

MAP REPORT  
FOR THE  
YUKON FLATS ECOREGION

NATIONAL WETLAND INVENTORY  
U.S. FISH AND WILDLIFE SERVICE  
REGION 7, ALASKA

THE 1:250,000 MAP UNITS INCLUDED ARE;  
BEAVER, BLACK RIVER  
CIRCLE, COLLEEN  
FORT YUKON

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I. INTRODUCTION

The U.S. Fish and Wildlife Service's (FWS) National Wetlands Inventory (NWI) is producing maps showing the location and classification of wetlands and deepwater habitats of the United States. The Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979) is the document used to define and classify wetlands. Photointerpretation conventions, hydric soils lists, and wetland plant lists are also available to enhance the use and application of the classification system.

This report incorporates the following 1:40,000-scale wetlands maps that fall within the Yukon Flats Ecoregion:

Beaver  
(A) 1,2,3,4,5,6  
(B) 1,2,3,4,5

Colleen  
(A) 5,6

Black River  
(A) 5,6  
(B) 5,6  
(C) 5,6  
(D) 5,6

Fort Yukon  
(A) 1,2,3,4,5,6  
(B) 1,2,3,4,5,6  
(C) 1,2,3,4,5,6  
(D) 1,2,3,4,5,6

Circle  
(C) 1  
(D) 1,2,3,4,5,6

II. PURPOSE

The purpose of the map report is threefold: (1) to describe local geography, climate, vegetation, and soils; (2) to provide a descriptive crosswalk from wetland codes on the map to wetland plant communities, representative plant species, and other ecological information, and (3) to provide information regarding the production of NWI maps for the Yukon Flats ecoregion, including specific imagery and interpretation discussions.

III. STUDY AREA

Geography

The Yukon Flats ecoregion is located in the northwest portion of Interior Alaska. This region contains a complex of lowlands, uplands, and mountains. The major geographic features are the Yukon Flats, the western fringe of the Porcupine Plateau, and the eastern side of the Kokrine-Hodzana Highlands. The village of Fort Yukon is the approximate central point of this ecoregion. A map showing the location of the Yukon Flats ecoregion is displayed in Attachment A.

The major rivers in the study area include the Yukon River, Porcupine River, Black River, and Sheenjek River. The Yukon River is the principal drainage, meandering across the Yukon Flats as a complexly braided stream with well developed river terraces. On the flats, the principal features are undulating lowlands, shallow lakes, sloughs, expansive marshes, and braided streams acting as tributaries to the Yukon River.

### Climate

The Yukon Flats ecoregion is located in a continental subarctic climate with seasonal extremes of temperature. Average annual temperatures in fahrenheit in winter are -29 degrees to -4 degrees, and average annual temperatures in summer are 47 degrees to 72 degrees. Temperature extremes are -75 degrees and 100 degrees.

Average annual precipitation recorded at Fort Yukon is 6.5 inches. The wet season is July and August and precipitation occurs mostly as isolated thunder showers. Because of the presence of snow for over half the year and the predominance of permafrost, the low precipitation is effective for plant growth in the short growing season of approximately 80 days.

Extensive flooding of lowlands occurs with spring breakup. This flooding is the primary source of water to the thousands of lakes and the extensive wetlands that are dominant features for this region.

### Vegetation

The Yukon Flats ecoregion is located within the northern boreal subzone of central Alaska. Vegetation patterns are complex as a result of fire history, major flooding each spring, a braided drainage system, and discontinuous permafrost.

Forests are the dominant habitat at lower elevations. Most of the non-wetland forest area supports a mixed evergreen-deciduous forest with dominant species consisting of white spruce (*Picea glauca*), paper birch (*Betula papyrifera*), quaking aspen (*Populus tremuloides*), and balsam poplar (*Populus balsamifera*). Wetland forests are dominated by black spruce (*Picea mariana*) and are typical of northfacing slopes and extensive bogs in the lowlands. Balsam poplar is primarily a riparian species forming forest communities often associated with white spruce. Quaking aspen is typically located on well drained south facing slopes.

Dwarf shrubs, such as leatherleaf (*Chamaedaphne calyculata*) and bog rosemary (*Andromeda polifolia*), are typical of poorly drained organic soil, while others like prickly rose (*Rosa acicularis*), highbush cranberry (*Viburnum edule*), and soapberry (*Shepherdia canadensis*) are characteristic of well drained mineral soils.

Tussock cottongrass (*Eriophorum vaginatum*) and Bigelow's sedge (*Carex bigelowii*) are most abundant in dwarf shrub-tussock tundra. Emergents

such as water sedge (Carex aquatilis) and water horsetail (Equisetum fluviatile) predominate on pond or lake margins and deep marshes. Steep, treeless, south-facing hillsides sometimes support sagebrush (Artemisia).

### Soils

Soil descriptions and associations are taken from the Exporatory Soil Survey of Alaska.

Typic Cryofluvents-Histic Pergelic Cryaquepts, loamy, nearly level association occupies broad flood plains and low terraces of the Yukon and Porcupine Rivers in the eastern part of the Yukon Flats. Most of the area exhibits low natural levees along former and existing stream courses separated by depressions, lakes, oxbow sloughs, and channels of major rivers.

