K3.26 VEGETATION

Table K3.26-1 describes the 50 field-verified vegetation types (Three Parameters Plus and HDR 2011a), identifies whether the type occurs predominantly in wetlands or uplands, and shows membership to the vegetation structure types applied in Section 3.26 and Section 4.26, Vegetation.

Table K3.26-1: Summary of Project Vegetation Types in the Mapping Area

Vegetation Structure Type	Project Vegetation Type	Abbreviation	Definition[1]	Predominantly Occurs in Wetland or Upland
Forest (≥10% cover of trees over 10 feet in height)				
Open/Closed Forest	Closed White Spruce Forest	CWSF	Closed forests dominated by white spruce (*Picea glauca*) where tree cover is ≥60%.	Upland
	Open White Spruce Forest	OWSF	Open forests dominated by white spruce (*Picea glauca*) where tree cover ranges from 25 to 59%.	Upland
	White Spruce Woodland	WSW	Woodlands dominated by white spruce (*Picea glauca*) where tree cover ranges from 10 to 24% and most trees are over 10 feet tall. Openings between trees may be dominated by mosses, lichens, herbs, and/or shrubs.	Upland
	Black Spruce Woodland	BSW	Woodlands dominated by black spruce (*Picea mariana*) where tree cover ranges from 10 to 24% and most trees are over 10 feet tall. Openings between trees may be dominated by mosses and lichens, herbs, and/or shrubs.	Wetland
	Closed Broadleaf Forest	CBF	Closed forests dominated by broadleaf tree species (e.g., *Betula papyrifera* var. *kenaica, Populus balsamifera*) where tree cover is ≥60%.	Upland
	Open Broadleaf Forest	OBF	Open forests dominated by broadleaf tree species (e.g., *Betula papyrifera* var. *kenaica, Populus balsamifera*) where tree cover ranges from 25 to 59%.	Upland
	Broadleaf Woodland	BW	Woodlands dominated by broadleaf tree species (e.g., *Betula papyrifera* var. *kenaica, Populus balsamifera*) where tree cover ranges from10 to 24%.	Wetland/Upland
	Closed Mixed Forest	CMF	Closed forests co-dominated by broadleaf (e.g., *Betula papyrifera* var. *kenaica, Populus balsamifera*) and needleleaf (e.g., *Picea glauca, P. mariana*) tree species where tree cover is ≥60%.	Upland
	Open Mixed Forest	OMF	Open forests co-dominated by broadleaf (e.g., *Betula papyrifera* var. *kenaica, Populus balsamifera*) and needleleaf (e.g., *Picea glauca, P. mariana*) tree species where tree cover ranges from 25 to 59%.	Upland
	Mixed Forest Woodland	MFW	Woodlands co-dominated by black and/or white spruce (*Picea mariana, P. glauca*) and broadleaf (e.g., *Betula papyrifera* var. *kenaica, Populus balsamifera*) tree species where tree cover ranges from 10 to 24%. Most of the trees are over 10 feet tall.	Upland
	Dwarf White Spruce Scrub	DWSS	Stands dominated by dwarf white spruce (*Picea glauca)* where trees are under 10 feet tall and cover ranges from 10 to 59%. If trees are over 10 feet tall and	Upland

