

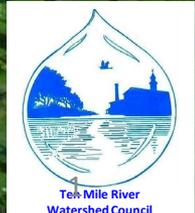


Water chestnut: A demo project to showcase community-based management in an EJ area, and discussion of early detection sites



Katie DeGoosh-DiMarzio, RIDEM

Valley Falls Pond, Central Falls



Talk

1. Recent Rise in Water Chestnut Sites in RI & Pulling Days
2. The need to onboard communities to work together
3. Coordinate Pulling Events & Large-scale Treatments
4. Recruiting volunteers in an EJ area
5. Noticing a pattern: are swans an important vector?

Questions/Comments



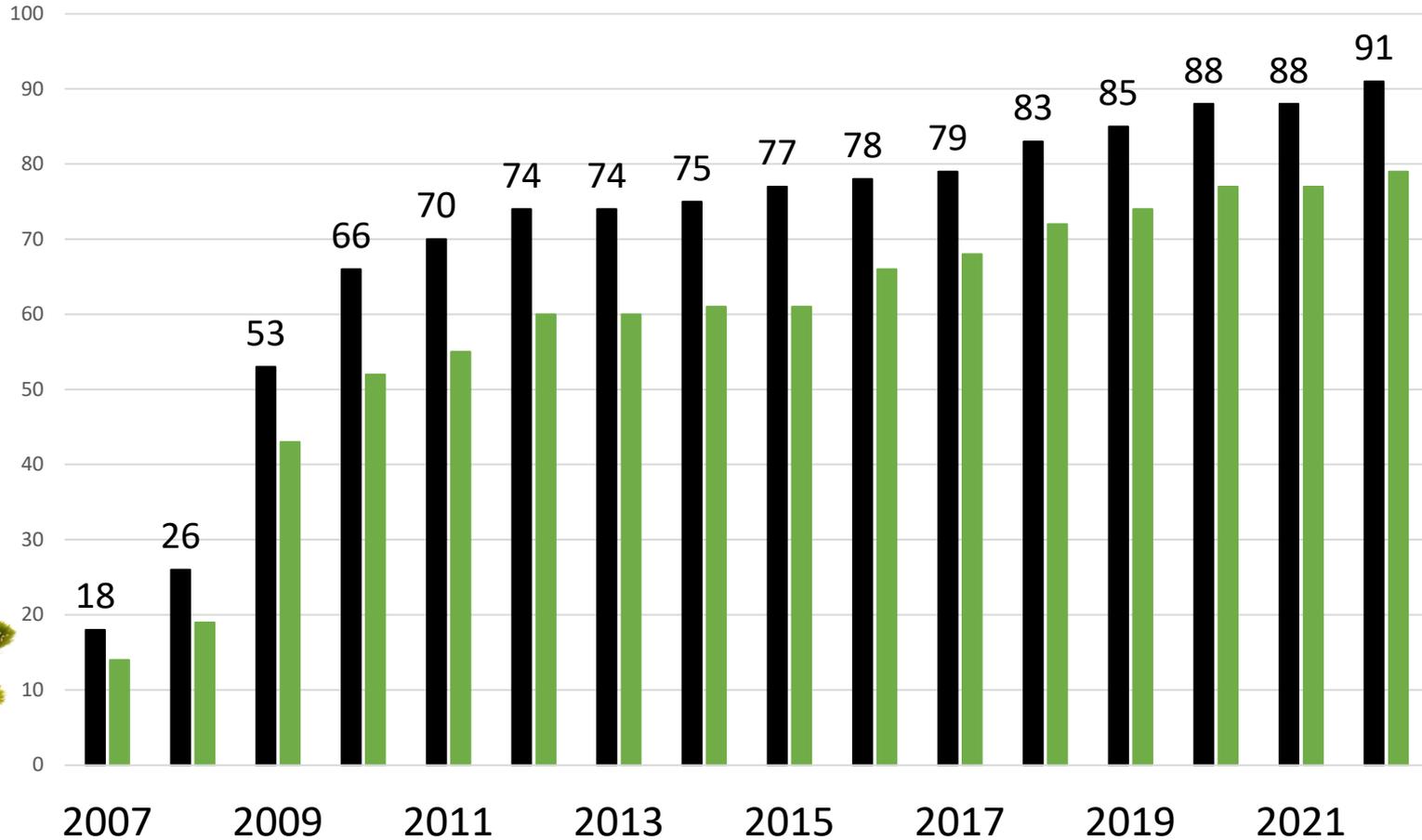
Invasive Monitoring in Rhode Island Freshwaters



