OSU Pest Management

Beavers™
Floating Yellow Heart & Hoary Alyssum

New Invasive Species to Central Oregon

Presented by
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Deschutes County Vegetation Management
A new invasive to Central Oregon and it’s potential impact.
Nymphoides peltata

- Yellow floating heart is a perennial aquatic plant native to Asia and Europe. Introduced to North America in the late 19th Century, it has been used as an ornamental plant in outdoor gardens. Since its introduction, accidental and intentional releases and flooding have aided in its dispersal into other waterways.

- Yellow floating heart is most commonly found in slow moving waters such as rivers, lakes or ponds. Its ability to reproduce by broken stems and seeds and its availability to be purchased online make it an easily dispersed and invasive species.

Range

- Yellow floating heart ranges throughout several states in the United States, as well as provinces in Canada.
Distribution of Floating Yellow Heart

Map created on 4/26/2012. United States Geological Survey
This map identifies those states that list this species on their regulated list.
How has this spread throughout the US?

- Probably the main source years ago was through sales in nursery's and landscape supply companies.
- You can now purchase Yellow Floating Heart off the Internet.
How to Identify Floating Yellow Heart

- Aquatic, bottom rooted perennial plant.
- Stems are long and branched, reaching up to 10 feet or more, located below the surface of the water, but can grow in moist soils out of water.
- Leaves are circular or heart shaped and about 3-10 cm.
- Flowers consist of five bright yellow petals.
- Seed capsules contain numerous flat, oval seeds.
Introduced to the US as an ornamental water plant from the Mediterranean area.

- Reported to me by Lorie Gordon in August of 2013. I visited site and confirmed it was FYH then called Oregon Department of Agriculture to see about treatment options.

- Treatment was completed late fall 2013 and a second treatment completed summer of 2014 by Deschutes County and ODA.
Look for the following characteristics:

- Bright, yellow flowers about an inch or so in diameter.
- Two to five flowers from each flower stalk.
- Five petals per flower with a distinctive fringe along the edges of the petals.
- Petals arranged like the spokes of a wheel.
- Heart-shaped floating leaves with slightly wavy margins and purplish undersides.
Impacts of Yellow Floating Heart

Yellow floating heart creates dense mats of floating vegetation that impact the environment around it by:

• Shading out native aquatic plants.
• Degrading fish and wildlife habitats.
• Affect water quality by decreasing the level of oxygen, creating stagnant waters, ideal for mosquitoes to breed.
• Negatively impacting recreational activities such as boating, fishing and swimming.
• Large impact on irrigation and farm ponds damaging pumps and pond banks.
• Spreads by water foul and stream movement.
Another look-alike plant, Watershield, has small floating leaves with the underside often coated in a gelatinous slime.

Watershield has inconspicuous purple flowers. There are also other ornamental species of Nymphoides that are sometimes sold at aquatic plant nurseries and may be confused with yellow floating heart.
• Also, don't confuse yellow floating heart with Spatterdock (also called yellow pond or cow lily) which has a yellow "ball-shaped" flower and large elephant-ear-shaped leaves.
A. Control is difficult and eradication may be unrealistic. The best control is to prevent the introduction of any non-native aquatic plants from water bodies. Yellow floating heart is very difficult to control through mechanical and chemical means once it has been established. If plants are harvested or cut, all plant pieces should be removed from the water.
Q. How effective are these control options?

Yellow floating heart is a relatively new invasive to the west, so chemical and physical control methods are not well-established. I have listed some possible herbicide control options which most industry professionals and aquatic plant managers agree should work based on the plant's life cycle.
### Treatment Options

#### Chemical Treatment
Aquatic Herbicides

- **Clearcast**: Good
- **Habitat**: Good
- **Navigate**: Excellent
- **Refuge**: Good
- **Restore**: Good
- **Shore-Klear**: Good
- **Sonar RTU**: Good
- **Weedtrine D**: Good

#### Physical Removal Options

- Cutters, Nets and Rakes

*It is expected that Yellow Floating Heart can be cut and removed. It may be difficult to control physically because it can reestablish from seeds and rhizomes.*
Q. When is the best time to treat?

A. Once water temperatures are around sixty degrees or warmer and/or the plant is actively flowering.

Q. Will the plants come back?

A. If roots are not killed, regrowth may become evident within 4 to 5 weeks.
A number of herbicides have been ruled ineffective at controlling yellow floating heart.

These include:

- 2 4-D
- Tirclopyr
- Diquat
- Fluridone
• Biological control agents are not used on "A" listed weeds in Oregon.
• This aquatic weed is being managed for eradication in Oregon.
• Chemical treatment and manual removal are being used at this time.
Questions?
Hoary Alyssum
Hoary alyssum is an upright annual, biennial or short-lived perennial herb growing about 1 to 3.5 feet tall. Plants are covered in stellate hairs causing it to look silvery-gray in color.

Flower petals are white in simple or branched clusters and bloom from the bottom up.
Hoary alyssum is a member of the mustard family (Brassicaceae). It has a slender tap root capable of deep soil penetration.

