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Bog-Trotting For Butterflies In Northern Wisconsin

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by Jeff Nekola

One of the last great wildernesses on Earth covers the northern third of North America. In this realm, beyond the bustle of modern human culture, life progresses much as it has since the melting of the last ice sheet 10,000 years ago. In the uplands, trackless stands of spruce and fir crowd out the sun. In the lowlands, gnarled black spruce and tamarack trees more than a century old, but often less than 20 feet tall, stretch their roots across damp hollows. In the wettest places, these groves thin and are replaced by open bog covered with *Sphagnum* moss, sedge, cottongrass, cranberry, pitcherplant, sundew, leatherleaf, bog andromeda, bog rosemary, and bog laurel. Here and there bog orchids of a half-dozen different species raise their pink blooms to the sun. The ground gurgles as water just thawed from its wintry tomb rises to the surface. The air is spicy-sweet from spruce, balsam fir, flowers, and moss, and made alive with the constant buzzing of insects.

Though they cover much of the North American landscape, such peatland habitats are almost unknown to the continent's human inhabitants. One reason is the nature of the habitat itself, which may scare away some with its quaking ground and biting insects. An even more important reason is that the bulk of these special places are separated from the human world by hundreds

(or thousands) of miles of roadless terrain.

Relatively easy access to these peatlands is possible only where modern human culture encroaches on the southern limit of the boreal forest. In northern and central Wisconsin, for instance, few peatlands lie more than a mile from the nearest road. Yet, they harbor a diverse assemblage of northern species at the southernmost limit of their range . There may be no easier place on the continent to view these elusive species.

A Peatland Primer

Each boreal peatland site typically exhibits a number of distinct microhabitats which differ in wetness and soil chemistry. The outermost margin is often very wet, and may be impassible unless you are willing to sink up to your knees in mud. This wet ring is termed a moat, and is typically dominated by nearly impenetrable thickets of alder and mountain holly. Inside the moat, the ground typically becomes drier. The soil here is often very depleted in nutrients, supporting only stunted groves of conifers, open meadows of *Sphagnum* moss, and various heaths and sedges. In the center of some peatlands, small lakes may be found. The ground becomes progressively wetter nearer these lakes, until only a thin veneer of peat and vegetation, floating on top of the watery depths, remains. Walking over one of these floating mats is akin to traversing a waterbed.

Northern Wisconsin has three broad classes of boreal peatlands: muskeg, kettlehole, and coastal. Muskeg peatlands are typically dominated by an open black spruce and tamarack forest with the open meadows containing an assortment of sedges and heaths. The interior of muskeg sites are often relatively dry, except in proximity to moats or bog lakes, and the soils are very nutrient poor. Muskeg peatlands are often very large (more than 500 acres), and differ only slightly in elevation from their surrounding uplands.

Kettlehole peatlands are much wetter sites which are commonly dominated by floating mats of *Sphagnum* and leatherleaf. Depending upon the nature of groundwater seepage, they may range from very nutrient poor to relatively nutrient rich. Kettlehole peatlands typically harbor dense colonies of carnivorous plants such as pitcherplant and sundew. These sites usually occur in upland depressions and along lake margins.

Coastal peatlands are located in estuaries along the Great Lakes. These sites are usually nutrient-rich and very wet, and are dominated by tamarack and sedges. Acidic, nutrient-poor, *Sphagnum*-dominated areas are limited to small islands or ridges sitting above the rest of the vegetation mat.

Opposite page, top: A kettlehole at Sugarbush Lake is an illustration of the unspoiled wilderness of northern Wisconsin.
Opposite page, below: A Bog Fritillary, shyly peers over the edge of its perch.
June 21, 1989. Bayfield Co. Wisconsin

Peatland-limited Butterflies of Northern Wisconsin

At least 35 of Wisconsin's 137 resident butterfly species can be seen in boreal peatland habitats. Most of these butterflies are only transitory members of the peatland fauna, as they live out most of their life in other places. Ten species, however, spend their entire life cycle within this habitat. Among these are butterflies with some of the most restricted ranges of butterflies of the eastern United States.

