

Migratory Bird Ecology and Management

Michael L. Schummer

Senior Research Associate

Department of Environmental Biology

SUNY ESF

204 Illick Hall

mlschumm@esf.edu





Waterfowl & Wetlands @ ESF



Waterfowl and Wetlands at SUNY ESF: Courses We Teach



Ornithology – every Spring

Ecology and Management of Waterfowl – Fall every other year (odd years)

Wetlands Conservation and Management for Wildlife - Spring every other year (even years)

Wetlands Monitoring and Assessment – Field Course – Summer every other year (even years)



Waterfowl and Wetlands at SUNY ESF: Hands-on experiences

Unique field
experiences



Waterfowl banding



Waterfowl and Wetlands at SUNY ESF: Honors, MS, MPS, PhD (not just ducks!)



The Rehabilitation and Release
of Lead Poisoned Bald Eagles in
New York State

Alexa Blunck's MPS Capstone
Department of Environmental Biology



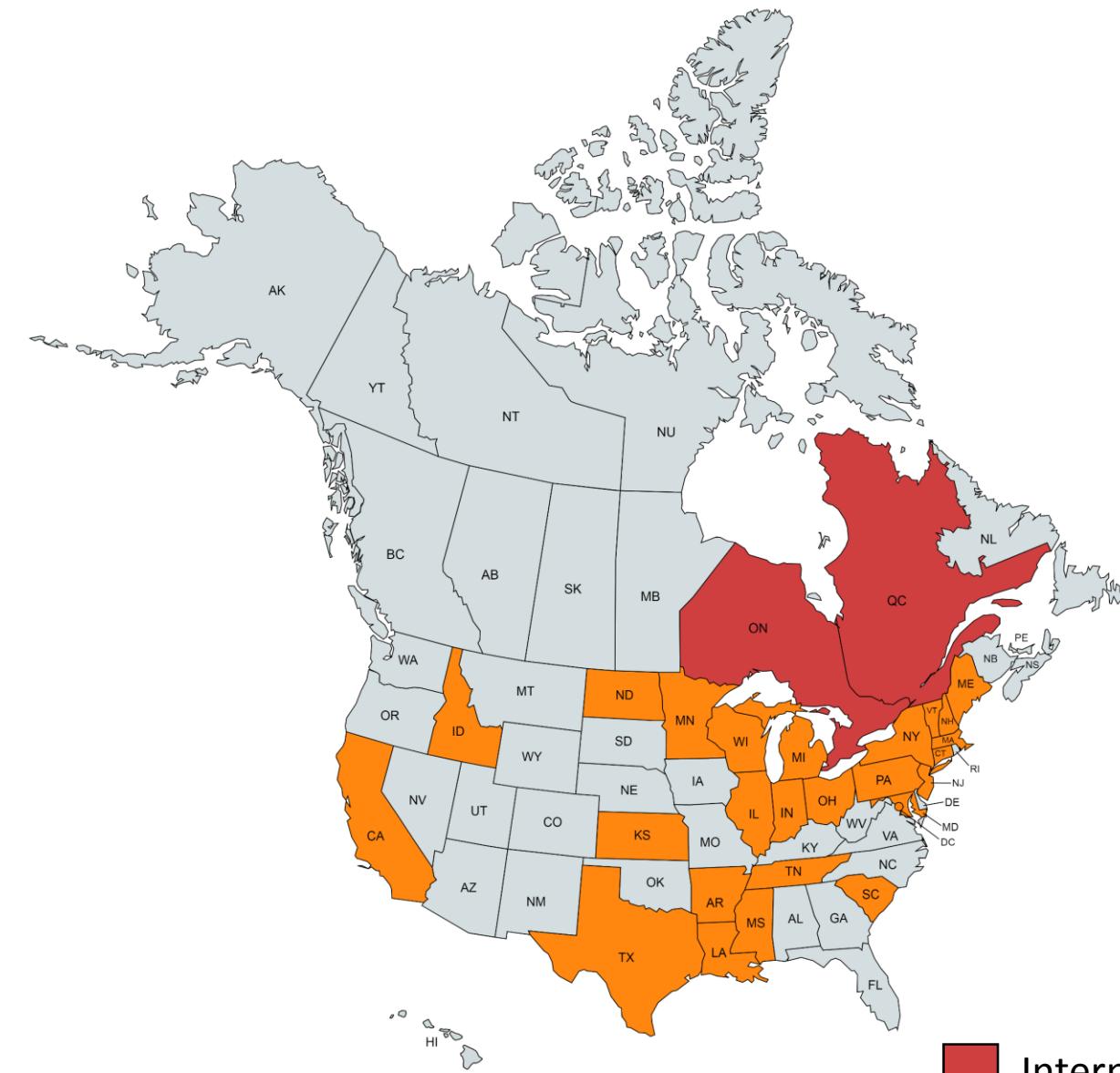
Thursday May 12th
148 Baker Lab
3:00-4:00pm

Major Advisor - Michael Schummer

Waterfowl and Wetlands at SUNY ESF: Collaborations and Placement of Graduates



Where we work



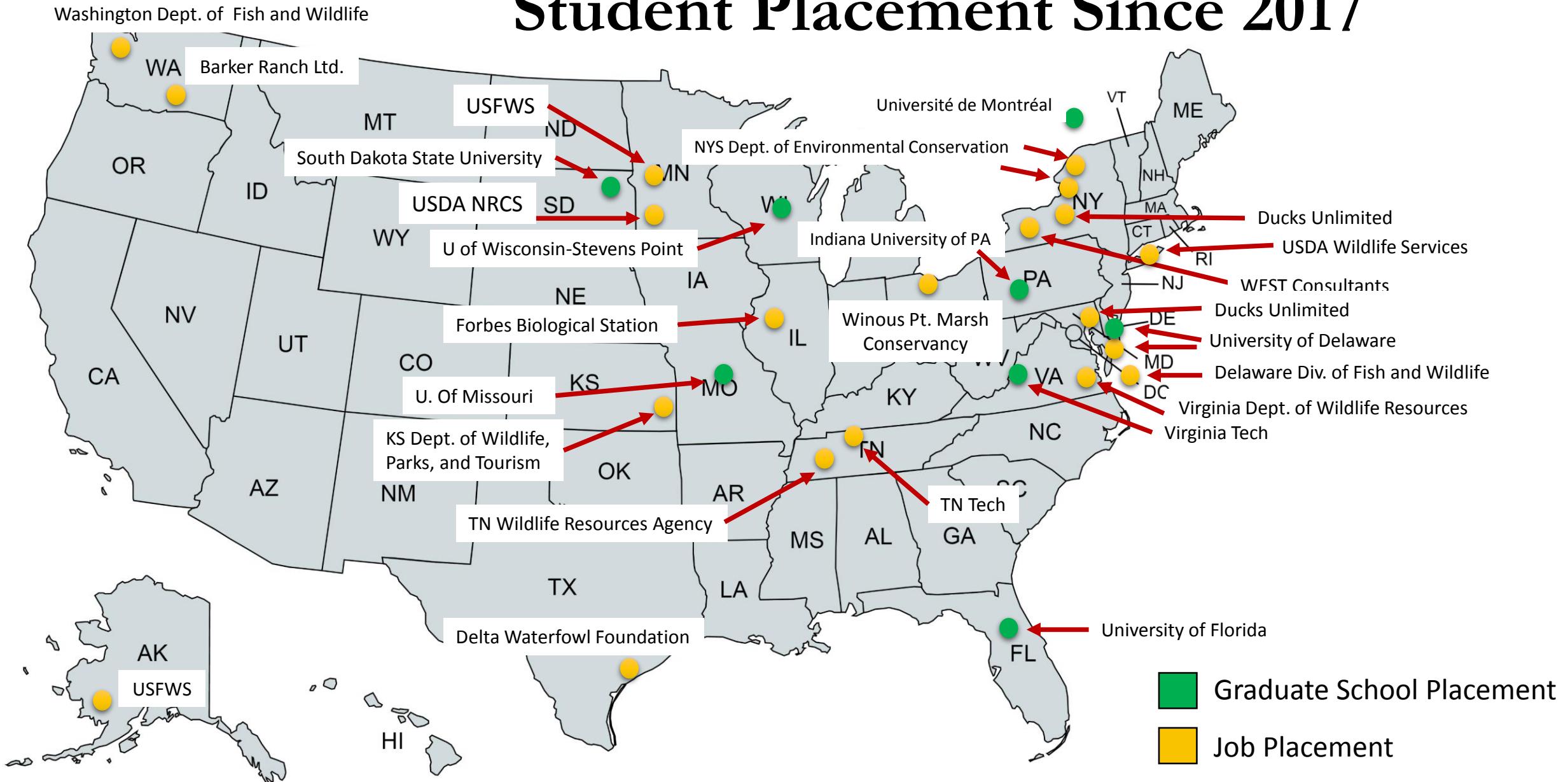
■ International Collaborators

■ United States Collaborators



Waterfowl and Wetlands @ ESF

Student Placement Since 2017

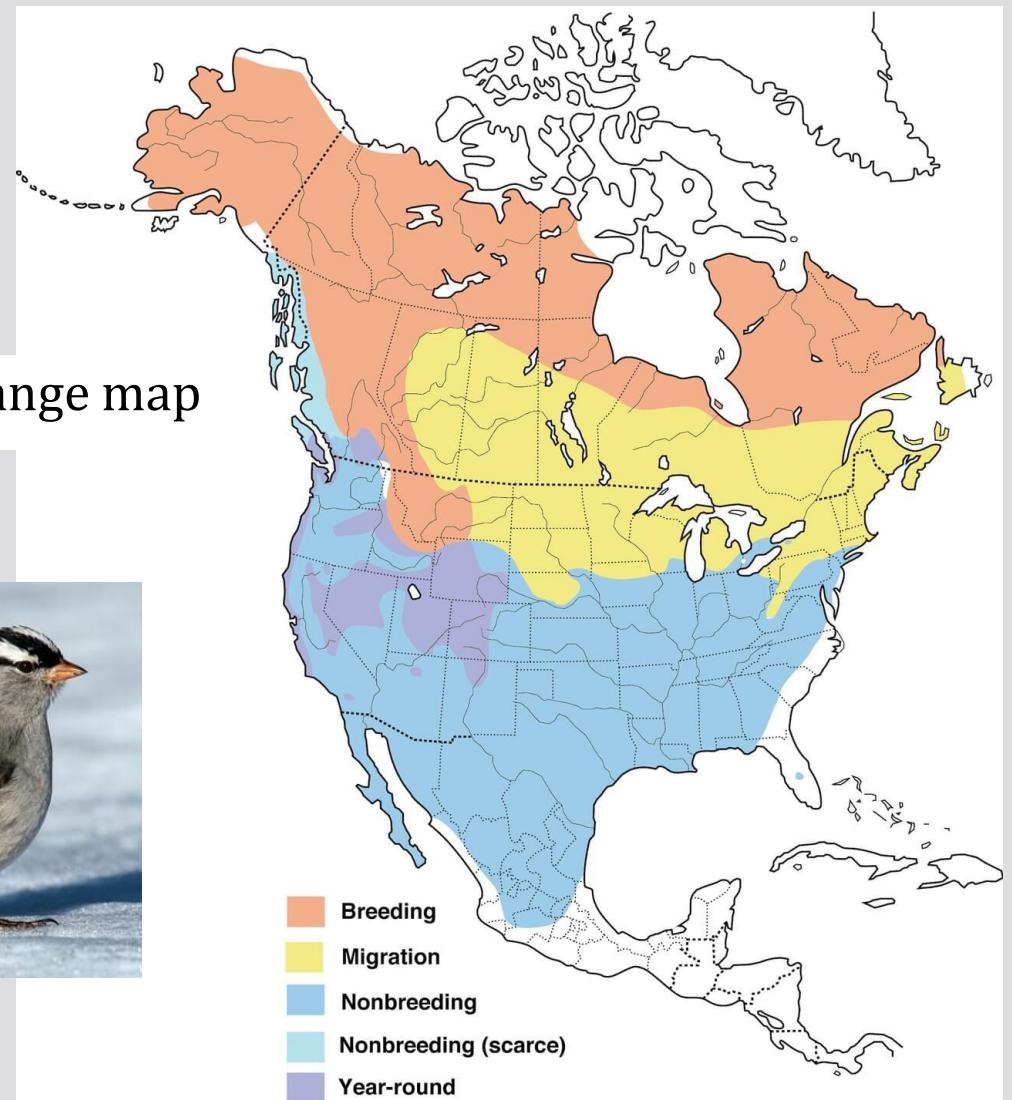


Migratory Bird Basics

Species migrate between breeding and non-breeding areas

Understanding habitat on breeding, migration, and non-breeding areas is vital to ensure their life history requirements are met

White-crowned sparrow range map

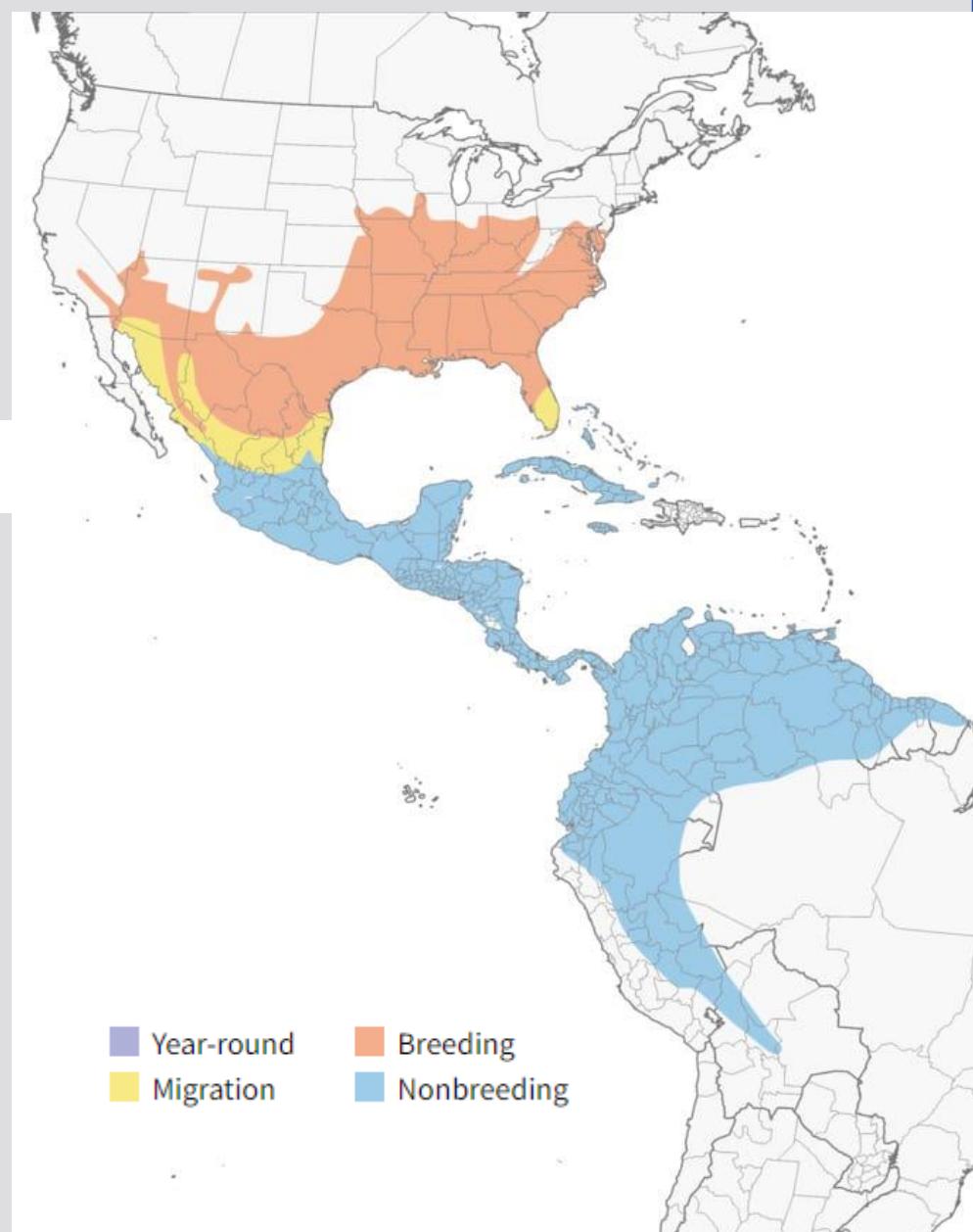


Migratory Bird Basics

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Understanding habitat on breeding, migration, and non-breeding areas is vital to ensure their life history requirements are met

Summer tanager range map



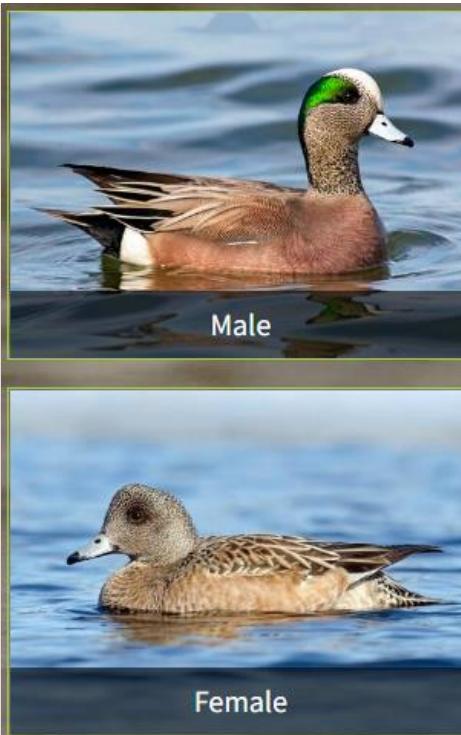
Migratory Bird Basics

Species migrate between breeding and non-breeding areas

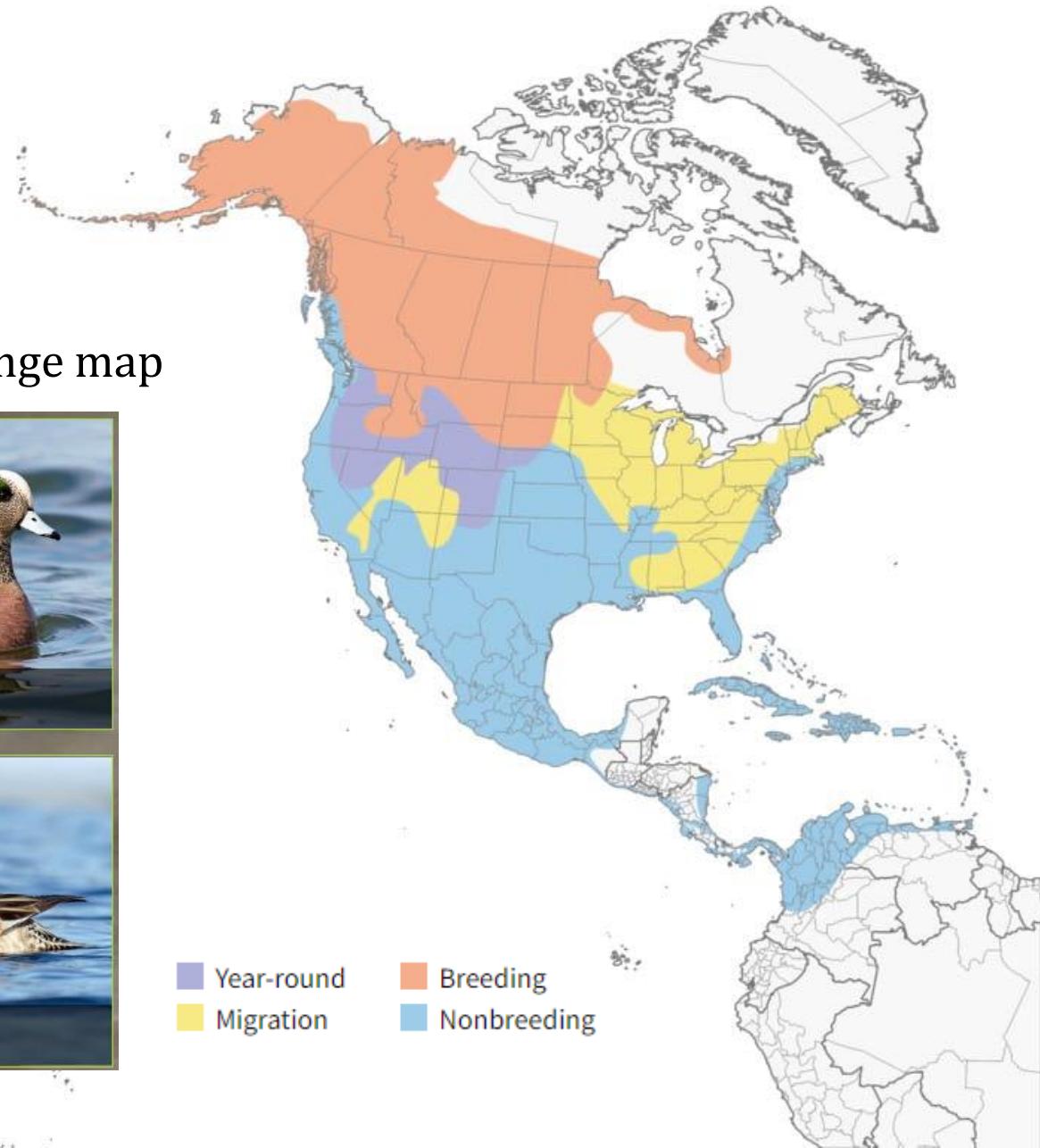
Understanding habitat on breeding, migration, and non-breeding areas is vital to ensure their life history requirements are met

Some are harvested like the American wigeon – 600,000 per year in the U.S. alone

American wigeon range map



- Year-round
- Breeding
- Migration
- Nonbreeding



Migratory Bird Basics

Species migrate between breeding and non-breeding areas

Understanding habitat on breeding, migration, and non-breeding areas is vital to ensure their life history requirements are met

Mourning dove harvest about 11 - 9 million annually!



