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WARNING

Invasive Exotic Weeds

Many parts of the country have exotic weeds that are taking over certain areas. As a landowner, you should know what they look like, and have some idea what to do about them.

by Robbo Holleran

Here in the Northeast, the Big Five are: Japanese knotweed, buckthorn (Asian and glossy), honeysuckle (several species), multiflora rose, and bittersweet. We have a number of others, and species like kudzu or giant hogweed are gaining notoriety around the country. Exotic insects like emerald ash Borer and diseases like Dutch elm disease are a similar problem, but here we are discussing plants—particularly "woody plants."

Invasive weeds are usually exotic: imported from somewhere else. They grow and multiply rapidly, reducing or eliminating native plants, and causing harm to the landscape and its ecology. From a forestry standpoint, these plants can make it difficult or impossible to regenerate new forest seedlings, reducing the productivity of your woodlot. Although some native plants can also be troublesome weeds, the worst offenders are imported.

Many of these have been used as landscape plants, and even recommended by the USDA for planting for one reason or another. For example, both buckthorn and multiflora rose were recommended as "natural fencing." Shrubs like honeysuckle and burning bush are "easy to propagate" and have been used as landscape ornamentals for centuries. Some exotic invasives were planted along interstate highways for landscaping. Not a great idea. I have seen "old growth" honeysuckle in front of colonial-era houses, with dozens of acres infested by their prodigy. Once these plants have entered our landscape, they are here to stay. But they don't have to be welcomed.

Some woodlots are completely free of these weeds. Areas close to old suburban landscaping, or with abandoned farm fields, are most problematic. Rich soils are usually affected. Learning to identify every plant in your woodlot could be fun, but it is not for everyone. If you see some prolific growth of all one plant, it is prudent to learn what it is. Your consulting forester or state service forester should be able to identify the most intrusive next time you have a walk-through. Every state has a list of offending plants, and most states have good pictures available on the Web, or in booklet form from your state foresters. These plants usually tolerate shade, so they survive and accumulate slowly under a closed canopy. Since they respond to disturbances like partial cutting by rapidly occupying any available space

Previous page photo shows heavy infestation of buckthorn, barberry, and others at a field edge in Woodstock Vermont. One month after the initial foliage treatment, this photo on the right shows over 90% control.

or sunlight, it is a good idea to review any harvest projects beforehand, to see if there is a potential problem.

We often find several of these noxious weeds together. Like potato chips, you seldom have just one. The seeds are often moved by birds, so you find them at your bird "hotspots"—small openings, apple trees, field edges, and along roads and waterways. Finding the first few plants would be nice, but takes careful observation and plant ID skills. Normally, by the time you notice them, they are a problem. On one woodlot, I found eight different species on a few acres.

In southern Vermont, we often see a correlation between invasive shrubs, ticks and deer. Most of these plants are not preferred deer browse, or a bit of nibbling does not slow them down much. So, areas with high deer population (and this may connect with abandoned agricultural land and nearby suburbs) often have these plants. As the deer chew the native plants, these can expand and grow. And somehow, ticks seem more abundant where invasive plants are found.

Control:

Once you find these plants, what can you do about it? How bad is the problem? Before you read this article, perhaps you were as happy as a clam in mud. When you discover these in your woods, you will feel violated. It's not my fault; I'm just the messenger. Like anything, you will be most successful if you have a carefully developed plan in place. It is a good idea to sketch the location, and note the identity, of the plants on your forest map. You may find one or two "epicenters" with dense growth of old plants, and then outlying areas with scattered populations. Some area may be infested with one or two species, and other areas may have different problems. I like maps, and seeing these areas relative to one another. Identify the worst areas, and hit them first and hardest.

The Natural Resource Conservation Service (NRCS) is a department of the USDA, and provides assistance to forest landowners. This is the same branch of government that helps farmers comply with environmental requirements. Since invasive plants are a public nuisance spreading through our forests, the NRCS can provide cost-share incentive money for conservation practices and control. The NRCS usually partners with your state Forestry Department to provide natural resource professionals to assist with early detection and develop a treatment plan. In some cases, there are significant funds available for initial treatment, but they seldom fund the subsequent control, which I think is needed.

