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Phytomass in Southwest Alaska

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Abstract

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Phytomass tables are presented for southwest Alaska. The methods used to estimate plant weight and occurrence in the river basin are described and discussed. Average weight for each sampled species of tree, shrub, grass, forb, lichen, and moss in 19 forest and 48 nonforest vegetation types is shown. Species frequency of occurrence and species constancy within the type are presented.

Comparisons are made with the results of similar inventories of the Tanana River basin and the southeast Alaska archipelago.

Keywords: Alaska, southwest, phytomass, biomass, inventory, plant ecology, Alaska Peninsula, Kuskokwim Census Division, Bristol Bay Census Division, Bethel Census Division, Nunivak, Togiak, Katmai, Lake Clark, Yukon Delta, Illiamna, Alaska vegetation classification system, species composition.

Summary

Phytomass tables are presented for southwest Alaska. Average phytomass for each sampled species of tree, shrub, grass, forb, lichen, and moss in 19 forest and 48 nonforest vegetation types is shown.

Species frequency listings and occurrence within different types add to existing knowledge about vegetation in this infrequently studied area of the state. Some new vegetation types were discovered, and additional information about the occurrence of lichen and moss species were obtained, which were not included in many of the original type descriptions.

These data provide a tool for estimating habitat carrying capacity for many wildlife species. They also may be used for estimating extent of the resources for traditional uses, such as berry production, and relative abundance of other plants that may be important to a subsistence lifestyle. Tree phytomass is reported for the entire above-ground tree, thereby allowing estimates of total fiber content.

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Introduction

The Forest Inventory and Analysis (FIA) Program of the USDA Forest Service, Pacific Northwest Research Station, has responsibility for measuring and evaluating resources in Alaska, California, Hawaii, Oregon, and Washington. The Alaska FIA unit has developed vegetation measurement techniques using phytomass estimates that quantify vegetation on nonforest and marginal forest areas as well as heavily timbered vegetation types.

The southwest Alaska inventory unit (fig. 1) lies between 55° and 64° 30' N. latitude, and between 151° 30' and 167° 30' W. longitude. It covers an area beginning in the north and east near Fairbanks and extending south to near Port Moeller and westerly to the western edge of Nunivak Island. This huge area encompasses almost 29 million ha and is just slightly smaller than Arizona. It includes the Alaska Peninsula, the Kuskokwim River lowlands, the Kuskokwim Mountains, the Alaska Range, part of the Aleutian Range (fig. 2), and the Bristol Bay lowlands. The physiographic regions cover three major climatic zones: maritime, continental, and transition.

The maritime climate includes islands and coastal areas where average annual precipitation ranges from 50 to 180 cm, depending on the effects of mountain shadows on the leeward side of mountains. Winds carrying moisture generally come from the south; thus, the north side of the Alaska Peninsula and the Aleutian Islands receive less precipitation than the south sides. Altogether, the maritime zone here receives less precipitation than does south-central or southeastern Alaska. Temperature extremes in the maritime zone tend to be less than those in the continental zone, with relatively warmer winters and cooler summers. The number of frost-free days at Port Heiden is 118 days, whereas areas in the continental zone can have as few as 61 frost-free days.

The much larger land mass of interior southwest Alaska is characterized by the continental climatic zone. This zone has relatively warm summers, cold winters, and lesser amounts of precipitation than found in the maritime zones. Average annual precipitation amounts are usually less than 50 cm; however, mountainous areas create exceptions by increasing total amounts on the mountain sides with the prevailing moisture-laden winds. Average maximum temperatures are around 16 °C, with average winter minimums between -14 and -37 °C. Surface winds are quite light compared to coastal areas, though channeling through mountain valleys results in narrow bands of strong winds.

Effects of Climate on Plants

Plant communities compete for space, light, water, and nutrients, and this competition controls patterns of plant distribution. Low water and soil temperatures in southwest Alaska retard nutrient absorption and plant growth. The relatively low levels of precipitation combined with the effects of the discontinuous permafrost make moisture a particularly influential factor in community distributions. Frozen ground makes moisture unavailable to plants and contributes to winter periods of intense "physiological drought." This physiological drought factor is far more limiting than the low temperatures in the distribution of forest versus nonforest tundra. Strong winds, in some areas, further contribute to water loss and prevent establishment of many tree species and other less adapted plants (Selkregg 1974).

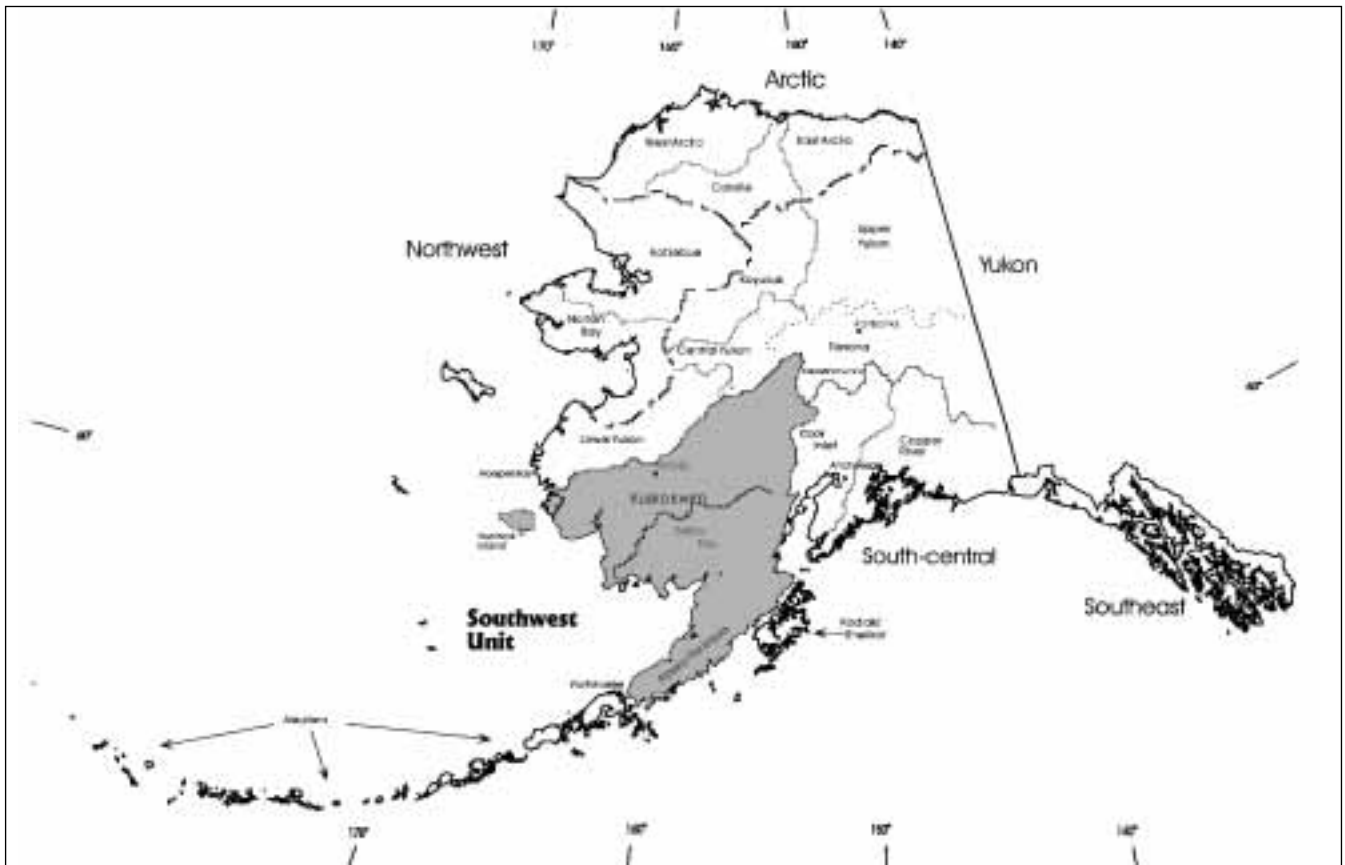


Figure 1—Location of the southwest Alaska unit within Alaska.



Figure 2—The data collection crew was rewarded with this view after a long steep climb to the plot. Location is near Chinita Bay of Cook Inlet. The mountains are the Chigmit Mountains, part of the Aleutian Range.



Figure 3—A crowberry tundra plot near Fort Heiden.

Plants that predominate in tundra areas minimize this drying effect in several ways. On the most exposed sites, plants are low growing (fig. 3). Many plants die back in winter and survive as underground plant parts, such as root stocks, rhizomes, corms, and bulbs. The herbaceous plants that maintain stems and leaves above the ground in winter, such as saxifrage, do so by having tightly packed rosettes or cushions of leaves. Arctic shrubs, such as willow and alder, shed their leaves; heath shrubs, such as *Cassiope*, have adapted small, needlelike leaves; and ericaceous shrubs exude protective oils. These adaptations minimize water loss. Lichens form an important component of arctic vegetation because of their ability to survive in a dehydrated state for long periods.

Temperature extremes, wind, short growing season, drainage, and permafrost prevent the growth of trees in tundra areas. Thus forests in southwest Alaska occupy valleys and the lower portions of mountain slopes where the soils are deeper and the drying effect of the winter winds is reduced. Mountain tops and ridges are covered with tundra (fig. 4) as a result of shallow soils and exposure to dry winds.

Most tundra plants are perennials, owing to the restriction on plant growth posed by the short growing season. The number of frost-free days in tundra areas is typically under 50. Although the long daylight hours during summer support rapid growth and flowering, there is not the time and energy required by annual plants to grow from seed, mature, flower, and produce new seeds in one growing season. The perennial plants either bloom early by using food stored in corms or bulbs or bloom late in the year after building up food reserves to use for flowering and seed production. Both early and late flowering tundra perennials die back and overwinter as underground root stock, growing aboveground leaves and stems again the following spring (Selkregg 1974).



Figure 4—The plants found in this mountain heath tundra type are typical of plants adapted to such extreme moisture-limiting conditions. Giovanni Speciale, England, worked for us through an exchange program. Here she tapes out the radius of an HV plot.

The forests of the region occur mostly along river drainages and better drained sites on mountain slopes. They are comprised mainly of white spruce (*Picea glauca* (Moench) Voss) and black spruce (*Picea mariana* (Mill.) B.S.P.), with some mixed stands of spruce-birch (*Betula papyrifera* Marsh), spruce-cottonwood (*Populus trichocarpa* Torr. & Gray), and spruce-tamarack (*Larix laricina* (Du Roi) K.Koch). White spruce predominates in better drained river bottoms and lower slope terraces; black spruce predominates on cold, north-facing slopes and in poorly drained areas underlain by permafrost (fig. 5). Stands of balsam poplar (*Populus balsamifera* L.) occur on recently deposited alluvium along most of the larger rivers in this region.

Fire plays an important role in the ecological and vegetative patterns in the area. White spruce and black spruce, the predominant trees in southwest Alaska, burn easily, and the nonforested lands also are quite susceptible to fire. The shrubs, mosses, and lichens are highly flammable when dry. Precipitation is light, in some areas only about 48-53 cm annually, and the summer days are long and warm. A lightning belt extends up the Kuskokwim Valley from Aniak to Lake Minchumina and provides the natural ignition for dry vegetation (Selkregg 1974).

There are extensive areas of nonforest tundra and shrublands in the poorly drained river deltas and areas underlain by permafrost. Marginally vegetated talus slopes and rocklands occur in alpine areas. Some coastal areas have extensive grass and



Figure 5—This stunted, open black spruce stand is typical of those found on cold, north-facing slopes in the region.

sedge communities. Land cover vegetation in southwest Alaska is affected by periodic wildfires, which maintain seral communities. The area contains valuable spawning ground for anadromous salmon (*Oncorhynchus* spp.; Selkregg 1974).

Although sampling was concentrated on forest lands, this inventory also attempted a limited sampling of all vegetation types across the ecosystem. Consequently, multi-resource procedures were developed to measure all types of vegetation on both forested and nonforested land. A major objective of this procedure development was to incorporate phytomass estimates by plant species (Mead 1992).

Subsistence Uses of Plants

Local residents harvest berries and wild vegetables during summer and early fall. Many families depend on local timber sources for both housing and fuel. It is estimated that between 3 and 20 cords of firewood per family are used as fuel each year (Olson 1982, Selkregg 1974).

Local diets often are supplemented with various wild plants. Cranberries (*Vaccinium vitis-idaea* L.; *Viburnum edule* (Michx.) Raf.), and crowberries (*Empetrum nigrum* L.) are picked in early fall. Crowberry is also a favorite food of bears (Pojar and MacKinnon 1994). The oblong reddish fruits of *Streptopus amplexifolius* (L.) DC., known as watermelon berries, are gathered to make jellies or are eaten raw (Matz 1996). Cow-parsnip (*Heracleum lanatum* Michx.) was another historically important food source for native Alaskans. The young stalks and leaf stems were peeled and either eaten raw or boiled. This is sometimes referred to locally as “pootschky.” Other edible greens are tender shoots of wild celery (*Angelica lucida* L.) and anemone (*Anemone* spp.). Gathered and stored for emergency supplies are fern fiddleheads (the young uncoiling fern leaves of *Athyrium filix-femina* (L.) Roth), Labrador tea (*Ledum*), and northern fireweed (*Epilobium*). The bulbs and roots of bistort (*Polygonum bistorta* L.) also can be eaten. Although not included in this report, certain kelps and other seaweeds also are used as food (Selkregg 1974).

Historically, these wild plants supplemented the meat-rich diet of the local residents and provided many essential vitamins, thereby preventing vitamin deficiency diseases such as scurvy (Selkregg 1974). Other markets for nontimber forest products continue to grow. There is substantial interest in devil's club (*Oplopanax horridus* (Sm.) Miq.) and other plant products as sources of herbal supplements.¹

Plants were used in other ways by native peoples. The plants provided a wide range of important materials for fuel wood and construction; fibrous bark, stem, and leaf tissues for making mats, baskets, bags, cord, and clothing; bark and other materials for dyes and stains; pitch for glue, caulking, and waterproofing; and miscellaneous plant parts for containers, abrasives, and scents. Plants were used in manufacture of fish traps, spears, sewing needles, and fishing lures (Pojar and MacKinnon 1994).

Woven grass baskets from native grasses found in the southwest Alaska unit and elsewhere command large sums in art and craft markets. The weaving of colorful and delicate grass baskets is a highly specialized skill contributing to family income in rural subsistence Alaska. Selling prices range from \$30 to well over \$200.²

Several habitat evaluation models, which require knowledge of vegetation resources for the species of interest, have been constructed for wildlife populations in Alaska and elsewhere. (Hanley and Rogers 1989, Hobbs and Swift 1985, Lennartz and McClure 1979, Sheffield 1982, Telfer 1980, U.S. Department of the Interior 1980, Walmo and others 1977). Foliar cover and phytomass estimates by species provide inputs to wildlife models (Mead and others 1987). This type of vegetation data also has been applied successfully in classifying forest vegetation into plant associations (Reynolds 1990).

Methods

The first step of the design was to divide the unit into independent subpopulations by using LANDSAT imagery with 74-m resolution resampled to 50-m resolution. Various summer scenes were used to obtain complete coverage of the unit; most were taken in the early 1980s and a few dated to the 1970s. A review of the pixel classification determined that six independent subpopulations were reasonably distinct. These were labeled forest, woodland, shrub, herbaceous, barren, and unknown. The "unknown" subpopulation consisted of pixels representing clouds, snow, and shadows and comprised less than 2 percent of the unit area. The sum of all LANDSAT pixel areas within a subpopulation established the total area of each; these later were sampled. The sampling design was a double sample for stratification. This optimal allocation approach had a relatively intensive aerial-photo sample for strata identification as the first phase, followed by an extensive ground sample in the second phase.

Within each subpopulation of LANDSAT pixels, the coordinates of the northwest corner of each pixel were listed. The list was randomized, and then a sample of coordinates was selected to sample on aerial photographs. To ensure that the sample was

¹ Personal communication. 1998. Michael Pilarski, Director, Friends of the Trees Society, P.O. Box 4469, Bellingham, WA 98227.

² Personal communication. 1999. James Hunter, Alaska Native artist, Dublin, CA.



Figure 6—Helicopters were needed to access ground sample plots owing to the lack of roads, trails, or other means of access. Tom Meade holds a banner used to estimate hiding cover across the distance of an HV plot.

well distributed across the entire inventory unit, photo plots were proportionately allocated to each of the several 1:250,000 USGS topographic map quadrangles covering the inventory unit, according to the percentage of the total subpopulation found in that quadrangle. A total of 13,531 aerial-photo plots were selected.

Selected coordinates were located on 1:60,000 nominal scale, color infrared photos also taken in the late 1970s and early 1980s. The coordinates were located with an analytical stereo-plotter, visually interpreted for land cover, and the entire 2-ha photo plot area placed into one of seven sample strata: forest, woodland, shrub herbaceous, vegetated, barren, and unknown. Although the names duplicate those of the subpopulations, there is a statistical distinction between sampling strata and subpopulations. Each subpopulation is the focus of an independent sampling effort, whereas the photo strata are descriptors of land cover types within each sample. Further discussion of the sampling methodology can be found in van Hees (1999).

About 2 percent, or 282, of the aerial-photo plots were selected for ground sampling (fig. 6). Ground plots were allocated to subpopulations and strata according to the need for information relevant to those land cover classes. Generally, more ground sampling was done in forested areas to meet inventory design sampling error goals for forest land area and volume (van Hees 1999).

Field plots were 2-ha circles. These plots were mapped for land cover and vegetation type and were subsampled at five points within the circle. One point was located at the center of the circle, the other four were cardinally located 63.6 m from the center.

At each of the five points, trees (if present) were sampled with a variable radius plot (6.25 metric basal area factor). Saplings were sampled with a 2-m, fixed-radius plot at each of the five locations. A horizontal-vertical profile (HV plot) assessing vegetation structure was established at the first two points in each vegetation type. These

three plots are the source of phytomass information presented in this report. Sampling started in June and was completed by early September over 4 years from 1991 to 1994.

All plots were described by using the Alaska vegetation classification system developed by Viereck and others (1992). Statistical analysis, using this system, produced area estimates by vegetation type.

Vegetation Classification System

The Alaska vegetation classification is a multilevel classification, the first level having only three categories: forest, scrub, and herbaceous. The second level uses either lifeform grouping or height class, depending on the first category. Level III uses foliar cover for all vegetation except herbaceous. Vegetation on each 2-ha plot was type-mapped and classified down to level IV at the ground level. Not enough plots were available in some categories to develop statistically significant estimates at level IV, so some types sampled are not shown in the tables. An abbreviated description of the classification system is given in table 1, and the area in each category is shown in tables 2 and 3. Ground plots were described down to level IV, a species descriptive level not shown in the following abbreviated outline. The abbreviated codes, used in the text and in the table appendices, match the classification key in Viereck and others (1992).

Horizontal-Vertical Plot Measurement

A horizontal-vertical profile (HV plot) of vegetation structure was made at the first two points in each vegetation type. This included cover information on tree seedlings as well as other plants.

The horizontal-vertical profile plot (HV plot) has a circular fixed radius with an area of 0.01 ha (5.64-m radius). On these HV plots, the percentage of foliar cover in each natural layer of vegetation was estimated with procedures of Daubenmire (1959) but modified by using a continuous percentage rather than percentage of cover categories. In a typical vegetation type, several natural layers occur: ground cover, forbs and grasses, low shrubs, tall shrubs, and trees. The heights of these layers differ from bottomland to alpine sites; however, because vegetation types may lack one of the layers, field crews were allowed to determine which layers were present. The heights of these natural layer breaks were measured and recorded, thereby allowing percentage of cover to be measured for all taxa in each layer. Layer heights differed for each plot, depending on site factors such as aspect and elevation, which influenced the natural layers present. Sometimes plants would extend over more than one layer with a different percentage of cover in each layer.

This method was more descriptive than simply measuring plant cover at predetermined height intervals or taking one height measurement for all shrubs or forbs, etc. It also was more cost-effective than measuring height and cover on each plant or using a unique parameter for each plant to predict biomass. Using plant cover as a universal predictor for all nontree vegetation added speed and uniformity as well as cost savings.

A minimum quality-evaluation effort was attempted by having a field supervisor visit a few sites and judge the number and height of layers as well as identify species and estimate percentage of cover. Major discrepancies were discussed with field crew

Table 1—Alaska vegetation classification system

Level 1	Level II	Level III ^a
Forest	Needleleaf	Closed (60-100% canopy closure) Open (25-59% canopy closure) Woodland (10-24% canopy closure)
	Broadleaf	Closed (60-100% canopy closure) Open (25-59% canopy closure) Woodland (10-24% canopy closure)
	Mixed	Closed (60-100% canopy closure) Open (25-59% canopy closure) Woodland (10-24% canopy closure)
Scrub	Dwarf tree	Closed (60-100% canopy closure) Open (25-59% canopy closure) Woodland (10-24% canopy closure)
	Tall (> 1.5 m)	Closed (75-100% canopy closure) Open (25-74% canopy closure)
	Low (0.2 to 1.4 m)	Closed (75-100% canopy closure) Open (25-74% canopy closure)
	Dwarf (< 0.2 m)	Closed (75-100% canopy closure) Open (25-74% canopy closure)
Herbaceous	Graminoid	Dry Mesic Wet
	Forb	Dry Mesic Wet
	Bryoid	Moss Lichen
	Aquatic	Fresh-water Brackish Marine

^a Level III of dwarf scrub was modified for this inventory from dryas, ericaceous, and willow categories to closed and open categories because of remote sensing limitations in determining small shrub species on aerial photographs.

