

Planting trees and shrubs after invasive species control

So, you have cleared an area of invasives, now you want to do the right thing and plant something better in their place. So, there is an app for that-right?

Well yes and no! You can take your phone to a garden center, scan the bar codes on the plant tags and it will tell you if it is on an invasive species list and suggest alternatives. The problem is that the alternative list doesn't really cover all of the options that would work in your site. The app <http://www.mipn.org/publications.html> will get better, but there are other considerations too.

If there is one thing I have learned about tree (and shrub) planting it is that the lack of planning is the most common reason for failure.

This article will concentrate on two different types of planting. The first would be around a home or business - something that you can tackle yourself, hire professional help or even a combination of the two. The other is planting in more of a woodland or woodland edge setting where the planting area will be bigger and things like irrigation are not the norm. Here we are talking more of a forestry domain.

Let's begin with an urban landscape scenario where there is an existing row of Tallhedge buckthorn which is loaded with dark colored berries and you recognize the fact that it seems to be a magnet for all kinds of birds and this isn't necessarily a good thing. You chop them down, burn the brush and have the stumps ground up but you still would like a hedge to give you a nice sound barrier from the street and some privacy in the summertime. You also identify some Eurasian honeysuckle near the house, a huge rogue buckthorn that no one noticed for years and some red leaved barberries in the foundation planting that sport a lot of red berries in winter. By the time you remove these items there really isn't much good stuff left but some of it you still like. There are some yews that you trim annually and they still look good. You have read online that it is better to use natives in the landscape so you try to figure that out. You discover your phone apps are only so much help at this point. I am a firm believer that this is the situation where most people would be money ahead to call a professional landscape designer. A good designer will come out and talk with you about your dreams, goals, likes, hates, budget, etc. They will know how to incorporate suitable plant material including native species. They may also design using cultivars of native plants 'nativars' - native plants selected for predictable sizes, shapes and seasonal colors. The end result will make your house look better both from the inside and from the street for years to come. If you are a barberry lover (not native alert) they can replace the ones with lots of berries with a cultivar that doesn't produce fruit. They will offer a design with a hedge to replace your buckthorn perhaps with a native such as arrowwood (*Viburnum dentatum*) or it could, for example, be flowering forsythia or some other "exotic" that is not considered invasive. Check the NR-40 list before you sign off on the design (<http://dnr.wi.gov/topic/invasives/classification.html>). They should also be able to design for your hardscape needs such as walkways, patios and sitting walls. If you want rain gardens to take care of roof runoff these too can be part of a modern landscape. A good

designer will place shade trees where they do the most for your energy and aesthetic needs and, if desired, add outdoor low voltage lighting, arbors, places to sit down, butterfly gardens, water features, even green roofs and vertical plantings to the vision. Planning ahead will let you fit it into a budget. If there are no landscape designers in your zip code go to <http://www.mckaynursery.com/> and type in the zip code to find your local design professional.

Switching gears to a slightly different scenario, this urban home has a mass of something you thought was bamboo, but your phone app is telling you it is Japanese Knotweed. It even appears to be growing out of some concrete sidewalks in places. You would like to get rid of it and redo the landscape plantings. So now, who are you going to call? Ghostbusters! No, if you lived in London (where your mortgage lender becomes alarmed at the “knotword” you could call Knotbusters (seriously). However in Wisconsin thus far, you would be lucky to get any local contractors or lawn services to take it on. For those that are willing, there is some great information available through Midwest Invasive Plant Network (MIPN) including recommendations for homeowners <http://mipncontroldatabase.wisc.edu/>



The point is you should definitely not plant any nursery stock into this landscape until you have control over the problem. This will probably involve a combination of cutting and herbicide treatments for at least one season, most likely two to be sure. Whenever you remove invasive plants from erodible soils or steep slopes plant a grass cover crop and select follow up herbicides that don't affect grasses. MIPN has recommendations for this too. If there is a cooperative weed or invasive species management areas (CISMA) near you contact them to see if there are other local resources available. <http://www.ipaw.org/Home/RegionalGroupsCISMAS.aspx>

Once you have a landscape plan and your invasive plant problems are manageable you can decide on what types of nursery stock you want to use - bare root, container, or balled and burlap or the new root bags. If needed, choose a type of edging (the interface between mowing and beds) and how you plan to irrigate. There are some tricks to proper planting too. Follow the instructions given by the nursery or garden center closely. Monitor the plantings carefully and if the invasives or other weeds pop up "nip them in

the bud". Hand pull in moist conditions and there may be some spot treatments with herbicide needed (protecting your desirable plantings with trash bags for example). Hopefully, if your proactive approach worked these efforts will be minimal and you will have a great sustainable landscape that turned a nightmare into a dream.

Be observant, take pictures of new weeds with your camera (smartphone). If there is a plant that seems to be suddenly taking a lot of space or your control measures aren't working, use the IPAW links to find professional advice. A good picture is still worth a thousand words.

