

TABLE 15. Vegetation table for zonal sites of summer-dry maritime biogeoclimatic units

Biogeoclimatic Unit		CDFmm	CWHdm	CWHmm1	CWHmm2	CWHxm1	CWHxm2	
TREE LAYER	<i>Pseudotsuga menziesii</i>	■	■	■	■	■	■	Douglas-fir
	<i>Thuja plicata</i>	■	■	■	■	■	■	western redcedar
	<i>Abies grandis</i>	■						grand fir
	<i>Acer macrophyllum</i>	■						bigleaf maple
	<i>Cornus nuttallii</i>	■						western flowering dogwood
	<i>Tsuga heterophylla</i>		■	■	■	■	■	western hemlock
	<i>Abies amabilis</i>			■	■	■	■	amabilis fir
	<i>Chamaecyparis nootkatensis</i>				■			yellow-cedar
	<i>Tsuga mertensiana</i>				■			mountain hemlock
	<i>Arbutus menziesii</i>							arbutus
SHRUB LAYER	<i>Gaultheria shallon</i>	■	■	■	■	■	■	salal
	<i>Mahonia nervosa</i>	■						dull Oregon-grape
	<i>Vaccinium parvifolium</i>	■	■	■	■	■	■	red huckleberry
	<i>Rubus ursinus</i>	■	■					trailing blackberry
	<i>Rosa gymnocarpa</i>	■						baldhip rose
	<i>Holodiscus discolor</i>	■						ocean spray
	<i>Symphoricarpos mollis</i>	■						trailing snowberry
	<i>Lonicera ciliosa</i>	■						western trumpet honeysuckle
	<i>Symphoricarpos albus</i>	■						common snowberry
	<i>Chimaphila umbellata</i>			■	■	■	■	prince's pine
	<i>Vaccinium alaskaense</i>			■	■	■	■	Alaskan blueberry
	<i>Acer circinatum</i>		■					vine maple
	<i>Vaccinium membranaceum</i>				■			black huckleberry
	<i>Vaccinium ovalifolium</i>				■			oval-leaved blueberry
<i>Philadelphus lewisii</i>	■						mock-orange	
HERB LAYER	<i>Linnaea borealis</i>	■	■	■	■	■	■	twinflower
	<i>Polystichum munitum</i>	■	■			■	■	sword fern
	<i>Pteridium aquilinum</i>	■	■			■	■	bracken
	<i>Trientalis latifolia</i>	■						broad-leaved starflower
	<i>Achlys triphylla</i>	■			■	■	■	vanilla leaf
	<i>Blechnum spicant</i>				■			deer fern
	<i>Clintonia uniflora</i>			■				queen's cup
	<i>Cornus canadensis</i>		■					bunchberry
	<i>Rubus pedatus</i>				■			five-leaved bramble
	MOSS LAYER	<i>Hylocomium splendens</i>	■	■	■	■	■	■
<i>Kindbergia oregana</i>		■	■	■	■	■	■	Oregon beaked moss
<i>Rhytidiadelphus triquetrus</i>		■						electrified cat's tail moss
<i>Plagiothecium undulatum</i>			■	■	■	■	■	flat moss
<i>Rhytidiadelphus loreus</i>			■	■	■	■	■	lanky moss
<i>Rhytidiopsis robusta</i>				■	■	■	■	pipecleaner moss

TABLE 5.1.1 Distribution of Bog Site Associations by biogeoclimatic zone

	BG PP	BWBS SWB	ESSF	ICH	IDF	MS	SBPS SBS	CDF	CWH	MH
Wb01	Black spruce – Creeping-snowberry – Peat-moss						X			
Wb02	Lodgepole pine – Bog rosemary – Peat-moss						X ^w			
Wb03	Black spruce – Lingonberry – Peat-moss									
Wb04	Western hemlock – Cloudberry – Peat-moss									
Wb05	Black spruce – Water sedge – Peat-moss									
Wb06	Tamarack – Water sedge – Fen moss									
Wb07	Lodgepole pine – Water sedge – Peat-moss									
Wb08	Black spruce – Soft-leaved sedge – Peat-moss									
Wb09	Black spruce – Common horsetail – Peat-moss									
Wb10	Lodgepole pine – Few-flowered sedge – Peat-moss									
Wb11	Black spruce – Buckbean – Peat-moss									
Wb12	Scheuchzeria – Peat-moss									
Wb13	Shore sedge – Buckbean – Peat-moss									
Wb50	Labrador tea – Bog-laurel – Peat-moss							X		X ^s
Wb51	Shore pine – Crowberry – Tough peat-moss									XX
Wb52	Common juniper – Tufted clubrush – Rock moss									XXX ^{oc}
Wb53	Shore pine – Yellow-cedar – Tufted clubrush									XXX ^{oc}