Hand/Mechanical:

For small populations of these plants, and especially small plants, they can simply be pulled out by the roots. It is important to hang them up to dry, since they will often survive if left in contact with the soil. Merely cutting them off, even repeated mowing, does

Japanese knotweed, attempted control with landscape fabric and repeated mowing. The fabric was fairly successful, but there are sprouts pushing through any cracks.

not kill them. Most of these plants sprout prolifically from the roots. Larger infestations can also be mechanically treated, but it is good to use more than just a strong back. There are several tools that are helpful, such as modified grippers and chains for grabbing these bushes with a tractor or ATV. I know one fellow who has a propane-fired flame thrower on a tractor for killing the above-ground portion of these plants. There are also bush-hog attachments and "brush grinders" that will help, but they don't get at the root of the problem. This is a good initial treatment of heavy infestations. Follow-up spraying of the sprouts is relatively easy. For thick areas of multiflora rose, you simply cannot walk into them to get started. For landowners who will not use herbicide, or cannot because of organic certification or other limitations, mechanical and hand-pulling are your tools.

Herbicides:

At first, I was very hesitant to use chemicals in forestland. Most of what we do is pretty organic. But modern herbicides are generally the most cost-effective way to treat exotic invasive plants. This is not your father's Agent Orange. Most of the readily available herbicides are relatively benign, not persistent in the soil, and have little or no effect on soils, fungi, insects, or people. When used at recommended concentrations, they have very low toxicity, and are used quite sparingly for just a few years to solve a problem. Herbicides are far less toxic than insecticides, for example. Of course, you have to follow the label as that is the applicable federal law, and there may be state laws as well. The label will specify what type of protective equipment you need and other requirements. In most cases, you can use glyphosate (generic Roundup) on your own land without a license. It is effective and inexpensive. Some herbicides require a licensed applicator, and you must be licensed to apply pesticides on someone else's land.

Foliar spraying:

There are many different techniques to apply herbicides, and the simplest is foliar spraying. We use a backpack sprayer, since it is easier than carrying a hand-tank. The wand is adjustable from a fine mist to spray or stream, depending on the foliage type and distance you are trying to reach. We use rubber gloves and long-sleeved shirts. A rain suit is overkill, but it might make you more at-ease, though less comfortable. You simply spray the live foliage of the offending plants until you've covered most of it with some droplets, but not to the point of dripping. Glyphosate is effective on most plants.

Purchasing generic brands, and concentrates, can be a substantial savings compared to ready-to-use mixes. Farm-supply stores will have concentrates that you can mix to the desired strength. We use glyphosate as a 1.5% or 2% solution. Stronger is not better. Carefully read the label, as some concentrates are made for mixing with water, and some with oils. A 40% concentrate is mixed one part to 20 of water to achieve a 2% tank mix. Late summer is generally the best time to spray, though different plants respond in different ways. A surfactant (like a soap) helps to spread the chemical on the leaves, and a dye helps you to see where you have been. These are sold with the herbicide. We also use flagging to mark out corridors as landmarks to assist with thorough treatment.

In practice, you develop a "search image" as you scan through the plants. Your target species will have a particular leaf shape, size, and color. From a distance, it has a visual "texture." Especially if you have several target species, or both young and older plants, it can be confusing. There are native plants with a similar appearance, so it pays to go slowly and be careful. Another problem with foliar spraying is overspray. Some droplets will fall onto native plants, causing collateral damage. Careful application will also minimize this. I'm used to looking up when I walk through the forest, so I have to develop landmarks to be oriented while I wander through, looking down.

