Skagit Fisheries Enhancement Group
WEED CONTROL POLICY

GOAL:

Control invasive weeds species that can impede establishment and growth of native plants at riparian restoration sites in a manner that is cost effective and consistent with accepted ecological restoration methods. Minimize use of herbicides by utilizing non-chemical methods whenever is can be done practically and cost effectively.

WEEDS OF CONCERN

Washington State Class A weeds:

Washington State Class A weeds are those species where control is required when these species are found. SFEG will conduct an annual training session to teach SFEG staff and contractors to recognize all state Class A invasive weeds that could be present in our work areas. If encountered in the field SFEG will report Class A weeds to the landowner in writing, and will provide information on state control requirements and recommended methods. If approved by the landowner, SFEG will control these weeds using recommended methods, and will report infestations to the appropriate Cooperative Weed Management Area (CWMA).

Washington State and County Class B weeds required for control:

Washington State Class B weeds are those species where control is recommended by the state and/or recommended/required by the county noxious weed board. Current lists are provided as Appendix A to this policy, and are updated annually.

If encountered at a work site, SFEG staff will inform the landowner of the presences of Class B species and provide information on recommended means of control. State/County Class B weeds that are considered to threaten riparian restoration success include the following:

- Japanese Knotweed (Polygonum cuspidatum)
- Giant Knotweed (Polygonum sachalinense)
- Himalayan Knotweed (Polygonum polystachyum)
- Policemans’s Helmet (Impatiens gladulifera)

Species are deemed to be a threat if they grow and/or spread fast enough to choke out trees before they attain a height sufficient to outcompete the trees. If the above species are identified within
SFEG restoration sites we will build costs to control them into all grants and/or contracts covering our work.

Washington State Class B weeds where control is required by the state and/or Skagit County but that are NOT expected to interfere with successful riparian restoration include the following:

- Yellow Archangel (*Lamiastrum galeobdolon*)
- Scotch Broom (*Cytisus scoparius*)
- Tansey Ragwort (*Senecio jacobaea*)

If identified within a current or proposed project site, SFEG will inform the landowner of the presence of these species and provide information on recommended means of control. If infestations are small SFEG will treat during normal site maintenance in order to prevent these weeds from spreading. If requested by the landowner prior to securing funding and supported by the funding source SFEG may include costs for control of these species and assist with the work. The decision to accept additional invasive weed control work will be made by the Restoration Ecologist and/or SFEG Board, and will consider: a) the effect on our ability to accomplish other project related work; and b) consistency with SFEG’s policy of minimizing herbicide use.

### Washington State and County Class C weeds:

Class weeds are pervasive throughout the state and thus control is not required. However, the following Class C weeds are considered to be a threat to successful riparian restoration if they occur within restoration sites:

- Himalayan blackberry (*Rubus armeniacus*)
- Evergreen Blackberry (*Rubus laciniatus*)
- Morning glory (*Convolvulus arvensis*)
- English Ivy (*Hedera spp.*)
- Old Man’s Beard/Travelers Joy (*Clematis vitalba*)
- Reed Canarygrass (*Phalaris arundinacea*)

Species are deemed to be a threat if they grow and/or spread fast enough to choke out trees before they attain a height sufficient to out compete the trees. The above class C weeds will be controlled as part of restoration site preparation and maintenance when they occur within restoration sites and are judged to have the potential to interfere with planting success.

SFEG will work with landowners to develop a site specific weed control plan prior to initiating restoration work. The plan will include recommendations for control over a ten-year period following planting. In general SFEG strives to secure funding to complete weed control for at least 3 years following planting. If possible we will work with landowner to secure additional funding beyond that point. However, funding for ongoing maintenance is NOT guaranteed, and landowners will be responsible for ongoing control following the end of grant projects according to applicable landowner agreements. If funding sources do NOT support control of these species, SFEG may elect to assist landowners with ongoing weed control if costs are paid by the landowner, and if work can be completed without interfering with required restoration work at other sites.
WEED CONTROL METHODS

A summary of weed species SFEG typically encounters, the 2018 list status, and typical treatment methods is provided in Appendix B. If practicable, manual weed control is SFEGs preferred method of treatment. Manual treatment techniques include the following:

Mowing

Mowing is the preferred method of weed control in abandoned pastures or farm fields where there is risk of infestation of weeds considered to be detrimental of surrounding farms, including thistle, tansy ragwort, and teasel. Mowing is general practicable only on relatively flat fields (i.e. slopes <5%) that are dry during the summer months. Mowing 2-3 times per year is effective at controlling the flowering and spread of certain annual and perennial weeds, and also helps reduce the risk of vole predation. Where mowing is identified as the preferred method of treatment, SFEG will install trees in rows that are spaced sufficiently wide to allow a riding lawnmower, skidsteer and/or small tractor to pass between rows both longitudinally and cross-wise. On smaller sites (<1/2 acre), or sites where terrain is not amenable to mechanized equipment mowing may be accomplished using weedwhackers. Mowing with weedwhackers is not considered practicable on sites larger than 5 acres.

If mowing is identified as the preferred method of control SFEG will request funding to complete two rounds of mowing per year, which will occur once in the spring (late April through early June) and once in the late summer (mid-July through September). If additional mowing is requested by the landowner SFEG may elect to assist with this work if costs are paid by the landowner, and if work can be completed without interfering with required restoration work at other sites.

SFEG recommends installation of plant protectors in these types of planting sites. Plant protectors protect native plants from both voles and from damage during site maintenance. SFEG will build in funding to remove plant protectors from plants in the final year of funded maintenance. If desired by the landowner SFEG may leave plant protectors on longer, but may not be able to remove them without additional costs to the landowner. It may be possible to engage volunteers to remove plant protectors after grant funded maintenance. Alternatively, SFEG staff can return to remove protectors if staff time, travel and disposal costs are paid for by the landowner.

Manual grubbing

Manual grubbing may be a practicable means of invasive weed control for Himalayan blackberry, morning glory, or clematis, provided infestations are small. Plants are removed by pulling roots by hand or digging them out with hand tools. Manual grubbing tends to be most effective if combined with an initial year or two of herbicide control. Manual grubbing will be conducted in the early spring, late fall or winter. Due to cost and staff time constraints, SFEG generally only utilizes this method on sites with small work areas (<0.5 acre) or limited/scattered infestations. SFEG may agree to utilize manual control on larger sites if the landowner is willing to participate, and/or a
volunteer group can be found to “adopt” the site and assist with control via at least two mid-week work parties per year.

**Herbicide**

SFEG strives to minimize the amount of herbicide used at our riparian restoration sites; however, on large sites, irregular terrain or with extensive infestations herbicide may be the only practicable approach. Steps taken to minimize the amount and possible impacts of products used include the following:

- Cut back tall weeds early in the season in order to stress plants and reduce leaf area. Treatment of lower growing vegetation also reduces the risk of overspray;
- Spot treatment is conducted using hand or backpack sprayers to ensure that products are applied only to target weeds;
- Treat only when winds are <10 mph and no rain is forecast for at least 8 hours to limit overspray, ensure effective translocation, and minimize the risk of rainwash.
- Do not treat weeds when pollinators or amphibians may be present
- Prepare and utilize site specific mixes that include surfactants/dyes that have been tested and are known to be safe.
- When possible inject or cut stems and paint rather than spraying.
- Work with landowners to make sure neighbors are notified prior to each application.
- Post public access sites with information including the date of treatment and product.

All SFEG herbicide treatment is conducted under the direction of a licensed Applicator according to Washington State laws and requirements. SFEG also obtains a NPDES permit annually for herbicide applications near water bodies. Field work is overseen by a licensed operator. SFEG’s applicator and operators are required to have endorsements for aquatic, right of way, agricultural and ornamental work. Each licensed applicator/operator is required to complete at least 40 hours of training every 5 years in order to maintain a license in good standing.

In general SFEG’s approach for extensive infestations is to conduct two years of site prep using herbicide. Thereafter manual weed control is the preferred method.

