OPn91

Northern Rich Fen (Water Track)

Open peatlands, primarily in water tracks in the interiors of large peatlands. Dominated by fine-leaved sedges or low shrubs, with scattered stunted tamaracks.

Vegetation Structure & Composition

Description is based on summary of vegetation data from 76 plots (relevés) and moss data from 3 bryophyte plots.

• **Moss** cover ranges from absent to interrupted (0–75% cover) and may include *Sphagnum* or other species.

• Graminoid cover is > 50% and dominated by fine-leaved sedges, such as fen wiregrass sedge (*Carex lasiocarpa*) and tufted bulrush (*Scirpus cespitosus*). Lead-colored sedge (*C. livida*), candle-lantern sedge (*C. limosa*), and creeping sedge (*C. chordorrhiza*) are frequently present.

• Shrub cover is variable and may be dominated by bog birch (Betula pumila) or shrubby cinquefoil (Potentilla fruticosa), with bog rosemary (Andromeda glaucophylla) frequently present.



• Forb cover is variable but usually includes buckbean (*Menyanthes trifoliata*), with pitcher plant (*Sarracenia purpurea*) and intermediate bladderwort (*Utricularia intermedia*) commonly present.

• Tree layer is absent to very sparse, with scattered stunted tamarack.

• Notes: Wetter sites are characterized by low mossy lawns with subtle hummocks and hollows, and open peat-bottomed pools containing insectivorous plants such as sundews (*Drosera* spp.) and bladderworts (*Utricularia* spp.). Drier sites are characterized by low, shrub-dominated moss hummocks (formed of minerotrophic *Sphagnum* or brown mosses) that often occur as linear ridges (strings) in water tracks and in areas along the outer margins of water tracks. The interconnected wet hollows (flarks) between strings are usually dominated by floating or emergent brown mosses. Northern marsh fern (*Thelypteris palustris*) and Arctic raspberry (*Rubus acaulis*) are often present on dry sites, along with sparse cover of stunted tamarack.

Landscape Setting & Soils

OPn91 occurs most commonly in water tracks that develop in association with lenses of sandy or coarse-textured beach deposits in the interiors of large peatlands on former glacial lake plains, especially the Lake Agassiz plain. OPn91 also occurs rarely in peat basins that have significant lateral flow of subsurface water. Substrate is usually deep (> 16in [40cm]) hemic peat. Surface water pH ranges from 5.6 to 7.0. Water table is near the surface and very stable throughout the year. OPn91 is often present adjacent to Northern Rich Tamarack Swamps (Water Track) (FPn81).

Natural History

OPn91 occurs in peatlands where there is lateral flow of mineral-rich groundwater, resulting in surface water chemistry that is nutrient poor but has sufficient mineral concentrations to maintain circumneutral pH (> 5.5). These conditions are most common in areas of peatlands underlain by permeable sandy soils, which provide zones of groundwater discharge. The mineral-rich groundwater typically emanates from areas of calcareous glacial till, often outside of the peatlands where OPn91 occurs, and flows beneath dense clayey sediments underlying the peatlands until it reaches lenses of sand or coarse-textured material and percolates to the surface.



Similar Native Plant Community Classes • OPn92 Northern Rich Fen (Basin)

OPn92, when characterized by fine-leaved sedges, bog birch, minerotrophic indicator species, and a ground cover of *Sphagnum* (OPn92b), can be similar to OPn91. OPn92, however, typically occurs in basins and on floating mats along shores rather than in large peatland water tracks. OPn92 is more likely to have wet meadow plants such as marsh St. John's wort (*Triadenum fraseri*) and broad-leaved arrowhead (*Sagittaria latifolia*). The dominant moss species in OPn92 include less minerotrophic brown mosses such as *Drepanocladus aduncus* or *Sphagnum* species such as those of the section Subsecunda. OPn91 is more likely to have boreal peatland plants such as English sundew (*Drosera anglica*) and seaside arrowgrass (*Triglochin maritima*). The dominant mosses in OPn91 are minerotrophic *Sphagnum* species on hummocks and aquatic brown mosses in hollows.

OPn91 Indicator Species		9%) OPn92	OPn92 Indicator Species	(fre OPn91	q%) OPn92
Lead-colored sedge (Carex livida)	79	-	Broad-leaved arrowhead (Sagittaria latifolia)	-	40
Kalm's lobelia (Lobelia kalmii)	26	-	Beaked sedge (Carex utriculata)	-	36
Shrubby cinquefoil (Potentilla fruticosa)	21	-	Large cranberry (Vaccinium macrocarpon)	-	34
English sundew (Drosera anglica)	21	-	Lake sedge (Carex lacustris)	-	34
Tufted bulrush (Scirpus cespitosus)	21	-	Three-way sedge (Dulichium arundinaceum)	-	28
Flattened spikerush (Eleocharis compressa)	50	2	Steeplebush (Spiraea tomentosa)	-	24
Hudson Bay bulrush (Scirpus hudsonianus)	26	2	Speckled alder (Alnus incana)	2	32
Seaside arrowgrass (Triglochin maritima)	48	4	Marsh St. John's wort (Triadenum fraseri)	6	68