Table K3.26-1: Summary of Project Vegetation Types in the Mapping Area

Vegetation Structure Type	Project Vegetation Type	Abbreviation	Definition[1]	Predominantly Occurs in Wetland or Upland
			cover is >10%, the scrub class does not apply. May be lichen rich on drier microsites.	
	Dwarf Black Spruce Scrub	DBSS	Stands dominated by dwarf black spruce (*Picea mariana*) where trees are under 10 feet tall and cover ranges from 10 to 59%. If trees are over 10 feet tall and cover is >10%, the scrub class does not apply. May be lichen rich on drier microsites.	Wetland/Upland
Scrub (<10% cover of trees over 10 feet in height, >25% shrub cover)				
Closed Tall Shrub	Closed Willow Tall Shrub	CWTS	Closed stands of tall (≥5 feet) shrub where willow species (e.g., *Salix pulchra, S. barclayi*) dominate. Shrub cover is ≥75% and tree cover is <10%. In some sites, resin and dwarf birch (*Betula glandulosa, B. nana*) may be mixed with the willow.	Upland
	Closed Alder Tall Shrub	CATS	Closed stands of tall (≥ 5 feet) shrub where alder species (e.g., *Alnus viridis* ssp. *sinuata*) dominate. Shrub cover is ≥75% and tree cover is <10%.	Upland
	Closed Alder-Willow Tall Shrub	CAWTS	Closed stands of tall (≥ 5 feet) shrub where alder and willow species (e.g., *Alnus viridis* ssp. *sinuata, Salix pulchra, S. barclayi*) co-dominate. Shrub cover is ≥75% and tree cover is <10%.	Upland/Wetland
Open Tall Shrub	Open Alder Tall Shrub	OATS	Open stands of tall (≥5 feet) shrub where alder species dominate. Shrub cover ranges from 25 to 74% and tree cover is <10%.	Upland
	Open Alder-Willow Tall Shrub	OAWTS	Open stands of tall (≥ 5 feet) shrub where alder and willow species co-dominate. Shrub cover ranges from 25 to 74% and tree cover is >10%.	Upland
	Open Willow Tall Shrub	OWTS	Open stands of tall (≥5 feet) shrub where willow species (e.g., *Salix pulchra, S. barclayi*) dominate. Shrub cover ranges from 25 to 74% and tree cover is <10%. In some sites, resin and dwarf birch (*Betula glandulosa, B. nana*) may be mixed with the willow.	Upland
Closed Low Shrub	Closed Willow Low Shrub	CWLS	Closed stands of low (8 inches to 5 feet) shrub where willow species (e.g., *Salix pulchra, S. barclayi*) dominate. Shrub cover is ≥75% and tree cover is <10%. In some sites, resin and dwarf birch (*Betula glandulosa, B. nana*) may be mixed with the willow.	Wetland
	Closed Alder-Willow Low Shrub	CAWLS	Closed stands of low (8 inches to 5 feet) shrub where alder and willow species (e.g., *Alnus viridis* ssp. *sinuata, Salix pulchra, S. barclayi*) co-dominate. Shrub cover is ≥75% and tree cover <10%.	Wetland/Upland

Table K3.26-1: Summary of Project Vegetation Types in the Mapping Area

Vegetation Structure Type	Project Vegetation Type	Abbreviation	Definition[1]	Predominantly Occurs in Wetland or Upland
	Closed Alder Low Shrub	CALS	Closed stands of low (8 inches to 5 feet) shrub where alder species (e.g., *Alnus viridis* ssp. *sinuata)* dominate. Shrub cover is ≥75% and tree cover <10%.	Upland
Open Low Shrub	Open Sweetgale-Graminoid Bog	OSGB	Bogs and fens characterized by open stands of low (8 inches to 5 feet) shrub. Sweetgale (*Myrica gale)* is the dominant shrub species. Shrub cover ranges from 25 to 74%, graminoid cover is >25%, and tree cover is >10%. These communities occur on peat ≥8 inches thick.	Wetland
	Open Mixed Shrub-Sedge Tussock	OMSST	Tussock tundra co-dominated by low (8 inches to 5 feet) shrubs and sedges. Shrub cover ranges from 25 to 74% cover; sedge cover is >25%. Tussock cottongrass (*Eriophorum vaginatum*) and Bigelow's sedge (*Carex bigelowii*) are the dominant and subdominant tussock-forming sedges, respectively. Trees are absent or scarce.	Wetland
	Open Dwarf Birch-Ericaceous Shrub Bog	ODBESB	Bogs characterized by dwarf birch, ericaceous shrubs, and abundant moss. The cover of shrubs over 8 inches tall ranges from 25 to 74%; the cover of tall (≥ 5 feet) shrubs is <25%; tree cover is <10%. Dominant species include resin and dwarf birch (*Betula glandulosa, B. nana),* blueberry (*Vaccinium uliginosum*), lingonberry (*V. vitis-idaea*), marsh Labrador tea (*Ledum palustre* ssp. *decumbens*), black crowberry (*Empetrum nigrum*), and bog rosemary (*Andromeda polifolia*). The combined cover of resin and dwarf birch is ≥10%. These communities develop on peat ≥8 inches thick. Peatmosses (*Sphagnum* spp.) are abundant at most sites, but may be absent.	Wetland
	Ericaceous Shrub Bog	ESB	Bogs characterized by ericaceous shrubs, abundant moss and sparse dwarf birch (*Betula nana*). Low (8 inches to 5 feet) shrub cover is ≥25%. Dominant shrub species are: black crowberry (*Empetrum nigrum*), blueberry (*Vaccinium uliginosum*), lingonberry (*V. vitis-idaea*), small cranberry (*V. oxycoccos*), bog rosemary (*Andromeda polifolia*), and marsh Labrador tea (*Ledum palustre* ssp. *decumbens*). These communities develop on peat ≥16 inches thick. Peatmosses (*Sphagnum* spp.) are always present and usually dominant. Other mosses, such as feather mosses, may also occur.	Wetland
	Low Ericaceous Shrub Tundra	LEST	Treeless areas dominated by low (8 inches to 5 feet) ericaceous shrubs. Shrub cover is ≥25%. Dominant shrubs include black crowberry (*Empetrum nigrum*), blueberry (*Vaccinium uliginosum),* lingonberry *(V. vitis-idaea*), small cranberry (*V. oxycoccos*), bog rosemary (*Andromeda polifolia*), marsh Labrador tea (*Ledum palustre* ssp. *decumbens*), and bog Labrador tea (*L. groenlandicum*).	Upland