Lakes/Ponds
with species
present



Rhode Island AIS Monitoring Data

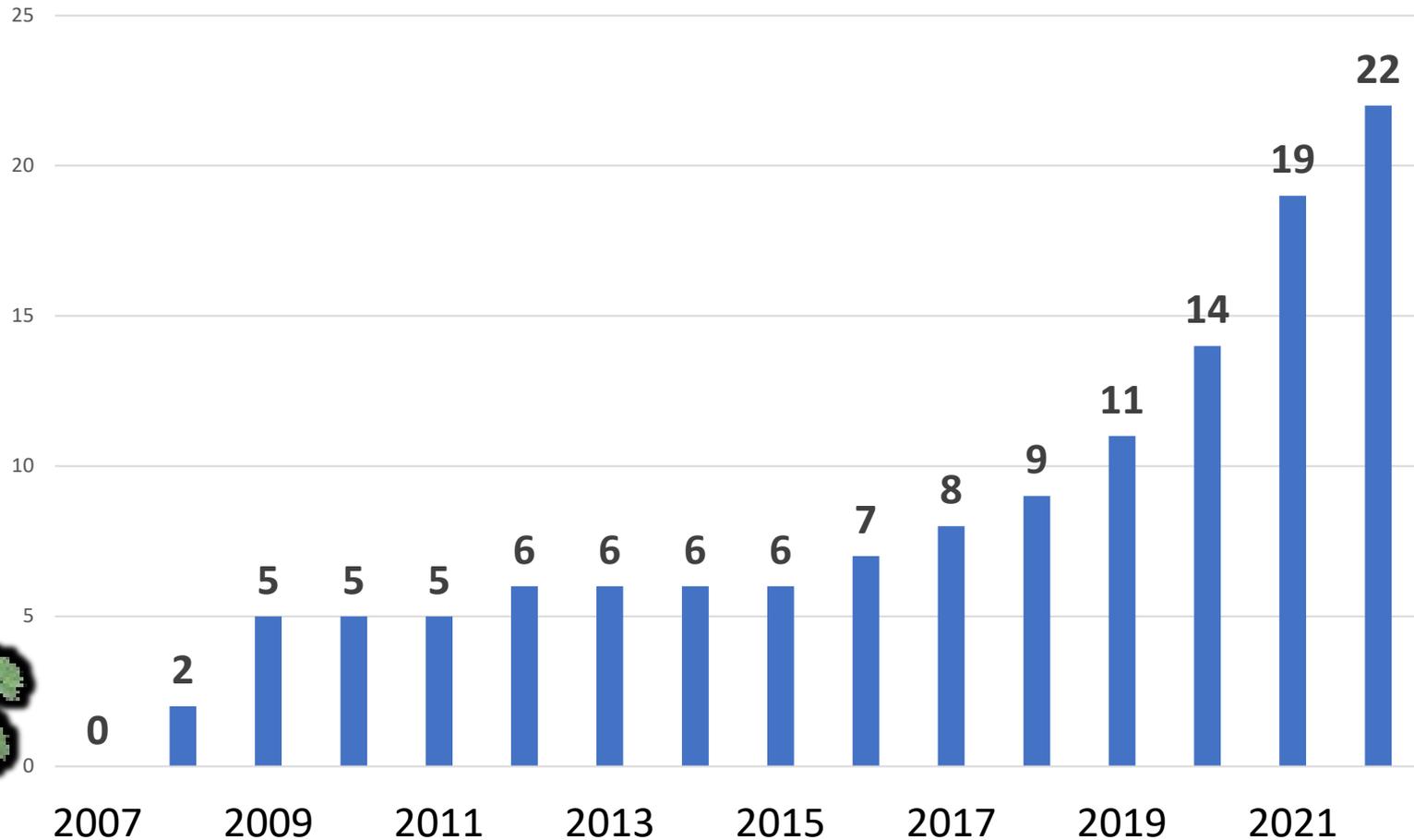


2 most common plants : variable milfoil and fanwort

Invasive Monitoring in Rhode Island Freshwaters

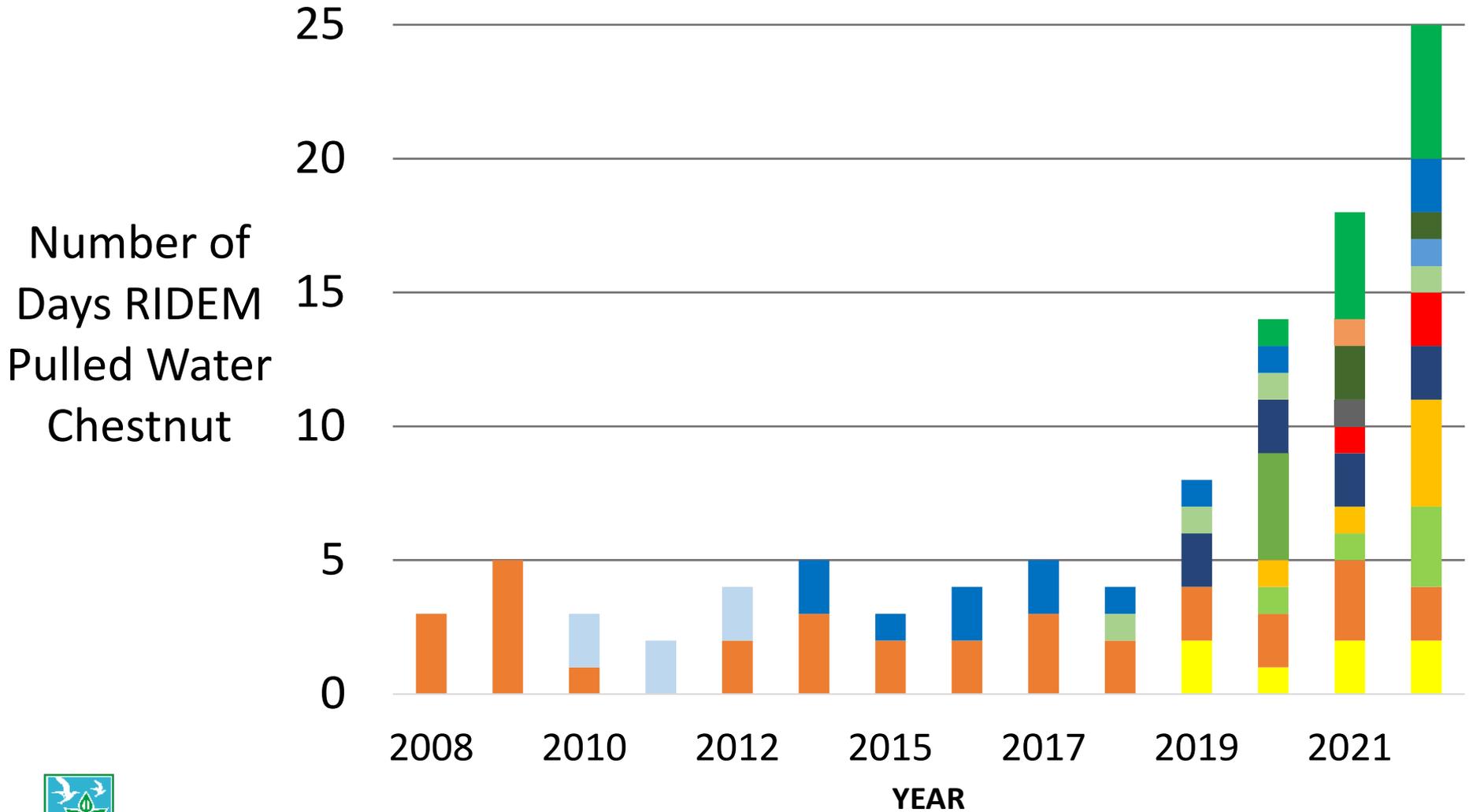
Rhode Island AIS Monitoring Data

Lakes/Ponds
with species
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3rd most common plant: water chestnut

Exponential Rise in Sites = Exponential Rise in Pulling



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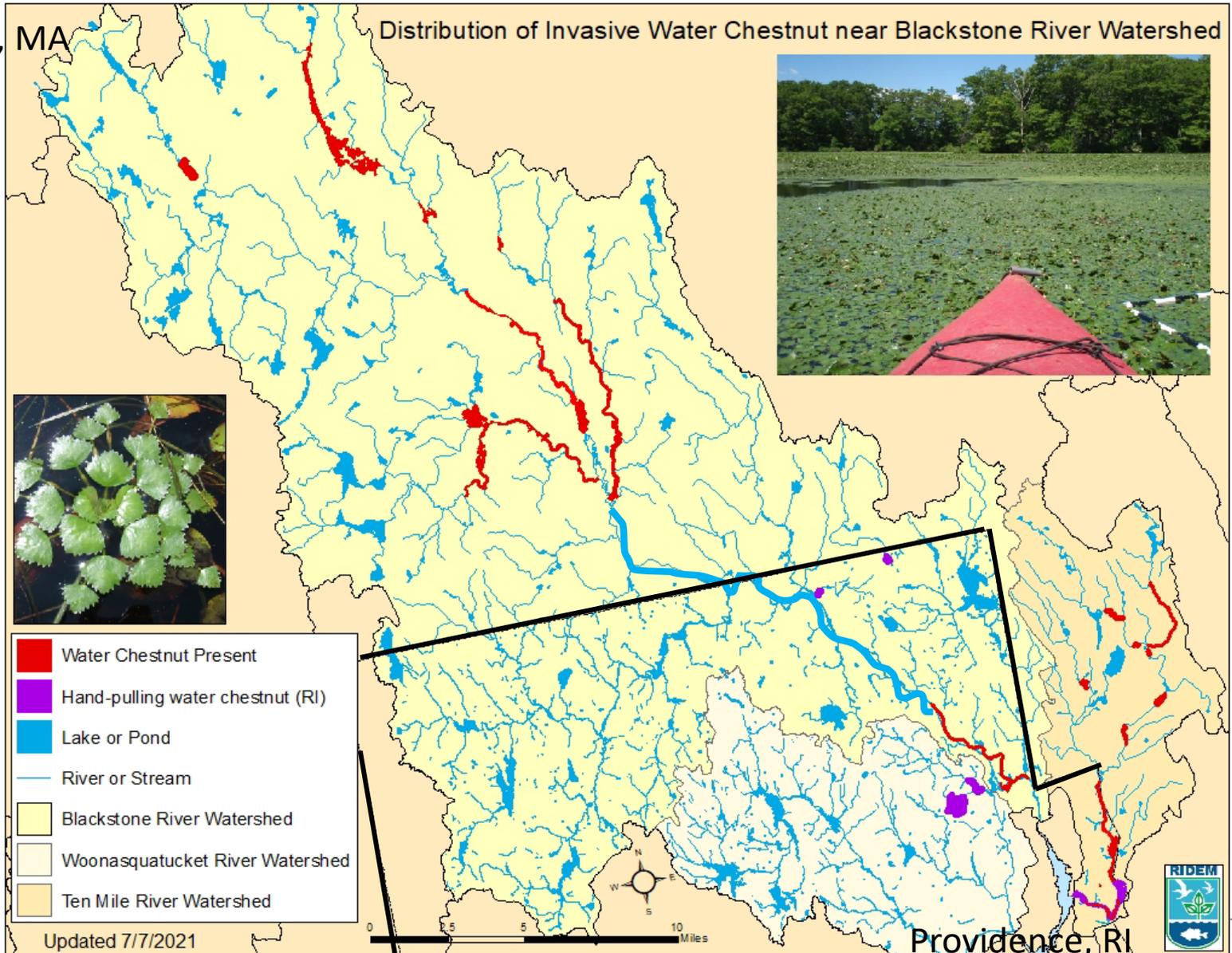
Questions/Comments