OPn81 Northern Shrub Shore Fen

OPn81 when dominated by sweet gale with fen wiregrass sedge (*Carex lasiocarpa*) may appear similar to OPn91, particularly when present where water tracks flow into ponds. OPn81 is more likely to have wet meadow plants such as bluejoint (*Calamagrostis canadensis*) and lake sedge (*C. lacustris*), and the mosses in OPn81 consist of sparse and interrupted cover of less minerotrophic brown mosses, such as *Drepanocladus aduncus*, with few hummock-forming species. OPn91 is more likely to have boreal peatland plants such as pitcher plant and seaside arrowgrass. The mosses in OPn91 include hummock-forming and minerotrophic *Sphagnum* species beneath shrubs or along strings in water tracks, with minerotrophic brown mosses along the edges of pools and flarks.

OPn91 Indicator Species		q%) OPn81	OPn81 Indicator Species	(fre OPn91	ч%) ОРn81
Lead-colored sedge (Carex livida)	79	-	Bluejoint (Calamagrostis canadensis)	-	77
White beak rush (Rhynchospora alba)	55	-	Lake sedge (Carex lacustris)	-	63
Intermediate bladderwort (Utricularia intermedia)	52	-	Balsam willow (Salix pyrifolia)	-	49
Flattened spikerush (Eleocharis compressa)	50	-	Beaked sedge (Carex utriculata)	-	40
Seaside arrowgrass (Triglochin maritima)	48	-	Red maple (U)	-	30
Scheuchzeria (Scheuchzeria palustris)	41	-	Speckled alder (Alnus incana)	2	81
Spatulate-leaved sundew (Drosera intermedia)	30	-	Crested fern (Dryopteris cristata)	2	44
Pitcher plant (Sarracenia purpurea)	68	5	Meadowsweet (Spiraea alba)	2	42

OPn93 Northern Extremely Rich Fen

OPn93 is similar to graminoid-dominated occurrences of OPn91 (OPn91b) but is present in groundwater-discharge zones, most often forming anastomosing channels that dissect rich conifer swamps. Occurrences of OPn93 are characterized by loose unconsolidated peat with areas of open water, calcareous precipitates, and brown moss mats (formed mainly of *Scorpidium scorpoides*) with little vascular plant cover. OPn93 is more likely to have calciophilic species such as twig rush (*Cladium mariscoides*), sterile sedge (*Carex sterilis*), and beaked spikerush (*Eleocharis rostellata*).

ODm01 Indiantas Engaine	(fre	q%)	ODm02 Indicator Encoico	(free	1%)
OPn91 Indicator Species	OPn91	OPn93	OPn93 Indicator Species	OPn91	OPn93
Water horsetail (Equisetum fluviatile)	47	-	Beaked spikerush (Eleocharis rostellata)	-	38
Bog willow (Salix pedicellaris)	36	-	Slender sedge (Carex echinata)	-	25
Leatherleaf (Chamaedaphne calyculata)	29	-	Sterile sedge (Carex sterilis)	-	25
Marsh cinquefoil (Potentilla palustris)	22	-	White cedar (U)	4	75
Slender cottongrass (Eriophorum gracile)	22	-	Dwarf alder (Rhamnus alnifolia)	2	25
Creeping sedge (Carex chordorrhiza)	69	13	American grass-of-Parnassus (Parnassia glauca)	2	25
Scheuchzeria (Scheuchzeria palustris)	60	13	Twig rush (Cladium mariscoides)	7	75
Small cranberry (Vaccinium oxycoccos)	42	13	Shrubby cinquefoil (Potentilla fruticosa)	7	38



OPp91 Prairie Rich Fen

OPp91, like OPn91, occurs in water tracks and may have a ribbed fen pattern. OPp91, however, generally is present to the west of OPn91 in the LAP, northern MIM, and the Prairie Parkland Province. The ranges of the two classes may overlap in the extreme western MOP. OPp91 is more likely to have wet meadow species such as grass-leaved goldenrod (*Euthamia graminifolia*), eastern panicled aster (*Aster lanceolatus*), cutleaved bugleweed (*Lycopus americanus*). OPn91 is more likely to have ericaceous shrubs such as bog rosemary and small cranberry (*Vaccinium oxycoccos*), as well as other boreal peatland species such as pitcher plant and sundews.