On levees and terraces, under forests of white spruce and paper birch, the soils are generally well drained and consist of dark gray silty and sandy, nonacid to calcareous water laid sediment. Permafrost, if present is very deep. In depressions between the levees, the soils are generally poorly drained and have a shallow permafrost table. These support black spruce or a cover of willow (Salix spp.), sedges (Carex spp.), mosses (Sphagnum spp.), and low shrubs.

Aeric Cryaquepts, loamy, nearly level, are moderately well drained soils formed in silty loess over sand or very gravelly sand. They occur in slight depressions and former drainageways in terraces and outwash plains. The vegetation is predominantly black spruce forest.

Histic Pergelic Cryaquepts, loamy, nearly level, are poorly drained soils with a thick peaty surface mat and a shallow permafrost table. They occur in slight depressions and drainageways in the terraces. The vegetation is black spruce and willow and a ground cover of sphagnum moss. Under the thick surface layer of moss and peaty material the soils have a few inches of black silt loam over mottled gray silt loam or gravelly silt loam. Perched water above the permafrost keeps the soils wet during the summer.

#### IV. WETLAND AND DEEPWATER HABITAT CODES, CLASSIFICATION, AND COMMUNITIES

The following section describes the map codes used on the Yukon Flats Ecoregion 1:40,000-scale wetlands maps. A general description and/or community type, including dominant vegetation, is provided for each code.

Wetland and deepwater habitat data are displayed on overlays or maps by a series of letters and numbers (alphanumerics) with the first letter representing the system and subsequent alphanumerics representing, in a sequential manner, the subordinate level of detail down to special modifiers. Where classes and subclasses have been mixed, they are

separated by a diagonal line. When classes and subclasses have been mixed, the predominant life form represents 50% to 70% areal coverage while the less dominant life form represents 30% to 50% areal coverage.

Examples:

1. Classification of wetlands to the level of water regime and special modifier: L2AB3Hh;

L	-----	System:	Lacustrine
2	-----	Subsystem:	Littoral
AB	-----	Class:	Aquatic bed
3	-----	Subclass:	Rooted vascular
H	-----	Water regime:	Permanently flooded
h	-----	Special modifier:	Diked/Impounded

2. Mixing of classes and subclasses: PF04/SS1B;

P	-----	System:	Palustrine
		Subsystem:	none
FO	-----	Class:	Forested
4	-----	Subclass:	Needle-leaved evergreen
	mixed with		
SS	-----	Class:	Scrub/shrub
1	-----	Subclass:	Broad-leaved deciduous
B	-----	Water regime:	Saturated

Lacustrine System

This system includes all lakes greater than 20 acres in size and consists of deepwater habitat lacking trees, shrubs, persistent emergents, emergent mosses or lichens with greater than 30% areal coverage. The lacustrine system is bounded by upland or wetland dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens. Islands of palustrine wetland may lie within the boundaries of the Lacustrine system.

- L1UBH- Permanently flooded, open water areas of lakes. Generally, the water depth exceeds two meters. Vegetation is lacking or sparse (less than 30 percent areal coverage).
- L2UBF- Semipermanently flooded, shallow areas of lakes. Lake substrate will occasionally be exposed during low water periods and is unvegetated.
- L2USC- Seasonally flooded mud and sand flats along lake shorelines that are typically devoid of vegetation. These areas are usually exposed by the end of the growing season due to a fluctuation in water table. Scattered throughout the Yukon Flats are a small percentage of alkali wetlands with

moderately brackish water conditions. When these lakebeds dry up, sodium bicarbonate deposits are left behind.

- L2USA- Temporarily flooded mud and sand flats along lake shorelines. These areas are typically devoid of vegetation and become exposed by the middle of the growing season.
- L2EM2H- Permanently flooded, shallow areas of lakes dominated by nonpersistent emergents. The dominant emergent vegetation consists of pendent grass (Arctophyla fulva) and common mare's-tail (Hippuris vulgaris).
- L2EM2/AB3H- Permanently flooded, shallow areas of lakes dominated by nonpersistent emergents mixed with rooted vascular aquatic beds. Dominant emergent vegetation is pendent grass and common mare's-tail. Yellow cow-lily (Nuphar luteum), Eurasian water-milfoil (Myriophyllum spicatum), and several types of pondweed (Potamogeton spp.) are the aquatic species that are also common in these areas.
- L2AB3H- Permanently flooded, shallow areas of lakes extending from the shoreward boundary of the system to the maximum extent of rooted vascular aquatic beds. Dominant plants are yellow cow-lily, Eurasian water-milfoil, and several species of pondweed.

#### Palustrine System

The Palustrine System includes all wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, and lichens that are not influenced by ocean-derived salinity. Wetland types commonly referred to as bogs, muskegs, fens, marshes, and swamps are grouped in the Palustrine System. Lakes and ponds less than 20 acres in size are also a part of the Palustrine System. In the Yukon Flats, the palustrine system is the predominant wetland habitat

PUBH  
PUBF-

Permanently and semipermanently flooded, small open water bodies (ponds) where sparse vegetative cover may occur, but is generally less than 30%.