Invasive Water Chestnut in Blackstone and Ten Mile River Watersheds

Worcester, MA

Distribution of Invasive Water Chestnut near Blackstone River Watershed

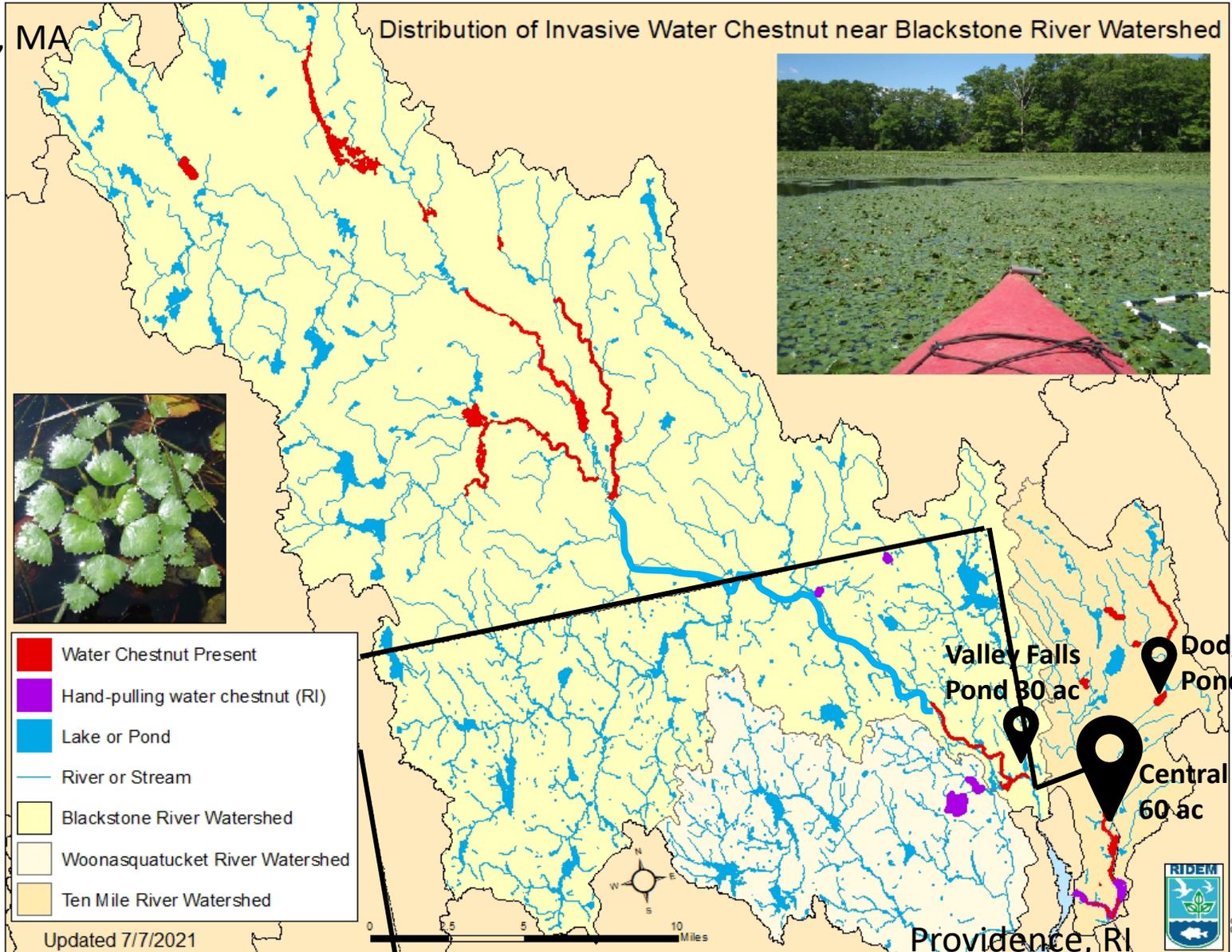


Providence, RI

Invasive Water Chestnut in Blackstone and Ten Mile River Watersheds

Worcester, MA

Distribution of Invasive Water Chestnut near Blackstone River Watershed



1. Water Chestnut is a long-term problem, it is not going away – communities must learn to manage it
2. It takes \$ustained efforts across many communities to manage
3. Let's work together, leverage resources & learn from each other (no reinventing wheel)



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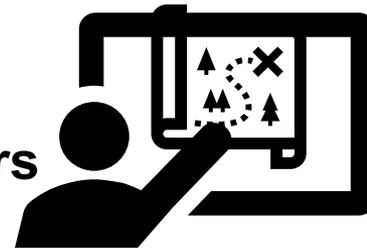
SNEP Project: Demo Community-based Water Chestnut Management to Restore Habitat

