Botany of Invasive Species

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Defining "Invasive"

"Invasive" is a term we hear often in the permaculture and gardening world. But what does it mean for a plant species to be considered "*invasive*"?

The federal government defines an invasive species as: "an alien species whose introduction causes or is likely to cause economic or environmental harm or harm to human health."

If you've encountered "invasive" species in your food forest or garden, you may consider them to be vigorous growers that push out other potentially more-desired species while lowering biodiversity.

Invasive... or Naturalized?

The line between invasive and naturalized plant species is blurry, and one that differs with opinion.

Naturalized plants are those that spread into the non-native environments and are able to establish a population there without human aid (e.g. watering or fertilizing).

While all invasive plants are, by definition, naturalized, not all naturalized plants are actually *invasive*. Whether we consider them invasive or naturalized, the common denominator is that these plant species are "non-native."

Not all non-native plant species are tough enough to naturalize when introduced to a new environment, and those that do often end up fulfilling an ecological function such as controlling erosion, sequestering carbon, and providing shade in hot urban areas.

While some non-native species can certainly *become* invasive, many have been villainized simply for being non-native. In fact, many of the food forest parks in our network feature beneficial non-native species simply because they are just that — beneficial.

Native vs. Non-Native Species

So what is a *native* plant species?

Native species are defined as "plants that occur naturally in a particular region, ecosystem, or habitat without human introduction."

Meanwhile, non-native plant species, as we've learned, are those "that have been introduced from other regions or countries, that are not a problem and may be considered beneficial."

While these definitions are rather straightforward, there are numerous questions that arise when considering whether a non-native plant is simply naturalized or if it's invasive.

For example:

- Where do we draw a line on a map to mark any one plant's "native" zone? Where does that zone begin and end?
- At what point in time do we begin to consider a certain plant native? After 10 years present in an ecosystem? Or 100? Or 1,000?
- Can a plant really be "native" in an urban environment?
- How do we define "harm" from invasive species? Is it at the personal level? The community level? The ecological level? At what level does that harm require the "invasive" label?

- Which of our local non-native species do we consider “invasive”? Which do we consider merely “introduced” or “naturalized?” How do we approach these plants in our gardens, food forests, farms, and neighborhoods?

- How can we identify an invasive species without needing to know its name?

Identifying “Invasive” Species

You may now be thinking, “Okay, I have my whole lifetime to familiarize myself with the native, non-native, and naturalized species in my local bioregion. But what about the invasive species in my food forest/garden that need to be addressed this season?”

Fortunately, we don’t have to memorize the taxonomy of each invasive species in order to address them appropriately in an ecosystem. In fact, it’s possible to recognize an invasive species by paying attention to its behavior.

A species might be labeled “invasive” if it is…

- Vigorous
    - e.g. grows like crazy!

- Aggressive; sometimes colonial in habit
    - e.g. sending up lots of suckers from the ground

- Quick and efficient seeder/spreader
    - e.g. loaded with seeds that seem to drop everywhere

- High adaptability
    - e.g. survives in challenging environments

- Often ornamental
    - decorative and/or unusual for the local bioregion

If you suspect that a species is invasive within the particular context in which you’ve found it, there are several questions you can ask before devising a management plan.

Remember that every plant strives to fill an ecological niche, and what seems to be an invasive may just be in the process of naturalizing.

You might ask yourself…

- Which niche(s) does this invasive species seem to be filling?

- How might this species be serving the space?
- What other species (if any) might have grown here otherwise?
- What is the history of the land that is now dominated by invasives? What other factors may have influenced the arrival of an opportunistic species (e.g. disturbed soil)?
- When are invasive species *outcompeting* native species, and when might they actually be *more suited* for the disturbed ecological niches so common to the urban, developed landscape?
- Are invasive species the drivers of ecological change or are they the passengers?

What positive ecological roles might invasive species fill?

- Phytoremediation is defined as the direct use of living plants for remediation of contaminated soil. This includes heavy metals and overly rich nutrient runoffs. A slow process, it takes five or more years to clean up a polluted site with plant species (depending on the level of pollution). Invasive species tend to be more efficient at tolerating and filtering pollutants than native species, which is why they are able to outcompete them and better fill the "disturbed" ecological niche.

- Invasives sometimes serve as "pioneer species" on nutrient poor, eroding soil. These species are tough and adaptable, with the power to control erosion, fix nitrogen, build soil, and more effectively retain water. If this soil were to remain undisturbed after "invasion," would the invasives remain or would they eventually be replaced by other plants?

