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# The Importance of Native Shoreland Species in Lake Management

## Restoring Living Shorelands

## Keystone Species

Keystone species play a critical role in holding up entire ecosystems and if removed from the landscape, food webs collapse, like taking out the keystone in the Roman archway. Keystone native plants, like the Saguaro Cactus, Big Blue Stem Prairie Grass, the Red Mangrove, Maple, Oak, Birch, and Cherry Trees provide vital sources of food and shelter to other species. Over broad landscapes, ecologists refer to native plants serving collectively as "foundational species," which are considered equally as important to the singular "keystone" native plant species found in smaller ecosystems.

Over thousands of years, 90 percent of plant-eating insects have evolved to feed on one or a few species of keystone native plants and without the host plant to support these specialized relationships, local ecosystems fail. Along shorelands, insects drop from native plants into the lake, providing at least 40 percent of protein for freshwater fish. Including seed and grass eaters, 96 percent of birds depend on caterpillars to rear their young and keystone plants are the primary source of this baby bird food. For example, each pair of nesting chickadees needs to find 6000-9000 caterpillars to rear one brood of young over three weeks and keystone species are critical to provide enough caterpillars.

***Oak Trees Are A Keystone Plant Across North America***

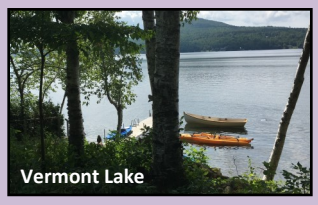
*As gardeners and stewards of our land, we have never been so empowered to help save biodiversity from extinction, and the need to do so has never been so great. All we need to do is plant native plants!*

Dr. Douglas Tallamy 2020

**A Living Shoreland** is a natural community made of native plants and animals growing and living together in specific soils, water and climate conditions.

**A Restored Living Shoreland** uses bioengineering methods with designs with native plants, biodegradable and natural materials to re-establish the natural shoreland community.

**Native Plants,** are species that were growing in North America before European settlement.



Vermont Lake

**Forested Shore**
Natural shores have either wetlands, forests and/or bedrock along most northern lakes. Few lakes have naturally occurring sandy shores.

North Dakota Prairie Lake

**Herbaceous Shore**
Native prairie grasses, with roots reaching 12 feet deep, serve as keystone plant species along midwestern prairie lakes.

## The Concept of Keystone Native Plant Species in Lake Management

### *Reducing lawn and Fixing The Problem*

Today, across America, 79 percent of all plants are lawn, 16 percent are exotic, and less than five percent of native species remain. According to the 2012 US Environmental Protection Agency's National Lake Assessment, more than 50 percent of lakeshores are disturbed, meaning cleared of native species. Restoring keystone species fixes water quality problems with:

- shading to discourage algae blooms and keep water cool for aquatic life
- filtration and treatment of polluted runoff
- stabilizing banks with their network of roots
- providing critical ecological corridors for wild-life and songbirds, preserving lake ecosystems

## Ecological Designs Include Keystone Native Plant Species

Nurturing keystone species is a Win-Win for clean lakes and shoreland owners because ecological designs are the most economical to protect the lake and property. Below are a few examples for restoring shoreland native species.

- Visit "native plant finder" at: **www.nwf.org/nativeplantfinder** to look up local native plant species. The National Wildlife Federation hosts this national native plant finder atlas and identification key.

- Choose only native species for raingardens, swales, berms, buffers, and other stormwater management practices. This choice is especially important to prevent an introduction of an invasive plant species. Preserve keystone native plant species if thinning for lake access and views.

- Reduce lawn with mowing less by creating "no-mow" zones, especially along the shoreline. Lawn kills ecosystems and the food source for songbirds and other wildlife.


While keeping access and views, keystone species are used in stormwater practices to prevent pollution from entering the lake, like in these raingardens and tree plantings.


Native plantings restore a living shoreland, stabilizing the bank and protecting property

## Keystone Species Provide Abundance of Food and Shelter


Diversity creates ecological stability, which is especially important during harsh climate events because a variety of species ensures a higher survival rate for ecosystem preservation. Keystone species create diversity, like the American beaver because of its engineering work in creating habitat with food and shelter for 100s of other species. Keystone native plant species are equally as important as keystone wildlife species, yet can be less recognized for their critical role in human wellbeing and natural systems.

### Helpful Resources and Ones Used for This Flyer

Dr. Douglas Tallamy NALMS Plenary Presentation: https://www.youtube.com/watch?v=lrRJm-yLsQ8
National Wildlife Federation Native Plant Finder: https://www.nwf.org/nativeplantfinder
Vermont Lake Wise Program: https://dec.vermont.gov/watershed/lakes-ponds/lakeshores-lake-wise/bmp
Michigan Natural Shoreline Partnership: http://www.mishorelinepartnership.org/
Hudson River Sustainable Shorelines Project: https://www.hrnerr.org/hudson-river-sustainable-shorelines
Coastal Resilience and The Nature Conservancy-Living Shorelines: https://coastalresilience.org/about/
The Living Shoreland Act of 2019: https://www.congress.gov/bill/116th-congress/house-bill/3115
National Geographic Keystone Species: https://www.nationalgeographic.org/encyclopedia/keystone-species/
Natural Resources Defense Council: https://www.nrdc.org/stories/keystone-species-101
Dr. Robert Paine's Keystone Concept: https://daily.jstor.org/how-the-keystone-species-concept-transformed-ecology/
Holly Greenleaf Art Work and Photo Simulations: https://www.hollygreenleaf.com/
E.O. Wilson Biodiversity Foundation https://eowilsonfoundation.org/