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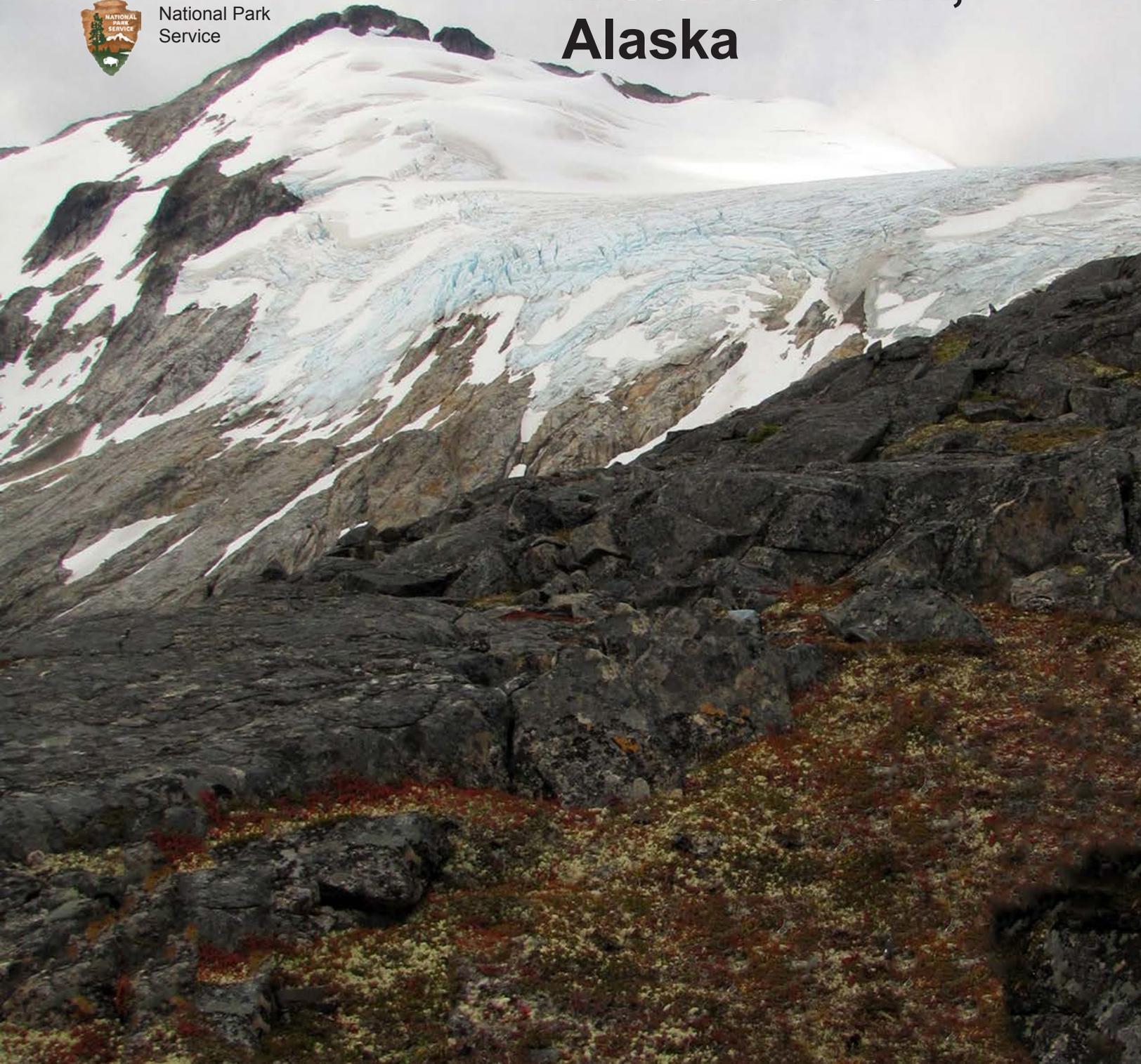
United States
Department of
the Interior



National Park
Service

In cooperation with
the University of Alaska
Fairbanks, Agricultural
and Forestry Experiment
Station

Soil Survey and Ecological Site Inventory of Skagway-Klondike Gold Rush National Historical Park, Alaska



Soil Survey and Ecological Site Inventory of Skagway-Klondike Gold Rush National Historical Park, Alaska

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Maps and spatial data for this survey are available online
at <http://websoilsurvey.nrcs.usda.gov>.

United States Department of Agriculture, Natural Resources Conservation Service, and
United States Department of the Interior, National Park Service,
in cooperation with
University of Alaska Fairbanks, Agricultural and Forestry Experiment Station

Cover: Alpine mountaintops with Rock outcrop and permanent ice and snow.

How To Use This Soil Survey

Detailed Soil Maps

Detailed soil maps are not included in this publication. The maps and spatial data are available online at <http://websoilsurvey.nrcs.usda.gov>.

The [Contents](#) lists the map units by symbol and name and shows the page where each map unit is described. It shows which table has data on a specific land use for each detailed soil map unit. Also see the Contents for sections of this publication that may address your specific needs.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture, Natural Resources Conservation Service, and the United States Department of the Interior, National Park Service. The Natural Resources Conservation Service has leadership for the Federal part of the National Cooperative Soil Survey.

The Natural Resources Conservation Service was responsible for the survey design and methodology, data collection and analysis, and completion of this report. Fieldwork was completed in June, July, August, and September of 2011 and 2012. Soil names and descriptions were approved in 2012. Unless indicated otherwise, maps and supporting documentation in this report refer to conditions in the survey area in 2012. This soil survey was made cooperatively by the Natural Resources Conservation Service, the National Park Service, and the University of Alaska Fairbanks, Agricultural and Forestry Experiment Station.

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Acknowledgements

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Mapping an area more than 200,000 acres in size requires a large amount of energy and resources. The following people are acknowledged for their valued technical or logistical support during the course of this survey.

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Contents

How To Use This Soil Survey	iii
Acknowledgements	v
Contents	vii
Foreword	xi
Introduction	1
Survey Purpose and Product Limitations	1
Products	1
Survey Methods	2
General Nature of the Survey Area	3
Climate	3
Physiography and Geology	4
Hydrology	4
Recreation	5
General Resource Descriptions	7
MLRAs and Associated Map Units	8
Detailed Soil Map Units	11
22CF1—Estuarine Floodplains	13
22CP3—Maritime Coastal Plains	17
22FF1—Maritime Fans	19
22HF1—Maritime Floodplains, High Gradient	21
22LF1—Maritime Floodplains, Gravelly	24
22LF2—Maritime Floodplains, Loamy	27
22LM1—Maritime Mountains, Steep	31
22UF1—Maritime Floodplains, Urban Land	34
D22AM1—Alpine Diorite Mountains	36
D22BF1—Maritime Floodplains, High Gradient, Jokulhlaup	39
D22DW1—Maritime Organic Floodplains	42
D22HM2—Maritime Mountains, High Elevation	44
D22LM2—Maritime Mountains, Very Steep, Smooth	48
D22LM3—Maritime Mountains, Very Steep, Dissected	52
D22SA1—Subalpine Mountains	57
D22SA2—Subalpine Mountains, Avalanche Chutes	61
D22WF1—Maritime Water, Lakes and Ponds	65
D22WS1—Estuarine Water, Salt	67
Ecological Sites	69
Ecological Site Concept	69
State and Transition Model	71
Ecological Dynamics	72
Soil-Ecological Site Correlation	72
Ecological Site Characterization Reports	73
F222XY325AK	74
F222XY327AK	80
F222XY333AK	87
F222XY334AK	94
F222XY337AK	100
F222XY338AK	106

F222XY341AK	109
F222XY350AK	113
R222XY323AK.....	115
R222XY324AK.....	121
R222XY328AK.....	124
R222XY329AK.....	128
R222XY330AK.....	132
R222XY331AK.....	136
R222XY332AK.....	140
R222XY342AK.....	143
R222XY349AK.....	146
R222XY352AK.....	149
R222XY355AK.....	151
R222XY356AK.....	153
Soil Properties	155
Engineering Properties	155
Erosion Properties	156
Physical Properties	157
Chemical Properties.....	158
Total Soil Carbon	159
Soil Features.....	159
Water Features	160
Use and Management of the Soils	163
Land Management.....	163
Planting.....	164
Hazard of Erosion and Suitability for Roads.....	164
Site Preparation.....	164
Site Restoration	165
Source of Reclamation Material, Roadfill, and Topsoil	165
Source of Gravel and Sand	166
Recreation.....	166
Camp and Picnic Areas	167
Trail Management.....	167
Hydric Soils	167
Classification of the Soils	169
22—Estuarine Graminoid Gravelly Coastal Plain.....	170
22—Estuarine Graminoid Loamy Floodplains	173
22—Estuarine Graminoid Loamy Floodplains, Depression.....	177
22—Maritime Forest Gravelly Floodplains, Occasionally Flooded.....	180
22—Maritime Forest Gravelly Floodplains, High Gradient, Occasionally Flooded	184
22—Maritime Forest Gravelly Floodplains, Rarely Flooded	187
22—Maritime Forest Gravelly Slopes, Shallow	190
22—Maritime Forest Gravelly Alluvial Fan, Fan Terrace.....	193
22—Maritime Forest Loamy Floodplains, Rarely Flooded	196
22—Maritime Forest Organic Slopes, Dry.....	199
22—Maritime Scrub Gravelly Floodplains, Depression	202
22—Maritime Scrub Gravelly Floodplains, Frequently Flooded	205
22—Maritime Forest Organic Slopes, Depression	207
D22—Alpine Herbaceous Gravelly Diorite Slopes	210
D22—Maritime Forest Gravelly Slopes, High Elevation	213
D22—Maritime Forest Gravelly Slopes, Shallow, Convex	216
D22—Maritime Forest Gravelly Slopes, Shallow.....	220
D22—Maritime Forest Organic Slopes, Dry, High Elevation	223
D22—Maritime Forest Organic Slopes, Dry	226
D22—Maritime Forest Organic Slopes, Depression.....	229
D22—Maritime Scrub/Herb Gravelly Slopes, Depositional	232

D22—Maritime Scrub/Herb Mosaic Organic Floodplains	235
D22—Subalpine Forest Gravelly Slopes	238
D22—Subalpine Scrub Organic Slopes	242
D22—Subalpine Scrub Gravelly Slopes, Depositional	245
D22—Subalpine Scrub Gravelly Slopes, Convex	248
D22—Subalpine Shrub Gravelly Slopes	251
Formation of the Soils	255
Climate	255
Living Organisms	255
Topography	256
Parent Material	256
Time	256
Soil Processes and Indicators	257
References	261
Glossary	263
Tables	275
Table 1.—Temperature	276
Table 2.—Precipitation	278
Table 3.—Acreage and Proportionate Extent of the Soils	280
Table 4.—Soil-Ecological Site Correlation	281
Table 5.—Engineering Properties	285
Table 6.—Erosion Properties	298
Table 7.—Physical Soil Properties	301
Table 8.—Chemical Soil Properties	306
Table 9.—Total Soil Carbon	309
Table 10.—Soil Features	312
Table 11.—Water Features	319
Table 12.—Planting	328
Table 13.—Hazard of Erosion and Suitability for Roads	332
Table 14.—Site Preparation	336
Table 15.—Site Restoration	340
Table 16.—Source of Reclamation Material, Roadfill, and Topsoil	344
Table 17.—Source of Gravel and Sand	349
Table 18.—Camp and Picnic Areas	353
Table 19.—Trail Management	358
Table 20.—Hydric Soils	362
Table 21.—Taxonomic Classification of the Soils	363
Appendix	365
Plants in Survey Area	366

Issued 2015

Foreword

This soil survey and ecological site inventory was developed in conjunction with the National Park Service Inventory and Monitoring Program. It serves as the official source document for soils in the survey area of Skagway-Klondike Gold Rush National Historical Park, Alaska. The survey contains predictions of soil behavior for selected land uses. It also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This report is designed for many different users. Government agencies, community officials, Alaska Native tribes, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the report to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or land user is responsible for identifying and complying with existing laws and regulations.

Although this information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement the information in some cases. Examples include soil quality assessments (<http://soils.usda.gov/sqi/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<http://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS state soil scientist (<http://soils.usda.gov>).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock or to permafrost. Some are too unstable to be used as a foundation for buildings or roads. Wet soils are poorly suited to use for waste treatment systems. A high water table makes a soil poorly suited to basements or underground installations.

Many soil properties that affect land use are described in this report. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the Alaska State office of the Natural Resources Conservation Service in Palmer, Alaska.

Robert N. Jones, State Conservationist
Natural Resources Conservation Service

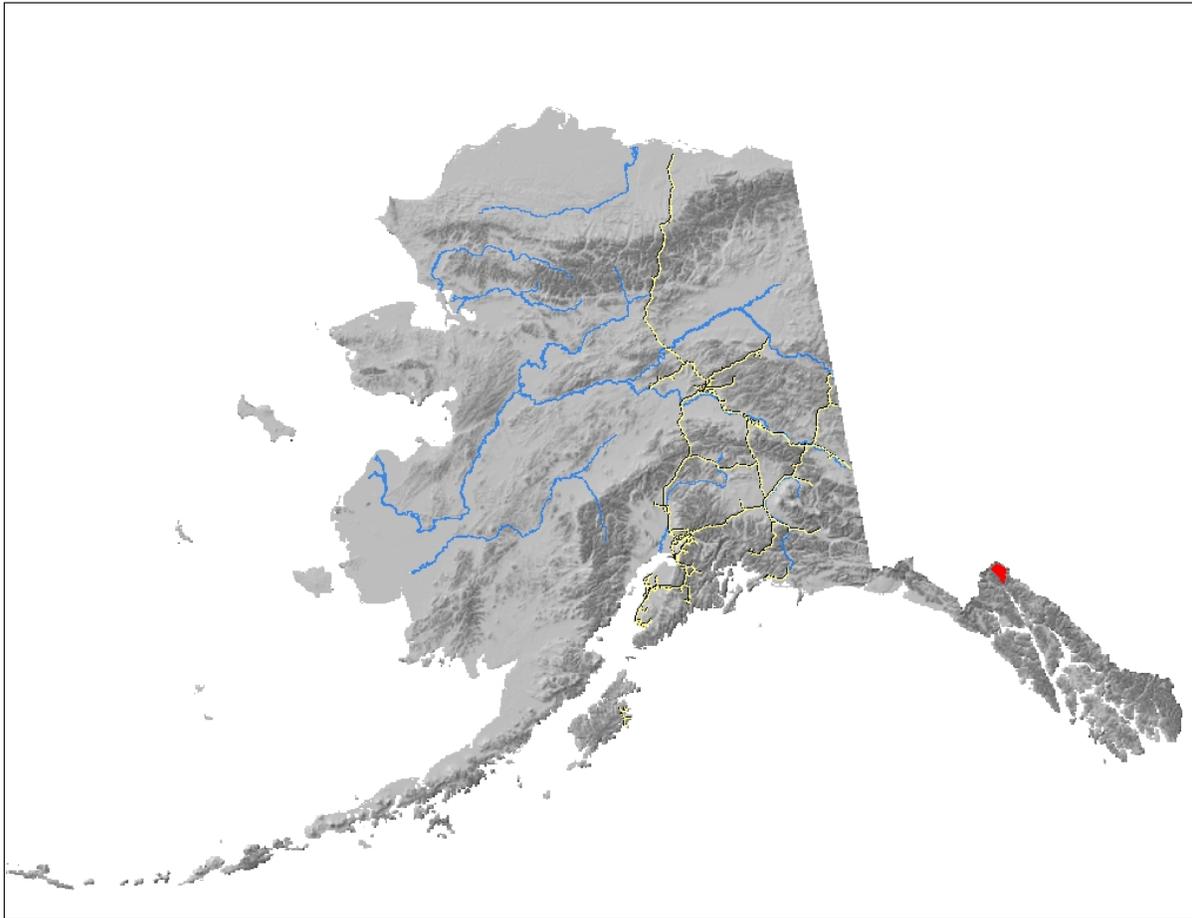


Figure 1.—Location of the survey area of Skagway-Klondike Gold Rush National Historical Park in Alaska (in red). The major road system in the State is represented in yellow, and the major rivers are represented in blue.

