

Native Species Enhancement

The development of Wisconsin's shorelands has increased dramatically over the last century and with this increase in development a decrease in water quality and wildlife habitat has occurred. Many people that move to or build in shoreland areas attempt to replicate the suburban landscapes they are accustomed to by converting natural shoreland areas to the "neat and clean" appearance of manicured lawns and flowerbeds. The conversion of these areas immediately leads to destruction of habitat utilized by birds, mammals, reptiles, amphibians, and insects (Jennings et al. 2003). The maintenance of the newly created area helps to decrease water quality by considerably increasing inputs of phosphorus and sediments into the lake. The negative impact of human development does not stop at the shoreline. Removal of native plants and dead, fallen timbers from shallow, near-shore areas for boating and swimming activities destroys habitat used by fish, mammals, birds, insects, and amphibians, while leaving bottom and shoreline sediments vulnerable to wave action caused by boating and wind (Jennings et al. 2003, Radomski and Goeman 2001, and Elias & Meyer 2003). Many homeowners significantly decrease the number of trees and shrubs along the water's edge in an effort to increase their view of the lake (. However, this has been shown to locally increase water temperatures, and decrease infiltration rates of potentially harmful nutrients and pollutants. Furthermore, the dumping of sand to create beach areas destroys spawning, cover and feeding areas utilized by aquatic wildlife (Scheuerell and Schindler 2004).



In recent years, many lakefront property owners have realized increased aesthetics, fisheries, property values, and water quality by restoring portions of their shoreland to mimic its unaltered state. An area of shore restored to its natural condition, both in the water and on shore, is commonly called a *shoreland buffer zone*. The shoreland buffer zone creates or restores the ecological habitat and benefits lost by traditional suburban landscaping. Simply not mowing within the buffer zone does wonders to restore some of the shoreland's natural function.

Enhancement activities also include additions of *submergent*, *emergent*, and *floating-leaf* plants within the lake itself. These additions can provide greater species diversity and may compete against exotic species.

Cost

The cost of native, aquatic and shoreland plant restorations is highly variable and depend on the size of the restoration area, planting densities, the species planted, and the type of planting (e.g. seeds, bare-roots, plugs, live-stakes) being conducted. Other factors may include extensive grading requirements, removal of shoreland stabilization (e.g., rip-rap, seawall), and protective measures used to guard the newly planted area from wildlife predation, wave-action, and erosion. In general, a restoration project with the characteristics described below would have an estimated materials and supplies cost of approximately \$4,200.

- The single site used for the estimate indicated above has the following characteristics:
 - An upland buffer zone measuring 35' x 100'.
 - An aquatic zone with shallow-water and deep-water areas of 10' x 100' each.
 - Site is assumed to need little invasive species removal prior to restoration.
 - Site has a moderate slope.
 - Trees and shrubs would be planted at a density of 435 plants/acre and 1210 plants/acre, respectively.
 - Plant spacing for the aquatic zone would be 3 feet.
 - Each site would need 100' of biolog to protect the bank toe and each site would need 100' of wavebreak and goose netting to protect aquatic plantings.
 - Each site would need 100' of erosion control fabric to protect plants and sediment near the shoreline (the remainder of the site would be mulched).
 - There is no hard-armor (rip-rap or seawall) that would need to be removed.
 - The property owner would maintain the site for weed control and watering.

Advantages

- Improves the aquatic ecosystem through species diversification and habitat enhancement.
- Assists native plant populations to compete with exotic species.
- Increases natural aesthetics sought by many lake users.
- Decreases sediment and nutrient loads entering the lake from developed properties.
- Reduces bottom sediment re-suspension and shoreline erosion.
- Lower cost when compared to rip-rap and seawalls.
- Restoration projects can be completed in phases to spread out costs.
- Many educational and volunteer opportunities are available with each project.

Disadvantages

- Property owners need to be educated on the benefits of native plant restoration before they are willing to participate.
- Stakeholders must be willing to wait 3-4 years for restoration areas to mature and fill-in.
- Monitoring and maintenance are required to assure that newly planted areas will thrive.
- Harsh environmental conditions (e.g., drought, intense storms) may partially or completely destroy project plantings before they become well established.

