



# The Flora and Plant Communities of Maine Peatlands

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## INTRODUCTION

Although the flora and vegetation of Maine's peatlands have long been studied (Fernald and Wiegand 1910; Nichols 1919; Rigg 1940; Osvald 1955, 1970, from research done in 1927), there has been no systematic, statewide description of the constituent plant communities based on quantitative data. Damman (1977, 1980) used quantitative data to present a syntaxonomy of non-forested, ombrotrophic peatland vegetation, emphasizing coastal types. Worley (1981) summarized these early studies, and Worley and Sullivan (1980) attempted to synthesize them into a hierarchical classification of Maine peatlands. Their generalized classification was based on qualitative observations of dominant species only. Davis et al. (1983) used indirect gradient analysis for the first quantitative description of statewide peatland vegetation, but classification of discrete vegetation types was not performed. Davis and Anderson (1991) presented an objective classification of plant communities for eccentric bogs, a peatland type occurring in a restricted part of northeastern Maine. That study was also the first to include extensive environmental data to relate to the communities. Prior to Davis and Anderson (1991), and in the absence of quantitative environmental data, authors often made generalized inferences on relationships between pH, major ions, trophic state, hydrology, and plant communities, an approach recently questioned by Bridgham et al. (1996).

In a paper that incorporated and extended the previous work of Davis et al. (1983) and Davis and Anderson (1991), Anderson and Davis (1997) presented the first comprehensive, quantitative treatment of Maine's peatland vegetation and environments. However, detailed descriptions and distributions of the individual plant communities could not be published due to space limitations. Such information is useful and of interest to naturalists, peatland scientists, land-use managers, and state and federal natural resource agencies involved in promoting biodiversity and conserving natural areas. The objectives of this study are (1) to classify and describe the plant communities of Maine peatlands, (2) to demonstrate the relationships between the communities, (3) to characterize the communities in terms of physical and chemical variables, (4) to show the geographic distribution of the communities, (5) to investigate the relationships between plant communities and peatland geomorphic/hydrologic types, (6) to report the areal cover of vegetation cover-types (aggregated communities) for individual

peatlands, and (7) to document the flora of Maine's peatlands, including vascular plants, bryophytes, and lichens.

## STUDY SITES

We studied 108 Maine peatlands representing the geographic, typologic, and chemical ranges of peatlands in the state (Figure 1, Table 1). Relevé data were collected at 96 of these peatlands which range in area from 2 to 2536 ha (mean = 258; med = 160) and altitude from 5 to 434 m above sea level (asl) (mean = 154; med = 113). Peatland types include 30 predominantly open-basin and valley unpatterned fens, six closed-basin (kettle) fens, 18 ribbed fens, 18 bogs without pattern, 15 bogs with concentric pattern, 18 eccentric bogs, and three coastal bogs. Peatland typology follows Davis and Anderson (1991). The term "bog" in that system refers to raised bog, and "fen" refers to all other peatlands. However, all the bogs are part of mire complexes with peripheral fen areas that were also sampled. Thus, many peatlands are composed of multiple types (Table 1). We collected extensive environmental data from a representative subset of 51 peatlands, including peat pore-water chemistry, to relate to the vegetation data (Figure 1). More detailed site information, including vegetation cover maps, is archived at the authors' laboratory.

The gradient in alkalinity and base cation concentration accounts for most of the variance in the environmental data in these peatlands (Anderson et al. 1995). Other important gradients are related to the influence of granitic substrates on peat pore-water chemistry, coastal to inland climate, moisture content of the peat, and concentrations of P and K (Anderson et al. 1995).

## METHODS

### Field Studies

Detailed field procedures are given in Davis and Anderson (1991). Generally, we followed a traverse across each peatland along which we placed 5x5-m relevés in representative, homogeneous vegetation types. We positioned the traverse to intersect all vegetation cover types that could be distinguished in vertical (black & white) and oblique (color) aerial photographs. There were one to 61 (mean = 6.8; med = 5) relevés per peatland for a total of 650. There were 289 relevés in a representative subset of 51 peatlands with environmental data. For each relevé, we made cover estimates (Braun-Blanquet 1932) for every vascular plant, bryophyte, and

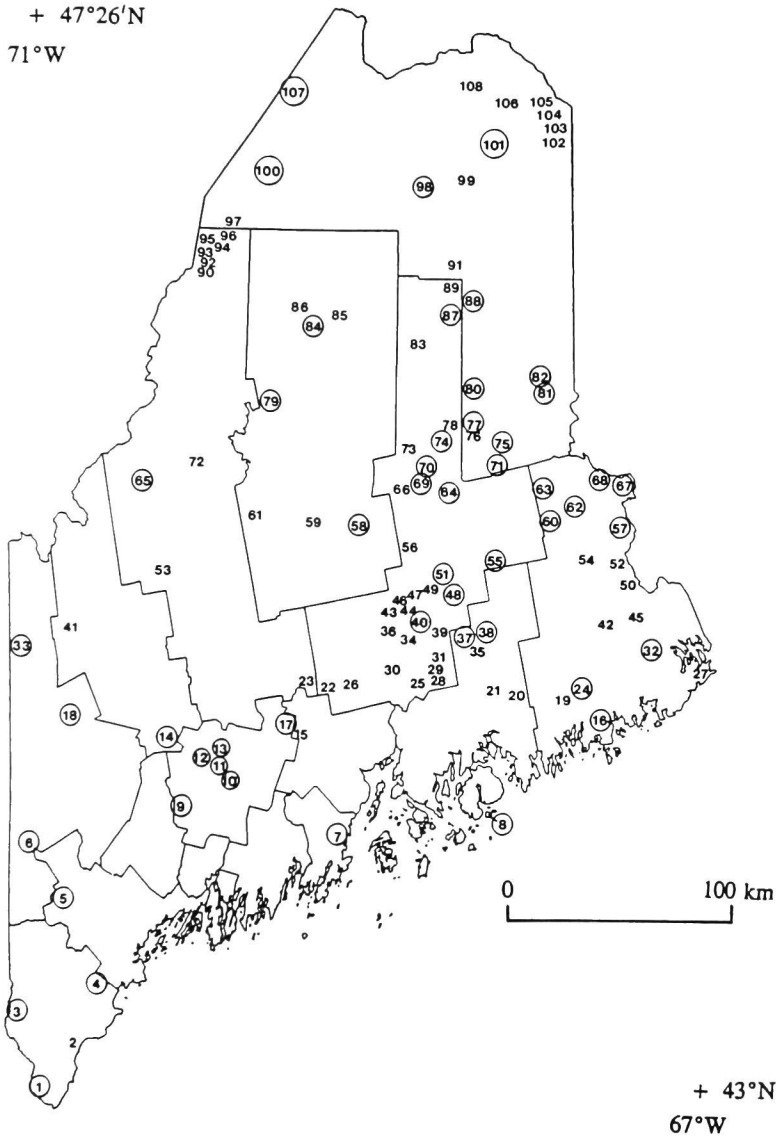


Figure 1. Locations of the 108 Maine peatlands. Names are given in Table 1. Circled numbers indicate peatlands with peat pore-water chemistry.

Table 1. Peatland number, name, latitude and longitude of peatland center to closest minute, area, type(s), and 7.5' U.S.G.S. quad(s). Typology follows Davis and Anderson (1991), viz. 2 = unpatterned fen in stream valley. 3 = unpatterned fen in open basin. 4 = unpatterned fen in closed basin. 5 = ribbed fen. 6a = relatively flat inland bog, without secondary pools. 6b = relatively flat inland bog, with secondary pools. 7 = eccentric bog. 8a = domed bog with concentric pattern, without secondary pools. 8b = domed bog with concentric pattern, with secondary pools. 9 = coastal bog (relatively flat or plateau).

#	Peatland Name	Lat.	Long.	Area (ha)	Type(s)	7.5' Quad(s)
1	The Heath at Eliot	4308	7048	59	3	Dover East
2	The Heath N of Merrilland Ridge at Wells	4320	7038	90	6a, 3	North Berwick
3	Peatland at Black Pond	4328	7056	63	3	Milton
4	The Heath at Saco	4333	7028	348	6b	Old Orchard Beach
5	Peatland S of Perly Pond, along the Northwest River	4354	7040	161	3, 2	North Sebago
6	Peatland W of Kezar Pond	4406	7054	408	3	Fryeburg
7	Rockland Bog	4408	6909	95	2	West Rockport; Thomaston
8	The Heath at Great Cranberry Island	4414	6816	50	9	Bass Harbor
9	Peatland E of Curtis Corner	4416	7004	223	2	Wayne
10	Great Sidney Bog	4423	6947	245	6a	Belgrade
11	Peatland at Belgrade Lakes Kettle (1)	4425	6950	3	4	Belgrade
12	Peatland at Belgrade Lakes Kettle (2)	4425	6950	2	4	Belgrade
13	Peatland at Belgrade Lakes Kettle (3)	4428	6950	6	4	Belgrade
14	Peatland 2 km S of North Pond, along Little Norridgewock Stream	4431	7006	41	2, 3 6a	Wilton; Farmington Falls
15	Kanokolus Bog	4433	6922	57	6b, 2	Albion; Unity
16	The Heath at Jonesport	4434	6737	162	9	Jonesport; Addison
17	Fowler Bog	4435	6925	338	2, 3	Albion
18	Peatland S of Meadow Brook	4437	7040	52	3	East Andover; Ellis Pond
19	Great Heath	4443	6751	2536	8b, 8a, 6b 6a, 2, 3	Epping; Schoodic Lake; Montegail Pond



Table 1. Continued.

#	Peatland Name	Lat.	Long.	Area (ha)	Type(s)	7.5' Quad(s)
20	Southern Bog at Rock Dam Heath	4443	6804	85	6a, 6b	Tunk Mountain
21	Peatlands along the Bog & Union Rivers	4444	6815	115	6a, 2	Molasses Pond; Eastbrook; Amherst
22	Bogs at Detroit and Plymouth, N of Carlton Pond	4445	6916	269	6a, 2	Newport; Unity Pond
23	Big Meadow Bog	4446	6922	645	6a	Newport
24	Bog N of Montegail Pond	4446	6747	132	6b, 3	Montegail Pond
25	Peatland along Eaton Brook	4446	6841	22	2	Veazie
26	Etna Bog	4446	6907	155	6b, 2	Carmel; Plymouth
27	Heath at South Trescott	4446	6705	33	9	West Lubec
28	Peatland at Holbrook Pond	4446	6836	35	3	Chemo Pond; Veazie
29	Peatland NW of Davis Pond	4447	6836	106	6b	Chemo Pond; Veazie
30	Hermon Bog	4448	6852	104	6b, 3	Bangor; Hermon
31	Chemo Bog	4451	6834	409	6a, 6b	Chemo Pond
32	Peatland along Clifford Stream	4453	6720	80	2	Porcupine Mountain
33	Peatland Complex along the Magalloway River	4453	7102	506	3, 4	Wilson's Mills
34	Caribou Bog	4456	6846	2519	8a, 8b, 6a, 6b, 2, 3	Pushaw Lake; Old Town; Veazie
35	Bog along the Horseback by Birch Stream	4457	6826	276	6a, 2, 3	The Horseback
36	Peatland at NW end of Pushaw Lake	4457	6850	128	3	Pushaw Lake
37	Peatland at Pickerel Pond Kettle	4458	6827	2	4	The Horseback
38	Peatland at Dollar Pond Kettle	4458	6826	22	4	The Horseback
39	Peatlands along Sunkhaze Stream and Baker Brook	4459	6834	328	8a, 6a, 2	Otter Chain Ponds
40	Alton Bog	4500	6842	651	3	Greenbush; Old Town
41	Peatland .5 km N of Perk Pond	4501	7040	61	2	Kennebago Lake
42	Peatland SW of Crawford Lake	4501	6736	135	6a	Crawford Lake
43	Call Bog	4502	6852	359	3	South Lagrange; Bradford

Table 1. Continued.

#	Peatland Name	Lat.	Long.	Area (ha)	Type(s)	7.5' Quad(s)
44	Peatland at Holland Pond	4502	6845	116	6a	Greenbush; South Lagrange
45	Meddybemps Heath	4503	6725	500	8b, 8a, 6b 6a, 2, 3	Meddybemps Lake West
46	Sargent Bog	4505	6847	244	6a, 3	South Lagrange
47	Bog along E Branch of Birch Stream	4507	6845	416	8b, 2	Lagrange; Howland; South Lagrange; Greenbush
48	Peatland S of Rocky Rips on the Passadumkeag River	4507	6830	335	8b, 2, 3	Burlington; Passadumkeag; Olamon; Greenfield
49	Peatland along Hoyt Brook	4508	6840	138	2	Howland
50	Bog 2 km NE of South Princeton	4510	6729	105	6a, 3	Woodland; Princeton
51	Peatlands around Little Cold Stream & confluence of Cold Stream & Passadumkeag River	4512	6834	1672	7, 2	Passadumkeag
52	Sawtelle Heath	4513	6730	133	6a	Woodland; Princeton
53	Bog around Black Brook Pond	4514	7009	176	3	Little Bigelow Mountain
54	Bog S of Lamb's Deadwater of Musquash Stream	4514	6742	166	8b, 2	Big Lake
55	1000 Acre Heath	4515	6814	730	8b, 8a, 6a	Weir Pond; Spring Lake
56	Sweat Bog	4521	6845	377	8b, 6a, 2	Hardy Pond; Seboeis
57	Peatland along W Branch Millberry Stream	4523	6731	83	2	Simsquish Lake
58	Orson Bog	4524	6901	212	2, 3	Seboeis Lake
59	Caribou Bog S of Indian Pond	4524	6917	136	8b	Barren Mountain East
60	Peatland around Confluence of Lindsey Brook and Baskahegan Stream	4525	6759	221	7, 2	Dill Hill
61	Peatland 2 km S of Greenville Junction	4526	6937	173	7, 2	Big Squaw Pond; Greenville
62	Big Bog	4527	6745	314	7	Dill Hill
63	Peatland at W Base of Stetson Mountain	4531	6800	247	7, 6b	Dill Hill; Stetson Mountain; Potter Hill
64	Inman Bog	4532	6831	190	7	Medunkeunk Lake

Table 1. Continued.

#	Peatland Name	Lat.	Long.	Area (ha)	Type(s)	7.5' Quad(s)
65	Number Five Bog	4532	7017	544	5, 3	Attean Pond
66	Bog N of Cedar Mountain	4533	6849	77	8b	Cedar Lake
67	Peatlands around Maine Central RR, W of Vanceboro Village	4533	6729	307	8a, 7, 6a, 6b, 3	Vanceboro; Lambert Lake
68	Peatland NW of Lambert Lake	4535	6736	209	7	Lambert Lake
69	Peatland at Nollesemic Stream and Mud Brook	4535	6841	196	7	Nollesemic Lake
70	Peatland at Kettle in the Bend of Nollesemic Stream	4535	6841	64	4	Nollesemic Lake
71	Peatland at Crossuntic Stream and County Line	4537	6812	383	7, 3	Kingman
72	Twelvemile Bog	4539	7002	24	5, 2	Churchill Stream
73	Peatlands at Smith Brook Deadwater & Little Smith Pond	4542	6845	178	7, 5, 2	Norcross; Millinocket
74	Hatham Bog	4543	6833	148	7, 6b	East Millinocket
75	Peatlands along Macwahoc Stream	4543	6812	444	8b, 7, 6a, 2	Reed Pond
76	Peatland on S Shore of Flinn Pond	4544	6822	117	7	Molunkus Lake; Salmon Stream Lake
77	Peatland on N Shore of Flinn Pond	4546	6823	75	7	Benedicta
78	Peatland along Mud Brook	4546	6829	157	2	Benedicta
79	Peatland N of Northeast Carry	4554	6937	497	3, 5	Penobscot Farm
80	Thousand Acre Bog at Crystal and Sherman	4557	6823	628	8b, 6a, 3	Patten; Crystal
81	Peatland at Elevenmile Lake	4558	6757	160	7, 3	Ten Mile Lake
82	Coffin Bog	4559	6758	225	7	Ten Mile Lake; Linneus
83	Peatland NE of Marble Pond	4608	6841	111	5, 3	Hay Lake; Bowlin Brook
84	Peatland at Dottle Brook	4609	6918	75	2	Mud Pond; Cuxabexis Lake
85	Peatland 2 km E of Chamberlain Lake	4612	6909	11	5	Telos Lake
86	Ellis Bog	4614	6923	465	5, 2	Mud Pond
87	Wadleigh Bog	4615	6827	184	7, 2	Umcolcus Lake; Green Mountain

Table 1. Continued.

#	Peatland Name	Lat.	Long.	Area (ha)	Type(s)	7.5' Quad(s)
88	Peatland at Smith Pond T8R5 WELS	4619	6825	186	8a	Umcolcus Lake
89	Peatland around Umcolcus Deadwater	4621	6830	404	3, 2	La Pamkeag; Umcolcus Lake
90	Peatland S of Confluence of Carter Brook and Southwest Branch St. John River	4627	7001	36	5	Hardwood Mountain
91	Peatland at Otter Brook	4628	6830	74	5	Oxbow West; Oxbow East
92	Peatland E of Southwest Branch St. John River (Slight Depression Fen)	4628	7001	36	5	Hardwood Mountain
93	Peatland at T10R17 (Big Ten) (International Fen)	4631	7002	94	5, 3	Daaquam
94	Peatland at T10R17 (Big Ten) (Island Fen)	4631	7000	17	5	Daaquam
95	Peatland Complex at T10R17 (Big Ten)	4631	7001	91	5, 3	Daaquam
96	Peatland at Eastman Brook	4633	6955	19	5	Eastman Brook
97	Fens on T11R17-16 border, 2.5 km S Burntland Brook	4637	6951	42	5, 3	Beaver Pond SE
98	Peatland along Greenlaw Stream	4643	6840	229	2	Greenlaw Pond
99	Peatlands along Burpee Brook	4644	6826	173	6a, 2	Ashland; Portage Lake East
100	Peatland at White Pond and along White Brook	4647	6937	211	2	Houlton Pond; Seven Islands
101	Peatland at Salmon Brook Lake and along Salmon Brook	4654	6814	99	3, 2	Mud Lake
102	Peatland 3 km NE of Limestone	4656	6748	18	3	Limestone
103	Peatland NW of Pierce Lake & W of Route 165	4659	6749	18	3	Limestone
104	Peatlands between Deer & Mud Lakes	4701	6751	53	5, 3	Hamlin
105	Orchard Bog	4702	6755	82	5, 3	Doyle Ridge
106	Peatland at Moose Pond	4703	6805	17	5	Picard Brook
107	Peatland S of Chimenticook Stream	4706	6932	29	5	East Lake SE
108	Peatlands W of Cross Lake and NE of Square lake	4707	6821	147	5, 3	Square Lake East

lichen species, excluding epiphytes, for each of four strata: (1) ground, 0–0.1 m; (2) low shrub-herb, 0.1–1.5 m; (3) high shrub, 1.5–5 m; and (4) tree, >5 m. We estimated maximum microrelief for each relevé. Also, we compiled a complete species list along the traverse.

Taxonomy of vascular plants follows Haines and Vining (1998). Synonyms used by Anderson et al. (1996) and Anderson and Davis (1997) are given in Appendix 1. Other taxonomic references used were Hale (1979) for lichens, Schuster (1966–1992) for liverworts, Anderson (1990) for *Sphagnum*, Anderson et al. (1990) for other mosses. Two exceptions are *Sphagnum imbricatum* and *S. recurvum*, which follow Crum (1984). The varieties of *S. recurvum* were not distinguished (Anderson et al. 1995); this species is designated *S. recurvum* agg. in the text.

At 263 relevés we collected a 150-ml sample of peat pore-water from the top of the water table by pushing a pointed and perforated 60-cm-long by 3-cm-diameter rigid plastic collection tube into the peat. Using a hand pump, we drew water from the emplaced tube through flexible plastic tubing into a polyethylene vacuum flask. At the other 26 relevés the water table was too deep to obtain a sample. Prior to use we soaked the polyethylene collection bottles overnight in 10% HCl and rinsed them with glass-distilled water. We stored water samples at 5°C until treatment in the laboratory within ~24 hr.

At each relevé, we cut a 250 cm<sup>3</sup> cube of peat from just below the living ground cover, and sealed it in a plastic bag to prevent water loss. At 259 of these relevés, we determined the depth of peat to mineral substrate using a Davis peat sampler.

### Laboratory Analyses

We analyzed filtered (Nucleopore™ 0.65 µm cellulose membrane filters) water samples for air-equilibrated pH, total alkalinity (alk), dissolved organic carbon (DOC), conductance ( $K_{\text{corr}}$ ), and selected chemical elements (Table 2). We corrected conductance at 25°C for hydrogen ions (Sjörs 1950). Detailed analytic procedures, including detection limits of chemical elements, are given by Davis and Anderson (1991).

Degree of humification of the peat follows the 10-class scale of von Post (1924). We determined weight percent water content (%H<sub>2</sub>O) by drying the peat sample at 90°C, and used %H<sub>2</sub>O as an indicator of site wetness. After ignition (550°C) of the sample and digestion of the ash in dilute HCl, we filtered the mineral residue (minres) on a pre-weighed 1.5 µ glass fiber filter and weighed the sample after drying.

### Database And Statistical Analyses

We converted the Braun-Blanquet cover class of each species in each relevé to a cover percentage by using the geometric mean of the range for each class. We used the sum of percent cover of the tall shrub and tree strata (% overstory) as a measure of vegetational structure and, for the ground and low shrub-herb strata, as an index of shade and other canopy influences (Anderson and Davis 1997).

We calculated two synthetic climatic variables (CF1 and CF2) for each peatland (Anderson et al. 1995). CF1 reflects south to north and coastal to inland gradients. These include gradients of decreasing temperature for all seasons except summer, heat accumulation, spring and fall potential evapotranspiration, number of frost-free days, and increasing summer precipitation. CF2 reflects high continentality and seasonality, including gradients of spring and summer extreme maximum temperature and summer average maximum temperature.

We used the 146 species that occurred in at least three relevés in the statistical analyses. We maintained taxon percentages separately for each stratum, so some species occur more than once in the data matrix. For example, *Picea mariana* (black spruce, hereafter "*Picea*") may occur in the tree (t), high shrub (hs), and low shrub-herb (ls) strata. Consequently, the data input consisted of 179 total "species," which allowed us to effectively incorporate vegetational structure as well as species composition in the classification.

We used TWINSPAN (two-way indicator species analysis; Hill 1979), a polythetic, divisive method of classification, to define the plant communities. We based the divisions on six unweighted pseudospecies cut levels (0%, 2%, 5%, 10%, 20%, and 40%). Two levels of indicator species are identified at each division. A differential species is one with clear ecological preferences, so that "its presence can be used to identify particular environmental conditions" (Hill 1979:3). Preferential species are not quite as discriminatory, but are more likely to be found on one side of the dichotomy than the other. Differential and preferential species do not necessarily characterize an individual community, but are relevant only to the discrimination of a particular dichotomy. We calculated mean values of all environmental variables for the 30 ultimate communities. The TWINSPAN used a subset of 442 relevés from 82 peatlands to minimize redundancy from heavily sampled vegetation types (e.g., shrub heaths). We used SAS/GRAPH (SAS Institute Inc. 1988) to map the distributions of the communities.

Areal coverage of the communities was determined for each peatland by digitization and/or dot overlay of vegetation cover maps (not presented here). Coverages for mineral soil wetland, upland islands, and open water are also included.

Table 2. Summary of chemical and physical characteristics of the relevés. The first 18 variables are for pore-water chemistry in  $\text{mg}\cdot\text{L}^{-1}$ , except pH (air-equilibrated), alkalinity ( $\mu\text{eq}\cdot\text{L}^{-1}$ ), and  $K_{\text{corr}}$  (specific conductance corrected for  $\text{H}^+$ ,  $\mu\text{S}\cdot\text{cm}^{-1}$  at  $25^\circ\text{C}$ ). DOC = dissolved organic carbon. Variables for surface peat are  $\%\text{H}_2\text{O}$  (weight percent water in fresh peat), degree of humification based on a 10-point scale (von Post 1924), and minres = mineral residue after acid digestion of peat. % overstory = total percent cover of high shrub and tree strata, an index of shade and other canopy influences for the lower strata. BDL = below detection limit.

Variable	N	Mean	SD	Minimum	Median	Maximum
Ca	259	1.97	3.60	0.01	0.57	27.20
K	259	0.36	0.63	BDL	0.23	7.28
Mg	259	0.47	0.57	0.02	0.28	3.11
P	259	0.05	0.05	BDL	0.04	0.42
Al	259	0.14	0.15	BDL	0.09	0.94
Fe	259	0.28	0.46	BDL	0.09	3.64
Mn	259	0.02	0.03	BDL	BDL	0.20
Na	259	1.57	1.94	0.20	0.84	14.00
Si	259	1.31	1.47	BDL	0.73	9.47
Zn	259	0.02	0.02	BDL	0.02	0.16
Cl	259	1.859	3.102	0.080	0.794	26.100
$\text{NO}_3\text{-N}$	124	0.003	0.009	BDL	BDL	0.093
$\text{NH}_4\text{-N}$	124	0.17	0.30	BDL	BDL	2.28
$\text{SO}_4\text{-S}$	259	0.38	0.69	0.02	0.17	7.50
$K_{\text{corr}}$	258	24.5	23.4	1.4	17.0	142.1
pH	258	4.74	1.22	3.60	4.16	8.35
Alkalinity (total)	255	-11.3	226.4	-364.7	-77.9	1397.0
DOC	257	38.4	14.2	1.8	36.8	87.9
$\%\text{H}_2\text{O}$	289	89.5	6.4	55.3	91.6	98.6
Humification degree	230	3.3	2.4	1.0	2.0	9.0
Minres ( $\text{mg}\cdot\text{g}^{-1}$ dry wt)	289	0.031	0.076	0.001	0.010	0.626
Maximum micro-relief (cm)	225	27	16	0	30	99
%overstory	289	18.4	30.5	0.0	0.2	127.2
Peat depth (m)	259	3.6	2.1	0.3	3.4	9.1

## RESULTS

In Table 2 we give descriptive statistics for all environmental variables. Environmental optima and tolerances have been published elsewhere for bryophytes and lichens (Anderson et al. 1995), sedges (Anderson et al. 1996), and vascular plants (Anderson and Davis 1997). The vascular plants, bryophytes, and lichens are listed in Appendices 1, 2, and 3, respectively. The areal coverage of vegetation cover-types for each peatland is given in Appendix 4.

### Plant Communities—Major Divisions

The TWINSPAN analysis (Figure 2) differentiated the 442 relevés through a series of steps finally identifying 30 plant communities (Figure 2 and Table 3). Species codes for the TWINSPAN diagram are given in Table 4. The first division separated 62 relevés (Group CD) representing various types of fens from the other 380 relevés (Group AB). Differential indicator species (Hill 1979) for Group AB are *Vaccinium oxycoccus*, *Kalmia angustifolia*, *Sphagnum rubellum*, and *Picea mariana* (ls). *Spiraea alba* v. *latifolia* (hereafter “*Spiraea*”) is the sole differential indicator for Group CD. pH and related factors, Fe, Cl, climate factor 1 (CF1), and degree of humification are significantly higher, and depth to substrate lower for CD (Anderson and Davis 1997).

The first division of AB separated 118 relevés (Group A) with *Rhynchospora alba* (hereafter “*Rhynchospora*”) and *Andromeda polifolia* var. *glaucophylla* (hereafter “*Andromeda*”) as differential indicator species, from 262 relevés (Group B) with *Rhododendron groenlandicum*, *Kalmia angustifolia*, and *Rhododendron canadense*. Preferential species for Group A include *Carex limosa*, *Carex oligosperma*, *Scheuchzeria palustris* ssp. *americana*, *Sphagnum cuspidatum*, and *Utricularia cornuta*. Preferential species for Group B include *Picea*, especially in the tree and high-shrub strata, *Nemopanthus mucronatus* (hereafter “*Nemopanthus*”), *Carex trisperma*, *Cladina rangiferina*, *Gaultheria hispidula*, and *Sphagnum fuscum*. Group A is less wooded, and has significantly lower means for P, NH<sub>4</sub>, CF1, microrelief, and degree of humification and a higher mean for %H<sub>2</sub>O, indicating open lawn habitats (Anderson and Davis 1997).

Group A is subdivided into A1 (62 relevés) with *Sphagnum rubellum* (> 5% cover) as a differential indicator species, and A2 (56 relevés). Preferential species for Group A1 include *Eriophorum vaginatum* var. *spissum*, *Kalmia angustifolia*, and *Eriophorum virginicum*, and for Group A2, *Larix laricina* (hereafter “*Larix*”),



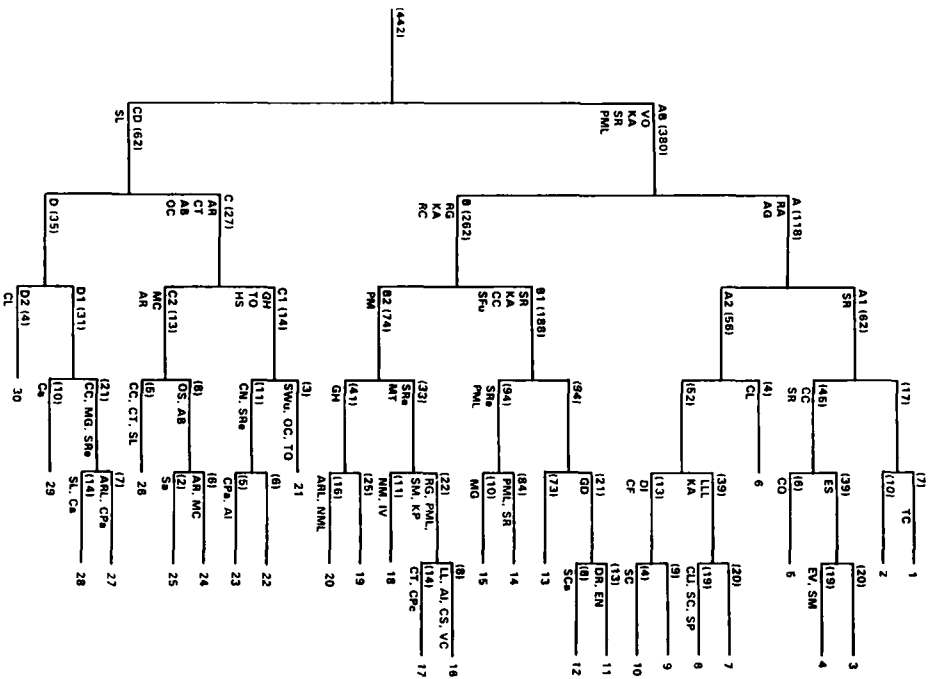


Figure 2. TWINSpan dendrogram of 30 plant communities (numbered 1–30), based on 442 relevés. The number of relevés in each group is given in parentheses. Indicator species letter codes are given in Table 4.

Table 3. Name and code name for thirty TWINSPLAN communities with mean species' cover (%) and species' frequency for each community. The names in parentheses are characteristic or distinguishing species. N = number of relevés which define the community. T = tree stratum. HS = high shrub stratum. LS = low shrub-herb stratum. G = ground stratum.