PUSC  
PUSA-

Seasonally and temporarily flooded, small basins or fringes of ponds. Typically little or no vegetation exists on these unconsolidated shores and standing water is present for less than half of the growing season. When the surface water is absent, the exposed substrate will either remain unvegetated or will be colonized by herbaceous annuals. These habitats are located throughout the Yukon Flats. See L2USC for alkali wetlands description.

- PAB3H  
PAB3F- Permanently and semipermanently flooded, rooted vascular aquatic vegetation growing in ponds, oxbows, and sloughs located throughout the Yukon Flats. In semipermanently flooded conditions, surface water persists throughout the growing season in most years.
- PAB3/UBH  
PAB3/UBF- Permanently and semipermanently flooded, rooted vascular aquatic beds mixed with areas of open water. In semipermanently flooded conditions, surface water persists throughout the growing season in most years. This designation is used for complexes of PAB and PUB when it is not practicable to delineate the types separately (see L2AB3H for species description).
- PAB3/EM1H  
PAB3/EM1F- Permanently and semipermanently flooded, rooted vascular aquatic beds mixed with persistent emergents. In semipermanently flooded conditions, surface water persists throughout the growing season in most years. These habitats typically occur in pond basins, oxbows, sloughs, and shoreward of Lacustrine systems throughout the Yukon Flats. Dominant species are yellow cow-lily, and various types of pondweed, while the less dominant persistent emergents consist of water sedge (Carex aquatilis), narrow-leaf cottongrass (Eriophorum angustifolium), water horsetail (Equisetum fluviatile), marsh cinquefoil (Potentilla palustris), and buckbean (Menyanthes trifoliata).
- PAB3/EM2H- Permanently flooded, rooted vascular aquatic beds mixed with non-persistent emergents. This mixed wetland type typically occurs in ponds, oxbows, and sloughs throughout the Yukon Flats. Dominant species are yellow cow-lily, and various types of pondweed, and the non-persistent emergents consist of pendent grass and horsetail.
- PEM1A- Temporarily flooded, persistent emergent vegetation that typically occurs on floodplain terraces, shorelines of lakes and ponds, and drainages throughout the Yukon Flats. Standing water is present for only brief periods during the growing season. Bluejoint (Calamagrostis canadensis) is usually the dominant emergent. Secondary species include field horsetail (Equisetum arvense), smartweed (Polygonum sp.), dock (Rumex sp.), silverweed (Potentilla anserina), bedstraw (Galium sp.), fox-tail barley (Hordeum jubatum), wheatgrass (Agropyron sp.), rush (Juncus spp.), and sedge (Carex spp.)

- PEM1/SS1A  
PSS1/EM1A- Temporarily flooded, persistent emergent vegetation mixed with shrub species. This habitat generally occurs on floodplain terraces or riparian zones, fringes of lakes and ponds, and small drainages throughout the Yukon Flats. Standing water is present for only brief periods during the growing season. Emergent species are the same as those listed above for the PEM1A classification. Shrub species include feltleaf willow (Salix alaxensis), gray-leaf willow (Salix glauca), diamond-leaf willow (Salix planifolia), Richardson willow (Salix richardsonii), green alder (Alnus crispa), Sitka alder (Alnus sinuata), and prickly rose (Rosa acicularis).
- PEM1/USA- Temporarily flooded, persistent emergent vegetation mixed with unconsolidated shore. Typically occurs in floodplain zones or on gravel bars of the larger rivers in this region. These river flats are generally composed of sand and gravel-size particles, and are situated at a slightly lower elevation than the adjacent shrub areas. This designation is used when emergent species are mixed with unvegetated flats having an areal cover of 30% to 50%. Emergent species are the same as those listed for the PEM1A wetland type.
- PEM1B- Saturated, emergent dominated wetlands. These areas are generally on saturated soils with less dominant sphagnum (Sphagnum sp.) covering the soil surface. Permafrost plays an important part in preventing the soil from draining for many of these wetland habitats. Sedge or cottongrass dominate this wetland type. Typically these habitats are located on northfacing slopes, rolling terrain, or alpine meadows. Dominant species include tussock cottongrass (Eriophorum vaginatum), Canadian single-spike sedge (Carex scirpoidea), sheathed sedge (Carex vaginata), Bigelow's sedge (Carex bigelowii), and water sedge.
- PEM1/SS1B- Above PEM1B type mixed with broad-leaved deciduous shrubs. Shrub species include net-leaf willow (Salix reticulata), least willow (Salix rotundifolia), swamp birch (Betula nana), tundra dwarf birch (Betula glandulosa), bog blueberry (Vaccinium uliginosum), mountain cranberry (Vaccinium vitis-idaea), cloudberry (Rubus chameamorus), and alpine manzanita (Arctostaphylos rubra).
- PEM1/FO4B  
PEM1/SS4B- Above PEM1B type mixed with needle-leaved evergreen trees and shrubs. Needle-leaved evergreen trees and shrubs include black spruce (Picea mariana) and white spruce (Picea glauca). This habitat typically exists in areas that have not been recently burned and is characterized by an open canopy of spruce with an understory of sedges, grasses, and mosses.