Soil Survey and Ecological Site Inventory of Skagway-Klondike Gold Rush National Historical Park, Alaska

Introduction

The survey area is between the northern end of Lynn Canal and the border with Canada, in the northern part of southeast Alaska. It is bordered on the west by the Haines soil survey area and on the east by the Chatham soil survey area. Skagway is approximately 100 miles northwest of Juneau and 20 miles north of Haines (fig. 1). The entire survey area is in major land resource area 222—Southern Alaska Coastal Mountains (fig. 2). The survey area is about 200,131 acres in size and includes private, State, borough, and municipal property as well as 13,000 acres of public land administered by the United States Department of the Interior, National Park Service. Primary land uses include urban development, tourism, recreation, and fish and wildlife habitat. The Chilkoot and White Pass Units of Klondike Gold Rush National Historical Park are in the survey area. These units along with those in Seattle, Washington, and Canada commemorate the Klondike Gold Rush of the late 1890's.

Survey Purpose and Product Limitations

The primary purpose of the survey was to describe and map the soils and ecological sites of the survey area. Soils were mapped at a scale of 1:24,000 for high use areas such as urban areas and road and trail corridors and at a scale of 1:63,360 for wilderness areas. Descriptions of map units, soil types, and ecological sites were developed through extensive field investigations. The soil data and reference plant communities and major seral communities illustrate the soil and ecological relationships for this part of major land resource area 222. Major land resource areas (MLRAs) are categories used at State and National levels to geographically differentiate landscapes. MLRAs are intended to represent areas of subregional physiographic and geomorphic patterns and processes and general vegetation potentials (Agriculture Handbook 296). Within an MLRA, there are relatively consistent patterns and kinds of landforms, soils, surficial geologic and soil parent material, and geomorphic and soil-forming processes. The detailed soil maps can also be integrated into a multilevel ecological stratification of the area, based on ecological units, to aid in understanding the ecological aspects of the soil information.

Products

This report provides comprehensive documentation of the results of the survey. The content, including maps, tables, and descriptions, are derived dominantly from spatial data and associated attribute data. These include the following:

1. Soil Survey Geographic Database (SSURGO) dataset and standard products of the National Cooperative Soil Survey (NCSS) for the survey area, which include:

- Project area boundary.
 - Soil map unit polygons.
 - Attribute database (aggregate data exported from the National Soil Information System [NASIS]) linked to map unit polygons with Map Unit Key (MUKEY) (See documentation in metadata and system reports in attribute database.).
 - Metadata.
2. Other spatial layers, including special themes and orthophotographs.
 3. PEDON_PC and AKVEG databases that provide point data collected during the survey, including:
 - Soil and vegetation field data collected at 212 sample points.
 - Links to SSURGO data with MUKEY and soil component code (See documentation in database.).
 4. Digital photographs, landscape illustrations, and map unit distribution maps.

All products of this manuscript are available at the following locations:

- National Park Service, Klondike Gold Rush National Historical Park Headquarters.
- National Park Service, Regional Office, Anchorage, Alaska.
- Natural Resources Conservation Service, Palmer, Alaska.
- <http://websoilsurvey.nrcs.usda.gov>.

Survey Methods

This survey provides information about the soils and miscellaneous areas in Klondike Gold Rush National Historical Park and the borough and municipality of Skagway. A scoping meeting was held in September 2010 to identify the soil resource information needs and relate those needs to the survey. Cultural resources were of particular importance to the National Park Service. In response to this, the Natural Resources Conservation Service developed a mapping plan in which study sites were identified and evaluated to avoid possible disturbance of cultural resources. An archeologist from the Klondike Gold Rush National Historical Park accompanied the field crews.

The survey was initiated in October 2010. Fieldwork for the project commenced in June 2011 and continued through September 2012.

The major land resource area map for Alaska and the Ecological Inventory of Klondike Gold Rush National Historical Park and Adjacent National Forest Lands (Paustian and others, 1994) served as primary references for understanding general soil-landform and soil-vegetation relationships within the survey area as well as planning tools for fieldwork. Other information on climate, geology, geomorphology, hydrology, and vegetation was used to aid in the development of map unit, soil component, and ecological site concepts. Initial map units were based on apparent landform and vegetation patterns.

Soils and miscellaneous areas occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform position. By observing the soils and miscellaneous areas in the survey area and relating their position to specific landform segments, a soil scientist develops a concept, or model, of how they were formed. This model is then used to create a preliminary soil map using a geographic information system (GIS) with digital imagery, either orthorectified aerial photographs or satellite images. Digital elevation models (DEMs) are also used in developing the preliminary soil map. They can be used by soil scientists to create many digital layers. Slope, hillshade, and aspect are used to consistently characterize landforms. During this pre-mapping phase, the soil scientists also use other products such as geology and

vegetation layers to further stratify the area, if necessary. After identifying recurring patterns, preliminary map unit polygons are delineated.

Representative map units were selected for field evaluation and documentation of soil and vegetation conditions. Teams that included a soil scientist and an ecologist studied several of the tentative map units using the line-intercept transect method. Field documentation for this survey includes 56 individual transects with 212 stops. These points were visited during two 10-day field tours. Observations made included major soil types and associated landforms, site properties, and plant communities. A transect consists of one to several stops within an individual map unit. The number of required stops is dependent on the complexity of the map unit. Corresponding soils and vegetation data were linked to common transect and stop numbers. All transect and stop locations were photographed and recorded using a global positioning system (GPS). These waypoints and photographs were referenced during map preparation and data analysis. During field mapping, the model and pre-mapping concepts were tested and refined to enable the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape. Samples for one of the soils in the area were collected for laboratory analyses and on which to obtain soil climate data (<http://www.wcc.nrcs.usda.gov/nwcc/site?sitenum=1176&state=ak>). The laboratory data, together with the soil characteristics and properties observed in the field, were used to provide baseline information on soil properties. Following each field season, field data were entered into the PEDON_PC and AKVEG databases for data management and analysis. A complete re-evaluation of draft field mapping using a geographic information system (GIS) as well as spatially-referenced field data was completed. Results of data analysis were entered into the NRCS National Soils Information System (NASIS) database.

General Nature of the Survey Area

Skagway is in southeastern Alaska, about 100 miles northwest of Juneau and 20 miles north of Haines. The borough and municipality of Skagway lie at the northernmost end of Lynn Canal, a fjord that extends into the coastal mountains of southeast Alaska. Skagway itself is situated on the delta and lower floodplain of the Skagway River. Rugged mountains; steep-walled, U-shaped valleys; floodplains; glaciers; and icefields characterize the landscape of the area.

Climate

The climate in the survey area is transitional between the humid, coastal maritime climate and the drier continental climate of interior Alaska. The mean temperature in January is 23 degrees F (-5 degrees C) (table 1). Daily low temperatures rarely are below -20 degrees (-29 degrees C) in winter. The mean temperature in July is 58 degrees (14 degrees C). Daily high temperatures in summer occasionally exceed 80 degrees (27 degrees C). Daily minimum temperatures in summer generally range from 46 to 49 degrees (8 to 9 degrees C); however, freezing temperatures have been recorded in every month except July. The autumn freeze usually occurs in October and the spring thaw normally is late in April or early in May. The mean annual precipitation is 27 inches (69 centimeters) (table 2). The average annual snowfall is 46 inches (117 centimeters). Maximum rainfall occurs in fall and early in winter.

These climatic conditions are unique in southeast Alaska. Most areas in southeast Alaska are typified by a wet maritime climate with mean annual precipitation of more than 160 inches. The low rainfall in the survey area produces a unique environment for development of plants and soils. The Taiya and Skagway Valleys are dry enough for forest fires, which do not occur in the rest of southeast Alaska.

Physiography and Geology

The survey area lies entirely within MLRA 222—Southern Alaska Coastal Mountains. The terrain consists of steep, rugged, high-relief mountains and massive glaciers and icefields. Elevation in the survey area ranges from sea level to a little more than 8,000 feet. Icefields in the mountains are extensive. The glaciers and icefields cover about 25 percent of the survey area. Level ground is restricted to the lower reaches of the floor of the major valleys. The Skagway and Taiya Rivers flow in braided channels along the floor of these valleys.

Glacial landscapes are dominant in the survey area. Glaciers have advanced and retreated many times in the area, and each advance generally destroyed evidence of the previous one. Evidence of the two most recent periods of glaciation is visible today. About 49,000 years ago, glaciers filled the Skagway River Valley to the level of the craggy peaks. Ice moved through the mountains and carved steep-sided, U-shaped valleys. Between 24,000 and 13,000 years ago, a smaller glacial advance covered the area. The glaciers moved along the previously formed valley floor, creating a smaller U-shaped valley. This resulted in the topographic benches and rounded mountain shoulders on the east side of Skagway. The survey area also includes a number of hanging valleys. These were formed when a large glacier, which cut a very deep valley, crossed the path of a smaller glacier. The smaller glacier caused less erosion of the mountains, so the valley floor remained at a higher elevation in these areas.

Uplift is evident in parts of the survey area. The sheer weight of glaciers thousands of feet thick bowed the earth's crust. Relieved of that weight due to deglaciation, the crust is springing back in a process called glacial or isostatic rebound. The Skagway and Taiya deltas and estuaries are still rising today. Skagway is built on parts of the delta and the lower floodplain of the Skagway River.

The survey area lies within a linear belt of plutonic intrusive and metamorphic rock. The bedrock in the area is dominantly diorite, but some metamorphic rock and a few igneous dikes are also present.

The area contains only a few types of surficial deposits that are limited in extent. This is mainly because erosion by Pleistocene glaciers often removed previous glacial deposits, but it is also because the resultant slopes were too steep to retain much, if any, unconsolidated material that may have been left behind. Today, most of the steep slopes are nearly devoid of glacial drift. The small amount of drift that may have been deposited either slid or was washed downslope soon after deglaciation. The material that moved downslope under the influence of gravity is referred to as colluvium, and it forms deposits at the base of slopes and avalanche chutes. Locally, only a thin mantle of colluvium is on some of the steep bedrock walls.

The floor of the local valleys is formed of sediment deposited by running water, referred to as alluvium. The modern rivers have formed thick deposits of sandy and gravelly alluvium in the main river valleys. These alluvial deposits extend to tidewater, where they merge with deltaic deposits. Deltaic deposits form at the mouth of rivers, where the flow rate subsides and the sediment load is able to settle. Another type of alluvium is on alluvial fans. It is deposited by small streams in areas where they leave the steep mountain slopes and encounter the gentler slopes of the floodplains. This alluvium generally consists of sandy gravel, cobbles, and some boulders. Many of these coarse fragments are subrounded due to the short distances they have been transported. Manmade fill underlies most of the city of Skagway and covers much of the lower valley floor of the Skagway River. The fill is composed dominantly of gravel and sand derived from the local alluvium.

Hydrology

Melting glaciers provide a substantial amount of the waterflow in the Skagway and Taiya Rivers. Variations in the daily rate of melting in summer can cause large fluctuations in the day-to-day flow of the rivers. Both of the rivers are subject to glacial

lake outburst flooding. These floods, also known as jokulhlaups, occur when the dam containing a glacial lake fails. The dam usually consists of glacial ice or a moraine. In 2002, a lateral moraine of the West Creek Glacier failed as a result of melting ice buried in the moraine and caused a large volume of water to flow into West Creek. This generated a large flood that caused extensive damage to private property, bridges, and roads.

Recreation

In summer, the survey area hosts nearly 1,000,000 tourists coming to experience the colorful past of the area. The Klondike Gold Rush National Historical Park is a major tourist attraction. Visitors come to learn about the gold mining history of the area. Local attractions include the Chilkoot Trail and the White Pass Railroad. Visitors can learn about the hardships faced by the early miners trying to get to the goldfields of interior Alaska. Many other outdoor activities, including hiking the many trails, rafting, and kayaking, are available in areas near the park.

General Resource Descriptions

Two general physiographic/ecological maps were used to group the resources in the survey area—the Natural Resources Conservation Service major land resource area map and the Unified Ecoregions Map of Alaska (Nowacki and others, 2001).

Major land resource areas (MLRAs) are geographically associated land resource units (LRUs). Identification of these large areas is important in statewide agricultural planning and in interstate, regional, and National planning. The criteria for these units are based heavily on agricultural use and management. Soil map units are unique to an MLRA. All of the survey area is in MLRA 222—Southern Alaska Coastal Mountains. Complete descriptions of the MLRAs of the United States and a comparison of the various physiographic maps are available in the USDA Agriculture Handbook (USDA, 2006).

The Unified Ecoregions Map of Alaska (Nowacki and others, 2001) combines the Bailey and Omernik approach to ecoregion mapping (Bailey and others, 1994; Cleland and others, 1997). The ecoregions were developed cooperatively by the Forest Service, National Park Service, U.S. Geological Survey, Nature Conservancy, and personnel from many other agencies and private organizations. Ecoregions are large areas that have similar climate and in which ecosystems recur in predictable patterns. The ecoregions hierarchy provides resources and education on the origins of these patterns and their relevance to sustainable design and planning. The Unified Ecoregions Map of Alaska includes the upper levels in the ecological hierarchy down to the section level. The entire survey area is in the Boundary Mountains Ecoregion. The map is available online at <http://agdc.usgs.gov/data/usgs/erosafo/ecoreg/index.html>.

The detailed soil map units in this report have been correlated to the MLRA map. The MLRA for each map unit is given in the section “Detailed Soil Map Units.”

MLRAs and Associated Map Units

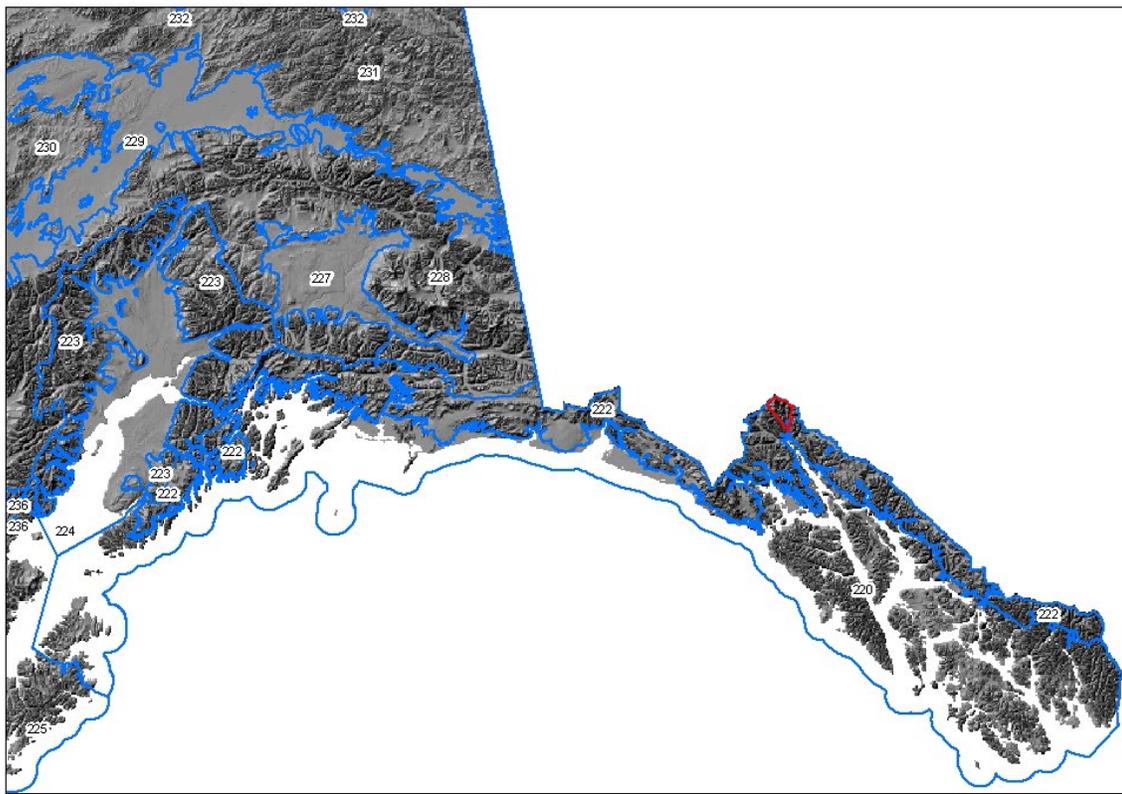


Figure 2.—Skagway-Klondike Gold Rush National Historical Park survey area (outlined in red) with respect to MLRA 222—Southern Alaska Coastal Mountains.