Mourning dove



Year-round
Migration

Breeding
Nonbreeding

Migratory Bird Basics

Threats to European–African migrants

Bird populations are in steep decline despite not migrating across the blackspots of illegal killing. Habitat degradation and loss are likely the most important causes, but climate change also affects populations.

Climate change

Earlier arrival at breeding grounds causes ecological mismatch between birds and their insect prey.



Western European–African flyway

Eastern European–African flyway

Habitat degradation and loss

Increase in agriculture at the expense of natural vegetation affects birds at breeding sites, winter habitats, and along migratory routes.



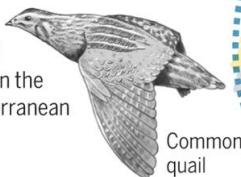
Turtle dove

Sahara desert

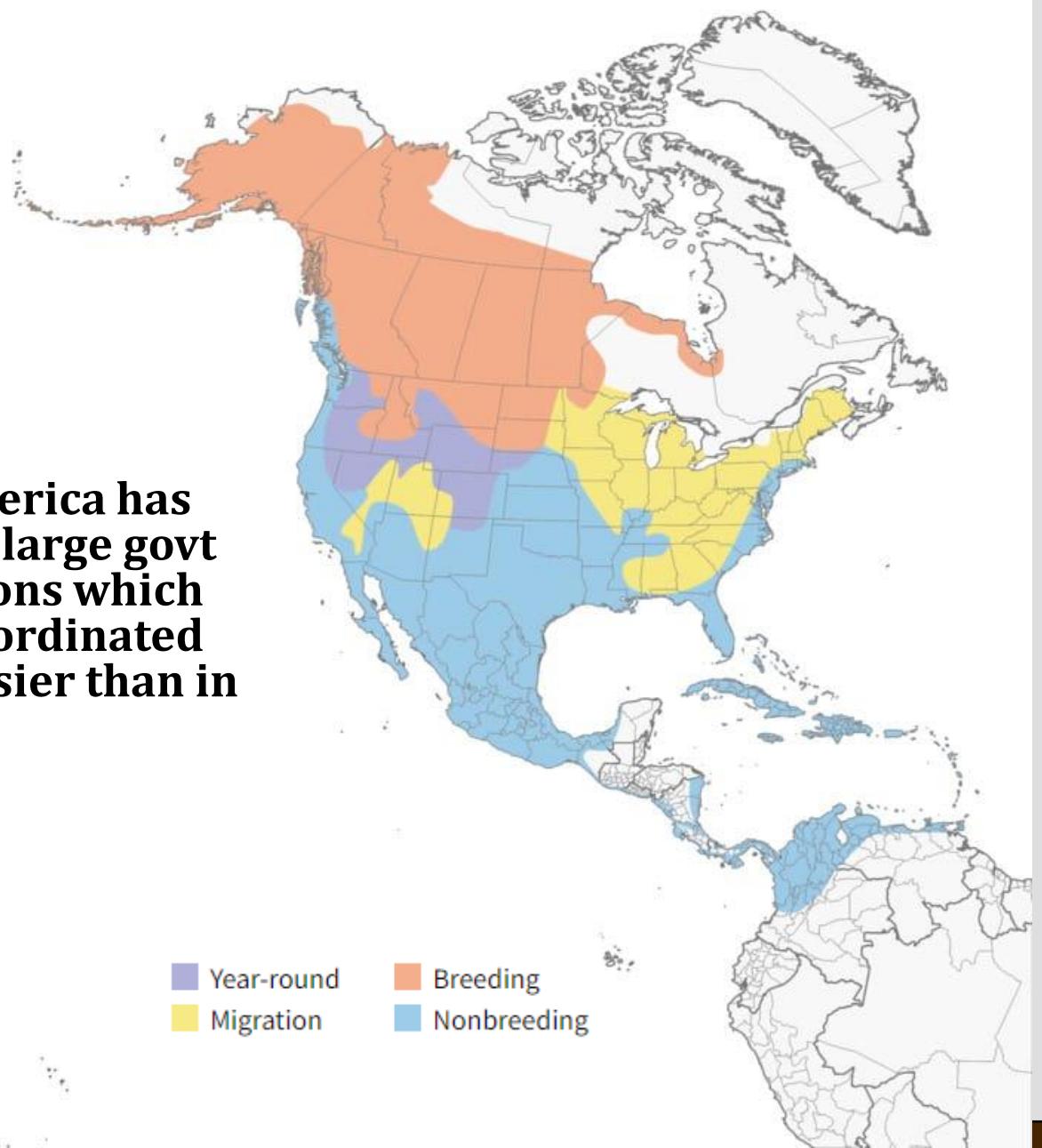
Sahel zone

Illegal killing

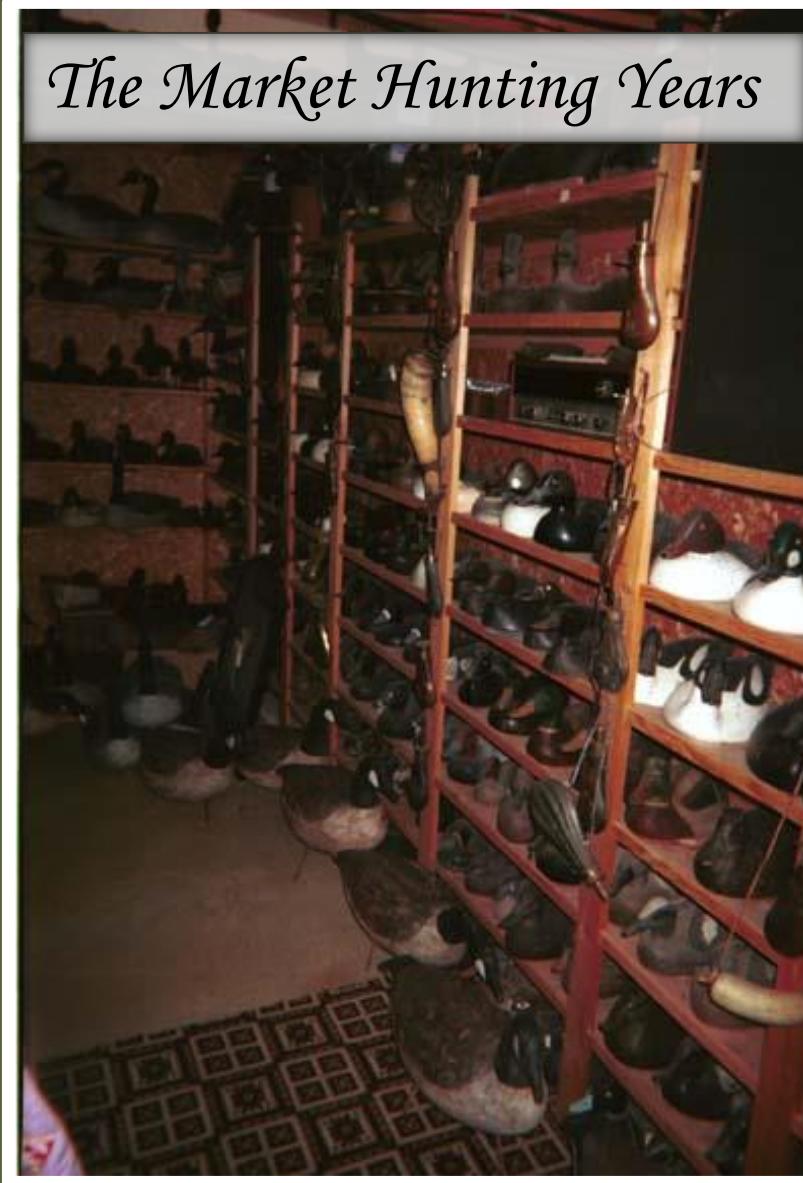
Concentrated in the eastern Mediterranean (black dots)



Common quail



Roots of Bird Conservation Movement





MENU

• • • •

Blue Points.

Soup.

Venison a la Chasseur.

Consomme of Prairie Chicken.

Fish.

Baked White Fish, Port Wine Sauce.

Boiled Trout, Lobster Sauce.

Boiled.

Wild Turkey.

Leg of Mountain Sheep.

Roast.

Saddle of Antelope.

Mountain Sheep.

Leg of Venison.

Pheasants.

Wild Goose.

Blue Grouse.

Mallard Duck.

Quail.

Prairie Chicken.

Red-Head Duck.

Sage Hen.

Wild Turkey.

Jack Rabbit.

Spotted Grouse.

Black Tail Deer.

Plover.

Canvass-Back Duck.

Black Bear.

Wood Duck.

English Hare.

Blue-Wing Teal.

Sand-Hill Crane.

Squirrel. Opossum.

Ruffed Grouse.

Coon.

Leg of Elk.

Partridges.

Brandt.

Cinnamon Bear.

Saddle of Black-Tail Deer.

Widgeon.





At The Table

MARKET PRICES

	<u>Retail Price (1884)</u>	<u>w/inflation</u>
• <i>Pair of Canvasback</i>	\$1.00 to \$2.75	\$64.83
• <i>Pair of Redheads</i>	50¢ to \$1.60	\$37.72
• <i>Pair of Ruddy Ducks</i>	25¢ to 90¢	\$21.22
• <i>Canada Goose</i>	50¢	\$11.79

RESTAURANT PRICES

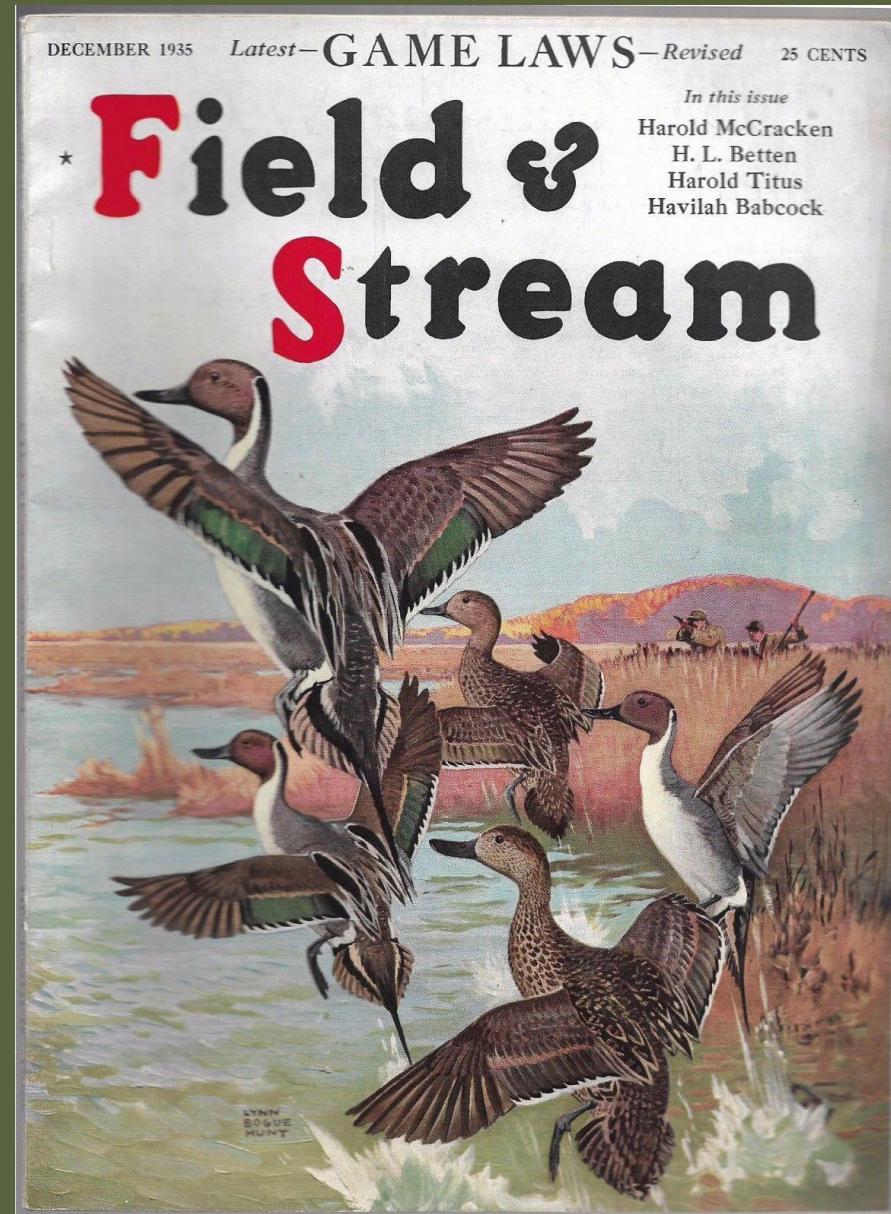
	<u>Table Price (1901)</u>	<u>w/inflation</u>
• <i>Canvasback</i>	\$4.00	\$101.79
• <i>Redhead</i>	\$3.00	\$76.34
• <i>Mallard</i>	\$2.50	\$63.62
• <i>Ruddy Duck</i>	\$2.00	\$50.89
• <i>Teal</i>	\$1.25	\$31.81

- Feathers for women's hats had an equal impact on different birds
- the number of birds being killed in Florida alone each year was as high as five million.



- *Forest and Stream* magazine was an early and influential advocate for the elimination of spring shooting, and in 1894 the publication declared that the sale of game should be outlawed. The magazine's editor, George Bird Grinnell, was a prolific writer and avid hunter who helped bring together sportsmen, other bird enthusiasts, and the scientific community in support of new wildlife conservation laws.

<https://www.ducks.org/conservation/public-policy/the-migratory-bird-treaty-centennial>





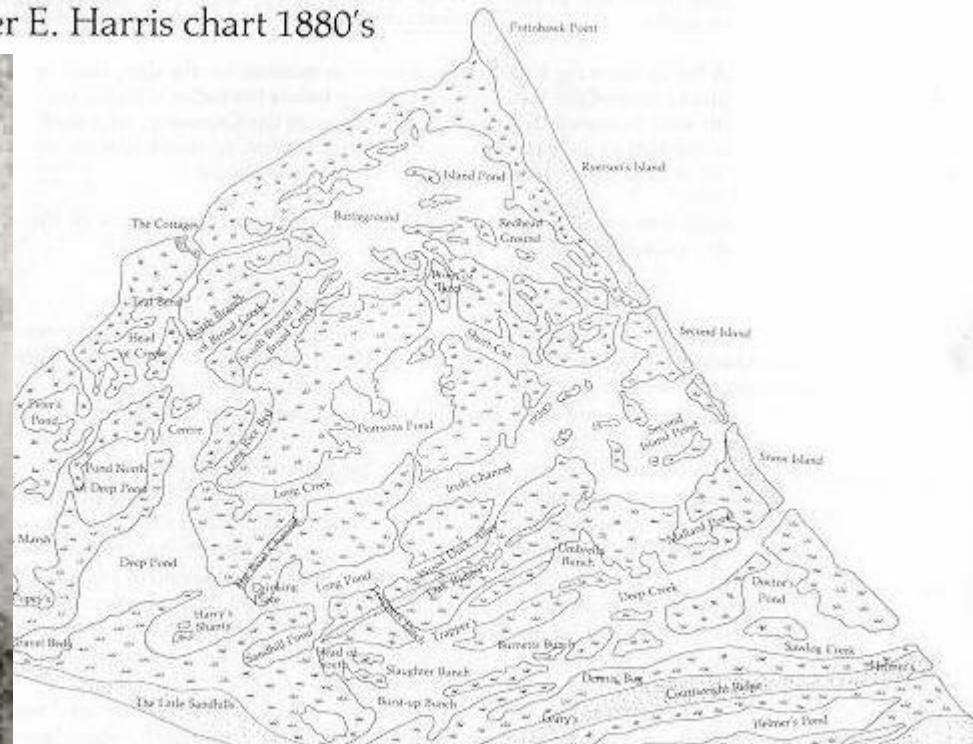
- Florence Merriam Bailey, who as a Smith College student in 1886 organized a local chapter of the Audubon Society, combined their activism with work that pushed others to appreciate the beauty of birds in their natural habitats. Bailey's *Birds Through an Opera-Glass*, published in 1899, helped non-experts spot, identify and appreciate bird life, and over the course of her ornithology career she'd write six birding books focused primarily on birds of the southwestern United States.