		Mean Cover (%)	Frequency (# relevés)
1	Sedge - shrub heath ( <i>Trichophorum cespitosum</i> - <i>Gaylussacia dumosa</i> var. <i>bigeloviana</i> ) S-SH (TC-GD); N=7		
	LS <i>Trichophorum cespitosum</i>	33.6	7
	<i>Chamaedaphne calyculata</i>	19.1	6
	<i>Gaylussacia dumosa</i> var. <i>bigeloviana</i>	13.0	6
	<i>Kalmia angustifolia</i>	2.8	7
	<i>Utricularia cornuta</i>	1.5	4
	<i>Kalmia polifolia</i>	0.9	5
	G <i>Sphagnum rubellum</i>	30.0	7
	<i>Sphagnum magellanicum</i>	8.4	5
	<i>Cladonia</i> spp.	7.1	4
	<i>Cladopodiella fluitans</i>	6.3	5
	<i>Vaccinium oxycoccus</i>	3.3	6
	<i>Drosera rotundifolia</i>	1.4	6
2.	Moss lawn - mudbottom / sedge ( <i>Sphagnum cuspidatum</i> - <i>Cladopodiella fluitans</i> / <i>Rhynchospora alba</i> ) ML-MB/S (SC-CF/RA); N=10		
	LS <i>Utricularia cornuta</i>	15.4	5
	<i>Rhynchospora alba</i>	11.0	10
	<i>Chamaedaphne calyculata</i>	9.5	9
	<i>Andromeda polifolia</i> var. <i>glaucophylla</i>	3.9	8
	<i>Drosera rotundifolia</i>	2.8	10
	<i>Vaccinium oxycoccus</i>	1.8	10
	<i>Eriophorum virginicum</i>	1.3	5
	<i>Sarracenia purpurea</i>	1.0	7
	<i>Kalmia angustifolia</i>	0.2	5
	G <i>Sphagnum cuspidatum</i>	37.3	8
	<i>Sphagnum rubellum</i>	19.6	9
	<i>Cladopodiella fluitans</i>	19.5	8
3.	Moss lawn / shrub heath - sedge ( <i>Sphagnum rubellum</i> / <i>Chamaedaphne calyculata</i> - <i>Eriophorum vaginatum</i> var. <i>spissum</i> ) ML/SH-S (SR/CC-ES); N=20		
	LS <i>Chamaedaphne calyculata</i>	45.2	20
	<i>Eriophorum vaginatum</i> var. <i>spissum</i>	16.3	18
	<i>Andromeda polifolia</i> var. <i>glaucophylla</i>	6.3	17
	<i>Sarracenia purpurea</i>	0.7	15
	<i>Kalmia polifolia</i>	0.4	10

Table 3. Continued.

G	<i>Sphagnum rubellum</i>	79.5	20
	<i>Vaccinium oxycoccus</i>	3.6	20
4.	Moss lawn / shrub heath - sedge ( <i>Sphagnum rubellum</i> / <i>Chamaedaphne calyculata</i> - <i>Eriophorum virginicum</i> ) ML/SH-S (SR/CC-EV); N=19		
LS	<i>Chamaedaphne calyculata</i>	55.2	19
	<i>Rhynchospora alba</i>	25.4	11
	<i>Eriophorum virginicum</i>	13.2	18
	<i>Kalmia angustifolia</i>	9.8	14
	<i>Eriophorum vaginatum</i> var. <i>spissum</i>	5.0	13
	<i>Andromeda polifolia</i> var. <i>glaucophylla</i>	3.6	14
	<i>Sarracenia purpurea</i>	2.0	17
	<i>Kalmia polifolia</i>	1.0	13
	<i>Picea mariana</i>	0.7	11
G	<i>Sphagnum rubellum</i>	67.3	19
	<i>Vaccinium oxycoccus</i>	5.3	19
	<i>Sphagnum magellanicum</i>	12.4	13
5.	Sedge-shrub heath ( <i>Carex oligosperma</i> - <i>Chamaedaphne calyculata</i> ) S-SH (CO-CC); N=6		
LS	<i>Carex oligosperma</i>	40.4	4
	<i>Chamaedaphne calyculata</i>	39.4	6
	<i>Scheuchzeria palustris</i> ssp. <i>americana</i>	5.1	3
	<i>Andromeda polifolia</i> var. <i>glaucophylla</i>	4.3	5
	<i>Kalmia angustifolia</i>	2.0	3
	<i>Drosera rotundifolia</i>	0.8	3
	<i>Sarracenia purpurea</i>	0.2	4
G	<i>Sphagnum rubellum</i>	26.8	6
	<i>Sphagnum magellanicum</i>	7.3	6
	<i>Sphagnum recurvum</i>	4.8	4
	<i>Sphagnum capillifolium</i>	3.5	5
	<i>Vaccinium oxycoccus</i>	1.4	6
6.	Graminoid fen ( <i>Trichophorum cespitosum</i> - <i>Carex lasiocarpa</i> - <i>Rhynchospora alba</i> - <i>Trichophorum alpinum</i> - <i>Muhlenbergia glomerata</i> ) GrF (TC-CL-RA-TA-Mu); N=4		
HS	<i>Larix laricina</i>	6.7	2
	<i>Thuja occidentalis</i>	6.7	2
LS	<i>Trichophorum cespitosum</i>	20.9	3
	<i>Carex lasiocarpa</i> var. <i>americana</i>	10.6	4
	<i>Rhynchospora alba</i>	10.0	4
	<i>Trichophorum alpinum</i>	5.7	3
	<i>Larix laricina</i>	4.5	3
	<i>Thuja occidentalis</i>	4.5	3
	<i>Muhlenbergia glomerata</i>	1.1	4
	<i>Andromeda polifolia</i> var. <i>glaucophylla</i>	0.8	3
	<i>Betula pumila</i>	0.8	3
	<i>Symphyotrichum boreale</i>	0.6	4

Table 3. Continued.

	<i>Solidago uliginosa</i>	0.6	4
	<i>Myrica gale</i>	0.2	3
	<i>Sarracenia purpurea</i>	0.2	3
	<i>Oclemena nemoralis</i>	0.2	2
	<i>Drosera rotundifolia</i>	0.2	2
	<i>Rhododendron groenlandicum</i>	0.2	2
	<i>Rhamnus alnifolia</i>	0.2	2
G	<i>Campyllum stellatum</i>	21.3	3
	<i>Sphagnum warnstorffii</i>	0.2	4
	<i>Vaccinium oxycoccus</i>	0.2	3
	<i>Pleurozium schreberi</i>	1.1	2
	<i>Sphagnum capillifolium</i>	0.2	2
7.	Sedge-shrub heath/moss lawn ( <i>Carex oligosperma</i> - <i>Chamaedaphne calyculata</i> / <i>Sphagnum recurvum</i> - <i>Sphagnum magellanicum</i> ) S-SH/ML (CO-CC/SRe-SM); N=20		
LS	<i>Carex oligosperma</i>	28.7	11
	<i>Chamaedaphne calyculata</i>	23.7	17
	<i>Larix laricina</i>	5.5	13
	<i>Andromeda polifolia</i> var. <i>glaucophylla</i>	3.6	17
	<i>Kalmia angustifolia</i>	1.0	11
	<i>Sarracenia purpurea</i>	0.8	15
G	<i>Sphagnum recurvum</i>	29.8	15
	<i>Sphagnum magellanicum</i>	28.7	15
	<i>Vaccinium oxycoccus</i>	1.1	12
8.	Sedge/moss lawn ( <i>Carex limosa</i> - <i>Rhynchospora alba</i> - <i>Scheuchzeria palustris</i> ssp. <i>americana</i> / <i>Sphagnum papillosum</i> - <i>Sphagnum magellanicum</i> ) S/ML (CLi-RA-Sch/SP-SM); N=19		
LS	<i>Carex limosa</i>	24.2	15
	<i>Rhynchospora alba</i>	15.0	13
	<i>Eriophorum virginicum</i>	7.1	10
	<i>Maianthemum trifolium</i>	4.8	13
	<i>Scheuchzeria palustris</i> ssp. <i>americana</i>	4.5	14
	<i>Picea mariana</i>	3.4	11
	<i>Andromeda polifolia</i> var. <i>glaucophylla</i>	3.3	13
	<i>Chamaedaphne calyculata</i>	2.1	16
	<i>Sarracenia purpurea</i>	1.5	13
	<i>Larix laricina</i>	1.1	13
	<i>Kalmia angustifolia</i>	0.8	12
G	<i>Sphagnum papillosum</i>	63.0	13
	<i>Sphagnum recurvum</i>	17.1	12
	<i>Sphagnum cuspidatum</i>	16.2	12
	<i>Sphagnum magellanicum</i>	9.0	16
	<i>Vaccinium oxycoccus</i>	0.9	13
	<i>Drosera rotundifolia</i>	0.6	12

Table 3. Continued.

9. Sedge/mudbottom ( <i>Rhynchospora alba</i> - <i>Carex limosa</i> / <i>Cladopodiella fluitans</i> - <i>Drosera intermedia</i> )			
S/MB (RA-CLi/CF-DI); N=9			
LS	<i>Rhynchospora alba</i>	30.2	9
	<i>Carex limosa</i>	23.5	5
	<i>Chamaedaphne calyculata</i>	4.8	6
	<i>Utricularia cornuta</i>	3.0	6
	<i>Sarracenia purpurea</i>	2.7	6
	<i>Andromeda polifolia</i> var. <i>glaucophylla</i>	1.1	8
G	<i>Cladopodiella fluitans</i>	37.7	7
	<i>Sphagnum cuspidatum</i>	13.0	6
	<i>Drosera intermedia</i>	4.1	9
	<i>Drosera rotundifolia</i>	1.2	7
	<i>Vaccinium oxycoccus</i>	0.2	5
10. Moss lawn ( <i>Sphagnum cuspidatum</i> )			
ML (SC); N=4			
LS	<i>Eriophorum virginicum</i>	3.4	4
	<i>Rhynchospora alba</i>	2.0	3
	<i>Chamaedaphne calyculata</i>	1.5	4
	<i>Andromeda polifolia</i> var. <i>glaucophylla</i>	1.1	2
G	<i>Sphagnum cuspidatum</i>	87.2	4
	<i>Sphagnum magellanicum</i>	2.0	2
	<i>Cladopodiella fluitans</i>	1.1	2
	<i>Sphagnum rubellum</i>	0.2	2
	<i>Drosera intermedia</i>	0.2	2
	<i>Vaccinium oxycoccus</i>	0.2	2
11. Shrub heath ( <i>Gaylussacia dumosa</i> var. <i>bigeloviana</i> / <i>Empetrum nigrum</i> )			
SH (GD/EN); N=13			
LS	<i>Gaylussacia dumosa</i> var. <i>bigeloviana</i>	32.4	10
	<i>Kalmia angustifolia</i>	10.2	13
	<i>Chamaedaphne calyculata</i>	8.5	13
	<i>Picea mariana</i>	5.7	7
	<i>Rhododendron groenlandicum</i>	4.0	12
	<i>Eriophorum vaginatum</i> var. <i>spissum</i>	1.9	10
	<i>Kalmia polifolia</i>	0.6	8
	<i>Sarracenia purpurea</i>	0.4	8
	<i>Solidago uliginosa</i>	0.4	8
G	<i>Empetrum nigrum</i>	26.7	8
	<i>Sphagnum fuscum</i>	22.7	11
	<i>Cladonia</i> spp.	18.2	7
	<i>Sphagnum rubellum</i>	13.3	9
	<i>Sphagnum imbricatum</i>	11.2	7
	<i>Cladina rangiferina</i>	10.0	7
	<i>Cladonia squamosa</i>	4.4	8
	<i>Drosera rotundifolia</i>	1.3	13
	<i>Vaccinium oxycoccus</i>	1.3	10

Table 3. Continued.

12. Shrub heath ( <i>Kalmia angustifolia</i> - <i>Chamaedaphne calyculata</i> - <i>Gaylussacia dumosa</i> var. <i>bigeloviana</i> / <i>Sphagnum capillifolium</i> )			
SH (KA-CC-GD/SCa); N=8			
LS	<i>Kalmia angustifolia</i>	31.5	8
	<i>Chamaedaphne calyculata</i>	28.0	8
	<i>Picea mariana</i>	24.6	4
	<i>Gaylussacia dumosa</i> var. <i>bigeloviana</i>	14.9	7
	<i>Rhododendron groenlandicum</i>	5.7	6
	<i>Kalmia polifolia</i>	4.3	4
	<i>Larix laricina</i>	1.1	4
G	<i>Sphagnum fuscum</i>	23.4	6
	<i>Sphagnum capillifolium</i>	20.7	8
	<i>Sphagnum magellanicum</i>	12.5	6
	<i>Vaccinium oxycoccus</i>	1.4	6
	<i>Polytrichum strictum</i>	1.3	5
	<i>Cladina rangiferina</i>	1.3	5
	<i>Cladina mitis</i>	1.1	4
	<i>Mylia anomala</i>	1.1	4
13. Shrub heath ( <i>Chamaedaphne calyculata</i> - <i>Kalmia angustifolia</i> - <i>Rhododendron groenlandicum</i> )			
SH (CC-KA-RG); N=73			
LS	<i>Chamaedaphne calyculata</i>	30.8	69
	<i>Kalmia angustifolia</i>	22.7	71
	<i>Rhododendron canadense</i>	14.2	54
	<i>Rhododendron groenlandicum</i>	8.5	65
	<i>Eriophorum vaginatum</i> var. <i>spissum</i>	4.5	46
G	<i>Sphagnum rubellum</i>	26.0	54
	<i>Cladonia</i> spp.	17.4	38
	<i>Sphagnum fuscum</i>	17.1	51
	<i>Cladina rangiferina</i>	11.9	44
	<i>Polytrichum strictum</i>	6.5	43
	<i>Vaccinium oxycoccus</i>	2.1	55
14. Shrub heath/wooded shrub heath ( <i>Picea mariana</i> - <i>Chamaedaphne calyculata</i> - <i>Kalmia angustifolia</i> - <i>Rhododendron groenlandicum</i> / <i>Picea mariana</i> )			
SH/WSH (PM-CC-KA-RG/PM); N=84			
HS	<i>Picea mariana</i>	9.5	51
LS	<i>Picea mariana</i>	20.9	77
	<i>Chamaedaphne calyculata</i>	16.7	78
	<i>Kalmia angustifolia</i>	12.5	83
	<i>Eriophorum vaginatum</i> var. <i>spissum</i>	10.8	49
	<i>Rhododendron groenlandicum</i>	10.5	79
	<i>Kalmia polifolia</i>	1.5	59
G	<i>Sphagnum rubellum</i>	21.1	68
	<i>Sphagnum recurvum</i>	19.0	57
	<i>Sphagnum fuscum</i>	18.2	57

Table 3. Continued.

	<i>Sphagnum magellanicum</i>	9.1	66
	<i>Cladina rangiferina</i>	2.6	48
	<i>Vaccinium oxycoccus</i>	1.1	73
15.	Shrub heath ( <i>Chamaedaphne calyculata</i> - <i>Rhododendron canadense</i> - <i>Myrica gale</i> - <i>Kalmia angustifolia</i> )		
	SH (CC-RC-MG-KA); N=10		
LS	<i>Chamaedaphne calyculata</i>	27.3	10
	<i>Rhododendron canadense</i>	19.8	9
	<i>Carex stricta</i>	18.0	5
	<i>Myrica gale</i>	4.6	8
	<i>Kalmia angustifolia</i>	4.1	9
	<i>Rhododendron groenlandicum</i>	1.7	6
	<i>Photinia melanocarpa</i>	1.6	5
	<i>Kalmia polifolia</i>	1.4	6
G	<i>Sphagnum recurvum</i>	26.5	8
	<i>Sphagnum magellanicum</i>	17.7	9
	<i>Sphagnum capillifolium</i>	8.7	5
16.	Open gymnosperm wooded fen ( <i>Picea mariana</i> - <i>Larix laricina</i> / <i>Carex stricta</i> - <i>Rhododendron canadense</i> - <i>Rhododendron groenlandicum</i> )		
	OGWF (PM-LL/CS-RC-RG); N=8		
T	<i>Picea mariana</i>	13.0	7
	<i>Larix laricina</i>	8.4	8
HS	<i>Alnus incana</i> ssp. <i>rugosa</i>	4.8	4
LS	<i>Carex stricta</i>	35.0	5
	<i>Rhododendron canadense</i>	29.9	5
	<i>Rhododendron groenlandicum</i>	13.0	7
	<i>Nemopanthus mucronatus</i>	7.4	5
	<i>Picea mariana</i>	6.8	6
	<i>Maianthemum trifolium</i>	5.4	6
	<i>Viburnum nudum</i> var. <i>cassinoides</i>	3.2	6
	<i>Chamaedaphne calyculata</i>	3.1	7
	<i>Kalmia angustifolia</i>	0.9	5
	<i>Kalmia polifolia</i>	0.8	6
	<i>Sarracenia purpurea</i>	0.6	4
	<i>Andromeda polifolia</i> var. <i>glaucophylla</i>	0.2	4
G	<i>Sphagnum recurvum</i>	47.4	7
	<i>Sphagnum magellanicum</i>	9.2	6
	<i>Vaccinium oxycoccus</i>	1.1	4
17.	Wooded shrub heath fen/gymnosperm wooded fen ( <i>Picea mariana</i> / <i>Picea</i> <i>mariana</i> / <i>Picea mariana</i> - <i>Rhododendron groenlandicum</i> - <i>Maianthemum</i> <i>trifolium</i> )		
	WSH-F/GWF (PM/PM/PM-RG-MT); N=14		
T	<i>Picea mariana</i>	13.4	8
HS	<i>Picea mariana</i>	21.8	8
LS	<i>Picea mariana</i>	15.9	13

Table 3. Continued.

	<i>Maianthemum trifolium</i>	9.8	13
	<i>Rhododendron groenlandicum</i>	8.1	14
	<i>Carex trisperma</i>	7.7	9
	<i>Chamaedaphne calyculata</i>	5.8	11
	<i>Carex magellanica</i> ssp. <i>irrigua</i>	1.5	7
	<i>Kalmia angustifolia</i>	1.4	12
	<i>Carex pauciflora</i>	1.2	7
	<i>Sarracenia purpurea</i>	0.7	7
	<i>Nemopanthus mucronatus</i>	0.6	8
	<i>Kalmia polifolia</i>	0.4	9
G	<i>Sphagnum recurvum</i>	58.0	14
	<i>Sphagnum magellanicum</i>	13.2	14
	<i>Vaccinium oxycoccus</i>	0.4	10
18.	Gymnosperm wooded fen-open gymnosperm wooded fen/shrub thicket ( <i>Larix laricina</i> / <i>Nemopanthus mucronatus</i> / <i>Rhododendron canadense</i> ) GWF-OGWF/ST (LL/NM/RC); N=11		
T	<i>Larix laricina</i>	25.1	9
HS	<i>Nemopanthus mucronatus</i>	17.2	6
LS	<i>Rhododendron canadense</i>	23.8	7
	<i>Carex trisperma</i>	21.4	6
	<i>Chamaedaphne calyculata</i>	9.1	9
	<i>Vaccinium corymbosum</i>	7.4	6
	<i>Maianthemum trifolium</i>	5.4	6
	<i>Kalmia angustifolia</i>	2.9	8
	<i>Ilex verticillata</i>	0.8	6
	<i>Picea mariana</i>	0.2	6
G	<i>Sphagnum recurvum</i>	48.2	11
19.	Gymnosperm wooded fen-forested bog ( <i>Picea mariana</i> / <i>Picea mariana</i> / <i>Picea mariana</i> - <i>Rhododendron groenlandicum</i> - <i>Vaccinium myrtilloides</i> ) GWF-FB (PM/PM/PM-RG-VM); N=25		
T	<i>Picea mariana</i>	25.3	25
HS	<i>Picea mariana</i>	13.2	19
LS	<i>Vaccinium myrtilloides</i>	7.1	13
	<i>Picea mariana</i>	6.3	19
	<i>Rhododendron groenlandicum</i>	6.1	21
	<i>Kalmia angustifolia</i>	3.1	15
G	<i>Sphagnum magellanicum</i>	17.6	16
	<i>Pleurozium schreberi</i>	11.0	17
	<i>Sphagnum capillifolium</i>	9.3	14
	<i>Sphagnum recurvum</i>	2.5	15
	<i>Ptilidium ciliare</i>	2.5	15
	<i>Gaultheria hispida</i>	1.6	18



Table 3. Continued.

20. Gymnosperm wooded fen-mixed wooded fen/shrub thicket ( <i>Picea mariana</i> - <i>Acer rubrum</i> / <i>Nemopanthus mucronatus</i> - <i>Viburnum nudum</i> var. <i>cassinoides</i> / <i>Carex trisperma</i> )			
GWF-MWF/ST (PM-AR/NM-VC/CT); N=16			
T	<i>Picea mariana</i>	24.2	14
HS	<i>Nemopanthus mucronatus</i>	27.1	11
	<i>Viburnum nudum</i> var. <i>cassinoides</i>	5.2	11
LS	<i>Carex trisperma</i>	15.2	16
	<i>Viburnum nudum</i> var. <i>cassinoides</i>	5.9	13
	<i>Vaccinium myrtilloides</i>	5.7	14
	<i>Nemopanthus mucronatus</i>	5.4	13
	<i>Cornus canadensis</i>	3.5	11
	<i>Coptis trifolia</i>	3.5	10
	<i>Rhododendron groenlandicum</i>	3.1	12
	<i>Acer rubrum</i>	2.9	14
	<i>Picea mariana</i>	2.4	11
	<i>Kalmia angustifolia</i>	2.4	9
G	<i>Sphagnum recurvum</i>	18.3	13
	<i>Sphagnum magellanicum</i>	10.9	12
	<i>Pleurozium schreberi</i>	6.1	14
	<i>Gaultheria hispida</i>	3.4	12
	<i>Bazzania trilobata</i>	0.9	8
21. Gymnosperm wooded fen ( <i>Thuja occidentalis</i> / <i>Osmunda cinnamomea</i> )			
GWF (TO/OC); N=3			
T	<i>Thuja occidentalis</i>	53.3	3
	<i>Larix laricina</i>	7.6	2
	<i>Picea mariana</i>	7.6	2
HS	<i>Thuja occidentalis</i>	7.6	2
	<i>Alnus incana</i> ssp. <i>rugosa</i>	2.0	2
LS	<i>Osmunda cinnamomea</i>	13.4	3
	<i>Carex trisperma</i>	13.2	2
	<i>Thuja occidentalis</i>	8.9	3
	<i>Carex magellanica</i> ssp. <i>irrigua</i>	1.1	2
	<i>Coptis trifolia</i>	1.1	2
	<i>Maianthemum trifolium</i>	1.1	2
	<i>Abies balsamea</i>	0.2	2
	<i>Rubus hispida</i>	0.2	2
	<i>Viola</i> spp.	0.2	2
G	<i>Sphagnum capillifolium</i>	24.7	2
	<i>Hylocomium splendens</i>	16.6	3
	<i>Sphagnum centrale</i>	7.6	2
	<i>Sphagnum russowii</i>	1.1	2
	<i>Sphagnum wulfianum</i>	0.8	3
	<i>Gaultheria hispida</i>	0.8	3
	<i>Bazzania trilobata</i>	0.2	2
	<i>Polytrichum strictum</i>	0.2	2

Table 3. Continued.

22. Gymnosperm wooded fen-mixed wooded fen ( <i>Thuja occidentalis</i> - <i>Abies balsamea</i> - <i>Acer rubrum</i> / <i>Alnus incana</i> ssp. <i>rugosa</i> )			
GWF-MWF (TO-AB-AR/AI); N=6			
T	<i>Thuja occidentalis</i>	20.2	5
	<i>Acer rubrum</i>	13.2	3
	<i>Abies balsamea</i>	8.7	5
HS	<i>Alnus incana</i> ssp. <i>rugosa</i>	16.2	4
LS	<i>Ilex verticillata</i>	13.4	3
	<i>Onoclea sensibilis</i>	12.2	3
	<i>Alnus incana</i> ssp. <i>rugosa</i>	10.6	5
	<i>Abies balsamea</i>	7.2	4
	<i>Cornus canadensis</i>	5.1	6
	<i>Carex trisperma</i>	3.3	6
	<i>Acer rubrum</i>	1.5	3
	<i>Thuja occidentalis</i>	1.4	3
	<i>Trientalis borealis</i>	1.1	4
	<i>Vaccinium myrtilloides</i>	1.1	4
	<i>Coptis trifolia</i>	0.8	3
	<i>Rubus hispida</i>	0.6	5
	<i>Viburnum nudum</i> var. <i>cassinoides</i>	0.2	4
G	<i>Sphagnum recurvum</i>	16.6	3
	<i>Thuidium delicatulum</i>	6.7	4
	<i>Sphagnum girgensohnii</i>	5.1	3
	<i>Hylocomium splendens</i>	4.3	4
	<i>Plagiomnium ellipticum</i>	3.4	4
	<i>Bazzania trilobata</i>	1.1	4
	<i>Gaultheria hispida</i>	0.9	5
	<i>Pleurozium schreberi</i>	0.6	4
23. Shrub thicket/mixed wooded fen ( <i>Alnus incana</i> ssp. <i>rugosa</i> / <i>Acer rubrum</i> )			
ST/MWF (AI/AR); N=5			
T	<i>Acer rubrum</i>	21.2	3
HS	<i>Alnus incana</i> ssp. <i>rugosa</i>	66.8	5
LS	<i>Alnus incana</i> ssp. <i>rugosa</i>	31.1	4
	<i>Carex trisperma</i>	7.6	4
	<i>Calla palustris</i>	3.5	5
	<i>Thuja occidentalis</i>	1.4	3
	<i>Acer rubrum</i>	0.9	3
	<i>Abies balsamea</i>	0.8	3
	<i>Galium</i> spp.	0.2	3
	<i>Triadenum virginicum</i>	0.2	3
	<i>Trientalis borealis</i>	0.2	3
G	<i>Sphagnum recurvum</i>	27.7	5
	<i>Sphagnum magellanicum</i>	5.1	3
	<i>Gaultheria hispida</i>	0.2	3
	<i>Polytrichum strictum</i>	0.2	3

Table 3. Continued.

24. Angiosperm wooded fen-mixed wooded fen ( <i>Acer rubrum</i> / <i>Osmunda cinnamomea</i> )			
AWF-MWF (AR/OC); N=6			
T	<i>Acer rubrum</i>	37.4	6
LS	<i>Osmunda cinnamomea</i>	16.9	6
	<i>Onoclea sensibilis</i>	7.1	4
	<i>Coptis trifolia</i>	5.1	3
	<i>Rubus hispidus</i>	1.6	4
	<i>Ilex verticillata</i>	1.4	3
	<i>Thelypteris palustris</i> var. <i>pubescens</i>	1.1	4
	<i>Abies balsamea</i>	0.9	5
	<i>Maianthemum canadense</i>	0.8	6
	<i>Aralia nudicaulis</i>	0.8	3
	<i>Carex</i> spp.	0.8	3
	<i>Osmunda regalis</i> var. <i>spectabilis</i>	0.8	3
	<i>Trientalis borealis</i>	0.8	3
	<i>Acer rubrum</i>	0.2	5
	<i>Viburnum nudum</i> var. <i>cassinoides</i>	0.2	3
	<i>Thalictrum pubescens</i>	0.2	3
	<i>Viola</i> spp.	0.2	3
G	<i>Sphagnum fimbriatum</i>	0.8	3
25. Angiosperm wooded fen/shrub thicket ( <i>Acer rubrum</i> / <i>Alnus incana</i> ssp. <i>rugosa</i> )			
AWF/ST (AR/AI); N=2			
T	<i>Acer rubrum</i>	19.1	2
HS	<i>Alnus incana</i> ssp. <i>rugosa</i>	19.1	2
	<i>Nemopanthus mucronatus</i>	2.0	1
	<i>Betula populifolia</i>	0.2	1
	<i>Ilex verticillata</i>	0.2	1
LS	<i>Calla palustris</i>	13.2	1
	<i>Osmunda regalis</i> var. <i>spectabilis</i>	13.2	1
	<i>Onoclea sensibilis</i>	6.7	2
	<i>Thelypteris palustris</i> var. <i>pubescens</i>	6.7	2
	<i>Carex</i> spp.	2.0	2
	<i>Myrica gale</i>	2.0	1
	<i>Viburnum nudum</i> var. <i>cassinoides</i>	2.0	1
	<i>Calamagrostis canadensis</i>	2.0	1
	<i>Carex canescens</i>	2.0	1
	<i>Carex lacustris</i>	2.0	1
	<i>Iris versicolor</i>	2.0	1
	<i>Viola</i> spp.	2.0	1
	<i>Salix</i> spp.	1.1	2
	<i>Acer rubrum</i>	0.2	2
	<i>Galium</i> spp.	0.2	2
	<i>Triadenum virginicum</i>	0.2	2
	<i>Lycopus</i> spp.	0.2	2
	<i>Betula lutea</i>	0.2	1

Table 3. Continued.

	<i>Nemopanthus mucronatus</i>	0.2	1
	<i>Rhododendron canadense</i>	0.2	1
	<i>Maianthemum canadense</i>	0.2	1
	<i>Rubus hispidus</i>	0.2	1
	<i>Sagittaria latifolia</i>	0.2	1
	<i>Vaccinium myrtilloides</i>	0.2	1
	<i>Abies balsamea</i>	0.1	1
	<i>Pinus strobus</i>	0.1	1
G	<i>Sphagnum girgensohnii</i>	2.0	1
	<i>Sphagnum magellanicum</i>	2.0	1
	<i>Sphagnum teres</i>	2.0	1
	<i>Dicranum scoparium</i>	0.2	1
	<i>Warnstorfia fluitans</i>	0.2	1
	<i>Sphagnum cuspidatum</i>	0.2	1
	<i>Sphagnum fimbriatum</i>	0.2	1
	<i>Drosera rotundifolia</i>	0.1	1
26.	Angiosperm wooded fen-mixed wooded fen/shrub thicket ( <i>Acer rubrum</i> - <i>Larix laricina</i> / <i>Ilex verticillata</i> - <i>Alnus incana</i> ssp. <i>rugosa</i> / <i>Carex trisperma</i> ) AWF-MWF/ST (AR-LL/IV-AI/CT); N=5		
T	<i>Acer rubrum</i>	15.6	5
HS	<i>Ilex verticillata</i>	25.6	3
	<i>Alnus incana</i> ssp. <i>rugosa</i>	20.9	3
LS	<i>Carex trisperma</i>	19.1	4
	<i>Rhododendron canadense</i>	13.2	3
	<i>Osmunda regalis</i> var. <i>spectabilis</i>	9.5	3
	<i>Maianthemum trifolium</i>	9.5	3
	<i>Osmunda cinnamomea</i>	8.9	3
	<i>Ilex verticillata</i>	7.2	4
	<i>Alnus incana</i> ssp. <i>rugosa</i>	5.1	3
	<i>Rhododendron groenlandicum</i>	5.1	3
	<i>Calla palustris</i>	4.5	3
	<i>Chamaedaphne calyculata</i>	3.9	4
	<i>Iris versicolor</i>	3.4	4
	<i>Acer rubrum</i>	0.9	5
	<i>Spiraea alba</i> var. <i>latifolia</i>	0.9	5
	<i>Lysimachia terrestris</i>	0.8	3
	<i>Maianthemum canadense</i>	0.8	3
	<i>Viburnum nudum</i> var. <i>cassinoides</i>	0.2	3
G	<i>Sphagnum recurvum</i>	37.0	3
	<i>Sphagnum centrale</i>	28.6	3
	<i>Sphagnum fimbriatum</i>	12.8	3
27.	Shrub-sedge fen ( <i>Alnus incana</i> ssp. <i>rugosa</i> - <i>Myrica gale</i> - <i>Chamaedaphne calyculata</i> ) Sh-S F (AI-MG-CC); N=7		
LS	<i>Carex</i> spp.	18.3	4
	<i>Alnus incana</i> ssp. <i>rugosa</i>	15.6	6

Table 3. Continued.

