Fall Meeting

NYS Fish and Wildlife Management Board

White Eagle Conference Center
November 14 - 15, 2022

Executive Report delivered - Michael Schiavone, Asst. Director - DFW

- Discussed fiscal status including license sales and revenue.
- License sales remain higher than pre-covid, but trending lower the last couple of years.
- Revenue is also lower than the 2020 [covid] bubble.
- Habitat Stamp sales remain much higher than pre-covid levels.
- Asst. Director discussed access improvements to the WMA system and the interactive mapper for pheasant hunting sites.
- There was a discussion of a survey of private landowners to explore their interest in allowing hunting access and the incentives that it would take to have them expand access.

Mike's report is attached, see Fish and Wildlife Program Highlights – Fall 2022

Bureau of Wildlife Report – Jim Farquhar, Chief, Bureau of Wildlife

- Bureau Chief highlighted need to continue due diligence in effort to keep Chronic Wasting Disease (CWD) out of the state.
- Encouraged use of synthetic (non-natural) deer urine) and to avoid bringing deer, elk, and moose carcasses into New York from other states.
- There will be another round of moose surveys in the Adirondacks this winter and there will also be a second year of capturing and monitoring them to assess health and survival.
- Next steps classes (hunter ed, etc.) will be offered statewide starting March 2023 to provide opportunity for hands-on firearms training for hunters who took online only classes
- Confirmed: DNA testing of a large canid taken by a coyote hunter in Cherry Valley (Otsego County) shows that was a full blood wolf. No indication of its origin at this time.
- Dept Lacks NASP Coordinator (National Archery in the Schools Program) but still on track for NASP Tournament in March '23
- Formal decision-making process underway using fisher camera survey.
- A number of collared fisher are being monitored in the NZ to better understand survival and reproduction in the Adirondacks and Tug Hill Plateau.
- Trapping season underway – DEC conducting pelt-sealing for harvested fisher, marten, otter and bobcat.

- New spring turkey season announced for Long Island and #9 shot now permissible (captures new shot types shot densities).
- The pheasant and turkey management plans being updated.
- A new pheasant release site mapper has been brought online.

Jim's talking points attached: see Bureau of Wildlife Update

Division of Law Enforcement – Major Matt Revenaugh (Western District 7, 8, 9)

The Major has been assessing the impact on enforcement efforts that the state's new gun laws would have on DLE.

- Response to mass shootings has impacted muzzleloaders – use of muzzleloader required possession of a pistol permit - the problem has been addressed and corrected.
- The state-wide number of sensitive areas was dramatically expanded – this is one of the issues being litigated in Federal District Court – likely to find its way back to SCOTUS.
- The complexity and number of ECL and Penal Law changes has driven the need for increased guidance for ECOs. Many have attended multiple classes, some attended multiple times.
- CCIA (Concealed Carry Improvement Act) has created problems with possession and use of black powder cannons. The issue had not been resolved prior to this meeting.
- In some cases, black powder pistols don't become a problem until bullets and powder are purchased. It is a Penal Law issue, not ECL. A black powder pistol can be purchased without benefit of a permit. When both ammo and pistol are in your possession, per the Penal Law, you need a pistol permit.
- Muzzleloader is still a black power rifle under ECL, but it treated as any other firearm under applicable Penal Laws.
- There is still a lot of confusion. DLE is being conservative until the law is settled.
- The URL for questions (FAQs) regarding the new gun law can be found on the DEC website at: https://www.dec.ny.gov/docs/wildlife_pdf/gunfaq2022.pdf
- Wildlife Diversity Endangered/Threatened species (Part 182 Regs) are being reworked for re-promulgation. Originally done is 2010 but set aside by court decision . See Note from Jim Farquhar.

No attachment from DLE

Bureau of Wildlife, Young Forest Initiative Update – Biologist, Kate Yard - Bureau of Wildlife

- Presented latest (2021) Strategic Plan for Forest Management on WMAs.
- Discussed status of Habitat Management Plans and progress on habitat Inventories.

Kate reported that 70 Habitat Management Plans have been completed, there are 10 left to be completed, and of those, six (6) have been drafted (and in progress).

- Overview of Completed and active Projects, status of commercial timber sales.
- Wildlife Response results on two targeted WMAs.
- Next Steps.

See Kate's presentation, Forest Management on WMAs, attached.

Waterfowl Update -Game Bird Biologist, Josh Stiller, Bureau of Wildlife

Josh reviewed the 2022-2023 duck bag limits:

- Sea duck bag limit.
    - No more than 4 total – no more than 3 of any species.
- Goal is to reduce harvest of sea ducks by 25%.
- Highly Pathogenic Avian Influenza may be contributing to mortality of some species.
- Josh reinforced the need to comply with HIP Registration – Compliance is currently at 90-95%.
    - Registration can be done thru Hunt Fish NY App.
- 2023-2024 Mallard bag limit will increase from 2 to 4 (no more than 2 hens)
- Canada Geese Season in Atlantic flyway zones will increase to 45 days and a three (3) bird daily limit.
    - Breeding population back up to 164,000 pairs.
- Population recovery has been facilitated in part by decreased harvest..
    - Also: increased survival, and productivity.
    - Atlantic Flyway Cooperative Research Project will be marking approx. 500 Canadas with GPS trackers.
- Eastern Mallard Research Collaborative – 22 agencies.
    - 36% decline in the Northeast since 1998.
    - 56 GPS trackers monitored Jan – Nov 2022.
    - Suspended for fall season but will restart in spring 2023.
- Currently in 4th of 5-year mgmt. cycle
    - Migration data will be collected via email survey in 2023.
    - New Survey will be conducted of all duck hunters (87% by provided by email).
- Josh reported that there are (based on registrations) 17,000 duck hunters in NY.

Josh's report attached, see Waterfowl program updates

Wildlife Health Program Update – Biologist, Kevin Hynes - Wildlife Health Unit

Wildlife Ecologist, Krysten Schuler, PhD – Cornell Univ.

The Wildlife Health Until attempts to visit every Region in the state to meet with field staff to provide updates on diseases that the Unit feels are on the rise and projects the Unit is working on. They also provide a field experience, i.e., wildlife disease investigation, wildlife necropsy and other pertinent activities. Also provide instruction on use of PPE (Personal Protection Equipment).

- The Wildlife Health Unit performs necropsies on animals shipped to the lab or delivered by staff.
- Kevin reported that HPAI remains a problem and it was likely carried here by waterfowl (duck?) from Europe. HPAI was also confirmed in red fox kits here in New York.
- Avian Influenza found in 33 species in NY, and a total of 139 cases confirmed across all species.
- Epizootic Hemorrhagic Disease has maintained its presence, and this year, Blue Tongue Disease has appeared on Long Island. EHD apparently can over-winter. In southern states the disease is considered enzootic (occurring at low levels year-to-year).
    - Krysten reported that deer herds can be expected to rebound after outbreaks of EHD.

There is a public-reporting website for animals you may suspect have EHD. Find the form at:

- https://cwhl.vet.cornell.edu/disease/hemorrhagic-disease-deer

CWD Remains a threat in more than 26 states and provinces

- The disease is difficult to control, and hunters may not detect a sick animal.
    - The prions are nearly invulnerable, and vaccines do not work. Study: vaccinated elk contracted CWD faster than unvaccinated elk.
- Most concerning threat comes from Pennsylvania. PA is leaving many sick deer on the landscape, and in proximity to NY.
    - No captive cervids may be imported to NY.
- It is imperative that hunters cooperate with effort to hold CWD at bay.
    - Follow regs on import of deer carcasses and deer parts.
    - Consider use of synthetic deer urine attractants.
        - Manufacturers claim to be testing their products -but with no oversight
        - One study found prions in 25% of deer scrapes.
        - Urine can also be uplifted into plants. Experiments indicate CWD can bind to corn, but no detection in corn products to-date.
        - Feeding programs also raise risk.
        - Scavengers such as crows, coyotes [may] pass prions from deer carcasses in their feces.

- SARS (Covid) detected in deer using stored blood from 2020-2021. Some indication that it may impact 20% of the herd and it remains unclear at to source.
    - Testing lymph nodes from 2020: tests showed .6 percent of deer were infected with SARS. In 2021, the rate jumped to about 20%.
    - Not clear if humans can get Covid from deer, but some studies do show that when exposed, deer can shed the virus for 7+ days.

Hynes/Schuler presentation attached – Wildlife Health Program Update

Invasive Species Update – Research Scientist, Jessica Cancelliere - Bureau of Invasive Species and Ecosystem Health

- The Forest Health Lab deals with invasive species, as well as native pathogens. The Lab also deals with Aquatic Invasive species (AIS).
    - Scientists recognized years ago that you cannot eradicate them and, they cannot be effectively managed.
- Problems compounded by climate change, deforestation, and fragmentation of our forests
- Some native pests and pathogens are starting to behave differently because of changing conditions.
    - The southern pine beetle has now been found as far north as Queensbury (Warren County).
    - Needle Bights are not new to the landscape but are now expanding.
- Can no longer manage at the single species level and the need is to re-focus on forest resiliency and forest management.
- Forest density plays a big role in the impact these pests and invasives will have.
- NY is full of aging forests – old CCC reforested areas are dying.
- Plantings on improper sites contribute to problems.
- It is not just an invasive species problem, it is a forest management problem. Because the Division of Lands and Forests [DLF] manages for timber, forest health objectives are not always a part of the management plan.
    - DLF is trying to work forest health objectives into new plans as they are being developed.
- A major exposure to our forests now is a foliar disease called beech leaf disease.
    - It showed up on the landscape in 2018 in western NY, then in Westchester County and Long Island.
    - It is not yet clear as to the pathology of the disease.
    - Beech could become functionally extinct in 10 – 20 years.
    - Mature tree mortality can be less than five years.

    - Will change forest structure and mast production. Loss of beech may open the door for red oak, hickory.
- Nothing like this since chestnut blight. Beech in some areas is the primary mast crop. May have to look to other mast producers, i.e., hazel nut.
- Loss of beechnuts could cause increased bear-human conflict. May push bears from forested to populated areas. It has been documented that during severe mast crop failures bears look for alternative sources, i.e., bird feeders, pet food, BBQ, etc.
- Because beech is not a silva culture species, there is not a major effort for recovery.
    - Because DEC foresters and timber producers cannot be relied upon for a solution. Some landowners with small stands and some small preserves are treating with pesticides, but it is small scale.
- DEC is offering support for research on pesticide treatments.
- Another new discovery: elm zigzag sawfly has been discovered in Region 6. That area has the highest elm density in the state. That was not unexpected because it was in Canada, along the border. It apparently has not caused widespread damage. But bears watching.
- Oak wilt has also appeared on the landscape. It affects red oak trees. It will also attack white oaks but takes a lot longer to kill the tree.
    - It seems to be moving slowly. Aggressive management and soil composition may be slowing it down.
    - Finding it in Canandaigua Lake area on ridge tops. Detected on Long Island, but via DNA, symptomatic trees are not being found.
    - Infected trees are chipped or burned.
- Southern pine beetle is a native pest. Ravaging trees on Long Island. Can Kill a tree in 4-6 weeks, 100K trees in 2022. Attacks pitch pine, red pine, scotch pine, jack pine, all trees with limited distribution upstate These trees are more of an ecosystem concern because they are part of special environments.
- Warmer winter temps reduce beetle mortality. The more temps increase, the larger the problem.
- White pine under attack from fungal disease. Solutions require aggressive management.

Limited resources make it difficult to manage many of these problems.

See Jessica's presentation: FWMB Fall 2022 Invasive Species Update

Bureau of Fisheries Updates – Chief, Bureau of Fisheries, Steve Hurst

Steve discussed the new Trout Stream Management Plan, including Trout Stream Categorization scheme. Presented overview the HuntFishNY app Tackle Box feature

- Management Plan implemented a new stocking protocol.

    - Many previously stocked streams have been dropped from the stocking lists because they have insufficient angler pressure.
    - Some previously stocked streams are now believed to be self-sustaining, i.e., the Esopus Creek in Ulster County. The Esopus from the Ashokan Reservoir, upstream 18.5 miles to Lost Clove Creel is now a Wild-Quality stream and as such will no longer receive hatchery reared trout.
    - A creel survey was conducted this season and the results are being compiled and analyzed. A second-year survey will be conducted during the 2023 season to assess the effect that the no stocking policy is having on the fishery.
    - Some streams have multiple management categories, i.e., Mongaup River, Sullivan County, stocked, wild-quality.
    - The plan is articulated in two (2) documents: the New York State Trout Stream Management Plan and the Categorization of New York State Trout Stream Reaches.
- Access is a problem. Cultural shifts, commercial development and other build out are reducing available stocking and access sites.
    - Steve pressed the Board on the issue of the need for the Regional Boards "buy in" to the effort to approach landowners to secure access for the purpose of stocking and to help raise interest in securing PFRs to have permanent access.
- Members requested that the planned creel survey on Esopus creek be shared with the Board as soon as it becomes available. The interest is focused on possible impacts to the fishery as it transitions from hatchery supported to a wild trout only fishery.
- Steve informed the Board that overall stocking numbers have been reduced because of the new management plan and that has resulted in available hatchery capacity.
    - Stocking reductions have the potential to reduce hatchery costs.
- Much of the stocking occurs not on PFRs, but rather on stream sections that have [very] informal agreements with landowners.
    - About 50 % of location are PRF (1,400) and informal agreements /unknown landowners (2,500).
    - Over next 18 months the Bureau will be verifying access by sending letters to landowners to get formal agreements in place. If landowners fail to respond, that will likely result in that stop being removed from stocking lists.
    - An effort has to be made to fill gaps in PFRs.
    - The new management plan will continue to move trout away from streams that we stock today because the access points are informal. This movement will be more pronounced in counties that lack "big waters."
- Trout Unlimited is working on habitat improvement projects with DEC. The Department provides materials. Projects are only on places that have secured access via PFR.
- Steve did a review of the new Tackle Box feature in the HuntFishNY app.
    - The new app offers an interactive mapping system.

    - Tackle Box features a wealth of information about launch sites, parking areas on hundreds of waterbodies across the state, and:
        - Waterbody-specific fishing regulations.
        - Fish species and stocking information.
        - Navigation feature for driving directions.
    - Tackle Box is offered only as a mobile app, it is not available as web based.
- Trout Stream Management plan is available at: www.dec.ny.gov/docs/fish_marine_pdf/troutstreammp.pdf
- Trout Stream Categorization: www.dec.ny.gov/docs/fish_marine_pdf/tsmpreachcat.pdf
- Trout Stream Access Verification for Private Land

Complete info on Trout Stream Management Plan, stocking protocols, and stream categorization is available on the website.

Trout Stream Mgmt: www.dec.ny.gov/docs/fish_marine_pdf/troutstreammp.pdf
Stream Categorization: www.dec.ny.gov/docs/fish_marine_pdf/tsmpreachcat.pdf
Tackle Box App: www.dec.ny.gov/outdoor/96470.html

Update on Epizootic Hemorrhagic Disease in New York - Patrick Connelly, DVM, PhD candidate (Ecology), Cornell University New York State Cooperative Wildlife Health Program

Hemorrhagic disease caused by epizootic hemorrhagic disease virus or bluetongue virus
EHD outbreaks plagued New York's deer herd in 2020, 2021, 2022. An estimated 3,000 have been killed by the disease. Previous smaller outbreaks in 2007, 2011.

- 2021 was worst year and included cases in captive cattle and bison
- In Sept 2022 first confirmed cases of bluetongue appeared in L.I. Barrens.
    - Hudson Valley has been epicenter of outbreak

EHD cases prevalent in late summer, early fall

- Carried by Culicoides (midges)

Mortality as high as 90%

- Short incubation
- Outbreaks concentrate, localized
- Outbreaks in southern states suffer lower mortality
    - Northern states deer will suffer decreasing mortality over time

Patrick's "EHD Update" presentation attached

Invasive species in the Erie Canal / Hudson-Mohawk Watersheds – John Garver, PhD, Union College

Reimagine the Canals Task Force established to assess options [effective / ineffective] options to deter impede move of Aquatic Invasive Species.

- Least effective option – do nothing
- Most effective option – close canal
- Or -Option 3 – separate Great Lakes watershed from the Mohawk-Hudson watershed via:
    - Watershed divides at Rome
    - Lift and wash at Oswego
    - A gate at Rochester
    - Bio-Acoustic Fish Fence at Lockport(CO_2 or Bubblers)
- The Task Force report to Governor reported that further study was needed.
- The Buffalo News reported that canal was to be closed to traffic -Not True.
- Now the Round goby is fully established in the Mohawk and appearing down the Hudson watershed to Poughkeepsie.
    - To date, the Reimagine the Canals effort has not resolved the problem and the Canal corridor offers open access between the Great Lakes Watershed and the Atlantic Slope – including the Hudson River.
    - The Champlain Canal also remains exposed to AIS intruders.
- Established round goby populations will start knocking out different trophic levels in the waterbodies and sport fisheries will go into decline.
- Asian Carp are threatening to New York waters but not yet present.
    - Sterile grass by permit.
    - Four species Invasive carp (bighead, black, grass, and silver carp) were imported to the United States in the 1970s as a method to control nuisance algal blooms in wastewater treatment plants and aquaculture ponds and now have escaped confinement and spread to the waters of the Mississippi River basin and other large rivers like the Missouri and Illinois.
- The are several options that can be used to stop the invasion. Strong advocacy is the best hope of getting the infrastructure in place to do the job.
- As said earlier, it is of paramount importance that the Canal remains open to recreational boat traffic, while protecting it as one of the state's most important recreational fisheries.
- At this time no clear plan has been adopted to create the infrastructure necessary to do either.

Dr. Garver's presentation, "Addressing invasive species in the Erie Canal," is attached.

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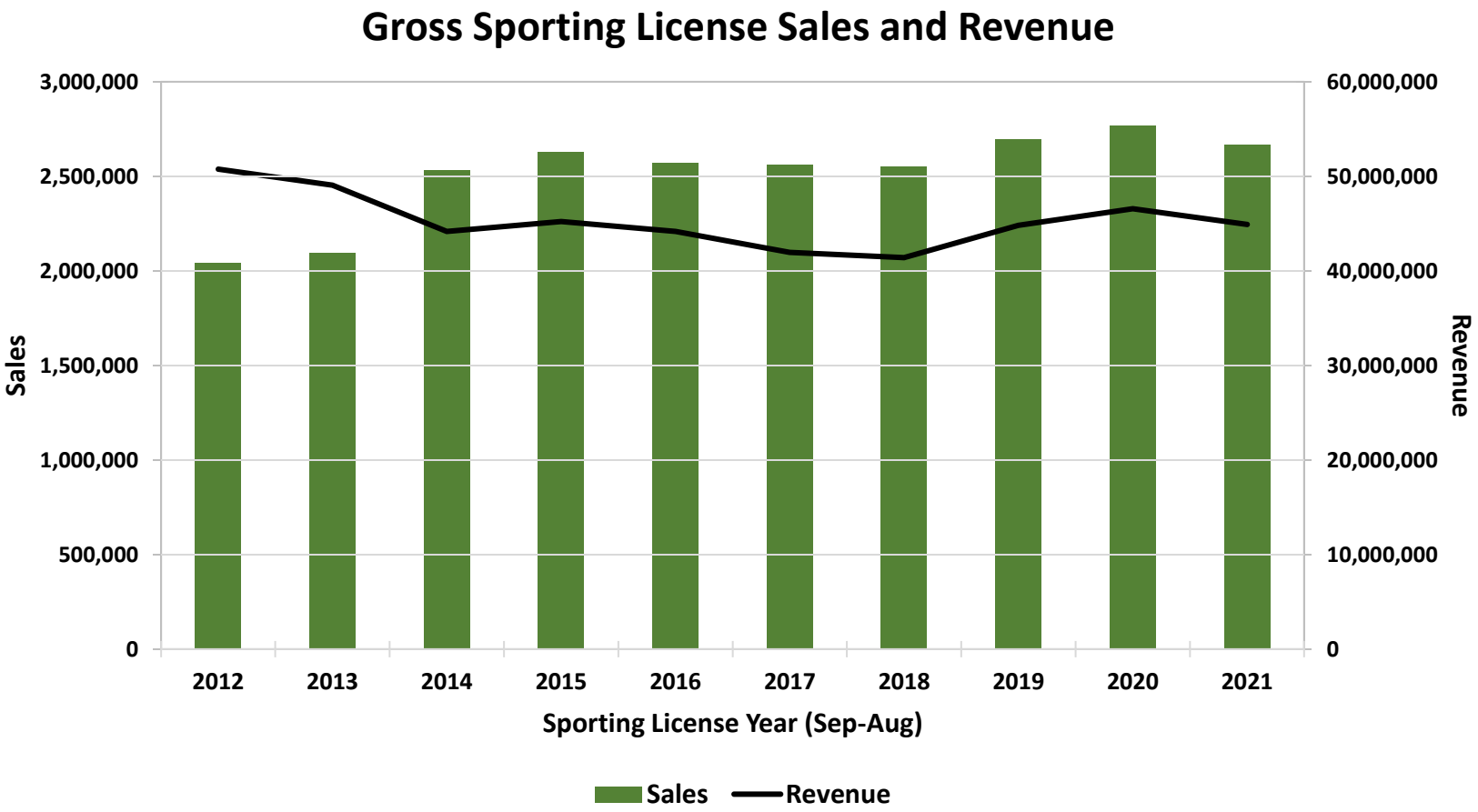
Fish and Wildlife Program Highlights – Fall 2022


Gross Sporting License Sales and Revenue
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
Sales
60,000,000
50,000,000
40,000,000
30,000,000
20,000,000
10,000,000
0
Revenue
2012
2013
2014
2015
2016
2017
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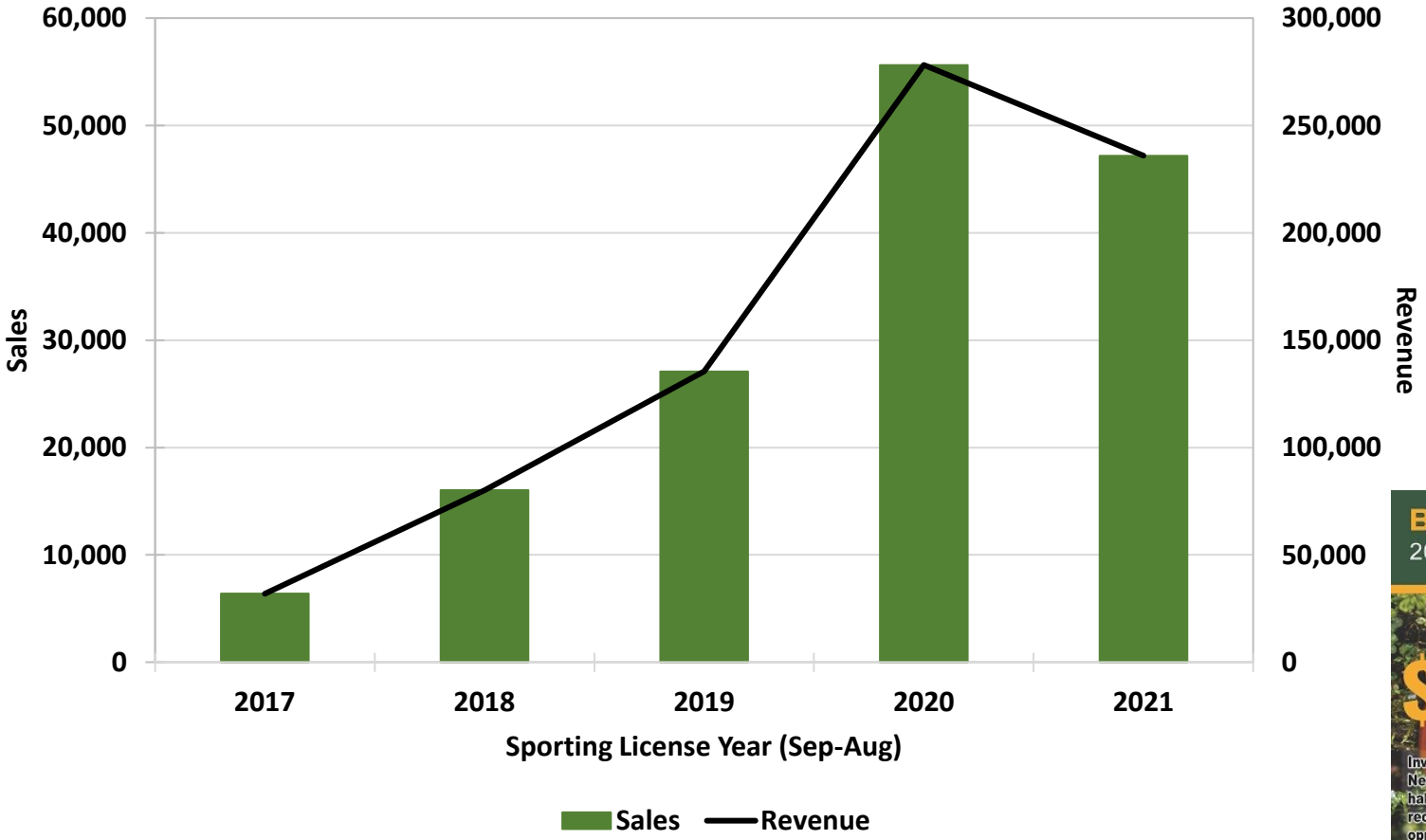
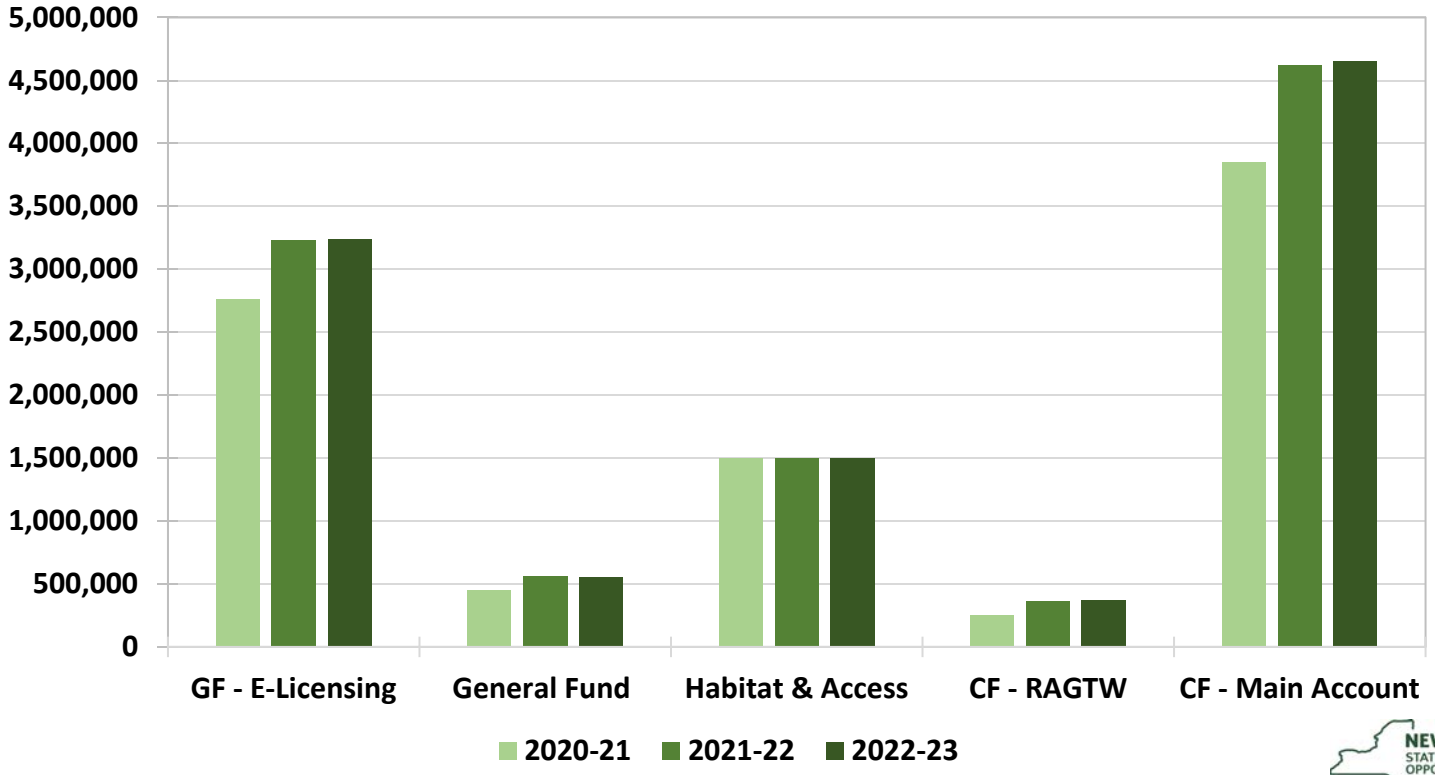
2021
Sporting License Year (Sep-Aug)
Sales
Revenue

Habitat Stamp Sales and Revenue



Budget Allocations 2020-21 - 2022-23

(NPS, Temp Serv, OT/Hol)



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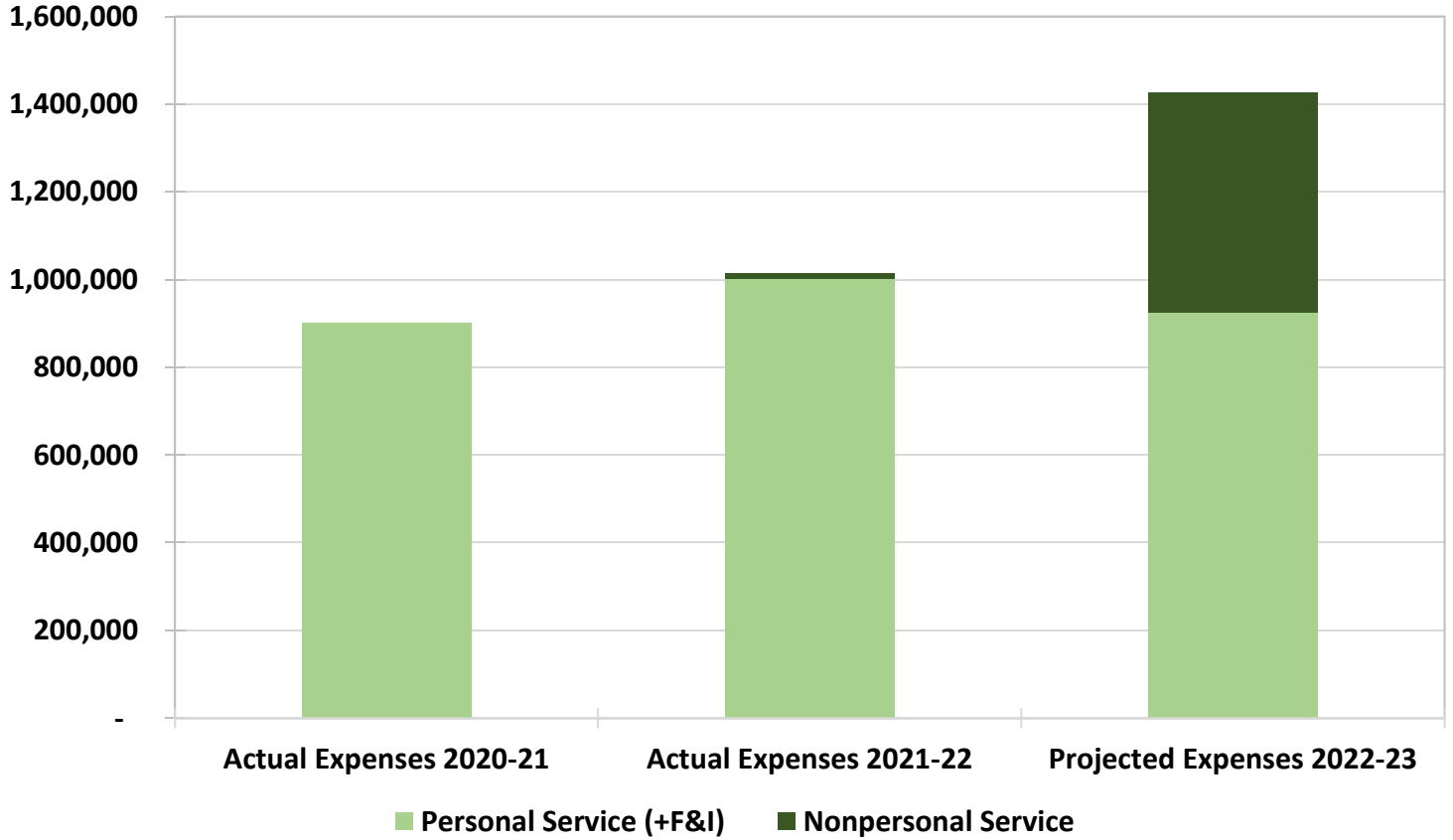
Habitat and Access Account Expenses



Department of Environmental Conservation

Access Improvements – WMA Acquisitions

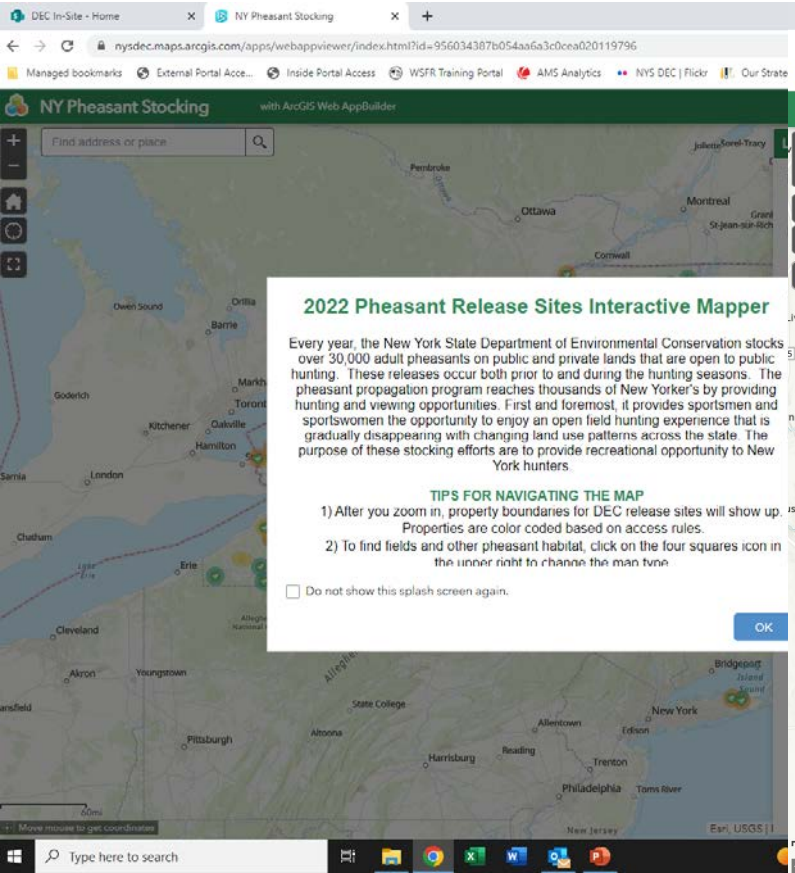
Since 2019

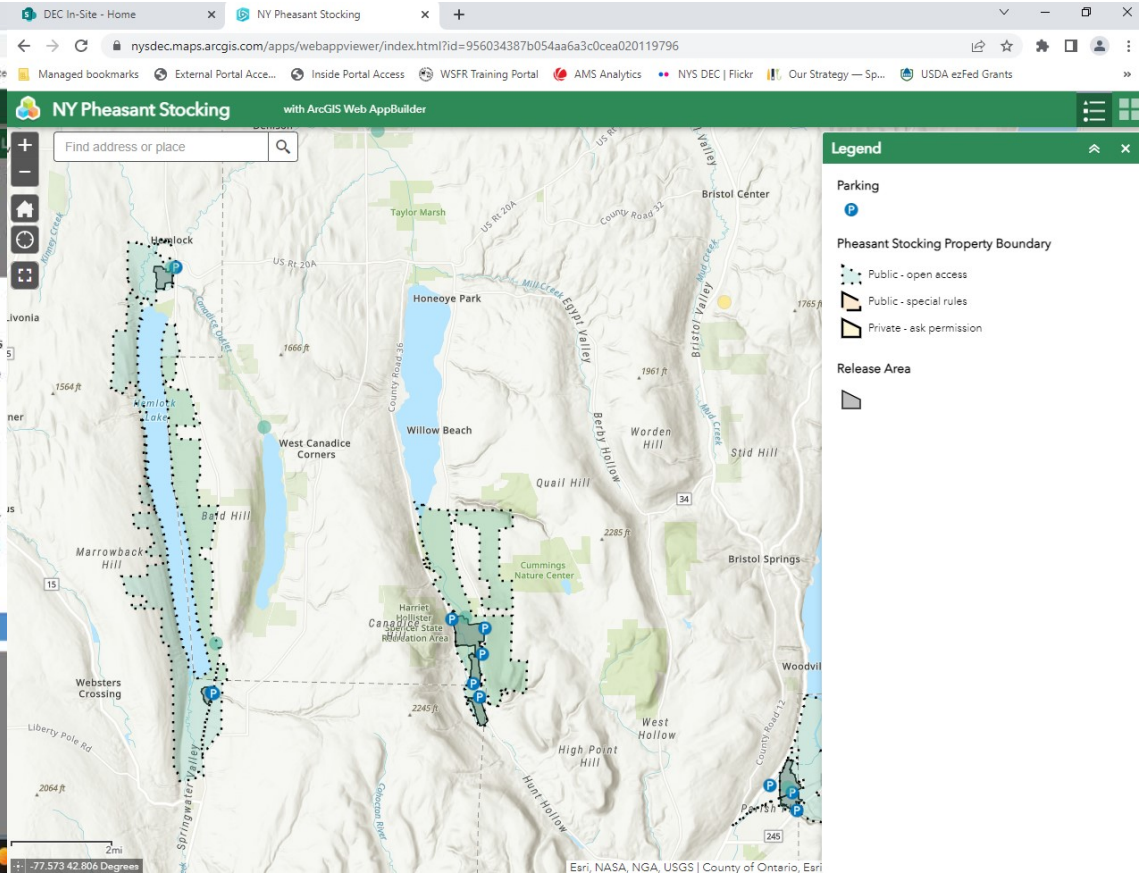
- $9M on WMA land acquisition
- Combo EPF and P-R
- 6,700 acres
- In progress:
  - East Bay (Wash Co)
  - Big Flats (Chemung Co)

Region	County	Property	Acres
4	Columbia	Doodletown	376
4	Rensselaer	Capital District	4,587
8	Ontario	Honeoye Inlet	714
8	Yates	High Tor	86
9	Cattaraugus	Poverty Hill	990
9	Chautauqua	Clay Pond	34

Access Improvements – Stream Access

Access Improvements – Pheasant Hunting





Private Land Access

Survey of Private Landowners

- Over 60% of landowners hunt their land, allow hunting by nonfamily members
- Landowners who might consider participating in an agreement to provide public access for hunting ranged 7-22%
- Willingness was greatest among people who owned >150 ac, did not have a residence on property, had no ag fields, were concerned about wildlife damage, and already allowed hunting by nonfamily members
- Incentives cited by landowners include liability protection, annual payment, DEC contact person, limited length agreements

Survey of Recreationists

Opportunity with Land Trusts and Hunter Access

Questions?

FWMB Update- November 14, 2022:

Big Game

- seasons underway with deer harvest on par with this period last year in both NZ and SZ;
  - bear harvest is running about 80% larger in the NZ and 50% larger in the SZ, more akin to prior years;
  - very little EHD in 2022; roughly 200 deer reported, compared to 1,500-2,000 deer in 2020-2021;
  - encouraging hunters to be protect NY from Chronic Wasting Disease by not brining in deer, elk, or moose taken in other states and not using natural urine products
  - anticipate another round of moose abundance surveys beginning this coming winter; the 2017-2019 estimate was about 600-700 moose in the Adirondacks; also will conduct the 2nd year of moose calf captures to monitor survival and health of calves

Hunter Ed

- piloted 16 Next Step courses this year and plan to roll them out statewide in March 2023.
- have a Becoming an Outdoors-Woman winter workshop in February.
- currently without staff for NASP but are committed to hosting an in-person NASP tournament for March.

Furbearers & Small Game

- large canid taken by a coyote hunter in Cherry Valley was determined to be a wolf
- evaluating our fisher season dates across the State through a formal decision-making process. This process will include the results of our large-scale fisher camera survey, the demographic project in the Northern Zone and a survey of trappers to determine trapper preferences. The end result will be recommendations for fisher season length and timing across the State.
- still monitoring a number of collared fisher in the Northern Zone to better understand survival and reproduction in the Adirondacks and Tug Hill. So far, 7 collared fisher have been harvested during the trapping season.
- developing methods for a bobcat survey to better understand bobcat populations in NY. A pilot survey using a hair-snare cubby and cameras was piloted by several regions in September.
- Trapping seasons are in full swing across the State, and DEC staff are conducting pelt-sealing for harvested fisher, marten, otter and bobcat.

Upland Game Birds

- will have a new spring turkey season on Long Island beginning this next spring
- modified regulations to allow #9 shot for turkey
- working on an updated Management Plans for Ring-necked Pheasant and Turkey

- interactive pheasant release site mapper on our website
- had discussed an experimental design for impacts of extended shooting hours for spring turkey; will not be doing this because of split hunter opinion on the longer hours

Migratory Game Birds

- Josh is on the agenda for a more detailed update

Wildlife Health

Kevin Hynes is on the agenda for a more detailed update

YFI- LM

Kate Yard is on the agenda for a more detailed update

Wildlife Diversity

- Part 182 revisions: Wea re working on three regulatory packages associated with Endangered/Threatened species. The first re-promulgates rules that were originally adopted in 2010 due to a court decision vacating the rule due to failure to hold a public hearing when adopted. The second establishes a Mitigation Bank Fund such that payments made by developers to mitigate impacts from renewal energy projects can be accepted and used towards approved mitigation plans. The third begins a multi-step revision to the list of Endangered/Threatened and Special Concern Species. In the first step we will focus on rare fish with Mussels, Amphibians and Reptiles, Mammals and Birds to follow in subsequent filings over the next three years.