- Invasive plants also provide critical habitat for local native and non-native insect and animal species to rest, nest, hunt, reproduce, and overwinter.

Plant Profiles of 16 Common Boston Invasives

DISCLAIMER: The following section contains profiles on some common invasive species in and around Boston, including information about edible and medicinal uses for some of these plants. When harvesting wild food and medicine, please do this with the following considerations in mind:

1) Make sure you are absolutely positive about identification; sometimes it is best to have a new plant introduced to you by someone else who knows it very well.

2) Harvest from areas you know are safe and clean. Many invasive species tend to proliferate in polluted areas and are known to take up heavy metals and other pollutants.

3) Use caution when eating a new plant and start with a small amount. Even if a plant is considered edible it is always possible you may have an unknown allergy or intolerance to it.

4) Trust your senses.

**The following profiles focuses mostly on the habits of urban invasive species and does not go into depth on the nature of these plants outside the urban environment, despite the fact that many of these plants thrive in town and country.*

Norway Maple, Acer platanoides, Sapindaceae (Soapberry Family)

Native home: Northern and Central Europe, Western Asia

Life form: Large tree

Habitat and site preference: Norway maple is the most common weed tree of Boston and its suburbs and makes up a very significant portion of the area's overall canopy. While you may see it more often than Tree of Heaven, Norway maples are not quite as capable as growing up through concrete as that tree. It is especially common as a backyard tree, growing along the neglected borders between properties, as well as the edges of woodlands. In this regard, a grove of Norway maple should be an especially welcome sight to anyone who has found themselves lost in the woods, for the sight of one indicates you are nearing civilization again.

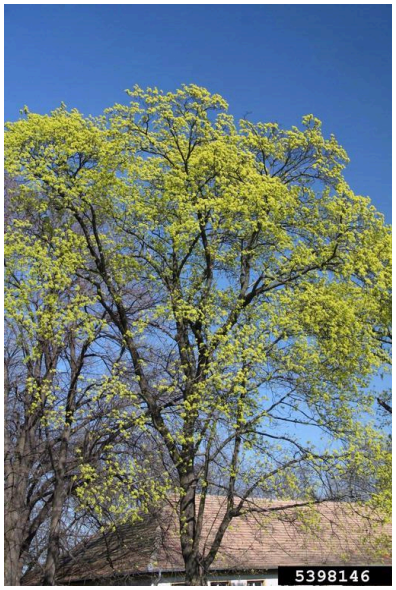
Norway maple could be considered a sort of climax species for the urban environment, as it comes to dominate and stabilize the species makeup of a disturbed area once it looms over with its all encompassing shade. Norway saplings tolerate shade and compaction, so generally few other plants besides itself can grow underneath it.

Norway maples were originally introduced as an ornamental species and somehow continued to be planted as a street tree in Boston, no matter their invasive nature, until relatively recently.

Management: Can be cut down but stumps of healthy trees will sprout back up, as well as the numerous seedlings waiting to take advantage of the new opening in the canopy. Norway maples can make large, attractive trees and some would be a shame to remove, especially if it is the only kind of tree you have on your land, though it can be difficult to find understory species of herb and shrub to tolerate the dense shade made by them.

Ecological Function: No other tree provides such dense, total shade as the Norway maple. Thus it adds immensely to the urban canopy and the reduction of heat on city streets, as well as sucking up carbon. The removal of all invasive Norway maples from Boston would result in a drastic loss to the city's total canopy coverage.

Uses: The main use for this tree has been ornamental. Many cultivars exist for this species, including a couple purple-leaved varieties like 'Crimson King' and 'Schwedleri.' However, there is really no need to go out of one's way anymore to plant Norway maples, they manage to spread just fine on their own. Like other maples, Norways can be tapped to make maple syrup.



Tree of Heaven, Ailanthus altissima, Simaroubaceae (Quassia Family)

Native home: Central China

Life form: Large, short-lived tree

Habitat and site preference: Tree of Heaven is for the most part a city-dweller in the Northeast. When you start seeing Tree of Heaven on the highway it means you are leaving the country and entering the city. Farther south it more commonly invades deeper into forested areas, but around Boston it seems to prefer cracks in driveways and narrow alleyways in between buildings. Tree of Heaven thrives off whatever the urban environment may throw at a plant to deter its growth. It is also allelopathic, meaning it releases chemicals to prohibit the growth of competing species growing nearby.

