upland Hardwood	50
Forest Upland Mixed	48
Forest Upland Conifer	3
Forest Lowland Hardwood	
Forest Lowland Mixed	6
Forest Lowland Conifer	3
Shrub Upland Hardwood	2
Shrub Upland Mixed	1
Shrub Upland Conifer	
Shrub Lowland Hardwood	
Shrub Lowland Mixed	1
Shrub Lowland Conifer	
Open Upland	
Open Lowland	1
Urban	
<b>Total</b>	<b>115</b>

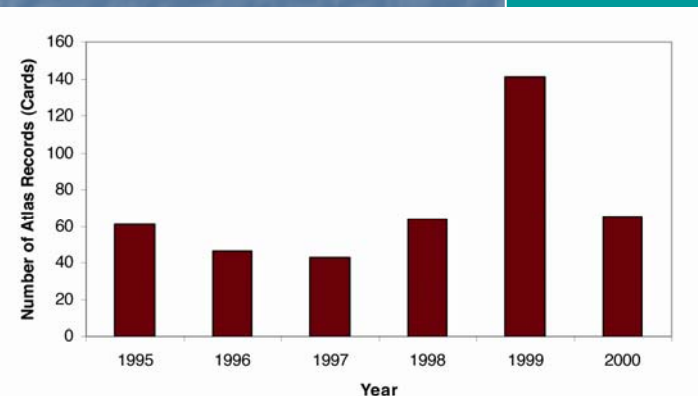


A neat inclusion:  
In 1988, Sam Robbins generated a list of “unanswered questions” about Wisconsin’s birds.

In the *Atlas*, 50 of these original questions are repeated, followed by a summary based on Atlas findings.

e.g., *Why have there been no cyclic “highs” for Dickcissel since 1968, when for many previous years “highs” would occur at least every 6 years.*

There was a peak in 1999, and the *Atlas* states that we might expect another increase. in the year 2005 – well, we were off 1 year.





*Atlas* results also include a listing of 42 highlights

e.g., Philadelphia Vireos were documented as breeders for the first time in Wisconsin. Nesting was confirmed by Atlas field workers in Bayfield and Pierce Counties.

Philadelphia Vireo  
courtesy Thomas Schultz






## 50 Conservation Issues Mentioned in Species Accounts

Changes in habitat quality  
Changes in fish populations  
Environmental contamination  
Lack of suitable nest sites  
Increases in shoreline development  
Competition with other species  
Increases in recreation activity  
Falconry  
Decreases in water quality  
Food availability  
Vegetation succession  
Predator impacts  
Carp and water visibility  
Human activity/disturbance  
Habitat degradation  
Pesticides  
Habitat loss  
Habitat fragmentation  
Declines in rookery trees  
Genetics  
Lack of suitable nesting cavities  
Large white-tailed deer population  
Staging area impacts  
Habitat conversion  
Wintering habitat impacts  
Beaver control policies  
Need for, or too much, isolation  
Bird strikes – cars, towers, windows  
Competition for resources  
Wetland drainage  
Legal and illegal taking  
Lack of large blocks of habitat  
Wetland destruction  
Changes in urban rooftops  
Urban sprawl  
Invasive plants  
Changes in agricultural practices  
Decrease in suitable chimneys  
Changes in land use  
Increases in human population  
Climate change  
“Edge”  
Increases in deforestation  
Fire suppression  
Acid precipitation  
Brown-headed Cowbird parasitism  
House and feral cats  
Disease  
Removal of nest structures  
Changes in governmental policies



# PERSONAL BIRD CONSERVATION ACTIONS

 Landscape with native plants that attract birds

 Maintain a birdhouse

 Keep cats indoors

 Avoid using pesticides

 Join bird conservation organizations

 Donate birding equipment

 Participate in citizen-science projects



Support land protection efforts



Consume bird-friendly products



Urge development of wise land-use policies



Lobby!