Where restoration sites are located adjacent to properties known to be used for organic farming SFEG will make every effort to meet with landowners to discuss herbicide use prior to initiating treatment. Regulations governing the certification of organic farms require that landowners ensure that there are 25-foot “buffers” between fields and areas where herbicide be used. While this is not the responsibility of neighboring properties SFEG will work with farmers and restoration property owners to ensure that sufficient buffers are identified and respected. No herbicide application is conducted when winds speeds are greater than 10mph. SFEG operator’s record windspeed and direction on site prior to each application with a handheld anemometer; if wind directions are such that overspray could travel towards organic farms we will work on spraying in alternate areas.
**HERBICIDE USE**

**Licensing and Permits**

Herbicide is applied only under the supervision of a licensed applicator, with a licensed operator on site at all times during work. SFEG operators must have current endorsements for Aquatics, Right of Way, Agricultural (includes forestry), Turf & Ornamental. SFEG staff with licenses are required to complete annual continuing education credits in order to keep their licenses current.

Herbicide is applied in accordance with label guidelines designated by the Environmental Protection Agency. When applying herbicide within 10-feet of aquatic resources SFEG uses an appropriate herbicide for fish bearing streams. No herbicide application is conducted when rain is predicted within 6-hours or winds speeds are greater than 10mph.

Each year SFEG applies to be a “Limited Agent” for the Washington Department of Agriculture on their NPDES permit with the Washington Department of Ecology. This means SFEG reports annual herbicide usage to the WSDA which covers SFEG for herbicide application in areas near water. Herbicide data logs are recorded for each site daily and signed by a licensed operator. Paper records are kept for the requisite 7 years. SFEG also tracks herbicide use in a GIS database.

**Posting & Notification**

SFEG applies with all applicable laws regarding posting. On sites with the potential for public access, or where landowners request it SFEG installs signs at main access points during spraying activities. Information included on signs include: type of chemical used and concentration percentage, date applied and re-entry date, plus SFEG contact information for further inquiries. While the law does not require it, SFEG posts formal recreation points (posted trailheads, boat launches, public parks, etc.) 48-hours to spraying activities, as well as after spraying. SFEG works with landowners to amend this policy if the landowner so desires.

Every year SFEG receives a list from Washington Department of Agriculture listing registered sensitive individuals. This list is cross referenced annually to see if any of these addresses are adjacent to herbicide treatment sites. If so alternative methods of weed control are prescribed.
Appendix A
2018 Skagit County Noxious Weed List
The Laws

RCW 17.10
RCW 17.10 (Revised Code of Washington) is the state’s basic weed law. The Washington Administrative Code (WAC) contains the rules and regulations needed to carry out state law.

WAC Chapter 16-750
WAC Chapter 16-750 includes the state Noxious Weed List, definitions and descriptions of region boundaries for Class B weeds, and the schedule of monetary penalties.

WAC Chapter 16-752
WAC Chapter 16-752 describes the quarantine list maintained by the state Department of Agriculture. (The state law that calls for the creation and maintenance of the quarantine list is RCW 17.24.)

Quarantine List
The Washington State Department of Agriculture (WSDA) maintains a quarantine list of plants, also called the prohibited plants list, whose sale or distribution is prohibited in the state. All Class A Noxious Weeds are on this list. There are also plants on the list to prevent them from being imported and spread in our state.

Skagit County Noxious Weed Control Board
1800 Continental Place
Mount Vernon, WA 98273
Phone: 360-416-1467
Fax: 360-770-2694
Webpage: https://www.skagitcounty.net/Departments/Noxiousweeds/main.htm

The Washington State Noxious Weed List is updated annually. Everyone is encouraged to participate in the process. For additional information, contact:

Washington State Noxious Weed Control Board
PO BOX 42560 Olympia, WA 98504-2560
(360) 902-2053
Website: www.nwcb.wa.gov

List arranged alphabetically by: COMMON NAME
The following are Class A Weeds where control is required:

- knapweed, Russian: *Centaurea repens*
- knaweed, spotted: *Centaurea stoebe*
- knotweed, giant: *Polygonum sachalinense*
- knotweed, Himalayan: *Polygonum polystachyum*
- kochia: *Kochia scoparia*
- loosestrife, garden: *Lythrum salicaria*
- Malta starthistle: *Centaurea malacitana*
- narrowleaf: *Myriophyllum aquaticum*
- perennial pepperweed: *Lepidium latifolium*
- polkamer's helmet: *Impatiens glandulifera*
- puncturevine: *Tribulus terrestris*
- rush skeletonweed: *Chondrilla juncea*
- yellowarchangel: *Lamium galeobdolon*
- yellow floatingheart: *Nymphoides peltata*
- yellow starthistle: *Centaurea solstitialis*

The following are Class B Weeds where control is not required:

- butterly bush: *Buddleja davidii*
- common fennel, (except bulbng fennel): *Foeniculum vulgare (except F. vulgare var. azoricum)*
- dandelion: *Taraxacum officinale*
- daisy fleabane: *Erigeron annuus*
- indigobush: *Amorpha fruticosa*
- jointed goatgrass: *Aegilops cylindrica*
- knotweed, Bohemian: *Polygonum x bohemicum*
- lesser celandine: *Ranunculus ficaria*
- meadowsweet: *Filipendula ulmaria*
- indigo bush: *Amorpha fruticosa*
- spiderwort: *Tradescantia virginiana*
- wild carrot (except where commercially grown): *Daucus carota*
- yellow nutsedge: *Cyperus esculentus*
- yellow flag: *Iris pseudacorus*
- yellow burdock: *Arctium lappa*
- yellow lady's slipper: *Cypripedium calceolus*
- yellow loosestrife: *Lythrum salicaria*

The following are Class C Weeds where control is required:

- garlic mustard: *Alliaria petiolata*
- hairy yarrow: *Achillea millefolium*
- hawksbeard: *Crepis biennis*
- hawkweeds: All nonnative species and hybrids of the meadow subgenus: *Hieracium, subgenus Hieracium*
- hawkweed, Boherian: *Hieracium bohemicum*
- hawkweed, orange: *Hieracium aurantiacum*
- hawthorn: *Crataegus spp.*
- hedge mustard: *Tetragonia tetragona*
- hybrid yellow loosestrife: *Lythrum x hybridum*