Safety first. Always call Diggers Hotline 811 or go to <http://www.diggershotline.com/> at least 3 business days before digging any hole. If you plan on grading the land surface or adding impervious surface such as a patio within 1000' of the Ordinary high water mark (OHM) of a lake or 300' of a stream or navigable waterway (which could be 6" wide and lined with concrete!) contact The DNR and ask for your waterfront specialist. Near a wetland? You may need to involve the Corps of Engineers, start by looking at the project area on the surface water data viewer <http://dnr.wi.gov/topic/surfacewater/> then follow the links or call for assistance. There may also be local ordinances for shorelines, contact the zoning office of your local authority.

Now to the woods. You have done it! The invasive shrubs are dead. You researched and got the right stuff to do basal applications on the buckthorn and autumn olive, it took a couple of years to get all of them. The honeysuckle you had to cut down and treat the stumps. The garlic mustard was another story but it seems to be pretty much under control, and now you have a nice large area with not very much for understory plants at all. You read the Best Management Practices for the urban forest (<http://www.wisconsinforestry.org/initiatives/other/invasive-species-bmps/urban-forestry-bmps>) and seeded the bare soil down to rye in the fall and it seemed to catch before the snow fell.

Now what? Well, you still need a plan! Do you simply want to recreate the woodland that might have been before the exotics took over? Do you have other goals? Pollinators? Butterflies, songbirds? Deer? No deer? Grouse? Commercial timber harvest? Grazed forest? Agrosilviculture? Edible landscape??

Is this just a small area that you are going to tackle yourself or are we talking a managed forest scale? For all of the above it is possible that there is a Federal or State Program that could be a game changer. Start by talking to your local foresters.

This leads to the next topic. If your plan calls for native species how native is native? If you are doing a restoration project, i.e. trying to replicate the native flora of a site how big of a radius around your site is the provenance or ecotype of the planting stock considered appropriate. There is no hard rule here, but there could be real problems if you bring in plant material originating from an arid area out west (even though it has the same Latin name) and plant it in a nice lush Midwest environment - it may become more aggressive than the local genotypes and crowd out your other desired species. Similarly

if a nursery purchases River birch seed (*Betula nigra*) seed from Missouri and propagates it for sale in northern states it will be less cold hardy than Wisconsin stock and even mature trees of the southern source may just suddenly die once a real winter comes along. Buyers beware at the box store. Ask your supplier for information on provenance of each species you are buying. They may not know, but if it is important to your project then find a supplier that can. Most current Federal programs in Wisconsin seem to simplify things and specify you use Lake States seed sources, but this could change between agencies etc. Read the fine print and ask questions.

So, for smaller areas of your forest planting you could consider using larger sized planting material to get a "canopy" to shade out competing weeds and get flowers for your pollinators sooner than if you were to use tiny seedlings. You will find that the major suppliers of native seed mixes also offer a few native trees and shrubs usually as bare root plants. Call and ask how big they are (for what you are paying) and if they know the provenance.

Nurseries may also offer cultivars of native plants-nativars. Be aware that nativars should never be used in "restoration" plantings and may be accused of diluting the gene pool of our true natives. Be that as it may, they certainly have a place in the urban landscape. Mike Yanny of Johnsons Nursery (http://www.johnsonsnursery.com/plant_talk.cfm) calls 'nativars' ambassadors for native plants.

McKay Nursery <http://www.mckaynursery.com/>, (Wisconsin's oldest & biggest nursery) offers 20 different species of native trees as straight species and at least another 10 as cultivars of natives (nativars). McKay Nursery also offers 20 species of shrub native to WI as well as at least another 8 species represented by 'nativars'. These will be decent sized plants and you have to weigh up the pros and cons of getting a site established quickly versus using inexpensive stock and more weed control.

For much less money, but a longer period of maintenance, the Wisconsin DNR offers either one or two year old seedlings. Currently they have about 25 species of trees available but only 7 species of shrubs. There are also several private nurseries to choose from for both seedlings and liners in the same price range. Here is the current link from the WI DNR for private seedling nurseries <http://dnr.wi.gov/topic/TreePlanting/nurseries.html>. There may be a few others that for some reason aren't on the list, I noticed, for example, that Paint Creek Nursery in Cadot has bare root seedlings and a nice little webpage but was missed from this year's list.

When you are shopping from nurseries make sure you check that the Latin name of the species is the one you want, for example you might like the look of Mountain Ash. Most nurseries sell European Mountain Ash (*Sorbus aucuparia*) because it grows relatively quickly to a nice uniform shape, however if you want a mountain ash native to Wisconsin you need to find a source with either *Sorbus decora* (Showy Mountain Ash or *Sorbus americana* (American Mountain Ash). I saw a nice cultivar of American Mountain Ash at the Madison arboretum recently called Red Cascade I hope this 'nativar' makes it into the trade.