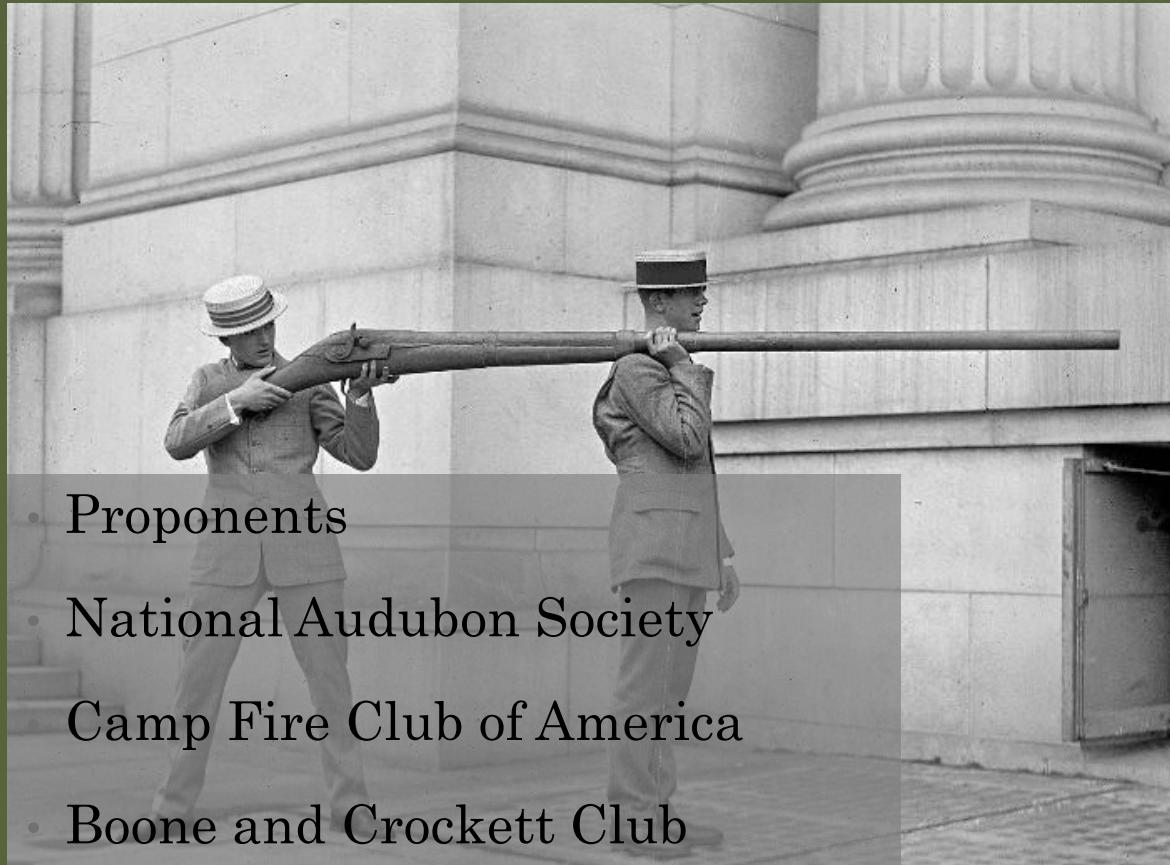
Long Point Company By-laws June 7, 1881



LONG POINT COMPANY MARSH
after E. Harris chart 1880's



Migratory Bird Treaty 1918



- Proponents
- National Audubon Society
- Camp Fire Club of America
- Boone and Crockett Club
- Prominent business leaders
 - e.g. Henry Ford

- Prior versions
- Weeks-McLean Act 1913
- 1916 (Canada and US)
- Economic reasons – insect control for food for the war effort



Migratory Bird Treaty 1918



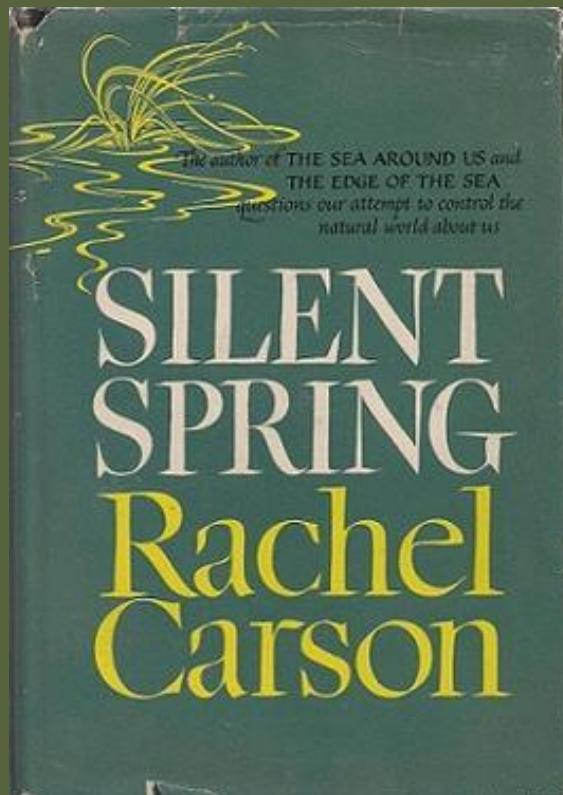
- 1919- Missouri v. Holland, the high court upheld the MBTA

- In order to authorize the "taking" of waterfowl and other migratory birds, the law established the first federal hunting seasons and bag limits along with a permit system for scientific collections. In addition, it protected threatened species such as the wood duck, and banned market hunting, spring shooting, and the use of shotguns larger than 10-gauge.



Environmental Movement

- Birds in the environmental movement



<https://www.scientificamerican.com/article/rachel-carson-silent-spring-1972-ddt-ban-birds-thrive/>

Environmental Movement

- Nixon creates EPA
- Clean Air and Clean Water acts
- Nixon's Endangered Species Act of 1973 that all endangered species — including grasses, flowers and trees — were included on the list.



<https://time.com/5345913/endangered-species-act-history/>

Migratory Bird Law

- Incidental Take

The Trump Administration reinterpreted the MBTA to regulate only intentional acts that kill birds, and finalized an action to **exclude incidental take in the administration's final days in January 2021.** Dec 21, 2021

With the final rule, FWS has effectively reinstated its position that “incidental take” – **the harming or killing that results from, but is not the purpose of, carrying out an otherwise lawful activity** – is prohibited by the MBTA, and persons that cause incidental take can be prosecuted criminally. Oct 7, 2021

<https://www.natlawreview.com/article/revocation-trump-administration-s-migratory-bird-treaty-act-rule-takes-effect>

Migratory Bird Law

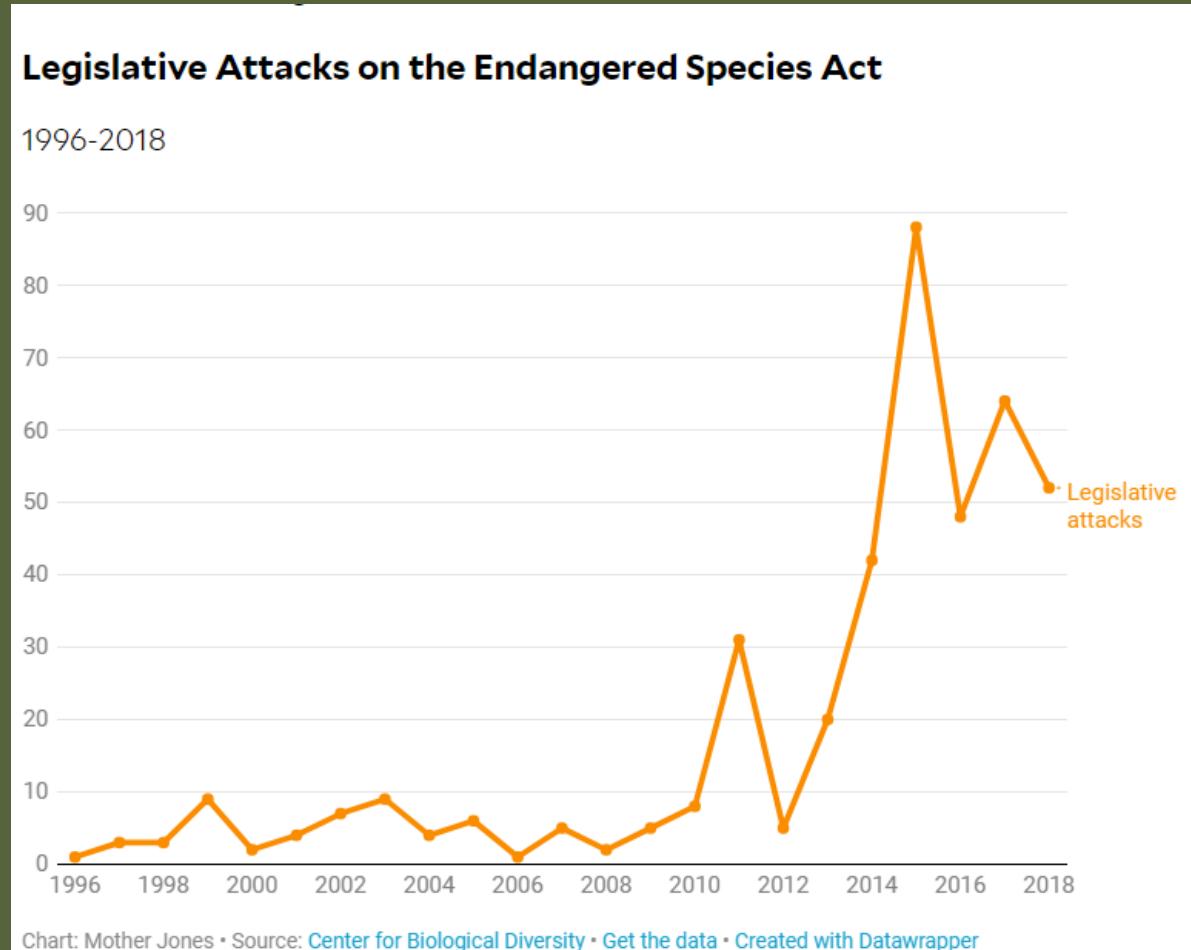
- Bald and Golden Eagle Protection Act of 1940 + amendments
- prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald or golden eagles, including their parts (including feathers), nests, or eggs.



[https://www.fws.gov/law/bald-and-golden-eagle-protection-act#:~:text=The%20Bald%20and%20Golden%20Eagle,\)%2C%20nests%2C%20or%20eggs.](https://www.fws.gov/law/bald-and-golden-eagle-protection-act#:~:text=The%20Bald%20and%20Golden%20Eagle,)%2C%20nests%2C%20or%20eggs.)

Migratory Bird Law

- Endangered Species Act – initially 1966
- Definitions of T and E
- Broadly applied the term “Take” prohibitions
- Required Federal agencies to use their authorities to conserve listed species and on those of “Special Concern”
- Made matching funds available to states with cooperative agreements



<https://www.fws.gov/library/collections/endangered-species-act-milestones>

North American Waterfowl Mgmt Plan

- Initially in 1986 - <https://nawmp.org/>
- Many revisions thereafter – model for conservation partnerships



[2018 Update ▾](#) [Webinar Series](#) [About](#) [Timeline](#) [Documents ▾](#) [2012 Implementation ▾](#) [2012 Revision Archive ▾](#)

A model for international conservation.
Signed in 1986 by the United States and Canada and in 1994 by
Mexico, the North American Waterfowl Management Plan is the
foundational bird conservation partnership upon which many others
have been built.

North American Waterfowl Mgmt Plan

- 2012 revision included people as the 3rd leg of the stool along with healthy waterfowl populations and conservation of habitat for waterfowl

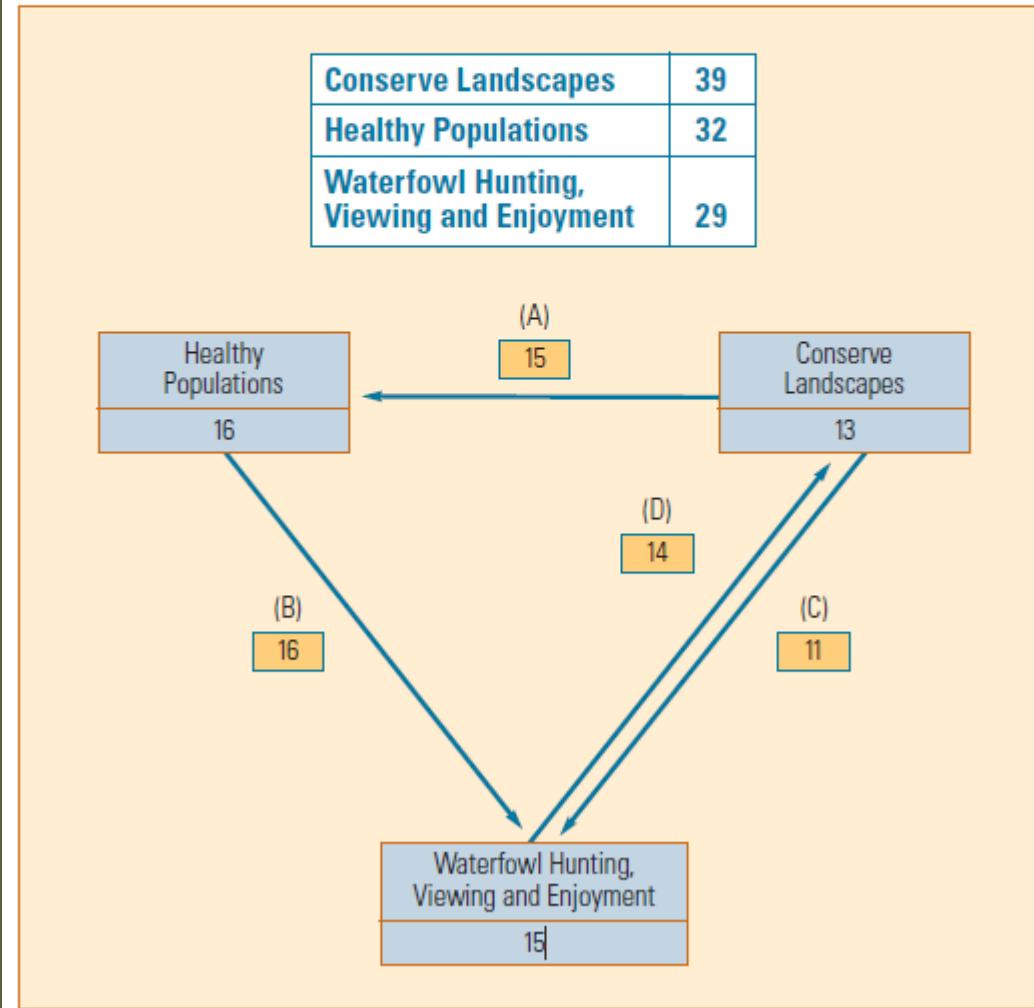
The utilities, reflected by arrows, convey the following relationships:

"A" represents the value that landscape conservation makes to healthy populations.

"B" reflects the value that healthy populations play in perpetuating waterfowl hunting, viewing and enjoyment.

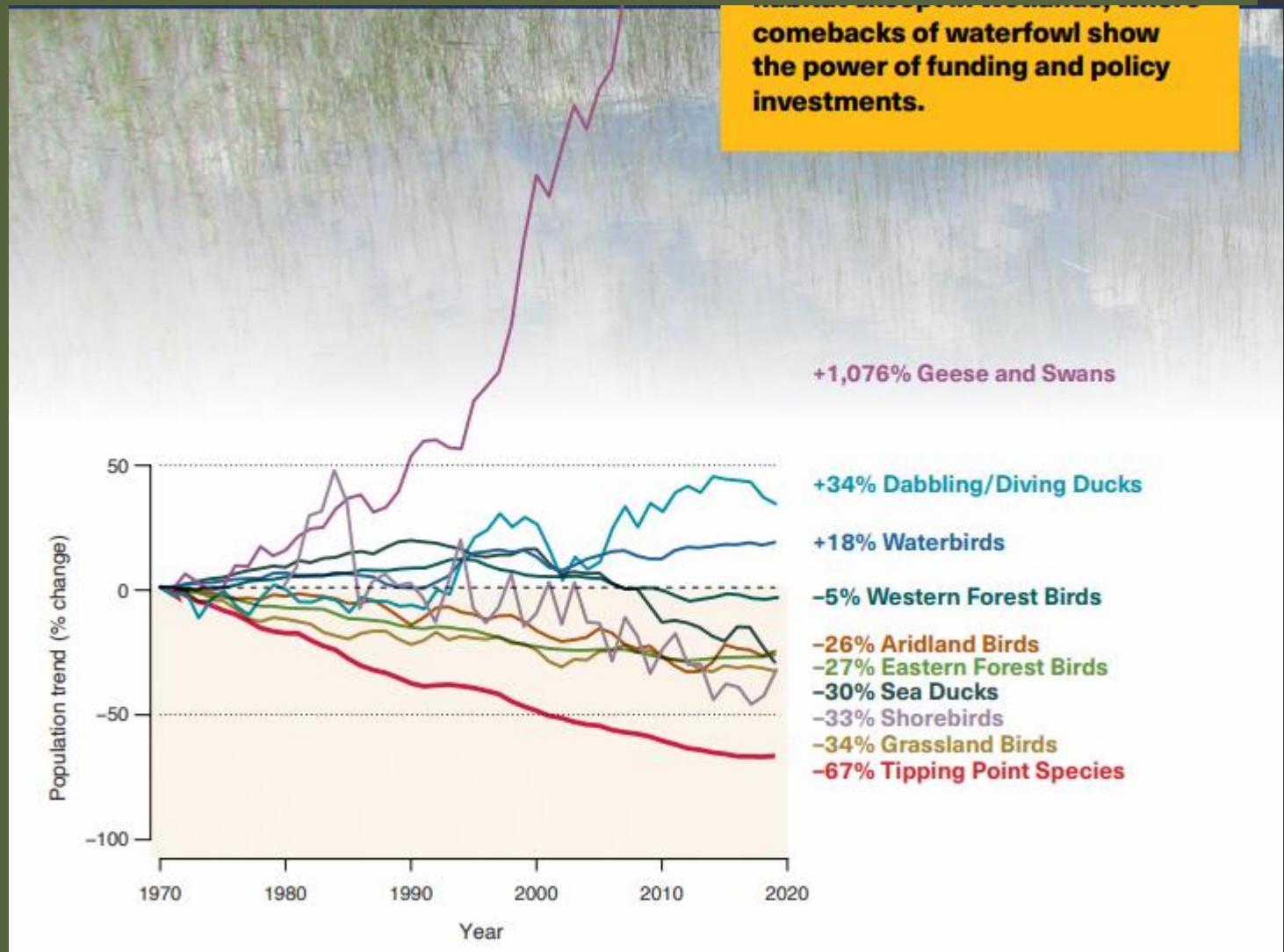
"C" represents the value of conserving landscapes in helping to perpetuate waterfowl hunting, viewing and enjoyment.

"D" represents the role that waterfowl hunting, viewing and enjoyment play in helping conserve landscapes.



North American Wetlands Conservation Act

- The funding vehicle to meet NAWMP objects
- This model has worked for waterfowl
- BUT – other birds are not doing as well



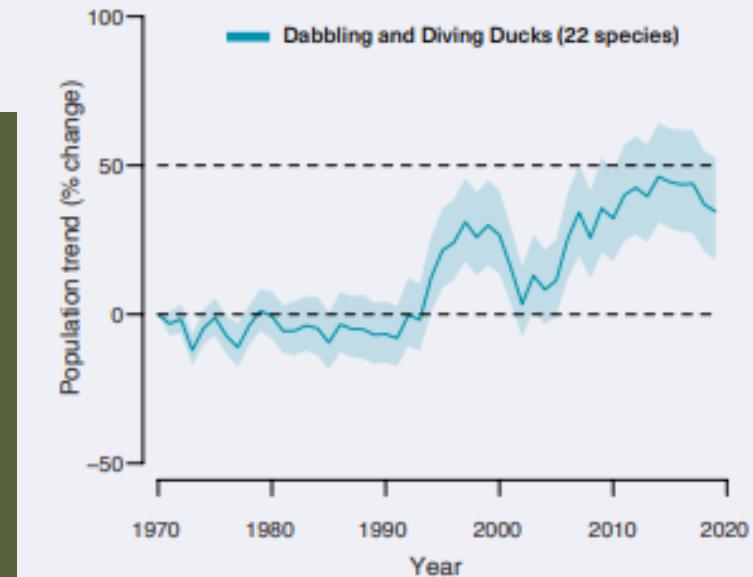
North American Wetlands Conservation Act

WATERFOWL AND WATERBIRDS A Model Conservation Success Story

STATUS: Decades of population growth driven by conservation policy and cleaner water

The long-term recovery of waterfowl and waterbird populations is largely due to successful policy (such as the North American Wetlands Conservation Act and U.S. Farm Bill conservation programs), along with coordinated efforts by public-private partnerships under the North American Waterfowl Management Plan.