Table 2—Area of forest by vegetation type, southwest Alaska

Vegetation type	Type code	Area	Proportion
		<i>Thousand hectares</i>	<i>Percent</i>
Closed canopy needleleaf forest:			
White spruce	1A1J	17.86	0.06
Black spruce	1A1K	14.76	.05
Open canopy needleleaf forest:			
White spruce	1A2E	707.49	2.43
Black spruce	1A2F	1495.63	5.14
Black spruce-white spruce	1A2G	44.46	.15
Black spruce-tamarack	1A2H	44.36	.15
Woodland canopy needleleaf forest:			
White spruce	1A3C	704.67	2.42
Black spruce	1A3D	1353.89	4.65
Black spruce-white spruce	1A3E	15.22	.05
Tamarack forest	1A3X	222.88	.77
Closed canopy broadleaf forest:			
Black cottonwood	1B1B	29.77	.10
Paper birch	1B1D	452.16	1.55
Open canopy broadleaf forest:			
Paper birch	1B2A	38.59	.13
Balsam poplar (black cottonwood)	1B2C	14.93	.05
Closed canopy mixed needleleaf-broadleaf forest:			
Spruce-paper birch	1C1A	98.29	.34
Open canopy mixed needleleaf-broadleaf forest:			
Spruce-paper birch	1C2A	880.15	3.02
Aspen-spruce	1C2B	8.54	.03
Paper birch-balsam poplar-spruce	1C2C	219.93	.76
Undescribed	1C2X	2.99	.01
Woodland mixed needleleaf-broadleaf forest:			
Spruce-paper birch forest	1C3A	99.61	.34
Herbaceous, previously forested	3B2B	17.75	.06
Total, all forest vegetation types		6483.93	22.28

Table 3—Area of nonforest by vegetation type, southwest Alaska

Vegetation type	Type code	Area	Proportion
		<i>Thousand hectares</i>	<i>Percent</i>
Dwarf tree types:			
Open canopy, black spruce	2A2A	14.76	0.05
Woodland canopy, black spruce	2A3A	11.87	.04
Tall shrub types:			
Willow closed canopy	2B1A	522.48	1.80
Alder closed canopy	2B1B	2 920.65	10.04
Alder-willow closed canopy	2B1D	737.52	2.53
Undescribed closed canopy	2B1X	515.11	1.77
Alder open canopy	2B2B	671.03	2.31
Shrub birch open canopy	2B2C	73.59	.25
Alder-willow open canopy	2B2D	23.67	.08
Shrub birch-willow open canopy	2B2E	2.97	.01
Shrub swamp open canopy	2B2F	8.96	.03
Undescribed open canopy	2B2X	5.93	.02
Low shrub types:			
Shrub birch closed canopy low shrub	2C1A	204.04	.70
Low willow closed canopy low shrub	2C1B	504.11	1.73
Shrub birch-willow closed canopy	2C1C	11.06	.04
Ericaceous shrub closed canopy	2C1D	1 317.95	4.53
Open low shrub	2C2	216.20	.74
Mesic shrub-sedge tussock tundra open canopy	2C2A	1 302.30	4.47
Mesic shrub birch-ericaceous open canopy	2C2C	1 557.69	5.35
Shrub birch-ericaceous bog open canopy	2C2D	215.83	.74
Ericaceous shrub bog open canopy	2C2E	335.42	1.15
Shrub birch-willow open canopy	2C2F	40.52	.14
Willow open canopy low shrub	2C2G	493.93	1.51
Sweetgale-graminoid bog open canopy	2C2J	142.31	.49
Low alder open canopy	2C2L	329.35	1.13
Undescribed open low shrub	2C2X	692.51	2.38
Dwarf shrub types:			
Dryas-lichen tundra	2D1C	7.36	.29
Dryas-lichen tundra	2D2A	320.45	1.10
Vaccinium ericaceous tundra	2D2B	376.83	1.29
Crowberry tundra-ericaceous	2D2C	1 080.09	3.71
Mountain heath ericaceous tundra	2D2D	382.70	1.31
Cassiope ericaceous tundra	2D2E	38.80	.13
Willow tundra	2D3A	27.92	.10

Table 3—Area of nonforest by vegetation type, southwest Alaska (continued)

Vegetation type	Type code	Area	Proportion
		<i>Thousand hectares</i>	<i>Percent</i>
Herbaceous types:			
Mesic graminoid types—			
Bluejoint meadow	3A2A	220.76	.76
Tussock tundra	3A2D	166.49	.57
Sedge-grass meadow tundra	3A2E	73.59	.25
Grass-herb meadow tundra	3A2G	73.59	.25
Sedge-willow tundra	3A2H	216.20	.74
Sedge-shrub birch tundra	3A2I	220.76	.76
Wet graminoid types—			
Wet sedge meadow tundra	3A3A	162.68	.56
Wet sedge-grass meadow tundra	3A3B	147.17	.51
Wet sedge-herb meadow tundra	3A3C	177.40	.61
Fresh sedge marsh	3A3D	416.90	1.43
Fresh grass marsh	3A3E	2.95	.01
Subarctic lowland sedge-shrub wet meadow	3A3G	8.89	.03
Subarctic lowland sedge-bog meadow	3A3J	5.90	.02
Subarctic lowland moss-bog meadow	3A3K	123.37	.42
Dry forb types—			
Alpine-herb sedge (snowbed)	3B1B	49.43	.17
Alpine herbs	3B1C	97.22	.33
Undescribed	3B1X	25.62	.09
Mesic forb type—			
Mixed subarctic herbs	3B2A	70.71	.24
Mesic fireweed subarctic herbs	3A2B	17.75	.69
Wet forb types—			
Fresh herb marsh	3B3A	132.65	.46
Bryoid types—			
Wet bryoid	3C1A	86.52	.30
Bryoid-lichen—			
Crustose lichen	3C2A	49.43	.17
Foliose and fruticose lichen	3C2B	448.05	1.54
Freshwater aquatic—			
Common marestalk	3C2B	21.81	.07

Table 3—Area of nonforest by vegetation type, southwest Alaska (continued)

Vegetation type	Type code	Area	Proportion
		<i>Thousand hectares</i>	<i>Percent</i>
Other, nonvegetated types:			
Snow-ice fields	7A1	695.21	2.39
Glacier	7A2	49.43	.17
Solid rock outcrop	7B2	821.98	2.82
Scree, talus slope	7B3	711.76	2.45
Other, including bare soil and gullies	7B4	247.96	.85
Census streams	8A1	341.69	1.17
Non-census streams	8A2	74.70	.26
Census lakes	8B1	1 593.78	5.48
Non-census lakes	8B2	30.45	.10
Total, nonforest and water types		22 619.89	77.72
Total, all types		29 103.80	100.00

members in an effort to make estimates as uniform as possible. A complete remeasurement of the plot was not done, and not enough plots were revisited to enable us to quantify error bounds on the visual estimates. The reason for this was the distance between the remote plots and the logistics and costs involved in returning check crews via helicopter to these areas for remeasurement purposes.

Phytomass Estimation

Both the nontree phytomass coefficients and the tree phytomass equations were taken from previous studies. Those studies used either equations that converted tree diameter and height into weight (Alemdag 1984, Manning and others 1984, Singh 1983) or foliar cover to predict plant weight by means of regression analysis of clipping and weighing data (Yarie and Mead 1988, 1989).

Phytomass was expressed in terms of oven-dry weight, the unit of measure most commonly used across all plant groups.

Phytomass was calculated for various types of vegetation in the following ways.

Tree Phytomass

We determined tree phytomass by using diameter at breast height (d.b.h.) and total tree height measurements and applying these to species phytomass equations. Tree phytomass shown in all tables is total aboveground weight including foliage. Although crown diameter and length measurements were taken, they were not used for biomass estimation.

Whole-tree phytomass equations were chosen by searching the available literature for tree species equations in areas geographically and climatically similar to interior Alaska. Where several species equations were available, one was selected by using the following evaluation criteria:

1. Equations using d.b.h. and total tree height as predictors were preferred to equations using diameter only.
2. Equations developed in an area similar in latitude and climate to interior Alaska were preferred.
3. Equations developed from a wide diameter range of trees were preferred.
4. Equations using the largest number of trees and having the lowest standard errors were preferred.
5. Sets of equations predicting both whole tree weight and weight of individual components (for example, bole, branch, and foliage) were preferred over those that did not.

Species	Equation source
White spruce	Yukon Territory, Canada (Manning and others 1984)
Black spruce	Yukon Territory, Canada (Manning and others 1984)
Tamarack	Northwest Territories, Canada (Singh 1983)
Aspen (<i>Populus tremuloides</i> Michx.)	Yukon Territory, Canada (Manning and others 1984)
Balsam poplar	Northwest Territories, Canada (Singh 1983)
Cottonwood	Northwest Territories, Canada (Singh 1983)
Birch	Ontario, Canada (Alemdag 1984)

Seedling phytomass of tree species was estimated by using HV plot percentage of cover data and phytomass coefficients.

Dead-tree phytomass was estimated by using the live-tree equations. The weight predicted was then reduced by a set percentage based on a field classification into one of six snag- or log-condition classes representing different stages of decomposition. Our snag-log condition classes are a modification of earlier descriptions by Maser and others (1979):

Condition class	Deduction
	<i>Percent</i>
Dead, intact	0
Loose bark, secondary branches gone	20
Clean, no branches	40
Clean, broken bole	60
Broken and decomposing	80
Decomposed	100

Nontree Phytomass

Shrubs, forbs, grasses, lichens, and mosses—Percentage of foliar cover for each sampled nontree plant was related to oven-dry weight by means of regression analysis. This analysis showed a straight line relation between percentage of foliar cover and weight. The slope of that line is referred to as a phytomass regression coefficient. The regression analysis allowed us to use percentage of cover and height measurements to predict plant weight.

The Alaska inventory team developed coefficients through cooperative studies with the University of Alaska, Fairbanks (Yarie and Mead 1988). The studies produced phytomass predictors for 120 of the most common species encountered. These species represent major plant taxonomic families and lifeforms, including lichens and mosses. If a species-specific coefficient had not been developed for that plant, we applied a coefficient for the most similar plant.

A special consideration arose in the case of mosses, which in peat conditions can extend many feet below the ground surface. Only the green, active portion of moss phytomass is predicted by this method.

Phytomass coefficient development followed techniques similar to those first used by Harcombe and Marks (1977) in a mesic forest in Texas, which are applicable to other areas as well. The original research was done using U.S. customary measurements to determine plot sizes and heights. This involves using a three-dimensional sampling frame made of rope or plastic pipe to randomly sample a set volume of vegetation 0.6096 m wide, 0.9144 m long and 2.45 m high. Foliar cover is visually estimated for each plant species, and plants are clipped, bagged, oven-dried, and weighed in vertical segments of 0.3048 m. A regression analysis related foliar cover and measured weights to develop an equation for predicting weight from measured foliar cover for each species. The regression analysis resulted in a set of regression coefficients that could be used with height measurements to predict phytomass. Because height measurements on inventory plots are taken to a resolution of 10 cm, the coefficients were developed to predict for a 10-cm segment, even though the cover estimate used in their development was done only for 30.48-cm segments. The associated weight and cover were proportioned evenly for each 30.48-cm segment. Thus, regression coefficients predicted weight for a 10-cm segment based on percentage of the plot area with foliar cover. Measuring the height of the plants in each inventory sample plot allowed us to determine the number of 10-cm vertical segments and thus the total phytomass.

A discussion of errors associated with the regression coefficients is available in Yarie and Mead (1989). Over 70 percent of the regression equations had an r^2 greater than 0.70. An r^2 of 0.70 indicates that 70 percent of the variation in weight is explained by the predictive model using foliar cover as a predicting variable. At lower r^2 values, less of the variation is accounted for by a percentage of cover estimate, and a less reliable estimate of weight is predicted from percentage of cover for that plant relative to a plant with a higher r^2 . An r^2 of 1.00 would indicate a 100-percent correlation between foliar cover and plant weight. A brief summary of r^2 for plant groups is given in table 4.

Table 4—Plant group and range of coefficient of determination (r^2) associated with phytomass coefficients

Plant group	Range of r^2
Mosses	0.67-0.99
Ferns	.57- .93
Grasses	.66- .97
Forbs	.41- .97
Midsized shrubs	.64- .98
Tall shrubs	.55- .86

Error

A limited and informal study of the repeatability of cover estimates was conducted in conjunction with the coefficient development project. Cover estimates from three plots in three different vegetation types were taken by the team collecting information for the development of biomass coefficients. These were compared with cover estimates for the same plots taken by the inventory crew. Graphic comparisons were included in the Tanana biomass coefficient report (Yarie and Mead 1988) and indicated a graphically similar but unmeasured correlation between the two sets of measurements.

A more rigorous study of the repeatability and the components of variation associated with foliar cover estimates was conducted in 1997 after the southwest Alaska inventory was completed. This study in south-central Alaska involved repeat measurements in one vegetation type of 20 plots remeasured three times by six different observers over one summer. The results of that study indicated that the measurement component of variation exceeded that of the natural variation. The variation between observers and even for the same observer between plots was greater than the naturally occurring variation. This is likely due to the subjectivity of ocular estimates of foliar cover (Mead and van Hees 1998). This study also looked for measurement bias by individual observer, but we were unable to detect any trend that a particular observer consistently estimated high or low. If we had, it may have been possible to make an adjustment of known bias. Such results indicate that caution should be taken with the data presented in the following tables. Error in any estimate could exceed 100 percent: a more precise estimate of nontree vegetation biomass could result from further measurement and study. Different techniques, probably more time consuming than those presented here, using stem diameters, leaf measurements, stem counts, or other methods less subjective than ocular estimation of foliar cover might give more precise estimates. Currently the demand for this type of data does not justify the more time-intensive techniques that would yield greater precision. Such techniques might be cost-effective, however, for specific local resource assessments where precise estimates are needed. The current study does provide preliminary information on the species composition and relative biomass and prevalence among different structural components of each vegetative community.

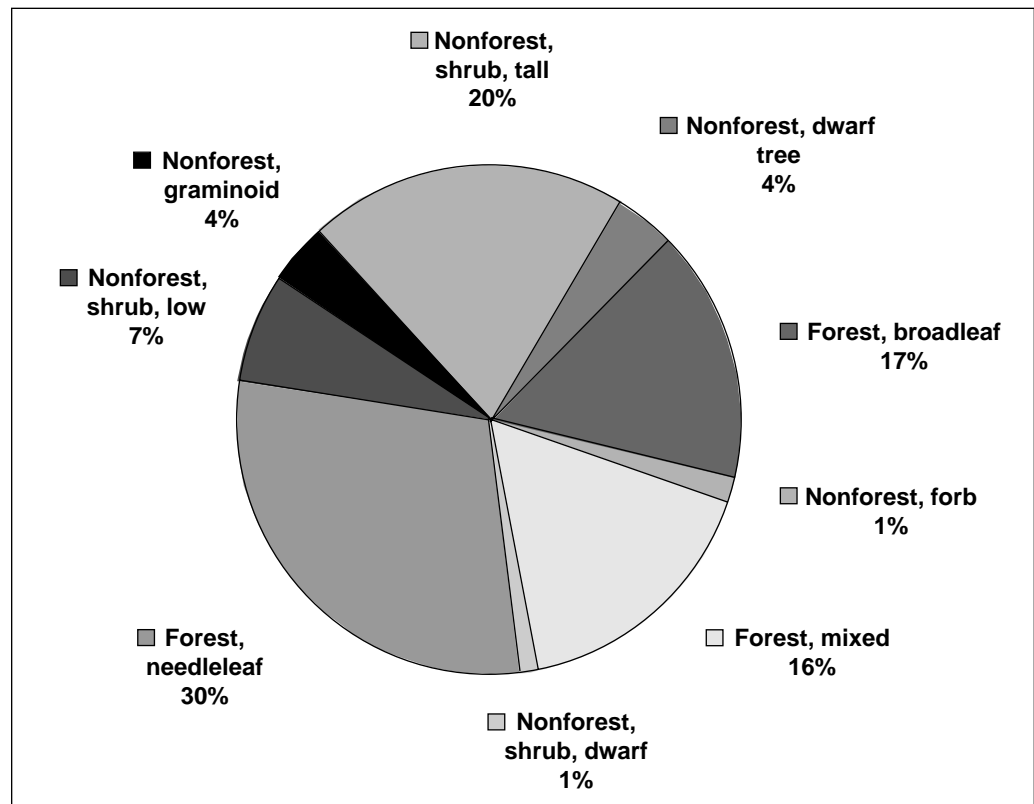


Figure 7—Biomass distribution by major vegetation type, southwest Alaska.

Results

Forested Vegetation Types

With the previously stated cautions concerning the error in these estimates being borne in mind, relative comparisons can be made between previously measured inventory units and among different communities within the southwest Alaska inventory unit. Figure 7 shows phytomass distribution by major vegetation type. Distribution of phytomass by plant species is displayed in tables 5-93.

Comparisons of live tree phytomass have greater confidence levels, because they were developed from tree diameter and height measurements, rather than from ocular estimates of foliar cover. Regional differences are apparent.

Live tree phytomass in the closed-canopy needleleaf vegetation type is 32 463 kg/ha compared to 47 933 kg/ha in the Tanana River basin of central-eastern interior Alaska and 166 381 kg/ha in the southeast Alaska archipelago (Mead 1995, Mead 1998).

Live tree phytomass in the open canopy types averaged 13 021 kg/ha. In the Tanana River basin, this figure was about 28 000 kg/ha, and in southeast Alaska, it was 73 121 kg/ha. Not surprisingly, dead tree biomass on open canopy needleleaf forest was closely related to the amount of live tree biomass, 863 kg/ha in southwest, 1566 kg/ha in the Tanana River basin, and 4734 kg/ha in southeast.



Figure 8—A typical needleleaf woodland plot.

Regional differences also are apparent in the percentage of nontree plants that make up total phytomass in the open needleleaf forest type: in southwest Alaska, 28.33 percent; in the Tanana River basin, 12.75 percent; and in southeast Alaska, 6.07 percent.

On average, woodland (with only 10 to 25 percent canopy cover, fig. 8) in southwest Alaska had 5389 kg/ha live tree biomass, about half the amount found in the Tanana River basin (10 719 kg/ha), and only 11.7 percent of the live tree biomass found on woodland plots in southeast Alaska (46 072 kg/ha).

A previously undescribed woodland tamarack-black spruce type was sampled. Tamarack predominated accompanied by black spruce. Common shrubs were *Potentilla fruticosa* L., *Ledum* sp., *Betula glandulosa* Michx., *Andromeda polifolia* L., *E. nigrum*, *Salix* sp. L., *Vaccinium ovalifolium* Sm., and *Myrica gale* L. Common forbs included *Rubus arcticus* L., *Rubus chamaemorus* L., and *Carex*. *Sphagnum* and *Pleurozium* mosses predominated in the ground layer with occasional occurrence of *Cladina rangiferina* (L.) Harm. and *Cladonia gracilis* (L.) Willd. lichens.

Also of interest are the species constancy tables in appendix G. Species constancy is expressed as a percentage and represents the number of times a species occurred within a particular vegetation type, divided by the total number of plots measured in the type. Although a comprehensive review of all Alaska vegetation types, described by Viereck and others (1992), is not within the scope of this report, our knowledge of their composition and regional differences is expanded by the present inventory. For example, the open white spruce forest (1A2E) description was developed primarily from plots in interior central and northern Alaska with less sampling in outlying areas, such as in southwest Alaska. The common associated shrubs in southwest Alaska are *E. nigrum*, *Rosa acicularis* Lindl., *Rubus arcticus*, *Spirea beauverdiana* Schneid., and *Vaccinium vitis-idea*. Willows, alders, and shrub birches do occur but apparently with less regularity than elsewhere in Alaska. Common herbs in

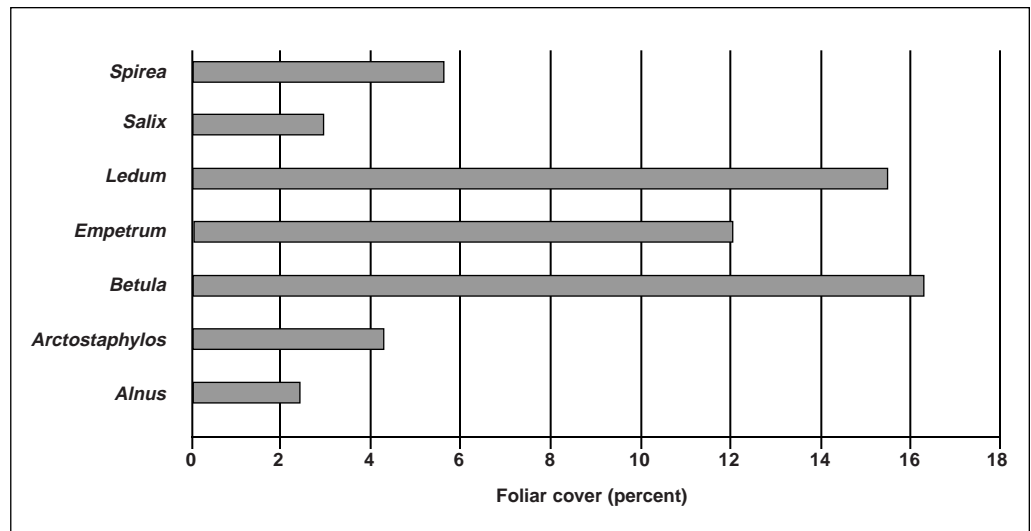


Figure 9—Cover of selected shrubs in type 2C1D, closed canopy ericaceous low shrub.

southwest Alaska include *Cornus canadensis* L., *Epilobium angustifolium* L., and *Trientalis europaea* L. The type description in Viereck and others (1992) does not mention these herbs at all but does mention *Linnaea borealis* L., and *Equisetum* L., which occur only sporadically in this type in southwest Alaska. *Calamagrostis* Adans. seems to be ubiquitous throughout much of Alaska within this type. In addition to the feathermosses mentioned in Viereck and others, *Cladonia*, and *Parmelia* are common lichens occurring in this type. *Spirea beauverdiana* appears to be a consistent element in many other vegetation types of this region, although it was not often mentioned as a significant component in the type descriptions found in Viereck and others.

Nonforest Vegetation Types

Among nonforest types the species constancy tables reveal some regional differences in communities type composition. Closed low ericaceous shrub type (2C1D) is described in Viereck and others (1992) as a rare type, and yet it comprises 1317.95 thousand ha in southwest Alaska. The one community previously described for this type occurs in southeast Alaska and is dominated by *Cladothamnus pyrolaeflorus* Bong. Viereck and others (1992) mention closely related dwarf ericaceous shrub types, but those are dominated more by *Vaccinium*, *Arctostaphylos*, or *Empetrum* and are shorter; this type in southwest Alaska also contains significant cover in taller *Ledum*, *Betula*, *Alnus*, and *Salix* (fig. 9).