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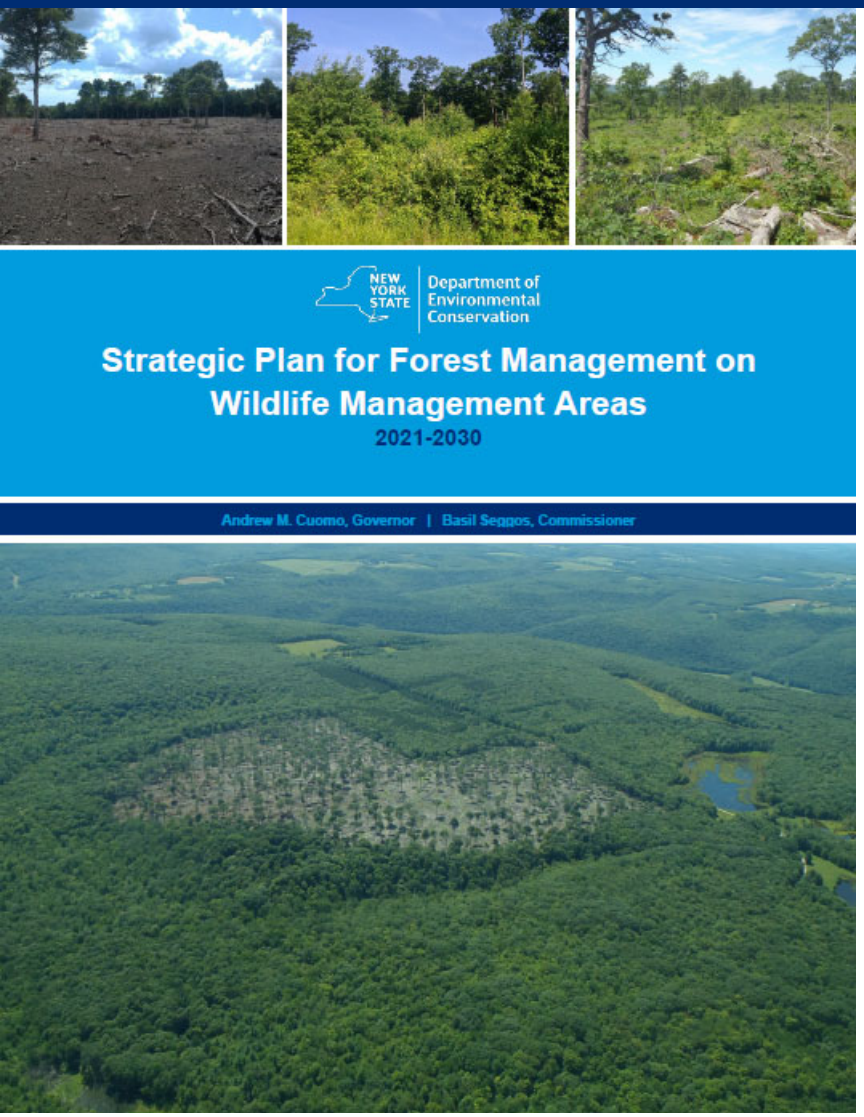
WILDLIFE RESTORATION

Forest Management

on Wildlife Management Areas

Katherine Yard, CWB®
FWMB Update
14 November 2022



Strategic Plan

- Completed July 2021
- Continue to prioritize young forest
- Include mature and late-successional forest
- Healthy, resilient forests on WMAs

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Habitat Management Plans

- 67 complete
- 10 submitted for approval
- 6 drafts in progress
- 44 public meetings held

Tug Hill WMA patch cuts © Tim Pyszczynski


Pharsalia WMA patch cut & planting © DEC Spills

Habitat Inventory

- 80% complete (77 WMAs)
- 7% ongoing (7 WMAs)
- 2% re-inventory (2 WMAs)
- 10% not started (10 WMAs)

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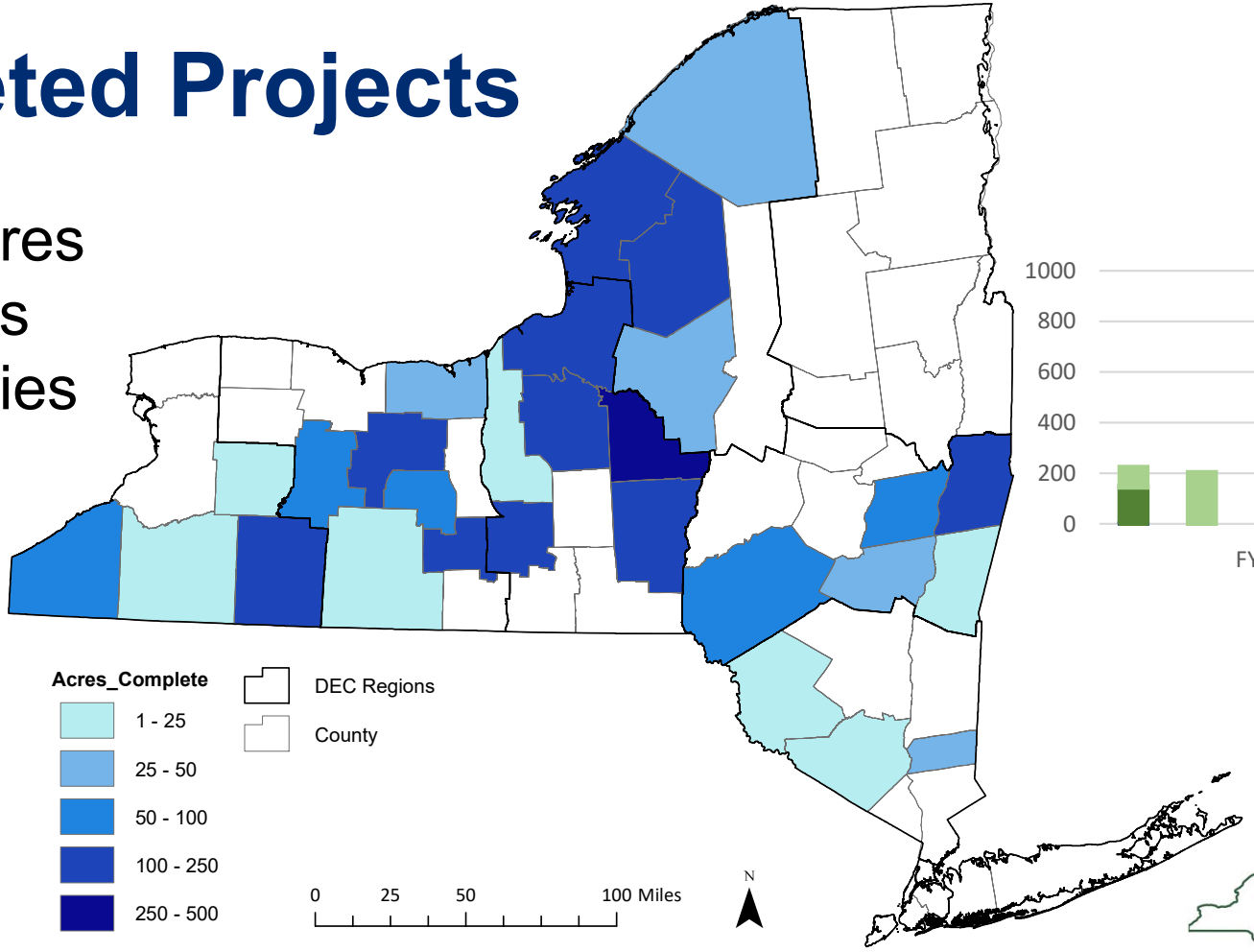
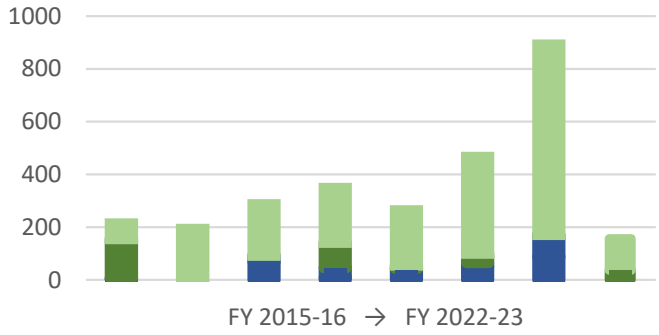
Completed Projects

- 2,852 acres
- 40 WMAs
- 28 counties





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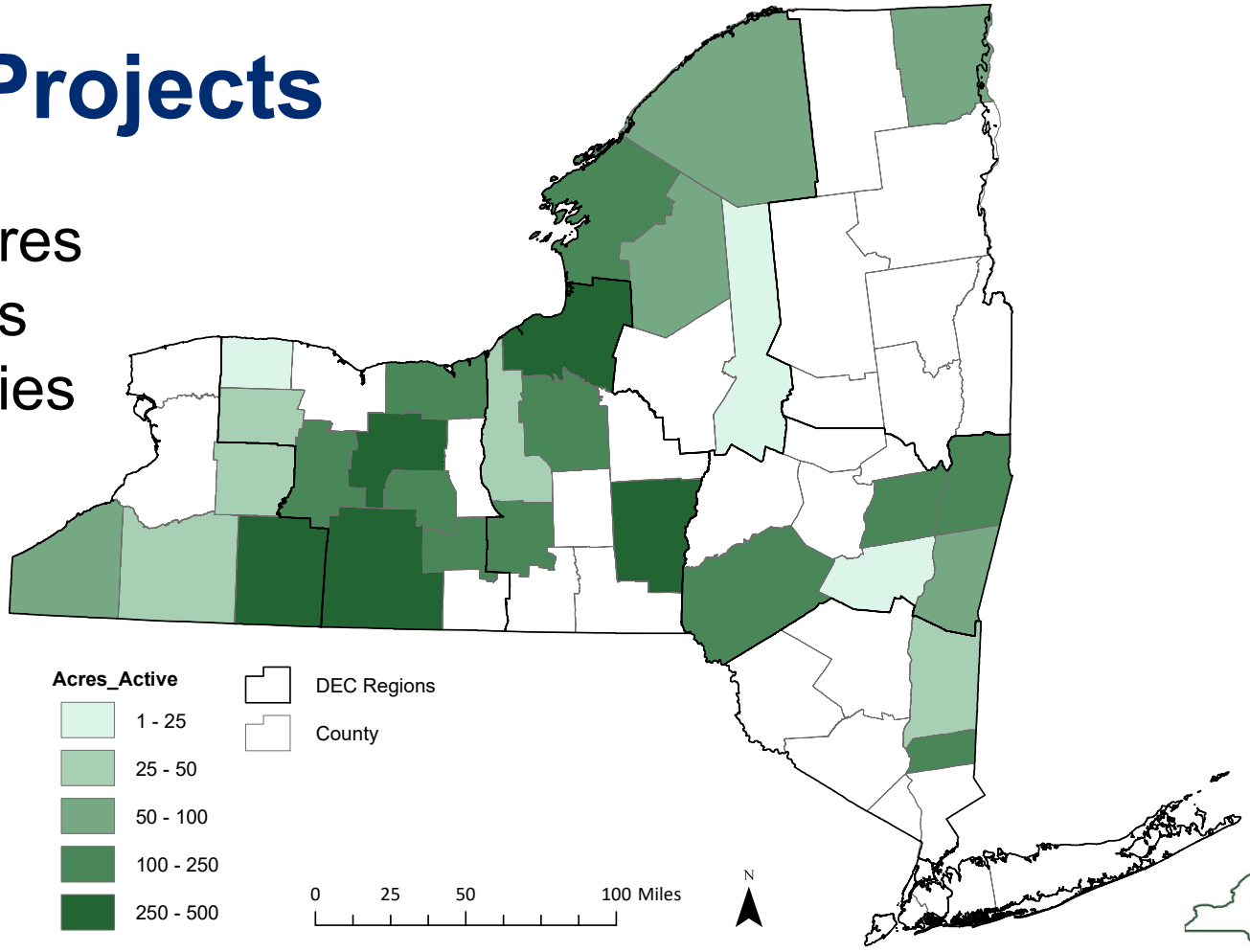
Active Projects

- 3,999 acres
- 44 WMAs
- 29 counties



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Tug Hill WMA seed tree cut © Rachel Hillegas

Commercial Timber Sales

- Complete: 40 projects on 20 WMAs (1,950 acres)
- Under contract: 19 projects on 17 WMAs (1,151 acres)

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Noncommercial Projects

- Complete: 65 projects on 28 WMAs (901 acres)
- Under contract: 7 projects on 7 WMAs (170 acres)

Pharsalia WMA © Adam Perry

Noncommercial Projects

- Tree/shrub planting (70 acres)
- Invasive plant management (932 acres)
- Prescribed fire (68 acres)

High Tor WMA planting © John Mahoney

Demonstration Areas

- 10 WMAs in 6 DEC regions
- 9 signs installed
- 1 accessible observation tower built

Rattlesnake Hill WMA demo area © John Mahoney


Mongaup Valley WMA seed tree cut © Greg Cerne

Wildlife Response

- Mongaup Valley WMA
- 2015-16 - 40 ac seed tree
- 2017 - whip-poor-will detected
- 2019 - grouse detected

Wildlife Response

- Upper & Lower Lakes WMA
- 2017 - 14 ac seed tree
- 2022 - 16 ac seed tree
- 2019-22 - golden-wing increase

Upper and Lower Lakes WMA cut © Kate Yard
Golden-winged warbler © Liz Truskowski

Next Steps

- Implement new Strategic Plan
- Manage active projects (~4,000 acres)
- FY 22-23 work planning underway
- New 5-year grant underway

Capital District WMA patch cut © Kate Yard

Bear Spring Mountain WMA patch cuts © Nathan Doig

Questions?

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OPPORTUNITY

Department of
Environmental
Conservation

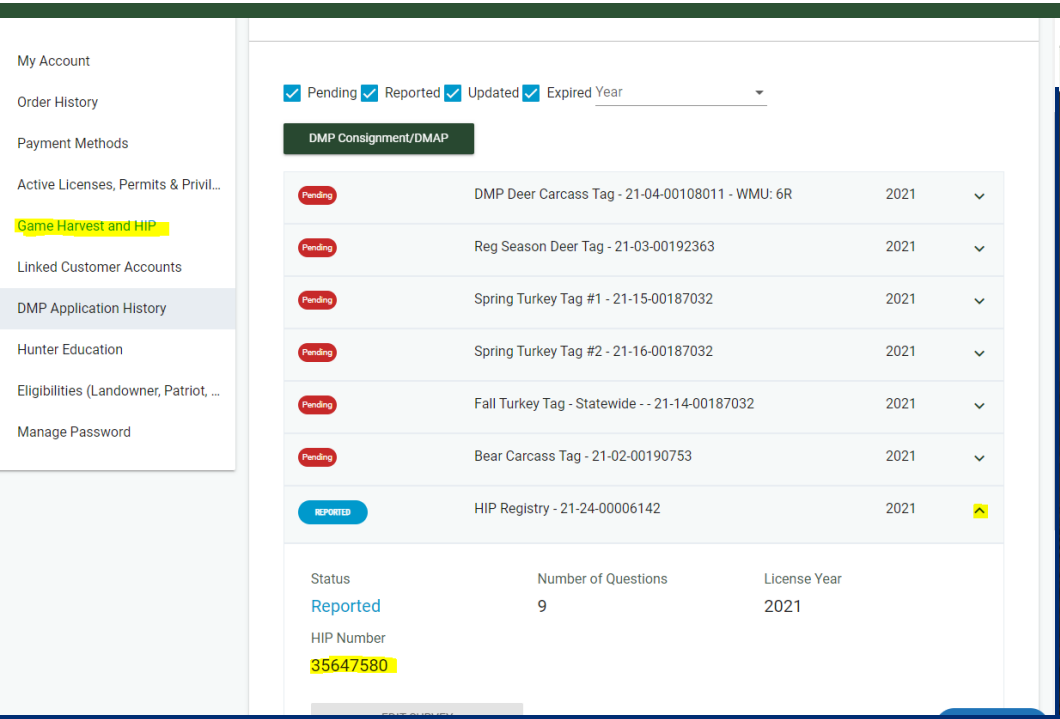
Waterfowl program updates

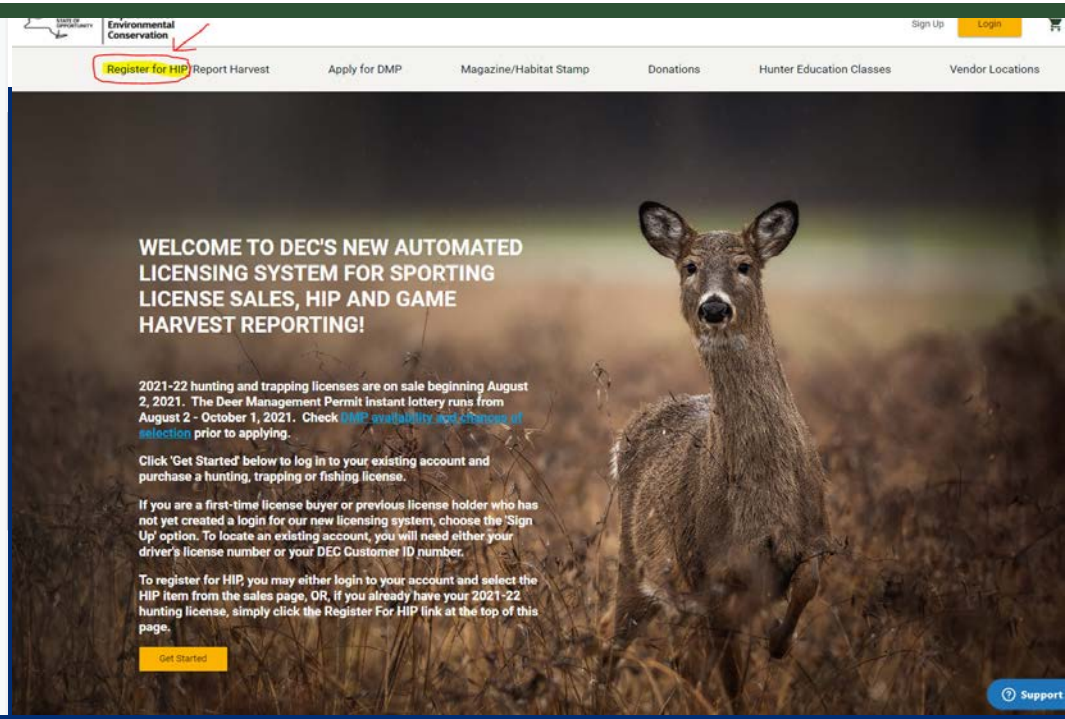
SPORT FISH & WILDLIFE RESTORATION

12/20/2022

Changes for 2022-2023

- Changes to duck bag limits:
  - Sea duck bag limit
    - No more than 4 total sea ducks, no more than 3 of any species
    - Goal to reduce harvest of sea ducks by 25%
  - Hooded merganser bag limit removed (can be up to 6 as part of your duck bag limit)



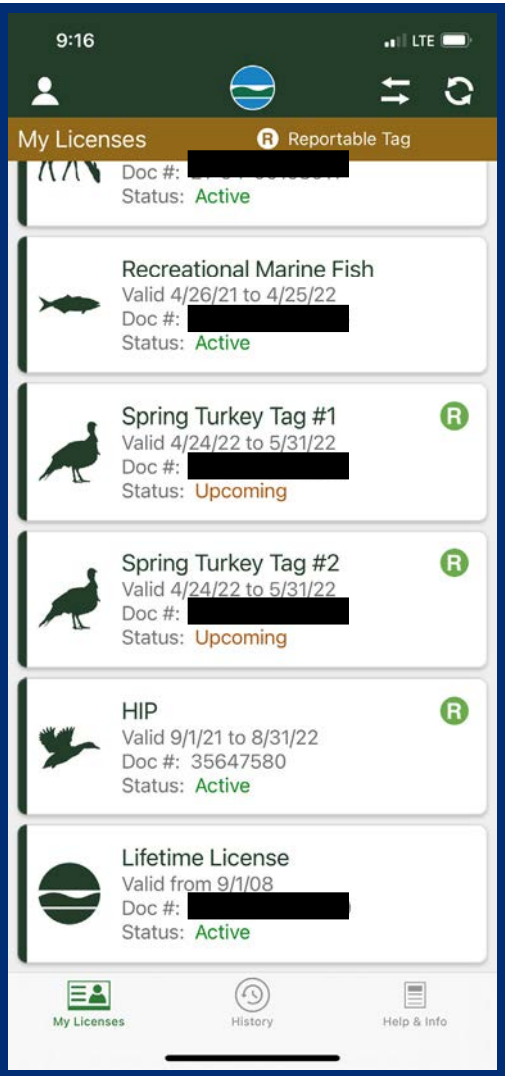


HIP registration process

- By phone at: **1-866-933-2257**
- Online: https://decals.licensing.east.kalkomey.com/

Environmental Conservation

Hunt Fish NY app



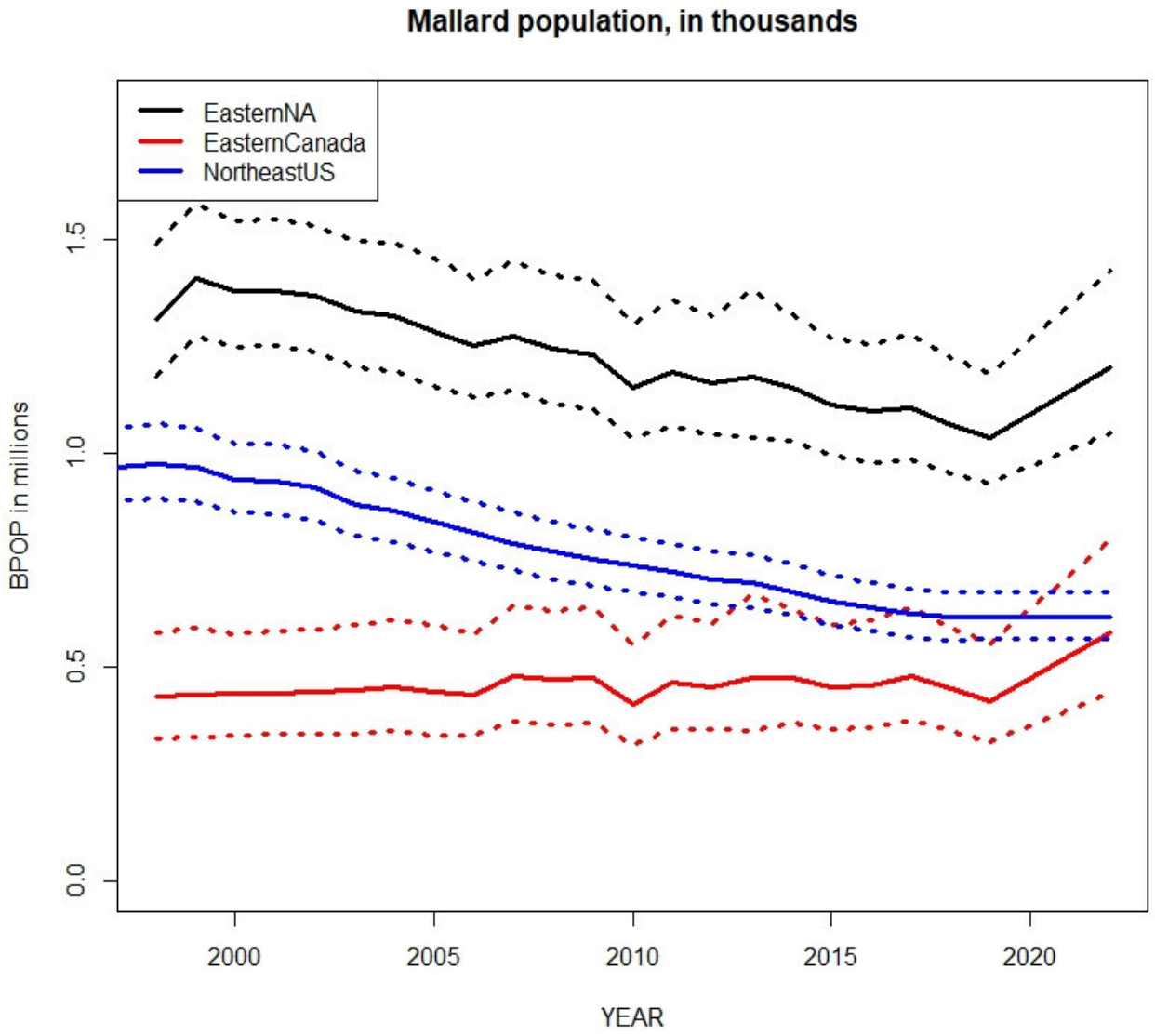
Changes for Next year (2023-2024)

- Bag limit for mallards will increase from 2 (no more than 1 hen) to 4 (no more than 2 hens)

- The season length for Canada geese in Atlantic population zones (most upstate areas) will increase to 45 days/3 bird bag limit

What is happening with mallards?

- Breeding surveys provide the best estimate of waterfowl abundance
- 36% decline from 1998-2017 in the Northeast US
- Overall, decline ~1.1% per year since 1998



Eastern Mallard Research Collaborative

- Led by:
  - NYSDEC
  - Penn Game Commission
  - Ducks Unlimited
  - SUNY Brockport
  - University of Saskatchewan
- Marking >1,200 female mallards over 4 years
- 22 collaborating agencies

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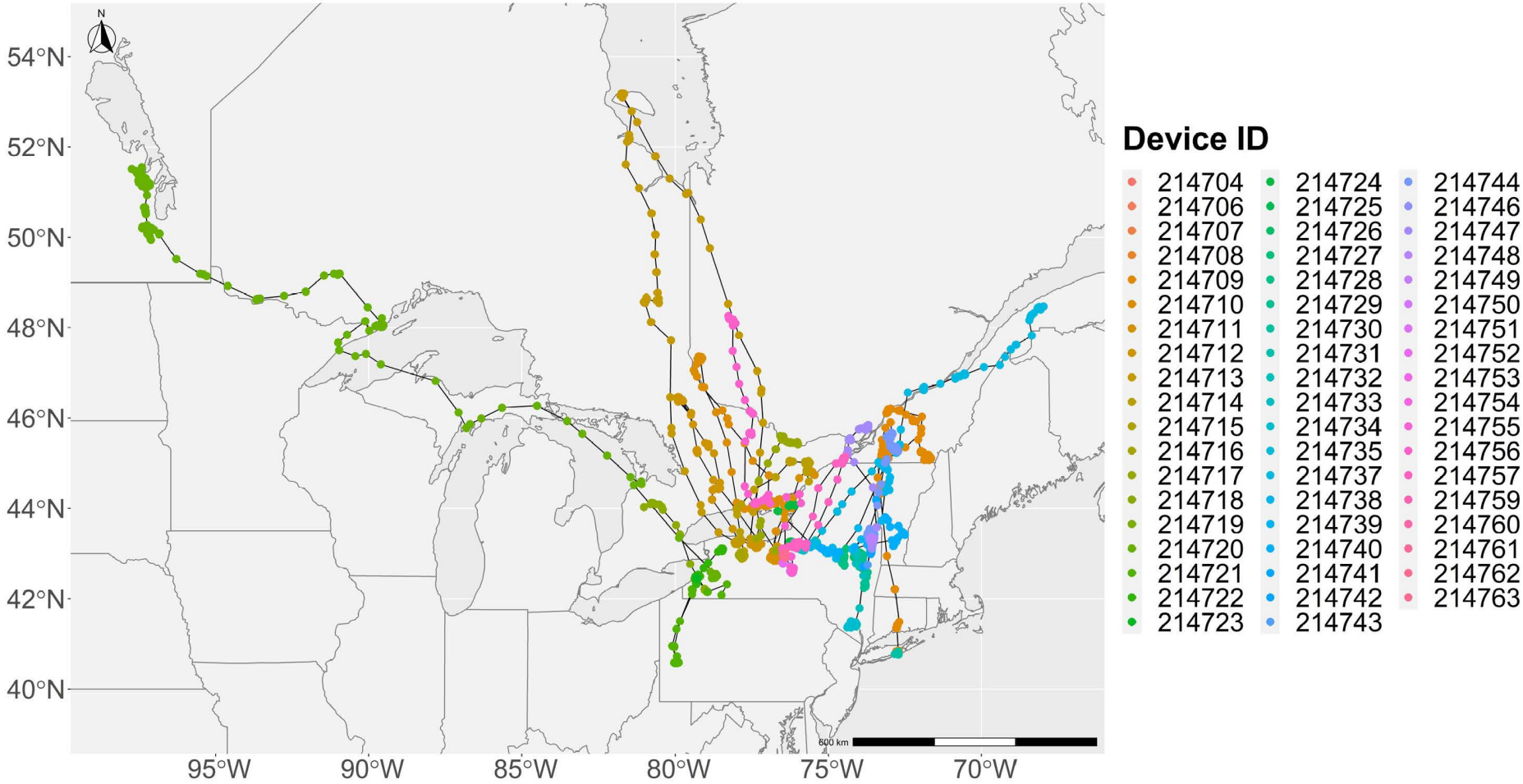
Movements of NY Mallards

n mapped = 56, Movements from January 2022 through 2022-11-10



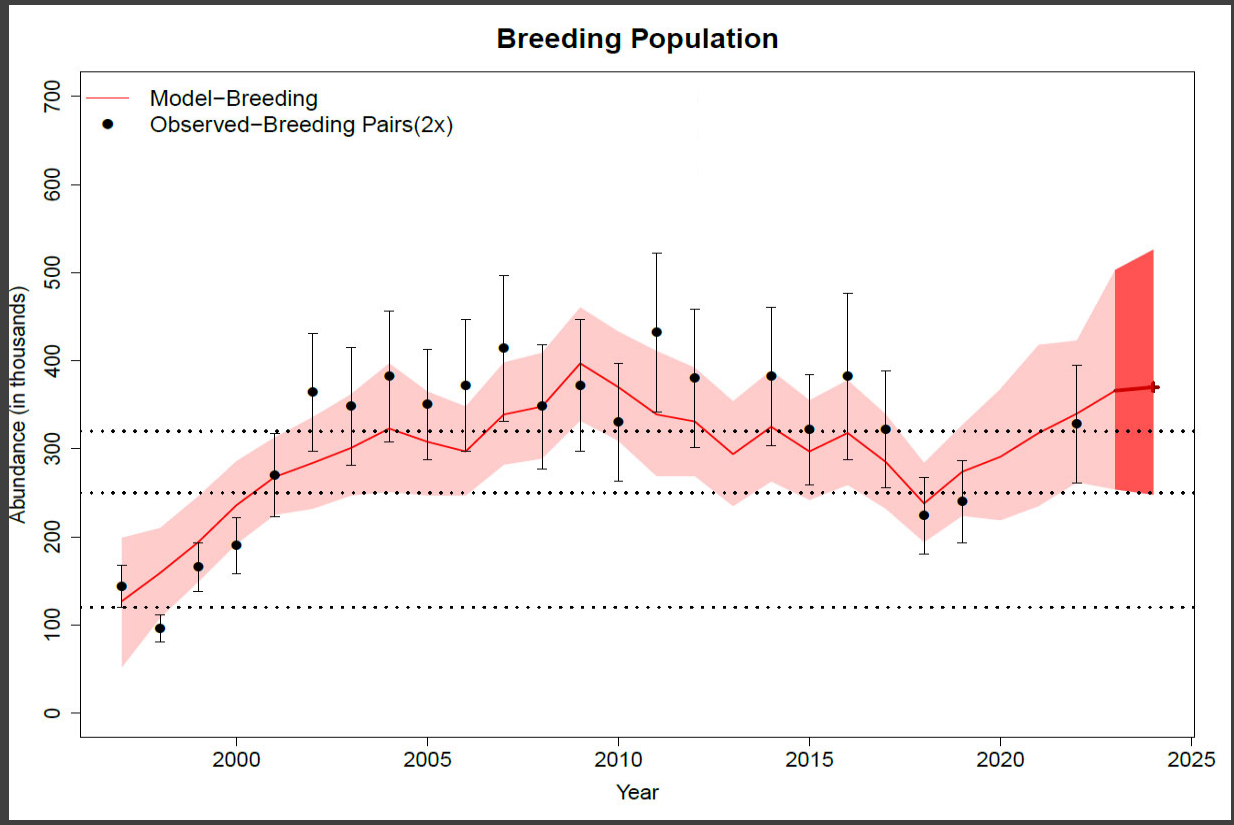
Follow along with spring migration:

https://atlantic-flyway-waterfowl-gps.weebly.com/mallards.html

* Updates have been paused for the fall hunting season, but will resume in the spring

Canada Goose Management

- 2022 AP Canada goose population estimate: 164,000 breeding pairs
- Average productivity this summer



How did we avoid closed seasons?

Decreased harvest

+

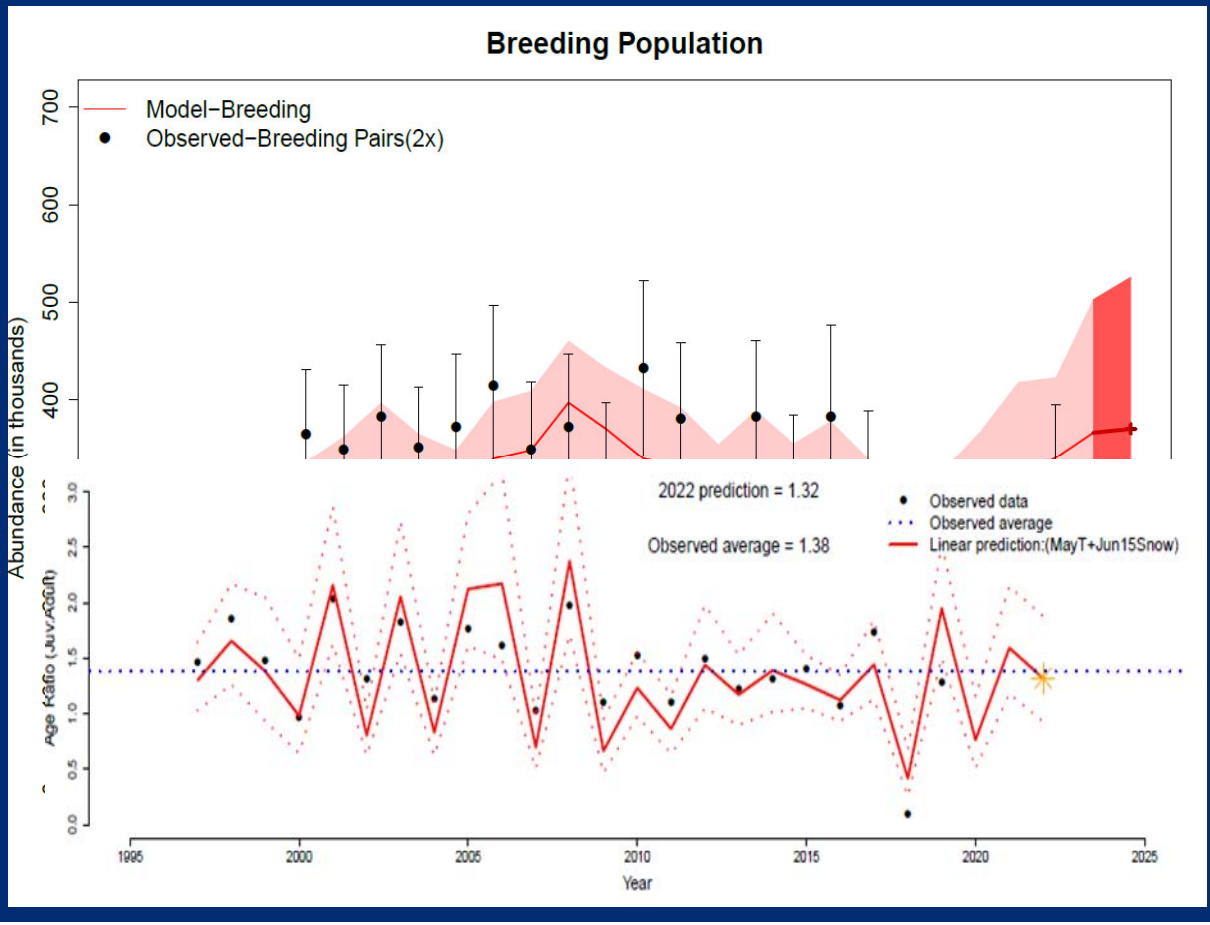
increased survival

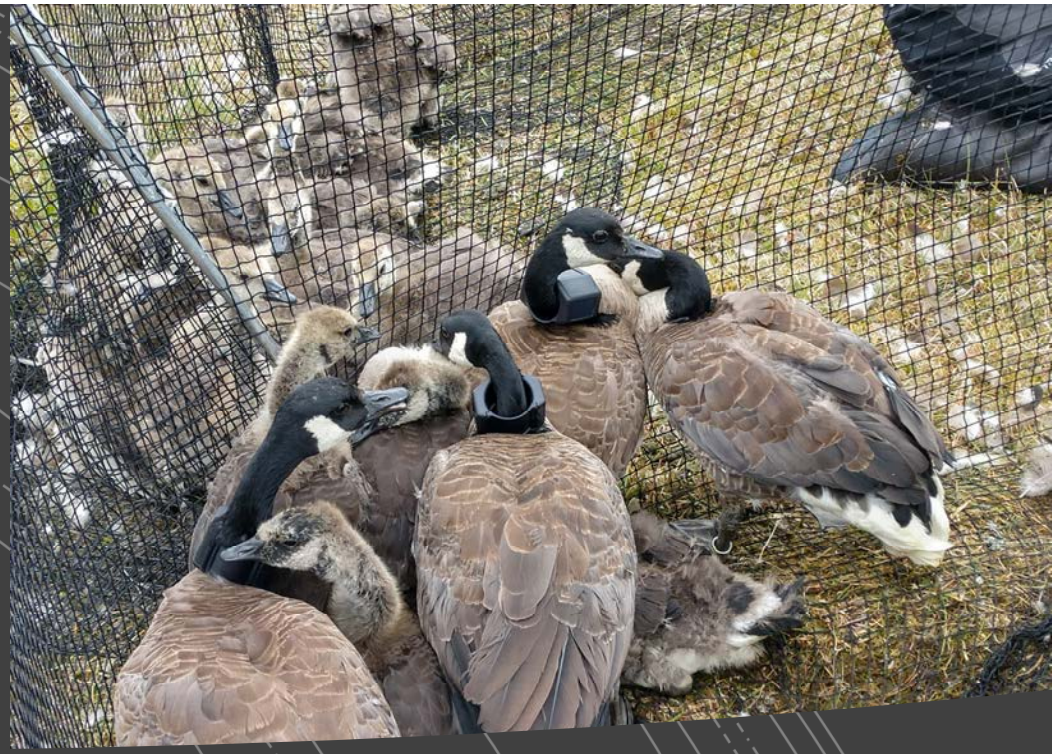
+

average productivity

=

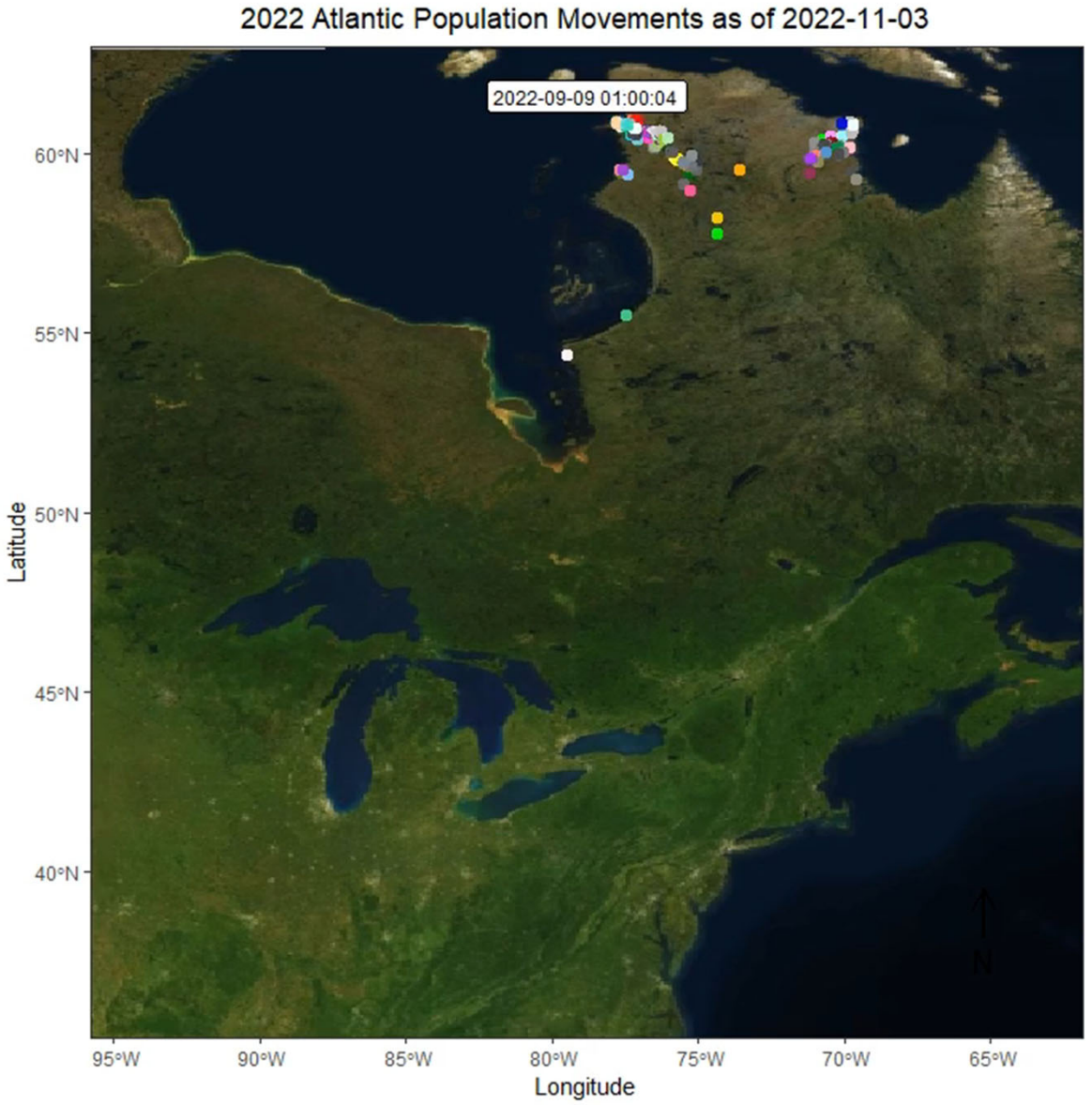
growing population





More migration research to come…

- Atlantic Flyway Cooperative Research Project
- Marking ~500 Atlantic Population Canada geese with GPS transmitters



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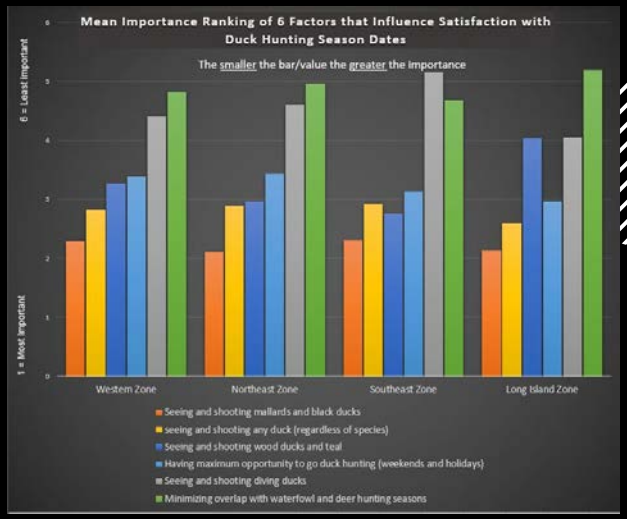
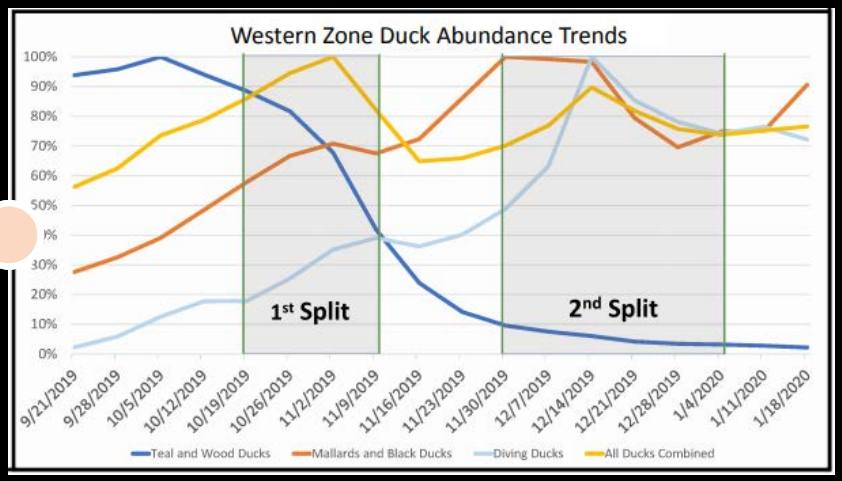
Future Duck Season Dates

- 4th year of a 5-year cycle
- DEC will reassess migration data and hunter values in 2023 via an e-mail survey
- DEC will conduct a new duck hunter survey that will be sent to ALL duck hunters (87% via e-mail)
- For more information on how duck seasons are set, please visit:

https://www.dec.ny.gov/outdoor/40737.html





Thank You

- Joshua Stiller
- Game Bird Biologist
- 625 Broadway, Albany NY
- Joshua.Stiller@dec.ny.gov
- 518-402-8861

Connect with us:
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Flickr: www.flickr.com/photos/nysdec

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Questions?