Management: Very difficult. Grows very fast and will sprout back up from the stump. Continual cutting is necessary, along with sometimes introducing other tree species to outcompete it if it keeps coming back.

Ecological Function: Provides canopy coverage to the urban area, as well as reduction of heat island effects, and carbon storage. Although Tree of Heaven may cause damage to infrastructure with its root system busting up staircases, foundations, and underground pipes, it also accounts for a significant portion of the urban canopy coverage and at no charge. Thus it provides both a disservice and service to urban infrastructure.

Uses: Chinese immigrant laborers separately introduced Tree of Heaven to the Western U.S. as a medicine for travelers' diarrhea, dysentery and other parasitic infections. Current research is investigating its chemical components as a potential treatment for malaria. Also, it is fun (for some) to crack the twigs and smell its rather offensive odor. I think it smells like peanut butter and onions.

Garlic Mustard, Alliaria petiolata, Brassicaceae (Mustard Family)

Native home: Eurasia

Life form: Herbaceous biennial

Habitat and site preference: Colonizer of bare, often but not exclusively disturbed ground. Shade tolerant. Common in forest understory and edges, especially near trailheads; shady parts of yards where other plants struggle to grow; heavily weeded garden beds, and stream edges. Allelopathic.

Management: Usually a lot of continual pulling up. Garlic mustard produces many tiny seeds, so successive heavy weeding over several-to-many seasons is required to come near to eradication. Careful weeding while in seed as you are likely to spread it more this way. Managing and tolerating some Garlic mustard is a more realistic goal.

Ecological Function: Mostly displacing native understory species in the forest. Garlic mustard does manage to grow in places many plants cannot, though there are other invasives I would rather see there.

Uses: Young shoots are edible in early spring before many other wild greens are available. As they grow later in Spring, they become too bitter to enjoy (which of course is dependent on your tolerance for bitter flavor/masochistic tendencies), so a taste test is important before harvesting a large bunch. Tastes like the name suggests. Makes for a decent pesto.

Burdock, Arctium minus, Asteraceae (Aster Family)

Native home: Eurasia

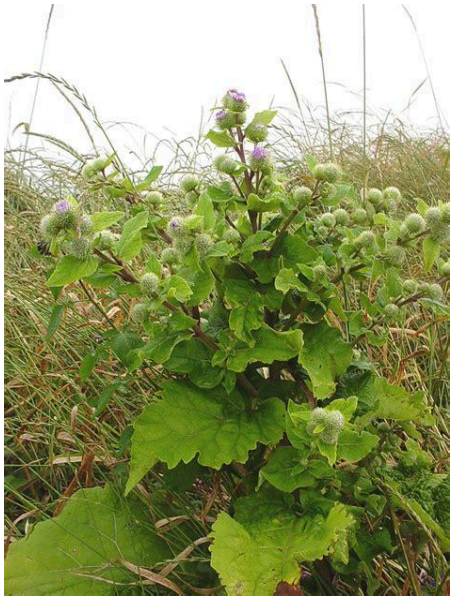
Life form: Herbaceous biennial

Habitat and site preference: Prefers disturbed but moist and rich sites, with at least half-decent sun exposure. Common especially in public parks and gardens and edges of woodlands. Usually a sign that your garden has good, rich soil with adequate drainage.

Management: Burdock has a very long taproot that is difficult to pull out without breaking and it will regenerate from just the remnant tip. It is not the most aggressive weed and if you learn to appreciate it for its edible and medicinal uses in your garden you will find yourself wishing there was more of it.

Ecological Function: Colonizer of bare, disturbed ground.

Uses: There is a good use for pretty much all parts of this plant. The root, harvested in the fall of its first year, or spring of its second, makes for a sweet, starchy vegetable, good in soups or cut in thin strips and pan-fried as a simple Japanese dish called Kinpira Gobo. The root and seeds are also used medicinally as a "blood purifier," which in modern terms refers to its ability to be helpful to ease symptoms of illnesses like rheumatoid arthritis, acne, digestive issues originating in the liver, and the immune system. The young stem of the second year plant, harvested before flowering and peeled is a delicious and refreshing nibble, good cooked or raw. The leaves are generally too bitter for me to enjoy, though I know some people who will boil the young leaves and their peeled petioles for food.



