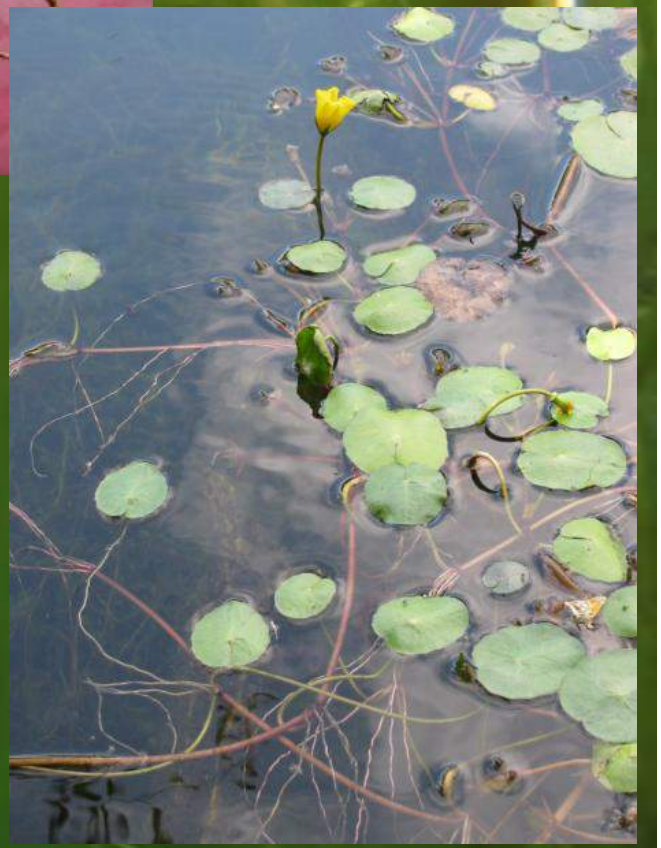
Challenges of Yellow Floating Heart Treatment With Non-Chemical Control

Barbara Mumblo (retired - Rogue River-Siskiyou National Forest)
Bruce Hansen (USFS Pacific Northwest Research Station)

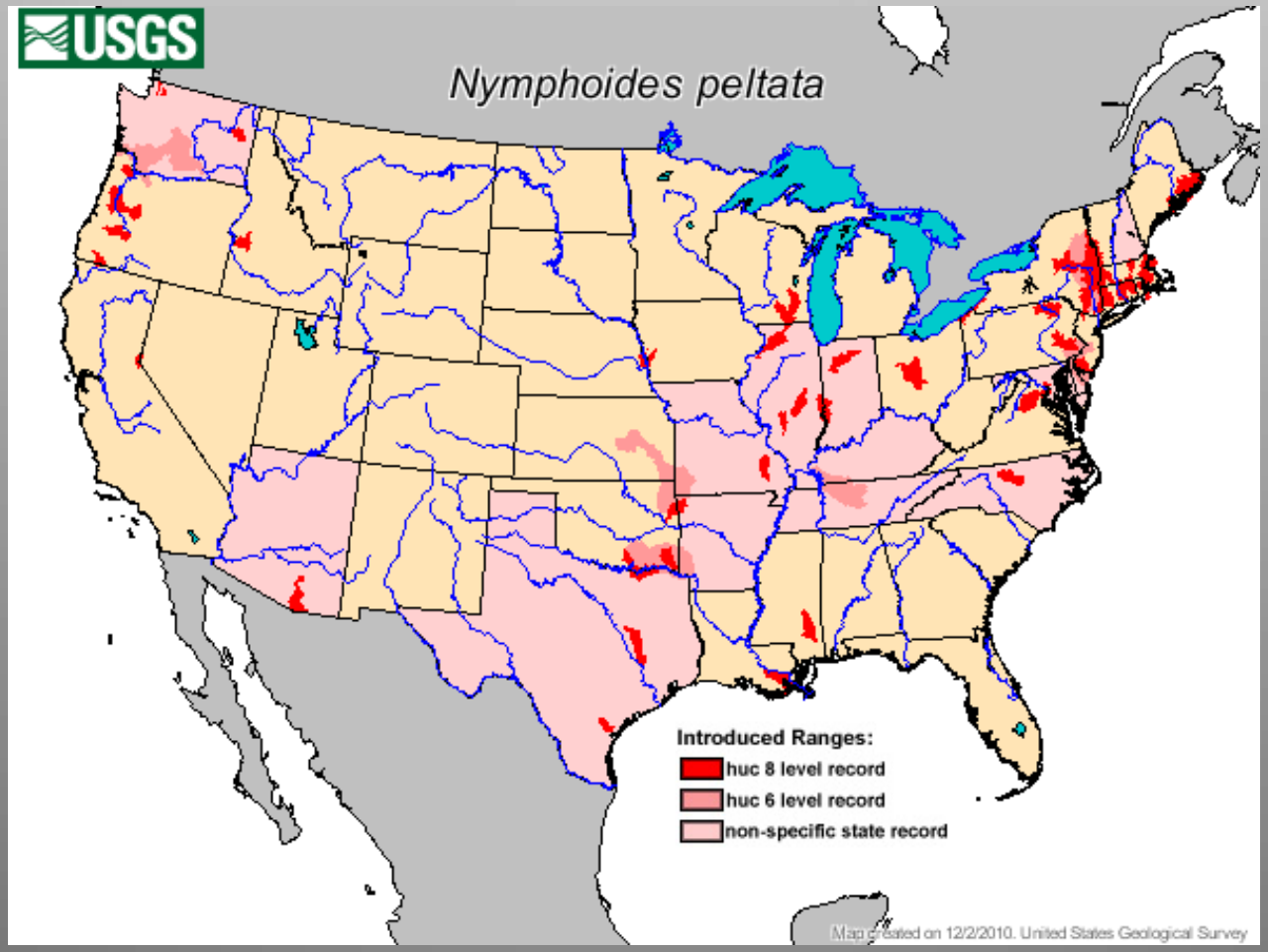
Non-native, invasive:
Yellow floating heart
Nymphoides peltata

