Which tree should I plant?

Hello, my name is Brian Jarvinen. Before I joined Alpha Nurseries I was a seedling planting contractor for 31 years; I have seen a few score million seedlings put in the ground, everywhere from SE Alabama to NW Alberta.

Selecting a woody species to plant is a common question but one which is not always well thought through. In my experience, I often saw some basic precepts ignored and more than a few seedlings planted where they had little chance to ever contribute to improving a given site.

Before diving directly into species selection I always suggest stepping back to clearly answering the root-level question: WHY are some trees and shrubs going to be planted? This can have many answers, such as improving wildlife habitat, desiring to convert open land to forested timber production, being required by a government agency to re-plant land as part of mining reclamation or wetland mitigation project, for increased carbon sequestration on a property, maybe just to improve some visual characters of a property, or most likely, some combination of those typical goals for a planting project.

Keeping the goals in mind helps settle another component of planting project design: selecting for Form, or Function. Selecting a species simply because it grows fast or has pretty flowers addresses Form (i.e. visual concerns usually), more than Function. A more careful species selection process can often address both Form -and- Function, simultaneously.

A basic starting point I often suggest will sound ridiculously obvious, but is also commonly ignored: Plant What The Site Doesn't Already Have. There is often little point to planting seedlings of one species underneath multiple large healthy examples of the same species, though it could be wise in some cases. Nature will usually be planting new seedlings of that species very well without our help. An exception to that general rule of thumb is on sites with abnormally large Deer populations; considering a Deer browse strategy is a complex topic itself.

That simple add-new-species idea ties directly into Form vs. Function decisions and core project goals. A key character of good wildlife habitat value is a diversity of food sources; thus simply adding more shrubs to a property already holding dozens, scores, or hundreds of examples of that same shrub can't "move the needle" on improving wildlife value and accomplishes little. Where lots of Silky Dogwood is already present, diversity can be improved by planting various other shrub Dogwood species. Although food source diversity in woody plants is most commonly thought of with regards to shrub/sub-dominant/small tree species, it can also be addressed in timber species. A site that only has Red Oak group species can have White Oak group species added. Or, diversity can be boosted within groups of similar species; where only Black Oak is found, some Red Oak can be planted. The more species are present on a site, the higher a chance at least one of them sets a good seed crop in a year where the others may not.

Another way to approach diversifying wildlife food sources is to consider the maturation dates of their seeds. The more calendar variety is present the more wildlife can utilize the sources. The majority of species prepare their seeds for dispersal in the Fall, but some ripen in the early summer, such as Juneberry or Russet Buffaloberry, while a few more finish in mid-summer, such as Rubus species (Raspberries & Blackberries) and some Prunus (Cherries). Another key plant character that can help wildlife is "persistence" which refers to a plant not quickly dropping its fruits, seeds, etc. Though wildlife can at times consume all of those quickly, that can vary from year to year and place to place. Some examples of potential winter food sources for birds and small game can be found amidst the Viburnums, Crabapples, wild Roses, Hollys, Junipers, and Sumacs. Thus if a given site is missing a food source in a given month, that can be changed via planting.

This will quickly lead many people to two additional questions: How do I know what I already have, and then from there right back to the question at hand here, but in a much improved form: what species do I not have, that I -could- now plant?

Answering those questions does take some woody plant ID skills and experience and is beyond the scope of these introductory concepts. I can suggest an excellent Dendrology book known as “Michigan Trees: A Guide to the Trees of Michigan and the Great Lakes Region” by Barnes and Wagner, and it’s companion volume “Michigan Shrubs & Vines” by Barnes, Dick, & Gunn. These volumes consistently cover the key details about woody plants in the Great Lakes, from the fine points of identifying closely related species to the key details about where they grow. Each species is illustrated with high quality ink drawings that quickly aid in identifying woody plants. Most states have similar volumes with the needed local focus for this.

Of course here moving into the 2nd quarter of the 21st century, “there’s an app for this” and a variety of smartphone apps can help with plant identification. These are not always perfect but even when they swing & miss, they can help rule out certain guesses and at times they can be suggesting the correct identification from a list of possibilities.

Another starting point for this topic is learning common species “communities” so a missing species can be deduced from making a list of what is already found near a planting site. An example of working from a community list would be identifying Sugar Maple, Beech, Yellow Birch and Black Cherry in a woods but not finding any Hemlock or Red Oak, which are also typically associated with a “Northern Hardwoods” tree community. “Michigan Trees” covers this topic well however Michigan also has a fine summation of such concepts which distills decades of Botanical work by the Michigan Natural Features Inventory, titled “A Field Guide to the Natural Communities of Michigan” (Cohen/Kost/Slaughter/Albert).

A key basic to consider is soil type and two specific characters - the “internal drainage” (high in sand, low in clay), and the pH of the soil. “Wetland” is a broad term encompassing many types of soils which each might grow different tree species. However “Upland” also has different soil types and thus different tree communities that grow on them. High or “basic” pH sites are not as common as acidic soils but they do exist; a fair

amount of rocks on a site is a common though not perfect indicator of a higher pH than usual.

One final tree planting project design consideration that I often saw ignored gets more into the next question immediately after What-Trees-to-Plant, which is Where-Should-I-Plant-Them? A standard descriptor of woody plant characteristics is their shade tolerance. It is such an important part of woody species management that the word "Tolerant" is often used alone, and capitalized; for example "several Tolerants were found on the site" might be a phrase in a professional Ecology or Forestry site evaluation.

One thing to keep in mind about shade tolerant species is that an understory woody plant (generally Shrubs or Small Trees in a height classification) may live perfectly well in the shade of taller species - but their fruit/nut/berry/seed production of whatever type will be much lower in the shade than out in full sunlight. If one is planting a shrub for wildlife, it is best to place them on an edge of a planting, rather than mixed together with tall timber species. This leads some project design to include a "soft edge" of smaller species placed there specifically to help them remain productive for wildlife use for as long as possible. But often this productivity based siting is forgotten or ignored. Such a shrub-only zone can be best selected by siting them along roads, as well as any edge that will be permanently cleared ground, such as alongside an agricultural field. A south facing such edge is thus best for this purpose.

One exception to the idea of not planting beneath timber species could be attempting to address a site where shade-tolerant Invasives such as the Asian Honeysuckle species have just been removed. A possible choice there could be adding Rubus species (Raspberry/Blackberry) or other native shade Tolerant species that could help resist the return of such Invasives.

Aside from adding woody plant diversity (food sources) to a property in a general sense, the other most common way to improve wildlife habitat is to install "thermal" cover. There are multiple types of cover used by

wildlife; thermal cover is an overhead and side cover supplied by evergreen species as they both block cold winds and supply an area of shallower snow beneath them, with additional benefits of slowing ground warmth radiating away overnight thanks to the thicker overhead canopy created by evergreens in winter. Properties without many evergreen trees are not uncommon; planting a few small clumps of evergreens can aid all types of wildlife through a winter. Pines generally grow the fastest of all evergreens but their thermal cover value can decline somewhat as they age and lose their lower branches. Spruce and Fir are generally better, though not perfect, at low branch retention but can't be planted as far south as Pine species. Hemlock and White Cedar create the lowest snow loads beneath them by best shedding snow outwardly and thus have high thermal cover values, but almost always require extensive protection from Deer browse.

In general selecting a species to plant is a very broad and deep question; hopefully these basic concepts can help narrow things down somewhat. Most of the precepts mentioned above can be explored in greater detail quite simply courtesy of decades of work by Foresters, Wildlife Biologists, Ecologists, and Botanists, much of which is quickly available right here on the Internet.