White Lake Fen

Joyce M. Reddoch

Several years ago, five of us* got together to advise the Nature Conservancy of Canada on natural areas of provincial significance in eastern Ontario. White Lake Fen was one of the ten significant areas that we selected (Reddoch 1981).

Ed Greenwood, the founder of the Club's Native Orchid Location survey of the 1960s and 1970s, was probably the first naturalist to enter the fen and discover some of its riches. In 1966, Ed reported 12 species of orchids from one visit to the wetland (Native Orchid Location Survey 1967). Twelve years later, while searching for calcareous fens in eastern Ontario, I realized that some of the orchids on Ed's list suggested such a habitat, and so Allan and I dropped in for a closer look. That first trip, in September 1978, confirmed my suspicions and introduced us to two of the fen's rare inhabitants. One of these was a still-undescribed silk moth of the genus *Hemileuca* which Monty Wood and Don Lafontaine collected for the first time only a month earlier in the Phragmites Fen near Richmond. The other was a northern moss, *Cinclidium stygium*, which Gilda Truco discovered for the first time in southern Ontario, also a month earlier in the Phragmites Fen (Reddoch 1979).

Fens are wetlands characteristic of the boreal regions of Canada, but they are few and far between in more temperate parts of the country. Calcareous fens are even less common. Fewer than two dozen high-quality calcareous fens have been identified in southern Ontario; all except White Lake Fen are south of the Canadian Shield (Reddoch 1983).

Fens are peatlands which have developed in nutrient-rich waters containing minerals dissolved from the surrounding bedrock or mineral substrate. They are calcareous when the bedrock is mainly calcium carbonate. In eastern Ontario, the two most prominent calcareous bedrocks are the limestone of the lowlands and the marble of the Canadian Shield.

The many-armed White Lake lies on the Shield just outside the Ottawa District in Renfrew County. It takes its name from the white marl covering parts of the lake bottom (Kennedy 1970).

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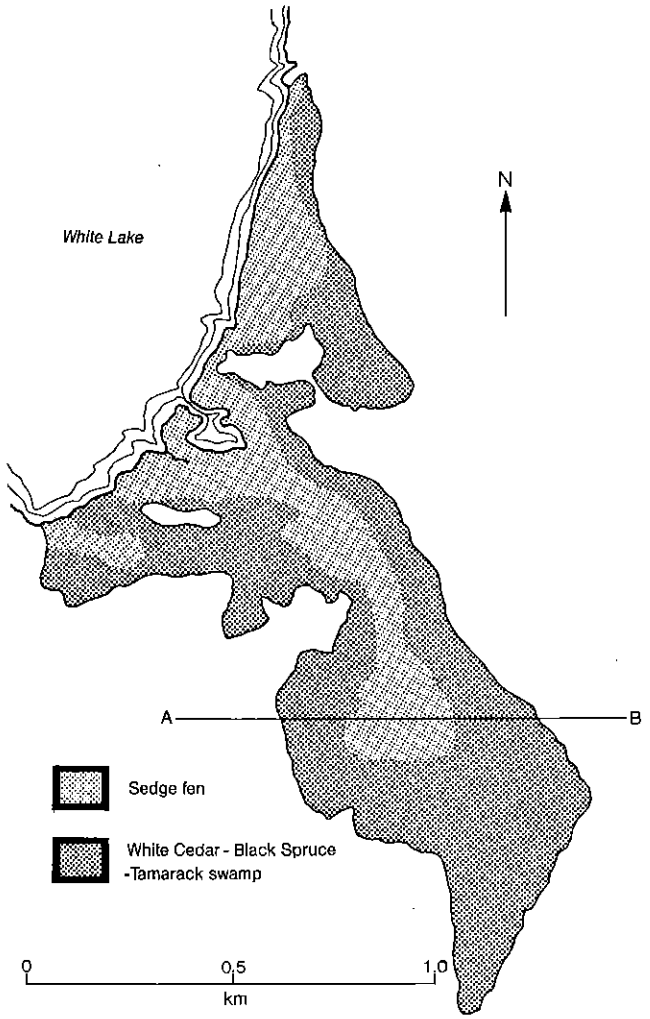