(fre	q%)	OBn01 Indiantar Spanian	(fre	q%)
OPn91	OPp91	OPps1 indicator species	OPn91	OPp91
65	-	Grass-leaved goldenrod (Euthamia graminifolia)	-	51
52	-	Cut-leaved bugleweed (Lycopus americanus)	-	41
44	-	Rough bugleweed (Lycopus asper)	-	30
43	-	Hardstem and slender bulrush*	-	30
35	-	Common mint (Mentha arvensis)	-	29
68	1	Eastern panicled aster (Aster lanceolatus)	2	45
67	1	Swamp milkweed (Asclepias incarnata)	2	39
70	2	Buxbaum's sedge (Carex buxbaumii)	6	74
	OPn91 65 52 44 43 35 68 68 67	52 - 44 - 43 - 35 - 68 1 67 1	OPp31 OPp31 Indicator Species 65 - Grass-leaved goldenrod (Euthamia graminifolia) 52 - Cut-leaved bugleweed (Lycopus americanus) 44 - Rough bugleweed (Lycopus americanus) 43 - Hardstem and slender bulrush* 35 - Common mint (Mentha arvensis) 68 1 Eastern panicled aster (Ascler lanceolatus) 67 1 Swamp milkweed (Asclepias incarnata)	Opps1 OPpS1 Indicator Species OPps1 65 - Grass-leaved goldenrod (Euthamia graminifolia) - 52 - Curl-leaved bugleweed (Lycopus americanus) - 44 - Rough bugleweed (Lycopus asper) - 43 - Hardstem and slender bulush* - 35 - Common mint (Mentha arvensis) - 68 1 Eastern panicked alser (Alsclepias incarnata) 2

* Hardstem and slender bulrush (Scirpus acutus and S. heterochaetus)

• FPn81 Northern Rich Tamarack Swamp (Water Track)

FPn81 can sometimes have sparse (< 25%) tree canopy cover and appear similar to OPn91, although the trees in FPn81 are usually taller (> 16ft [5m] tall) than the stunted trees characteristic of OPn91. FPn81 is more likely to have shade-tolerant species such as creeping snowberry (*Gaultheria hispidula*), one-sided pyrola (*Pyrola secunda*), and soft-leaved sedge (*Carex disperma*). OPn91 is more likely to have shade-intolerant species such as lead-colored sedge (*C. livida*), white beak rush (*Rhynchospora alba*), and scheuchzeria (*Scheuchzeria palustris*).

OD=01 Indicator Spanias	(fre	q%)	EDm01 Indicator Encoires	(free	1%)
OPn91 Indicator Species	OPn91	FPn81	FPn81 Indicator Species	OPn91	FPn81
White beak rush (Rhynchospora alba)	55	-	Soft-leaved sedge (Carex disperma)	-	75
Intermediate bladderwort (Utricularia intermedia)	52	-	One-sided pyrola (Pyrola secunda)	-	55
Scheuchzeria (Scheuchzeria palustris)	41	-	Stemless lady's slipper (Cypripedium acaule)	-	50
Spatulate-leaved sundew (Drosera intermedia)	30	-	Creeping snowberry (Gaultheria hispidula)	-	45
Kalm's lobelia (Lobelia kalmii)	26	-	Three-fruited bog sedge (Carex trisperma)	-	40
Lesser bladderwort (Utricularia minor)	26	-	Bluejoint (Calamagrostis canadensis)	-	35
Shrubby cinquefoil (Potentilla fruticosa)	21	-	Poor sedge (Carex paupercula)	3	90
Lead-colored sedge (Carex livida)	79	5	Velvet-leaved blueberry (Vaccinium myrtilloides)	2	40

Native Plant Community Types in Class • OPn91a Shrub Rich Fen (Water Track)

OPn91a is variable across its range but typically is dominated by shrubs, including bog birch, leatherleaf, bog rosemary, and shrubby cinquefoil, usually with > 25% cover, interspersed with sparsely vegetated hummocks formed from minerotrophic *Sphagnum* or brown mosses. OPn91a often develops on peat ridges (strings). Description is based on summary of vegetation data from 21 plots.

OPn91b Graminoid Rich Fen (Water Track)

OPn91b is dominated by graminoids, with ericaceous shrub cover < 25%. OPn91b is divided into two subtypes on the basis of peat architecture. Subtype descriptions are based on summary of vegetation data from 45 plots.

OPn91b1 Featureless Water Track Subtype

Graminoid-dominated rich fens lacking distinct pools and aquatic species, although the peat surface may have shallow hollows dominated by brown mosses or *Sphagnum* species of the section Subsecunda.

OPn91b2 Flark Subtype

Graminoid-dominated rich fens with distinct peat-bottom pools oriented perpendicular to groundwater flow. Pools support characteristic aquatic species not present in OPn91b1, including English sundew (*Drosera anglica*), linear-leaved sundew (*D. linearis*), lesser bladderwort (*Utricularia minor*), seaside arrowgrass, and lead-colored sedge (*Carex livida*). OPn91b2 is best developed in flarks that form in interiors of well-developed featureless water tracks in large peatlands, typically in association with rich or poor shrub fens. Subtle pool formation, however, can also occur in the smaller peatlands present in the northeastern part of the state.