MLRA 222—Southern Alaska Coastal Mountains

Introduction

MLRA 222 is in the southern part of Alaska. It includes the higher elevations of the Coast, St. Elias, Chugach, and Kenai Mountains (fig. 2). This MLRA makes up about 6,815,017 square kilometers. It is almost entirely undeveloped wildland. Small, rural communities along the road system are the only permanent settlements. Federally administered land in the MLRA includes part of the Wrangell-St. Elias National Park and Preserve, Glacier Bay National Park and Preserve, Misty Fjords National Monument, Klondike Gold Rush National Historical Park, Chugach National Forest, and Tongass National Forest.

Physiography

This MLRA is within the Coast Mountains and Pacific Border physiographic provinces of the Pacific Mountain System (Wahrhaftig, 1965). The terrain consists of steep, rugged, high-relief mountains and massive glaciers and icefields. The glaciers and icefields make up about 54 percent of the area. Throughout the icefields are numerous aretes and nunataks. Medial and lateral moraines are common in the glaciers. Unglaciated areas have deeply incised, narrow to broad valleys. Flood plains and stream terraces on the valley floors rapidly give rise to steep alluvial fans and mountain footslopes. Elevation ranges from sea level, at the base of tidewater glaciers and icefields, to 18,008 feet (5,489 meters), at the summit of Mount St. Elias.

The major hydrologic unit areas (identified by 4-digit numbers) of this MLRA are South Central Alaska (1905), which makes up 30 percent, and Southeast Alaska (1906), which

makes up 70 percent. This MLRA drains to the Gulf of Alaska and North Pacific Ocean by way of numerous short, high-gradient rivers that originate in the glaciers, icefields, and mountainous uplands. Lakes make up less than 1 percent of the area.

Geology

During the Pleistocene, the survey area was covered with glacial ice. Most glacial deposits have eroded away or been buried by colluvium and slope alluvium, which covers more than 90 percent of the present unglaciated landscape. The remaining glacial and glaciofluvial deposits and recent fluvial deposits generally are restricted to the bottom of the larger valleys. Paleozoic, Mesozoic, and Lower Tertiary stratified sedimentary rock and some Paleozoic intrusive rock underly much of the area and are exposed at the surface on steep mountain slopes and ridges.

Climate

Cloudy conditions and moderate to cold temperatures characterize the climate of this area. Precipitation commonly is abundant throughout the year. Snowfall in winter is abundant, greatly exceeding annual melt in many places as evidenced by the number and extent of glaciers and icefields. The average annual precipitation throughout most of the area is 250 inches (6,350 millimeters) or more. The average annual snowfall ranges from about 200 to 800 inches (508 to 2,032 centimeters). The average annual temperature and length of the frost-free season is not known. At the higher elevations, freezing temperatures are likely to occur during any month of the year.

The climate in the survey area is much drier than the rest of southeast Alaska and is transitional between the humid coastal maritime climate and the drier continental climate of interior Alaska. The mean annual precipitation in this area is only about 27 inches (69 centimeters), and the average annual snowfall is about 46 inches (117 centimeters).

Soils

The approximate extent of the soil orders and nonsoil areas in this MLRA is as follows—Spodosols, 5 percent; Histosols, 2 percent; other soil orders, 3 percent, and miscellaneous (nonsoil) areas, 90 percent. The soils have a cryic or pergelic soil temperature regime, a udic or aquic soil moisture regime, and mixed mineralogy. Humicryods (Nonwalek and Tutka series) and Haplocryods on mountains and hills formed in loamy and gravelly colluvium and glacial till. These soils are shallow to deep and well drained to somewhat poorly drained. Cryosaprists, Cryohemists (Koyuktolik and Nuka series), and Cryofibrists on footslopes, discharge slopes, and valley floors formed in thick organic material. These soils generally are deep and somewhat poorly drained to very poorly drained. Common miscellaneous areas include surface bedrock, rubble fields, talus, and permanent ice and snow.

Biological Resources

Most of this MLRA is within the true alpine zone. Vegetation consists of a variety of dwarf shrubs and herbaceous communities. Low willow is common in drainageways. Lichen, scattered herbs, and dwarf shrubs are dominant in areas of Rock outcrop and very shallow soils. In general, there is little, if any, plant growth above an elevation of about 7,500 feet (2,286 meters). Along the boundary with MLRA 220, there are stringers and inclusions of tall alder shrubs and bluejoint reedgrass grassland, which are characteristic of the subalpine zone.

The survey area is somewhat unique in this MLRA, as it extends through the estuarine, maritime, subalpine, and alpine life zones. The estuarine zone is characterized by salt-tolerant grasses, sedges, and forbs. The maritime life zone is characterized by dense forests of mixed cottonwood and Sitka spruce on the floodplains and western hemlock and Sitka spruce on the mountain flanks. Because of the low rainfall, forest fires are a major ecological disturbance in the area. Slopes that have been burned commonly have lodgepole pine in the forest stand. The subalpine zone in the survey area is characterized dominantly by a mosaic of dwarf shrubs with trees that have been stunted

by the harsh climatic conditions. The alpine life zone is characterized dominantly by areas of Rock outcrop, Rubble land, and ice, but some areas support dwarf shrubs and lichen.

Some of the major mammal species in the area include brown bear, Dall sheep, mountain goat, moose, wolf, coyote, fox, snowshoe hare, arctic ground squirrel, and hoary marmot. Ptarmigan, American golden plover, golden eagle, and a wide variety of other birds are also common.

Land Use

Remote wildland recreation is the principal land use. The rugged, high mountains, extensive glaciers and icefields, and wilderness qualities of the area attract visitors from around the world. Most visitors are served by air taxi, guiding, and outfitting companies operating out of major communities in Alaska.

According to the 2010 census, Skagway had a population of 920. In summer, the city hosts nearly 1,000,000 tourists. The Klondike Gold Rush National Historical Park is a large tourist attraction, allowing visitors to learn about the gold mining history of the area. Local attractions include the Chilkoot Trail and White Pass Railroad. Visitors can learn about the hardships faced by the early miners trying to get to the goldfields of interior Alaska. Skagway is one of the few southeast Alaska communities to be connected to the road system.

Soil Map Units (Landtype Associations)

22CF1—Estuarine Floodplains
22CP3—Maritime Coastal Plains
22FF1—Maritime Fans
22HF1—Maritime Floodplains, High Gradient
22LF1—Maritime Floodplains, Gravelly
22LF2—Maritime Floodplains, Loamy
22LM1—Maritime Mountains, Steep
22UF1—Maritime Floodplains, Urban Land
D22AM1—Alpine Diorite Mountains
D22BF1—Maritime Floodplains, High Gradient, Jokulhlaup
D22DW1—Maritime Organic Floodplains
D22HM2—Maritime Mountains, High Elevation
D22LM2—Maritime Mountains, Very Steep, Smooth
D22LM3—Maritime Mountains, Very Steep, Dissected
D22SA1—Subalpine Mountains
D22SA2—Subalpine Mountains, Avalanche Chutes
D22WF1—Maritime Water, Lakes and Ponds
D22WS1—Estuarine Water, Salt

Detailed Soil Map Units

The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Minor soil components that have properties similar to those of the dominant soil or soils in the map unit do not affect use and management. They are called noncontrasting, or similar, components. They typically are not mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit.

A *consociation* is a map unit that is made up dominantly of a single soil component or miscellaneous area and similar soils. Generally, at least one-half of the pedons in each delineation consists of the named soil component or miscellaneous area.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes or associations.

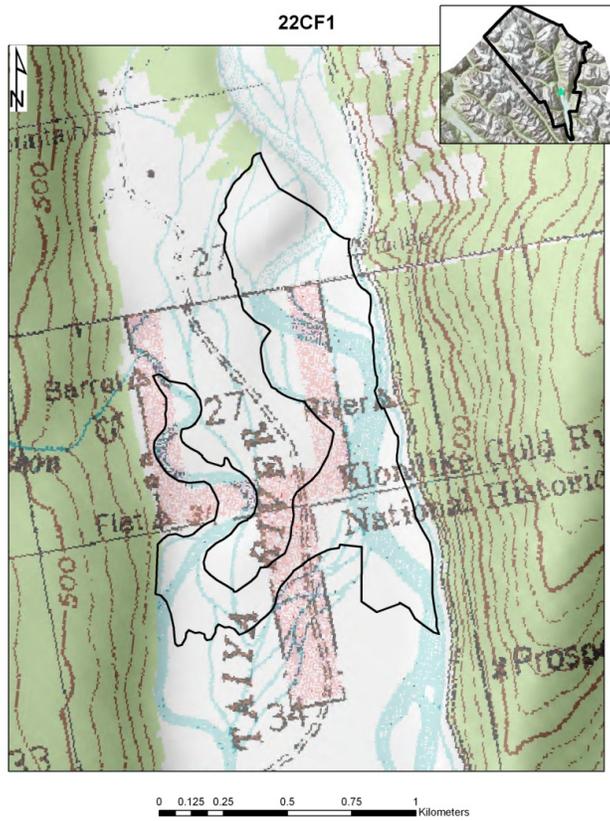
A *complex* consists of two or more soil components or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

An *association* is made up of two or more geographically associated soil components or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation.

[Table 3](#) gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

22CF1—Estuarine Floodplains



Major land resource area: 222—Southern Alaska Coastal Mountains

Elevation: 0 to 10 meters

Mean annual precipitation: 660 to 703 millimeters

Mean annual air temperature: 4 to 6 degrees C

Frost-free period: 98 to 171 days

Map Unit Composition

22—*Estuarine Graminoid Loamy Floodplains:* 65 percent

22—*Maritime Water, Flowing:* 20 percent

22—*Estuarine Graminoid Loamy Floodplains, Depression:* 15 percent

22—Estuarine Graminoid Loamy Floodplains

Setting

Landform: Floodplains

Landform position (three-dimensional): Talfs

Down-slope shape: Linear

Across-slope shape: Linear

Slope range: 0 to 2 percent

Parent material: Loamy alluvium over gravelly alluvium

Properties and qualities

Depth to restrictive feature: None within a depth of 150 centimeters

Shrink-swell potential: Low (linear extensibility percentage about 0.5)

Salinity maximum (based on representative value): Slightly saline (about 6 millimhos per centimeter)



Sodicity maximum: Sodium adsorption ratio about 1.5

Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): Moderately high

Natural drainage class: Somewhat poorly drained

Flooding frequency: Frequent (see Water Features table)

Ponding frequency: None

Depth to seasonal high water table: About 10 to 40 centimeters (see Water Features table)

Available water capacity (entire profile): Moderate (about 15.8 centimeters)

Interpretive groups

Land capability subclass (nonirrigated): 5w

Hydric soil status: Hydric

Hydrologic soil group: B

Soil classification: Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, nonacid Aquic Cryofluvents

Typical profile

A—0 to 2 centimeters; highly organic silt loam

C—2 to 66 centimeters; stratified silt loam

Cg—66 to 90 centimeters; silt loam

2C—90 to 183 centimeters; extremely gravelly coarse sand

22—Maritime Water, Flowing

Setting

Landform: Channels

Aspect (representative): North

Aspect (range): All aspects

Slope range: 0 to 1 percent

Properties and qualities

Depth to restrictive feature: None within a depth of 150 centimeters

Salinity maximum (based on representative value): Nonsaline

Sodicity maximum: Not sodic

Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): Unspecified

Natural drainage class: Not applicable

Flooding frequency: Very frequent (see Water Features table)

Ponding frequency: None

Depth to seasonal high water table: At the soil surface (see Water Features table)

Available water capacity (entire profile): Not applicable

Interpretive groups

Land capability subclass (nonirrigated): 8w

Hydric soil status: Not applicable

Hydrologic soil group: Unspecified

Soil classification: Not applicable

Typical profile

W—0 to 152 centimeters; water

22—Estuarine Graminoid Loamy Floodplains, Depression

Setting

Landform: Floodplains

Landform position (three-dimensional): Dips

Down-slope shape: Concave

Across-slope shape: Concave

Slope range: 0 to 2 percent

Parent material: Loamy alluvium over gravelly alluvium

Properties and qualities

Depth to restrictive feature: None within a depth of 150 centimeters

Shrink-swell potential: Low (linear extensibility percentage about 0.5)

Salinity maximum (based on representative value): Slightly saline (about 6 millimhos per centimeter)

Sodicity maximum: Sodium adsorption ratio about 1.5

Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): Moderately high

Natural drainage class: Very poorly drained

Flooding frequency: Frequent (see Water Features table)

Ponding frequency: Frequent (see Water Features table)

Depth to seasonal high water table: At the soil surface (see Water Features table)

Available water capacity (entire profile): Low (about 9.1 centimeters)

Interpretive groups

Land capability subclass (nonirrigated): 8w

Hydric soil status: Hydric

Hydrologic soil group: B

Soil classification: Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, nonacid Typic Fluvaquents

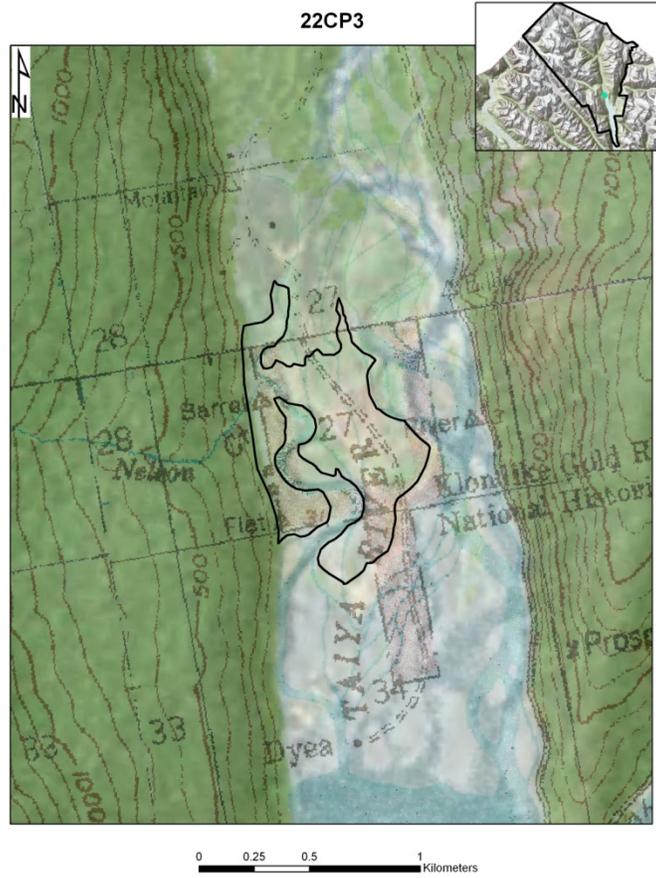
Typical profile

C—0 to 23 centimeters; silt loam

Cg—23 to 43 centimeters; silt loam

2C—43 to 183 centimeters; extremely gravelly coarse sand

22CP3—Maritime Coastal Plains



Major land resource area: 222—Southern Alaska Coastal Mountains

Elevation: 0 to 20 meters

Mean annual precipitation: 660 to 703 millimeters

Mean annual air temperature: 4 to 6 degrees C

Frost-free period: 96 to 180 days

Map Unit Composition

22—*Estuarine Graminoid Gravelly Coastal Plain:* 95 percent

Dissimilar minor components: 5 percent

22—Estuarine Graminoid Gravelly Coastal Plain

Setting

Landform: Coastal plains

Landform position (three-dimensional): Talfs

Down-slope shape: Linear

Across-slope shape: Linear

Slope range: 0 to 2 percent

Parent material: Gravelly alluvium

Properties and qualities

Depth to restrictive feature: None within a depth of 150 centimeters

Shrink-swell potential: Low (linear extensibility percentage about 0.2)