The tables reveal another anomaly with the open-low-ericaceous-shrub-bog type (2C2E). There is a 100-percent constancy for shrub birch in the plots classified in this type. Viereck and others (1992) describe a closely related type: Shrub birch-ericaceous shrub bog (2C2D), which also contains *Andromeda polifolia* and *Myrica gale*. It is likely that these plots should be classified as 2C2D, because the 2C2E type normally contains little or no shrub birch.



Figure 10—Plot NKK0056, an unusual shubby paper birch type. The white and black banner panels are 46 cm (18 in) high; the total panel is 1.8 m (6 ft) tall.

From examination of the species composition and constancy of species on plots reported as crowberry dwarf shrub tundra (2C2C) and those reported as mountain-heath dwarf tundra (2D2D), it appears that the two inventory-classified types are so similar that they could both be combined into crowberry dwarf shrub tundra (2C2C). Little or no mountain-heath (*Phyllodoce*) occurs on those plots labeled as 2D2D. Mountain heath tundra is primarily a southeast Alaska type, whereas crowberry dwarf shrub tundra is more typical of southwest Alaska.

Other unusual vegetation type occurrences in this region were as follows:

1. An open tall shrub type where the predominant shrubs were mature *Betula papyrifera*, which grew in shrub form and did not attain tree size owing to site conditions and not the effects of browsing (fig. 10). Only two plots, at the same location, were measured in this type. Other shrub species that occurred on these plots were *B. nana* L., *E. nigrum*, *Salix planifolia* Pursh, *S. glauca* L., *Spirea beauverdiana*, *Vaccinium vitis-idaea*, and *V. uliginosum* L. Major forbs and grasslike species were *Equisetum arvense* L. and *Carex*. Numerous species of mosses and lichens also occurred including *Hylocomium splendens* (Hedw.) BSG., *Pleurozium schreberi* (Brid.) Mitt., *Polytrichum*, *Ptilium crista-castrensis* (Hedw.) De Not., *Sphagnum*, *Cladina rangiferina* (L.) Harm., *Cladonia gracilis* (L.) Willd., *Parmelia*, *Peltigera*, and *Stereocaulon*.
2. At the same location a closed tall shrub type predominated by *B. papyrifera* also was sampled. Other shrubs were *Salix bebbiana* Sarg., *V. vitis-idaea*, and *Potentilla palustris* (L.) Scop. More herbs and grasses were recorded, including *Calamagrostis*, *E. arvense*, *Rubus arcticus*, *R. chamaemorus*, and *Trientalis europaea*. A similar mixture of mosses and lichens occurred as in the previously mentioned type. These unusual tundra tall shrub types occurred near a river oxbow at an elevation of 58 m along the Naknek river.

3. Two unusual types occurred in the open low shrub category. One consisted of four plots at two locations, which were dominated primarily by *Ledum palustre* var. *decumbens*, (L.) Ait., *V. vitis-idaea*, and *Empetrum nigrum* with smaller amounts of *B. nana* and *S. planifolia*. These were very dry upland areas where the *Sphagnum* moss was replaced by *Cladina* lichen. Forbs included *Polemonium*, *Calamagrostis*, *Epilobium*, *Lupinus*, *Artemisia*, *Rubus arcticus*, *R. chamaemorus*, *Antennaria*, and *Petasites frigidus* (L.) Franch. The entire plot area was underlain with permafrost. Elevations were 17 and 21 m.

The second unusual open low shrub did not fit any known type, and a field comment was that it "contains a little bit of everything." It occurred at higher elevation, 224 m, in the Togiak wildlife refuge. The type surrounded an area of closed tall alder shrubs. The predominant low shrubs were *Empetrum nigrum*, *Spirea beauverdiana*, *Salix monticola* Bebb, and *V. uliginosum*. These were overtopped at 1 to 1.5 m by *Calamagrostis*, *Dryopteris dilatata* (Hoffm.) Gray, *Sambucus racemosa* L., and *Alnus sinuata* (Reg.) Rydb. Other forbs included *Sedum rosea* (L.) Scop., *Lycopodium annotinum* L., *Trientalis europaea*, *Rubus chamaemorus*, *Streptopus amplexifolius*, *Sanguisorba* L., *Equisetum arvense* L., *Epilobium angustifolium*, *Veratrum viride* Ait., *Angelica*, *Anemone*, *Artemisia*, *Cornus canadensis*, *Gymnocarpium dryopteris* (L.) Newm., *Stellaria*, *Rubus arcticus*, *Geranium*, *Lycopodium alpinum* (L.) Rothm., and *Viola*. Mosses included *Hylocomium splendens*, *Polytrichum*, and *Ptilium crista-castrensis*. Lichens were *Cladina rangiferina*, and *Cladonia*.

Viereck and others (1992) frequently mention that although moss and lichens are important components of previously described nonforest types, the specific composition of species has not often been reported. The current inventory fills those gaps by providing more extensive species lists for those plant groups within previously described types. The tables in the appendices are presented so that these types of assessments can be made concerning species composition as it relates to vegetation type classification. Figure 11 compares the amount of willow cover among selected nonforest types having higher percentages of willow.

There were fewer plots in the herbaceous types, although the area in herbaceous types is fairly extensive. Within particular types, there were typically fewer than four observations as a result of a sampling design with less emphasis on nonforest types. Eight plots were measured in the fresh-sedge-marsh type, which had been described previously only in south-central and southeastern Alaska, although it was expected to occur in other parts of the state. This inventory documents its occurrence in southwest Alaska as well.

Conclusion

The vegetative resources in southwest Alaska, found in three distinct climatic zones and several physiographic regions, are varied and vast, covering over 29 million ha, with 78 percent of the area considered nonforest. Forested areas have lower live tree phytomass than either the Tanana basin or southeast regions. Other plant groups account for a higher percentage of total plot biomass than in these other areas of the state. This inventory differed from earlier multiresource inventories of the 1980s in that it did not sample forest and nonforest areas equally, but used LANDSAT imagery to create subpopulations sampled at different intensities, with areas likely to be forest having more sample plots.

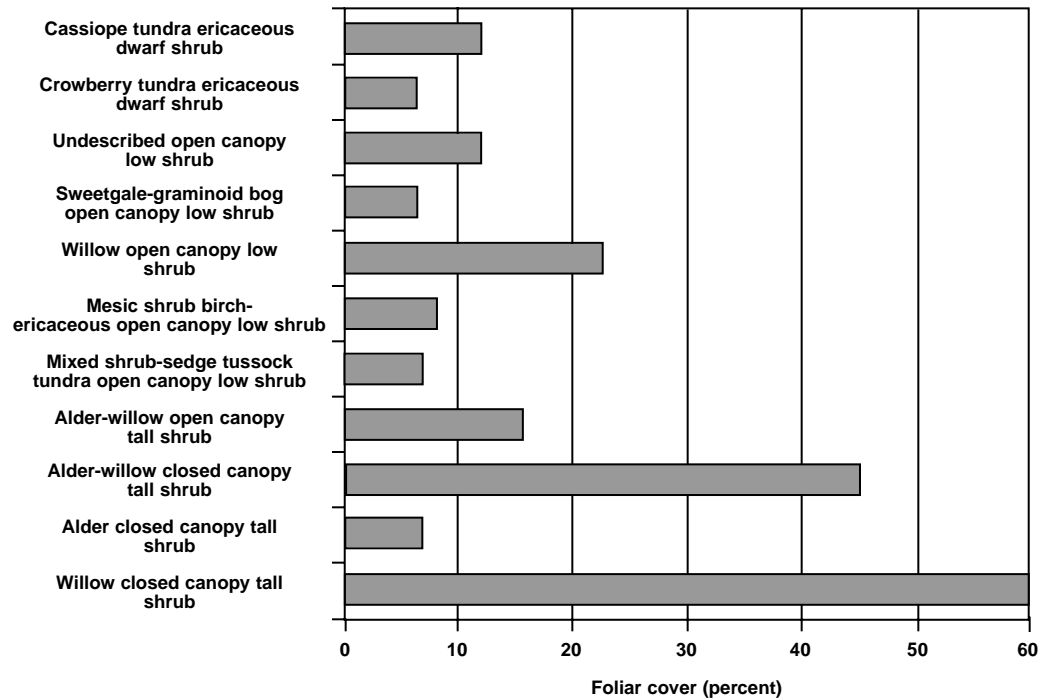


Figure 11—Willow cover on selected nonforest types.

The data presented provide some comparison among vegetation types in both quantity and diversity of the resource. This third in a series of phytomass publications allows for comparisons among different areas of the state. The number of vegetative communities sampled and the extensive species lists expand the knowledge about regional differences and similarities. Vegetative communities are described by using the Alaska vegetation classification system developed by Viereck and others (1992). This inventory expands our knowledge concerning lichen and moss occurrence, prevalence, and constancy. Many of the nonforest types in the Alaska vegetation classification system did not have adequate descriptions of these plant groups. The Alaska FIA unit is continuing to refine and develop methods for quantifying and analyzing the vegetative resource with the objective of providing information useful to resource managers.

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U.S. Customary Equivalents

When you know:	Multiply by:	To find:
Centimeters (cm)	0.39	Inches
Meters (m)	3.28	Feet
Hectares (ha)	2.47	Acres
Kilograms per hectare (kg/ha)	0.89	Pounds per acre
Celsius (°C)	9/5 + 32	Fahrenheit

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Appendices

Tables 5 through 28 give species biomass on individual level III forested vegetation types (in the Alaska vegetation classification system), and tables 29 through 93 give species biomass data on nonforest vegetation types. Tables 94 through 98 summarize species constancy in forest vegetation types. Tables 99 through 108 summarize species constancy in nonforest vegetation types. Tables 109 through 114 list the scientific naming authority for each species encountered and provide additional information on frequency of occurrence and the phytomass coefficient used for each species.

Genus names are used when the plant was not keyed to species; therefore, when a

genus name occurs in a table without an attached species name, it may include several species, including some of the species identified separately elsewhere in the table.

Table 5—Aboveground phytomass of trees on closed and open canopy needle-leaf forest vegetation types in southwest Alaska

**Appendix A:
Phytomass on
Needleleaf Forest
Vegetation Types**

Species	Vegetation type				
	1A1J	1A1K	1A2E	1A2F	1A2G Open canopy black spruce- white spruce
	<i>Kilograms per hectare</i>				
<i>Larix laricina</i>	—	—	3	164	—
<i>Picea glauca</i>	36 214	—	10 489	512	11 614
<i>Picea mariana</i>	—	15 853	107	9 019	2 875
Total, needleleaf	36 214	15 853	10 599	9 695	14 489
<i>Betula papyrifera</i>	4 554	—	2 492	233	8
<i>Populus tremuloides</i>	—	—	—	7	—
<i>Populus trichocarpa</i>	—	—	111	—	—
Total, broadleaf	4 554	—	2 603	240	8
Total, all live trees	40 768	15 853	13 202	9 935	14 497
Percent, live phytomass	(86.75)	(88.15)	(68.07)	(71.26)	(70.65)
Total, other plants	6 228	2 132	6 192	3 304	6 023
Total, all live plants	46 996	17 985	19 394	13 239	20 520
Downed trees and logs	—	—	294	216	89
Standing dead trees	—	1 506	947	486	311
Total, dead trees	—	1 506	1 241	702	400
Total, live and dead	46 996	19 491	20 635	13 941	20 920
Number of plots	4	2	53	69	8

— = plant not sampled in this type.

Table 6—Aboveground phytomass of shrubs on closed and open canopy needle-leaf forest vegetation types in southwest Alaska

Species	Vegetation type				
	1A1J	1A1K	1A2E	1A2F	1A2G
	Closed canopy white spruce	Closed canopy black spruce	Open canopy white spruce	Open canopy black spruce	Open canopy black spruce-white spruce
	<i>Kilograms per hectare</i>				
<i>Alnus crispa</i>	—	—	392	228	—
<i>Alnus sinuata</i>	313	—	688	—	—
<i>Alnus</i> spp.	—	—	8	—	—
<i>Alnus tenuifolia</i>	1128	—	318	10	—
<i>Andromeda polifolia</i>	—	—	—	5	3
<i>Arctostaphylos rubra</i>	—	—	4	t	4
<i>Artemisia</i> spp.	2	—	t	—	—
<i>Artemisia tilesii</i>	—	—	t	—	—
<i>Betula glandulosa</i>	—	—	1289	370	476
<i>Betula nana</i>	—	—	202	494	1469
<i>Betula</i> spp.	—	—	—	—	8
<i>Chamaedaphne calyculata</i>	—	—	—	29	—
<i>Empetrum nigrum</i>	—	10	25	38	79
<i>Ledum groenlandicum</i>	—	584	54	162	7
<i>Ledum palustre</i> var. <i>decumbens</i>	—	—	37	186	112
<i>Linnaea borealis</i>	—	—	3	t	1
<i>Menziesia ferruginea</i>	313	—	51	—	—
<i>Myrica gale</i>	—	—	—	1	—
<i>Oplopanax horridus</i>	—	—	1	—	—
<i>Potentilla fruticosa</i>	—	—	29	9	16
<i>Ribes</i> spp.	—	—	18	t	—
<i>Ribes triste</i>	22	—	t	—	—
<i>Ribes hudsonianum</i>	—	—	t	—	—
<i>Rosa acicularis</i>	58	12	—	3	16
<i>Rubus arcticus</i>	28	—	42	t	3
<i>Rumex arcticus</i>	—	—	3	t	—
<i>Rubus chamaemorus</i>	21	—	1	11	9
<i>Rubus arcticus</i>	—	—	—	t	—
<i>Rubus idaeus</i>	—	—	—	t	—
<i>Rubus pedatus</i>	—	—	3	—	2
<i>Rumex arcticus</i>	—	—	—	t	—
<i>Salix alaxensis</i>	—	—	12	t	—
<i>Salix arbusculoides</i>	—	—	45	—	—

Table 6—Aboveground phytomass of shrubs on closed and open canopy needle-leaf forest vegetation types in southwest Alaska (continued)

Species	Vegetation type				
	1A1J	1A1K	1A2E	1A2F	1A2G
	Closed canopy white spruce	Closed canopy black spruce	Open canopy white spruce	Open canopy black spruce	Open canopy black white spruce
	<i>Kilograms per hectare</i>				
<i>Salix barclayi</i>	181	—	74	22	20
<i>Salix barrattiana</i>	—	—	34	—	—
<i>Salix bebbiana</i>	144	—	6	—	—
<i>Salix fucescens</i>	—	—	10	8	—
<i>Salix glauca</i>	—	—	183	—	—
<i>Salix lanata</i>	—	—	—	20	—
<i>Salix monticola</i>	1559	—	73	43	1148
<i>Salix myrtilifolia</i>	—	—	56	—	—
<i>Salix planifolia</i>	—	—	240	193	37
<i>Salix reticulata</i>	—	—	1	t	—
<i>Salix</i> spp.	—	106	451	34	270
<i>Sorbus scopulina</i>	—	—	4	—	—
<i>Sorbus</i> spp.	—	—	t	—	—
<i>Spirea beauverdiana</i>	620	—	342	67	56
<i>Spirea</i> spp.	—	—	4	46	4
<i>Vaccinium ovalifolium</i>	—	—	5	32	—
<i>Vaccinium oxycoccus</i>	—	—	—	3	1
<i>Vaccinium uliginosum</i>	—	171	308	516	1146
<i>Vaccinium vitis-idaea</i>	9	75	30	33	52
<i>Viburnum edule</i>	136	—	23	—	3
Total, shrubs	4534	958	5069	2563	4942
Percent, live phytomass	(9.65)	(5.33)	(26.14)	(19.36)	(24.08)
Number of plots	4	2	53	69	8

— = plant not sampled in this vegetation type.

t = trace, less than 1 kilogram per hectare.

Table 7—Aboveground phytomass of forbs on closed and open canopy needle-leaf forest vegetation types in southwest Alaska

Species	Vegetation type				
	1A1J	1A1K	1A2E	1A2F	1A2G
	Closed canopy white spruce	Closed canopy black spruce	Open canopy white spruce	Open canopy black spruce	Open canopy black spruce-white spruce
	<i>Kilograms per hectare</i>				
<i>Aconitum delphinifolium</i>	2	—	1	—	—
<i>Achillea borealis</i>	—	—	t	—	—
<i>Achillea</i> spp.	—	—	t	—	—
<i>Angelica</i> spp.	—	—	2	—	—
<i>Anemone richardsonii</i>	—	—	t	—	—
<i>Boschniakia rossica</i>	—	—	—	t	—
<i>Boykinia richardsonii</i>	—	—	—	—	2
<i>Cornus canadensis</i>	9	8	7	1	6
<i>Cornus suecica</i>	5	—	1	t	19
<i>Collomia linearis</i>	—	—	t	1	—
<i>Compositae</i> family	—	—	4	t	—
<i>Draba aurea</i>	—	—	t	—	—
<i>Drosera</i> spp.	—	—	—	t	—
<i>Dryopteris dilatata</i>	260	—	47	t	—
<i>Dryopteris fragrans</i>	—	—	t	—	—
<i>Dryopteris</i> spp.	—	—	26	—	—
<i>Epilobium angustifolium</i>	34	—	8	5	6
<i>Equisetum arvense</i>	88	—	1	2	t
<i>Equisetum pratense</i>	—	—	1	—	1
<i>Equisetum scirpoides</i>	—	—	t	—	—
<i>Equisetum silvaticum</i>	78	58	14	29	26
<i>Equisetum</i> spp.	—	—	13	3	2
<i>Erigeron purpuratus</i>	—	—	—	—	—
<i>Fauria crista-galli</i>	—	—	—	t	—
Forb	—	—	t	—	—
<i>Galium aparine</i>	—	—	1	—	—
<i>Galium boreale</i>	—	—	1	t	—
<i>Galium</i> spp.	t	—	1	—	—
<i>Geocaulon lividum</i>	—	48	1	2	—
<i>Geranium bicknellii</i>	—	—	1	—	—
<i>Geranium erianthum</i>	—	—	1	—	—
<i>Geranium</i> spp.	—	—	—	t	—
<i>Gymnocarpium dryopteris</i>	126	—	2	—	—
<i>Iris setosa</i>	—	—	t	—	—
<i>Listera cordata</i>	—	—	t	—	—

Table 7—Aboveground phytomass of forbs on closed and open canopy needle-leaf forest vegetation types in southwest Alaska (continued)

Species	Vegetation type				
	1A1J	1A1K	1A2E	1A2F	1A2G
	Closed canopy white spruce	Closed canopy black spruce	Open canopy white spruce	Open canopy black spruce	Open canopy black spruce-white spruce
	<i>Kilograms per hectare</i>				
<i>Lupinus arcticus</i>	—	—	t	—	—
<i>Lupinus</i> spp.	—	—	t	—	—
<i>Mertensia paniculata</i>	—	—	7	t	—
<i>Moneses uniflora</i>	9	—	t	t	—
Mushroom	3	—	t	t	1
<i>Pedicularis</i> spp.	—	—	t	1	—
<i>Petasites frigidus</i>	—	—	—	1	—
<i>Petasites hyerboreus</i>	—	—	1	t	1
<i>Polemonium acutiflorum</i>	6	—	t	—	—
<i>Polemonium</i> spp.	t	—	1	t	1
<i>Potentilla palustris</i>	—	—	8	3	2
<i>Potentilla</i> spp.	—	—	—	11	—
<i>Pyrola asarifolia</i>	2	—	1	—	—
<i>Pyrola secunda</i>	—	—	3	t	7
<i>Pyrola</i> spp.	—	—	3	1	1
<i>Ranunculus lapponicus</i>	—	—	—	1	—
<i>Ranunculus</i> spp.	—	—	t	—	—
<i>Rumex</i> spp.	—	—	1	1	—
<i>Rumex fenestratus</i>	—	—	t	—	—
<i>Sanguisorba menziesii</i>	—	—	t	—	—
<i>Sanguisorba</i> spp.	—	—	9	t	2
<i>Sanguisorba stipulata</i>	28	—	—	—	—
<i>Saxifraga bronchialis</i>	—	—	—	1	—
<i>Sedum rosea</i>	—	—	1	t	—
<i>Solidago multiradiata</i>	—	—	t	—	—
<i>Streptopus amplexifolius</i>	17	—	t	—	—
<i>Streptopus streptopoides</i>	—	—	t	—	—
<i>Stellaria</i> spp.	t	—	t	—	—
<i>Thalictrum alpinum</i>	—	—	t	t	—
<i>Thalictrum europaea</i>	—	—	—	t	—
<i>Thalictrum sparsiflorum</i>	—	—	t	—	—
<i>Thelypteris phegopteris</i>	—	—	t	—	—
<i>Trientalis europaea</i>	9	—	2	—	—

Table 7—Aboveground phytomass of forbs on closed and open canopy needle-leaf forest vegetation types in southwest Alaska (continued)

Species	Vegetation type				
	1A1J	1A1K	1A2E	1A2F	1A2G
	Closed canopy white spruce	Closed canopy black spruce	Open canopy white spruce	Open canopy black spruce	Open canopy black spruce-white spruce
	<i>Kilograms per hectare</i>				
<i>Valeriana capitata</i>	3	—	t	t	—
<i>Valeriana sitchensis</i>	—	—	t	—	—
<i>Valeriana</i> spp.	—	—	1	—	—
<i>Veratrum viride</i>	—	—	2	—	—
<i>Vicia</i> spp.	—	—	t	—	—
<i>Viola epipsila</i>	—	—	t	—	—
<i>Viola langsdorfii</i>	—	—	t	—	—
<i>Viola</i> spp.	3	—	1	—	—
Total, forbs	682	114	175	62	77
Percent, live phytomass	(1.45)	(0.63)	(0.90)	(0.47)	(0.38)
Number of plots	4	2	53	69	8

— = plant not sampled in this vegetation type.
t = trace, less than 1 kilogram per hectare.