Winter Road Lake Peatland Scientific and Natural Area, Lake of the Woods County, MN

 Species Frequency & Cover 	frad 0/ coller
Track)	
(Water	
Rich Fen	
Northern F	
OPn91	

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Indew (Drosera intermedia) 30 Sparse-fruited sedge (Carex tenufilora) 11 Galum labradoricum) 27 Delicate octiongrass (Friophorum tenellum) 11 Campania aparinoides) 27 Apartice sedge (Carex actinities) 9 Santana aparinoides) 27 Apartice sedge (Carex actinities) 9 Santana aparinoides) 26 Apartice sedge (Carex actinities) 9 Santana aparinoides) 26 Scoty-colored bask ush (Fhyrichospora fusca) 9 Cutricularia minor) 27 Apartice sedge (Carex exhinate) 9 9 Cutricularia minor) 27 Apartice sedge (Carex exhinate) 9 9 Cutricularia minor) 27 Buxbaum's sedge (Carex exhinate) 9 9 Constal stops of (Carex exhinate) 18 18 19 10 Constal stops of (Carex exhinate) 18 18 10 10 10 Constal stops 16 Carex exhinate 16 16 16 16 16 Constal stops 16 Carex exhinate 16 16 16 16 16 16 16	Northern marsh fern (Thelypteris palustris)	32	:	Twin bentgrass (Agrostis hyemalis)	12	•
(Galum labradoricum) 27 0 Delicate cottongrass (<i>Eiophorum tenelum</i>) 11 Camparula aparinoides) 27 0 Aquatic sedge (<i>Carex aqualits</i>) 9 Polla karmino 26 6 Sonty-conted bask ush (<i>Rhynchospora fusca</i>) 9 Polla karmino 26 6 Sonty-conted bask ush (<i>Rhynchospora fusca</i>) 9 Polla karmino 26 Sonty-conted bask ush (<i>Rhynchospora fusca</i>) 9 9 Orealis) 21 0 Sender sedge (<i>Carex exitus</i>) 9 9 Oresera anglis) 21 18 Nabus reachis 9 9 Oresera anglis) 18 18 Coarex exitis 9 9 I (<i>Uhriculatia minor</i>) 21 Coarex exitis 9 9 9 Orealis) 21 24 Sender sedge (<i>Carex exitis</i>) 9 9 9 I (<i>Uhriculatia connuta</i>) 18 Nabaurs sedge (<i>Carex exitis</i>) 18 12 14 14 14 14 14 14 14 14 14 14 14 14 16 16 16 16 <	Spatulate-leaved sundew (Drosera intermedia)	30	•	Sparse-fruited sedge (Carex tenuiflora)	11	•
Campanula aparinoides) 27 e) Aquatic sedge (Carex aquatilis) 9 Oalit kalmi) 26 e) Fringed bronne (Bronus cilitatus) 9 Oalit kalmi) 26 e) Stender sedge (Carex actuals) 9 Orealis) 26 e) Stender sedge (Carex actuals) 9 Orealis) 26 e) Stender sedge (Carex actilis) 9 Urbination 26 coastal sedge (Carex actilis) 9 Ubbins acaulty 18 1 B 1 Ubbins acaulty 18 1 B 1 I (Utricularia cornucta) 18 1 B 1 I (Utricularia cornucta) 14 10 B 1 I (Utricularia cornucta) 14 10 B 1 I (Utricularia cornucta) 14 10 10 10 I (Utricularia cornucta) 14 10 10 10 I (Utricularia cornucta) 14 <	Labrador bedstraw (Galium labradoricum)	27	•	Delicate cottongrass (Eriophorum tenellum)	Ħ	•
pelia kalmij 26 efinged brome (Bromus cliatus) 9 pelia kalmij (Utricularia minor) 26 egits (Utricularia minor) 26 egits Sondy-colored beak rush (Rhynchospora fusca) 9 (Utricularia minor) 21 Sondy-colored beak rush (Rhynchospora fusca) 9 (Utricularia contral) 21 Sondy-colored beak rush (Rhynchospora fusca) 9 (Utricularia contral) 21 Coasta sedge (Carrex exhinata) 9 (Utricularia contral) 18 N Sondy-colored beak rush (Andromed a glaucophylia) 8 (Utricularia contral) 14 0 Boy sontral 14 8 (Utricularia contral) 14 14 14 14 8 (Intricularia contral) 14 14 14 14 14 (Intricularia contral) 11 14 14 14 (Intricularia contral) 11 11 11 11 (Indego uliginosa) 11 11 11 (Intricularia contral) 11 11 11 (Indego uliginosa) 11 11 11 (Indego uliginosa) 11 11 11 (Indego uliginosa) 11 11 11 <td>Marsh bellflower (Campanula aparinoides)</td> <td>27</td> <td>•</td> <td>Aquatic sedge (Carex aquatilis)</td> <td>6</td> <td>:</td>	Marsh bellflower (Campanula aparinoides)	27	•	Aquatic sedge (Carex aquatilis)	6	:
(Urricularia minor) 26 • Soody-colored beak tush (<i>Hhynchospora fusca</i>) 9 orealis) 0 • • 9 orealis) 24 • Sender sedge (<i>Carex exhina</i>) 9 orealis) 21 • • 9 orealis) 21 • • 9 orealis) 21 • • 9 Uyanachia thyrsifora) 18 • • 9 ubus acaulis) 18 • • 9 ubus acaulis) 18 • • 9 utastus (Parmassia palustris) 15 • • 9 utastus (Parmassia palustris) 15 • • 9 utastus (Parmassia palustris) 14 • • 8 utastus (Parmassia palustris) 14 • 8 utastus (Parmassia palustris) 12 • • utastus (Parmassia palustris) 12 • • •	Kalm's lobelia (Lobelia kalmii)	26	•	Fringed brome (Bromus ciliatus)	6	•
orealis) corealis) 24 e) Bender sedge (<i>Carex echinata</i>) 9 hosera anglica) 21 e) Coastal sedge (<i>Carex exilis</i>) 9 9 hosera anglica) 18 Buxbaum's sedge (<i>Carex exilis</i>) 9 9 hose acalis) 18 Coastal sedge (<i>Carex exilis</i>) 9 9 hubus acalis) 18 Buxbaum's sedge (<i>Carex exilis</i>) 8 9 nassus (<i>Parnassia palustris</i>) 15 N Buxbaum's sedge (<i>Carex exilis</i>) 8 nassus (<i>Parnassia palustris</i>) 15 N Buxbaum's sedge (<i>Carex exilis</i>) 8 nassus (<i>Parnassia palustris</i>) 15 N Buxbaum's sedge (<i>Carex exilis</i>) 8 t (<i>Utricularia comuta</i>) 14 N N 8 8 t (<i>Utricularia comuta</i>) 14 N N 8 8 t (<i>Utricularia comuta</i>) 14 N N 9 9 t (<i>Utricularia comuta</i>) 14 N N 9 9 t (<i>Utricularia comuta</i>) 11 N N 9 9 solomon's seal (<i>Smilacina trifolia</i>) 11 11 11 Solomon's seal (<i>Smilacina trifolia</i>) 11 13 14 9	Lesser bladderwort (Utricularia minor)	26	•	Sooty-colored beak rush (Rhynchospora fusca)	6	:
Insert anglical 21 exert as sedge (Carex exitis) 9 Insubus acaralisy 18 exert as buxbaumi) 8 Insubus acaralisy 18 exert as buxbaumi) 8 Insubus acaralisy 15 exert and sedge (Carex buxbaumi) 8 Insubus acaralisy 15 exert and sedge (Carex buxbaumi) 8 Insubus acaralisy 15 exert and sedge (Carex buxbaumi) 8 Insubus acaralisy 15 exert and sedge (Carex buxbaumi) 8 Insubus acaralisy 14 exert and sedge (Carex buxbaumi) 8 Introvinter 14 exert and sed (Andromed a glaucophylila) 68 Introvinter 12 bendingrave (Andromed a glaucophylila) 8 Introvinter 11 bendingrave (Andromed a glaucophylila) 8 Introvinter 11 bendingrave (Andromed a glaucophylila) 8 Intervinter 11 bendingrave (Andromed a glau (Myrica glau) Int	Bog aster (Aster borealis)	24	•	Slender sedge (Carex echinata)	0	•
Lysimachia thyrsifora) 18 Buxbaum's sedge (Carex buxbaumi) 8 Lubus acaulis) aubus acaulis) 18 Eukosatalis) 8 aubus acaulis) 18 18 14 14 8 8 aussus (Parnasci palistris) 15 5 9 8 8 aussus (Parnasci palistris) 15 5 9 8 8 t (ubriania comuta) 14 9 9 9 8 9 or Northern white violet* 14 9 9 9 9 9 ew (Drosera linearis) 12 12 9 10 9 9 9 elw (Drosera linearis) 11 12 9 11 9 9 9 9 9 9 9 9 9 9 9 9 9 11 11 11 11 11 11 12 14 12 14 12 14 12 14 12 14 12 14 12 14 12 14 14 12 14 12 </td <td>English sundew (Drosera anglica)</td> <td>21</td> <td>•</td> <td>Coastal sedge (Carex exilis)</td> <td>0</td> <td>:</td>	English sundew (Drosera anglica)	21	•	Coastal sedge (Carex exilis)	0	:
ubus acaulis) 18 Tall cottongrass (<i>Eiophorum polystachion</i>) 8 massus (<i>Parmassia palustris</i>) 15 0 Low Shrubs 8 massus (<i>Parmassia palustris</i>) 15 0 Low Shrubs 8 massus (<i>Internation contral</i>) 14 0 Bog rosemary (<i>Andromeda glaucophylla</i>) 68 tor (<i>Uncluen wintervis</i>) 12 12 Natabas 12 9 ew (<i>Drosera linearis</i>) 12 12 Natabas 12 9 opina ophigosoides) 11 12 Natabas 12 9 opina ophigosoides) 11 11 11 11 12 12 of (<i>Lycopus unificuus</i>) 9 9 12 12 12 12 of (<i>Lycopus unificuus</i>) 9 11 11 11 12 12 of (<i>Lycopus unificuus</i>) 9 9 12 12 12 12 of (<i>Lycopus unificuus</i>) 9 9 11 11 12 of (<i>Lycopus unificuus</i>) 9 9 12 14 of (<i>Lycopus unificuus</i>) 9 9 12 14 of (<i>Lycopus unificuus</i>) 9 11 11 11 of (<i>Lycopus </i>	Tufted loosestrife (Lysimachia thyrsiflora)	18	•	Buxbaum's sedge (Carex buxbaumii)	80	:
massus (Parnassia palustris) 15 • Low Shrubs t (Utricularia cornuta) 14 •• Bog rosenary (Andromeda glaucophylla) 68 tr (Utricularia cornuta) 14 •• Bog rosenary (Andromeda glaucophylla) 68 ev Norsens 12 • Bog rosenary (Andromeda glaucophylla) 68 ev Norsens 12 • Leand learanedaphic calyculata) 32 gonia ophioglossoides) 11 • 12 Sweet gale (Myrica gale) 9 Solomon's seal (Smilacina trifola) 11 • Pandor tea (Ledum groenlandicum) 9 9 d (Lycopus unificus) 9 9 Bog blich (Betula pumia) 9 9 9 d (Lycopus unificus) 9 9 Bog willow (Salix serissima) 71 71 ge (Carex lasiocarpa) 55 9 Nuturn willow (Salix serissima) 71 71 ge (Carex lasiocarpa) 55 9 Nuturn willow (Salix serissima) 9 21 d (Lycopus unificus) 79 9 Nuturn willow (Salix serissima) 71 71 ge (Carex lasiocarpa) 55<	Arctic raspberry (Rubus acaulis)	18	•	Tall cottongrass (Eriophorum polystachion)	80	•
t (Utricularia corruta) 14 •• Bog rosemary (Andromed a glaucophylla) 68 t (Utricularia corruta) 14 • Bog rosemary (Andromed a glaucophylla) 68 t (Northern white violet* 14 • Eatherleaf (Charanedaphre calyculata) 32 ew (Drosera linearis) 12 • Bog rotago urginosed) 9 32 goria ophioglossoides) 11 • 12 • Vaccinum oxycoccos) 48 Solomon's seal (Smilacina trifolia) 11 • Labrador tea (Ledum groenlandicum) 9 9 Solomon's seal (Smilacina trifolia) 11 • Tall Shrubs Bog birch (Betula pumila) 9 9 (Lycopus unifious) 9 Bog birch (Betula pumila) 59 9 77 77 (Lycopus unifious) 9 Bog birch (Betula pumila) 73 74 77 77 (Lycopus unifious) 9 Bog birch (Betula pumila) 73 74 77 77 (Lycopus unifious) 9 Bog wile (Salix serissima) 66 77 77 77 77 (Lycopus unifious)	Marsh grass-of-Pamassus (Parnassia palustris)	15	•	ow Shrubs		
tor Northern white violet* 14 • Randl cranberry (<i>Vaccinium oxycoccos</i>) 48 ew (<i>Drosera linearis</i>) 12 • Leatherleaf (<i>Charnaedaphre calyculata</i>) 32 ew (<i>Drosera linearis</i>) 12 • Leatherleaf (<i>Charnaedaphre calyculata</i>) 32 sidgo usignosaides) 11 • Leatherleaf (<i>Charnaedaphre calyculata</i>) 32 soldomon's seal (<i>Smilacina trifolia</i>) 11 • Labrado treat (<i>Ledum groenlandicum</i>) 9 <i>Checkularis lanceolata</i>) 9 • Bog birch (<i>Betula prominal</i>) 9 <i>d</i> (<i>Lycopus unifious</i>) 9 • Bog birch (<i>Betula pumia</i>) 59 <i>d</i> (<i>Lycopus unifious</i>) 9 • Bog birch (<i>Betula pumia</i>) 59 <i>d</i> (<i>Lycopus unifious</i>) 9 • Bog birch (<i>Betula pumia</i>) 59 <i>d</i> (<i>Lycopus unifious</i>) 9 • Bog birch (<i>Betula pumia</i>) 59 <i>d</i> (<i>Lycopus unifious</i>) 9 • Bog birch (<i>Betula pumia</i>) 51 <i>d</i> (<i>Lycopus unifious</i>) 9 • • 77 <i>d</i> (<i>Lycopus unifious</i>) 9 • 80 • <i>d</i> (<i>Lycopus unifious</i>) 9 • 80 • <i>d</i> (<i>Lycopus unifious</i>) 9 • 77	Horned bladderwort (Utricularia cornuta)	14	:	Bog rosemary (Andromeda glaucophylla)	68	:
ew (Drosera linearis) 12 • Leatherleaf (Charaadaphne calyculata) 32 vidago uliginosa) 12 • Sweet gale (Myrica gale) 9 solina optilacina trifolia) 11 • Labrado tea (Ledum groenlandicum) 9 Solinon's seal (Smilacina trifolia) 11 • Labrado tea (Ledum groenlandicum) 9 Pedicularis lanceolata) 9 • Bog wileov (Salix pedicellaris) 9 (Lycopus unifiorus) 9 • Bog wileov (Salix pedicellaris) 47 (Lycopus unifiorus) 9 • Bog wileov (Salix pedicellaris) 11 pe (Carex listocarpa) 95 •••• Shurby cinquefoi (Potentila fruitcosa) 12 pe (Carex linosa) 95 •••• Shurby cinquefoi (Nalix serissima) 11 ge (Carex linosa) 68 •• Salix serissima) 11 ge (Carex linosa) 55 ••• Salix serissima) 11 feet (Alamous an infolia) 55 ••• Salix serissima) 11 feet (Carex linosa) 55 ••• Salix cardida) 9 feet (Parex linosa) 55 ••• Salix cardida) 9 feet (Salix serissima) 67 •• Salix cardida) 9 </td <td>Big-leaf white violet or Northern white violet*</td> <td>14</td> <td>•</td> <td>Small cranberry (Vaccinium oxycoccos)</td> <td>48</td> <td>•</td>	Big-leaf white violet or Northern white violet*	14	•	Small cranberry (Vaccinium oxycoccos)	48	•
Nidago uliginosa)120Sweet gale (Myrica gale)9gonia ophioglossoides)111Labrador tea (Ledum groenlandicum)9Solomon's seal (Smilacina trifolia)11119Solomon's seal (Smilacina trifolia)11119Gedicularis fanceolata)9Bog birch (Betula pumila)599(Lycopus uniforus)9Bog birch (Betula pumila)599(Lycopus uniforus)9Bog birch (Betula pumila)5147(Grex lasiocarpa)95ender willow (Salix pedicellaris)2121(e (Carex lasiocarpa)95ender willow (Salix periolaris)1121(e (Carex linosa)68ender willow (Salix serissima)99(be (Carex linosa)55ender willow (Salix serissima)99Shurokopora alba)55ender willow (Salix serida)99Tree Seedings or Sapilings (< 6ft)	Linear-leaved sundew (Drosera linearis)	12	•	Leatherleaf (Chamaedaphne calyculata)	32	:
gonia ophioglossoides) 11 • Labrador tea (Ledum groenlandicum) 9 Solomon's seal (Smilacina trifolia) 11 • Labrador tea (Ledum groenlandicum) 9 Solomon's seal (Smilacina trifolia) 11 • Pail Shrubs 59 (Pedicularis lanceolata) 9 • Bog birch (Betula pumia) 59 (Lycopus uniforus) 9 • Bog birch (Betula pumia) 59 (a (Lycopus uniforus) 9 • Bog birch (Setula pumia) 51 (a (Lycopus uniforus) 9 • Bog birch (Betula pumia) 51 (a (Lycopus uniforus) 9 • Bog birch (Setula pumia) 51 (a (Lycopus uniforus) 9 • Bog birch (Betula pumia) 51 (a (Lycopus uniforus) 9 • Bog birch (Setula pumia) 51 (a (Laex lasiocarpa) 95 • Sender willow (Salix periolaris) 11 (a (Carex lasiocarpa) 68 • Duwar alder (Rhamus alnifolia) 9 (b (Carex linica) 55 • Duwar alder (Rhamus alnifolia) 9 (b (Carex linica) 55 • Duwar alder (Rhamus alnifolia) 9 (b (Carex linica) 55 • Duwar alder (Mhamus alnifolia)	Bog goldenrod (Solidago uliginosa)	12	•	Sweet gale (Myrica gale)	6	•