Table K3.26-1: Summary of Project Vegetation Types in the Mapping Area

Vegetation Structure Type	Project Vegetation Type	Abbreviation	Definition[1]	Predominantly Occurs in Wetland or Upland
			These communities develop on mineral soils where the thickness of surface organics is <16 inches.	
	Open Dwarf Birch Scrub	ODBS	Open stands of low (8 inches to 5 feet) shrub dominated by dwarf and resin birch (*Betula nana, B. glandulosa*). Shrub cover ranges from 25 to 74%. While most of these communities are comprised of low shrub, this type should also be used for the occasional stand of tall (≥ 5 feet) resin birch (*B. glandulosa*).	Upland/Wetland
	Shrub Birch-Willow	SBW	Open stands of low (8 inches to 5 feet) shrub co-dominated by birch (*Betula nana*) and willow (*Salix barclayi*) species. Shrub cover is 25 to 74%.	Upland
	Open Willow Low Shrub	OWLS	Open stands of low (8 inches to 5 feet) shrub dominated by willow species (*Salix barclayi, S. pulchra*). Low shrub cover ranges from 25 to 74%; tall (>5 feet) shrub cover is <25% and tree cover is <10%. These communities usually develop on mineral soil and are drier than Open Willow Low Shrub Fen communities.	Wetland
	Open Willow Low Shrub Fen	OWLSF	Fens characterized by open stands of low (8 inches to 5 feet) shrubs where willow species (e.g., *Salix pulchra*) dominate. Low shrub cover ranges from 25 to 74%. These communities develop on peat ≥8 inches thick, and compared to Open Willow Low Shrub types are wetter with a hydrology often maintained by groundwater.	Wetland
	Open Alder-Willow Low Shrub	OAWLS	Open stands of low (8 inches to 5 feet) shrub where alder and willow species (*Alnus viridis* ssp. *sinuata, Salix barclayi*) are co-dominant. Shrub cover ranges from 25 to 74%, tree cover is <10%.	Wetland
	Open Alder Low Shrub	OALS	Open stands of low (8 inches to 5 feet) shrub where alder (e.g., *Alnus viridis* ssp. *sinuata*) is the dominant species. Low shrub cover ranges from 25 to 74%; tall (>5 feet) shrub cover is <25%; tree cover is <10%.	Upland
Dwarf Shrub	Dwarf Ericaceous Shrub Tundra	DEST	Treeless areas dominated by dwarf (<8 inches) ericaceous shrubs. Dominant shrub species include *Arctostaphylos* spp., *Vaccinium* spp., black crowberry (*Empetrum nigrum*), Aleutian mountainheath (*Phyllodoce aleutica*), and mountain heather (*Cassiope* spp.) Lichens are common but cover is <60%. If lichen cover is ≥60% percent, the Dwarf Ericaceous Shrub-Lichen Tundra vegetation type should be used.	Upland

