Aquatic Invasive Species Early Detection Surveys

An overview of monitoring activities by the Center for Lakes and Reservoirs and partners

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Oregon Invasive Species Council Meeting, Portland
November 13, 2018

Portland State UNIVERSITY

PSU-CLR Early Detection Activities

- *Dreissinid* mussels
- Aquatic weeds
  - Columbia River: flowering rush *(Butomus umbellatus)*
  - Willamette River invasives including *Ludwigia* spp.
  - Coastal lakes: variable leaf water milfoil *(Myriophyllum heterophyllum)*
- Oregon Lake Watch

Columbia River

Hells Canyon Reservoir
Oxbow Reservoir

Deschutes River

Lake Simtustus
Lake Billy Chinook
Haystack Reservoir

Unity Reservoir

Ochoco Reservoir
Prineville Reservoir

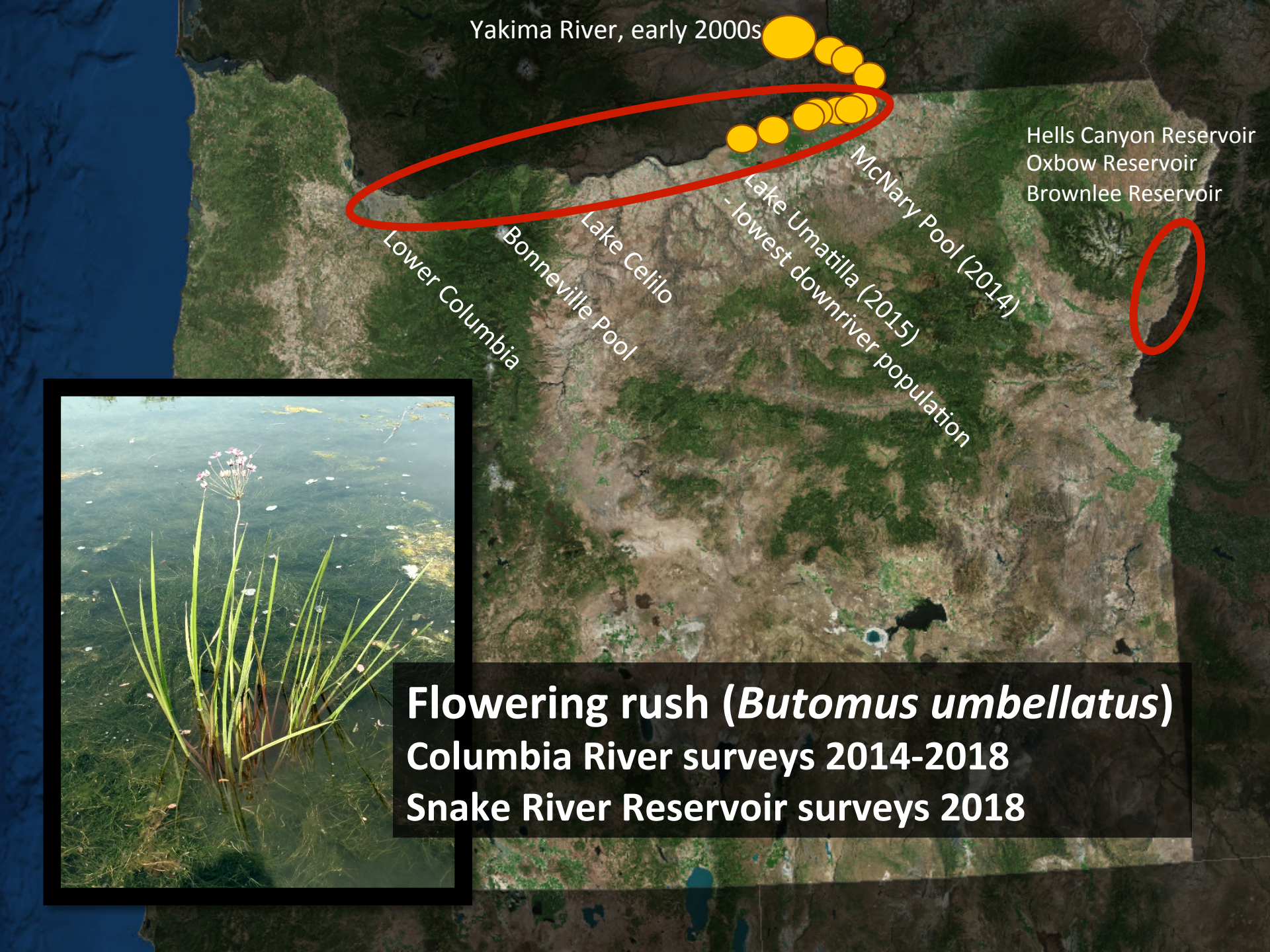
East and Paulina Lakes

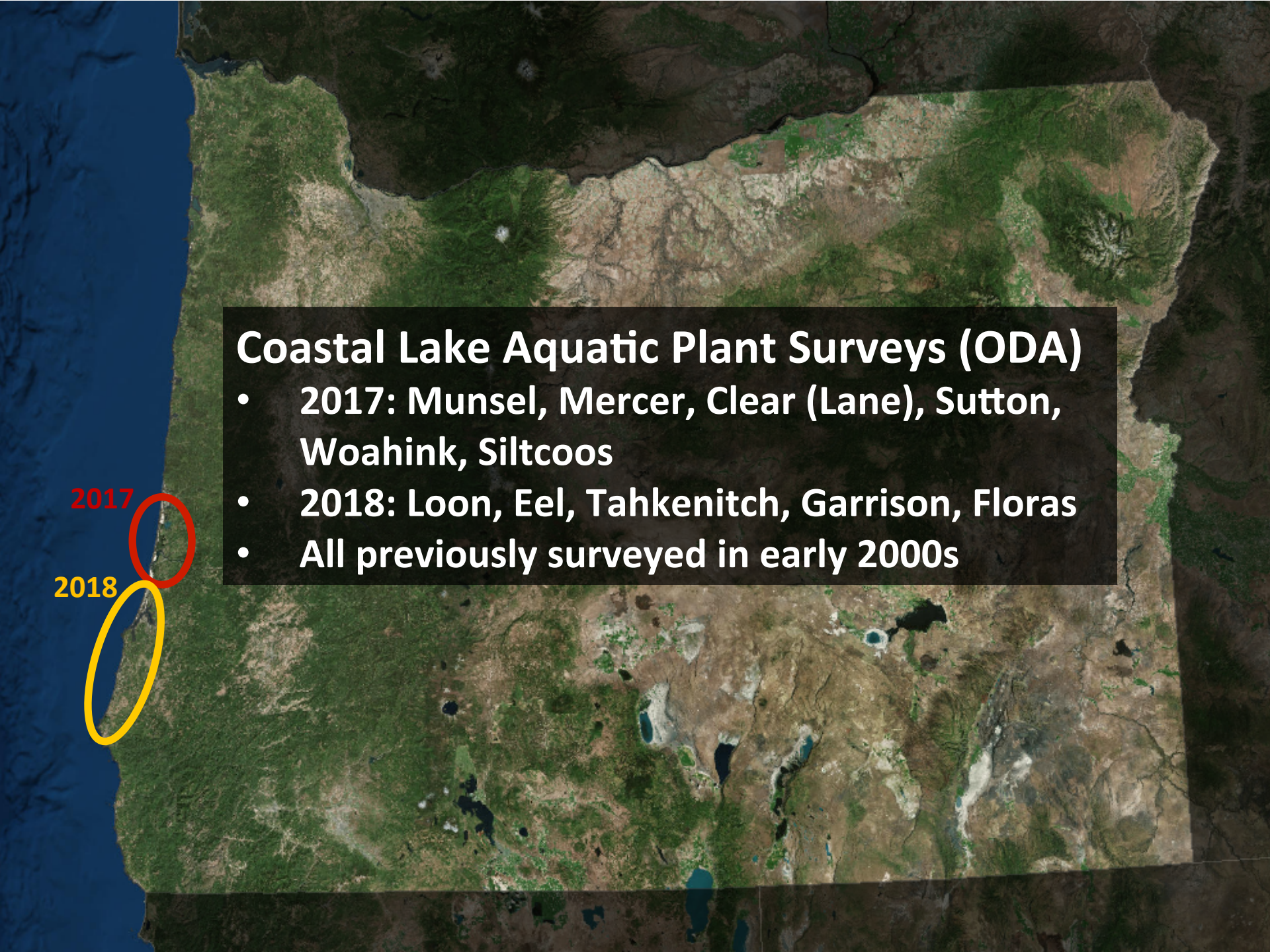
Lake Owyhee

Willamette
Valley Project
Reservoirs

Dreissinid mussel monitoring

- PSU: veligers, adults, eDNA - WRRDA funding
- USACE/PSU: veligers – BPA funding


Yakima River, early 2000s
Hells Canyon Reservoir
Oxbow Reservoir
Brownlee Reservoir
McNary Pool (2014)
Lake Umatilla (2015)
- lowest downriver population
Lake Celilo
Bonneville Pool
Lower Columbia
Flowering rush (*Butomus umbellatus*)
Columbia River surveys 2014-2018
Snake River Reservoir surveys 2018



Coastal Lake Aquatic Plant Surveys (ODA)

- 2017: Munsel, Mercer, Clear (Lane), Sutton, Woahink, Siltcoos
- 2018: Loon, Eel, Tahkenitch, Garrison, Floras
- All previously surveyed in early 2000s

Florence

Woahink Lake
Since early 2000s
- Spread of parrotsfeather (*Myriophyllum aquaticum*)
- Spread of Carolina fanwort (*Cabomba caroliniana*)

Siltcoos Lake
Variable leaf watermilfoil (*M. heterophyllum)* found in early 2000's

Water rights

M. aquaticum, photo by Dennis Wong

Tahkenitch Lake
M. heterophyllum found in 2018 ☹

Coos Bay

Cabomba caroliniana, Wikipedia commons

Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Google ea

Myriophyllum heterophyllum (variable leaf watermilfoil)

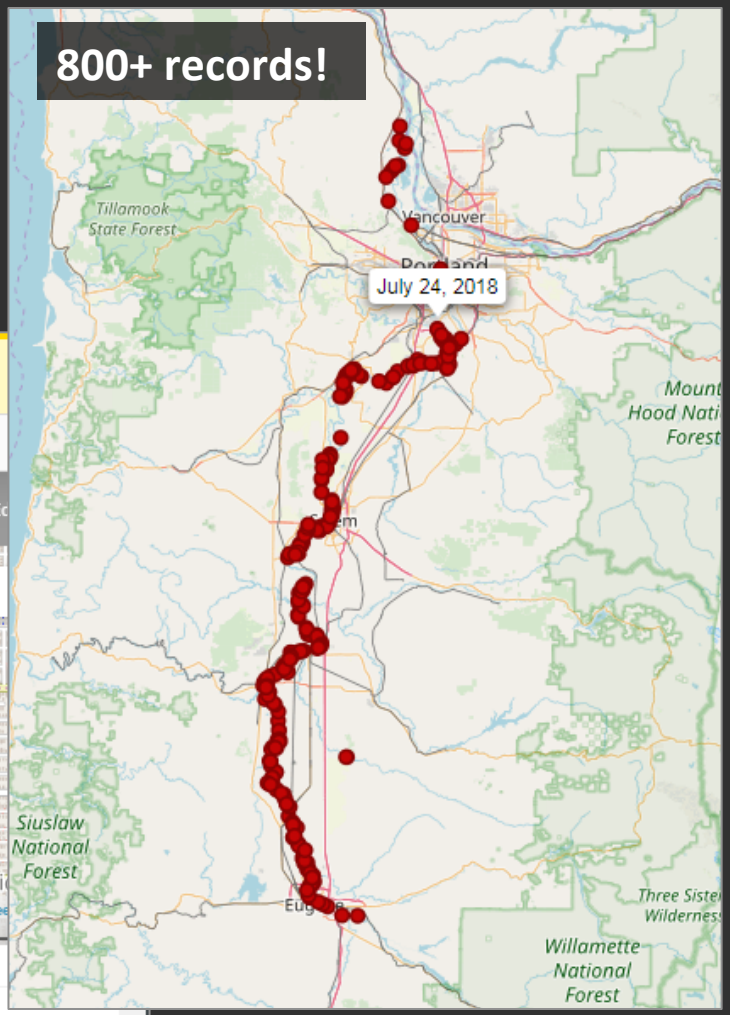
- Native to southeastern US
- Difficult to distinguish from native *M. hippuroides* when not mature
- *M. heterophyllum x hippuriodes hybrid* confirmed in Fern Ridge Reservoir (Thum et al. 2011)
- Need genetic confirmation on Garrsion Lake (looks native) and Floras Lake
- Present in several western Washington lakes and listed as a Class A Noxious Weed
- Not listed as a Noxious Weed in Oregon (yet)
- Spread primarily through vegetative fragmentation

