

**National Park Service**  
**U.S. Department of Interior**



The landcover classification identified on this map describes existing vegetation classes. It is based primarily on life form (tree, shrub or herbaceous), vegetation stature and to a lesser extent, genera and species information. It follows, with modifications, The Alaska Vegetation Classification (Viereck et al. 1992) system at levels II through IV. The landcover class descriptions include geographic distribution, site



**Closed Spruce Forest**

**Environment:** The Closed Spruce Forest class occurs on gently sloping terrain at low elevations. This class was mapped on 0.1 km<sup>2</sup> of the study area. This is an uncommon class that generally occurs in small patches in a matrix of Open Spruce Forest or Mixed Broadleaf/Needleleaf Forest.

**Vegetation:** *Picea geniculata* dominates the tree layer, and *Populus balsamifera* or *Betula papyrifera* var. *kanadica* may be minor canopy associates. Tree height is 15 to 20 meters. Sallow spruce and ericaceous shrubs may occur sporadically in the understory.

**Aligned, Broadleaf plant associations:** *Populus balsamifera* or *Betula papyrifera* var. *kanadica* may be minor canopy associates. Tree height is 15 to 20 meters. Sallow spruce and ericaceous shrubs may occur sporadically in the understory.

**Open Spruce Forest**

sloping terrain at low to mid elevations. The class is often interdispersed with Spruce Woodland, Birch Forest, and Mixed Broadleaved/Needleleaf Forest landowner classes and was mapped on 7% of the study area.

**Vegetation:** This class is dominated by *Picea glauca*. *Betula papyrifera* var. *kenas* may be a minor canopy associate. *Alnus incana* sp., *temulifolia*, *Salix glauca*, and *Calamagrostis canadensis* are common in the understorey on Broadleaved/Spruce, while *Ledum palustre* sp. *decaudens*, *Betula glandulosa*, *Betula nana*, *Empetrum nigrum*, and  *Vaccinium vitis-idaea* are common on uplands and abandoned terraces.

**Classification:** Tree cover is 25 to 59%, and needleleaf trees make up 75% or more of the total tree cover.

**Environment:** The Open Spruce Forest class occurs primarily on lower slopesides, Broadleaved terraces, and ancient outwash deposits. This class occurs on flat to gently

**Alaskan Broadleaf plant associations:**  
*Picea glauca*/*Salix pulchra*

[illegible]

**Mixed Broadleaf/Needleleaf Woodland**

**Classification:** Tree canopy cover is between 10% and 24% with needleleaf and broadleaf trees each contributing 25% to 75% of the total tree cover.

**Environment:** The Mixed Broadleaf/Needleleaf Woodland class occurs at low elevations on side slopes and abandoned terraces. Slopes range from flat on the terrace to gently sloping on upland sites. Large portions of this woodland class are post-fire early to mid-seral stands. It will likely transition to the Mixed Broadleaf/Needleleaf Forest as they mature. Common adjacent landcover classes include Mixed Broadleaf/Needleleaf Forest, Open Spruce Forest, and Spruce Woodland. This class was mapped on 10.7% of the study area.

**Vegetation:** *Picea glauca* and *Betula papyrifera* var. *trichostachya* dominate the spruce forest. The least layer is dominated by *Betula nana*, *Ledum palustre*, *Salix glauca*, *Salix glauca*, and *Carex* in the ground layer. *Carex* and *Carex* are common in the ground layer.

**Algaen/ Rhodophan plant associations:** None defined.

**Mixed Broadleaf/Needleleaf Forest**

Forest, Open Spruce Forest, and Spruce Woodland. This class was mapped on 13% of the study area.

**Vegetation:** *Picea glauca* and *Betula papyrifera* var. *tenuicaulis* dominated the forest canopy. *Populus balsamifera* may contribute to the broadleaf canopy in some areas. The shrub layer is variable across sites. Common species may include: *Acer incense*, *Sorbus temulosa*, *Viburnum edule*, *Ribes nigrum*, *Lonicera palustre* ssp. *dumbariae*, and *Saxifraga* spp., including *S. pulchra*. *Carex lasiocarpa*, *S. baccata*, *S. berberis*, *Dwarf shrubs* such as *Fascicularia nigrescens*, *F. vitidis-oides*, and *Lemnaea minor* are also common. Mosses and lichens species including *Caloglyphus canadensis*, *Equisetum perfoliatum*, *Equisetum hyemale*, *Gymnocarpium Dryopteris* may be present. *Monotropa* and lichens are present in varying amounts.