Solomon's seal (Smilacina trifolia)11 Tall Shrubs (Pedicularis lanceolata)99Bog birch (Betula pumila)599(Pedicularis lanceolata)99Bog willow (Salix pedicellaris)47(Lycopus unifiorus)99Bog willow (Salix pedicellaris)47(Pedicularis lanceolata)99Bog willow (Salix pedicellaris)47(Pedicularis lanceolata)99Bog willow (Salix serissima)12(Carex lasiocarpa)95••••Stender willow (Salix serissima)11(Be Carex linosa)68••Dwarf alder (Rhamus almfolia)9Sarex chordorthiza)55••Sage-lawed willow (Salix serissima)9Sarex chordorthiza)55••Tree Seedlings or Sapilings (< 6ft)	Rose pogonia (Pogonia ophioglossoides)	=	•	Labrador tea (Ledum groenlandicum)	6	•
(Pedicularis lanceolata) 9 • Bog birch (Batula pumila) 59 • d (Lycopus unifious) 9 • Bog wilow (Saix pedicallaris) 47 ge (Carex lasiccarpa) 95 •••• Shrubby cinquetoii (Rotati a futicosa) 47 ge (Carex lasiccarpa) 95 •••• Shrubby cinquetoii (Rotati a futicosa) 21 ge (Carex livida) 79 • Autum willow (Saik serissima) 11 ge (Carex linosa) 68 •• Dwarf alder (Rhamus alnifolia) 9 arex chrodorthiza) 55 •• Sage-leaved willow (Saik serissima) 11 farex hinosa) 67 • Sage-leaved willow (Saik serissima) 9 farex hinosa) 55 •• Sage-leaved willow (Saik serissima) 9 farechronosoria at alba) 55 •• Tree Seedlings or Sapilings (< 6ft)	Three-leaved false Solomon's seal (Smilacina trifolia)	=	•	Tall Shrubs		
d (Lycopus unifious) 9 9 9 9 9 9 9 9 d (Lycopus unifious) 95 95 95 95 95 95 21 e (Carex lisiocarpa) 95 95 96 13 21 21 ge (Carex linesa) 79 9 Autum willow (Salix serissima) 12 zerx chordorrhiza) 68 9 Autum willow (Salix serissima) 11 zerx chordorrhiza) 67 9 Dwarf alder (Rhamus alnifolia) 9 zerx chordorrhiza) 55 9 Tree Seedings or Sapilings (< 6ft)	Swamp lousewort (Pedicularis lanceolata)	6	•	Bog birch (Betula pumila)	59	:
ge (carex lasiocarpa) 95 event Shrubby cinquefoil (Potentilla fruticosa) 21 ge (carex lasiocarpa) 95 event Slender willow (Salix periolaris) 12 e (carex livida) 79 • Autumn willow (Salix serissima) 12 ge (carex limosa) 68 • Dwarf alder (Pharmus anifolia) 9 Ahynchospora thiza) 67 • Seedlings or Saplings (< 6ft)	Northern bugleweed (Lycopus uniflorus)	6	•	Bog willow (Salix pedicellaris)	47	•
0 95 •••• Slender willow (Safix periodaris) 12 79 • Autumn willow (Safix periodaris) 11 68 • Dwarf alder (Rhamus annifolia) 9 67 • Sage-leaved willow (Safix candida) 9 55 • Tree Seediings or Sapiings (< 6ft)	Grasses & Sedges			Shrubby cinquefoil (Potentilla fruticosa)	21	:
79 • Autumn willow (Salix serissima) 11 68 •• Dwarf alder (<i>Rhamus alnifolia</i>) 9 67 •• Sage-leaved willow (Salix candida) 9 55 •• Tree Seedlings or Sapilings (< 6ft) 9 50 • Tamarck 32	Fen wiregrass sedge (Carex lasiocarpa)	95	i	Slender willow (Salix petiolaris)	12	•
68 ●● Dwarf alder (<i>R</i> ha <i>mus alnifolia</i>) 9 67 ●● Sage-leaved willow (<i>Salix candida</i>) 9 55 ●● T ree Seedings or Saplings (< 6ft) 9 50 ● Tamatack 32	Lead-colored sedge (Carex livida)	79	•	Autumn willow (Salix serissima)	11	•
67 ●● Sage-leaved willow (<i>Salix candida</i>) 9 55 ●● Tree Seedlings or Saplings (< 6ft) 50 ● Tamarack 32	Candle-lantern sedge (Carex limosa)	68	:	Dwarf alder (Rhamnus alnifolia)	6	•
55 •• Tree Seedlings or Saplings (< 6ft) 50 • Tamarack 32	Creeping sedge (Carex chordorrhiza)	67	:	Sage-leaved willow (Salix candida)	6	•
50 • Tamarack 32	White beak rush (Rhynchospora alba)	55	:	Tree Seedlings or Saplings (< 6ft)		
	Flattened spikerush (Eleocharis compressa)	50	•	Tamarack	32	:



