

Managing Invasive Plants at Home: Resource List  
Written and compiled by Kathleen G. Connolly, 11-3-22

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## Site-Clearing and Plant Removal Methods

[a] Repeated cutting or mowing produces carbohydrate starvation in affected plants. It works best on annual and biennial plants that lack a strong underground root network or taproot. This is also effective on perennials and woody plants but takes longer. The [Rutgers Extension](#) offers this description: *"Starvation of perennial weeds is accomplished by never allowing the weed to move carbohydrates down into the roots."*

Repeated cutting is especially effective in spring after fresh leaves have sprouted, and particularly while the leaves are pale-colored. Roots stores are naturally depleted by early-season leaf creation. When the young leaves and stems are cut, the roots aren't replenished and the plant is weakened. (FYI: In many plants, stems and trunks can photosynthesize.)

Cutting works slowly compared to other techniques. It may take multiple cuttings per year over multiple years for woody plants. One of its benefits is that soil remains undisturbed, so that weed seeds are locked below the surface. Also, even if the unwanted woody plants regenerate in the year they are cut, they may not produce seeds in the current year, or even several subsequent years.

Read about knotweed reduction through systematic scalping: Nix the Knotweed

<https://www.facebook.com/NixtheKnotweed/>.

[b] Forestry mowers are large-scale brush cutters that provide both vertical and horizontal shredding. In a sense, they create large-scale scalping. This equipment is best for large sites densely covered with tall vegetation and vines. This machinery is capable of shredding and chipping dense vegetation with a downward motion but, with a skilled operator, maybe able to avoid desirable trees and shrubs. The mower leaves the shredded chips on the ground, though it is usually not enough to achieve a wood chip smother (described later in this document). Unfortunately, viable seeds and shoots may be present in the shredding. Roots will be injured but not killed. Therefore, this form of mowing is only the first step. Subsequent steps might include other methods, for example:

1. Leave chips lie fallow for up to a year and spot-remove any unwanted regeneration. Spot removal could involve a variety of techniques, including hand-pulling, excavation, or cut-and-paint for the most difficult weeds such as knotweed, bittersweet, or swallow-wort.
2. Cover the mowed area with 12" depth of raw wood chips fresh from "clean" tree takedowns. ("Clean" = absence of invasive vines or other unwanted vegetation). Fresh chips are best. (See section on woodchips).

[c] Sod cutting is an herbicide-free way to begin clearing old lawns but always requires follow-up with additional weed removal techniques. The cutter removes the top three inches of soil, including shallow roots and embedded seeds. Because seeds are embedded up to 18" deep or more, new weed seedlings are likely to emerge after sod cutting. Woody plants and vines are likely to reemerge as well. Allow about two months for unwanted plants to reemerge after sod cutting. Use one or more smothering or herbicide techniques to deal with residual weeds after sod cutting.

People often ask, "*Should I replace topsoil after sod cutting?*" The answer depends on the intended plants and the results of a soil test. If replanting lawn grass (including a low-mow lawn), a 2" – 6" application of fresh topsoil with 5% organic matter may be desirable. If planting warm season bunching grasses such as little bluestem and native wildflowers, you might not amend the soil at all.

Remember: Rich topsoil is well-loved by many weeds. Also, many New England native plants evolved in the region's acidic, low-nutrient soil. It is usually not a good idea to import nutrient-rich soil for this type of planting.

[d] Goats seem an appealing solution and, indeed, they can be very effective at clearing thorny topgrowth. Keep in mind, though, that while goats eat some notorious weeds, they can also become sick from plants that are toxic to them. The area must be cleared of toxic weeds before goat-scalping. Goats are not effective at clearing invasive grasses, such as reed canary grass (*Phalaris arundinacea*). They are far better at clearing brambles and other woody plants and vines. Call a goat supplier to learn whether this method is for you.

[e] Smothering with black plastic (A.k.a. "Occultation") can be very effective in summer because it heats embedded roots with temperatures as high as 110 degrees +/- and deprives plants of sun, air, and water. The technique works best with herbaceous plants such as lawn grass and broadleaf weeds, which should be mowed as close as possible to the soil surface before plastic is applied. Remove the cuttings before applying plastic. The plastic should be four to six mils thick, UV-stabilized, and made from virgin resins. (Virgin resins are more durable under the effects of sun and weather.)