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Appendix B
SFEG Standard Treatment Approach
<table>
<thead>
<tr>
<th>Species</th>
<th>Class</th>
<th>SFEG treatment method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Giant Knotweed (Polygonum sachalinense)</td>
<td>B required control (state)</td>
<td>Herbicide is the only effective method to control knotweeds. <strong>Foliar treatment</strong>: 1% Imazapyr mixture. Tall knotweed stems are bent below waist level in summer and herbicide is sprayed on leaves a couple of weeks later. The bending of stems causes less drift and is better for applicators since they are not spraying herbicide above their heads. <strong>Injection</strong>: it is also possible to inject knotweed stems utilizing special injector guns. Use a 100% glyphosate solution, but be aware of label limits on ounces per acre. This method works best in situations where they are other plants growing within the knotweed, since the possibility of drift is limited.</td>
</tr>
<tr>
<td>Himalayan Knotweed (Polygonum polystachyum)</td>
<td>B required control (state)</td>
<td>Herbicide is the only effective method to control knotweeds. <strong>Foliar treatment</strong>: 1% Imazapyr mixture. Himalayan knotweed generally only gets about 6 feet tall so stem bending is not necessary. <strong>Injection</strong>: it is also possible to inject Himalayan knotweed stems utilizing special injector guns. Stems are generally thinner with smaller voids so injection can be a little trickier than other knotweeds. Use a 100% glyphosate solution, but be aware of label limits on ounces per acre. This method works best in situations where they are other plants growing within the knotweed, since the possibility of drift is limited.</td>
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<td>Japanese Knotweed (Polygonum cuspidatum)</td>
<td>B required control (county)</td>
<td>Herbicide is the only effective method to control knotweeds. <strong>Foliar treatment</strong>: 1% Imazapyr mixture. Tall knotweed stems are bent below waist level in summer and herbicide is sprayed on leaves a couple of weeks later. The bending of stems causes less drift and is better for applicators since they are not spraying herbicide above their heads. <strong>Injection</strong>: it is also possible to inject knotweed stems utilizing special injector guns. Use a 100% glyphosate solution, but be aware of label limits on ounces per acre. This method works best in situations where they are other plants growing within the knotweed, since the possibility of drift is limited.</td>
</tr>
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<td>Policeman’s Helmet (Impatiens glandulifera)</td>
<td>B required control (state)</td>
<td><strong>Foliar treatment</strong> should utilize 1% Imazapyr mixture or 2.5% glyphosate mixture. Spray when actively growing. Follow up treatments will be necessary. <strong>Hand pulling</strong> is NOT effective since plants can grow from root fragments left in ground and over 6 years is required to remove vegetative cover. Do NOT weedeat this groundcover as it can spread from broken stem fragments.</td>
</tr>
<tr>
<td>Yellow Archangel (Lamiastrum galeobdolon)</td>
<td>B required control (county)</td>
<td><strong>Manual removal</strong> is effective. Hand pull/ dig out small plants. Weed Wrench larger plants. Large brooms without green on main trunk can be cut, usually about 2 inch diameter. <strong>Herbicide</strong> foliar applications can be effective in spring and fall when plant is actively growing. Preferred formulation is 1.5 - 2% glyphosate mixture. Cut stump herbicide treatment is effective, and have less collateral damage than herbicide. Use 100% glyphosate concentration and apply immediately after cutting trunk.</td>
</tr>
<tr>
<td>Scotch Broom scaparius</td>
<td>B required control (county)</td>
<td><strong>Manual removal</strong> is effective. Hand pull/ dig out small plants. Weed Wrench larger plants. Large brooms without green on main trunk can be cut, usually about 2 inch diameter. <strong>Herbicide</strong> foliar applications can be effective in spring and fall when plant is actively growing. Preferred formulation is 1.5 - 2% glyphosate mixture. Cut stump herbicide treatment is effective, and have less collateral damage than herbicide. Use 100% glyphosate concentration and apply immediately after cutting trunk.</td>
</tr>
<tr>
<td>Tansy Ragwort (Senecio jacobaea)</td>
<td>B required control (county)</td>