**Associated Broadleaf plant associations:**  
*Picea glauca*-*Betula papyrifera* var.  
*tenuicaulis* Caloglyphus/Canadian  
Saxifraga  
*Betula papyrifera* var. *tenuicaulis*/Shrub

**Environment:** This uncommon class occurs in small patches on floodplain terraces and adjacent uplands. The slope is generally relatively level on floodplains to moderately steep on hillides. This class was mapped on 0.02% of the study area. An association of this class occurs intermixed with the Birch Forest class. On floodplain terraces, this class is associated with the Tall Willow class.

**Vegetation:** *Populus balsamifera* dominates the tree layer, and *Betula papyrifera* var. *kennicottii* is a common associate. *Alnus incana* may be common in the shrub layer. Common species in the herbaceous layer include *Callagrostis canadensis*, *Sparganium angustifolium*, *Equisetum arvense*, *Equisetum pratense*, *Cornus canadensis*, *Rubus arcticus*, and *Gnomocephalus strigosus*. Mosses such as *Rhizoglyphus* spp. and *Hypnum* spp. may be common in the ground layer.

**Life classification:** Tree canopy cover is at least 10%. Broadleaf tree cover is 75% or more of total tree cover. This class is a *Populus* dominated tree layer.

**Alfalfa floodplain plant associations:**  
*Populus balsamifera*  
*Callagrostis canadensis*

**Birch Forest**



step on hillides. This class commonly occurs adjacent to other forested classes including Mixed Broadleaf/Needleleaf Forest and Woodland, Open Spruce Forest, and Spruce Woodland. This class was mapped on 3.2% of the study area.

**Vegetation:** *Betula papyrifera* var. *hensis* dominates the tree canopy. Common canopy associates include *Populus balsamifera* and *Picea glauca*. The understorey is variable across the landscape. *Persicaria*, *Urtica*, *Lamium pulchellum* sp. decumbens, and *Festuca ovina*-*divaricata* are often common on sedum patches. Within the floodplain, common species include *Urtica incana* sp. *temulifolia*, *Alternanthera*, *Salix*, and *Salix*.

**Classification:** Tree canopy cover is at least 25%. Broadleaf tree cover is 75% or more of the total tree cover, and Kema birch dominates the tree layer.

**Birch Woodland**

as early as 10-m to several forest type occurring as a narrow strip at the forest edge. This class may then transition to a Birch Forest or Mixed Broadleaf/Needleleaf Forest class. Common adjacent landscape classes include Broadleaf/Needleleaf Forest and woodland, Birch Forest, Open Spruce Forest, and Spruce Woodland. This class was mapped on 0.1% of the study area.

**Vegetation:** *Betula papyrifera* var. *lenacea* dominates the tree canopy. Common canopy associates include *Picea canadensis* (spruce) and saplings. The understorey is variable and includes *Salix* spp., *Salix glauca*, *Salix purpurea* sp. *decumbens*, and *Saxifraga* spp. on open upland sites. Within the riparian zone, *Salix glauca*, *Salix purpurea* sp. *decumbens*, *Salix lasiolepis*, *Salix lasiolepis* var. *incana* ssp. *uplandis*, *Viburnum edulis*, *Salix purpurea* sp. *decumbens*, and *Salix lasiolepis* are present in varying amounts.

**Abiotic/ biophysical plant associations:**

**Dwarf Fir**

Alagnak River. Slopes range from gentle to moderately steep and sites are well drained. The Dwarf Fir-Sitka spruce type occurs above treeline adjacent to the Tall Alder class and forested chert. This class is commonly intermingled with the Dwarf Fir-Sitka spruce class. Other species include Tall Alder, Tall Willow, Mixed Low Dwarf Fir, Mixed Broadleaf/Needle Forest and Wooded Open Forest and Woodland. This class was mapped on 1.5% of the study area.

**Vegetation:** The dwarf fir canopy is typically dominated by a combination of *Abies balsamea*, *Thuja occidentalis*, *Picea canadensis*, *Larix laricina*, *Juniperus communis* and *Juniperus horizontalis*. Other species that may be present include *Salix* and *Populus*. The dwarf fir canopy is *Juniperus* mosses have low cover in the ground layer, and lichen cover is less than 25%.

**Alagnak floodplain plant associations:**

**Dwarf Shrub-Lichen**

Slopes range from relatively flat to gently sloping; slope shape is typically convex.

The Dwarf Shrub-Lichen class typically occurs above treeline along slopes of the Tall Alder class and forested classes. This class is commonly intermixed with the Dwarf Shrub class. Other adjacent classes include Tall Alder, Tall Willow, Mixed Low/Dwarf Shrubs, Mixed Broadleaf/Tall Alder/Woodland, Spruce Forest and Woodland. This class was mapped as a portion of the study area.

**Vegetation:** *Ledum palustre* spp. *dumetorum* and *Empetrum nigrum* are the most abundant shrub species in this class. The dwarf shrub species that commonly occur include *Picea algicola*, *Vaccinium myrtillus*, *Rubus chamaemorus*, *Carex lasiocarpa*, *Salix arbuscula*. Moss cover is low, but lichens such as *Cladonia rangiferina* spp. are abundant in the ground layer.