Table 8—Aboveground phytomass of grass and grasslike species on closed and open canopy needleleaf forest vegetation types in southwest Alaska

Species	Vegetation type				
	1A1J	1A1K	1A2E	1A2F	1A2G
	Closed canopy white spruce	Closed canopy black spruce	Open canopy white spruce	Open canopy black spruce	Open canopy black spruce-white spruce
	<i>Kilograms per hectare</i>				
<i>Calamagrostis canadensis</i>	72	—	76	4	8
<i>Calamagrostis</i> spp.	—	—	28	1	—
<i>Carex</i> spp.	—	—	5	26	6
<i>Eriophorum</i> spp.	—	—	—	4	—
Grass	—	—	19	1	2
<i>Juncus</i> spp.	—	—	t	—	—
Total, grasses	72	—	128	36	16
Percent, live phytomass	(0.15)		(0.67)	(0.27)	(0.08)
Number of plots	4	2	53	69	8

— = plant not sampled in this vegetation type.
t = trace, less than 1 kilogram per hectare.

Table 9—Aboveground phytomass of lichens on closed and open needleleaf forest vegetation types in southwest Alaska

Species	Vegetation type				
	1A1J	1A1K	1A2E	1A2F	1A2G
	Closed canopy white spruce	Closed canopy black spruce	Open canopy white spruce	Open canopy black spruce	Open canopy black spruce-white spruce
	<i>Kilograms per hectare</i>				
<i>Alectoria nigricans</i>	—	559	—	—	147
<i>Alectoria</i> spp.	—	—	2	t	—
<i>Bryoria</i> spp.	383	—	111	2	310
<i>Cetraria cucullata</i>	—	—	—	t	—
<i>Cetraria islandica</i>	55	14	1	2	—
<i>Cetraria</i> spp.	—	—	10	4	20
<i>Cladina mitis</i>	—	—	2	1	—
<i>Cladina rangiferina</i>	—	—	11	78	14
<i>Cladina stellaria (alpestris)</i>	—	—	1	6	—
<i>Cladina</i> spp.	—	—	5	3	23
<i>Cladonia bellidiflora</i>	11	—	t	—	—
<i>Cladonia gracilis</i>	—	—	6	7	3
<i>Cladonia</i> spp.	29	19	9	9	7
<i>Hypogymnia</i> spp.	122	57	48	2	82
Lichen	17	—	28	4	5
<i>Lobaria</i> spp.	37	—	6	—	—
<i>Nephroma arcticum</i>	—	67	4	2	3
<i>Nephroma</i> spp.	—	—	3	25	18
<i>Parmelia</i> spp.	36	25	86	28	3
<i>Peltigera canina</i>	1	—	2	—	2
<i>Peltigera</i> spp.	—	—	4	3	—
<i>Stereocaulon paschale</i>	—	—	—	t	—
<i>Stereocaulon</i> spp.	—	—	t	—	—
<i>Usnea</i> spp.	23	—	159	124	13
Total, lichens	714	741	498	300	650
Percent, live phytomass	(1.52)	(4.12)	(2.57)	(2.27)	(3.17)
Number of plots	4	2	53	69	8

— = plant was not sampled in this type.
t = trace, less than 1 kilogram per hectare.

Table 10—Aboveground phytomass of mosses and clubmosses on closed and open needleleaf forest vegetation types in southwest Alaska

Species	Vegetation type				
	1A1J	1A1K	1A2E	1A2F	1A2G
	Closed canopy white spruce	Closed canopy black spruce	Open canopy white spruce	Open canopy black spruce	Open canopy black spruce-white spruce
	<i>Kilograms per hectare</i>				
<i>Aulacomnium</i> spp.	—	—	3	2	—
<i>Climacium dendroides</i>	—	—	1	—	—
<i>Dicranum</i> spp.	—	—	18	5	8
<i>Ditrichum</i> spp.	8	—	—	—	6
Hepaticae family	—	—	1	1	—
<i>Hylocomium splendens</i>	23	108	168	166	158
<i>Hylocomium</i> spp.	26	—	8	t	42
<i>Lycopodium annotinum</i>	25	—	8	3	—
<i>Lycopodium complanatum</i>	—	—	1	—	—
<i>Lycopodium selago</i>	—	—	t	—	—
<i>Lycopodium</i> spp.	—	—	1	—	—
<i>Mnium</i> spp.	22	—	1	t	—
Moss	23	—	14	6	t
<i>Pleurozium schreberi</i>	40	211	51	24	48
<i>Polytrichum juniperium</i>	—	—	1	—	4
<i>Polytrichum</i> spp.	5	—	17	9	7
<i>Ptilium cilare</i>	—	—	t	—	—
<i>Ptilium crista-castrensis</i>	23	—	11	6	12
<i>Ptilium</i> spp.	12	—	—	—	—
<i>Rhacomitrium lanuginosum</i>	—	—	t	—	—
<i>Rhytidiadelphus</i> spp.	—	—	1	t	—
<i>Rhytidium</i> spp.	—	—	—	t	—
<i>Sphagnum</i> spp.	20	—	18	121	53
Total, mosses	227	319	323	343	338
Percent, live phytomass	(0.48)	(1.77)	(1.67)	(2.59)	(1.65)
Number of plots	4	2	53	69	8

— = plant was not sampled in this vegetation type.
t = trace, less than 1 kilogram per hectare.

Table 11—Aboveground phytomass of trees on open and woodland needleleaf forest vegetation types in southwest Alaska

Species	Vegetation type				
	1A2H Black spruce- tamarack open canopy	1A3C White spruce woodland	1A3D Black spruce woodland	1A3E Black spruce- white spruce woodland	1A3X Black spruce- tamarack woodland
	<i>Kilograms per hectare</i>				
<i>Larix laricina</i>	1061	—	112	108	1027
<i>Picea glauca</i>	867	5928	337	1997	—
<i>Picea mariana</i>	3784	—	3999	1115	348
Total, needleleaf	5712	5928	4448	3220	1375
<i>Betula papyrifera</i>	—	303	113	8010	—
<i>Populus balsamifera</i>	—	58	—	—	—
<i>Populus tremuloides</i>	—	14	—	—	—
<i>Populus trichocarpa</i>	—	2	—	—	—
Total, broadleaf	—	377	113	8010	—
Total, all live trees	5712	6305	4561	11 230	1375
Percent, live phytomass	(65.9)	(55.49)	(55.46)	(74.78)	(25.41)
Total, other plants	2958	5057	3663	3788	4036
Total, all live plants	8670	11362	8224	15018	5411
Downed trees and logs	—	—	187	—	—
Standing dead trees	—	711	187	—	—
Total, dead trees	—	711	373	—	—
Total, live and dead	8670	12073	8597	15018	5411
Number of plots	6	46	40	3	3

— = plant was not sampled in this vegetation type.

Table 12—Aboveground phytomass of shrubs on open and woodland needleleaf vegetation types in southwest Alaska

Species	Vegetation type				
	1A2H Black spruce- tamarack open canopy	1A3C White spruce woodland	1A3D Black spruce woodland	1A3E Black spruce- white spruce woodland	1A3X Black spruce- tamarack woodland
	<i>Kilograms per hectare</i>				
<i>Alnus crispa</i>	57	320	343	632	—
<i>Alnus sinuata</i>	—	33	198	—	—
<i>Alnus</i> spp.	—	107	—	—	—
<i>Alnus tenuifolia</i>	—	29	19	—	—
<i>Andromeda polifolia</i>	—	6	2	—	15
<i>Arctostaphylos alpina</i>	—	—	2	—	—
<i>Arctostaphylos rubra</i>	—	2	1	—	25
<i>Artemisia</i> spp.	—	t	—	—	—
<i>Betula glandulosa</i>	—	943	664	1299	947
<i>Betula nana</i>	828	536	436	—	75
<i>Chamaedaphne calyculata</i>	85	—	45	57	9
<i>Diapensia lapponica</i>	—	t	—	—	—
<i>Dryas</i> spp.	—	—	t	—	—
<i>Empetrum nigrum</i>	42	35	13	48	4
<i>Kalmia polifolia</i>	—	t	—	—	—
<i>Ledum groenlandicum</i>	222	28	49	—	135
<i>Ledum palustre</i> var. <i>decumbens</i>	374	102	420	247	345
<i>Ledum</i> spp.	—	—	19	—	—
<i>Linnaea borealis</i>	10	t	t	—	—
<i>Menziesia ferruginea</i>	—	1	—	—	—
<i>Myrica gale</i>	—	59	40	—	258
<i>Oplopanax horridus</i>	—	6	—	—	—
<i>Potentilla fruticosa</i>	—	56	29	—	1244
<i>Ribes</i> spp.	—	4	1	14	—
<i>Ribes triste</i>	—	5	—	—	—
<i>Rosa acicularis</i>	—	1	2	—	—
<i>Rubus arcticus</i>	1	3	8	23	2
<i>Rubus chamaemorus</i>	17	3	10	23	8
<i>Rubus pedatus</i>	—	2	—	—	—
<i>Rumex arcticus</i>	—	6	1	—	—
<i>Salix alaxensis</i>	—	46	2	—	—
<i>Salix arbusculoides</i>	—	31	17	—	—
<i>Salix arctica</i>	—	14	—	—	—

Table 12—Aboveground phytomass of shrubs on open and woodland needleleaf vegetation types in southwest Alaska (continued)

Species	Vegetation type				
	1A2H Black spruce- tamarack open canopy	1A3C White spruce woodland	1A3D Black spruce woodland	1A3E Black spruce- white spruce woodland	1A3X Black spruce- tamarack woodland
	<i>Kilograms per hectare</i>				
<i>Salix barclayi</i>	—	223	2	—	—
<i>Salix bebbiana</i>	—	—	4	—	—
<i>Salix commutata</i>	—	—	21	—	—
<i>Salix fuscescens</i>	—	48	—	—	—
<i>Salix glauca</i>	—	49	—	—	14
<i>Salix hastata</i>	—	—	36	—	—
<i>Salix interior</i>	—	—	18	—	—
<i>Salix lanata</i>	—	48	—	—	—
<i>Salix monticola</i>	281	—	—	35	—
<i>Salix myrtilifolia</i>	—	1	10	—	—
<i>Salix planifolia</i>	—	679	42	172	12
<i>Salix reticulata</i>	—	2	1	—	—
<i>Salix setchelliana</i>	—	3	—	—	—
<i>Salix stolonifera</i>	—	—	2	—	—
<i>Salix</i> spp.	—	83	18	—	42
<i>Spiraea beauverdiana</i>	—	157	67	63	—
<i>Spiraea</i> spp.	—	2	32	—	—
<i>Vaccinium ovalifolium</i>	—	6	11	—	166
<i>Vaccinium oxycoccus</i>	1	t	3	9	t
<i>Vaccinium uliginosum</i>	518	391	370	335	219
<i>Vaccinium vitis-ideae</i>	52	15	22	12	6
<i>Viburnum edule</i>	—	3	—	—	—
Total, shrubs	2488	4088	2980	2969	3526
Percent, live phytomass	(28.70)	(35.98)	(36.24)	(19.77)	(65.16)
Number of plots	6	46	40	3	3

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 13—Aboveground phytomass of forbs on open and woodland needleleaf vegetation types in southwest Alaska

Species	Vegetation type				
	1A2H Black spruce- tamarack open canopy	1A3C White spruce woodland	1A3D Black spruce woodland	1A3E Black spruce- white spruce woodland	1A3X Black spruce- tamarack woodland
	<i>Kilograms per hectare</i>				
<i>Aconitum delphinifolium</i>	—	t	—	—	—
<i>Achillea</i> spp.	—	t	—	—	—
<i>Astragalus</i> spp.	—	t	—	—	—
<i>Cardamine pratensis</i>	—	t	—	—	—
<i>Cicuta mackenzieana</i>	—	—	3	—	—
<i>Collomia linearis</i>	—	—	t	—	—
Compositae family	—	t	t	—	—
<i>Cornus canadensis</i>	—	11	—	1	—
<i>Cornus suecica</i>	—	t	t	—	—
Cruciferae family	—	t	—	—	—
<i>Drosera</i> spp.	—	t	1	—	—
<i>Dryopteris dilatata</i>	—	24	—	—	—
<i>Dryopteris</i> spp.	—	23	—	—	—
<i>Epilobium angustifolium</i>	—	3	8	70	—
<i>Epilobium</i> spp.	—	t	—	—	—
<i>Equisetum arvense</i>	—	15	2	—	—
<i>Equisetum fluviatile</i>	—	—	17	—	—
<i>Equisetum silvaticum</i>	1	10	15	139	3
<i>Equisetum scirpoides</i>	15	t	—	—	—
<i>Equisetum</i> spp.	—	14	4	—	—
<i>Erigeron purpuratus</i>	—	—	t	—	—
Forb	7	t	t	—	—
<i>Galium boreale</i>	—	t	—	—	—
<i>Galium</i> spp.	—	1	—	—	—
<i>Galium trifidum</i>	—	t	—	—	—
<i>Gentiana</i> spp.	—	t	—	—	—
<i>Geocaulon lividum</i>	—	—	1	—	—
<i>Geranium erianthum</i>	—	t	—	—	—
<i>Gymnocarpium dryopteris</i>	—	1	—	—	—
<i>Iris setosa</i>	—	1	—	—	—
<i>Lepidium densiflorum</i>	—	5	—	—	—
<i>Listera</i> spp.	—	t	—	—	—
<i>Mertensia</i> spp.	—	t	—	—	—
<i>Mertensia paniculata</i>	—	—	t	—	—
<i>Mitella pentandra</i>	—	t	—	—	—

Table 13—Aboveground phytomass of forbs on open and woodland needleleaf forest vegetation types in southwest Alaska (continued)

Species	Vegetation type				
	1A2H Black spruce- tamarack open canopy	1A3C White spruce woodland	1A3D Black spruce woodland	1A3E Black spruce- white spruce woodland	1A3X Black spruce- tamarack woodland
	<i>Kilograms per hectare</i>				
<i>Moneses uniflora</i>	—	t	—	—	—
Mushroom	—	t	1	t	—
<i>Parnassia palustris</i>	—	t	1	—	—
<i>Parnassia</i> spp.	—	t	t	—	—
<i>Pedicularis</i> spp.	—	t	2	—	2
<i>Petasites hyberboreus</i>	2	t	—	—	—
<i>Platanthera hyberborea</i>	—	1	—	—	—
<i>Polemonium acutiflorum</i>	—	1	—	—	—
<i>Polygonum</i> spp.	—	t	—	—	21
<i>Potentilla palustris</i>	—	9	9	—	32
<i>Potentilla</i> spp.	—	t	15	—	—
<i>Pyrola asarifolia</i>	—	2	—	—	—
<i>Pyrola secunda</i>	—	2	—	—	—
<i>Pyrola</i> spp.	—	t	t	—	—
<i>Ranunculus</i> spp.	—	1	t	—	—
<i>Rumex acetosella</i>	—	—	t	—	—
<i>Rumex</i> spp.	—	t	1	—	—
<i>Sanguisorba menziesii</i>	—	t	—	—	—
<i>Sanguisorba stipulata</i>	—	1	—	—	—
<i>Sanguisorba</i> spp.	—	4	t	—	—
<i>Sedum rosea</i>	—	1	—	—	—
<i>Senecio</i> spp.	—	t	—	—	—
<i>Streptopus amplexifolius</i>	—	t	—	—	—
<i>Stellaria crista</i>	—	t	—	—	—
<i>Streptopus</i> spp.	—	t	—	—	—
<i>Swertia perennis</i>	—	t	—	—	—
<i>Thalictrum occidentale</i>	—	t	—	—	—
<i>Trientalis europaea</i>	—	1	1	—	—
<i>Valeriana capitata</i>	—	t	—	—	—

Table 13—Aboveground phytomass of forbs on open and woodland needleleaf forest vegetation types in southwest Alaska (continued)

Species	Vegetation type				
	1A2H Black spruce- tamarack open canopy	1A3C White spruce woodland	1A3D Black spruce woodland	1A3E Black spruce- white spruce woodland	1A3X Black spruce- tamarack woodland
	<i>Kilograms per hectare</i>				
<i>Veratrum viride</i>	—	1	—	—	—
<i>Vicia</i> spp.	—	1	—	—	—
<i>Viola epipsila</i>	—	1	—	—	—
<i>Viola</i> spp.	—	1	t	—	—
Total, forbs	25	136	81	210	58
Percent, live phytomass	(0.29)	(1.20)	(0.98)	(1.40)	(1.07)
Number of plots	6	46	40	3	3

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 14—Aboveground phytomass of grass and grasslike species on open and woodland needleleaf forest vegetation types in southwest Alaska

Species	Vegetation type				
	1A2H Black spruce- tamarack open canopy	1A3C White spruce woodland	1A3D Black spruce woodland	1A3E Black spruce- white spruce woodland	1A3X Black spruce- tamarack woodland
	<i>Kilograms per hectare</i>				
<i>Calamagrostis canadensis</i>	2	38	50	119	5
<i>Calamagrostis</i> spp.	—	7	5	2	—
<i>Carex</i> spp.	12	34	35	1	67
<i>Eriophorum</i> spp.	—	2	5	—	—
Grass	1	4	1	—	—
<i>Juncus</i> spp.	—	t	—	—	—
<i>Luzula</i> spp.	—	1	—	—	—
Total, grasses	15	86	96	122	72
Percent, live phytomass	(0.17)	(0.76)	(1.17)	(0.81)	(1.33)
Number of plots	6	46	40	3	3

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 15—Aboveground phytomass of lichens on open and woodland needleleaf forest vegetation types in southwest Alaska

Species	Vegetation type				
	1A2H Black spruce- tamarack open canopy	1A3C White spruce woodland	1A3D Black spruce woodland	1A3E Black spruce- white spruce woodland	1A3X Black spruce- tamarack woodland
	<i>Kilograms per hectare</i>				
<i>Alectoria</i> spp.	—	13	—	—	4
<i>Bryoria</i> spp.	—	33	—	—	—
<i>Cetraria cucullata</i>	2	2	t	—	—
<i>Cetraria islandica</i>	—	t	4	6	—
<i>Cetraria nivalis</i>	—	t	—	—	—
<i>Cetraria</i> spp.	2	7	3	1	—
<i>Cladina mitis</i>	22	t	t	—	—
<i>Cladina rangiferina</i>	31	68	69	24	12
<i>Cladina stellaris (alpestris)</i>	—	2	1	—	—
<i>Cladina</i> spp.	—	11	6	—	—
<i>Cladonia gracilis</i>	—	4	5	7	6
<i>Cladonia</i> spp.	7	7	8	11	—
<i>Hypogymnia enteromorpha</i>	—	—	—	—	—
<i>Hypogymnia</i> spp.	2	11	—	—	—
Lichen	—	8	1	—	5
<i>Lobaria</i> spp.	—	t	—	—	—
<i>Nephroma arcticum</i>	5	—	2	—	—
<i>Nephroma</i> spp.	15	13	14	13	3
<i>Parmelia</i> spp.	6	66	23	140	3
<i>Peltigera canina</i>	—	t	—	—	—
<i>Peltigera</i> spp.	2	2	6	—	—
<i>Stereocaulon</i> spp.	—	2	t	—	—
<i>Stereocaulon paschale</i>	—	—	1	—	—
<i>Usnea</i> spp.	—	159	83	95	—
Total, lichens	94	408	226	297	33
Percent, live phytomass	(1.08)	(3.59)	(2.75)	(1.98)	(0.61)
Number of plots	6	46	40	3	3

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 16—Aboveground phytomass of mosses and clubmosses on open and woodland needleleaf forest vegetation types in southwest Alaska

Species	Vegetation type				
	1A2H Black spruce- tamarack open canopy	1A3C White spruce woodland	1A3D Black spruce woodland	1A3E Black spruce- white spruce woodland	1A3X Black spruce- tamarack woodland
	<i>Kilograms per hectare</i>				
<i>Aulacomnium</i> spp.	6	23	8	2	—
<i>Climacium dendroides</i>	—	t	—	—	—
<i>Conocephalum conicum</i>	—	t	—	—	—
<i>Dicranum</i> spp.	—	19	2	19	—
<i>Ditrichum</i> spp.	—	t	—	—	—
Hepaticae family	—	2	1	—	—
<i>Hylocomium</i> spp.	—	4	t	—	—
<i>Hylocomium splendens</i>	24	152	40	36	27
<i>Lycopodium annotinum</i>	11	1	t	—	—
<i>Lycopodium complanatum</i>	—	t	—	—	—
<i>Lycopodium selago</i>	—	t	—	—	—
<i>Lycopodium</i> spp.	—	4	—	—	—
<i>Mnium</i> spp.	—	2	1	—	—
Moss	—	14	6	—	—
<i>Pleurozium schreberi</i>	90	19	56	12	203
<i>Polytrichum juniperium</i>	11	t	—	—	—
<i>Polytrichum</i> spp.	t	20	10	—	1
<i>Ptilium cilare</i>	—	1	—	—	—
<i>Ptilium crista-castrensis</i>	9	25	3	31	—
<i>Ptilium</i> spp.	—	1	—	—	—
<i>Rhytidiadelphus</i> spp.	—	t	t	—	—
<i>Sphagnum</i> spp.	185	53	153	90	116
Total, mosses	336	340	280	190	347
Percent, live phytomass	(3.88)	(2.99)	(3.40)	(1.27)	(6.41)
Number of plots	6	46	40	3	3

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

**Appendix B :
Phytomass on
Broadleaf Forest
Vegetation Types**

Table 17—Aboveground phytomass of trees on closed and open canopy broadleaf forest vegetation types in southwest Alaska

Species	Vegetation type				
	1B1B Black cottonwood closed canopy	1B1D Paper birch closed canopy	1C1A Spruce- paper birch closed canopy	1B2C Balsam poplar- cottonwood open canopy	1B2A Paper birch open canopy
	<i>Kilograms per hectare</i>				
<i>Larix laricina</i>	—	181	—	—	2
<i>Picea glauca</i>	—	3998	6 983	6802	363
<i>Picea mariana</i>	—	1945	5 497	—	84
Total, needleleaf	—	6124	12 480	6802	449
<i>Betula papyrifera</i>	—	18510	6 603	5 308	3444
<i>Populus tremuloides</i>	—	2	—	—	—
<i>Populus trichocarpa</i>	29503	—	—	2802	97
Total, broadleaf	29503	18512	6603	8110	3541
Total, all live trees	29503	24636	19083	14912	3990
Percent, live phytomass	(78.68)	(85.51)	(79.32)	(81.49)	(50.33)
Total, other plants	7993	4171	4976	3388	3937
Total, all live plants	37496	28807	24059	18300	7927
Downed trees and logs	1513	46	285	—	446
Standing dead trees	877	794	403	—	1414
Total, dead trees	2390	840	688	—	1860
Total, live and dead	39886	29647	24747	18300	9787
Number of plots	4	27	17	2	6

— = plant was not sampled in this vegetation type.