Mugwort, Artemisia vulgaris, Asteraceae (Aster Family)

Native home: Eurasia

Life form: Herbaceous perennial

Habitat and site preference: Disturbed compacted soil (often with high pH), especially roadsides, tree squares, abandoned lots, median strips, and cracks in pavement. Very common, often forming thick, tall patches when given the space.

Management: Almost impossible manually. Difficult to remove the entire rhizome system. Mugwort is not particularly shade tolerant so consider introducing favorable species that can shade it out.

Ecological Function: Phytoremediator, absorbs heavy metals from polluted urban soil and binds them to organic matter. Erosion control and soil building.

Uses: Mugwort has been used as an herbal medicine for thousands of years in Europe and Asia. Roman soldiers used to put it in their sandals to aid their sore feet during marches across the continent. It also has been and still is used today for menstrual and digestive disorders, among other things, and is the main reason it was introduced to the US. In Chinese medicine and acupuncture, mugwort is burned in the form of moxibustion and the heat applied to treat injury, pain, and other conditions.

Oriental Bittersweet, Celastrus orbiculatus, Celastraceae (Bittersweet Family)

Native home: Northeast Asia

Life form: Woody vine

Habitat and site preference: Highly adaptable, quite shade tolerant, often found creeping up through already established plants or forest understory. On chain-link fences, telephone poles, even in neglected lots and fields, it will grow up and sprawl over the ground without any support from structures or woody species.

Management: Very difficult. Tends to sucker from roots to put up new vines, especially after incomplete attempts to eradicate. Its ability to germinate and sucker in dense shade makes it very difficult to introduce other species to outcompete it. Basically requires constant maintenance and tolerance once it has established itself. Many resort to treating the cut stems with pesticide, though this is not especially effective. A watchful, preventive eye is the best tool here.

Ecological Function: Food and habitat for wildlife, erosion control.

Uses: The attractive fruits of oriental bittersweet are a popular holiday decoration (likely a cause of its spread). Introduced as an ornamental, despite the fact that we already have a native bittersweet (Celastrus scandens), which is significantly less invasive (and thus not quite as easy to cultivate). A minor herb in Traditional Chinese Medicine.

Black swallowwort, Cynanchum louiseae, Apocynaceae (Dogbane Family)

Native home: Europe

Life form: Herbaceous perennial vine

Habitat and site preference: Black swallowwort is tolerant of diverse conditions, from full sun to pretty full shade and very dry sites. Any neglected or disturbed site is a target, though being a vine it prefers to have some structural support. You see black swallowwort growing up fences more than anywhere else in Boston.

Management: Very difficult, especially when swallowwort is using a beloved shrub as a trellis, it is all but impossible to completely remove its root system without damaging that of its supporting species. Most gardeners make do by simply ripping up swallowwort every season before it goes to seed to limit as best as they can its further spread.

Ecological Function: I have a hard time finding the upside to this plant. One thing it also does is poison our much beloved Monarch butterfly caterpillars, who confuse this toxic species for the edible native Milkweed (Asclepias syriaca), and are killed by feeding on it. It is said that Monarch caterpillars tend to feed on swallowworts that are about the size and stature of a milkweed plant, when they look more like a regular plant and less like a vine.

Uses: Perhaps revenge, though the initial offense would have to be impossibly heinous to justify introducing this plant into your rival's garden. It was traditionally used in herbal medicine in Europe, but due to the plant's toxic nature I do not know of anyone still using it today. Like all Dogbane family plants the stem could be made into cordage, but swallowwort's slender stem would not be my first pick.

Crabapple/Wild Apple, Malus spp., Rosaceae (Rose Family)

Native home: Eurasia

Life form: Small tree

Habitat and site preference: Understory of urban woodlands, edges of parks, vacant lots and fields, alongside train tracks and buildings not being actively landscaped.

Most of the spontaneous crabapples around Boston are descendants of European cultivated varieties and prefer rich, loamy, well-drained acid soils, as so many cultivated species do.

Management: Not the worst; can be grubbed out or cut down, usually not heavy stump sprouters. The fruits are spread by birds and other wildlife so seedlings will pop up here and there but is not usually problematic.

Ecological Function: Beloved food for wildlife and pollinators, also habitat. Heat reduction in paved areas.