x = incidental; < 5% of wetlands

w = wet/very wet subzones only

s = southern subzones only

xx = minor; 5–25% of wetlands

n = northern subzones only

xxx = major; >25% of wetlands

oc = outer coast (hypermaritime) only

TABLE 5.1.2 Bog Species Importance Table

Species		Wb01	Wb02	Wb03	Wb04	Wb05	Wb06	Wb07	Wb08
Trees	<i>Picea mariana</i>								
	<i>Larix laricina</i>								
	<i>Tsuga heterophylla</i>								
	<i>Pinus contorta</i> var. <i>latifolia</i>								
	<i>Picea</i> X								
	<i>Thuja plicata</i>								
	<i>Pinus contorta</i> var. <i>contorta</i> <i>Chamaecyparis nootkatensis</i>								
Shrubs	<i>Ledum groenlandicum</i>								
	<i>Betula nana</i>								
	<i>Salix myrtilifolia</i>								
	<i>Lonicera involucrata</i>								
	<i>Salix pedicellaris</i>								
	<i>Myrica gale</i>								
	<i>Vaccinium uliginosum</i> <i>Juniperus communis</i>								
Herbs and Dwarf Shrubs	<i>Oxycoccus oxycoccos</i>								
	<i>Gaultheria hispidula</i>								
	<i>Vaccinium vitis-idaea</i>								
	<i>Rubus chamaemorus</i>								
	<i>Carex aquatilis/sitchensis</i>								
	<i>Carex disperma</i>								
	<i>Carex tenuiflora</i>								
	<i>Comarum palustre</i>								
	<i>Equisetum arvense</i>								
	<i>Carex pauciflora</i>								
	<i>Andromeda polifolia</i>								
	<i>Empetrum nigrum</i>								
	<i>Carex limosa</i>								
	<i>Menyanthes trifoliata</i>								
	<i>Eriophorum angustifolium</i>								
	<i>Kalmia microphylla</i>								
	<i>Scheuchzeria palustris</i>								
	<i>Drosera anglica</i>								
	<i>Drosera rotundifolia</i>								
	<i>Coptis trifolia</i>								
	<i>Carex pluriflora</i>								
	<i>Fauria crista-galli</i>								
	<i>Carex livida</i>								
	<i>Sanguisorba officinalis</i>								
	<i>Triantha glutinosa</i>								
	<i>Trichophorum cespitosum</i>								
	<i>Rhynchospora alba</i>								
<i>Agrostis aequivallis</i>									
Lichens and Mosses	<i>Sphagnum</i> Group I								
	<i>Pleurozium schreberi</i>								
	<i>Hylocomium splendens</i>								
	<i>Aulacomnium palustre</i>								
	<i>Tomentypnum nitens</i>								
	<i>Sphagnum</i> Group III								
	<i>Cladina</i> spp.								
	<i>Cladonia</i> spp.								
	<i>Sphagnum</i> Group IV								
	<i>Racomitrium lanuginosum</i> <i>Siphula ceratites</i> <i>Campylopus atrovirens</i>								

Wb09	Wb10	Wb11	Wb12	Wb13	Wb50	Wb51	Wb52	Wb53	Common Name
									black spruce
									tamarack
									western hemlock
									lodgepole pine
									spruce
									western redcedar
									shore pine
									yellow-cedar
									Labrador tea
									scrub birch
									bilberry willow
									black twinberry
									bog willow
									sweet gale
									bog blueberry
									common juniper
									bog cranberry
									creeping-snowberry
									lingonberry
									cloudberry
									water sedge/Sitka sedge
									soft-leaved sedge
									sparse-leaved sedge
									marsh cinquefoil
									common horsetail
									few-flowered sedge
									bog-rosemary
									crowberry
									shore sedge
									buckbean
									narrow-leaved cotton-grass
									western bog-laurel
									scheuchzeria
									great sundew
									round-leaved sundew
									three-leaved goldthread
									many-flowered sedge
									deer-cabbage
									pale sedge
									great burnet
									sticky false-asphodel
									tufted clubrush
									white beak-rush
									Alaska bentgrass
									peat-moss Group I
									red-stemmed feathermoss
									step moss
									glow moss
									golden fuzzy fen moss
									peat-moss Group III
									reindeer lichens
									clad lichens
									peat-moss Group IV
									hoary rock-moss
									northern waterfingers
									bristly swan-neck moss

Ledum groenlandicum – *Kalmia microphylla* – *Sphagnum*

General Description

Labrador tea – Bog laurel – Peat-moss bogs occur uncommonly in the drier subzones of the south Coast at low to montane elevations. They are raised bogs in closed basins with a high, stagnant watertable or adjacent to peatland lakes. Some locations may be on floating mats.

The vegetation is low in stature and dominated by *Ledum groenlandicum* with an abundance of *Kalmia microphylla* and *Oxycoccus oxycoccus*. *Myrica gale* or dwarfed *Pinus contorta* var. *contorta* can be prominent on some, usually drier, sites. Herb cover is variable, low-lying areas can have a high cover of *Rhynchospora alba* while raised sites can have *Rubus chamaemorus* in abundance. Group I *Sphagnum* spp. are most common (*S. fuscum*, *S. capillifolium*) but coastal species also occur (*S. papillosum*), mostly in wetter hollows.

Soils are Typic Fibrisols or Mesisols with surface tier of poorly decomposed *Sphagnum* peat.



Characteristic Vegetation

Tree layer (0 - 0 - 0)

Shrub layer (0 - 20 - 85)

Ledum groenlandicum, *Myrica gale*,

Pinus contorta

Herb layer (10 - 30 - 50)

Drosera rotundifolia, *Kalmia microphylla*,

Oxycoccus oxycoccus, *Rhynchospora alba*

Moss layer (50 - 90 - 91)

Sphagnum Group I

Comments

The Wb50 is widespread but generally of small extent except for several notably extensive bogs in subdued terrain (e.g., Burns Bog). It occurs in open, unshaded locations adjacent to other low-stature peatland types or open water.

The microtopography of this unit is often broken by peat degradation hollows caused by die-back of *Sphagnum* and increased localized decomposition. Shallow pools caused by peat degradation are frequent and are occupied by species such as *Menyanthes trifoliata*, *Scheuchzeria palustris*, or *Nuphar lutea*.

Wetland Edatopic Grid

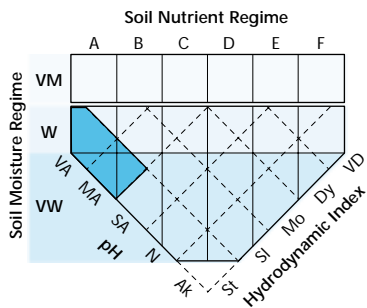


TABLE 5.2.1 Distribution of Fen Site Associations by biogeoclimatic zone

	BG PP	BWBS SWB	ESSF	ICH	IDF	MS	SBPS SBS	CDF	CWH	MH
Wf01 Water sedge – Beaked sedge		xx	x	xx	xxx	xxx	xxx		x ⁱ	
Wf02 Scrub birch – Water sedge		xxx	x	xx	xx	xx	xx			
Wf03 Water sedge – Peat-moss			xx				x			
Wf04 Barclay's willow – Water sedge – Glow mosses		x	xxx			x	x			
Wf05 Slender sedge – Common hook-moss		x		xx	xx	xx	xx			
Wf06 Slender sedge – Buckbean		x		x	x		x			
Wf07 Scrub birch – Buckbean – Shore sedge		x		x	x		x			
Wf08 Shore sedge – Buckbean – Hook-moss		x	x		x	x	x			
Wf09 Few-flowered spike-rush – Hook-moss			x			x	x			
Wf10 Hudson Bay clubrush – Red hook-moss							x			
Wf11 Tufted clubrush – Star moss		x	x	x		x	x			
Wf12 Narrow-leaved cotton-grass – Marsh-marigold			xxx							
Wf13 Narrow-leaved cotton-grass – Shore sedge			xx			x				
Wf50 Narrow-leaved cotton-grass – Peat-moss									x	xxx
Wf51 Sitka sedge – Peat-moss				x				xx	xx	
Wf52 Sweet gale – Sitka sedge								xx	xx ^s	
Wf53 Slender sedge – White beak-rush								x	xx ^s	