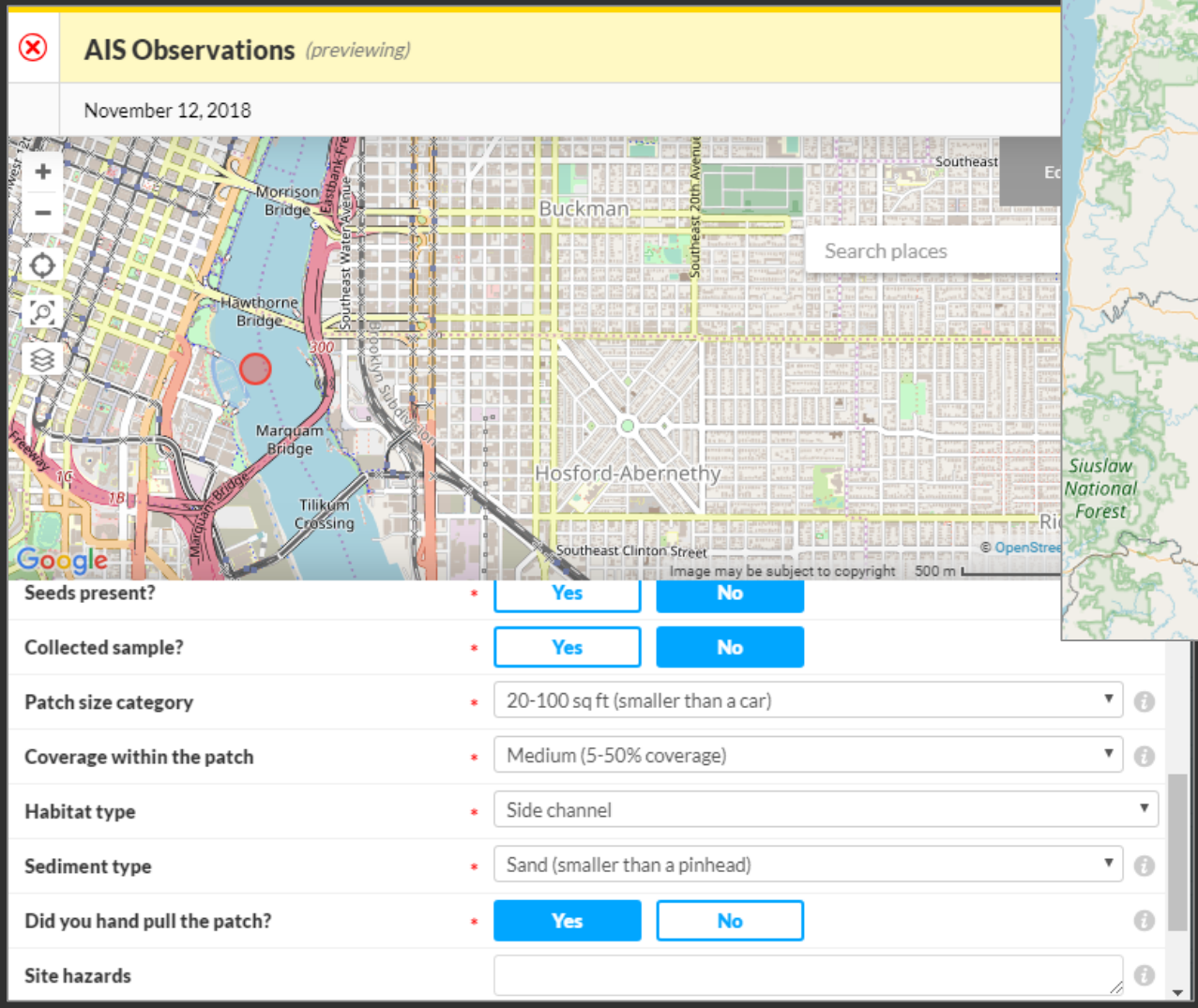
Thum, Ryan A., et al. "Molecular markers reconstruct the invasion history of variable leaf watermilfoil (*Myriophyllum heterophyllum*) and distinguish it from closely related species." Biological Invasions 13.7 (2011): 1687-1709.