Salinity maximum (based on representative value): Strongly saline (about 35 millimhos per centimeter)

Sodicity maximum: Sodium adsorption ratio about 2

Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): High

Natural drainage class: Well drained

Flooding frequency: Rare (see Water Features table)

Ponding frequency: None

Depth to seasonal high water table: Not present within a depth of 160 centimeters

Available water capacity (entire profile): Very low (about 5.1 centimeters)

Interpretive groups

Land capability subclass (nonirrigated): 6s

Hydric soil status: Not hydric

Hydrologic soil group: A

Soil classification: Sandy-skeletal, mixed, nonacid Typic Cryorthents

Typical profile

C—0 to 55 centimeters; gravelly sandy loam

2C—55 to 183 centimeters; extremely gravelly sand

Minor Components

22—Estuarine Graminoid Loamy Floodplains

Percentage of map unit: 3 percent

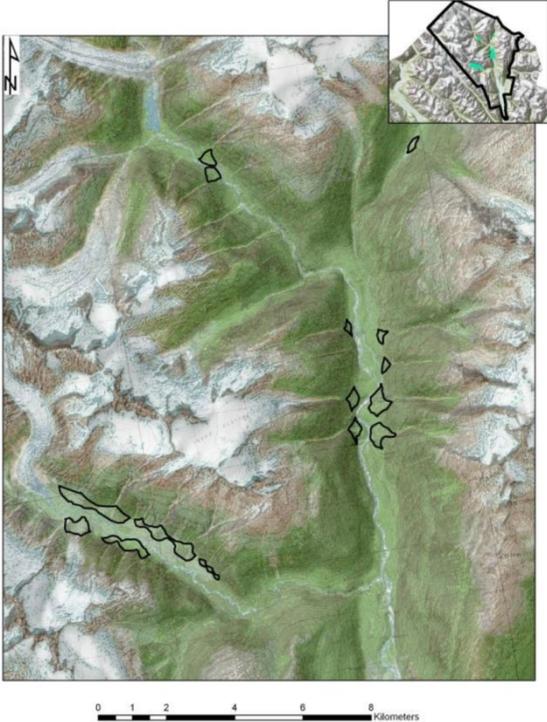
Slope range: 0 to 1 percent

Landform: Flood plains

22—Estuarine Water, Saline

Percentage of map unit: 2 percent

22FF1—Maritime Fans



Major land resource area: 222—Southern Alaska Coastal Mountains
Elevation: 40 to 355 meters
Mean annual precipitation: 660 to 703 millimeters
Mean annual air temperature: 4 to 6 degrees C
Frost-free period: 98 to 171 days

Map Unit Composition

22—*Maritime Forest Gravelly Alluvial Fan, Fan Terrace:* 95 percent
Dissimilar minor component: 5 percent

22—Maritime Forest Gravelly Alluvial Fan, Fan Terrace

Setting

Landform: Alluvial fans
Landform position (three-dimensional): Talfs
Down-slope shape: Linear
Across-slope shape: Convex
Aspect (representative): North
Aspect (range): All aspects
Slope range: 10 to 30 percent
Parent material: Gravelly alluvium

Properties and qualities

Depth to restrictive feature: None within a depth of 150 centimeters
Shrink-swell potential: Low (linear extensibility percentage about 0.3)
Salinity maximum (based on representative value): Nonsaline
Sodicity maximum: Not sodic
Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): High
Natural drainage class: Well drained
Flooding frequency: None
Ponding frequency: None
Depth to seasonal high water table: Not present within a depth of 160 centimeters
Available water capacity (entire profile): Low (about 10.1 centimeters)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Hydric soil status: Not hydric
Hydrologic soil group: A
Soil classification: Typic Haplocryods

Typical profile

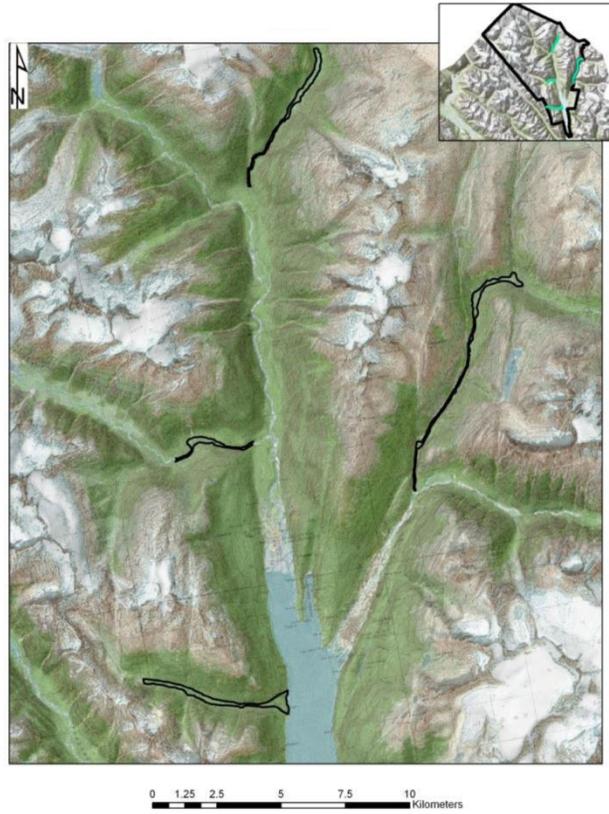
O—0 to 4 centimeters; slightly decomposed plant material
A—4 to 13 centimeters; highly organic sandy loam
C1—13 to 43 centimeters; very gravelly loamy sand
C2—43 to 183 centimeters; very cobbly loamy sand

Minor Component

22—Maritime Water, Flowing

Percentage of map unit: 5 percent
Slope range: 3 to 10 percent
Landform: Alluvial fans

22HF1—Maritime Floodplains, High Gradient



Major land resource area: 222—Southern Alaska Coastal Mountains

Elevation: 2 to 500 meters

Mean annual precipitation: 660 to 1,244 millimeters

Mean annual air temperature: 2 to 6 degrees C

Frost-free period: 98 to 171 days

Map Unit Composition

22—*Maritime Riverwash, Bouldery:* 45 percent

22—*Maritime Water, Flowing:* 30 percent

22—*Maritime Forest Gravelly Floodplains, High Gradient, Occasionally Flooded:*
25 percent

22—Maritime Riverwash, Bouldery

Setting

Landform: Floodplains

Landform position (three-dimensional): Talfs

Down-slope shape: Linear, convex

Across-slope shape: Linear

Aspect (representative): North

Aspect (range): All aspects

Slope range: 1 to 5 percent

Properties and qualities

Depth to restrictive feature: None within a depth of 150 centimeters

Shrink-swell potential: Low (linear extensibility percentage about 0)

Salinity maximum (based on representative value): Nonsaline

Sodicity maximum: Not sodic

Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): Very high

Flooding frequency: Very frequent (see Water Features table)

Ponding frequency: None

Depth to seasonal high water table: At the soil surface to a depth of 25 centimeters (see Water Features table)

Available water capacity (entire profile): Moderate (about 18.3 centimeters)

Interpretive groups

Land capability subclass (nonirrigated): 8w

Hydric soil status: Not applicable

Hydrologic soil group: Unspecified

Typical profile

C—0 to 183 centimeters; stratified very stony coarse sand

22—Maritime Water, Flowing

Setting

Landform: Channels

Aspect (representative): North

Aspect (range): All aspects

Slope range: 1 to 5 percent

Properties and qualities

Depth to restrictive feature: None within a depth of 150 centimeters

Salinity maximum (based on representative value): Nonsaline

Sodicity maximum: Not sodic
Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): Unspecified
Flooding frequency: Very frequent (see Water Features table)
Ponding frequency: None
Depth to seasonal high water table: At the soil surface (see Water Features table)

Interpretive groups

Land capability subclass (nonirrigated): 8w
Hydric soil status: Not applicable
Hydrologic soil group: Unspecified

**22—Maritime Forest Gravelly Floodplains, High Gradient,
Occasionally Flooded**

Setting

Landform: Floodplains
Landform position (three-dimensional): Talfs
Down-slope shape: Linear
Across-slope shape: Linear
Slope range: 1 to 5 percent
Parent material: Gravelly alluvium

Properties and qualities

Depth to restrictive feature: None within a depth of 150 centimeters
Shrink-swell potential: Low (linear extensibility percentage about 0.3)
Salinity maximum (based on representative value): Nonsaline
Sodicity maximum: Not sodic
Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): High
Natural drainage class: Well drained
Flooding frequency: Occasional (see Water Features table)
Ponding frequency: None
Depth to seasonal high water table: Not present within a depth of 160 centimeters
Available water capacity (entire profile): Very low (about 3.8 centimeters)

Interpretive groups

Land capability subclass (nonirrigated): 6s
Hydric soil status: Not hydric
Hydrologic soil group: A
Soil classification: Typic Cryofluvents

Typical profile

O—0 to 7 centimeters; slightly decomposed plant material
A—7 to 21 centimeters; stratified highly organic gravelly sandy loam
C—21 to 183 centimeters; extremely bouldery coarse sand

22LF1—Maritime Floodplains, Gravelly



Major land resource area: 222—Southern Alaska Coastal Mountains

Elevation: 2 to 1,000 meters

Mean annual precipitation: 660 to 703 millimeters

Mean annual air temperature: 4 to 6 degrees C

Frost-free period: 98 to 171 days

Map Unit Composition

22—*Maritime Forest Gravelly Floodplains, Rarely Flooded:* 60 percent

22—*Maritime Forest Gravelly Floodplains, Occasionally Flooded:* 20 percent

Dissimilar minor components: 20 percent

22—Maritime Forest Gravelly Floodplains, Rarely Flooded

Setting

Landform: Floodplains

Landform position (three-dimensional): Talfs

Down-slope shape: Linear

Across-slope shape: Linear

Slope range: 0 to 3 percent

Parent material: Loamy alluvium over gravelly alluvium

Properties and qualities

Depth to restrictive feature: None within a depth of 150 centimeters

Shrink-swell potential: Low (linear extensibility percentage about 0.4)

Salinity maximum (based on representative value): Nonsaline

Sodicity maximum: Not sodic

Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): Moderately high

Natural drainage class: Well drained

Flooding frequency: Rare (see Water Features table)

Ponding frequency: None

Depth to seasonal high water table: Not present within a depth of 160 centimeters

Available water capacity (entire profile): Very low (about 5.1 centimeters)

Interpretive groups

Land capability subclass (nonirrigated): 6s

Hydric soil status: Not hydric

Hydrologic soil group: B

Soil classification: Sandy-skeletal, mixed, nonacid Typic Cryorthents

Typical profile

O—0 to 5 centimeters; slightly decomposed plant material

A—5 to 9 centimeters; highly organic silt loam

C—9 to 183 centimeters; very gravelly coarse sand

22—Maritime Forest Gravelly Floodplains, Occasionally Flooded

Setting

Landform: Floodplains

Landform position (three-dimensional): Talfs

Down-slope shape: Linear

Across-slope shape: Linear

Slope range: 0 to 3 percent

Parent material: Loamy alluvium over gravelly alluvium

Properties and qualities

Depth to restrictive feature: None within a depth of 150 centimeters
Shrink-swell potential: Low (linear extensibility percentage about 0.3)
Salinity maximum (based on representative value): Nonsaline
Sodicity maximum: Not sodic
Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): Moderately high
Natural drainage class: Moderately well drained
Flooding frequency: Occasional (see Water Features table)
Ponding frequency: None
Depth to seasonal high water table: About 80 to 183 centimeters (see Water Features table)
Available water capacity (entire profile): Very low (about 4.4 centimeters)

Interpretive groups

Land capability subclass (nonirrigated): 6s
Hydric soil status: Not hydric
Hydrologic soil group: B
Soil classification: Sandy-skeletal, mixed Typic Cryofluvents

Typical profile

O—0 to 3 centimeters; slightly decomposed plant material
A—3 to 5 centimeters; highly organic sandy loam
C—5 to 183 centimeters; very cobbly loamy sand

Minor Components

22—Maritime Riverwash, Gravelly

Percentage of map unit: 10 percent
Slope range: 1 to 3 percent
Landform: Floodplains

22—Maritime Water, Flowing

Percentage of map unit: 5 percent
Slope range: 1 to 3 percent
Landform: Channels

22—Maritime Scrub Gravelly Floodplains, Frequently Flooded

Percentage of map unit: 2 percent
Slope range: 0 to 3 percent
Landform: Floodplains
Hydric soil status: Not hydric

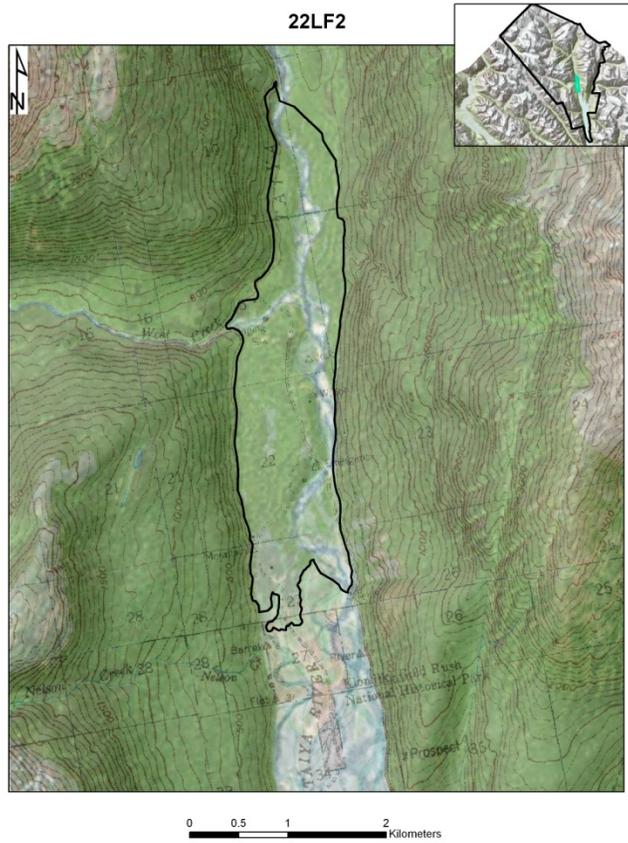
22—Maritime Scrub Gravelly Floodplains, Depression

Percentage of map unit: 2 percent
Slope range: 0 to 1 percent
Landform: Floodplains
Hydric soil status: Not hydric

22—Maritime Gravel Pit

Percentage of map unit: 1 percent
Slope range: 1 to 7 percent
Landform: Floodplains

22LF2—Maritime Floodplains, Loamy



Major land resource area: 222—Southern Alaska Coastal Mountains

Elevation: 2 to 1,000 meters

Mean annual precipitation: 660 to 703 millimeters

Mean annual air temperature: 4 to 6 degrees C

Frost-free period: 98 to 171 days

Map Unit Composition

22—*Maritime Forest Loamy Floodplains, Rarely Flooded:* 40 percent

22—*Maritime Forest Gravelly Floodplains, Occasionally Flooded:* 20 percent

22—*Maritime Forest Gravelly Floodplains, Rarely Flooded:* 20 percent

Dissimilar minor components: 20 percent

22—Maritime Forest Loamy Floodplains, Rarely Flooded

Setting

Landform: Floodplains

Landform position (three-dimensional): Talfs

Down-slope shape: Linear

Across-slope shape: Linear

Slope range: 0 to 3 percent

Parent material: Loamy alluvium over gravelly alluvium

Properties and qualities

Depth to restrictive feature: None within a depth of 150 centimeters

Shrink-swell potential: Low (linear extensibility percentage about 0.4)

