USDA icon **Natural Resources Conservation Service**

# Major Land Resource Area 232X
# Yukon Flats Lowlands

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## Description

The Yukon Flats Lowlands MLRA is an expansive basin characterized by numerous levels of flood plains and terraces that are separated by minimal breaks in elevation. This MLRA is in Interior Alaska and is adjacent to the middle reaches of the Yukon River. Numerous tributaries of the Yukon River are within the Yukon Flats Lowlands MLRA. The largest are Beaver Creek, Birch Creek, Black River, Chandalar River, Christian River, Dall River, Hadweenzic River, Hodzana River, Porcupine River, and Sheenjek River. The MLRA has two distinct regions—lowlands and marginal uplands. The lowlands have minimal local relief and are approximately 9,000 square miles in size (Williams 1962). Landforms associated with the lowlands are flood plains and stream terraces. The marginal uplands consist of rolling and dissected plains that are a transitional area between the lowlands and adjacent mountain systems. The marginal uplands are approximately 4,700 square miles in size (Williams 1962). This MLRA is bounded by the Yukon-Tanana Plateau to the south, Hodzana Highlands to the west, Porcupine Plateau to the east, and southern foothills of the Brooks Range to the north (Williams 1962). These surrounding hills and mountains partially isolate the Yukon Flats Lowlands MLRA from weather systems affecting other MLRAs of Interior Alaska. As a result, temperatures are generally warmer in summer and colder in winter than is characteristic in other areas at comparable latitude. There is a moisture and temperature gradient in which the lowlands region tends to be drier and colder and the surrounding marginal uplands region tends to be moister and warmer (PRISM Climate Group 2006). The Yukon Flats Lowlands MLRA is mostly undeveloped lands that are sparsely populated and not accessible by a road system. A number of villages, including Beaver, Birch Creek, Chalkyitsik, Circle, Fort Yukon, Stevens Village, and Venetie, are adjacent to the Yukon River or one of its major tributaries. The largest village is Fort Yukon, which according to the 2010 U.S. Census has 583 residents that are dominantly Gwich'in Alaska Natives.

## Geographic subunits

**Land Resource Unit 1** While Alaska has no officially recognized land resource units (USDA Agriculture Handbook 296), there appears to be two distinct regions in the Yukon Flats Lowlands MLRA. These distinct regions are thought to have differing climatic regimes, landforms, and soil types (STATSGO and Jorgensen and Meidinger 2015) and will be termed the lowlands LRU and the marginal uplands LRU. LRU 01 refers to the lowlands region.

**Land Resource Unit 2** While Alaska has no officially recognized land resource units (USDA Agriculture Handbook 296), there appears to be two distinct regions in the Yukon Flats Lowlands MLRA. These distinct regions are thought to have differing climatic regimes, landforms, and soil types (STATSGO and Jorgensen and Meidinger 2015) and will be termed the lowlands LRU and the marginal uplands LRU. LRU 02 refers to the marginal uplands region.

## Ecological site keys

### Yukon Flats Lowlands Major Land Resource Area - Land Resource Unit Key - Lowlands vs. Marginal Uplands

**I. The landscape is an alluvial plain with major landforms being flood plains and stream terraces. Elevations are most commonly below 200 meters. These landforms are proximal to the Yukon River and the lower reaches of its major tributaries (e.g. Porcupine River).**

**II. The landscape is a plain with major landforms being hills and plains. Elevations are most commonly between 200 and 600 meters. These landforms are distal to the Yukon River and the lower reaches of its major tributaries in the Yukon Flats Lowlands.**

### Yukon Flats Lowlands MLRA - Lowlands, Land Resource Unit

**I. The soils have 40+ cm of organic material.**

**A. The organic material is highly acidic (i.e. ultra to strongly acidic, < 5.6 pH). ...** XA232X01Y201 – Boreal Woodland Peat Frozen Terraces

**B. Not as above. ...** XA232X01Y207 – Boreal Herbaceous Peat Flood Plain Depressions

**II. The soils have less than 40 cm of organic material.**

**A. The site occurs on a flood plain.**

**1 The site occurs in a closed flood plain depression.**

**i. Frequent ponding with long ponding duration. Soils are considered poorly drained. Ponding generally occurs in early growing season. ...** XA232X01Y205 – Boreal Grass Loamy Flood Plain Depressions

**ii. Depression edge. Less frequent and shorter ponding duration then above. ...** XA232X01Y206 – Boreal Scrub Loamy Frozen Flood Plain Depressions

**2 All other positions.**

**i. Low gradient and low volume, small order streams. Deep loamy soils (e.g. The Forks). ...** XA232X01Y280 – Boreal Scrub Loamy Flood Plain Wet