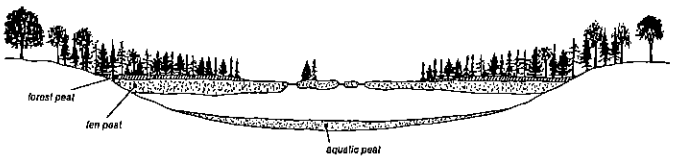
White Lake Fen Vegetation Map

The lake sprawls over marble bedrock while backing against a granite dome on the north side. Due to this interesting situation, the vegetation on the north shore reflects the acidic granite rock, while that on the other shores speaks of the marble beneath. A number of calcareous fens have developed along the southern shores, and the largest and most significant of these is the fen that I call White Lake Fen.

As you can see from the vegetation map, White Lake Fen has developed over the centuries in a long, narrow arm of the lake. The wetland extends inland almost 2 km from the present lake shore and covers 90 ha. About 60% of the wetland area is currently swamp, while the rest is open, sedge fen.

The wetland is surrounded by abandoned fields and second-growth woodland with marble bedrock outcropping here and there. Below the slopes lies the swamp, a damp, shady forest where White Cedar, Black Spruce and Tamarack are the dominant trees, accompanied by scattered Balsam Fir, Balsam Poplar and Black Ash. The soggy peat floor is carpeted deeply with over two dozen different mosses, including the rare *Tomenthypnum falcifolium*, which has been collected only once before in southern Ontario. There are at least 13 species of orchids in the swamp, including all four local lady's-slippers. Usually you don't expect to find the acid-loving Pink Lady's-slipper growing near the other three species, because Ram's-head, Yellow, and Showy Lady's-slippers are restricted to calcareous conditions. But here, a few Pink Lady's-slippers survive on the more acidic hummocks a half metre or so above the swamp floor.

The swamp surrounds the open expanse of the gourd-shaped sedge fen on three sides. At the bottom end furthest from the lake, the fen looks like a grassy meadow studded with clumps of coniferous trees. The "grasses" are actually sedges, the entangled roots of which have formed a floating mat over the water beneath. We tried to find out what was below the surface by pushing a two-metre Tamarack pole down through the mat. The pole penetrated the 40 cm of mat and then disappeared into the



Conjectured cross-section through the southern part of the wetland along the line A-B on the map on the previous page.

silk moth (Hemileuca *sp. nov.*) *3.7 cm from head down to wing tip*

a magenta flower of the orchid Arethusa

black water beneath without touching bottom.

As far as I can determine, the sedge mat is composed primarily of one species of sedge, Woolly Sedge (*Carex lasiocarpa*), although several other sedges do occur (see list). Grasses are, in fact, scarce. Most noticeable are the 2½-m high patches of Common Reed Grass (*Phragmites communis*) mostly near the outer edges of the fen, where there are also areas of the tall sedge, Great Bulrush (*Scirpus acutus*). The only other grass I have found in the fen is *Muhlenbergia glomerata*. Down among the sedge stems, the characteristic fen mosses, including the rare *Cinclidium stygium* carpet the peat. (See list of fen mosses.)

The clumps of trees are White Cedar, Black Spruce and Tamarack on the slightly higher, slightly drier hummocks. They share the knolls with shrubs such as Labrador Tea, Leatherleaf, and Sweet Gale. Their bases are heaped high with green and red mounds of mosses such as *Tomenthypnum nitens*, *Sphagnum warnstorfii* and *S. russowii*. Here the regionally rare orchid, Arethusa, displays its magenta blossoms in mid-June.