  **Develop Outreach Materials – raise awareness for
EDRR**

  **Coordinate Community Hand Pulls**

  **Leverage Funding for Large Treatments**

  **Summarize Work &
Train other community leaders**



Talk

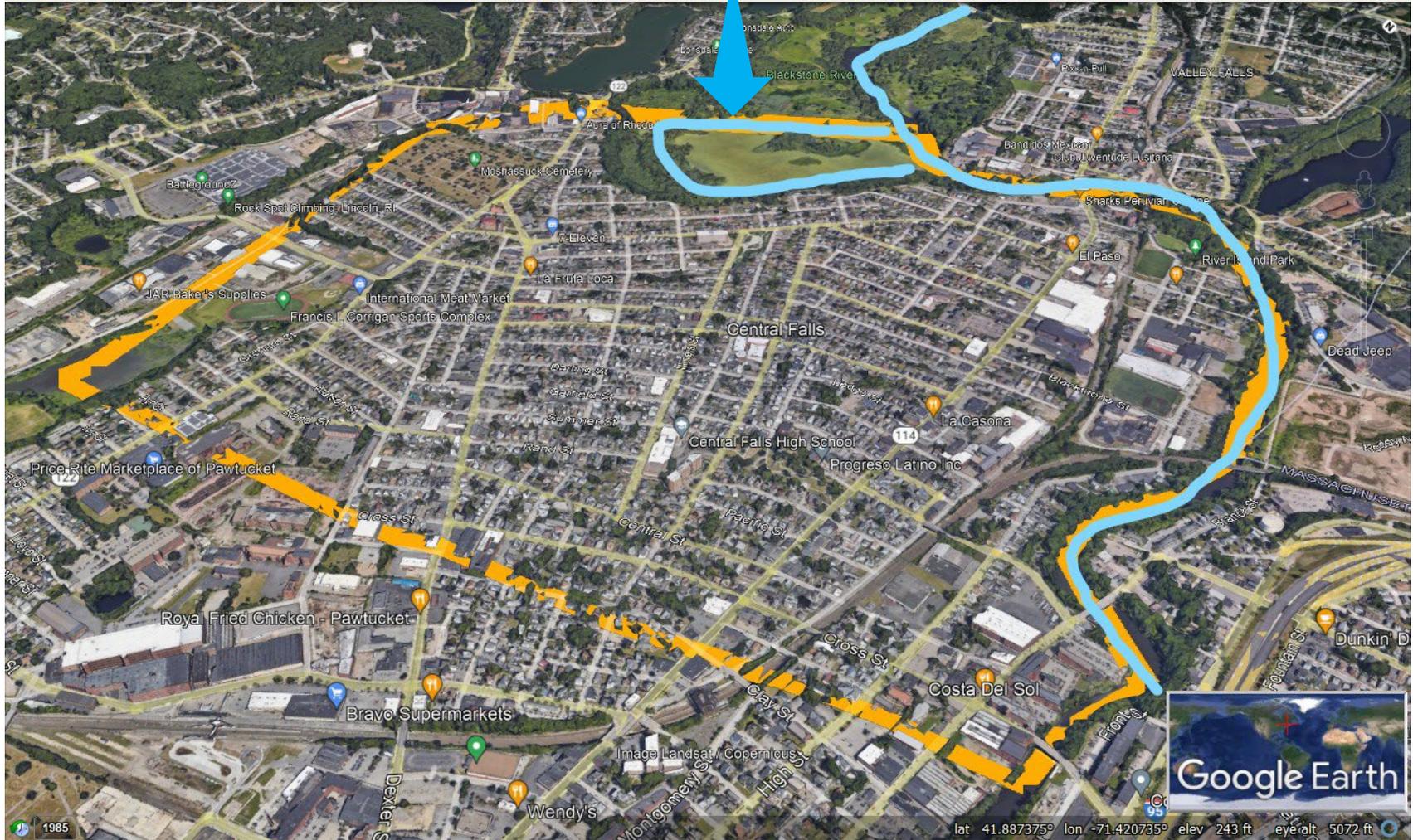
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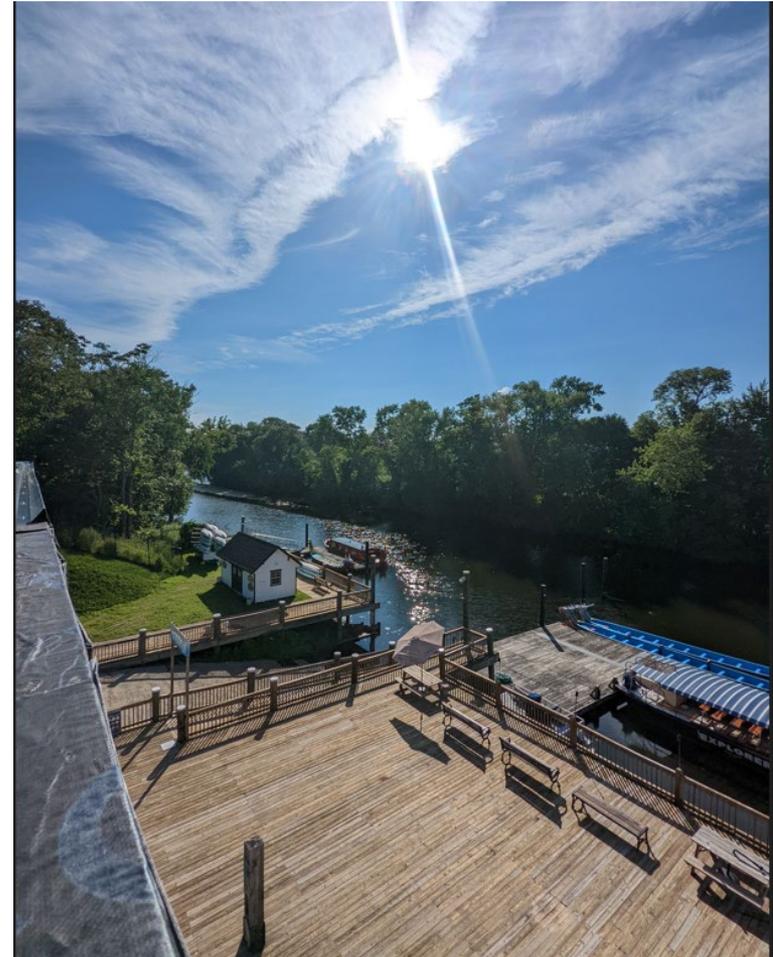
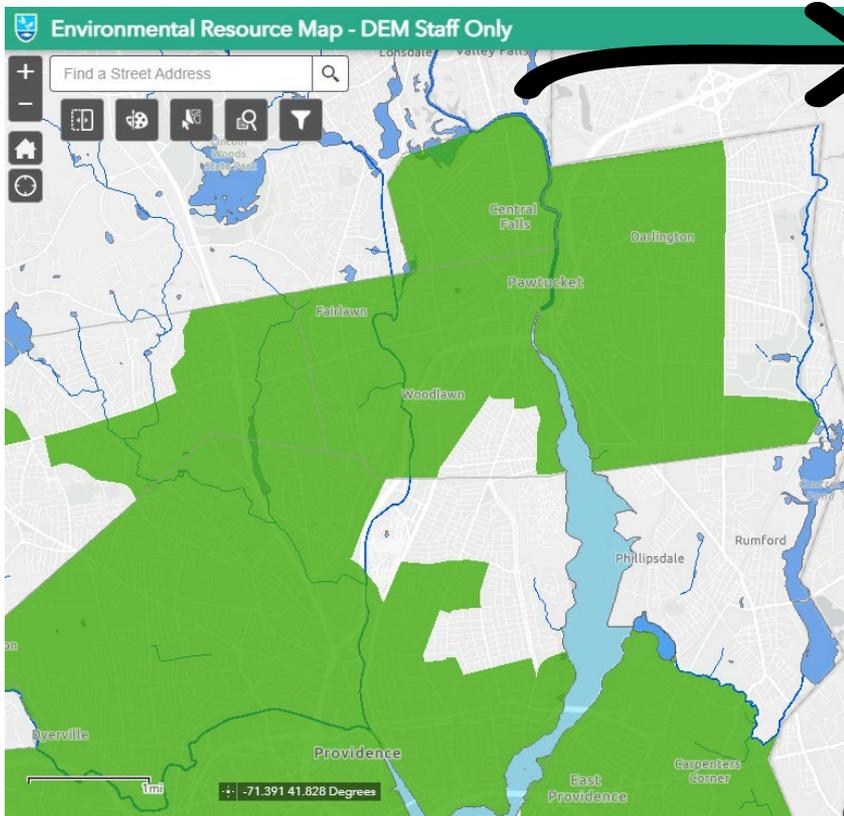
Blackstone River, Central Falls, RI

Valley Falls Pond



Blackstone River, Central Falls, RI

Environmental Justice Community (in green) – smallest city (1.2 mi), lowest mean income in RI, 29% below poverty line - 27th most densely populated place in the US (22,000), most diverse city, 80% Hispanic



Blackstone River, Central Falls, RI

Central Falls Landing Re-development, training students to paddle, incentivizing volunteers

Free kayak program will take CF youth on the Blackstone

MELANIE THIBEAULT, Valley Breeze Staff Writer Jun 29, 2021 0



Bob Billington, left, and Mike Martin, of Central Falls youth this summer. Pictures (Breeze photos by Melanie Thibault)



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CENTRAL FALLS - W
this fall, the space v
engage youth thro

Youth from Central
this summer, as pa

Last Friday officials
lessons on the Blac
Parks and Recreati

"We're very excited
Council, said at the



Outreach for Early Detection en Español

Invasive Water Chestnut





Spot

Pull

Prevent

Pull This Invasive Plant Out!

Spot

- Learn to recognize its triangular leaves that grow radiating from the center
- All the jagged leaves on one plant form a rosette that floats
- In August, up to 15-20 large, pointy seeds can develop under the leaves
- The following year, the seeds produced can make 10-15 new plants
- This aggressive plant grows large and reproduces exponentially to form a dense mat of plants that will cover several acres (see background photo)

Pull

- Paddlers can easily pull water chestnut plants up, as the roots are small
- In early June, new rosettes can fit in the palm of your hand, but as they grow larger over the summer, they can be 2 feet wide by the end of August
- It is easier to pull the smaller plants in June and July, before the seeds form
- After removing the plant, dispose as trash, or compost as far from the water as possible. As an annual, once pulled, it will not grow back (success!)

Prevent

- Pulling plants before the seeds form is most effective to stop spreading
- The large, pointy seeds are barbed, and if left to mature, will then attach to birds, wildlife, boats, waders or other gear to travel over land to new lakes
- Mature seeds that have dropped may become dormant in the lake bottom, and not germinate the next year, but can remain viable to sprout up to 12 years later, so pulling is a long term effort - keep looking every year!




Rhode Island Department of Environmental Management
 To report water chestnut at a new location, contact: Office of Water Resources (401)-222-4700
 For more info, go to: <http://www.dem.ri.gov/programs/benviron/water/quality/surfwq/pdfs/invasive-spot-water-chestnut.pdf>

Spot It!

Learn to Recognize
Invasive Water Chestnut





It's small in June...

1 - 2 feet by August!