**ii. Not as above (e.g. Yukon and Porcupine Rivers).**

**a. The site experiences frequent flooding (floods greater then 50 times in 100 years). Low flood plain positions. ...** XA232X01Y200 – Boreal Scrub Loamy Flood Plain Low

**b. Not as above. Occasional flooding (5-50 times in 100 years).**

**1) Occasional flooding with long flood duration. Middle flood plain positions. ...** XA232X01Y202 – Boreal Forest Loamy Flood Plain Middle

**2) Occasional flooding, with brief flood duration. High flood plain positions. ...** XA232X01Y204 – Boreal Forest Loamy Flood Plain High

**B. The site occurs on a stream terrace.**

**1 The site occurs in a depression.**

**i. The site occurs in a swale or drainageway.**

**a. The site occurs in a swale. ...** XA232X01Y229 – Boreal Scrub Loamy Terrace Swales

**b. The site occurs in a drainageway. ...** XA232X01Y212 – Boreal Sedge Peat Terrace Depressions

**ii. The site occurs in a closed depression.**

**a. The site typically occurs in the depression center. The soils pond frequently for brief durations of time and often have sodic soil properties. ...** XA232X01Y222 – Boreal Graminoid Loamy Terrace Depressions

**b. The site typically occurs on the edge of depressions. Ponding occurs occasionally for brief durations. ...** XA232X01Y223 – Boreal Scrub Loamy Frozen Terrace Depressions

**2 Not as above.**

**i. The site occurs on a dune. ...** XA232X01Y224 – Boreal Woodland Sandy Terrace Rises

**ii. Not as above.**

**a. Sand and gravel occurs at very shallow depth (0-25 cm) in the soil profile and soils are considered somewhat excessively drained. ...** XA232X01Y250 – Boreal Woodland Gravelly Terraces Dry

**b. Not as above.**

**1) well to somewhat poorly drained soils; no ponding; water table either not present or at moderate to deep depths for majority of growing season.**

**a) Well-drained soils; no seasonal water table. ...** XA232X01Y221 – Boreal Forest Loamy Terraces

**b) somewhat poorly to moderately well drained soils. Seasonal water table generally occurs during the early growing season but drops out of the soil or occurs at moderate to deep depths for the majority of the growing season. ...** XA232X01Y219 – Boreal Forest Loamy Terraces Moist

**2) wetter soils then above; soils prone to ponding; very shallow to shallow water table for much of the growing season.**

**a) The soils have sandy-gravelly material at very shallow to shallow depths (0-50 cm)? ...** XA232X01Y262 – Boreal Woodland Gravelly Terraces

**b) Not as above.**

**(1) Very poorly drained soils. Ponding frequent, with very long durations. ...** XA232X01Y209 – Boreal Tussock Loamy Frozen Terraces

**(2) Somewhat poorly to poorly drained soils. Less frequent ponding then above. ...** XA232X01Y218 – Boreal Woodland Loamy Frozen Terraces

## Yukon Flats Lowlands MLRA - Marginal Uplands, Land Resource Unit

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**I. The soils have 40+ cm of acidic organic matter. ...** XA232X01Y201 – Boreal Woodland Peat Frozen Terraces

**II. Not as above.**

**A. The site occurs in a drainageway.**

**1 The mineral soil is highly acidic (i.e. ultra to strongly acidic, < 5.6 pH).**

**2 Not as above. ...** XA232X02Y203 – Boreal Scrub Loamy Frozen Drainages

**B. Not as above.**

**1 The site occurs on very steep and highly erosive slopes (e.g. escarpment). ...** XA232X02Y211 – Boreal Loamy Escarpments

**2 Not as above.**

**i. The site occurs on warm slope positions (e.g. south and west facing slopes) and has dry soils. Soils are typically considered moderately well to well drained.**

**a. The mineral soil is highly acidic (i.e. ultra to strongly acidic, < 5.6 pH).**

**b. Not as above. ...** XA232X02Y210 – Boreal Forest Loamy Frozen Plains Warm

**ii. The site has colder and wetter soils than above.**

**a. Site occurs on slope positions where water accumulates (e.g. toeslopes, footslopes, and swales). Soils are prone to ponding and have a water table in the soil profile for long durations of the growing season. Soils are typically considered very poorly**

**to poorly drained.**

1) **The mineral soil is highly acidic (i.e. ultra to strongly acidic, < 5.6 pH).**
2) **Not as above. ...** XA232X02Y217 – Boreal Woodland Loamy Frozen Plain Wet

**b. The site occurs on slopes less prone to ponding than above (e.g. hill backslopes) and has a water table in the soil profile for shorter durations of the growing season than above. Soils are typically considered poorly to somewhat poorly drained.**

1) **The mineral soil is highly acidic (i.e. ultra to strongly acidic, < 5.6 pH).**
2) **Not as above. ...** XA232X02Y227 – Boreal Forest Loamy Frozen Plains Cold