With bare root seedlings there is only a short window in the spring to get your project planted. It may be possible to use a tree planting machine on flatter areas but on steeper sites or in tighter openings, hand planting is the only way. There are some specialized tools available for this - talk to your local forester. They may have tree planters, planting bars or mattocks available to loan or rent. If there are still weeds in the site you will need to spray prior to planting and it is usually recommended to spray an appropriate pre-emergent (residual) herbicide at or after planting. If you have both deciduous and conifers to plant there may be different recommendations. Remember, we are still in the planning stages here. What if you don't want to use herbicides? Well the option to just skip that stage and move on isn't a good one. Weeds will win. Mowing between the rows by itself won't be enough either. You probably need to look at organic weed killers such as horticultural vinegar (expensive, and not as effective as non organic products). You may want to consider using "mulch" weed barrier fabric either by the roll or in squares. For pricing look at the Windshed Partnership website www.co.portage.wi.us/planningzoning/windshed/index.htm.

The other management decision you need to make is how will your planting be affected by deer and rodents such as voles? There is a nice booklet <http://dnr.wi.gov/topic/forestmanagement/documents/pub/FR-426.pdf> produced by the DNR that goes into more detail but briefly you can opt for tree tubes (possibly cost-shared through a program), repellents, bud caps, dogs corralled by invisible fencing, deer fencing (sometimes just a strategically placed string of electrified tape baited with peanut butter) or species choice, luck and replanting to maintain target densities. Hawk poles or bait stations may help keep rodents under control.

Another seedling option are plug (containerized) grown trees and shrubs. These have the advantage that they can be planted in early fall as well as spring and they have great fibrous root systems. The planter used for these may be a different set up than the standard bare root planter and your options in the state of Wisconsin are few at this time. There are a few nurseries in neighboring states with this type of planting stock. Root pruning prior to planting is strongly recommended and may vary depending on the plug technology.

There is one more planting method - direct seeding. This is similar to planting a prairie but super sized. Again planning comes first. To avoid soil erosion this is only suitable

on flatter sites because you need to till the soil. If there are natural draws in the landscape you should definitely maintain existing cover or seed down as grassed waterways to buffer runoff effects on the watercourse. (Call your USDA NRCS office for technical assistance with waterways and other conservation practices).

<http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/contact/local/>

Select your desired species of tree and shrub species, procure seeds of the appropriate provenance and figure out how to broadcast/drill seeds of varying sizes to achieve the correct depths of planting. Often this is simplified to spreading acorns or walnuts behind a disk in sufficient quantities to get several thousand stems per acre (most seedling plantings you aim for an initial density of 800-1200 stems). You might supplement direct seeding with fall plug planting. Your forester can give you more advice on the ins, outs, prices and whether there are seed crops available as well as timing and rates of recommended herbicides used in direct seeding. The one species we have lost that made all of these techniques more successful is Ash (*Fraxinus*). For the foreseeable future we have lost the option to plant green, white, black and blue ash in Wisconsin due, of course, to another invasive species - the Emerald Ash Borer.

What if the species you need in your planting, for one reason or another, just isn't available or you can't find it from a source that you consider native or of a local enough genotype? Could you propagate your own woody plants? Perhaps, but it is a lot of work and of course you need to start with seeds (or some other plant part you could propagate from) of the desired plants. Some species are easier than others. If you seriously want to learn, join the International Plant Propagators Society (IPPS) Eastern Region <http://ippseastern.org/> and or call long time member Ron Amos of Evergreen Nurseries <http://www.evergreenplantnursery.com/> to get more info about IPPS. If you don't want to propagate your desired species/genotype but would like a professional to do it for you there may be options for contract-grown woody plant material. Be aware that it could take between 2 and 7 years to get the plants grown and that seed collectors and the sites they have available are in short supply. Again, start with Ron Amos. If he can't help you he will probably know of a propagator that specializes in and could contract-grow your desired plants.

For any seedling plantings not using tree tubes it won't take long for your planting rows to disappear into the grass or other vegetation. As part of the planning process you should remember to add wire stemmed vinyl flags to your shopping list, perhaps in more than one color to identify, at the very least, each end of your planting rows. Whether you mow between the rows is another question. Sometimes it just gives deer a nice walkable access to the trees and you would have been better off not mowing. In other situations field voles become the problem. Check with neighbors who have done it before, strategize or learn the hard way. Continue to monitor, mark (with the flagging ribbon you always carry) any seedlings or sprouts from the residual invasive plant populations or new infestations and pull or spot treat at the optimal time.

Land management, whatever the scale, has become more challenging in recent years, now that so many invasive species have exploded on the landscape. Keep calm and carry on, but don't go it alone. Start with IPAW <http://www.ipaw.org/>.