Uruguayan primrose willow (*Ludwigia hexapetala*)
Scatter Bar Pond, Linn County, 2017

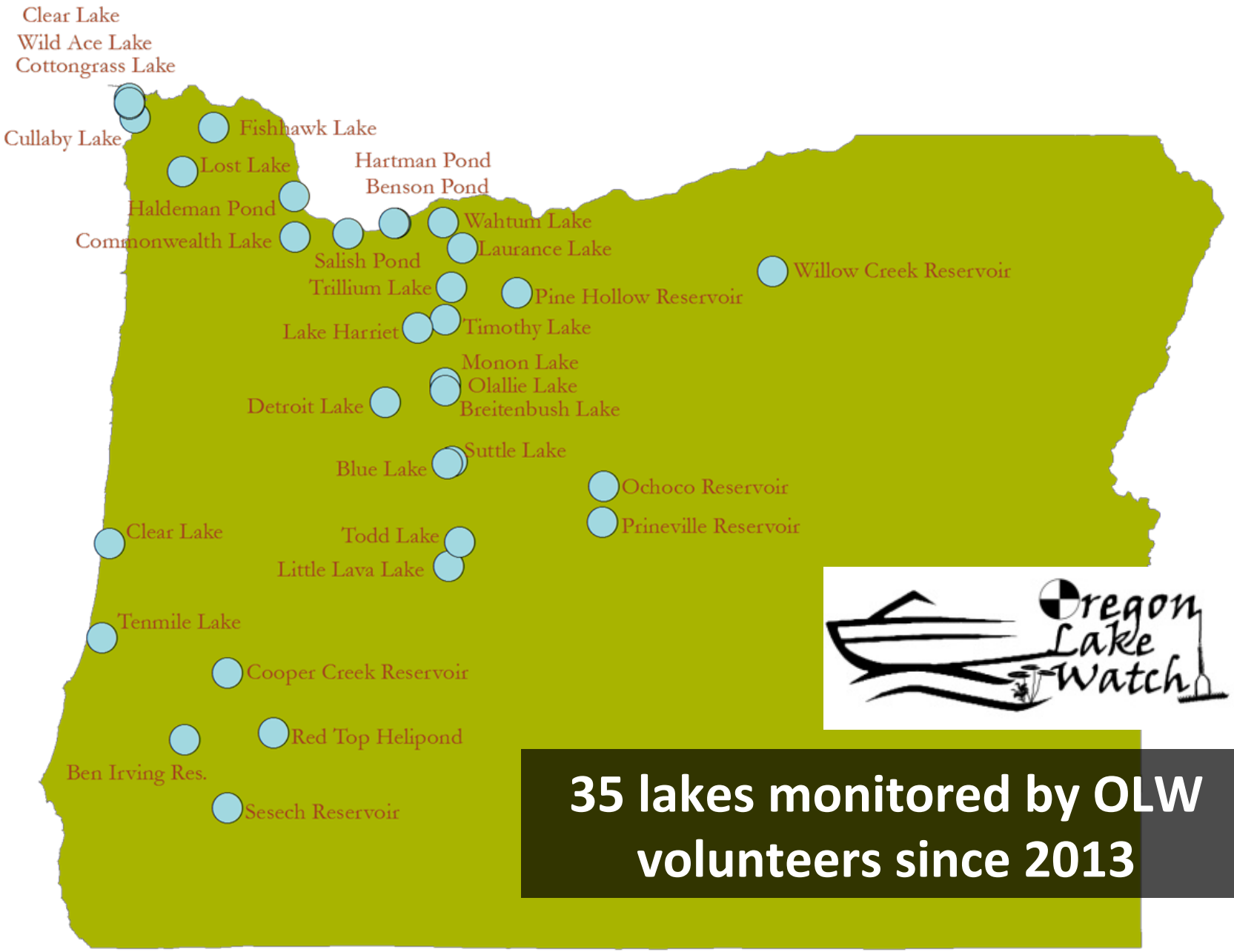
Collaboration with Willamette Riverkeeper

- Created mobile field data collection form
- Fulcrum Community app – free use, good for trained volunteers





fulcrum COMMUNITY



https://www.pdx.edu/oregon-lake-watch/

Red swamp crayfish
(*Procambarus clarkii*)

Ringed crayfish
(*Orconectes neglectus*)

Rusty crayfish
(*Orconectes rusticus*)

Virile crayfish
(*Orconectes virilis*)

USGS Survey Archive, Bugwood.org

Hydrilla
(*Hydrilla verticillata*)

Eurasian watermilfoil
(*Myriophyllum spicatum*)

South American waterweed
(*Egeria densa*)

Curlyleaf pondweed
(*Potamogeton crispus*)

~ 80 volunteer trained to survey and identify high priority aquatic invasive species

flowering rush
(*Butomus umbellatus*)

common reed
(*Phragmites australis ssp. australis*)