**Algaes:** Rhodospirillum plant associations: None defined.

**Low Shrub Wetland**

Mixed Low Shrub/Dwarf shrub classes. It also occurs on poorly drained areas within forested channels such as Muskeg Broadleaf/Needleleaf Forest and Woodland, Open Space Forest and Spruce Woodland. The class was mapped on c. 0% of the study area.

**Vegetation:** Myrica gale, Betula nana, and Ledum palustre spp. decumbens are the common canopy shrubs. Other shrubs that may share dominance include Salix herbacea and S. pulchra. Salix fluviatilis and Vaccinium myrtillus may occur with low plant height in the understory. Dwarf herbaceous species include Calluna vulgaris, Carex aquatilis, Carex flacca, Carex lasiocarpa, Carex rostrata, Eriophorum aquaticum, E. flaviscapus, Comarum palustre, and Ranunculus repens, which as Sphagnum spp. and Tonnetomyia nigripennis are common in the ground layer.

**Algae:** floodplain plant associations:  
*Betula nana-Ledum palustre* spp.  
*Sphagnum angustifolium*-*Ranunculus repens* (invasive terrace)  
*Salix gale-Salix phragmites*

**Low Willow Shrub**



poorly-drained valley bottom sites. Slopes are generally flat. Floodplain sites on which this class occurs are not subjected to frequent flooding. Adjacent classes on the floodplain include Mixed Low-Dwarf Shrub, Wetland, Tall Willow, and Wet Herbaceous. This class was mapped on 2.3% of the study area.

**Vegetation:** *Salix pulchra* and *S. borealis* are dominant in the shrub canopy, while shrubs with low canopy cover may include *Myrica* glauca, *Desophorima fruticosa*, *Spiraea reuteri*, and *Betula nana*. Herbaceous species include *Callagrostis canadensis*, *Carex acuticulata*, *Equisetum arvense*, *Scirpus americanus*, *Scirpus arvensis*, and *Polygonum acutifolium*.

**Classification:** Tree canopy cover is less than 10%. Total shrub cover is 25% to 100%, and Sedge species 0.2% to 1.5 meters tall contribute 75% or more of the total cover.

**Environment:** The Low Willow class occurs on the Alagnak River floodplain and in

**Alagnak floodplain plant associations:**  
*Salix pulchra*-*Salix borealis*

[illegible]

**Mixed Low Dwarf Shrub-Shrub**

Shrub – Sedge slopes occur on ancient terraces and gentle slopes above the Alagnak floodplain. Slopes are flat to topographic. This class is similar in composition to the Mixed Low Dwarf Shrub class, but the combined cover of *Carex* spp. and *Vergetion* spp. is generally >30%. This class was mapped on 5.5% of the study area.

**Vegetation:** *Betula nana* and *Ledum palustre* spp. decumbens are the most abundant canopy shrubs. Other common shrubs include *Fragaria virginiana* and *V. vitis-idaea*. Either *Carex hexagona* or *Eleocharis acicularis* is generally the most abundant sedge species in the herbaceous layer. Other plant species include *Salix glauca*, *Salix glauca*, *Calluna vulgaris*, *Carex aquatics*, *Carex planiflora*, and *Rubus chamaemorus*.

Shrub cover is common in the ground layer.

**Alagnak floodplain plant associations:**

[illegible]

**Mesic Herbaceous Meadow**

occurs as small patches on floodplain terraces. This class is often interspersed with Tall Alder, Tall Willow, and Mixed up Dwarf Shrub classes. Along dominant silt/clay alluvium slopes, adjacent classes occurring upslope of the Mesic Herbaceous meadow class include Dwarf Shrub and Tall Shrub-Lichen. Tall shrubs and forested lowland classes occur down-slope of the Mesic Herbaceous meadow class.

On floodplain terraces, common adjacent classes include Tall Willow and Wet Herbaceous. This class was mapped at 0.1% of the study area.

**Vegetation:** *Calamagrostis canadensis* is typically the most abundant species. Other typical species include *Chamaenerion angustifolium*, *Silene maritima*, *Eryngium yuccifolium*, *Germium arvense*, *Hieracium pilosella*, *Potamogeton amplifolius*, *Typha latifolia*, *Tadclatrum sparganifolium*, and *Spargina stolonata*.

**Tall Alder Shrub**

**Classification:** Tree canopy cover is less than 10%, Tall shrub cover is 25% to 100% and undergrowth is less than 5 m tall. 50% of the species contribute greater than 75% of the total shrub cover.