Table 18—Aboveground phytomass of shrubs on closed and open broadleaf forest vegetation types in southwest Alaska

Species	Vegetation type				
	1B1B Black cottonwood closed canopy	1B1D Paper birch closed canopy	1C1A Spruce- paper birch closed canopy	1B2C Balsam poplar- cottonwood open canopy	1B2A Paper birch open canopy
	<i>Kilograms per hectare</i>				
<i>Alnus crispa</i>	—	833	2356	—	66
<i>Alnus sinuata</i>	644	1221	161	754	890
<i>Alnus</i> spp.	—	—	55	—	—
<i>Alnus tenuifolia</i>	3191	158	96	1311	—
<i>Arctostaphylos rubra</i>	—	—	—	—	1
<i>Artemisia</i> spp.	2	t	—	—	—
<i>Betula glandulosa</i>	—	16	101	—	—
<i>Betula nana</i>	—	20	122	16	355
<i>Empetrum nigrum</i>	—	3	12	—	2
<i>Ledum groenlandicum</i>	—	6	21	—	1
<i>Ledum palustre</i> var. <i>decumbens</i>	—	11	10	—	77
<i>Linnaea borealis</i>	—	7	9	3	—
<i>Ribes bracteosum</i>	—	1	—	—	—
<i>Ribes</i> spp.	4	36	t	—	—
<i>Rosa acicularis</i>	91	50	t	325	2
<i>Rubus arcticus</i>	—	1	3	31	—
<i>Rubus chamaemorus</i>	—	t	6	—	—
<i>Rubus idaeus</i>	—	t	—	—	—
<i>Rubus pedatus</i>	—	—	3	—	—
<i>Rumex arcticus</i>	—	—	4	—	—
<i>Salix alaxensis</i>	1371	155	10	—	—
<i>Salix arbusculoides</i>	—	—	—	—	311
<i>Salix barclayi</i>	—	315	12	—	—
<i>Salix glauca</i>	—	1	—	—	—
<i>Salix hastata</i>	—	—	59	—	—
<i>Salix interior</i>	—	—	55	—	—
<i>Salix monticola</i>	—	—	—	—	318
<i>Salix myrtilifolia</i>	—	202	—	—	1073
<i>Salix planifolia</i>	—	46	34	—	—
<i>Salix</i> spp.	2153	8	27	—	—
<i>Sorbus</i> spp.	—	1	—	—	—
<i>Spiraea beauverdiana</i>	—	168	216	—	144
<i>Spiraea</i> spp.	—	58	424	—	—

Table 18—Aboveground phytomass of shrubs on closed and open broadleaf forest vegetation types in southwest Alaska

Species	Vegetation type				
	1B1B Black cottonwood closed canopy	1B1D Paper birch closed canopy	1C1A Spruce- paper birch closed canopy	1B2C Balsam poplar- cottonwood open canopy	1B2A Paper birch open canopy
	<i>Kilograms per hectare</i>				
<i>Vaccinium ovalifolium</i>	—	—	38	—	—
<i>Vaccinium oxycoccus</i>	—	—	1	—	—
<i>Vaccinium uliginosum</i>	—	58	275	—	21
<i>Vaccinium vitis-idaea</i>	—	6	23	—	24
<i>Viburnum edule</i>	130	81	t	313	16
Total, shrubs	7586	3462	4133	2750	3301
Percent, live phytomass	(20.23)	(12.02)	(17.18)	(15.03)	(41.64)
Number of plots	4	27	17	2	6

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 19—Aboveground phytomass of forbs on closed and open canopy broadleaf forest vegetation types in southwest Alaska

Species	Vegetation type				
	1B1B Black cottonwood closed canopy	1B1D Paper birch closed canopy	1C1A Spruce- paper birch closed canopy	1B2C Balsam poplar- cottonwood open canopy	1B2A Paper birch open canopy
	<i>Kilograms per hectare</i>				
<i>Aconitum delphiniifolium</i>	—	t	—	—	—
<i>Boschniakia rossica</i>	—	—	4	—	—
Compositae family	7	—	—	—	—
<i>Cornus canadensis</i>	—	13	5	—	1
<i>Cornus suecica</i>	—	8	1	—	—
<i>Delphinium glaucum</i>	1	—	—	—	—
<i>Dryopteris dilatata</i>	—	22	43	—	—
<i>Dryopteris</i> spp.	—	16	2	70	—
<i>Epilobium angustifolium</i>	6	30	2	28	308
<i>Epilobium</i> spp.	—	—	t	—	—
<i>Equisetum arvense</i>	2	t	11	25	1
<i>Equisetum pratense</i>	—	1	—	—	—
<i>Equisetum silvaticum</i>	—	70	45	—	1
<i>Equisetum</i> spp.	101	36	—	—	—
<i>Erigeron purpuratus</i>	—	1	—	—	—
Forb	1	—	1	2	—
<i>Galium boreale</i>	—	t	—	—	—
<i>Galium</i> spp.	3	—	—	—	—
<i>Geocaulon lividum</i>	—	1	t	—	1
<i>Geranium erianthum</i>	—	t	—	—	—
<i>Geranium</i> spp.	—	—	—	4	—
<i>Gymnocarpium dryopteris</i>	—	6	t	4	—
<i>Heracleum lanatum</i>	11	—	—	—	—
<i>Hippuris vulgaris</i>	—	—	t	—	—
<i>Listera cordata</i>	—	t	—	—	—
<i>Mertensia paniculata</i>	10	1	t	—	—
<i>Moneses uniflora</i>	—	t	t	—	—
Mushroom	—	2	t	1	2
<i>Petasites hyberboreus</i>	—	—	t	—	—
<i>Polemonium</i> spp.	—	1	t	—	—
<i>Potentilla palustris</i>	—	6	13	—	—
<i>Pyrola asarifolia</i>	3	—	—	—	3
<i>Pyrola secunda</i>	1	1	2	—	1
<i>Pyrola</i> spp.	4	1	t	16	—
<i>Ranunculus lapponicus</i>	—	—	1	—	—

Table 19—Aboveground phytomass of forbs on closed and open canopy broadleaf forest vegetation types in southwest Alaska (continued)

Species	Vegetation type				
	1B1B Black cottonwood closed canopy	1B1D Paper birch closed canopy	1C1A Spruce- paper birch closed canopy	1B2C Balsam poplar- cottonwood open canopy	1B2A Paper birch open canopy
	<i>Kilograms per hectare</i>				
<i>Ranunculus</i> spp.	—	1	—	—	—
<i>Rumex</i> spp.	—	—	t	—	—
<i>Smilacina</i> spp.	—	t	—	—	—
<i>Streptopus streptopoides</i>	—	—	—	—	t
<i>Stellaria</i> spp.	—	t	t	—	—
<i>Thalictrum sparsiflorum</i>	6	—	—	—	—
<i>Thalictrum</i> spp.	27	t	—	—	—
<i>Trientalis europaea</i>	3	3	t	13	t
<i>Valeriana capitata</i>	3	—	—	—	—
<i>Valeriana</i> spp.	—	t	—	9	—
<i>Viola</i> spp.	—	1	—	—	—
Total, forbs	189	221	130	172	318
Percent, live phytomass	(0.50)	(0.77)	(0.54)	(0.94)	(4.01)
Number of plots	4	27	17	2	6

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 20—Aboveground phytomass of grass and grasslike species on closed and open canopy broadleaf vegetation types in southwest Alaska

Species	Vegetation type				
	1B1B Black cottonwood closed canopy	1B1D Paper birch closed canopy	1C1A Spruce- paper birch closed canopy	1B2C Balsam poplar- cottonwood open canopy	1B2A Paper birch open canopy
	<i>Kilograms per hectare</i>				
<i>Calamagrostis canadensis</i>	21	153	56	201	44
<i>Calamagrostis</i> spp.	104	—	38	—	2
<i>Carex</i> spp.	—	—	2	—	—
Grass	—	2	27	—	7
Total, grasses	125	155	123	201	53
Percent, live phytomass	(0.33)	(0.54)	(0.51)	(1.10)	(0.67)
Number of plots	4	27	17	2	6

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 21—Aboveground phytomass of lichens on closed and open canopy broadleaf forest vegetation types in southwest Alaska

Species	Vegetation type				
	1B1B Black cottonwood closed canopy	1B1D Paper birch closed canopy	1C1A Spruce- paper birch closed canopy	1B2C Balsam poplar- cottonwood open canopy	1B2A Paper birch open canopy
	<i>Kilograms per hectare</i>				
<i>Alectoria</i> spp.	—	—	t	—	—
<i>Cetraria cucullata</i>	—	—	—	—	4
<i>Cetraria</i> spp.	—	13	7	—	—
<i>Cladina mitis</i>	—	—	t	—	22
<i>Cladina rangiferina</i>	—	2	3	—	17
<i>Cladonia gracilis</i>	—	4	1	—	1
<i>Cladonia</i> spp.	—	12	13	4	1
<i>Hypogymnia</i> spp.	—	4	58	—	—
Lichen	25	9	8	—	—
<i>Lobaria</i> spp.	2	8	2	—	—
<i>Nephroma arcticum</i>	—	1	2	—	—
<i>Nephroma</i> spp.	—	1	3	—	1
<i>Parmelia</i> spp.	23	113	164	175	19
<i>Peltigera</i> spp.	—	4	3	—	4
<i>Usnea</i> spp.	—	10	19	—	—
Total, lichens	50	181	283	179	69
Percent, live phytomass	(0.13)	(0.63)	(1.18)	(0.98)	(0.87)
Number of plots	4	27	17	2	6

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 22—Aboveground phytomass of mosses and clubmosses on closed and open canopy broadleaf forest vegetation types in southwest Alaska

Species	Vegetation type				
	1B1B Black cottonwood closed canopy	1B1D Paper birch closed canopy	1C1A Spruce- paper birch closed canopy	1B2C Balsam poplar- cottonwood open canopy	1B2A Paper birch open canopy
	<i>Kilograms per hectare</i>				
<i>Aulacomnium</i> spp.	—	2	4	—	1
<i>Dicranum</i> spp.	—	11	11	—	1
<i>Ditrichum</i> spp.	—	4	—	—	—
Hepaticae family	—	t	t	—	t
<i>Hylocomium</i> spp.	—	2	3	—	—
<i>Hylocomium splendens</i>	—	79	155	43	61
<i>Lycopodium annotinum</i>	—	6	14	—	—
<i>Lycopodium complanatum</i>	—	t	4	—	—
<i>Mnium</i> spp.	2	—	—	—	—
Moss	39	7	5	7	10
<i>Pleurozium schreberi</i>	3	18	21	37	71
<i>Polytrichum</i> spp.	2	6	13	—	15
<i>Ptilium crista-castrensis</i>	—	16	23	—	18
<i>Rhytidiadelphus</i> spp.	—	—	4	—	—
<i>Sphagnum</i> spp.	—	1	50	—	19
Total, mosses	46	152	307	87	196
Percent, live phytomass	(0.12)	(0.53)	(1.28)	(0.48)	(2.47)
Number of plots	4	27	17	2	6

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

**Appendix C :
Phytomass on Mixed
Forest Vegetation
Types**

Table 23—Aboveground phytomass of trees on mixed forest vegetation types in southwest Alaska

Species	Vegetation type			
	1C2A Spruce- paper birch open canopy mixed forest	1C2B Aspen- spruce open canopy mixed forest	1C2C Paper birch balsam poplar, and spruce open canopy mixed forest	1C3A Spruce- paper birch woodland canopy mixed forest
	<i>Kilograms per hectare</i>			
<i>Larix laricina</i>	—	3380	—	—
<i>Picea glauca</i>	10530	215	4969	1993
<i>Picea mariana</i>	359	4499	—	690
Total, needleleaf	10889	8094	4969	2683
<i>Betula papyrifera</i>	4783	877	5 063	978
<i>Populus balsamifera</i>	22	—	—	t
<i>Populus tremuloides</i>	38	3711	—	113
<i>Populus trichocarpa</i>	—	—	3788	—
Total, broadleaf	4843	4590	8851	1091
Total, all live trees	15732	12684	13820	3774
Percent, live phytomass	(73.15)	(70.53)	(66.25)	(44.44)
Total, other plants	5774	5301	7040	4719
Total, all live plants	21506	17985	20860	8493
Downed trees and logs	46	—	—	—
Standing dead trees	1226	—	433	—
Total, dead trees	1272	—	433	—
Total, live and dead	22778	17985	21293	8493
Number of plots	62	3	4	9

— = plant was not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 24—Aboveground phytomass of shrubs on mixed forest vegetation types in southwest Alaska

Species	Vegetation type			
	1C2A Spruce- paper birch open canopy mixed forest	1C2B Aspen- spruce open canopy mixed forest	1C2C Paper birch balsam poplar, and spruce open canopy mixed forest	1C3A Spruce- paper birch woodland canopy mixed forest
	<i>Kilograms per hectare</i>			
<i>Alnus crispa</i>	1026	—	69	858
<i>Alnus sinuata</i>	714	—	—	—
<i>Alnus tenuifolia</i>	436	—	3 862	31
<i>Andromeda polifolia</i>	—	—	—	8
<i>Arctostaphylos rubra</i>	t	—	—	—
<i>Artemisia</i> spp.	t	—	7	—
<i>Betula glandulosa</i>	30	3272	—	189
<i>Betula nana</i>	118	—	—	692
<i>Cassiope tetragona</i>	t	—	—	—
<i>Chamaedaphne calyculata</i>	—	—	—	3
<i>Dryas octopetala</i>	t	—	—	—
<i>Empetrum nigrum</i>	12	—	—	23
<i>Ledum groenlandicum</i>	9	131	—	136
<i>Ledum palustre</i> var. <i>decumbens</i>	7	289	—	376
<i>Linnaea borealis</i>	6	—	—	12
<i>Menziesia ferruginea</i>	9	—	—	—
<i>Potentilla fruticosa</i>	t	—	—	—
<i>Ribes</i> spp.	13	—	—	—
<i>Ribes hudsonianum</i>	—	—	—	12
<i>Ribes laxiflorum</i>	1	—	—	—
<i>Ribes triste</i>	1	—	—	—
<i>Rosa acicularis</i>	13	1	92	1
<i>Rubus arcticus</i>	8	t	—	2
<i>Rubus chamaemorus</i>	4	5	—	7
<i>Rubus idaeus</i>	1	—	30	—
<i>Rubus pedatus</i>	13	—	—	—

Table 24—Aboveground phytomass of shrubs on mixed forest vegetation types in southwest Alaska (continued)

Species	Vegetation type			
	1C2A Spruce- paper birch open canopy mixed forest	1C2B Aspen- spruce open canopy mixed forest	1C2C Paper birch balsam poplar, and spruce open canopy mixed forest	1C3A Spruce- paper birch woodland canopy mixed forest
	<i>Kilograms per hectare</i>			
<i>Salix alaxensis</i>	—	—	—	461
<i>Salix arbusculoides</i>	330	—	521	—
<i>Salix barclayi</i>	665	311	—	—
<i>Salix bebbiana</i>	3	—	475	28
<i>Salix glauca</i>	t	—	—	—
<i>Salix monticola</i>	7	—	—	—
<i>Salix myrtilifolia</i>	31	—	10	—
<i>Salix planifolia</i>	226	—	—	8
<i>Salix reticulata</i>	t	—	—	—
<i>Salix</i> spp.	117	—	—	455
<i>Sorbus</i> spp.	45	—	—	—
<i>Spiraea beauverdiana</i>	369	3	—	92
<i>Spiraea</i> spp.	80	—	—	—
<i>Vaccinium ovalifolium</i>	52	—	—	—
<i>Vaccinium oxycoccus</i>	t	t	—	—
<i>Vaccinium uliginosum</i>	189	717	—	663
<i>Vaccinium vitis-ideae</i>	10	44	—	24
<i>Viburnum edule</i>	228	—	407	—
Total, shrubs	4775	4773	5471	4081
Percent, live phytomass	(22.20)	(26.54)	(26.23)	(48.05)
Number of plots	62	3	4	9

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 25—Aboveground phytomass of forbs on mixed forest vegetation types in southwest Alaska

Species	Vegetation type			
	1C2A Spruce- paper birch open canopy mixed forest	1C2B Aspen- spruce open canopy mixed forest	1C2C Paper birch balsam poplar, and spruce open canopy mixed forest	1C3A Spruce- paper birch woodland canopy mixed forest
	<i>Kilograms per hectare</i>			
<i>Aconitum delphiniifolium</i>	t	—	2	—
<i>Achillea</i> spp.	—	—	—	1
<i>Actaea rubra</i>	—	—	10	—
<i>Angelica lucida</i>	t	—	—	—
<i>Athyrium filix-femina</i>	1	—	—	—
<i>Circaea alpina</i>	—	—	2	—
<i>Collomia linearis</i>	1	—	—	—
<i>Cornus canadensis</i>	6	3	—	t
<i>Cornus suecica</i>	2	—	1	2
<i>Cypripedium montanum</i>	1	—	—	—
<i>Dryopteris dilatata</i>	92	—	—	—
<i>Dryopteris fragrans</i>	16	—	—	—
<i>Dryopteris</i> spp.	50	—	—	—
<i>Epilobium angustifolium</i>	10	—	22	2
<i>Epilobium glandulosum</i>	t	—	—	—
<i>Equisetum arvense</i>	26	—	109	1
<i>Equisetum silvaticum</i>	15	—	—	26
<i>Equisetum</i> spp.	12	—	80	5
Forb	t	—	—	t
<i>Galium boreale</i>	2	—	—	—
<i>Galium</i> spp.	1	—	4	t
<i>Geocaulon lividum</i>	1	7	—	—
<i>Geranium erianthum</i>	t	—	—	—
<i>Geranium</i> spp.	1	—	t	1
<i>Goodyera repens</i>	t	—	—	—
<i>Gymnocarpium dryopteris</i>	15	—	—	—
<i>Heracleum lanatum</i>	1	—	28	—
<i>Listera cordata</i>	t	—	—	—
<i>Lupinus</i> spp.	t	—	—	—
<i>Mertensia</i> spp.	t	—	—	t
<i>Mertensia paniculata</i>	1	—	12	—
<i>Moneses uniflora</i>	t	—	—	—
Mushroom	2	—	4	t

Table 25—Aboveground phytomass of forbs on mixed forest vegetation types in southwest Alaska (continued)

Species	Vegetation type			
	1C2A Spruce- paper birch open canopy mixed forest	1C2B Aspen- spruce open canopy mixed forest	1C2C Paper birch balsam poplar, and spruce open canopy mixed forest	1C3A Spruce- paper birch woodland canopy mixed forest
	<i>Kilograms per hectare</i>			
<i>Oxytropis</i> spp.	t	—	—	—
<i>Platanthera hyberborea</i>	t	—	—	—
<i>Polemonium</i> spp.	t	—	t	1
<i>Polygonum alaskanum</i>	1	—	—	—
<i>Potentilla palustris</i>	8	—	608	18
<i>Pyrola secunda</i>	4	—	—	—
<i>Pyrola</i> spp.	1	—	—	4
<i>Ranunculus</i> spp.	—	—	1	t
<i>Rumex</i> spp.	1	—	—	—
<i>Sanguisorba</i> spp.	6	—	—	1
<i>Saussurea americana</i>	t	—	—	—
<i>Smilacina</i> spp.	1	—	—	—
<i>Streptopus amplexifolius</i>	1	—	—	—
<i>Streptopus</i> spp.	—	—	—	1
<i>Stellaria</i> spp.	t	—	—	—
<i>Streptopus</i> spp.	t	—	—	—
<i>Thalictrum sparsiflorum</i>	t	—	—	—
<i>Thalictrum</i> spp.	t	—	8	t
<i>Thelypteris phegopteris</i>	t	—	—	—
<i>Trientalis europaea</i>	5	—	2	t
<i>Valeriana capitata</i>	1	—	—	—
<i>Valeriana</i> spp.	t	—	—	t
<i>Veratrum viride</i>	11	—	—	—
<i>Viola langsdorfii</i>	t	—	—	—
<i>Viola</i> spp.	8	—	4	t
Total, forbs	304	10	897	63
Percent, live phytomass	(1.41)	(0.06)	(4.30)	(0.74)
Number of plots	62	3	4	9

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 26—Aboveground phytomass of grass and grasslike species on mixed forest vegetation types in southwest Alaska

Species	Vegetation type			
	1C2A Spruce- paper birch open canopy mixed forest	1C2B Aspen- spruce open canopy mixed forest	1C2C Paper birch balsam poplar, and spruce open canopy mixed forest	1C3A Spruce- paper birch woodland canopy mixed forest
	<i>Kilograms per hectare</i>			
<i>Calamagrostis canadensis</i>	68	196	80	60
<i>Calamagrostis</i> spp.	45	—	79	9
<i>Carex</i> spp.	0	—	170	14
<i>Eriophorum</i> spp.	—	—	—	1
Grass	10	—	149	70
Total, grasses	123	196	478	154
Percent, live phytomass	(0.57)	(1.09)	(2.29)	(1.81)
Number of plots	62	3	4	9

— = plant not sampled in this vegetation type.