Native species:
Yellow pond-lily
Nuphar luteum ssp. *polysepalum*

Oregon Dept. of Agriculture List A - Aquatic Noxious Weed

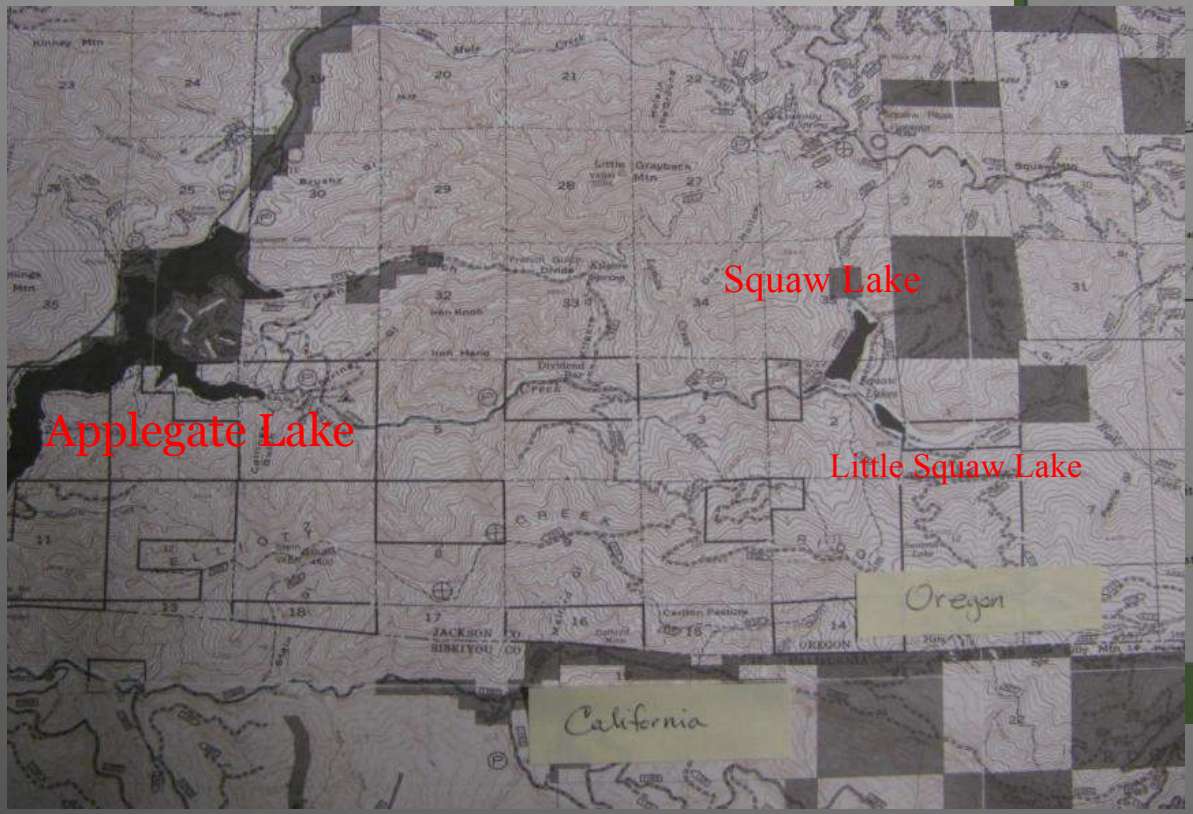


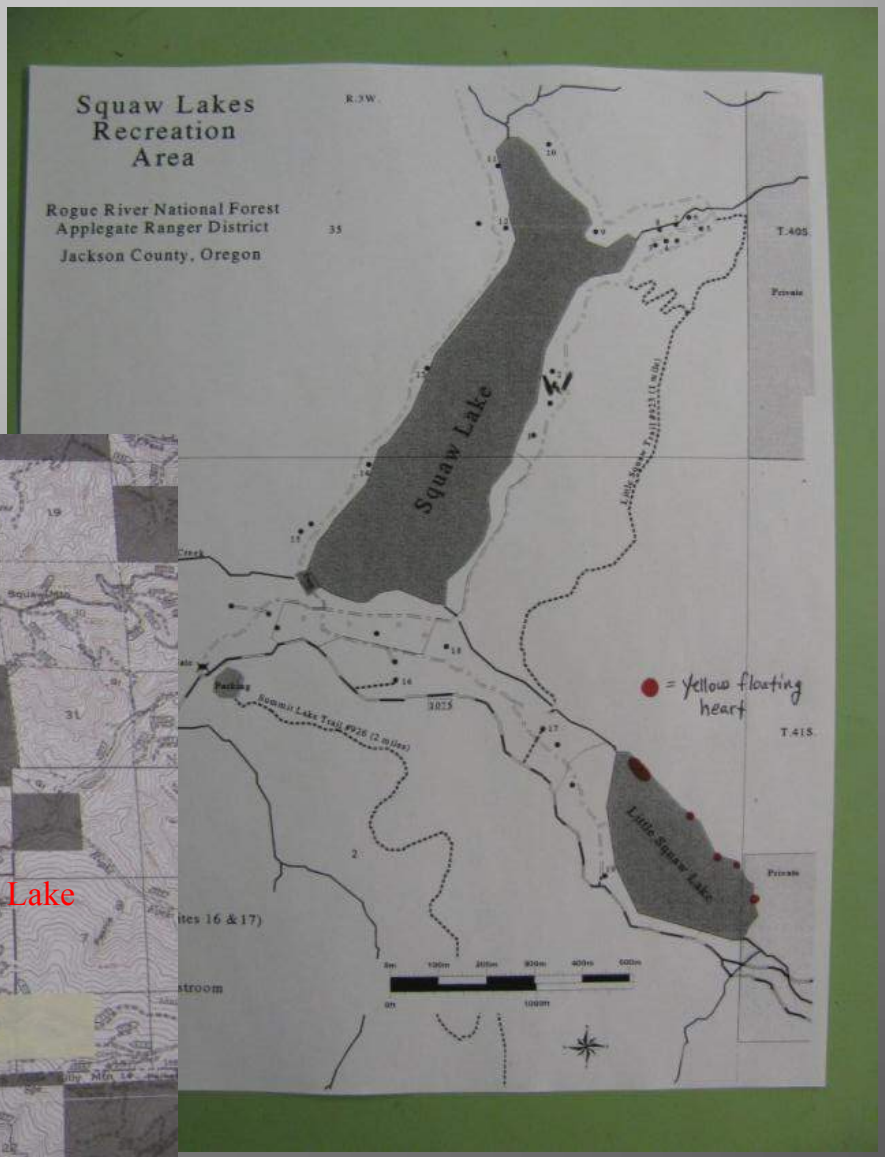
- Reproduces by seeds or plant parts.
- Roots at nodes on stem.
- Grows from lake/pond edge to depths of up to 20’.
- Roots in the bottom of the pond or lake, sending a shoot to the top of the water where leaves and flowers float.
- Capsules and seeds float.
- Germinated seeds float.



- Native to Eastern Asia and the Mediterranean (not native to North America)
- Listed as invasive/noxious in 7 states
- In Oregon – several sites in western OR (only one known site in Jackson County)

In SW Oregon - at Little Squaw Lake near the California border . Mainly within the Rogue River-Siskiyou National Forest, two small sites on privately owned land.