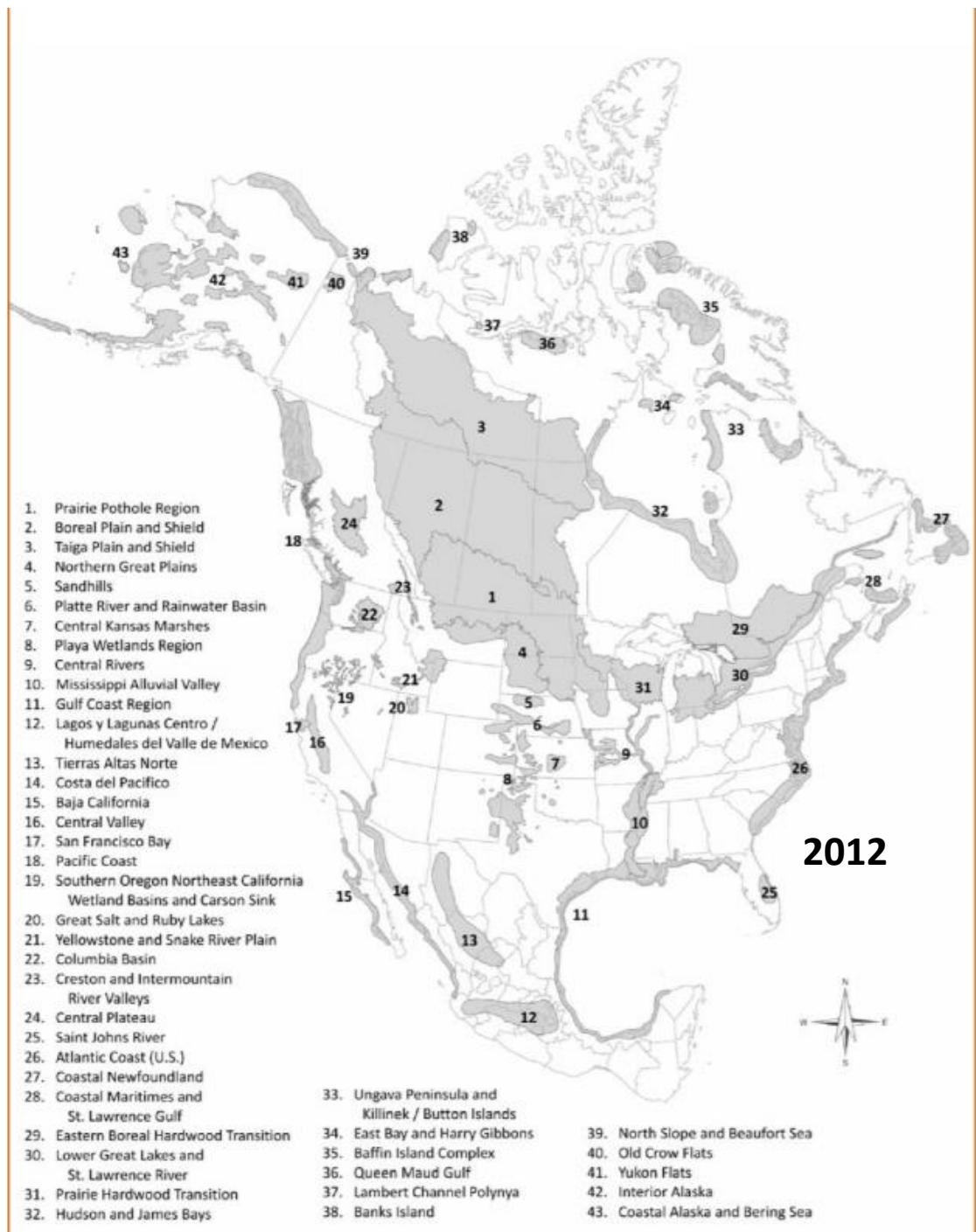
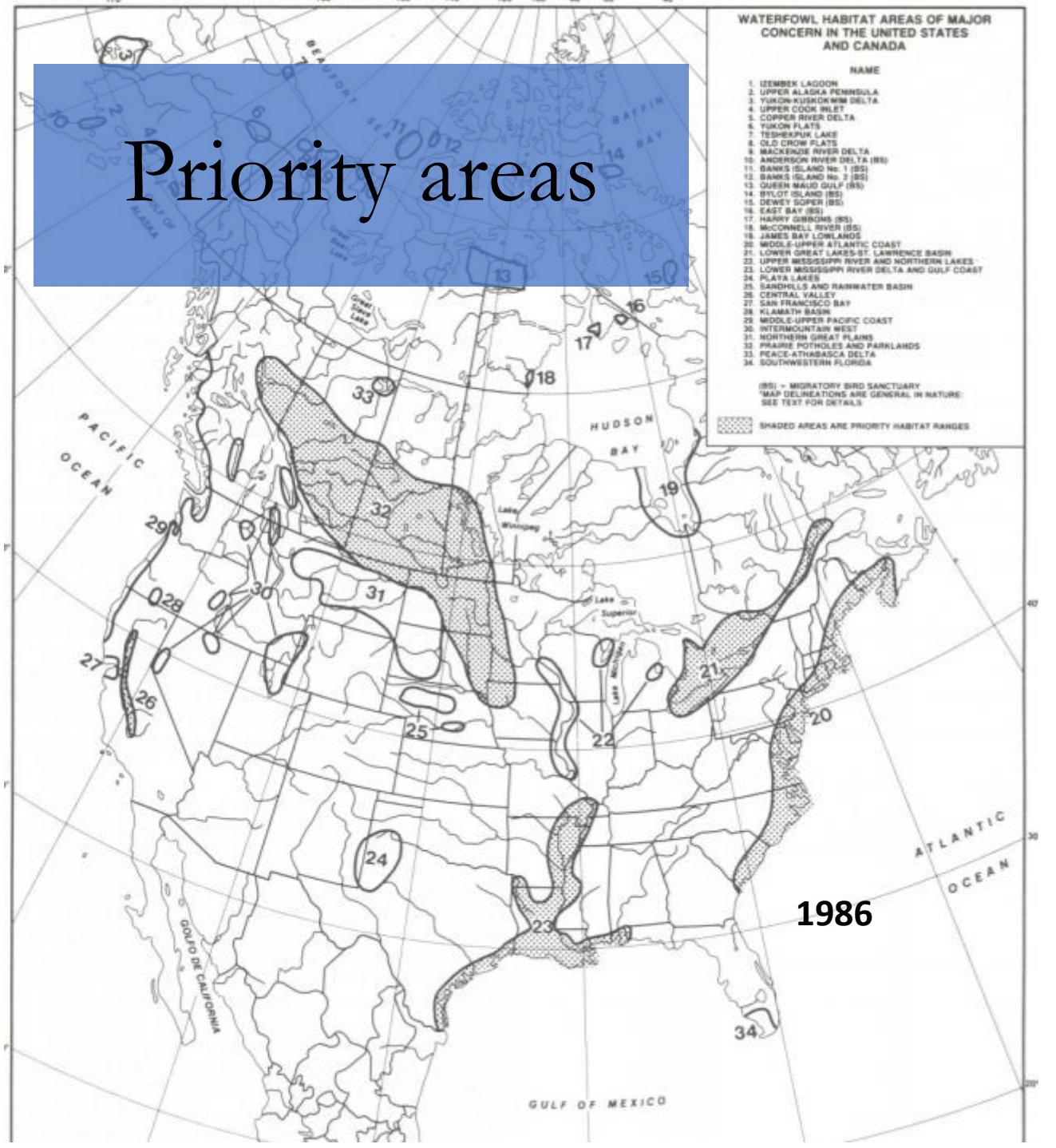
- Decades of dedicated funding for habitat conservation made possible by quality science



Despite their decades-long gains, ducks continue to face pressures from grassland habitat loss, wetland drainage, coastal wetland loss, and climate change impacts. Recent droughts have tipped duck populations downward—underscoring the need for continued conservation investments to keep duck populations healthy and resilient.

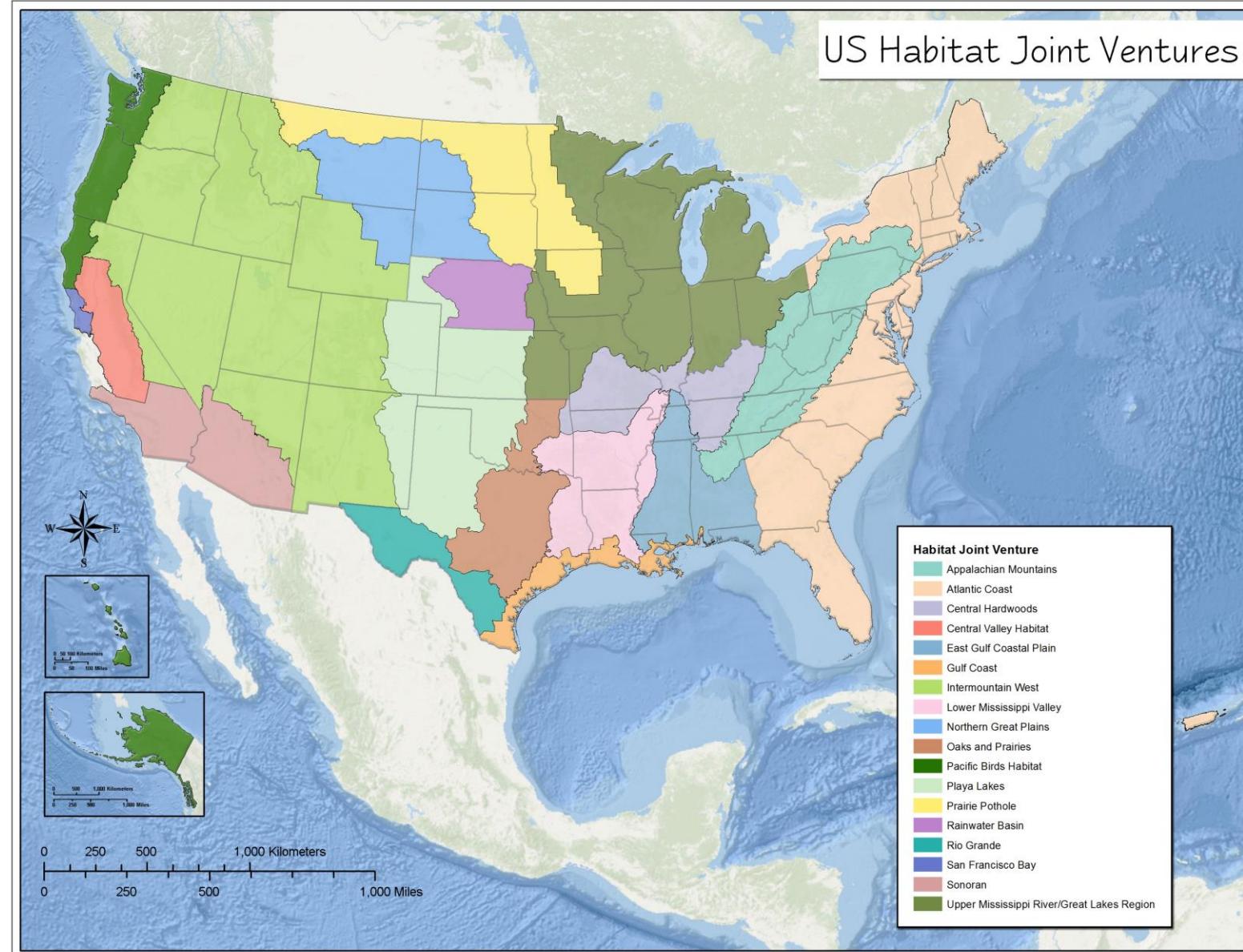
Mallards

Priority areas



Joint Ventures

- Broad geographic areas with similar ecology, species, and threats
- Each Joint Venture functions independently and develops their own priorities and strategic plans unique to their region.



Joint Ventures

- Broad geographic areas with similar ecology, species, and threats
- Each Joint Venture functions independently and develops their own priorities and strategic plans unique to their region.

Upper Midwest and Great Lakes JV

JV Implementation Plans

2007 Implementation Plan



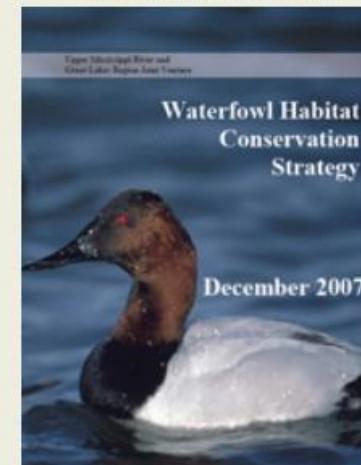
Landbird Habitat Conservation Strategy



Shorebird Habitat Conservation Strategy



Waterfowl Habitat Conservation Strategy



Waterbird Habitat Conservation Strategy



Joint Ventures

- Each Joint Venture functions independently and develops their own priorities and strategic plans unique to their region.



Atlantic Coast Joint Venture

Partnering to restore and sustain native bird populations and habitats throughout the Atlantic Coast Joint Venture region.

Home

About Us

Conservation

Planning

Our Science

Funding

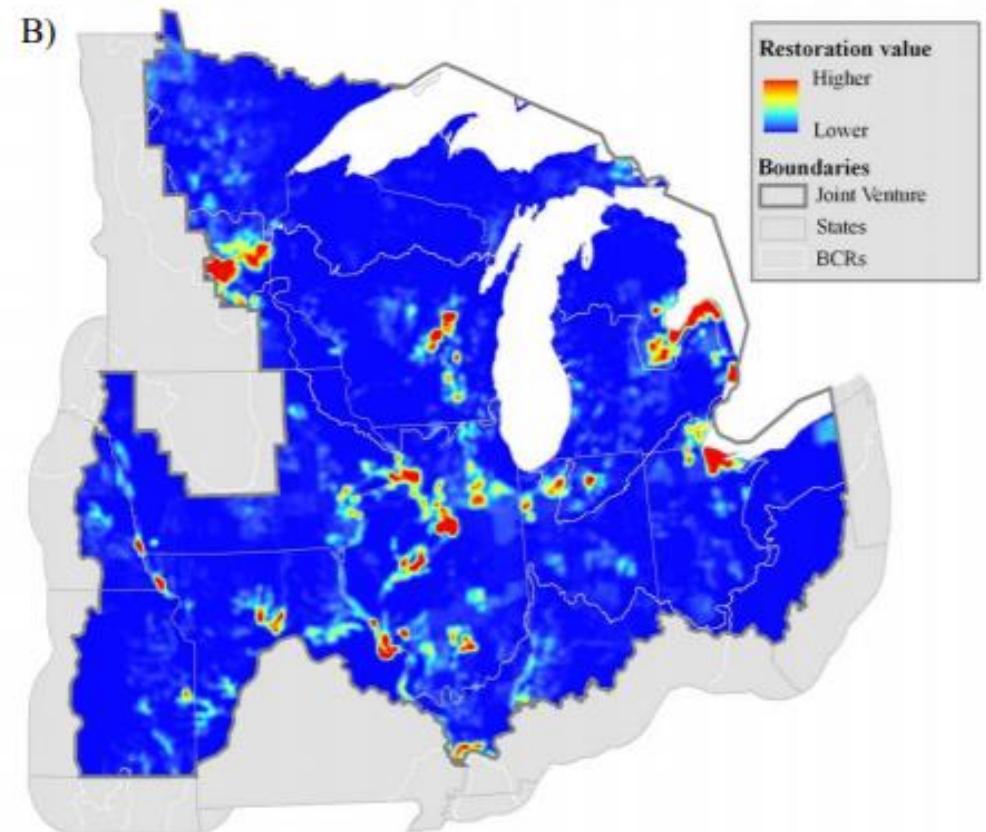
News

Resources



How many acres and where?

- Priority species
- Representative species
- For waterfowl - Three components
 - 1/ Regional population goal for each species
 - 2/ Energy demand per individual
 - 3/ Energy supply per unit area of wetland



“Thunderstorm map” that uses county level harvest distribution and hydric soil availability to determine areas of greatest restoration value

How many acres and where?

- Priority species
- Representative species
- For waterfowl - MORE components
 - 1/ Ducks
 - 2/ Recreation
 - 3/ Water Quality
 - 4/ Great Lakes Coast

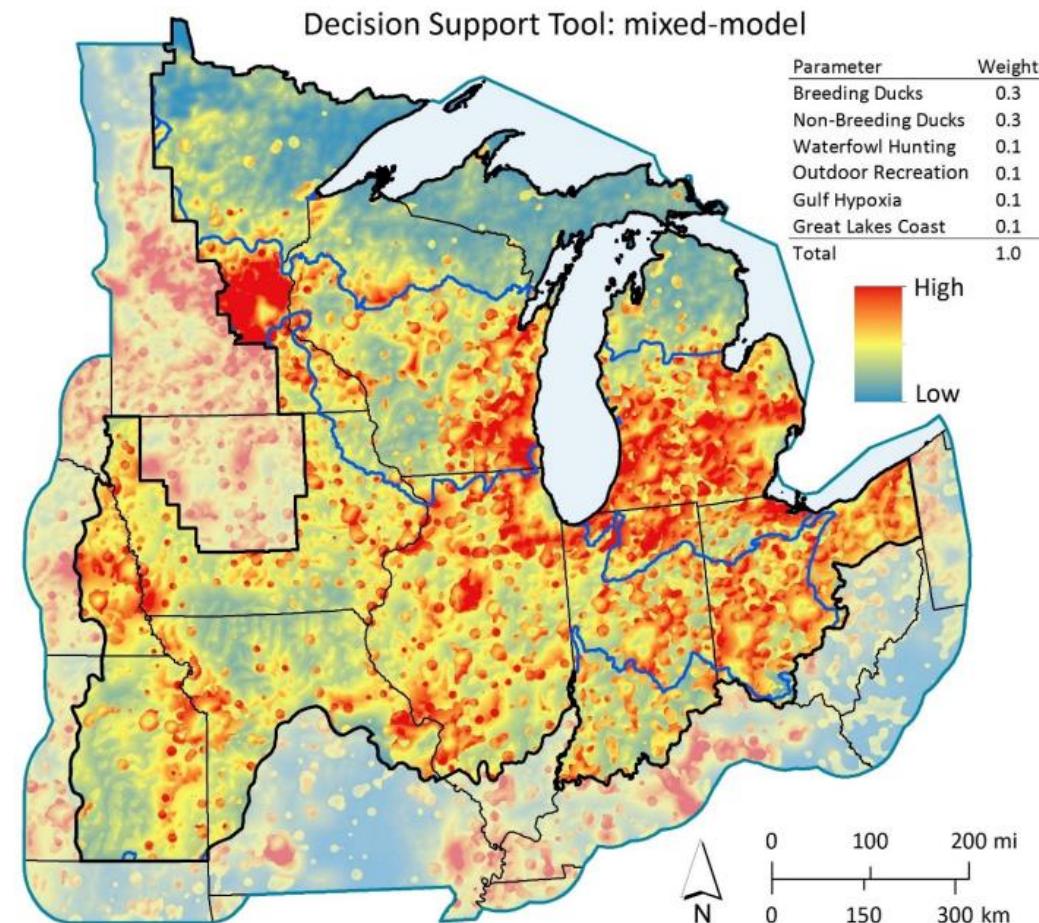


Figure 18. Decision support tool (DST) to target waterfowl habitat conservation in the Upper Mississippi River and Great Lakes Joint Venture (JV) region. The DST is a combination of six parameters, mixing biological (breeding and non-breeding waterfowl habitat) and social (waterfowl supporters and ecological goods and services) model-based maps weighted by regional waterfowl stakeholders. State and BCR boundaries (black and blue lines) designate the State x BCR polygons linked to JV waterfowl habitat retention and restoration objectives (see Tables 17 and 18 in Conservation Delivery).