Uses: If I could pick the city flower for Boston it would be the crabapple. The festooning of the urban woodland understory with bright pink-white blossoms lighten my heart every Spring, and the fragrance is uplifting to the spirit. Most of our wild apples in Boston were originally selected for the showiness of their flowers (sometimes for pretty fruit too) but not for flavor. Yet their fruit can be used to make a decent cider or into a preserve if you add lots and lots of sugar. My favorite way to enjoy the bitterly sour wild apple is not until the first frost of late Fall has touched the fruit and then the succeeding thaw breaks down its cell walls, causing the fruit to soften and sweeten. The texture is not for everyone but the bitterness and astringency are gone, leaving only sweetness. This varies from tree to tree and sometimes takes multiple freeze-thaw cycles in late fall and early winter. This technique is championed by Thoreau in his essay on wild apples.

White Mulberry, Morus alba, Moraceae (Mulberry Family)

Native home: East Asia

Life form: Small-medium tree

Habitat and site preference: Highly adaptable and drought tolerant. Will grow anywhere it pleases in the city. On or within fences, in or in between yards, parks, train tracks, edges of woodlands, from underneath your house, out of the sidewalk, pretty much anywhere that is not consistently mowed.

Management: Very persistent sprouter, hard to remove simply by cutting back to ground. Saplings are not too difficult to pull up by hand or with tools. Often protects itself by growing from under a house's foundation or at the base of a fence or from within the root system of another tree, so you can never pull out the roots and no matter how often you cut it down it seems to come right back.

Ecological Function: Food for wildlife, urban canopy coverage and heat reduction, erosion control.

Uses: In Traditional Chinese Medicine, every part of this tree is used as medicine, including a parasitic plant that only grows on Mulberry (though not here, as far as I know). The leaves are also the sole food source for silkworms, which excrete the substance that makes silk. A short-lived attempt to bring a silk industry to the American south is in fact what brought the mulberry to this country.

The fruits can be quite tasty, juicy and mildly sweet, though the quality varies greatly from tree to tree, likely because Mulberries grow in a range of soil conditions, including some quite unsavory, nutrient-poor areas, which probably account for a more insipid fruit. Even fruits that are disappointingly bland can be dried to bring out the sweetness. I think mulberries are often more enjoyable this way.

Despite some confusion, pretty much all mulberry trees you see in Boston are this species and not Black Mulberry (M. nigra), a Eurasian species, or Red Mulberry (M. rubra) the more southerly native species, no matter the color of the ripe fruit, which can be anywhere from white to a purple so dark it appears black. Rarely, a fruit will ripen more red, but this is usually a sign that it is not quite ready. Mulberries are dioecious, meaning that only some trees bear fruit, while the others bear the male flowers. Having a male mulberry tree on my property would be significantly less exciting than a fruit-bearing female.

Cork Tree, Phellodendron amurense, Rutaceae (Citrus Family)

Native home: Northeast Asia

Life form: Medium-large tree

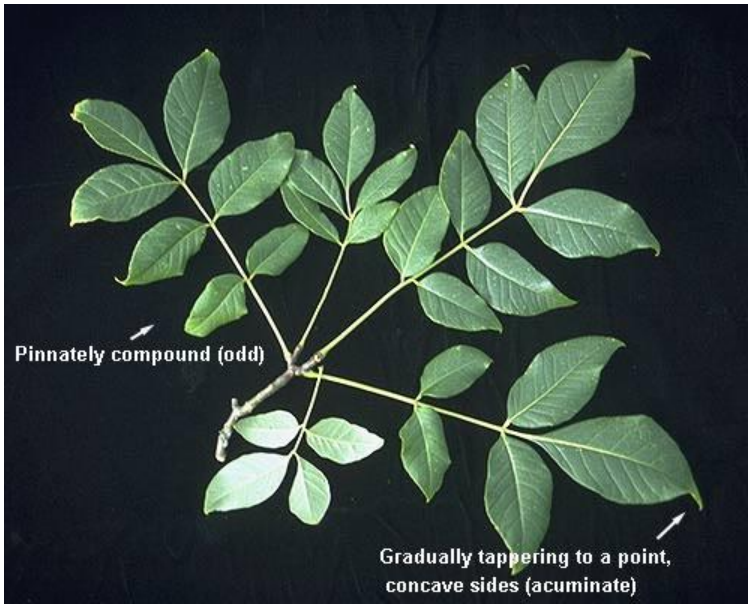
Habitat and site preference: Pretty tolerant of diverse soil and light conditions and becoming more and more common recently in disturbed and emergent woodlands, especially near areas where it has been planted. I notice it the most in wooded areas near the Arnold Arboretum, where I believe it was first introduced into Boston. It has spread into some forests around the suburbs. I suspect this tree will be much more common in urban and suburban areas and forest understories in future generations.