Plants start off small (fit in the palm of your hand) but can grow up to 2 feet across by the Fall.




Tiny white flowers bloom (only in the mornings) in early July.
Leaves of the rosette float on the water, and one main stem anchors the plant in shallow mud.




Spikey seeds start off green and turn brown

By the end of July, each rosette can produce up to 20 large, pointy, green or brown seeds that grow on the underside of the rosette. Seeds will drop off and sink to the bottom, where they may be viable to sprout up to twelve years later.





 **VOLUNTEER!**
Help Harvest Invasive Water Chestnut



Hand Pulling Events

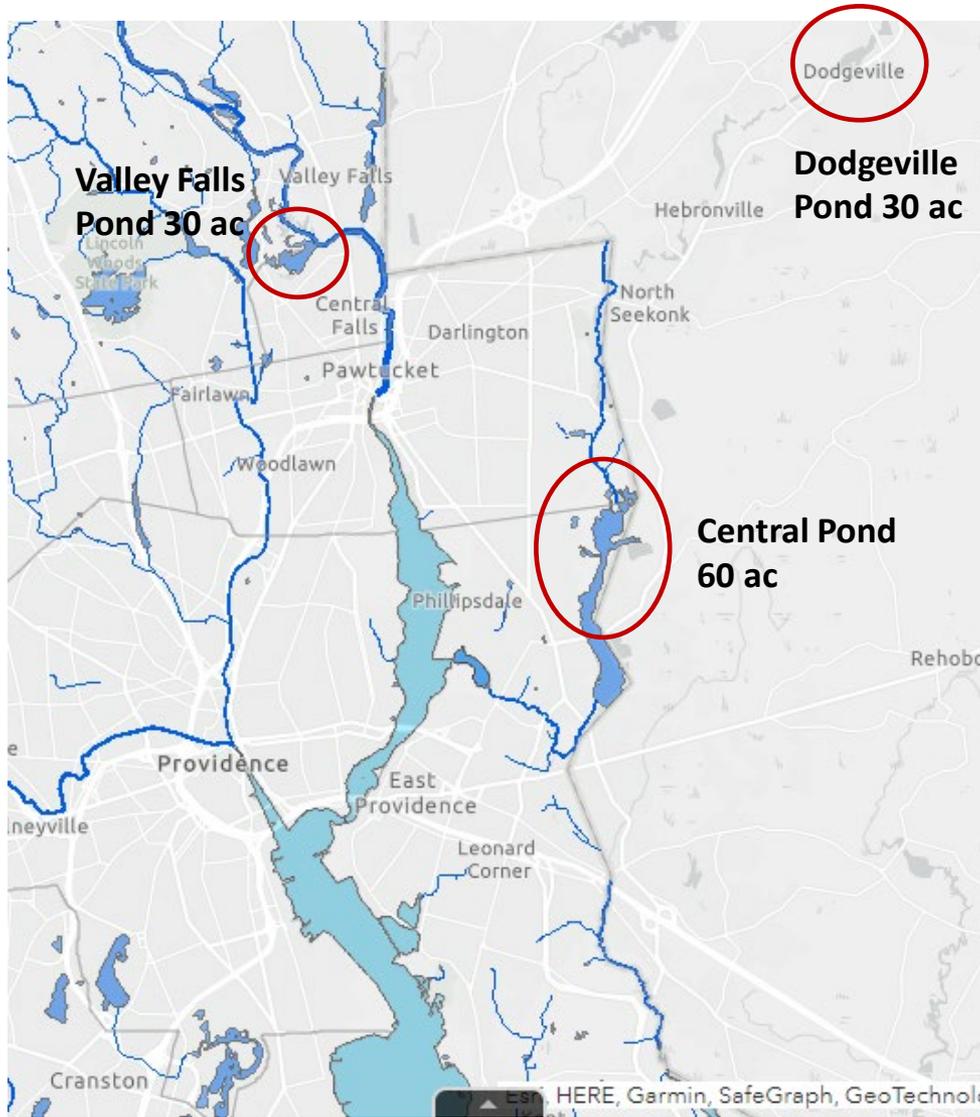
- 6/10 Central Falls, RI
- 6/13 & 14 E Providence, RI
- 6/17 E Providence, RI
- Shrewsbury, MA
- 6/20 Central Falls, RI
- 6/24 Uxbridge, MA
- 7/8 Shrewsbury, MA

Paddlers and Land Crew Needed

Shrewsbury needs small motorboats, composting area



Water Chestnut Treatments: Target Sources



Recommended 5-Year Herbicide Program

Year	DEM Permit	Chestnut w/ Clearcast
1	\$350	\$33,000 (2 Treatments)
2	\$350	\$29,700 (2 Treatments)
3	\$350	\$26,400 (2 Treatments)
4	\$350	\$24,000 (2 Treatments)
5	\$350	\$24,000 (2 Treatments)



Total to treat 40 acres water chestnut in Valley Falls Pond (over 5 years): \$93,900

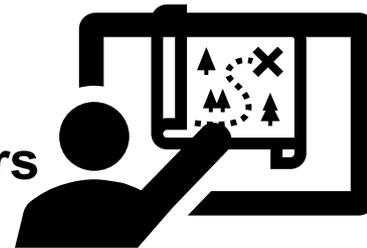
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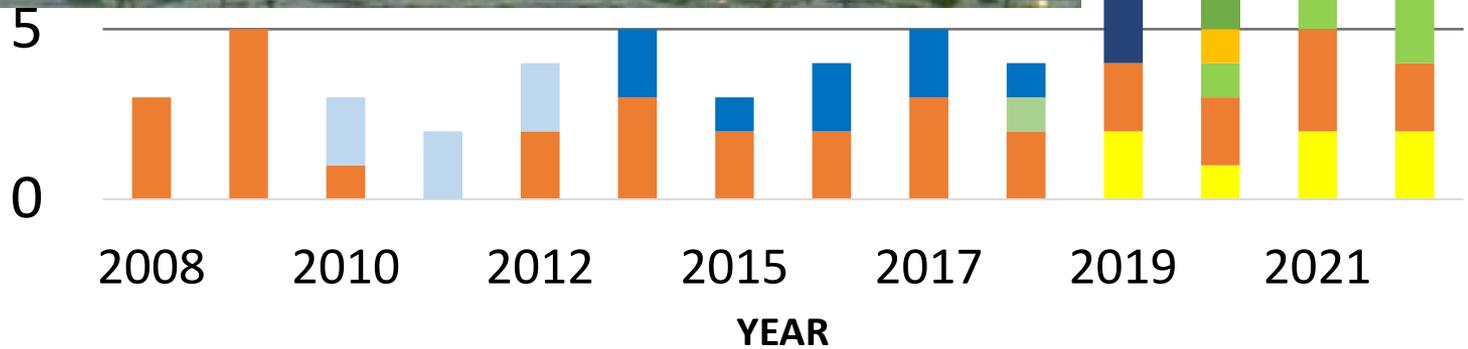
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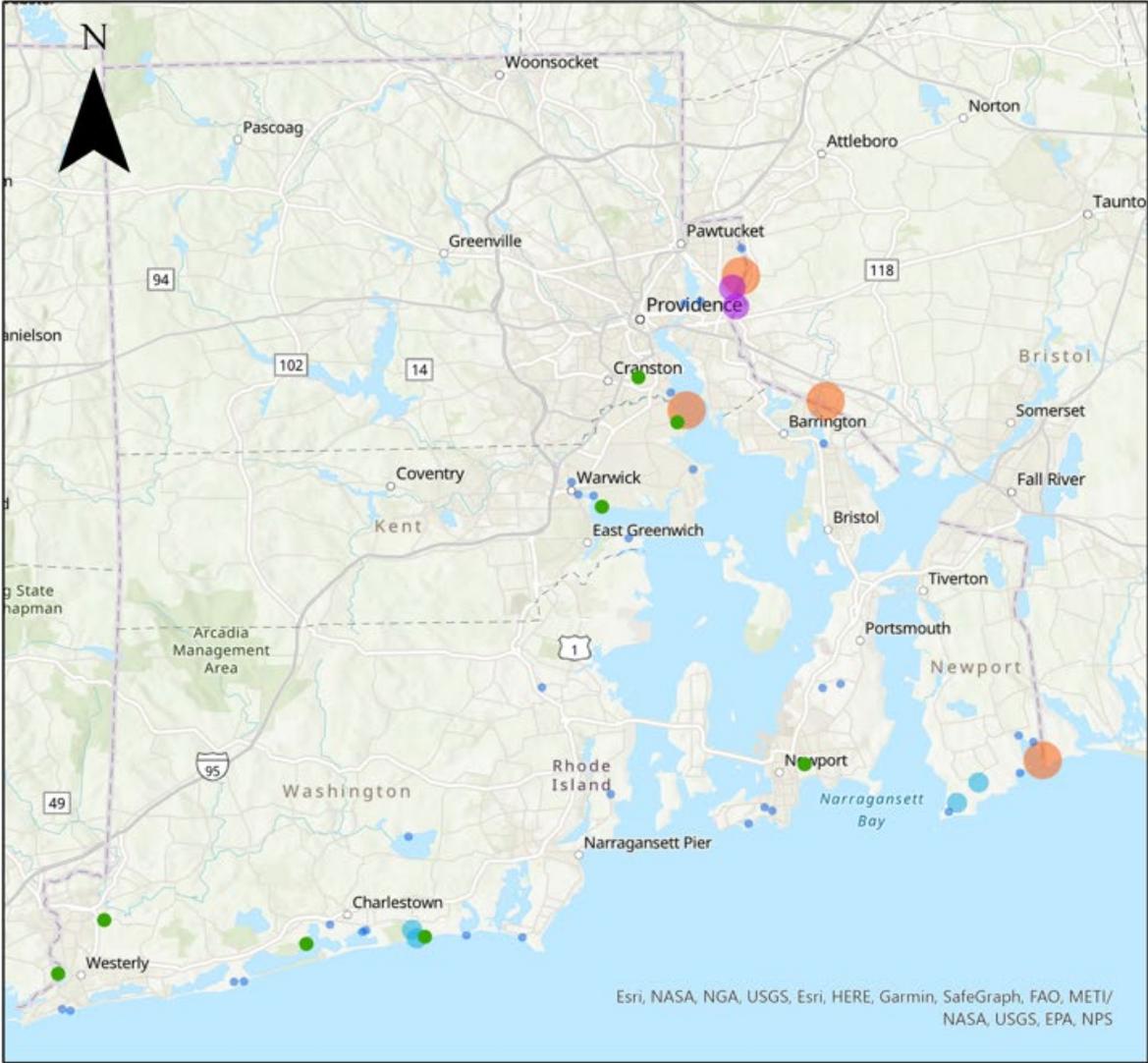
Exponential Rise in Sites = Exponential Rise in Pulling = Rise in Swan Encounters