Table 9. Spring migration and winter use-day goals (current needs + deficit needs) for species commonly occurring in the Upper Mississippi River and Great Lakes Joint Venture (JV) region. Numbers are based on continental population estimates (average for 1994–2003, NAWMP 2004) and estimates of the duration of stay in the JV region during each season (Appendix G).

Guild/foraging habitat	Species	Use days		
		Spring	Winter	Total
Wet mudflat / moist soil plants				
	Blue-winged Teal	41,625,029	0	41,625,029
	Northern Shoveler	7,633,091	0	7,633,091
	Northern Pintail	19,686,675	0	19,686,675
	Green-winged Teal	21,939,032	0	21,939,032
	Total	90,883,827	0	90,883,827
Shallow semi-permanent marsh				
	Wood Duck	38,083,080	10,476,180	48,559,260
	Gadwall	11,137,685	0	11,137,685
	American Wigeon	12,658,056	0	12,658,056
	American Black Duck	10,455,602	9,585,437	20,041,039
	Mallard	129,691,043	167,383,620	297,074,663
	Total	202,025,466	187,445,237	389,470,703
Deep water marsh				
	Mute Swan	954,000	484,200	1,438,200
	Trumpeter Swan	216,000	175,410	391,410
	Tundra Swan	1,000,000	0	1,000,000
	Ring-necked Duck	19,336,412	4,221,450	23,557,862
	Hooded Merganser	6,125,873	6,150,870	12,276,743
	Ruddy Duck	6,437,548	274,050	6,711,598
	Total	34,069,833	11,305,980	45,375,813
Extensive open water				
	Canvasback	7,443,585	11,702,970	19,146,555
	Redhead	12,849,990	7,121,070	19,971,060
	Greater Scaup	14,301,019	3,996,135	18,297,154
	Lesser Scaup	60,578,203	23,400,009	83,978,212
	White-winged Scoter	3,374,657	12,004	3,386,661
	Black Scoter	3,001,785	7,875	3,009,660
	Long-tailed Duck	8,193,905	16,597,629	24,791,534
	Bufflehead	20,298,053	8,673,210	28,971,263
	Common Goldeneye	21,296,386	37,316,160	58,612,546
	Common Merganser	12,453,643	17,614,080	30,067,723
	Red-breasted Merganser	2,174,109	4,193,820	6,367,929
	Total	165,965,335	130,634,962	296,600,297
All cover types	Total	495,458,161	329,398,150	824,856,311

Duck use days

- Residency time × abundance

So 100 ducks for 10 days =

1,000 Duck use days (DUDs)

Table 10. Body mass, estimated resting metabolic rate (RMR), and daily energy requirement (DER) for waterfowl commonly occurring in the Upper Mississippi River and Great Lakes region during migration and winter.

Species	Body mass (kg) ^a	RMR (kJ/day) ^b	DER (kJ) ^c
Mute Swan	11.36	2,549	7,646
Trumpeter Swan	12.68	2,765	8,294
Tundra Swan	7.26	1,831	5,492
Wood Duck	0.68	317	952
Gadwall	0.97	413	1,238
American Widgeon	0.82	364	1,093
American Black Duck	1.25	498	1,493
Mallard	1.25	498	1,493
Blue-winged Teal	0.46	238	713
Northern Shoveler	0.68	317	952
Northern Pintail	1.03	431	1,294
Green-winged Teal	0.32	182	545
Canvasback	1.25	499	1,496
Redhead	1.11	455	1,366
Ring-necked Duck	0.74	338	1,013
Greater Scaup	1.05	439	1,316
Lesser Scaup	0.83	366	1,099
Surf Scoter	1.00	422	1,266
White-winged Scoter	1.59	594	1,783
Black Scoter	1.14	463	1,390
Long-tailed Duck	0.95	407	1,222
Bufflehead	0.48	245	735
Common Goldeneye	1.08	445	1,336
Hooded Merganser	0.73	334	1,003
Common Merganser	1.65	611	1,834
Red-breasted Merganser	0.71	327	981
Ruddy Duck	0.54	269	808

^aBody mass (kg) based on adult males (Bellrose 1980).

^bRMR = $422 * W^{0.74}$ where W is body mass in kg (Miller and Eadie 2006). One kiloJoule (kJ) = 0.24 kilocalories (kcal) or 4.18 kJ / kcal.

^cDER = RMR*3 (Prince 1979).

Daily Energy Requirements

358.32 kcal/day

130.80 kcal/day

DUD X DER = Duck Energy Days Needed

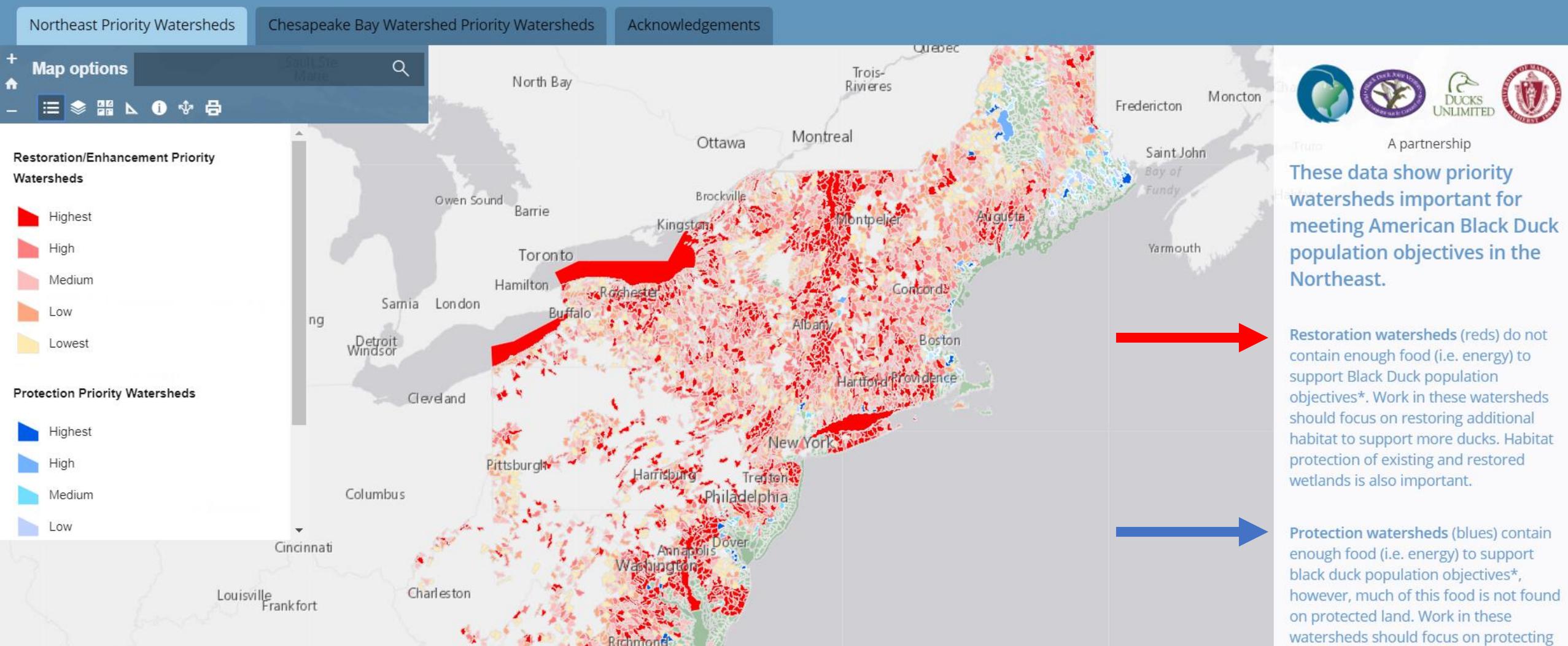
Table 4.1 Energetic carrying capacity of selected foraging habitats (expressed as duck-energy days/ha [DEDs]) for dabbling ducks

Habitat	Food abundance ^a	Foraging threshold ^a	Food available ^a	TME ^{b,h,n}	DED ^{c,o}
Moist soil ^d					
Unmanaged ^e	403	200	203	2.47	1,784
Managed ^f	751	200	551	2.47	4,705
Restored WRP ^g	306	200	106	2.47	970
Harvested crops					
Rice ⁱ	80	50	30	3.34	384
Soybean ^j	45	50	0	2.65	3
Corn ^j	75	15	60	3.67	748
Milo ^j	156	50	106	3.49	1,258
Unharvested crops					
Rice ^k	6,030	50	5,980	3.34	67,899
Soybean ^j	2,190	50	2,140	2.65	19,299
Corn ^j	6,260	15	6,245	3.67	77,864
Milo ^j	3,051	50	3,001	3.49	35,583
Millet ^l	1,300	10	1,290	2.61	11,472
Bottomland hardwood ^m					
10 % red oak	12	10	2	2.76	56
20 % red oak	38	10	28	2.76	302

- True Metabolizable Energy
- Determine how many acres are needed to satisfy the animals you plan on supporting for X number of days
- Help provide an objective decision-making framework for where and when to provide habitat

Decision support tools – habitat models

American Black Duck Non-breeding Watershed Prioritization



REMARKABLE RECOVERIES

Waterfowl serve as a model for how habitat protection and restoration can reverse bird declines.

Waterfowl



56 % increase since 1970



Waterfowl are one of America's best wildlife success stories, thanks to federal investments such as the Duck Stamp and North American Wetlands Conservation Act that powered waterfowl conservation efforts.

WOOD DUCK BY LINDA RUDOLPH/MACLAULY LIBRARY

Raptors show what a big difference states can make in species protection.

Raptors



200% increase since 1970

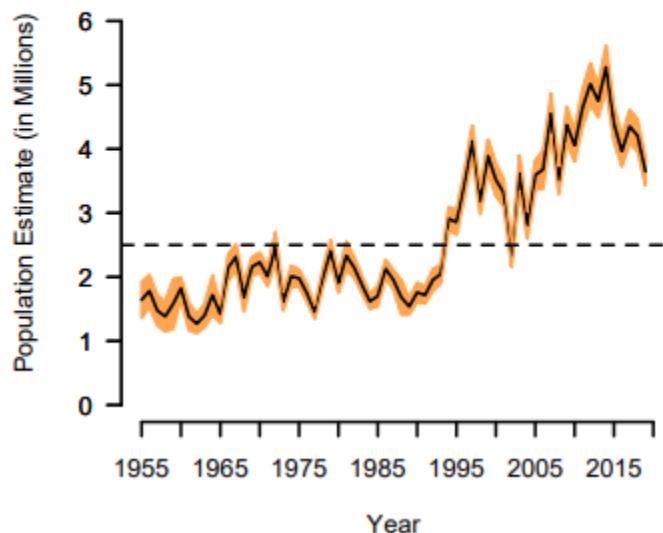


Hawks, eagles and other birds of prey buck the general trend of declining birds thanks to bans on harmful pollutants such as DDT, as well as strong federal and state protections from shooting.

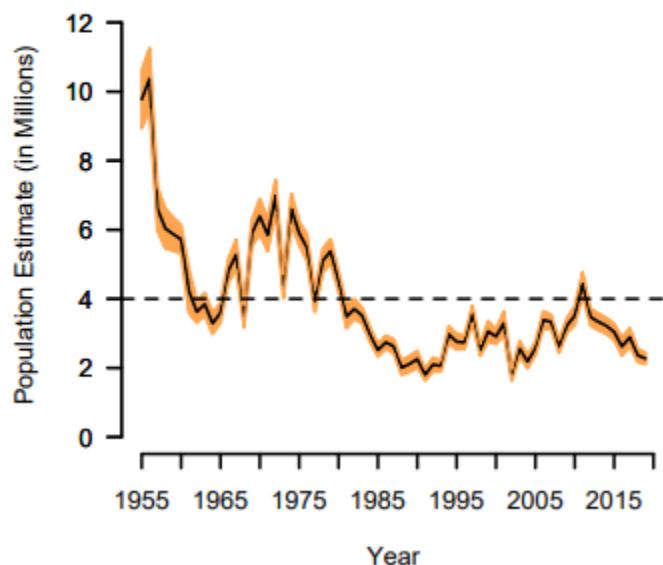
COOPER'S HAWK BY JOHN BRUNN/MACLAULY LIBRARY

STATUS OF DUCKS

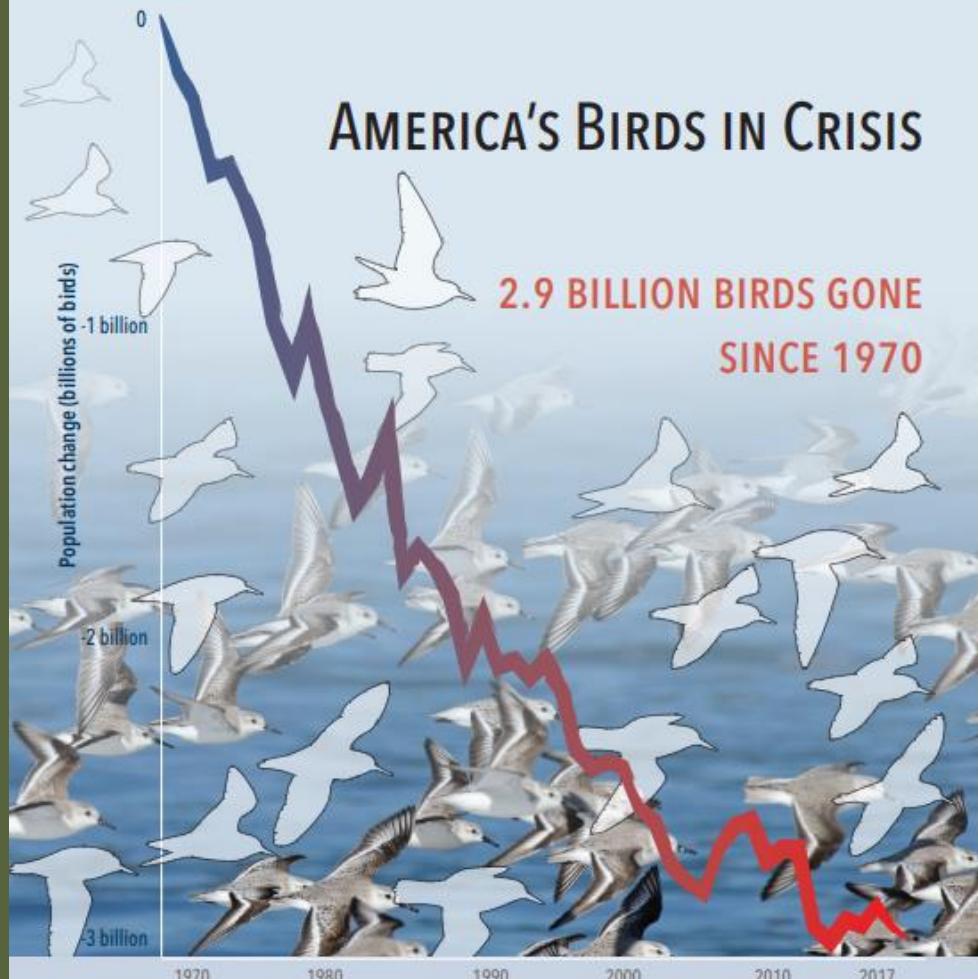
Northern shoveler



Northern pintail



THE STATE OF THE BIRDS 2019



Nearly 30% of our birds have disappeared in the last 50 years: New research published in the journal *Science* shows massive losses among U.S. bird populations—with steep declines in every habitat.

UNITED STATES OF AMERICA

AMERICA'S BIRDS IN CRISIS

2.9 BILLION BIRDS GONE
SINCE 1970

RECOVERY IS
POSSIBLE
WHEN WE
INVEST IN BIRDS

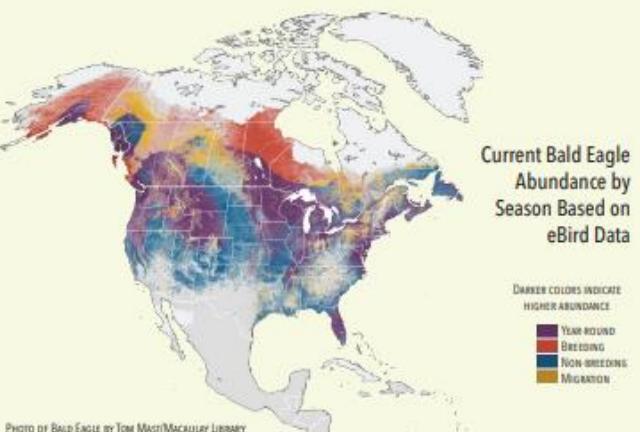
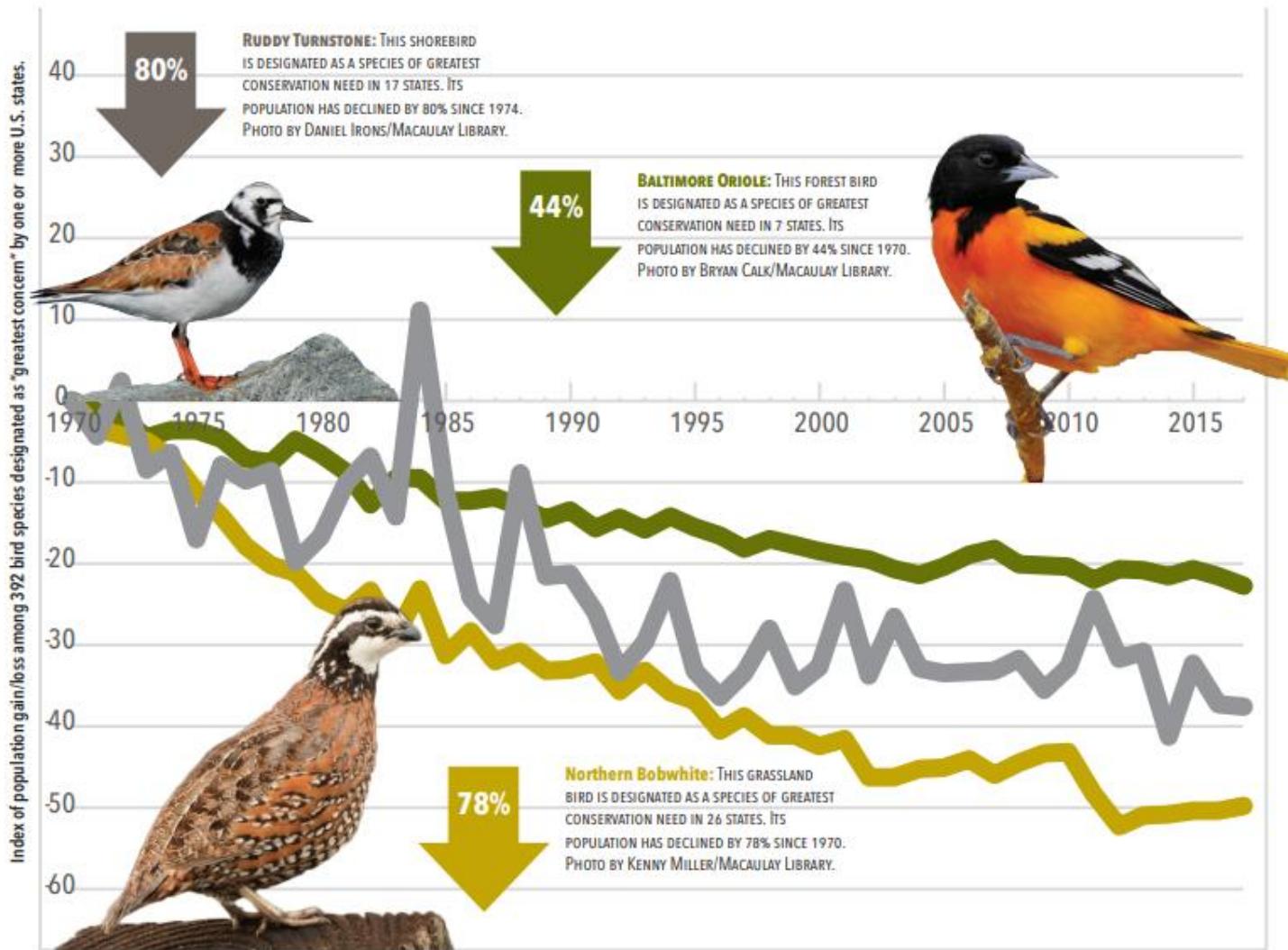


PHOTO OF BALD EAGLE BY TOM MAST/MACLAULY LIBRARY

Our national bird, an icon of wildlife recovery: In 1970 only a few hundred Bald Eagle pairs remained in the lower 48 states. Federal and state protections sparked a remarkable recovery. The Bald Eagle was delisted as an Endangered Species in 2007, and today 30,000+ eagle pairs live in the U.S.A.

AMERICA'S BIRDS ARE IN STEEP DECLINE



Forest Birds

Forest birds have experienced consistent declines, with big losses among beloved species such as Wood Thrush and Baltimore Oriole. Altogether, forest bird populations have lost 1.2 billion birds since 1970.

Shorebirds

Shorebirds include many migratory species such as Ruddy Turnstone and Semipalmated Sandpiper that are declining fast, with critically low populations that may soon trigger Endangered Species Act listings.

Grassland Birds

Grassland birds have suffered the steepest losses, with a population decline of 700 million birds. Some of the biggest declines are among birds beloved by birdwatchers and hunters alike, such as Northern Bobwhite.

FUNDING FOR STATE WILDLIFE PROGRAMS AND JOINT VENTURES IS CONSERVATION MONEY WELL-SPENT

CONSERVATION WORKS!

When we invest in conservation, we see wildlife population increases and endangered species recovery. Additional funding will allow states to replicate conservation successes across thousands of other species of greatest conservation need.

WESTERN STATES:
5.6 million acres of sage-grouse habitat conserved on private lands

- Steep population declines put Greater Sage-Grouse on the brink of ESA listing
- The Sage Grouse Initiative (a USDA Natural Resources Working Lands for Wildlife program) and the Intermountain West Joint Venture led the restoration of millions of acres of sage-grouse habitat across 11 western states, thanks to collaborations between federal and state agencies and more than 1,100 private ranchers
- ESA listing avoided in 2015, saving local economies from California to the Dakotas up to \$5 billion in annual costs, according to Western Energy Alliance

Additional support would address the conservation needs of hundreds of other sage-brush wildlife species.

GREAT LAKES:
Endangered Kirtland's Warbler population soars by 1,100%

- One of first birds to be listed by ESA in 1973; down to last 150 breeding pairs
- State and federal agencies partnered to implement a recovery program that restores jack pine habitat and controls nest parasitism
- Population grew to 2,500+ breeding pairs in Michigan, with Kirtland's Warblers now expanding into Wisconsin and Ontario; successfully met delisting criteria

Additional support would continue state-led conservation work for Kirtland's Warblers after delisting, so they don't decline again.

APPALACHIA:
200 landowners become Cerulean Warbler champions

- With populations down more than 70%, this warbler is fast headed toward ESA consideration
- The Appalachian Mountains Joint Venture launched a sustainable management program to improve warbler habitat and forest health
- 200+ private landowners enrolled in the program to restore warbler habitat on thousands of acres of forests

Additional support would enable more private landowners to enroll and stop warbler declines in Appalachia.

ALASKA:
Hunting tradition revived for Emperor Geese

- Unique goose species found only in Alaska and Russian Far East, but 50% population decline halted hunting in the 1980s
- Populations rebounded after federal and state agencies partner with native groups on Emperor Goose conservation programs
- Population more than doubled by 2018; regulated sport and tribal traditional hunting reinstated

Additional support for state and tribal agencies would enable continued recovery for Emperor Geese.

COLORADO & NEBRASKA:
1,000+ Mountain Plover nests saved

- Plovers nest in farm fields, where eggs are at risk of being plowed under, or on ranching lands
- Mountain Plover declared a priority bird species for the Platte River Joint Venture; several hundred landowners joined the program to find and flag nests, allowing farmers and ranchers to work their land without disrupting breeding plovers
- ESA listing avoided; landowners became birding tour-leaders for Mountain Plover Festival in Karval, Colorado that has generated \$75,000 for local economy

Additional support would scale up this pilot program throughout the Mountain Plover's range.

TEXAS:
Turkeys worth \$42 million to Lone Star State economy

- America's classic game bird was nearly extinct in North America 100 years ago
- Federal and nonprofit partners worked with state agencies on stocking and reintroduction programs; today Texas has the largest turkey population in the U.S. (690,000+ turkeys)
- Turkey generate \$42 million in economic activity every year in Texas, and \$1.8 billion nationwide

Additional support would enable Texas and three related Joint Ventures to duplicate this success for Northern Bobwhite quail, another classic game bird trending toward extinction.

HAWAII:
Endangered Palila population stabilized

- Almost two-thirds of native Hawaiian forest bird species, including the Palila, are listed under the Endangered Species Act
- A coalition of federal, state, and private partners have restored 6,500 acres of forest to protect crucial Palila habitat
- Invasive species control and habitat management are keeping Palila and other Hawaiian forest bird species alive for now

Additional support would sustain programs essential to preventing extinctions on Hawaii.

EASTERN STATES:
A total turnaround—American Oystercatchers up 23%

- 10 years ago, oystercatcher populations were plummeting along East Coast; ESA listing would have impacted coastal communities, including some of America's favorite beaches
- Instead, the USFWS Northeast Division of Migratory Birds and 13 state agencies coordinated a conservation strategy with 16 states that reversed oystercatcher declines; population now up +20%
- Benefits beyond birds include improved fish nursery habitat and cleaner public beaches

Additional support would build on the oystercatcher success, funding the Atlantic Flyway Shorebird Initiative to avert ESA listings for 15 other declining shorebirds.

The Flyways

Biological Administrative



Flyway Structure

Two components:

- Technical Section (biologists)
 - Game and non-game sections
- Flyway Council (directors)



One official representative per state, province, or territory in each flyway

USFWS flyway representative and assistant

Associate members from the USFWS migratory bird office and joint ventures

Why have Flyway Councils and Tech Sections?

Migratory birds are a shared resource across states and countries

- All states and provinces are stakeholders

- Harvest parity is important

Dual regulatory authority

- However - USFWS ultimately responsible for the management of Migratory birds

Fosters collaboration between federal agencies, states, and provinces

Beyond the flyways...

Service Regulations Committee

- comprised of USFWS directors
- each flyway has two representatives to present recommendations

Joint Ventures

- non-regulatory
- 14 habitat oriented, 3 species oriented
- fund research and habitat improvement

SCHEDULE OF BIOLOGICAL INFORMATION AVAILABILITY, REGULATIONS MEETINGS AND FEDERAL REGISTER PUBLICATIONS FOR THE 2020-21 SEASONS

SURVEY & ASSESSMENT SCHEDULE

March - June, 2019
SPRING POPULATION SURVEYS

August 15, 2019
WATERFOWL STATUS REPORT

August 20, 2019
AHM REPORT w/OPTIMAL ALTERNATIVES,
WEBLESS and CRANE STATUS
INFORMATION, DOVE and WOODDOCK
REGULATORY ALTERNATIVES, and
HUNTER ACTIVITY and HARVEST REPORT

December 15, 2019 - January 31, 2020
FALL and WINTER SURVEY
INFORMATION for CRANES
and WATERFOWL

MEETING SCHEDULE

April 23, 2019 - Denver, CO
SRC Meeting

August 15 - September 30, 2019
Flyway Tech And Council Meetings

October 8-9, 2019 - Bloomington, MN
SRC Regulatory Meeting

March 2020 (at North Am. Conf)
Flyway Council Mtgs

September 1, 2020 and later
ALL HUNTING SEASONS

FEDERAL REGISTER SCHEDULE

July 30, 2019
**PROPOSED RULEMAKING (PRELIMINARY)
WITH STATUS INFORMATION
and ISSUES**

September 25, 2019
SUPPLEMENTAL PROPOSALS

December 10, 2019
**PROPOSED SEASON FRAMEWORKS
(30 Day Comment Period)**

February 25, 2020
FINAL SEASON FRAMEWORKS

June 1, 2020
**ALL HUNTING SEASONS SELECTIONS
(Season Selections Due April 30)**

The challenge

Recover the T&E species while keeping the common species common



Whimbrels



Greater Sage-Grouse



Patrick Ricketson

Application of Migratory Bird Ecology and Management

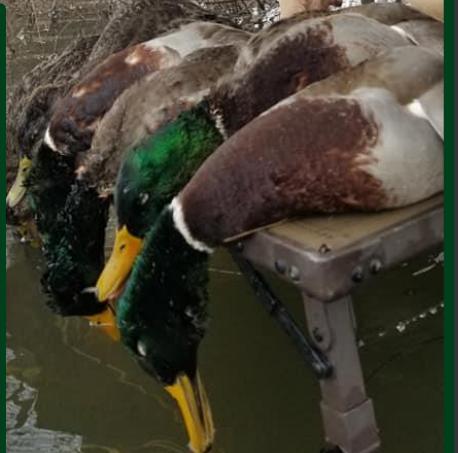




WEATHER influences the....

distributions of ducks, geese, and swans, which

- Influences foraging pressure by waterfowl by latitude
- Influences opportunity to encounter waterfowl
- Influences waterfowl harvest
- Influences the economy and conservation dollars





Weather Severity Indices

For Mallards in Missouri,
published in 2010 as a
Cumulative WSI

Calculated daily and selected as
maximum between two
waterfowl surveys

WSI =
-[average daily temperature °C]
+
Snow depth in inches
+
Number of days below freezing
+
Number of days with snow > 1"

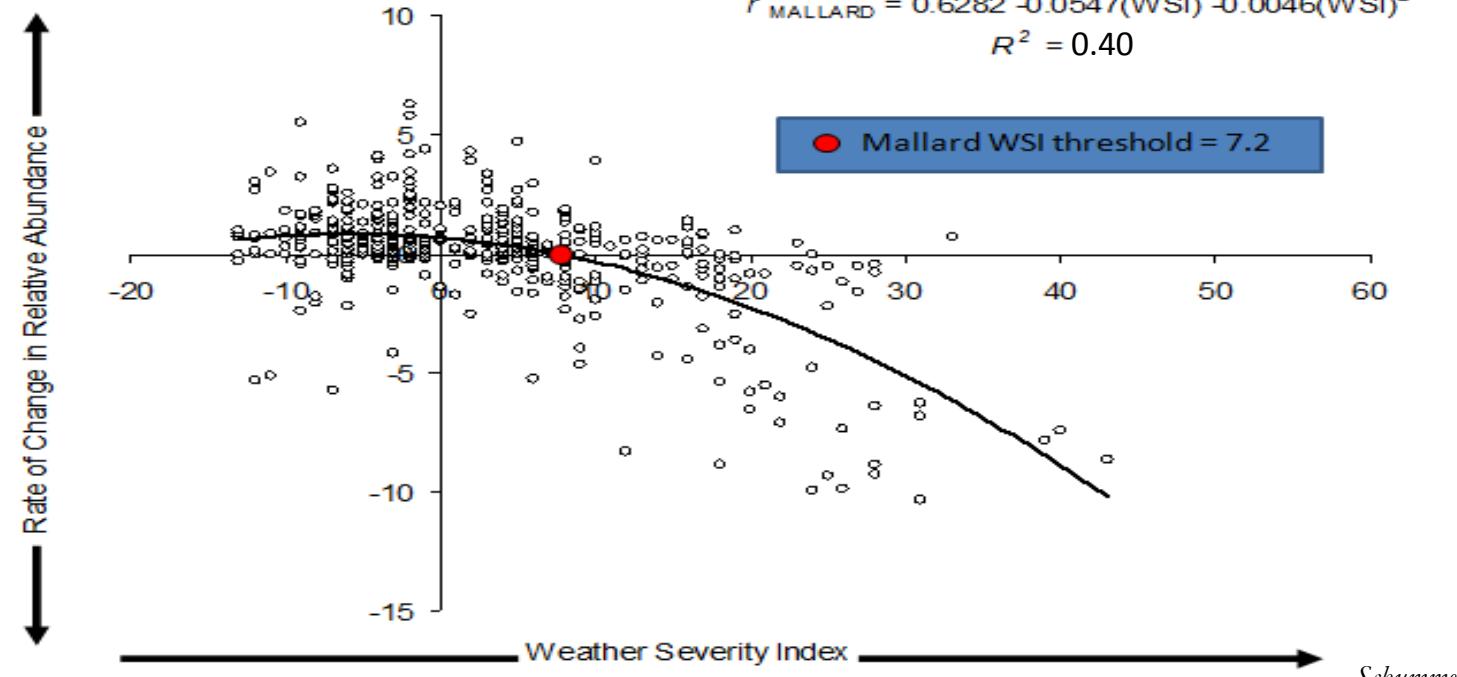


Schummer et al. 2010. Journal of Wildlife Management 74:94-101



Weather Severity Indices

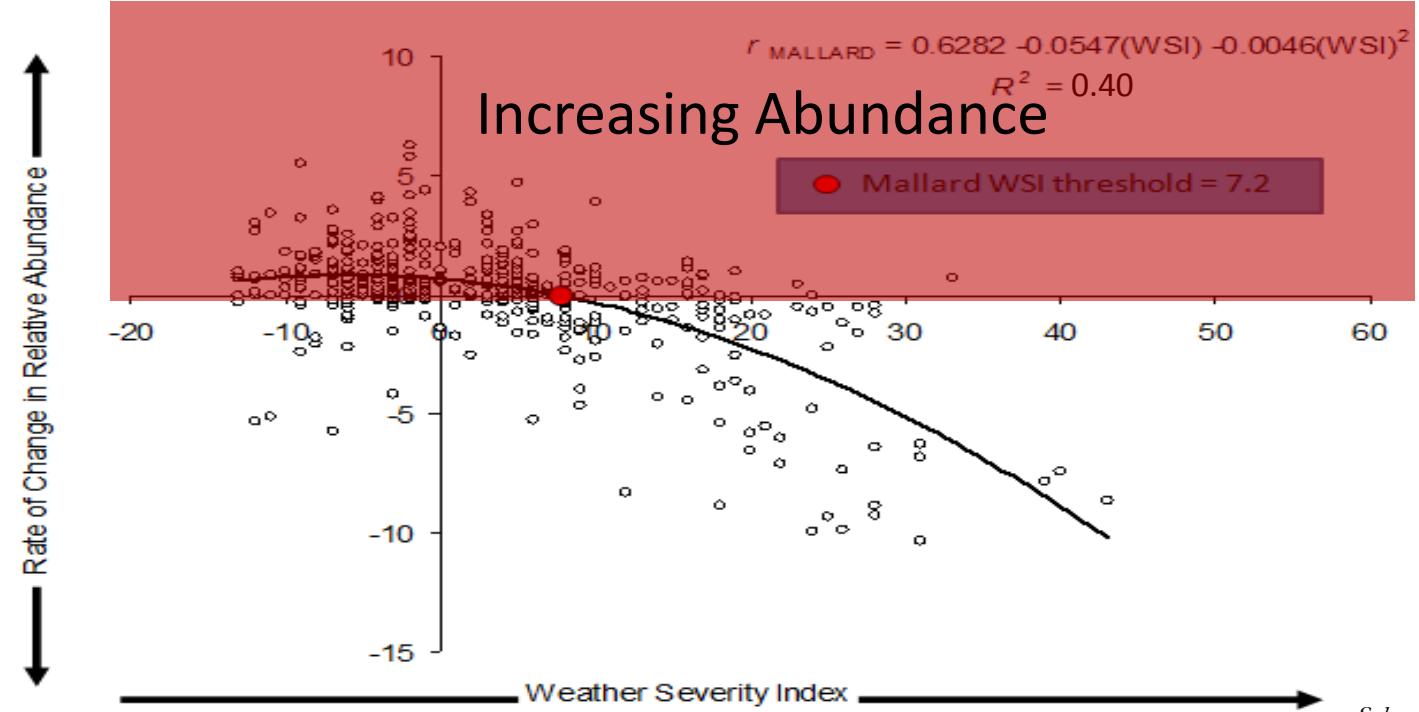
- For Mallards,
Cumulative WSI





Weather Severity Indices

- For Mallards,
Cumulative WSI

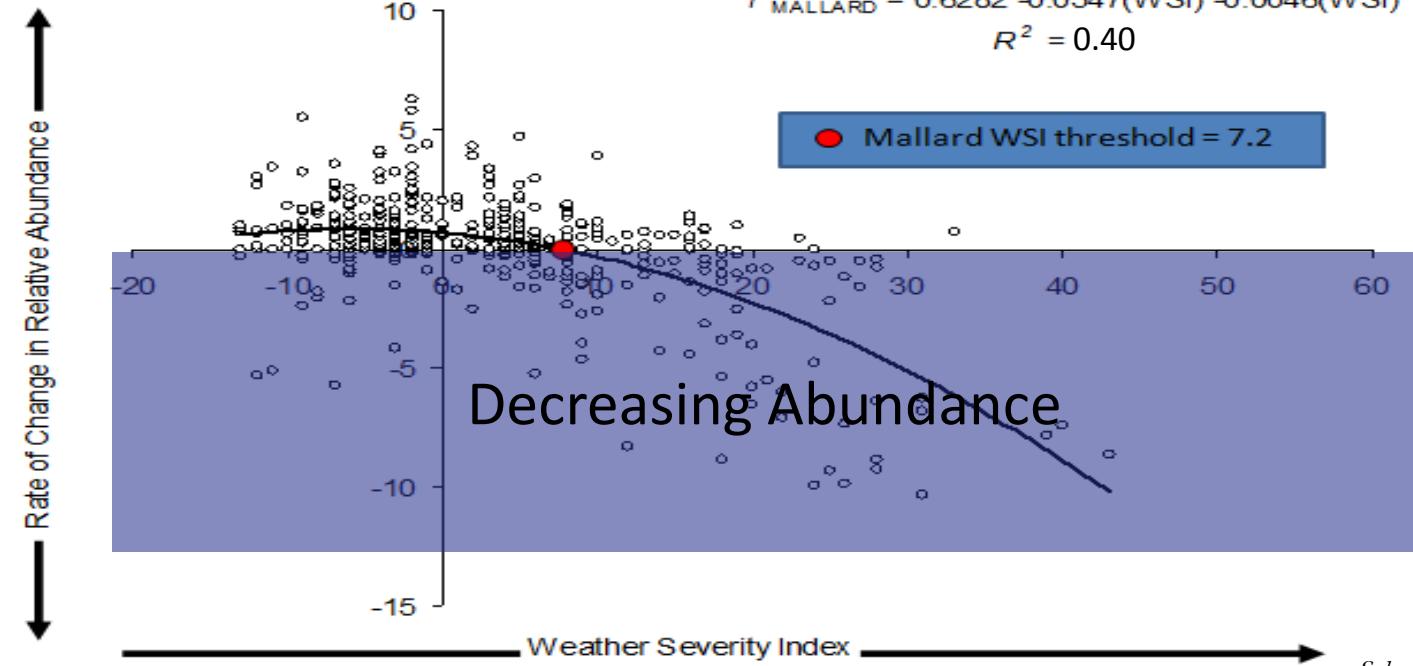


Schummer et al. 2010 JWM



Weather Severity Indices

- For Mallards,
Cumulative WSI

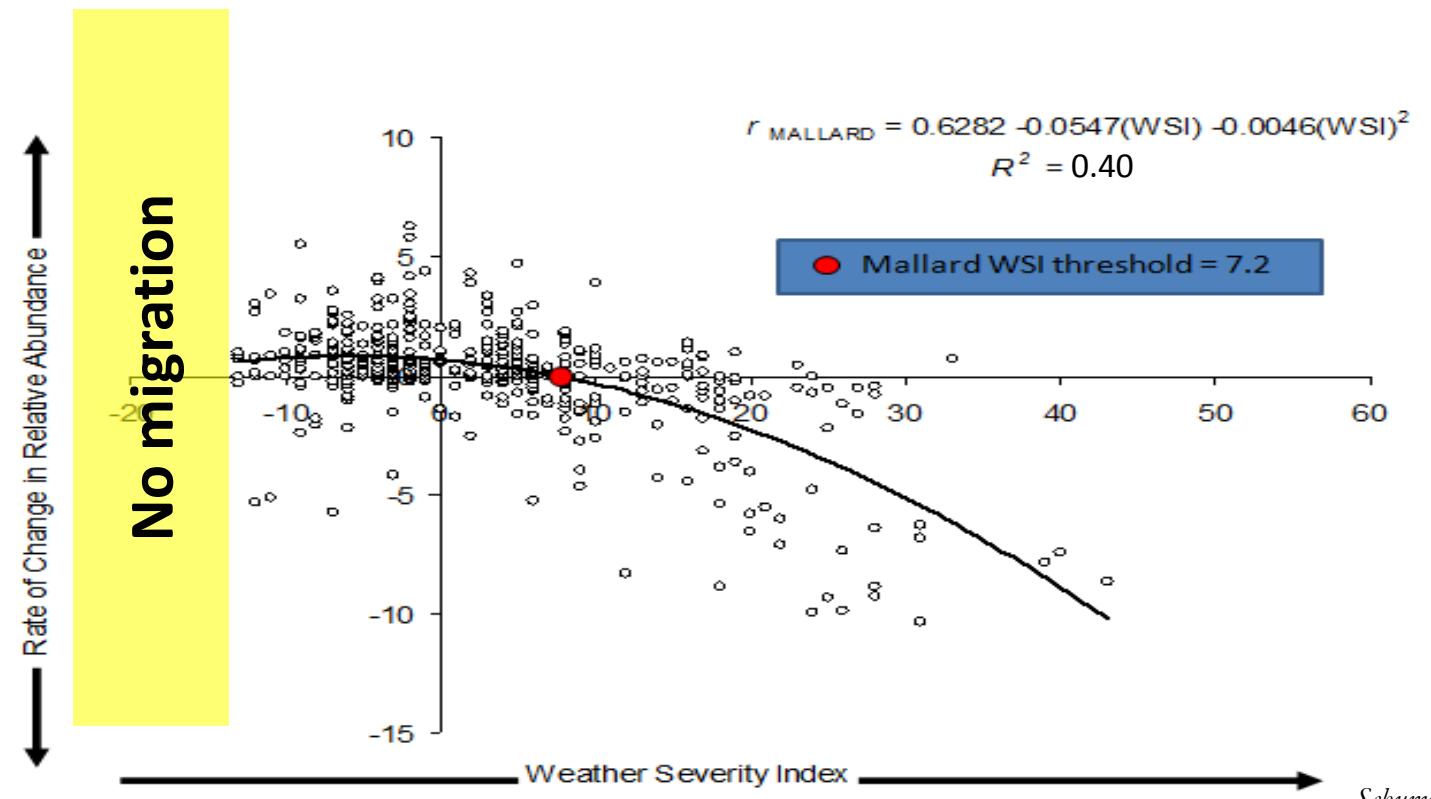


Schummer et al. 2010 JWM



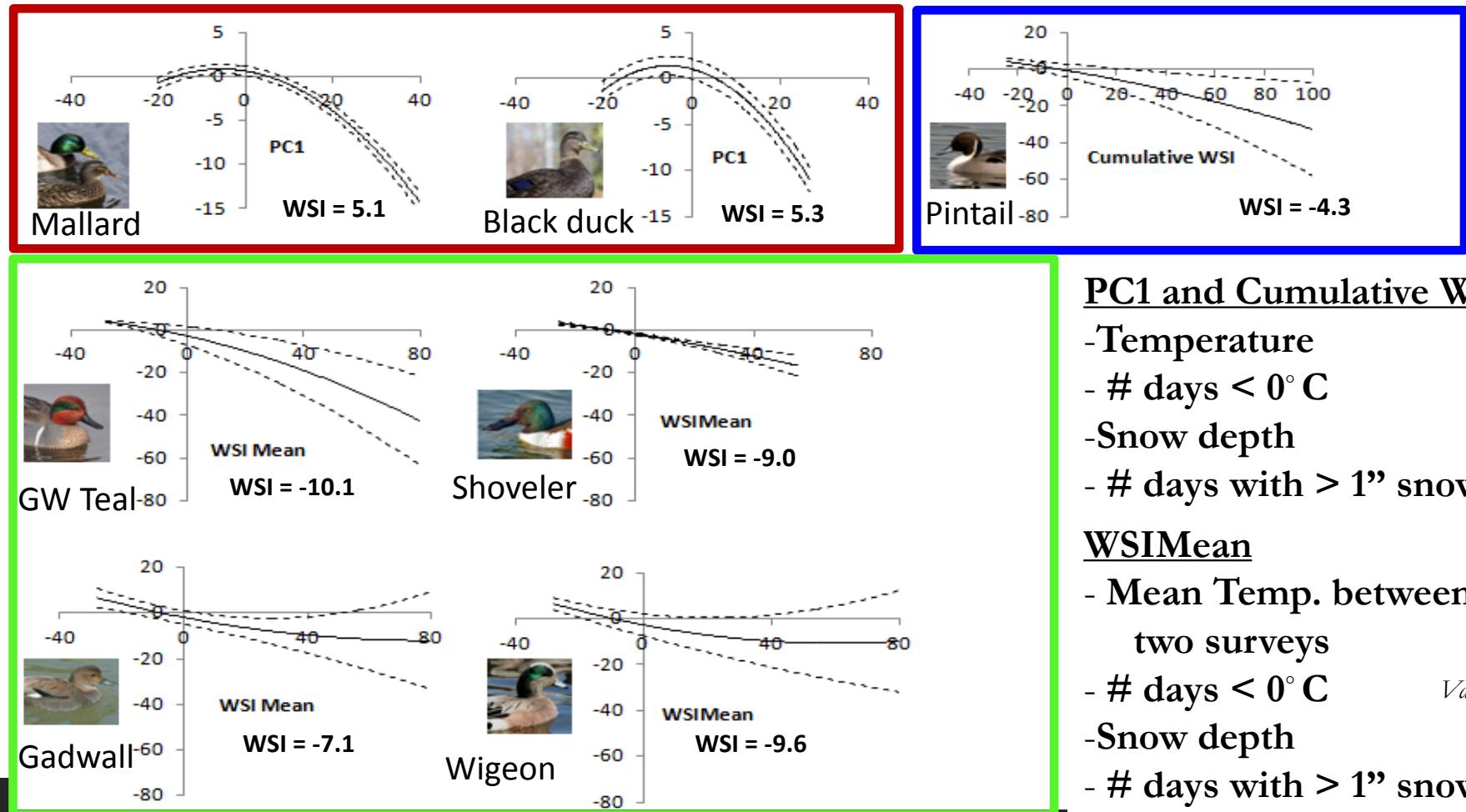
Weather Severity Indices

- For Mallards,
Cumulative WSI



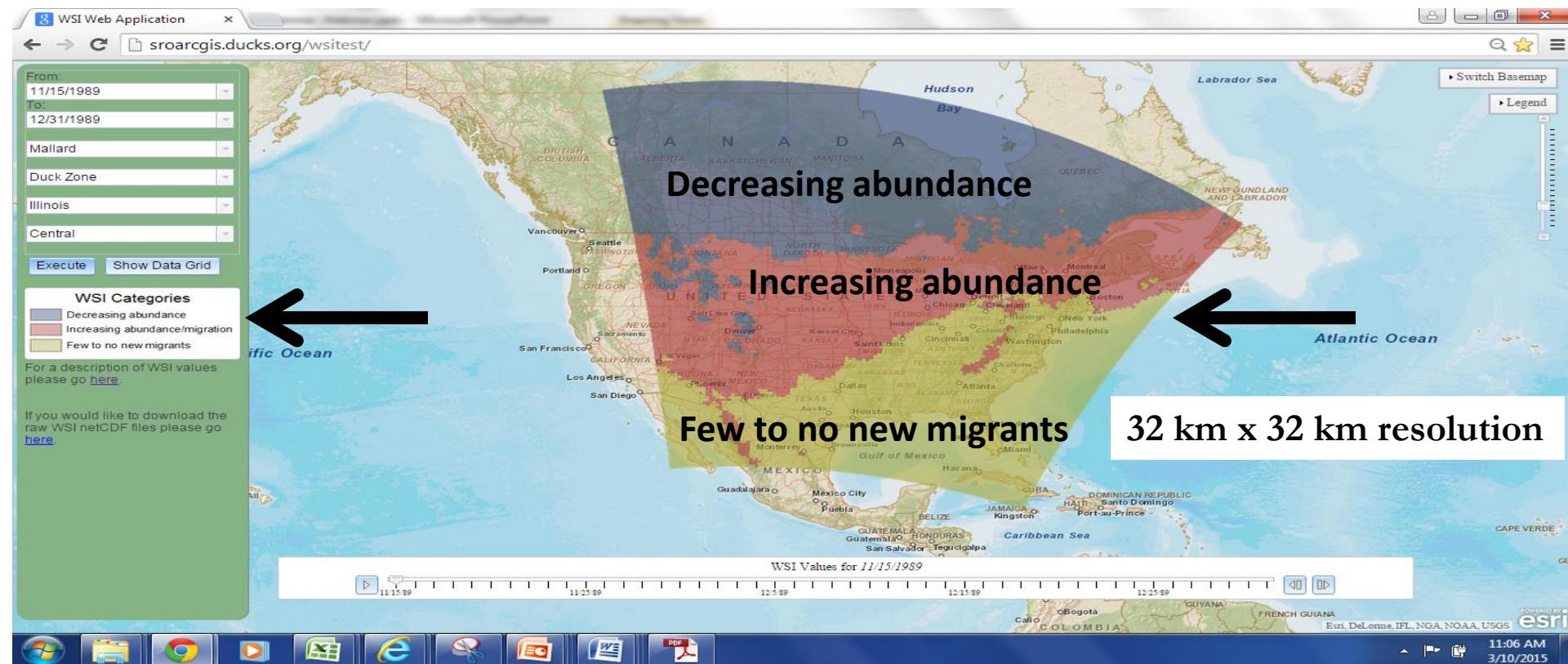


Weather Severity Indices



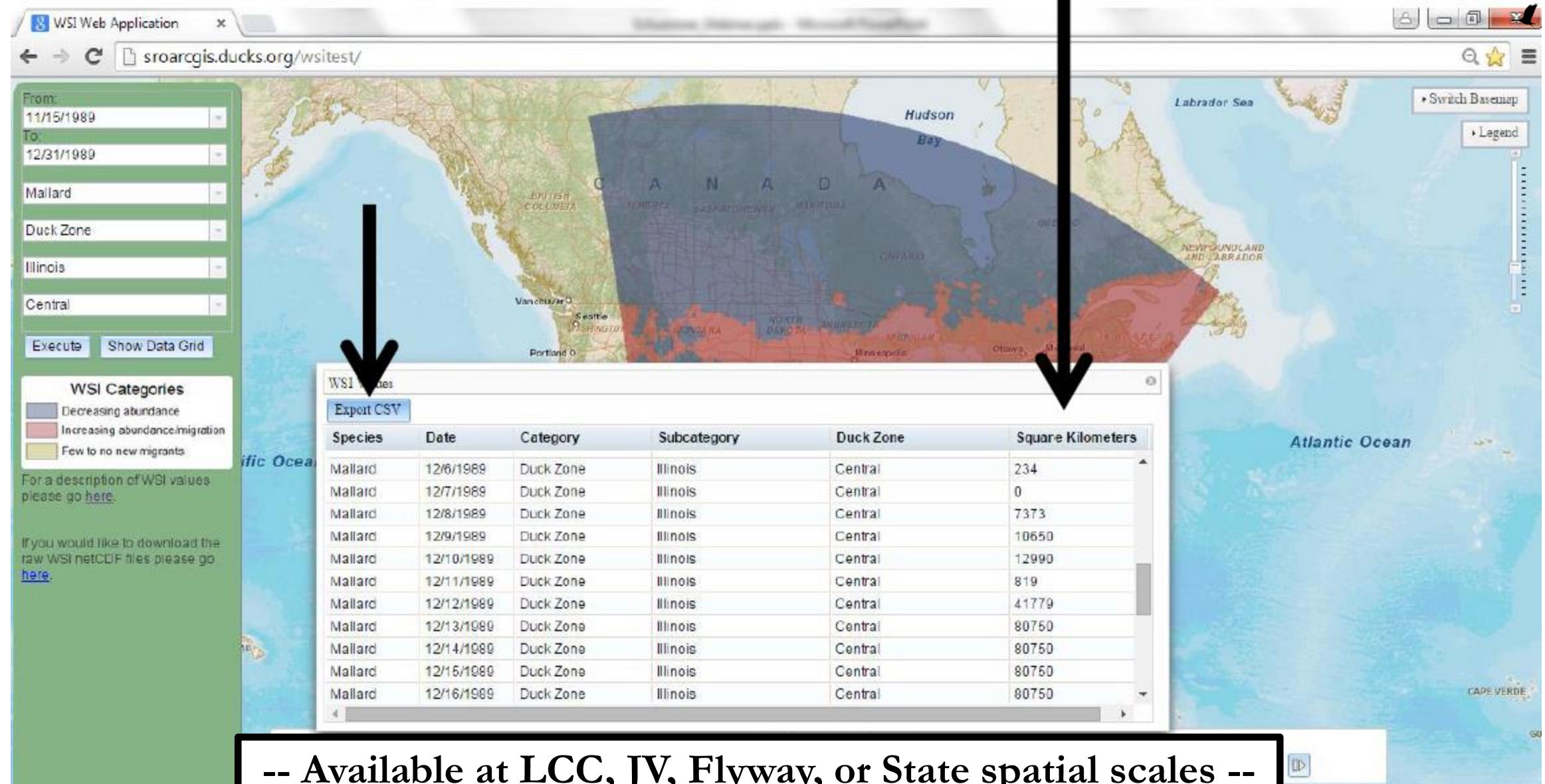


WSI Web Application Data Output



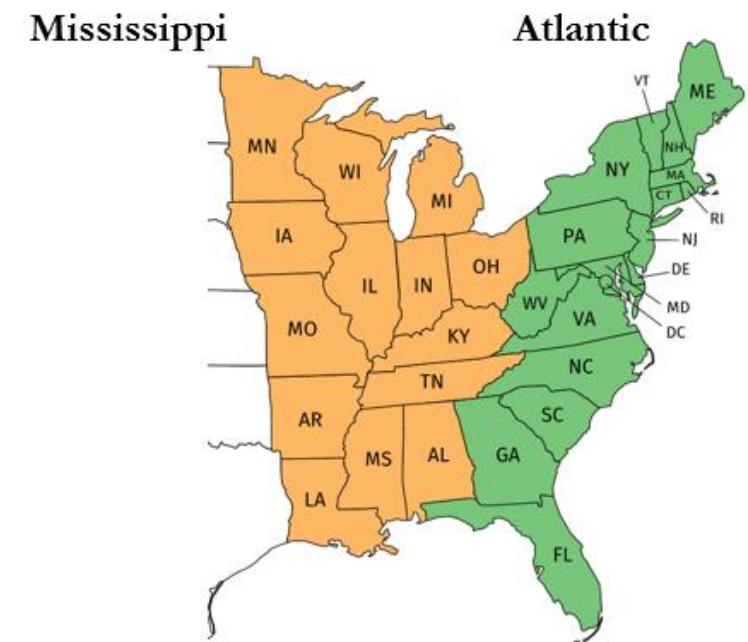
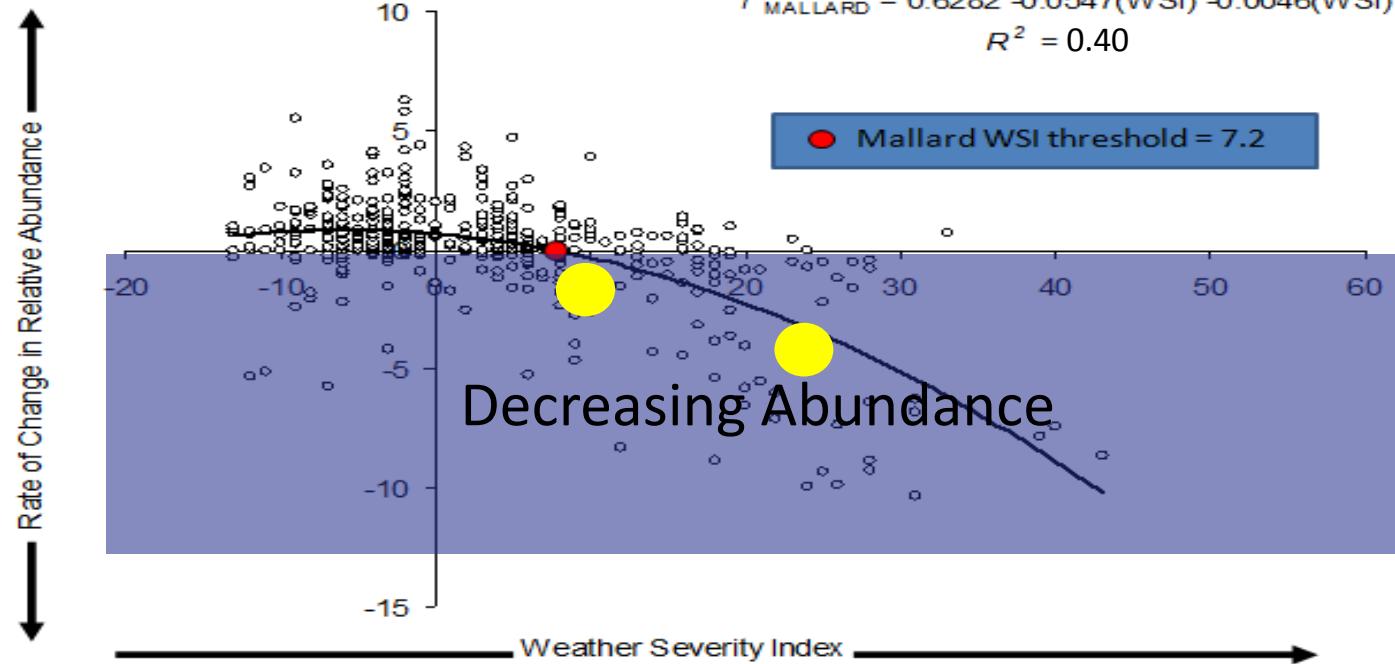
<http://gisweb.ducks.org/wsi/app/>

Square kilometers > WSI threshold



-- Available at LCC, JV, Flyway, or State spatial scales --
-- Outputs daily km² > WSI threshold for AOI --

Mean daily sq km > WSI threshold for Oct-Nov-Dec (OND) and Nov-Dec-Jan (NDJ)

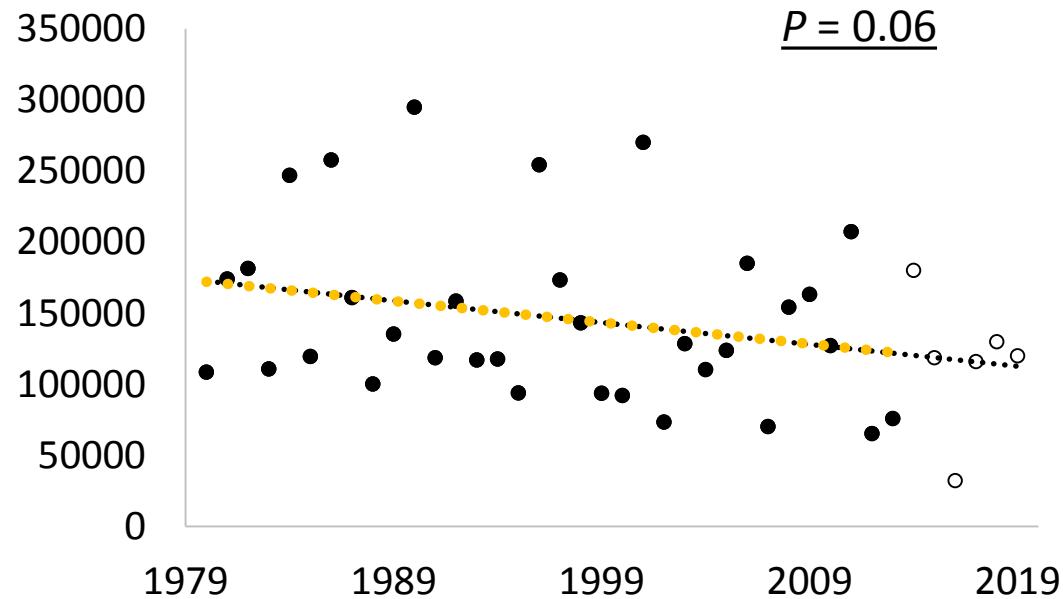




Black Duck – Oct, Nov, Dec

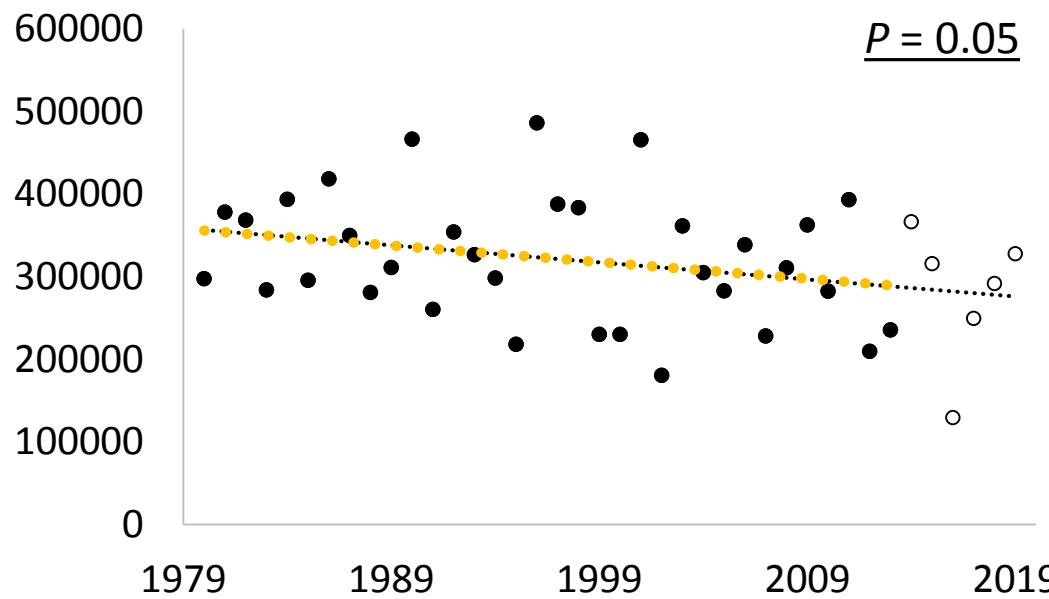
P = 0.06

Area WSI > threshold (sq km)



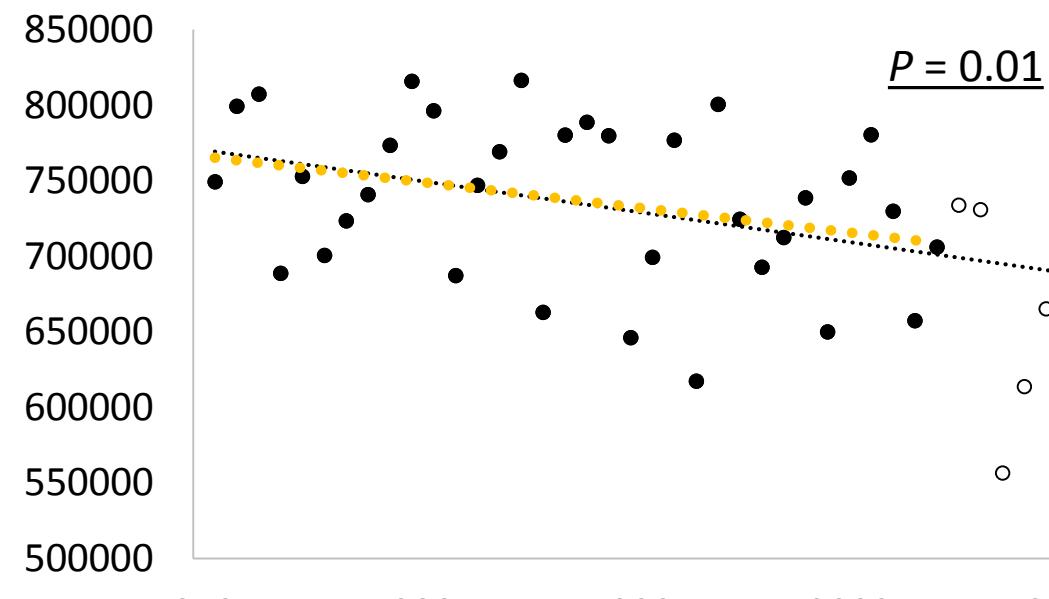
Pintail – Oct, Nov, Dec

P = 0.05



Mallard – Oct, Nov, Dec

P = 0.05



Green-winged teal – Oct, Nov, Dec

P = 0.01

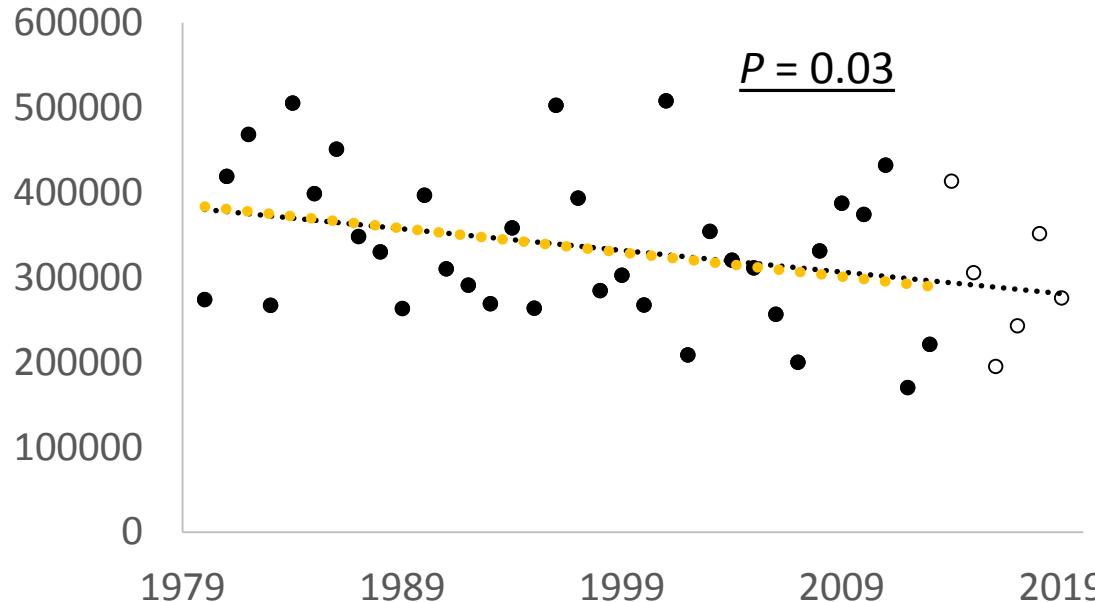
1979-2013
Through 2019

Schummer et al. 2017

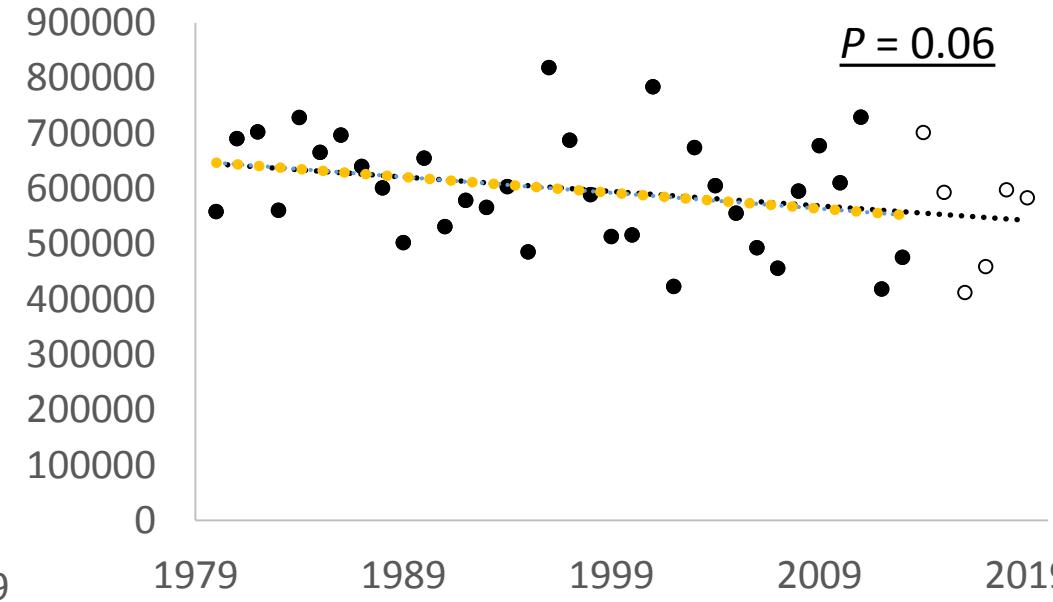


Black Duck – Nov, Dec, Jan

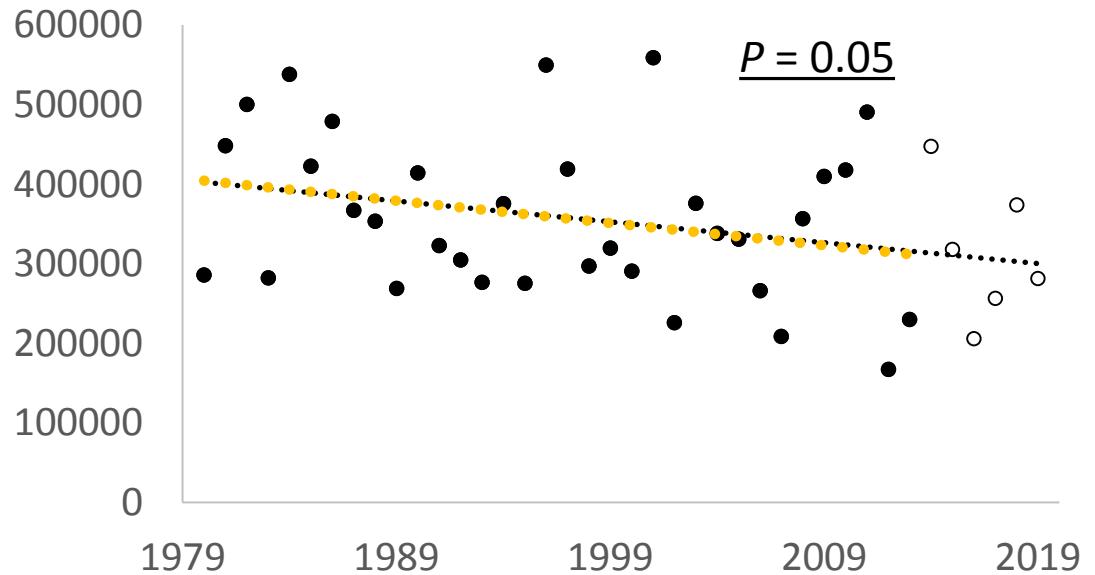
Area WSI > threshold (sq km)



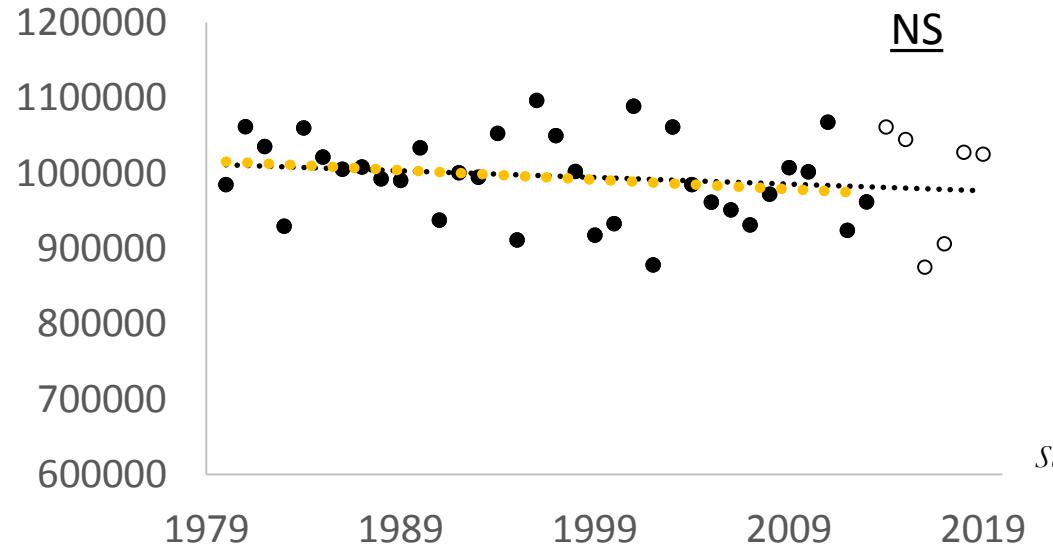
Pintail – Nov, Dec, Jan



Mallard – Nov, Dec, Jan



Green-winged teal - Nov, Dec, Jan

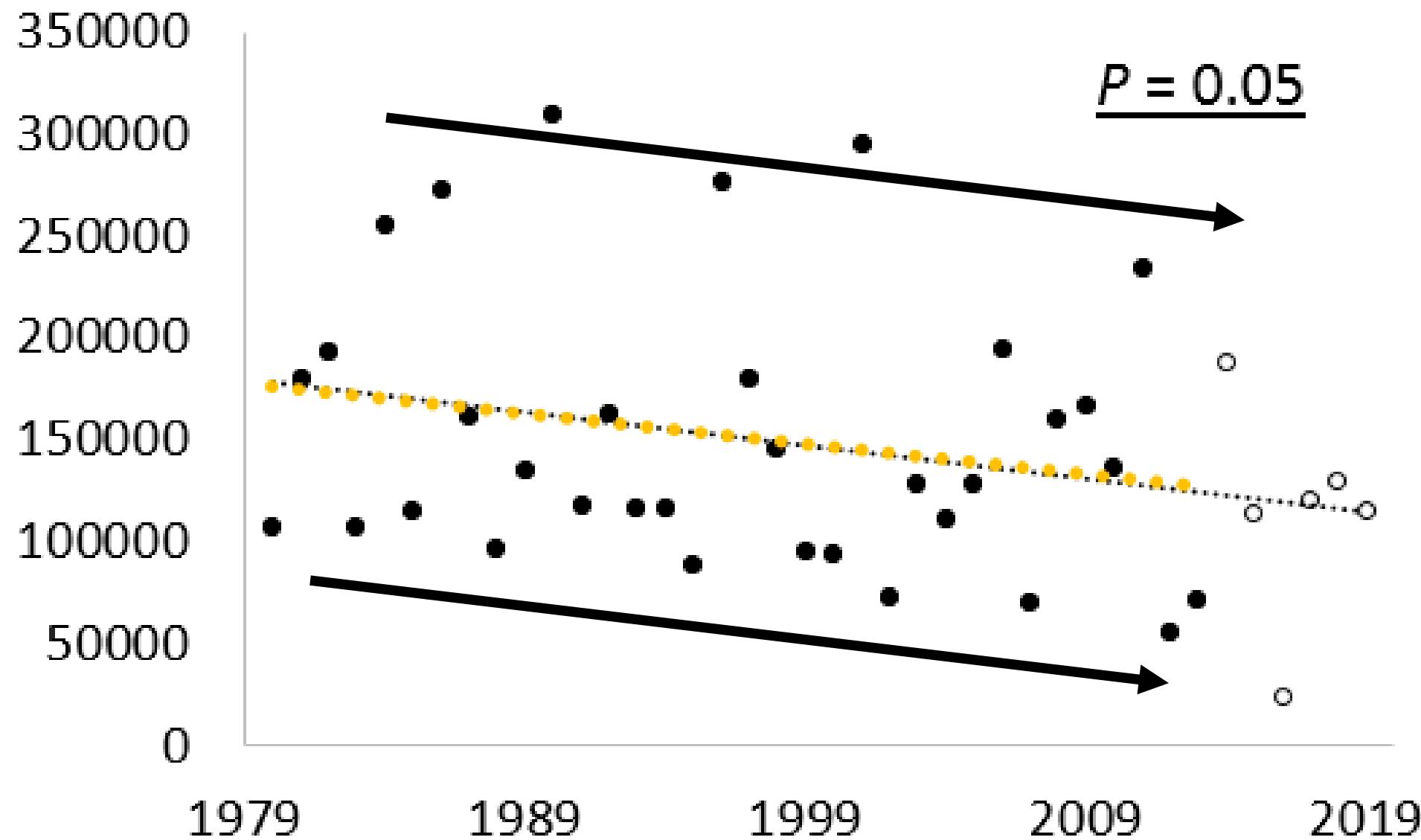


Schummer et al. 2017

1979-2013
Through 2019



Mallard – Oct, Nov, Dec



Changes in WSI - Mississippi & Atlantic Flyways 1979 – 2013

EXAMPLE: Nov-Dec-Jan for Mallard, Black Duck, Pintail

- Available area for ducks to winter increased annually by 2,866 sq km
- Or 96,798 sq km, 1979 - 2013
- Using mean of 1,572.70 duck use days/sq km for UMRGLJV
- 152,234,215 DUDs or

An additional 1,654,720 ducks to feed each day
for this 92-day period, Nov through Jan

Schummer et al. 2017 Wildlife Society Bulletin



Thank you - Questions