Table K3.26-1: Summary of Project Vegetation Types in the Mapping Area

Vegetation Structure Type	Project Vegetation Type	Abbreviation	Definition[1]	Predominantly Occurs in Wetland or Upland
	Dwarf Ericaceous Shrub Tundra – Hummock	DEST-H	Treeless areas dominated by dwarf (<8 inches) ericaceous shrubs. Dominant shrub species include *Arctostaphylos* spp., *Vaccinium* spp., black crowberry *(Empetrum nigrum*), Aleutian mountainheath (*Phyllodoce aleutica*), and mountain heather (*Cassiope* spp.). The ground surface consists mostly of moderate (5.9 to 17.7 inches relief) and large (> 17.7 inches relief) hummocks. Significant lichen cover may develop on hummocks.	Upland
	Dwarf Ericaceous Shrub Tundra – Equisetum	DEST-EQ	Treeless areas dominated by dwarf (<8 inches) ericaceous shrubs with abundant horsetail (*Equisetum* spp.) Dominant shrubs include *Arctostaphylos* spp., *Vaccinium* spp., black crowberry *(Empetrum nigrum*), Aleutian mountainheath (*Phyllodoce aleutica*), and mountain heather (*Cassiope* spp.); cover of horsetail is >25%.	Upland
	Dwarf Ericaceous Shrub Tundra – Carex	DEST-C	Treeless areas dominated by dwarf (<8 inches) ericaceous shrub with abundant sedge. Dominant shrubs include *Arctostaphylos* spp., *Vaccinium* spp., black crowberry (*Empetrum nigrum*), Aleutian mountainheath (*Phyllodoce aleutica*), and mountain heather (*Cassiope* spp.). Sedge species (*Carex* spp.) cover is >25%. Lichen-rich on drier microsites.	Upland
	Dwarf Ericaceous Shrub-Lichen Tundra	DESLT	Treeless areas dominated by dwarf (<8 inches) shrub and lichen. Dominant shrubs include *Arctostaphylos* spp., *Vaccinium* spp., black crowberry *(Empetrum nigrum*), Aleutian mountainheath (*Phyllodoce aleutica*), and mountain heather (*Cassiope* spp.). Lichen cover is >60%.	Upland
Herbaceous (<10% of tree cover and <25% of shrub cover)				
Dry to Moist Herbaceous	Halophytic Dry Graminoid	HDG	Herbaceous community dominated by American dunegrass (*Leymus mollis).* Coastal in distribution occurring on sand dunes and the upper parts of coastal flats and beaches; grades seaward to halophytic herb communities. Dune communities are typically uplands, coastal flat communities can be wetlands.	Upland
	Bluejoint Tall Grass	BTG	Herbaceous community dominated by bluejoint reedgrass (*Calamagrostis canadensis*); subordinate forbs and graminoids may occur. The herbaceous stratum ranges from 2.5 to 5 feet tall. Woody plants are absent or scarce.; where they occur, trailing shrubs (e.g., *Salix pulchra*) grow in a low layer below the grass stratum.	Upland