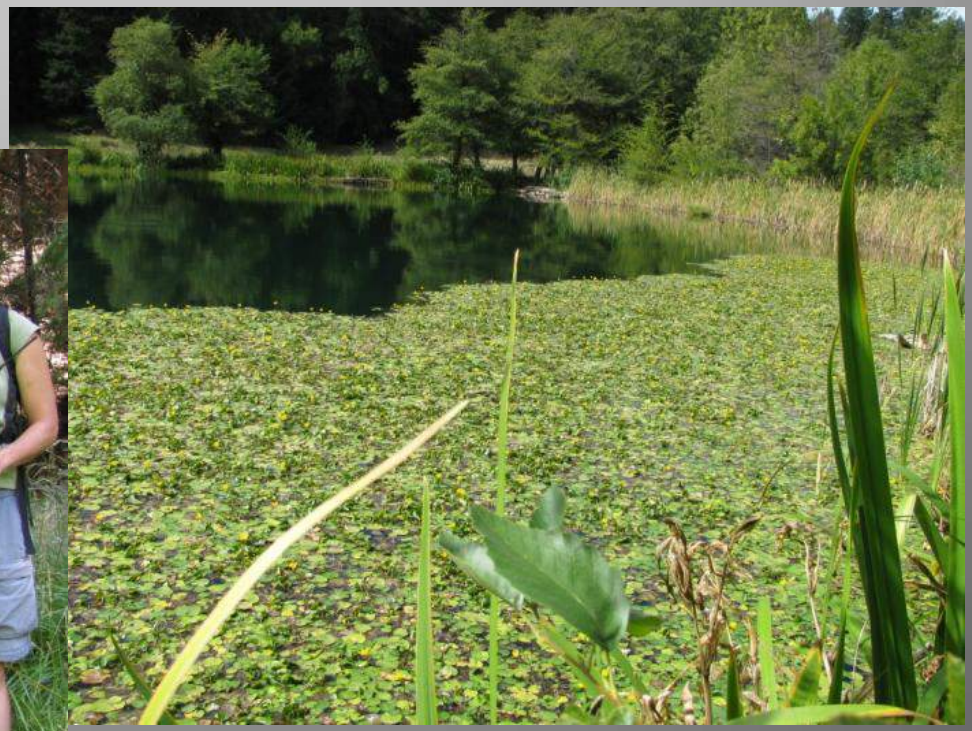
September, 2009 manual eradication attempted with volunteer help

Late in the season - capsules and seeds were floating.

2010 - Who's responsible for treating this site?

- Forest EA does not cover chemical use within 50' of water.
- Regional EIS does not cover aquatic vegetation.
- Oregon state is responsible for water.

Oregon Department of Agriculture and Forest Service personnel met to determine a plan of action.



Decided to try manual treatment in 2010 and explore chemical treatments in the future.

2010 - found four small sites (10'X10') in addition to the original large site (130'X30'). All along the N to NE shore of the lake.

One small site…..before

and after

The large site took more time and creative ideas…..
We made booms to surround the site (not to lose floating material).

First day- removed quite a bit of material, learned a lot about the plant, and didn't lose anyone in the mud.

Experimented working from boats so our feet didn't sink.

Dried plants on site to haul away for burning later.

Lake – crystal clear at first - quickly became murky.

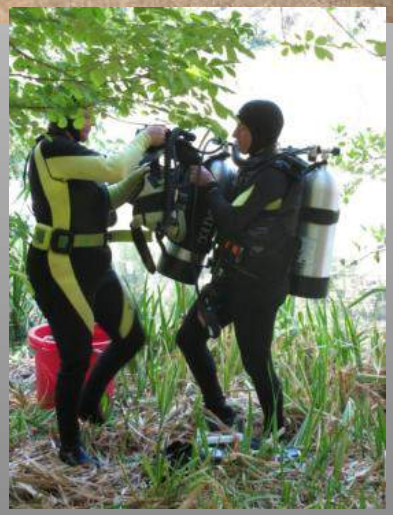
Mark Systma (Portland State) surveyed the site - suggested placing bottom barriers under water to cover the plants.

Plants grew back quickly - important to keep plants from seeding.

2010 -Scuba Diving Initiated

Second day of diving - cut deep rooted plants and created a bottom barrier.

20’ long **stems**.