September or October are a good times to begin a black plastic smother because some weedy plants sprout in winter. Others are very efficient at surviving winter weather. Leave the cover in place until August 1 of the following year or later (see notes below). Remove newly germinated weeds with a rake or hoe. Supplemental methods may be needed, particularly for mugwort, euphorbia (spurge), swallow-wort, and other incorrigibles.

[f] Solarizing with clear plastic (A.k.a. "Solarizing"): This approach uses UV-tolerant greenhouse plastic film, with four mil thickness. In hot climates, such as the Southwest, clear plastic is a good choice. In the northeast, solar orientation is critical. If the location has strong *south or southwest-facing exposure*, this technique may create enough heat to be effective. Cut existing vegetation very close to the surface and remove it. Place the plastic directly on the soil.

On a *north or northeast orientation*, clear plastic acts more like a greenhouse for weeds. In this orientation, clear plastic pushes weed seeds to germinate. Lift the plastic periodically and rake out weed upstarts.

As with black plastic, clear plastic may not be completely effective with perennial weeds such as mugwort or swallow-wort.

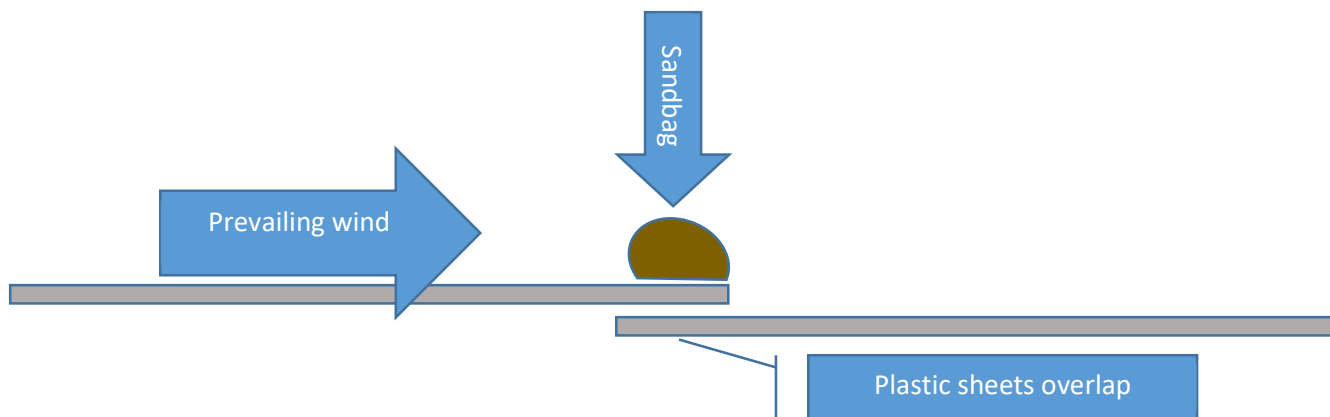
#### **Notes on both clear and black plastic smothers:**

- Neither of these is effective with Japanese knotweed.
- Before applying any plastic, cut existing vegetation very close to the surface and remove debris.
- Use sandbags or long metal posts or long boards to secure the edges. Do not use staples or otherwise develop holes in the cover.
- Overlap the edges if necessary. Take note of the likely wind direction and take care to put the higher overlap above the edge that could be pulled by wind. (See diagram)
- Unwanted plants can sprout almost any time of year. If you keep the area smothered for a full twelve months (or the better part thereof), all embedded plants will encounter the destructive effects of the barrier.
- After removing the plastic, allow at least two months to allow unwanted plants to resprout. They remove unwanted plants that surface with scuffle hoes, hand-pulling, or herbicides. Assess which weeds remain and determine how to remove them.
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**Purchasing options, clear and black plastic:** While plastic sheeting is widely available, not all plastic is alike. To get the best choices, call or visit garden centers and landscape or agricultural suppliers. See online sources below. Before calling, take the measurements of your site. Since UV-stabilized greenhouse plastic (clear) is custom-cut for greenhouses, roll-ends are sometimes available at reduced prices:

- See <https://farmplasticsupply.com/plasticulture/weed-control>.
- Sometimes, AM Leonard ([www.amleo.com](http://www.amleo.com)) has clear greenhouse plastic and black plastic remnants at reduced prices. Call the sales team at 1-800-543-8955 for pricing and availability.
- Bootstrap Farmer: [https://www.bootstrapfarmer.com/products/greenhouse-plastic?\\_pos=4&\\_sid=347649039&\\_ss=r](https://www.bootstrapfarmer.com/products/greenhouse-plastic?_pos=4&_sid=347649039&_ss=r).
- Greenhouse MegaStore: <https://www.greenhousemegastore.com/>
- Griffin Greenhouse Supply: <https://www.griffins.com/>

Overlapping edges:



[g] Wood Chips for Site Preparation: The chips created after tree removals are excellent site-clearing material. These chips are rough cut and include all parts of the tree. Pile them 12" deep or more over the intended removal area. (Depth is key! This is not the same as mulching with decorative bark materials.) Before placing the chips, you must mow or brush-cut the intended area as low to the ground as possible. Rake away the cuttings. (Or use a bagger on the mower.)

Chips smother both established plants and young seedlings very effectively, mostly by robbing them of light. They also create a small nitrogen deficit in the top two to three inches of soil, which deprives freshly germinated seeds of a critical nutrient. The effectiveness of this method is directly related to the depth of the chips and the length of time they are allowed to rest over the intended clearing. After one to two years with a chip cover, some supplemental weed removal may be required. Undecomposed wood chips must be removed from the surface before reseeding the area or planting small seedlings.

Additional notes on the use of wood chips for site clearing:

- *Note 1:* Wood chips are not the same as bark mulch or other forms of landscape mulch. Bark mulch decays quickly and uniformly compared to wood chips. Bark mulch tends to repel moisture. Deep bark mulch is likely to create dry zones under the soil surface. Wood chips, on the other hand, decompose more slowly. Most of the chips in a typical pile are wood—with comparatively little bark. Wood is

"hydrophilic," attracting and holding moisture for longer times. Water infiltration and gas exchange are unimpeded.

- *Note 2:* You can sign up online for free chip delivery with <https://getchipdrop.com/login/>. Supplies are not guaranteed, but it is worth listing your request. The site also has an extensive discussion of this material, including its "Wood Chips 101" page: <https://getchipdrop.com/woodchips/>.
- *Note 3:* Word of caution about invasive jumping worms: These destructive worms are well established in southern New England. Eggs can travel with chips that lay on the ground. According to Annise Dobson, Ph.D., Yale School of Forestry, try to use chips directly from a take-down. (They have not been stored on the ground.) If the chips are stockpiled and rest on the ground, they may be pick up worms or eggs. If using stored chips, allow the pile to compost for three days at 105 degrees or higher and turn it. To get the latest on jumping worm solutions, visit [ct.gov/CAES](http://ct.gov/CAES) and use the search bar to search for the topic: "jumping worms."
- *Note 4: Timing:* Woodchip or woodchip/cardboard smothering can begin at any time of year. Leave the material in place for at least one year for best results. After removing the cover, allow at least two months to observe emerging weeds. There will be some unwanted plants, as embedded seeds can remain viable for years. Remove undecomposed chips before seeding or planting plugs.
- Also see the writing of Dr. Linda Chalker Scott and other researchers on "arborist wood chips" at <https://gardenprofessors.com/>. Articles and fact sheets are listed below:

#### **Wood chip references:**

- [www.GardenProfessors.com/why-fresh-is-best-when-it-comes-to-mulch](http://www.GardenProfessors.com/why-fresh-is-best-when-it-comes-to-mulch)
- <https://www.youtube.com/watch?v=NXL9n2KNm1E&t=12s>
- Using Arborist Wood Chips As Landscape Mulch, Linda Chalker-Scott, Washington State University Extension Home Garden Series FS160E
- Chalker-Scott, L. 2007. Impact of Mulches on Landscape Plants and the Environment - A review. *J. Environ. Hort.* 25(4) 239-249.
- Chalker-Scott, L., and A. J. Downer 2020. Soil Myth Busting for Extension Educators: Reviewing the Literature on Soil Nutrition. *J. of the NACAA* 13(2):
- Downer, AJ., and B.A Faber. 2019. Mulches for Landscapes UCANR publication #8672 The Woodchip Handbook by Ben Raskin, 2021, Chelsea Green. Covers all aspects of woodchip usage, not only weed reduction.
- The Woodchip Handbook by Ben Raskin, 2021, Chelsea Green. Covers all aspects of woodchip usage, not only weed reduction. This is a guide to the entire topic of woodchips.