Bog Fritillaries range across the extent of the boreal forest from Alaska to Newfoundland and south to central Wisconsin and northern Maine. In Wisconsin, they occurs in all three boreal peatland habitats, though they are most frequently found in kettlehole and coastal peatlands. Adults fly for only a brief 5-7 day period in mid-late June, where they patrol the wettest part of the peat mat in places of dense cranberry growth. Adults may also be found at site margins nectaring on Labrador tea.

Freija Fritillaries ranges from the Arctic Ocean shore in Alaska and the Northwest Terri-

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This page: Arctic Fritillaries (formerly called Titania Fritillary) may throng the flowers in these northern peatlands.
Bear Creek, WI

Opposite page: A closer look at one of the Arctic Fritillaries.
Bear Creek, WI

tories to Newfoundland and south to northern Wisconsin. In Wisconsin, they are limited to rather dry, acid, muskeg sites with extensive open sedge-heath meadows. Egg laying has been noted on cranberry. Adults emerge on the first few days in May which exceed 70° F., and fly for no more than 2 ½ weeks. Individuals rapidly fly at or just above the cover of dead, matted leaves from the previous year, and often perch in hollows protected from the wind.

Frigga Fritillaries are found from the Arctic Ocean coast of Alaska to the east shore of Hudson's Bay and south to northern Wisconsin. They are restricted in Wisconsin to muskeg peatlands which have enough soil nutrients to support populations of their host plant, bog willow (*Salix pedicellaris*). Adult emergence begins perhaps a week after Freija Fritillaries, and lasts for only about a week. Adults have an extremely rapid flight, and limit themselves to the immediate vicinity of bog willow patches. They tend to perch on shrubs a good distance above the ground.

Arctic Fritillary (formerly Titania Fritillary) ranges from the Canadian high-arctic and northern coast of Greenland to Alaska and Newfoundland to the White Mountains of New Hampshire and northwestern Wisconsin. Only six muskeg sites in Wisconsin, all within a 10-mile radius of each other, are known to support this species. Adults emerge around the first weekend of August, and congregate on various flowers in the upland margins of sites. Individuals have been observed more than a quarter-mile from nearest muskeg habitat.

Common Ringlets are found from northern Alaska and Newfoundland south in eastern North America to the Great Lakes and the Middle Atlantic states. This species is not limited to peatlands in northern Wisconsin, and is more

commonly found in open, sandy barrens, old fields, or roadsides. It infrequently occurs in all three types of peatland habitats, where it favors open meadows. Adults begin emerging at the end of June, and continue through early August. Individuals constantly patrol open meadows and rarely perch.

The Red-disked Alpine ranges from central Alaska to southcentral Quebec and south to northern Wisconsin. One of the rarest of Wisconsin's obligate peatland butterflies, it appears restricted to large muskegs with extensive sedge and cottongrass meadows. Adults fly for no more than two weeks after emerging in the last week of May. Individuals constantly patrol meadow margins, and frighten easily.

The range of Brown Elfin extends from eastern Alaska to Newfoundland and south (in eastern North America) to southern Manitoba, the Lower Peninsula of Michigan, and along the Appalachian mountains to northern Alabama and Georgia. Like Common Ringlets, in Wisconsin Brown Elfins also occurs in dry, sandy uplands. They are most common in peatlands, however, and occurs in all peatland types. Few (if any) muskeg sites are not graced by this species in the first warm days of May. Flight continues through mid-June. Individuals spend much of their time perching and nectaring on low-lying heaths, particularly leatherleaf.

Dorcas Coppers are found from northwestern Alberta to Labrador and Newfoundland and south to Maine, northern Indiana, and northeastern Minnesota. In northwestern Wisconsin, this species is limited to muskeg sites, where it is most frequently encountered in relatively dry meadows in site centers. Adults fly for approximately one month, with first emergence occurring in mid-July. Individuals typically fly only when flushed from roosting sites on low vegetation. The only reported hostplant for this species in the United States, shrubby cinquefoil, does not occur within 100 miles of some populations. Clearly, the caterpillars are using another foodplant.

Bog Copper ranges from western Ontario to Newfoundland and south to the New Jersey pine barrens, southern Pennsylvania, and central Wisconsin. In Wisconsin, populations have been observed from all peatland types, where individuals are restricted to wet (often floating) *Sphagnum* mats with abundant growth of its caterpillar foodplant, cranberry. Adults begin emerging in

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mid-July, and are present for up to a month. Individuals patrol within favored habitat, rarely flying more than a few feet above the vegetation.