Number of Days RIDEM Pulled Water Chestnut



Exponential Rise in Sites = Exponential Rise in Pulling = Rise in Swan Encounters



2020 Mute Swan Molt Flight Count

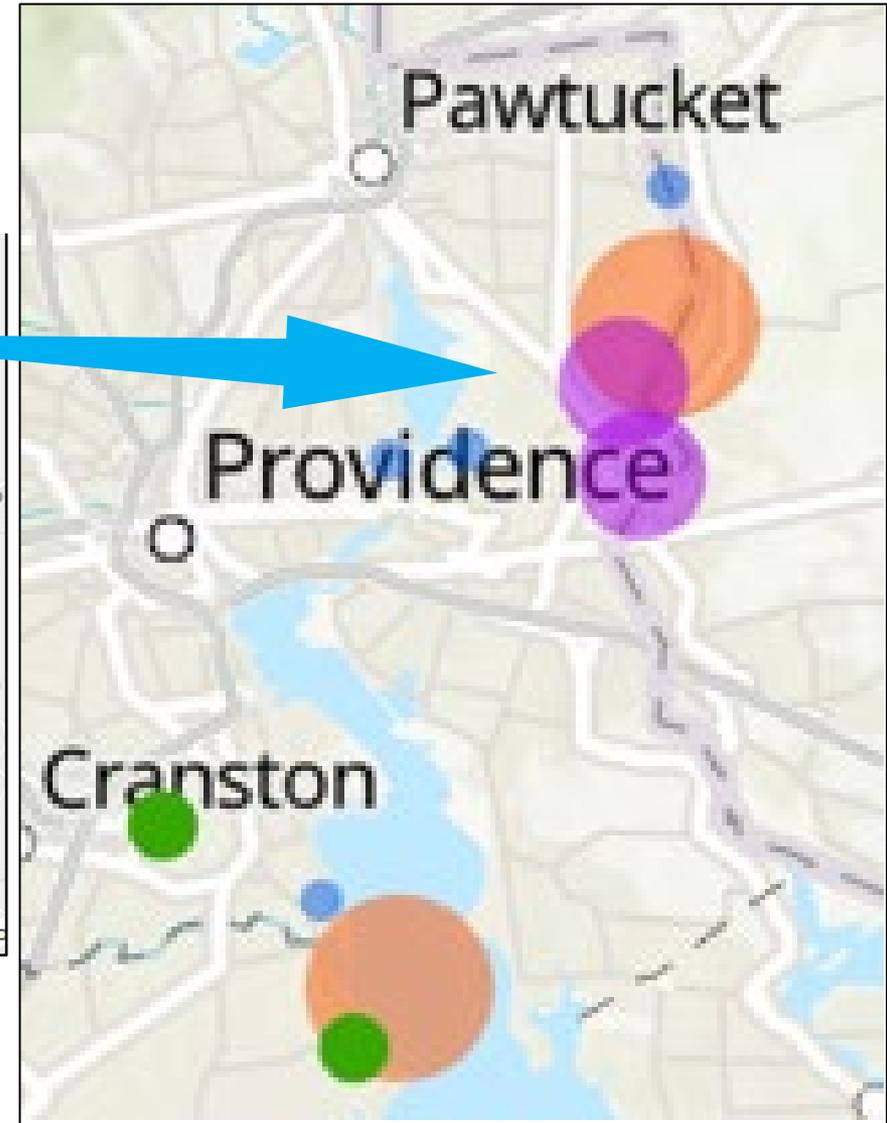
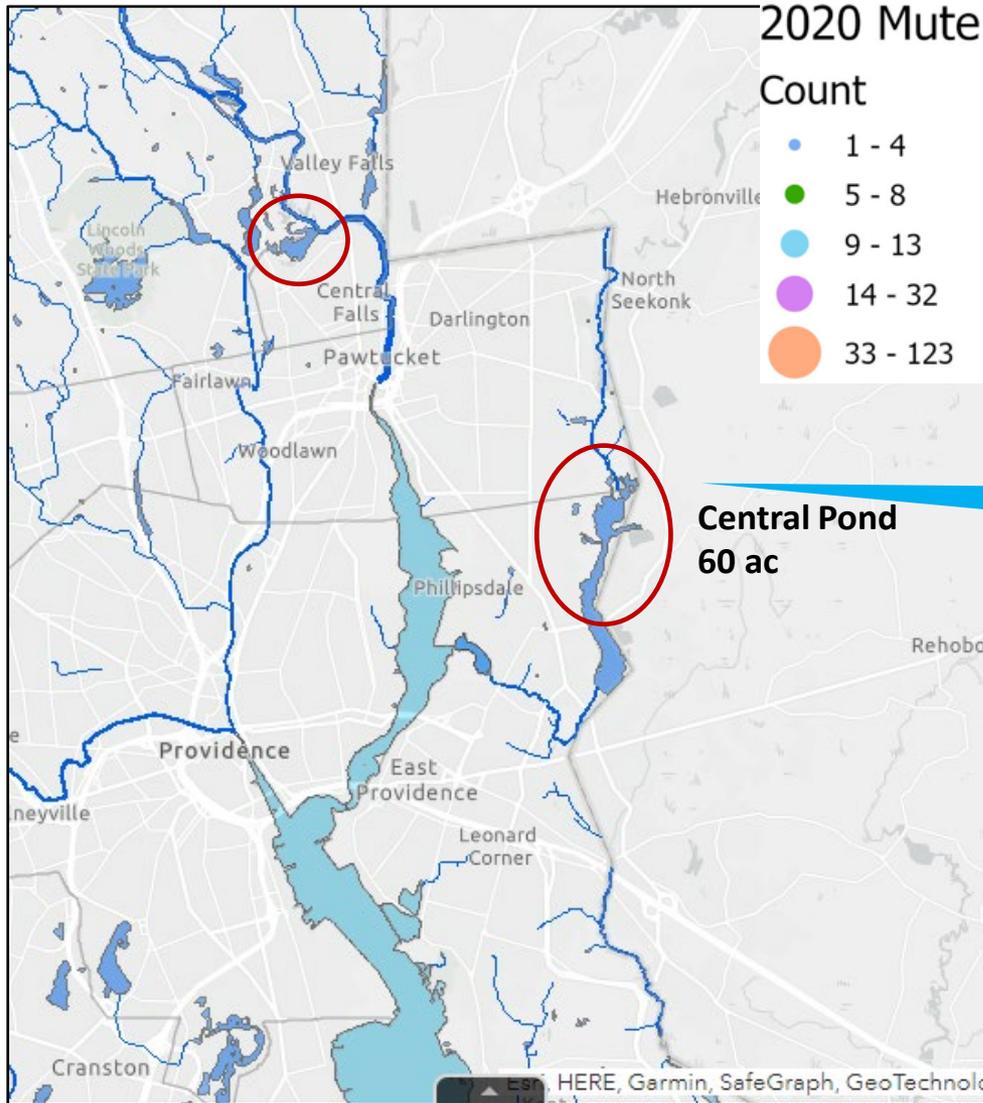
- 1 - 4
- 5 - 8
- 9 - 13
- 14 - 32
- 33 - 123