<td><strong>Foliar removal</strong> is effective on small patches. Tansy Ragwort is poisonous to livestock and may contain irritants in plant fibers, wear gloves and long sleeves when handling. Pull plants in second year when flowering stems are erect. Dig up rosettes of first year plants. Bae plants and remove plant material from site because allowed plants to develop mature seeds. <strong>Foliar treatment</strong> should occur in spring before flowering. 2,4-D herbicides are preferred because they will not kill surrounding grasses, which can help prevent seed fecundity and suppress Tansy ragwort seedlings. <strong>Mechanical</strong> control does not work. Plants flower on shorter stems. <strong>Manual removal</strong> always wear long sleeves, gloves and a dust mask when handling poison Hemlock. Second year plants with flower stalks can be pulled/dug up. Rosette stage plants can be dug up. <strong>Foliar treatment</strong> is most effective at rosette stage. Second year plants should be sprayed before flowering stage. Glyphosate treatment 1-1.5%. In grassy areas consider using a 2,4-D herbicide to prevent herbicide tolerant grasses, which compete with poison hemlock seedlings. <strong>Mechanical</strong> mowing will not kill plant but could prevent seed production.</td>
</tr>
<tr>
<td>Poison Hemlock maculatum</td>
<td>B required control (county)</td>
<td><strong>Foliar removal</strong> is effective. Hand pull/ dig out small plants. Weed Wrench larger plants. Large brooms without green on main trunk can be cut, usually about 2 inch diameter. <strong>Herbicide</strong> foliar applications can be effective in spring and fall when plant is actively growing. Preferred formulation is 1.5 - 2% glyphosate mixture. Cut stump herbicide treatment is effective, and have less collateral damage than herbicide. Use 100% glyphosate concentration and apply immediately after cutting trunk.</td>
</tr>
<tr>
<td>Common Tansy (Tanacetum vulgare)</td>
<td>C required control (county)</td>
<td><strong>Manual removal</strong> is possible on small patches. Spreads by seeds and rhizomes, so grub area thoroughly to get all root materials. <strong>Foliar treatment</strong> is best method to eliminate infestations. Use a 2,4-D herbicide in spring to kill Tansy but not grass which competes with seedheads. Glyphosate is most effective in early flower bud stage. <strong>Mechanical</strong> can prevent seed production but does not eliminate infestation.</td>
</tr>
<tr>
<td>Field Bindweed Morning Glory (Convolvulus arvensis)</td>
<td>C required control (county)</td>
<td><strong>Manual removal</strong> requires several years to exhaust energy supplies in roots. Remove plant material from site for disposal in trash. <strong>Smothering</strong> requires several years to kill roots. Mulch must be reapplied every year. Also check for creeping as plants grow out from covering. <strong>Mechanical</strong> is not effective and can spread infestation since plants can regrow from stem and root fragments. <strong>Foliar treatment</strong> of 2,4-D is best in summer and this herbicide will not harm surrounding grasses. Glyphosate, applied at 1% is best applied at full bloom to early seed stage.</td>
</tr>
<tr>
<td>Bull Thistle (Cirsium vulgare)</td>
<td>C required control (county)</td>
<td><strong>Manual removal</strong> pull plants once stems have elongated or dig up rosettes getting at least 1 inch of taproot. <strong>Mechanical</strong> mowing Rosettes is not useful, but mowing once plants have sent up flowering stem in second year is useful. Follow-up might be required because some plants can re-flower with a shorter stem. <strong>Foliar treatment</strong> is best accomplished during rosette year either in spring or fall. Glyphosate mixture of 1%-2% works best.</td>
</tr>
<tr>
<td>Canada Thistle (Cirsium arvense)</td>
<td>C required control (county)</td>
<td><strong>Manual removal</strong> can be conducted on rosettes or flower stalks. Dig up rosettes getting as much root as possible. Or cut flowering stalks once flowers has initiated and remove plant material from site, as it can still produce viable seeds. Another possible method is to sever flowering stalk from taproot underground using a shovel. Remove stalks from site. <strong>Mechanical</strong> mowing is not effective as rosettes continue to grow and bolted plants can re-sprout after stalk cut. <strong>Foliar treatment</strong> is only effective in rosette stage with 2,4-D in spring or fall. No information on glyphosate effectiveness available.</td>
</tr>
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**Species**

