

H4.3 SWAMP

A swamp is either a mineral wetland or a peatland characterized by an open tree cover of Balsam Fir, Black Spruce, Red Maple and Larch, as well as numerous shrubs, herbs and some mosses. The waters are rich in nutrients, due to seepage slopes or springs supplying water from the surrounding higher ground. There is usually a drainage outlet. If peat is

present, it is mainly comprised of well-decomposed wood, underlain at times by sedge peat.¹ In addition, hummocks are often formed from the decomposition of mosses and herbaceous plants. These provide a drier site on which both coniferous and deciduous trees can become established.

H4.3 Swamp



Plate H4.3.1: Willow swamp at the west tip of Caribou Bog in Kings County (District 610). Photo: B. Wright.

FORMATION

Swamps generally form in depressions surrounded by higher ground. They can originate either through the infilling of lakes or as the result of the relationship between topography and groundwater level (i.e., the influence of surface runoff and springs from nearby upland areas).

PHYSICAL ASPECTS

1. *Bedrock*: variable.
2. *Soils*: a combination of organics overlying mineral soil; sometimes organics are totally absent.
3. *Relief*: depressional area with outlet through surrounding higher ground.
4. *Drainage*: seepage slopes and springs; usually well to imperfectly drained.

ECOSYSTEM

Primary production in swamps is carried out mainly by coniferous and deciduous trees. However, the herbaceous (ferns, sedges and mosses) layers also contribute significantly. The nutrient-enriched waters that swamps receive from upland areas make them relatively productive habitats. The decomposition rate is influenced by the presence of oxygen and fluctuating water levels. Most swamps have outflows which permit the export of organic material. The amount of peat produced is relatively small.

TYPES OF SWAMPS

Shrub Swamp

A shrub swamp is dominated by shrub vegetation (*Rhodora* and alders) and is either permanently or seasonally flooded. The sedge, *Carex stricta* is often the primary ground cover beneath the shrubs.

Wooded Swamp

A wooded swamp is characterized by coniferous or deciduous trees and is only seasonally flooded. Trees and numerous shrubs grow on well-developed windthrow mounds, while herbaceous plants occupy the temporary pools. (See Spruce, Fir, Maple Forest in H6.3.)

SUCCESSIONAL SEQUENCE

The early-successional stages of a swamp are dominated by a bryophyte layer, dominated by the following species: *Sphagnum* spp., *Marchantia polymorpha*, *Mnium punctatum*, *Pallavicinia lyelli*, *Pellia epiphylla*, *Philonotis fontans*, and *Scapania nemerosa*. Early-successional herbaceous species include Sensitive Fern, sedges (*Carex* spp.), bulrushes (*Scirpus* spp.), rushes (*Juncus* spp.) and manna grasses (*Glyceria* spp.).

The mid-successional stage of the swamp is dominated by a luxuriant growth of grasses, sedges, rushes and herbaceous species. Prominent among these are Cinnamon Fern, Royal Fern, Meadow-rue, Blue-joint Grass, sedges (*Carex* spp.), Cotton-grass, Canadian Burnet, Purple Avens, *Aster* spp., and fringed orchids (*Habenaria* spp.). The mosses are well represented, and dominated by woodland species such as Broom Moss, Schreber's Moss and *Rhytidiadelphus squarrosus*. During the latter part of this successional stage, shrubs begin to grow, particularly Speckled Alder, Pussy-willow, *Myrica gale*, brambles (*Rubus* spp.), Gooseberry, Meadow-461 sweet and Witherod.

The climax vegetation of a swamp will eventually approach the vegetation that characterizes the forest habitat of the region. This generally comprises a mixture of Red Maple, Balsam Fir and Black Spruce. Within Nova Scotia, Red Maple predominates in existing swamps.²

PLANTS

The plant community of the swamp habitat tends to be dominated by the Cinnamon Fern. This group of plants thrives in moist, seeping (but generally well drained) environments. Cinnamon Fern (*Osmunda cinnamomea*), Sensitive Fern (*Onoclea sensibilis*), *Sphagnum palustre* and *Sphagnum fallax* dominate the herbaceous and moss layers. Several sedges (*Carex* spp.) are prominent in the wetter areas of the swamp, while woodland herbs tend to clump together on the drier hummocks. Tree species include Black Spruce, Speckled Alder, Larch and Red Maple.

ANIMALS

The wet conditions found in swamps provide excellent habitat for a variety of aquatic animals, including many amphibians and invertebrates. Bird species include Swamp Sparrow, Common Yellowthroat, and aerial foragers, such as Tree Swallows, Chimney Swifts, Common Nighthawks and Barn Swallows. Warblers become more numerous in older and more advanced stages of tree cover. Although small-mammal diversity and abundance in wooded swamps is generally moderate, there are some localities where well-developed hummocks provide sufficient living space above water. In these areas, diversity and abundance is generally equal to that found in upland habitats.

SPECIAL FEATURES

- The presence of seepage slopes and springs.
- A wide variety of plant and animal species.

DISTRIBUTION

Swamps are scattered throughout the province, but they are not now as numerous as they once were, due to increased human activities (e.g. drainage and infilling).



Associated Topics

T4.2 Post-glacial Colonization by Plants, T8.1 Freshwater Hydrology, T8.2 Freshwater Environments, T9.1–T9.3 Soils, T10.2 Successional Trends in Vegetation, T10.4 Plant Communities in Nova Scotia, T10.5 Seed-bearing Plants, T10.6 Trees, T10.8 Bryophytes Mosses, (Liverworts and Hornworts), T11.2 Forest and Edge-habitat Birds, T11.11 Small Mammals, T11.15 Amphibians and Reptiles, T11.16 Land and Freshwater Invertebrates. T12.2 Cultural Landscapes, T12.8 Fresh Water and Resources

Associated Habitats

H3.2 Open-water Lentic (Lakes and Ponds), H3.4 Bottom Lentic (Lakes and Ponds), H3.5 Water's Edge Lentic (Rivers and Streams), H3.6 Water's Edge Lentic (Lakes and Ponds), H4.1 Bog, H4.2 Fen, H6.3 Mixedwood Forest

References

- 1 National Wetlands Working Group (1988) *Wetlands of Canada*. Environment Canada, Ottawa. (*Ecological Land Classification Series*, No. 24).
- 2 National Wetlands Working Group (1987) *The Canadian Wetland Classification System*. Environment Canada, Ottawa. (*Ecological Land Classification Series*, No. 21).