Jutta Arctics occur from Alaska to Labrador and Newfoundland and south to Maine, northern New Hampshire and central Wisconsin. Populations are limited to muskeg and kettlehole sites which support well developed black spruce groves. Adults fly for 2-3 weeks, beginning their flight in the last few days of May. Individuals are most often found at the margin of groves, where they camouflage themselves by perching on small spruce branches with wings folded. Easily flushed, they rapidly dart out into the nearest opening, but eventually land on another spruce branch. Nectaring has been observed on Labrador tea.

The list of characteristic Wisconsin peatland species would be incomplete if one of the incidental species were neglected. Although its caterpillars feed on poverty grass (*Danthonia spicata*) on dry upland margins, adult Common Branded Skippers are frequently seen on openings at peatland margins. The Common Branded Skipper ranges from eastern Manitoba to Labrador and Newfoundland and south to Nova Scotia, Maine, and northern Wisconsin. Adults emerge during the first week in August, and fly for up to 3 weeks.

The Peatland Butterfly Year

One of the more fascinating aspects of the northern Wisconsin peatland butterfly fauna is the rapidity with which the adult fauna changes, particularly early in the season. Peatland butterflies will begin emerging on the first sunny May day which reaches 70 F. Even though the ground will still be largely frozen, these first warm rays of sun will be greeted by clouds of Brown Elfins on leatherleaf flats, and scattered Freija Fritillaries patrolling the open meadows. Within a week, the Freija Fritillaries (which may already be past their peak), will be joined by Frigga Fritillaries (in and near patches of bog willow), Red-disked Alpines (on the margins of large open meadows), and the first precocious Jutta Arctics (on the edge of spruce groves). Within another week (usually the first or second week in June) the Jutta Arctic populations will peak. By the third week in June, when only the last few tattered Brown Elfins and Jutta Arctics can be found, the Bog Fritillaries make their glorious, but all too brief, appearance on the wettest mats. The last days of June through mid-July serve as a time of rest, when only a few Common Ringlets patrol the peatland meadows. In mid-July, both Dorcas and Bog coppers emerge, filling the open meadows and floating mats with activity. By the first week in August, while the last tattered coppers complete their life cycle, Arctic Fritillaries begin to flock to flowers in nearby uplands, and Common Branded Skippers congregate on wet margins. Within the next two weeks the first frosts of the year will bring an end to the butterfly year, and the peatland community will ready itself for the frozen depths of another eight month northern winter.

Favorite Locations

Although boreal peatlands are rather commonplace in the northern Wisconsin landscape, this does not imply that the peatland butterflies are found everywhere. Many of these species are limited to a few discrete regions, being absent from many seemingly suitable sites. Because of this, stopping at any peatland in northern Wisconsin will not necessarily

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Bog Coppers are so small that one sometimes doesn't see them flying tremulously at one's feet.
July 12, 1989, Chequamegon NF, Bayfield Co. WI

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An aerial view of the Amnicon Lake Distrct showing large areas with low peat vegetation.

Freija Fritillary is an exciting find anywhere, and it's range is especially limited in the eastern United States.
May 24,1990. Douglas Co. Wisconsin

reward the butterfly enthusiast with a glimpse of any of the peatland species.

Thanks to a grant provided by the Wisconsin Department of Natural Resources, I was able to survey most of the peatlands inside the Lake Superior drainage basin in Wisconsin during the summer of 1996. While other regions in the state also undoubtedly harbor diverse butterfly assemblages, the nearly complete survey of peatlands in the Lake Superior region allows for identification of the richest sites.

Amnicon Lake District

Only in the peatlands near Amnicon Lake in Douglas County do all 10 of Wisconsin's peatland butterflies occur together. Straddling the divide between Lake Superior and the Mississippi River, the Amnicon Lake district includes some of the best remaining muskeg habitats in the state. Most of these sites are part of the Douglas County Forest lands. Good sites to visit include:

(1) Milchesky Road Peatlands, approximately 2 miles west of Amnicon Lake on Milchesky Road. This large complex of sites (spanning both sides of the road) harbors populations of Bog Fritillary, Freija Fritillary, Arctic Fritillary, Common Ringlet, Red-disked Alpine, Brown Elfin, Bog Copper, and Jutta Arctic. The large, open meadows are spectacular for early season species.