Department of Environmental Conservation

Cornell University
College of Veterinary Medicine

Wildlife Health Program Update HPAI, HD, and CWD

Kevin Hynes & Krysten Schuler

Teaching and Training

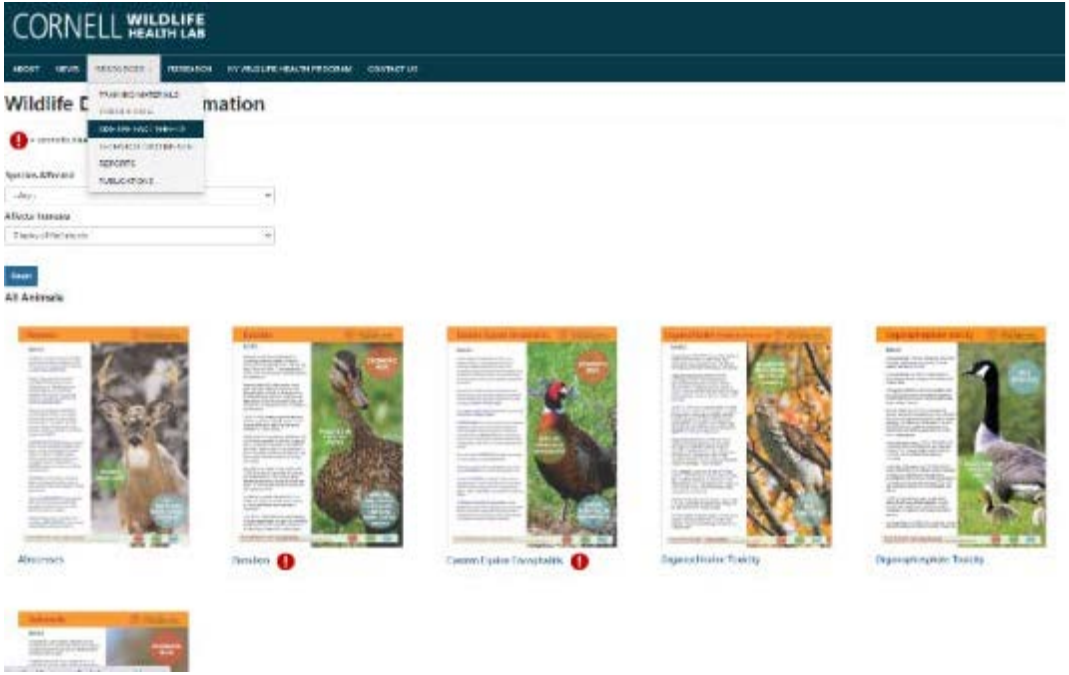
Wildlife Health Workshops & Webinars

Cornell University
College of Veterinary Medicine

NEW YORK STATE OF OPPORTUNITY
Department of Environmental Conservation

Disease Fact Sheets

Most frequent visits are on our
44 Disease Fact Sheets. They are available in online and printable formats at:
https://cwhl.vet.cornell.edu/resources/diseases .



Case Flow

Public reports sick or dead animal

DEC staff assesses to see if animal fits submission criteria

- Recover carcass(es) and collect history
- Standardized on-line specimen history form

Carcasses are shipped or driven to Wildlife Health Unit or Cornell

Full necropsies on submitted specimens

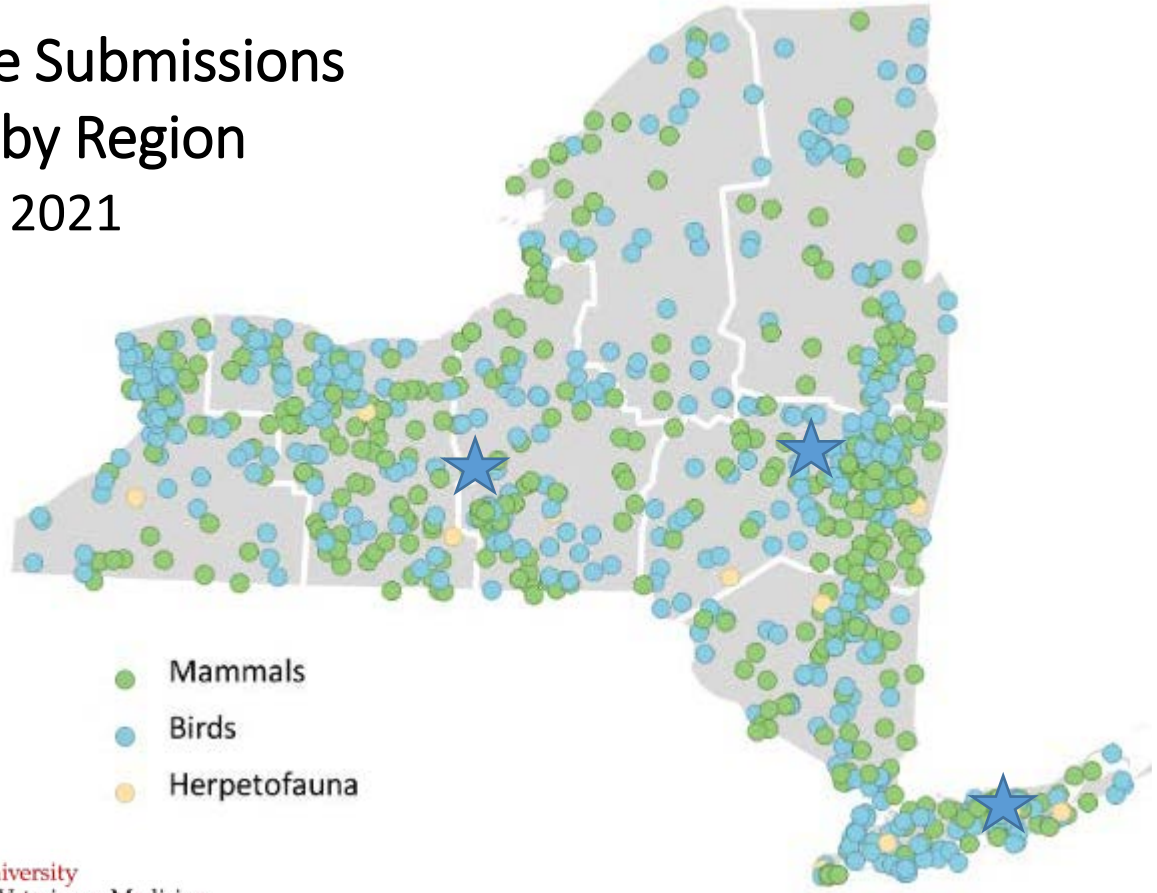
Diagnostic testing at AHDC, Cornell

Reports online

Data analysis

Case Submissions by Region

2021



Avian Influenza Timeline

December 2021: Eurasian strain of HPAI was first detected in North America in Canada (Newfoundland & Labrador).

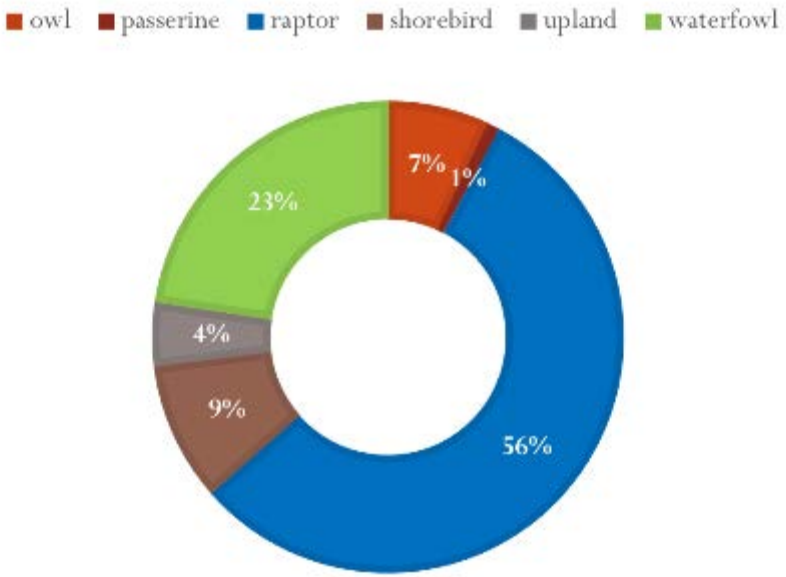
Early 2022: HPAI detected in several eastern states in the US.

18 February 2022: First case of HPAI in New York in a domestic flock (Suffolk County).

23 February 2022: First case of HPAI in a wild bird in New York.

Early May 2022: First case of HPAI in red fox kits in New York.

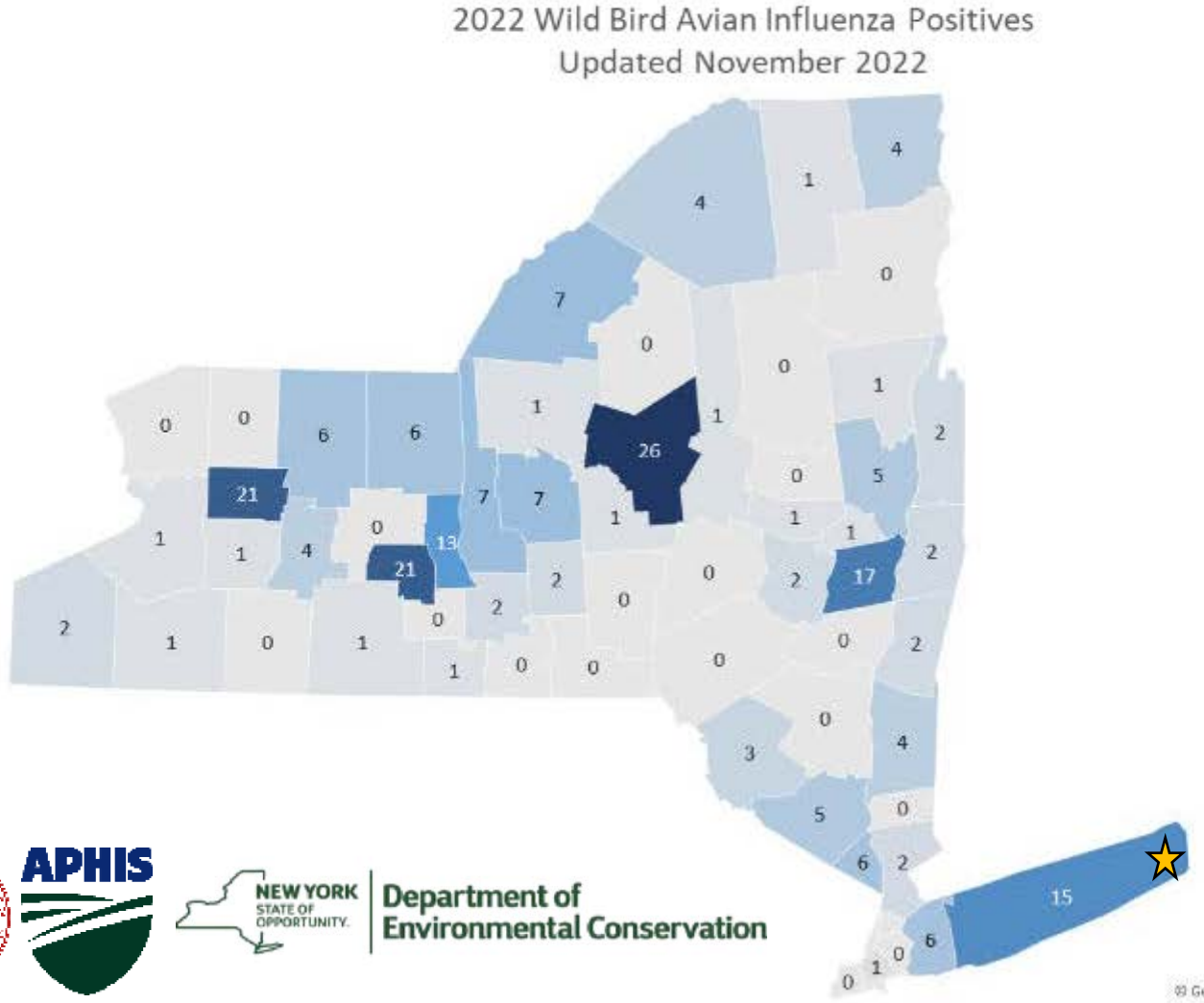
Avian Influenza in NY



33 species identified statewide in 149 cases confirmed.

Most common:

- 34 Canada geese
- 28 bald eagles
- 13 black vultures
- 11 turkey vultures
- 8 mallards
- 8 red-tailed hawks
- 5 great horned owls



A sanderling in Suffolk County was the first HPAI-Positive wild bird in New York State.

Now, there are 216 HPAI-Positive cases in wild birds in New York.

APHIS

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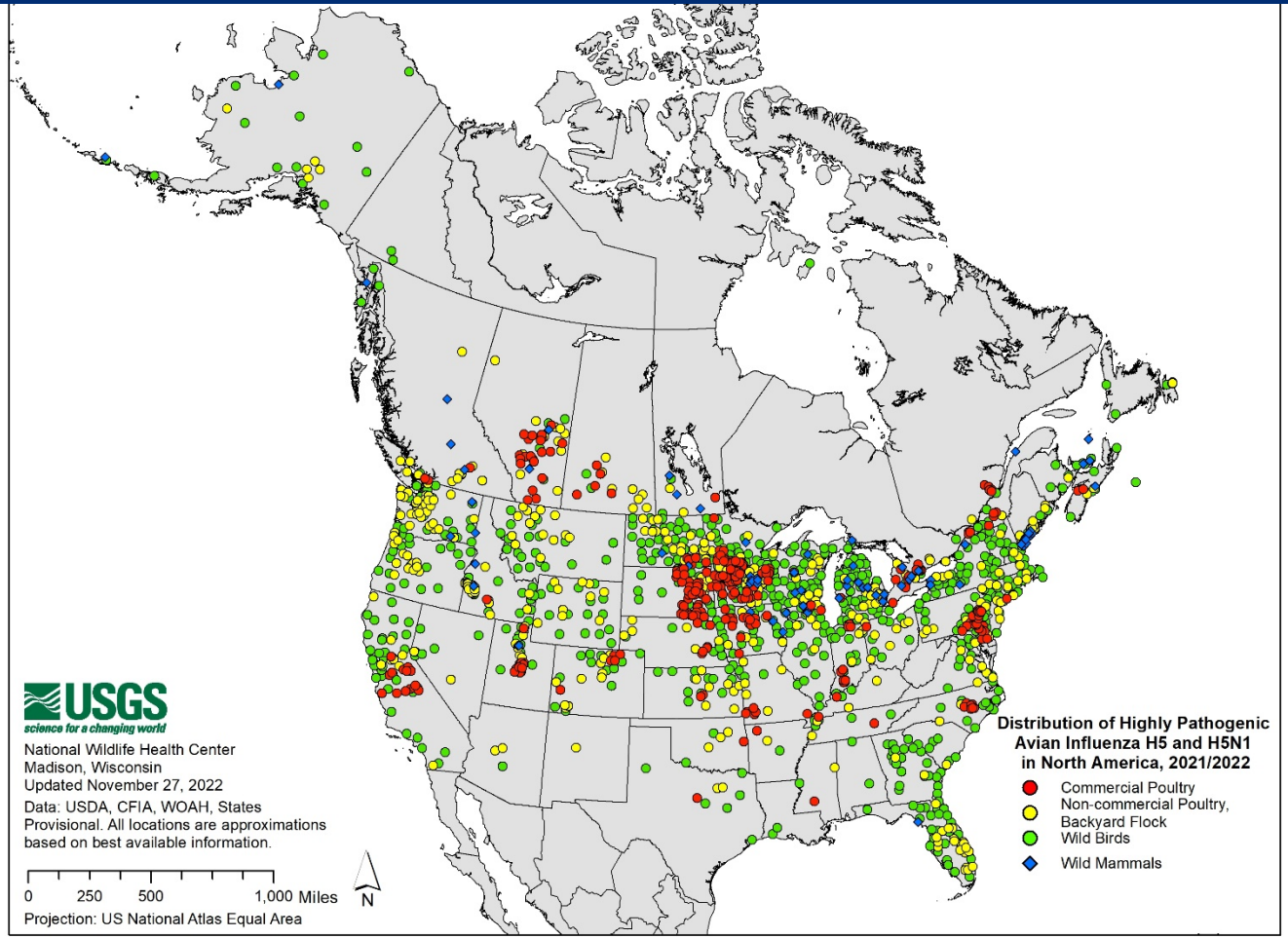

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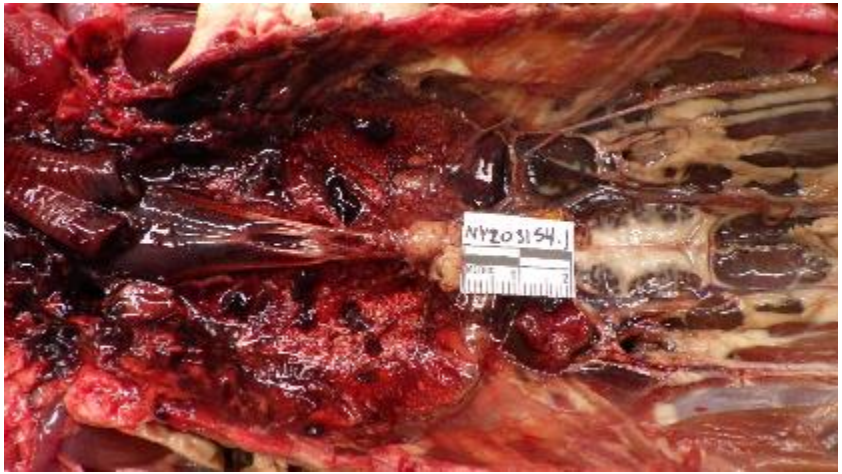
Signs of Avian Influenza in Wild Birds



Black Vulture

Canada Goose

Common signs seen in necropsy:

- Fair to good body condition
- Lungs moderately to heavily congested with blood

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Hemorrhagic Disease (HD) in Deer

- General term for two related viruses:
  - Epizootic Hemorrhagic Disease virus (EHDV)
  - Bluetongue virus (BTV)

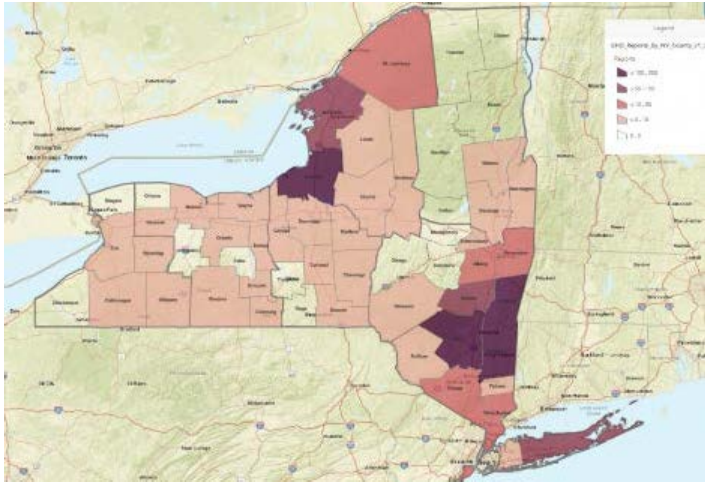
- Viral pathogen: genus **Orbivirus** (family Reoviridae)

- Transmission vector: infected biting fly, ***Culicoides variipennis (or other Culicoides* sp.*)***

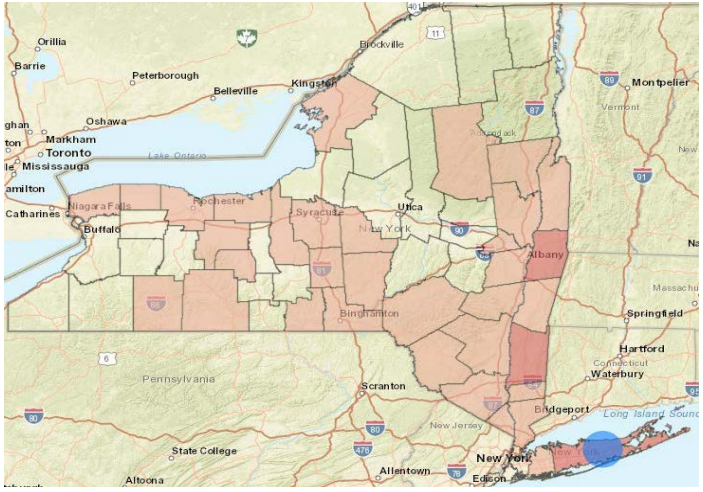
EHD is the most significant viral disease-causing deer mortality in North America and is enzootic in southern states.

HD in NY

2021 vs. 2022



2021



2022

HD Signs

1. Often found near or in water probably due to fever

2. Rapid respiration

3. Head, neck, tongue often swollen (acute)

4. Rapid decomposition

Other signs:

Foot, mouth, or internal lesions; no fear of humans; uncoordinated movements


074308


NY201479
EHD

Chronic Wasting Disease (CWD)

Transmissible Spongiform Encephalopathy (TSE)

- Caused by a “prion” or infectious protein particle

Cervids: deer, elk, moose and reindeer are susceptible

Transmission: deer-to-deer or from environmental contamination (spreads rapidly)

- Infected deer shed CWD prions in saliva, feces, and urine
- Prions bind to soil and may remain infective for 15+ years

Always fatal: No vaccine, No treatment, No immunity

Chronic Wasting Disease (CWD)

TSEs cause sponge-like appearance of brain tissue

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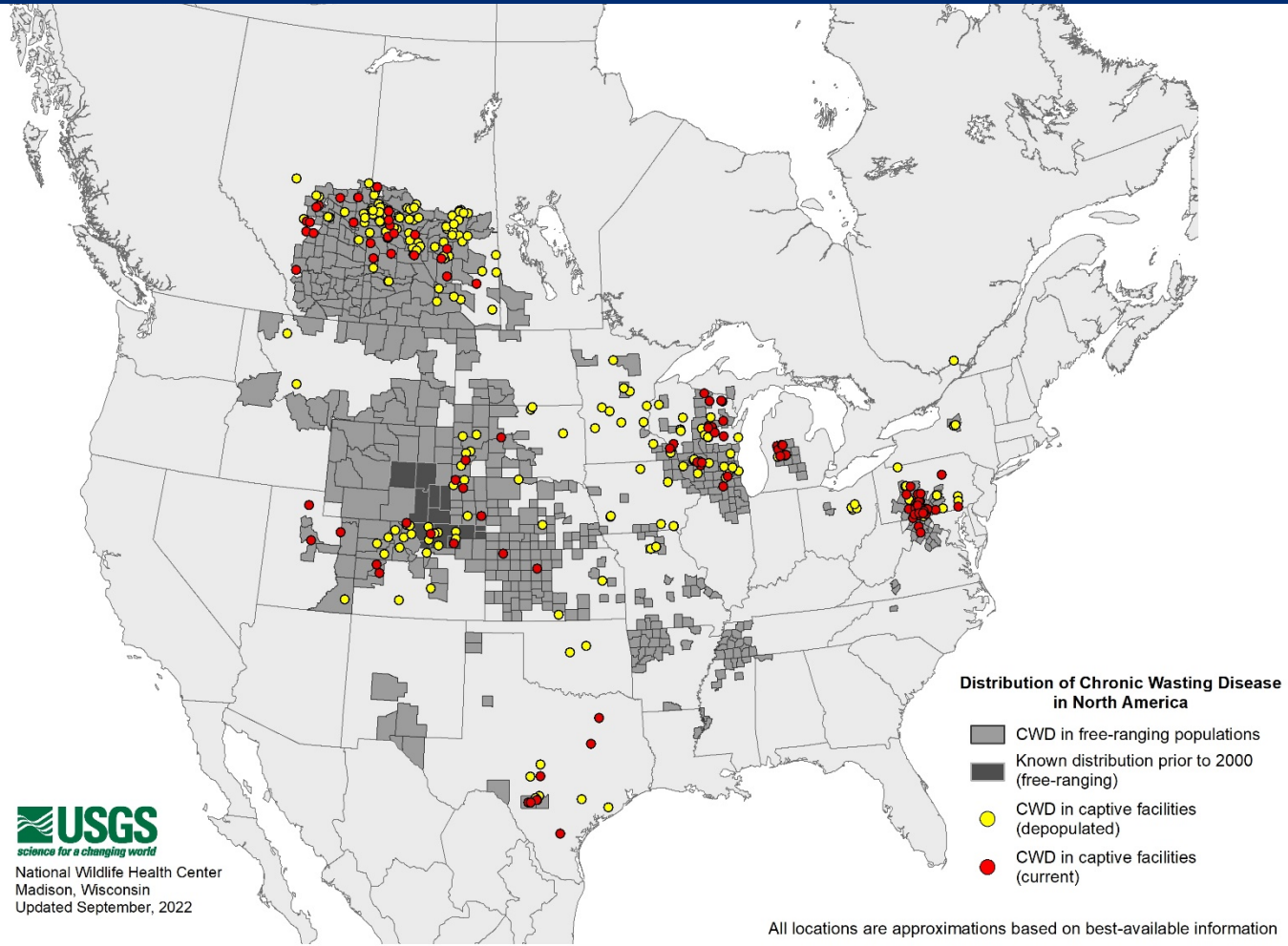

USGS
science for a changing world
National Wildlife Health Center
Madison, Wisconsin
Updated September, 2022

Cornell University
College of Veterinary Medicine

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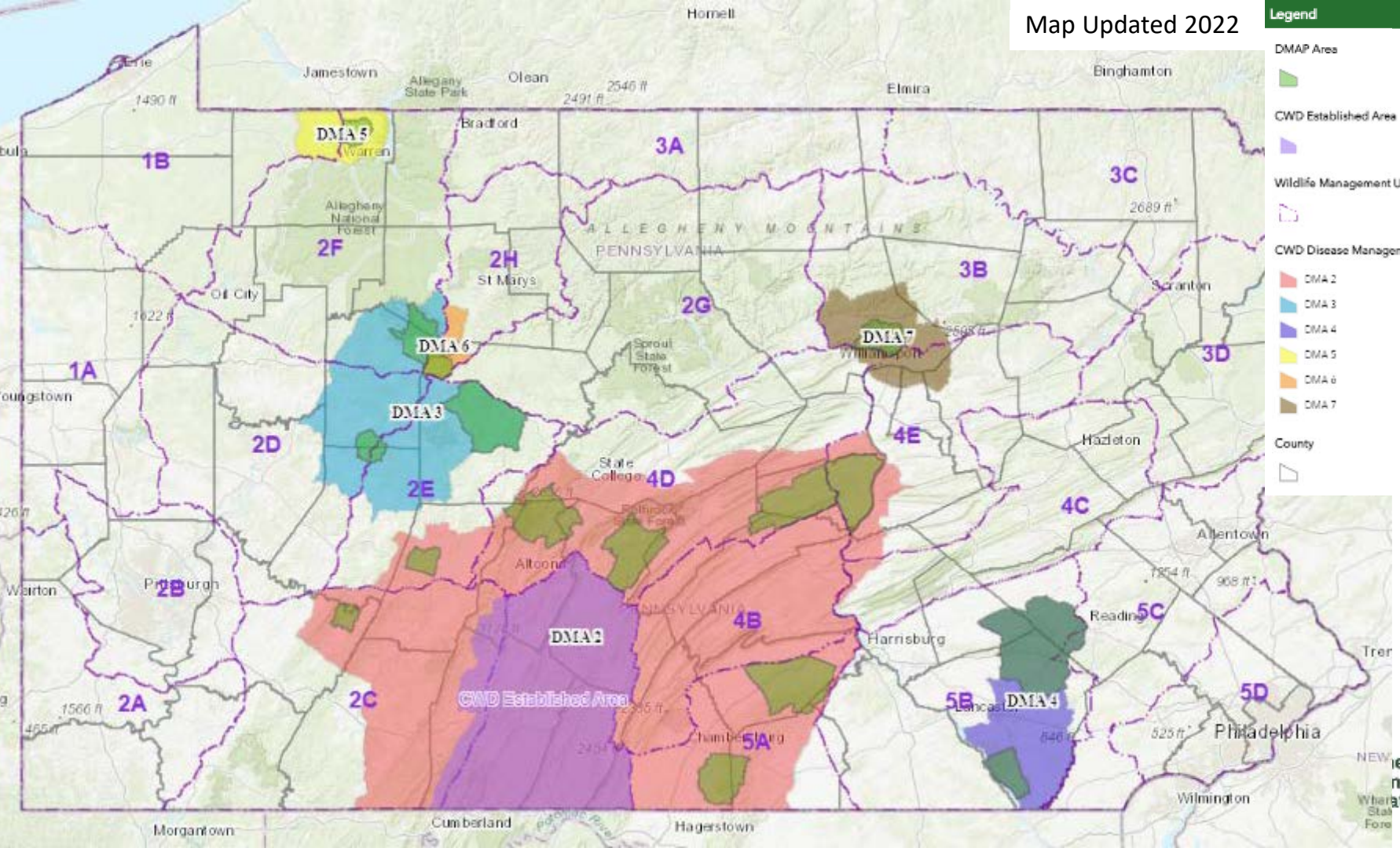
Department of Environmental Conservation

CWD infection in Deer

- Deer exposed/infected with CWD prion
- Starts shedding prions in saliva, feces, urine within 3-6 months of infection
- Deer appears normal and healthy for 1-3 years (while shedding prions into environment every day)
- At 1.5-3 years post-infection decline in body condition/visibly sick
- Dies at 2-4 years post infection
- Carcass is concentrated with prions and contaminates the landscape further

How CWD spreads

- Natural deer movements
- Human movement of infected carcasses or live deer (captive cervid industry)
- In feces of scavengers?
- Deer urine sold for hunting?
- Contaminated plant products? Corn? Hay?


Map Updated 2022
Legend
DMAP Area
CWD Established Area
Wildlife Management Units
CWD Disease Management Area (DMA)
DMA 2
DMA 3
DMA 4
DMA 5
DMA 6
DMA 7
County
DMA 5
DMA 6
DMA 3
DMA 7
DMA 2
DMA 4
CWD Established Area
1A
1B
2A
2B
2C
2D
2E
2F
2G
2H
3A
3B
3C
3D
4A
4B
4C
4D
4E
5A
5B
5C
5D
Hornell
Jamestown
Olean
Elmira
Binghamton
Bradford
Warren
Allegheny National Forest
ALLEGHENY MOUNTAINS
PENNSYLVANIA
St Marys
Oil City
Sproul State Forest
Scranton
Hazleton
State College
Altoona
Allentown
Reading
Harrisburg
Lancaster
Philadelphia
Wilmington
Pittsburgh
Morgantown
Cumberland
Hagerstown

Illegal PA Deer seized at Broome County Border December 1st 2018

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Chronic Wasting Disease

Current Status in NY:

Not identified in NYS since 2005

2,778 hunter harvested deer and 188 clinical suspects during the 2021-2022 season

611 Captive Deer Tested (July 2021- June 2022)

How can you help?

- Dispose of carcass waste in the landfill, not on the landscape.
- Do not feed wild deer.
- Do not use deer-urine based cover scents or lures.
- If you travel out-of-state to hunt, debone or quarter your deer before bringing your harvest back.
- Report any strange or sick-acting deer to DEC.
- Encourage others to take these same actions and report violations to DEC.

Deer have been exposed to COVID-19

Serologic testing

Transmission mechanisms are unknown

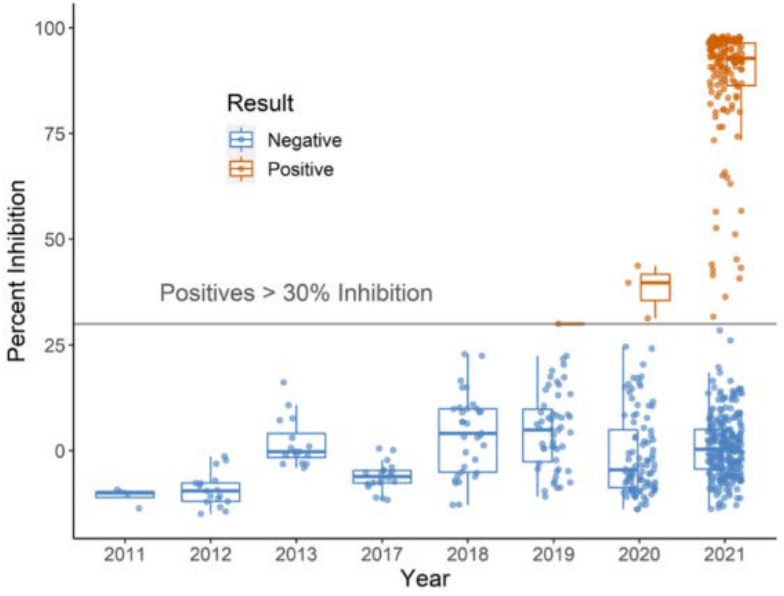

Fig. 1. SARS-CoV-2 serological results for white-tailed deer. Serum samples were tested using the Genscript cPass™ surrogate virus neutralization test (sVNT).

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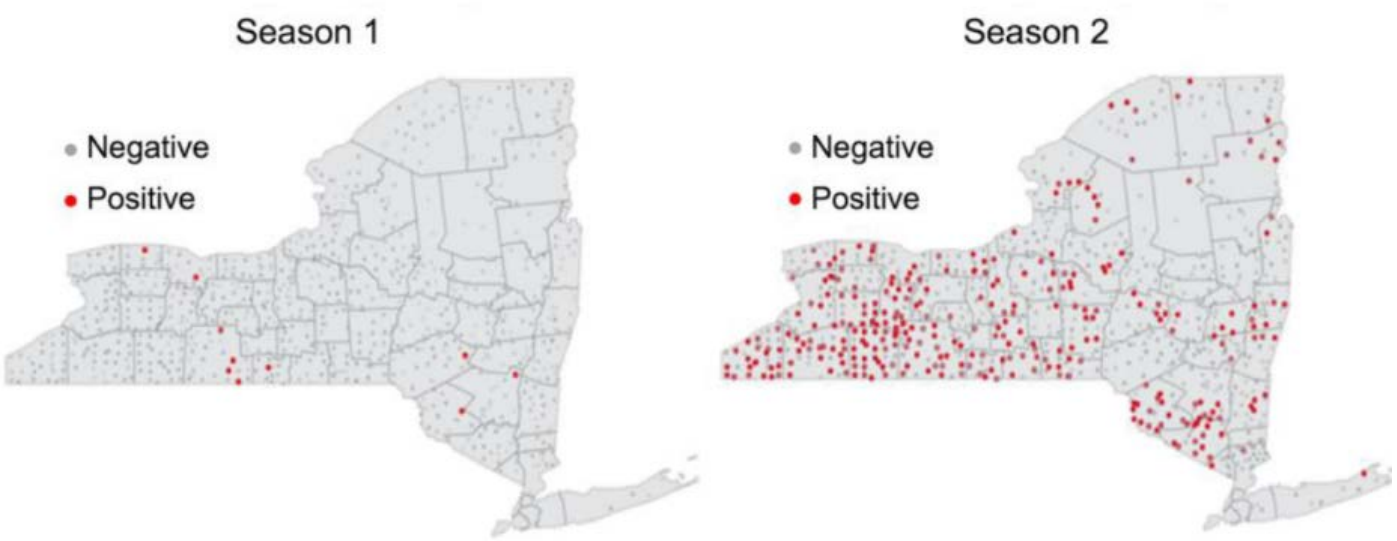
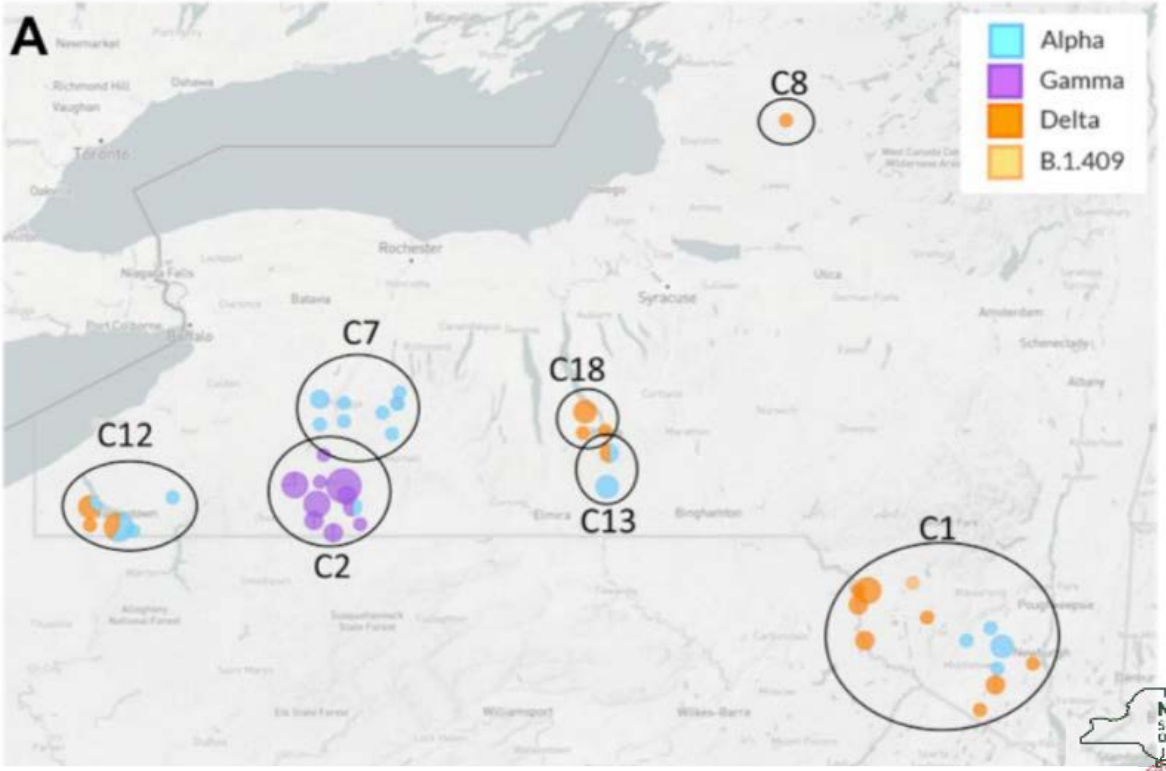
Cornell University
College of Veterinary Medicine
Animal Health Diagnostic Center

COVID-19 in Deer



Deer and Covid “Hotspots”

2021-2022



Questions?