Management: Current efforts by the state and other conservation organizations involve cutting and herbicide treatment. For the local gardener and homeowner vigilance and preventive cutting before trees reach fruiting maturity are most important, if further spread is wished to be avoided. At this point it is unclear how significant a role this tree will play in our local ecosystems.

Ecological Function: Food for wildlife, especially birds. Urban canopy coverage and heat reduction.

Uses: This is one of my favorite ornamental trees. I love the corky, squishy bark and its low, spreading habit. The bright yellow cambium (living, inner bark layer), is used in Traditional Chinese Medicine to "clear damp heat," which I will not attempt to define here. The bright yellow color comes from the chemical berberine, which has a potent antibacterial effect when coming in direct contact with infectious bacteria, either topically on infected wounds or internally for a stomach bug or UTI. Berberine also lowers blood sugar and stimulates the production of bile and other digestive secretions. The cambium also makes a pretty yellow dye.

Despite its name, this Cork tree is not the species used to cork bottles of wine. That would be the bark of the Cork oak, Quercus suber, a Mediterranean species.



Japanese Knotweed, Reynoutria japonica, Polygonaceae (Knotweed Family)

Native home: East Asia

Life form: Herbaceous (and tenacious) perennial

Habitat and site preference: Japanese knotweed prefers moist, well-drained sites with sun like riverbanks and woodland edges, but is tolerant of drought and shade. Therefore it usually finds itself along roadsides and ditches, gravelly lots and embankments, along fences and railroad tracks. It can also squeeze in between cracks in pavement. One place it manages to grow in its native Japan is along barren lava flows on Mt. Fuji. It's a toughie, for sure. A recent study claims Japanese knotweed grows to a greater size on damaged, disturbed land than it does on rich farmland.

Management: Backbreaking, especially when it has formed a sizable stand, which is most of the time. Unless you have a backhoe, you will not be able to pull out whole root masses. Even if you have a backhoe there will probably be bits of root leftover and the plant can easily regenerate from a tiny portion of root, or even from a node on the stem. It is important to be very careful of how you dispose of Japanese knotweed roots to prevent further spread. Dry out on asphalt for weeks or burn to destroy. Repeated localized treatments of pesticide will eventually kill the plant, but this may take years of treatment and no small amount of pesticide. Introduction of other favorable species that can tolerate knotweed, such as Groundnut (Apios americana), as well as learning to love this plant is recommended.

Ecological Function: Amazing at erosion control; one of the reasons it was brought here was to stabilize eroding roadsides. Phytoremediation, very efficient at taking up certain heavy metals.

Uses: The young shoots of Japanese knotweed are edible and delicious. Harvest before they unfurl their leaves, usually under a foot in height and look like very thick asparagus, and peel. The unprocessed flavor is sour like rhubarb and can be used similarly. The traditional Japanese method involves parboiling for a couple minutes then soaking in cold water overnight. The resulting product is no longer sour and is much more vegetal. This is how I prefer it. It makes for a unique and satisfying vegetable. Peeled, but not parboiled, it can then be preserved layered in salt. I like to cut shoots into olive-like slices (the shoots are hollow in between nodes like bamboo) and place them on pizza.

The roots of Japanese knotweed are good medicine. They are high in resveratrol, an antioxidant compound also found in grape skins, the reason why a nightly glass of wine is good for the heart. The root is also a useful anti-inflammatory for the joints, used especially for arthritis and arthritic-like symptoms common in Lyme disease. The name for this plant in Japanese translates roughly to "removes pain."

Black Locust, Robinia pseudoacacia, Fabaceae (Pea Family)

Native home: Appalachia

Life form: Large, short-lived tree

Habitat and site preference: Tends to prefer low-quality, eroding soils that are well-drained, often appearing alongside railroad tracks, fence lines, and recently disturbed pieces of Earth, often in that little patch of ground behind a restaurant or at the junction of multiple properties which no one really knows whom it belongs to.

Management: Very colonial in habit, rarely will you ever see just one black locust, so cutting it down will most likely just lead to it spreading out wider. Black locust does not form a dense canopy, is a Nitrogen fixing plant, and is not long lived so tolerating it is your best bet and maybe in your best interest. Many of your beloved garden plants and vegetables will thrive amongst black locust trees. The more you cut back at a black locust the thornier it will become.