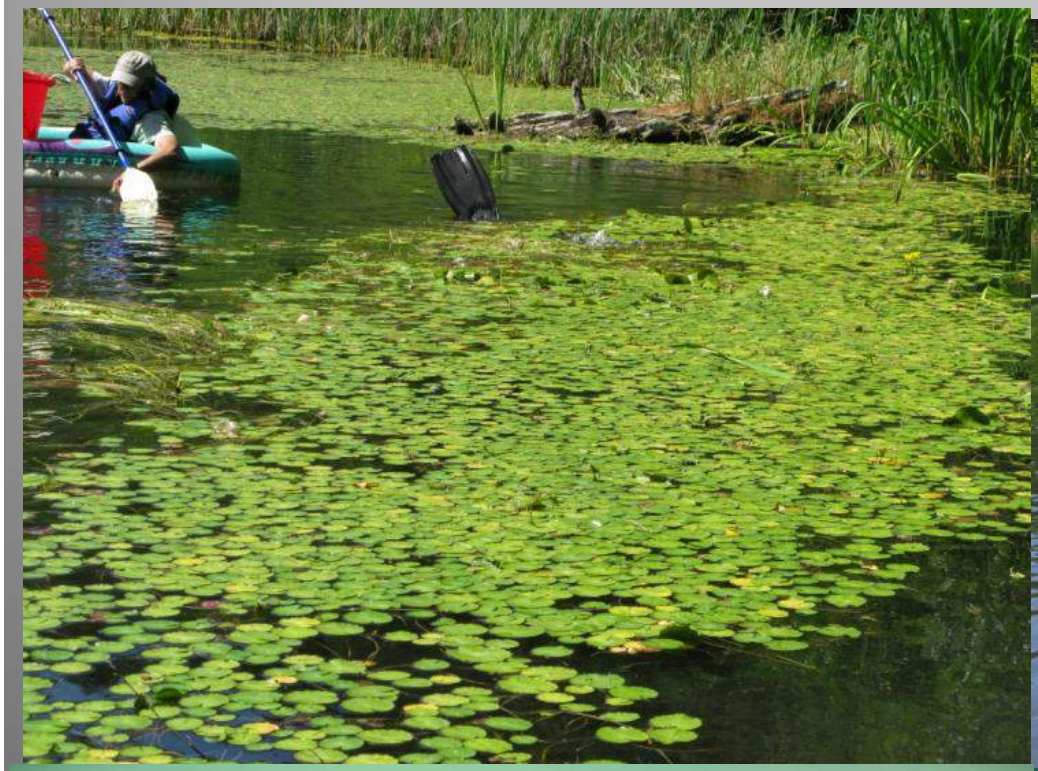


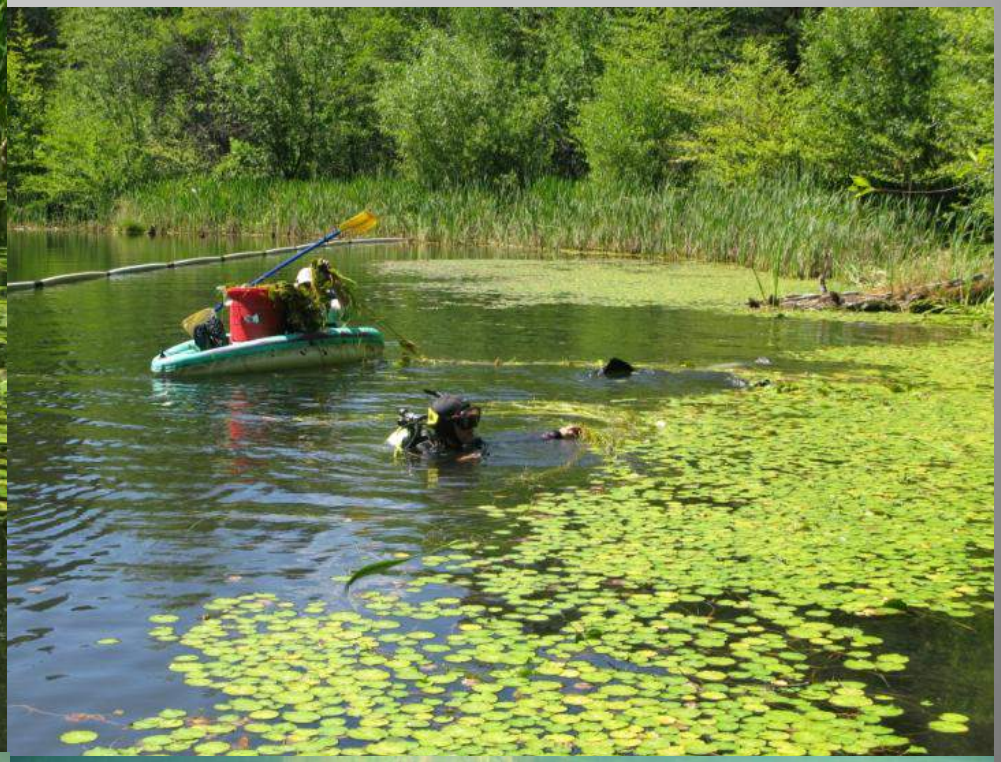
Removed all flowers/capsules to keep it from seeding- placed one experimental bottom barrier to cover plants.

2011 – the fabric barrier appeared successful so we removed more vegetation with scuba diver help