- PEM1C- Seasonally flooded, persistent emergent marshes. This emergent wetland type usually occurs on the floodplains of streams and rivers, on the edges of ponds and lakes, or in isolated depressions throughout the Yukon Flats. Standing water resulting from stream overflow or high water table is usually present during the first half of the growing season. Species of primary importance are round-fruit sedge, water sedge, creeping sedge (Carex chordorrhiza), shore sedge (Carex limosa), narrow-leaf cottongrass, and sphagnum moss. Secondary species include Scheuchzer's cotton-grass (Eriophorum scheuchzeri), marsh cinquefoil, bluejoint, and spikerush (Eleocharis sp.).
- PEM1/SS1C- Above PEM1C type mixed with broad-leaved deciduous shrubs. Dominant shrub species include grayleaf willow, Alaska bog willow (Salix fuscescens), shrubby cinquefoil (Potentilla fruticosa), thinleaf alder (Alnus tenuifolia), bog rosemary (Andromeda polifolia), and squashberry (Viburnum edule).
- PEM1/USC- Above PEM1C type mixed with unconsolidated shore. This wetland type generally occurs on gravel bars on the larger rivers of the project area such as the Yukon river or Porcupine river.
- PEM1F- Semipermanently flooded, emergent marshes. These are deep marshes that exhibit standing water usually throughout the entire growing season and are typically located in old pond basins, sloughs, and oxbow ponds throughout the Yukon Flats. The dominant vegetation consists of water sedge, beaked sedge (Carex rostrata), russet sedge (Carex saxatilis), marsh cinquefoil, water horsetail, buckbean, broad-leaf cattail (Typha latifolia), soft-stem bulrush (Scirpus validus), arctic rush (Juncus arcticus), and spikerush (Eleocharis sp.).
- PEM1/UBF- Above PEM1F type mixed with pockets of open water. This designation is used for complexes of PEM1 and PUB when it is not practicable to delineate the types separately.
- PEM1H- Permanently flooded, persistent emergent marshes. These habitats have standing water throughout the entire year and typically exist in oxbow sloughs, old pond basins, and deep marshes along the Yukon river. Buckbean and water horsetail comprise the dominant species. Secondary species which typically occur on the fringes of these marshes consist of broad-leaf cattail, water sedge, beaked sedge, and marsh cinquefoil.
- PSS1A- Temporarily flooded, dense stands of broad-leaved deciduous shrubs on river and stream floodplains. This wetland type often occurs on river bars that have become stable enough to support persistent woody vegetation. It is also typical of

willow drainages that are inundated temporarily in the early spring with snow-melt waters. Predominant species are feltleaf willow, gray-leaf willow, diamond-leaf willow, Richardson willow, and green alder. Understory vegetation is generally sparse, but typically consists of blue-joint reedgrass, field horsetail, broad-leaf arctic-bentgrass (Arctogrostis latifolia), river beauty (Epilobium latifolium), and rush.

PSS1C- Seasonally flooded dense stands of broad-leaved deciduous shrubs on river and stream floodplains and drainages throughout the Yukon Flats. This wetland type often occurs on river bars that are at a lower elevation than the PSS1A wetland type, but stable enough to support persistent woody vegetation. It is also typical of willow drainages that are inundated seasonally. Predominant species include grayleaf willow, Alaska bog willow, thinleaf alder, shrubby cinquefoil, tussock cotton-grass, blue-joint reedgrass, round-fruit sedge, and species of rush.

PSS1/USA- Temporarily flooded, scattered stands of broad-leaved deciduous shrubs mixed with a 30% to 50% cover of unconsolidated shore. This designation is used when it is not practicable to delineate the shrubs separately from the unvegetated flats. This wetland type often occurs on river bars that are slightly lower in elevation than the PSS1A habitat. Shrub species are the same as those of the PSS1A wetland type.

PSS1B- Saturated, broad-leaved deciduous shrub wetland. Greater than 70% of the vegetation consists of shrubs while less than 30% consists of emergents. A dense mat of moss usually covers the soil surface. Dominant shrubs include dwarf birch, bog blueberry, mountain cranberry, labrador tea (Ledum palustre), leatherleaf (Chamaedaphne calyculata), crowberry (Empetrum nigrum), bog rosemary, sweet gale (Myrica gale), and various types of willow (Salix spp.).

PSS1/EM1B- Similar type as PEM1/SS1B wetlands except shrubs are the dominant life form. These are some of the most common wetland habitats in the Yukon Flats ecoregion and are located on alpine zones, north facing slopes, broad river valley lowlands, and historic floodplains. This environment often predominates following a fire in areas dominated by black spruce. Vegetation includes the same species types as PEM1/SS1B wetlands.

PSS4B- Saturated, needle-leaved evergreen shrub wetlands. Black spruce is the dominant species, consisting of over 50% areal coverage. The black spruce shrub dominated environment typically includes scattered white spruce with an understory of various broad-leaved deciduous shrubs, persistent

emergents, and mosses and lichens. Black spruce wetlands are very common throughout the Yukon Flats ecoregion.