Ecological Function: Black locust builds up soil where it barely even exists. It also checks erosion, and provides habitat for wildlife.

Uses: The spread of Black locust out of Appalachia into nearly all of the Eastern half of the United States is due entirely to how useful this plant was to early settlers. The wood is highly rot-resistant and makes excellent, long lasting posts that are set in the ground. It is also of such a hard, durable nature that nails of black locust were used to replace iron nails on ships. It also burns hotter and longer than oak, the perfect log to toss in the wood stove before bed.

When I lived in the mountains of North Carolina, I was introduced to locust fritters, a simple delicacy. In June, black locusts produce copious racemes of fragrant creamy pea blossoms. Gather the entire length of blossoms, which can be eaten raw in salad, or better yet dipped in batter and deep fried to make one of my very favorite seasonal treats.

Multiflora rose, Rosa multiflora, Rosaceae (Rose Family)

Native home: East Asia

Life form: Perennial woody vine/climbing shrub

Habitat and site preference: Tolerant of diverse conditions but usually needs space, either horizontal or vertical to thrive. Can form bushy thickets or sprawl up the sides of houses. It is less likely than other local vines to climb up a tree. Common in urban meadows, alongside streams, dumps and waste sites.

Management: Painful! Like most roses it is armed with sharp, slightly hooked prickles that often detach from the stem. However, given a good solid group effort it can be effectively pulled by hand, provided you aren't working on too vast a space where its fruits have seeded all over the place. Vigilant watch for new seedlings is important.

Ecological Function: Food and cover for wildlife (for better or worse, rabbits thrive in the bramble-like thickets formed by multiflora); erosion control.

Uses: Multiflora rose was introduced specifically as a living fence because of its thicket forming habit and impenetrable thorniness. It could still be employed as such today but would not be my first choice due to its invasive nature. Its "hips", the bright red, fleshy seed pods, are sweet, a little sour and high in Vitamin C but are so small and seedy that they are significantly more work to process than a large-hipped rose like Rosa rugosa.

Blackberry, Rubus allegheniensis, Rosaceae (Rose Family)

Native home: Eastern North America

Life form: Shrub

Habitat and site preference: Prefers deep, moist soil with full sun, though fairly tolerant of adverse conditions. Vacant lots, parks, forest edges.

Management: Not quite as painful as multiflora rose, but still worth wearing gloves. Pulls out fairly easily but just as easy to leave some piece of root behind. Usually worth keeping at least some on your land if you like eating blackberries.

Ecological Function: Beloved food and habitat for wildlife (and humans) and native pollinators; erosion control.

Uses: Probably you know how to eat a blackberry, though you may not have realized how commonly abundant they are, so keep an eye out for big bushy growth of thorny five-leaved plants with five-petaled white flowers in Spring. These will become blackberries before summer is through. The leaves, but especially the root, is highly astringent due to its tannin content. This means it binds and tightens tissue, which is useful topically as a wash or poultice for wounds we would like to close and heal up faster, or famous internally for diarrhea where it acts as a sort of cork for one's sphincter.

Other Rubus spp. like Red Raspberry (R. idaeus) and Black Raspberry (R. occidentalis) are also common to the area.

Poison Ivy, Toxicodendron radicans, Anacardiaceae (Cashew Family)

Native home: Eastern North America

Life form: Woody (and hairy) vine

Habitat and site preference: Prefers disturbed but still rich, moist soils, though can stand drier, sandier soils. It can tolerate salt and grow in rocky areas but is less common in the most urban environments. Grows up very high into trees but just as often creeps along the ground. It is most likely to appear in recently disturbed

wooded areas, especially areas used as dump sites or where the forest meets the city. It often surrounds the remnant wooded zones outside of new housing and shopping developments, as if to demarcate the limit of urbanization and keep further development out.

Management: Takes either great courage or ordinary foolishness. Can be ripped out manually, but no one relishes the allergic reaction caused by poison ivy exposure, so wear layers of protection and don't run it through the wood chipper! Some people seem less reactive than others, but this seems to change with time and/or repeated exposure. The best method is to limit further disturbance on land so Poison Ivy does not spread.

Ecological Function: Fairly effective at keeping large mammals (like humans), but unfortunately not large machines, out of recently disturbed areas, which may provide the opportunity for damaged land to recover successionally without further disturbance. Berries loved by birds.

