

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
<b>Wf01</b> Water sedge – Beaked sedge		xx	x	xx	xxx	xxx	xxx		x <sup>i</sup>	
<b>Wf02</b> Scrub birch – Water sedge		xxx	x	xx	xx	xx	xx			
<b>Wf03</b> Water sedge – Peat-moss			xx				x			
<b>Wf04</b> Barclay's willow – Water sedge – Glow mosses		x	xxx			x	x			
<b>Wf05</b> Slender sedge – Common hook-moss		x		xx	xx	xx	xx			
<b>Wf06</b> Slender sedge – Buckbean		x		x	x		x			
<b>Wf07</b> Scrub birch – Buckbean – Shore sedge		x		x	x		x			
<b>Wf08</b> Shore sedge – Buckbean – Hook-moss		x	x		x	x	x			
<b>Wf09</b> Few-flowered spike-rush – Hook-moss			x			x	x			
<b>Wf10</b> Hudson Bay clubrush – Red hook-moss							x			
<b>Wf11</b> Tufted clubrush – Star moss		x	x	x		x	x			
<b>Wf12</b> Narrow-leaved cotton-grass – Marsh-marigold			xxx							
<b>Wf13</b> Narrow-leaved cotton-grass – Shore sedge			xx			x				
<b>Wf50</b> Narrow-leaved cotton-grass – Peat-moss									x	xxx
<b>Wf51</b> Sitka sedge – Peat-moss				x				xx	xx	
<b>Wf52</b> Sweet gale – Sitka sedge								xx	xx <sup>s</sup>	
<b>Wf53</b> Slender sedge – White beak-rush								x	xx <sup>s</sup>	

x = incidental; &lt; 5% of wetlands

i = inland areas only

xx = minor; 5–25% of wetlands

s = southern subzones only

xxx = major; &gt;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>								
	<i>Comarum palustre</i>								
	<i>Calamagrostis canadensis</i>								
	<i>Carex lasiocarpa</i>								
	<i>Menyanthes trifoliata</i>								
	<i>Carex limosa</i>								
	<i>Carex chordorrhiza</i>								
	<i>Eleocharis quinqueflora</i>								
	<i>Trichophorum alpinum</i>								
	<i>Trichophorum cespitosum</i>								
	<i>Eriophorum angustifolium</i>								
	<i>Caltha leptosepala</i>								
	<i>Carex anthoxanthea</i>								
	<i>Equisetum fluviatile</i>								
	<i>Carex magellanica</i>								
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	<i>Eriophorum chamissonis</i>								
	<i>Vahlodea atropurpurea</i>								
	<i>Drosera anglica</i>								
	<i>Hypericum anagalloides</i>								
	<i>Triantha glutinosa</i>								
	<i>Schoenoplectus tabernaemontani</i>								
	<i>Fauria crista-galli</i>								
	<i>Senecio triangularis</i>								
	<i>Andromeda polifolia</i>								
	<i>Kalmia microphylla</i>								
	<i>Oxycoccus oxycoccus</i>								
	<i>Triglochin maritima</i>								
	<i>Drosera rotundifolia</i>								
	<i>Leptarrhena pyrolifolia</i>								
	<i>Platanthera dilatata</i>								
	<i>Sanguisorba canadensis</i>								
	<i>Utricularia intermedia</i>								
	<i>Viola palustris</i>								
Lichens and Mosses	<i>Sphagnum</i> Group I								
	<i>Aulaacomnium palustre</i>								
	<i>Drepanocladus</i> spp.								
	<i>Sphagnum</i> Group II								
	<i>Tomentypnum nitens</i>								
	<i>Philonotis fontana</i>								
	<i>Calliergon stramineum</i>								
	<i>Scorpidium</i> spp.								
	<i>Campyllum stellatum</i>								
	<i>Warnstorfia</i> spp.								
	<i>Meesia triquetra</i>								

*Carex aquatilis* – *Carex utriculata*

**General Description**

The Water sedge – Beaked sedge Fen Site Association is the most common and widespread Fen Site Association in the province. It occurs in all but the warmest and driest subzones from low to subalpine elevations on sites that are annually inundated by shallow, low-energy flood waters and that experience some late-season drawdown.

**Wf01** fens are found in a wide variety of landscape positions but most commonly palustrine basins. They occupy wetter zones in larger peatland complexes but also form extensive pure “meadows.”



Species diversity is low; *Carex*

*aquatilis* and *Carex utriculata* cover is often continuous, with scattered forbs, aquatics, and mosses in the understorey. On sites that dry out at the surface, *Calamagrostis canadensis* or *C. stricta* can become prominent, species diversity increases, and sites become more meadow-like.

Peat depths range from 30 to > 300 cm. Common soil types include typic and terric Fibrisols and Mesisols. This Site Association tolerates variable hydrology.