Yellowflag iris
(*Iris pseudacorus*)

Quagga mussels
(*Dreissena rostriformis bugensis*)

Mystery Snails
(*Cipangopaludina chinensis, and C. japonica)*

New Zealand mudsnails
(*Potamopyrgus antipodarum*)

Asian clam
(*Corbicula fluminea*)

D. Spalsbury, KS DWPT Bugwood.org

Watch List Species detected by volunteers

Lake	County	Species
Haldeman Pond	Multnomah	*Myriophyllum spicatum*
Cooper Creek Reservoir	Douglas	*Myriophyllum spicatum* *Egeria densa* *Corbicula fluminea* *Procambarus clarkii*
Cullaby Lake	Clatsop	*Egeria densa*
Clear Lake	Clatsop	*Iris pseudacorus*
Salish Pond	Multnomah	*Myriophyllum spicatum* *Potamogeton crispus* *Cipangopaludina chinensis*
Suttle Lake	Jefferson	*Myriophyllum spicatum* *Potamogeton crispus*
Olallie Lake	Marion	*Corbicula fluminea*
Tenmile Lake	Coos	*Egeria densa*

Totals

26
Observations »

11
Species »

9
People »

Most Observations

richm
5 observations

patbriggs
4 observations

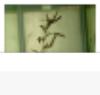
Most Species

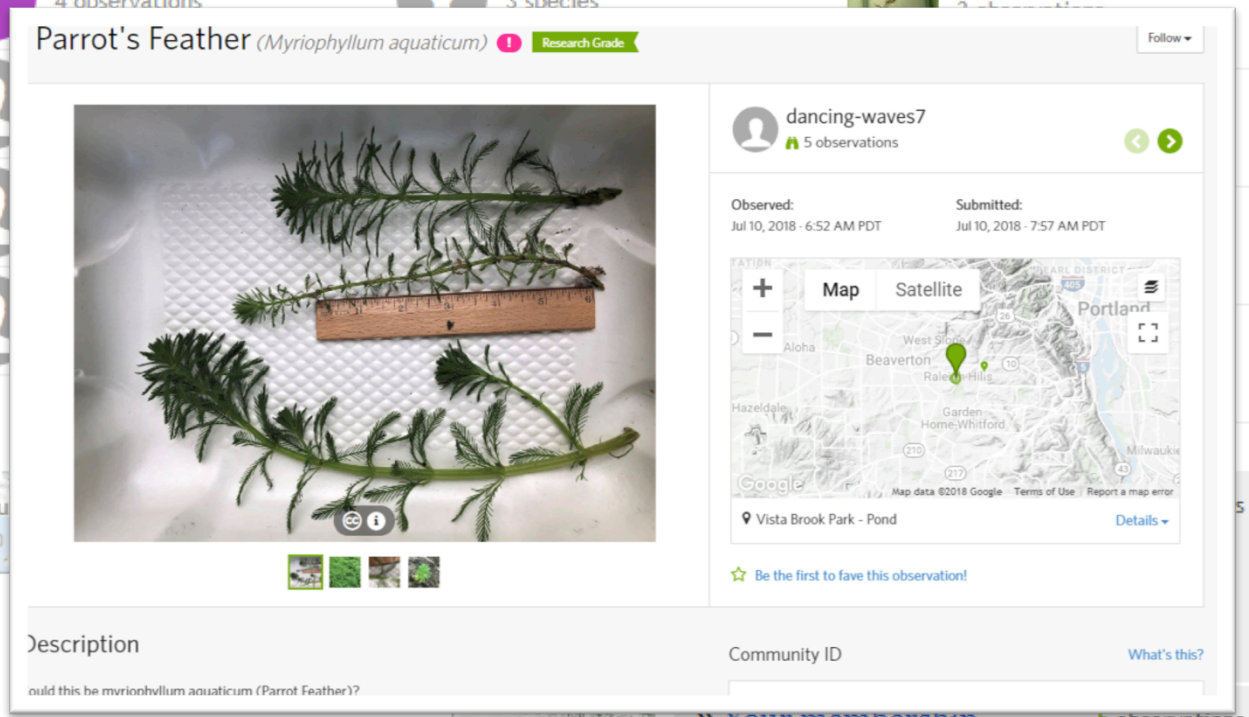
richm
4 species

lakeman
3 species

Most Observed Species

Parrot's Feather
8 observations


Crisp-leaved Pondweed



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