<table>
<thead>
<tr>
<th>Species</th>
<th>Class</th>
<th>SFEG treatment method</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Ivy (Hedera helix)</td>
<td>C</td>
<td>Manual removal is the best option. Hand pull vines growing along the ground or if they have formed a thick mat try and roll up like a carpet. Girdle vines growing up trees or structures. Cut and paint stems growing into the soil. Vines climbing trees will die when girdled. Mechanical control is not a valid option. Foliar treatment should only be used if hand removal proves too difficult. This works best on new leaves, especially in the spring, because they have a thinner wax cuticle. Use a 5% glyphosate mixture. Another approach is to remove most of the leaves from the vines, for example with a weed eater and then utilize a foliar application of herbicide once the vines have leafed out again.</td>
</tr>
<tr>
<td>Evergreen Blackberry (Rubus laconinus)</td>
<td>C</td>
<td>Manual removal is only feasible on small patches or individual scattered plants. Remove root ball by either digging up or pulling using main canes. Plants will re-sprout from root material left in ground. Mechanical control conducted annually will not eliminate blackberries. Some evidence suggests that moving blackberries multiple times a year over multiple years may exhausted stored energy in roots. Foliar treatment is the most effective way to kill mature blackberry plants. SFEG preferred treatment plan is mowing blackberries in the summer with a weed eater. Applying glyphosate at a 5% mixture in fall. Mowing again the following summer if necessary, followed by another round of glyphosate treatment in the fall. This second round of herbicide is necessary because the dormant seed bank will sprout furiously with the new sun exposure. After the second year of herbicide treatment trees can be planted and blackberry control can be manual or chemical.</td>
</tr>
<tr>
<td>Himalayan Blackberry (Rubus armenisicus)</td>
<td>C</td>
<td>Manual removal is preferred for small patches. Girdle vines climbing trees and pull vines and roots from ground. If leaving plant material on site elevate stems above ground as clematis can re-root if vines remain in contact with moist soil. Mechanical control by itself does not control clematis and may cause it to come back thicker, plus large pieces could spread infestation. Foliar treatment apply 1% glyphosate mixture to leaves, preferable in spring, but anytime plant is growing will work. Cut-and-paint apply concentrated herbicide to cut stems, particularly the cut stems of vines girdled from climbing vines. Possible method pull vines from desirable plants. Weed eat large mats acting as ground cover. Follow up a couple of weeks later with foliar application to newly emerged leaves.</td>
</tr>
<tr>
<td>Clematis Old Man's Beard (Clematis vitalba)</td>
<td>No</td>
<td>Manual removal is not feasible. Mechanical control may eliminate reed canary grass but requires mowing more than 5 times per year over multiple years. Foliar treatment can suppress reed canary grass but does not eliminate infestation because plants regrow from seed bank. SFEG uses a glyphosate mixture of 1%-1.5%. Shading cover area with shade cloth or several layers of cardboard and 4-6 inches of mulch and leave for 2-3 years. SFEG preferred method is to plant in reed canary grass and maintain trees until they have reached a height to be self sufficient, about 5-6 feet. Maintenance methods include stomping around trees in late spring/summer once stems have become crunchy or mowing either entire field or circles around trees, preferably twice a year, spring and summer.</td>
</tr>
<tr>
<td>Traveler's Joy (Clematis vitalba)</td>
<td>No</td>
<td>Manual removal is the preferred option for this annual. Pull plants before seed pods develop and crush the fresh stems and leave on site to desiccate. Foliar treatment is possible but not the preferred method of control. If desired, apply a 1% glyphosate mixture. Make sure to use a surfactant since jewelweed leaves are hydrophobic. SFEG does not always control Spotted Jewelweed on restoration sites. It is a project management decision.</td>
</tr>
<tr>
<td>Reed Canary Grass (Phalaris arundinacea)</td>
<td>C</td>
<td>Manual removal is only possible on small patches. All rhizome fragments must be dug up and removed from site. Mechanical mowing above water level will not eradicate infestation, but could prevent spread while other control measures are implemented, especially if mowed during time of year to cut flower heads or before seed pods develop. Cutting below water level could be effective if plant parts are submerged for the entire year. This action will take a couple of years to kill plants, with follow-up cuttings required. Foliar treatment can be effective. Aquatic formulations are required since Yellow Flag Iris grows as a wetland obligate plant. Wiping on herbicide will cause less effective, but SFEG prefers not to use this chemical as persistence in soil could affect nearby desirable plants.</td>
</tr>
<tr>
<td>Spotted Jewelweed (Impatiens capensis)</td>
<td>No</td>
<td>Manual removal is the preferred method for smaller plants. Hand pull, dig up (including roots) or use a weed wrenc. Mechanical mowing is nealy pointless, as the plant can easily regrow from cut stems and stumps. Cut-stump herbicide method work best on plants to large to manually remove. Cut trunks just above ground level and immediately paint concentrated glyphosate onto exposed end. EZ-ject lance would probably be effective, but research has not been conducted on this. Likewise foliar treatment could be effective, but potential for overspray, especially in riparian areas, is great than with cut and paint method.</td>
</tr>
<tr>
<td>Yellow Flag Iris (Iris pseudacorus)</td>
<td>No</td>
<td>Manual removal is the preferred method for small plants, hand pull or use weed wrenc. Various herbicide treatments have been shown to be effective. EZ-ject lance is most effective with imazapyr shells, regardless of season. Cut-stump or frill treatments are most effective when the herbicide applied to the cut stump or frills in bark is triclopyr. Glyphosate has a less than 50% mortality rate for cut-stump and frill treatment applications. Foliar treatment is not effective and should not be utilized. Mechanical cutting only kills the portion of the plant above the cut. It does not kill the roots, which still work to produce new growth from the stump.</td>
</tr>
<tr>
<td>Butterfly Bush (Buddleia davidii)</td>
<td>No</td>
<td>Manual removal is the preferred method for small plants, hand pull or use weed wrenc. Various herbicide treatments have been shown to be effective. EZ-ject lance is most effective with imazapyr shells, regardless of season. Cut-stump or frill treatments are most effective when the herbicide applied to the cut stump or frills in bark is triclopyr. Glyphosate has a less than 50% mortality rate for cut-stump and frill treatment applications. Foliar treatment is not effective and should not be utilized. Mechanical cutting only kills the portion of the plant above the cut. It does not kill the roots, which still work to produce new growth from the stump.</td>
</tr>
<tr>
<td>English Holly (Ilex aquifolium)</td>
<td>Not listed</td>
<td>Manual removal is the preferred method for small plants, hand pull or use weed wrenc. Various herbicide treatments have been shown to be effective. EZ-ject lance is most effective with imazapyr shells, regardless of season. Cut-stump or frill treatments are most effective when the herbicide applied to the cut stump or frills in bark is triclopyr. Glyphosate has a less than 50% mortality rate for cut-stump and frill treatment applications. Foliar treatment is not effective and should not be utilized. Mechanical cutting only kills the portion of the plant above the cut. It does not kill the roots, which still work to produce new growth from the stump.</td>
</tr>
</tbody>
</table>