[h] Smothering with cardboard: Many people use plain brown cardboard under woodchips, compost, or leaves. This has both benefits and drawbacks. The advantage is that the cardboard layer deprives unwanted plants of light and hinders the progress of woody plants. Cardboard is lighter than woodchips, and therefore often easier to carry to a site and apply. If used under wood chips, cardboard reduces the necessary chip quantity and thus saves labor.

The drawbacks of cardboard are several, however. First, cardboard deprives the underlying soil of moisture and air exchange. This deprives the roots of desirable trees and shrubs of water and air. (Keep in mind that tree and shrub roots extend horizontally well beyond their canopies.) Second, it alters soil microbial populations. Microbial communities are likely to rebound after the smother is removed, but existing trees and shrubs may suffer.

- Additionally, cardboard products are not alike. Some are treated with chemicals; some incorporate non-paper materials. Under certain circumstances, cardboard can harbor pests such as termites. Never place cardboard directly against a building. If the cardboard has tape or staples, remove them. (Hint: Before applying the cardboard, leave it in the rain to loosen the tape.)
- **WeedGuard or other weed-suppression papers:** (<https://www.weedguardplus.com/landscape>) Organic farmers use weed-suppressing cellulose fiber paper. WeedGuard is probably the best-known brand. It is a useful replacement for dumpster cardboard, in that it is quality-controlled for soil safety. It is easy to apply and can be used under straw. However, its drawback is that it decomposes in one growing season. WeedGuard Red reportedly has slower decay times.
- **Newsprint** is generally considered safe, but it needs to be 3" to 6" thick to create an effective smother.
- **Ram board** is another option. This material is used to protect floors during painting and construction. It is sold at building and paint supplies stores. Ram board is recycled cardboard; it is much heavier than WeedGuard. Ram board is described as "breathable," but this benefit may not extend to landscape use. Rain, snow, and mulch particles may quickly alter its air exchange capabilities. Ram board is easy and quick to apply; it can greatly reduce labor.

[i] Metal mesh over Japanese Knotweed: Invented in the UK, this method places hardware cloth over knotweed patches. Knotweed grows through it and essentially strangles itself. See <https://www.jksl.com/japanese-knotweed-treatment/meshtech-removal/>. (*While this method is used in the UK, it is new in the US, and research results are lacking. I have contacted several researchers who, so far, can only say that "the jury is out."*)

[j] Organic Herbicide: This group of herbicides has benefits, but a few drawbacks. Most organic herbicides dissipate quickly after application compared to some synthetic herbicides. They avoid the use of persistent chemicals that are toxic to bees and other pollinators.

"Organic" does not mean harmless, however. When misapplied, some organic herbicides can harm pollinators as well as people. Always read the label, determine the time of day and time of year when the product is best applied, and mix according to instructions for the target vegetation. The instructions may also provide information about potential impact to aquatic life, pollinators, mammals, and other creatures. The material safety data sheet (MSDS, found online at the manufacturer's website) provides advice on protection for eyes and skin. Organic products are evolving, and new products become registered for sale every year. Check for new products at sites such as OMRI.org. (Search for "herbicides.")

A few more points:

- Most organic herbicides are non-selective (i.e., they damage all vegetation in spraying range) and kill only the top growth. Very few organic herbicides kill both roots and topgrowth. (There are a few exceptions, such as "Fiesta," an iron-based product that is a selective broadleaf weed killer for lawns.)
- Most organic herbicides require more applications than synthetics.
- One common myth says that kitchen vinegar is a good weed killer. It has 5% acetic acid and can damage some small plants, particularly when young, but it does not kill roots. Horticultural vinegar has 20% - 30% acetic acid and is far more effective. However, eye and skin protection are required. Hort vinegar does not kill roots, only top growth—similar to scalping. Repeat applications are usually needed. One popular brand is Green Gobbler.
- **Synthetic herbicides** are a complex subject best covered elsewhere, such as USDA National Invasive Species Information Center: (includes access to ID guides, plant geographic distribution, eradication protocols, economic impacts, videos)
  - Terrestrial plants: <https://www.invasivespeciesinfo.gov/terrestrial/plants>
  - Aquatic plants: <https://www.invasivespeciesinfo.gov/aquatic/plants>