Table 27—Aboveground phytomass of lichens on mixed forest vegetation types in southwest Alaska

Species	Vegetation type			
	1C2A Spruce- paper birch open canopy mixed forest	1C2B Aspen- spruce open canopy mixed forest	1C2C Paper birch balsam poplar, and spruce open canopy mixed forest	1C3A Spruce- paper birch woodland canopy mixed forest
	<i>Kilograms per hectare</i>			
<i>Alectoria</i> spp.	3	—	—	—
<i>Bryoria</i> spp.	t	—	—	4
<i>Cetraria islandica</i>	1	—	—	—
<i>Cetraria nivalis</i>	t	—	—	1
<i>Cetraria</i> spp.	3	5	6	7
<i>Cladina rangiferina</i>	4	2	—	60
<i>Cladina stellaris (alpestris)</i>	—	—	—	1
<i>Cladina</i> spp.	3	—	—	—
<i>Cladonia bellidiflora</i>	t	—	—	—
<i>Cladonia gracilis</i>	4	—	—	—
<i>Cladonia</i> spp.	14	—	9	1
<i>Hypogymnia</i> spp.	14	—	20	2
Lichen	15	—	6	1
<i>Lobaria</i> spp.	15	—	20	—
<i>Nephroma arcticum</i>	1	—	—	4
<i>Nephroma</i> spp.	8	10	—	2
<i>Parmelia</i> spp.	113	4	52	90
<i>Peltigera canina</i>	1	—	—	—
<i>Peltigera</i> spp.	3	2	—	3
<i>Usnea</i> spp.	78	—	—	4
Total, lichens	280	23	113	180
Percent, live phytomass	(1.30)	(0.13)	(0.54)	(2.12)
Number of plots	62	3	4	9

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 28—Aboveground phytomass of mosses and clubmosses on mixed forest vegetation types in southwest Alaska

Species	Vegetation type			
	1C2A Spruce- paper birch open canopy mixed forest	1C2B Aspen- spruce open canopy mixed forest	1C2C Paper birch balsam poplar, and spruce open canopy mixed forest	1C3A Spruce- paper birch woodland canopy mixed forest
	<i>Kilograms per hectare</i>			
<i>Aulacomnium</i> spp.	3	—	8	5
<i>Climacium dendroides</i>	1	—	—	—
<i>Dicranum scoparium</i>	t	—	—	—
<i>Dicranum</i> spp.	26	—	11	1
<i>Ditrichum</i> spp.	1	—	—	—
Hepaticae family	1	—	1	—
<i>Hylocomium</i> spp.	12	—	4	t
<i>Hylocomium splendens</i>	153	161	—	24
<i>Lycopodium annotinum</i>	5	—	—	4
<i>Lycopodium complanatum</i>	t	1	—	—
<i>Mnium</i> spp.	2	—	—	—
Moss	11	7	33	7
<i>Pleurozium schreberi</i>	35	55	10	86
<i>Polytrichum juniperium</i>	3	—	—	—
<i>Polytrichum</i> spp.	10	20	5	24
<i>Ptilium cilare</i>	t	—	—	—
<i>Ptilium crista-castrensis</i>	8	—	3	7
<i>Ptilium</i> spp.	t	—	—	—
<i>Rhytidiadelphus</i> spp.	1	—	—	—
<i>Rhytidium</i> spp.	—	—	—	1
<i>Sphagnum</i> spp.	21	56	6	83
Total, mosses	293	300	81	242
Percent, live phytomass	(1.36)	(1.67)	(0.39)	(2.85)
Number of plots	62	3	4	9

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

**Appendix D :
Phytomass on
Nonforest Dwarf
Tree and Shrub
Vegetation Types**

Table 29—Aboveground phytomass of trees on dwarf tree and shrub types in southwest Alaska

Species	Vegetation type				
	2A2A Black spruce open canopy dwarf tree	2A3A Black spruce woodland canopy dwarf tree	2B1A Willow closed canopy tall shrub	2B1B Alder closed canopy tall shrub	2B1D Alder- willow closed canopy tall shrub
	<i>Kilograms per hectare</i>				
<i>Picea glauca</i>	—	1632	524	337	4270
<i>Picea mariana</i>	6549	5130	119	—	30
Total, needleleaf	6549	6761	643	337	4300
<i>Betula papyrifera</i>	—	—	38	177	680
<i>Populus tremuloides</i>	—	—	—	—	1
Total, broadleaf	—	—	38	177	681
Total, all live trees	6549	6761	681	514	4981
Percent, live phytomass	(26.55)	(54.22)	(7.87)	(5.64)	(25.36)
Total, other plants	2367	5708	7972	8607	14660
Total, all live plants	8916	12469	8653	9121	19641
Downed trees and logs	t	t	t	t	109
Standing dead trees	—	—	—	—	114
Total, dead trees	t	t	t	t	223
Total, live and dead	8916	12469	8653	9121	19864
Number of plots	2	2	16	34	15

— = plant was not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 30—Aboveground phytomass of shrubs on dwarf tree and shrub vegetation types in southwest Alaska

Species	Vegetation type				
	2A2A Black spruce open canopy dwarf tree	2A3A Black spruce woodland canopy dwarf tree	2B1A Willow closed canopy tall shrub	2B1B Alder closed canopy tall shrub	2B1D Alder- willow closed canopy tall shrub
	<i>Kilograms per hectare</i>				
<i>Alnus crispa</i>	—	—	87	3369	842
<i>Alnus sinuata</i>	—	—	50	3161	585
<i>Alnus</i> spp.	—	—	—	—	46
<i>Alnus tenuifolia</i>	—	1412	53	218	3165
<i>Arctostaphylos alpina</i>	—	—	—	t	—
<i>Arctostaphylos rubra</i>	—	—	—	t	1
<i>Arctostaphylos</i> spp.	—	—	—	t	—
<i>Betula glandulosa</i>	—	—	70	12	—
<i>Betula nana</i>	491	544	45	10	—
<i>Chamaedaphne calyculata</i>	61	49	—	t	—
<i>Diapensia lapponica</i>	—	—	—	t	—
<i>Empetrum nigrum</i>	6	58	5	2	1
<i>Ledum groenlandicum</i>	264	267	—	2	—
<i>Ledum palustre</i> var. <i>decumbens</i>	—	—	14	3	—
<i>Linnaea borealis</i>	—	—	t	1	t
<i>Menziesia ferruginea</i>	—	—	—	45	—
<i>Myrica gale</i>	—	—	—	22	—
<i>Oplopanax horridus</i>	—	—	—	145	—
<i>Potentilla fruticosa</i>	—	—	40	—	50
<i>Ribes</i> spp.	—	—	4	4	17
<i>Ribes triste</i>	—	—	1	1	5
<i>Rosa acicularis</i>	—	—	21	—	39
<i>Rubus arcticus</i>	—	—	9	6	14
<i>Rubus chamaemorus</i>	23	25	3	2	—
<i>Rubus idaeus</i>	—	—	—	2	29
<i>Rubus pedatus</i>	—	—	1	2	—
<i>Rubus spectabilis</i>	—	—	—	46	—
<i>Rubus</i> spp.	—	—	—	—	2
<i>Rumex arcticus</i>	—	—	3	1	9
<i>Salix alaxensis</i>	—	—	456	44	1 896
<i>Salix arbusculoides</i>	—	—	541	—	404
<i>Salix artica</i>	—	—	417	25	—
<i>Salix barclayi</i>	—	—	1322	31	300

Table 30—Aboveground phytomass of shrubs on dwarf tree and shrub vegetation types in southwest Alaska (continued)

Species	Vegetation type				
	2A2A Black spruce open canopy dwarf tree	2A3A Black spruce woodland canopy dwarf tree	2B1A Willow closed canopy tall shrub	2B1B Alder closed canopy tall shrub	2B1D Alder- willow closed canopy tall shrub
	<i>Kilograms per hectare</i>				
<i>Salix bebbiana</i>	—	11	—	—	271
<i>Salix commutata</i>	—	—	280	—	—
<i>Salix glauca</i>	—	—	455	—	—
<i>Salix lanata</i>	—	—	—	—	197
<i>Salix lasiandra</i>	—	—	—	24	—
<i>Salix monticola</i>	—	—	785	—	—
<i>Salix phlebophylla</i>	—	—	—	—	73
<i>Salix planifolia</i>	—	1206	2105	t	3111
<i>Salix reticulata</i>	—	—	—	—	1
<i>Salix sitchensis</i>	—	—	167	—	—
<i>Salix</i> spp.	4	857	5	84	2095
<i>Sambucus racemosa</i>	—	—	—	131	—
<i>Sorbus</i> spp.	—	—	—	18	—
<i>Spiraea beauverdiana</i>	289	—	60	172	38
<i>Spiraea</i> spp.	—	—	—	—	4
<i>Vaccinium ovalifolium</i>	—	—	—	2	—
<i>Vaccinium oxycoccus</i>	10	12	t	—	—
<i>Vaccinium uliginosum</i>	97	627	90	63	1
<i>Vaccinium vitis-ideae</i>	2	24	2	1	t
<i>Viburnum edule</i>	—	—	5	—	67
Total, shrubs	1247	5092	7096	7649	13263
Percent, live phytomass	(13.99)	(40.84)	(82.01)	(83.86)	(67.53)
Number of plots	2	2	16	34	15

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 31—Aboveground phytomass of forbs on dwarf tree and shrub vegetation types in southwest Alaska

Species	Vegetation type				
	2A2A Black spruce open canopy dwarf tree	2A3A Black spruce woodland canopy dwarf tree	2B1A Willow closed canopy tall shrub	2B1B Alder closed canopy tall shrub	2B1D Alder- willow closed canopy tall shrub
	<i>Kilograms per hectare</i>				
<i>Aconitum delphiniifolium</i>	—	—	1	t	3
<i>Achillea</i> spp.	—	—	4	t	—
<i>Actaea rubra</i>	—	—	—	1	—
<i>Angelica lucida</i>	—	—	—	1	—
<i>Angelica</i> spp.	—	—	1	—	3
<i>Anemone richardsonii</i>	—	—	t	—	—
<i>Aruncus sylvester</i>	—	—	—	—	t
<i>Astragalus</i> spp.	—	—	t	—	—
<i>Athyrium filix-femina</i>	—	—	—	81	—
<i>Athyrium</i> spp.	—	—	—	26	—
<i>Boschniakia rossica</i>	—	—	—	t	—
<i>Cardamine pratensis</i>	—	—	—	t	t
<i>Chrysosplenium tetrandrum</i>	—	—	—	—	t
<i>Cicuta douglasii</i>	—	—	—	6	t
Compositae family	—	—	t	t	12
<i>Cornus canadensis</i>	—	—	1	t	3
<i>Cornus suecica</i>	—	—	—	1	1
Cruciferae family	—	—	—	—	2
<i>Cryptogramma</i> spp.	—	—	—	t	—
<i>Delphinium brachycentrum</i>	—	—	t	—	—
<i>Dryopteris dilatata</i>	—	—	2	384	1
<i>Dryopteris</i> spp.	—	—	34	19	17
<i>Epilobium angustifolium</i>	—	—	33	17	17
<i>Epilobium</i> spp.	—	13	t	t	t
<i>Equisetum arvense</i>	—	—	21	1	40
<i>Equisetum fluviatile</i>	77	—	—	—	—
<i>Equisetum silvaticum</i>	—	—	3	6	28
<i>Equisetum</i> spp.	—	—	6	—	1
Forb	—	5	2	t	6
<i>Galium boreale</i>	—	—	—	—	34
<i>Galium</i> spp.	—	—	4	—	2
<i>Geocaulon lividum</i>	—	—	—	t	—
<i>Geranium</i> spp.	—	—	1	1	1
<i>Gymnocarpium dryopteris</i>	—	—	5	5	5

Table 31—Aboveground phytomass of forbs on dwarf tree and shrub vegetation types in southwest Alaska (continued)

Species	Vegetation type				
	2A2A Black spruce open canopy dwarf tree	2A3A Black spruce woodland canopy dwarf tree	2B1A Willow closed canopy tall shrub	2B1B Alder closed canopy tall shrub	2B1D Alder- willow closed canopy tall shrub
	<i>Kilograms per hectare</i>				
<i>Heracleum lanatum</i>	—	—	27	4	—
<i>Heuchera glabra</i>	—	—	—	2	—
<i>Iris setosa</i>	—	—	—	t	—
<i>Listera cordata</i>	—	—	t	t	t
<i>Lupinus</i> spp.	—	—	t	—	—
<i>Mertensia</i> spp.	—	—	—	—	t
<i>Mertensia paniculata</i>	—	—	3	1	17
Mushroom	1	1	t	1	1
<i>Parnassia palustris</i>	—	—	t	—	1
<i>Petasites frigidus</i>	—	—	—	—	14
<i>Petasites hyerboreus</i>	—	13	1	—	t
<i>Polemonium acutiflorum</i>	—	—	—	—	14
<i>Polemonium</i> spp.	—	—	3	—	1
<i>Potentilla palustris</i>	651	—	115	—	54
<i>Pyrola asarifolia</i>	—	—	2	t	—
<i>Pyrola</i> spp.	3	5	3	—	t
<i>Ranunculus</i> spp.	—	—	—	t	1
<i>Romanzoffia</i> spp.	—	—	—	t	—
<i>Rumex</i> spp.	—	15	—	—	t
<i>Sanguisorba</i> spp.	—	—	16	7	12
<i>Saxifraga punctata</i>	—	—	—	1	—
<i>Sedum rosea</i>	—	—	t	1	5
<i>Sedum</i> spp.	—	—	—	—	t
<i>Senecio</i> spp.	—	—	—	t	—
<i>Sedum</i> spp.	—	—	—	—	t
<i>Stellaria crassifolia</i>	—	—	—	—	t
<i>Stellaria</i> spp.	—	—	2	1	1
<i>Streptopus amplexifolius</i>	—	—	—	4	—
<i>Streptopus streptopoides</i>	—	—	—	t	—
<i>Streptopus</i> spp.	—	2	2	1	—
<i>Thalictrum occidentale</i>	—	—	—	—	2
<i>Thalictrum sparsiflorum</i>	—	—	—	—	t

Table 31—Aboveground phytomass of forbs on dwarf tree and shrub vegetation types in southwest Alaska (continued)

Species	Vegetation type				
	2A2A Black spruce open canopy dwarf tree	2A3A Black spruce woodland canopy dwarf tree	2B1A Willow closed canopy tall shrub	2B1B Alder closed canopy tall shrub	2B1D Alder- willow closed canopy tall shrub
	<i>Kilograms per hectare</i>				
<i>Thalictrum</i> spp.	—	—	—	—	t
<i>Thelypteris phegopteris</i>	—	—	—	t	—
<i>Thelypteris</i> spp.	—	—	—	—	t
<i>Trientalis europaea</i>	—	—	3	3	5
<i>Valeriana capitata</i>	—	—	1	—	3
<i>Valeriana</i> spp.	—	—	—	—	1
<i>Valeriana sitchensis</i>	—	—	—	—	t
<i>Veratrum viride</i>	—	—	—	25	—
<i>Viola langsдорфii</i>	—	—	—	1	t
<i>Viola</i> spp.	—	—	t	2	10
Total, forbs	732	54	296	605	319
Percent, live phytomass	(8.21)	(0.43)	(3.42)	(6.63)	(1.62)
Number of plots	2	2	16	34	15

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 32—Aboveground phytomass of grass and grasslike species on dwarf tree and shrub vegetation types in southwest Alaska

Species	Vegetation type				
	2A2A Black spruce open canopy dwarf tree	2A3A Black spruce woodland canopy dwarf tree	2B1A Willow closed canopy tall shrub	2B1B Alder closed canopy tall shrub	2B1D Alder- willow closed canopy tall shrub
	<i>Kilograms per hectare</i>				
<i>Calamagrostis canadensis</i>	94	9	248	62	357
<i>Calamagrostis</i> spp.	—	—	37	73	15
<i>Carex albo-nigra</i>	51	—	—	—	—
<i>Carex</i> spp.	—	—	21	6	9
<i>Eriophorum</i> spp.	41	—	—	—	—
Grass	—	—	3	10	—
Total, grasses	186	9	309	151	381
Percent, live phytomass	(2.09)	(0.07)	(3.57)	(1.66)	(1.94)
Number of plots	2	2	16	34	15

— = plant not sampled in this vegetation type.

Table 33—Aboveground phytomass of lichens on dwarf tree and shrub vegetation types in southwest Alaska

Species	Vegetation type				
	2A2A Black spruce open canopy dwarf tree	2A3A Black spruce woodland canopy dwarf tree	2B1A Willow closed canopy tall shrub	2B1B Alder closed canopy tall shrub	2B1D Alder- willow closed canopy tall shrub
	<i>Kilograms per hectare</i>				
<i>Alectoria delicta</i>	—	—	—	—	1
<i>Cetraria</i> spp.	—	—	—	9	38
<i>Cladina rangiferina</i>	30	30	1	1	—
<i>Cladina</i> spp.	2	—	t	2	1
<i>Cladonia gracilis</i>	—	—	—	t	1
<i>Cladonia</i> spp.	—	13	—	3	10
<i>Hypogymnia</i> spp.	—	—	—	—	11
Lichen	—	—	32	47	78
<i>Lobaria</i> spp.	—	—	—	1	22
<i>Nephroma arcticum</i>	—	15	1	—	—
<i>Nephroma</i> spp.	—	—	—	t	3
<i>Parmelia</i> spp.	—	162	15	11	139
<i>Peltigera</i> spp.	—	—	1	2	1
<i>Stereocaulon</i> spp.	—	—	—	t	—
<i>Usnea</i> spp.	73	87	3	3	139
Total, lichens	105	307	53	80	444
Percent, live phytomass	(1.18)	(2.46)	(0.61)	(0.88)	(2.26)
Number of plots	2	2	16	34	15

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 34—Aboveground phytomass of mosses and clubmosses on dwarf tree and shrub vegetation types in southwest Alaska

Species	Vegetation type				
	2A2A Black spruce open canopy dwarf tree	2A3A Black spruce woodland canopy dwarf tree	2B1A Willow closed canopy tall shrub	2B1B Alder closed canopy tall shrub	2B1D Alder- willow closed canopy tall shrub
	<i>Kilograms per hectare</i>				
<i>Aulacomnium</i> spp.	—	—	2	t	1
<i>Conocephalum conicum</i>	—	—	—	3	—
<i>Dicranum</i> spp.	37	51	8	9	53
<i>Ditrichum</i> spp.	—	—	—	6	—
Hepaticae family	—	4	t	t	1
<i>Hylocomium</i> spp.	—	—	—	1	—
<i>Hylocomium splendens</i>	—	65	74	21	101
<i>Lycopodium annotinum</i>	7	5	7	10	1
<i>Mnium</i> spp.	—	—	1	1	9
Moss	—	—	44	49	56
<i>Pleurozium schreberi</i>	16	51	20	12	11
<i>Polytrichum</i> spp.	—	—	—	2	13
<i>Ptilium cilare</i>	—	—	—	t	—
<i>Ptilium crista-castrensis</i>	—	—	15	t	2
<i>Rhacomitrium</i> spp.	—	—	—	3	—
<i>Rhytidiadelphus</i> spp.	—	—	—	1	—
<i>Rhytidium</i> spp.	—	—	—	—	1
<i>Sphagnum</i> spp.	38	71	47	3	6
<i>Thuidium abietinum</i>	—	—	—	1	—
Total, mosses	98	247	218	122	255
Percent, live phytomass	(1.10)	(1.98)	(2.52)	(1.34)	(1.30)
Number of plots	2	2	16	34	15

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

**Appendix E:
Phytomass on
Nonforest Shrub
Vegetation Types**

Table 35—Aboveground phytomass of trees in open canopy tall shrub types in southwest Alaska

Species	Vegetation type				
	2B2A	2B2B	2B2C	2B2D	2B2E
	Willow open canopy tall tree	Alder open canopy tall tree	Shrub birch open canopy tall shrub	Alder- willow open canopy tall shrub	Shrub birch- willow open canopy tall shrub
	<i>Kilograms per hectare</i>				
<i>Picea mariana</i>	—	—	—	3263	—
Total, needleleaf	—	—	—	3263	—
<i>Betula papyrifera</i>	—	13	—	—	—
Total, broadleaf	—	13	—	—	—
Total, all live trees	—	13	—	3263	—
Percent, live phytomass		(0.23)		(43.13)	
Total, other plants	6737	5764	10 506	4303	2694
Total, all live plants	6737	5777	10 506	7566	2694
Downed trees and logs	t	—	—	—	—
Standing dead trees	—	—	—	2044	—
Total, dead trees	—	—	—	—	—
Total, live and dead	6737	5777	10 506	9610	2694
Number of plots	3	7	1	6	1

— = plant was not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 36—Aboveground phytomass of shrubs in open canopy tall shrub vegetation types in southwest Alaska

Species	Vegetation type				
	2B2A	2B2B	2B2C	2B2D	2B2E
	Willow open canopy tall tree	Alder open canopy tall tree	Shrub birch open canopy tall shrub	Alder-willow open canopy tall shrub	Shrub birch-willow open canopy tall shrub
	<i>Kilograms per hectare</i>				
<i>Alnus crispa</i>	—	—	—	759	—
<i>Alnus sinuata</i>	—	3178	—	443	—
<i>Alnus tenuifolia</i>	—	—	—	260	—
<i>Andromeda polifolia</i>	—	—	—	1	—
<i>Arctostaphylos rubra</i>	—	1	—	—	—
<i>Arctostaphylos uva-ursi</i>	—	t	—	1	—
<i>Artemisia</i> spp.	—	1	—	—	—
<i>Betula glandulosa</i>	—	298	6 080	—	270
<i>Betula nana</i>	73	228	2 372	248	284
<i>Cassiope stellaria</i>	—	—	—	2	—
<i>Empetrum nigrum</i>	—	27	33	62	—
<i>Kalmia polifolia</i>	—	1	—	—	—
<i>Ledum groenlandicum</i>	—	21	1 290	143	—
<i>Ledum palustre</i> var. <i>decumbens</i>	—	313	—	60	232
<i>Linnaea borealis</i>	t	t	—	—	—
<i>Loiseleuria procumbens</i>	—	—	—	4	—
<i>Luetkea pectinata</i>	—	—	—	6	—
<i>Menziesia ferruginea</i>	—	368	—	—	—
<i>Ribes</i> spp.	—	10	—	—	—
<i>Rubus arcticus</i>	2	1	—	1	—
<i>Rubus chamaemorus</i>	—	4	6	6	6
<i>Rubus pedatus</i>	—	1	—	t	—
<i>Salix alaxensis</i>	443	—	—	—	538
<i>Salix artica</i>	—	4	—	—	—
<i>Salix monticola</i>	3729	—	—	—	—
<i>Salix planifolia</i>	1720	12	—	234	—
<i>Salix</i> spp.	141	102	—	307	158
<i>Spiraea beauverdiana</i>	123	400	—	351	156