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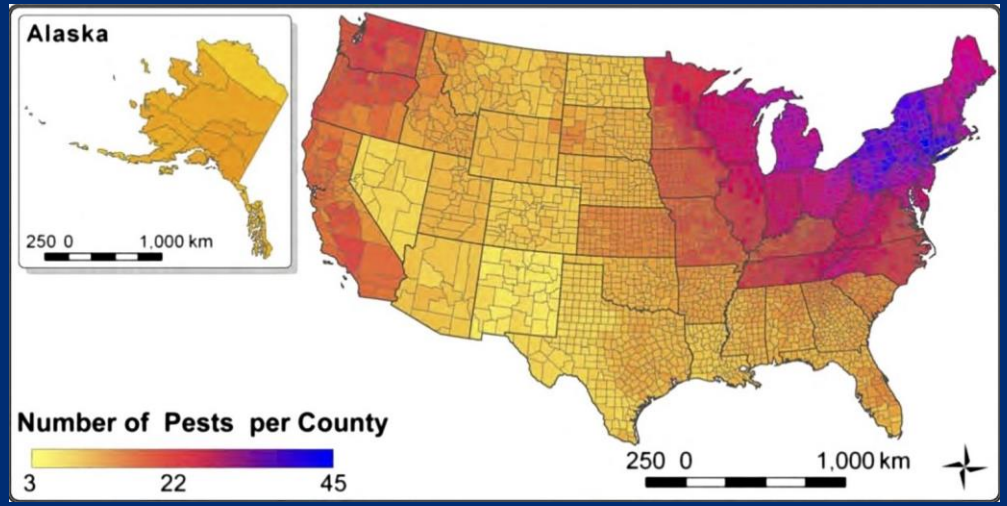


Invasive Species & Ecosystem Health Updates

Jessica Cancelliere, Research Scientist, Forest Health Lab

NYS Fish & Wildlife Management Board Fall Meeting

November 14, 2022

Beech leaf disease

Litylenchus crenatae mccannii USDA-NRS

early

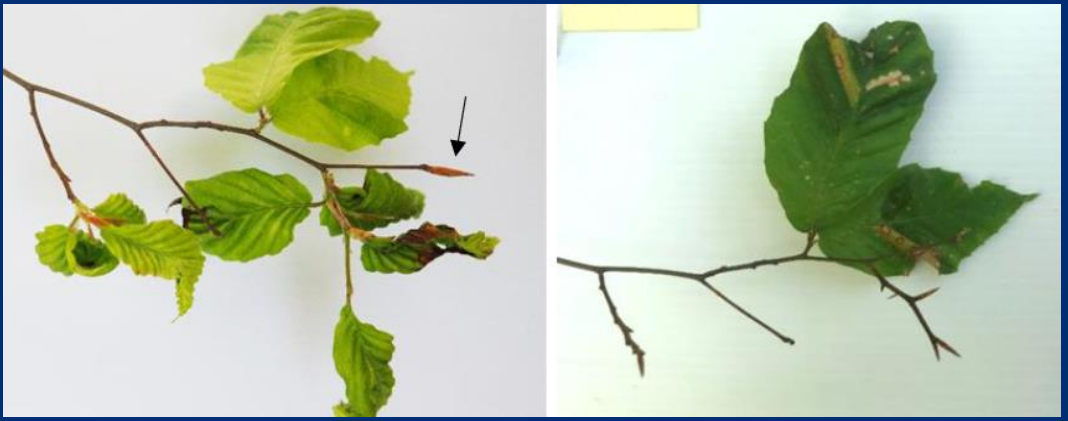
mid

late

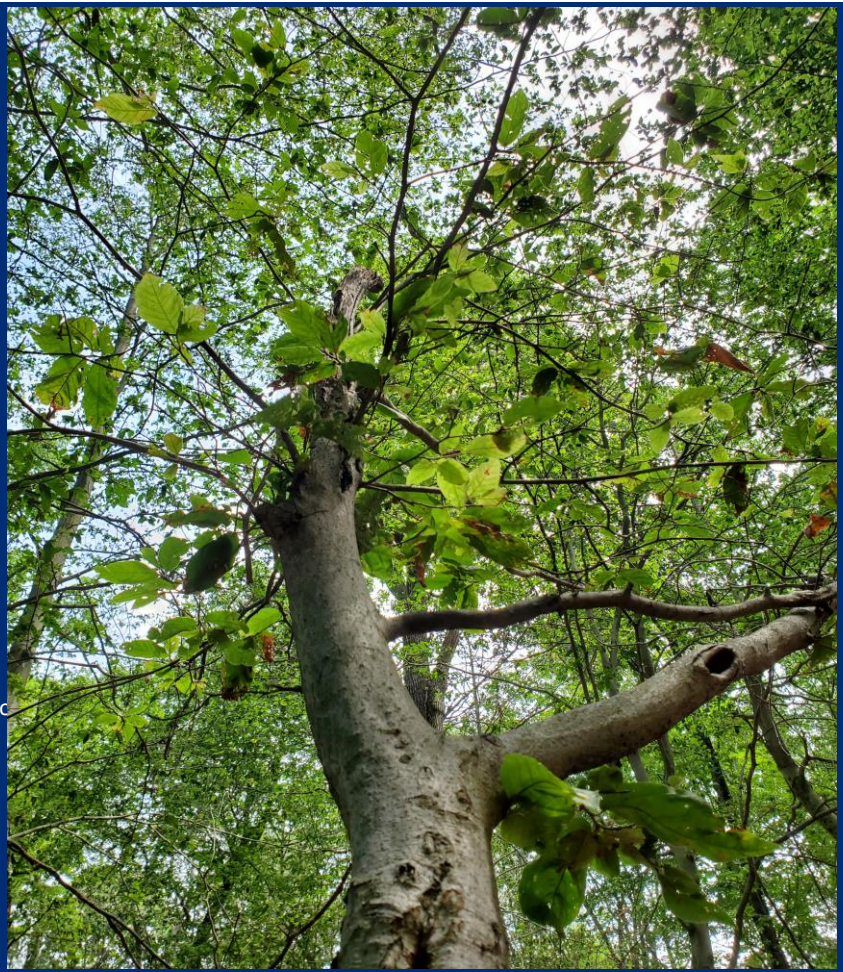
fall/winter

Conservation

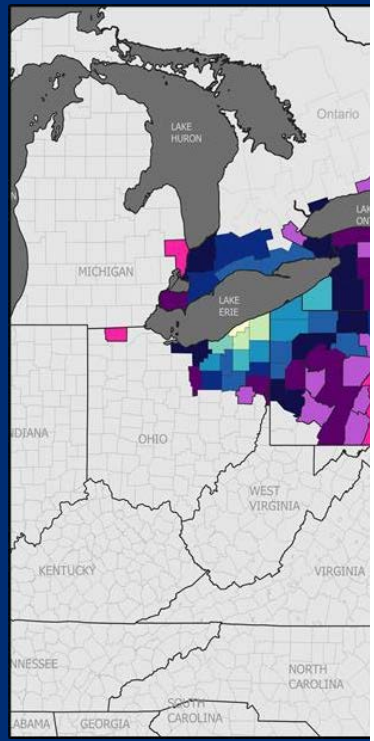
Symptoms



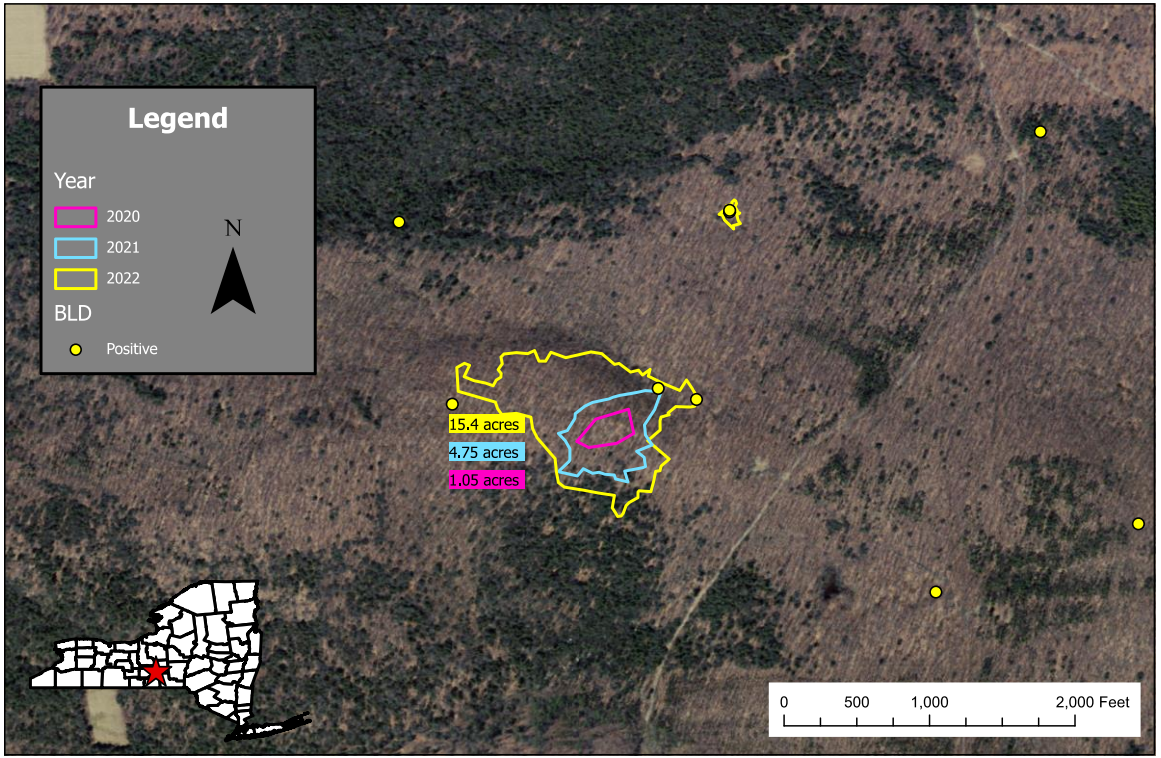
Rinker, B. G., Moore, D. T., Berry, D. K., & Zimmerman, B. M. Beech Leaf Disease Seasonal Symptom Progressio



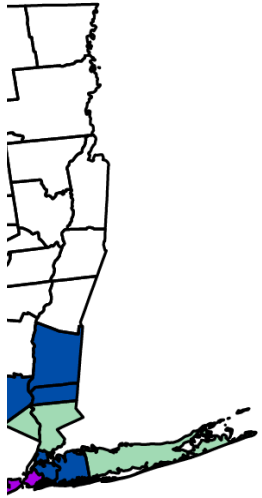
Distribut



Beech Leaf Disease Expansion 2020 - 2022
Kennedy State Forest



8/9/22



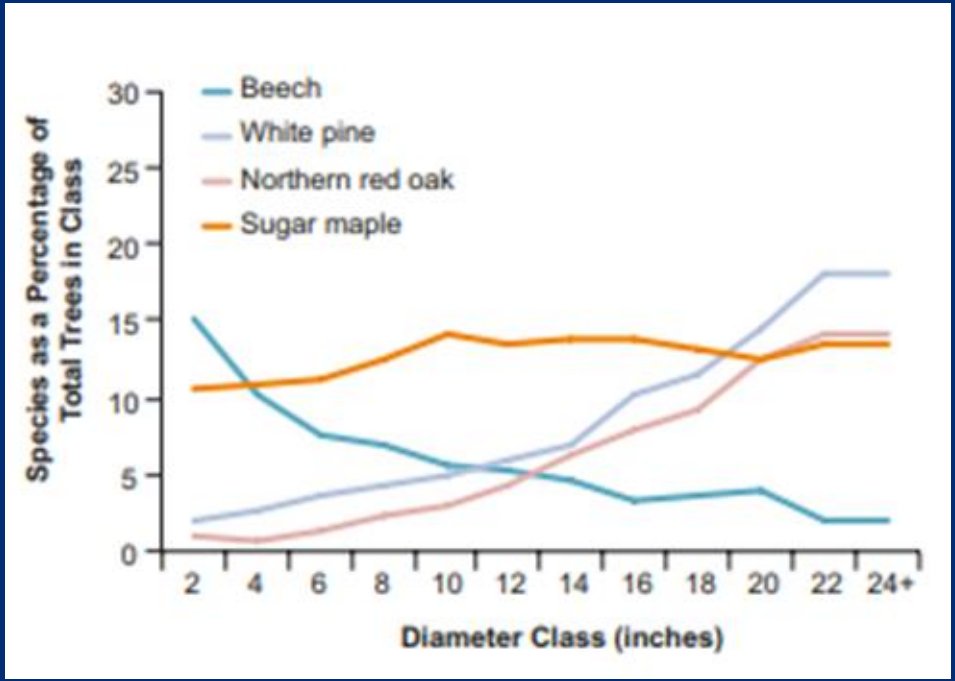
YORK STATE
Environmental Conservation

Short-term Impacts

- Sapling mortality 1-3 yrs
- Mature tree mortality – 7+ yrs
- Canopy gaps
- Increased invasives
- Mast loss

Long-term Impacts

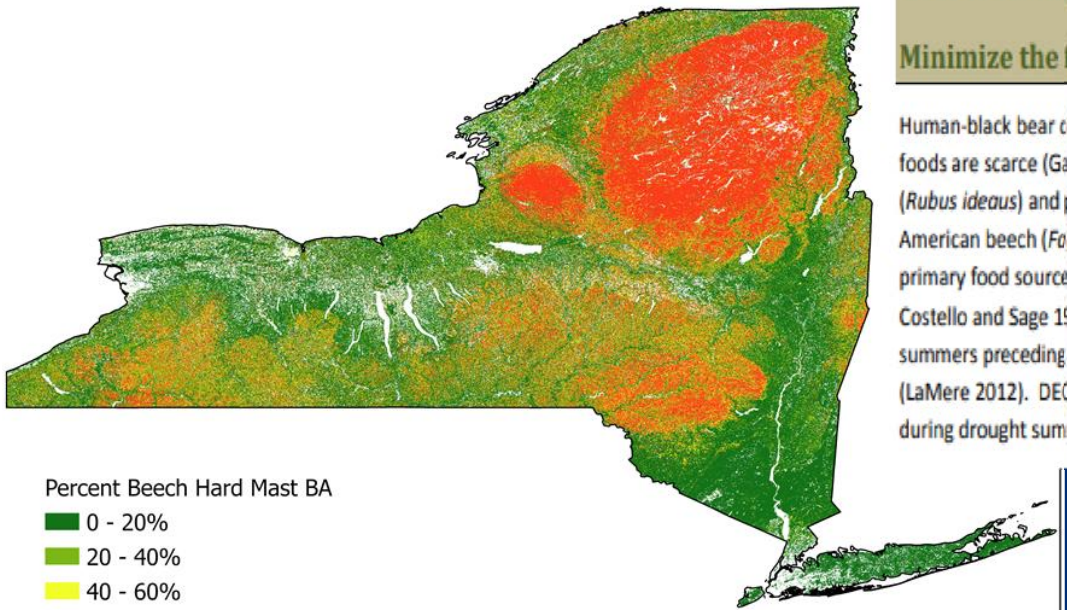
- Forest structural changes
- Compounding effects of other pests/diseases
- Understory changes
- Wildlife populations?



Source: FIA estimates https://doi.org/10.2737/FS RU 250 Tables

Reed, S.E., Volk, D., Martin D.K., Hausman, C.E., Macy, T., Tomen, T., Cousins, S., 2022. The distribution of beech leaf disease and the causal agents of beech bark disease in forests surrounding Lake Erie and future implications. Forest Ecology and Management, 503, 119753.

Wildlife Impacts



Goal 3: Conflict and Damage Management

Minimize the frequency and severity of human-bear conflicts.

Human-black bear conflicts tend to vary seasonally and annually, with increased frequency when natural foods are scarce (Garshelis 1989, Howe et al. 2010). Blackberry (*Rubus allegheniensis*), raspberry (*Rubus ideaus*) and pin cherry (*Prunus pennsylvanicus*) are important summer foods for black bears, and American beech (*Fagus grandifolia*) nuts, black cherry (*Prunus serotina*), and acorns (*Quercus spp.*) are a primary food source for black bears during abundant mast years (Bennett et al. 1943, Costello 1992, Costello and Sage 1994). In the Adirondack Region of New York, human-bear conflicts tend to increase in summers preceding a fall of poor beech nut production, though the relationship is not fully clear (LaMere 2012). DEC staff also note increased frequency of human-bear conflicts throughout New York during drought summers when berry crops are less productive.

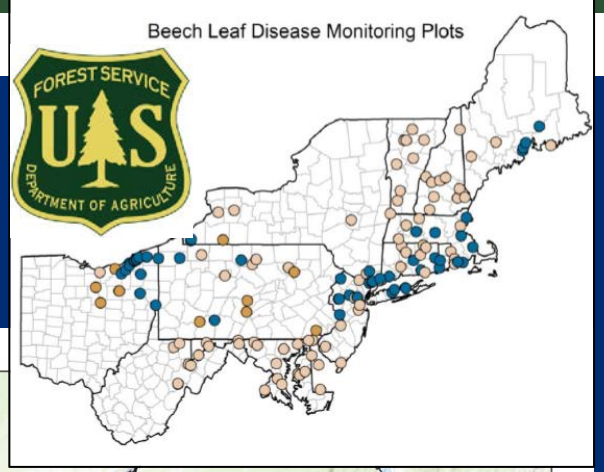
NYS DEC Black Bear Management Plan for New York State 2014-2024

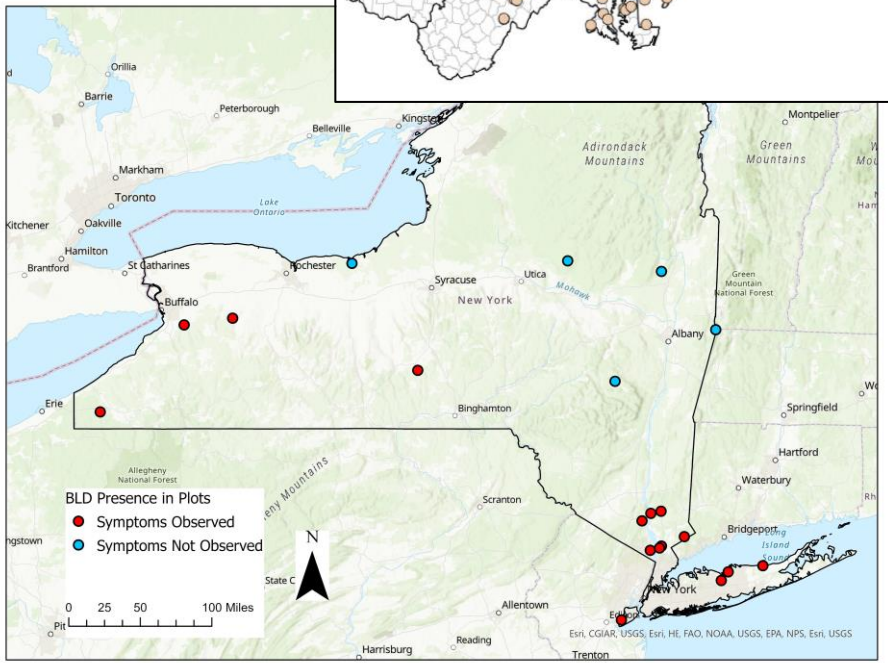
NEW YORK STATE | Department of Environmental Conservation

Current work

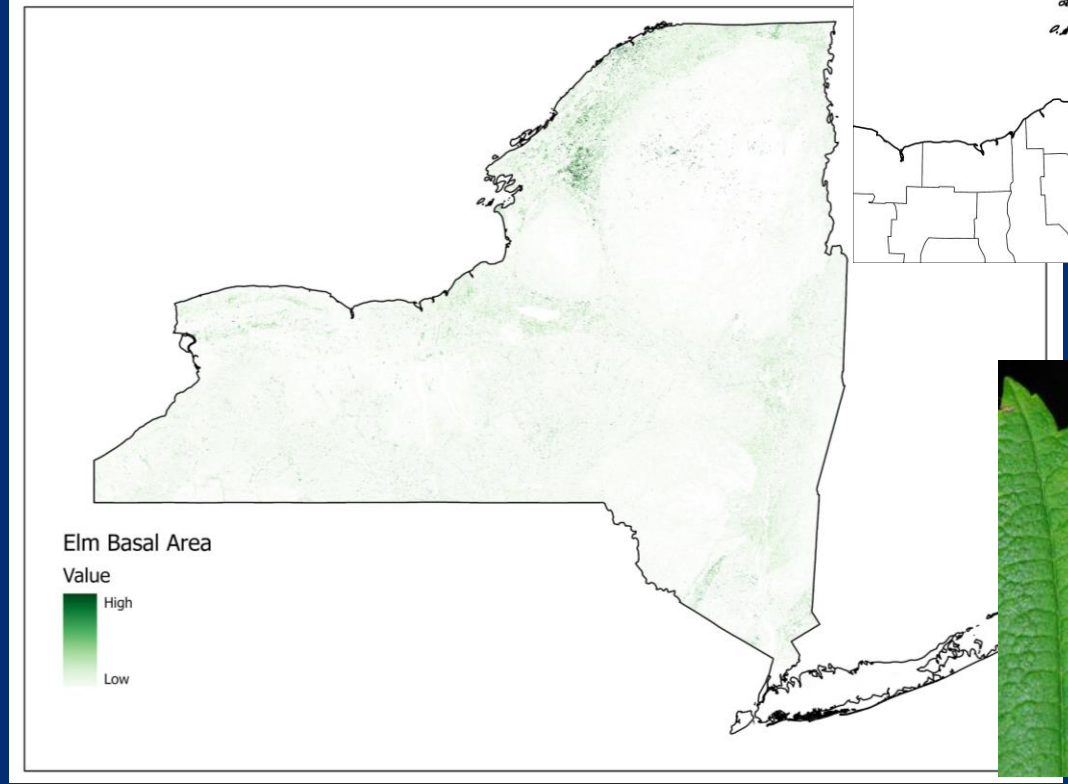
- Survey & monitoring
- Restoration / mitigation
- Research

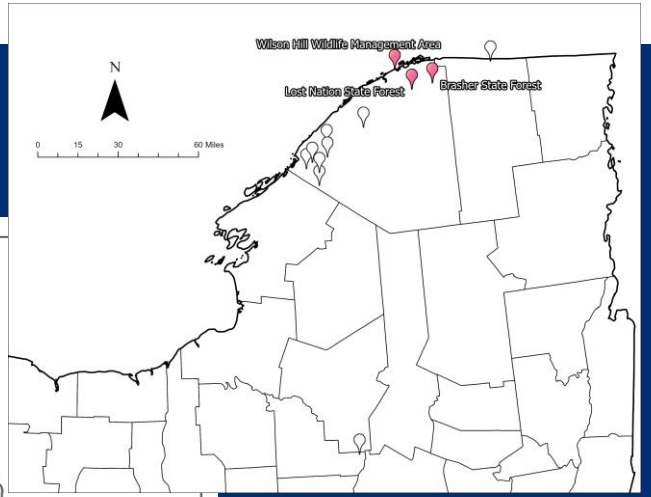
Zofnass Preserve, Pound Ridge, Westchester County



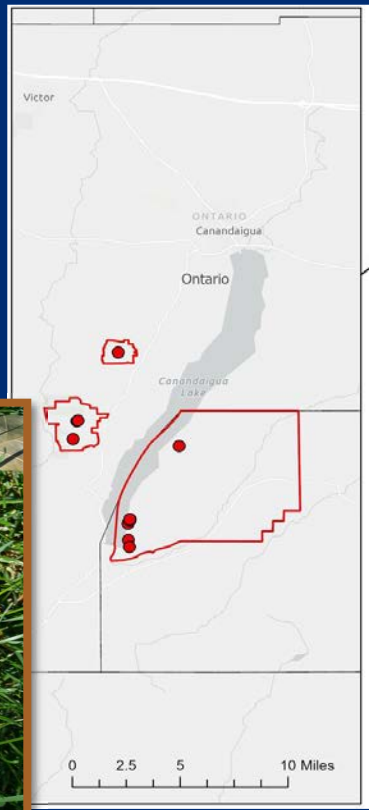


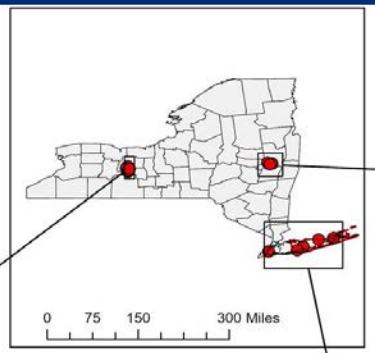
Elm Zigzag Sawfly

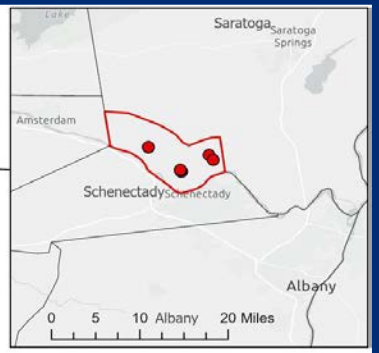




Oak Wilt


Victor
ONTARIO
Canandaigua
Ontario
Canandaigua Lake
0 2.5 5 10 Miles


0 75 150 300 Miles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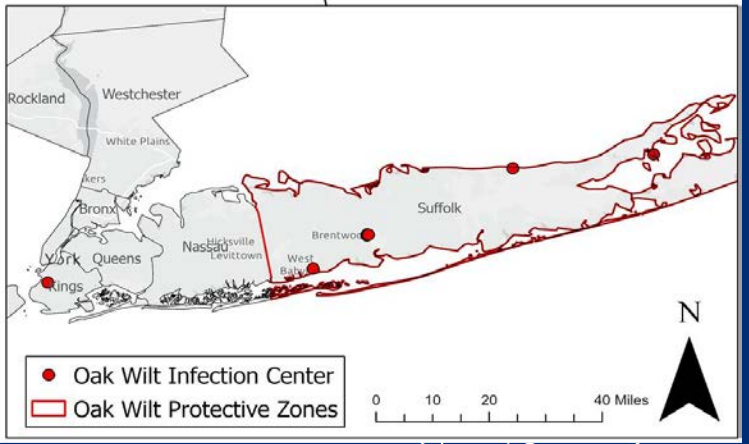
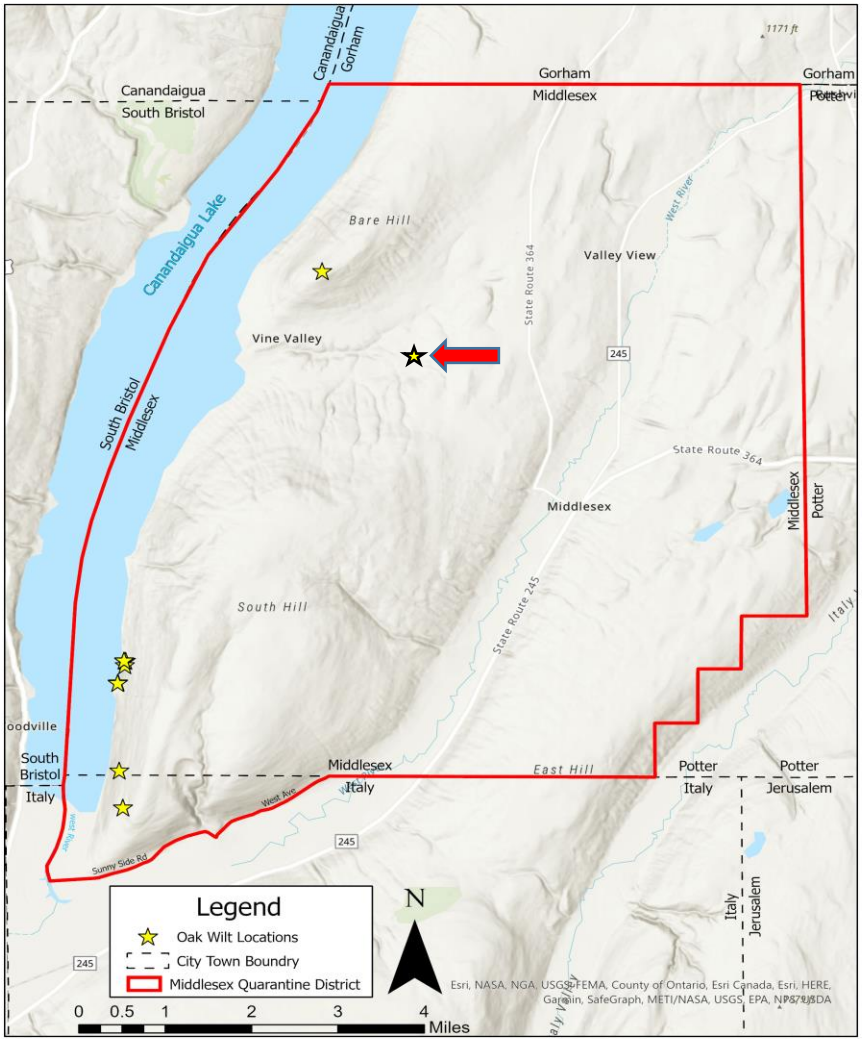
Saratoga Springs
Amsterdam
Schenectady
Albany
0 5 10 Albany 20 Miles


Rockland
Westchester
White Plains
Bronx
Queens
Nassau
Suffolk
Kings
Oak Wilt Infection Center
Oak Wilt Protective Zones
N
0 10 20 40 Miles


Canandaigua
South Bristol
Gorham
Middlesex
Gorham
Potter
Canandaigua Lake
Bare Hill
Valley View
West River
State Route 364
Vine Valley
245
South Bristol
Middlesex
State Route 364
Middlesex
Middlesex
Potter
South Hill
State Route 245
East Hill
South
Bristol
Italy
Middlesex
Italy
Potter
Italy
Potter
Jerusalem
West Run
Sunny Side Rd
245
Italy
Jerusalem
Legend
Oak Wilt Locations
City Town Boundry
Middlesex Quarantine District
N
0 0.5 1 2 3 4
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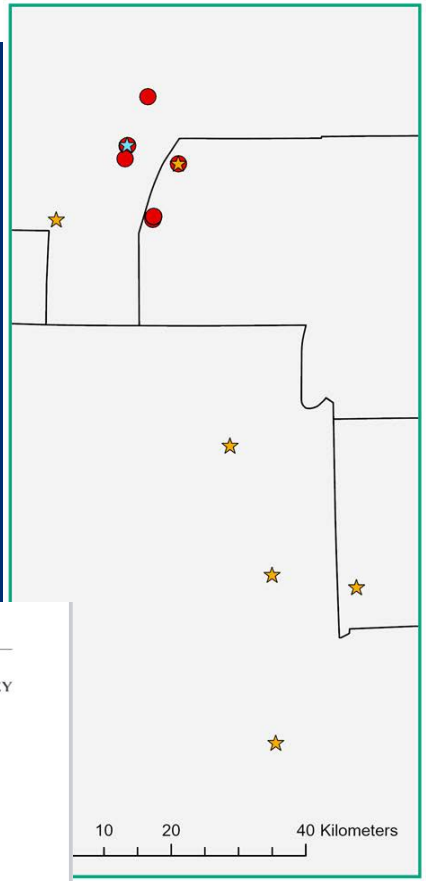
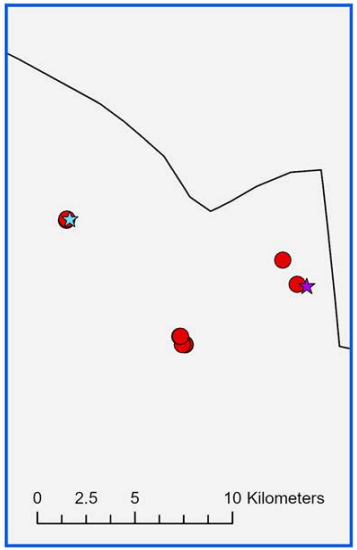
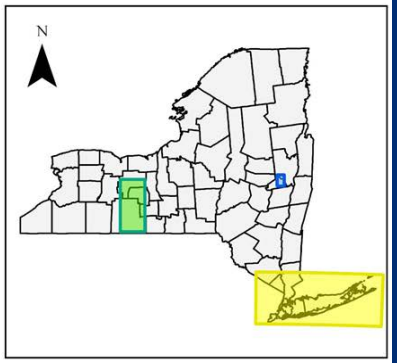
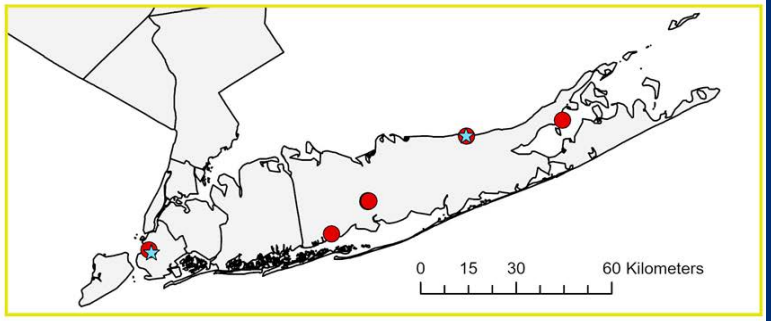




Legend
☆2019 Nitidulid Positives
★2020 Nitidulid Positives
★2019 and 2020 Nitidulid Positives
●Oak Wilt Positive Trees





Received: 5 April 2022 | Revised: 8 August 2022 | Accepted: 22 August 2022
DOI: 10.1111/efp.12767

ORIGINAL ARTICLE

Forest Pathology WILEY

Early detection of the oak wilt fungus (*Bretziella fagacearum*) using trapped nitidulid beetle vectors

Kelsey McLaughlin[1] | Karen Snover-Clift[2] | Liam Somers[1] | Jessica Cancelliere[1] | Robert Cole[3]

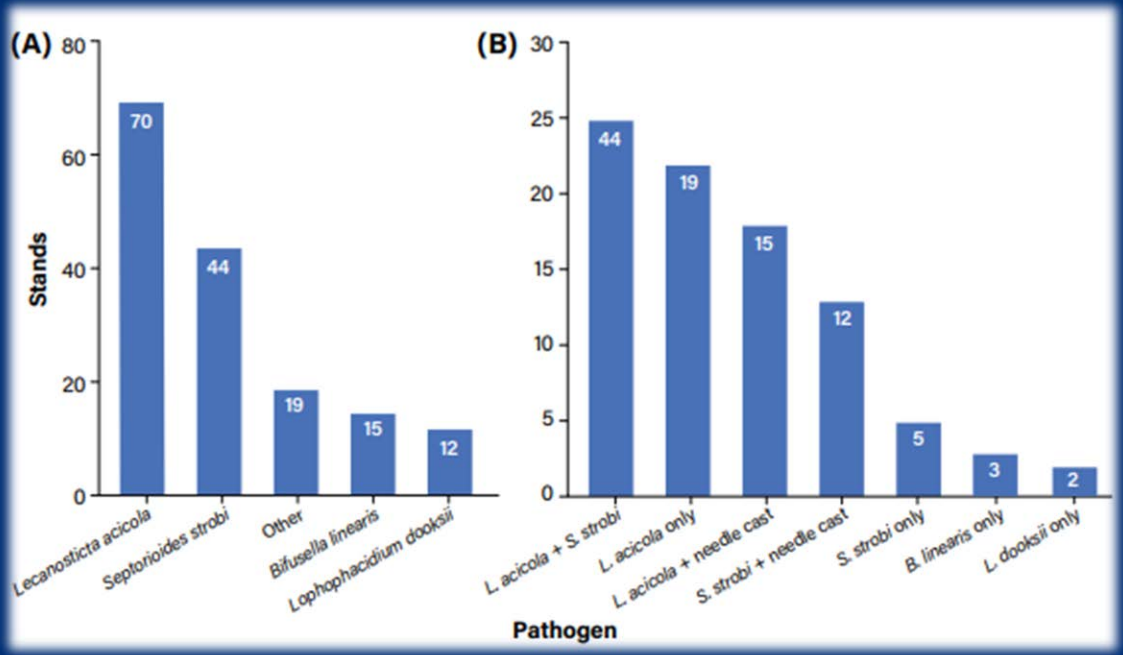
[1]NYSDEC Forest Health Diagnostic Lab, Delmar, New York, USA
[2]School of Integrative Plant Sciences, Plant Pathology & Plant-Microbe Biology, Plant Disease Diagnostic Clinic, Cornell University, Ithaca, New York, USA
[3]NYSDEC Bureau of Invasive Species and Ecosystem Health, Albany, New York, USA

Abstract

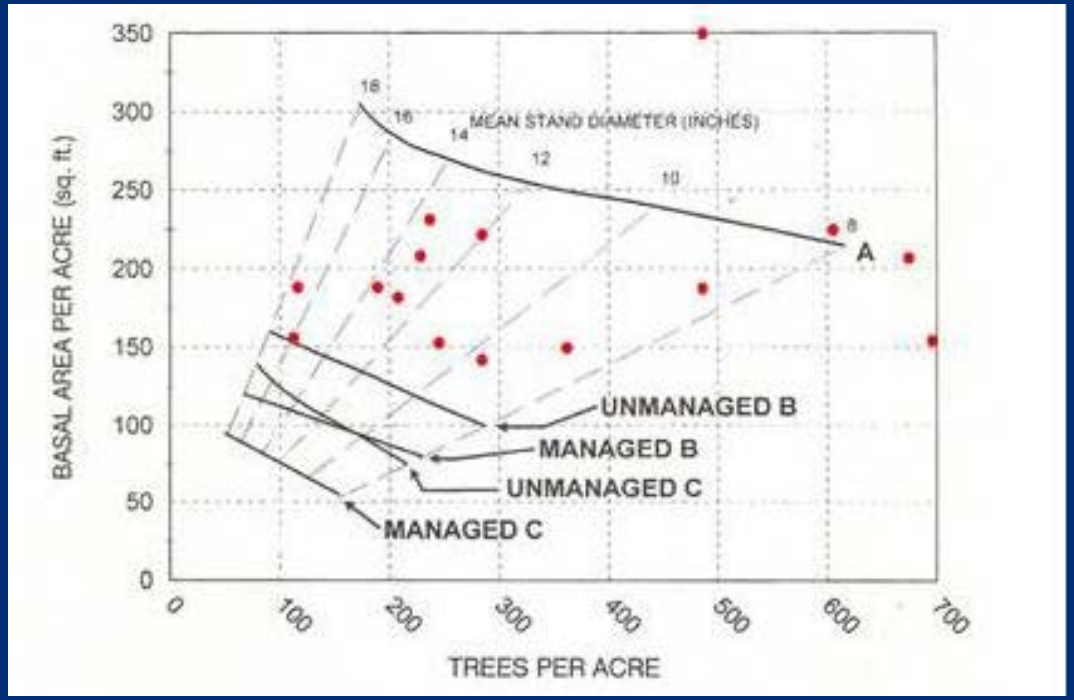
As the range of the oak wilt fungal pathogen expands, it will become increasingly important for land managers to have early detection tools to find the disease before it becomes locally established and causes environmental and economic losses. New York State has been at the leading edge of the disease's range since 2008 and intensively surveys for and manages the disease to protect the state's oak resource.

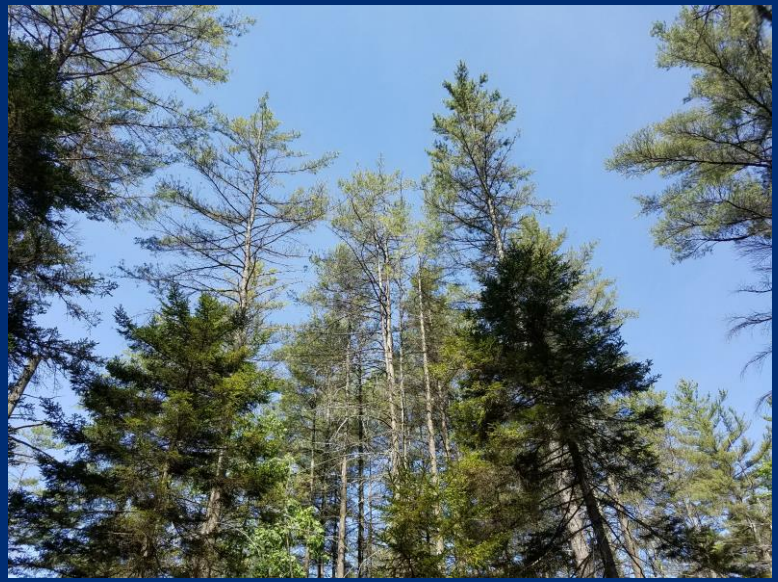
NEW YORK STATE Department of Environmental Conservation

Monitoring eastern white pine decline and its causes in New England and New York through enhanced survey methods



Bergdahl, Aaron; Munck, Isabel A.; Lilja, Rebecca; Cancelliere, Jessica; Cole, Robert; Halman, Josh; Keleher, Nicole; Lombard, Kyle; Weimer, Jen; Ricard, Paul; Stanovick, John. 2022. Monitoring eastern white pine decline and its causes in New England and New York through enhanced survey methods. In: Potter, Kevin M.; Conkling, Barbara L., eds. Forest Health Monitoring: national status, trends, and analysis 2021. Gen. Tech. Rep. SRS 266. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station: 137 144.