0 5 10 20 Miles

Esri, NASA, NGA, USGS, Esri, HERE, Garmin, SafeGraph, FAO, METI/
NASA, USGS, EPA, NPS

Central Pond: Freshwater Molting Site



Central Pond: Freshwater Molting Site



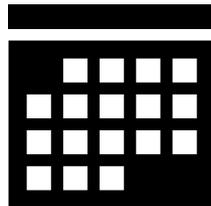
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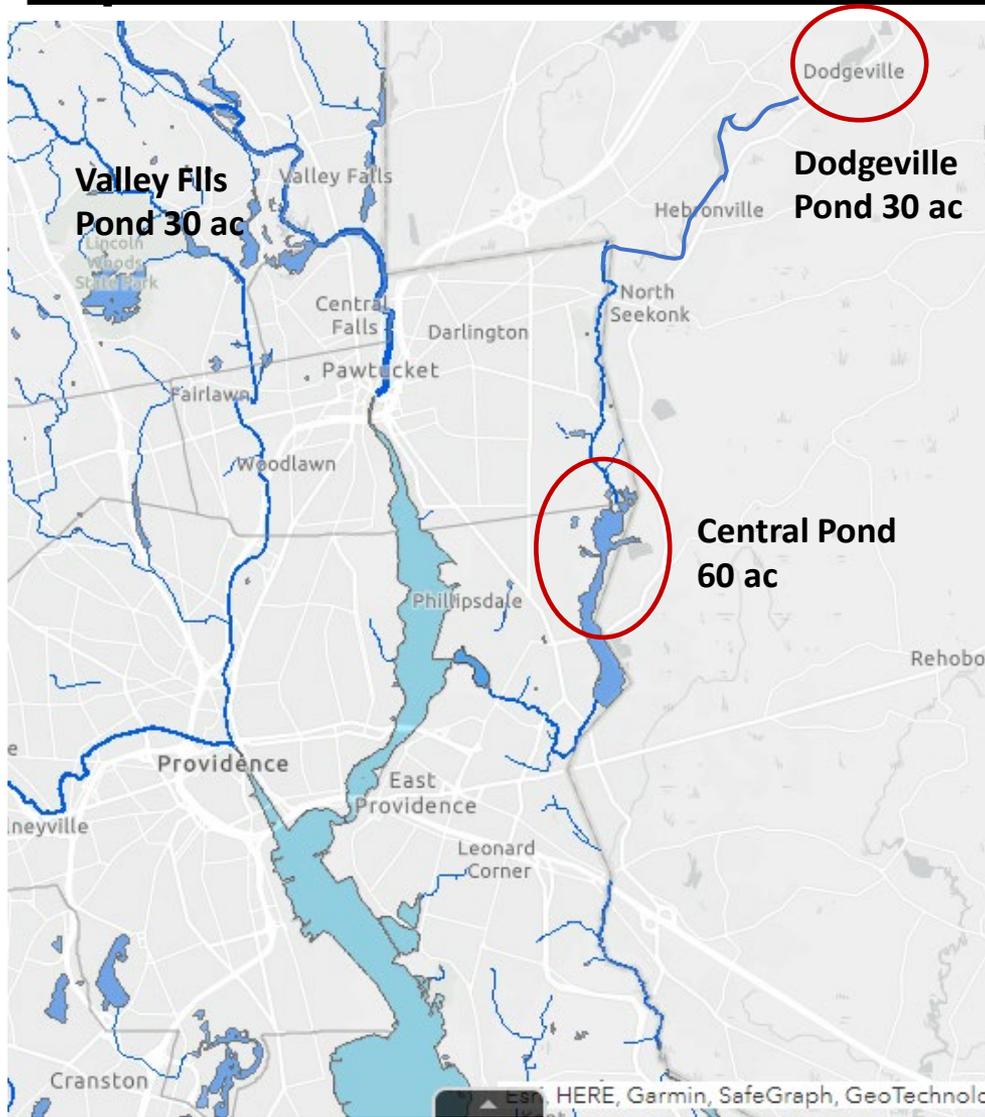
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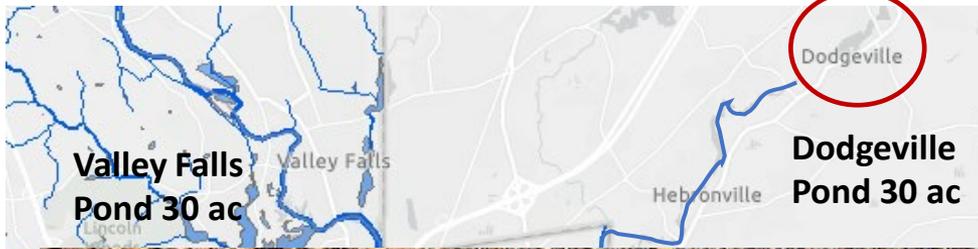
August