We find that plants in the shade are more tolerant of herbicides. Glyphosate in particular is taken into the plant by photosynthesis, so it has to be actively growing. Also, plants with glossy, waxy leaves have a layer of resistance. Buckthorn, bittersweet, and black swallowwort are hard to kill with glyphosate, especially late in the

Field edge multiflora rose after one foliar treatment with glyphosate.

summer. We sometimes use triclopyr, or a mix with glyphosate, to be more effective in these situations. Some plants, like knotweed and buckthorn, are better sprayed before, or after, flowering. It takes some experience to be most effective.

Trunk and stump treatments:

A good option with larger or taller shrubs is to cut off the stem and treat the cut stump with concentrated herbicide. We call this "cut stump" treatment. You simply paint the surface, or just the cambium layer, with the concentrate within about 30 minutes of cutting. It has to be freshly cut, so cut for a while and then treat that area. A dye is very helpful to evaluate what has been done. There is no risk of overspray, and the chemical is used very sparingly, but concentrated. It can be applied with a paintbrush from a small can or jar. But a mustard squirt-bottle or old-fashioned oil squirt-can works great. While this is supposed to work with glyphosate, we have had poor results. Triclopyr seems to be more effective. There is quite a bit of labor and the hazard of adding a saw to the mix, but this is usually used on only the larger specimens. You have the benefit of knowing that even if the herbicide is not successful, you have cut down the plant. And you have the option of piling or removing the debris.

"Basal bark treatment" involves spraying the bark at the base of the shrub with a concentrated mix, with oil. This is a good choice for heavy infestations of taller plants like mature buckthorn. It has the potential problem of overspray, with a concentrated mix and an oil base. It has the benefit of being able to treat at almost any time of year. For heavy infestations, this is probably less costly than "cut-stump" or "hack and squirt."

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My personal favorite for larger stems is called "hack and squirt." Take a guess how that works: You hack through the bark with a hatchet (we use a Swedish brush axe for a nice clean cut) at waist height and squirt into the opening with an old-fashioned oil squirt can or mustard bottle. Two hacks on a 3-inch stem seem to be adequate, with more on larger stems. We use a triclopyr concentrate for this, and have had very good success with reasonable labor cost. We are even using this to control beech as an undesired forest understory, treating only the larger sprouts since they are all root-connected. It works well on larger buckthorns, which are problematic. For larger honeysuckle bushes, you have to treat most of the stems to get sufficient kill.

I became involved in the story of invasive weeds in my own backyard, a floodplain of the Williams River, where I watched Japanese knotweed proliferate until most of it was thick with pure knotweed, the bamboo-like plant that grows from dense root-mats. One September day, after my own internal battle, I purchased a backpack sprayer and some concentrated glyphosate, put on a rain-suit, and commenced to spray my patch. The weeds were 10 feet tall, and I had to spray over my head to do it.

I waited 10 days to go and look. Glyphosate is slow to act, but pretty reliable, and I knew that it would not look different the first week. I was disappointed. Some of the lower leaves had yellowed or fallen off, but the tops were green. I could see the difference at the boundary to my neighbor's land. Each week, more of the lower leaves yellowed and fell. The frost delayed into October that year, and by then, only the top 20% was still green, but looked healthy. When the tops were finally killed by frost, I thought my efforts were nil.

The next spring, only about 15% re-sprouted, and without the normal vigor. Native plants rebounded in the gaps. I was encouraged. With subsequent spraying, I am down to less than 1% knotweed. And I have permission to spray on the neighbor's land as well, so the whole stretch is now controlled. The survivors are small sprouts (some of them with dwarfed characteristics from glyphosate) that are hard to find. In the meantime, on that one acre, I have since found a few honeysuckle, multiflora rose, bittersweet, and garlic mustard. But once each year, I go down with a gallon or two of mix and carefully search through the native plants looking for offenders.

That next spring, I became licensed to spray professionally, and now provide this service to my clients. We have tried many things that did not work so well, but have had many successes. We have tackled some very difficult infestations, but it takes several years of effort. In late summer, we often carry a sprayer in the truck, and have been able to nip some small populations before they became a problem. It is very satisfying to make a difference on the land we love. ■

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