BASAL AREA PER ACRE (sq. ft.)
350
300
250
200
150
100
50
0
0
100
200
300
400
500
600
700
TREES PER ACRE
MEAN STAND DIAMETER (INCHES)
18
16
14
12
10
8
A
UNMANAGED B
MANAGED B
UNMANAGED C
MANAGED C



Northern Snakehead

Habitat Preference:

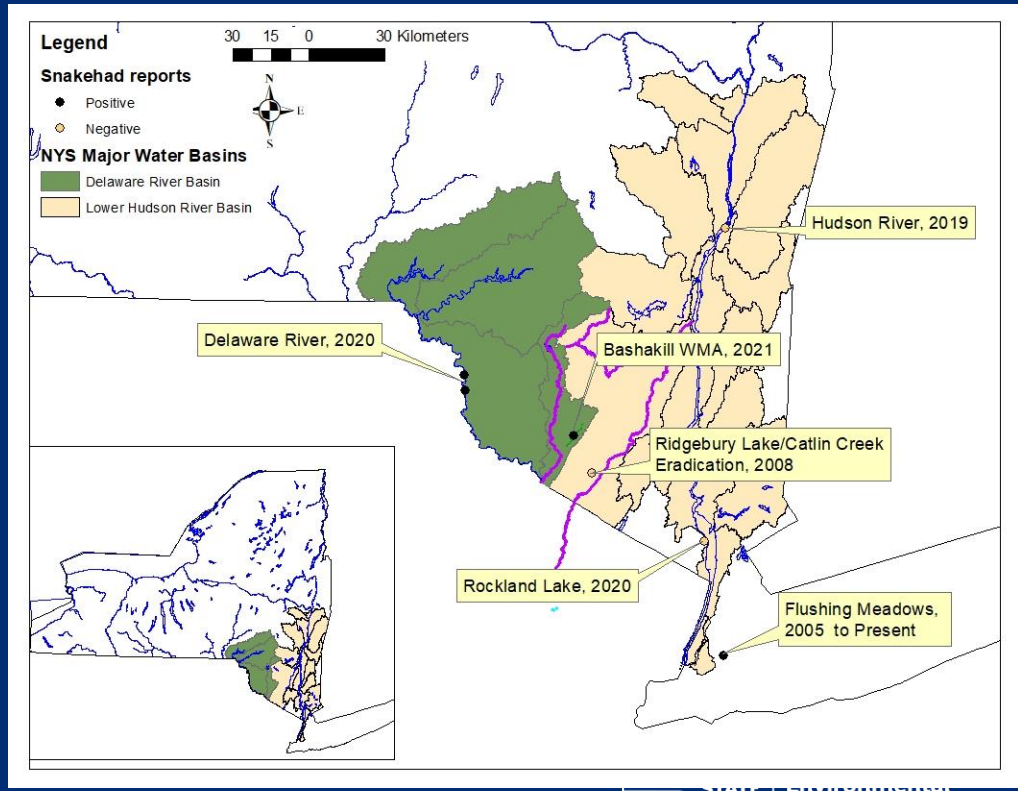
- Freshwater:
  - Salinity tolerant to 15 18 ppt
- Stagnant shallow water
- Muddy substrate
- Aquatic vegetation

Seasonal habitat use

- Winter: Deeper water
  - Can survive below ice cover
- Spring Fall: Shallow vegetated areas

Diet:

- Fry: Zooplankton then small insects/crustaceans
- Juveniles: Small fish
- Adults: Fish up to 1/3 its length



Spread Prevention to Hudson Watershed

Hydrologic connection to Hudson watershed

Delaware and Hudson Canal

Wetland/stream connections between WMA and canal

Current status

- 22’ YOY and protective adults
- Developing barrier
  - Temporary barrier in place
  - Developing permanent barrier

Round Goby: Threat to Lake Champlain

Threat

- Impact benthic fish community
  - Loss of native darters
- Alter water quality
- Concentrate contaminants
- Dense populations
- Diets
  - Game species eggs
  - Dreissenid mussels
- Disease vector
  - VHS, avian botulism
- Provide food source for predatory fish
  - Increase growth rates

Current status

- Westward spread through Erie Canal
  - Reached Hudson River in 2021
    - Rapid dispersal downstream (~60 mi)
    - 2022 documented with eDNA between Troy and Newburgh
  - Threat to Lake Champlain
- Great Lakes:188 non-native
- St. Lawrence River: 87 non-native
- Hudson River: 122 non-native

Round Goby Spread Prevention to Lake Champlain

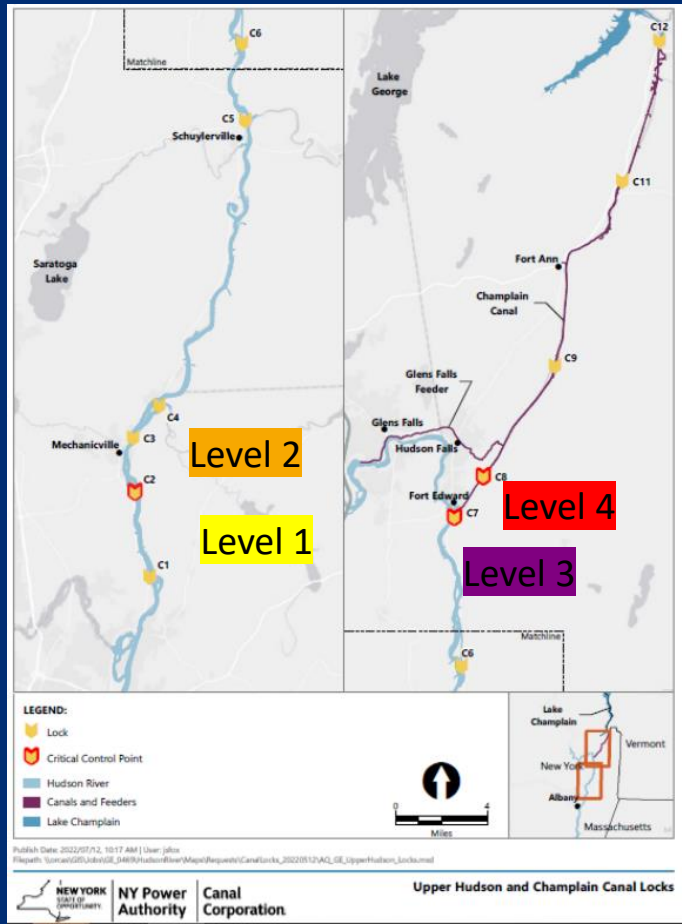
Developed a rapid response plan

- Determine critical control points and define actions
- Monitoring with eDNA and traditional gears

4 response levels

- Double flushing of locks
- Progressively reduced lockages
  - Critical Control 4 – Closure of Locks 8 & 9

Development of long term all-taxa barrier on Champlain Canal



Hydrilla (*Hydrilla verticillata*)

- Native to Korea and China
- Federally listed noxious weed, NYS prohibited (Part 575)
- Reproduction: turions (overwintering buds), tubers, and fragments
- Inhibits recreation; severe ecosystem impacts

Leslie J. Mehrhoff, Univ. of Connecticut, Bugwood.org

Robert Vidéki, Doronicum Kft., Bugwood.org

Hydrilla: Control & Management

Hydrilla Projects

Cayuga & Tompkins Counties
(Cayuga Lake/Finger Lakes)*

Erie & Niagara Counties
(Lake Erie/Niagara River)*

Tioga County
(Upper Susquehanna River)*

Westchester County
(Croton and Hudson Rivers)*

* Areas protected

Thank You

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Jess Cancelliere

Research Scientist 2/Forest Health Diagnostic Lab Manager

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NEW YORK STATE | Department of Environmental Conservation

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steven.pearson@dec.ny.gov

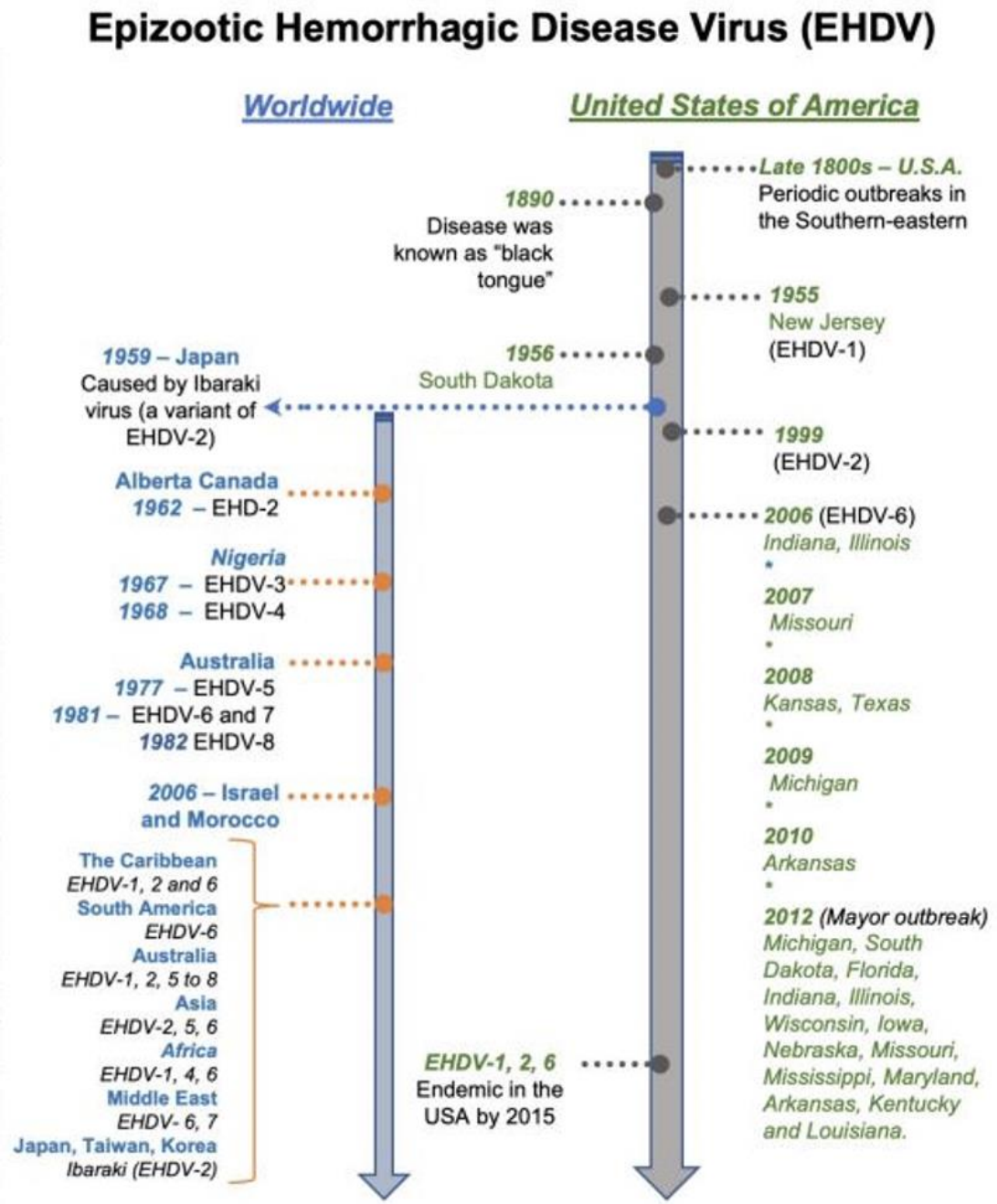
Update on Epizootic Hemorrhagic Disease in New York

Patrick Connelly, DVM

New York State Cooperative Wildlife Health Program

What is Hemorrhagic Disease?

- Caused by either **epizootic hemorrhagic disease virus** or **bluetongue virus**
- Both viruses cause virtually identical clinical signs in white-tailed deer
- Since 2020, cases of EHD have occurred in wild deer every summer/fall across New York
- In September 2022 -> first confirmed cases of bluetongue in NY deer (Long Island Pine Barrens)



Rivera, N.A. et al, Bluetongue and Epizootic Hemorrhagic Disease in the United States of America at the Wildlife–Livestock Interface. Pathogens 2021, 10, 915. https:// doi.org/10.3390/pathogens10080915

EHD in New York

- NY has had over 3000 white-tailed deer suspected of dying due to EHDV since 2020

- 2021 was the largest outbreak year
  - cases in captive cattle and bison

- Outbreaks have centered around the Hudson Valley, with additional incursions near the Great Lakes and Long Island

NYSDEC EHD Reporting Form

Instructions

The New York State Department of Environmental Conservation (DEC) is monitoring Epizootic Hemorrhagic Disease (EHD) in white-tailed deer and we need your help to report suspect cases.

Signs of EHD include deer with no apparent injury found dead or alive in or near water; deer may be acting disoriented, have swollen necks and tongues, or have bloody fluid coming from the nose, mouth or anus. There may be more than one deer in a small area.

Deer that have survived the initial disease may develop chronic symptoms including sloughing hooves, emaciation, or lameness. Hunters that harvest deer with these symptoms should also notify the DEC.

Contact Information

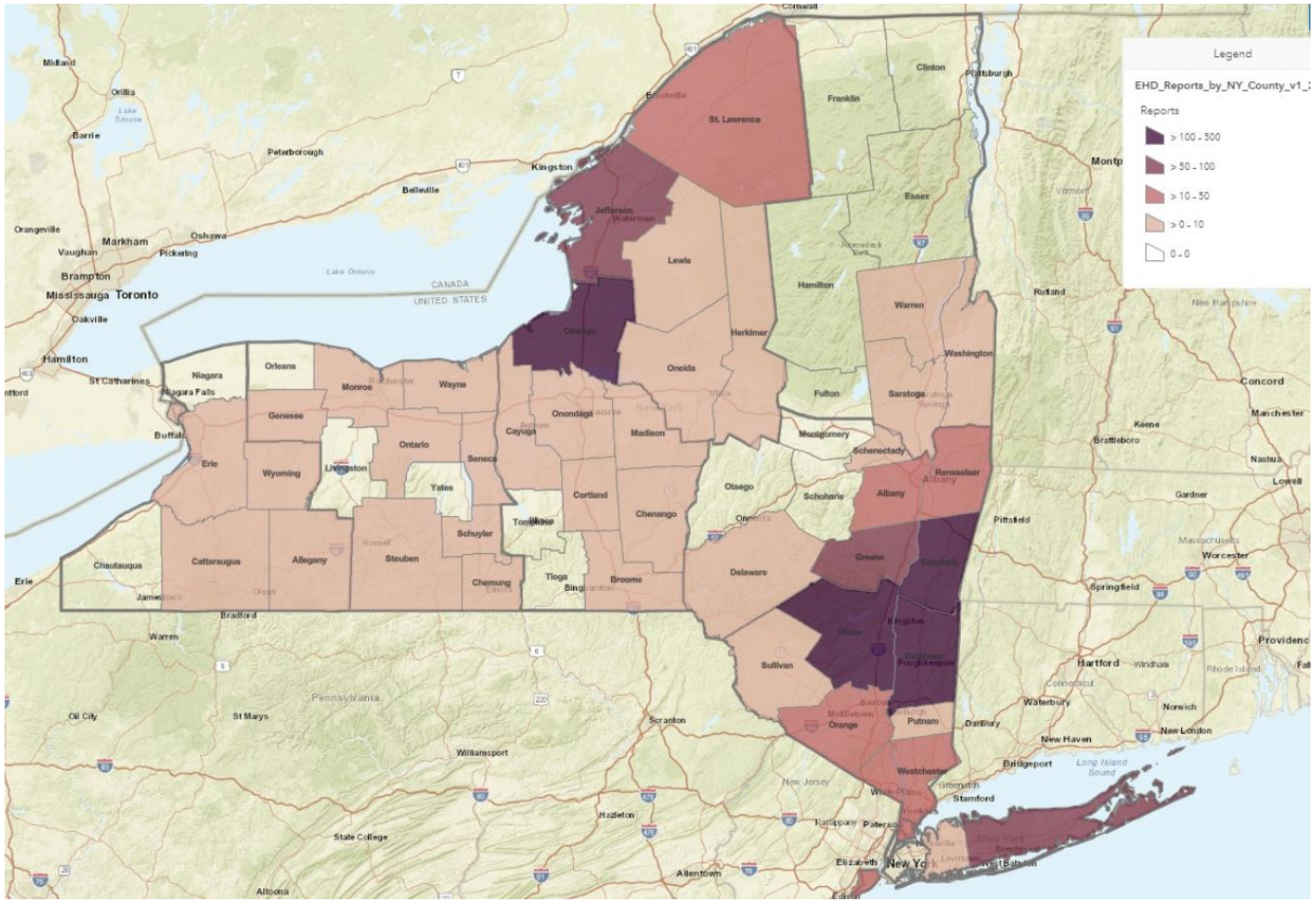
Name*

Phone*

Email

Location where deer found or harvested*

Enter the address or place a marker on the map indicating the location where you found or harvested the deer.



EHD: Species Affected

- Severe clinical disease in cervids
  - Primarily White-tailed deer
  - Can see mortality events in mule deer and pronghorn antelope
  - Cases and serologic evidence of infection in moose, reindeer, elk, bison, bighorn sheep
- Can cause disease in cattle
  - Most cases are likely asymptomatic or go unnoticed
- Small domestic ruminants minimally affected
    - Experimental infection possible in sheep
    - Goats seem to be subclinical

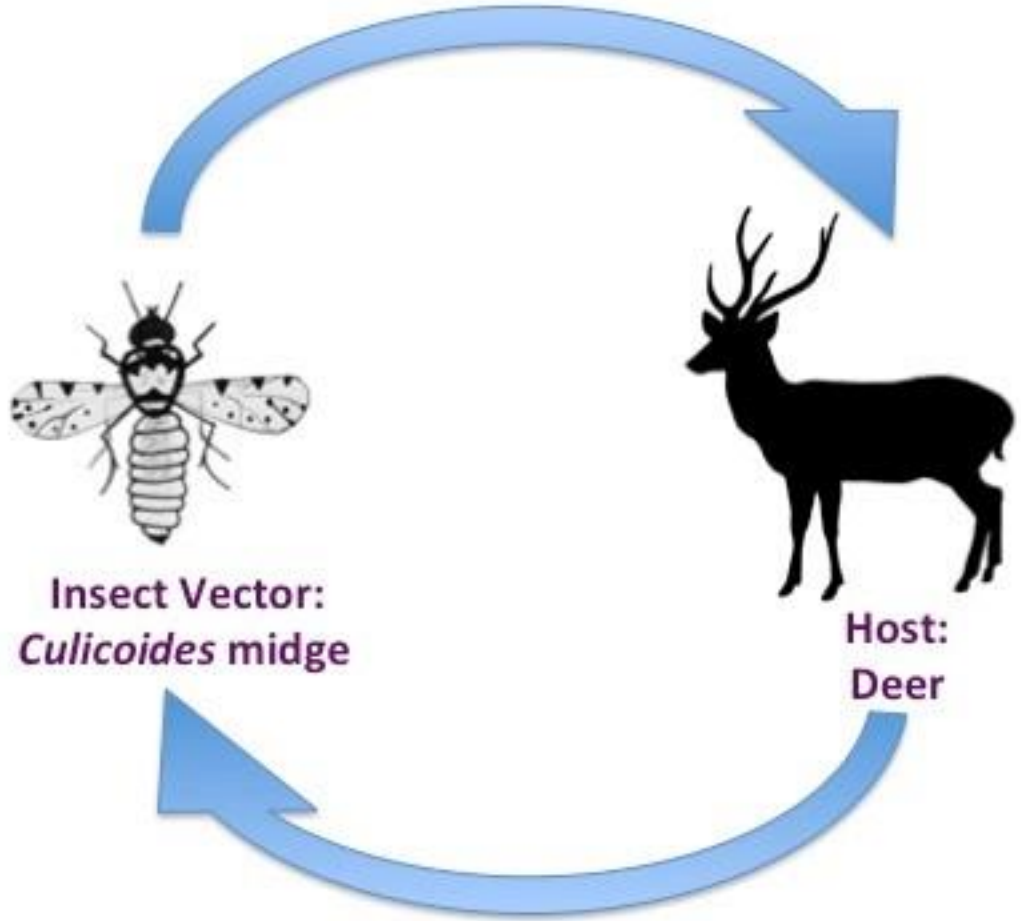
Mule deer

Whitetail deer

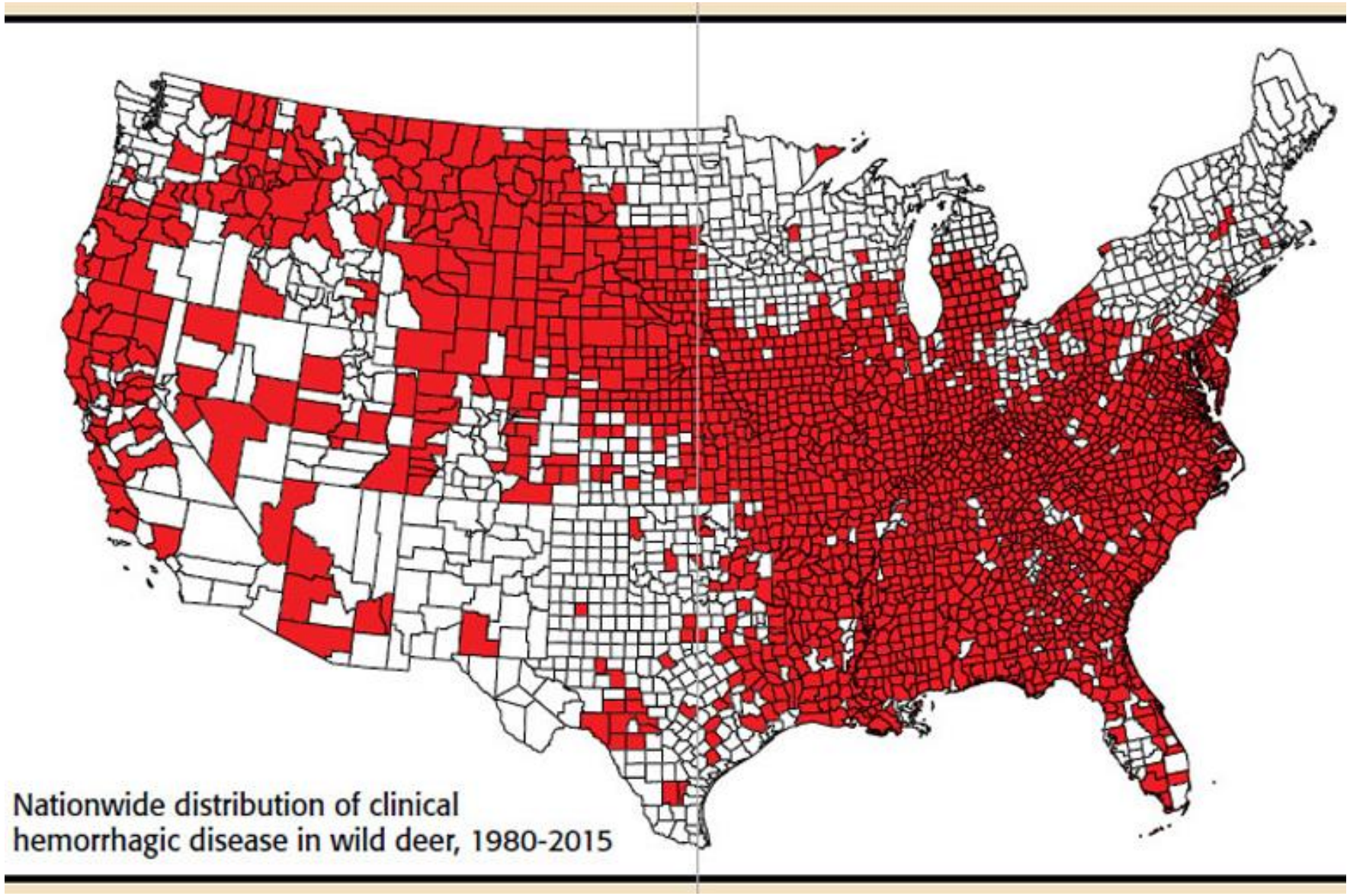
Family	Common Name	Latin Name	BTV	EHDV	References
Cervidae	White-tailed deer	*Odocoileus virginianus*	✓	✓	[9,10,20,41,51]
	Mule deer	*Odocoileus hemionus*	✓	✓	[10]
	Black-tailed deer	*Odocoileus hemionus columbianus*	✓	✓	[20,52]
	Elk (wapiti)	*Cervus canadensis*	✓	✓	[10,41]
	Rocky Mountain Elk	*Cervus elaphus nelsoni*	✓	✓	[53–55]
	Axis deer	*Axis axis*	✓	✓	[10,51]
	Fallow deer	*Dama dama*	✓	✓	[10,41,51,56]
	Sika deer	*Cervus nippon*	✓	✓	[10]
	Yaks	*Bos grunniens*		✓	[57]
	Père David's deer	*Elaphurus davidianus*		✓	[41]
	Moose	*Alces alces*		✓	[58]
Bovidae	Cattle	*Bos taurus*	✓	✓	[9,56,59]
	Mountain goat	*Oreamnos americanus*	✓		[9,10]
	Bison	*Bison bison*	✓	✓	[10,59,60]
	Blackbuck antelope	*Antilope cervicapra*	✓	✓	[10]
	Gerenuk	*Litocranius walleri*	✓		[61]
	Bighorn sheep	*Ovis canadensis*	✓	✓	[9,10,59]
	Dall sheep	*Ovis dalli*		✓	[58]
	Bongo antelope	*Tragelaphus eurycerus*		✓	[41]
	Roan antelope	*Hippotragus equinus*		✓	[41]
	Lesser kudu	*Tragelaphus imberbis*		✓	[41]
	Dama gazelle	*Nanger dama*		✓	[41]
Antilocapridae	Pronghorn	*Antilocapra americana*	✓	✓	[10,62]

Rivera, N.A. et al, Bluetongue and Epizootic Hemorrhagic Disease in the United States of America at the Wildlife–Livestock Interface. Pathogens 2021, 10, 915. https:// doi.org/10.3390/pathogens10080915

Disease Transmission Cycle of Epizootic Hemorrhagic Disease (EHD)



Epizootic hemorrhagic disease (EHD) is caused by a virus that primarily affects white-tailed deer and can also affect mule deer, pronghorn antelope, and rarely cattle. The virus is picked up by tiny *Culicoides* midges, also known as “no-see-ums” or gnats, when the midges bite an infected host. The midges transmit the virus to another host through a subsequent bite, continuing the disease cycle.

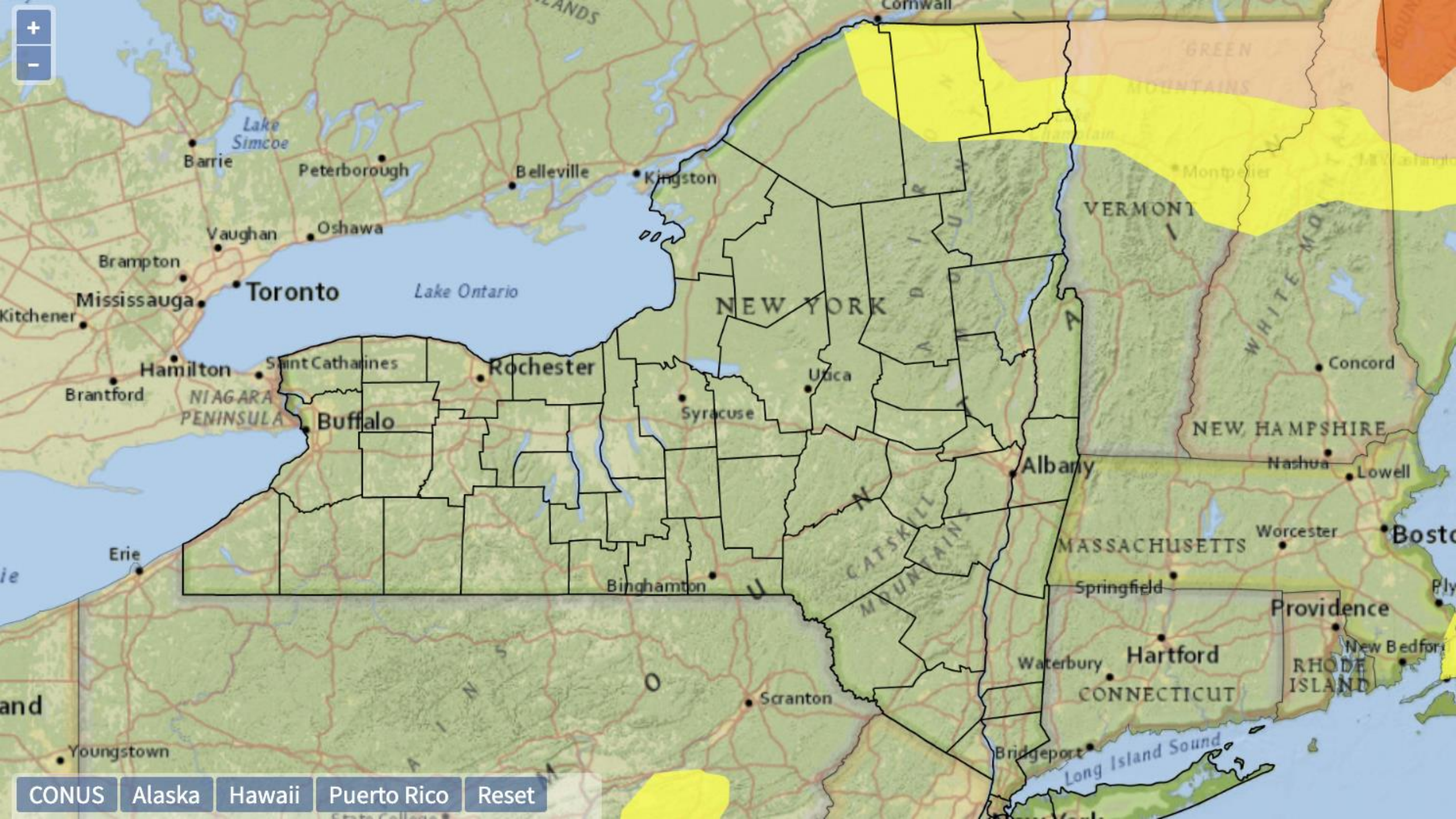


Nationwide distribution of clinical
hemorrhagic disease in wild deer, 1980-2015

EHDV Outbreaks

- Cases most frequently seen in late summer and early fall
  - coincides with peak *Culicoides* activity

- What drives outbreaks?
  - <u>Risk factors:</u>
    - Drought: animals crowd around limited water sources


Lake Simcoe
Barrie
Peterborough
Belleville
Kingston
Vaughan
Oshawa
Brampton
Toronto
Lake Ontario
Mississauga
Kitchener
Hamilton
Brantford
St Catharines
Rochester
Utica
Syracuse
NIAGARA PENINSULA
Buffalo
Erie
Binghamton
Scranton
Youngstown
NEW YORK
VERMONT
Montpelier
Concord
NEW HAMPSHIRE
Nashua
Lowell
Albany
Worcester
MASSACHUSETTS
Springfield
Providence
Waterbury
Hartford
CONNECTICUT
RHODE ISLAND
Bridgeport
Long Island Sound
CONUS
Alaska
Hawaii
Puerto Rico
Reset

Clinical presentation in white-tailed deer

- Mortality can be as high as 90% in naïve populations
- Incubation period: 2–10 days
- Acute signs:
  - fever
  - weakness
  - inappetence
  - excessive salivation
  - edema of the head and neck
  - stomatitis
  - respiratory distress
  - epistaxis

Dead deer often found near water sources

Many carcasses can be found in a localized area


074308


074308

Hoof changes in survivors

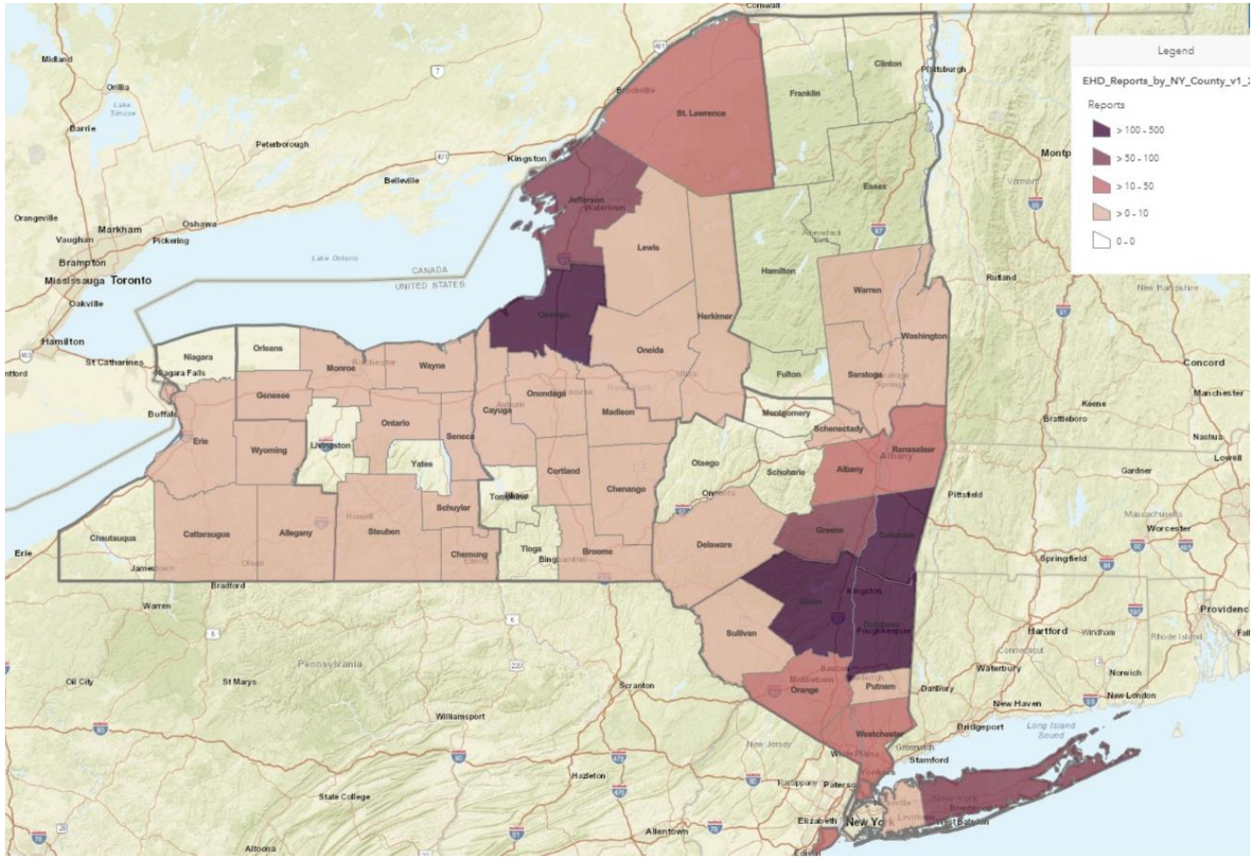
- Recovered animals may show hoof lesions
  - Hooves may appear broken or cracked due to interruption of hoof wall growth during period of high fever

Why is EHDV in the Northeast?

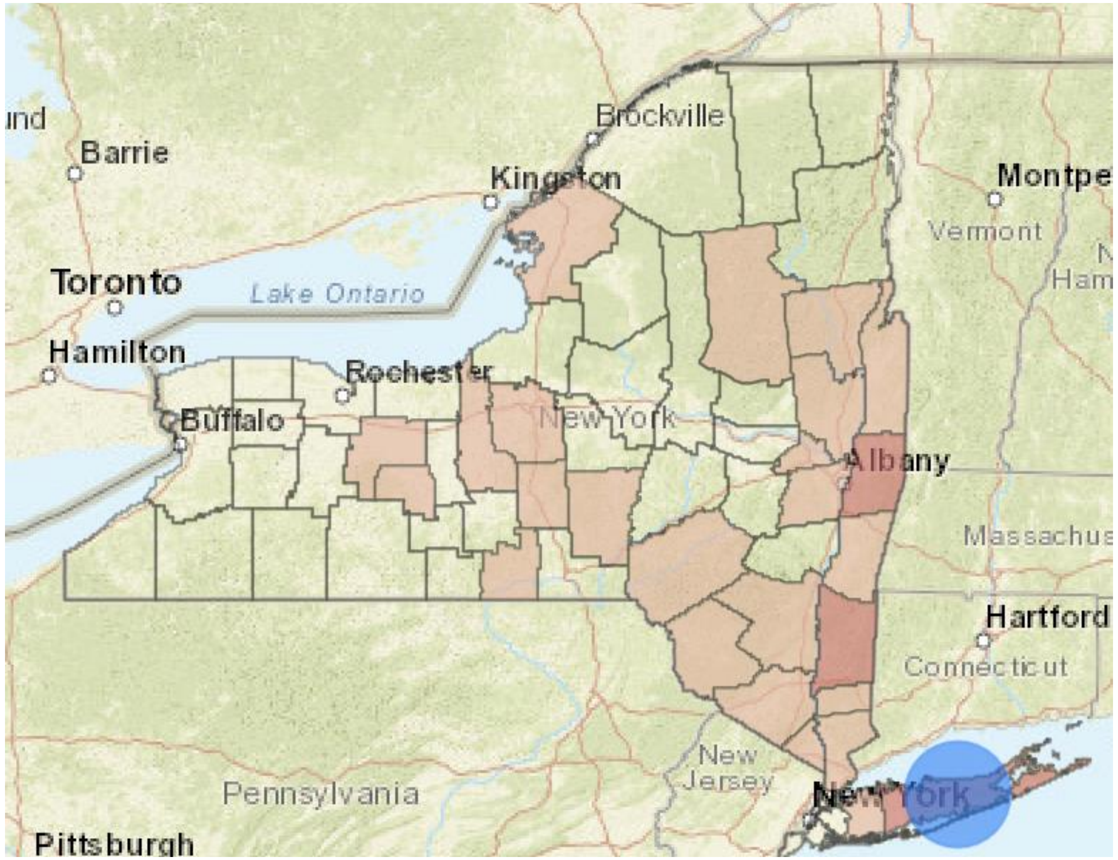
- Historically, a virus of more southern latitudes
- Over the past 20 years, the virus has been moving northward
- Increased occurrence of other insect-borne diseases has been linked to changing environmental conditions (Temperature? Rainfall?)

EHD in New York

- Previously: 2007, 2011
  - EHDV-2
  - 2011 -> 100 mortalities deer mortalities reported in Rockland Co.
- 2020: EHDV-6
  - September - November
  - 1,500 deer mortalities reported
- 2021: EHDV-2 and EHDV-6
  - July- November
  - 2,100 reports
  - First known case in Vermont history
- 2022: EHDV-2 and EHDV-6
  - August – Present
  - 100+ reports
  - Connecticut, New Hampshire


Legend
EHD_Reports_by_NY_County_v1_
Reports
> 100 - 500
> 50 - 100
> 10 - 50
> 0 - 10
0 - 0
Toronto
Lake Ontario
St. Lawrence
Jefferson
Onondaga
Albany
Rensselaer
Orange
Westchester

2021


Barrie
Toronto
Hamilton
Lake Ontario
Brockville
Kingston
Rochester
Buffalo
New York
Albany
Montpe
Vermont
Massachus
Hartford
Connecticut
New Jersey
Pennsylvania
Pittsburgh

2022

What we are doing

- Characterize the prevalence of EHDV and the degree of immunity among white-tailed deer, and the spatiotemporal dynamics of serotype distribution.
- Better understand the ecological/climatic determinants that drive outbreaks in the Northeast.
- Improve surveillance and diagnostic methods.

Sample Collection from Hunter-killed Deer

- Sampling kits distributed directly to hunters and hunting clubs, and DEC deer management partners.
- Kits then mailed to the AHDC or picked up within 2-3 days for processing.
- 106 hunter-killed kits returned in 2021/2022

The Cornell Wildlife Health Lab is conducting a research project on Epizootic Hemorrhagic Disease (EHD), a virus that infects white-tailed deer. In 2020 and 2021, New York lost > 3000 wild deer from the disease. We would appreciate help from the hunting community collecting information and samples of blood and spleen from deer in affected areas.

Blood Sample:

- Fill the cup halfway up with blood by either draining the heart or scooping blood from the body cavity into the cup.
- Replace the cap and return it to the small Ziploc bag

Spleen Sample: If available See photo on the back.

- The spleen can be found behind the last rib on the left side of the animal.
- Cut a section of spleen, about the size of a business card, and put it in the small Ziploc bag. Don't confuse with the liver, which is on the right side.

Hooves: See photo on the back.