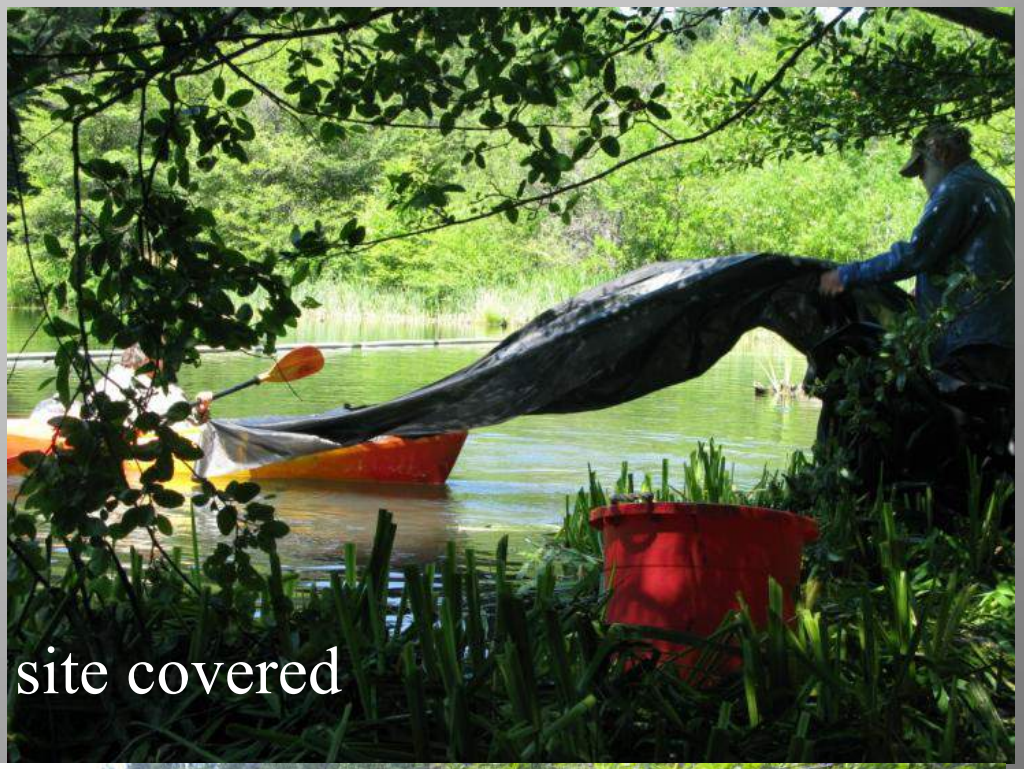
Mel Culp – RRSNF Certified Diver and Bruce Hansen - Region 6 Scuba Diver Certifier

