






Proper Disposal Methods

It's important to dispose of invasive plant species properly. Sometimes, the material left remaining at a site can re-root or produce fruit, even after it has been pulled from the soil. This section discusses the best ways to dispose of invasive plants to prevent re-infestations.


 **#1—Bagging:** It is typically never a good idea to compost invasive plant material. Root fragments or seeds can persist in compost piles and, once transported to a new site, re-infest that area. To insure that removed plants do not remain viable, place all plant parts into a thick 3 mil black construction trash bag and securely closed. Let the bag sit, in a warm, sunny site until all material is liquefied. Afterwards, bags may be disposed of at a trash dump.


 **#2—Burning:** When cutting large material bagging is not an option. Burning, either in a burn pile or in your home stove, is a safe and effective way to destroy plant parts. Note: If plants have berries or fruit present, the seeds can fall off during transportation and re-infest a new site. Be aware of where you are taking material and check those transport areas for future infestations.


 **#3—Piling:** Creating brush piles of woody plant material decreases the likelihood of plants re-rooting into the soil and provides habitat for native animals.



Specific Treatment Methods

 **Hand pulling:** This method insures that, with proper identification, that only target plants are removed. When pulling, using tools like a weeder or spade may be helpful. Grasping plants at the base near the soil and pulling slowly will insure that you pull up the entire plant and root stem—many herbaceous plants can re-sprout from underground roots, so getting the entire tap root is crucial. Hand pulling can cause soil disturbance, especially if the area is heavily infested, and typically it's best to replant an area after you remove the invasive population. No permits are necessary to hand pull plants in Vermont.

 **Cutting or Mowing:** Sometimes, when invasive plants are found in large monocultures or their root systems are extensive, cutting or mowing is the best option. Typically, the energy stored in the root system will be great and it will take multiple cuts over a season and/or years to fully deplete the plant's energy reserve. Removing cut materials will prevent any nodes or flowers from spreading seed and encourage growth of non-invasive plants in the seed bank underneath. It can be combined with smothering (see below) or with a foliar spray (See Herbicide Use Handout) to the re-sprouted plants.

 **Smothering:** Some invasive plants are so pernicious and have such extensive root systems that you cannot cut it fast enough or dig it deep enough to control the growth. For these species, removing all above-ground vegetation and then covering the entire site—with at least a 3 foot “buffer zone” extra— with ground tarps or black construction plastic will smother the plants' new growth. The ends of the material should be secured firmly by large stones, bricks or ground staples. The site should be monitored frequently to insure that the cover remains securely in place and that sneaky roots or rhizomes are not growing outside the cover. Leave the ground cover in place for at least 1 full growing season and then replant the area as soon as it has been removed to encourage growth of wanted species.



Best Management Practices—Individual Species

garlic mustard (<i>Alliaria petiolata</i>)	Hand pulling: From March - May before plants go to seed. Mowing: Cut at ground level after flowering but before seed set from mid-April to early May. Remove cut stalks from site and dispose of properly. Disposal method #1 & 2.
wild chervil (<i>Anthriscus sylvestris</i>)	Hand pulling: From April to June prior to seed set. Mowing: Mow twice a year—when plants begin to flower in mid-May and again during the second flowering in early July. Replanting with a seed mix in the fall will decrease re-infestations. Disposal method #1 & 2.
goutweed (<i>Aegopodium podagraria</i>)	Hand pulling: Small patches may be eliminated by persistent hand pulling, but that must include all rhizomes and roots. Properly dispose of all removed parts. Mowing: Frequent mowing 3-5 times a year will slow spread but not eliminate infestations. Smothering: Remove all top growth prior to covering. Best if established in Spring and allowed to remain through entire season. Disposal method #1 & 2.
Asiatic bittersweet (<i>Celastrus orbiculatus</i>)	Mowing: Regular weekly mowing of grounded populations will exclude bittersweet from an area. Less frequent mowing of 2-3 times a year will stimulate root-suckering and should be avoided. Disposal method #1 & 2.
black swallowwort (<i>Cynanchum louiseae</i>)	Hand Pulling: Root crowns may be dug up any time during the growing season. Mowing and cutting will stimulate growth and increase the patch size and should be avoided. Smothering: Remove all top growth prior to covering. Best if established in Spring and allowed to remain through entire season. Disposal method #1 & 2.
purple loosestrife (<i>Lythrum salicaria</i>)	Hand pulling: For small, limited stands removing the entire stalk and taproot prior to seed set in August will provide effective control. Disposal method #1 & 2.
common reed (<i>Phragmites australis</i>)	Mowing: Set mower blade higher than 4 inches but insure cuts are below the first leaf. Best treatment time is after September until the first frost—cut annually until dead. Mowing before July will stimulate growth. Smothering: Remove all top growth prior to covering. Best if established in Spring and allowed to remain through entire season. Disposal method #1 & 2.
Japanese knotweed (<i>Polygonum cuspidatum</i>)	Mowing: Will only be effective if plants are cut 5+ times a year throughout the growing season, for at least 3 seasons. Smothering: Remove all top growth prior to covering. Best if established in Spring and allowed to remain through entire season. Knotweed, though herbaceous, has a thick stalks that will easily lift up smothering material. Heavy objects, like concrete blocks or your wood pile, should be placed <i>on top</i> of the entire sheet to suppress the plant. Disposal method #1 & 3.
Woody Shrubs & Trees **	Hand pulling: Pull small seedlings, insuring that the entire tap root is removed, any time during the growing season. Mowing: For larger plants in open field settings, mowing at least biannually will prevent saplings from establishing in the area. Disposal method #1, 2 & 3.
	** Bush honeysuckle (<i>Lonicera spp.</i>); Common buckthorn (<i>Rhamnus cathartica</i>); Glossy buckthorn (<i>Frangula alnus</i>); Japanese barberry (<i>Berberis thunbergii</i>)

For help identifying any of the above species please refer to the WOW! Fact Sheets on the individual species or the Additional Resources listed below.

Additional Resources: **The Nature Conservancy:** www.nature.org/vermont; email: Vermont@tnc.org
Vermont Invasive Exotic Plant Committee: www.vtinvasiveplants.org
Invasive Plant Atlas of New England: www.ipane.org
The Nature Conservancy Global Invasive Species Initiative: tncweeds.ucdavis.edu

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