Salinity maximum (based on representative value): Nonsaline

Sodicity maximum: Not sodic

Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): Moderately high

Natural drainage class: Well drained

Flooding frequency: Rare (see Water Features table)

Ponding frequency: None

Depth to seasonal high water table: Not present within a depth of 160 centimeters

Available water capacity (entire profile): Low (about 12.3 centimeters)

Interpretive groups

Land capability subclass (nonirrigated): 6s

Hydric soil status: Not hydric

Hydrologic soil group: B

Soil classification: Sandy-skeletal, mixed, nonacid Typic Cryorthents

Typical profile

O—0 to 5 centimeters; slightly decomposed plant material

C1—5 to 45 centimeters; highly organic silt loam

C2—45 to 183 centimeters; very gravelly coarse sand

22—Maritime Forest Gravelly Floodplains, Occasionally Flooded

Setting

Landform: Floodplains

Landform position (three-dimensional): Talfs

Down-slope shape: Linear

Across-slope shape: Linear

Slope range: 0 to 3 percent

Parent material: Loamy alluvium over gravelly alluvium

Properties and qualities

Depth to restrictive feature: None within a depth of 150 centimeters
Shrink-swell potential: Low (linear extensibility percentage about 0.3)
Salinity maximum (based on representative value): Nonsaline
Sodicity maximum: Not sodic
Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): Moderately high
Natural drainage class: Moderately well drained
Flooding frequency: Occasional (see Water Features table)
Ponding frequency: None
Depth to seasonal high water table: About 80 to 183 centimeters (see Water Features table)
Available water capacity (entire profile): Very low (about 4.4 centimeters)

Interpretive groups

Land capability subclass (nonirrigated): 6s
Hydric soil status: Not hydric
Hydrologic soil group: B
Soil classification: Sandy-skeletal, mixed Typic Cryofluvents

Typical profile

O—0 to 3 centimeters; slightly decomposed plant material
A—3 to 5 centimeters; highly organic sandy loam
C—5 to 183 centimeters; very cobbly loamy sand

22—Maritime Forest Gravelly Floodplains, Rarely Flooded

Setting

Landform: Floodplains
Landform position (three-dimensional): Talfs
Down-slope shape: Linear
Across-slope shape: Linear
Slope range: 0 to 3 percent
Parent material: Loamy alluvium over gravelly alluvium

Properties and qualities

Depth to restrictive feature: None within a depth of 150 centimeters
Shrink-swell potential: Low (linear extensibility percentage about 0.4)
Salinity maximum (based on representative value): Nonsaline
Sodicity maximum: Not sodic
Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): Moderately high
Natural drainage class: Well drained
Flooding frequency: Rare (see Water Features table)
Ponding frequency: None
Depth to seasonal high water table: Not present within a depth of 160 centimeters
Available water capacity (entire profile): Very low (about 5.1 centimeters)

Interpretive groups

Land capability subclass (nonirrigated): 6s
Hydric soil status: Not hydric
Hydrologic soil group: B
Soil classification: Sandy-skeletal, mixed, nonacid Typic Cryorthents

Typical profile

O—0 to 5 centimeters; slightly decomposed plant material

A—5 to 9 centimeters; highly organic silt loam

C—9 to 183 centimeters; very gravelly coarse sand

Minor Components

22—Maritime Riverwash, Gravelly

Percentage of map unit: 10 percent

Slope range: 1 to 3 percent

Landform: Floodplains

22—Maritime Water, Flowing

Percentage of map unit: 5 percent

Slope range: 1 to 3 percent

Landform: Channels

22—Maritime Scrub Gravelly Floodplains, Depression

Percentage of map unit: 3 percent

Slope range: 0 to 1 percent

Landform: Floodplains

Hydric soil status: Not hydric

22—Maritime Scrub Gravelly Floodplains, Frequently Flooded

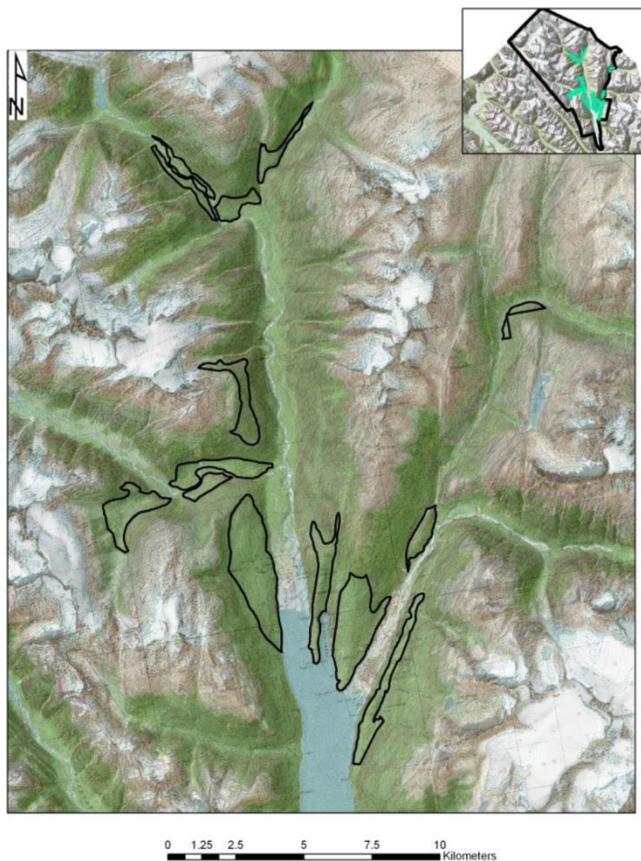
Percentage of map unit: 2 percent

Slope range: 0 to 3 percent

Landform: Floodplains

Hydric soil status: Not hydric

22LM1—Maritime Mountains, Steep



Major land resource area: 222—Southern Alaska Coastal Mountains

Elevation: 0 to 1,080 meters

Mean annual precipitation: 660 to 703 millimeters

Mean annual air temperature: 4 to 6 degrees C

Frost-free period: 96 to 180 days

Map Unit Composition

22—*Maritime Forest Gravelly Slopes, Shallow:* 60 percent

22—*Maritime Forest Organic Slopes, Dry:* 20 percent

Dissimilar minor components: 20 percent

22—Maritime Forest Gravelly Slopes, Shallow

Setting

Landform: Mountains

Landform position (two-dimensional): Backslopes

Landform position (three-dimensional): Lower third of mountainflanks

Down-slope shape: Linear

Across-slope shape: Linear, convex

Aspect (representative): North

Aspect (range): All aspects

Slope range: 20 to 50 percent

Parent material: Gravelly colluvium over residuum derived from diorite

Properties and qualities

Depth to restrictive feature: 30 to 50 centimeters to lithic bedrock

Shrink-swell potential: Low (linear extensibility percentage about 0.3)

Salinity maximum (based on representative value): Nonsaline

Sodicity maximum: Not sodic

Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): High

Natural drainage class: Well drained

Flooding frequency: None

Ponding frequency: None

Depth to seasonal high water table: Not present within a depth of 160 centimeters

Available water capacity (entire profile): Very low (about 3.1 centimeters)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Hydric soil status: Not hydric

Hydrologic soil group: D

Soil classification: Lithic Haplocryods

Typical profile

O—0 to 8 centimeters; slightly decomposed plant material

A—8 to 12 centimeters; highly organic gravelly sandy loam

E—12 to 17 centimeters; very gravelly sandy loam

Bs—17 to 22 centimeters; very gravelly sandy loam

C—27 to 40 centimeters; very gravelly sandy loam

R—40 to 183 centimeters; bedrock

22—Maritime Forest Organic Slopes, Dry

Setting

Landform: Mountains

Landform position (two-dimensional): Shoulders, backslopes

Landform position (three-dimensional): Lower third of mountainflanks

Down-slope shape: Convex

Across-slope shape: Convex

Aspect (representative): North

Aspect (range): All aspects

Slope range: 10 to 30 percent

Parent material: Organic material over gravelly colluvium over residuum derived from diorite

Properties and qualities

Depth to restrictive feature: 18 to 36 centimeters to lithic bedrock

Shrink-swell potential: Low (linear extensibility percentage about 0.2)

Salinity maximum (based on representative value): Nonsaline

Sodicity maximum: Not sodic

Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): High

Natural drainage class: Well drained

Flooding frequency: None

Ponding frequency: None

Depth to seasonal high water table: Not present within a depth of 160 centimeters

Available water capacity (entire profile): Very low (about 3.7 centimeters)

Interpretive groups

Land capability subclass (nonirrigated): 8e

Hydric soil status: Not hydric

Hydrologic soil group: D

Soil classification: Lithic Cryofolists

Typical profile

O—0 to 22 centimeters; slightly decomposed plant material

C—22 to 28 centimeters; very stony sandy loam

R—28 to 183 centimeters; bedrock

Minor Components

22—Maritime Rock Outcrop

Percentage of map unit: 15 percent

Slope range: 10 to 120 percent

Landform: Mountains

22—Maritime Forest Organic Slopes, Depression

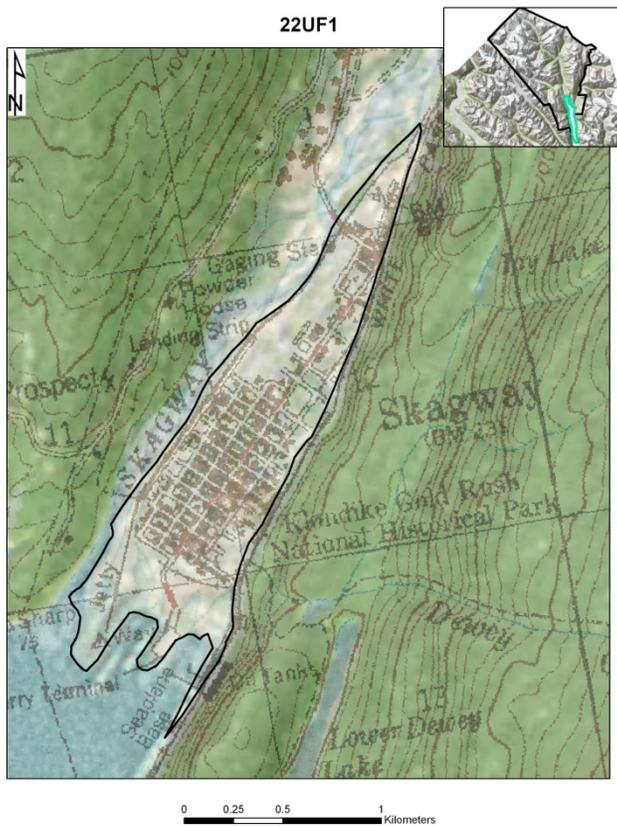
Percentage of map unit: 5 percent

Slope range: 0 to 2 percent

Landform: Mountains

Hydric soil status: Hydric

22UF1—Maritime Floodplains, Urban Land



Major land resource area: 222—Southern Alaska Coastal Mountains

Elevation: 2 to 100 meters

Mean annual precipitation: 660 to 703 millimeters

Mean annual air temperature: 4 to 6 degrees C

Frost-free period: 98 to 171 days

Map Unit Composition

22—*Maritime Urban Land:* 80 percent

Dissimilar minor components: 20 percent

22—Maritime Urban Land

Setting

Landform: Floodplains

Landform position (three-dimensional): Talfs

Down-slope shape: Linear

Across-slope shape: Linear

Aspect (representative): North

Aspect (range): All aspects

Slope range: 0 to 3 percent

Properties and qualities

Depth to restrictive feature: None within a depth of 150 centimeters

Salinity maximum (based on representative value): Nonsaline

Sodicity maximum: Not sodic

Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): Unspecified

Flooding frequency: None

Ponding frequency: None

Depth to seasonal high water table: Not present within a depth of 160 centimeters

Interpretive groups

Land capability subclass (nonirrigated): 8s

Hydric soil status: Not applicable

Hydrologic soil group: Unspecified

Minor Components

22—Maritime Urban Land, Flooded

Percentage of map unit: 10 percent

Slope range: 0 to 3 percent

Landform: Floodplains

22—Maritime Gravel Pit

Percentage of map unit: 5 percent

Slope range: 1 to 7 percent

Landform: Floodplains

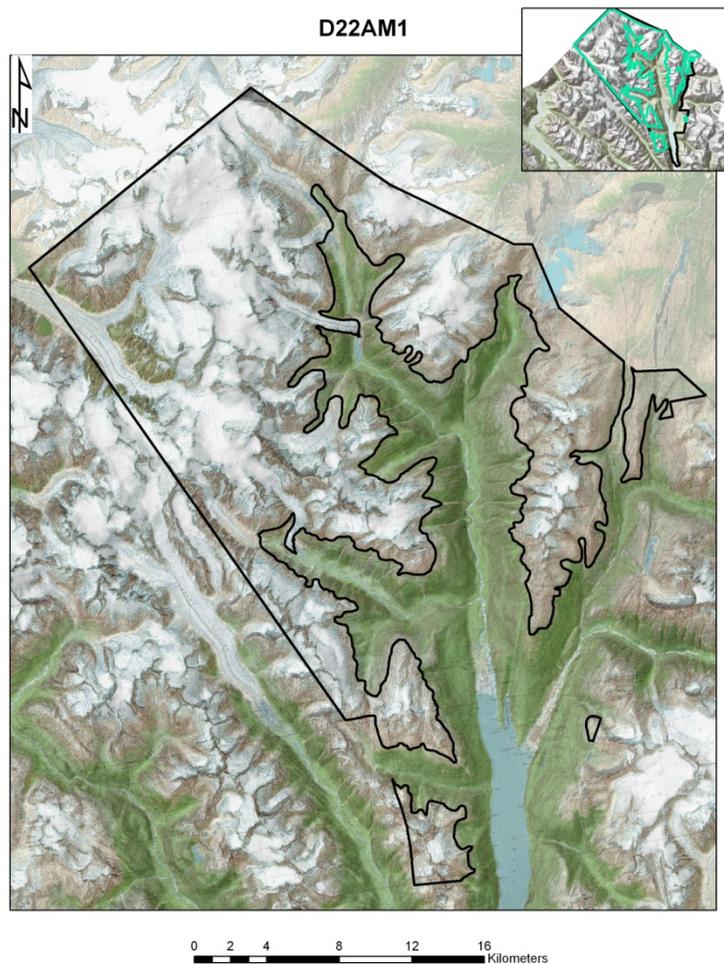
22—Maritime Levees

Percentage of map unit: 5 percent

Slope range: 30 to 50 percent

Landform: Floodplains

D22AM1—Alpine Diorite Mountains



Major land resource area: 222—Southern Alaska Coastal Mountains
Elevation: 300 to 2,477 meters
Mean annual precipitation: 1,000 to 2,880 millimeters
Mean annual air temperature: 1 to 4 degrees C
Frost-free period: 10 to 100 days

Map Unit Composition

D22—Subalpine and Alpine Permanent Ice and Snow: 33 percent
D22—Subalpine and Alpine Rock Outcrop: 33 percent
D22—Subalpine and Alpine Rubble Land: 30 percent
Dissimilar minor component: 4 percent

D22—Subalpine and Alpine Permanent Ice and Snow

Setting

Landform: Mountains
Landform position (two-dimensional): Summits, shoulders
Landform position (three-dimensional): Upper third of mountainflanks
Down-slope shape: Linear
Across-slope shape: Convex
Aspect (representative): North
Aspect (range): All aspects
Slope range: 10 to 120 percent

