Description: All of the these knapweeds are in the Compositae family. Meadow knapweed is a perennial that grows up to 4 feet in height. It has many branches ending in flower buds which in bloom are pink to purple-red in color. Spotted knapweed is a perennial that usually grows from 1 to 4 feet in height. It too has many branches but its leaves are smaller than those of meadow. Flower buds are located at the end of the branches and range from purple to cream in color. Diffuse knapweed is a biennial or short-lived perennial that usually grows from 1 to 4 feet in height. It is similar to spotted in that it has many branches with small leaves and flowers purple to cream in color.

Impacts: The knapweeds are native to Eurasia and were introduced to North America within the last 100 years. Currently all three of the knapweeds listed above are found in Thurston County, they are listed as “Class B designate” noxious weeds. Knapweeds readily establish themselves on any disturbed soil, and their early spring growth makes them competitive with other plants for moisture and nutrients. There is some evidence that they release chemical substances which inhibit surrounding vegetation.

Control Options:

► Manual Techniques
Control methods have been limited to hand pulling or digging. This has prevented much of the knapweed from going to seed and spreading to adjacent properties. One drawback of hand pulling is that some of the larger plants tend to break off and re-grow from the root crown. These larger plants require digging and even then some breakage occurs. Manual control is more successful with spotted and diffuse knapweed and less successful with meadow knapweed. Hand pull knapweed seedlings at sites of limited distribution. Most likely, this will be sites consisting of less than 25 plants. Sites with more than 25 plants should be treated or any plants that are larger in size (6” to 1’).

► Chemical Techniques
Currently, products containing the active ingredient glyphosate is the only herbicide for the control of knapweeds that is considered “low in hazard” by Thurston County’s pesticide review process.

Only products with concentrated formulations of glyphosate will be effective. Pre-mixed products do not contain enough glyphosate to be effective, use products with at least 40% glyphosate.

Foliar applications of ROUNDPUP PRO® (a 41% glyphosate product): Knapweed can be controlled by using no less than 2% ROUNDPUP PRO® solution:

<table>
<thead>
<tr>
<th>Rates, at 4 lb. per gallon A.I.:</th>
<th>2 Percent</th>
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<tbody>
<tr>
<td>To 1 gallon of water add</td>
<td>2.66 oz. ROUNDPUP PRO®</td>
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- Spot applications with glyphosate products are effective. Spot application means the herbicide is applied only to the plants and not on the surrounding plants or soil. Spray each plant thoroughly on the stems and leaves enough to be wet but not dripping.
- Remove domestic livestock before application and wait 14 days after spot application before grazing livestock or harvesting.
- Do not enter or allow worker entry into treated areas during the restricted entry interval of 12 hours. Keep people and pets off treated areas until spray solution has dried.
Products containing the active ingredient *imazapyr* are considered “moderate in hazard” and are the County’s second choice for herbicide control.

**Foliar applications of *imazapyr* (Habitat®), (Arsenal®)**

- Licensed applicators are required to use this product.
- As a spot treatment only in pastures, do not apply more than 48 fluid ounces per acre per year. Spot applications to grass pasture may not exceed more than one tenth of the area to be grazed or cut for hay. When making applications to rights of way corridors where desirable tree roots may extend, use a maximum of 1 to 3 pints per acre.
- Do not enter or allow worker entry into treated areas during the restricted entry interval of 48 hours. Keep people and pets off treated areas until spray solution has dried.
- Do not use on lawns walks driveways or similar areas where roots of desirable vegetation may extend and be exposed to potential injury.

Products containing the active ingredient *aminopryalid* (Milestone®) are considered “moderate in hazard” and are also a second choice for herbicide control.

**Foliar applications of *aminopryalid* (Milestone®)**

- Please read the Milestone® label for precautions. Follow all label precautions and safety measures. Always use personal protective equipment that includes long sleeve shirt and long pants, shoes plus socks.
- As a spot treatment only at a rate of 4 to 6 ounces (pastures section) fluid ounces per acre. Do not apply more than 7 fluid ounces per acre per year.
- Do not enter into treated areas during the restricted entry interval of 12 hours. Keep people and pets off treated areas until spray solution has dried.
- Milestone® should not be applied on residential or commercial lawns or ornamental plantings. Do not use plant material or hay from treated areas for mulch. Likewise, do not use manure from animals that have grazed or eaten hay from treated areas within the previous 3 days.

**Timing:**

- Control should take place when plants are actively growing and before seeds are produced.

**READ AND FOLLOW ALL LABEL DIRECTIONS AND RESTRICTIONS.** Obey all label precautions and safety measures. Always use personal protective equipment that includes coveralls, waterproof gloves, shoes plus socks, and protective eyewear. Use of brand names does not connote endorsement and is for reference only; other formulations of the same herbicides may be available under other names. Information provided is current as of the date of the fact sheet. Pesticide product registration is renewed annually and product names and formulations may vary from year to year.