- Deer who survive EHD can have damaged hooves (cracking or sloughing, peeling, and poor growth). If your animal's hooves are abnormal, please check the box on the info card and if possible, send photos and a description to: Patrick Connelly pjc275@cornell.edu

Information Card:

- Fill out card
- Place the completed card and sample bags inside the large Ziploc bag.
- If you use onXHunt, you can share your info with us at cwhl@cornell.edu

Storage:

- Keep samples refrigerated or in a cooler with an ice pack until collected

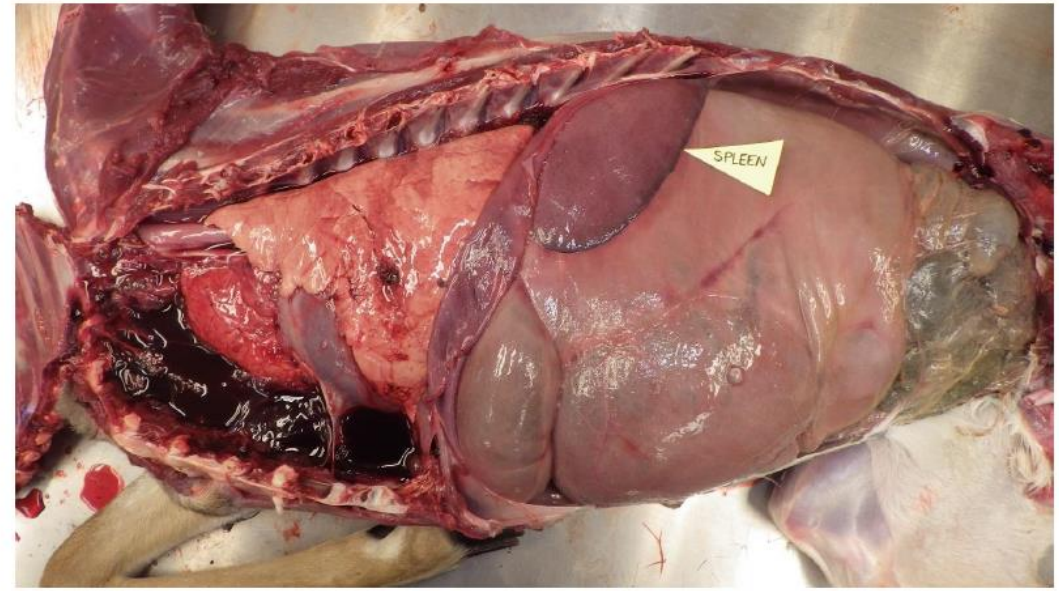
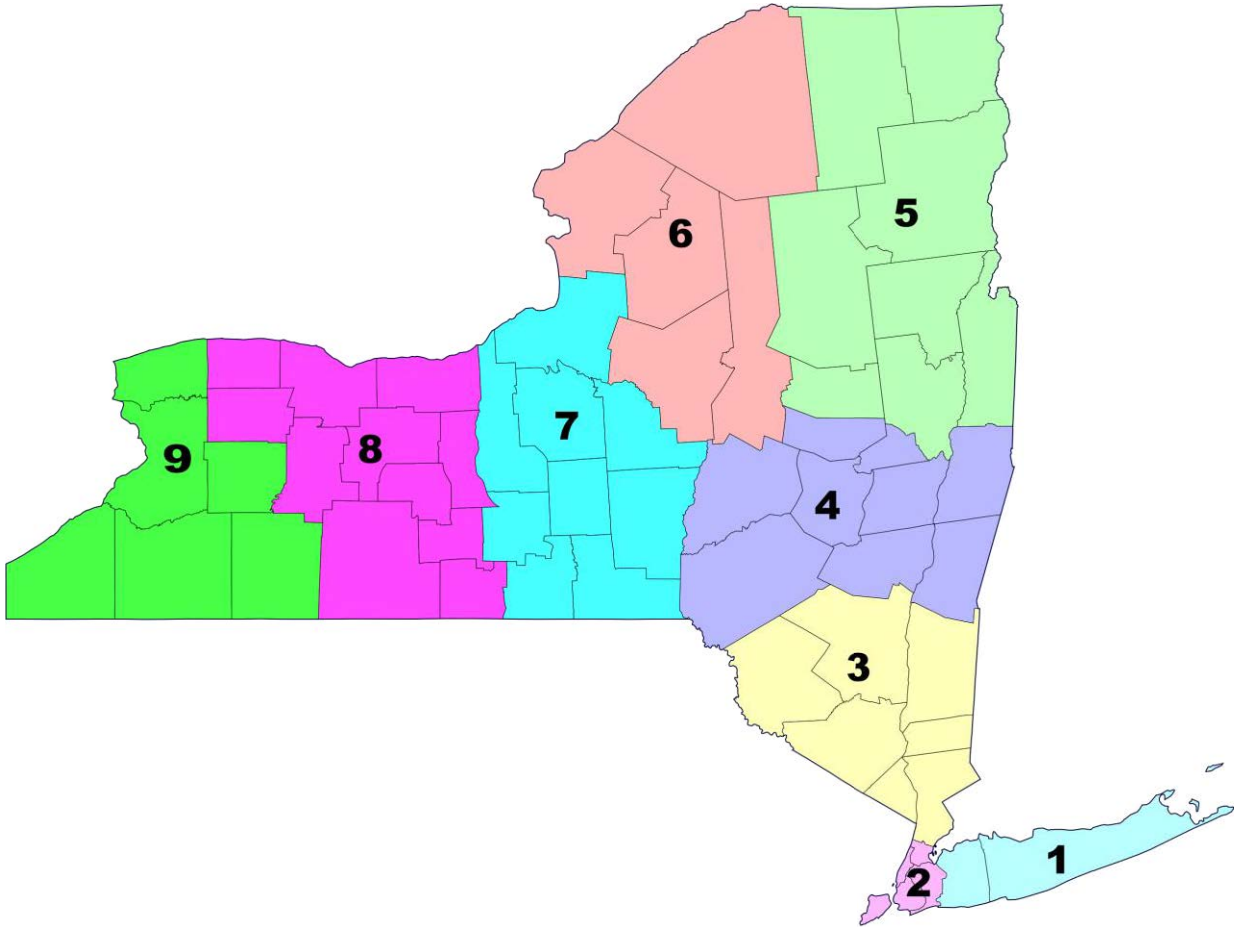


Photo: NYSDEC

Photo: grandviewoutdoors.com

325 wild deer tested in 2021/22 season

44 had antibodies for EHD (13.54%)



REGION 1: 56
REGION 2: 30
REGION 3: 69
REGION 4: 2
REGION 5: 0
REGION 6: 68
REGION 7: 99
REGION 8: 1
REGION 9: 0

Preliminary Findings

COUNTY	DEER SAMPLED
ALBANY	1
CAYUGA	1
COLUMBIA	1
DUTCHESS	37
JEFFERSON	67
MONTGOMERY	1
ONEIDA	1
ONONDAGA	66
ORANGE	16
RICHMOND	30
ROCKLAND	1
SCHULYER	1
SUFFOLK	56
SULLIVAN	3
TIOGA	2
TOMPKINS	30
ULSTER	6
WESTCHESTER	6
TOTAL	**321**

HUDSON VALLEY	DEER SAMPLED	NO. SN-2 +	NO. SN-6+	% +
ALBANY	1	0	1	
COLUMBIA	1	0	1	
DUTCHESS	37	1	11	32.43
ORANGE	16	0	0	
ROCKLAND	1	0	0	
ULSTER	6	0	1	
WESTCHESTER	6	0	0	
TOTAL	**68**	1	13	20.59

What we found

- EHD was more widespread than reports indicated
- But, the virus was rare outside high case zones
- Most cases found in the mid-Hudson Valley, with smaller numbers in Jefferson County and many in Richmond County (Staten Island)
- Found no indication of immunity in Suffolk County deer

NYSDEC EHD Reporting Form

Instructions

The New York State Department of Environmental Conservation (DEC) is monitoring Epizootic Hemorrhagic Disease (EHD) in white-tailed deer and we need your help to report suspect cases.

Signs of EHD include deer with no apparent injury found dead or alive in or near water; deer may be acting disoriented, have swollen necks and tongues, or have bloody fluid coming from the nose, mouth or anus. There may be more than one deer in a small area.

Deer that have survived the initial disease may develop chronic symptoms including sloughing hooves, emaciation, or lameness. Hunters that harvest deer with these symptoms should also notify the DEC.

Contact Information

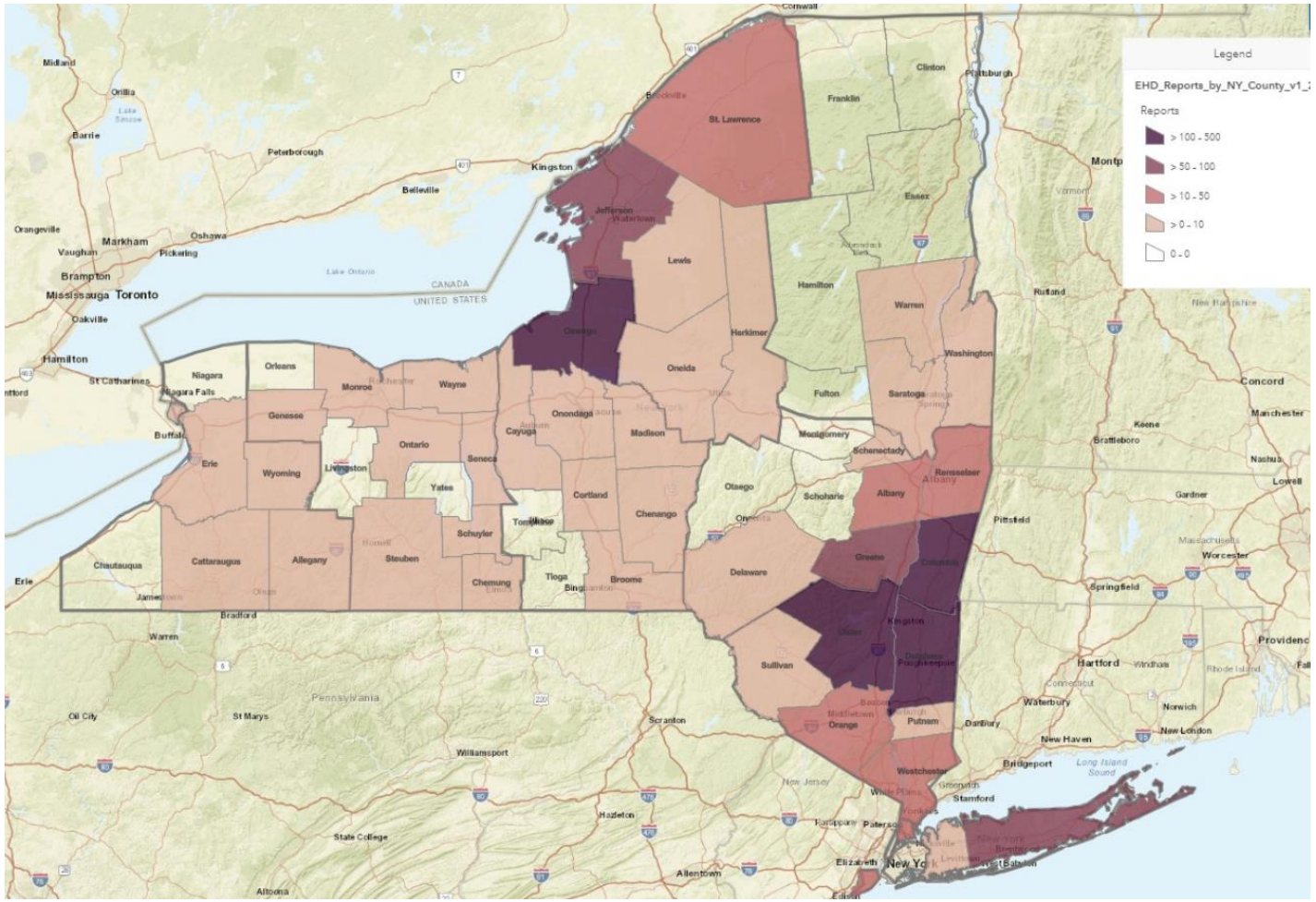
Name*

Phone*

Email

Location where deer found or harvested*

Enter the address or place a marker on the map indicating the location where you found or harvested the deer.



How will EHD and Bluetongue impact NY going forward?

- Mortality is highest in areas where deer have no immunity to the virus
- In areas of the south where EHD is prevalent, mortality can be low during outbreaks
- If EHD remains in similar regions annually, mortality will decrease with time as deer develop antibodies (either by surviving or received from their mother)
- If it comes and goes, may recurrently cause outbreaks with high mortality

Hunter Participation

- If you live in Suffolk County or the Hudson Valley and would like to participate,

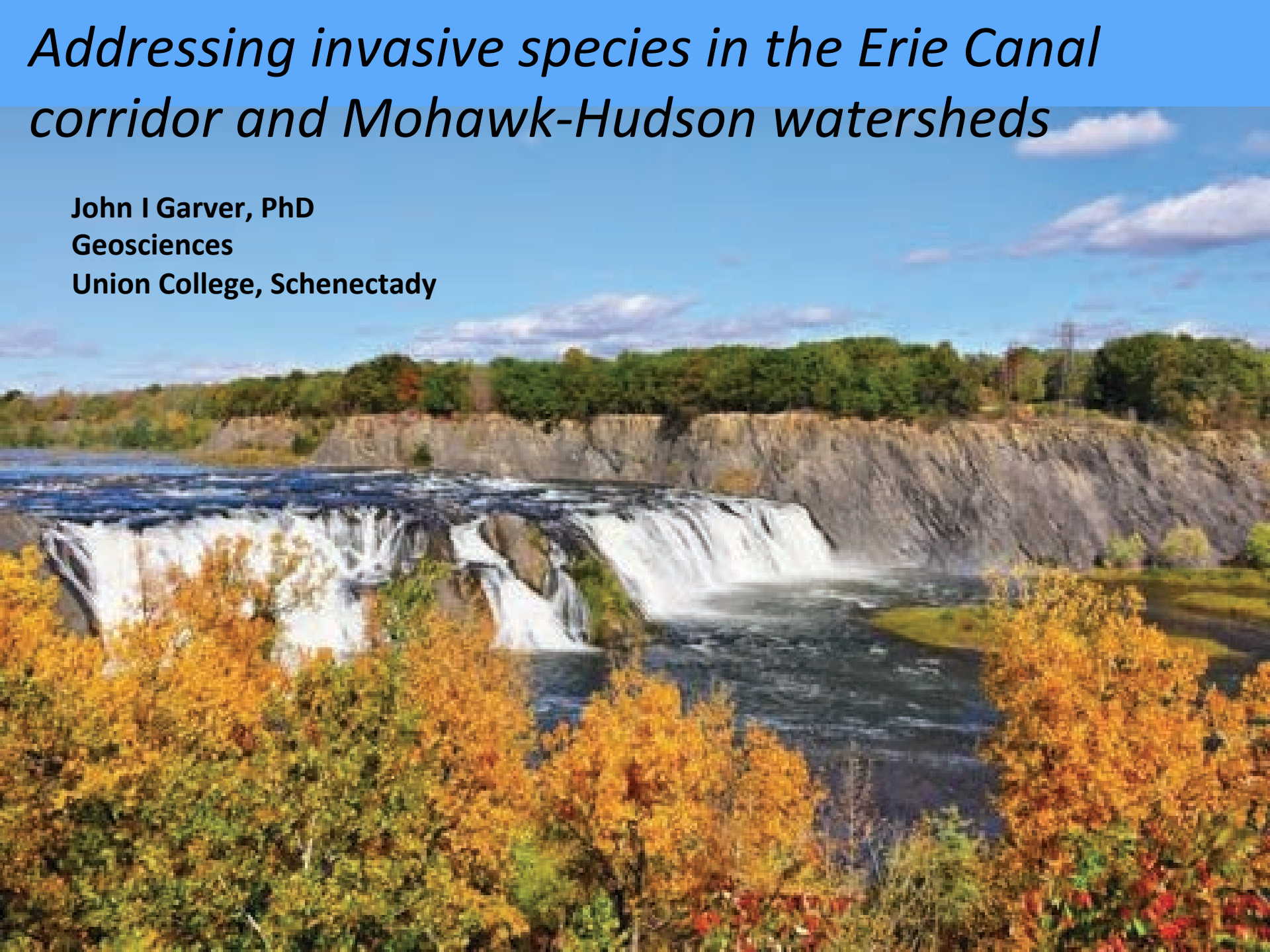
  Email: pconnellydvm@gmail.com

  Phone: 718-689-4620

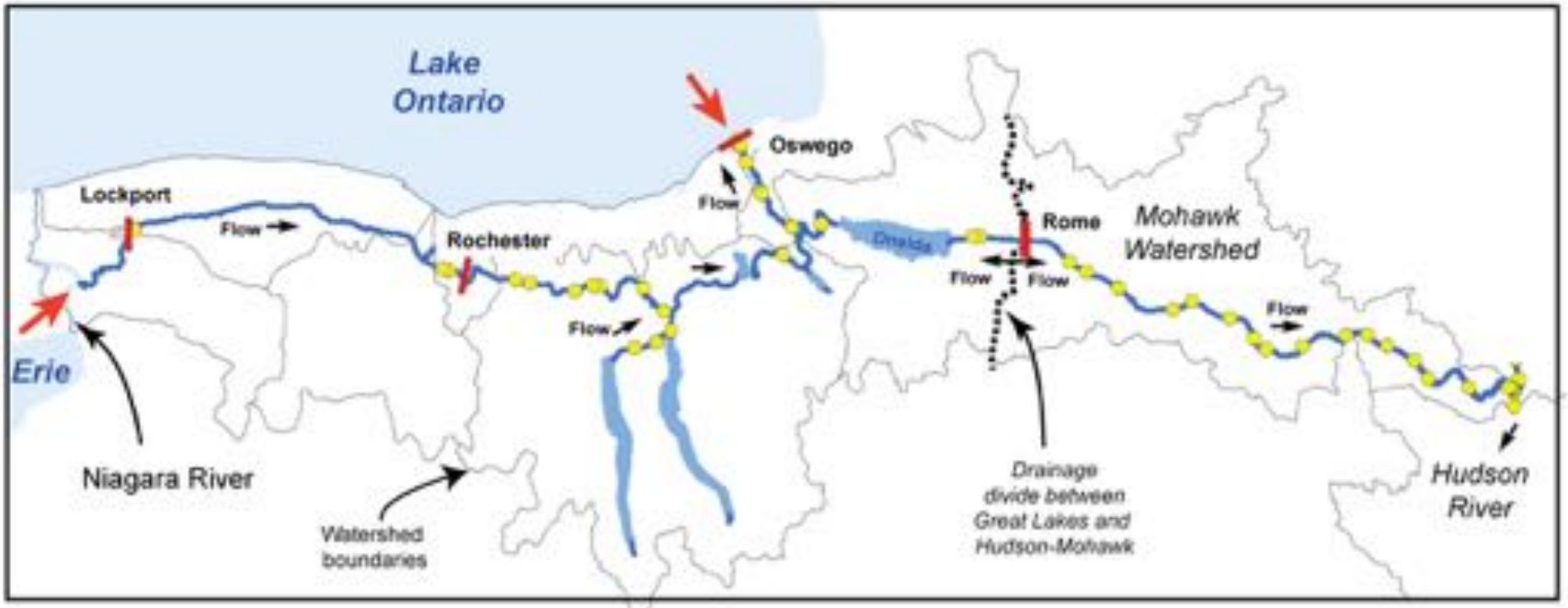
Questions?

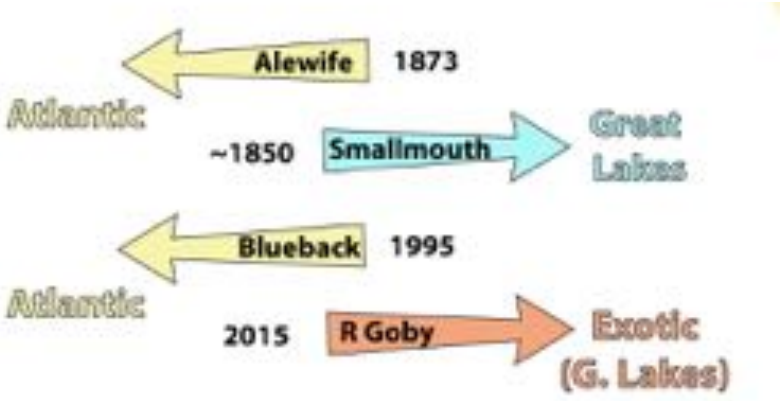
Addressing invasive species in the Erie Canal corridor and Mohawk-Hudson watersheds

John I Garver, PhD
Geosciences
Union College, Schenectady




REIMAGINE THE CANALS
TASK FORCE REPORT

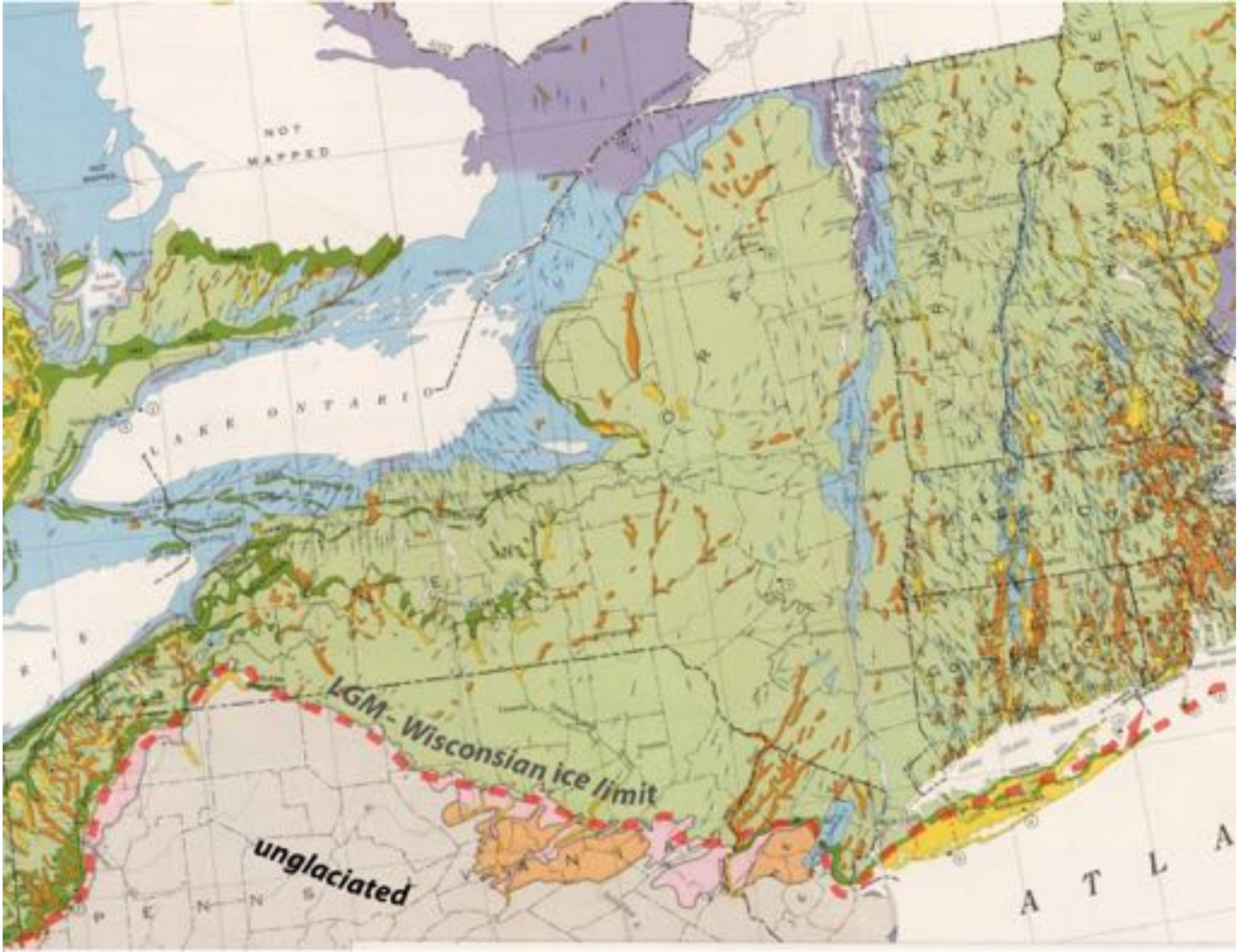

Lake Ontario
Oswego
Lockport
Flow
Rochester
Flow
Flow
Rome
Mohawk Watershed
Flow
Flow
Flow
Erie
Niagara River
Watershed boundaries
Drainage divide between Great Lakes and Hudson-Mohawk
Hudson River

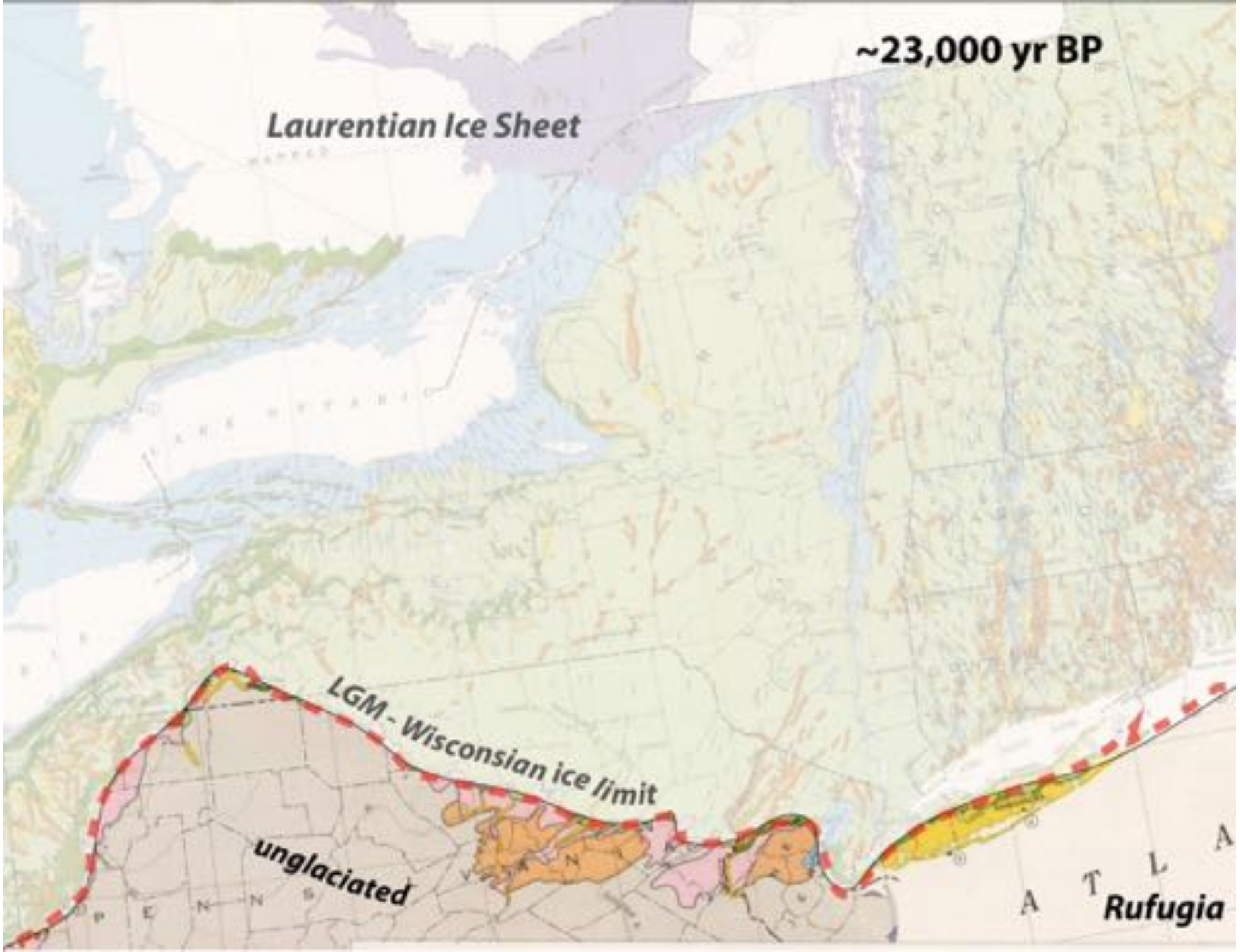

Alewife
1873
Atlantic
~1850
Smallmouth
Great Lakes
Blueback
1995
Atlantic
2015
R Goby
Exotic (G. Lakes)

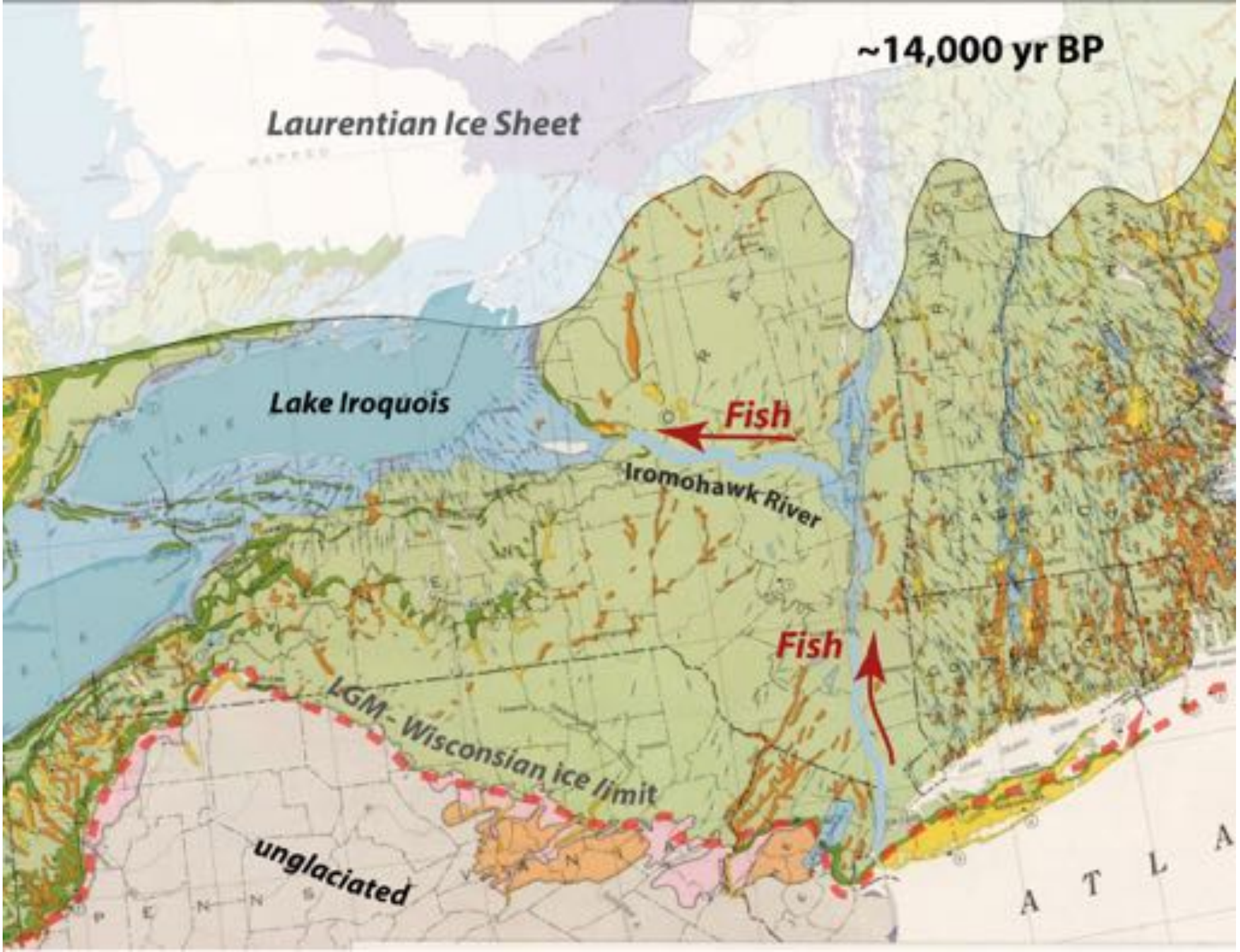
The Past

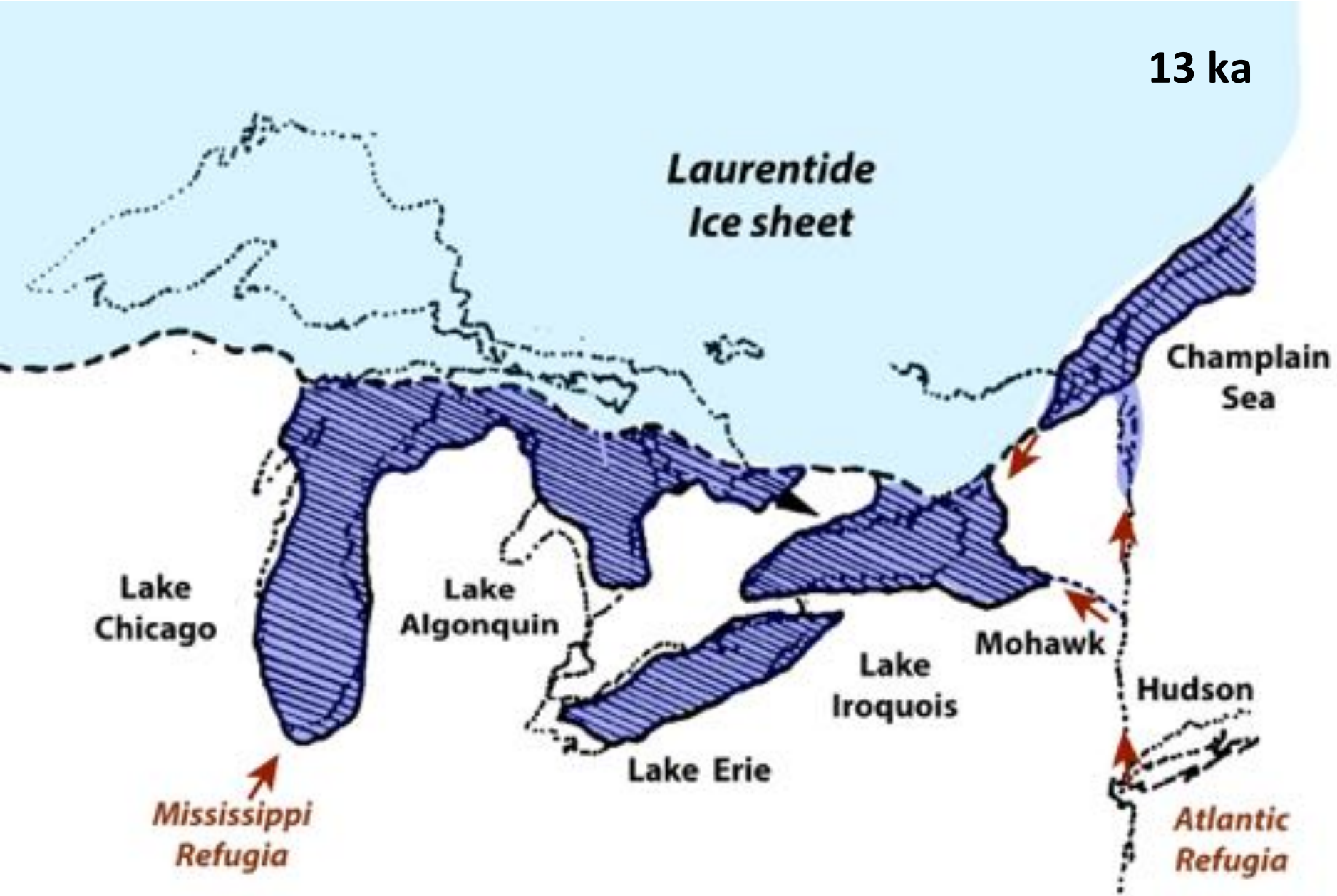
How did we get here?

How do large-scale watershed barriers affect native fish distribution?


NOT MAPPED
LAKE ONTARIO
LGM - Wisconsian ice limit
unglaciated

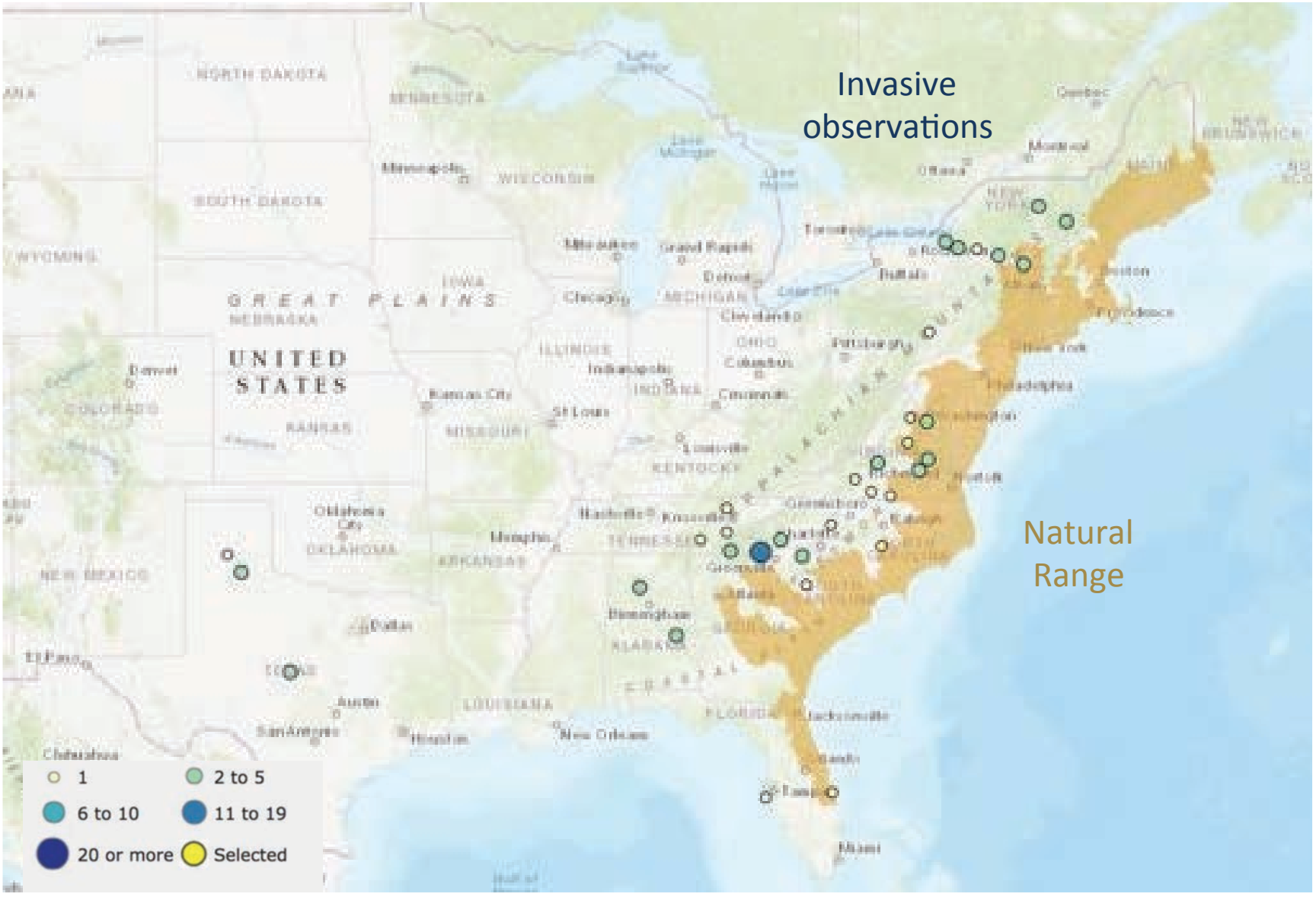

~23,000 yr BP
Laurentian Ice Sheet
LGM - Wisconsian ice limit
unglaciated
Rufugia


~14,000 yr BP
Laurentian Ice Sheet
Lake Iroquois
Fish
Iromohawk River
Fish
LGM- Wisconsian ice limit
unglaciated



Modified: Danzman et al., Can J. Zool., 1998

Distribution of Blueback Herring



USGS Invasive species database

Distribution of Freshwater Drum

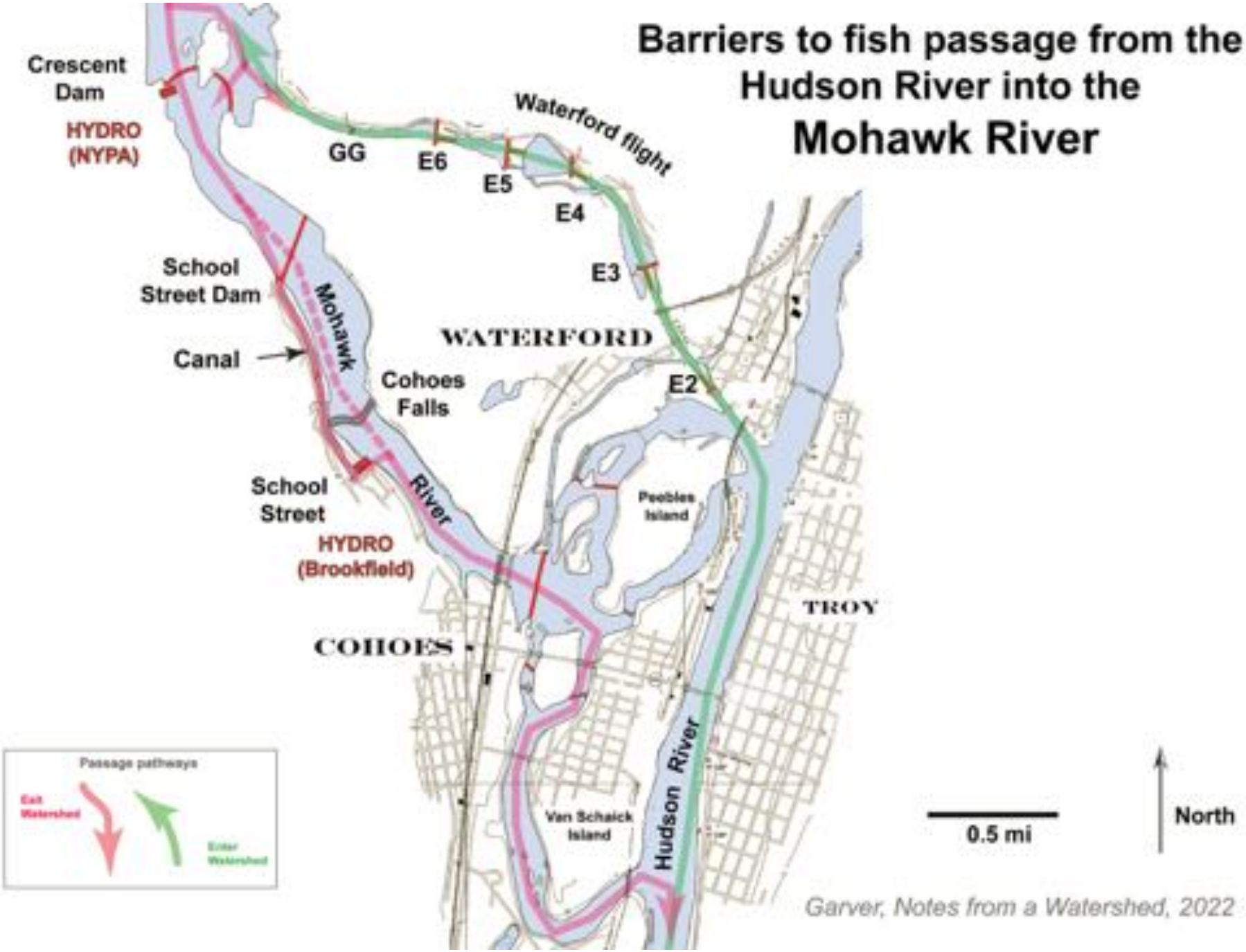
USGS Invasive species database

Cohoes Falls – The Great Falls of the Mohawk

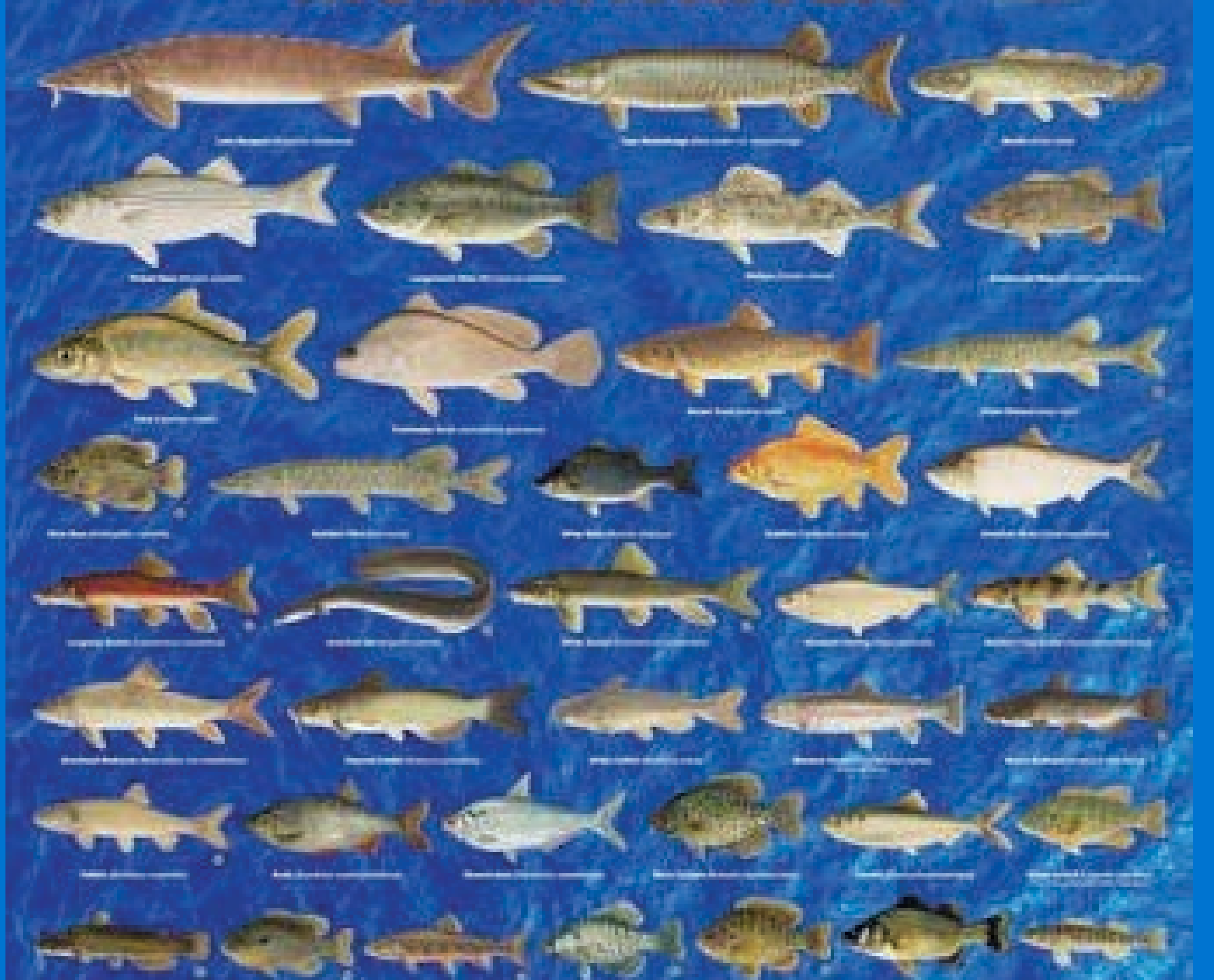
90 feet high
1000 feet wide
Hydropower first in 1831 (Harmony Mills)
Now School Street Power (Brookfield)