Properties and qualities

Depth to restrictive feature: None within a depth of 150 centimeters
Salinity maximum (based on representative value): Nonsaline
Sodicity maximum: Not sodic
Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): Unspecified
Flooding frequency: None
Ponding frequency: None
Depth to seasonal high water table: At the soil surface (see Water Features table)

Interpretive groups

Land capability subclass (nonirrigated): 8c
Hydric soil status: Not applicable
Hydrologic soil group: Unspecified

D22—Subalpine and Alpine Rock Outcrop

Setting

Landform: Mountains
Landform position (two-dimensional): Shoulders, backslopes
Landform position (three-dimensional): Upper third of mountainflanks
Down-slope shape: Convex
Across-slope shape: Convex
Aspect (representative): North
Aspect (range): All aspects
Slope range: 10 to 120 percent

Properties and qualities

Depth to restrictive feature: Lithic bedrock at the surface
Salinity maximum (based on representative value): Nonsaline
Sodicity maximum: Not sodic
Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): Unspecified

Flooding frequency: None

Ponding frequency: None

Depth to seasonal high water table: Not present within a depth of 160 centimeters

Interpretive groups

Land capability subclass (nonirrigated): 8s

Hydric soil status: Not applicable

Hydrologic soil group: Unspecified

Typical profile

R—0 to 183 centimeters; bedrock

D22—Subalpine and Alpine Rubble Land

Setting

Landform: Mountains

Landform position (two-dimensional): Backslopes

Landform position (three-dimensional): Upper third of mountainflanks

Down-slope shape: Linear

Across-slope shape: Convex

Aspect (representative): North

Aspect (range): All aspects

Slope range: 10 to 120 percent

Properties and qualities

Depth to restrictive feature: None within a depth of 150 centimeters

Salinity maximum (based on representative value): Nonsaline

Sodicity maximum: Not sodic

Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): Very high

Flooding frequency: None

Ponding frequency: None

Depth to seasonal high water table: Not present within a depth of 160 centimeters

Available water capacity (entire profile): Very low (about 0 centimeters)

Interpretive groups

Land capability subclass (nonirrigated): 8e

Hydric soil status: Not applicable

Hydrologic soil group: Unspecified

Typical profile

C—0 to 183 centimeters; boulders

Minor Component

D22—Alpine Herbaceous Gravelly Diorite Slopes

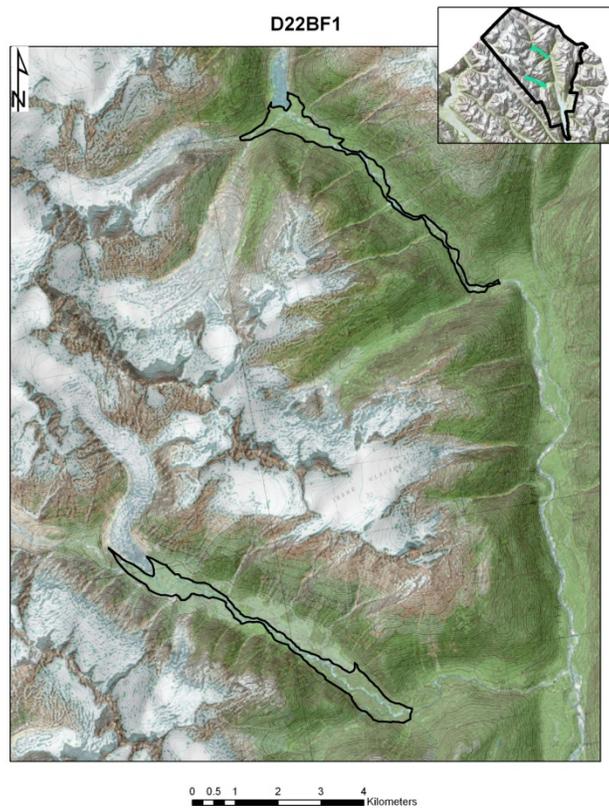
Percentage of map unit: 4 percent

Slope range: 30 to 60 percent

Landform: Mountains

Hydric soil status: Not hydric

D22BF1—Maritime Floodplains, High Gradient, Jokulhlaup



Major land resource area: 222—Southern Alaska Coastal Mountains

Elevation: 2.0 to 500 meters

Mean annual precipitation: 660 to 1,244 millimeters

Mean annual air temperature: 2 to 6 degrees C

Frost-free period: 98 to 171 days

Map Unit Composition

D22—Maritime Riverwash, Bouldery: 45 percent

D22—Maritime Forest Gravelly Floodplains, High Gradient, Occasionally Flooded:
40 percent

D22—Maritime Water, Flowing: 15 percent

D22—Maritime Riverwash, Bouldery

Setting

Landform: Floodplains

Landform position (three-dimensional): Talfs

Down-slope shape: Linear, convex

Across-slope shape: Linear

Aspect (representative): North

Aspect (range): All aspects

Slope range: 1 to 5 percent

Properties and qualities

Depth to restrictive feature: None within a depth of 150 centimeters

Shrink-swell potential: Low (linear extensibility percentage about 0)

Salinity maximum (based on representative value): Nonsaline

Sodicity maximum: Not sodic

Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): Very high

Flooding frequency: Very frequent (see Water Features table)

Ponding frequency: None

Depth to seasonal high water table: At the soil surface to a depth of 25 centimeters (see Water Features table)

Available water capacity (entire profile): Moderate (about 18.3 centimeters)

Interpretive groups

Land capability subclass (nonirrigated): 8w

Hydric soil status: Not applicable

Hydrologic soil group: Unspecified

Typical profile

C—0 to 183 centimeters; stratified very stony coarse sand

D22—Maritime Forest Gravelly Floodplains, High Gradient, Occasionally Flooded

Setting

Landform: Floodplains

Landform position (three-dimensional): Talfs

Down-slope shape: Linear

Across-slope shape: Linear

Slope range: 1 to 5 percent

Parent material: Gravelly alluvium

Properties and qualities

Depth to restrictive feature: None within a depth of 150 centimeters
Shrink-swell potential: Low (linear extensibility percentage about 0.3)
Salinity maximum (based on representative value): Nonsaline
Sodicity maximum: Not sodic
Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): High
Natural drainage class: Well drained
Flooding frequency: Occasional (see Water Features table)
Ponding frequency: None
Depth to seasonal high water table: Not present within a depth of 160 centimeters
Available water capacity (entire profile): Very low (about 3.8 centimeters)

Interpretive groups

Land capability subclass (nonirrigated): 6s
Hydric soil status: Not hydric
Hydrologic soil group: A
Soil classification: Typic Cryofluvents

Typical profile

O—0 to 7 centimeters; slightly decomposed plant material
A—7 to 21 centimeters; stratified, highly organic gravelly sandy loam
C—21 to 183 centimeters; extremely bouldery coarse sand

D22—Maritime Water, Flowing

Setting

Landform: Channels
Aspect (representative): North
Aspect (range): All aspects
Slope range: 1 to 5 percent

Properties and qualities

Depth to restrictive feature: None within a depth of 150 centimeters
Salinity maximum (based on representative value): Nonsaline
Sodicity maximum: Not sodic
Calcium carbonate equivalent: No carbonates

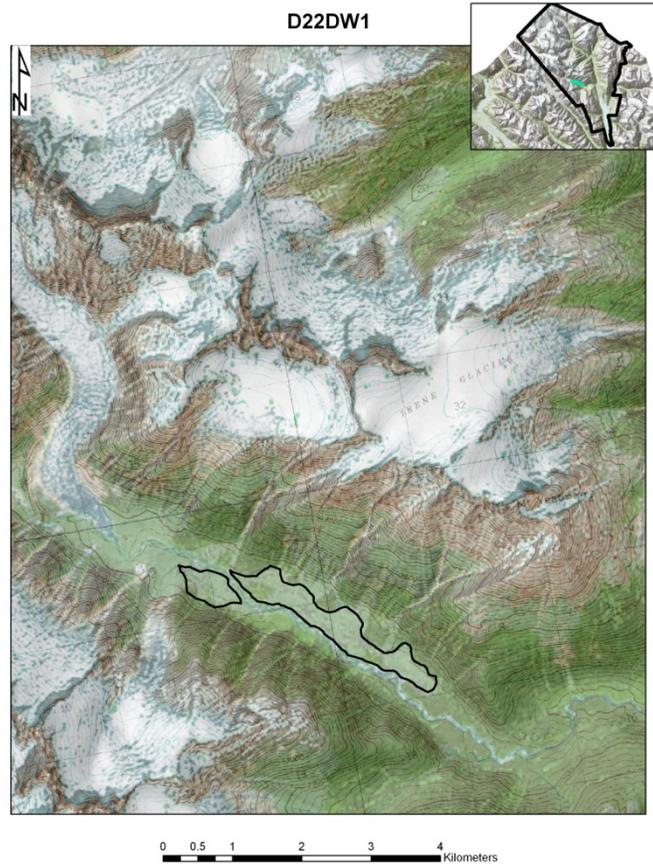
Hydrologic properties

Slowest capacity to transmit water (Ksat): Unspecified
Flooding frequency: Very frequent (see Water Features table)
Ponding frequency: None
Depth to seasonal high water table: At the soil surface (see Water Features table)

Interpretive groups

Land capability subclass (nonirrigated): 8w
Hydric soil status: Not applicable
Hydrologic soil group: Unspecified

D22DW1—Maritime Organic Floodplains



Major land resource area: 222—Southern Alaska Coastal Mountains

Elevation: 0 to 1,080 meters

Mean annual precipitation: 660 to 1244 millimeters

Mean annual air temperature: 2 to 6 degrees C

Frost-free period: 98 to 171 days

Map Unit Composition

D22—Maritime Scrub/Herb Mosaic Organic Floodplains: 90 percent

Dissimilar minor component: 10 percent

D22—Maritime Scrub/Herb Mosaic Organic Floodplains

Setting

Landform: Floodplains

Landform position (three-dimensional): Dips

Down-slope shape: Concave

Across-slope shape: Concave

Slope range: 0 to 2 percent

Parent material: Organic material over loamy alluvium over organic material over sandy and gravelly alluvium

Properties and qualities

Depth to restrictive feature: None within a depth of 150 centimeters

Shrink-swell potential: Low (linear extensibility percentage about 0.4)

Salinity maximum (based on representative value): Nonsaline

Sodicity maximum: Not sodic

Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): Moderately high

Natural drainage class: Very poorly drained

Flooding frequency: Frequent (see Water Features table)

Ponding frequency: Frequent (see Water Features table)

Depth to seasonal high water table: At the soil surface (see Water Features table)

Available water capacity (entire profile): Very high (about 47.4 centimeters)

Interpretive groups

Land capability subclass (nonirrigated): 8w

Hydric soil status: Hydric

Hydrologic soil group: B

Soil classification: Fluvaquentic Cryohemists

Typical profile

O—0 to 10 centimeters; peat

C—10 to 32 centimeters; fine sandy loam

O'—32 to 125 centimeters; mucky peat

2C'—125 to 183 centimeters; extremely gravelly sand

Minor Component

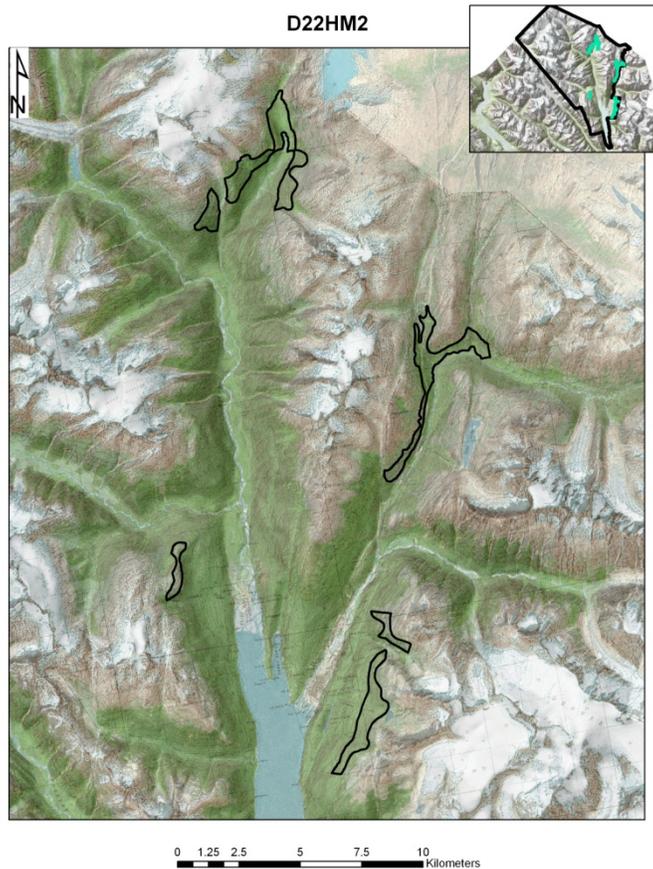
D22—Maritime Water, Lakes And Ponds

Percentage of map unit: 10 percent

Slope range: 0 to 1 percent

Landform: Lakes

D22HM2—Maritime Mountains, High Elevation



Major land resource area: 222—Southern Alaska Coastal Mountains

Elevation: 0 to 1,505 meters

Mean annual precipitation: 660 to 1,244 millimeters

Mean annual air temperature: 2 to 6 degrees C

Frost-free period: 90 to 171 days

Map Unit Composition

D22—Maritime Forest Organic Slopes, Dry, High Elevation: 50 percent

D20—Maritime Rock Outcrop: 20 percent

D22—Maritime Rubble Land: 20 percent

Dissimilar minor component: 10 percent

D22—Maritime Forest Organic Slopes, Dry, High Elevation

Setting

Landform: Mountains

Landform position (two-dimensional): Shoulders, backslopes

Landform position (three-dimensional): Center third of mountainflanks

Down-slope shape: Convex

Across-slope shape: Convex

Aspect (representative): North

Aspect (range): All aspects

Slope range: 30 to 90 percent

Parent material: Organic material over gravelly colluvium over residuum

Properties and qualities

Depth to restrictive feature: 17 to 60 centimeters to lithic bedrock

Shrink-swell potential: Low (linear extensibility percentage about 0.2)

Salinity maximum (based on representative value): Nonsaline

Sodicity maximum: Not sodic

Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): High

Natural drainage class: Well drained

Flooding frequency: None

Ponding frequency: None

Depth to seasonal high water table: Not present within a depth of 160 centimeters

Available water capacity (entire profile): Very low (about 5 centimeters)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Hydric soil status: Not hydric

Hydrologic soil group: D

Soil classification: Lithic Cryofolists

Typical profile

O—0 to 31 centimeters; slightly decomposed plant material

C—31 to 36 centimeters; very gravelly sandy loam

R—36 to 183 centimeters; bedrock

D20—Maritime Rock Outcrop

Setting

Landform: Mountains

Landform position (two-dimensional): Shoulders, backslopes

Landform position (three-dimensional): Lower third of mountainflanks

Down-slope shape: Convex

Across-slope shape: Convex
Aspect (representative): North
Aspect (range): All aspects
Slope range: 10 to 120 percent

Properties and qualities

Depth to restrictive feature: Lithic bedrock at the surface
Salinity maximum (based on representative value): Nonsaline
Sodicity maximum: Not sodic
Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): Unspecified
Flooding frequency: None
Ponding frequency: None
Depth to seasonal high water table: Not present within a depth of 160 centimeters

Interpretive groups

Land capability subclass (nonirrigated): 8s
Hydric soil status: Not applicable
Hydrologic soil group: Unspecified

Typical profile

R—0 to 183 centimeters; bedrock

D22—Maritime Rubble Land

Setting

Landform: Mountains
Landform position (two-dimensional): Backslopes
Landform position (three-dimensional): Lower third of mountainflanks
Down-slope shape: Linear
Across-slope shape: Convex
Aspect (representative): North
Aspect (range): All aspects
Slope range: 30 to 120 percent