x = incidental; < 5% of wetlands

i = inland areas only

xx = minor; 5–25% of wetlands

s = southern subzones only

xxx = major; >25% of wetlands

TABLE 5.2.2 Fen Species Importance Table

Species		WF01	WF02	WF03	WF04	WF05	WF06	WF07	WF08
Shrubs	<i>Betula nana</i>								
	<i>Salix barclayi</i>								
	<i>Salix pedicellaris</i>								
	<i>Spiraea douglasii</i>								
	<i>Myrica gale</i>								
Herbs and Dwarf Shrubs	<i>Carex utriculata</i>								
	<i>Carex aquatilis</i>								
Shrubs	<i>Comarum palustre</i>								
	<i>Calamagrostis canadensis</i>								
Shrubs	<i>Carex lasiocarpa</i>								
	<i>Menyanthes trifoliata</i>								
Shrubs	<i>Carex limosa</i>								
	<i>Carex chordorrhiza</i>								
Shrubs	<i>Eleocharis quinqueflora</i>								
	<i>Trichophorum alpinum</i>								
Shrubs	<i>Trichophorum cespitosum</i>								
	<i>Eriophorum angustifolium</i>								
Shrubs	<i>Caltha leptosepala</i>								
	<i>Carex anthoxanthea</i>								
Shrubs	<i>Equisetum fluviatile</i>								
	<i>Carex magellanica</i>								
Shrubs	<i>Carex sitchensis</i>								
	<i>Rhynchospora alba</i>								
Shrubs	<i>Carex livida</i>								
	<i>Eriophorum chamissonis</i>								
Shrubs	<i>Vahlodea atropurpurea</i>								
	<i>Drosera anglica</i>								
Shrubs	<i>Hypericum anagalloides</i>								
	<i>Triantha glutinosa</i>								
Shrubs	<i>Schoenoplectus tabernaemontani</i>								
	<i>Fauria crista-galli</i>								
Shrubs	<i>Senecio triangularis</i>								
	<i>Andromeda polifolia</i>								
Shrubs	<i>Kalmia microphylla</i>								
	<i>Oxycoccus oxycoccus</i>								
Shrubs	<i>Triglochin maritima</i>								
	<i>Drosera rotundifolia</i>								
Shrubs	<i>Leptarrhena pyrolifolia</i>								
	<i>Platanthera dilatata</i>								
Shrubs	<i>Sanguisorba canadensis</i>								
	<i>Utricularia intermedia</i>								
Shrubs	<i>Viola palustris</i>								
	<i>Sphagnum Group I</i>								
Lichens and Mosses	<i>Aulaacomnium palustre</i>								
	<i>Drepanocladus spp.</i>								
Lichens and Mosses	<i>Sphagnum Group II</i>								
	<i>Tomentypnum nitens</i>								
Lichens and Mosses	<i>Philonotis fontana</i>								
	<i>Calliergon stramineum</i>								
Lichens and Mosses	<i>Scorpidium spp.</i>								
	<i>Campyllum stellatum</i>								
Lichens and Mosses	<i>Warnstorfia spp.</i>								
	<i>Meesia triquetra</i>								

Wf09	Wf10	Wf11	Wf12	Wf13	Wf50	Wf51	Wf52	Wf53	Common Name
									scrub birch
									Barclay's willow
									bog willow
									pink spirea
									sweet gale
									beaked sedge
									water sedge
									marsh cinquefoil
									bluejoint reedgrass
									slender sedge
									buckbean
									shore sedge
									cordroot sedge
									few-flowered spike-rush
									Hudson Bay clubrush
									tufted clubrush
									narrow-leaved cotton-grass
									white mtn. marsh-marigold
									yellow-flowered sedge
									swamp horsetail
									poor sedge
									Sitka sedge
									white beak-rush
									pale sedge
									Chamisso's cotton-grass
									mountain hairgrass
									great sundew
									bog St. John's-wort
									sticky asphodel
									great bulrush
									deer-cabbage
									arrow-leaved groundsel
									bog-rosemary
									western bog-laurel
									bog cranberry
									seaside arrow-grass
									round-leaved sundew
									leatherleaf saxifrage
									fragrant white rein orchid
									Sitka burnet
									flat-leaved bladderwort
									marsh violet
									peat-moss Group I
									glow moss
									hook-mosses
									peat-moss Group II
									golden fuzzy fen moss
									spring moss
									straw spear-moss
									sausage-moss
									yellow star-moss
									hook-mosses
									three-ranked hump-moss

Myrica gale – *Carex sitchensis*

General Description

Sweet gale – Sitka sedge fens are uncommon at low elevations in the Georgia Depression and Coast and Mountains in a wide variety of landscape positions. Sites can be shallowly flooded in the early season but will drop just below the surface for most of the growing season.

Myrica gale and *Spiraea douglasii* form a closed and sometimes dense thicket mostly < 1.5 m in height. *Carex sitchensis* dominates the herb layer but there is a scattering of other species on most sites. Because of flooding, the bryophyte layer is generally sparse but on some sites cover of *Sphagnum* or other moss species may be high.



Peat deposits are mostly shallow, moderately to well decomposed sedge and wood peat. Terric Humisols and Mesisols are common soil types.