**Characteristic Vegetation**

- Tree layer** (0 - 0 - 0)
- Shrub layer** (0 - 0 - 10)
- Herb layer** (13 - 80 - 100)
- Carex aquatilis*, *C. utriculata*
- Moss layer** (0 - 5 - 100)
- Drepanocladus aduncus*

**Comments**

Sites dominated by *C. utriculata* and *C. aquatilis* but with mineral or humic soils are described by the **Wm01**. Because **Wf01** and **Wm01** sites are species-poor and the two dominant sedge species have a wide ecological amplitude, the plant community poorly differentiates between sites on peat (**Wf01**) and those on mineral soil (**Wm01**). **Wf01** sites typically have less *C. utriculata* and fewer aquatics than **Wm01** sites. The **Wf01** develops from the **Wm01** in most circumstances.

Sites that are drier or at least have more pronounced microtopography than the **Wf01** are usually occupied by communities with low shrubs and high moss cover (most commonly, the **Wf02**). However, at higher elevations few shrubs occur and only moss cover increases (**Wf03**). Sites with greater waterflow are characterized by tall-shrub swamps dominated by willows or alders, and water sedges, and have mineral or humic peat soils.

**Wetland Edatopic Grid**

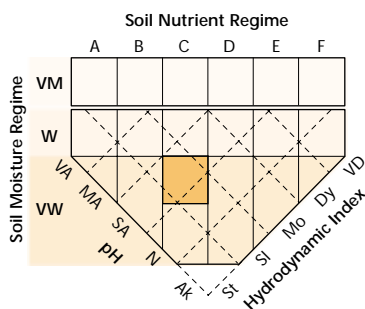


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Wf02 Scrub birch – Water sedge		xxx	x	xx	xx	xx	xx			
Wf03 Water sedge – Peat-moss			xx				x			
Wf04 Barclay's willow – Water sedge – Glow mosses		x	xxx			x	x			
Wf05 Slender sedge – Common hook-moss		x		xx	xx	xx	xx			
Wf06 Slender sedge – Buckbean		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 <sup>s</sup>	
Wf53 Slender sedge – White beak-rush								x	xx <sup>s</sup>	

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Lichens and Mosses	<i>Utricularia intermedia</i>								
	<i>Viola palustris</i>								
	<i>Sphagnum</i> Group I								
	<i>Aulacomnium palustre</i>								
	<i>Drepanocladus</i> spp.								
	<i>Sphagnum</i> Group II								
	<i>Tomentypnum nitens</i>								
	<i>Philonotis fontana</i>								
	<i>Calliergon stramineum</i>								
	<i>Scorpidium</i> spp.								
<i>Campylopus stellatum</i>									
<i>Warnstorfia</i> spp.									
<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

*Eriophorum angustifolium* – *Caltha leptosepala*



**General Description**

The Narrow-leaved cotton-grass – Marsh-marigold Site Association is common at subalpine elevations (above 1200 m) throughout the Sub-Boreal and Central Interior. It occurs on gently sloping peatlands where there is continual seepage from snowmelt and groundwater.

*Eriophorum angustifolium* occurs on most sites with high cover. Sites with abundant surface seepage will also have a high cover of *Caltha leptosepala* and/or *Leptarrhena pyrolifolia*. Other graminoids such as *C. anthoxantha*, *C. aquatilis*, or *C. nigricans* may also occur with high cover on some sites. The moss layer is usually well developed but compositionally variable.



Soils are usually deep, mushy sedge peat. Typic Mesisols and Fibrisols are the most common soil types.

**Characteristic Vegetation**

- Tree layer** (0 - 0 - 0)
- Shrub layer** (0 - 1 - 10)
- Herb layer** (12 - 80 - 100)
- Caltha leptosepala*, *Eriophorum angustifolium*
- Moss layer** (0 - 75 - 95)
- Aulacomnium palustre*

**Comments**

The Wf12 occurs on sites with more active seepage than the related Wf13 Site Association. It also has similar site characteristics to the Wf08, but that unit is fed by groundwater with high levels of base cations and has dense peat deposits.

The Wf12 occurs alone or in complex with the Wf03, on microsites with more active seepage.

Some Wf12 sites in the upper Skeena drainage have high cover of *Carex anthoxantha*, which is a common species of bog forests on the north Coast. The Interior distribution of this species is greatly restricted and could be limited to these high-elevation wetland ecosystems.

**Wetland Edatopic Grid**

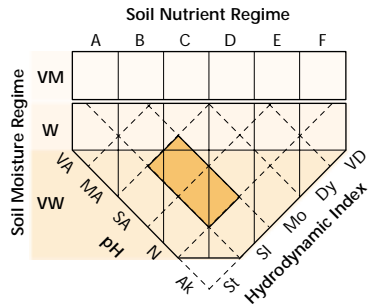


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Wf02 Scrub birch – Water sedge		xxx	x	xx	xx	xx	xx			
Wf03 Water sedge – Peat-moss			xx				x			
Wf04 Barclay's willow – Water sedge – Glow mosses		x	xxx			x	x			
Wf05 Slender sedge – Common hook-moss		x		xx	xx	xx	xx			
Wf06 Slender sedge – Buckbean		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 <sup>s</sup>	
Wf53 Slender sedge – White beak-rush								x	xx <sup>s</sup>	

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Lichens and Mosses	<i>Warnstorfia spp.</i>								
	<i>Meesia triquetra</i>								

*Carex aquatilis* – *Sphagnum*

**General Description**

Water sedge – Peat-moss fens occur mainly at elevations above 1100 m in the Interior (ESSF zone), where they are the counterpart to the **Wf02** of lower elevations. These communities appear to be relatively common but have not been extensively sampled. Small pocket depressions or gradual seepage slopes where there is no flooding are typical locations.



*Carex aquatilis* is the dominant species, though there can be significant occurrence of subalpine forbs such as *Caltha leptosepala*, *Sanguisorba canadensis*, or *Senecio triangularis* on some sites. Peat-mosses are usually dominant

in the **Wf03**, though there may be a diversity of other mosses such as *Aulacomnium palustre*, *Tomentypnum nitens*, and others.

Mesisols derived from sedge peat up to 2 m (rarely to 4 m) in depth are common.

**Characteristic Vegetation**

- Tree layer** (0 - 0 - 0)
- Shrub layer** (0 - 3 - 10)
- Herb layer** (25 - 70 - 100)
- Carex aquatilis*, *C. sitchensis*,
- Senecio triangularis*
- Moss layer** (30 - 85 - 100)
- Aulacomnium palustre*, *Sphagnum* Group I,
- Tomentypnum nitens*

**Comments**

The **Wf11** and **Wf12** occur only at higher elevations but require greater surface water flow and replace the **Wf03** on active seeps and more saturated sites. Frost and cold soils rather than a high watertable probably limit shrub establishment on **Wf03** sites.

**Wetland Edatopic Grid**

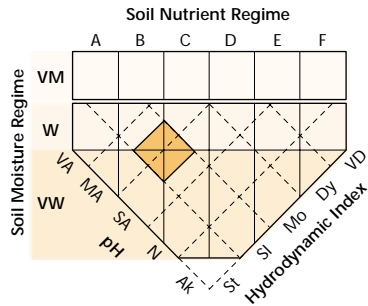


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Wf04 Barclay's willow – Water sedge – Glow mosses		x	xxx			x	x			
Wf05 Slender sedge – Common hook-moss		x		xx	xx	xx	xx			
Wf06 Slender sedge – Buckbean		x		x	x		x			
Wf07 Scrub birch – Buckbean – Shore sedge		x		x	x		x			
Wf08 Shore sedge – Buckbean – 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 <sup>s</sup>	
Wf53 Slender sedge – White beak-rush								x	xx <sup>s</sup>	

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	<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>								

*Salix barclayi* – *Carex aquatilis* – *Aulacomnium palustre*



**General Description**

Barclay’s willow – Water sedge – Glow moss fen/swamps are common at subalpine elevations of the Sub-Boreal Interior, Southern Interior Mountains, and Northern Boreal Mountains. They occur on subalpine seepage slopes, along glacier-fed creeks, and in frost-prone basins.

*Salix barclayi* dominates the shrub layer with a scattering of other low shrub species. *Carex aquatilis* dominates the herb layer but is often accompanied by scattered high-elevation species such as *Caltha leptosepala*, *Eriophorum angustifolium*, and *Leptarrhena pyrolifolia*. The moss layer can be absent or moderately well developed.



Continuous (often copious) groundwater or snowmelt seepage is typical, and soils are cold. Peat is often shallow because of low biomass production but occasionally deep sedge peat deposits are encountered. Common soil types include terric Mesisols, Humisols, and Fibrisols

**Characteristic Vegetation**

- Tree layer** (0 - .5 - 3)
- Shrub layer** (10 - 35 - 95)  
*Salix barclayi*
- Herb layer** (26 - 65 - 99)  
*Calamagrostis canadensis*, *Carex aquatilis*, *C. sitchensis*
- Moss layer** (0 - 15 - 95)  
*Aulacomnium palustre*, *Mnium* spp., *Philonotis fontana*

**Comments**

Wf04 can occur alone or surrounding sedge or cotton-grass fens (Wf03 or Wf12), or in wet depressions within forb-rich subalpine meadows or carrs. The similar Sc03 is also common at high elevations in the Interior. However, the Sc03’s low shrub physiognomy is the result of cold-air drainage not wet soils, and it is characterized by subalpine forbs with few hydrophytes.

**Wetland Edatopic Grid**

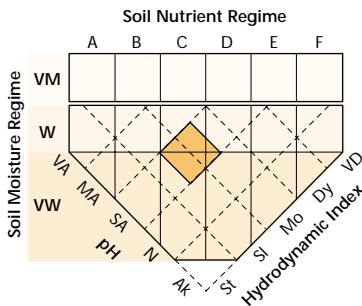


TABLE 5.2.1 Distribution of Fen Site Associations by biogeoclimatic zone

	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 <sup>i</sup>	
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 <sup>s</sup>	
Wf53 Slender sedge – White beak-rush								x	xx <sup>s</sup>	

x = incidental; &lt; 5% of wetlands

i = inland areas only

xx = minor; 5–25% of wetlands

s = southern subzones only

xxx = major; &gt;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 pedicularis</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



*Eriophorum angustifolium* – *Carex limosa*

**General Description**

Narrow-leaved cotton-grass – Shore sedge fens occur at higher elevations (1200–1800 m) of the ESSF zone in depressions or gradual seepage slopes where standing water persists for most of the short growing season. The **Wf13** appears to be relatively common (at least locally) but has not been extensively sampled.



A community dominated by *Eriophorum angustifolium* with *Carex limosa* is typical but some sites may have poor sedge (*Carex magellanica*) instead of *C. limosa*. Grasses such as *Calamagrostis canadensis* and *Vahlodea atropurpurea* and the forb *Caltha leptosepala* are commonly abundant. The moss layer is well developed and is often diverse, with no one species dominating.

Soils are deep peat deposits of fibric or mesic cotton-grass remains. Typic Mesisols and Fibrisols are common soil types.

**Characteristic Vegetation**

- Tree layer** (0 - 0 - 0)
- Shrub layer** (0 - 2 - 10)
- Herb layer** (20 - 80 - 100)
- Caltha leptosepala*, *Carex aquatilis*,  
*C. limosa*, *Eriophorum angustifolium*
- Moss layer** (0 - 40 - 99)
- Aulacomnium palustre*, *Philonotis fontana*,  
*Sphagnum* Group I

**Comments**

The **Wf13** is wetter than the closely related **Wf12** and tends to be found more commonly in depressional areas where water ponds. The high-elevation fen units **Wf03**, **Wf04**, **Wf11**, **Wf12**, and **Wf13** often occur together in complex in extensive subalpine peatlands, each occurring in habitats differing in water flow and ponding (**Wf03** driest to **Wf13** wettest).

**Wetland Edatopic Grid**

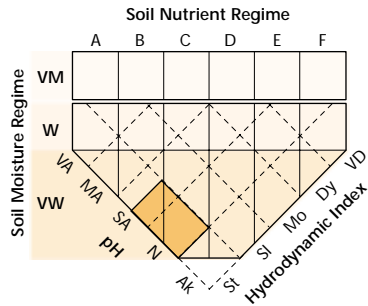


TABLE 5.3.1 Distribution of Marsh Site Associations by biogeoclimatic zone

	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 <sup>s</sup>	
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; &lt; 5% of wetlands

xx = minor; 5–25% of wetlands

xxx = major; &gt;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.					

*Equisetum fluviatile* – *Carex utriculata*

### General Description

The Swamp horsetail – Beaked sedge Marsh Site Association is uncommon at lower elevations throughout the Interior. Common locations are in back-levee depressions along sediment-laden, low-gradient streams, protected bays of large lakes, or hydrologically modified (flooded) fens. The **Wm02** also occurs along the Coast in tidal reaches of large rivers above saltwater influence.

Plant diversity is low. Sites are dominated by *Equisetum fluviatile* with *Carex utriculata* sometimes co-dominating; often there are scattered aquatics such as *Potamogeton* and *Myriophyllum* spp. The **Wm02** is similar to the **Wm01** but is distinguished by its higher hydrodynamic index and by the dominance of *E. fluviatile*.



Soils are derived from silty or fine-sandy fluvium, deep limnic deposits at open margins of lakes, or recently flooded peat. Rego Gleysols and Terric Humisols are common soil types.

### Characteristic Vegetation

**Tree layer** (0 - 0 - 0)

**Shrub layer** (0 - 0 - 4)

**Herb layer** (18 - 85 - 100)

*C. utriculata*, *Equisetum fluviatile*

**Moss layer** (0 - 0 - 90)

### Comments

*E. fluviatile* is tolerant of extreme variations in water depth and high rates of sedimentation and can colonize exposed mineral or peat soils. It has been used to revegetate the extreme environment of the drawdown zone in reservoirs.

On fluvial sites, the **Wm02** is usually adjacent to tall-willow swamps or low bench communities. In lake systems, **Wm02** commonly adjoins open water and other marsh communities.

### Wetland Edatopic Grid