Uses: There is some history of this plant being used as medicine but has unsurprisingly fallen out of common practice. I have met a few people who use it as a sort of homeopathic remedy for their own poison ivy allergy. Generally, the procedure involves swallowing a tiny piece of leaf a day, often encapsulated in bread to protect your mucosa, working your way up to a larger piece of leaf, or something of the sort. I am not recommending you try this, but the people who have done this seem to think it works. And they would have to be really deranged to think it works when it was really causing severe dermatitis within their GI tract! Or they could always just be amongst the proportion of people who are not particularly reactive to urushiol, the allergic substance in the sap and thus are just unaffected anyway. People do all sorts of things...

Stinging Nettle, Urtica dioica, Urticaceae (Nettle Family)

Native home: Eastern North America and Eurasia, depending on who you ask and which subspecies you are talking about

Life form: Herbaceous perennial

Habitat and site preference: Nettles really want a nutrient-rich (especially potassium) sunny spot, with lots of room to spread. In the urban environment this ends up being places that get a lot of sun and runoff, like at the margins of wetlands, fields, ditches, along the edges of woodlands, or on a load of compost that was just left in your garden and never used.

Management: Stings! Manageable with gloves, pants and long-sleeves before the plant gets too established, but once it is established it is a doozy to remove. But take solace in the fact that it means you are on a nice rich site with lots of potash. Nettles are an amazing food and medicine so consider keeping a patch (and keeping it in check). To keep it from spreading by seed you can cut down the plant multiple times every year and add it to your compost. This compost will soon become the envy of all your neighborhood composters.

Ecological Function: Phytoremediation; colonizer of overly moist, bare soil. Habitat for many insects.

Uses: Besides a nearly endless supply of good compost material, nettles is a superfood. First, it is often abundant and can be harvested many times throughout the season by cutting it back occasionally and only harvesting the tender new growth. Nettles are rich in essential nutrients, minerals and vitamins, similar to spinach and kale but you don't have to pay for it or plant it every year. To neutralize the sting of nettles they must be dried or cooked. Sometimes fresh-dried nettles may still have a remnant sting to them (also if you are making fresh nettle pesto, I recommend parboiling first to avoid stinging your tongue). I usually make sure to cook my nettles in some moisture, otherwise I find the texture a little too fuzzy for my liking.

Nettles also have medicinal properties that spinach and kale lack. Drinking a daily cup of nettles tea is very nourishing and can be quite soothing for many people, as well as a decent remedy for the inflammatory processes associated with seasonal allergies. It is also a decent styptic, to arrest bleeding (internally and externally).

Nettles are also used to help with other kinds of inflammation, such as inflammatory joint pain. Urtication, an old folk practice (though still practiced today by hippies and out-there herbalists) of deliberately stinging someone with arthritis, was performed for this purpose. The pain of the sting is actually caused by the plant's release of several neurotransmitters, including histamine, acetylcholine, and serotonin, though the exact mechanism is not fully understood. If you ever feel tempted to treat yourself with urtication remember that some people respond much more extremely than others to the sting and resulting nettle rash. Anyway, drinking lots of nettle tea works just as well for this purpose and is much tastier.

A Few Interesting Sources on Invasive Species

Davis et. al, “Don’t judge species on their origins,” Nature, Vol 474, June 2010, 153-154.

Del Tredici, Peter. Wild Urban Plants of the Northeast: A Field Guide. Cornell University Press, 2010. (Del Tredici is the Philosopher of Invasive Biology; I borrowed heavily from this book for certain ecological aspects of the following plant profiles. All his work on Invasive species and restoration ecology is highly worth checking out!)

Scott, Timothy Lee. Invasive Plant Medicine: The Ecological Benefits and Healing Abilities of Invasives. Healing Arts Press: Rochester, VT: 2010. (Highly biased source touting all the good aspects of invasive plant species in the U.S. A little too one-sided, but provides an important retort to anti-Invasive rhetoric with some historical basis supporting his arguments. Good info on medicinal species but all the extrapolation requires this source to be taken with a grain or two of salt.)

Uva, Richard H., Joseph M. DiTomaso, Joseph Clay Neal. Weeds of the Northeast. Comstock Pub. Associates: Ithaca, NY: 1997. (Comprehensive field guide to identifying “weed” species in our region. Useful.)

Gratitude to Alex Klein, herbalist & botanist, for the wisdom, plant knowledge, and plant photography.
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