(2) Bear Creek Peatland, 2 ½ miles south of Amnicon Lake on County Road A (Bog Fritillary, Freija Fritillary, Arctic Fritillary, Brown Elfin, Jutta Arctic). (3) Belden Swamp, 4-5 miles north of Moose junction on State Highway 35 (Bog Fritillary, Freija Fritillary, Frigga Fritillary, Arctic Fritillary, Common Ringlet, Brown Elfin, Bog Copper, and Jutta Arctic).

The Amnicon Lake district can be reached by driving 10 miles south of the Richard Bong Airport in

Superior on State Highway 35, turning east on County Road B (at Pattison State Park) for 2 ½ miles, then driving south on County Road A for another 4 miles.

Drummond Lake District

Many well-developed kettlehole peatlands occur in the pitted outwash plain near Drummond in Bayfield County. The majority of these sites lie within the boundary of the Chequamegon National Forest. Five peatland-limited species occur in this region. Some of the better sites include:

(1) Sugarbush Lake, which is approximately 10 miles southeast of Drummond along Lake Owen Drive. One-half mile north of the intersection with Lipke Road, turn east 1 ½ miles on a fire lane, park, and then hike approximately ¼ mile east along a snowmobile trail. This site is large, pristine, has a bog lake, a well-developed floating mat, and a black spruce grove. Bog Fritillary, Brown Elfin, Bog Copper, and Jutta Arctic have been found at this site.

(2) East Crane Lake. Three miles southeast of Drummond on Lake Owen Drive, continue straight on Forest Service Road 216. In 1 ¼ miles (east of Crane Lake) park and hike in 100 yards to peatland (just visible from road). This site is drier than most kettlehole peatlands, and supports a large black spruce grove, along with Bog Fritillary, Brown Elfin, and Jutta Arctic.

(3) East Roger Lake, 2 ¼ miles southeast of Drummond on Lake Owen Road. This small peatland rests in a depression east of the road, and supports a healthy Bog Fritillary population.

(4) East Wishbone Lake, approximately 4 miles north of Drummond on the Delta-Drummond Road. This fine kettlehole peatland lies between the Reynard Lake Road and East Star Lake Road intersections, and has an exquisite floating *Sphagnum* mat supporting Bog Fritillary, Brown Elfin, and large Bog Copper populations.

Drummond is approximately 25 miles north of Hayward on U.S. Highway 63.

Bayfield Peninsula Coastal Peatlands

The best-developed coastal peatlands along the Lake Superior coast in Wisconsin exist on the Bayfield Peninsula in Bayfield County. Both of the sites listed below are owned and managed by the Wisconsin DNR.