PSS1/4B

PSS4/1B-

Saturated, open canopy black spruce wetlands. The spruce in these wetlands is shrub height. The PSS1/4B classification is the most common wetland habitat in the Yukon Flats ecoregion. Black spruce is the dominant needle-leaved evergreen shrub with white spruce as the secondary needle-leaved evergreen species. The understory is dominated by dwarf arctic birch, labrador tea, bog blueberry, bog cranberry (Vaccinium oxycoccus), mountain cranberry, leatherleaf, crowberry, shrubby cinquefoil, and moss.

PSS1/FO4B

PFO4/SS1B-

Saturated, open canopy black spruce wetlands. These wetlands are similar to PSS1/4B areas described above except the spruce is tree height (over 20 ft.) The dense deciduous understory consists of the same vegetation as described above for PSS1/4B.

PFO4B-

Saturated black spruce wetlands. These areas are dominated by black spruce greater than 20 ft. in height and are common in rolling terrain and on north facing slopes that have not recently experienced fires. An understory of broad-leaved deciduous shrubs and persistent emergents usually occurs and includes green alder, thin-leaf alder, felt-leaf willow, little-tree willow (Salix arbusculoides), blue-joint reedgrass, field horsetail, siberian aster (Aster sibericus), alpine sweetvetch (Hedysarum alpinum), northern red-fruit toadflax (Geocaulon lividum), mosses, lichens, and several types of sedge.

PMLB-

Saturated, moss-lichen wetlands. In these wetlands, mosses and/or lichens are the dominant vegetation cover. Emergents, shrubs, or trees cover less than 30% of the area. Moss dominated wetlands are usually covered with sphagnum mosses and are sometimes situated in a floating mat. Lichen dominated wetlands are typically covered with reindeer moss (Cladonia rangiferina) and are generally situated on less saturated sites than sphagnum mosses.

PSS4/MLB

PFO4/MLB-

Saturated, spruce wetlands with a dense understory of mosses and/or lichens. The dominant species in shrub or tree form is black spruce with scattered white spruce. Sphagnum moss and reindeer moss predominate in the understory. Other species associated with this wetland type are green alder, bog blueberry, tundra dwarf birch, narrow-leaf labrador-tea (Ledum decumbens), mountain cranberry, and tussock cotton-grass.

## Riverine System

The Riverine System in the Yukon Flats includes all wetlands and deepwater habitats contained within a channel, with one exception; wetlands dominated by trees, shrubs, persistent emergents, mosses or lichens.

The Riverine System is divided into three subsystems: the Lower Perennial, the Upper Perennial, and the Intermittent. Each is defined in terms of water permanence, gradient, water velocity, substrate, and the extent of floodplain development.

- R2UBH- Permanently flooded, open water channels of Lower Perennial rivers and streams. The substrate consists mainly of sand and mud, and the floodplain is well developed. No persistent vegetation exists. The Yukon River is an example of a system classified under this deepwater habitat type.
- R2UBF- Semipermanently flooded, open water channels of Lower Perennial rivers and streams. Surface water is present throughout the growing season in most years. With or without surface water, the channel is generally unvegetated. This wetland type is most common in side channels and sloughs along the Yukon River.
- R2USC- Seasonally flooded areas of river flats or bars in Lower Perennial river channels. This wetland type occurs throughout the Yukon River and is typically unvegetated or sparsely vegetated by broad-leaved deciduous shrubs and/or persistent emergents. Vegetation cover is less than 30% of the flats area.
- R2USA- Temporarily flooded areas of river flats and bars in Lower Perennial river channels. This type is common throughout the Yukon River and occurs at slightly higher elevations than the R2USC wetland type. These wetland areas are unvegetated or sparsely vegetated with broad-leaved deciduous shrubs and/or persistent emergents. Vegetation cover is less than 30% of the flats area.
- R3UBH- Permanently flooded, open water channels of Upper Perennial rivers and streams. The substrate consists of rock, cobbles, or gravel with occasional patches of sand. There is very little floodplain development in these river systems. No persistent vegetation exists. Many of the tributaries of the Yukon River are under this classification.
- R3USC- Seasonally flooded areas of river flats and bars in Upper Perennial river channels. This type is common throughout the Porcupine River and usually occurs in oxbows and on low gravel bars in the river channel. Because they are

associated with Upper Perennial rivers, these wetlands are unvegetated or more sparsely vegetated than the Lower Perennial seasonally flooded flats and bars (R2USC), which are more conducive for pioneering plants.

- R3USA- Temporarily flooded complexes of river flats and/or bars in Upper Perennial river channels. This wetland type is more common than the R3USC type described above. Because these wetlands are located at slightly higher elevations than the R3USC type, they may support a greater areal coverage of shrubs and emergents.
- R4SBC- A complex of river flats, bars, and small open water pools of seasonally flooded Intermittent streams. These streams do not carry water throughout the year, but do have a moving water flow for extended periods each year. In most cases streambeds are not vegetated because of the scouring effect of moving water, but they may be colonized by pioneering plants during low flow.
- R4SBA- A complex of river flats, bars, and small open water pools of temporarily flooded Intermittent streams. These streams do not carry water throughout the year, but do have a moving water flow for short periods each year.