Upstream seed bank in Dodgeville Pond

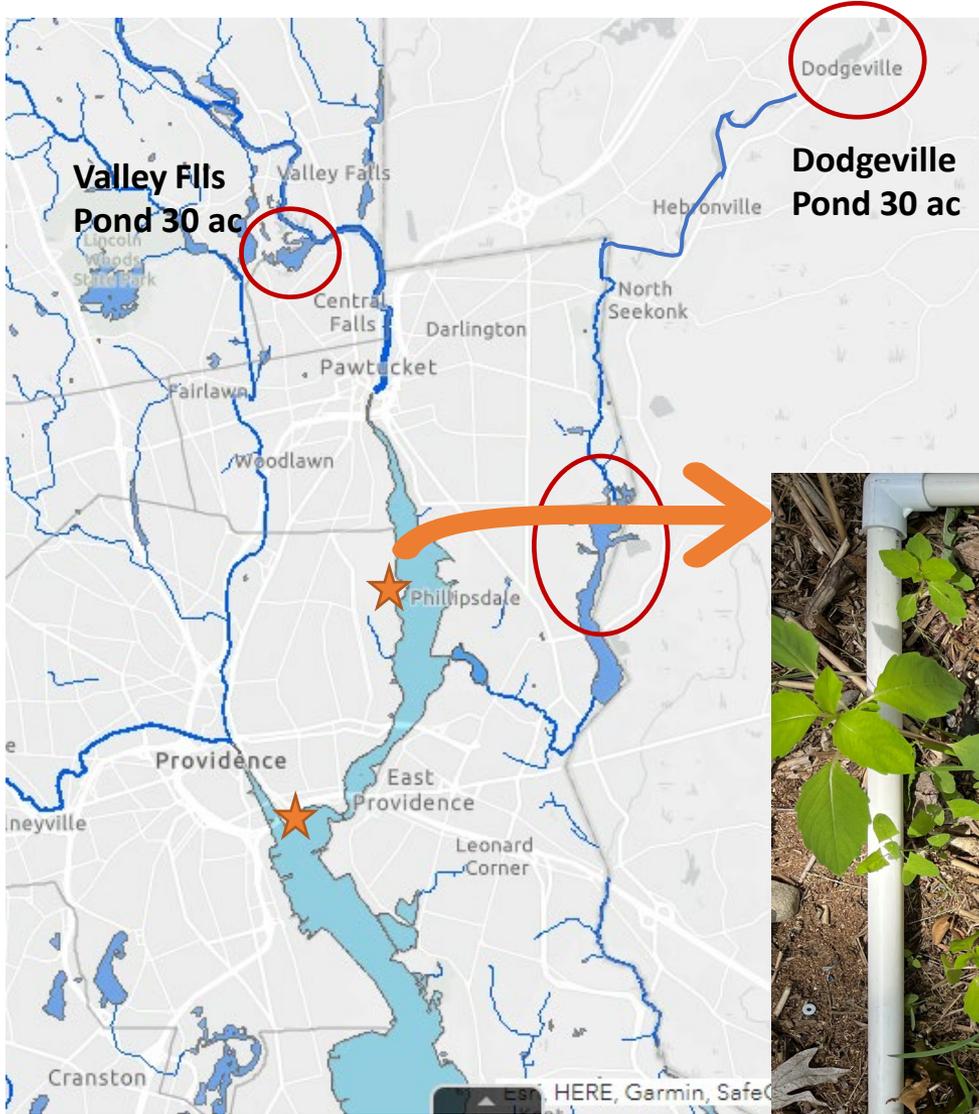


Upstream seed bank in Dodgeville Pond



March 10, 2022

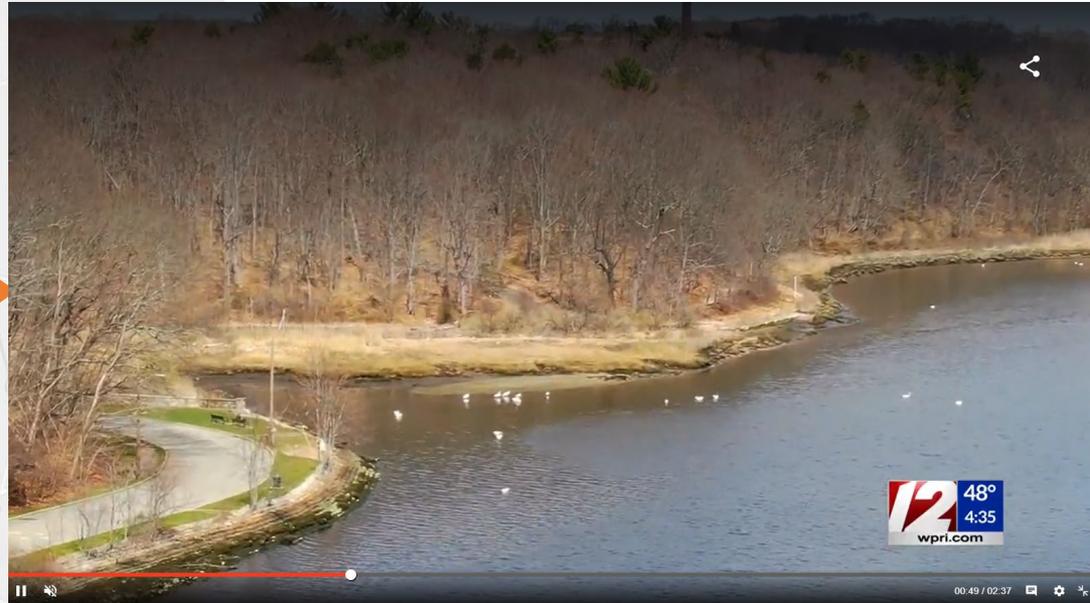
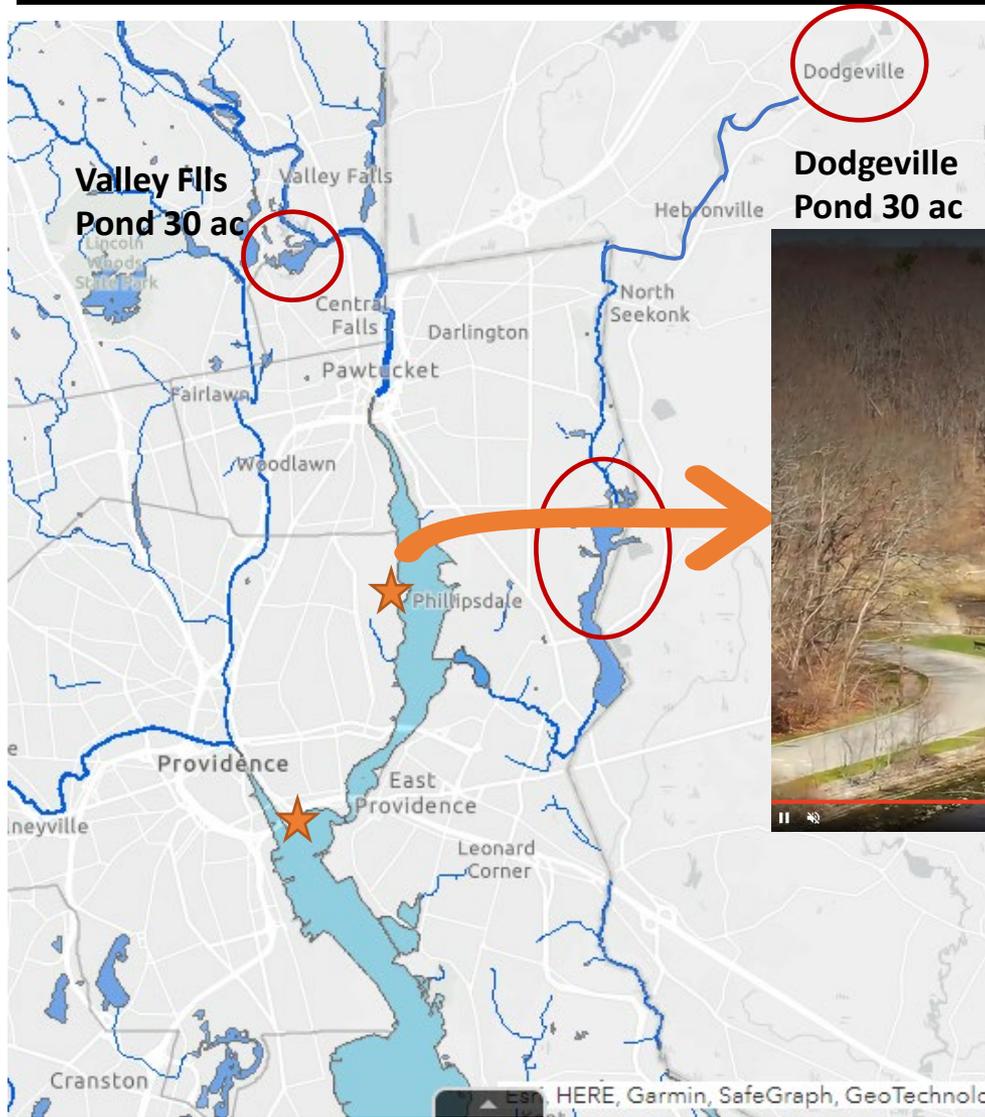
Meanwhile seeds reported @ 2 salty spots



Swan Point Cemetery



Seeds on shore of Swan Point Cemetery



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Should we prioritize locations with known swan pairs for EDRR?

Questions/Comments