Characteristic Vegetation

Tree layer (0 - 0 - 0)

Shrub layer (30 - 60 - 85)

Myrica gale, *Spiraea douglasii*

Herb layer (20 - 35 - 100)

Carex sitchensis

Moss layer (0 - 14 - 60)

Sphagnum spp.

Comments

The **WF52 Site Association** is common as a component of many peatlands in the south Coast. It is most often found in complex with the **Wm50** in more peripheral (and drier) locations but occurs around other Site Associations as well, including estuarine marshes.

Shrub thickets dominated by *Spiraea douglasii* with sparse *Myrica gale* and *Carex* spp. are common in the region where the **WF52** occurs. These communities are usually on mineral soil and described by the **Ws50 Site Association**.

Wetland Edatopic Grid

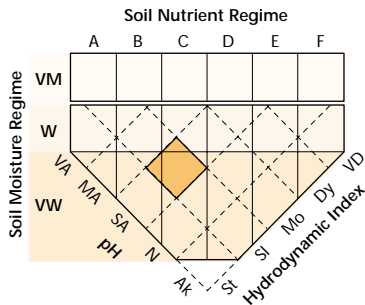


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Wf02 Scrub birch – Water sedge		xxx	x	xx	xx	xx	xx			
Wf03 Water sedge – Peat-moss			xx				x			
Wf04 Barclay's willow – Water sedge – Glow mosses		x	xxx			x	x			
Wf05 Slender sedge – Common hook-moss		x		xx	xx	xx	xx			
Wf06 Slender sedge – Buckbean		x		x	x		x			
Wf07 Scrub birch – Buckbean – Shore sedge		x		x	x		x			
Wf08 Shore sedge – Buckbean – Hook-moss		x	x		x	x	x			
Wf09 Few-flowered spike-rush – Hook-moss			x			x	x			
Wf10 Hudson Bay clubrush – Red hook-moss							x			
Wf11 Tufted clubrush – Star moss		x	x	x		x	x			
Wf12 Narrow-leaved cotton-grass – Marsh-marigold			xxx							
Wf13 Narrow-leaved cotton-grass – Shore sedge			xx			x				
Wf50 Narrow-leaved cotton-grass – Peat-moss									x	xxx
Wf51 Sitka sedge – Peat-moss				x				xx	xx	
Wf52 Sweet gale – Sitka sedge								xx	xx ^s	
Wf53 Slender sedge – White beak-rush								x	xx ^s	

x = incidental; < 5% of wetlands

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Species		WF01	WF02	WF03	WF04	WF05	WF06	WF07	WF08
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	<i>Salix barclayi</i>								
	<i>Salix pedicellaris</i>								
	<i>Spiraea douglasii</i>								
	<i>Myrica gale</i>								
Herbs and Dwarf Shrubs	<i>Carex utriculata</i>								
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Shrubs	<i>Comarum palustre</i>								
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Shrubs	<i>Carex limosa</i>								
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	<i>Trichophorum alpinum</i>								
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									water sedge
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									bluejoint reedgrass
									slender sedge
									buckbean
									shore sedge
									cordroot sedge
									few-flowered spike-rush
									Hudson Bay clubrush
									tufted clubrush
									narrow-leaved cotton-grass
									white mtn. marsh-marigold
									yellow-flowered sedge
									swamp horsetail
									poor sedge
									Sitka sedge
									white beak-rush
									pale sedge
									Chamisso's cotton-grass
									mountain hairgrass
									great sundew
									bog St. John's-wort
									sticky asphodel
									great bulrush
									deer-cabbage
									arrow-leaved groundsel
									bog-rosemary
									western bog-laurel
									bog cranberry
									seaside arrow-grass
									round-leaved sundew
									leatherleaf saxifrage
									fragrant white rein orchid
									Sitka burnet
									flat-leaved bladderwort
									marsh violet
									peat-moss Group I
									glow moss
									hook-mosses
									peat-moss Group II
									golden fuzzy fen moss
									spring moss
									straw spear-moss
									sausage-moss
									yellow star-moss
									hook-mosses
									three-ranked hump-moss

Myrica gale – *Carex sitchensis*

General Description

Sweet gale – Sitka sedge fens are uncommon at low elevations in the Georgia Depression and Coast and Mountains in a wide variety of landscape positions. Sites can be shallowly flooded in the early season but will drop just below the surface for most of the growing season.

Myrica gale and *Spiraea douglasii* form a closed and sometimes dense thicket mostly < 1.5 m in height. *Carex sitchensis* dominates the herb layer but there is a scattering of other species on most sites. Because of flooding, the bryophyte layer is generally sparse but on some sites cover of *Sphagnum* or other moss species may be high.



Peat deposits are mostly shallow, moderately to well decomposed sedge and wood peat. Terric Humisols and Mesisols are common soil types.

Characteristic Vegetation

Tree layer (0 - 0 - 0)

Shrub layer (30 - 60 - 85)

Myrica gale, *Spiraea douglasii*

Herb layer (20 - 35 - 100)

Carex sitchensis

Moss layer (0 - 14 - 60)

Sphagnum spp.

Comments

The **WF52** Site Association is common as a component of many peatlands in the south Coast. It is most often found in complex with the **Wm50** in more peripheral (and drier) locations but occurs around other Site Associations as well, including estuarine marshes.

Shrub thickets dominated by *Spiraea douglasii* with sparse *Myrica gale* and *Carex* spp. are common in the region where the **WF52** occurs. These communities are usually on mineral soil and described by the **Ws50** Site Association.