V. NATIONAL LIST OF WETLAND PLANT SPECIES

The Service has prepared a National List of Plant Species that Occur in Wetlands: Alaska (Reed 1988) which assigns an indicator to each plant species found in wetlands. This wetland indicator describes the frequency of occurrence of an individual species in wetlands versus non-wetlands within the State (similar plant lists are available for other Regions and states in the United States). Attachment B lists both the common name and scientific name, as well as the wetland indicator, for common wetland plants that occur in the Yukon Flats ecoregion. The following wetland indicators have been assigned to plants which occur in wetlands:

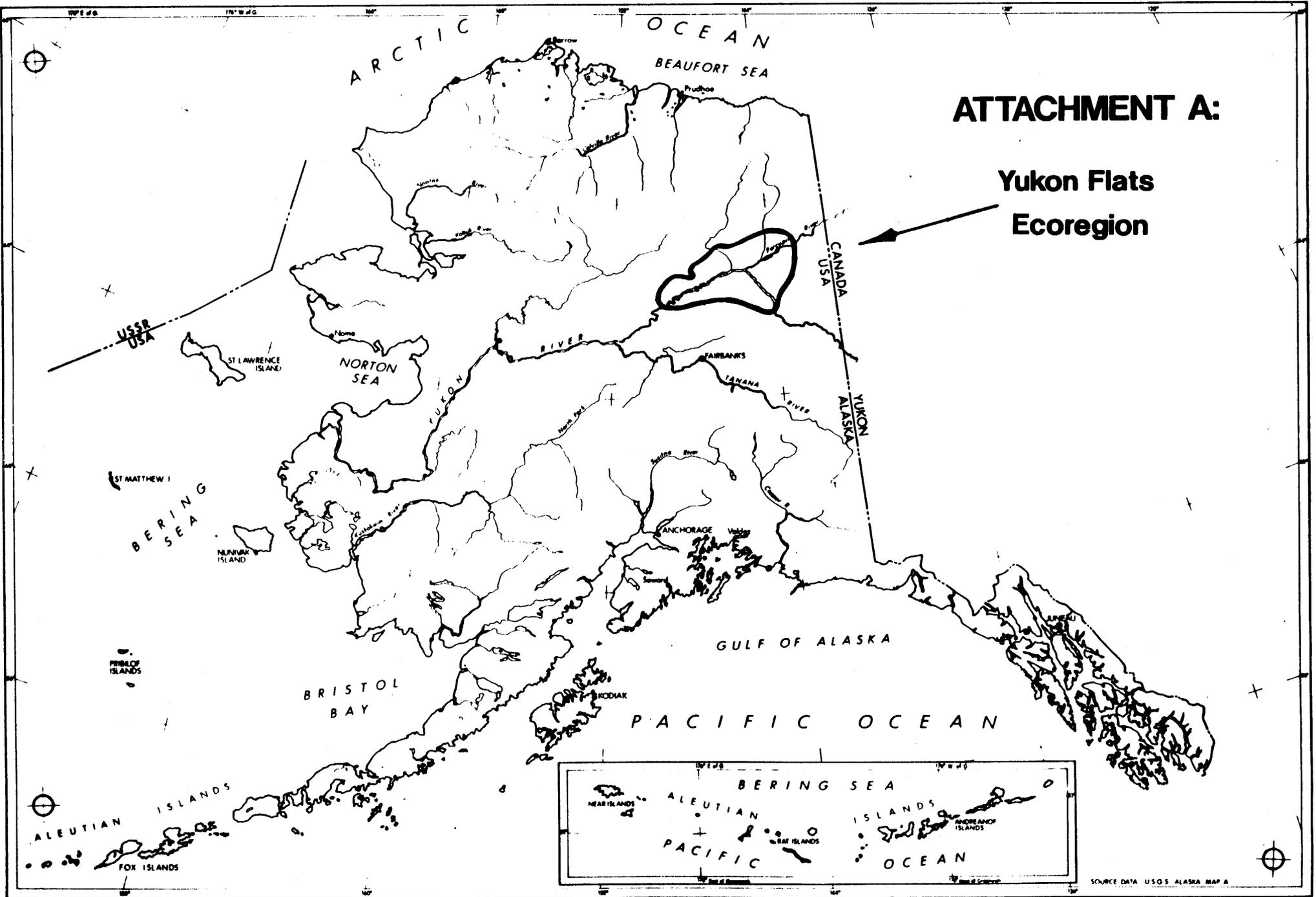
Obligate (OBL): Occur almost always (estimated probability >99%) under natural conditions in wetlands.

Facultative Wetland (FACW): Usually occur in wetlands (estimated probability 67%-99%), but occasionally found in nonwetlands.

Facultative (FAC): Equally likely to occur in wetlands or nonwetlands (estimated probability 34%-66%).

Facultative Upland (FACU): Usually occur in nonwetlands (estimated probability 67%-99%), but occasionally found in wetlands (estimated probability 1%-33%).

Non-wetland (UPL): Occur in wetlands in another region, but occur almost always (estimated probability >99%) under natural conditions in nonwetlands in the region specified. If a species does not occur in wetlands in any region, it is not on the National List.