**Testimony:** Tall Alder occurs on non-irrigation moderate slope alders along the continuous front and below the alpine tundra. It occurs from the lower to the lower portion of the Alaskan River floodplain, and from the lower portion of the floodplain to moderately steep on upland sites. In upland settings the Tall Alder is scarce, adjacent landcover classes include Dwarf Shrub, Dwarf Shrub-Lichen, and Mixed Low Dwarf Shrub. In floodplain settings, adjacent classes include Mixed Dwarf Shrub-Lichen, Dwarf Shrub-Lichen, Spruce Forest, and Birch Forest. The Tall Willow and Tall Alder classes occur on similar sites.

landcover classes on the floodplain include Wet Herbaceous, Water, and Mixed Dwarf Shrub-Lichen. Haines was mapped on 2.1% of the study area.

**Vegetation:** On upland sites the dominant shrub is *Salix repens* (sagebrush). Other common shrubs may include *Salix* spp. and *Ribes* spp. Understory herbaceous species include *Calamagrostis canadensis*, and *Dryopteris* sp. On floodplain sites (flooded by 100 years cycle *Amelanchier*) the dominant shrubs, and *Salix* spp. are the herbaceous species on the floodplain include *Calamagrostis canadensis*, *Equisetum arvense*, and *Comarostaphylis ovata*.

**Plant community/Plant associations:**

*Salix repens* / *Amelanchier* / *Calamagrostis canadensis*

**Barren**

**Classification:**  
Total vegetation cover is less than 15%, and bare ground dominates.

**Environment:**  
Barren ground was mapped along the active portion of the Alagnak River floodplain on cut banks and non-vegetated portions of point bars and islands.

This class was mapped on 0.1% of the study area.

## Wet Herbaceous

Willow class. This class was mapped on 4% of the study area.

**Vegetation:** Graminoid species typically dominated the upper canopy layer in the Wet Herbaceous class. *Calamagrostis canadensis*, *Carex aquatilis*, *Carex lyngbyei*, *Carex perfluviosa*, *Carex stricta*, and *Arctophila fulva* are species that still often dominated the graminoid layer. *Comarum palustre* often occurs under a canopy dominated by *Carex*. Other species that are often present include *Equisetum hyemale*, *Sparganium angustifolium*, *E. chamissoi*, and *M. racemosum*. *Arctophila fulva* is a species that may occur in the lower canopy layer in the wet herbaceous class. *Sagittaria* spp. are common in the slow-moving standing water. *Sagittaria* spp. is the most common moss genus.

**Environment:** The Wet Herbaceous class is common on lacustrine deposits, sloping, saturated mudflats, and the edges of lakes and ponds. Sites have standing or semi-permanent water dominated by hydrophilic vegetation. Relative to other classes, this patch type of the Wet Herbaceous class is generally younger and patchy in distribution. On the Alagnak River floodplain, this class often occurs interspersed with the Tall

**Alagnak floodplain patch associations:**

- Calamagrostis canadensis* - *Comarum palustre*
- Arctophila fulva* - *Calamagrostis canadensis*
- Arctophila fulva* - *Comarum palustre*
- Carex lyngbyei* - *Carex aquatilis*
- Carex perfluviosa* - *Carex stricta*
- Arctophila fulva* - *Comarum palustre*
- Arctophila fulva*



**Classification:** Total vegetation cover is less than 15%, and water dominates.

**Environment:** Most of the area mapped as Water is the Alagnak River. Additional areas include ponds, small lakes, sloughs, side streams, and areas within side streams that have been flooded by beaver dams.

This class was mapped on 8.6% of the study area

| Landcover Classes | % of Map |
|-------------------|----------|
|-------------------|----------|

| Landcover Classes                   | % of Map |
|-------------------------------------|----------|
| Closed Spruce Forest                | 0.1      |
| Open Spruce Forest                  | 7.2      |
| Spruce Woodland                     | 17.2     |
| Mixed Broadleaf/Needleleaf Woodland | 10.7     |
| Mixed Broadleaf/Needleleaf Forest   | 13.0     |
| Poplar Forest                       | 0.0      |
| Birch Forest                        | 3.2      |
| Birch Woodland                      | 0.1      |
| Dwarf Shrub                         | 1.1      |
| Dwarf Shrub-Lichen                  | 4.0      |
| Low Shrub Wetland                   |          |
| Low Willow Shrub                    |          |
| Mixed Low/Dwarf Shrub-Mesic         |          |
| Mixed Low/Dwarf Shrub-Sedge         |          |
| Tall Alder Shrub                    |          |
| Tall Willow Shrub                   |          |
| Mesic Herbaceous-Meadow             |          |
| Wet Herbaceous                      |          |
| Barren                              |          |
| Water                               |          |



Alaska Natural Heritage Program  
UNIVERSITY of ALASKA ANCHORAGE

National Park Service  
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1:2000 scale  
aerial stereo photograph  
roll-frame footprints  
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