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It is a relatively stable phase in bog growth: dwarf trees have been found there exceeding 90 years of age. Hummocks are the distinguishing feature\* Black Spruce is "the major vascular plant involved in hummock building\* Once established its upward growth corresponds with the upward growth of the hummocks\*\*\*.(Its branches are buried by Sphagnum species, but through layering, branch-tips turn upward and continue to grow above the surface." The upward growth results in further drying and the Sphagnum species are replaced by lichens, especially Reindeer moss (*Cladonia rangiferina*) and Alpine Reindeer moss (*C. alpestris*) • and, hummock growth slows down\* It would be a mistake to think that, the drier portion of the bog is now capable of supplying nutrient to support the lichens\* Of lichens, Erskine writes: "Lichens are the poor relations of the plant kingdom, living on the leavings of the world, occupying places too barren to attract rivals and growing with infinite slowness and patience\* (Many people call them "moss," but true mosses are green and have stems and leaves, whereas most of these are greenish only when wet and are usually in the form of sheets or tubes\*) Lichens are really communities rather than plants\* They are an unwilling partnership between certain fungi and microscopic green algae\* The algae can manufacture their food from water and air, but without water they die\* The fungi cannot manufacture their own food, but their spongy bodies store water for the algae and they feed upon the food the algae produce\* The algae are wild species captured and tamed by the lichen; the fungi are never found without the algae but are the dominant partners in the community\*" Lichens survive in the bogs because they can fend for themselves\*

Cyclic Succession of the Ponds The ponds created remain and new ones are formed • and water level is controlled by rainfall and evaporation\* Comeau writes: "Ponds are often found at different elevations in the same section of a bog (v'ich) demonstrates the water holding capacity of the Sphagnum banks,...In the ponds a cyclic succession occurs resulting in a continued upward growth of the bog surface." It begins with the establishment of a Yellow Pond Lily known as the Cow-lily (the *Nuphar variegatum* association) • starting with algae that colonize the bottom and edges of the pond. The Cow-lily and the Pipewort (*Eriocaulon septangulare*) grow mainly in the deeper parts. The filling-in process speeds up as *Sphagnum cuspidatum* starts growing profusely around the edges. It works toward the center, aided by shrub species around the edge with branches extending into the pond. Vegetation mats are formed, giving strength against the wind, and the Sphagnum works in from the edges. These mats break up and sink, speeding the filling-in. The underlying peat eventually surfaces • and upon this Beak-rush (*Rhynchospora alba*) and Sundew (*Drosera intermedia*) establish in association. Nichols called this stage "muck mat." The water levels fluctuate and the area remains semi-aquatic • but the muck is firmed up by Leafless Bladderwort (*Utricularia cornuta*) and its extensive system of underground rhizomes. The exposed crust dries and firms. The :

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