



Calcareous Seepage Marsh

Community Code: CP2BOA2000

State Rank: S2



Concept: Mixed herbaceous/graminoid/shrub wetlands that experience some calcareous groundwater seepage. Calcareous Seepage Marshes are intermediate in richness of the three calcareous fen communities described in Massachusetts.

Environmental Setting: Calcareous Seepage Marshes are open (non-forested) wetlands, with scattered shrubs in a mix of herbaceous and graminoid plants. There may be areas of open water and some of the herbaceous vegetation may occur on floating mats during the growing season. Although there are hummocks and hollows, the overall surface is flat to slightly sloping. The community is maintained by calcareous groundwater in a variety of physical settings: in basins, in canopy gaps in rich forested swamps, in current or former beaver drainages, or in level to slightly sloping sites associated with sloping fens. Typically, there are 50-200+ cm (1-6.5 ft.) of mucky peat (moderate to well-decomposed organic sediments). Waters are circumneutral to alkaline (pH 6.0-8.1) with high concentrations of calcium and magnesium cations and bicarbonate anions dissolved from bedrock or glacial materials rich in those elements. In marshes, the plant materials in the mucky substrate are decomposed more than in fens with peat, likely due to greater availability of more types of nutrients, more oxygen, and/or warmer ground water. Peat accumulates as plants die back each year; in cool, acidic, wet, anaerobic environments with low nutrient availability, they decompose very slowly and organic material builds up.

Vegetation Description: Calcareous Seepage Marshes have a mix of scattered shrubs, herbaceous, and graminoid species similar to an emergent marsh. A diverse but generally not dense shrub layer may include winterberry (*Ilex verticillata*), buttonbush (*Cephalanthus occidentalis*), highbush blueberry (*Vaccinium corymbosum*), swamp rose (*Rosa*



palustris), meadowsweet (*Spiraea alba* var. *latifolia*), alders (*Alnus* spp.), and/or poison-sumac (*Toxicodendron vernix*), as well as shrubby calciphiles such as hoary willow (*Salix discolor*), autumn willow (*S. serissima*), swamp birch (*Betula pumila*), and shrubby cinquefoil (*Dasiphora floribunda*). The dense herbaceous/graminoid layer is a mixture of typical marsh species such as cattails (*Typha angustifolia*, *T. latifolia*), sweet flag (*Acorus calamus*), lakeside sedge (*Carex lacustris*), tussock sedge (*C. stricta*), cinnamon fern (*Osmundastrum cinnamomeum*), royal fern (*Osmunda regalis*), swamp milkweed (*Asclepias incarnata*), and swamp loosestrife (*Lysimachia thyrsoiflora*), and calciphiles such as Labrador bedstraw (*Galium labradoricum*), grass-of-Parnassus (*Parnassia glauca*), Kalm's lobelia (*Lobelia kalmii*), hemlock parsley (*Conioselinum chinense*), and slender cotton-grass (*Eriophorum gracile*).

Differentiating Occurrences: All calcareous wetlands include shrubby cinquefoil (*Dasiphora floribunda*). Most also have other calciphiles (calcium-loving plants) such as grass-of-Parnassus (*Parnassia glauca*), Kalm's lobelia (*Lobelia kalmii*), alder-leaf buckthorn (*Rhamnus alnifolia*), hemlock parsley (*Conioselinum chinense*), autumn and hoary willows (*Salix serissima* and *S. candida*), and slender cotton-grass (*Eriophorum gracile*). Within a given site, calcareous fen communities grade from one to another as conditions change. Calcareous Seepage Marshes share species with both Shallow and Deep Emergent Marshes, but contain more calciphiles. Calcareous Basin Fens have deep (> 2.0 meters (6.5 ft.)) peat in basins. They are dominated by sedges with a sparse shrub layer; they generally contain a more developed bryophyte layer than the other calcareous fens. They share many species with acidic fens, but include species restricted to calcareous conditions, such as bog birch and the calciphiles listed above. Calcareous Sloping Fens are on shallow to moderate slopes and have more mineral soil than other calcareous fens; peat is mostly restricted to sedge hummocks. A diverse herbaceous layer dominates the vegetation. Tall shrubs and short trees may occur in scattered patches. Red Maple - Black Ash - Tamarack Calcareous Seepage Swamps are dominated by sparse trees and tall shrubs. Small openings share many of the species and conditions of Calcareous Sloping Fens.

Associated Fauna: Calcareous Seepage Marshes contribute variation within the habitats of large, mobile animals. They function as vernal pool habitat if water remains standing for 2-3 months; these areas provide important amphibian breeding habitat.

Public Access: Due to the sensitivity of calcareous wetlands to damage from visitation, most land owners prefer not to publicize the locations.

Threats: Changes in groundwater quality and quantity; and any human activities that disturb the vegetation, substrate, or water supply. In disturbed areas, cattails may displace calcium-loving species. Beaver activity threatens calcareous fen communities by altering surface water chemistry. There is evidence to suggest that ponding of water by beaver dams may increase the water's relative acidity, possibly due to the accumulation of organic acids or to dilution from acid rain (Motzkin, 1993).



Management Needs: Fires, grazing, and/or mowing may be necessary to maintain open fen habitats. More information is needed.

USNVC/NatureServe: Includes G805 *Cornus amomum-Salix discolor/Pentaphylloides floribunda/Carex stricta* shrubland [CEGL006359].