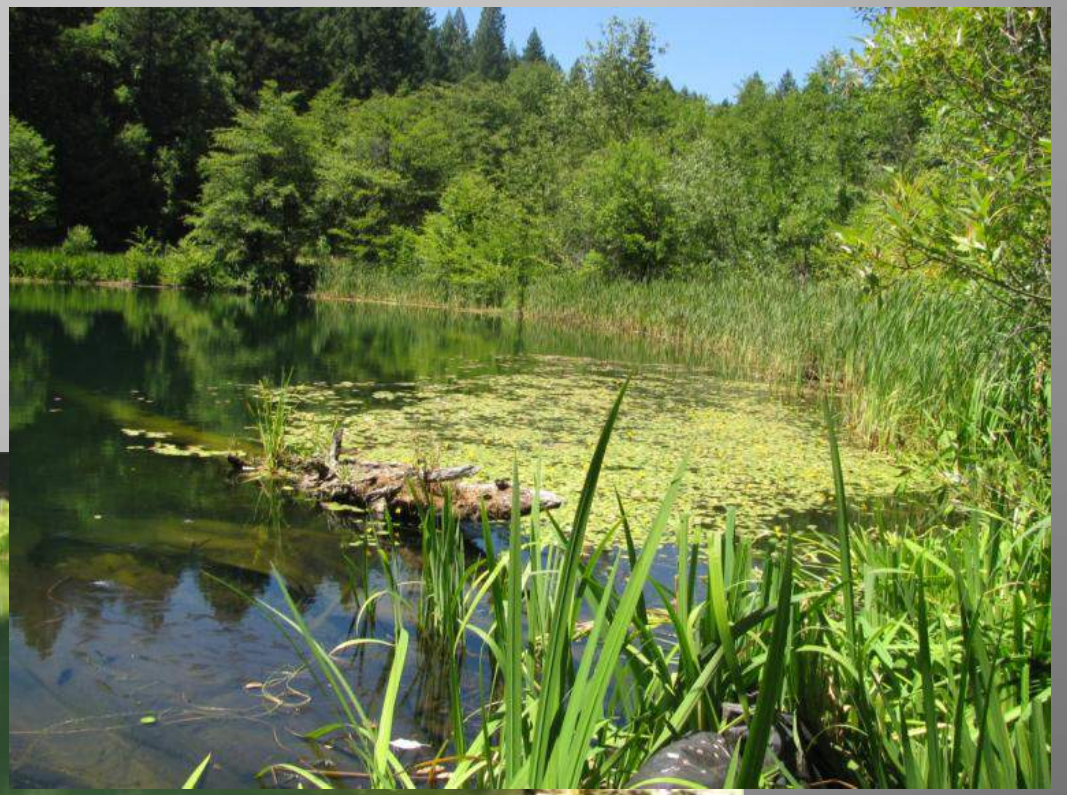
Diving at the site



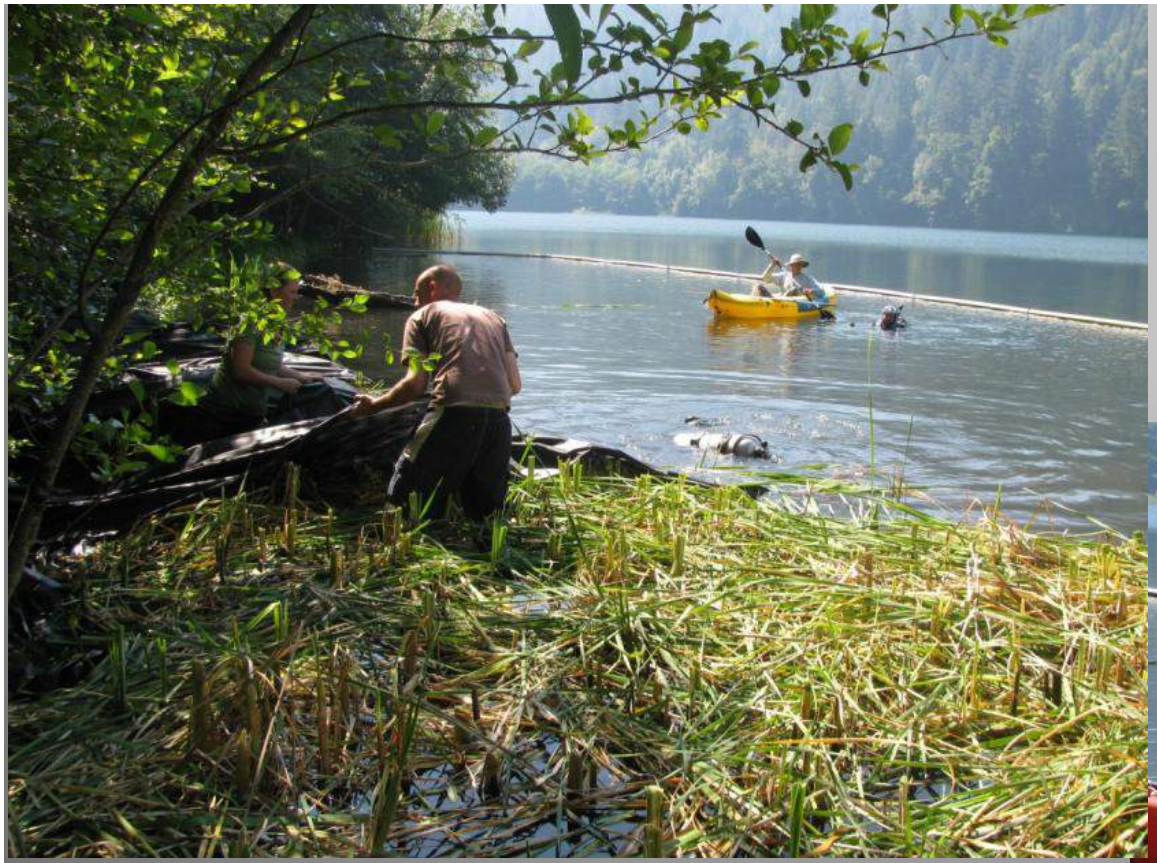


2011 Half the site covered