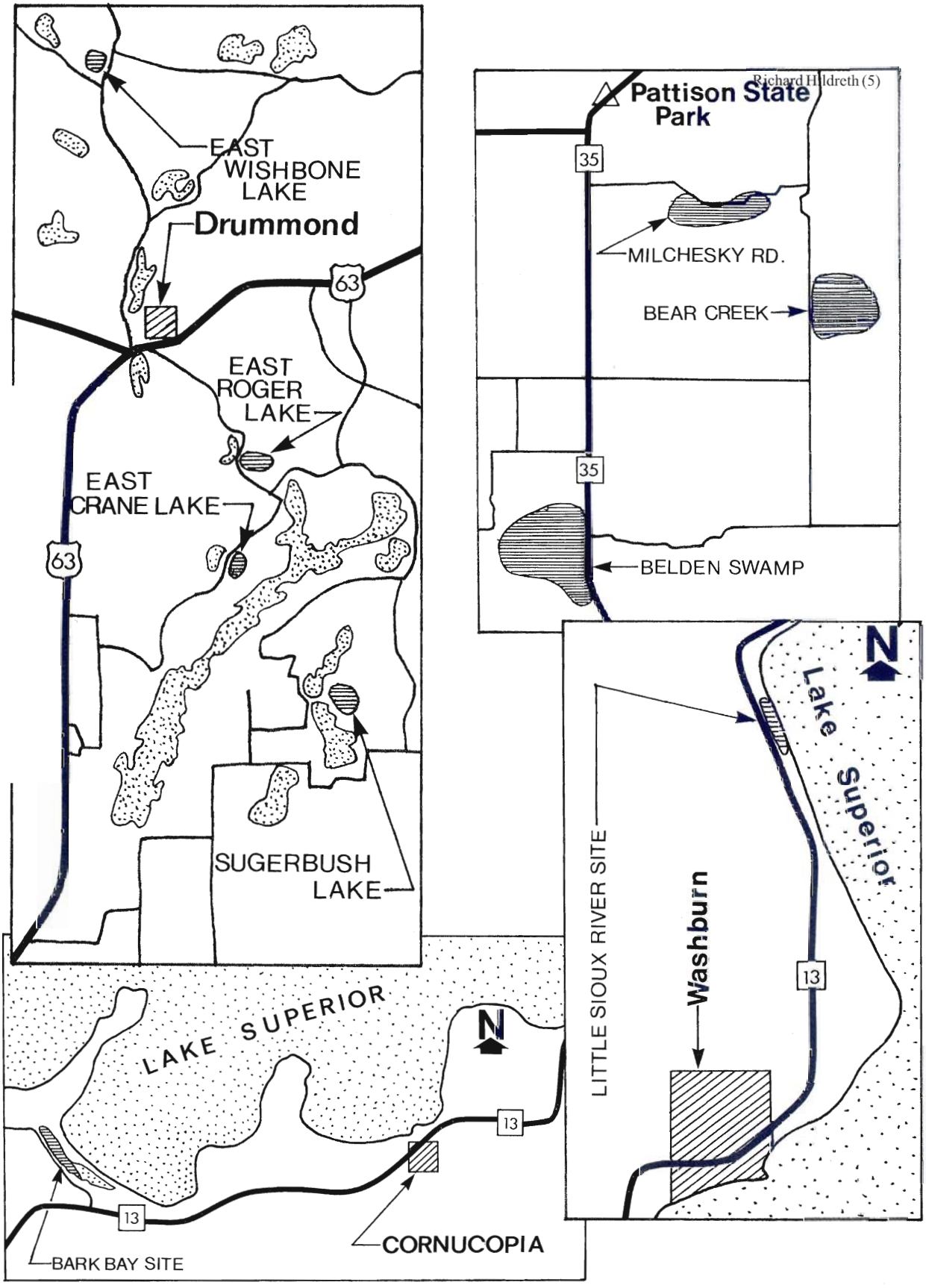
(1) Bark Bay, 5 ½ miles west of Cornucopia along State Highway 13, and then north approximately ½ mile on Bark Bay Road to the Bark Bay boat landing. West of the landing is a well-developed peatland supporting Bog Fritillary, Common Ringlet, and Bog Copper populations restricted to *Sphagnum* islands and ridges sitting above the sedge mat.

(2) Little Sioux River, 3 ½ miles north of Washburn along State Highway 13. The peatland consists of a narrow swale between two dunes east of the road. Bog Fritillary and Bog Copper populations inhabit *Sphagnum* islands raised above the sedge mat.

Additional high-quality coastal peatlands exist on many of the Apostle Islands, including Madeline, Stockton, and Michigan.

Equipment and Logistics

Besides your favorite butterfly gear, remember to wear waterproof boots (which I don't do during the summer when cool water between the toes feels good), long pants which you do not mind getting muddy (to keep your legs from getting scratched), a long-sleeved shirt, and insect repellent (to keep biting flies and mosquitoes away). If you are doing off-trail exploration, topographic maps and a compass are a must. Lodging is available throughout the Lake Superior shore, particularly in the Bayfield Peninsula, which supports a healthy tourist industry based on the Apostle Islands National Lakeshore and the local arts community. Rooms and good restaurants are to be found in Bayfield, Washburn, and Ashland. Hayward (about 1 hour south) also has many rooms and restaurants. Camping is primarily available through the various campgrounds maintained by the National Forest Service in the Chequamegon National Forest. Campgrounds may become filled on holiday weekends during the summer, so it may be best to call ahead if you plan on visiting at these times.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BARK BAY SITE
CORNUCOPIA
Richard Hildreth (5)
Pattison State
Park
35
MILCHESKY RD.
BEAR CREEK
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BELDEN SWAMP
LITTLE SIOUX RIVER SITE
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Lake Superior
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