# ATTACHMENT A:

## Yukon Flats Ecoregion



SOURCE DATA USGS ALASKA MAP A

ATTACHMENT B: Common wetland plants that occur in the Yukon Flats ecoregion and their indicator status:

TREES-

<i>Betula papyrifera</i>	Paper birch	FACU
<i>Larix laricina</i>	American larch	FACW
<i>Picea mariana</i>	Black spruce	FACW
<i>Picea glauca</i>	White spruce	FACU
<i>Populus balsamifera</i>	Balsam poplar	FACU
<i>Populus tremula</i>	Quaking aspen	FACU

SHRUBS-

<i>Alnus sinuata</i>	Sitka alder	FAC
<i>Alnus crispa</i>	Green alder	FAC
<i>Alnus tenuifolia</i>	Thin-leaf alder	FAC
<i>Andromeda polifolia</i>	Bog rosemary	OBL
<i>Arctostaphylos alpina</i>	Alpine manzanita	FAC
<i>Betula nana</i>	Swamp birch	FAC
<i>Betula glandulosa</i>	Tundra dwarf birch	FAC
<i>Cassiope tetragona</i>	Arctic bell-heather	FACU
<i>Chamaedaphne calyculata</i>	Leatherleaf	FACW
<i>Cornus canadensis</i>	Canada bunchberry	FACU
<i>Dryas integrifolia</i>	Entire-leaf mountain avens	FACU
<i>Empetrum nigrum</i>	Black crowberry	FAC
<i>Ledum decumbens</i>	Narrow-leaf Labrador-tea	FACW
<i>Ledum groenlandicum</i>	Greenland Labrador-tea	FACW
<i>Myrica gale</i>	Sweetgale	OBL
<i>Potentilla fruticosa</i>	Shrubby cinquefoil	FAC
<i>Rosa asicularis</i>	Prickly rose	FACU
<i>Rubus chamaemorus</i>	Cloudberry	FACW
<i>Salix planifolia</i>	Diamond-leaf willow	FACW
<i>Salix bebbiana</i>	Bebb willow	FAC
<i>Salix alaxensis</i>	Felt-leaf willow	FAC
<i>Salix arbusculoides</i>	Little-tree willow	FACW
<i>Salix glauca</i>	Gray-leaf willow	FAC
<i>Salix reticulata</i>	Net-leaf willow	FAC
<i>Salix phlebophylla</i>	Skeleton-leaf willow	FACU
<i>Salix richardsonii</i>	Richardson willow	FAC
<i>Vaccinium oxycoccos</i>	Small cranberry	OBL
<i>Vaccinium vitis-idaea</i>	Mountain cranberry	FAC
<i>Vaccinium uliginosum</i>	Bog blueberry	FAC
<i>Viburnum edule</i>	Squashberry	FACU

EMERGENTS-

<i>Aconitum delphinifolium</i>	Larkspur-leaf monkshood	FAC
<i>Alopecurus aequalis</i>	Short-awn foxtail	OBL

<i>Alopecurus aequalis</i>	Short-awn foxtail	OBL
<i>Arctagrostis latifolia</i>	Broad-leaf Arctic bent-grass	FACW
<i>Arctophyla fulva</i>	Pendent grass	OBL
<i>Aster junciformis</i>	Rush aster	OBL
<i>Aster sibiricus</i>	Siberian aster	FAC
<i>Beckmannia eruciformis</i>	Beckmann's grass	OBL
<i>Bidens cernua</i>	Nodding beggar-ticks	OBL
<i>Calamagrostis canadensis</i>	Blue-joint reedgrass	FAC
<i>Calla palustris</i>	Wild calla	OBL
<i>Caltha palustris</i>	Common marsh-marigold	OBL
<i>Carex aquatilis</i>	Water sedge	OBL
<i>Carex diandra</i>	Lesser panicled sedge	OBL
<i>Carex lapponica</i>	Lapland sedge	OBL
<i>Carex saxatilis</i>	Russet sedge	FACW
<i>Carex limosa</i>	Mud sedge	OBL
<i>Carex chordorrhiza</i>	Creeping sedge	OBL
<i>Carex rostrata</i>	Beaked sedge	OBL
<i>Carex bigelowii</i>	Bigelow's sedge	FAC
<i>Carex lasiocarpa</i>	Woolly-fruit sedge	OBL
<i>Carex rotundata</i>	Round-fruit sedge	OBL
<i>Carex vaginata</i>	Sheathed sedge	OBL
<i>Carex scirpoidea</i>	Canadian single-spike sedge	FACU
<i>Carex atherodes</i>	Slough sedge	OBL
<i>Cicuta mackenziana</i>	Mackenzie water-hemlock	OBL
<i>Delphinium glaucum</i>	Tower larkspur	FACW
<i>Deschampsia cespitosa</i>	Tufted hairgrass	FAC
<i>Eleocharis palustris</i>	Creeping spikerush	OBL
<i>Eleocharis acicularis</i>	Least spikerush	OBL
<i>Epilobium angustifolium</i>	Fireweed	FACU
<i>Epilobium latifolium</i>	River beauty	FAC
<i>Equisetum arvense</i>	Field horsetail	FACU
<i>Equisetum fluviatile</i>	Water horsetail	OBL
<i>Equisetum scirpoides</i>	Dwarf scouring-rush	FACU
<i>Erigeron lonchophyllus</i>	Low meadow fleabane	FACW
<i>Eriophorum scheuchzeri</i>	Scheuchzer's cotton-grass	OBL
<i>Eriophorum vaginatum</i>	Tussock cotton-grass	FACW
<i>Eriophorum angustifolium</i>	Narrow-leaf cotton-grass	OBL
<i>Festuca rubra</i>	Red fescue	FAC
<i>Galium trifidum</i>	Small bedstraw	FACW
<i>Geocaulon lividum</i>	Northern red-fruit toadflax	FACU
<i>Geum macrophyllum</i>	Large-leaf avens	FACW
<i>Glyceria borealis</i>	Small floating manna grass	OBL
<i>Gymnocarpium dryopteris</i>	Oak fern	FACU
<i>Hedysarum alpinum</i>	Alpine sweetvetch	FACU
<i>Hippuris vulgaris</i>	Common mare's-tail	OBL
<i>Hordeum jubatum</i>	Fox-tail barley	FAC
<i>Juncus arcticus</i>	Arctic rush	OBL
<i>Lysimachia thyrsoiflora</i>	Tufted loosestrife	OBL
<i>Menyanthes trifoliata</i>	Buckbean	OBL
<i>Petasites frigidus</i>	Arctic sweet coltsfoot	FACW
<i>Polygonum amphibium</i>	Water smartweed	OBL
<i>Potentilla palustris</i>	Marsh cinquefoil	OBL

