



JEFFERSON COUNTY NOXIOUS WEED CONTROL BOARD

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BEST MANAGEMENT PRACTICES

Yellow Archangel (*Lamium galeobdolon*)

(Family—*Lamiaceae*—Mint Family)

Legal Status in Jefferson County: Class B-select Noxious Weed (non-native species selected for control by the Jefferson County Noxious Weed Control Board, under State Law RCW 17.10). The Jefferson County Noxious Weed Control Board requires control of yellow archangel on private and public lands throughout the county—**except** in managed garden settings. State Weed Law defines control as *to prevent all seed production and to prevent the dispersal of all propagative parts capable of forming new plants.* (See WAC 16-750-003).



BACKGROUND INFORMATION

History and Impacts

- Yellow archangel is native to temperate regions of Asia and Europe and has become naturalized in New Zealand and Australia and North America including parts of western Washington, Oregon and British Columbia.
- Its variegated leaves, yellow flowers and trailing growth have made it a popular choice for hanging baskets, the contents of which often get dumped in the fall, in places from which yellow archangel has escaped into natural areas.
- It can be extremely invasive, especially in wooded areas where it forms dense mats, out-competing most other plants, reducing species diversity.
- Being non-native, it is not utilized for food as much as the native plants which it displaces, so less food is available for wildlife.

Description



- Fast-growing, perennial, evergreen groundcover.
- Trailing or upright herbaceous stems, depending on conditions.
- Leaves, typically variegated with silvery-grey markings, are opposite, hairy, oval shaped and coarsely toothed.
- Stems are square.
- Flowers appear from April through June. They are bright yellow, two-lipped, growing around the stems at the leaf bases.

Habitat

- Yellow archangel can grow in a wide range of conditions from full sun to full shade and is not deterred by most other plants.
- It prefers a moist soil but can grow in most moisture conditions and soil types.

Reproduction and Spread

- Yellow archangel can reproduce by seed but it primarily spreads through stem and root fragments, either from existing populations or from where it has been dumped.
- It has a vine-like growth habit and grows up and over other plants, or trails on the ground.
- Plants that trail on the ground can form roots at the stem nodes, increasing the area covered by the plant.



Yellow archangel seedling

Local Distribution

A full inventory of yellow archangel in Jefferson County has not yet been undertaken. There are several sites in wooded areas of Port Townsend, especially North Beach. It has also been seen at Fort Flagler.

CONTROL INFORMATION

Integrated Pest Management

- The preferred approach for weed control is Integrated Pest Management (IPM). IPM involves selecting from a range of possible control methods to match the management requirements of each specific site. The goal is to maximize effective control and to minimize negative environmental, economic and social impacts.
- Use a multifaceted and adaptive approach. Select control methods which reflect the available time, funding, and labor of the participants, the land use goals, and the values of the community and landowners. Management will require dedication over a number of years, and should allow for flexibility in method as appropriate.

Planning Considerations

- Plan your control effort including: 1) properly identifying yellow archangel, 2) surveying the area thoroughly, 3) setting priorities for control, 4) selecting the best control method(s) for the site conditions and regulatory compliance issues, and 5) monitoring the success of control and implementing follow up control as necessary.
- Control practices in critical areas should be selected to minimize soil disturbance and reduce the potential for erosion. Minimizing disturbance also avoids creating more opportunities for germination of yellow archangel and other weeds.
- If the control site requires extensive clearing or grading, or is located near a shoreline, steep slope, stream, or wetland, contact the Jefferson County Department of Community Development to find out whether or not a permit may be necessary.
- Because yellow archangel is a state-listed noxious weed, control (both manual and chemical) in critical areas is allowed as long as the landowner consults with the Jefferson County Noxious Weed Control Board and follows their guidelines.

Prevention and Early Detection

- Do not buy or plant yellow archangel.
- Never dump plants in parks or natural areas, or in backyard compost piles.
- Remove existing plants if possible (they are still allowed in managed garden settings, but removal is encouraged).
- Replant with a desirable (preferably native) plant species to discourage re-infestation.
- Monitor the site for seedlings and re-sprouting plants and remove them as they appear.
- The distinctive variegated leaves of yellow archangel are visible and identifiable throughout the year—watch out for them in wooded areas and hand pull if possible or inform the Weed Board of your finding.

Manual

- Hand pulling is possible but time consuming—the roots are fibrous and up to a foot deep. It is labor-intensive because the roots tend to break off when pulled and plants grow very densely and are often mingled with desirable vegetation.
- Follow up is almost always necessary as this plant recovers quickly after being pulled if any plant parts are left behind. It is rare to be able to effectively hand pull this plant without repeat efforts over several years, especially for large sites.
- Because of the plant's ability to re-sprout from root or stem fragments, great care should be taken to remove the entire plant including roots and to dispose of it properly in a yard waste or garbage container.
- It is easiest to remove the entire plant when the ground is soft, in the fall through early spring.