Wetland Edatopic Grid

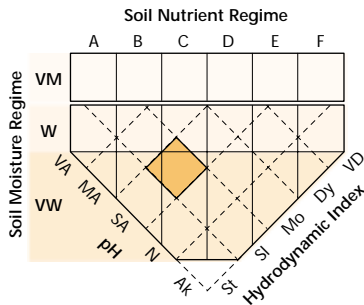


TABLE 5.2.1 Distribution of Fen Site Associations by biogeoclimatic zone

	BG PP	BWBS SWB	ESSF	ICH	IDF	MS	SBPS SBS	CDF	CWH	MH
Wf01 Water sedge – Beaked sedge		xx	x	xx	xxx	xxx	xxx		x ⁱ	
Wf02 Scrub birch – Water sedge		xxx	x	xx	xx	xx	xx			
Wf03 Water sedge – Peat-moss			xx				x			
Wf04 Barclay's willow – Water sedge – Glow mosses		x	xxx			x	x			
Wf05 Slender sedge – Common hook-moss		x		xx	xx	xx	xx			
Wf06 Slender sedge – Buckbean		x		x	x		x			
Wf07 Scrub birch – Buckbean – Shore sedge		x		x	x		x			
Wf08 Shore sedge – Buckbean – Hook-moss		x	x		x	x	x			
Wf09 Few-flowered spike-rush – Hook-moss			x			x	x			
Wf10 Hudson Bay clubrush – Red hook-moss							x			
Wf11 Tufted clubrush – Star moss		x	x	x		x	x			
Wf12 Narrow-leaved cotton-grass – Marsh-marigold			xxx							
Wf13 Narrow-leaved cotton-grass – Shore sedge			xx			x				
Wf50 Narrow-leaved cotton-grass – Peat-moss									x	xxx
Wf51 Sitka sedge – Peat-moss				x				xx	xx	
Wf52 Sweet gale – Sitka sedge								xx	xx ^s	
Wf53 Slender sedge – White beak-rush								x	xx ^s	

x = incidental; < 5% of wetlands

i = inland areas only

xx = minor; 5–25% of wetlands

s = southern subzones only

xxx = major; >25% of wetlands

TABLE 5.2.2 Fen Species Importance Table

Species		WF01	WF02	WF03	WF04	WF05	WF06	WF07	WF08
Shrubs	<i>Betula nana</i>								
	<i>Salix barclayi</i>								
	<i>Salix pedicellaris</i>								
	<i>Spiraea douglasii</i>								
	<i>Myrica gale</i>								
Herbs and Dwarf Shrubs	<i>Carex utriculata</i>								
	<i>Carex aquatilis</i>								
Shrubs	<i>Comarum palustre</i>								
	<i>Calamagrostis canadensis</i>								
Shrubs	<i>Carex lasiocarpa</i>								
	<i>Menyanthes trifoliata</i>								
Shrubs	<i>Carex limosa</i>								
	<i>Carex chordorrhiza</i>								
Shrubs	<i>Eleocharis quinqueflora</i>								
	<i>Trichophorum alpinum</i>								
Shrubs	<i>Trichophorum cespitosum</i>								
	<i>Eriophorum angustifolium</i>								
Shrubs	<i>Caltha leptosepala</i>								
	<i>Carex anthoxanthea</i>								
Shrubs	<i>Equisetum fluviatile</i>								
	<i>Carex magellanica</i>								
Shrubs	<i>Carex sitchensis</i>								
	<i>Rhynchospora alba</i>								
Shrubs	<i>Carex livida</i>								
	<i>Eriophorum chamissonis</i>								
Shrubs	<i>Vahlodea atropurpurea</i>								
	<i>Drosera anglica</i>								
Shrubs	<i>Hypericum anagalloides</i>								
	<i>Triantha glutinosa</i>								
Shrubs	<i>Schoenoplectus tabernaemontani</i>								
	<i>Fauria crista-galli</i>								
Shrubs	<i>Senecio triangularis</i>								
	<i>Andromeda polifolia</i>								
Shrubs	<i>Kalmia microphylla</i>								
	<i>Oxycoccus oxycoccus</i>								
Shrubs	<i>Triglochin maritima</i>								
	<i>Drosera rotundifolia</i>								
Shrubs	<i>Leptarrhena pyrolifolia</i>								
	<i>Platanthera dilatata</i>								
Shrubs	<i>Sanguisorba canadensis</i>								
	<i>Utricularia intermedia</i>								
Shrubs	<i>Viola palustris</i>								
	<i>Sphagnum Group I</i>								
Lichens and Mosses	<i>Aulaconnium palustre</i>								
	<i>Drepanocladus spp.</i>								
Lichens and Mosses	<i>Sphagnum Group II</i>								
	<i>Tomentypnum nitens</i>								
Lichens and Mosses	<i>Philonotis fontana</i>								
	<i>Calliergon stramineum</i>								
Lichens and Mosses	<i>Scorpidium spp.</i>								
	<i>Campyllum stellatum</i>								
Lichens and Mosses	<i>Warnstorfia spp.</i>								
	<i>Meesia triquetra</i>								

Wf09	Wf10	Wf11	Wf12	Wf13	Wf50	Wf51	Wf52	Wf53	Common Name
									scrub birch
									Barclay's willow
									bog willow
									pink spirea
									sweet gale
									beaked sedge
									water sedge
									marsh cinquefoil
									bluejoint reedgrass
									slender sedge
									buckbean
									shore sedge
									cordroot sedge
									few-flowered spike-rush
									Hudson Bay clubrush
									tufted clubrush
									narrow-leaved cotton-grass
									white mtn. marsh-marigold
									yellow-flowered sedge
									swamp horsetail
									poor sedge
									Sitka sedge
									white beak-rush
									pale sedge
									Chamisso's cotton-grass
									mountain hairgrass
									great sundew
									bog St. John's-wort
									sticky asphodel
									great bulrush
									deer-cabbage
									arrow-leaved groundsel
									bog-rosemary
									western bog-laurel
									bog cranberry
									seaside arrow-grass
									round-leaved sundew
									leatherleaf saxifrage
									fragrant white rein orchid
									Sitka burnet
									flat-leaved bladderwort
									marsh violet
									peat-moss Group I
									glow moss
									hook-mosses
									peat-moss Group II
									golden fuzzy fen moss
									spring moss
									straw spear-moss
									sausage-moss
									yellow star-moss
									hook-mosses
									three-ranked hump-moss

Carex lasiocarpa – *Rhynchospora alba*

General Description

Slender sedge – White beak-rush fens occur in the Georgia Depression at elevations below 600 m. The **Wf53** requires permanently saturated soils and is tolerant of prolonged shallow inundation. Lake margins are the most common location but some isolated basins may also have suitable conditions.