	<i>Myrica gale</i>	7.6	4
	<i>Chamaedaphne calyculata</i>	4.9	7
	<i>Triadenum virginicum</i>	1.1	4
	<i>Acer rubrum</i>	0.8	6
	<i>Calla palustris</i>	0.6	4
	<i>Iris versicolor</i>	0.6	4
	<i>Thelypteris palustris</i> var. <i>pubescens</i>	0.6	4
G	<i>Sphagnum recurvum</i>	8.9	5
28.	Shrub thicket/shrub-graminoid fen ( <i>Alnus incana</i> ssp. <i>rugosa</i> / <i>Myrica gale</i> - <i>Spiraea alba</i> var. <i>latifolia</i> - <i>Carex stricta</i> - <i>Calamagrostis canadensis</i> ) ST/Sh-Gr F (AI/MG-SL-CS-Ca); N=14		
HS	<i>Alnus incana</i> ssp. <i>rugosa</i>	14.2	7
LS	<i>Myrica gale</i>	23.7	13
	<i>Chamaedaphne calyculata</i>	13.1	9
	<i>Spiraea alba</i> var. <i>latifolia</i>	10.7	13
	<i>Carex stricta</i>	9.5	9
	<i>Calamagrostis canadensis</i>	6.3	7
	<i>Alnus incana</i> ssp. <i>rugosa</i>	2.8	7
	<i>Thelypteris palustris</i> var. <i>pubescens</i>	1.0	7
	<i>Rhododendron canadense</i>	0.7	7
29.	Graminoid shrub fen ( <i>Carex stricta</i> - <i>Calamagrostis canadensis</i> - <i>Spiraea alba</i> var. <i>latifolia</i> ) Gr-Sh F (CS-Ca-SL); N=10		
LS	<i>Carex stricta</i>	37.4	7
	<i>Calamagrostis canadensis</i>	13.1	8
	<i>Spiraea alba</i> var. <i>latifolia</i>	6.3	9
	<i>Galium</i> spp.	0.8	6
30.	Sedge fen ( <i>Carex</i> spp.) S F (CX); N=4		
LS	<i>Carex lasiocarpa</i> var. <i>americana</i>	61.6	3
	<i>Carex canescens</i>	31.8	2
	<i>Carex utriculata</i>	9.5	3
	<i>Carex stricta</i>	5.7	3
	<i>Carex interior</i>	2.0	2
	<i>Chamaedaphne calyculata</i>	2.0	2
	<i>Myrica gale</i>	0.2	2
	<i>Spiraea alba</i> var. <i>latifolia</i>	0.2	2
G	<i>Sphagnum cuspidatum</i>	41.2	3

Table 4. List of abbreviations for indicator species found on the TWINSPAN dendrogram (Figure 2).

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AB	<i>Abies balsamea</i> (ls)	LL	<i>Larix laricina</i> (t)
AI	<i>Alnus incana</i> ssp. <i>rugosa</i>	LLL	<i>Larix laricina</i> (ls)
AG	<i>Andromeda polifolia</i> var. <i>glaucophylla</i>	MC	<i>Maianthemum canadense</i>
AR	<i>Acer rubrum</i> (t)	MT	<i>Maianthemum trifolium</i>
ARL	<i>Acer rubrum</i> (ls)	MG	<i>Myrica gale</i>
Ca	<i>Calamagrostis canadensis</i>	NM	<i>Nemopanthus mucronatus</i> (hs)
CPa	<i>Calla palustris</i>	NML	<i>Nemopanthus mucronatus</i> (ls)
CL	<i>Carex lasiocarpa</i>	OC	<i>Osmunda cinnamomea</i>
CLi	<i>Carex limosa</i>	OS	<i>Onoclea sensibilis</i>
CPc	<i>Carex pauciflora</i>	PM	<i>Picea mariana</i> (t)
CO	<i>Carex oligosperma</i>	PML	<i>Picea mariana</i> (ls)
CS	<i>Carex stricta</i>	RC	<i>Rhododendron canadense</i>
CT	<i>Carex trisperma</i>	RG	<i>Rhododendron groenlandicum</i>
CC	<i>Chamaedaphne calyculata</i>	RA	<i>Rhynchospora alba</i>
CF	<i>Cladopodiella fluitans</i>	Sa	<i>Salix</i> spp.
CN	<i>Cornus canadensis</i>	SCa	<i>Sphagnum capillifolium</i>
DI	<i>Drosera intermedia</i>	SC	<i>Sphagnum cuspidatum</i>
DR	<i>Drosera rotundifolia</i>	SFu	<i>Sphagnum fuscum</i>
EN	<i>Empetrum nigrum</i>	SM	<i>Sphagnum magellanicum</i>
ES	<i>Eriophorum vaginatum</i> var. <i>spissum</i>	SP	<i>Sphagnum papillosum</i>
EV	<i>Eriophorum virginicum</i>	SRe	<i>Sphagnum recurvum</i>
GH	<i>Gaultheria hispidula</i>	SR	<i>Sphagnum rubellum</i>
GD	<i>Gaylussacia dumosa</i> var. <i>bigeloviana</i>	SWu	<i>Sphagnum wulfianum</i>
HS	<i>Hylocomium splendens</i>	SL	<i>Spiraea alba</i> var. <i>latifolia</i>
IV	<i>Ilex verticillata</i> (hs)	TO	<i>Thuja occidentalis</i> (t)
KA	<i>Kalmia angustifolia</i>	TC	<i>Trichophorum caespitosum</i>
KP	<i>Kalmia polifolia</i>	VO	<i>Vaccinium oxycoccus</i>
		VC	<i>Viburnum nudum</i> var. <i>cassinoides</i>

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Table 5. N, means and standard deviations (in parentheses) for environmental variables for each TWINSPAN community (units as in Table 2). BDL = below detection limits. NA = not available. Community 25 is not included because the two relevés defining the type are lacking water chemistry data (water table too deep to obtain a sample).

Variable	Comm 1	Comm 2	Comm 3	Comm 4	Comm 5
	N = 2	N = 5	N = 15	N = 16	N = 5
Ca	0.27 (0.09)	0.43 (0.43)	0.20 (0.20)	0.18 (0.15)	3.35 (4.81)
K	0.17 (0.00)	0.25 (0.30)	0.18 (0.18)	0.26 (0.12)	0.18 (0.10)
Mg	0.42 (0.40)	0.25 (0.24)	0.08 (0.04)	0.13 (0.12)	0.48 (0.65)
P	0.04 (0.01)	0.01 (0.02)	0.02 (0.03)	0.02 (0.02)	0.02 (0.02)
Al	0.03 (0.03)	0.05 (0.04)	0.06 (0.06)	0.06 (0.06)	0.07 (0.07)
Fe	BDL	0.10 (0.07)	0.10 (0.26)	0.07 (0.08)	0.31 (0.31)
Mn	BDL	0.01 (0.01)	BDL	BDL	0.03 (0.06)
Na	4.30 (3.70)	0.50 (0.28)	0.49 (0.22)	0.70 (0.41)	1.01 (0.50)
Si	0.23 (0.01)	0.57 (0.74)	0.56 (0.31)	0.48 (0.38)	1.01 (0.67)
Zn	0.02 (0.00)	0.03 (0.01)	0.02 (0.01)	0.02 (0.02)	0.02 (0.02)
Cl	6.085 (6.385)	0.797 (0.749)	0.524 (0.250)	0.890 (0.557)	0.607 (0.348)
NO <sub>3</sub> -N	NA	BDL	BDL	BDL	BDL
NH <sub>4</sub> -N	NA	BDL	BDL	BDL	BDL
SO <sub>4</sub> -S	0.22 (0.16)	0.15 (0.09)	0.12 (0.07)	0.11 (0.05)	0.13 (0.09)
K <sub>corr</sub>	43.7 (1.0)	14.3 (4.8)	8.4 (4.0)	13.4 (6.1)	25.6 (21.3)
pH	4.51 (0.58)	4.04 (0.17)	4.04 (0.09)	4.02 (0.12)	4.83 (1.67)
Alkalinity	-37.6 (70.1)	-105.7 (39.2)	-107.2 (22.9)	-136.2 (82.1)	43.2 (310.0)
DOC	27.5 (3.9)	39.7 (5.9)	34.8 (10.7)	46.8 (18.4)	38.4 (4.5)
%H <sub>2</sub> O	94.4 (3.3)	95.6 (0.6)	94.5 (1.6)	93.0 (1.3)	86.6 (17.6)
Humification	2.5 (2.1)	1.7 (0.6)	1.1 (0.4)	1.3 (0.7)	3.5 (3.0)
Minres	0.011 (0.004)	0.012 (0.008)	0.007 (0.008)	0.009 (0.011)	0.017 (0.027)
Maximum microrelief	30 (14)	14 (4)	14 (6)	21 (12)	25 (14)
%overstory	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Peat depth	2.0 (0.2)	6.2 (1.2)	4.9 (1.8)	5.8 (2.3)	3.4 (1.5)

Table 5. Continued.

Variable	Comm 6	Comm 7	Comm 8	Comm 9	Comm 10
	N = 4	N = 12	N = 5	N = 3	N = 4
Ca	16.88 (6.89)	2.66 (2.83)	0.84 (0.59)	0.58 (0.46)	0.18 (0.10)
K	0.08 (0.16)	0.93 (2.02)	0.28 (0.10)	0.32 (0.31)	0.18 (0.11)
Mg	1.18 (0.67)	0.61 (0.49)	0.31 (0.17)	0.46 (0.59)	0.16 (0.13)
P	0.05 (0.03)	0.04 (0.03)	0.04 (0.04)	0.04 (0.04)	0.06 (0.07)
Al	0.05 (0.10)	0.30 (0.30)	0.17 (0.10)	0.13 (0.02)	0.07 (0.05)
Fe	0.55 (0.65)	0.75 (0.69)	0.64 (0.44)	0.36 (0.39)	0.08 (0.05)
Mn	0.05 (0.04)	0.02 (0.02)	0.04 (0.05)	0.03 (0.02)	BDL
Na	1.00 (0.35)	1.21 (1.07)	0.70 (0.36)	3.25 (5.10)	0.90 (0.81)
Si	1.73 (1.19)	2.06 (1.83)	0.94 (0.32)	0.70 (0.57)	0.43 (0.20)
Zn	0.01 (0.01)	0.02 (0.01)	0.03 (0.01)	0.01 (0.00)	0.06 (0.07)
Cl	1.382 (1.254)	2.120 (3.760)	0.962 (0.547)	5.207 (8.568)	1.001 (1.033)
NO <sub>3</sub> -N	NA	BDL	0.004 (0.005)	NA	BDL
NH <sub>4</sub> -N	NA	BDL	BDL	NA	0.45 (0.38)
SO <sub>4</sub> -S	0.34 (0.23)	0.43 (0.77)	0.16 (0.03)	0.25 (0.15)	0.27 (0.30)
K <sub>corr</sub>	88.3 (38.7)	22.8 (15.6)	14.8 (5.0)	27.6 (35.2)	8.6 (5.1)
pH	7.89 (0.39)	4.88 (1.13)	4.43 (0.42)	4.90 (0.29)	3.94 (0.17)
Alkalinity	808.5 (446.0)	6.6 (161.6)	-47.5 (50.1)	4.2 (30.3)	-116.2 (70.6)
DOC	24.9 (14.8)	37.9 (11.0)	33.8 (8.1)	19.0 (8.9)	48.5 (23.8)
%H <sub>2</sub> O	88.0 (4.1)	94.2 (2.0)	95.6 (1.2)	96.6 (2.2)	94.6 (4.9)
Humification	4.2 (0.9)	3.9 (3.0)	1.7 (1.1)	2.3 (2.3)	1.2 (0.5)
Minres	0.014 (0.009)	0.041 (0.066)	0.009 (0.005)	0.029 (0.019)	0.012 (0.008)
Maximum microrelief	10 (0)	21 (16)	16 (20)	5 (9)	4 (4)
%overstory	7.2 (14.1)	1.3 (4.4)	0.0 (0.1)	0 (0)	0 (0)
Peat depth	4.8 (1.4)	2.5 (1.9)	2.4 (1.2)	3.1 (0.4)	5.7 (1.8)



Table 5. Continued.

Variable	Comm 11	Comm 12	Comm 13	Comm 14	Comm 15
	N = 6	N = 7	N = 24	N = 52	N = 4
Ca	0.17 (0.08)	0.26 (0.11)	0.53 (0.44)	0.45 (0.66)	1.97 (1.04)
K	0.32 (0.20)	0.20 (0.06)	0.37 (0.46)	0.28 (0.30)	0.46 (0.49)
Mg	0.36 (0.23)	0.33 (0.13)	0.35 (0.27)	0.14 (0.17)	0.79 (0.53)
P	0.04 (0.01)	0.01 (0.02)	0.04 (0.03)	0.04 (0.03)	0.07 (0.05)
Al	0.05 (0.05)	0.10 (0.02)	0.12 (0.09)	0.06 (0.05)	0.24 (0.26)
Fe	0.01 (0.03)	0.08 (0.07)	0.13 (0.16)	0.08 (0.09)	0.45 (0.43)
Mn	BDL	BDL	BDL	0.01 (0.01)	0.01 (0.01)
Na	4.52 (2.10)	1.83 (0.28)	1.83 (1.45)	0.66 (0.48)	1.55 (0.74)
Si	0.40 (0.16)	0.50 (0.47)	0.78 (0.56)	0.60 (0.47)	1.71 (1.82)
Zn	0.02 (0.01)	0.02 (0.01)	0.03 (0.02)	0.02 (0.03)	0.02 (0.00)
Cl	6.248 (3.011)	2.411 (0.568)	2.055 (1.840)	0.698 (0.467)	1.033 (0.735)
NO <sub>3</sub> -N	NA	BDL	BDL	0.003 (0.005)	BDL
NH <sub>4</sub> -N	NA	BDL	BDL	0.21 (0.22)	0.65 (-)
SO <sub>4</sub> -S	0.11 (0.05)	0.68 (0.81)	0.56 (0.60)	0.23 (0.27)	0.45 (0.64)
K <sub>corr</sub>	25.9 (11.6)	18.4 (7.0)	23.0 (16.3)	13.0 (8.7)	21.3 (4.5)
pH	4.18 (0.07)	3.87 (0.14)	4.03 (0.36)	4.16 (0.36)	4.59 (0.57)
Alkalinity	-71.4 (11.8)	-174.4 (69.3)	-129.4 (66.0)	-98.5 (70.6)	-28.8 (44.2)
DOC	24.7 (11.8)	55.8 (13.1)	45.1 (16.4)	38.3 (10.9)	43.8 (13.6)
%H <sub>2</sub> O	91.8 (3.8)	84.3 (6.0)	87.3 (6.7)	89.3 (5.7)	90.3 (3.0)
Humification	1.4 (0.5)	2.0 (0.0)	4.3 (2.4)	2.3 (2.1)	4.3 (2.9)
Minres	0.012 (0.011)	0.011 (0.007)	0.011 (0.010)	0.007 (0.006)	0.020 (0.013)
Maximum microrelief	48 (13)	36 (12)	34 (14)	33 (18)	40 (10)
%overstory	2.2 (5.4)	1.5 (1.8)	0.2 (0.4)	8.4 (13.6)	3.4 (6.7)
Peat depth	4.0 (1.7)	3.8 (1.2)	4.3 (2.2)	4.4 (1.8)	1.2 (0.5)

Table 5. Continued.

Variable	Comm 16	Comm 17	Comm 18	Comm 19	Comm 20
	N = 4	N = 11	N = 8	N = 17	N = 15
Ca	2.72 (2.27)	1.41 (0.80)	1.48 (1.13)	1.69 (4.96)	2.49 (3.81)
K	0.35 (0.25)	0.24 (0.29)	0.24 (0.24)	0.44 (0.32)	0.48 (0.27)
Mg	0.66 (0.58)	0.44 (0.22)	0.34 (0.19)	0.30 (0.39)	0.46 (0.42)
P	0.04 (0.04)	0.06 (0.05)	0.06 (0.05)	0.09 (0.11)	0.12 (0.09)
Al	0.29 (0.16)	0.20 (0.12)	0.16 (0.11)	0.12 (0.10)	0.25 (0.22)
Fe	0.66 (0.45)	0.34 (0.23)	0.60 (0.48)	0.10 (0.09)	0.47 (0.62)
Mn	0.04 (0.04)	0.04 (0.05)	0.04 (0.04)	0.01 (0.02)	0.04 (0.06)
Na	1.03 (0.45)	0.74 (0.20)	2.11 (1.51)	0.96 (0.45)	1.39 (1.22)
Si	1.96 (1.28)	2.37 (2.63)	2.98 (3.02)	0.78 (0.86)	1.78 (1.30)
Zn	0.02 (0.01)	0.04 (0.02)	0.03 (0.04)	0.03 (0.02)	0.02 (0.01)
Cl	1.308 (1.647)	0.385 (0.222)	2.512 (3.087)	1.445 (1.318)	1.603 (1.494)
NO <sub>3</sub> -N	0.013 (-)	0.004 (0.005)	0.003 (0.005)	0.003 (0.005)	0.004 (0.004)
NH <sub>4</sub> -N	0.91 (-)	BDL	0.46 (1.02)	BDL	0.59 (0.39)
SO <sub>4</sub> -S	0.19 (0.12)	0.20 (0.18)	0.14 (0.13)	0.55 (0.61)	0.44 (0.32)
K <sub>corr</sub>	23.9 (12.4)	12.6 (6.0)	25.4 (11.0)	22.6 (24.9)	31.5 (27.6)
pH	4.63 (0.45)	4.27 (0.28)	5.17 (0.64)	4.21 (1.15)	4.60 (1.07)
Alkalinity	-6.4 (76.6)	-61.7 (49.8)	18.6 (60.5)	-54.0 (340.8)	4.1 (291.8)
DOC	47.8 (7.1)	38.6 (4.3)	30.1 (10.4)	47.1 (13.2)	40.9 (10.9)
%H <sub>2</sub> O	91.1 (5.3)	94.0 (2.0)	89.9 (3.9)	85.5 (5.2)	90.8 (2.4)
Humification	3.8 (3.6)	2.6 (2.0)	3.8 (3.0)	2.8 (1.5)	4.8 (2.4)
Minres	0.067 (0.108)	0.009 (0.004)	0.066 (0.143)	0.017 (0.014)	0.015 (0.008)
Maximum microrelief	22 (15)	28 (14)	29 (7)	25 (10)	38 (20)
%overstory	33.0 (14.7)	27.1 (27.6)	51.8 (48.8)	40.6 (29.2)	71.3 (24.0)
Peat depth	2.7 (3.1)	2.3 (1.4)	2.7 (2.1)	4.6 (2.0)	2.7 (1.4)

Table 5. Continued.

Variable	Comm 21	Comm 22	Comm 23	Comm 24	Comm 26
	N = 3	N = 4	N = 5	N = 5	N = 3
Ca	6.25 (1.97)	9.10 (9.34)	2.64 (1.12)	5.34 (3.03)	3.80 (2.41)
K	0.36 (0.15)	0.19 (0.15)	0.50 (0.47)	1.42 (2.56)	0.28 (0.36)
Mg	1.54 (0.26)	1.19 (0.48)	1.02 (0.49)	1.05 (0.50)	1.20 (0.76)
P	0.04 (0.04)	0.05 (0.02)	0.04 (0.05)	0.06 (0.03)	0.07 (0.03)
Al	0.08 (0.08)	0.10 (0.10)	0.14 (0.04)	0.14 (0.05)	0.32 (0.14)
Fe	0.19 (0.27)	0.19 (0.16)	0.61 (0.37)	0.17 (0.16)	0.80 (0.81)
Mn	BDL	0.01 (0.02)	0.09 (0.08)	0.01 (0.01)	0.01 (0.01)
Na	1.38 (0.34)	1.06 (0.21)	3.22 (4.36)	2.76 (1.22)	5.16 (3.95)
Si	2.54 (1.02)	2.43 (1.05)	2.17 (1.63)	2.80 (1.56)	1.87 (0.97)
Zn	0.01 (0.01)	0.03 (0.01)	0.02 (0.01)	0.01 (0.01)	0.02 (0.01)
Cl	0.760 (0.459)	0.711 (0.336)	2.864 (4.799)	2.412 (1.703)	6.497 (6.593)
NO <sub>3</sub> -N	NA	BDL	0.051 (0.059)	BDL	NA
NH <sub>4</sub> -N	NA	0.16 (0.20)	BDL	BDL	NA
SO <sub>4</sub> -S	0.18 (0.10)	1.40 (2.08)	0.62 (0.76)	0.97 (1.09)	0.29 (0.07)
K <sub>tot</sub>	40.5 (2.8)	48.4 (40.2)	37.0 (27.6)	43.5 (26.5)	45.7 (24.5)
pH	7.54 (0.14)	7.02 (1.30)	6.21 (1.19)	6.30 (1.18)	5.21 (1.12)
Alkalinity	325.9 (57.6)	313.4 (328.5)	93.4 (103.0)	169.1 (166.6)	42.5 (44.5)
DOC	25.7 (7.4)	27.9 (8.3)	32.6 (8.2)	38.1 (21.0)	52.5 (25.4)
°H <sub>2</sub> O	88.4 (1.4)	90.3 (2.5)	91.4 (2.6)	85.3 (1.8)	92.7 (4.6)
Humification	3.7 (1.5)	1.3 (0.6)	3.0 (3.5)	5.6 (2.4)	4.3 (2.5)
Minres	0.017 (0.009)	0.010 (0.002)	0.041 (0.053)	0.075 (0.062)	0.038 (0.026)
Maximum microrelief	23 (6)	35 (17)	38 (15)	22 (10)	37 (6)
%overstory	74.3 (23.3)	54.2 (20.2)	89.9 (26.0)	50.8 (24.2)	65.1 (22.6)
Peat depth	1.5 (0.4)	2.0 (1.3)	1.5 (0.6)	3.1 (3.0)	4.9 (3.0)

Table 5. Continued.

Variable	Comm 27	Comm 28	Comm 29	Comm 30
	N = 6	N = 7	N = 7	N = 3
Ca	3.50 (2.33)	6.38 (3.68)	6.38 (2.10)	3.74 (3.59)
K	0.50 (0.28)	0.18 (0.17)	0.56 (0.48)	0.35 (0.42)
Mg	0.70 (0.18)	1.51 (0.87)	2.11 (0.89)	0.54 (0.07)
P	0.05 (0.03)	0.07 (0.04)	0.05 (0.04)	0.04 (0.03)
Al	0.33 (0.17)	0.30 (0.23)	0.19 (0.18)	0.27 (0.33)
Fe	0.84 (1.39)	0.62 (0.97)	0.44 (0.46)	0.37 (0.46)
Mn	0.03 (0.04)	0.02 (0.02)	0.02 (0.02)	0.01 (0.01)
Na	2.41 (2.10)	4.09 (1.68)	6.89 (4.49)	2.27 (1.78)
Si	2.75 (1.54)	3.53 (1.73)	2.68 (2.10)	2.49 (1.89)
Zn	0.02 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.00)
Cl	2.643 (4.249)	3.630 (1.188)	10.436 (10.032)	1.840 (2.168)
NO <sub>3</sub> -N	NA	NA	NA	NA
NH <sub>4</sub> -N	NA	NA	NA	NA
SO <sub>4</sub> -S	0.34 (0.31)	1.28 (2.75)	0.75 (0.92)	0.12 (0.11)
K <sub>corr</sub>	32.3 (16.6)	57.4 (28.4)	77.6 (38.1)	28.5 (6.5)
pH	6.15 (1.11)	6.80 (1.01)	7.12 (0.91)	6.81 (0.65)
Alkalinity	130.9 (136.3)	296.8 (335.5)	330.9 (248.4)	153.1 (98.6)
DOC	29.4 (7.0)	27.1 (14.1)	30.7 (16.9)	28.0 (9.0)
%H <sub>2</sub> O	91.0 (5.8)	91.9 (3.4)	89.7 (3.3)	88.3 (11.0)
Humification	3.4 (1.9)	4.3 (2.0)	5.1 (2.7)	4.3 (1.5)
Minres	0.123 (0.220)	0.089 (0.09 <sup>n</sup> )	0.158 (0.133)	0.253 (0.327)
Maximum microrelief	17 (14)	29 (15)	38 (16)	8 (3)
%overstory	13.0 (20.0)	9.7 (16.7)	26.4 (34.4)	0.0 (0.0)
Peat depth	3.7 (2.1)	2.0 (0.8)	1.6 (0.7)	1.6 (1.0)

*Carex limosa*, *Drosera intermedia*, and *Maianthemum trifolium*. pH and related factors, P, Fe, and degree of humification are significantly higher, and depth to substrate lower for A2 (Anderson and Davis 1997). Group B is subdivided into B1 (188 relevés) with *Sphagnum rubellum*, *Kalmia angustifolia*, *Chamaedaphne calyculata* (hereafter “*Chamaedaphne*”), and *Sphagnum fuscum* as differential indicators, and B2 (74 relevés) with *Picea* (t). Preferential species for Group B1 include *Eriophorum vaginatum* var. *spissum*, *Photinia melanocarpa*, *Andromeda*, and *Cladina rangiferina*, and for Group B2, *Acer rubrum* (ls) (hereafter *Accer*”), *Larix* (t), and *Nemopanthus* (hs) and *Viburnum nudum* var. *cassinoides* (hs) (hereafter “*Viburnum*”). B2 is more wooded, and has higher ( $p = 0.001$ ) P and Fe, as well as higher ( $p = 0.05$ ) Ca, pH, and  $\text{NH}_4$ , and lower microrelief and depth to substrate (Anderson and Davis 1997).

The first division of Group CD separated 27 relevés (Group C) with *Acer* (t), *Carex trisperma*, *Abies balsamea* (ls) (hereafter “*Abies*”), and *Osmunda cinnamomea* as differential indicators, from 35 relevés (Group D). Preferential species for Group C include *Maianthemum canadense*, *Thuja occidentalis* (t) (hereafter “*Thuja*”), *Trientalis borealis*, and *Gaultheria*, and for Group D, *Carex stricta*, *Myrica gale*, *Chamaedaphne*, and *Calamagrostis canadensis*.

Group C is subdivided into C1 (14 relevés) with *Gaultheria hispidula*, *Thuja* (t), and *Hylocomium splendens* as differential indicators, and C2 (13 relevés) with *Maianthemum canadense* and *Acer* (t). Preferential species for Group C1 include *Thuja* (ls), *Bazzania trilobata*, and *Pleurozium schreberi*, and for Group C2, *Acer* (ls), *Sphagnum fimbriatum*, *Osmunda regalis* var. *spectabilis*, *Spiraea*, and *Thelypteris palustris* var. *pubescens*. CF1 and degree of humification are significantly higher for C2 (Anderson and Davis 1997). Group D is less wooded than C, and is subdivided into D1 (31 relevés) and D2 (4 relevés) with *Carex lasiocarpa* var. *americana* as the sole differential indicator. Preferential species for Group D1 include *Spiraea*, *Calamagrostis canadensis*, *Alnus incana* ssp. *rugosa* (hereafter “*Alnus*”), and *Thelypteris palustris* var. *pubescens*, and for D2, *Carex utriculata* and *Sphagnum cuspidatum*. D2 has significantly lower microrelief.

### Individual Plant Communities

For each community, we list dominant and common species by stratum and give a code name (Table 3). The first part of the name is a physiognomic designation based on life form and structural

features, and the second part is a modifier based on characteristic or distinguishing species. We also characterize each community in terms of environmental variables (Table 5) and geographic distribution (Figures 3.1–3.30).

Mud bottoms (MB) occur at the interior of bogs in wet hollows of decomposing peat (resembling mud), often near secondary pools. The peat is largely covered by the liverwort *Cladopodiella fluitans* which, *en masse* on the soft, wet surface, appears nearly black (hence, “mud”). Moss lawns (ML) have a nearly continuous ground cover of *Sphagnum* and often a relatively open low-shrub stratum consisting of very low (< 0.3 m) ericaceous shrubs and/or sedges (S). Shrub heaths (SH) have a dense, robust low-shrub stratum, usually greater than 50% cover, consisting of ericaceous shrubs, often with sedges and *Picea*. A few individual *Picea* may extend into the high-shrub stratum. The ground layer of *Sphagnum* is usually well developed.

Wooded shrub heaths (WSH) have 25%–50% gymnosperm cover in the high-shrub stratum, as well as a robust low-shrub stratum consisting of black spruce and ericaceous shrubs. A few scattered spruces may extend into the tree stratum. Open wooded fens (OWF) have a discontinuous tree stratum (10%–25% cover) and may have a well-developed understory of gymnosperms and ericaceous shrubs (WSH-F) or deciduous shrubs (shrub thicket, ST). Wooded fens have at least 25% cover in a tree stratum that may consist of gymnosperms (GWF), angiosperms (AWF), or a mixture of the two (MWF). Other fen communities may be dominated by low shrubs (ShF), especially *Alnus*, *Spiraea*, *Myrica gale*, and/or *Chamaedaphne*, or sedges (SF), or mixed graminoids (GrF).

Group A1 (1–5) consists of five types of open, low-stature, low-relief shrub heaths (SH) with sedges (S) and often extensive moss (including liverwort) lawns (ML), sometimes with patches of mud bottom (MB). Species identified as differential indicators by TWINSPAN are asterisked.

1. Sedge-shrub heath (*Trichophorum cespitosum*-*Gaylussacia dumosa* var. *bigeloviana*); S-SH (TC-GD). This eastern coastal and subcoastal bog community (Figure 3.1) is distinguished by abundant *Trichophorum cespitosum* (TC) and, usually, the presence of *Gaylussacia dumosa* (GD). *Sphagnum rubellum* dominates the ground stratum. Concentrations of Na and Cl are high.
2. Moss lawn-mudbottom/sedge (*Sphagnum cuspidatum*-*Cladopodiella fluitans*/*Rhynchospora alba*); ML-MB/S (SC-CF/RA). *Rhynchospora* (RA), often with *Chamaedaphne*, *Andromeda*,

*Utricularia cornuta*, and/or *Eriophorum virginicum* characterizes this bog and very acidic fen community. *Sphagnum cuspidatum* (SC) is often abundant in the ground layer, along with *S. rubellum* and patches of *Cladopodiella fluitans* (CF) mud bottom.

3. Moss lawn/shrub heath-sedge (*Sphagnum rubellum*/*Chamaedaphne calyculata*-*Eriophorum vaginatum* var. *spissum*); ML/SH-S (SR/CC-ES). Abundant *Chamaedaphne* (CC) and a moderate amount of *Eriophorum vaginatum* var. *spissum* (ES), with a nearly continuous *S. rubellum* (SR) lawn characterizes this widespread (inland) bog and extreme-poor very acidic fen community. *Andromeda* and *Sarracenia purpurea* are usually present.
4. Moss lawn/shrub heath-sedge (*Sphagnum rubellum*/*Chamaedaphne calyculata*-*Eriophorum virginicum*); ML/SH-S (SR/CC-EV). This community is similar to number 3 except the most frequent sedge is *Eriophorum virginicum*' (EV), often with *Rhynchospora* and *Eriophorum vaginatum* var. *spissum*. *Sphagnum magellanicum*' is often mixed with *Sphagnum rubellum* in the moss lawn.
5. Sedge-shrub heath (*Carex oligosperma*-*Chamaedaphne calyculata*); S-SH (CO-CC). This community is similar to numbers 3 and 4, except the dominant sedge is *Carex oligosperma*' (CO), and *Scheuchzeria palustris* ssp. *americana* is often present. Also, the ground layer is more varied and not nearly so dominated by *S. rubellum*. Unlike communities 3 and 4, this community may be found growing under a fairly wide range of chemical conditions, in very acidic to circumneutral fens (Table 5).

Group A2 (6–10) consists of five types of open, low-stature, low-relief communities, including graminoid fens (GrF), sedge-dominated shrub heaths, moss lawns (but *Sphagnum rubellum* is never dominant as in Group A1), and mudbottoms (MB).

6. Graminoid fen (*Trichophorum cespitosum*-*Carex lasiocarpa*-*Rhynchospora alba*-*Trichophorum alpinum*-*Muhlenbergia glomerata*); GrF (TC-CL-RA-TA-Mu). A combination of graminoid species including *Trichophorum cespitosum*, *Carex lasiocarpa* var. *americana*' (CL), *Rhynchospora*, *Trichophorum alpinum* (TA), and *Muhlenbergia glomerata* (Mu) characterizes this circumneutral fen community. Other distinguishing species include *Betula pumila*, *Symphyotrichum boreale*, and *Solidago uliginosa*. *Campylium stellatum* and *Sphagnum*

*warnstorffii* are unique to this community. *Larix* and *Thuja* are often present in the high- and/or low-shrub strata. High Ca concentrations and pH may be necessary to support this uncommon (in Maine) plant community. The relevés defining this community are from Crystal Fen and the Peatland at Salmon Brook Lake in northeastern Maine.