Table K3.26-1: Summary of Project Vegetation Types in the Mapping Area

Vegetation Structure Type	Project Vegetation Type	Abbreviation	Definition[1]	Predominantly Occurs in Wetland or Upland
	Bluejoint-Herb	BH	Herbaceous community dominated by bluejoint reedgrass (*Calamagrostis canadensis*); interspersed with other low-growing herbs. The herbaceous stratum ranges from 2.5 to 5 feet tall. Woody plants are absent or scarce.	Upland
	Mesic Herb	MH	Herbaceous communities that do not satisfy the criteria of other project vegetation types. Herbaceous species numerous; shrub cover is <25% but the shrub beauverd spirea (*Spiraea stevenii*) may be dominant. Occurs on mesic subalpine and drier alpine sites.	Upland
Wet Herbaceous	Halophytic Graminoid Wet Meadow	HGWM	Herbaceous community characterized by species adapted to living in saline environments. Coastal distribution. Dominant species include circumpolar reedgrass (*Calamagrostis deschampsioides*), Lyngbye's sedge (*Carex lyngbyei*), largeflower speargrass (*Poa eminens*), Arctic daisy (*Chrysanthemum arcticum*), and Pacific silverweed *(Argentina egedii* ssp. *egedii*).	Wetland
	Subarctic Sedge-Moss Wet Meadow	SSMWM	This type includes numerous wet herbaceous communities that were difficult to separate on aerial photography. Types included are: subarctic lowland sedge-moss bog meadow, subarctic lowland sedge bog meadow, subarctic lowland sedge wet meadow, wet sedge-herb meadow tundra, and subarctic lowland herb bog meadow. Communities are dominated or co-dominated by graminoids; forbs may also co-dominate. Shrub cover is <25%. When present, shrubs form a low, trailing layer below the herbaceous stratum. Moss is abundant on many sites. Soils are saturated or may have shallow surface water. Most sites develop on peat ≥8 inches thick.	Wetland
	Fresh Sedge Marsh	FSM	Herbaceous community dominated by cottongrass species (e.g., *E. angustifolium*); water sedge (*Carex aquatilis*) is often abundant. Other common herbs are purple marshlocks (*Comarum palustre*) and bluejoint reedgrass (*Calamagrostis canadensis*). Plants are emergent in standing water (>6 inches deep) that persists through the growing season in most years. Trees, shrubs, and lichens are absent; aquatic mosses may be present but are not abundant. The community develops at the edge of ponds, lakes, and low-velocity streams.	Wetland
	Fresh Herb Marsh	FHM	Herbaceous community dominated by emergent forbs in standing water (>6 inches deep) that persists through the growing season in most years. Dominant species are water horsetail (*Equisetum fluviatile*), bluejoint reedgrass (*Calamagrostis canadensis*), water sedge (*Carex aquatilis*), pendantgrass (*Arctophila fulva*), and purple marshlocks (*Comarum palustre*).	Wetland

Table K3.26-1: Summary of Project Vegetation Types in the Mapping Area

Vegetation Structure Type	Project Vegetation Type	Abbreviation	Definition[1]	Predominantly Occurs in Wetland or Upland
	Aquatic Herbaceous	AH	Permanently-flooded herbaceous communities dominated by rooted and floating vascular plants. Dominant species are: pendantgrass (*Arctophila fulva*), common mare's-tail (*Hippuris vulgaris*), greater creeping spearwort (*Ranunculus flammula*), threadleaf crowfoot (*Ranunculus trichophyllus*). Standing or flowing water persists through the growing season.	Wetland
Other (<25% vegetation)				
Other	Partially Vegetated	PV	Sparsely vegetated type where vegetation cover ranges from 10 to 25%. This type is usually applied to temporarily flooded pond basins that lose water early in the growing season. These areas are unvegetated when water recedes, but develop sparse cover by pioneering annual plants as the growing season progresses. May also be applied to sparsely vegetated rubble and scree fields, mountaintops, and gravel bars.	Upland
	Barren	BARE	Barren areas where the cover of vascular plants is <10%. This type is applied to unvegetated gravel bars, beaches, seasonal pond bottoms, rubble fields, and scree slopes.	Wetland/Upland
	Snow	SNOW	Persistent snowfields.	Upland
Open Water	Open Water	OW	Open water where cover of vascular plants is <25%. Includes streams, rivers, lakes, and ponds.	Waters

Note:

[1]Forest density classes (closed, open, woodland) are differentiated base on tree canopy coverage (>60%, 25-59%, 10-24%, respectively). Shrub density classes (closed, open) are differentiated based on shrub canopy cover (>75%, 25-75%, respectively). Dwarf tree scrub classes are differentiated from forest classes by trees that are <10 feet tall at maturity. Shrub height classes (tall, low, dwarf) are differentiated based on average shrub height (>5 feet tall, 5 feet to 8 inches tall, <8 inches tall, respectively).

Source: EBD Chapter 13 – Three Parameters Plus and HDR 2011a; EBD Chapter 38 – HDR and Three Parameters Plus 2011a; HDR 2018c