Carex lasiocarpa is always abundant and dominant. *Rhynchospora alba* and scattered low-growing *Myrica gale* occur on most sites. However, wetter sites often lack these species and have aquatic species such as *Nuphar lutea*, *Brasenia schreberi*, or *Menyanthes trifoliata* instead. *Schoenoplectus acutus* grows in more alkaline examples of the **Wf53**.

Soils are shallow mesic or humic peat of sedge or limnic origin. Terric Mesisols and Humisols are common soil types.

Characteristic Vegetation

- Tree layer** (0 - 0 - 0)
- Shrub layer** (0 - 3 - 10)
Myrica gale
- Herb layer** (60 - 80 - 85)
Carex lasiocarpa, *Rhynchospora alba*
- Moss layer** (0 - 2 - 8)

Comments

Coastal *Carex lasiocarpa* stands occur on a range of ecological conditions from semi-terrestrial to shallowly flooded and marsh-like peatlands. Ceska (1978) observed variants of this unit: a typical with *Rhynchospora alba*, a limose variant with *Nuphar lutea*, a minerice variant with *Dulichium arundinaceum* and *Schoenoplectus acutus*, and a higher-elevation variant with *Carex limosa*. With sufficient additional data, several more specific classification units based on the presence of additional dominants might be indicated. *Carex lasiocarpa* communities with abundant *Spiraea douglasii* and *Myrica gale* occur on drier and hummocky sites (see additional units).

The **Wf52** is similar but grows on drier and more acidic sites than the **Wf53**. The **Wf53** is analogous to the **Wf05** of the Interior but has little or no moss cover and includes coastal species.

Wetland Edatopic Grid

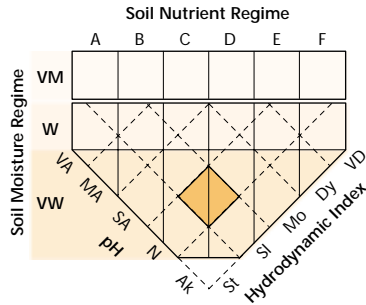


TABLE 5.3.1 Distribution of Marsh Site Associations by biogeoclimatic zone

	BG PP	BWBS SWB	ESSF	ICH	IDF	MS	SBPS SBS	CDF	CWH	MH
Wm01 Beaked sedge – Water sedge	x	xx	x	xxx	xxx	xx	xx		x	
Wm02 Swamp horsetail – Beaked sedge		x		x	x	x	xx			
Wm03 Awned sedge	x				x					
Wm04 Common spike-rush	x	x		xx	x	x	xx		x	
Wm05 Cattail	xxx	x		xx	xx	x	xx	xx	x ^s	
Wm06 Great bulrush	xxx	x		x	xx	xx	x	x	x	
Wm07 Baltic rush	x				xx					
Wm50 Sitka sedge – Hemlock-parsley								xx	xx	
Wm51 Three-way sedge				x				x	x	

x = incidental; < 5% of wetlands

xx = minor; 5–25% of wetlands

xxx = major; >25% of wetlands

s = southern subzones only

TABLE 5.3.2 Marsh Species Importance Table

Species		Wm01	Wm02	Wm03	Wm04	Wm05
Herbs and Dwarf Shrubs	<i>Carex utriculata</i>					
	<i>Carex aquatilis</i>					
	<i>Equisetum fluviatile</i>					
	<i>Comarum palustre</i>					
	<i>Sium suave</i>					
	<i>Carex exsiccata</i>					
	<i>Carex atherodes</i>					
	<i>Polygonum amphibium</i>					
	<i>Eleocharis palustris</i>					
	<i>Potamogeton richardsonii</i>					
	<i>Typha latifolia</i>					
	<i>Schoenoplectus acutus</i>					
	<i>Menyanthes trifoliata</i>					
	<i>Utricularia macrorhiza</i>					
	<i>Juncus balticus</i>					
	<i>Hordeum jubatum</i>					
	<i>Potentilla anserina</i>					
	<i>Calamagrostis canadensis</i>					
	<i>Cicuta douglasii</i>					
	<i>Lysichiton americanus</i>					
	<i>Oenanthe sarmentosa</i>					
	<i>Galium trifidum</i>					
	<i>Spiraea douglasii</i>					
	<i>Carex sitchensis</i>					
	<i>Nuphar lutea</i> ssp. <i>polysepala</i>					
	<i>Dulichium arundinaceum</i>					
Mosses	<i>Drepanocladus</i> spp.					
	<i>Wamstorfia</i> spp.					

Typha latifolia

General Description

Cattail marshes are common throughout the Coast and Interior at low elevations in subzones with warm summers. They occur most commonly in protected lake embayments and potholes or even roadside ditches, where the surface substrate remains saturated for most of the growing season.

Typha latifolia dominates, often with few other rooted plants present, especially where nutrient levels are high and *T. latifolia* growth profuse. Occasionally there is significant cover of *Carex utriculata*, *Schoenoplectus acutus*, or *Lemna* spp.

These sites often have organic veneers of well-decomposed, odiferous muck. Soil types can be Humisols or Humic Gleysols. Water depths may be up to 1 m in the spring but recede in late summer, sometimes to the surface.



Characteristic Vegetation

- Tree layer (0 - 0 - 0)
- Shrub layer (0 - 0 - 10)
- Herb layer (40 - 80 - 100)
- Typha latifolia*
- Moss layer (0 - 0 - 90)

Comments

Typha latifolia effectively turns high nutrient levels (N and P) into biomass and often dominates wetlands experiencing nutrient loading. Addition of agricultural or human waste to most wetlands will lead to an increase and eventual dominance by *T. latifolia* if climatic conditions are favourable. Initial *T. latifolia* establishment requires substrate exposure for seedling establishment and germination, though once established it spreads extensively by rhizomes so that large stands may consist of only a few individual plants.

Similar sites with more dynamic hydrology or lower N and P are usually occupied by Wm06. Patches of *S. acutus* in Wm05 marshes can be a result of intensive grazing by Muskrat. *S. acutus* stores nutrients in the root mass and can more rapidly recover from removal of its stem than can *T. latifolia*.

Wetland Edatopic Grid

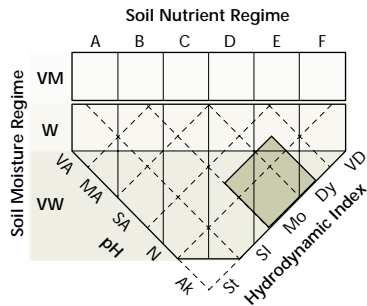


TABLE 5.3.1 Distribution of Marsh Site Associations by biogeoclimatic zone

	BG PP	BWBS SWB	ESSF	ICH	IDF	MS	SBPS SBS	CDF	CWH	MH
Wm01 Beaked sedge – Water sedge	x	xx	x	xxx	xxx	xx	xx		x	
Wm02 Swamp horsetail – Beaked sedge		x		x	x	x	xx			
Wm03 Awned sedge	x				x					
Wm04 Common spike-rush	x	x		xx	x	x	xx		x	
Wm05 Cattail	xxx	x		xx	xx	x	xx	xx	x ^s	
Wm06 Great bulrush	xxx	x		x	xx	xx	x	x	x	
Wm07 Baltic rush	x				xx					
Wm50 Sitka sedge – Hemlock-parsley								xx	xx	
Wm51 Three-way sedge				x				x	x	

x = incidental; < 5% of wetlands

xx = minor; 5–25% of wetlands

xxx = major; >25% of wetlands

s = southern subzones only

TABLE 5.3.2 Marsh Species Importance Table

Species		Wm01	Wm02	Wm03	Wm04	Wm05
Herbs and Dwarf Shrubs	<i>Carex utriculata</i>					
	<i>Carex aquatilis</i>					
	<i>Equisetum fluviatile</i>					
	<i>Comarum palustre</i>					
	<i>Sium suave</i>					
	<i>Carex exsiccata</i>					
	<i>Carex atherodes</i>					
	<i>Polygonum amphibium</i>					
	<i>Eleocharis palustris</i>					
	<i>Potamogeton richardsonii</i>					
	<i>Typha latifolia</i>					
	<i>Schoenoplectus acutus</i>					
	<i>Menyanthes trifoliata</i>					
	<i>Utricularia macrorhiza</i>					
	<i>Juncus balticus</i>					
	<i>Hordeum jubatum</i>					
	<i>Potentilla anserina</i>					
	<i>Calamagrostis canadensis</i>					
	<i>Cicuta douglasii</i>					
	<i>Lysichiton americanus</i>					
	<i>Oenanthe sarmentosa</i>					
	<i>Galium trifidum</i>					
	<i>Spiraea douglasii</i>					
	<i>Carex sitchensis</i>					
	<i>Nuphar lutea</i> ssp. <i>polysepala</i>					
	<i>Dulichium arundinaceum</i>					
Mosses	<i>Drepanocladus</i> spp.					
	<i>Wamstorfia</i> spp.					

Wm06	Wm07	Wm50	Wm51	Common Name
				beaked sedge
				water sedge
				swamp horsetail
				marsh cinquefoil
				hemlock water-parsnip
				inflated sedge
				awned sedge
				water smartweed
				common spike-rush
				Richardson's pondweed
				common cattail
				great bulrush
				buckbean
				greater bladderwort
				Baltic rush
				foxtail barley
				common silverweed
				bluejoint
				Douglas' water-hemlock
				skunk cabbage
				Pacific water-parsley
				small bedstraw
				pink spirea
				Sitka sedge
				yellow pond-lily
				three-way sedge
				hook-mosses: intermediate
				hook-mosses: poor

Dulichium arundinaceum

General Description

Three-way sedge marshes/fens are uncommon and often of limited extent on the south Coast and rare in wet regions of the Southern Interior Mountains at elevations below 600 m. The **Wm51** occurs along the protected margins of shallow lakes or sluggish streams on mucky substrates.



Dulichium arundinaceum is always dominant. There is often a minor component of emergent sedges or rushes. Other species that grow well on flooded, degrading peaty soils, such as *Nuphar lutea*, *Menyanthes trifoliata*, and *Comarum palustre* occur on some sites.

The **Wm51** prefers permanently flooded conditions on degrading peat or soft muck (mix of fine mineral material and organics).

Characteristic Vegetation

Tree layer (0 - 0 - 0)

Shrub layer (0 - 2 - 5)

Herb layer (40 - 80 - 100)

Carex sitchensis, *Dulichium arundinaceum*,

Nuphar lutea

Moss layer (0 - 5 - 10)

Comments

The **Wm51** often occurs at the interface between peatland ecosystems such as the **Wf52** and shallow-water ecosystems dominated by pond-lily or water shield.

Wetland Edatopic Grid

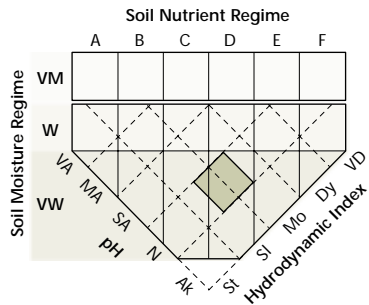


TABLE 5.4.1 Distribution of Swamp Site Associations by biogeoclimatic zone

	BG PP	BWBS SWB	ESSF	ICH	IDF	MS	SBPS SBS	CDF	CWH	MH
Ws01 Mountain alder – Skunk cabbage – Lady fern				XX			XX ^w			
Ws02 Mountain alder – Pink spirea – Sitka sedge		X	X	XX	X	X	X ^w		X	
Ws03 Bebb's willow – Bluejoint	X	XX			XX	X	XX			
Ws04 Drummond's willow – Beaked sedge				X	X	X	XX			
Ws05 MacCalla's willow – Beaked sedge					X		X			
Ws06 Sitka willow – Sitka sedge				XX			X ^w			
Ws07 Spruce – Common horsetail – Leafy moss		XX	X	XX	XX	XX	XXX			
Ws08 Subalpine fir – Sitka valerian – Common horsetail			XX							
Ws09 Black spruce – Skunk cabbage – Peat-moss				XX			X ^w			
Ws10 Western redcedar – Spruce – Skunk cabbage				XX						
Ws11 Spruce – Subalpine fir – Skunk cabbage							X ^w			
Ws50 Pink spirea – Sitka sedge				X			X ^w	XXX	XX	
Ws51 Sitka willow – Pacific willow – Skunk cabbage				X				X	X	
Ws52 Red alder – Skunk cabbage								XX	XX	
Ws53 Western redcedar – Sword fern – Skunk cabbage								X	X ^x	
Ws54 Western redcedar – Western hemlock – Skunk cabbage								X	XX	
Ws55 Yellow-cedar – Mountain hemlock – Skunk cabbage										XX