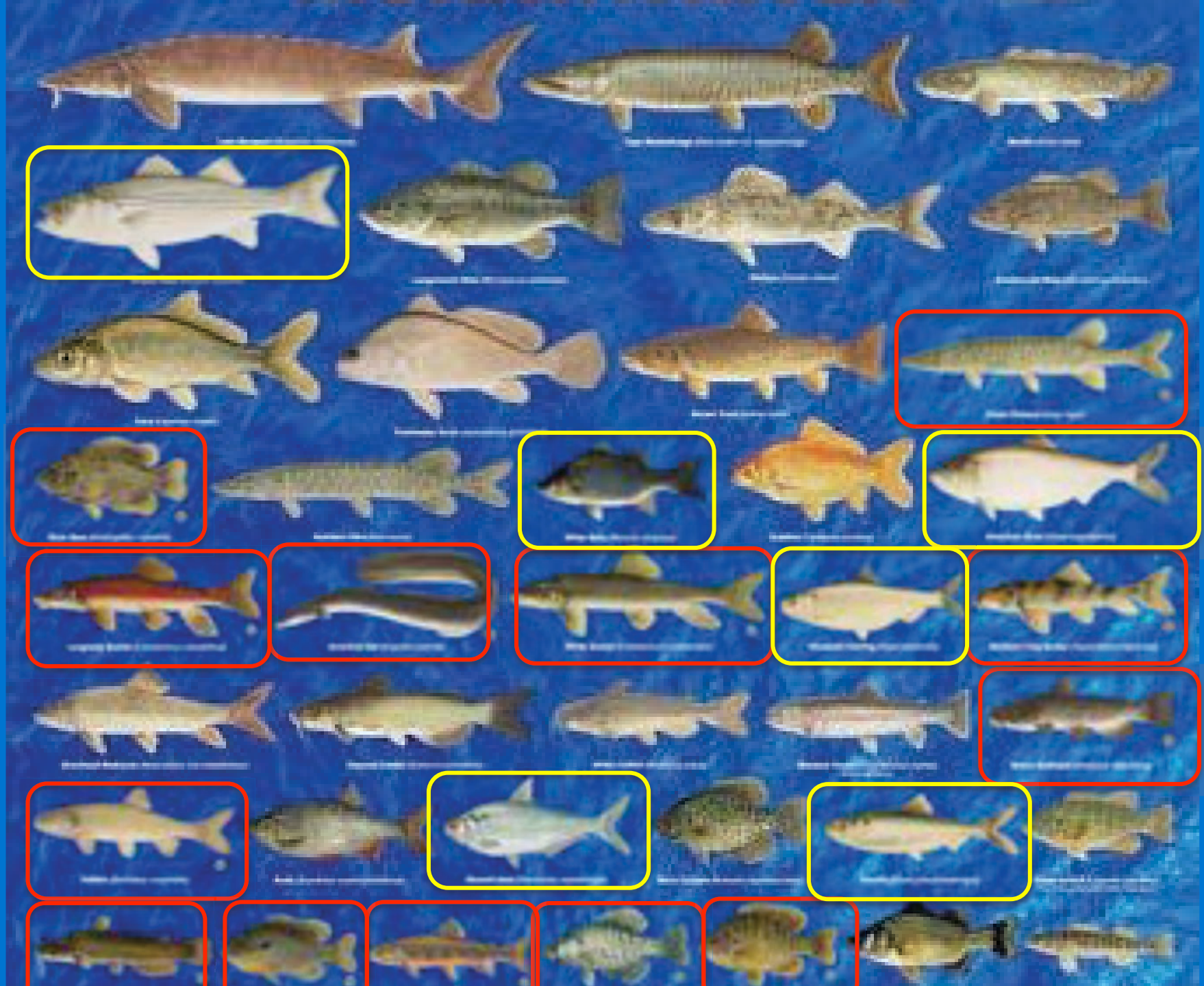
Nearly impassible by fish, except the American eel

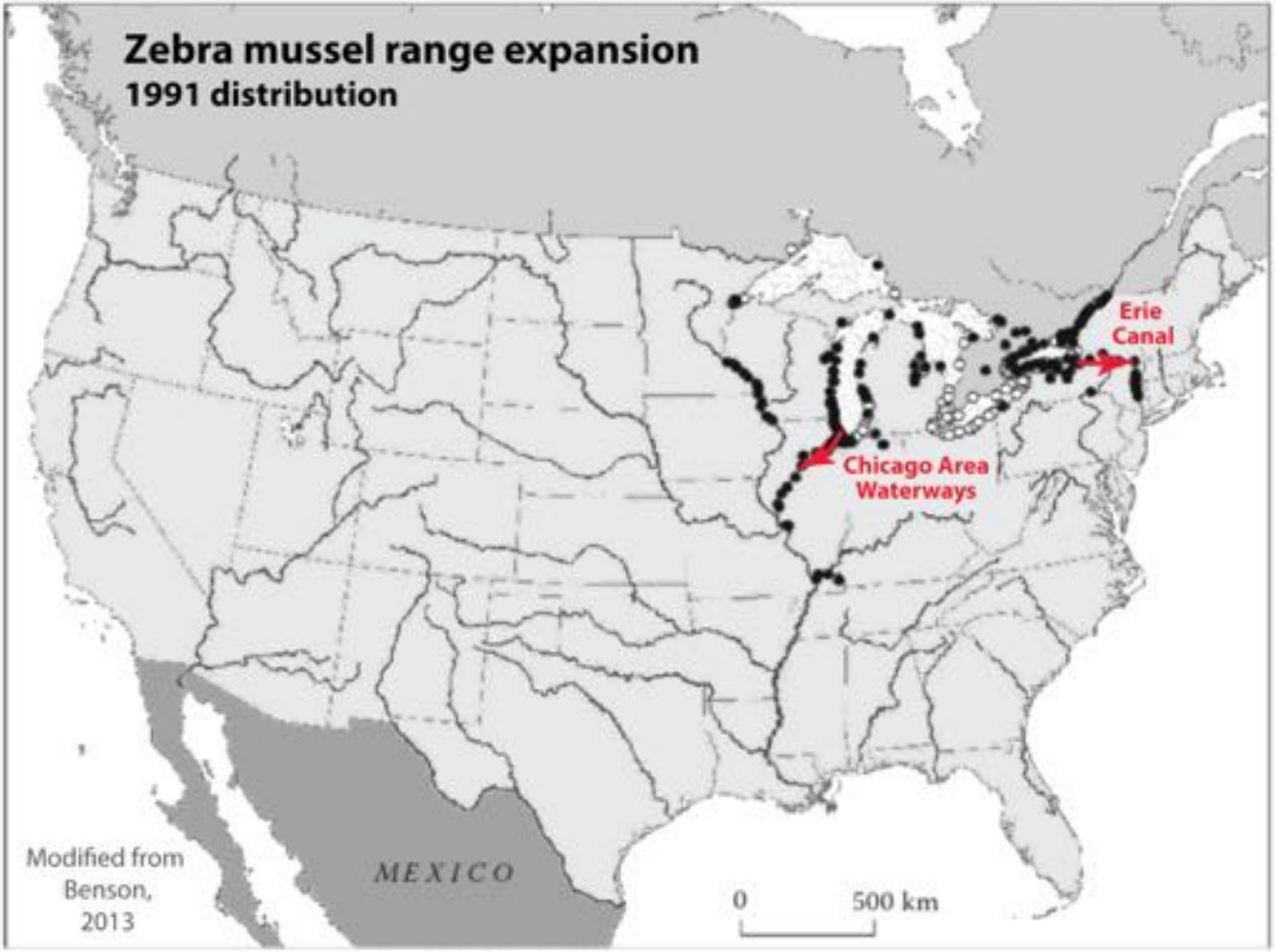
Barriers to fish passage from the Hudson River into the Mohawk River



Garver, Notes from a Watershed, 2022






Zebra mussel range expansion
1991 distribution
Erie Canal
Chicago Area Waterways
MEXICO
Modified from Benson, 2013
0
500 km

Zebra Mussels, Mohawk River

12 November 2022, Rotterdam Junction


Photo: JJ Garver
1 cm

The Present

Can we identify invasive pathways and design solutions for better management?

Great Lakes and Hudson-Mohawk Watershed Invasive exchange

Out of Great Lakes

Freshwater drum
Smallmouth bass
Zebra Mussel*
Round Goby*
Spiny Water flea*

Out of Hudson-Mohawk

Sea Lamprey ?
Alewife ?
Blueback Herring

...looming

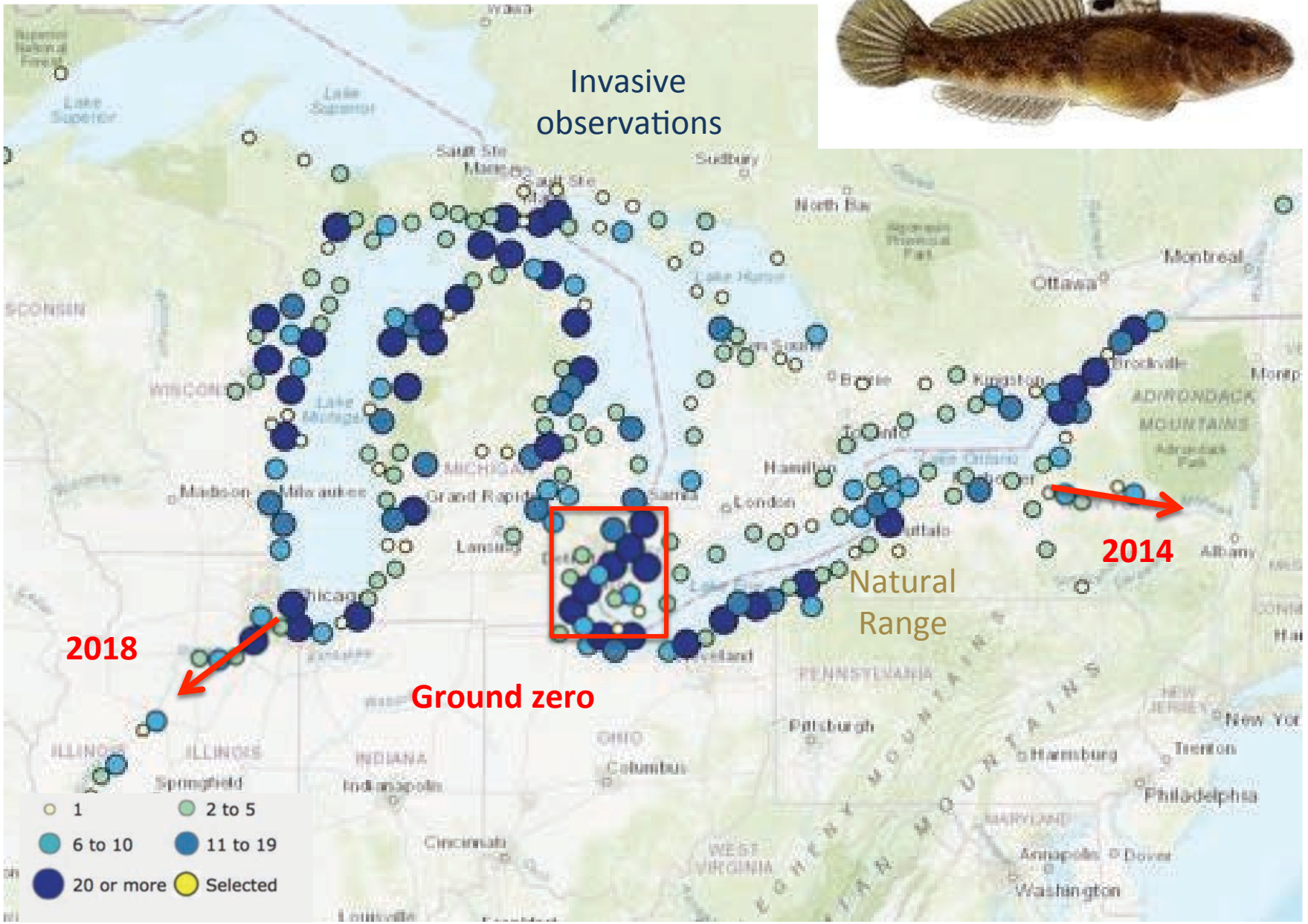
Northern Snakehead
Asian Carp

Mississippi watershed

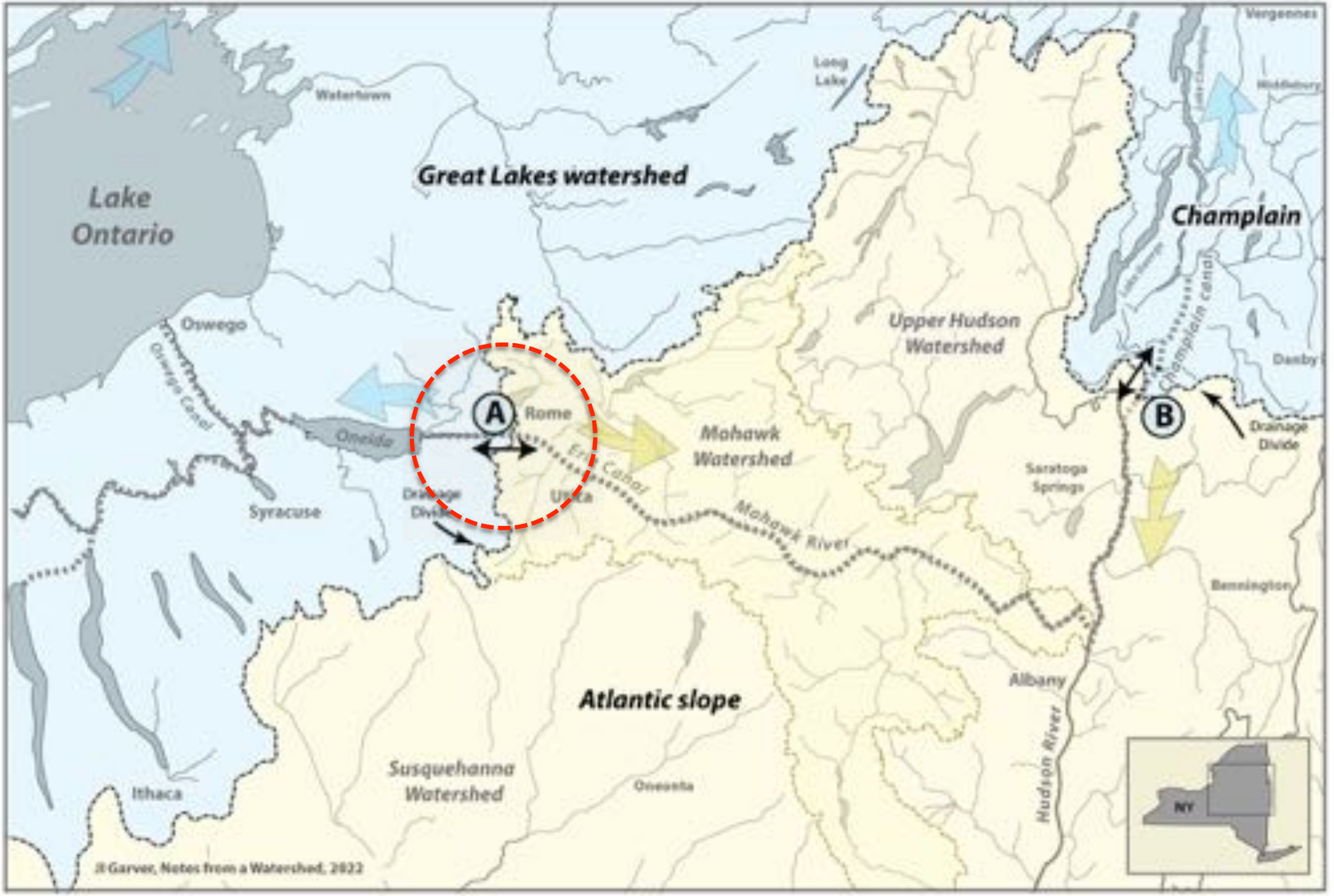
What do we need to do now to stop the spread?

..identify *PATHWAYS* and close them

Distribution of Round Goby



USGS Invasive species database


Lake Ontario
Great Lakes watershed
Champlain
Upper Hudson Watershed
Mohawk Watershed
Atlantic slope
Susquehanna Watershed
Waterfown
Long Lake
Vergennes
Middlebury
Oswego
Oswego Canal
Champlain canal
Derby
A
Rome
Oneida
Erie Canal
Utica
Drainage Divide
Syracuse
Mohawk River
Saratoga Springs
B
Drainage Divide
Bennington
Albany
Hudson River
Ithaca
Owasco
NY
© Garver, Notes from a Watershed, 2022

Reimagine the Canals, 2020
Report to the Governor

Reimagine the Canals..... What matters to locals

Participants were universally concerned with the spread of invasive species and the effect that these species have on both ecosystems and water recreation...

Modified from Reimagine the Canals, 2020

Community Engagement Report, 2019 (Fox et al., 2019)

Reimagine the Canal Task force report

Erie Canal

Aquatic Invasive Deterrent Study

Prepared for:

BuroHappold and
New York Power Authority

CONFIDENTIAL

October 2019

Prepared by:

RESOURCE CONSULTANTS INC.

Erie Canal

Aquatic Invasive Deterrent Study

RESOURCE CONSULTANTS INC.

CONFIDENTIAL

October 2019

Erie Canal

Aquatic Invasive Deterrent Study

RESOURCE CONSULTANTS INC.

CONFIDENTIAL

October 2019

Alternative 2: Watershed Divide

1. Hydrologic separation at Rochester (West Guard Lock) to protect the Finger Lakes and Oneida Lake from invasive species in the Western Canal;

2. Hydrologic separation at Rome (West Guard Gate and Lock E21) to protect the Mohawk and Hudson River Estuary from any threats in the Canal from the West;

3. Replacement of lock operation in Oswego (Locks O7/O8) **with a boat lift/wash station** to prevent threats from Lake Ontario to Oneida and the Finger Lakes;

4. Installation of a Bio-Acoustic Fish Fence (BAFF) at Lockport/Pendleton, to deter Asian carp, which may leave Lake Erie via the Niagara River, from entering the Canal.

Erie Canal

Aquatic Invasive Deterrent Study

CONFIDENTIAL

October 2019

THE BUFFALO NEWS

Is the Erie Canal trip 'from Albany to Buffalo' headed for history?

The Erie Canal in Middleport. (Sharon Cantillon/Buffalo News)

By Thomas J. Prohaska (https://buffalonews.com/author/thomas_prohaska/)
Published October 18, 2019 | Updated October 18, 2019

The Task Force report stated that the Canal Corp should work with the NYS DEC to "further study mechanisms for retrofitting canal infrastructure to establish AIS cordon points with potential locations in Rome, Rochester, and Oswego."

Action since: Nothing

Meanwhile...

Posted: Mohawk Watershed Alliance FB page
18 Sept 2022

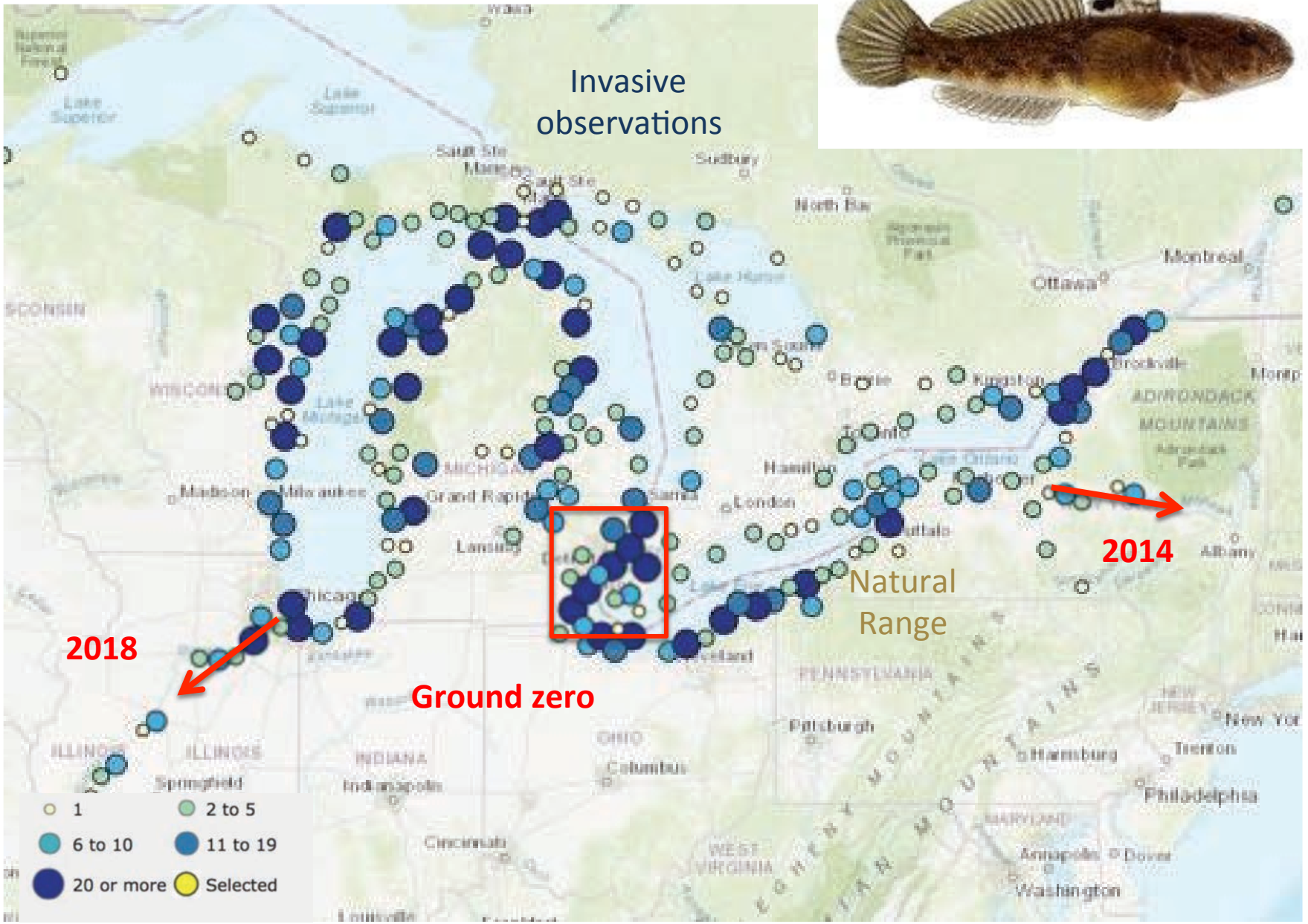
Jl Garver
Admin · 4d

The fishery on the Mohawk River is in trouble. Yesterday I went to Little Falls, and I talked to two guys fishing. In the hour that I was there, they had caught two invasive egg-eating Round gobies, and little else. These invasive fish entered the Mohawk in 2014, and now they are everywhere and thus well poised to alter the ecosystem in profound ways. (Photo: J.A. Smith)

View insights

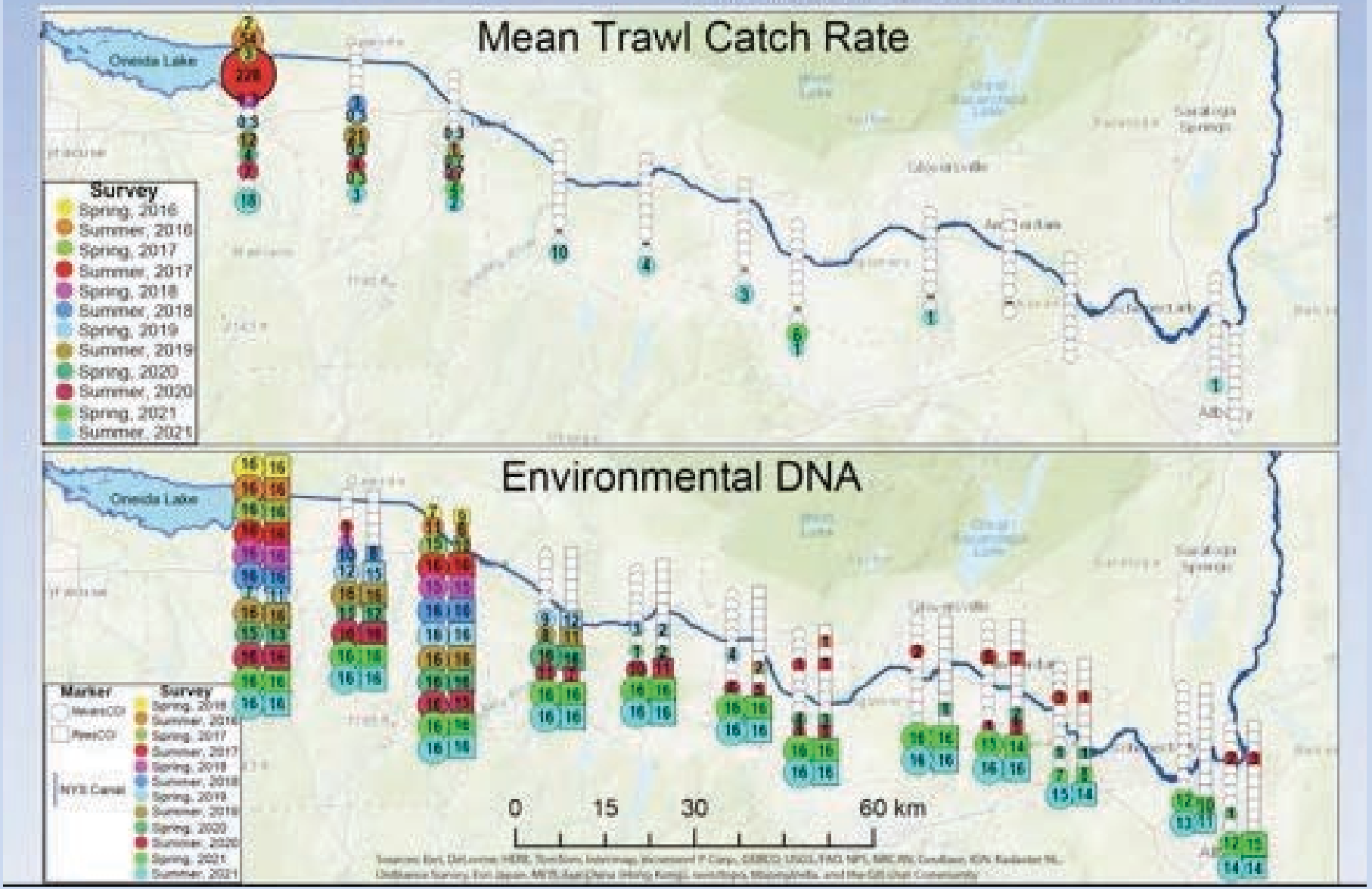
3.4K post reach >

Distribution of Round Goby



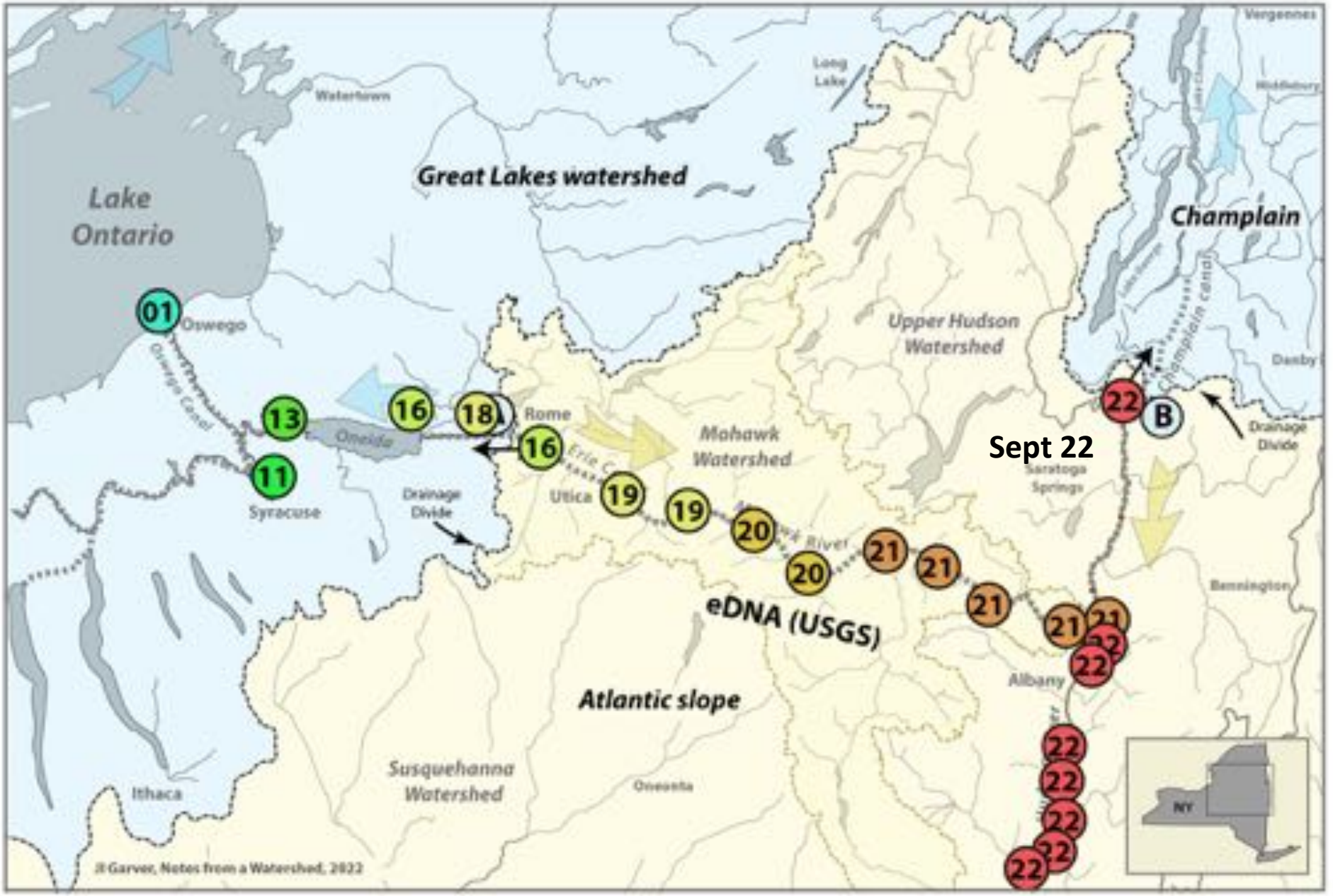
USGS Invasive species database

eDNA Results



Scott George (and colleagues), USGS – Webinar Sept 2022

Advance of the Round Goby in the Erie Canal Corridor



Data from: George et al., 2020, 2021, 2022 (some unpublished)

UNION COLLEGE

OUR THIRD CENTURY

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Main office: (518) 388-6770
FAX: (518) 388-6417
E-Mail: garverj@union.edu
http://www.union.edu

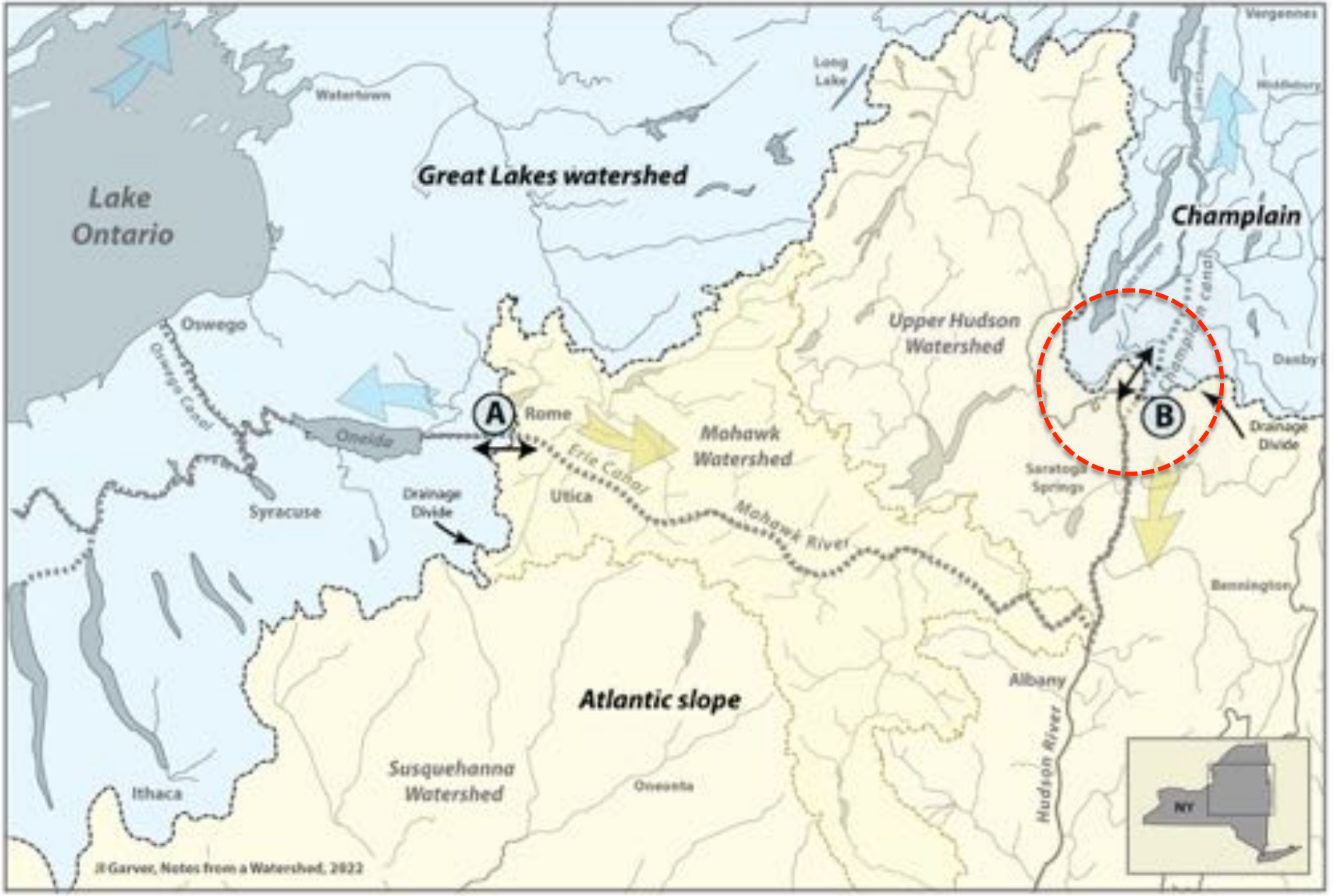
22 March 2022

The Honorable Kathy Hochul
Governor of New York State
NYS Capitol Building
Albany NY 12224

"The Reimagine the Canals effort left unresolved the issue of stemming the flow of invasive species that are using the Erie Canal Corridor (ECC) as a superhighway to access our iconic waterways"

"We need to contain further spread of this egg-gobbling fish in the upper Hudson and Champlain Canal, but note that an effective barrier on the ECC [Erie Canal Corridor] in Rome would have prevented this invader from accessing the Hudson-Mohawk in the first place."

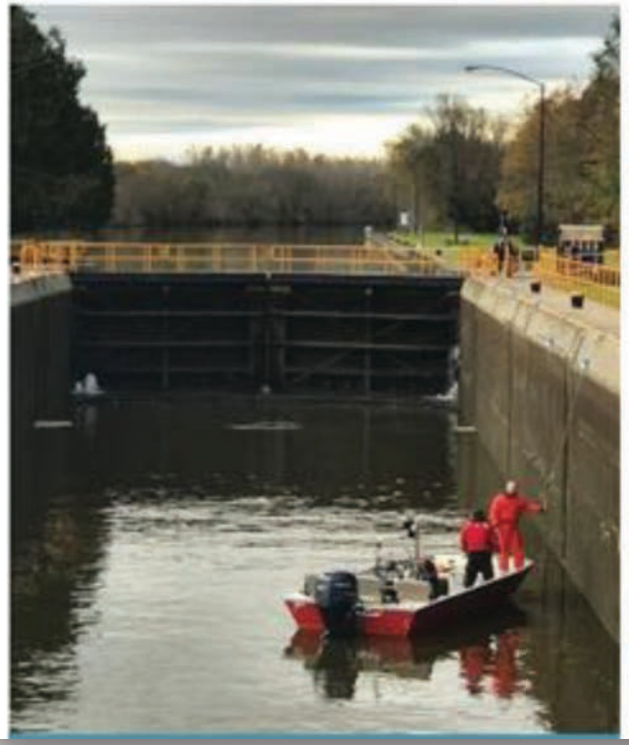
JI Garver, 22 March 2022


Lake Ontario
Great Lakes watershed
Champlain
Upper Hudson Watershed
Mohawk Watershed
Atlantic slope
Susquehanna Watershed
Watertown
Long Lake
Vergennes
Middlebury
Champlain canal
Oswego
Oswego Canal
Oneida
A
Rome
Erie Canal
Utica
Mohawk River
Drainage Divide
Syracuse
Ithaca
Owasco
B
Saratoga Springs
Danby
Bennington
Albany
Hudson River
NY
Jill Garver, Notes from a Watershed, 2022

US Army Corps of Engineers ®
New York District

Lake Champlain Basin Program

NE IW PCC



Champlain Canal Aquatic Invasive Species Barrier Study Phase I Report

USACE, New York District

Princeton Hydro, LLC

HDR

2022: Phase 1 Study completed

Date: March 2022

Recommendation: Alternative 2 Barrier (lift/carry) at C8

2000: Authorized by WRDA 2000, Section 542

2009: NYSCC requested USACE initiate the Champlain Canal Dispersal Barrier Feasibility Project

JULY 15, 2022

MITIGATING THE SPREAD OF THE INVASIVE ROUND GOBY: INTERIM RAPID RESPONSE PLAN FOR THE CHAMPLAIN CANAL SYSTEM IN NEW YORK STATE

NEW YORK STATE OF OPPORTUNITY. | NY Power Authority | Canal Corporation

NEW YORK STATE | Department of Environmental Conservation

Posted: Mohawk Watershed Alliance FB page
18 Sept 2022

JI Garver
Admin · 4d ·

The fishery on the Mohawk River is in trouble. Yesterday I went to Little Falls, and I talked to two guys fishing. In the hour that I was there, they had caught two invasive egg-eating Round gobies, and little else. These invasive fish entered the Mohawk in 2014, and now they are everywhere and thus well poised to alter the ecosystem in profound ways. (Photo: J.A. Smith)

View insights

3.4K post reach >

A

Stephen Kline
That's nothing but good news for the fishery. I've caught several goby out of the river as of recent. The fish in the Mohawk are about to have unlimited food source, just like the great lakes. We're about to have some FAT walleye and smallmouth in our home rivers.

My worry is that the goby might eat all the zebra mussels, which have played a huge role in cleaning up and filtering out our rivers.