Properties and qualities

Depth to restrictive feature: None within a depth of 150 centimeters
Salinity maximum (based on representative value): Nonsaline
Sodicity maximum: Not sodic
Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): Very high
Flooding frequency: None
Ponding frequency: None
Depth to seasonal high water table: Not present within a depth of 160 centimeters
Available water capacity (entire profile): Very low (about 0 centimeters)

Interpretive groups

Land capability subclass (nonirrigated): 8e
Hydric soil status: Not applicable
Hydrologic soil group: Unspecified

Typical profile

C—0 to 183 centimeters; boulders

Minor Component

D22—Maritime Forest Gravelly Slopes, High Elevation

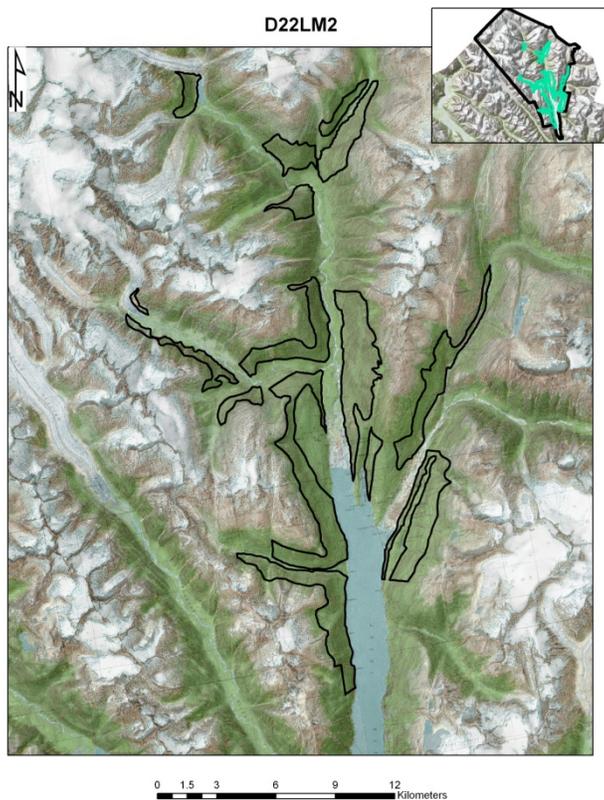
Percentage of map unit: 10 percent

Slope range: 20 to 40 percent

Landform: Mountains

Hydric soil status: Not hydric

D22LM2—Maritime Mountains, Very Steep, Smooth



Major land resource area: 222—Southern Alaska Coastal Mountains
Elevation: 0 to 1,505 meters
Mean annual precipitation: 660 to 1,244 millimeters
Mean annual air temperature: 3 to 6 degrees C
Frost-free period: 90 to 180 days

Map Unit Composition

D22—Maritime Forest Gravelly Slopes, Shallow: 35 percent
D22—Maritime Forest Gravelly Slopes, Shallow, Convex: 25 percent
D22—Maritime Rock Outcrop: 20 percent
Dissimilar minor components: 20 percent

D22—Maritime Forest Gravelly Slopes, Shallow

Setting

Landform: Mountains
Landform position (two-dimensional): Backslopes
Landform position (three-dimensional): Lower third of mountainflanks
Down-slope shape: Linear
Across-slope shape: Linear
Aspect (representative): North
Aspect (range): All aspects
Slope range: 50 to 90 percent
Parent material: Gravelly colluvium over residuum

Properties and qualities

Depth to restrictive feature: 30 to 65 centimeters to lithic bedrock
Shrink-swell potential: Low (linear extensibility percentage about 0.2)
Salinity maximum (based on representative value): Nonsaline
Sodicity maximum: Not sodic
Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): High
Natural drainage class: Well drained
Flooding frequency: None
Ponding frequency: None
Depth to seasonal high water table: Not present within a depth of 160 centimeters
Available water capacity (entire profile): Very low (about 2.9 centimeters)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Hydric soil status: Not hydric
Hydrologic soil group: D
Soil classification: Lithic Dystrocryepts

Typical profile

O—0 to 8 centimeters; slightly decomposed plant material
A—8 to 15 centimeters; highly organic very gravelly sandy loam
Bw—15 to 39 centimeters; very gravelly sandy loam
C—39 to 40 centimeters; very gravelly sandy loam
R—40 to 183 centimeters; bedrock

D22—Maritime Forest Gravelly Slopes, Shallow, Convex

Setting

Landform: Mountains
Landform position (two-dimensional): Shoulders, backslopes

Landform position (three-dimensional): Lower third of mountainflanks
Down-slope shape: Linear
Across-slope shape: Convex
Aspect (representative): North
Aspect (range): All aspects
Slope range: 50 to 90 percent
Parent material: Gravelly colluvium over residuum derived from diorite

Properties and qualities

Depth to restrictive feature: 30 to 40 centimeters to lithic bedrock
Shrink-swell potential: Low (linear extensibility percentage about 0.2)
Salinity maximum (based on representative value): Nonsaline
Sodicity maximum: Not sodic
Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): High
Natural drainage class: Well drained
Flooding frequency: None
Ponding frequency: None
Depth to seasonal high water table: Not present within a depth of 160 centimeters
Available water capacity (entire profile): Very low (about 2.4 centimeters)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Hydric soil status: Not hydric
Hydrologic soil group: D
Soil classification: Lithic Haplocryods

Typical profile

O—0 to 6 centimeters; slightly decomposed plant material
A—6 to 7 centimeters; highly organic very gravelly sandy loam
E—7 to 12 centimeters; very gravelly sandy loam
Bs—12 to 33 centimeters; extremely gravelly sandy loam
C—33 to 40 centimeters; extremely gravelly sandy loam
R—40 to 183 centimeters; bedrock

D22—Maritime Rock Outcrop

Setting

Landform: Mountains
Landform position (two-dimensional): Shoulders, backslopes
Landform position (three-dimensional): Lower third of mountainflanks
Down-slope shape: Convex
Across-slope shape: Convex
Aspect (representative): North
Aspect (range): All aspects
Slope range: 10 to 120 percent

Properties and qualities

Depth to restrictive feature: Lithic bedrock at the surface
Salinity maximum (based on representative value): Nonsaline
Sodicity maximum: Not sodic
Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): Unspecified
Flooding frequency: None

Ponding frequency: None

Depth to seasonal high water table: Not present within a depth of 160 centimeters

Interpretive groups

Land capability subclass (nonirrigated): 8s

Hydric soil status: Not applicable

Hydrologic soil group: Unspecified

Typical profile

R—0 to 183 centimeters; bedrock

Minor Components

D22—Maritime Forest Organic Slopes, Dry

Percentage of map unit: 10 percent

Slope range: 50 to 100 percent

Landform: Mountains

Hydric soil status: Not hydric

D22—Maritime Forest Gravelly Slopes, High Elevation

Percentage of map unit: 5 percent

Slope range: 50 to 90 percent

Landform: Mountains

Hydric soil status: Not hydric

D22—Maritime Forest Organic Slopes, Depression

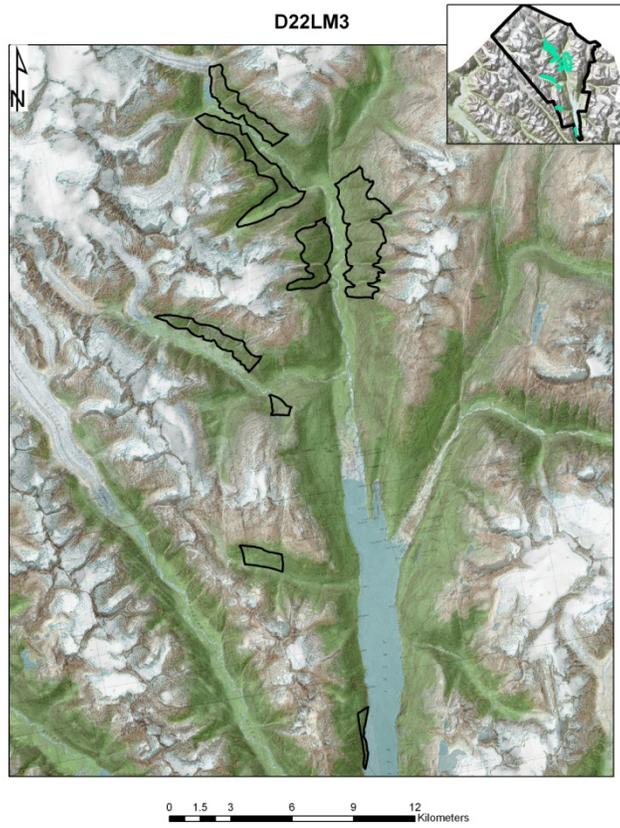
Percentage of map unit: 5 percent

Slope range: 2 to 7 percent

Landform: Mountains

Hydric soil status: Hydric

D22LM3—Maritime Mountains, Very Steep, Dissected





Major land resource area: 222—Southern Alaska Coastal Mountains
Elevation: 0 to 1,600 meters
Mean annual precipitation: 660 to 1,244 millimeters
Mean annual air temperature: 2 to 6 degrees C
Frost-free period: 65 to 171 days

Map Unit Composition

D22—Maritime Forest Gravelly Slopes, Shallow: 30 percent
D22—Maritime Rubble Land: 20 percent
D22—Maritime Scrub/Herb Gravelly Slopes, Depositional: 20 percent
D20—Maritime Rock outcrop: 15 percent
Dissimilar minor components: 15 percent

D22—Maritime Forest Gravelly Slopes, Shallow

Setting

Landform: Mountains
Landform position (two-dimensional): Backslopes
Landform position (three-dimensional): Lower third of mountainflanks
Down-slope shape: Linear
Across-slope shape: Linear
Aspect (representative): North
Aspect (range): All aspects
Slope range: 50 to 90 percent
Parent material: Gravelly colluvium over residuum

Properties and qualities

Depth to restrictive feature: 30 to 65 centimeters to lithic bedrock
Shrink-swell potential: Low (linear extensibility percentage about 0.2)
Salinity maximum (based on representative value): Nonsaline

Sodicity maximum: Not sodic
Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): High
Natural drainage class: Well drained
Flooding frequency: None
Ponding frequency: None
Depth to seasonal high water table: Not present within a depth of 160 centimeters
Available water capacity (entire profile): Very low (about 2.9 centimeters)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Hydric soil status: Not hydric
Hydrologic soil group: D
Soil classification: Lithic Dystrocryepts

Typical profile

O—0 to 8 centimeters; slightly decomposed plant material
A—8 to 15 centimeters; highly organic very gravelly sandy loam
Bw—15 to 39 centimeters; very gravelly sandy loam
C—39 to 40 centimeters; very gravelly sandy loam
R—40 to 183 centimeters; bedrock

D22—Maritime Rubble Land

Setting

Landform: Mountains
Landform position (two-dimensional): Backslopes
Landform position (three-dimensional): Lower third of mountainflanks
Down-slope shape: Linear
Across-slope shape: Convex
Aspect (representative): North
Aspect (range): All aspects
Slope range: 50 to 120 percent

Properties and qualities

Depth to restrictive feature: None within a depth of 150 centimeters
Salinity maximum (based on representative value): Nonsaline
Sodicity maximum: Not sodic
Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): Very high
Flooding frequency: None
Ponding frequency: None
Depth to seasonal high water table: Not present within a depth of 160 centimeters
Available water capacity (entire profile): Very low (about 0 centimeters)

Interpretive groups

Land capability subclass (nonirrigated): 8e
Hydric soil status: Not applicable
Hydrologic soil group: Unspecified

Typical profile

C—0 to 183 centimeters; boulders

D22—Maritime Scrub/Herb Gravelly Slopes, Depositional

Setting

Landform: Mountains
Landform position (two-dimensional): Footslopes
Landform position (three-dimensional): Mountain bases
Down-slope shape: Linear
Across-slope shape: Convex
Aspect (representative): North
Aspect (range): All aspects
Slope range: 20 to 40 percent
Parent material: Gravelly colluvium

Properties and qualities

Depth to restrictive feature: None within a depth of 150 centimeters
Shrink-swell potential: Low (linear extensibility percentage about 0.1)
Salinity maximum (based on representative value): Nonsaline
Sodicity maximum: Not sodic
Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): Moderately high
Natural drainage class: Well drained
Flooding frequency: None
Ponding frequency: None
Depth to seasonal high water table: Not present within a depth of 160 centimeters
Available water capacity (entire profile): Low (about 9.8 centimeters)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Hydric soil status: Not hydric
Hydrologic soil group: B
Soil classification: Typic Cryorthents

Typical profile

C—0 to 24 centimeters; extremely gravelly sandy loam
O—24 to 30 centimeters; extremely gravelly, moderately decomposed plant material
C'—30 to 183 centimeters; extremely gravelly sandy loam

D20—Maritime Rock Outcrop

Setting

Landform: Mountains
Landform position (two-dimensional): Shoulders, backslopes
Landform position (three-dimensional): Lower third of mountainflanks
Down-slope shape: Convex
Across-slope shape: Convex
Aspect (representative): North
Aspect (range): All aspects
Slope range: 50 to 120 percent

Properties and qualities

Depth to restrictive feature: Lithic bedrock at the surface
Salinity maximum (based on representative value): Nonsaline
Sodicity maximum: Not sodic
Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): Unspecified

Flooding frequency: None

Ponding frequency: None

Depth to seasonal high water table: Not present within a depth of 160 centimeters

Interpretive groups

Land capability subclass (nonirrigated): 8s

Hydric soil status: Not applicable

Hydrologic soil group: Unspecified

Typical profile

R—0 to 183 centimeters; bedrock

Minor Components

D22—Maritime Forest Organic Slopes, Dry

Percentage of map unit: 10 percent

Slope range: 50 to 100 percent

Landform: Mountains

Hydric soil status: Not hydric

D22—Maritime Forest Gravelly Slopes, High Elevation

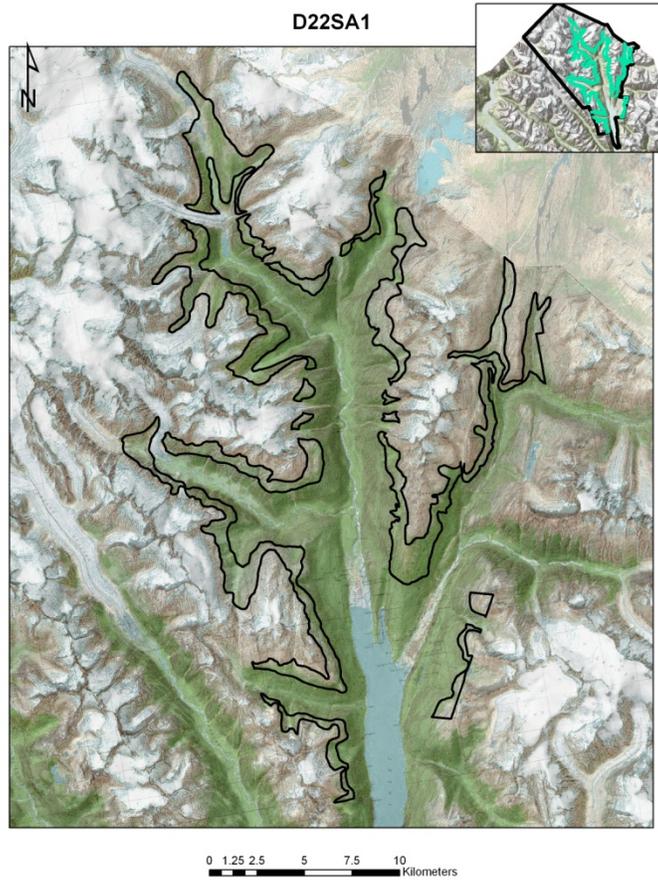
Percentage of map unit: 5 percent

Slope range: 50 to 90 percent

Landform: Mountains

Hydric soil status: Not hydric

D22SA1—Subalpine Mountains



Major land resource area: 222—Southern Alaska Coastal Mountains

Elevation: 300 to 2,477 meters

Mean annual precipitation: 980 to 2,880 millimeters

Mean annual air temperature: 1 to 4 degrees C

Frost-free period: 10 to 100 days

Map Unit Composition

D22—Subalpine and Alpine Rubble Land: 25 percent

D22—Subalpine and Alpine Rock Outcrop: 20 percent

D22—Subalpine Scrub Gravelly Slopes, Convex: 15 percent

Dissimilar minor components: 40 percent

D22—Subalpine and Alpine Rubble Land

Setting

Landform: Mountains

Landform position (two-dimensional): Backslopes

Landform position (three-dimensional): Upper third of mountainflanks

Down-slope shape: Linear

Across-slope shape: Convex

Aspect (representative): North

Aspect (range): All aspects

Slope range: 10 to 120 percent

Properties and qualities

Depth to restrictive feature: None within a depth of 150 centimeters

Salinity maximum (based on representative value): Nonsaline

Sodicity maximum: Not sodic

Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): Very high

Flooding frequency: None

Ponding frequency: None

Depth to seasonal high water table: Not present within a depth of 160 centimeters