x = incidental; < 5% of wetlands

w = wet subzones only

xx = minor; 5–25% of wetlands

x = very dry subzones only

xxx = major; >25% of wetlands

TABLE 5.4.2 Swamp Species Importance Table

Species		Ws03	Ws04	Ws05	Ws02	Ws06	Ws07	Ws08	Ws01
Trees	<i>Picea X</i>								
	<i>Picea mariana</i>								
	<i>Abies lasiocarpa</i>								
	<i>Tsuga heterophylla</i>								
	<i>Thuja plicata</i>								
	<i>Picea sitchensis</i>								
	<i>Alnus rubra</i>								
	<i>Acer macrophyllum</i>								
	<i>Chamaecyparis nootkatensis</i>								
	<i>Tsuga mertensiana</i>								
	<i>Abies amabilis</i>								
	Shrubs	<i>Salix bebbiana</i>							
<i>Salix drummondiana</i>									
<i>Salix maccalliana</i>									
<i>Alnus incana</i>									
<i>Lonicera involucrata</i>									
<i>Spiraea douglasii</i>									
<i>Cornus stolonifera</i>									
<i>Vaccinium alaskaense/ovalifolium</i>									
<i>Salix sitchensis</i>									
<i>Salix lucida</i>									
<i>Rubus spectabilis</i>									
<i>Sambucus racemosa</i>									
<i>Gaultheria shallon</i>									
<i>Ribes bracteosum</i>									
<i>Elliottia pyroliflorus</i>									
Herbs and Dwarf Shrubs	<i>Calamagrostis canadensis</i>								
	<i>Carex aquatilis/sitchensis</i>								
	<i>Carex utriculata</i>								
	<i>Gymnocarpium dryopteris</i>								
	<i>Valeriana sitchensis</i>								
	<i>Scirpus microcarpus</i>								
	<i>Equisetum arvense</i>								
	<i>Lysichiton americanus</i>								
	<i>Athyrium filix-femina</i>								
	<i>Tiarella trifoliata</i>								
	<i>Streptopus lanceolatus</i>								
	<i>Maianthemum dilatatum</i>								
	<i>Oenanthe sarmentosa</i>								
	<i>Polystichum munitum</i>								
	<i>Equisetum telmateia</i>								
	<i>Blechnum spicant</i>								
	<i>Veratrum viride</i>								
	<i>Fauria crista-galli</i>								
Mosses and Lichens	<i>Drepanocladus spp.</i>								
	<i>Mnium spp.</i>								
	<i>Aulacomnium palustre</i>								
	<i>Sphagnum spp.</i>								
	<i>Hylocomium splendens</i>								
	<i>Pleurozium schreberi</i>								
	<i>Eurhynchium praelongum</i>								
	<i>Rhytidiadelphus loreus</i>								

Ws09	Ws10	Ws11	Ws50	Ws51	Ws52	Ws53	Ws54	Ws55	Common Name
									spruce
									black spruce
									subalpine fir
									western hemlock
									western redcedar
									Sitka spruce
									red alder
									bigleaf maple
									yellow-cedar
									mountain hemlock
									amabilis fir
									Bebb's willow
									Drummond's willow
									MacCalla's willow
									mountain alder
									black twinberry
									pink spirea
									red-osier dogwood
									Alaska/oval-leaved blueberry
									Sitka willow
									Pacific willow
									salmonberry
									red elderberry
									salal
									stink currant
									copperbush
									bluejoint
									water/Sitka sedge
									beaked sedge
									oak fern
									Sitka valerian
									small-flowered bulrush
									common horsetail
									skunk cabbage
									lady fern
									foamflower
									rosy twistedstalk
									false lily-of-the-valley
									Pacific water-parsley
									sword fern
									giant horsetail
									deer fern
									Indian hellebore
									deer-cabbage
									hook-mosses
									leafy mosses
									glow moss
									peat-mosses
									step moss
									red-stemmed feather-moss
									beak moss
									lanky moss

Spiraea douglasii – *Carex sitchensis*

General Description

Pink spirea – Sitka sedge swamps are common at low elevations of the Georgia Depression in basins, gullies, and margins of waterbodies and peatlands. These sites experience prolonged saturation and brief early-season flooding.

Species diversity is low in this Site Association. *Spiraea douglasii* always dominates **Ws50** sites; few other shrub species occur. The sedge-dominated understorey is sparse or well developed. Few species other than *Carex sitchensis* are common. The moss layer is often minimal but *Aulacomnium palustre* or *Sphagnum* spp. occur with high abundance on some sites.

Humisols and Gleysols are the most common soil types.

Characteristic Vegetation

Tree layer (0 - 0 - 2)

Shrub layer (15 - 70 - 99)

Spiraea douglasii

Herb layer (2 - 35 - 85)

Carex sitchensis

Moss layer (0 - 34 - 90)

Aulacomnium palustre, *Sphagnum* Group I



Comments

The **Ws50** Site Association is common as a component of many peatlands along the southern Coast. It can be the dominant Site Association in small basins or surrounding **Wm50** marshes. *S. douglasii* increases with disturbance and many spirea thickets actually represent disturbance communities that have developed after hydrological change. Understoreys in these successional communities vary from completely absent to bog-like.

Shrub thickets dominated by *Myrica* gale with sedge are common in the region where the **Ws50** occurs. These communities are usually on peat and are described by the **Wf52** Site Association.

Wetland Edatopic Grid