<i>Potentilla norvegica</i>	Norwegian cinquefoil	FAC
<i>Pyrola grandiflora</i>	Arctic wintergreen	FAC
<i>Ranunculus hyperboreus</i>	Arctic buttercup	OBL
<i>Rorippa palustris</i>	Bog yellow-cress	FAC
<i>Sagittaria cuneata</i>	Northern arrow-head	OBL
<i>Scirpus validus</i>	Soft-stem bulrush	OBL
<i>Scolochloa festucacea</i>	Sprangle-top	OBL
<i>Scutellaria galericulata</i>	Hooded skullcap	OBL
<i>Senecio congestus</i>	Marsh groundsel	FACW
<i>Sium suave</i>	Hemlock water-parsnip	OBL
<i>Sparganium emersum</i>	Narrow-leaf burreed	OBL
<i>Sparganium hyperboreum</i>	Northern burreed	OBL
<i>Stellaria crassifolia</i>	Fleshy starwort	FACW
<i>Suaeda occidentalis</i>	Western seepweed	FACW
<i>Triglochin maritimum</i>	Seaside arrow-grass	OBL
<i>Triglochin palustre</i>	Marsh arrow-grass	OBL
<i>Typha latifolia</i>	Broad-leaf cattail	OBL
<i>Utricularia intermedia</i>	Flat-leaf bladderwort	OBL

AQUATIC BED-

<i>Callitriche hermaphroditica</i>	Autumnal water-starwort	OBL
<i>Lemna trisulca</i>	Star duckweed	OBL
<i>Lemna minor</i>	Lesser duckweed	OBL
<i>Myriophyllum spicatum</i>	Eurasian water-milfoil	OBL
<i>Nuphar luteum</i>	Yellow cow-lily	OBL
<i>Potamogeton alpinus</i>	Alpine pondweed	OBL
<i>Potamogeton zosteriformis</i>	Flat-stem pondweed	OBL
<i>Potamogeton pusillus</i>	Small pondweed	OBL
<i>Potamogeton friesii</i>	Fries's pondweed	OBL
<i>Potamogeton foliosus</i>	Leafy pondweed	OBL
<i>Potamogeton gramineus</i>	Grassy pondweed	OBL
<i>Potamogeton pectinatus</i>	Floating-leaf pondweed	OBL
<i>Potamogeton filiformis</i>	Fine-leaf pondweed	OBL
<i>Ranunculus trichophyllus</i>	White water-crowfoot	OBL
<i>Utricularia macrorhiza</i>	Common bladderwort	OBL
<i>Utricularia intermedia</i>	Flat-leaf bladderwort	OBL

VI. MAP PREPARATION

The wetland classification that appears on the NWI maps for the Yukon Flats Ecoregion is in accordance with Cowardin et al. (1979). The delineations were produced through stereoscopic interpretation of 1:60,000 to 1:65,000 scale color infrared aerial photography. The photography was taken during July 1978, August 1980, and August 1985.

Field examinations of wetlands were made prior to the actual delineations of wetlands on the photography. A field trip was conducted during August of 1989 to correlate the photo signatures with the actual wetland communities. Soils, plant communities, and hydrology, were examined at each of the representative field sites in order to determine wetland classification and boundary location.

Collateral data included USGS topographic maps, SCS soil surveys, National Wildlife Refuge reports, and climate, vegetation, and ecoregion information.

VII. MAP ACQUISITION

To order NWI maps contact:

ESIC/USGS  
4230 University Drive, Room 101  
Anchorage, Alaska 99509-4664  
(907) 786-7011

Maps are identified by the name of the corresponding USGS 1:63,360 topographic quadrangle name.

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