Mechanical

- Mowing, cutting or weed whacking alone will not control yellow archangel. They may in fact encourage denser growth and will likely spread the plant further since it grows easily from stem cuttings.
- Cutting the plants to ground level and covering with overlapping sheets of cardboard topped with a thick layer of mulch (3 to 6 inches deep) is another possible method that has shown some success if done properly. Yellow archangel will easily grow up through any openings and around the edges, so the covering will need to be monitored and repaired if it is disturbed and any escaping shoots removed and the area re-covered. Also, the covering will need to be left in place and not planted into for at least one complete year, but more likely several years to make sure the plants are completely dead. The initial cutting and covering should be done in the winter for maximum effectiveness since the plants will grow back most slowly at that time.

Biological

Biological control is the deliberate introduction of insects, mammals or other organisms which adversely affect the target weed species. No biological controls are currently available for yellow archangel.

Chemical

- Effective chemical control of biennial and perennial weeds can be achieved only with *translocated* herbicides (ones that move through the plant and kill the roots).
- If desirable grasses or other monocots (sedges, rushes or cattails) are present, use a selective herbicide (one that affects only broadleaved plants), or carefully spot-spray only the yellow archangel.
- Herbicides are most effective on actively growing plants in warm, dry weather.
- Herbicides should only be applied at the rates and for the site conditions and/or land usage specified on the label. **Follow all label directions.**
- Treated areas should not be mowed or cut until after the herbicide has had a chance to work. This can be as long as 2-3 weeks.
- It is important to establish new vegetation after treating an area. Follow the label for the timing because some herbicides stay active longer than others.

For questions about herbicide use, and specific herbicide recommendations, contact the Jefferson County Noxious Weed Control Program at 360-379-0470 ext 205, or noxiousweeds@co.jefferson.wa.us.

SUMMARY OF BEST MANAGEMENT PRACTICES

Small Infestations in Desirable Vegetation

- Small infestations can be effectively hand-pulled or dug but will almost always require repeat efforts over several years before all the plants are gone. Hand removal is easier early in the year when the soil is moist.
- All plant parts should be bagged and taken to the landfill. If left on site they will very likely re-grow.
- OR apply appropriate herbicide--see Chemical section above--and spot spray to avoid damage to other vegetation.
- Monitor site throughout growing season and remove new plants.

Large Infestations \ Monocultures

- If enough labor is available, even large infestations can be controlled by hand-pulling or digging. See guidelines above.
- If labor is limited, cutting close to the ground and covering may provide control but read the instructions in the Mechanical section about how to increase the effectiveness of this method. (Weed-whacking or mowing alone will NOT control yellow archangel and will likely spread the infestation further since the plant grows so easily from stem cuttings.)
- Covering should consist of several layers of overlapping cardboard, topped with several inches of organic mulch. Frequently monitor the edges, and the gaps between sheets of cardboard, for escaping plants.
- OR apply appropriate herbicide-- see Chemical section above-- and spot spray to avoid damage to other vegetation.

Riparian and Aquatic Area Control

- Focus on manual removal for small infestations if possible. Follow procedures listed above.
- If infestations are too large to control manually, use an appropriate herbicide – see Chemical section above--and spot spray to avoid damage to other vegetation.
- **Any herbicide application over or near water can be done only by a specially-licensed applicator using an approved aquatic formulation, and may require a permit from the Washington State Department of Ecology.**

Road Right-of-Way Control

- Manually remove infestations if possible, being careful not to leave plant parts where they might re-grow.
- If infestations are too large to control manually, use an appropriate herbicide – see Chemical section above--and spot spray to avoid damage to other vegetation.
- If bare spots are left after herbicide use, monitor for seedlings and replant with appropriate (low growing) native species.

REFERENCES

- King County Noxious Weed Control Board-- Yellow Archangel. Accessed January 22nd 2013 at <http://www.kingcounty.gov/environment/animalsAndPlants/noxious-weeds/weed-identification/yellow-archangel.aspx>
- Whatcom County, Washington. Control Options for Yellow Archangel. Accessed, January 22nd 2013 at <http://www.co.whatcom.wa.us/publicworks/weeds/pdf/YellowArchangelControlRec.pdf>
- Written Findings of the Washington State Noxious Weed Control Board – *Lamiastrum galeobdolon*. Accessed, January 22nd 2013 at http://www.nwcb.wa.gov/siteFiles/Lamiastrum_galeobdolon.pdf

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