



A Bog Fen in Minnesota

In the community of Woodbury, an eastern suburb of Minnesota's Twin Cities, is an interesting wetland—the Tamarack Nature Preserve. When I hear the word “tamarack,” I picture a bog in the northern United States where the tamarack, or American larch tree (*Larix laricina*), is the dominant species. The American larch is a cone-bearing tree that has its needles in clusters. It and the bald cypress and pond cypress of the southeastern United States are the only native conifers in the United States that lose their needles during the winter.

Bogs are usually named for the dominant tree present; thus, a bog where tamarack is dominant is re-

ferred to as a tamarack bog. Anticipating that I was about to see a tamarack bog when I got to the Tamarack Nature Preserve, I looked for other bog species that usually associate with tamarack trees. A short distance from the preserve's spacious parking lot is a boardwalk that bisects the natural area and provides access to the plants that live in the wetland. I soon found poison sumac, bog willow, and winterberry. But what surprised me growing in this wetland was the number of species I usually associate with fens.

A bog is acidic and receives its water from rain that usually falls into depressions. Bogs are nutrient-poor

for plant growth. Fens, on the other hand, receive their water from the ground where water flows over calcareous material, such as limestone or dolomite. Fens are rich in nutrients, such as calcium and magnesium, and are alkaline. In the Tamarack Nature Preserve, both bog species and fen species intermingle with each other. A search of the literature revealed that in 1981, Ronald Stuckey and G. L. Denny, two Ohio State University biologists, coined the term “bog fen.” Although bogs are acidic wetlands, seepage of minerals peripheral to the bog may give rise to a condition favorable for fen species as well. It is in this seepage zone that bog and fen species may occur together. The wetland we were looking at seemed to correspond to what was described as a bog fen.



A maple tree shows its autumn colors by Fish Lake at Tamarack Nature Preserve

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fen species are parasol whitetop aster, purplestem aster, marsh marigold, prairie loosestrife, purpleleaf willow herb, purple marshlocks, spiked muhly, and Bebb's sedge (*C. bebbii*).

Many other wetland species, not necessarily in bogs and fens, are also present. These include common boneset, blue skullcap, fringed loosestrife, marsh bellflower, Pennsylvania buttercup, northern water plantain, American water horehound, Allegheny monkeyflower, purple meadow-rue, pale jewelweed, broadleaf arrowhead, hooded arrowhead, bluntleaf bedstraw, fowl mannagrass, American mannagrass, bluejoint, rough barnyardgrass, creeping bentgrass, softstem bulrush, dark green bulrush,

VISITOR INFORMATION:
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clustered near the beginning of the boardwalk. Black willow, Bebb's willow, and the nonnative white willow are present. Two kinds of trees next to the willows look alike upon casual observation, but they are actually two different species. One is the invasive and very common European high-

In addition to American larch, poison sumac, bog willow, and winterberry in Tamarack Nature Preserve, I found several other bog species, including shining willow, bog birch, buckbean, cinnamon fern, woollyfruit sedge (*Carex lasiocarpa*), longhair sedge (*C. comosa*), mud sedge (*C. limosa*), bristle-stalked sedge (*C. leptalea*), and boreal bog sedge (*C. magellanica*). Likewise, I found what I consider typical fen species—Riddell's goldenrod, bulblet-bearing water hemlock, white turtlehead, spotted Joe-pye weed, Kalm's lobelia, stiff cowbane, northern bedstraw, swamp thistle, American black currant, Mexican muhly, dioecious sedge (*Carex sterilis*), and awl-fruited sedge (*C. stipata*). Other plants in the preserve that may be considered bog

marsh horsetail, meadow horsetail, and sensitive fern. Other trees in the wetland are black elderberry, green ash, red currant, white meadowsweet, and shrubby cinquefoil.

Just before reaching the boardwalk from the parking area, there are several natural occurring dogwoods. Here may be observed red-osier with its bright red twigs, swamp dogwood with its blue berries, and gray dogwood with small white berries at the tips of pinkish red stalks. Several other woody plants are



Buckbean

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bush cranberry, and the other is the native and rare American highbush cranberry. Although they both have red berries that may resemble cranberries, these two highbush cranberries are not even in the same family as cranberries. True cranber-

Large cumulus clouds on the east and south sides of the prairie near the Tamarack Nature Preserve



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ries are not trees but small creeping plants that live on the surface of bogs and are classified in the heath family. For many years, the American highbush cranberry was not recognized as different from the European highbush cranberry. Both have clusters of white flowers with five petals, followed by red berries that may resemble true cranberries

in color but are translucent. The two highbush cranberries can best be distinguished in the field by examining the small gland on the leaf stalk. If the gland has a sunken center, it is the European highbush cranberry;

if the gland is club-shaped, it is the American highbush cranberry.

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HABITATS

Mesic woods. The boardwalk (shown at right) ends at the edge of a mesic woodland where the common trees are northern red oak, sugar maple, green ash, quaking aspen, honey locust, and wild black cherry. There is an abundance of smaller trees and shrubs beneath the canopy species. Among these are chokecherry, nannyberry, American plum, wild black currant, shining willow, white meadowsweet, black elderberry, red elderberry, grayleaf red raspberry, American hazelnut, and beaked hazelnut. Unfortunately, European buckthorn and glossy buckthorn have invaded the woods. The first spring wildflowers to appear are Canadian anemone, hooked buttercup, red



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baneberry, purple meadow-rue, smooth white violet, Canada mayflower, Virginia strawberry, and the nonnative ox-eye daisy. Pennsylvania sedge (*Carex pensylvanica*), with its very narrow grass-like leaves, is common. As spring gives way to summer, wildflowers that bloom

include white avens, fragrant bedstraw, broadleaf enchanter's nightshade, tall hairy agrimony, fringed loosestrife, blue skullcap, Canadian black snakeroot, and clustered black snakeroot. By midsummer, pointed-leaf tick trefoil, tall blue lettuce, field thistle, oval-leaf milkweed, common

selfheal, and annual fleabane flower. Closing out the flowering season in autumn are upland white goldenrod, sawtooth sunflower, and white snakeroot. Vines in these woods include hog peanut, wild cucumber, and tearthumb. Sensitive fern occurs here and there.