

## Tuxedo Lake and Us

Tuxedo Lake is our Village's most important visual feature, it teems with fish, supplies our drinking water and is a source of recreational pleasure for many. As our common resource we have an obligation to be its good stewards.

Tuxedo Lake is part of a complex ecosystem that includes the lake, the flora and fauna that inhabit it, the underlying rocks, surrounding forests and the streams that feed it. Its waters contain chemicals needed for its flora to build cells and tissues. Water and carbon dioxide dissolved in the water, provide the bulk of what plants use for this purpose but they also need small amounts of nutrients such as phosphorous, nitrogen, silica and other less abundant elements and compounds. Clearly there is no shortage of water and there is no shortage of carbon as the atmosphere exchanges carbon dioxide with the lake's surface providing the lake with an ample carbon supply. The nutrient supply, however, can limit the lake's plant production, which might seem a drawback but is a benefit as algal blooms can result from an over supply of nutrients and subsequent bloom decay reduces the lake's oxygen content, which is detrimental to its fauna. The nutrients naturally come from the chemical decomposition of rocks, soils and vegetation on lands surrounding the lake and within the watershed of its tributary streams. Forest plants use nutrients and reduce soil erosion so under undisturbed conditions waters flowing into the lake contain low nutrient and sediment concentrations. Trees with their extensive root systems and leaf canopies are the most effective barriers to soil erosion. Shrubs and ground cover such as ferns or pachysandra also hold the soil. Finally dead

leaves and needles from the previous fall form a blanket protecting the soil from erosion by rain and through their decay return nutrients to the soil for future use by trees and shrubs.

Human activities can inadvertently disturb the natural supply of nutrients and sediment to the lake. The removal of trees and shrubs makes soils vulnerable to erosion and leaf blowing exposes the forest floor to rain further increasing sediment and nutrient supply to the lake. This increases lake turbidity and fosters algal blooms. Algal blooms are poisoned with copper sulfate at considerable expense to the village.

Successive Village Boards of Trustees have been aware of these dangers and early on established a requirement that all construction except docks and boathouses be set back at least one hundred feet from the lake. Many municipalities with lakes have such requirements because structures disturb the soil and can release chemicals to lakes. The village limits the size and number of trees that can be cut on a single property in a given year in part to protect the lakes watershed. Other municipalities prohibit the cutting of trees along lake margins and/or require swales and shrubbery near the shoreline to trap pollutants.

Cutting limbs rather than trees can enhance views. Diseased trees may die but can be replaced; replanting is an option. Shrubby and ground cover are decorative and beneficial to the lake. Leaves left where they fall protect soils and provide nourishment to trees. What we do with our properties are individual decisions but these decisions affect our lake which is a common resource.