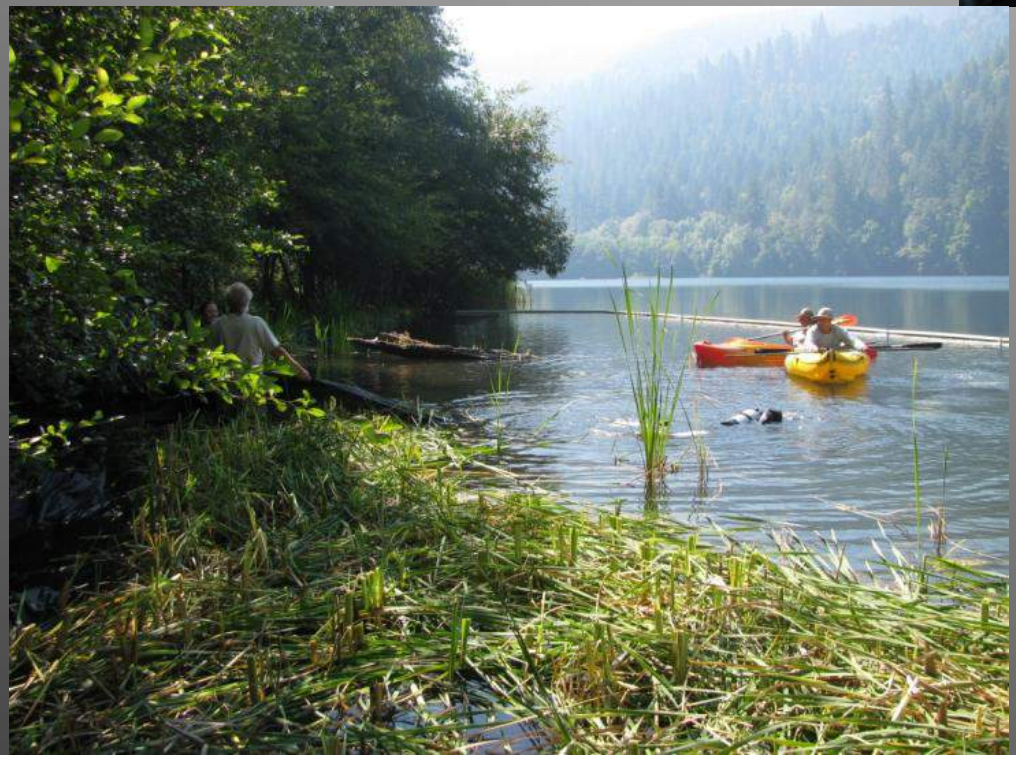
2012 – fabric doing its job – but plants coming up where not covered