7. Sedge-shrub heath/moss lawn (*Carex oligosperma*-*Chamaedaphne calyculata*/*Sphagnum recurvum*-*Sphagnum magellanicum*); S-SH/ML (CO-CC/SRe-SM). This widespread community is similar to number 5, except the dominant bryophytes are *Sphagnum recurvum* (SRe) and/or *S. magellanicum* (SM). The dominant sedge is either *Carex oligosperma* or *C. exilis*. The latter species is not listed in Table 3, since it was present in just under half the relevés. *Larix* is often present in the low-shrub stratum. Like number 5, this community is also found under a wide range of chemical conditions. Fe is moderately high (mean = 0.75 mg·L<sup>-1</sup>).
8. Sedge/moss lawn (*Carex limosa*-*Rhynchospora alba*-*Scheuchzeria palustris* ssp. *americana*/*Sphagnum papillosum*-*Sphagnum magellanicum*); S/ML (CLi-RA-Sch/SP-SM). The dominant sedges in this community are *Carex limosa*\* (CLi), *Rhynchospora*, and/or *Eriophorum virginicum*. *Chamaedaphne* is present but at low percent cover. *Scheuchzeria palustris* (Sch) and *Maianthemum trifolium* are often present. *Sphagnum papillosum*\* (SP) may dominate the ground layer, often forming carpets. *Sphagnum magellanicum* is usually present, along with *S. recurvum* and/or *S. cuspidatum*. This community of northern and eastern Maine (Figure 3.8) occurs in very acidic or moderately acidic fens.
9. Sedge/mudbottom (*Rhynchospora alba*-*Carex limosa*/*Cladopodiella fluitans*-*Drosera intermedia*); S/MB (RA-CLi/CF-DI). This very acidic or moderately acidic fen community is similar to number 8, except *Rhynchospora* occurs in greater abundance, and the ground layer is usually a *Cladopodiella fluitans* mud bottom, often with *Sphagnum cuspidatum*. *Drosera intermedia* (DI) is usually present. Like number 8, this community occurs in northern and eastern Maine (Figure 3.9).
10. Moss lawn (*Sphagnum cuspidatum*); ML (SC). This bog or very acidic fen community is distinguished by the nearly continuous cover of *Sphagnum cuspidatum*. *Eriophorum virginicum* and *Rhynchospora* are present at low percent cover. Pore water NH<sub>4</sub>-N is relatively high (mean = 0.45 mg·L<sup>-1</sup>) and the pH (mean = 3.94) is particularly low.



Group B1 (11–15) consists of five types of open, shrub heath or wooded shrub heath (WSH) communities with moderate to high relief.

11. Shrub heath (*Gaylussacia dumosa* var. *bigeloviana*/*Empetrum nigrum*); SH (GD/EN). This coastal (Figure 3.11) bog community is distinguished by the frequent dominance of *Gaylussacia dumosa* in the low-shrub stratum and by *Empetrum nigrum* (EN), *Sphagnum fuscum*, and *Cladonia* and *Cladina* species in the ground layer. *Trichophorum cespitosum* and *Rubus chamaemorus* are occasionally present (less than half the relevés), and one of two coastal *Sphagnum* species, *S. imbricatum* or *S. flavicomans* is often present. Microrelief and concentrations of Na and Cl are high.
12. Shrub heath (*Kalmia angustifolia*-*Chamaedaphne calyculata*-*Gaylussacia dumosa* var. *bigeloviana*/*Sphagnum capillifolium*); SH (KA-CC-GD/SCa). *Gaylussacia dumosa* is present, but subdominant to *Chamaedaphne* and *Kalmia angustifolia* in this subcoastal (Figure 3.12) bog community. Dominants in the ground layer are *Sphagnum fuscum* and *S. capillifolium* (SCa). Lichens are less abundant than in number 11 and *Empetrum nigrum* is absent. Six of the eight relevés representing this type are from Saco Heath in extreme southwestern Maine.
13. Shrub heath (*Chamaedaphne calyculata*-*Kalmia angustifolia*-*Rhododendron groenlandicum*); SH (CC-KA-RG). This shrub heath community may be found on bogs and on very acidic and moderately acidic fens. It is the second most common type (N=73) in the data set, and is widespread—especially in the southern half of the state (Figure 3.13). *Chamaedaphne* and/or *Kalmia angustifolia* dominate the low shrub stratum. *Rhododendron canadense* is often present on the fen sites. The most common bryophytes are *Sphagnum rubellum* and *S. fuscum*. *Cladina rangiferina* and/or *Cladonia* species are often present.
14. Shrub heath/wooded shrub heath (*Picea mariana*-*Chamaedaphne calyculata*-*Kalmia angustifolia*-*Rhododendron groenlandicum*/*Picea mariana*); SH/WSH (PM-CC-KA-RG/PM). This community is the most common (N=84) in the data set and may be found on bogs and very acidic and moderately acidic fens. It is widespread, especially in the central and northern parts of the state (Figure 3.14). It is similar to the preceding community, except that *Picea* is a co-dominant in the low-shrub stratum and often is present in the high-shrub stratum. The same *Sphagnum* species as number 13, with the addition

of *S. recurvum* and/or *S. magellanicum*, dominate the ground layer.

15. Shrub heath (*Chamaedaphne calyculata*-*Rhododendron canadense*-*Myrica gale*-*Kalmia angustifolia*); SH (CC-RC-MG-KA). This very acidic and moderately acidic fen shrub heath community is characterized by moderate percent cover of *Chamaedaphne* and *Rhododendron canadense* (RC). *Myrica gale*\* (MG) is usually present, and *Carex stricta* is found in half the sample sites. The dominant bryophytes are *Sphagnum recurvum* and *S. magellanicum*. Pore water  $\text{NH}_4\text{-N}$  is relatively high (mean =  $0.65 \text{ mg}\cdot\text{L}^{-1}$ ), perhaps due to the N-fixer, *Myrica*. Depth of peat is shallow (mean = 0.2 m).

Group B2 (16–20) consists of five types of gymnosperm-(*Larix* and/or *Picea*) dominated wooded fens (GWF), forested bogs (FB), mixed wooded fens (MWF), or wooded shrub heath fens (WSH-F) which grow under a wide range of chemical conditions.

16. Open gymnosperm wooded fen (*Picea mariana*-*Larix laricina*-*Carex stricta*-*Rhododendron canadense*-*Rhododendron groenlandicum*); OGWF (PM-LL/CS-RC-RG). This open wooded fen community has a mixture of *Picea* and *Larix*\* (LL) in the tree stratum, and at half the sites, *Alnus* forms a high-shrub stratum. *Carex stricta*\* (CS) and/or *Rhododendron canadense* are often dominant in the low-shrub stratum. A mixture of *Rhododendron groenlandicum*, *Nemopanthus*, *Picea*, *Chamaedaphne*, and/or *Viburnum* is also usually present. *Sphagnum recurvum* is the dominant bryophyte. Pore water  $\text{NO}_3\text{-N}$  and  $\text{NH}_4\text{-N}$  are relatively high, with means of  $0.013$  and  $0.91 \text{ mg}\cdot\text{L}^{-1}$ , respectively, probably due to the presence of the N-fixer, *Alnus*.
17. Wooded shrub heath fen/gymnosperm wooded fen (*Picea mariana*/*Picea mariana*/*Picea mariana*-*Rhododendron groenlandicum*-*Maianthemum trifolium*); WSH-F/GWF (PM/PM/PM-RG-MT). This community, widespread in the northern two-thirds of the state, has tree and/or high-shrub strata, as well as a low-shrub stratum dominated by *Picea*. *Rhododendron groenlandicum* is always present in the low-shrub stratum along with *Chamaedaphne* and/or *Kalmia angustifolia*. *Maianthemum trifolium* (MT) is usually present and moderately abundant. Some combination of *Carex trisperma*\*, *C. magellanica*, and *C. pauciflora*\* is present. *Sphagnum recurvum* dominates the ground layer along with *S. magellanicum*.

18. Gymnosperm wooded fen-open gymnosperm wooded fen/shrub thicket (*Larix laricina*/*Nemopanthus mucronatus*/*Rhododendron canadense*); GWF-OGWF/ST (LL/NM/RC). This community is widespread in the southern half of the state, and is dominated by *Larix* in the tree stratum. *Picea* is present with < 5% cover in the tree and/or high-shrub strata in less than half the relevés. *Nemopanthus* (NM), *Alnus*, and/or *Viburnum* are often in the high-shrub stratum, and *Rhododendron canadense*, *Chamaedaphne*, and/or *Vaccinium corymbosum* are common in the low-shrub stratum. *Sphagnum recurvum* is the dominant bryophyte. Pore water  $\text{NH}_4\text{-N}$  is relatively high (mean =  $0.46 \text{ mg}\cdot\text{L}^{-1}$ ).
19. Gymnosperm wooded fen-forested bog (*Picea mariana*/*Picea mariana*-*Rhododendron groenlandicum*-*Vaccinium myrtilloides*); GWF-FB (PM/PM/PM-RG-VM). This community is similar to number 17, as *Picea* dominates the tree and high-shrub strata, except that here the tree stratum has greater areal cover than the high-shrub stratum. *Picea*, along with *Vaccinium myrtilloides* (VM), *Rhododendron groenlandicum*, and/or *Kalmia angustifolia* are the low shrub dominants. In the ground layer, *Sphagnum magellanicum* and *Pleurozium schreberi* are the most abundant bryophytes, and *Gaultheria hispidula* occurs frequently. This community of southwestern to northeastern Maine occurs under a particularly wide range of pH and Ca concentrations. Pore water P is relatively high (mean =  $0.09 \text{ mg}\cdot\text{L}^{-1}$ ), and the peat is relatively deep (mean = 4.6 m).
20. Gymnosperm wooded fen-mixed wooded fen/shrub thicket (*Picea mariana*-*Acer rubrum*/*Nemopanthus mucronatus*-*Viburnum nudum* var. *cassinoides*/*Carex trisperma*); GWF-MWF/ST (PM-AR/NM-VC/CT). *Picea* dominates the tree stratum in this community, along with *Acer* in 25% of the relevés. *Nemopanthus*, *Viburnum* (VC), and *Acer* often form a dense high-shrub understory. These same species are present in the low-shrub stratum, along with *Vaccinium myrtilloides*, *Rhododendron groenlandicum*, and *Kalmia angustifolia*. *Carex trisperma* (CT) is the most abundant species in this stratum, and it occurs in all the relevés. *Sphagnum recurvum* and *S. magellanicum* are the dominant bryophytes, and *Pleurozium schreberi* and *Gaultheria hispidula* occur frequently. Pore water P and  $\text{NH}_4\text{-N}$  are relatively high, mean = 0.12 and  $0.59 \text{ mg}\cdot\text{L}^{-1}$ , respectively.

Group C1 (21–23) consists of three types of gymnosperm or mixed wooded fens dominated by *Thuja* and/or *Acer*, with varying amounts of *Alnus* in the high-shrub stratum. Communities with dense cover in this stratum are shrub thickets (ST). These are moderately acidic to circumneutral fens located in the northern and eastern halves of the state (Figures 3.21, 3.22, and 3.23).

21. Gymnosperm wooded fen (*Thuja occidentalis*/*Osmunda cinnamomea*); GWF (TO/OC). This is a densely wooded *Thuja*-dominated circumneutral fen community, often with much less abundant *Larix* and/or *Picea*. *Thuja* and/or *Alnus* occur in the high-shrub stratum, and *Osmunda cinnamomea*, *Carex trisperma*, and *Thuja* are common in the low-shrub stratum. *Sphagnum capillifolium* and *Hylocomium splendens* are the most abundant bryophytes, and *Sphagnum wulfianum* is usually present, along with *S. centrale* and/or *S. russowii*. The peat is relatively shallow (mean = 1.5 m).
22. Gymnosperm wooded fen-mixed wooded fen (*Thuja occidentalis*-*Abies balsamea*-*Acer rubrum*/*Alnus incana* ssp. *rugosa*); GWF-MWF (TO-AB-AR/Al). The tree stratum of this circumneutral fen community is composed of *Thuja* and *Abies* (AB), and in half the relevés, *Acer* (AR). The canopy cover is not as great as in number 21, but the *Alnus* (Al) cover in the high-shrub (and low-shrub) stratum is greater. In addition to *Alnus*, the low-shrub stratum is composed largely of a mixture of *Ilex verticillata*, *Onoclea sensibilis* (hereafter “*Onoclea*”), and *Abies*. A variety of bryophytes may compose the ground layer.
23. Shrub thicket/mixed wooded fen (*Alnus incana* ssp. *rugosa*/*Acer rubrum*); ST/MWF (Al/AR). This community is characterized by the great abundance of *Alnus* in the high-shrub stratum, with either *Acer* and/or *Thuja* forming an open overstory. *Alnus* also usually dominates the low-shrub stratum, with the frequent occurrence of *Calla palustris* and *Carex trisperma*. *Sphagnum recurvum* is the dominant bryophyte. Pore water  $\text{NO}_3\text{-N}$  is relatively high (mean =  $0.051 \text{ mg}\cdot\text{L}^{-1}$ ), probably due to the abundance of the N-fixer, *Alnus*, although  $\text{NH}_4\text{-N}$  is below detection limits.

Group C2 (24–26) consists of three types of angiosperm (AWF) or mixed wooded fens dominated by *Acer* or shrub thickets, with varying amounts of *Alnus* and/or *Ilex verticillata* in the high-shrub stratum. These are moderately acidic to circumneutral fens occurring in the southern third of the state (Figures 3.24, 3.25, and 3.26).

24. Angiosperm wooded fen-mixed wooded fen (*Acer rubrum*/*Osmunda cinnamomea*); AWF-MWF (AR/OC). This wooded fen community is characterized by substantial coverage of *Acer* in the tree stratum, sometimes with *Fraxinus nigra* (less than half the relevés), and a sparse or nonexistent high-shrub stratum. A few *Abies* individuals may extend up into this layer. The low-shrub stratum is dominated by *Osmunda cinnamomea* and, to a lesser extent, *Onoclea*. There is very sparse cover in the ground layer.
25. Angiosperm wooded fen/shrub thicket (*Acer rubrum*/*Alnus incana* ssp. *rugosa*); AWF/ST (AR/Al). This community, represented by only two relevés, has moderate coverage of *Acer* in the tree stratum and *Alnus* in the high-shrub stratum. *Onoclea* and *Thelypteris palustris* var. *pubescens* occur in both relevés, as does *Salix* spp. Coverage in the ground layer is sparse.
26. Angiosperm wooded fen-mixed wooded fen/shrub thicket (*Acer rubrum*-*Larix laricina*/*Ilex verticillata*-*Alnus incana* ssp. *rugosa*/*Carex trisperma*); AWF-MWF/ST (AR-LL/IV-Al/CT). This community has moderate coverage of *Acer*, occasionally with *Larix*, in the tree stratum. *Ilex* and/or *Alnus*, and sometimes *Acer*, occupy the high-shrub stratum. *Carex trisperma* is often common in the low-shrub stratum, and *Acer*, *Spiraea*, *Iris versicolor*, *Chamaedaphne*, and *Ilex verticillata* are often present, along with a variety of ferns and woody and herbaceous vascular plants. There is a moderate cover of *Sphagnum recurvum*, *S. centrale*, and/or *S. fimbriatum*. Al, Fe, and DOC concentrations are relatively high.

Group D1 (27–29) consists of three types of shrub thicket and open shrub (Sh) and/or graminoid-dominated fens. These are moderately acidic to circumneutral fens.

27. Shrub-sedge fen (*Alnus incana* ssp. *rugosa*-*Myrica gale*-*Chamaedaphne calyculata*); Sh-S F (Al-MG-CC). This low-shrub community is characterized by a mixture of sedges (*Carex* spp.) and woody species, including *Alnus*, *Chamaedaphne*, *Myrica gale*, and *Acer*. *Carex lasiocarpa* var. *americana* is occasionally abundant (less than half the relevés). *Sphagnum recurvum* may occur in patches in the depauperate ground layer. Al and Fe concentrations are relatively high.
28. Shrub thicket/shrub-graminoid fen (*Alnus incana* ssp. *rugosa*-*Myrica gale*-*Spiraea alba* var. *latifolia*-*Carex stricta*-*Calamagrostis canadensis*); ST/Sh-Gr F (Al/MG-SL-CS-Ca). This community is similar to number 27, except *Alnus* extends

into the high-shrub stratum at half the sites, and the low-shrub stratum is dominated by *Spiraea* and *Myrica gale*, sometimes with *Chamaedaphne*. The common graminoids are *Carex stricta* and *Calamagrostis canadensis* (Ca). The ground layer is sparse, but *Sphagnum recurvum* is the most frequent species (less than half the relevés).

29. Graminoid shrub fen (*Carex stricta*-*Calamagrostis canadensis*-*Spiraea alba* var. *latifolia*); Gr-Sh F (CS-Ca-SL). This community is distinguished by the dominance of graminoids, including *Calamagrostis canadensis*, *Carex stricta* and other *Carex* species. *Spiraea* is usually present. At some sites, *Alnus*, *Acer*, or *Ilex verticillata* may occur in the high-shrub stratum. The ground layer is sparse or nonexistent. pH and alkalinity are particularly high, as is the degree of humification of the surface peat.

Group D2 (30) contains only one community type, open sedge fen (sedge meadow).

30. Sedge fen (*Carex* spp.); S F (CX). This community is dominated by *Carex* (CX) species, notably *C. lasiocarpa* var. *americana*, with very little woody plant cover. *Sphagnum cuspidatum* may be patchy to abundant in the ground layer.

### **Conclusion Regarding Peatland Typology And Plant Communities**

The majority of plant communities are widespread with respect to peatland type and are not restricted to certain types (Table 6). Communities 3, 7, 13, 14, 15, 17, 19, 23, and 28 typify this broad distribution. A few community types are more restricted, however. The coastal and subcoastal communities 1, 11, and 12 occur only at bogs, and community 8 (and to a lesser extent community 9) is most common at ribbed fens. Communities 24, 27, and 28 occur mostly in valley or open basin fens and communities 21, 29, and 30 are restricted to these types. It is likely that this perceived restriction is more an artifact of sampling than a real pattern, as the fen communities surrounding bogs were undersampled compared to their areal extent. But, in general, vegetation is not closely related to our classification of peatlands, despite the fundamental morphologic/hydrologic basis of the classification. This result derives from the fact that the ranges of environmental gradients within an individual peatland complex are broad enough to support a variety of community types. Similar

chemical and hydrologic conditions may occur across the range of peatland types.

## SUMMARY

We described the composition and structure of 30 plant communities of Maine's peatlands in terms of their dominant and common species in each stratum and their indicator species. The successive TWINSPAN divisions yielded groups demonstrating the affinities and differences between communities. We have also characterized the communities in terms of chemical and physical conditions, geographic distributions, and peatland typology.

Table 6. The number of each type of peatland at which each community (Table 3) was sampled. Peatland typology follows Davis and Anderson (1991). Note: The N for each peatland type may differ from that stated in the text since not all peatlands in the database were used in the TWINSpan classification.

Peatland Type (N)	Comm 1	Comm 2	Comm 3	Comm 4	Comm 5	Comm 6	Comm 7	Comm 8	Comm 9	Comm 10
Unpatterned fen (15) (stream valley)			2				4			
Unpatterned fen (15) (open basin)			2		2	1	3	1		
Unpatterned fen (6) (closed basin)		1		2						
Ribbed fen (13)		2	1				3	10	4	1
Flat inland bog (without 2° pools) (9)			1	1				1	1	
(with 2° pools) (5)	1	1	1	2			1		1	1
Eccentric bog (16)		3	5	9	2		2			2
Domed bog (without 2° pools) (3)		1	1	1			1	1		
(with 2° pools) (8)	3	2	4	2	1	1		1	1	
Coastal bog (3)	1								1	



Table 6. Continued.

Peatland Type	Comm 11	Comm 12	Comm 13	Comm 14	Comm 15	Comm 16	Comm 17	Comm 18	Comm 19	Comm 20
Unpatterned fen (stream valley)			8	5	1		2		6	1
Unpatterned fen (open basin)			3	5	2	2	5	3	1	4
Unpatterned fen (closed basin)			2	3	1				2	
Ribbed fen			1	4	1	3	3			
Flat inland bog (without 2° pools)	1		7	3			1		2	
(with 2° pools)	1	3	3	3				2	3	
Eccentric bog			6	16	2	1	2	3	4	6
Domed bog (without 2° pools)			1	3	1			1	1	
(with 2° pools)	3		5	4		1		1	3	1
Coastal bog	3		2						1	

Table 6. Continued.

Peatland Type	Comm 21	Comm 22	Comm 23	Comm 24	Comm 25	Comm 26	Comm 27	Comm 28	Comm 29	Comm 30
Unpatterned fen (stream valley)	3	1	1	3		2	4	6	4	1
Unpatterned fen (open basin)		1	1	1	1	1	2	2	2	3
Unpatterned fen (closed basin)										
Ribbed fen										
Flat inland bog (without 2° pools)		1		1		1				
(with 2° pools)					1					
Eccentric bog		3	1							
Domed bog (without 2° pools)						1				
(with 2° pools)			1				1			
Coastal bog			1					1		

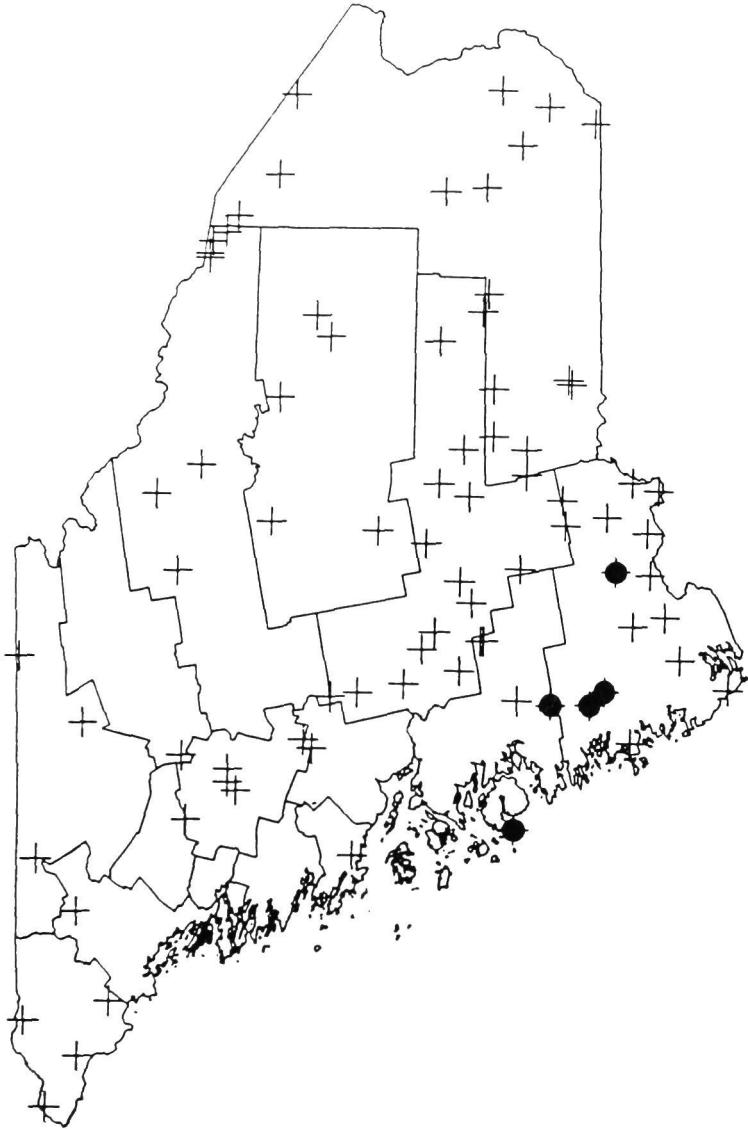


Figure 3.1. Locations of peatlands with relevés for community 1.

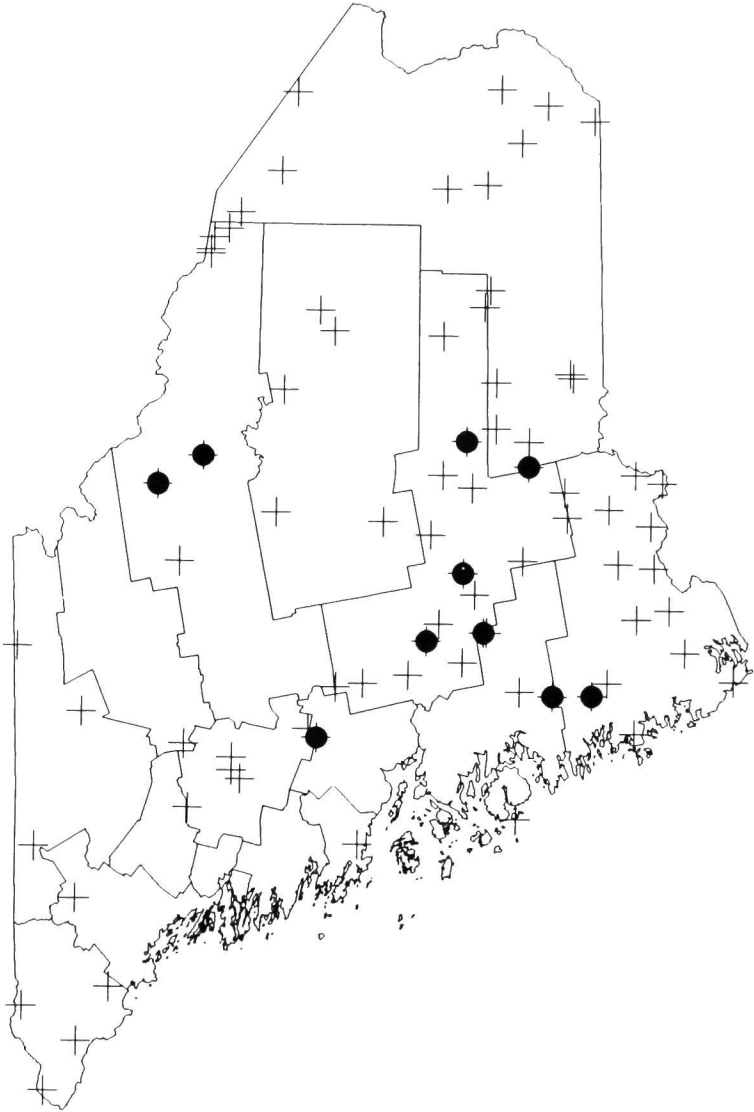


Figure 3.2. Locations of peatlands with relevés for community 2.

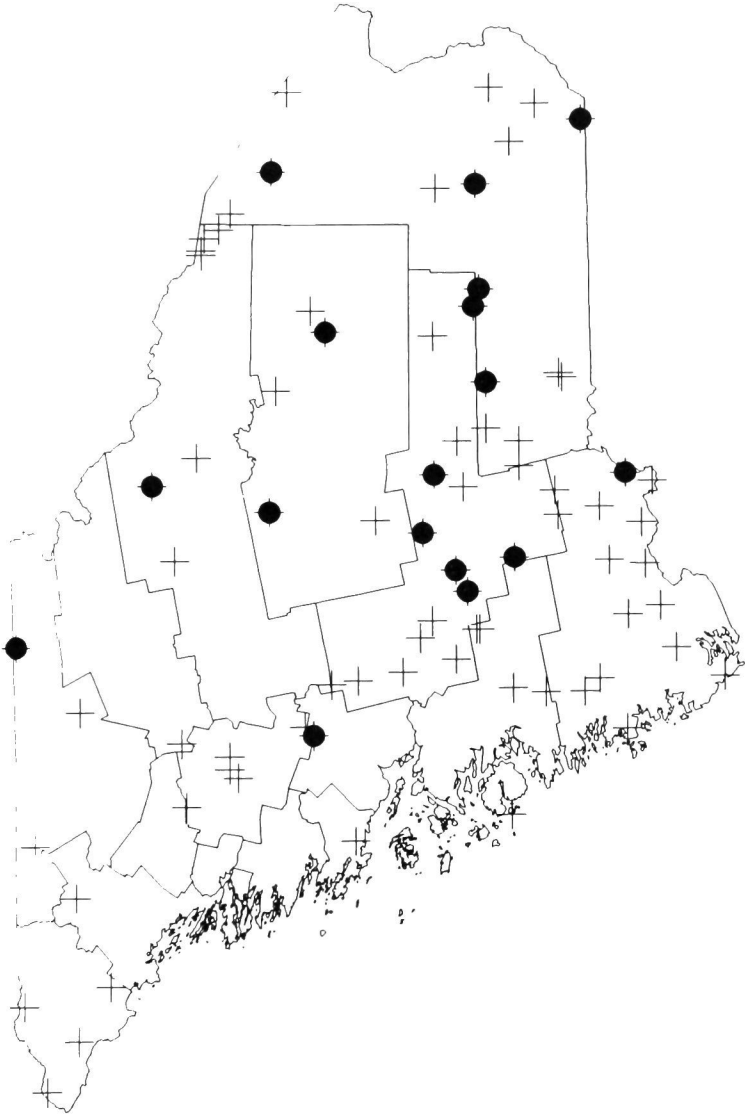


Figure 3.3. Locations of peatlands with relevés for community 3.

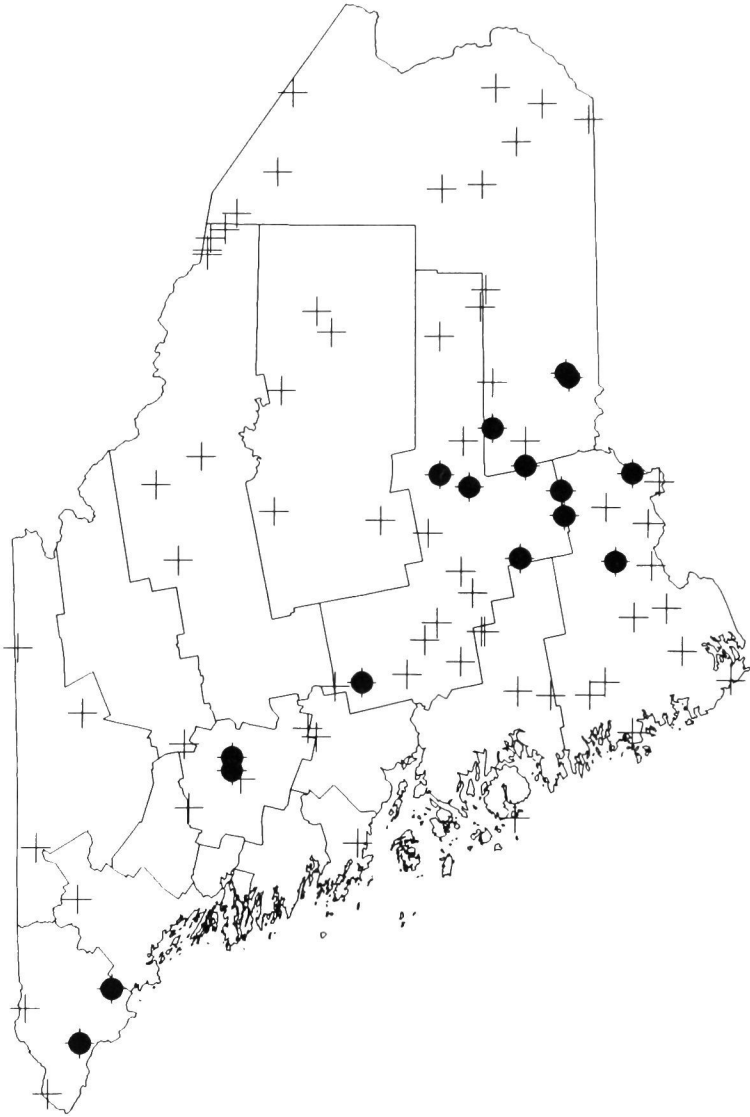


Figure 3.4. Locations of peatlands with relevés for community 4.

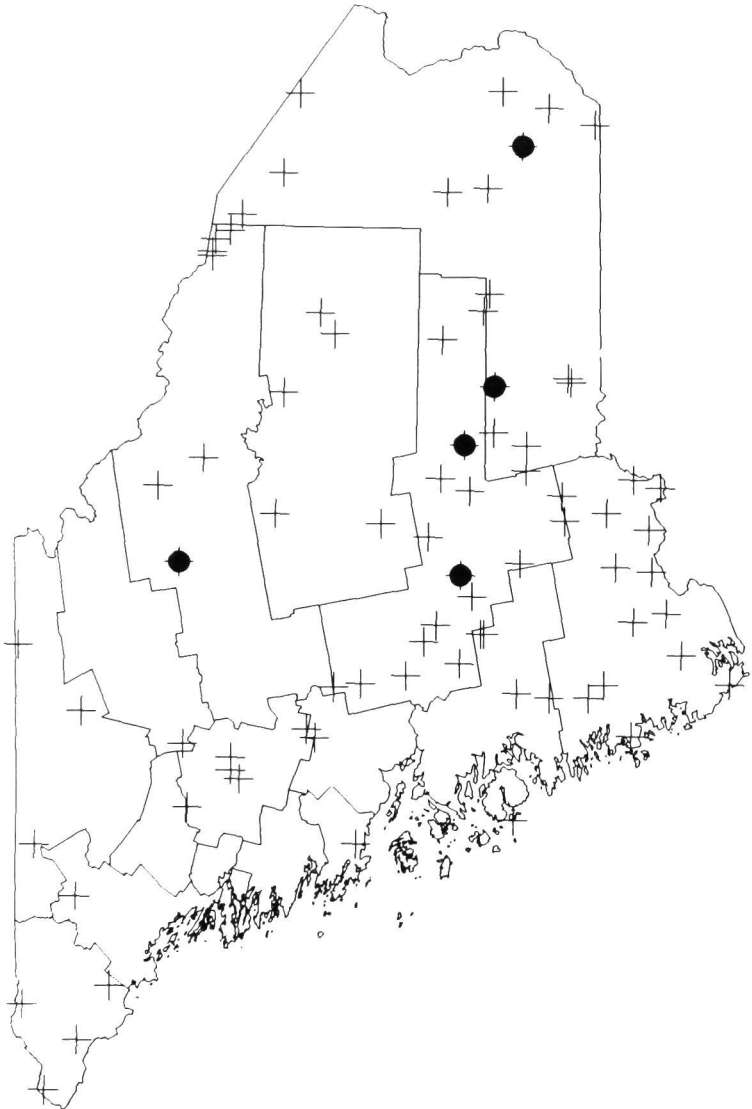


Figure 3.5. Locations of peatlands with relevés for community 5.

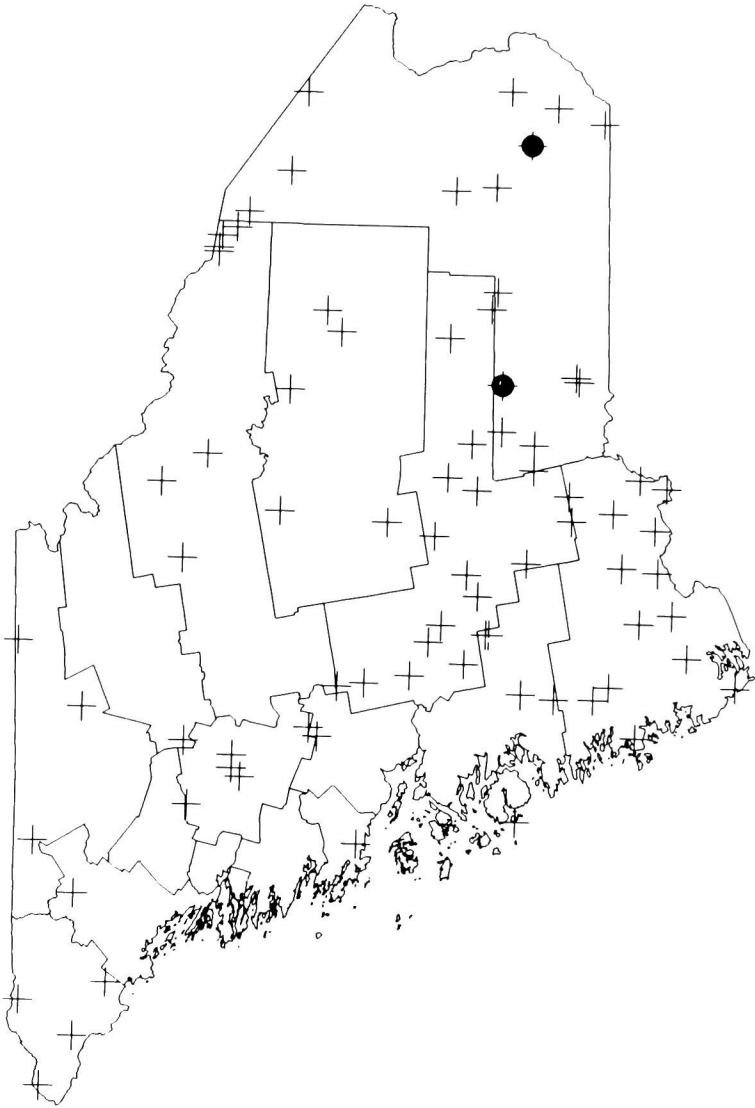


Figure 3.6. Locations of peatlands with relevés for community 6.



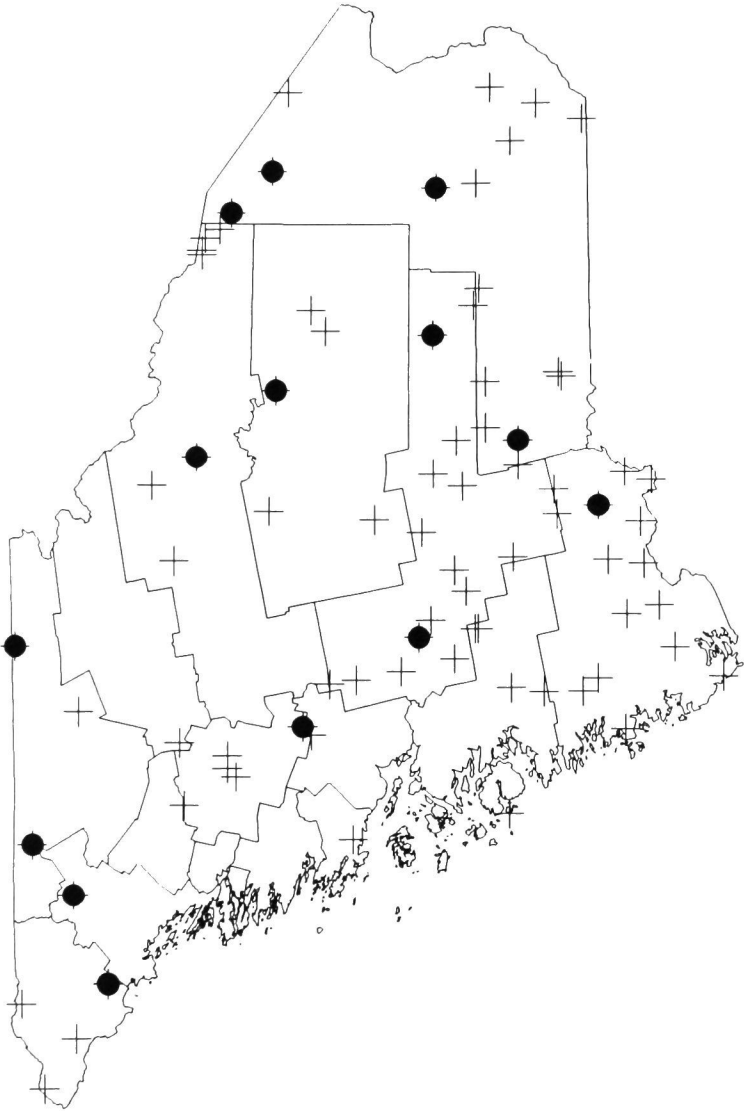


Figure 3.7. Locations of peatlands with relevés for community 7.

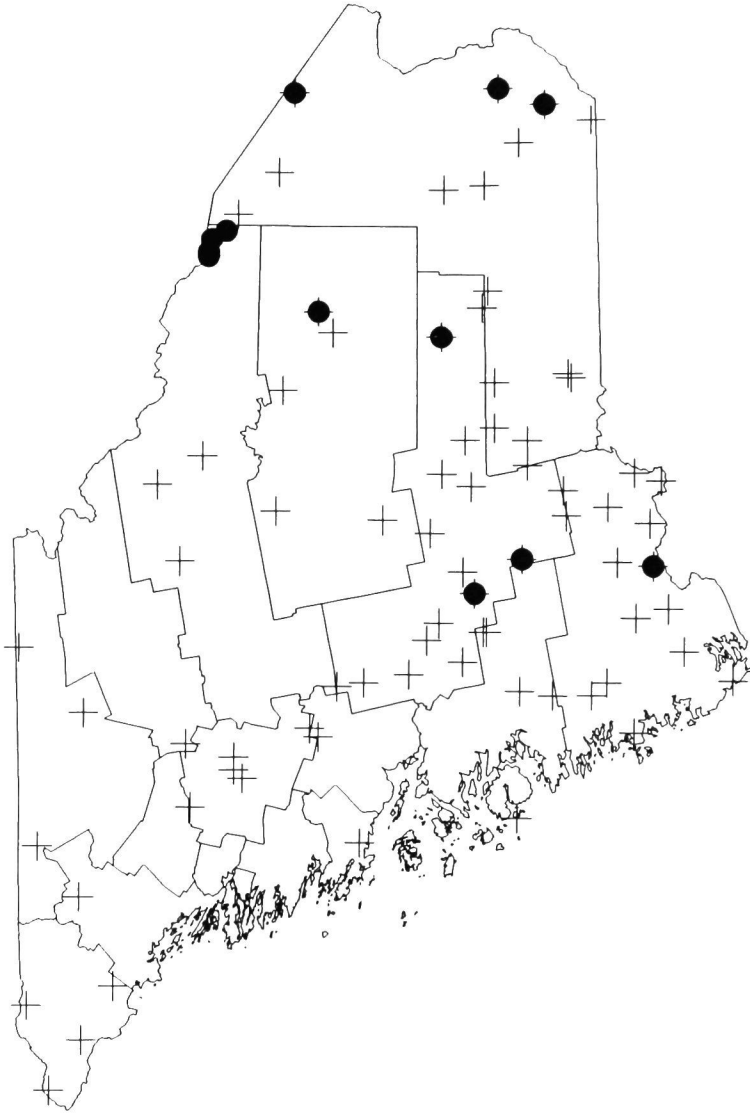


Figure 3.8. Locations of peatlands with relevés for community 8.

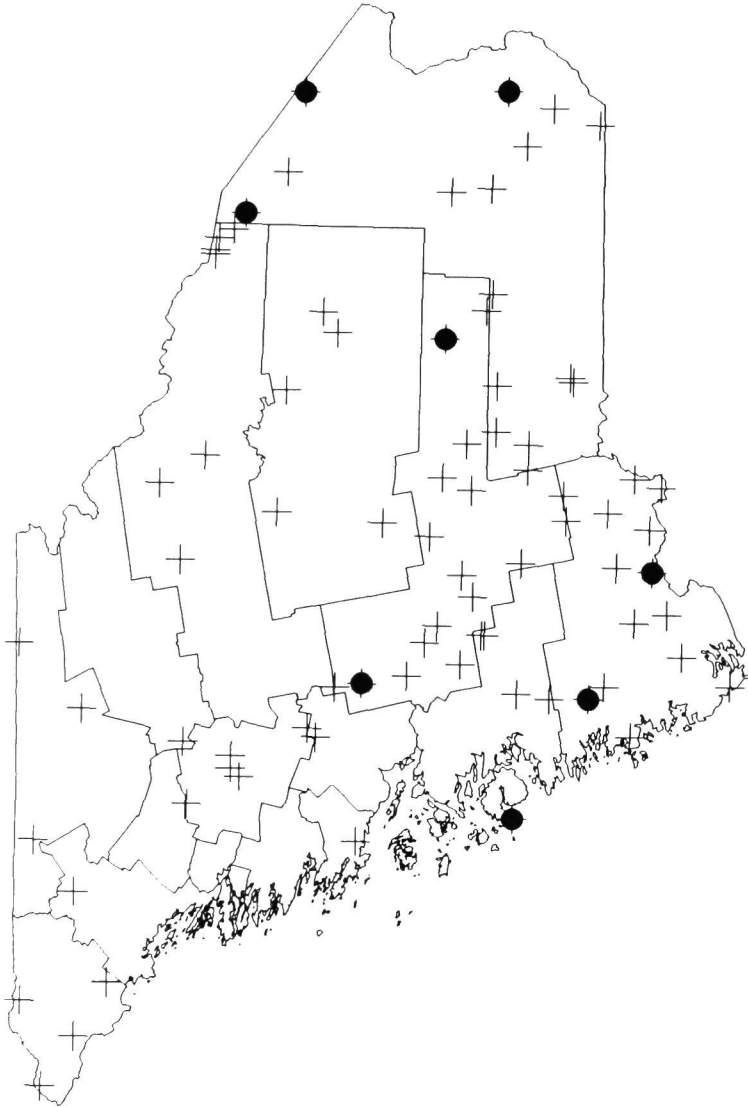


Figure 3.9. Locations of peatlands with relevés for community 9.

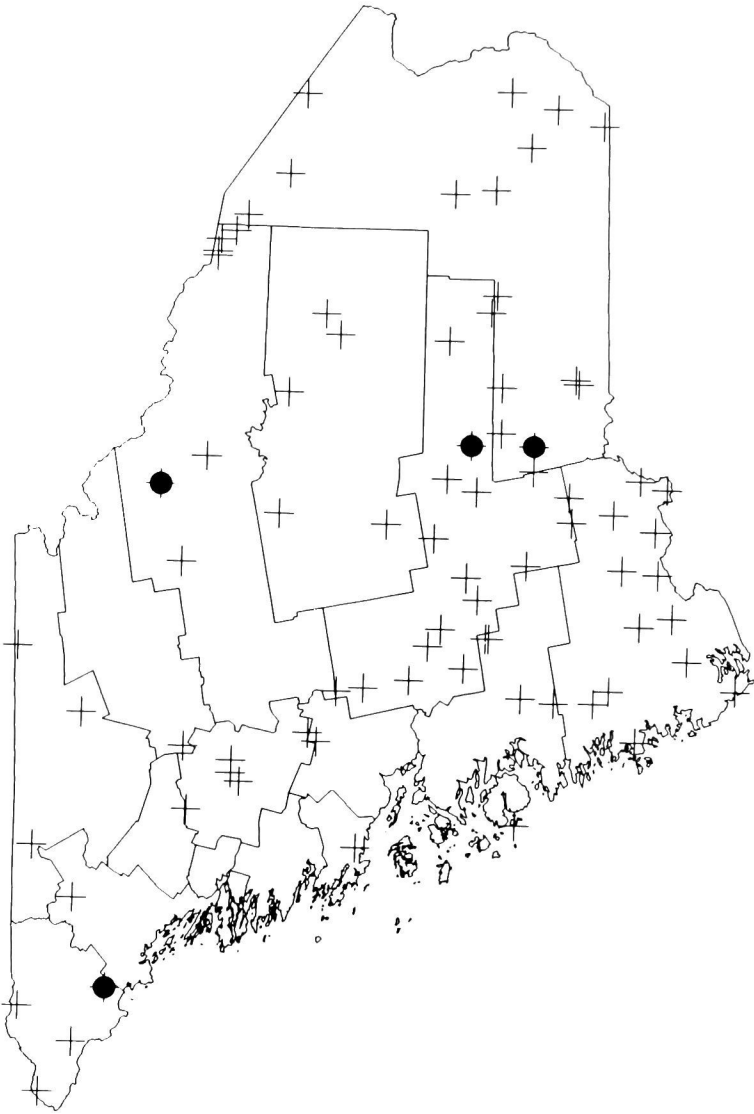


Figure 3.10. Locations of peatlands with relevés for community 10.

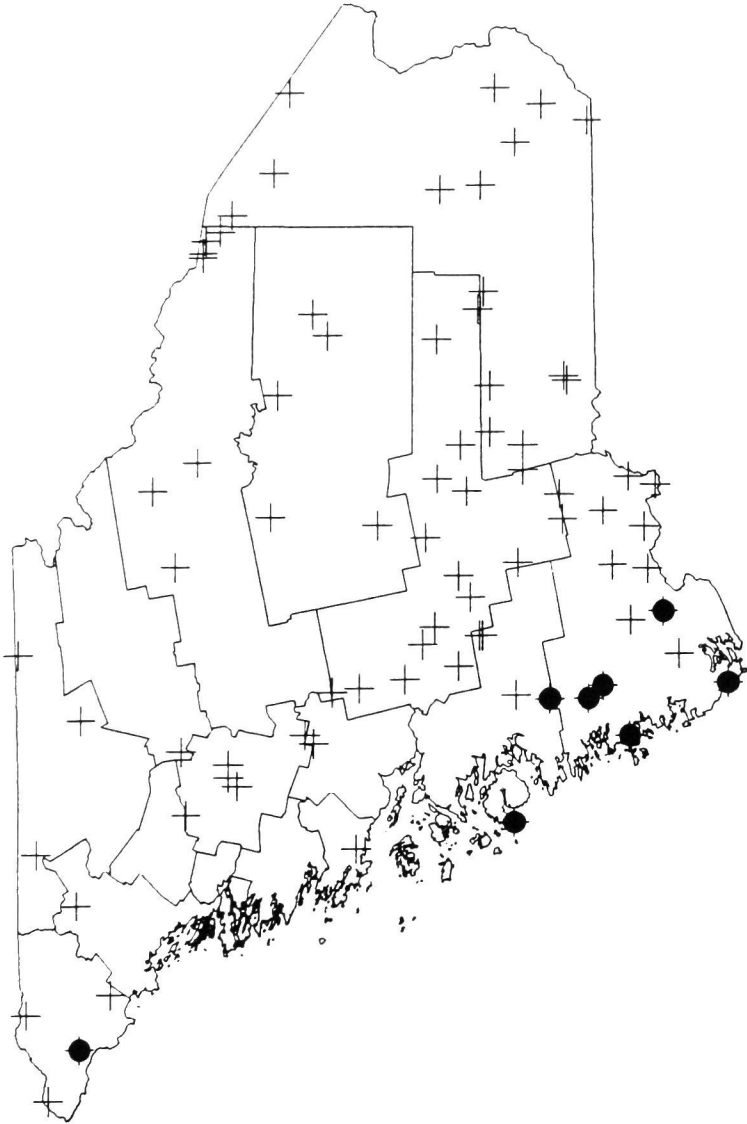


Figure 3.11. Locations of peatlands with relevés for community 11.

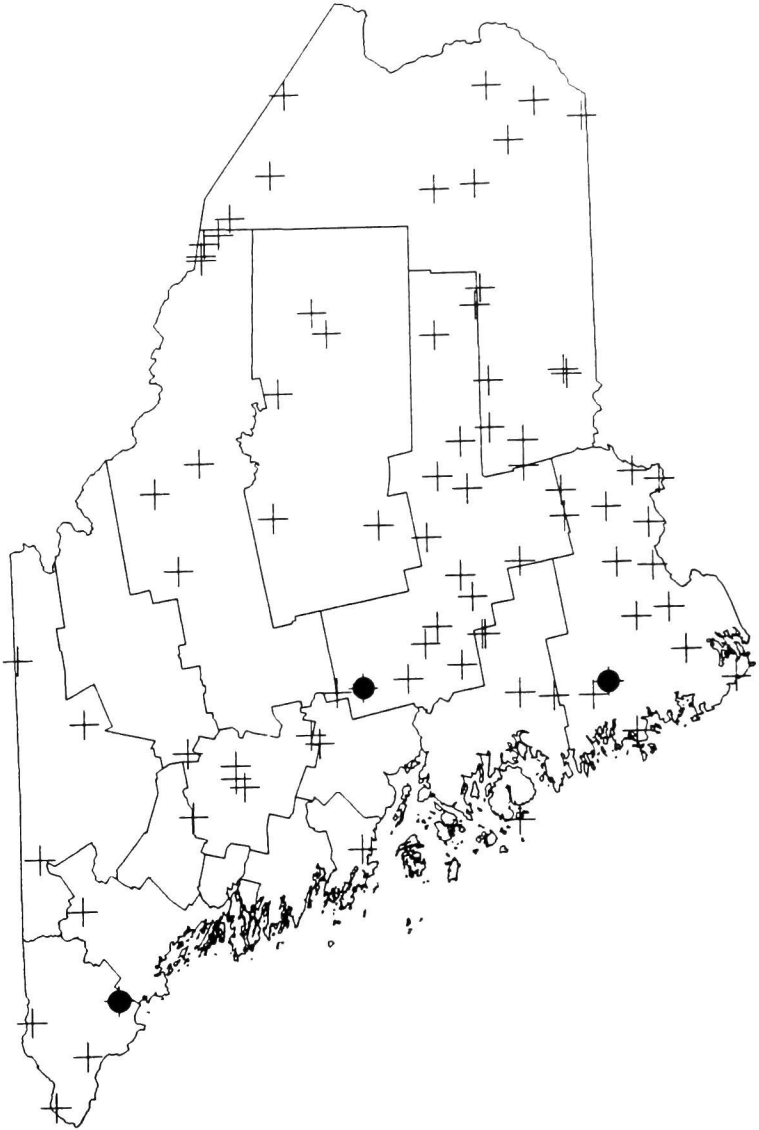


Figure 3.12. Locations of peatlands with relevés for community 12.

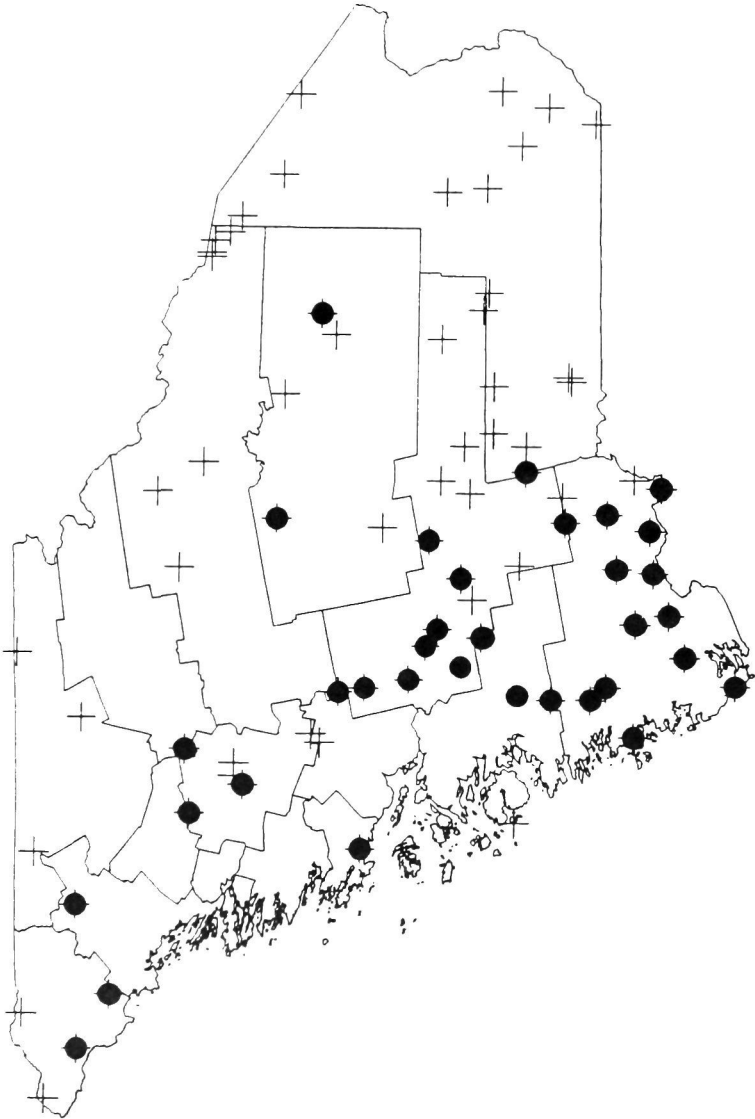


Figure 3.13. Locations of peatlands with relevés for community 13.

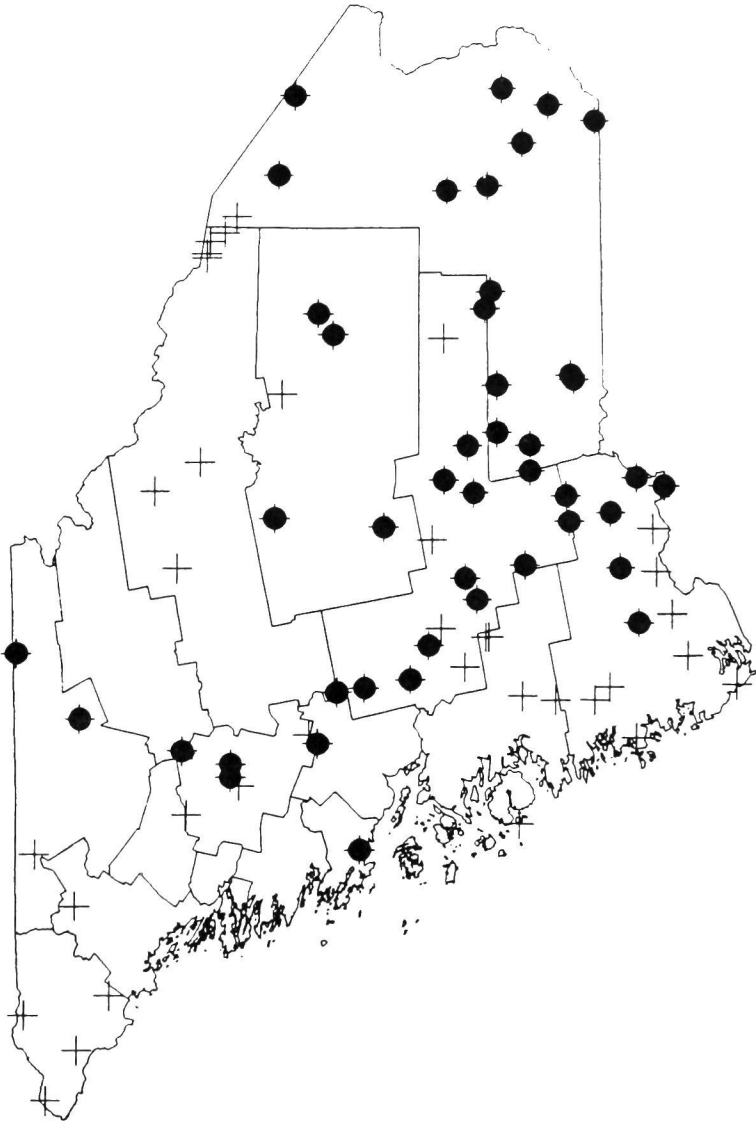


Figure 3.14. Locations of peatlands with relevés for community 14.



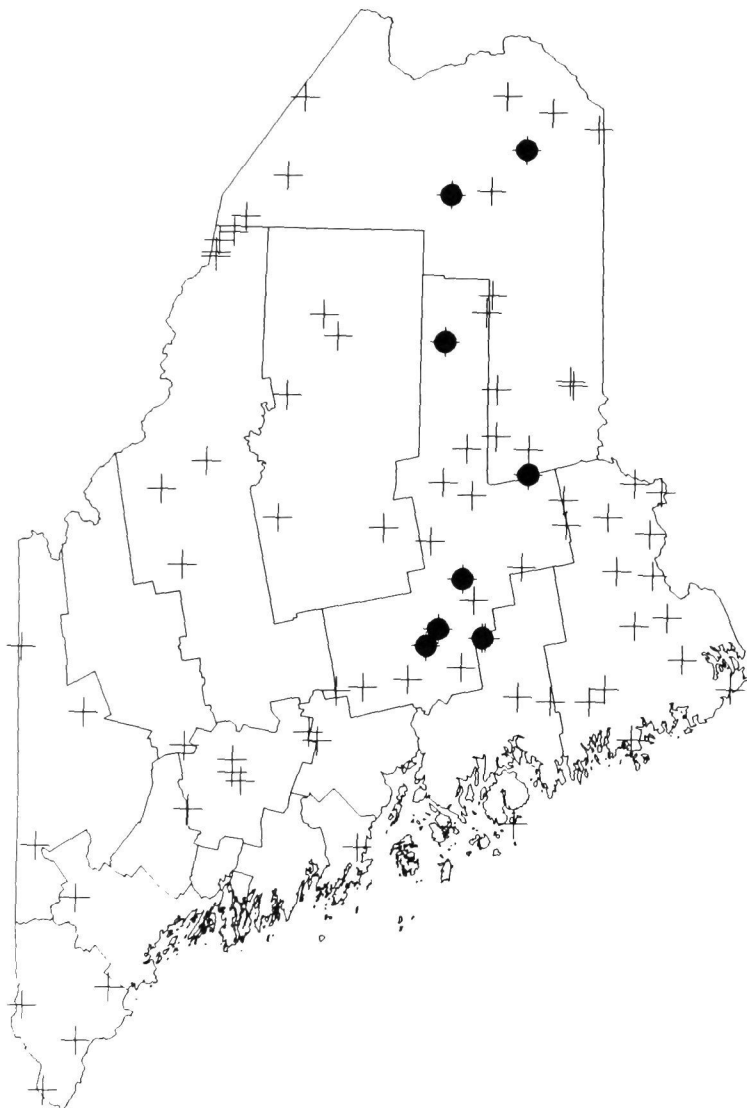


Figure 3.15. Locations of peatlands with relevés for community 15.

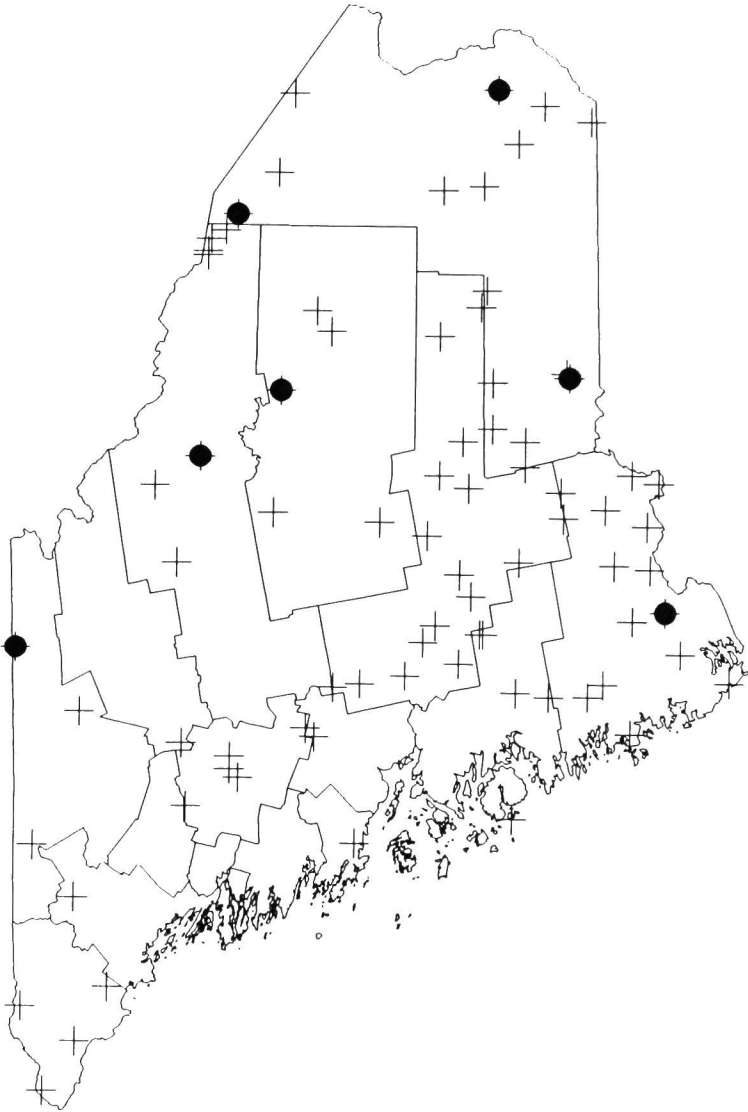


Figure 3.16. Locations of peatlands with relevés for community 16.

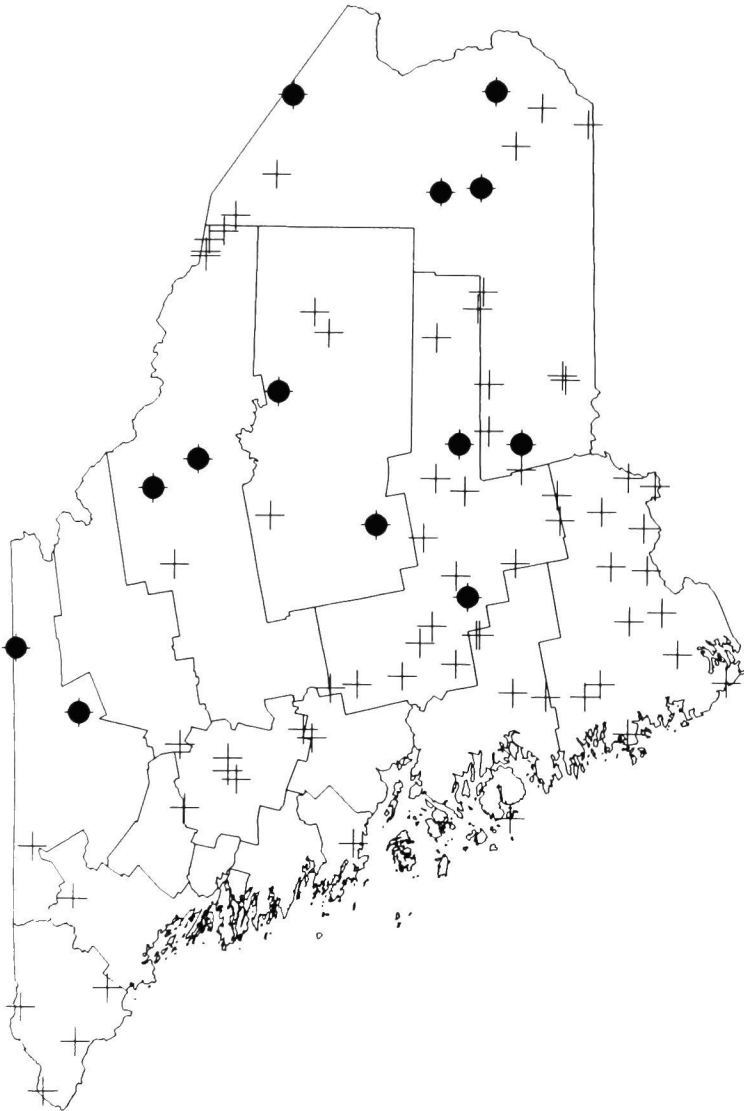


Figure 3.17. Locations of peatlands with relevés for community 17.

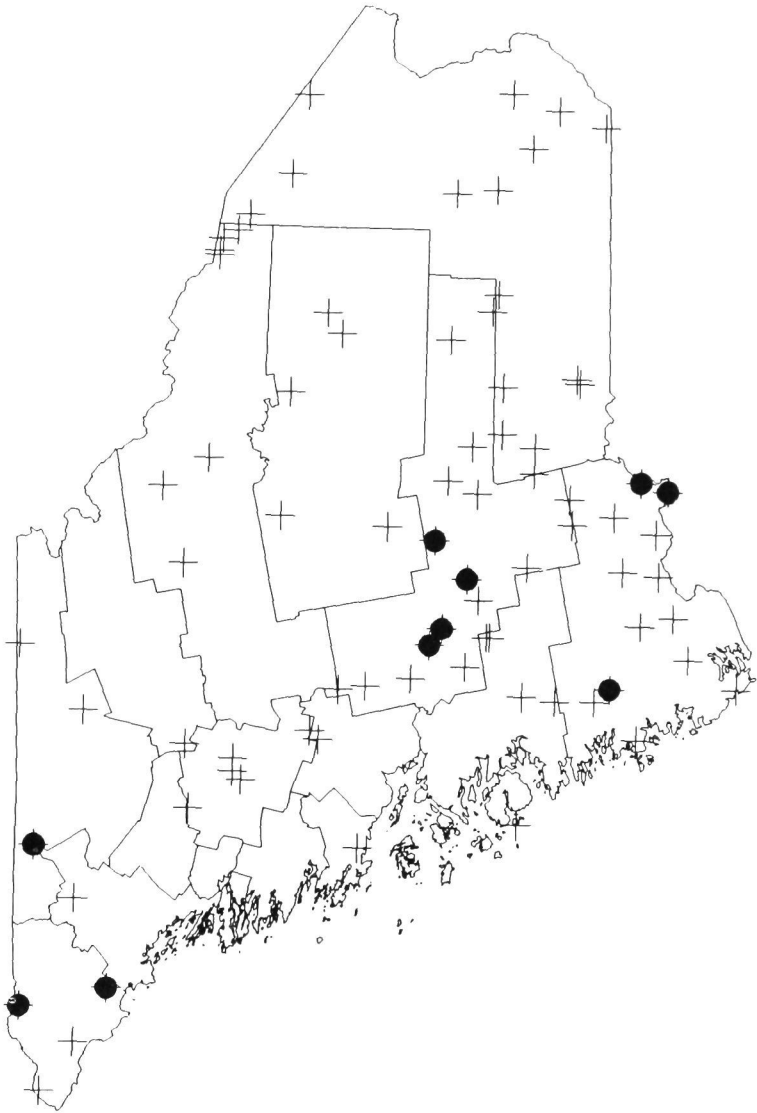


Figure 3.18. Locations of peatlands with relevés for community 18.

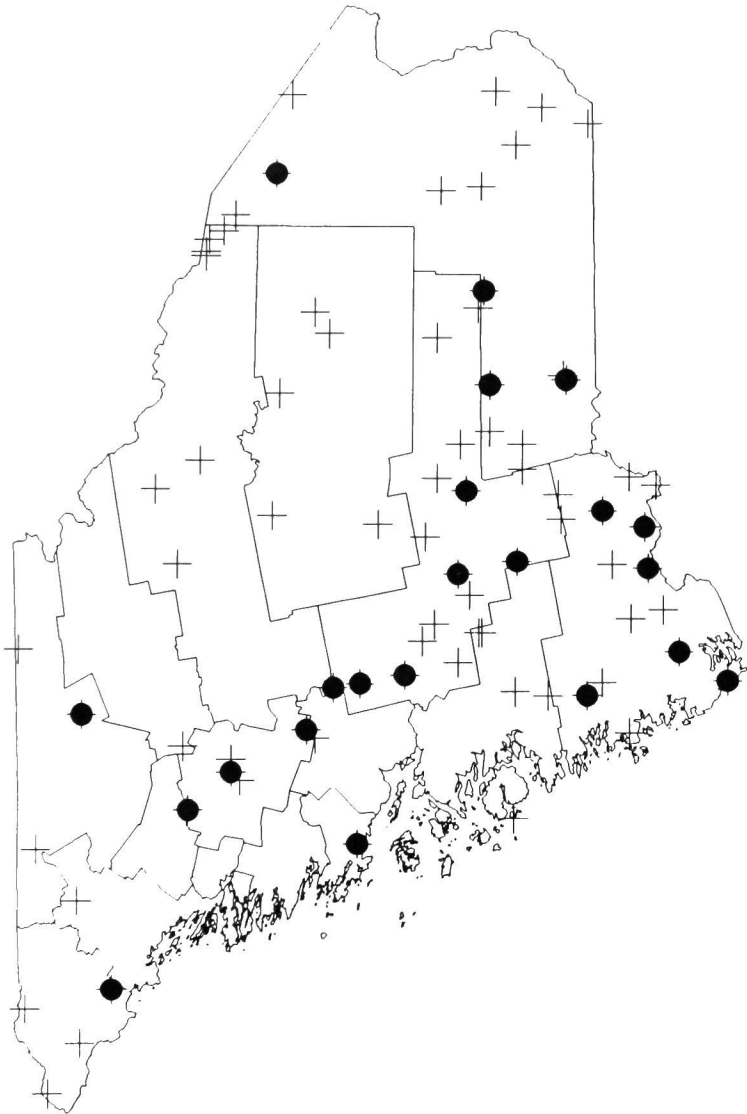


Figure 3.19. Locations of peatlands with relevés for community 19.

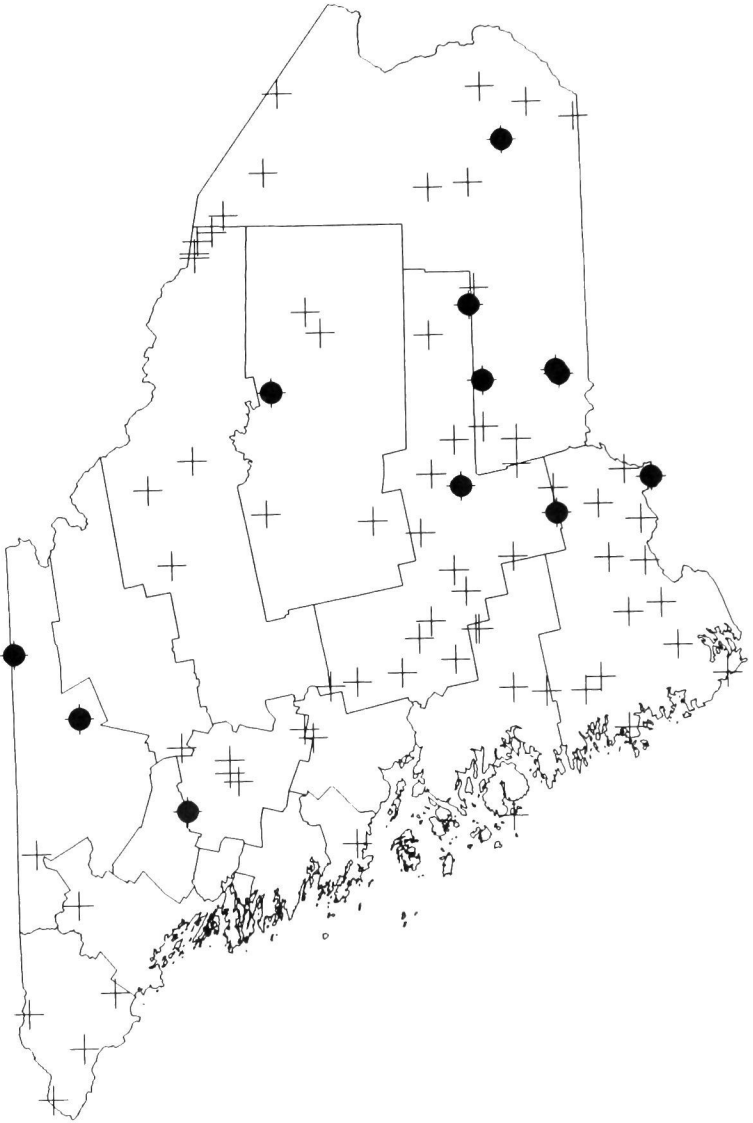


Figure 3.20. Locations of peatlands with relevés for community 20.

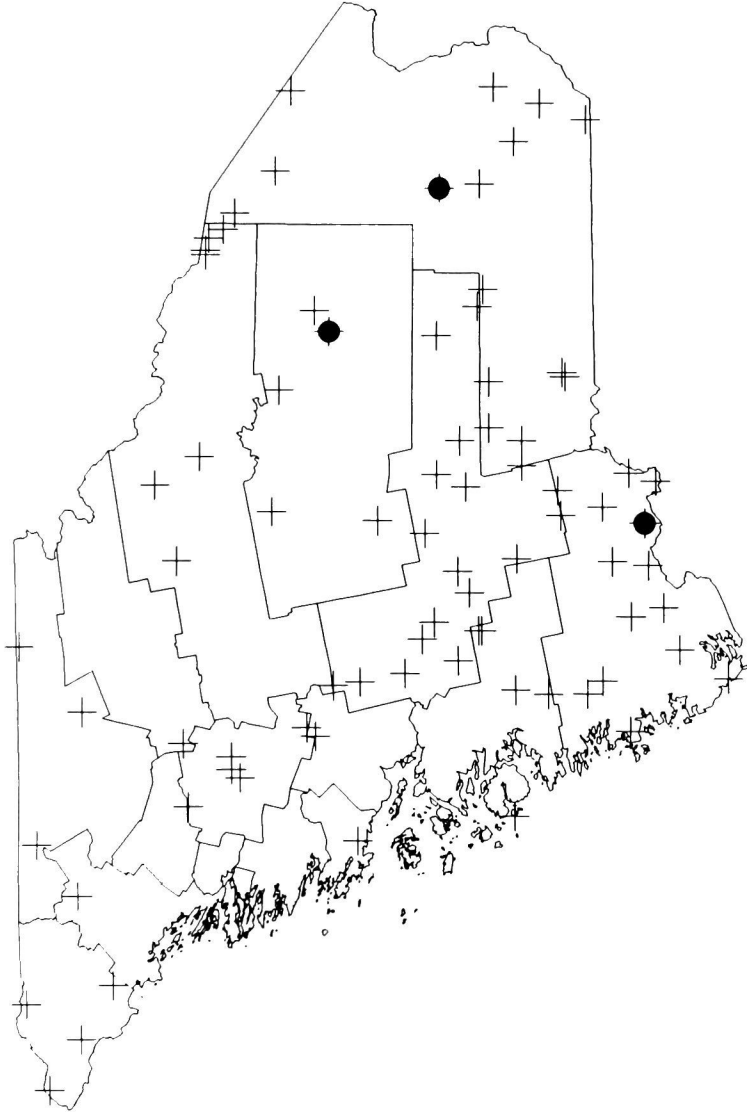


Figure 3.21. Locations of peatlands with relevés for community 21.

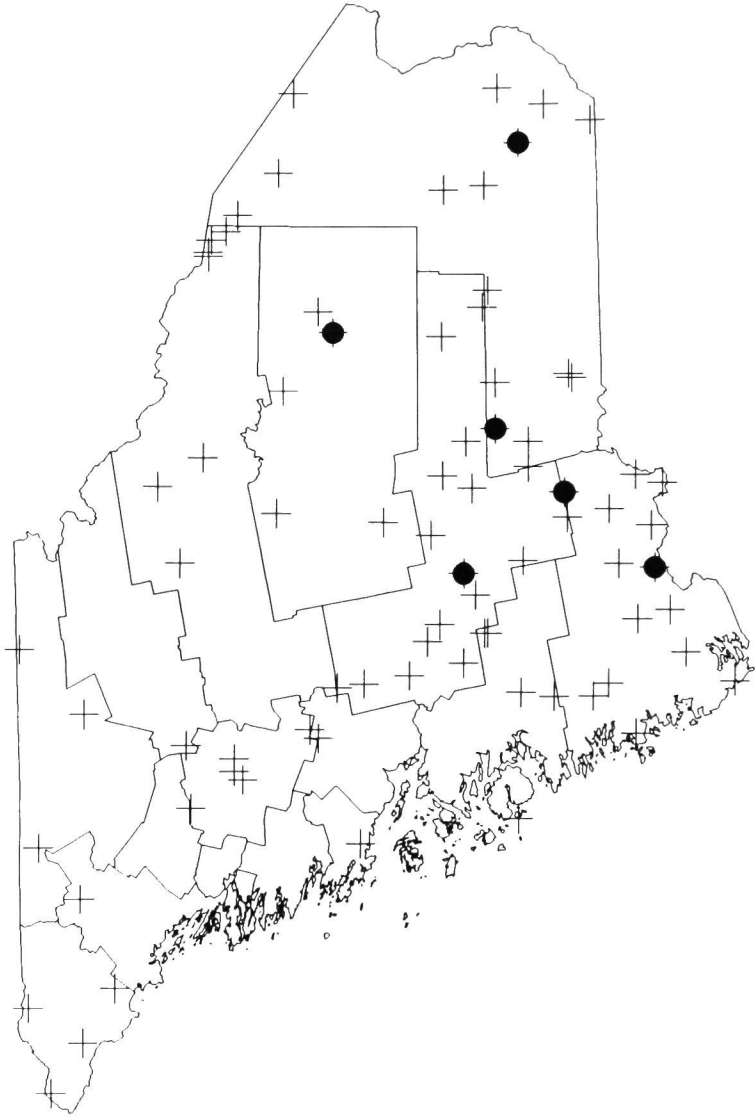


Figure 3.22. Locations of peatlands with relevés for community 22.



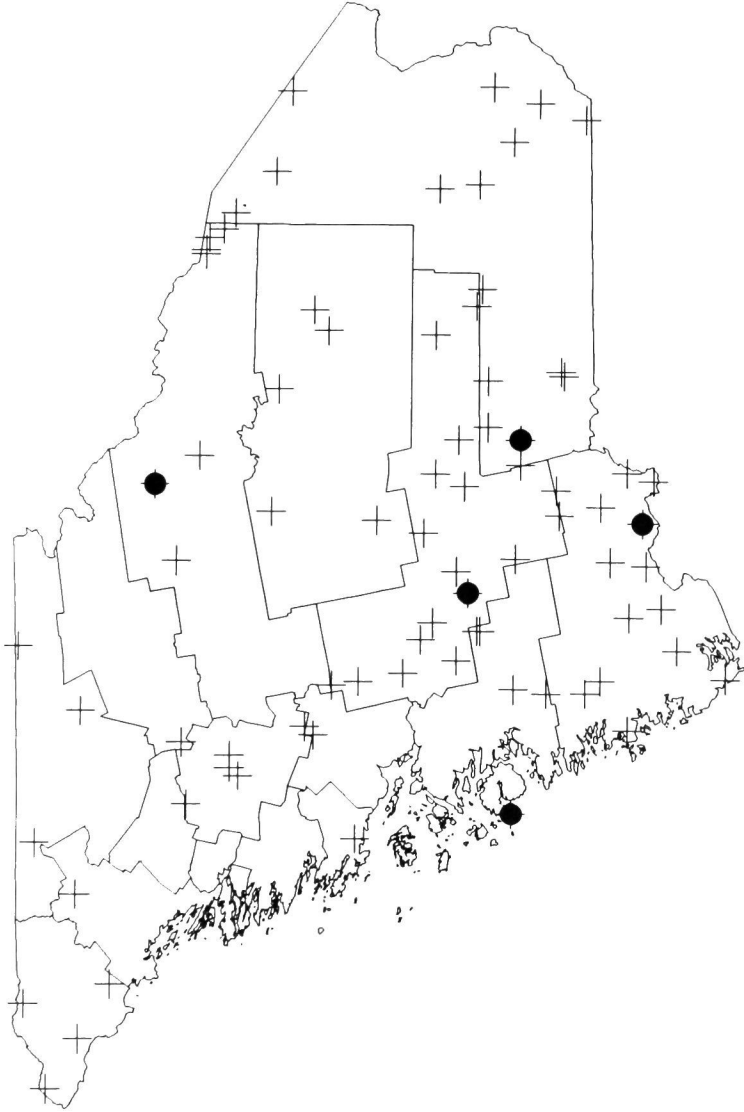


Figure 3.23. Locations of peatlands with relevés for community 23.

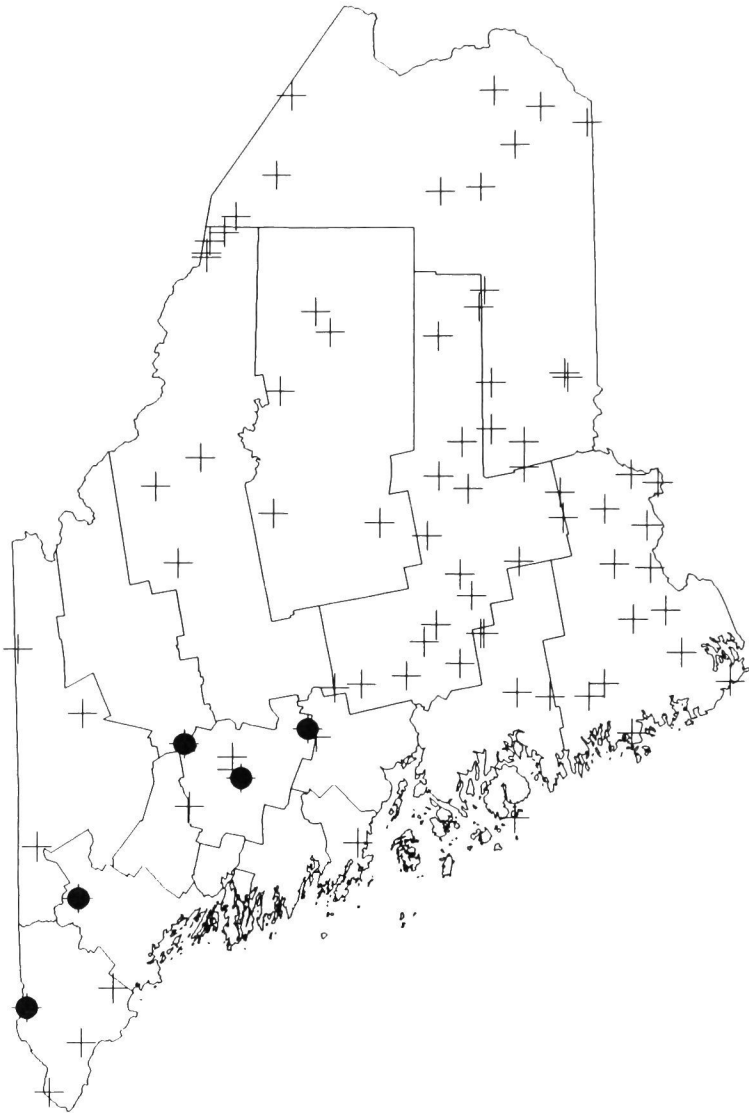


Figure 3.24. Locations of peatlands with relevés for community 24.

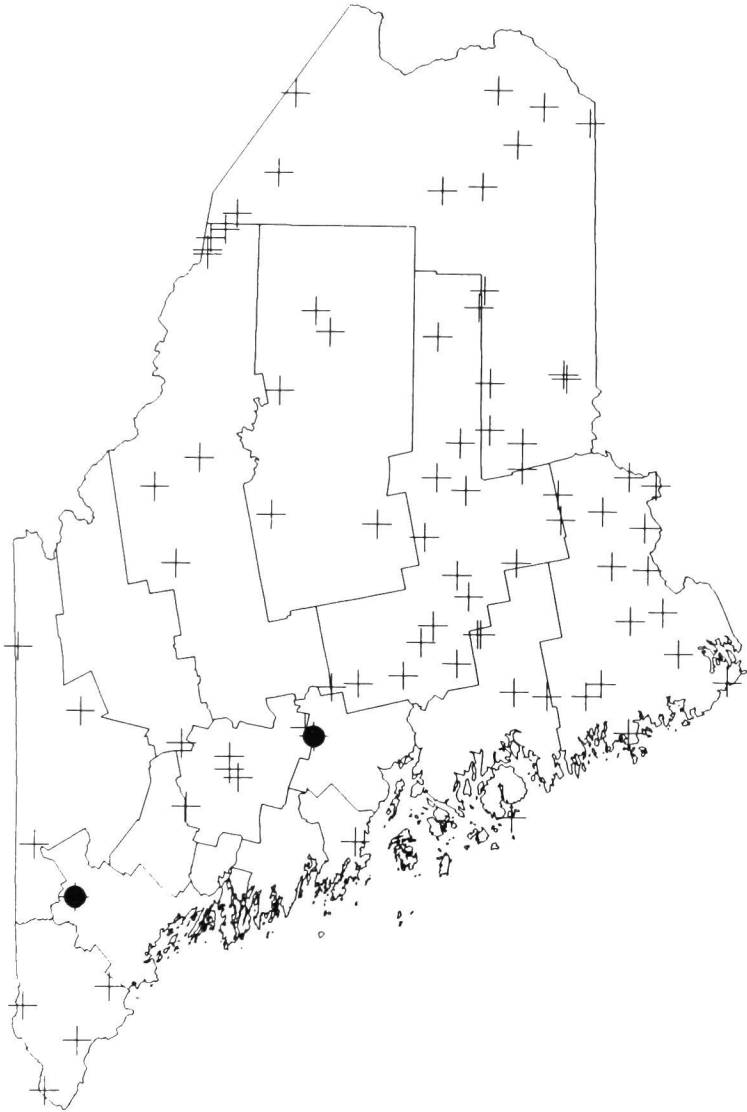


Figure 3.25. Locations of peatlands with relevés for community 25.

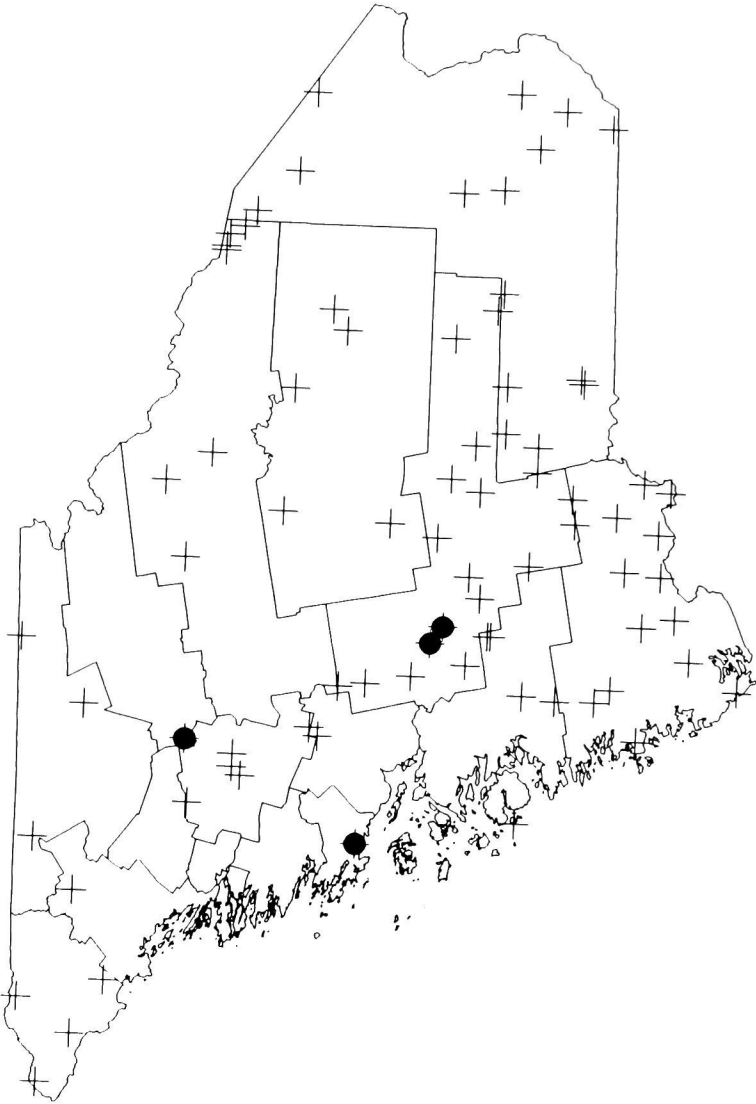


Figure 3.26. Locations of peatlands with relevés for community 26.

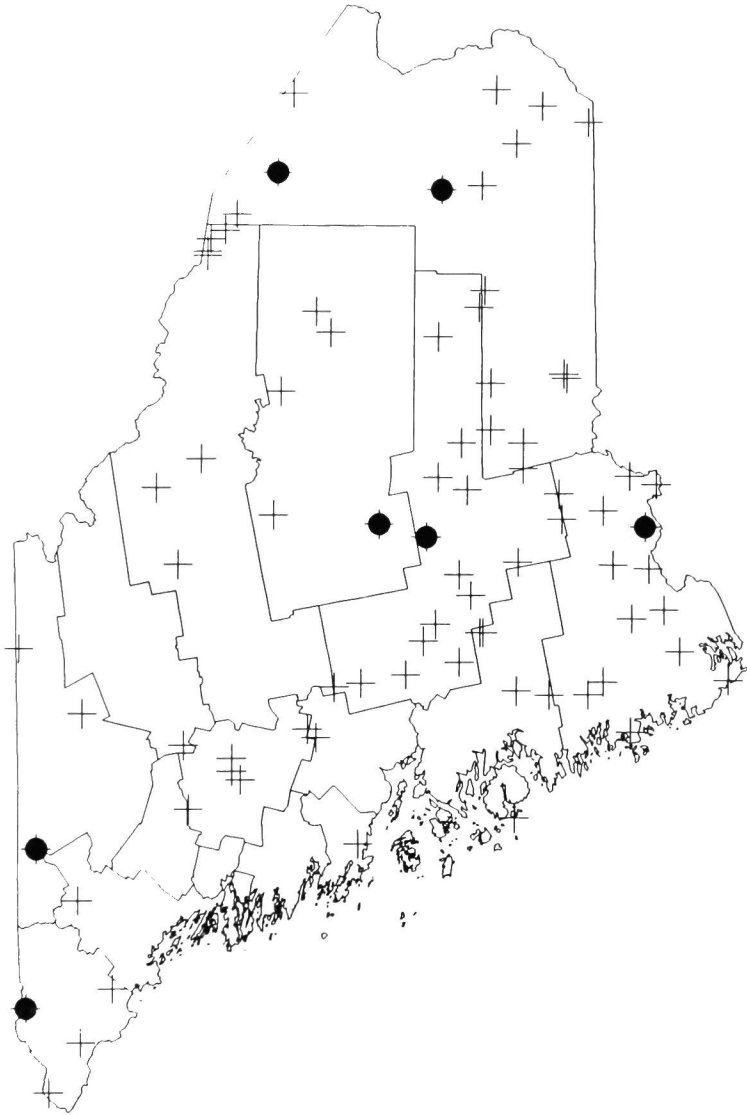
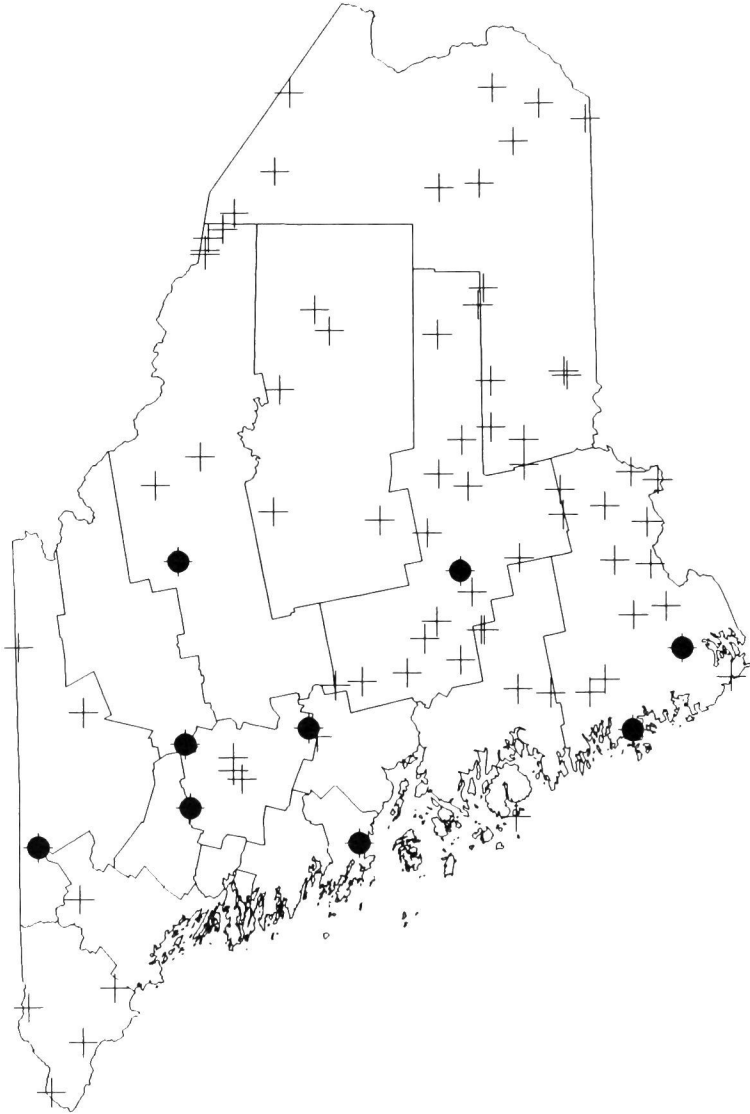


Figure 3.27. Locations of peatlands with relevés for community 27.



*Figure 3.28. Locations of peatlands with relevés for community 28.*

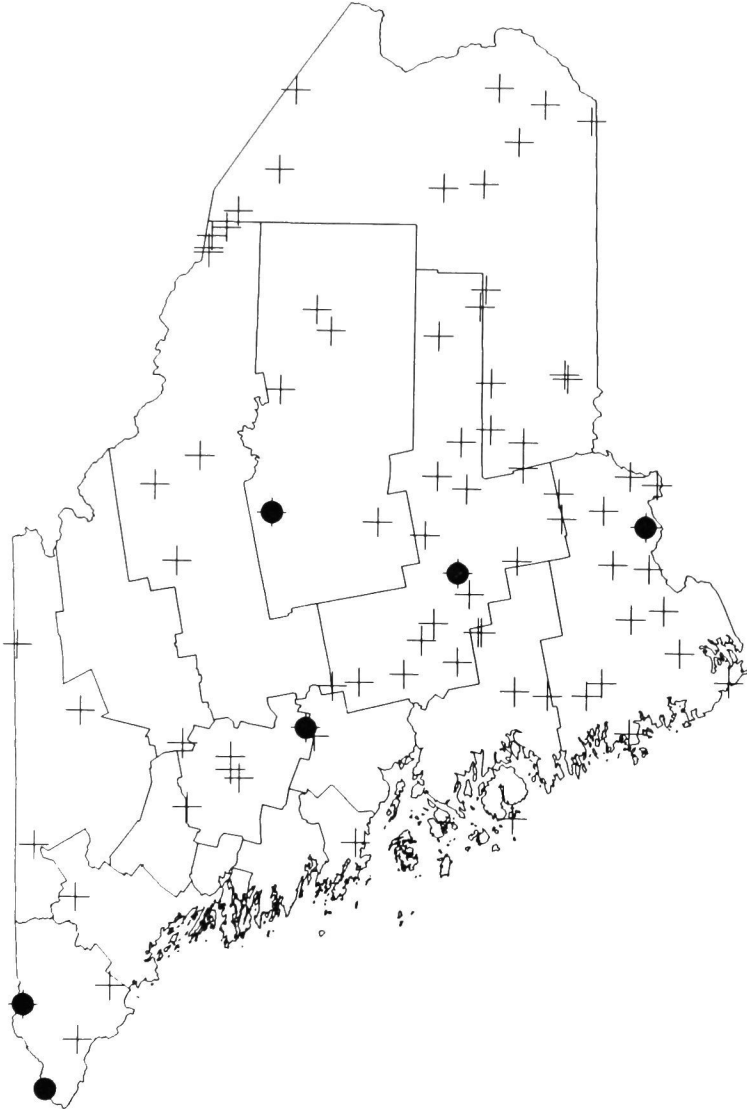


Figure 3.29. Locations of peatlands with relevés for community 29.

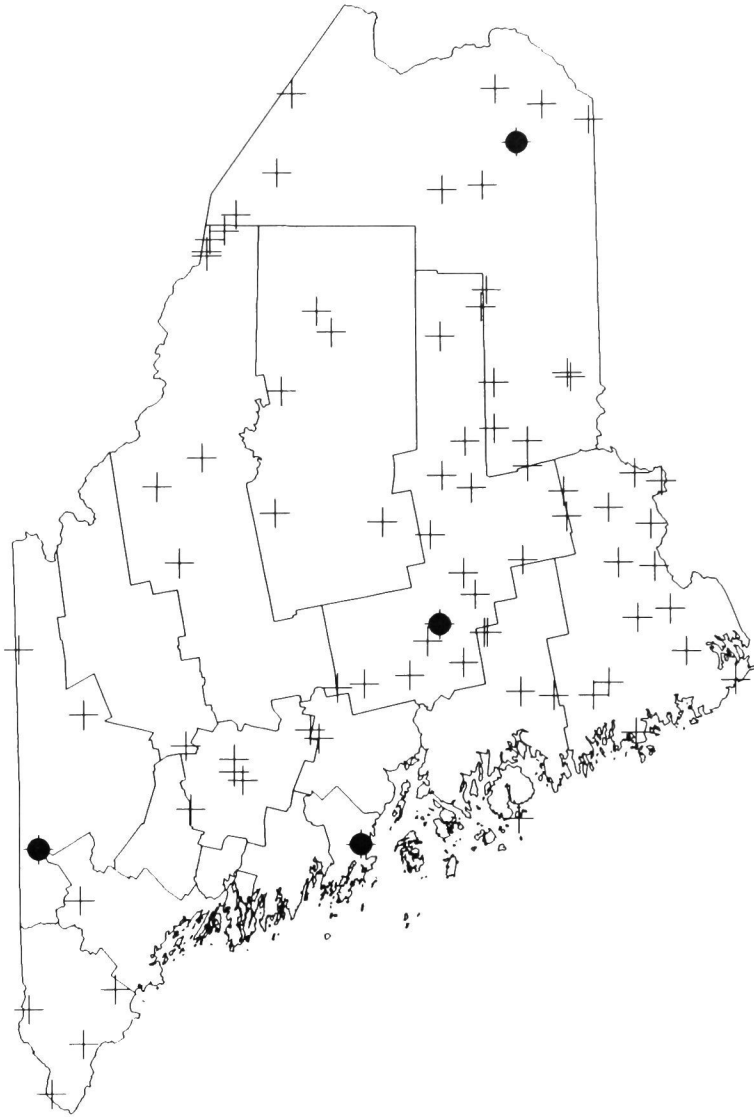


Figure 3.30. Locations of peatlands with relevés for community 30.



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## APPENDICES

**Appendix 1.** List of vascular plant species found in 96 Maine peatlands.

The number of peatlands in which a species was found is given in parentheses for those species used in the TWINSPAN. Synonyms are given for those taxa reported in Anderson et al. (1996) and Anderson and Davis (1997). Rare, threatened or endangered plants at the state level (Maine Natural Areas Program 1997) are indicated. S1 = critically imperiled in Maine because of extreme rarity (5 or fewer occurrences or very few remaining individuals or hectares) or because some aspect of its biology makes it especially vulnerable to extirpation from the State of Maine. S2 = imperiled in Maine because of rarity (6-20 occurrences or few remaining individuals or hectares) or because of other factors making it vulnerable to further decline. S3 = rare in Maine (on the order of 20-100 occurrences).

**Lycopodiaceae**

*Huperzia lucidula* (Michx.) Trevisan  
*Lycopodiella inundata* (L.) Holub  
*Lycopodium annotinum* L.  
*Lycopodium clavatum* L.  
*Lycopodium obscurum* L.

**Selaginellaceae**

*Selaginella selaginoides* (L.) Beauv.  
 ex Mart. & Schrank; S1

**Ophioglossaceae**

*Botrychium virginianum* (L.) Sw.

**Equisetaceae**

*Equisetum arvense* L.  
*Equisetum fluviatile* L. (12)  
*Equisetum hyemale* L. ssp. *affine*  
 (Engelm.) Calder & Taylor  
*Equisetum palustre* L.  
*Equisetum sylvaticum* L.

**Osmundaceae**

*Osmunda cinnamomea* L. (67)  
*Osmunda claytoniana* L.  
*Osmunda regalis* L. v. *spectabilis*  
 (Willd.) Gray (32)

**Polypodiaceae**

*Athyrium filix-femina* (L.) Roth ex  
 Mertens v. *angustum* (Willd.)  
 Lawson  
*Dryopteris carthusiana* (Vill.) H.P.  
 Fuchs  
*Dryopteris cristata* (L.) Gray (20)  
*Dryopteris intermedia* (Muhl. ex  
 Willd.) Gray  
*Gymnocarpium dryopteris* (L.)  
 Newman

*Onoclea sensibilis* L. (31)  
*Phegopteris connectilis* (Michx.) Watt  
*Pteridium aquilinum* (L.) Kuhn ex  
 Decken v. *latiusculum* (Desv.)  
 Underwood ex Heller  
*Thelypteris noveboracensis* (L.)  
 Nieuwl.  
*Thelypteris palustris* Schott v.  
*pubescens* (Lawson) Fern. (40) =  
*Thelypteris palustris*  
*Woodwardia virginica* (L.) Sm.

**Pinaceae**

*Abies balsamea* (L.) P. Mill. (38)  
*Larix laricina* (Du Roi) K. Koch (89)  
*Picea glauca* (Moench) Voss  
*Picea mariana* (P. Mill.) B.S.P. (95)  
*Picea rubens* Sarg.  
*Pinus resinosa* Ait.  
*Pinus rigida* P. Mill.  
*Pinus strobus* L. (53)  
*Tsuga canadensis* (L.) Carr.

**Taxaceae**

*Taxus canadensis* Marsh.

**Cupressaceae**

*Chamaecyparis thyoides* (L.) B.S.P.  
 (1)  
*Juniperus communis* L. v. *depressa*  
 Pursh  
*Thuja occidentalis* L. (48)

**Nymphaeaceae**

*Brasenia schreberi* J.F. Gmel.  
*Nuphar variegata* Dur.  
*Nymphaea leibergii* Morong; S1  
*Nymphaea odorata* Ait.

**Acoraceae***Acorus americanus* (Raf.) Raf.**Tofieldiaceae***Triantha glutinosa* (Michx.) Baker**Scheuchzeriaceae***Scheuchzeria palustris* L. ssp.  
*americana* (Fern.) Hultén (36) =  
*Scheuchzeria palustris***Alismataceae***Alisma triviale* Pursh  
*Sagittaria latifolia* Willd. (12)**Juncaginaceae***Triglochin maritimum* L.**Araceae***Arisaema triphyllum* (L.) Schott  
*Calla palustris* L. (38)  
*Peltandra virginica* (L.) Schott  
*Symplocarpus foetidus* (L.) Salisb. ex  
Nutt.**Trilliaceae***Trillium erectum* L.  
*Trillium undulatum* Willd.**Melanthiaceae***Veratrum viride* Ait.**Uvulariaceae***Clintonia borealis* (Ait.) Raf.  
*Uvularia sessilifolia* L.**Liliaceae***Medeola virginiana* L.**Convallariaceae***Maianthemum canadense* Desf. (30)  
*Maianthemum stellatum* (L.) Link  
*Maianthemum trifolium* (L.) Sloboda  
(77) = *Smilacina trifolia***Iridaceae***Iris versicolor* L. (44)**Orchidaceae***Arethusa bulbosa* L.  
*Calopogon tuberosus* (L.) B.S.P. (32)  
= *Calopogon pulchellus*  
*Calypso bulbosa* (L.) Oakes v.  
*americana* (R. Br. ex Ait. f.) Luer  
*Coeloglossum viride* (L.) Hartman v.  
*virescens* (Muhl. ex Willd.) Luer  
*Corallorrhiza trifida* Chatelain  
*Cyripedium acaule* Ait.  
*Cyripedium pubescens* Willd.  
*Cyripedium reginae* Walt.  
*Goodyera pubescens* (Willd.) R. Br.  
ex Ait. f.  
*Goodyera repens* (L.) R. Br. ex Ait. f.*Listera cordata* (L.) R. Br. ex Ait. f.*Malaxis unifolia* Michx.*Platanthera blephariglottis* (Willd.)  
Lindl.*Platanthera clavellata* (Michx.) Luer  
*Platanthera dilatata* (Pursh) Lindl. ex  
Beck*Platanthera hookeri* (Torr. ex Gray)  
Lindl.*Platanthera hyperborea* (L.) Lindl. v.  
*huronensis* (Nutt.) Luer*Platanthera leucophaea* (Nutt.) Lindl.;  
S1*Platanthera obtusata* (Banks ex  
Pursh) Lindl.*Platanthera psychodes* (L.) Lindl.*Pogonia ophioglossoides* (L.) Ker-  
Gawl.*Spiranthes cernua* (L.) L.C. Rich.  
*Spiranthes romanzoffiana* Cham.**Pontederiaceae***Pontederia cordata* L.**Typhaceae***Sparganium americanum* Nutt.  
*Sparganium erectum* L.  
*Sparganium fluctuans* (Morong) B.L.  
Robins.*Typha latifolia* L.**Xyridaceae***Xyris montana* Ries**Eriocaulaceae***Eriocaulon aquaticum* (Hill) Druce**Juncaceae***Juncus acuminatus* Michx.  
*Juncus brevicaudatus* (Engelm.) Fern.  
*Juncus bufonius* L.  
*Juncus canadensis* J. Gay ex Laharpe  
*Juncus effusus* L.  
*Juncus militaris* Bigelow  
*Juncus pelocarpus* E. Mey.  
*Juncus stygius* L. ssp. *americanus*  
(Buch.) Hultén; S2**Cyperaceae***Carex aquatilis* Wahlenb.  
*Carex atlantica* Bailey  
*Carex bromoides* Schkuhr ex Willd.  
*Carex brunnescens* (Pers.) Poir.  
*Carex canescens* L. (27)  
*Carex canescens* ssp. *disjuncta*  
(Fern.) Toivonen  
*Carex chordorrhiza* Ehrh. ex L. f.

- Carex crinita* Lam.  
*Carex cryptolepsis* Mackenzie  
*Carex debilis* Michx. v. *rudgei* Bailey  
*Carex diandra* Schrank  
*Carex disperma* Dewey  
*Carex echinata* Murr.  
*Carex exilis* Dewey (17)  
*Carex flava* L.  
*Carex folliculata* L.  
*Carex gynocrates* Wormsk. ex Drej.; S2/S3  
*Carex hystericina* Muhl. ex Willd.  
*Carex interior* Bailey (17)  
*Carex intumescens* Rudge  
*Carex lacustris* Willd. (11)  
*Carex lasiocarpa* Ehr. var. *americana* Fern. (24)  
*Carex laxiflora* Lam.  
*Carex leptalea* Wahlenb.  
*Carex leptoneria* (Fern.) Fern.  
*Carex limosa* L. (36)  
*Carex livida* (Wahlenb.) Willd. v. *radicaulis* Paine; S1/S2  
*Carex lupulina* Muhl. ex Willd.  
*Carex lurida* Wahlenb.  
*Carex magellanica* Lam. ssp. *irrigua* (Wahlenb.) Hultén (40) = *Carex paupercula*  
*Carex michauxiana* Boeckl.  
*Carex oligosperma* Michx. (47)  
*Carex paleacea* Schreb. ex Wahlenb.  
*Carex pauciflora* Lightf. (4+) *Carex pellita* Muhl. = *Carex lanuginosa*  
*Carex prairea* Dewey ex Wood; S1  
*Carex pseudocyperus* L.  
*Carex scoparia* Schkuhr ex Willd.  
*Carex stipata* Muhl. ex Willd.  
*Carex stricta* Lam. (47)  
*Carex tenuiflora* Wahlenb.; S2  
*Carex trisperma* Dewey (81)  
*Carex utriculata* Boott (35)  
*Carex vaginata* Tausch; S1  
*Carex vesicaria* L.  
*Carex viridula* Michx.  
*Carex wiegandii* Mackenzie; S2  
*Cladium mariscoides* (Muhl.) Torr.  
*Dulichium arundinaceum* (L.) Britt. (25)  
*Eleocharis acicularis* (L.) Roemer & J.A. Schultes  
*Eleocharis halophila* (Fern. & Brack. Fern. & Brack.  
*Eleocharis palustris* (L.) Roemer & J.A. Schultes  
*Eriophorum angustifolium* Honckey (55)  
*Eriophorum tenellum* Nutt. (23)  
*Eriophorum vaginatum* L. v. *spissum* (Fern.) Boivin (81)  
*Eriophorum virginicum* L. (79)  
*Eriophorum viridicarinatum* (Engelm.) Fern.  
*Rhynchospora alba* (L.) Vahl (64)  
*Rhynchospora fusca* (L.) Ait. f.  
*Schoenoplectus subterminalis* (Torr.) Sojak = *Scirpus subterminalis*  
*Schoenoplectus tabernaemontanii* (Gmel.) Palla = *Scirpus tabernaemontanii*  
*Scirpus atrocinctus* Fern.  
*Scirpus cyperinus* (L.) Kunth  
*Scirpus microcarpus* J. & K. Presl  
*Scirpus pedicellatus* Fern.  
*Trichophorum alpinum* (L.) Pers. (3)  
*Trichophorum cespitosum* (L.) Hartman (14)
- Poaceae**
- Agrostis capillaris* L.  
*Agrostis scabra* Willd.  
*Bromus ciliatus* L.  
*Calamagrostis canadensis* (Michx.) Beauv. (36)  
*Cinna latifolia* (Trev. ex Goep.) Griseb.  
*Elymus trachycaulus* (Link) Gould ex Shinnors  
*Glyceria borealis* (Nash) Batchelder  
*Glyceria canadensis* (Michx.) Trin.  
*Glyceria X laxa* (Scribn.) Scribn. [*canadensis X striata*]  
*Glyceria melicaria* (Michx.) F.T. Hubbard  
*Glyceria obtusa* (Muhl.) Trin.  
*Glyceria striata* (Lam.) A.S. Hitchc.  
*Leersia oryzoides* (L.) Sw.  
*Muhlenbergia glomerata* (Willd.) Trin. (5)  
*Phragmites australis* (Cav.) Trin. ex Steud.  
*Spartina pectinata* Link
- Ranunculaceae**
- Anemone quinquefolia* L.

*Caltha palustris* L.

*Coptis trifolia* (L.) Salisb. (58) =  
*Coptis groenlandica*

*Ranunculus acris* L.

*Ranunculus lapponicus* L.; S1/S2

*Thalictrum pubescens* Pursh (16)

#### **Vitaceae**

*Parthenocissus quinquefolia* (L.)  
Planch.

#### **Viscaceae**

*Arceuthobium pusillum* Peck

#### **Haloragaceae**

*Proserpinaca palustris* L. v. *crebra*  
Fern. & Grisc.

#### **Grossulariaceae**

*Ribes cynosbati* L.

*Ribes glandulosum* Grauer

*Ribes lacustre* (Pers.) Poir.

#### **Saxifragaceae**

*Mitella nuda* L.

#### **Droseraceae**

*Drosera anglica* Huds.; S1

*Drosera intermedia* Hayne (45)

*Drosera linearis* Goldie; S1

*Drosera rotundifolia* L. (83)

#### **Polygonaceae**

*Persicaria amphibia* (L.) S.F. Gray v.  
*emersa* (Michx.) Hickman

*Persicaria arifolia* (L.) Haroldson

*Persicaria hypodiperoides* (Michx.)  
Small

*Persicaria maculosa* S.F. Gray

*Rumex crispus* L.

*Rumex orbiculatus* Gray

#### **Oxalidaceae**

*Oxalis montana* Raf.

#### **Parnassiaceae**

*Parnassia glauca* Raf.

#### **Myricaceae**

*Comptonia peregrina* (L.) Coult.

*Myrica gale* L. (49)

*Myrica pensylvanica* Loisel.

#### **Betulaceae**

*Alnus incana* (L.) Moench ssp. *rugosa*  
(Du Roi) Clausen (71) = *Alnus*  
*rugosa*

*Alnus viridis* (Vill.) Lam. & DC. ssp.  
*crispa* (Ait.) Turrill

*Betula alleghaniensis* Britt. (16)

*Betula papyrifera* Marsh.

*Betula populifolia* Marsh. (31)

*Betula pumila* L. (7); S3

*Carpinus caroliniana* Walt. ssp.  
*virginiana* (Marsh.) Furlow

*Corylus cornuta* Marsh.

*Ostrya virginiana* (P. Mill.) K. Koch

#### **Fagaceae**

*Fagus grandifolia* Ehrh.

*Quercus rubra* L.

#### **Cucurbitaceae**

*Echinocystis lobata* (Michx.) Torr. &  
Gray

#### **Rosaceae**

*Amelanchier canadensis* (L.) Medik.  
(8)

*Comarum palustre* L.

*Fragaria virginiana* Duchesne

*Geum rivale* L.

*Pentaphylloides floribunda* (Pursh) A.  
Löve

*Photinia X floribunda* (Lind.)

Robertson & Phipps [*pyrifolia X*  
*melanocarpa*] (48)

*Photinia melanocarpa* (Michx.)

Robertson & Phipps (62) = *Aronia*  
*melanocarpa*

*Prunus pensylvanica* L.

*Prunus serotina* Ehrh.

*Rosa nitida* Willd. (20)

*Rosa palustris* Marsh.

*Rubus chamaemorus* L. (5)

*Rubus dalibarda* L.

*Rubus hispidus* L. (28)

*Rubus idaeus* L.

*Rubus pubescens* Raf.

*Sorbus americana* Marsh.

*Spiraea alba* Du Roi v. *latifolia* (Ait.)

Dippel (52) = *Spiraea latifolia*

*Spiraea tomentosa* L.

#### **Rhamnaceae**

*Rhamnus alnifolia* L'Her. (5)

#### **Ulmaceae**

*Ulmus americana* L.

#### **Salicaceae**

*Populus tremuloides* Michx.

*Salix bebbiana* Sarg.

*Salix candida* Fluegge ex Willd.

*Salix discolor* Muhl.

*Salix eriocephala* Michx.

*Salix lucida* Muhl.

*Salix nigra* Marsh.

*Salix pedicellaris* Pursh

- Salix petiolaris* Sm.  
*Salix pyrifolia* Anderss.  
*Salix sericea* Marsh.
- Violaceae**  
*Viola adunca* Sm.  
*Viola renifolia* Gray
- Clusiaceae**  
*Hypericum ellipticum* Hook.  
*Triadenum virginicum* (L.) Raf. (45)
- Lythraceae**  
*Lythrum salicaria* L.
- Onagraceae**  
*Circaea alpina* L.  
*Epilobium angustifolium* L.  
*Epilobium palustre* L.
- Brassicaceae**  
*Cardamine pensylvanica* Muhl. ex Willd.
- Anacardiaceae**  
*Toxicodendron radicans* (L.) Kuntze  
*Toxicodendron vernix* (L.) Kuntze
- Sapindaceae**  
*Acer pensylvanicum* L.  
*Acer rubrum* L. (72)  
*Acer spicatum* Lam.
- Malvaceae**  
*Tilia americana* L.
- Cornaceae**  
*Cornus amomum* P. Mill.  
*Cornus canadensis* L. (52)  
*Cornus sericea* L.
- Sarraceniaceae**  
*Sarracenia purpurea* L. (93)
- Primulaceae**  
*Lysimachia terrestris* (L.) B.S.P. (32)  
*Lysimachia thyrsoflora* L.  
*Trientalis borealis* Raf. (35)
- Balsaminaceae**  
*Impatiens capensis* Meerb.
- Ericaceae**  
*Andromeda polifolia* L. v. *glaucophylla* (Link) DC. (78) = *Andromeda glaucophylla*  
*Chamaedaphne calyculata* (L.) Moench (95)  
*Empetrum nigrum* L. (7)  
*Epigaea repens* L.  
*Gaultheria hispidula* (L.) Muhl. ex Bigelow (66)  
*Gaultheria procumbens* L. (39)  
*Gaylussacia baccata* (Wangenh.) K. Koch (47)
- Gaylussacia dumosa* (Andr.) Torr. & Gray v. *bigeloviana* Fern. (15) = *Gaylussacia dumosa*  
*Kalmia angustifolia* L. (93)  
*Kalmia polifolia* Wangenh. (87)  
*Lyonia ligustrina* (L.) DC.  
*Moneses uniflora* (L.) Gray  
*Monotropa uniflora* L.  
*Orthilia secunda* (L.) House  
*Pyrola americana* Sweet  
*Pyrola asarifolia* Michx.; S3  
*Pyrola elliptica* Nutt.  
*Rhododendron canadense* (L.) Torr. (87)  
*Rhododendron groenlandicum* (Oeder) Kron & Judd (90) = *Ledum groenlandicum*  
*Vaccinium angustifolium* Ait. (46)  
*Vaccinium corymbosum* L. (48)  
*Vaccinium macrocarpon* Ait. (35)  
*Vaccinium myrtilloides* Michx. (67)  
*Vaccinium oxycoccus* L. (96)
- Solanaceae**  
*Solanum nigrum* L.
- Oleaceae**  
*Fraxinus nigra* Marsh. (12)
- Lamiaceae**  
*Lycopus americanus* Muhl. ex W. Bart.  
*Lycopus uniflorus* Michx.  
*Lycopus virginicus* L.  
*Mentha arvensis* L.  
*Scutellaria lateriflora* L.
- Lentibulariaceae**  
*Utricularia cornuta* Michx. (46)  
*Utricularia intermedia* Hayne
- Orobanchaceae**  
*Melampyrum lineare* Desr.
- Veronicaceae**  
*Callitriche palustris* L.  
*Chelone glabra* L.  
*Mimulus ringens* L.  
*Veronica scutellata* L.
- Apocynaceae**  
*Asclepias incarnata* L.
- Rubiaceae**  
*Cephalanthus occidentalis* L.  
*Galium asprellum* Michx.  
*Galium labradoricum* (Wieg.) Wieg.  
*Galium palustre* L.



*Galium tinctorium* (L.) Scop.

*Galium triflorum* Michx.

*Mitchella repens* L.

**Adoxaceae**

*Sambucus canadensis* L.

*Viburnum dentatum* L. v. *lucidum* Ait.

(12) = *Viburnum recognitum*

*Viburnum nudum* L. v. *cassinoides*

(L.) Torr. & Gray (83) = *Viburnum  
cassinoides*

**Aquifoliaceae**

*Ilex laevigata* (Pursh) Gray; S2/S3

*Ilex verticillata* (L.) Gray (43)

*Nemopanthus mucronatus* (L.) Loes.

(90) = *Nemopanthus mucronata*

**Caprifoliaceae**

*Diervilla lonicera* P. Mill.

*Linnaea borealis* L. ssp. *longiflora*

(Torr.) Hultén (13)

*Lonicera canadensis* Bartr. ex Marsh.

*Lonicera oblongifolia* (Goldie) Hook.

*Lonicera villosa* (Michx.) J.A. Schultes

*Valeriana uliginosa* (Torr. & Gray)

Rydb.; S2

**Apiaceae**

*Aralia nudicaulis* L. (21)

*Cicuta bulbifera* L.

*Cicuta maculata* L.

*Hydrocotyle americana* L.

*Sium suave* Walt.

**Menyanthaceae**

*Menyanthes trifoliata* L. (29)

**Campanulaceae**

*Campanula aparinoides* Pursh

*Lobelia kalmii* L.

**Asteraceae**

*Aster radula* Sol. ex Ait.

*Bidens frondosa* L.

*Doellingeria umbellatus* (P. Mill.) Nees

*Euthamia graminifolia* (L.) Nutt.

*Hieracium pilosella* L.

*Oclemena acuminata* (Michx.) Nesom

*Oclemena X blakei* (Porter) Nesom

[*acuminata X nemoralis*]

*Oclemena nemoralis* (Ait.) Greene

(19) = *Aster nemoralis*

*Prenanthes trifoliolata* (Cass.) Fern.

*Senecio schweinitzianus* Nutt.

*Solidago canadensis* L.

*Solidago rugosa* P. Mill.

*Solidago uliginosa* Nutt. (25)

*Symphotrichum boreale* (Torr. &

Gray) Nesom (4) = *Aster borealis*

**Appendix 2.** List of ground-cover bryophyte species found in 96 Maine peatlands. The number of peatlands in which a species was found is given in parentheses for those species used in the TWINSPAN.

- Class Hepaticae**
- Blepharostomaceae**  
*Blepharostoma trichophyllum* (L.) Dum.
- Ptilidiaceae**  
*Ptilidium ciliare* (L.) Hampe (54)  
*Ptilidium pulcherrimum* (Web.) Hampe
- Trichocoleaceae**  
*Tricholea tomentella* (Ehrh.) Dum.
- Lepidoziaceae**  
*Bazzania trilobata* (L.) Gray (53)  
*Microlepidozia setacea* (Web.) Joerg.
- Calypogeiaceae**  
*Calypogeia integristipula* Steph.  
*Calypogeia muelleriana* (Schiffn.) Mull.
- Lophoziaceae**  
*Gymnocolea inflata* (Huds.) Dum.  
*Lophozia* sp.
- Jungermanniaceae**  
*Mylia anomala* (Hook.) Gray (55)  
*Mylia taylorii* (Hook.) Gray
- Scapaniaceae**  
*Scapania palludicola* Loeske
- Lophocoleaceae**  
*Lophocolea heterophylla* (Schrad.) Dum.
- Plagiochilaceae**  
*Plagiochila asplenoides* (L.) Dum.
- Cephaloziaceae**  
*Cephalozia connivens* (Dicks.) Lindb.  
*Cephalozia connivens* var. *compacta* Nichols
- Cladopodiella fluitans* (Nees) Joerg. (48)
- Cephaloziellaceae**  
*Cephaloziella elachista* (Jack) Schiffn.
- Adelanthaceae**  
*Odontoschisma sphagni* (Dicks.) Dum.
- Dilaenaceae**  
*Moerckia hibernica* (Hook.) Gott.  
*Pallavicinia lyellii* (Hook.) Carruth.  
*Pellia epiphylla* (L.) Corda
- Aneuraceae**
- Aneura pinguis* (L.) Dum.  
*Riccardia latifrons* Lindb.  
*Riccardia multifida* (L.) Gray
- Class Musci**
- Sphagnaceae**  
*Sphagnum angermanicum* Melin  
*Sphagnum balticum* (Russ.) Russ.  
*Sphagnum capillifolium* (Ehrh.) Hedw. (56)  
*Sphagnum centrale* Jens. (21)  
*Sphagnum cuspidatum* Ehrh. (61)  
*Sphagnum fimbriatum* Wils. (15)  
*Sphagnum flavicomans* (Card.) Warnst. (12)  
*Sphagnum fuscum* (Schimp.) Klinggr. (81)  
*Sphagnum girgensohnii* Russ. (37)  
*Sphagnum imbricatum* Hornsch. (12)  
*Sphagnum jensenii* Lindb.  
*Sphagnum magellanicum* Brid. (91)  
*Sphagnum majus* (Russ.) Jens. (19)  
*Sphagnum palustre* L. (12)  
*Sphagnum papillosum* Lindb. (28)  
*Sphagnum platyphyllum* (Lindb.) Sull.  
*Sphagnum pulchrum* (Lindb.) Warnst.  
*Sphagnum recurvum* P. Beauv. agg. (83)  
*Sphagnum rubellum* Wils. (85)  
*Sphagnum russowii* Warnst. (16)  
*Sphagnum squarrosum* Crome  
*Sphagnum subsecundum* Nees s.l. (14)  
*Sphagnum tenellum* (Brid.) Bory  
*Sphagnum tenerum* Sull. & Lesq.  
*Sphagnum teres* (Schimp.) Angstr. (11)  
*Sphagnum warnstorffii* Russ. (4)  
*Sphagnum wulfianum* Girg. (15)
- Ditrichaceae**  
*Ditrichum pusillum* (Hedw.) Hampe
- Dicranaceae**  
*Dicranella cerviculata* (Hedw.) Schimp.  
*Dicranum condensatum* Hedw.

*Dicranum flagellare* Hedw.  
*Dicranum fuscescens* Turn.  
*Dicranum majus* Sm.  
*Dicranum montanum* Hedw.  
*Dicranum ontariense* Peterson  
*Dicranum polysetum* Sw. (14)  
*Dicranum scoparium* Hedw. (10)  
*Dicranum undulatum* Brid. (64)  
*Paraleucobryum longifolium* (Hedw.)  
 Loeske  
**Leucobryaceae**  
*Leucobryum glaucum* (Hedw.) Angstr.  
**Fissidentaceae**  
*Fissidens adianthoides* Hedw.  
*Fissidens osmundoides* Hedw.  
**Splachnaceae**  
*Splachnum ampullaceum* Hedw.  
**Bryaceae**  
*Bryum pseudotriquetrum* (Hedw.)  
 G.M.S.  
*Pohlia nutans* (Hedw.) Lindb. (12)  
**Mniaceae**  
*Plagiomnium cuspidatum* (Hedw.)  
 Kop.  
*Plagiomnium ellipticum* (Brid.) Kop.  
 (15)  
*Pseudobryum cinclidioides* (Hüb.)  
 Kop.  
*Rhizomnium appalachianum* Kop.  
*Rhizomnium magnifolium* (Horik.)  
 Kop.  
*Rhizomnium pseudopunctatum* (Bruch  
 & Schimp.) Kop.  
*Rhizomnium punctatum* (Hedw.) Kop.  
**Aulacomniaceae**  
*Aulacomnium palustre* (Hedw.)  
 Schwaegr. (26)  
**Meesiaceae**  
*Meesia triquetra* (Richt.) Angstr.  
*Paludella squarrosa* (Hedw.) Brid.  
**Bartramiaceae**  
*Philonotus fontana* (Hedw.) Brid.  
**Climaciaceae**  
*Climacium dendroides* (Hedw.) Web.  
 & Mohr  
**Thuidiaceae**  
*Thuidium delicatulum* (Hedw.)  
 Schimp. (14)  
*Thuidium recognitum* (Hedw.) Lindb.  
**Helodiaceae**  
*Helodium blandowii* (Web. & Mohr)

Warnst.  
**Amblystegiaceae**  
*Calliergon cordifolium* (Hedw.) Kindb.  
*Calliergon giganteum* (Schimp.)  
 Kindb.  
*Calliergon richardsonii* (Mitt.) Kindb.  
*Calliergon stramineum* ((Brid.) Kindb.  
 (18)  
*Calliergon trifarium* (Web. & Mohr)  
 Kindb.  
*Calliergonella cuspidata* (Hedw.)  
 Loeske  
*Campyllum polygamum* (Schimp.)  
 Jens.  
*Campyllum radicale* (P. Beauv.) Grout  
*Campyllum stellatum* (Hedw.) Jens.  
 (5)  
*Cratoneuron filicinum* (Hedw.) Spruce  
*Drepanocladus aduncus* (Hedw.)  
 Warnst.  
*Drepanocladus aduncus* var. *kneiffi*  
 (Schimp.) Mönk.  
*Hamatocaulis vernicosus* (Mitt.)  
 Hedenäs  
*Hygrohypnum ochraceum* (Turn.)  
 Loeske  
*Leptodictyum riparium* (Hedw.)  
 Warnst.  
*Limprichtia revolvens* (Sw.) Loeske  
*Palustrina commutata* (Brid.) Ochyra  
*Sanionia uncinata* (Hedw.) Loeske  
*Scorpidium scorpioides* (Hedw.)  
 Limpr.  
*Warnstorfia exannulata* (Schimp.)  
 Loeske  
*Warnstorfia fluitans* (Hedw.) Loeske  
 (25)  
*Warnstorfia pseudostraminea* (C.  
 Müll.) Tuom. & Kop.  
**Brachytheciaceae**  
*Brachythecium campestre* (Müll.)  
 Schimp.  
*Brachythecium rivulare* Schimp.  
*Bryhnia novae-angliae* (Sull. & Lesq.)  
 Grout  
*Eurhynchium pulchellum* (Hedw.)  
 Jenn.  
*Steerecleus serrulatus* (Hedw.)  
 Robins.  
*Tomenthypnum falcifolium* (Ren.)  
 Tuom.

*Tomenthypnum nitens* (Hedw.)

Loeske

**Plagiotheciaceae**

*Plagiothecium denticulatum* (Hedw.)

Schimp.

**Sematophyllaceae**

*Brotherella recurvans* (Michx.)

Fleisch.

**Hypnaceae**

*Herzogiella turfacea* (Lindb.) Iwats.

*Hypnum curvifolium* Hedw.

*Hypnum lindbergii* Mitt.

*Hypnum pratense* (Rabenh.) Koch.

*Pseudotaxiphyllum elegans* (Brid.)

Iwats.

*Ptilium crista-castrensis* (Hedw.) De

Not. (17)

**Hylocomiaceae**

*Hylocomium splendens* (Hedw.)

Schimp. (12)

*Pleurozium schreberi* (Brid.) Mitt. (75)

*Rhytidiadelphus loreus* (Hedw.)

Warnst.

*Rhytidiadelphus squarrosus* (Hedw.)

Warnst.

*Rhytidiadelphus triquetrus* (Hedw.)

Warnst. (12)

**Tetraphidaceae**

*Tetraphis pellucida* Hedw.

**Polytrichaceae**

*Atrichum oerstedianum* (Müll.) Mitt.

*Atrichum tenellum* (Röhl.) Bruch &

Schimp.

*Polytrichum commune* Hedw. (18)

*Polytrichum juniperinum* Hedw.

*Polytrichum longisetum* Brid.

*Polytrichum strictum* Brid. (69)

**Appendix 3.** List of ground-cover lichen species found in 96 Maine peatlands. The number of peatlands in which a species was found is given in parentheses for those species used in the TWINSPAN.

- Cladina arbuscula* ((Wallr.) Hale & Culb.
- Cladina mitis* (Sandst.) Hale & Culb. (18)
- Cladina rangiferina* (L.) Harm. (69)
- Cladina stellaris* (Opiz) Brodo (41)
- Cladonia calycantha* Nyl.
- Cladonia crispata* (Ach.) Flot.
- Cladonia cristatella* Tuck. (35)
- Cladonia gracilis* (L.) Willd. (7)
- Cladonia pyxidata* (L.) Hoffm. (26)
- Cladonia squamosa* (Scop.) Hoffm. (13)
- Cladonia verticillata* (Hoffm.) Schaer.

**Appendix 4.** Areal coverage of peatland vegetation cover-types. Peatland number, abbreviated name (complete names are given in Table 1), and percent cover for the 17 peatland vegetation cover-types which could be mapped from aerial photos (1:15540 or 1:20000); also, percent cover for mineral soil wetland (SS), upland island (U), and open water (W). The thirty numbered communities described in the text are combined into the 17 cover-types indicated by column headings. Peatlands are listed from south to north and are located on Figure 1.

#	Peatland Name	Open, low stature, low relief moss lawns, mudbottoms, and sedge shrub heaths						Open or semi-wooded shrub heaths with moderate relief			Gymnosperm wooded fens and bogs	
		1	2,10	8,9	3,4	5,7	6	11	13, 14	15	12	16, 17
1	The Heath at Eliot	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	Heath N Merriland Ridge	0.0	0.0	0.0	9.8	0.0	0.0	10.0	30.7	0.0	19.8	22.4
3	Fen at Black Pond	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6
4	Heath at Saco	0.0	0.5	0.0	2.3	0.0	0.0	0.0	45.3	0.0	36.0	0.6
5	Peatland at Perly Pond	0.0	0.0	0.0	0.0	4.0	0.0	0.0	15.3	36.3	5.6	0.0
6	West of Kezar Pond	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.7	2.4
7	Rockland Bog	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.3	0.0	17.3	0.0
8	Great Cranberry Island	11.9	0.0	9.6	0.0	0.0	0.0	33.2	0.0	0.0	31.1	0.0
9	Curtis Corner	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.6	0.0	35.7	0.9
10	Great Sidney Bog	0.0	0.0	0.0	0.0	0.0	0.0	0.0	63.0	4.4	13.0	3.3
11	Belgrade Kettle (1)	0.0	0.0	0.0	9.0	0.0	0.0	0.0	41.0	0.0	36.4	0.0
12	Belgrade Kettle (2)	0.0	0.0	0.0	7.7	0.0	0.0	0.0	0.0	0.0	84.6	0.0
13	Belgrade Kettle (3)	0.0	0.0	0.0	13.3	0.0	0.0	0.0	6.7	0.0	70.0	0.0
14	Little Norridgewock	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	56.7	0.0
15	Kanokolus Bog	0.0	2.0	0.0	2.0	0.0	0.0	0.0	38.0	0.0	0.0	0.0
16	Jonesport Heath	6.5	0.0	0.0	0.0	0.0	0.0	26.6	42.0	0.0	0.6	0.0

#	Peatland Name	1	2,10	8,9	3,4	5,7	6	11	12 13, 14	15	16,17 19,20	18
17	Fowler Bog	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	12.0	1.8
18	Fen S of Meadow Brook	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37.4	0.0	59.6	0.0
19	Great Heath	7.1	2.0	6.1	1.0	0.0	0.0	23.8	25.7	0.0	5.8	0.0
20	Rock Dam Heath	3.0	0.0	0.0	0.0	0.0	0.0	24.4	51.3	0.0	14.8	0.0
21	along Bog & Union Rivers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.8	0.0	0.0	0.0
22	Bogs N of Carleton Pond	0.0	0.0	0.0	0.8	0.0	0.0	0.0	34.3	0.0	14.5	0.0
23	Big Meadow Bog	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.7	0.0	19.2	8.9
24	Bogs N of Montegail Pond	7.0	0.0	0.0	0.0	0.0	0.0	9.4	71.2	0.0	7.6	0.0
25	Eaton Brook	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.4	0.0	11.9	0.0
26	Etna Bog	0.0	0.0	3.0	4.2	0.0	0.0	0.0	37.0	0.0	12.3	0.0
27	Heath at South Trescott	0.0	0.0	0.0	0.0	0.0	0.0	30.0	47.5	0.0	12.4	1.0
28	Holbrook	0.0	0.0	0.0	0.0	0.0	0.0	0.0	67.7	0.0	16.7	0.0
29	Davis Bog	0.0	0.5	0.0	0.5	0.0	0.0	0.0	74.2	0.0	8.8	0.0
30	Hermon Bog	0.0	0.0	0.0	5.0	0.0	0.0	0.0	28.8	0.0	39.8	0.0
31	Chemo Bog	0.0	0.0	0.0	0.0	0.0	0.0	10.0	44.4	23.2	14.6	0.0
32	Clifford Stream Fen	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.2	0.0	26.6	0.7
33	Peatland at Magalloway	0.0	0.0	0.0	0.4	0.4	0.0	0.0	18.8	0.0	78.8	0.0
34	Caribou Bog	0.0	0.9	0.0	1.0	0.0	0.0	0.0	21.7	1.9	29.9	7.9
35	Bogs along Horseback	0.0	2.0	0.0	3.0	0.0	0.0	0.0	74.7	6.0	0.5	0.0
36	Pushaw	0.0	0.0	0.0	0.0	0.0	0.0	0.0	47.3	0.0	14.5	4.8
37	Pickereel Pond Kettle	0.0	10.0	0.0	0.0	0.0	0.0	0.0	40.0	30.0	0.0	0.0
38	Dollar Pond Kettle	0.0	0.0	0.0	0.0	0.0	0.0	0.0	78.0	0.0	0.0	0.0
39	along Sunkaze Stream	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.5	15.0	3.8	0.0
40	Alton Bog	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35.0	7.7	6.4	10.2
41	.5 km N Perk Pond	0.0	0.0	0.0	0.0	0.0	0.0	0.0	45.7	0.0	5.4	0.0
42	Bog SW of Crawford Lake	0.0	0.0	0.0	2.9	0.0	0.0	0.0	51.0	0.0	26.7	1.5
43	Call Bog	0.0	0.5	0.0	0.0	0.0	0.0	0.0	32.9	0.0	1.8	0.0

#	Peatland Name							12		16,17		18
		1	2,10	8,9	3,4	5,7	6	11	13, 14	15	19,20	
44	Holland Pond Bog	0.0	0.0	0.0	0.0	0.0	0.0	0.0	53.6	0.0	10.6	0.0
45	Meddybemps Heath	0.0	0.0	0.0	5.1	0.0	0.0	21.6	47.4	0.0	6.8	0.0
46	Sargent Bog	0.0	0.0	7.6	1.7	0.0	0.0	0.0	28.7	7.6	6.6	3.9
47	along E Branch Birch Str	0.0	0.0	11.6	8.1	0.0	0.0	0.0	38.3	4.0	5.0	0.0
48	Rocky Rips	0.0	0.5	0.4	1.7	0.0	0.0	0.0	21.2	0.0	60.0	0.0
49	Hoyt Brook	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.0	0.0	37.5	0.0
50	2 km NE of S Princeton	0.0	0.0	4.1	4.8	0.0	0.0	0.0	68.1	1.5	21.5	0.0
51	Cold Stream	0.0	0.2	0.0	0.4	0.2	0.0	0.0	20.9	5.8	43.0	3.6
52	Sawtelle Heath	0.0	0.0	5.2	0.2	0.0	0.0	0.0	20.9	0.0	9.0	0.0
53	Black Brook Pond	0.0	0.5	0.0	1.2	2.0	0.0	0.0	9.0	21.2	0.9	0.0
54	Bog S of Lamb's Deadwater	3.0	1.0	6.2	6.3	0.0	0.0	0.0	22.6	0.0	13.0	0.0
55	1000 Acre Heath	0.0	1.6	10.6	17.8	0.0	0.0	0.0	24.6	0.0	20.4	0.0
56	Sweat Bog	0.0	0.0	0.0	6.0	0.0	0.0	0.0	58.6	0.0	8.9	9.8
57	Peatland at Millberry Str	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.9	0.0	3.1	0.0
58	Orson Bog	0.0	0.0	0.0	4.0	0.0	0.0	0.0	16.3	4.4	25.3	0.0
59	Caribou Bog S of Indian P	0.0	1.9	4.1	18.9	0.0	0.0	0.0	27.4	8.7	6.9	0.0
60	Lindsey Brook	0.0	0.5	0.0	0.1	0.0	0.0	0.0	5.1	0.0	44.9	0.0
61	Greenville Junction	0.0	0.5	0.0	0.9	0.0	0.0	0.0	31.2	15.0	10.4	0.0
62	Big Bog	0.0	0.5	0.0	0.0	0.7	0.0	0.0	22.5	0.0	45.5	0.0
63	Stetson Mountain	0.0	2.0	0.0	0.9	0.0	0.0	0.0	18.3	0.0	33.1	0.0
64	Inman Bog	0.0	0.0	0.0	15.6	0.0	0.0	0.0	31.9	6.8	45.1	0.0
65	Number Five Bog	0.0	24.1	0.0	10.0	0.0	0.0	0.0	39.1	0.0	18.2	0.0
66	Bog N of Cedar Mountain	0.0	2.0	0.0	6.0	0.0	0.0	0.0	20.1	7.0	36.3	0.0
67	Around Me. Central RR	1.9	0.0	0.0	1.9	0.0	0.0	0.0	34.6	0.0	41.0	0.0
68	Lambert Lake	0.0	0.3	0.0	2.0	0.0	0.0	0.0	27.5	0.0	37.7	14.0
69	Nollesemic Stream	0.0	1.0	0.0	3.9	0.0	0.0	0.0	21.3	0.0	40.0	5.0
70	Kettle N of Nollesemic	0.0	0.0	0.0	1.2	0.0	0.0	0.0	5.4	0.0	72.0	0.0



#	PeatlandName	1	2,10	8,9	3,4	5,7	6	12			16,17	18
								11	13,14	15	19,20	
71	Crossuntic Stream	0.0	0.2	0.0	0.2	0.0	0.0	0.0	8.8	15.5	72.7	0.0
72	Twelvemile Bog	0.0	16.5	0.0	0.0	14.0	0.0	0.0	30.4	0.0	30.5	0.0
73	Smith Brook Deadwater	0.0	1.5	4.6	12.2	0.0	0.0	0.0	26.3	5.9	21.0	0.0
74	Hatham Bog	0.0	4.6	0.0	11.4	3.0	0.0	0.0	41.4	0.0	25.2	1.4
75	Macwahoc Stream	0.0	1.5	0.0	2.0	0.9	0.0	0.0	8.9	35.0	18.9	0.0
76	Flinn Pond (north)	0.0	0.4	0.0	0.4	0.0	0.0	0.0	21.8	5.8	37.3	0.0
77	Flinn Pond (south)	0.0	0.2	0.0	0.2	0.0	0.0	0.0	7.7	18.2	59.5	0.0
78	Mudbrook	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79	Penobscot & Lobster Str	0.0	0.0	0.0	0.0	11.6	0.0	0.0	6.3	6.4	50.3	0.0
80	Crystal Bog	0.0	3.8	0.0	5.7	8.4	5.0	0.0	42.6	6.2	16.2	0.0
81	Eleven Mile Lake	0.0	0.6	0.0	1.0	0.0	0.0	0.0	12.3	1.8	77.7	0.0
82	Coffin Bog	0.0	1.0	0.0	0.6	0.0	0.0	0.0	12.8	0.3	79.1	0.0
83	Peatland NE Marble Pond	0.0	0.0	23.5	0.0	25.0	0.0	0.0	7.9	0.0	35.7	0.0
84	Dottle Brook	0.0	0.0	0.0	2.2	0.0	0.0	0.0	31.0	0.0	8.1	0.0
85	Chamberlain Fen	0.0	1.3	24.0	0.0	33.5	0.0	0.0	0.0	0.0	0.0	0.0
86	Ellis Bog	0.0	0.0	33.1	0.0	33.1	0.0	0.0	20.8	0.0	0.0	0.0
87	Wadleigh Bog	0.0	0.6	0.0	2.9	0.0	0.0	0.0	14.7	1.1	51.7	0.0
88	Smith Pond Bog	0.0	0.0	0.0	5.3	0.0	0.0	0.0	22.2	10.0	37.4	0.0
89	Umcolcus Deadwater	0.0	0.0	4.1	0.0	7.5	0.0	0.0	7.6	5.8	0.8	0.0
90	Carter Brook Ribbed Fen	0.0	0.0	17.0	0.0	18.5	0.0	0.0	30.3	0.0	33.4	0.0
91	Otter Brook Bog	0.0	0.0	8.8	6.1	6.2	0.0	0.0	37.6	0.0	38.8	0.0
92	Slight Depression Fen	0.0	0.0	25.0	0.0	13.6	0.0	0.0	42.0	0.0	9.7	0.0
93	International Fen	0.0	2.9	38.6	0.0	10.0	0.0	0.0	42.0	0.0	3.6	0.0
94	Island Fen	0.0	1.7	24.2	0.0	8.5	0.0	0.0	51.1	0.0	8.5	0.0
95	Big Ten Peatland Complex	0.0	0.0	21.1	0.0	25.1	0.0	0.0	48.6	0.0	0.7	0.0
96	Eastman Brook Fen	0.0	0.0	36.8	0.0	33.1	0.0	0.0	28.3	0.0	0.0	0.0
97	2.5 km S Burntland Brook	0.0	2.0	20.3	0.0	19.3	0.0	0.0	10.1	0.0	4.1	0.0

#	Peatland Name	1	2,10	8,9	3,4	5,7	6	11	12 13, 14	15	16,17 19,20	18
98	Greenlaw Pond and Stream	0.0	0.0	0.0	0.0	1.3	0.0	0.0	21.2	4.0	0.0	0.0
99	Burpee Brook	0.0	0.0	0.0	0.7	0.0	0.0	0.0	23.3	0.0	59.4	0.0
100	White Pond	0.0	0.0	0.0	7.4	2.9	2.0	0.0	10.1	0.0	72.8	0.0
101	Salmon Brook Lake	0.0	0.0	0.0	0.0	2.9	0.2	0.0	0.4	9.0	46.4	0.0
102	Bog 2 mi. NE Limestone	0.0	0.0	14.7	0.0	20.6	0.0	0.0	25.0	0.0	39.7	0.0
103	NW Pierce Lake & WR 165	0.0	0.0	5.4	0.0	30.0	0.0	0.0	29.2	0.0	30.4	0.0
104	Between Deer & Mud Lakes	0.0	0.0	38.3	0.0	27.2	0.0	0.0	16.1	0.0	9.0	0.0
105	Orchard Bog	0.0	0.0	13.4	0.0	34.2	0.0	0.0	27.1	0.0	20.2	0.0
106	Moose Fen	0.0	0.0	6.9	0.0	27.2	0.0	0.0	43.2	0.0	20.7	0.0
107	Chimenticook Fen	0.0	0.0	7.7	0.0	15.7	0.0	0.0	35.1	0.0	34.3	0.0
108	West of Cross Lake	0.0	4.8	50.0	0.0	20.8	0.0	0.0	12.8	0.0	11.9	0.0

**Appendix 4.** Continued.

#	Peatland Name	Gymnosperm and mixed wooded fens			Angiosperm and mixed wooded fens	Low shrub and graminoid fens			U	W
		21	22	23	24,25 26	27,28	29,30	SS		
1	The Heath at Eliot	0.0	0.0	0.0	25.0	0.0	75.0	0.0	3.7	0.7
2	Heath N Merriland Ridge	0.0	0.0	0.0	7.3	0.0	0.0	0.0	0.0	0.0
3	Fen at Black Pond	0.0	0.0	0.0	78.4	4.0	10.7	0.0	2.3	3.0
4	Heath at Saco	0.0	0.0	0.0	14.2	0.0	0.0	0.0	0.6	0.5
5	Peatland at Perly Pond	0.0	0.0	0.0	13.0	3.4	11.3	0.0	0.8	10.3
6	West of Kezar Pond	0.0	0.0	0.0	32.5	1.6	1.8	49.2	0.0	11.1
7	Rockland Bog	0.0	0.0	0.0	30.4	5.3	0.6	0.0	10.3	7.8
8	Great Cranberry Island	0.0	0.0	8.4	0.0	4.7	0.0	0.0	1.1	0.0
9	Curtis Corner	0.0	0.0	0.0	0.0	18.7	16.8	0.0	0.3	3.0
10	Great Sidney Bog	0.0	0.0	0.0	13.4	0.0	0.0	0.0	1.8	1.1
11	Belgrade Kettle (1)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.6
12	Belgrade Kettle (2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.7
13	Belgrade Kettle (3)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0
14	Little Norridgewock	0.0	0.0	0.0	56.7	13.2	0.0	0.0	2.0	5.0
15	Kanokolus Bog	0.0	0.0	0.0	49.0	6.0	0.0	0.0	0.0	3.0
16	Jonesport Heath	0.0	0.0	0.0	0.0	7.5	4.8	0.0	11.3	2.8
17	Fowler Bog	0.0	0.0	0.0	49.2	23.7	4.0	0.0	4.4	3.3
18	Fen S of Meadow Brook	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
19	Great Heath	0.0	0.0	0.0	1.9	11.4	0.0	0.0	1.0	1.9
20	Rock Dam Heath	0.0	0.0	0.0	0.0	6.1	0.0	0.0	0.0	0.4
21	along Bog & Union Rivers	0.0	0.0	0.0	0.0	29.4	33.8	0.0	0.0	11.0
22	Bogs N of Carleton Pond	0.0	0.0	0.8	49.9	0.0	0.0	0.0	0.5	0.0
23	Big Meadow Bog	0.0	0.0	0.0	27.0	0.0	0.0	0.0	2.6	10.6
24	Bogs N of Montegail Pond	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	4.0

#	Peatland Name	21	22	23	24,25 26	27,28	29,30	SS	U	W
25	Eaton Brook	0.0	0.0	0.0	5.4	29.1	29.2	0.0	0.0	3.0
26	Etna Bog	0.0	0.0	0.0	43.0	0.0	0.0	0.0	0.0	0.5
27	Heath at South Trescott	0.0	7.8	0.0	0.0	1.3	0.0	0.0	0.0	0.0
28	Holbrook	0.0	0.0	0.0	20.6	0.0	0.0	0.0	0.0	0.0
29	Davis Bog	0.0	0.0	0.0	5.1	0.0	0.0	9.5	0.0	1.4
30	Hermon Bog	0.0	0.0	0.0	23.9	0.0	0.0	0.0	2.0	0.5
31	Chemo Bog	0.0	0.0	0.0	6.5	0.0	0.4	0.0	0.4	0.5
32	Clifford Stream Fen	0.0	17.5	0.0	0.0	23.6	0.5	0.0	0.0	4.9
33	Peatland at Magalloway	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6
34	Caribou Bog	0.0	0.0	0.0	29.3	1.9	0.0	0.0	5.0	0.5
35	Bogs along Horseback	0.0	0.0	0.0	1.0	12.1	0.0	0.0	0.5	0.2
36	Pushaw	0.0	0.0	0.0	17.1	12.8	0.0	0.0	0.0	3.5
37	Pickerel Pond Kettle	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0
38	Dollar Pond Kettle	0.0	0.0	0.0	10.0	0.0	0.0	0.0	2.0	10.0
39	along Sunkaze Stream	0.0	0.0	0.0	4.7	44.7	6.6	4.7	0.0	4.0
40	Alton Bog	0.0	0.0	0.0	24.9	6.1	0.2	4.3	1.8	3.4
41	.5 km N Perk Pond	0.0	0.0	8.5	0.0	14.8	3.9	0.0	4.9	16.8
42	Bog SW of Crawford Lake	0.0	5.8	0.0	4.9	3.0	3.0	0.0	0.7	0.5
43	Call Bog	0.0	0.0	0.0	49.0	9.4	2.2	0.0	2.6	1.6
44	Holland Pond Bog	0.0	0.0	0.0	17.4	3.1	0.0	0.0	1.6	13.7
45	Meddybemps Heath	0.0	2.4	7.0	0.0	7.4	0.0	0.0	0.2	2.1
46	Sargent Bog	0.0	0.0	0.0	28.3	7.0	0.0	0.0	8.5	0.1
47	along E Branch Birch Str	0.0	0.0	0.0	24.3	4.1	3.0	0.0	0.1	1.0
48	Rocky Rips	0.0	0.0	6.4	3.0	0.0	2.0	0.0	3.0	1.8
49	Hoyt Brook	0.0	0.0	5.2	0.0	6.9	23.4	0.0	0.0	3.0
50	2 km NE of S Princeton	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
51	Cold Stream	0.0	6.2	0.0	0.2	11.0	11.0	0.0	2.6	4.5
52	Sawtelle Heath	40.0	20.0	0.0	0.0	0.0	0.0	0.0	3.9	0.8

#	Peatland Name	21	22	23	24,25 26	27,28	29,30	SS	U	W
53	Black Brook Pond	0.0	0.0	0.0	0.0	52.6	4.1	0.0	0.4	8.1
54	Bog S of Lamb's Deadwater	0.0	9.4	2.2	0.0	18.6	8.5	0.0	0.7	8.5
55	1000 Acre Heath	0.0	5.1	0.0	0.0	2.4	12.5	0.0	1.6	3.4
56	Sweat Bog	0.0	2.8	0.0	0.0	1.6	1.5	0.0	1.0	2.0
57	Peatland at Millberry Str	10.2	20.0	6.9	0.0	22.3	9.6	0.0	0.0	9.0
58	Orson Bog	0.0	24.9	8.2	0.0	5.1	4.3	0.0	3.9	3.6
59	Caribou Bog S of Indian P	0.0	15.4	0.0	0.0	0.0	4.8	0.0	0.2	3.0
60	Lindsey Brook	0.0	20.3	9.5	0.0	10.0	0.0	0.0	1.0	8.6
61	Greenville Junction	0.0	0.0	0.0	0.0	14.3	16.1	0.0	6.0	5.6
62	Big Bog	0.0	0.0	5.1	0.0	10.0	2.3	0.0	10.3	3.1
63	Stetson Mountain	0.0	41.2	0.0	0.0	0.0	0.0	0.0	3.3	1.2
64	Inman Bog	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0
65	Number Five Bog	0.0	0.0	0.7	0.0	0.0	0.0	0.0	2.3	5.6
66	Bog N of Cedar Mountain	0.0	23.1	0.0	0.0	5.0	0.0	0.0	0.0	0.5
67	Around Me. Central RR	0.0	0.0	0.3	0.0	0.0	0.0	0.0	6.0	0.3
68	Lambert Lake	0.0	18.2	5.4	0.0	0.0	0.0	0.0	0.0	3.9
69	Nollesemic Stream	0.0	8.5	0.9	0.0	8.4	10.0	0.0	3.4	1.6
70	Kettle N of Nollesemic	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.7	1.7
71	Crossuntic Stream	0.0	0.0	1.6	0.0	0.0	0.0	0.0	7.4	3.6
72	Twelvemile Bog	0.0	0.0	4.0	0.0	4.6	0.0	0.0	0.0	0.0
73	Smith Brook Deadwater	0.0	0.0	7.2	0.0	12.9	5.8	0.0	0.0	4.6
74	Hatham Bog	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.4	3.6
75	Macwahoc Stream	0.0	0.0	5.0	0.0	11.0	5.9	0.0	4.2	6.7
76	Flinn Pond (north)	0.0	33.5	0.0	0.0	0.0	0.0	0.0	0.0	0.8
77	Flinn Pond (south)	0.0	8.2	0.0	0.0	0.0	0.0	0.0	1.6	4.4
78	Mudbrook	0.0	0.0	0.0	0.0	42.4	29.1	0.0	0.0	28.5
79	Penobscot & Lobster Str	0.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.4
80	Crystal Bog	0.0	4.3	0.0	0.0	0.0	2.8	0.0	2.0	3.0

#	Peatland Name	21	22	23	24,25 26	27,28	29,30	SS	U	W
81	Eleven Mile Lake	0.0	0.0	3.4	0.0	0.0	0.0	0.0	0.5	2.7
82	Coffin Bog	0.0	0.0	0.0	0.0	2.9	0.0	0.0	0.7	1.8
83	Peatland NE Marble Pond	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.9	1.0
84	Dottle Brook	25.0	25.0	1.5	0.0	0.0	1.4	0.0	5.3	0.5
85	Chamberlain Fen	30.0	7.7	0.0	0.0	0.0	0.0	0.0	0.0	3.5
86	Ellis Bog	0.0	0.0	6.0	0.0	0.0	5.0	0.0	0.0	2.0
87	Wadleigh Bog	0.0	17.0	0.0	0.0	8.4	0.0	0.0	0.0	3.6
88	Smith Pond Bog	0.0	0.0	7.5	0.0	10.5	0.0	0.0	0.4	7.2
89	Umcolcus Deadwater	0.0	0.0	0.0	0.0	57.2	0.0	0.0	0.0	17.0
90	Carter Brook Ribbed Fen	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
91	Otter Brook Bog	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.5
92	Slight Depression Fen	0.0	0.0	9.7	0.0	0.0	0.0	0.0	0.0	0.0
93	International Fen	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9
94	Island Fen	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	1.7
95	Big Ten Peatland Complex	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	2.3
96	Eastman Brook Fen	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8
97	2.5 km S Burntland Brook	0.0	0.0	17.3	0.0	15.2	2.0	0.0	0.3	9.4
98	Greenlaw Pond and Stream	40.0	21.0	0.0	0.0	1.5	1.4	0.0	4.7	4.9
99	Burpee Brook	0.0	0.0	0.0	0.0	6.8	6.8	0.0	0.0	3.0
100	White Pond	0.0	0.0	0.5	0.0	1.5	1.5	0.0	0.1	1.2
101	Salmon Brook Lake	0.0	25.0	0.0	0.0	4.0	6.7	0.0	2.1	3.3
102	Bog 2 mi. NE Limestone	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
103	NW Pierce Lake & WR 165	0.0	0.0	3.1	0.0	0.0	0.0	0.0	0.0	1.9
104	Between Deer & Mud Lakes	0.0	0.0	3.0	0.0	0.0	6.0	0.0	0.4	0.0
105	Orchard Bog	0.0	0.0	0.0	0.0	0.0	3.0	0.0	1.6	0.5
106	Moose Fen	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0
107	Chimenticook Fen	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.2
108	West of Cross Lake	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5