

Vegetation Management; The Relationship between Native Species and Water Quality

NATIVE PLANTS

Native or Indigenous Species are those that have evolved for thousands of years in the region where they are presently found. They have a close relationship with the pre-development geology and hydrology of an area. Soil types are created and transported from geologic and hydrologic processes. How they are deposited determines surface expression of water features and the availability of ground water to support life. These prevailing conditions give rise to plant life that is suited for exactly such an environment.

Because this process happens naturally, native plants thrive in the soil and seasonal variations of temperature, sunshine and precipitation. Even when our perceptions identify a year as being wetter or dryer, hotter or colder than the previous, native plants have developed the capacity to adapt in the full range of conditions that make up our local "climate" beyond what we can remember.

This translates to less maintenance when cultivating native plants. There is no need for excess fertilizers, pesticides, herbicides or watering. The natural process of evolution establishes communities with other plants, insects and birds, which work symbiotically within the biological community. These relationships create a balanced environ that provides protection from pestilence and opportunity for cross pollination that can strengthen resistance to disease, especially since there are no stressors related to extraneous conditions.



Non-native species are just the opposite of their native counterparts. They are transplants that have adapted to a different set of conditions. They're introduced, typically artificially, by humans for food or medicinal purposes, even ornamental. The balance that is attained through the symbiotic process is more than just protective; absent the elements that would normally balance the community, introduction of a non-native plant creates the potential for the naturally evolved balance to be disrupted due to the lack of natural constraints such as herbivore populations or plant specific parasites. They can influence pollination patterns, and since pollinators also distribute seeds the distribution of vegetative communities can be impacted. Any changes in distribution can affect habitat all the way up or down the food chain. Conversely, if a non-native plant shares a symbiotic relationship with something harmful to native plants, such as a fungus, it can introduce a stressor that could negatively impact the entire native community. And because plants interact with the soils that they feed from, they can shift the soil chemistry and pH in such a way as to further stress native communities. Finally, as in the circumstance with Phragmites or Purple Loosestrife here in Michigan, the new conditions combined with an aggressive nature of the species, provides opportunity absent normal control factors to outcompete and displace native species. This can change entire habitats. They can even alter hydrologic patters by filling surface water features. Species that exhibit these aggressive tendencies that disrupt native habitats are referred to as "invasive".

Most of us take pride in our lawn for the curb appeal it provides. If or how we garden allows us an opportunity to express our creative and nurturing side. Without realizing it, however, many of us contribute to significant water quality issues by over fertilizing. We use as much as 70 million pounds a year nationally! Experts such as [Dr. Kevin Frank](#) from MSU emphasize that fertilization is only effective when done once each in spring and fall, yet lawn companies typically treat several times in season. As a result, excess fertilizer containing nitrogen and phosphorous runs off into our rivers, lakes and streams. This is the source of algae blooms that deplete the dissolved oxygen content in water bodies which affects all aquatic life. It can also interfere with the penetration of sunlight and change the temperature of a water body, further impacting the habitat. Plus, the chemicals in fertilizers and pesticides can be carcinogenic so by using them, we are exposing children, pets, the elderly, and anyone with a compromised immune system, not to mention wildlife and fisheries, to a potential trigger.

And consider replacing some turf with a "No Mow Zone". You'll use less water and fertilizer, and eliminate the need to mow, while adding beauty to your yard. Creating one of these along a waterfront is called a riparian buffer strip and is one of the healthiest things you can do to protect your watershed. It allows natural infiltration of rainwater and helps reduce incidence of flooding while filtering out pollutants. [The Center for Watershed Protection](#) recommends 75-100 feet for maximum benefit. However, any amount of natural buffer will be beneficial. Native Plants-No mow-No fertilizers-No pesticides. By Going Green, you can save your green! What a great revelation! Visit: http://www.oakgov.com/msu/program_service/natural_resources_environment/native_invasive.html

Algae blooms



DID YOU KNOW:

Modern Lawns use as much as 30% of water supply in the east, and as much as 60% in the west?

Gas powered lawn tools emit 5% of air pollution yearly, use 200 million gallons of gas and emit 11x the pollutants of a new car for each hour of operation? (Native Plants remove carbon from the air!)

In the U.S. over 20 million acres of lawn are cultivated a year, covering more Land than any other crop?

Over the period of one year, it's estimated to cost \$20,000/acre for non-native turf grass (vs. \$3000/acre to maintain a prairie or wetland)

When you mow your lawn, wait until the grass is at least 3 inches tall. This will allow deeper roots to take hold, and your turf will be more resistant to weeds too. And remember, dull blades stress the grass. Keep it sharp to keep it healthy!

What about Herbicides and pesticides? Natural vegetation eliminates and reduces the need for these environmental toxins. If you choose to use them, proper storage and disposal is essential. Please visit our [SECOMG 7 steps](#) page to learn how.



SUMMARY: "WHY NATIVES" IN A GLANCE:

- No Fertilizer, fewer Pesticides
- Deeper Roots, Less Water
- Reduce Air Pollution
- Food for Wildlife, enhances Habitat for Birds, Butterflies
- Promotes Biodiversity, Preserves Heritage
- SAVING GREEN SAVES GREEN! (SAVES MONEY)



Invasive Species: Purple Loosestrife and Phragmites



Michigan has a new ban on phosphorus in fertilizer because of its impact on water quality. Homeowners have the option of soil testing to demonstrate need. Despite naysayers, studies demonstrate quite clearly that these bans accomplish improvement in water quality. Check out these links and visit our links page to learn more.

http://news.msue.msu.edu/news/article/dont_guess_and_be_a_success_with_soil_testing

<http://www.safelawns.org/blog/index.php/2010/08/michigan-phosphorus-data-the-fertilizer-ban-is-working/>

http://www.epa.gov/ncer/events/news/2009/08_19_09_feature.html

Want to learn more? Here are some great links

EPA Green Landscaping: Green Acres
<http://www.epa.gov/greenacres/>

EPA Beneficial Landscaping, Michigan Resources
<http://www.epa.gov/greenacres/nativeplants/mi-resor.pdf>

Green Landscaping for Public Officials Toolkit
<http://www.epa.gov/greenacres/toolkit/index.html>

The Wildflowers Association of Michigan
<http://www.wildflowersmich.org/>

MSU Field Guide to Invasive Plants
<http://web4.msue.msu.edu/mnfi/education/fieldguide.cfm>

DEQ Phragmite Management
http://www.michigan.gov/deq/0,1607,7-135-3313_3677_8314-178183--00.html