Table 36—Aboveground phytomass of shrubs in open canopy tall shrub vegetation types in southwest Alaska (continued)

	Vegetation type				
	2B2A	2B2B	2B2C	2B2D	2B2E
Species	Willow open canopy tall tree	Alder open canopy tall tree	Shrub birch open canopy tall shrub	Alder- willow open canopy tall shrub	Shrub birch- willow open canopy tall shrub
	<i>Kilograms per hectare</i>				
<i>Vaccinium oxycoccus</i>	—	—	—	1	—
<i>Vaccinium uliginosum</i>	—	81	171	746	472
<i>Vaccinium vitis-idaea</i>	—	18	51	15	38
Total, shrubs	6231	5069	10 003	3650	2154
Percent, live phytomass	(92.49)	(87.74)	(95.21)	(48.24)	(79.96)
Number of plots	3	7	1	6	1

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 37—Aboveground phytomass of forbs on open canopy tall shrub vegetation types in southwest Alaska

Species	Vegetation type				
	2B2A	2B2B	2B2C	2B2D	2B2E
	Willow open canopy tall tree	Alder open canopy tall tree	Shrub birch open canopy tall shrub	Alder- willow open canopy tall shrub	Shrub birch- willow open canopy tall shrub
Kilograms per hectare					
<i>Aconitum delphiniifolium</i>	t	1	—	—	—
<i>Anemone richardsonii</i>	t	—	—	—	—
<i>Angelica</i> spp.	1	5	—	—	—
<i>Boschniakia rossica</i>	—	t	—	—	—
<i>Chrysosplenium tetrandrum</i>	1	—	—	—	—
Compositae family	—	t	—	—	—
<i>Cornus canadensis</i>	—	1	—	—	4
<i>Cornus suecica</i>	—	—	—	8	—
<i>Dryopteris dilatata</i>	1	89	—	95	—
<i>Dryopteris</i> spp.	82	55	—	—	—
<i>Epilobium angustifolium</i>	40	11	—	22	—
<i>Epilobium latifolium</i>	—	—	—	1	—
<i>Equisetum arvense</i>	3	1	—	—	2
<i>Equisetum silvaticum</i>	—	1	18	—	—
<i>Equisetum</i> spp.	—	—	—	8	—
Forb	1	—	—	—	—
<i>Geranium erianthum</i>	t	—	—	—	—
<i>Geranium</i> spp.	3	—	—	—	—
<i>Gymnocarpium dryopteris</i>	3	—	—	2	—
Mushroom	—	—	—	t	—
<i>Petasites hyberboreus</i>	—	—	—	2	—
<i>Polemonium acutiflorum</i>	1	—	—	—	—
<i>Polygonum bistorta</i>	1	1	—	—	—
<i>Pyrola</i> spp.	—	—	—	t	—
<i>Ranunculus</i> spp.	1	—	—	—	—
<i>Rumex</i> spp.	—	—	—	3	—
<i>Sanguisorba</i> spp.	6	—	—	3	—
<i>Sedum rosea</i>	—	—	—	3	—

Table 37—Aboveground phytomass of forbs in open canopy tall shrub vegetation types in southwest Alaska (continued)

Species	Vegetation type				
	2B2A	2B2B	2B2C	2B2D	2B2E
	Willow open canopy tall tree	Alder open canopy tall tree	Shrub birch open canopy tall shrub	Alder- willow open canopy tall shrub	Shrub birch- willow open canopy tall shrub
<i>Kilograms per hectare</i>					
<i>Streptopus amplexifolius</i>	t	—	—	—	—
<i>Stellaria</i> spp.	—	t	—	—	—
<i>Thalictrum sparsiflorum</i>	t	—	—	—	—
<i>Thelypteris phegopteris</i>	—	t	—	—	—
<i>Trientalis europaea</i>	t	2	—	2	—
<i>Valeriana capitata</i>	1	—	—	—	—
<i>Valeriana sitchensis</i>	t	—	—	—	—
<i>Veratrum viride</i>	—	—	—	42	—
<i>Viola langsдорфii</i>	4	—	—	—	—
<i>Viola</i> spp.	1	—	—	—	—
Total, forbs	150	167	18	191	6
Percent, live phytomass	(2.23)	(2.89)	(0.17)	(2.52)	(0.22)
Number of plots	3	7	1	6	1

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 38—Aboveground phytomass of grass and grasslike species in open canopy tall shrub vegetation types in southwest Alaska

	Vegetation type				
	2B2B	2B2B	2B2C	2B2D	2B2E
Species	Willow open canopy tall tree	Alder open canopy tall tree	Shrub birch open canopy tall shrub	Alder-willow open canopy tall shrub	Shrub birch-willow open canopy tall shrub
	<i>Kilograms per hectare</i>				
<i>Calamagrostis canadensis</i>	314	197	—	13	124
<i>Calamagrostis</i> spp.	11	—	—	7	—
<i>Carex</i> spp.	—	2	—	7	40
Grass	—	11	—	16	—
Total, grasses	325	210	—	43	164
Percent, live phytomass	(4.82)	(3.64)		(0.57)	(6.09)
Number of plots	3	7	1	6	1

— = plant not sampled in this vegetation type.

Table 39—Aboveground phytomass of lichens in open canopy tall shrub vegetation types in southwest Alaska

Species	Vegetation type				
	2B2A	2B2B	2B2C	2B2D	2B2E
	Willow open canopy tall tree	Alder open canopy tall tree	Shrub birch open canopy tall shrub	Alder- willow open canopy tall shrub	Shrub birch- willow open canopy tall shrub
Kilograms per hectare					
<i>Cetraria cucullata</i>	—	1	—	—	—
<i>Cetraria islandica</i>	—	—	—	2	—
<i>Cetraria</i> spp.	—	1	—	—	—
<i>Cladina rangiferina</i>	—	51	111	34	—
<i>Cladina stellaris (alpestris)</i>	—	1	—	—	—
<i>Cladina</i> spp.	—	16	—	1	—
<i>Cladonia gracilis</i>	—	6	22	2	—
<i>Cladonia</i> spp.	—	1	—	5	—
Lichen	10	1	—	1	—
<i>Nephroma arcticum</i>	—	—	—	3	—
<i>Nephroma</i> spp.	—	1	25	5	—
<i>Parmelia</i> spp.	—	—	56	8	—
<i>Peltigera</i> spp.	—	1	—	1	—
<i>Stereocaulon</i> spp.	—	1	—	1	—
<i>Usnea</i> spp.	—	—	—	38	—
Total, lichens	10	81	214	101	—
Percent, live phytomass	(0.15)	(1.40)	(2.04)	(1.33)	
Number of plots	3	7	1	6	1

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 40—Aboveground phytomass of mosses and clubmosses in open canopy tall shrub vegetation types in southwest Alaska

Species	Vegetation type				
	2B2A	2B2B	2B2C	2B2D	2B2E
	Willow open canopy tall tree	Alder open canopy tall tree	Shrub birch open canopy tall shrub	Alder- willow open canopy tall shrub	Shrub birch- willow open canopy tall shrub
Kilograms per hectare					
<i>Aulacomnium</i> spp.	—	2	—	6	—
<i>Dicranum</i> spp.	—	5	—	42	7
Hepaticae family	—	—	—	t	—
<i>Hylocomium splendens</i>	—	113	—	88	36
<i>Lycopodium annotinum</i>	—	36	—	12	—
<i>Mnium</i> spp.	1	—	—	—	—
Moss	16	10	116	3	4
<i>Pleurozium schreberi</i>	—	45	—	24	253
<i>Polytrichum juniperium</i>	—	2	12	—	—
<i>Polytrichum</i> spp.	1	4	—	23	59
<i>Ptilium crista-castrensis</i>	—	8	—	14	11
<i>Ptilium</i> spp.	—	1	—	—	—
<i>Sphagnum</i> spp.	4	10	143	108	—
Total, mosses	22	236	271	320	370
Percent, live phytomass	(0.33)	(4.09)	(2.58)	(4.23)	(13.73)
Number of plots	3	7	1	6	1

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 41—Aboveground phytomass of trees on tall shrub and low shrub vegetation types in southwest Alaska

Species	Vegetation type				
	2B2F Shrub swamp open canopy tall shrub	2C1A Shrub birch closed canopy low shrub	2C1B Low willow closed canopy low shrub	2C1C Shrub birch- willow closed canopy low shrub	2C1D Ericaceous shrub closed canopy low shrub
	<i>Kilograms per hectare</i>				
<i>Picea glauca</i>	30	1320	651	27	1686
<i>Picea mariana</i>	—	—	116	—	928
Total, needleleaf	30	1320	767	27	2614
<i>Betula papyrifera</i>	2016	—	537	—	42
Total, broadleaf	2016	—	537	—	42
Total, all live trees	2046	1320	1304	27	2656
Percent, live phytomass	(32.70)	(18.33)	(19.44)	(0.41)	(57.55)
Total, other plants	4210	5883	5405	6538	1959
Total, all live plants	6256	7203	6709	6565	4615
Downed trees and logs	—	t	—	t	t
Standing dead trees	—	—	—	—	—
Total, dead trees	—	t	—	t	t
Total, live and dead	6256	7203	6709	6565	4615
Number of plots	2	6	4	3	16

— = plant was not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 42—Aboveground phytomass of shrubs on tall shrub and low shrub vegetation types in southwest Alaska

Species	Vegetation type				
	2B2F	2C1A	2C1B	2C1C	2C1D
	Shrub swamp open canopy tall shrub	Shrub birch closed canopy low shrub	Low willow closed canopy low shrub	Shrub birch-willow closed canopy low shrub	Ericaceous shrub closed canopy low shrub
	<i>Kilograms per hectare</i>				
<i>Alnus crispa</i>	—	—	320	—	—
<i>Alnus sinuata</i>	—	311	—	—	10
<i>Andromeda polifolia</i>	—	—	—	—	12
<i>Arctostaphylos rubra</i>	—	13	—	—	8
<i>Artemisia arctica</i>	—	—	—	—	t
<i>Artemisia</i> spp.	—	t	—	—	—
<i>Betula glandulosa</i>	—	2598	—	1239	49
<i>Betula nana</i>	—	212	523	251	439
<i>Chamaedaphne calyculata</i>	—	—	32	160	20
<i>Diapensia lapponica</i>	—	—	—	—	2
<i>Empetrum nigrum</i>	—	37	7	18	35
<i>Ledum groenlandicum</i>	—	—	—	—	—
<i>Ledum palustre</i> var. <i>decumbens</i>	—	321	157	121	306
<i>Linnaea borealis</i>	—	—	—	—	t
<i>Myrica gale</i>	—	—	—	324	—
<i>Phyllodoce coerulea</i>	—	—	—	—	t
<i>Rosa acicularis</i>	—	—	3	—	—
<i>Rubus arcticus</i>	2	—	30	—	t
<i>Rubus chamaemorus</i>	—	1	5	3	3
<i>Salix artica</i>	—	1	—	—	2
<i>Salix barclayi</i>	—	152	—	—	—
<i>Salix fuscescens</i>	52	—	—	—	7
<i>Salix glauca</i>	—	663	—	—	—
<i>Salix myrtilifolia</i>	2012	—	—	13	—
<i>Salix planifolia</i>	—	—	1230	1158	—
<i>Salix setchelliana</i>	—	—	—	—	3
<i>Salix</i> spp.	—	—	1743	—	8
<i>Spiraea beauverdiana</i>	—	5	81	55	89

Table 42—Aboveground phytomass of shrubs on tall shrub and low shrub vegetation types in southwest Alaska (continued)

	Vegetation type				
	2B2F Shrub swamp open canopy tall shrub	2C1A Shrub birch closed canopy low shrub	2C1B Low willow closed canopy low shrub	2C1C Shrub birch- willow closed canopy low shrub	2C1D Ericaceous shrub closed canopy low shrub
	<i>Kilograms per hectare</i>				
<i>Vaccinium ovalifolium</i>	—	129	—	—	—
<i>Vaccinium oxycoccus</i>	—	—	3	15	t
<i>Vaccinium uliginosum</i>	—	778	536	2245	390
<i>Vaccinium vitis-idaea</i>	—	15	24	11	16
Total, shrubs	2066	5236	4694	5613	1399
Percent, live phytomass	(33.02)	(72.69)	(69.97)	(85.50)	(30.31)
Number of plots	2	6	4	3	16

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 43—Aboveground phytomass of forbs on tall shrub and low shrub vegetation types in southwest Alaska

Species	Vegetation type				
	2B2F	2C1A	2C1B	2C1C	2C1D
	Shrub swamp open canopy tall shrub	Shrub birch closed canopy low shrub	Low willow closed canopy low shrub	Shrub birch-willow closed canopy low shrub	Ericaceous shrub closed canopy low shrub
	<i>Kilograms per hectare</i>				
<i>Athyrium filix-femina</i>	—	—	—	—	t
<i>Cerastium</i> spp.	—	—	1	—	—
<i>Cornus canadensis</i>	—	6	—	—	t
<i>Cornus suecica</i>	—	4	—	—	2
<i>Drosera rotundifolia</i>	17	—	—	—	—
<i>Dryopteris dilatata</i>	—	—	—	—	7
<i>Dryopteris</i> spp.	—	—	—	—	t
<i>Epilobium angustifolium</i>	—	11	64	3	t
<i>Epilobium</i> spp.	—	—	—	—	—
<i>Equisetum arvense</i>	59	—	1	1	t
<i>Equisetum silvaticum</i>	—	—	—	—	—
<i>Equisetum scirpoides</i>	—	—	—	3	—
<i>Equisetum</i> spp.	—	—	—	7	—
Forb	—	—	11	—	—
<i>Galium boreale</i>	—	—	27	—	—
<i>Geranium</i> spp.	—	2	—	—	—
<i>Gymnocarpium dryopteris</i>	—	1	—	—	—
<i>Iris setosa</i>	—	—	80	—	—
Mushroom	1	t	—	1	t
<i>Parnassia palustris</i>	9	—	—	—	—
<i>Petasites hyberboreus</i>	—	—	—	—	t
<i>Polemonium</i> spp.	—	—	5	—	—
<i>Polygonum</i> spp.	—	—	—	—	—
<i>Potentilla palustris</i>	583	—	125	474	—
<i>Pyrola secunda</i>	—	—	—	—	t
<i>Ranunculus lapponicus</i>	—	—	2	—	—
<i>Rumex</i> spp.	—	—	2	—	—
<i>Sanguisorba</i> spp.	—	—	—	—	1
<i>Sedum rosea</i>	—	—	—	—	t
<i>Trientalis europaea</i>	2	1	8	—	1
<i>Viola</i> spp.	2	—	1	—	—
Total, forbs	673	25	327	489	11
Percent, live phytomass	(10.76)	(0.35)	(4.87)	(7.45)	(0.24)
Number of plots	2	6	4	3	17

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 44—Aboveground phytomass of grass and grasslike species on tall shrub and low shrub vegetation types in southwest Alaska

	Vegetation type				
	2B2F Shrub swamp open canopy tall shrub	2C1A Shrub birch closed canopy low shrub	2C1B Low willow closed canopy low shrub	2C1C Shrub birch- willow closed canopy low shrub	2C1D Ericaceous shrub closed canopy low shrub
	<i>Kilograms per hectare</i>				
<i>Calamagrostis canadensis</i>	133	—	—	—	1
<i>Calamagrostis</i> spp.	—	—	—	—	2
<i>Carex</i> spp.	—	22	—	10	26
<i>Eriophorum</i> spp.	—	—	—	—	12
Grass	1085	3	140	93	1
Total, grasses	1218	25	140	103	42
Percent, live phytomass	(19.47)	(0.35)	(2.09)	(1.57)	(0.91)
Number of plots	2	6	4	3	16

— = plant not sampled in this vegetation type.

Table 45—Aboveground phytomass of lichens on tall shrub and low shrub vegetation types in southwest Alaska

	Vegetation type				
	2B2F Shrub swamp open canopy tall shrub	2C1A Shrub birch closed canopy low shrub	2C1B Low willow closed canopy low shrub	2C1C Shrub birch- willow closed canopy low shrub	2C1D Ericaceous shrub closed canopy low shrub
	<i>Kilograms per hectare</i>				
<i>Cetraria cucullata</i>	—	—	—	—	8
<i>Cetraria islandica</i>	—	—	—	—	3
<i>Cetraria nivalis</i>	—	—	—	—	5
<i>Cetraria</i> spp.	—	—	7	—	4
<i>Cladina rangiferina</i>	—	381	2	5	148
<i>Cladina stellaris (alpestris)</i>	—	—	—	—	12
<i>Cladonia gracilis</i>	—	15	1	—	9
<i>Cladonia</i> spp.	—	20	6	1	7
<i>Hypogymnia</i> spp.	—	—	—	—	5
Lichen	—	—	—	—	8
<i>Lobaria</i> spp.	—	—	—	—	t
<i>Nephroma</i> spp.	5	4	2	—	8
<i>Parmelia</i> spp.	—	17	28	—	24
<i>Peltigera</i> spp.	—	4	16	—	5
<i>Stereocaulon</i> spp.	—	6	—	—	1
<i>Stereocaulon paschale</i>	—	—	—	—	1
<i>Usnea</i> spp.	—	15	—	—	9
Total, lichens	5	462	62	6	257
Percent, live phytomass	(0.08)	(6.41)	(0.92)	(0.09)	(5.57)
Number of plots	2	6	4	3	16

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 46—Aboveground phytomass of mosses and clubmosses on tall shrub and low shrub vegetation types in southwest Alaska

Species	Vegetation type				
	2B2F Shrub swamp open canopy tall shrub	2C1A Shrub birch closed canopy low shrub	2C1B Low willow closed canopy low shrub	2C1C Shrub birch- willow closed canopy low shrub	2C1D Ericaceous shrub closed canopy low shrub
	<i>Kilograms per hectare</i>				
<i>Aulacomnium</i> spp.	30	—	—	—	17
<i>Dicranum</i> spp.	—	13	—	41	12
Hepaticae family	2	4	1	4	t
<i>Hylocomium splendens</i>	—	6	—	—	85
<i>Lycopodium annotinum</i>	—	1	—	—	1
<i>Lycopodium complanatum</i>	—	7	—	—	—
<i>Mnium</i> spp.	37	—	19	—	—
Moss	—	—	3	13	2
<i>Pleurozium schreberi</i>	20	71	105	93	28
<i>Polytrichum</i> spp.	41	5	16	—	17
<i>Ptilium cilare</i>	—	—	—	54	—
<i>Ptilium crista-castrensis</i>	—	8	—	—	4
<i>Rhacomitrium</i> spp.	—	2	—	—	—
<i>Sphagnum</i> spp.	119	17	38	122	85
Total, mosses	249	135	182	327	250
Percent, live phytomass	(3.98)	(1.87)	(2.71)	(4.98)	(5.42)
Number of plots	2	6	4	3	16

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 47—Aboveground phytomass of trees on open canopy low shrub types in southwest Alaska

Species	Vegetation type				
	2C2A Mixed shrub- sedge tussock tundra open low shrub	2C2C Mesic shrub birch- ericaceous open low shrub	2C2D Shrub birch- ericaceous bog open low shrub	2C2E Ericaceous bog open low shrub	2C2F Shrub birch- willow open low shrub
	<i>Kilograms per hectare</i>				
<i>Picea glauca</i>	—	219	—	—	—
<i>Picea mariana</i>	—	754	2140	—	—
Total, needleleaf	—	973	2140	—	—
Total, all live trees	—	973	2140	—	—
Percent, live phytomass		(30.36)	(54.10)		
Total, other plants	1059	2232	1816	868	745
Total, all live plants	1059	3205	3956	868	745
Downed trees and logs	—	—	—	—	—
Standing dead trees	—	—	—	—	—
Total, dead trees	—	—	—	—	—
Total, live and dead	1059	3205	3956	868	745
Number of plots	10	18	3	4	2

— = plant was not sampled in this vegetation type.