In late June, the green sedge mat is faintly dotted with reddish flowers – maroon of Pitcher-plant, magenta-pink of Grass-pink, and rose of Rose Pogonia. Here and there stand the spires of small, fragrant, white flowers of White Bog Orchid (*Platanthera dilatata*). Despite its name, this locally rare orchid is restricted to calcareous fens and has never been found in a bog, at least around here.

Rose Pogonia is most likely to occur with the green spikes of Arrow-grass (*Triglochin maritima*) near the wettest parts of the floating mat. These thin spots are crammed with Fragrant Water-lilies and Buckbean. In late June, some Buckbean plants seem to be infested with masses of black, spiny larvae. These are the larvae of the rare silk moth massed on their food plant (R.A. Layberry, personal communication). On nearby sedge stalks we sometimes have noticed somewhat larger individuals, about 3 cm long by this time and covered with black spines which now are gold-coloured at their bases.

By mid-summer, Rose Pogonia flowers near the wet spots have been replaced by deep-yellow blossoms of Horned and Flat-leaved Bladderworts. Elsewhere among the sedges, the tiny white flowers of Bog Bedstraw (Dugal 1982) have opened, along with tiny blue Kalm's Lobelia, mauve Rush Asters and yellow Bog Goldenrods. Leopard Frogs scramble away from our feet as we pick our way along.

By early fall, the green expanse of sedges has become red-copper, bronze, yellow-green and straw-coloured. It's at this time that adults of the silk moth flutter silently through the fen, startlingly large and Snowy Owl-like. Water levels are lower, and the thin spots are covered with gelatinous, fawn-coloured algae sprinkled with empty snail shells. Some tiny fish swim in the shallow water, and one of these days we may remember to take in a long-handled net to catch a few for identification. In the meantime, we don't get too close to those thin spots because Allan has fallen through to his hip once already.

In the long neck up to White Lake, the fen floor feels more solid. The fen is probably no longer floating and has become underlain with accumulated sedge peat. There are no hummocks, but walking is no easier because groves of Common Reed Grass, Great Bulrush, cattails and low shrubs are more widespread.

In addition to the silk moth, White Lake Fen harbours many plants that are rare in eastern and southern Ontario. Most of them are rare because they are confined to fens, or at most to peatlands, and peatlands are not common in eastern and southern Ontario. In fact, some are destroyed every year by drainage schemes, and that is why it is important to identify and protect the best of the wetlands that remain.

The vascular plants and mosses on the following lists have been identified from the fen habitat. Specimens of most have been deposited in the National Herbarium, Ottawa (CAN and CANM). The vascular plants have been arranged according to their degree of abundance in the Ottawa District (Gillett and White 1978). The categories of "rare" and "sparse" have been combined here. Dan Brunton contributed to the list those vascular plants marked "DFB". My thanks to Bob Ireland for identifying the mosses.

VIEW TOWARD WHITE LAKE ACROSS THE NORTHERN PART OF THE OPEN SEDGE FEN IN LATE FALL. The light-coloured plants are Common Reed Grass. In the background is the granite dome across the lake.

THE SOUTHERN PART OF THE OPEN SEDGE FEN IN LATE FALL. The fluffy heads of Bog Goldenrod in seed are visible away from the wet areas. All photographs by the author.