Available water capacity (entire profile): Very low (about 0 centimeters)

Interpretive groups

Land capability subclass (nonirrigated): 8e

Hydric soil status: Not applicable

Hydrologic soil group: Unspecified

Typical profile

C—0 to 183 centimeters; boulders

D22—Subalpine and Alpine Rock Outcrop

Setting

Landform: Mountains

Landform position (two-dimensional): Shoulders, backslopes

Landform position (three-dimensional): Upper third of mountainflanks

Down-slope shape: Convex

Across-slope shape: Convex

Aspect (representative): North

Aspect (range): All aspects

Slope range: 10 to 120 percent

Properties and qualities

Depth to restrictive feature: Lithic bedrock at the surface
Salinity maximum (based on representative value): Nonsaline
Sodicity maximum: Not sodic
Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): Unspecified
Flooding frequency: None
Ponding frequency: None
Depth to seasonal high water table: Not present within a depth of 160 centimeters

Interpretive groups

Land capability subclass (nonirrigated): 8s
Hydric soil status: Not applicable
Hydrologic soil group: Unspecified

Typical profile

R—0 to 183 centimeters; bedrock

D22—Subalpine Scrub Gravelly Slopes, Convex

Setting

Landform: Mountains
Landform position (two-dimensional): Backslopes
Landform position (three-dimensional): Upper third of mountainflanks
Down-slope shape: Linear
Across-slope shape: Concave
Aspect (representative): North
Aspect (range): All aspects
Slope range: 50 to 90 percent
Parent material: Loamy colluvium over residuum derived from diorite

Properties and qualities

Depth to restrictive feature: 25 to 55 centimeters to lithic bedrock
Shrink-swell potential: Low (linear extensibility percentage about 0.3)
Salinity maximum (based on representative value): Nonsaline
Sodicity maximum: Not sodic
Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): Moderately high
Natural drainage class: Moderately well drained
Flooding frequency: None
Ponding frequency: None
Depth to seasonal high water table: Not present within a depth of 160 centimeters
Available water capacity (entire profile): Very low (about 4.6 centimeters)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Hydric soil status: Not hydric
Hydrologic soil group: D
Soil classification: Lithic Humicryepts

Typical profile

O—0 to 3 centimeters; moderately decomposed plant material
A—3 to 38 centimeters; cobbly sandy loam
R—38 to 183 centimeters; bedrock

Minor Components

D22—Subalpine Scrub Organic Slopes

Percentage of map unit: 12 percent

Slope range: 50 to 100 percent

Landform: Mountains

Hydric soil status: Not hydric

D22—Subalpine Scrub Gravelly Slopes

Percentage of map unit: 10 percent

Slope range: 10 to 30 percent

Landform: Mountains

Hydric soil status: Not hydric

D22—Subalpine Scrub Gravelly Slopes, Depositional

Percentage of map unit: 8 percent

Slope range: 5 to 25 percent

Landform: Mountains

Hydric soil status: Not hydric

D22—Subalpine and Alpine Permanent Ice and Snow

Percentage of map unit: 5 percent

Slope range: 10 to 120 percent

D22—Subalpine Forest Gravelly Slopes

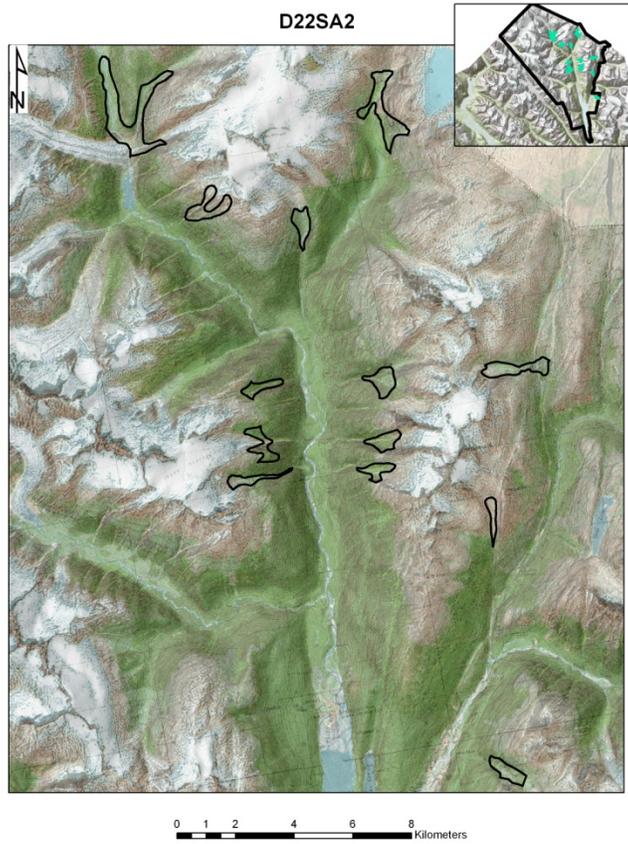
Percentage of map unit: 5 percent

Slope range: 20 to 50 percent

Landform: Mountains

Hydric soil status: Not hydric

D22SA2—Subalpine Mountains, Avalanche Chutes



Major land resource area: 222—Southern Alaska Coastal Mountains

Elevation: 300 to 2,477 meters

Mean annual precipitation: 660 to 2,880 millimeters

Mean annual air temperature: 1 to 6 degrees C

Frost-free period: 25 to 100 days

Map Unit Composition

D22—Subalpine and Alpine Rubble Land: 34 percent

D22—Subalpine and Alpine Rock Outcrop: 33 percent

D22—Maritime Scrub/Herb Gravelly Slopes, Depositional: 30 percent

Dissimilar minor component: 3 percent

D22—Subalpine and Alpine Rubble Land

Setting

Landform: Mountains

Landform position (two-dimensional): Backslopes

Landform position (three-dimensional): Upper third of mountain flanks

Down-slope shape: Linear

Across-slope shape: Convex

Aspect (representative): North

Aspect (range): All aspects

Slope range: 20 to 120 percent

Properties and qualities

Depth to restrictive feature: None within a depth of 150 centimeters

Salinity maximum (based on representative value): Nonsaline

Sodicity maximum: Not sodic

Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): Very high

Flooding frequency: None

Ponding frequency: None

Depth to seasonal high water table: Not present within a depth of 160 centimeters

Available water capacity (entire profile): Very low (about 0 centimeters)

Interpretive groups

Land capability subclass (nonirrigated): 8e

Hydric soil status: Not applicable

Hydrologic soil group: Unspecified

Typical profile

C—0 to 183 centimeters; boulders

D22—Subalpine and Alpine Rock Outcrop

Setting

Landform: Mountains

Landform position (two-dimensional): Shoulders, backslopes

Landform position (three-dimensional): Upper third of mountainflanks

Down-slope shape: Convex

Across-slope shape: Convex

Aspect (representative): North

Aspect (range): All aspects

Slope range: 20 to 120 percent

Properties and qualities

Depth to restrictive feature: Lithic bedrock at the surface
Salinity maximum (based on representative value): Nonsaline
Sodicity maximum: Not sodic
Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): Unspecified
Flooding frequency: None
Ponding frequency: None
Depth to seasonal high water table: Not present within a depth of 160 centimeters

Interpretive groups

Land capability subclass (nonirrigated): 8s
Hydric soil status: Not applicable
Hydrologic soil group: Unspecified

Typical profile

R—0 to 183 centimeters; bedrock

D22—Maritime Scrub/Herb Gravelly Slopes, Depositional

Setting

Landform: Mountains
Landform position (two-dimensional): Footslopes
Landform position (three-dimensional): Mountainbases
Down-slope shape: Linear
Across-slope shape: Convex
Aspect (representative): North
Aspect (range): All aspects
Slope range: 20 to 45 percent
Parent material: Gravelly colluvium

Properties and qualities

Depth to restrictive feature: None within a depth of 150 centimeters
Shrink-swell potential: Low (linear extensibility percentage about 0.1)
Salinity maximum (based on representative value): Nonsaline
Sodicity maximum: Not sodic
Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): Moderately high
Natural drainage class: Well drained
Flooding frequency: None
Ponding frequency: None
Depth to seasonal high water table: Not present within a depth of 160 centimeters
Available water capacity (entire profile): Low (about 9.8 centimeters)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Hydric soil status: Not hydric
Hydrologic soil group: B
Soil classification: Typic Cryorthents

Typical profile

C—0 to 24 centimeters; extremely gravelly sandy loam
O—24 to 30 centimeters; extremely gravelly, moderately decomposed plant material
C'—30 to 183 centimeters; extremely gravelly sandy loam

Minor Component

D22—Subalpine Scrub Gravelly Slopes, Depositional

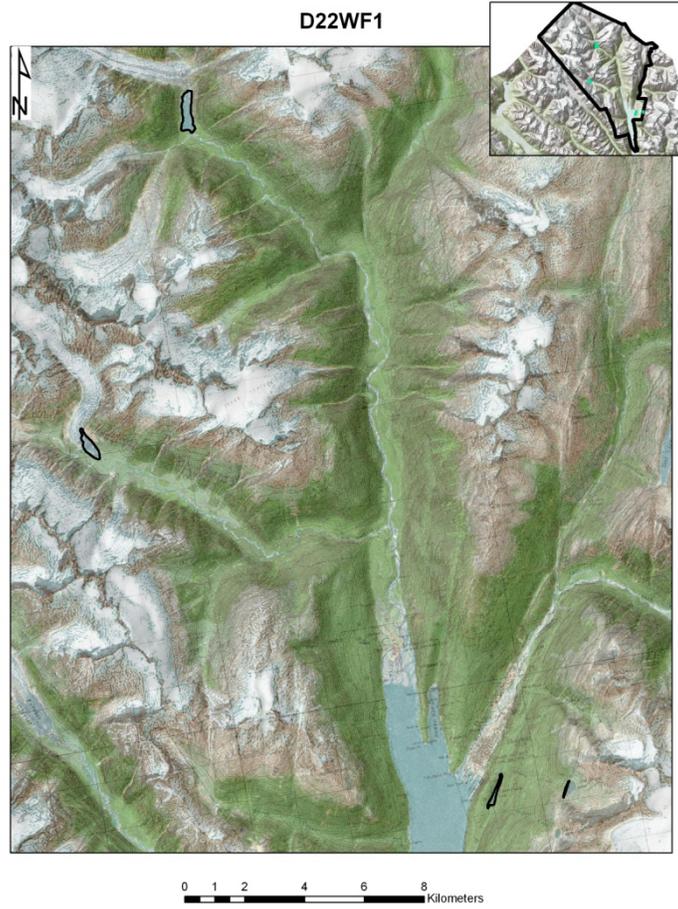
Percentage of map unit: 3 percent

Slope range: 30 to 70 percent

Landform: Mountains

Hydric soil status: Not hydric

D22WF1—Maritime Water, Lakes and Ponds



Major land resource area: 222—Southern Alaska Coastal Mountains

Elevation: 0 to 1,800 meters

Mean annual precipitation: 660 to 703 millimeters

Mean annual air temperature: 4 to 6 degrees C

Frost-free period: 98 to 171 days

Map Unit Composition

22—*Maritime Water, Lakes And Ponds:* 100 percent

22—Maritime Water, Lakes and Ponds

Setting

Landform: Lakes

Aspect (representative): North

Aspect (range): All aspects

Slope range: 0 percent

Properties and qualities

Depth to restrictive feature: None within a depth of 150 centimeters

Salinity maximum (based on representative value): Nonsaline

Sodicity maximum: Not sodic

Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): Unspecified

Flooding frequency: Very frequent (see Water Features table)

Ponding frequency: Frequent (see Water Features table)

Depth to seasonal high water table: At the soil surface (see Water Features table)

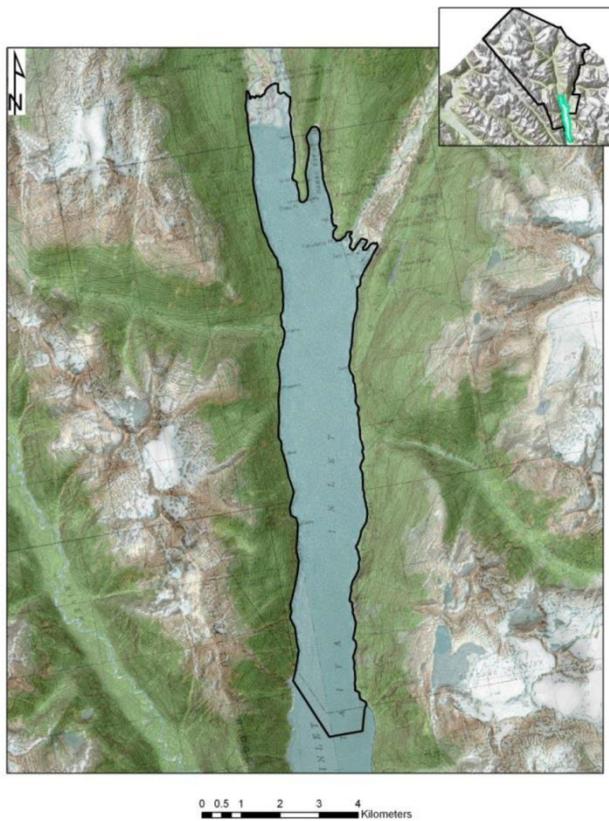
Interpretive groups

Land capability subclass (nonirrigated): 8w

Hydric soil status: Not applicable

Hydrologic soil group: Unspecified

D22WS1—Estuarine Water, Salt



Major land resource area: 222—Southern Alaska Coastal Mountains

Elevation: 0 to 2 meters

Mean annual precipitation: 660 to 703 millimeters

Mean annual air temperature: 4 to 6 degrees C

Frost-free period: 96 to 180 days

Map Unit Composition

D22—Estuarine Water, Saline: 99 percent

Dissimilar minor component: 1 percent

D22—Estuarine Water, Saline

Setting

Aspect (representative): North

Aspect (range): All aspects

Slope range: 0 percent

Properties and qualities

Depth to restrictive feature: None within a depth of 150 centimeters

Salinity maximum (based on representative value): Nonsaline

Sodicity maximum: Not sodic

Calcium carbonate equivalent: No carbonates

Hydrologic properties

Slowest capacity to transmit water (Ksat): Unspecified

Flooding frequency: Very frequent (see Water Features table)

Ponding frequency: Frequent (see Water Features table)

Depth to seasonal high water table: At the soil surface (see Water Features table)

Interpretive groups

Land capability subclass (nonirrigated): 8w

Hydric soil status: Not applicable

Hydrologic soil group: Unspecified

Minor Component

22—Estuarine Gravelly Tidal Flats

Percentage of map unit: 1 percent

Slope range: 0 to 1 percent

Landform: Tidal flats

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