## Information resources

### Weed and Invasive Plant Identification Resources Online

- Connecticut Invasive Plant Working Group: [www.CIPWG.UConn.edu](http://www.CIPWG.UConn.edu)
- Invasive Plant Atlas of New England: <http://www.eddmaps.org/ipane/> Extensive information regarding individual invasive species, biology, and eradication.
- Cornell Weed Identification includes seedlings: <https://blogs.cornell.edu/weedid/>
- Weed Alert: <http://www.weedalert.com/search-by-region-results.php?region=8>
- University of Georgia - Center for Invasive Species and Ecosystem Health, <http://www.invasive.org/species/weeds.cfm>
- USDA National Invasive Species Information Center: (includes access to ID guides, plant geographic distribution, eradication protocols, economic impacts, videos)
  - Terrestrial plants: <https://www.invasivespeciesinfo.gov/terrestrial/plants>
  - Aquatic plants: <https://www.invasivespeciesinfo.gov/aquatic/plants>
- Mistaken Identity: Invasive Plants and their Native Look-Alikes, NRCS, free download [https://www.researchgate.net/publication/304990027\\_Mistaken\\_Identity\\_Invasive\\_Plants\\_and\\_their\\_Native\\_Look-alikes](https://www.researchgate.net/publication/304990027_Mistaken_Identity_Invasive_Plants_and_their_Native_Look-alikes)

### Apps for phone and desktop that lead to plant identification, including invasive plants:

- PictureThis: <https://www.picturethisai.com/> Based on artificial intelligence. Plant identification with about 80 percent accuracy. It can be helpful for invasive plant identification. In some cases, it is capable of identifying seedlings of invasive plants.
- iNaturalist: [www.inaturalist.org/observations/identify](http://www.inaturalist.org/observations/identify). Crowd-sourced plant identification, including invasive plants, and other naturalist pursuits such as animal and insect identification.
- The SEEK app for iNaturalist is available at no charge on Google Play and other app stores.

### Books about invasive plants and weed management:

- Weeds of the Northeast, by Uva, Neal, and DiTomaso
- Guide to Invasive Plants in Massachusetts, Paul Somers et al.
- How to Eradicate Invasive Plants, Terri Dunn Chace
- Weed Control Methods Handbook, The Nature Conservancy, University of Georgia - Center for Invasive Species and Ecosystem Health, <https://www.invasive.org/gist/handbook.html>
- Manage Weeds on Your Farm: An Ecological Approach. <https://www.sare.org/news/manage-weeds-on-your-farm-an-ecological-approach/>
- Grasses, Sedges, Rushes: An Identification Guide, by Lauren Brown and Ted Eliman

### Purchasing topsoil and compost:

**UConn:** <https://homegarden.cahnr.uconn.edu/factsheets/purchasing-topsoil/>

### University of New Hampshire:

- <https://extension.unh.edu/resource/purchasing-top-soil-fact-sheet>
- <https://extension.unh.edu/resource/purchasing-compost-tip-sheet>

**Sources of certified compost, by state** (scroll down): <https://www.compostingcouncil.org/page/participants>

### “Blight”

- Blight legislation: Wild One’s webinar with Roseanne Plante: <https://wildones.org/weed-ordinances-webinar-2022/>

### Plant blindness:

- Plant Blindness, a Mower, and One Unfortunate Afternoon: <https://www.zip06.com/features/20200729/plant-blindness-a-mower-and-one-unfortunate-afternoon/>

### Disposal

Plants, plant parts, and their seeds sometimes remain viable even after cutting or spraying. Some seeds can remain viable for decades. It’s very important that invasive plants be thoroughly desiccated before they are added to the public waste stream. Connecticut statutes govern invasive plant disposal, both aquatic and terrestrial. To find the statutes and learn about acceptable disposal methods, download fact sheets:

- Guidelines for Disposal of Terrestrial Invasive Plants. University of Connecticut, CT Department of Energy and Environmental Protection, CIPWG. 2011. 4 pp. Available as a PDF online at [cipwg.uconn.edu/cipwg-publications](http://cipwg.uconn.edu/cipwg-publications)
- Guidelines for Disposal of Aquatic Invasive Plants. University of Connecticut, CT Department of Energy and Environmental Protection, CIPWG. 2011. 3 pp. Available as a PDF online at [cipwg.uconn.edu/cipwg-publication](http://cipwg.uconn.edu/cipwg-publication)