Like Reply Share 4h Edited

B

Will Hart
I try to kill all round gobies I can inhale fished some really good spots then gobies show up and nothing. When an invasive species arrives studies show native fish take approximately 5 years to adapt and in that time they can already wreck havoc on local fish populations.

Like Reply Share 4h

Management implications and public perception

Anglers now know the importance of Goby for many sportfish

- *Walleye*
- *Smallmouth Bass*
- *Lake trout*

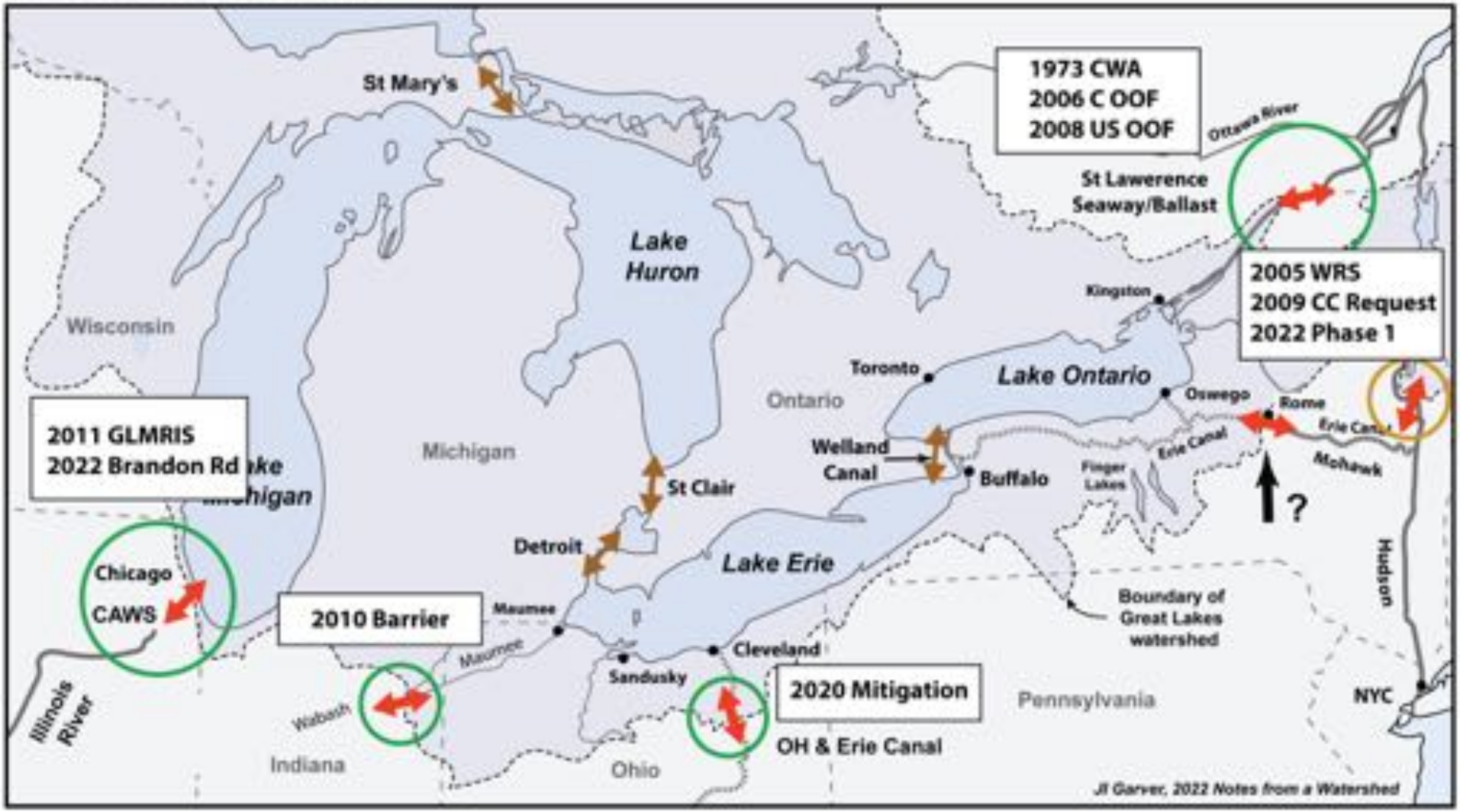
The Future

Can we operate our Canal systems in a more ecologically sustainable way?

Invasion pathways

Invasion pathways

Invasion pathways



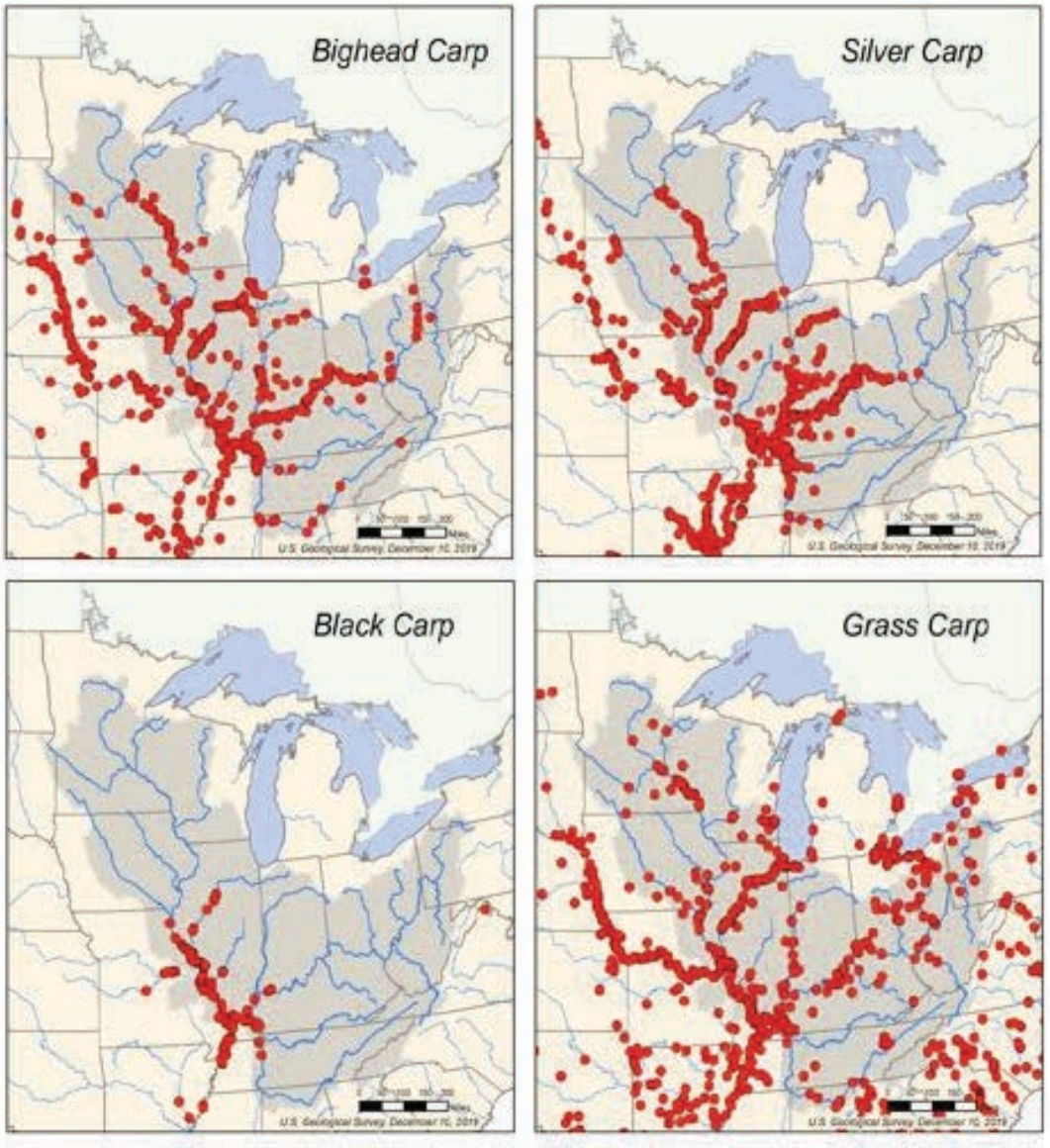
2020

Asian Carp Action Plan

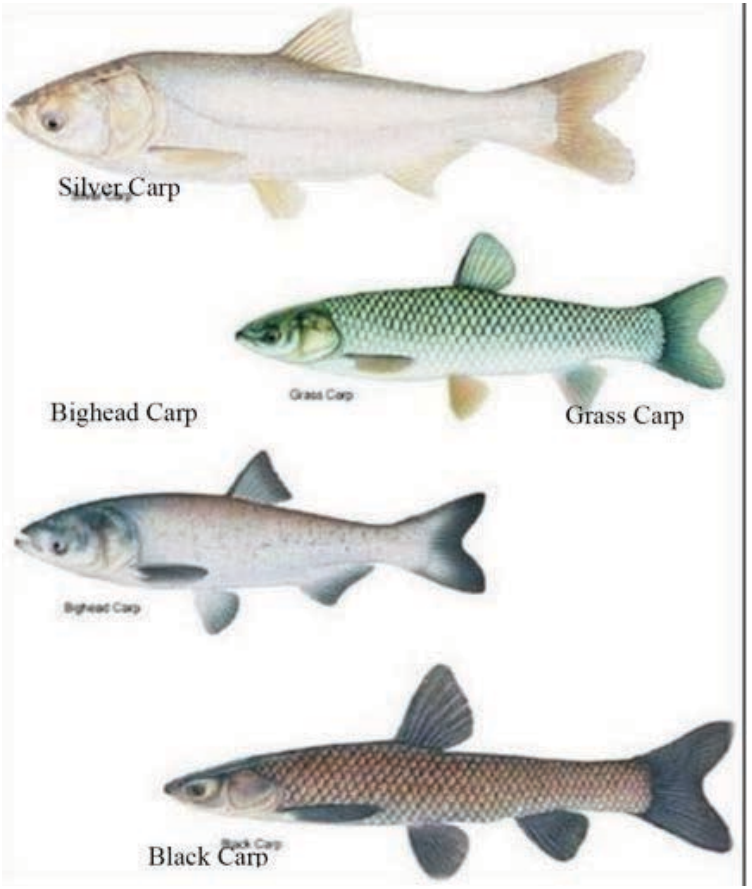
Asian Carp Regional Coordinating Committee

February 2020

Invasion front of the Asian Carp



Plankton feeders that conquer rivers and collapse trophic system



Up to 90% biomass in some rivers

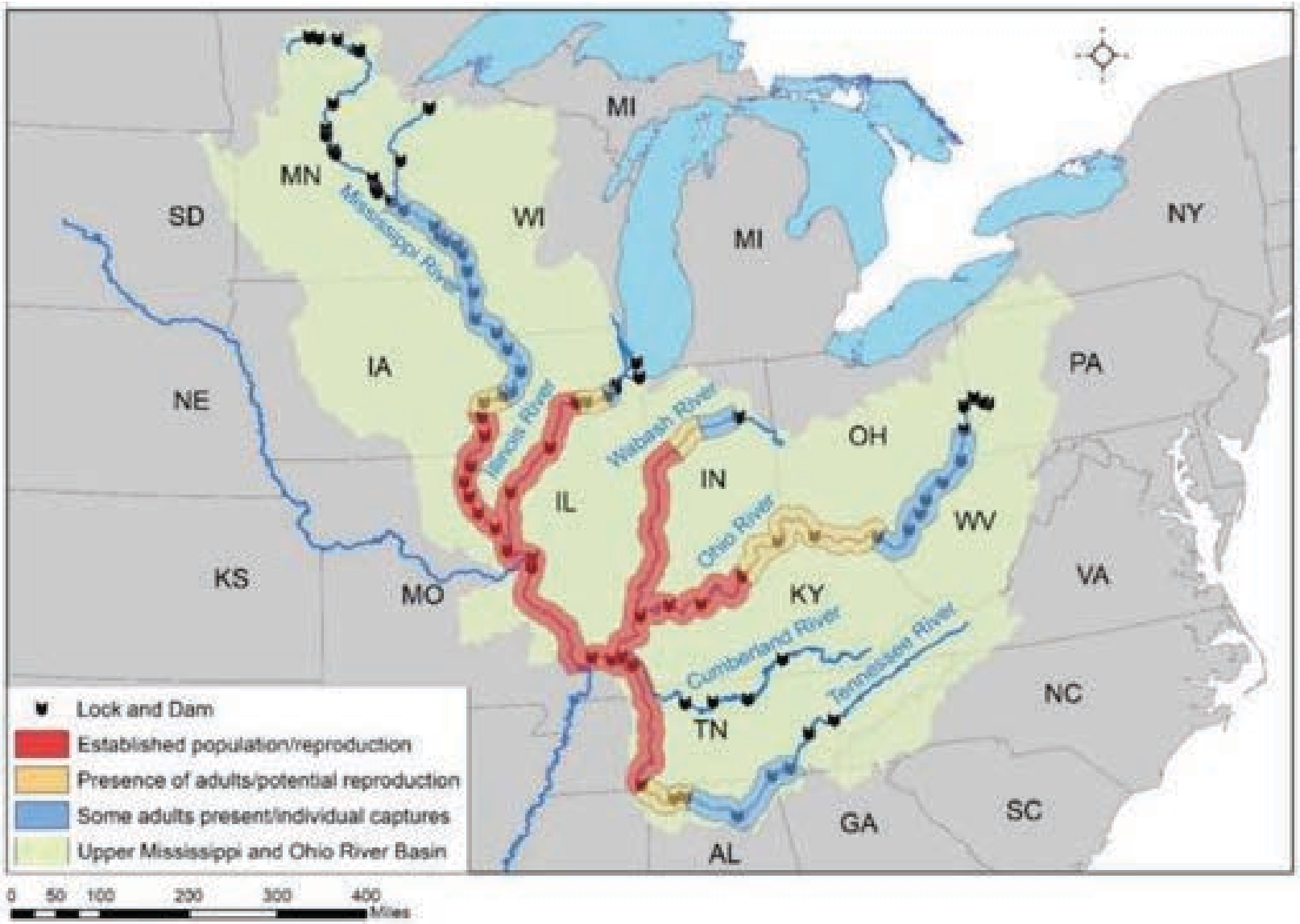
2020 Asian Carp Action Plan

This may be New York in a decade

Asian Carp, Illinois River 2008

NY Times, 2011

Invasion front of the Asian Carp



2020 Asian Carp Action Plan

Dividing the waters: The case for hydrologic separation of the North American Great Lakes and Mississippi River Basins

2011

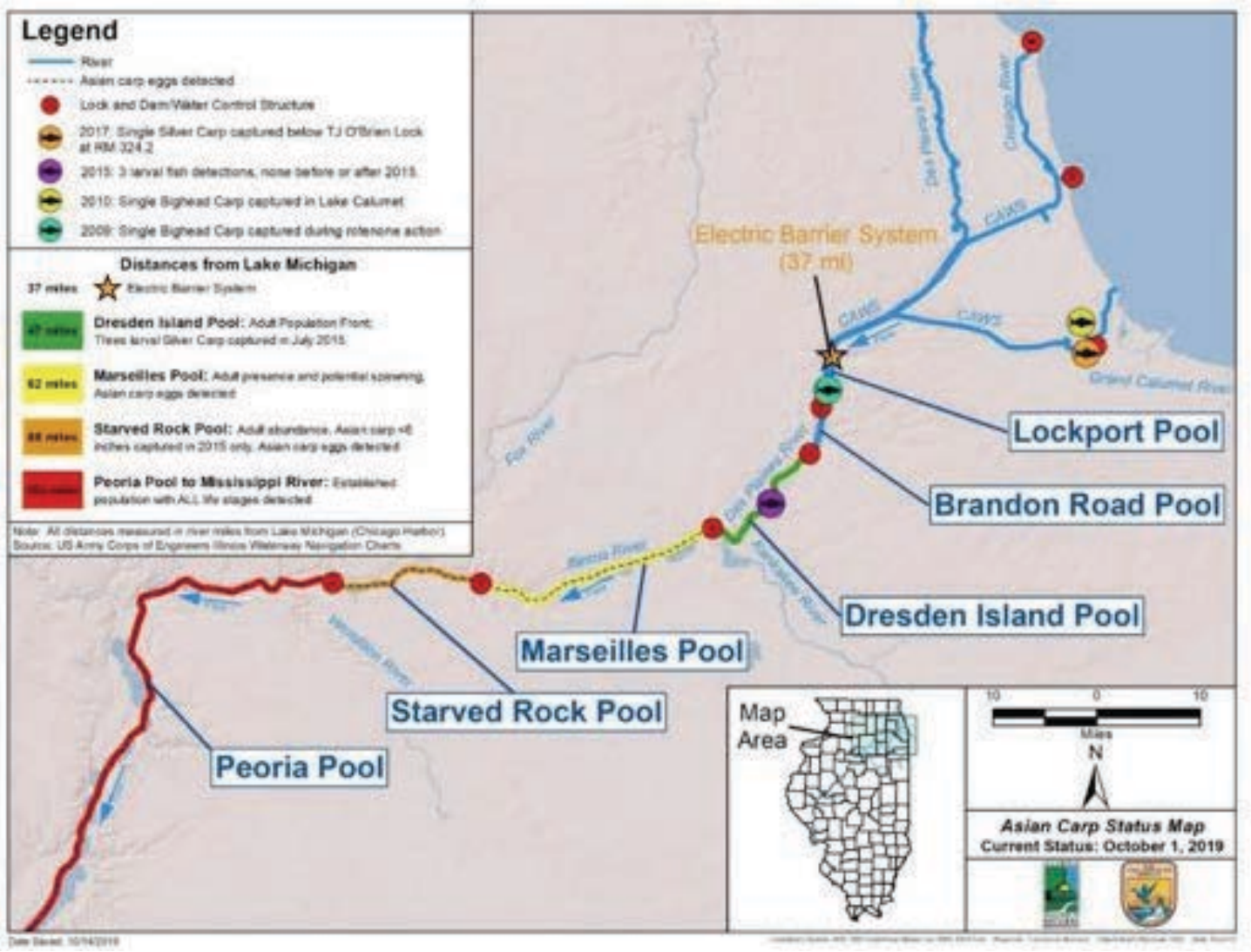
Jerry L. Rasmussen [a,1], Henry A. Regier [b,2], Richard E. Sparks [c,*], William W. Taylor [d,3]

[a] Natural Resource Management Associates, 4 Cobblestone Lane, Le Claire, IA 52753, USA
[b] Centre for Environment, University of Toronto, 33 Willcocks St., Suite 1016V, Toronto, ON, Canada M5S 3E8
[c] National Great Rivers Research and Education Center, 5800 Godfrey Road HK129 Godfrey, IL 62035-2466, USA
[d] Department of Fisheries and Wildlife, Michigan State University, 13 Natural Resources, East Lansing, MI 48824-1222, USA

Red: eDNA reported for Asian Carp

J. Great Lakes Res.

Chicago Area Waterways System – The last line of defense



$850 m approved by Congress in 2019 for Brandon Road Structure

2020 Asian Carp Action Plan

Goal: Prevent the introduction and spread of ANS through the ECC and CC.

Key boundary conditions:

1. Maintain navigable connection for commercial and recreational vessels

2. Foster economic growth and tourism through canal activities

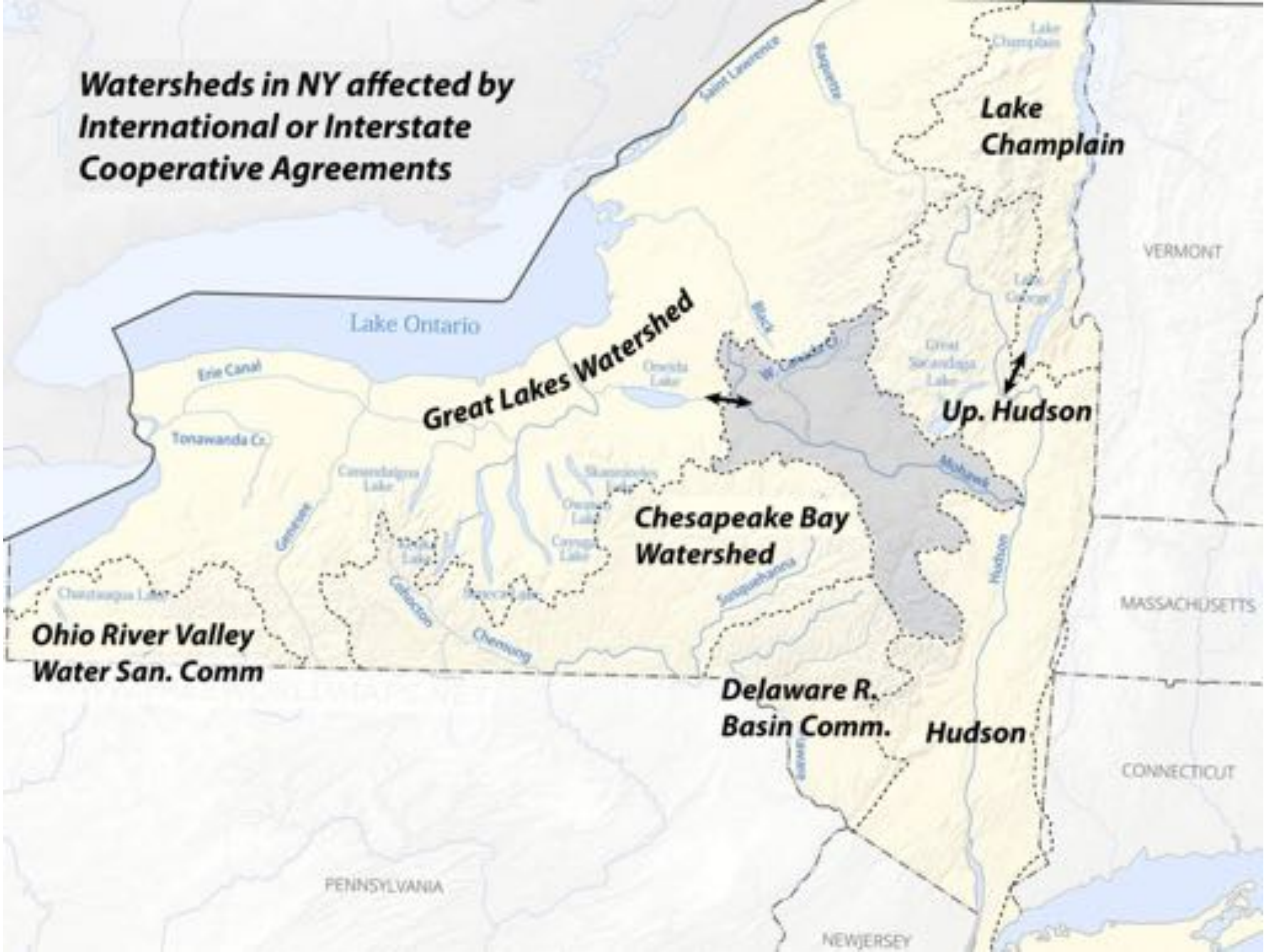
3. Preserve historic canal infrastructure

4. Support recreational and educational opportunities on Canals

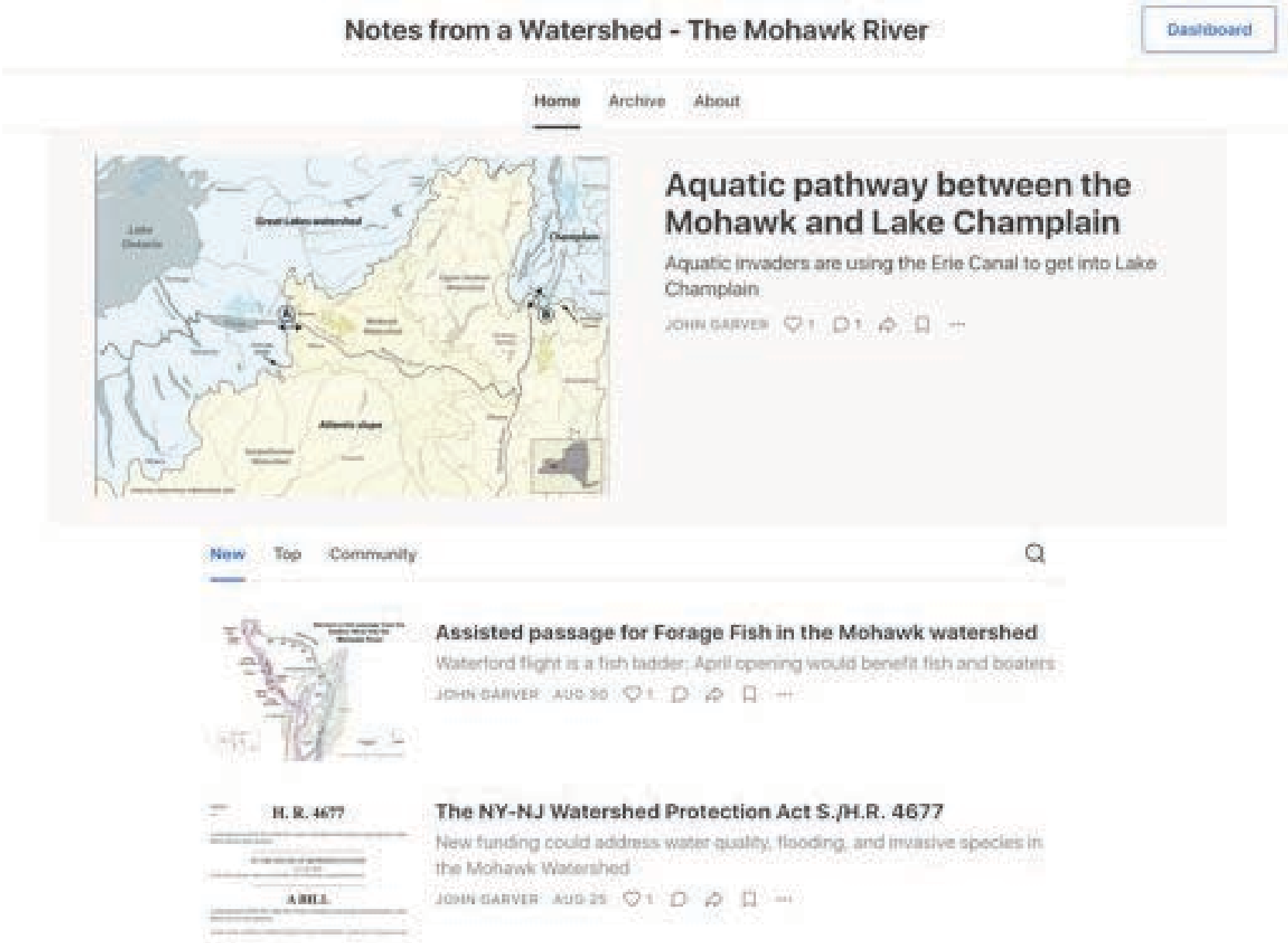
Big Chute Marine Railway (lock): Built 1917

Built in 1917, kept in 1964 to for Sea Lamprey

Lock Length: 30.5 m (100 ft)
Width: 7.3 m (24 ft)
Average Lift: 17.7 m (58 ft)


Watersheds in NY affected by International or Interstate Cooperative Agreements
Lake Champlain
Great Lakes Watershed
Up. Hudson
Chesapeake Bay Watershed
Ohio River Valley Water San. Comm
Delaware R. Basin Comm.
Hudson
Lake Ontario
Erie Canal
Tonawanda Cr.
Saint Lawrence
Black
Mohawk
Susquehanna
Chemung
Cohocton
Genesee
Chautauqua Lake
Oneida Lake
Lake George
Great Sacandaga Lake
Canandaigua Lake
Skaneateles Lake
Owasco Lake
Cayuga Lake
Seneca Lake
Keuka Lake
W. Canada Cr.
VERMONT
MASSACHUSETTS
CONNECTICUT
PENNSYLVANIA
NEW JERSEY

Mohawk.substack.com



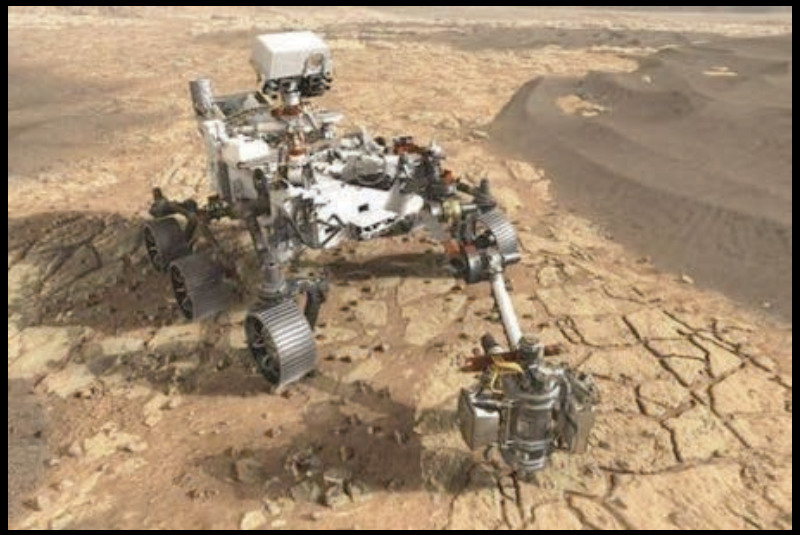
Lobster Boat, Maine

Dating rocks on Mars

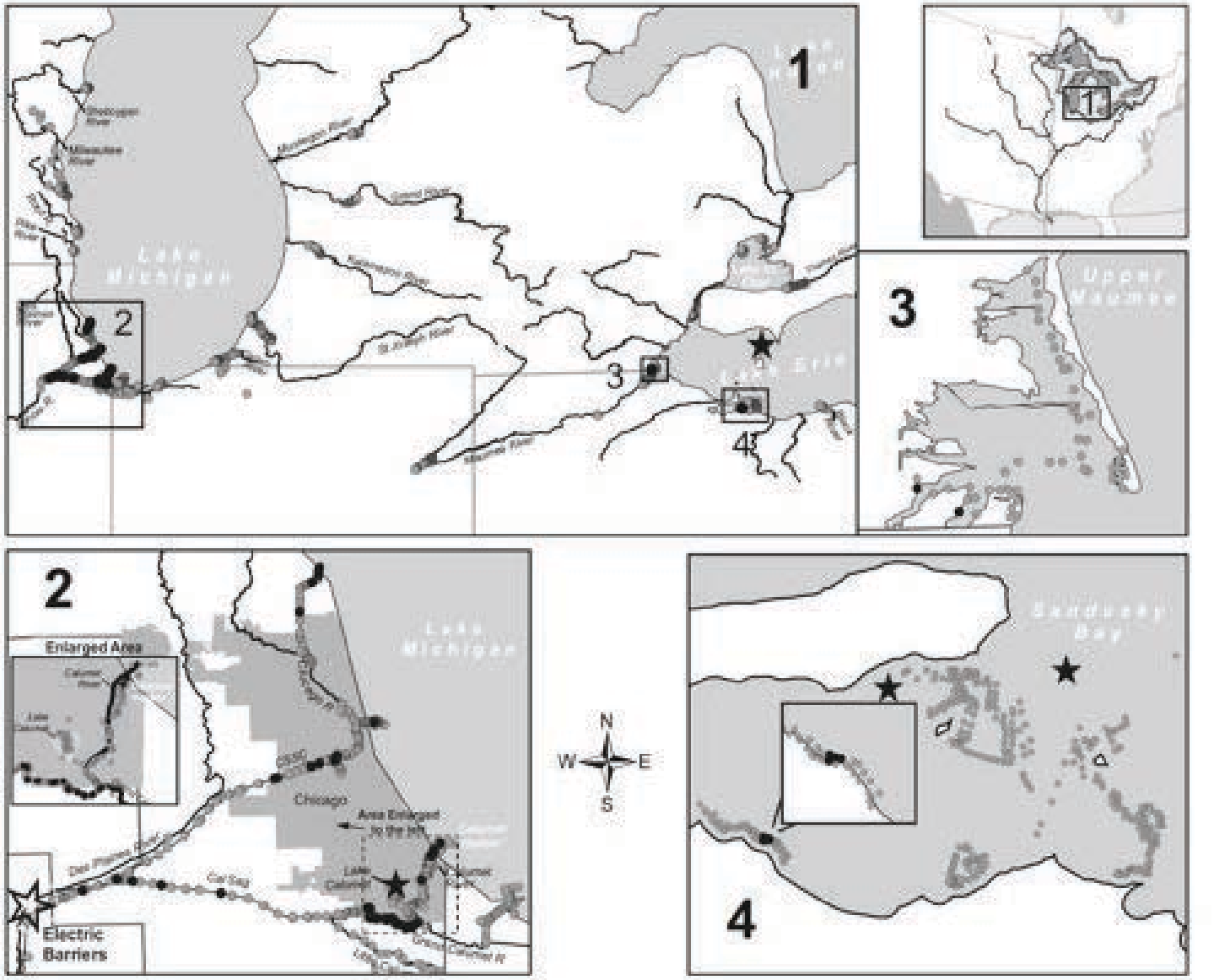
KArMars

Potassium content is measured by laser-induced breakdown spectroscopy (LIBS) and argon by Quadrupole Mass Spectrometry (QMS)

4.2 ± 0.4 Ga



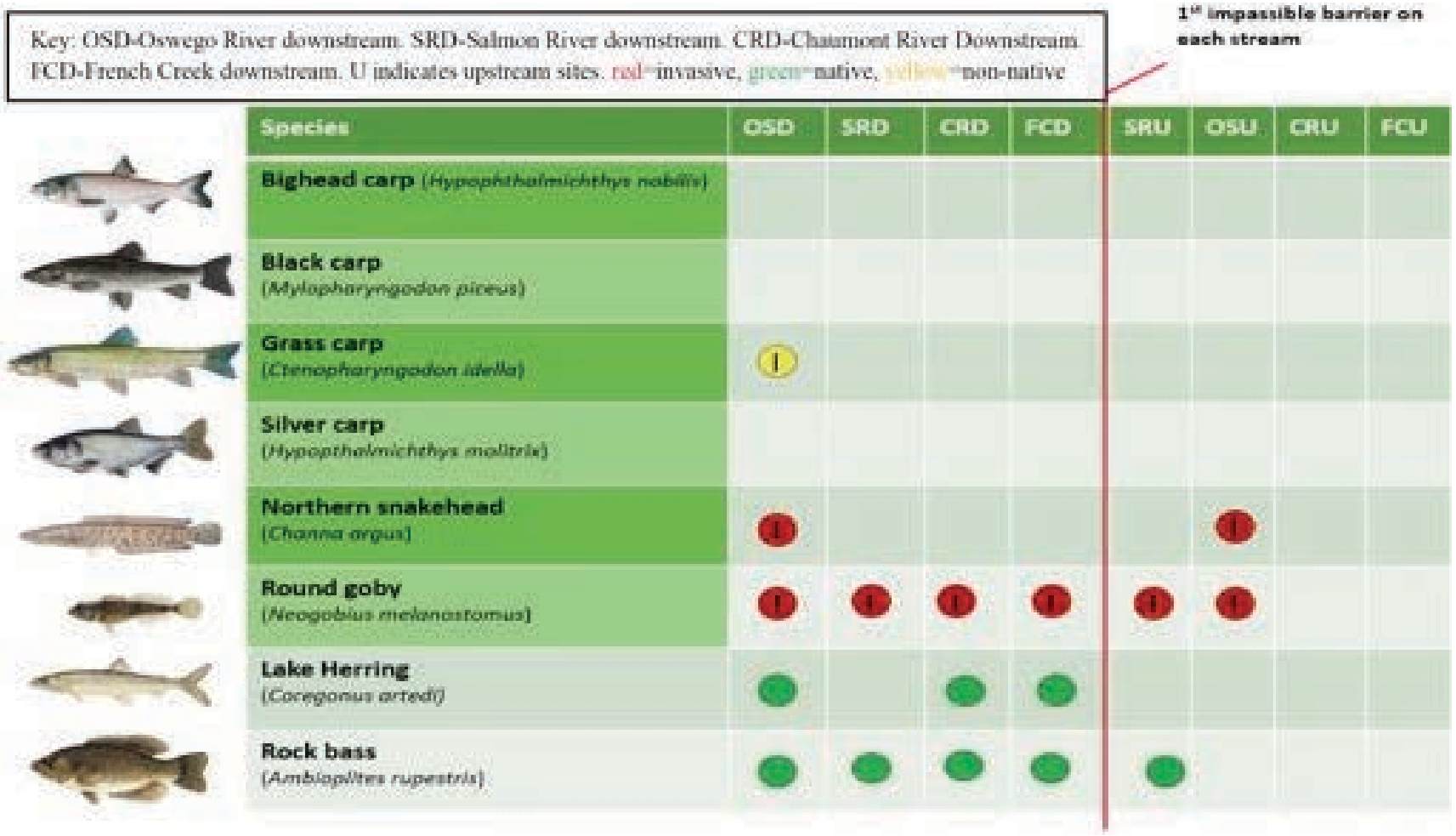
Dating: Cattani et al., 2019 Chem Geo



eDNA from 2009-11 sample seasons (Bighead/Silver).
Black is positive DNA for Bigheaded Carps

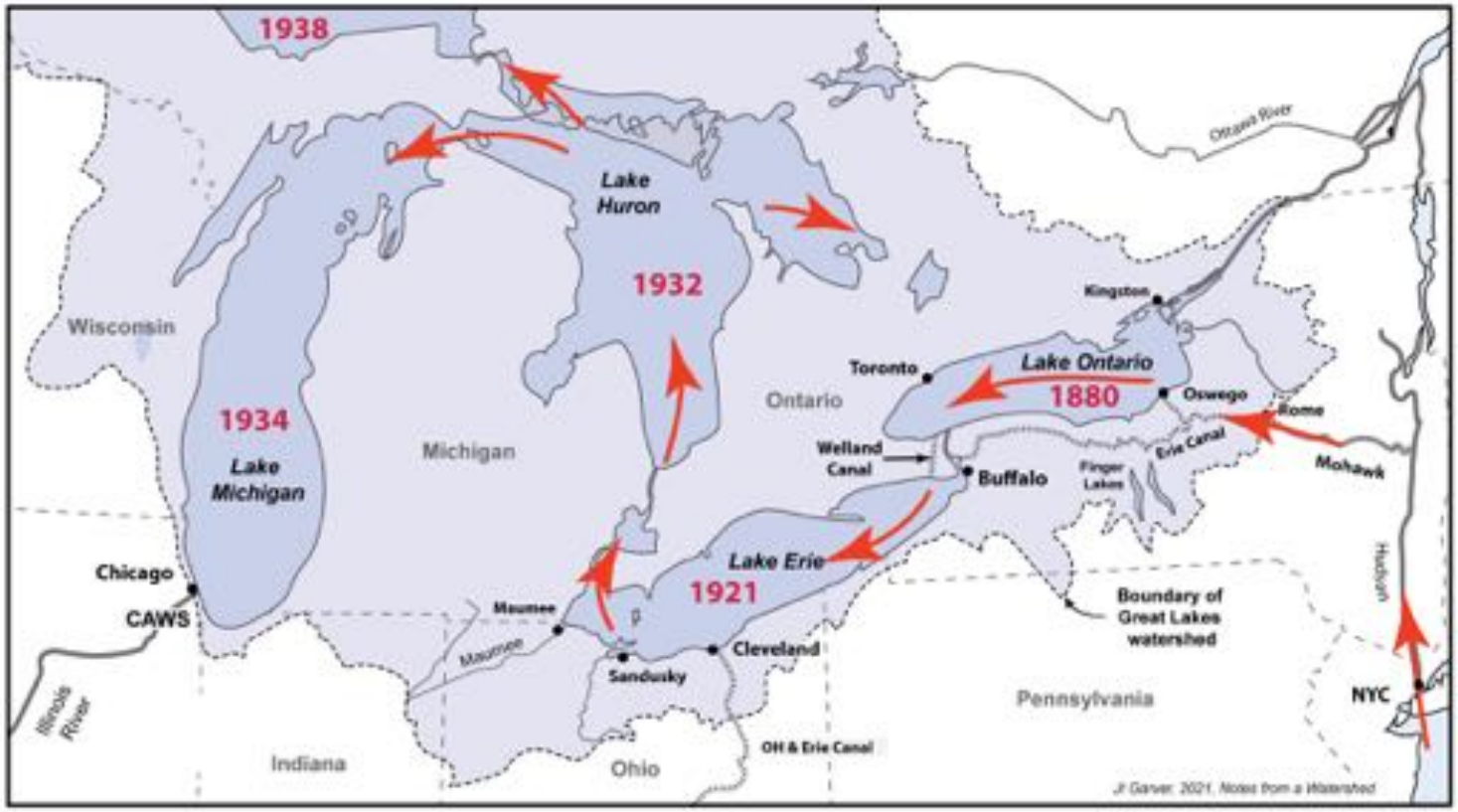
Jerde et al., 2013

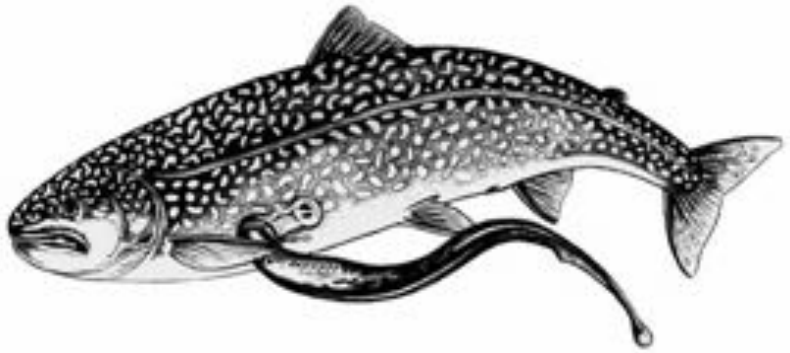
eDNA result from (SLELO PRISM) St. Lawrence Eastern Lake Ontario Partnership for Regional Invasive Species Management



USEPA-Great Lakes Restoration Initiative Project
Final Technical Report F14AP00482
Project Title: Citizen Science Environmental DNA & Video Surveillance Pilot Project (Rob Williams et al., 2017

Invasion of the Sea Lamprey





Wisconsin DNR