The Review
Covering Antrim & Kalkaska Counties

Signature tree species

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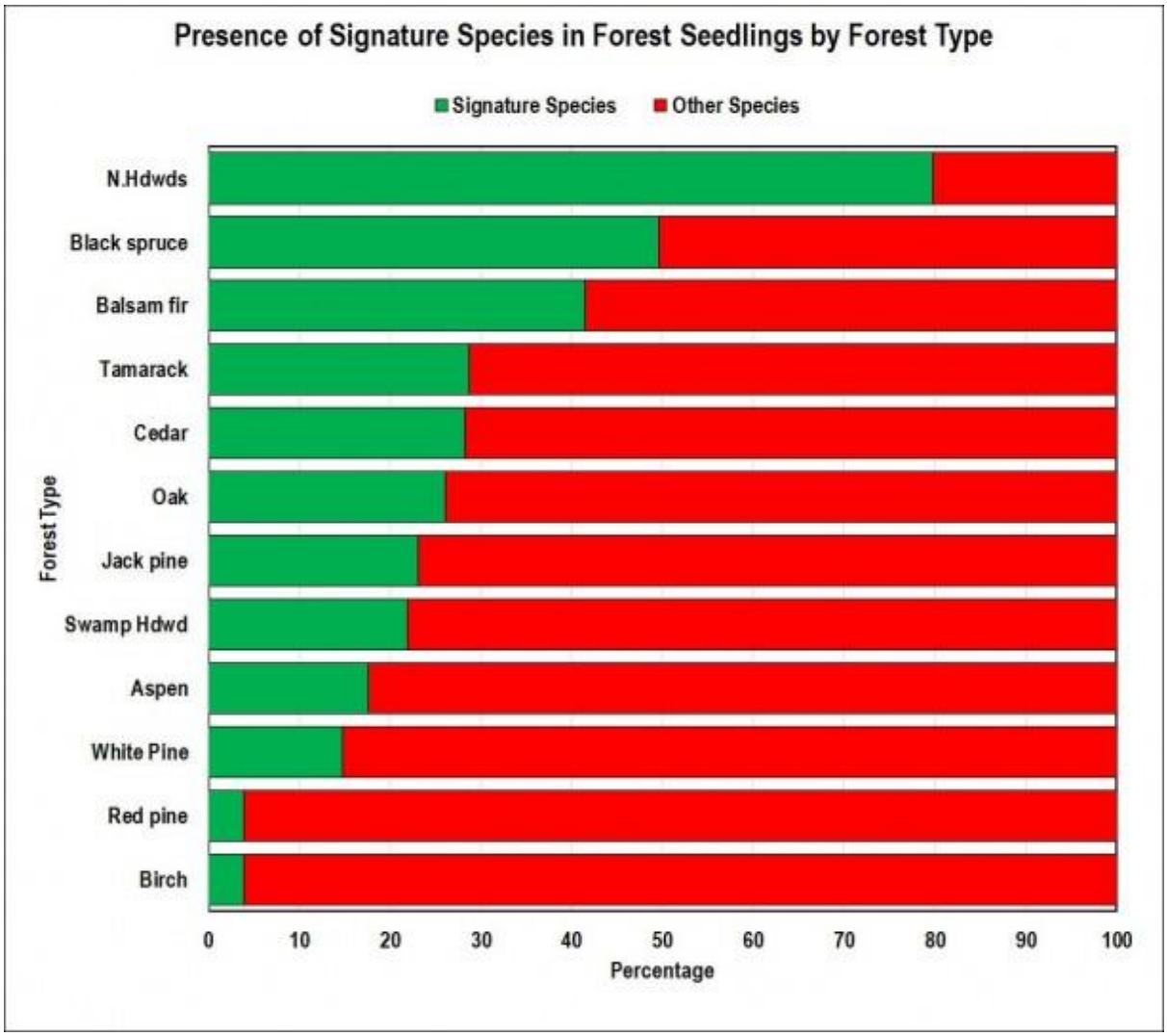

Over decades, forests undergo somewhat predictable changes. Foresters call this "forest succession." One of the best indicators of where a forest stand might be headed is from examining the regeneration. Without major disturbance, there's a pretty good chance the seedlings of today will become the dominant forest type of the future.

Different forest types have various track records in their ability to reproduce themselves over time. Northern hardwoods can sustain themselves for centuries. Signature species, such as sugar maple, beech, and basswood, are capable of growing in the shade and will take advantage of small canopy gaps as old trees gradually die.

On the other end of the spectrum, paper birch and red pine stands have very low percentages of their own seedlings in the understory. These are sun-loving tree species. Without disturbance, other forest types will replace these forest types.

Paper birch stands are likely to become balsam fir or northern hardwoods. Red pine stands will trend more towards red maple, black cherry, and different species of oak. Similarly, aspen stands tend to be replaced by red maple or balsam fir. Aspen is particularly popular with most game species and a growing number of birds with declining populations.

Enter disturbance. Over the decades, the likelihood of a major disturbance increases. Such events as wind, wildfire, and pest outbreaks will open the forest floor to lots of sunlight and soils will warm somewhat. These conditions will favor the light-loving species, which tend to grow faster than the more shade tolerant tree species.

Forester and forest owners can mimic these events through management and timber harvesting. Practices such as clearcutting and shelterwoods can help maintain forest types such as aspen, red pine, jack pine, and paper birch. Regeneration strategies of these tree species depend upon major disturbance.

In the bar chart, the green bars (lighter gray on the left) indicate a forest type's ability to regenerate under its own canopy. There is a high percentage of signature species already in the understory. The red bars (darker gray on the right) suggest a need for a major disturbance in order to regenerate, as little regeneration of the signature species exists. Left alone, these "other" species will eventually replace the existing trees.

Most of the Lake States' forests are adapted to natural disturbances. Since the glaciers melted about 10,000 years ago, the forest area has ebbed and flowed. Our forests have needed to be flexible. The region historically tends to have large sweeping storms, fires, and major insect outbreaks. Native American intervention increased the role of wildfire.

As certain forest types matured, the trees served as host to widespread insect epidemics. Thousands of acres of fir-spruce would be killed by the spruce budworm. Large expanses of old jack pine fell prey to the jack pine budworm. Periodic outbreaks of forest tent caterpillar would defoliate and kill great swaths of aspen.

Wildfire would often result from the huge fireloads created by so many dead trees. After these catastrophes, the fir, spruce, jack pine, and aspen forests would grow back. Such is the way of natural cycles.

With human infrastructure spread nearly everywhere, these calamities came with unacceptable risk to people. Forest management has been developed to reduce the negative effects of natural disasters while maintaining those benefits that different forest types depend upon.

Red pine and paper birch still need major disturbances in order to maintain themselves. However, forestry has provided the solutions to help those forest types and humans coexist. So, the next time you see a clear-cut jack pine stand, be grateful the jack pine is being regenerated without a forest fire.

- Bill Cook is an MSU Extension forester and biologist

Source: http://www.antrimreview.net/content/signature-tree-species