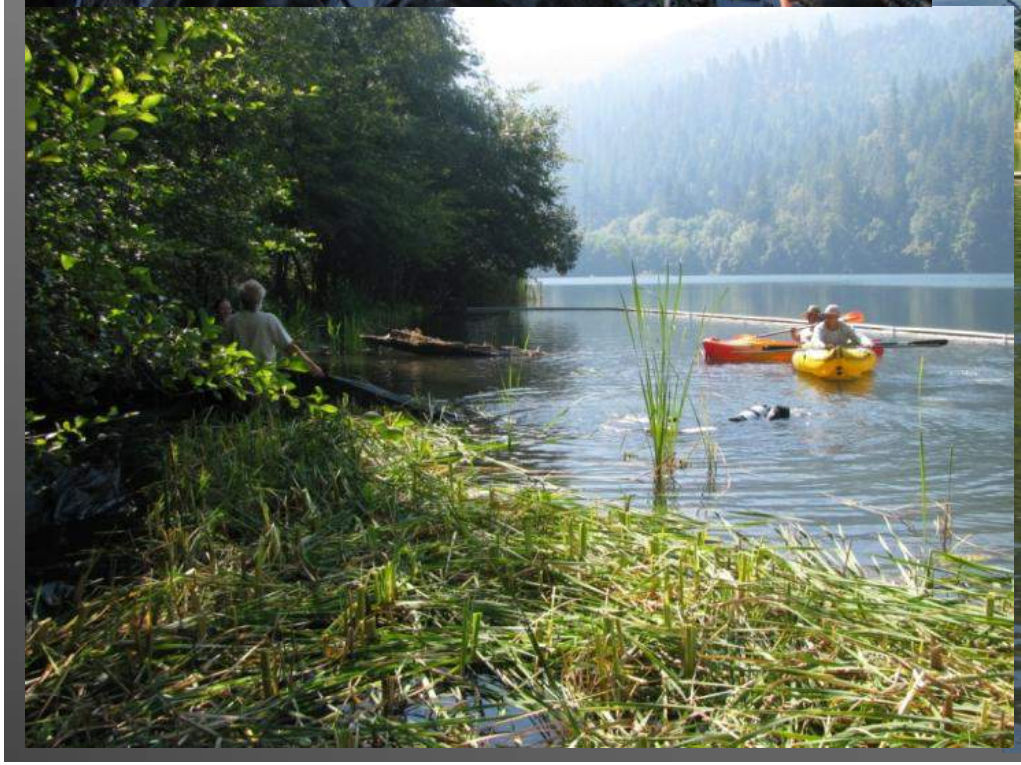
2012- A Finely Tuned Operation
Divers, kayakers, and ground crews

Regional Divemaster Bruce Hansen

Laying out the fabric



Laying rebar on the fabric




8/17/2003
N
Main infestation
Little Squaw Lake
2003
Image USDA Farm Service Agency
Squaw Creek Rd
Google earth
Imagery Date: 6/15/2003 42°01'57.63" N 123°00'56.53" W elev 3083 ft eye alt 5065 ft


8/12/2005
Main infestation
Little Squaw Lake
2005
Image USDA Farm Service Agency
Google earth


7/20/2010
Main infestation
Little Squaw Lake
2010
Google earth
Imagery Date: 7/20/2010 42°01'54.69" N 123°00'51.42" W elev 3083 ft eye alt 4293 ft


Main infestation – can see the boom
Squaw Creek Rd
Little Squaw Lake
August 2012
© 2012 Google
Google earth
Imagery Date: 8/13/2012 42°01'54.69" N 123°00'51.42" W elev 3083 ft eye alt 4293 ft

In 2013 – we finished covering all the plants at the large site (main infestation) with the assistance of scuba divers.

In 2014 and 2015 – A couple of us went out and pulled/dug the few plants located at all sites.

In 2016 – About 10 plants were located at one of the small infestations – no plants were found at the large infestation or other small sites.

In 2017 – No plants were located at any of the sites.

2009 - Before treatment

2017 - After treatment

Thanks to the crews, divers, volunteers and FS for eradication help and support.











Special thanks to Rochelle Desser, Mel Culp, and Bruce Hansen for power point assistance, photos and all the hard work.

In Memory of
Ken French -
SW Oregon Weed Warrior Extraordinaire and
Gary "Bro" Mumblo –
Barb's husband, dedicated helper