VASCULAR PLANTS OF THE FEN HABITAT

Rare in the Ottawa District		Uncommon in the Ottawa District		
Bog Rosemary	*Andromeda glaucophylla*	Leatherleaf	*Cassandra calyculata*	
Arethusa	*Arethusa bulbosa*	Flat-leaved Bladderwort	*Utricularia intermedia*	
Rush Aster	*Aster borealis*			
Flat-topped Aster	*A. umbellatus*			
Grass-pink	*Calopogon tuberosus*			
Woolly Sedge	*Carex lasiocarpa*	**Common in the Ottawa District**		
Mud Sedge	*C. limosa*			
Stunted Sedge	*C. pauperula*	Speckled Alder	*Alnus rugosa*	DFB
Twig-rush	*Cladium mariscoides*	Black Chokeberry	*Aronia melanocarpa*	
Green Cotton-grass	*Eriophorum viridicarinatum*	Yellow Sedge	*Carex flava*	
		Bulb-bearing Water-hemlock	*Cicuta bulbifera*	
Bog Bedstraw	*Galium labradoricum*	Red Osier	*Cornus stolonifera*	
Labrador Tea	*Ledum groenlandicum*	Round-leaved Sundew	*Drosera rotundifolia*	
Kalm's Lobelia	*Lobelia kalmii*	Common Strawberry	*Fragaria virginiana*	
Buckbean	*Menyanthes trifoliata*	Wild Iris	*Iris versicolor*	DFB
a grass	*Muhlenbergia glomerata*	Tamarack	*Larix laricina*	
Common Reed Grass	*Phragmites communis*	Northern Bugleweed	*Lycopus uniflorus*	DFB
White Bog Orchid	*Platanthera dilatata*	Sweet Gale	*Myrica gale*	
Rose Pogonia	*Pogonia ophioglossoides*	Fragrant Water-lily	*Nymphaea odorata*	
White Beak-rush	*Rhynchospora alba*	Black Spruce	*Picea mariana*	
Hoary Willow	*Salix candida*	Alder-leaved Buckthorn	*Rhamnus alnifolius*	
Pitcher-plant	*Sarracenia purpurea*	Dwarf Raspberry	*Rubus pubescens*	
Great Bulrush	*Scirpus acutus*	Tall Meadow-rue	*Thalictrum polygamum*	DFB
Hudsonian Club-rush	*Scirpus hudsonianus*	Marsh Fern	*Thelypteris palustris*	
Three-leaved False Solomon's Seal	*Smilacina trifolia*	Eastern White Cedar	*Thuja occidentalis*	
Bog Goldenrod	*Solidago uliginosa*	Cattail	*Typha latifolia*	
Arrow-grass	*Triglochin maritima*	Violet species	*Viola* spp.	
Horned Bladderwort	*Utricularia cornuta*			
Large Cranberry	*Vaccinium macrocarpon*			
Small Cranberry	*V. oxycoccos*			

MOSSES OF THE FEN HABITAT*

Campylium stellatum	*Abtium affine*	*Sphagnum riparium*
Drepanocladus vernicosus	*Cinclidium stygium*	*S. russowii*
Calliergon trifarium	*Meesia triquetra*	*S. warnstorfii*
Scorpidium scorpioides	*Paludella squarrosa*	
Tomenthypnum nitens		

* *nomenclature according to Crum and Anderson (1981).*

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Lincoln's Sparrow in Lanark County

Sheila C. Thomson

One summer evening, August 14, 1983, as our canoes moved quietly along the edge of a small lake in Lanark County, Dorice Hanes pointed out a small brown bird with uptilted tail, skulking along the shoreline. Soon it came pattering out into full view, running in short spurts over the surface of the floating lily pads. Once or twice it appeared to patter across small patches of open water between the lily pads, but this feat was accompanied by a fluttering of the wings, although the bird did not rise in flight. Not a wren, but a sparrow. The cocked tail we guessed was brought into play for balance.

At a distance of about seven metres, we watched it through field glasses, following it along as it fed, now out on the floating plants, now half hidden under overhanging shrubs, or popping out into view as it ran over the shoreline debris.

Pale yellow wash on the throat, yellow-washed flanks, a dark eye stripe on a gray cheek, some streaking on the breast, and a small stickpin worn higher than the Song Sparrow's breast spot. It was Gary Hanes who suggested that it might be a Lincoln's Sparrow, and a check in Peterson confirmed his guess. We noted with surprise that none are recorded for August on the Ottawa checklist.