The basal rosette has oval-lanceolate leaves broadest at the tip and 1.2 to 2 inches long including the long stalk.
Leaf Description: Plants have basal and stem leaves. Basal leaves are ob lanceolate, 0.75 to 2 inches long by 0.2 to 0.4 inches wide, and have smooth margins. Leaves gradually reduce in size moving up the stem with alternate leaf arrangement.
Hoary alyssum adapted to dry conditions on sandy or gravelly soils. It is found in overgrazed pastures, stressed meadows, roadsides and waste areas.
Berteroa incana

Last observation: August 7, 2014 - Map generated: September 30, 2014
These States have Hoary Alyssum on their weed list:
It is problematic in pastures and lawns. Plants are typically 7-30 inches tall and densely branched. Flowers grow in clusters along the length of the stems, and have four small, white petals that are notched, giving petals a rabbit-ear shape. Leaves are grayish-green in color due to tiny star-shaped hairs that cover the surface. The weed produces small pods that contain numerous reddish-brown seeds.
Hoary alyssum is believed to have been transported to North America as a contaminant of clover and alfalfa seed.

Because this plant spreads by seeds only, it is extremely important to prevent seed production and dispersal to non-infested areas.
General Control Strategy

- Well-maintained pastures provide suppression of hoary alyssum through competition.

**Mowing**: Mowing alone is not a recommended method of control for this species due to the damage to competitive, desirable vegetation.
Fruit is a round, flat pod ¼ inch long with the stub of a style at the top. They run along the length of the elongated branching stems.

Stems are generally unbranched near base and branched above.
• It is noted to invade pastures, out-compete beneficial plants and quickly spread through stressed areas. It has been noted for animal poisoning and potentially cause death. Livestock are known to become intoxicated after eating green or dried plants.

• If there is lots of good grass, most horses will not eat weeds, however, when the pastures get sparse, some horses will eat anything green. Strangely, some horses can consume quite a bit of Hoary Alyssum and not show signs, while others may show signs of toxicity with even small amounts. The exact toxic substance has not been identified.
It is very important that you try to eliminate this weed from your farm. You can pick the individual plants and dispose of them AWAY from your horses. Interestingly, the dead weed becomes more appetizing to horses, so after you pick it or spray it you must eliminate the dead or dying plant from the horse's environment.
• Hoary alyssum is not a known poisonous plant as we typically think of plants such as hemlock, bracken fern or nightshade.

• The signs of Hoary Alyssum poisoning may include high fevers, stocked up legs, laminitis, and colic.

• There is no antidote for this poisoning, so treatment efforts are aimed at treating the signs. Obviously the first move is to remove all sources of exposure to the weed. Consult with your veterinarian for help with diagnosis and treatment plans.
Herbicides: Due to hoary alyssum's tendency to germinate throughout the growing season, repeated treatments are needed to deplete the seed bank in established infestations. The following herbicides are labelled for control of hoary alyssum. *Always consult product labels and read them carefully to ensure correct species/land management usage and chemical application.*
<table>
<thead>
<tr>
<th>Active Ingredient</th>
<th>Brand Names</th>
<th>Effective Against</th>
<th>Soil Residual Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glyphosate</td>
<td>Roundup, Touchdown, Rodeo</td>
<td>Annual and perennial grasses, herbaceous plants and woody plants (non-selective) Same as above for aquatic areas</td>
<td>no</td>
</tr>
<tr>
<td>2,4-D</td>
<td>Weed-b-gone, many others</td>
<td>Herbaceous and woody plants</td>
<td>no</td>
</tr>
<tr>
<td>Clopyralid</td>
<td>Transline, Stinger, Curtail</td>
<td>Herbaceous plants, such as spotted knapweed, Canada thistle, wild parsnip, spot spray only, it affects native plants of the sunflower and pea families as well</td>
<td>yes, 30-40 days</td>
</tr>
<tr>
<td>Metsulfuron</td>
<td>Escort</td>
<td>Herbaceous plants, such as spotted knapweed, Grecian foxglove, garlic mustard, wild parsnip and some woody to 3 years plants, spot spray only, it affects native plants of the sunflower, parsley and pea families as well</td>
<td>yes, few weeks to 3 years</td>
</tr>
<tr>
<td>Triclopyr</td>
<td>Garlon 3A and 4, Pathfinder II (Garlon)</td>
<td>Woody plants as foliar, basal bark and cut-stump treatment, herbaceous plants, spot spray only Still works in freezing temperatures</td>
<td>yes, 30-45 days</td>
</tr>
<tr>
<td>Imazapic</td>
<td>Plateau</td>
<td>Use in fall when native plants are dormant for leafy spurge control, spot spraying before killing frost when milky sap still emits from broken stem.</td>
<td>yes, 120 days half-life</td>
</tr>
</tbody>
</table>

To enhance foliar absorption of herbicides add a surfactant and apply when plants are actively growing.
• Always read and follow the label when using herbicides. Only certified/licensed applicators may use Restricted Use Herbicides.
• Always use an integrated approach that results in actions that fit the specific site and considers long term consequences.
• The goal is to apply precision treatment that takes out targeted vegetation and does not harm desirable trees, shrubs, herbaceous plants and grasses.

The mention of trade names does not constitute endorsement.
Thank You

QUESTIONS?