Help Important Bird Areas (IBA)



AND, Share your appreciation of birds with others



## Finally, the *Atlas* Appendices

Atlas Field Card

Breeding Codes

Habitat Codes

Abundance Codes

Casual Observation Form

List of Species Reported

Previous Breeding Species Not Found During  
the Atlas (21)

Ecological Landscapes Where Species Were  
Recorded Most Frequently

List of Plants and Animals Cited

+ 34 pages of Literature Cited



**In what year will field work commence for the next Wisconsin Breeding Bird Atlas?**





2015?????



# Three additional species have been confirmed breeding in WI since 2000



Yellow-throated Warbler  
courtesy Dennis Ma



Which species  
will be next?

# BREEDING BIRD REPORT

Observer  
Species  
Breeding  
Behavior  
Date  
Habitat  
Location

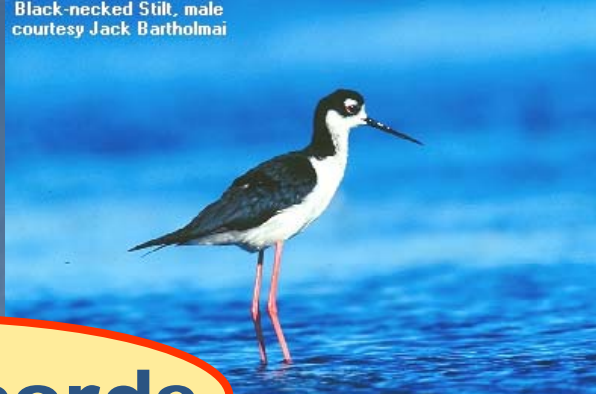
<http://www.uwgb.edu/birds/wbba/newbirddata.htm>



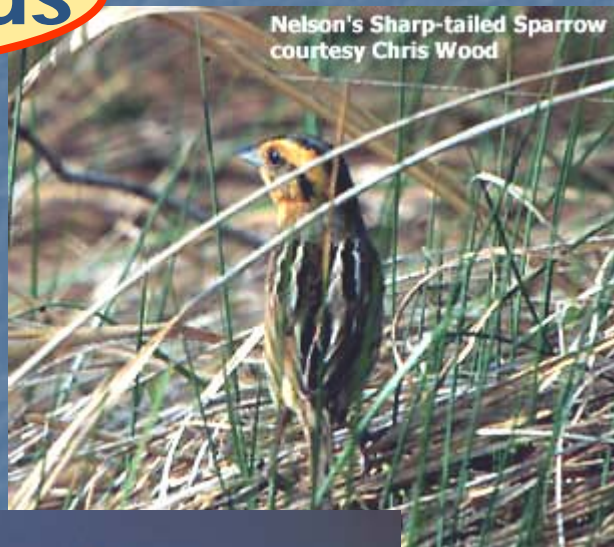
Western Grebe  
courtesy Thomas Schultz



Black-necked Stilt, male  
courtesy Jack Bartholmai



# First Records



Nelson's Sharp-tailed Sparrow  
courtesy Chris Wood

Great Black-backed Gull  
courtesy Thomas Schultz



American White Pelicans  
courtesy Jack Bartholmai



**Beaver Dam Area Arts Association**  
 at the Seippel Homestead & Center for the Arts  
 1605 N. Spring St., Beaver Dam WI/ 920-885-3635/ www.bdaaa.org

**August 27 through  
 October 22, 2006**

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 the Atlas of the Breeding Birds of WI*

Opening Reception &  
 Atlas Signing Presented by  
 WI Society of Ornithology  
 Sunday, August 27, 1-4 PM  
 Program by Atlas Editors, 2 PM

Exhibit & Gift Shop Hours  
 Thurs. 1 - 7; Sat. 10 - 4; Sun. 1 - 4  
 or Call 920-885-3635

This project was supported in part by a grant from the Wisconsin Art Board with funds from the state of Wisconsin.

ARTS  
 Photo by Laurie Smaglick Johnson





**How many of you have  
purchased a copy of the  
*Atlas of the Breeding  
Birds of Wisconsin?***



**Thank You!**