Table 48—Aboveground phytomass of shrubs on open canopy low shrub vegetation types in southwest Alaska

Species	Vegetation type				
	2C2A Mixed shrub- sedge tussock tundra open low shrub	2C2C Mesic shrub birch- ericaceous open low shrub	2C2D Shrub birch- ericaceous bog open low shrub	2C2E Ericaceous bog open low shrub	2C2F Shrub birch- willow open low shrub
	<i>Kilograms per hectare</i>				
<i>Alnus crispa</i>	—	15	4	—	—
<i>Alnus</i> spp.	—	16	—	—	—
<i>Andromeda polifolia</i>	10	7	—	1	—
<i>Arctostaphylos alpina</i>	5	5	—	—	—
<i>Arctostaphylos rubra</i>	9	3	11	—	—
<i>Betula glandulosa</i>	—	6	—	—	119
<i>Betula nana</i>	138	652	248	70	—
<i>Cassiope stelleriana</i>	—	—	—	—	17
<i>Cassiope tetragona</i>	—	—	—	—	5
<i>Chamaedaphne calyculata</i>	—	t	6	—	—
<i>Empetrum nigrum</i>	4	30	26	14	11
<i>Ledum groenlandicum</i>	—	—	—	37	—
<i>Ledum palustre</i> var. <i>decumbens</i>	100	336	344	80	85
<i>Ledum</i> spp.	—	5	—	—	—
<i>Myrica gale</i>	—	—	—	98	—
<i>Potentilla fruticosa</i>	—	—	—	—	75
<i>Rubus arcticus</i>	1	1	—	1	—
<i>Rubus chamaemorus</i>	4	13	47	1	—
<i>Salix artica</i>	7	—	—	—	—
<i>Salix fuscescens</i>	12	—	—	—	—
<i>Salix glauca</i>	—	—	—	—	60
<i>Salix planifolia</i>	3	154	—	—	113
<i>Salix reticulata</i>	—	1	—	—	33
<i>Salix rotundifolia</i>	t	—	—	—	—
<i>Salix</i> spp.	—	—	—	17	15
<i>Spiraea beauverdiana</i>	3	198	—	—	—
<i>Vaccinium oxycoccus</i>	t	t	5	10	—
<i>Vaccinium uliginosum</i>	67	138	483	—	58
<i>Vaccinium vitis-idaea</i>	3	23	37	5	2
Total, shrubs	366	1603	1211	334	593
Percent, live phytomass	(34.56)	(50.02)	(30.61)	(38.48)	(79.60)
Number of plots	2	6	4	3	17

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 49—Aboveground phytomass of forbs on open canopy low shrub vegetation types in southwest Alaska

	Vegetation type				
	2C2A Mixed shrub- sedge tussock tundra open low shrub	2C2C Mesic shrub birch- ericaceous open low shrub	2C2D Shrub birch- ericaceous bog open low shrub	2C2E Ericaceous bog open low shrub	2C2F Shrub birch- willow open low shrub
	<i>Kilograms per hectare</i>				
<i>Anemone</i> spp.	—	—	—	—	1
<i>Cornus canadensis</i>	—	3	—	—	—
<i>Cornus suecica</i>	—	1	—	—	—
<i>Dryopteris dilatata</i>	—	11	—	—	—
<i>Epilobium angustifolium</i>	1	3	—	—	2
<i>Epilobium</i> spp.	—	—	—	—	1
<i>Equisetum silvaticum</i>	—	2	—	—	—
<i>Gymnocarpium dryopteris</i>	—	1	—	—	—
Mushroom	t	t	—	—	—
<i>Pedicularis</i> spp.	t	—	—	2	—
<i>Petasites hyberboreus</i>	1	—	—	—	—
<i>Polemonium</i> spp.	t	—	—	—	—
<i>Pyrola secunda</i>	—	t	—	—	—
<i>Trientalis europaea</i>	—	1	—	—	—
Total, forbs	2	22	—	2	4
Percent, live phytomass	(0.19)	(0.69)		(0.23)	(0.54)
Number of plots	2	6	4	3	17

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 50—Aboveground phytomass of grass and grasslike species on open canopy low shrub vegetation types in southwest Alaska

	Vegetation type				
	2C2A Mixed shrub- sedge tussock tundra open low shrub	2C2C Mesic shrub birch- ericaceous open low shrub	2C2D Shrub birch- ericaceous bog open low shrub	2C2E Ericaceous bog open low shrub	2C2F Shrub birch- willow open low shrub
Species					
	<i>Kilograms per hectare</i>				
<i>Calamagrostis canadensis</i>	20	10	2	—	—
<i>Calamagrostis</i> spp.	—	20	—	—	—
<i>Carex</i> spp.	69	42	22	82	19
<i>Eriophorum</i> spp.	91	6	21	10	—
Grass	—	—	—	1	3
<i>Poa</i> spp.	—	1	—	—	—
Total, grasses	180	79	45	93	22
Percent, live phytomass	(0.17)	(2.46)	(1.14)	(10.71)	(2.95)
Number of plots	2	6	4	3	17

— = plant not sampled in this vegetation type.

Table 51—Aboveground phytomass of lichens on open canopy low shrub vegetation types in southwest Alaska

Species	Vegetation type				
	2C2A Mixed shrub- sedge tussock tundra open low shrub	2C2C Mesic shrub birch- ericaceous open low shrub	2C2D Shrub birch- ericaceous bog open low shrub	2C2E Ericaceous bog open low shrub	2C2F Shrub birch- willow open low shrub
	<i>Kilograms per hectare</i>				
<i>Cetraria cucullata</i>	30	16	32	7	—
<i>Cetraria islandica</i>	3	2	—	5	—
<i>Cetraria nivalis</i>	2	2	—	—	—
<i>Cetraria</i> spp.	16	3	3	—	—
<i>Cladina mitis</i>	—	2	—	—	—
<i>Cladina rangiferina</i>	149	135	304	—	63
<i>Cladina stellaris (alpestris)</i>	3	32	—	—	—
<i>Cladina</i> spp.	31	76	5	70	—
<i>Cladonia digitata</i>	4	—	—	—	—
<i>Cladonia gracilis</i>	t	6	—	—	—
<i>Cladonia</i> spp.	4	11	2	1	16
Lichen	11	1	16	—	13
<i>Nephroma</i> spp.	1	4	—	—	—
<i>Parmelia</i> spp.	—	1	3	—	—
<i>Peltigera</i> spp.	—	t	—	—	5
<i>Stereocaulon</i> spp.	1	2	—	1	15
<i>Stereocaulon paschale</i>	—	3	—	—	—
<i>Thamnolia subuliformis</i>	7	—	—	2	—
<i>Usnea</i> spp.	—	3	14	—	—
Total, lichens	261	299	379	86	111
Percent, live phytomass	(24.65)	(9.33)	(9.58)	(9.91)	(14.9)
Number of plots	2	6	4	3	17

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 52—Aboveground phytomass of mosses and clubmosses on open canopy low shrub vegetation types in southwest Alaska

Species	Vegetation type				
	2C2A Mixed shrub- sedge tussock tundra open low shrub	2C2C Mesic shrub birch- ericaceous open low shrub	2C2D Shrub birch- ericaceous bog open low shrub	2C2E Ericaceous bog open low shrub	2C2F Shrub birch- willow open low shrub
	<i>Kilograms per hectare</i>				
<i>Aulacomnium</i> spp.	3	1	—	7	—
<i>Dicranum</i> spp.	25	36	—	4	—
Hepaticae family	—	t	—	1	—
<i>Hylocomium</i> spp.	—	1	—	—	—
<i>Hylocomium splendens</i>	3	40	—	—	4
<i>Lycopodium annotinum</i>	—	t	—	—	2
<i>Lycopodium clavatum</i>	—	—	—	—	1
<i>Lycopodium complanatum</i>	—	t	—	—	—
<i>Lycopodium</i> spp.	—	t	—	—	—
Moss	17	2	—	2	10
<i>Pleurozium schreberi</i>	9	33	—	37	—
<i>Polytrichum juniperium</i>	—	3	—	—	—
<i>Polytrichum</i> spp.	19	15	—	2	—
<i>Ptilium crista-castrensis</i>	—	18	—	12	—
<i>Rhacomitrium</i> spp.	1	—	—	—	—
<i>Sphagnum</i> spp.	172	81	181	288	—
Total, mosses	249	230	181	353	17
Percent, live phytomass	(23.51)	(7.18)	(4.58)	(40.67)	(2.28)
Number of plots	2	6	4	3	17

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 53—Aboveground phytomass of trees on open canopy low and dwarf shrub types in southwest Alaska

	Vegetation type				
	2C2G	2C2J Sweetgale- graminoid bog open low shrub	2C2L Low alder open canopy low shrub	2D1C Dryas lichen tundra dwarf shrub	2D2A Bearberry tundra- ericaceous dwarf shrub
Species					
	<i>Kilograms per hectare</i>				
<i>Picea glauca</i>	18	—	—	—	—
<i>Picea mariana</i>	—	482	—	—	—
Total, needleleaf	18	482	—	—	—
Total, all live trees	18	482	—	—	—
Percent, live phytomass	(0.95)	(25.84)			
Total, other plants	1883	1383	1875	750	774
Total, all live plants	1901	1865	1875	750	774
Downed trees and logs	—	—	—	—	—
Standing dead trees	—	—	—	—	—
Total, dead trees	—	—	—	—	—
Total, live and dead	1901	1865	1875	750	774
Number of plots	6	10	3	2	1

— = plant was not sampled in this vegetation type.

Table 54—Aboveground phytomass of shrubs on open canopy low and dwarf shrub vegetation types in southwest Alaska

Species	Vegetation type				
	2C2G	2C2J Sweetgale- graminoid bog open low shrub	2C2L Low alder open canopy low shrub	2D1C Dryas lichen tundra dwarf shrub	2D2A Bearberry tundra- ericaceous dwarf shrub
	<i>Kilograms per hectare</i>				
<i>Alnus crispa</i>	—	—	119	—	—
<i>Alnus sinuata</i>	—	—	36	—	—
<i>Alnus</i> spp.	—	—	t	—	—
<i>Andromeda polifolia</i>	—	18	—	—	—
<i>Arctostaphylos alpina</i>	—	—	—	—	65
<i>Arctostaphylos rubra</i>	—	—	14	—	—
<i>Arctostaphylos uva-ursi</i>	—	—	5	—	—
<i>Artemisia arctica</i>	2	—	—	—	—
<i>Betula glandulosa</i>	—	18	—	—	27
<i>Betula nana</i>	20	186	68	50	—
<i>Cassiope tetragona</i>	—	—	1	—	—
<i>Chamaedaphne calyculata</i>	—	2	—	—	—
<i>Diapensia lapponica</i>	—	—	6	1	5
<i>Dryas octopetala</i>	—	—	—	—	1
<i>Dryas</i> spp.	—	—	—	68	—
<i>Empetrum nigrum</i>	18	15	2	—	5
<i>Kalmia polifolia</i>	—	28	—	—	—
<i>Ledum palustre</i> var. <i>decumbens</i>	—	58	11	—	6
<i>Luetkea pectinata</i>	2	—	—	—	—
<i>Myrica gale</i>	—	325	—	—	—
<i>Potentilla fruticosa</i>	—	56	—	—	—
<i>Rubus arcticus</i>	8	t	—	—	—
<i>Rubus chamaemorus</i>	—	2	4	—	—
<i>Rubus pedatus</i>	—	—	3	—	—
<i>Salix artica</i>	—	—	2	—	—
<i>Salix myrtilifolia</i>	169	—	44	—	—
<i>Salix phlebophylla</i>	—	—	—	11	—
<i>Salix planifolia</i>	407	—	—	—	—
<i>Salix polaris</i>	4	—	—	—	—
<i>Salix</i> spp.	121	3	—	—	—
<i>Spiraea beauverdiana</i>	274	16	598	—	—

Table 54—Aboveground phytomass of shrubs on open canopy low and dwarf shrub vegetation types in southwest Alaska (continued)

	Vegetation type				
	2C2G	2C2J	2C2L	2D1C	2D2A
Species	Willow open canopy low shrub	Sweetgale-graminoid bog open low shrub	Low alder open canopy low shrub	Dryas lichen tundra dwarf shrub	Bearberry tundra-ericaceous dwarf shrub
	<i>Kilograms per hectare</i>				
<i>Vaccinium oxycoccus</i>	—	4	—	—	—
<i>Vaccinium uliginosum</i>	39	124	183	—	105
<i>Vaccinium vitis-idaea</i>	1	3	19	—	2
Total, shrubs	1065	858	1115	130	216
Percent, live phytomass	(56.02)	(46.01)	(59.47)	(17.33)	(27.91)
Number of plots	6	10	3	2	1

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 55—Aboveground phytomass of forbs on open canopy low and dwarf shrub vegetation types in southwest Alaska

Species	Vegetation type				
	2C2G	2C2J Sweetgale- graminoid bog	2C2L Low alder open canopy	2D1C Dryas lichen tundra dwarf shrub	2D2A Bearberry tundra- ericaceous dwarf shrub
	<i>Kilograms per hectare</i>				
<i>Aconitum delphiniifolium</i>	1	—	—	—	—
<i>Anemone narcissiflora</i>	t	—	3	—	—
<i>Anemone</i> spp.	—	—	—	3	—
<i>Angelica lucida</i>	1	—	—	—	—
<i>Campanula lasiocarpa</i>	—	—	—	t	—
<i>Cornus canadensis</i>	3	—	—	—	—
<i>Dodecatheon</i> spp.	t	—	—	—	—
<i>Draba aurea</i>	—	—	5	—	—
<i>Drosera rotundifolia</i>	—	1	—	—	—
<i>Drosera</i> spp.	—	t	—	—	—
<i>Dryopteris dilatata</i>	13	—	177	—	—
<i>Epilobium angustifolium</i>	23	—	—	—	—
<i>Equisetum arvense</i>	t	1	—	—	—
<i>Equisetum fluviatile</i>	—	1	—	—	—
<i>Equisetum</i> spp.	2	1	—	—	—
<i>Equisetum variegatum</i>	—	1	—	—	—
<i>Erigeron</i> spp.	—	—	—	5	—
Forb	t	—	2	5	—
<i>Galium trifidum</i>	t	—	—	—	—
<i>Geocaulon lividum</i>	—	—	2	—	—
<i>Gymnocarpium dryopteris</i>	2	—	—	—	—
<i>Lupinus</i> spp.	4	—	—	—	—
<i>Menyanthes trifoliata</i>	—	6	—	—	—
Mushroom	—	—	t	1	—
<i>Oxytropis</i> spp.	—	—	—	1	1
<i>Parnassia palustris</i>	—	t	—	—	—
<i>Pedicularis</i> spp.	—	1	t	—	—
<i>Platanthera hyberborea</i>	—	—	—	—	—
<i>Platanthera</i> spp.	2	1	—	—	—
<i>Polemonium</i> spp.	1	—	—	—	—
<i>Potentilla palustris</i>	40	1	—	—	—
<i>Pyrola secunda</i>	1	—	—	—	—

Table 55—Aboveground phytomass of forbs on open canopy low and dwarf shrub vegetation types in southwest Alaska (continued)

Species	Vegetation type				
	2C2G	2C2J	2C2L	2D1C	2D2A
	Willow open canopy low shrub	Sweetgale-graminoid bog open low shrub	Low alder open canopy low shrub	Dryas lichen tundra dwarf shrub	Bearberry tundra-ericaceous dwarf shrub
	<i>Kilograms per hectare</i>				
<i>Ranunculus</i> spp.	1	—	—	1	—
<i>Sanguisorba</i> spp.	5	—	—	—	—
<i>Saxifraga bronchialis</i>	74	—	—	—	—
<i>Sedum rosea</i>	2	—	—	—	—
<i>Stellaria</i> spp.	t	—	—	—	—
<i>Trientalis europaea</i>	2	1	t	—	—
<i>Valeriana capitata</i>	3	—	—	—	—
<i>Veratrum viride</i>	13	—	2	—	—
<i>Viola</i> spp.	1	—	—	—	—
Total, forbs	194	15	191	16	1
Percent, live phytomass	(10.21)	(0.80)	(10.19)	(2.13)	(0.13)
Number of plots	6	10	3	2	1

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 56—Aboveground phytomass of grass and grasslike species on open canopy low and dwarf shrub vegetation types in southwest Alaska

	Vegetation type				
	2C2G	2C2J	2C2L	2D1C	2D2A
Species	Willow open canopy low shrub	Sweetgale-graminoid bog open low shrub	Low alder open canopy low shrub	Dryas lichen tundra dwarf shrub	Bearberry tundra-ericaceous dwarf shrub
	Kilograms per hectare				
<i>Calamagrostis canadensis</i>	—	2	1	—	—
<i>Calamagrostis</i> spp.	110	2	—	—	—
<i>Carex</i> spp.	148	186	1	55	3
<i>Eriophorum</i> spp.	2	9	—	—	—
Grass	5	2	122	—	—
<i>Juncus</i> spp.	—	20	—	—	—
Total, grasses	265	221	124	55	3
Percent, live phytomass	(13.94)	(11.85)	(6.61)	(7.33)	(0.39)
Number of plots	6	10	3	2	1

— = plant not sampled in this vegetation type.

Table 57—Aboveground phytomass of lichens on open canopy low and dwarf shrub vegetation types in southwest Alaska

Species	Vegetation type				
	2C2G	2C2J Sweetgale- graminoid bog	2C2L Low alder open canopy	2D1C Dryas lichen tundra dwarf shrub	2D2A Bearberry tundra- ericaceous dwarf shrub
	<i>Kilograms per hectare</i>				
<i>Cetraria cucullata</i>	—	—	—	24	14
<i>Cetraria islandica</i>	33	3	—	—	56
<i>Cetraria nivalis</i>	—	—	9	42	84
<i>Cetraria</i> spp.	1	—	—	—	—
<i>Cladina mitis</i>	—	—	7	—	—
<i>Cladina rangiferina</i>	33	1	12	147	74
<i>Cladina stellaris (alpestris)</i>	—	—	22	81	119
<i>Cladina</i> spp.	3	11	10	166	—
<i>Cladonia</i> spp.	4	1	—	—	—
Lichen	—	1	7	45	90
<i>Masonhalea richardsonii</i>	—	1	—	—	—
<i>Nephroma</i> spp.	4	—	2	—	5
<i>Stereocaulon</i> spp.	—	—	2	—	—
<i>Stereocaulon paschale</i>	—	—	—	22	105
<i>Thamnolia</i> spp.	—	—	2	—	—
<i>Thamnolia subuliformis</i>	—	—	—	7	—
Total, lichens	78	18	73	534	547
Percent, live phytomass	(4.10)	(0.97)	(3.89)	(71.20)	(70.67)
Number of plots	6	10	3	2	1

— = plant not sampled in this vegetation type.

Table 58—Aboveground phytomass of mosses and clubmosses on open canopy low and dwarf shrub vegetation types in southwest Alaska

Species	Vegetation type				
	2C2G	2C2J	2C2L	2D1C	2D2A
	Willow open canopy low shrub	Sweetgale-graminoid bog open low shrub	Low alder open canopy low shrub	Dryas lichen tundra dwarf shrub	Bearberry tundra-ericaceous dwarf shrub
	<i>Kilograms per hectare</i>				
<i>Aulacomnium</i> spp.	4	2	—	—	—
<i>Dicranum</i> spp.	14	1	—	15	7
<i>Hylocomium splendens</i>	50	6	271	—	—
<i>Lycopodium annotinum</i>	3	—	2	—	—
<i>Lycopodium complanatum</i>	t	—	1	—	—
<i>Lycopodium selago</i>	—	—	1	1	—
<i>Lycopodium</i> spp.	—	—	2	—	—
Moss	67	15	7	—	—
<i>Pleurozium schreberi</i>	12	11	4	—	—
<i>Polytrichum</i> spp.	22	1	4	—	—
<i>Ptilium cilare</i>	—	7	—	—	—
<i>Ptilium crista-castrensis</i>	5	—	11	—	—
<i>Rhacomitrium lanuginosum</i>	1	—	7	—	—
<i>Sphagnum</i> spp.	103	228	63	—	—
Total, mosses	281	271	373	16	7
Percent, live phytomass	(14.78)	(14.53)	(19.84)	(2.13)	(0.90)
Number of plots	6	10	3	2	1

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 59—Aboveground phytomass of trees on dwarf shrub types in southwest Alaska

Species	Vegetation type				
	2D2B Vaccinium tundra- ericaceous dwarf shrub	2D2C Crowberry tundra- ericaceous dwarf shrub	2D2D Mountain heath tundra- ericaceous dwarf shrub	2D2E Cassiope tundra- ericaceous dwarf shrub	2D3A Willow tundra- ericaceous dwarf shrub
	<i>Kilograms per hectare</i>				
<i>Picea glauca</i>	2	46	9	18	—
Total, needleleaf	2	46	9	18	—
<i>Betula papyrifera</i>	—	—	1	—	—
Total, broadleaf	2	46	1	18	—
Total, all live trees	2	46	10	18	—
Percent, live phytomass	(0.14)	(4.67)	(0.93)	(3.78)	
Total, other plants	1431	938	1067	458	502
Total, all live plants	1433	984	1077	476	502
Downed trees and logs	—	—	—	—	—
Standing dead trees	—	—	—	—	—
Total, dead trees	—	—	—	—	—
Total, live and dead	2	46	9	18	—
Number of plots	4	13	22	5	2

— = plant was not sampled in this vegetation type.

Table 60—Aboveground phytomass of shrubs on dwarf shrub vegetation types in southwest Alaska

Species	Vegetation type				
	2D2B	2D2C	2D2D	2D2E	2D3A
	Vaccinium tundra- ericaceous dwarf shrub	Crowberry tundra- ericaceous dwarf shrub	Mountain heath tundra- ericaceous dwarf shrub	Cassiope tundra- ericaceous dwarf shrub	Willow tundra- ericaceous dwarf shrub
	<i>Kilograms per hectare</i>				
<i>Alnus crispa</i>	325	58	2	—	—
<i>Alnus sinuata</i>	3	11	26	4	—
<i>Anemone parviflora</i>	—	—	—	—	2
<i>Arctostaphylos alpina</i>	—	2	8	—	—
<i>Arctostaphylos rubra</i>	8	7	11	10	21
<i>Arctostaphylos uva-ursi</i>	—	2	—	—	—
<i>Artemisia arctica</i>	1	—	t	1	—
<i>Artemisia globularia</i>	—	—	t	—	—
<i>Artemisia</i> spp.	1	1	—	t	3
<i>Betula glandulosa</i>	—	16	—	—	—
<i>Betula nana</i>	110	48	82	—	—
<i>Cassiope stellariana</i>	1	—	—	52	—
<i>Cassiope tetragona</i>	—	—	—	t	7
<i>Diapensia lapponica</i>	3	2	7	t	—
<i>Dryas drummondii</i>	—	—	t	—	—
<i>Dryas octopetala</i>	—	1	3	2	77
<i>Empetrum nigrum</i>	22	66	25	19	—
<i>Ledum groenlandicum</i>	—	—	3	—	—
<i>Ledum palustre</i> var. <i>decumbens</i>	2	123	47	1	—
<i>Linnaea borealis</i>	3	t	—	—	—
<i>Loiseleuria procumbens</i>	5	—	—	—	—
<i>Luetkea pectinata</i>	2	—	—	22	—
<i>Phyllodoce aleutica</i>	—	—	t	2	—
<i>Phyllodoce coerulea</i>	—	—	—	t	—
<i>Rhododendron camtchaticum</i>	—	6	—	—	—
<i>Ribes</i> spp.	—	—	1	—	—
<i>Rubus arcticus</i>	3	t	t	—	—
<i>Rubus chamaemorus</i>	—	1	t	—	—
<i>Salix alaxensis</i>	—	—	7	—	—
<i>Salix arctica</i>	1	34	36	1	30
<i>Salix barrattiana</i>	—	—	3	—	—
<i>Salix fuscescens</i>	—	—	5	—	—
<i>Salix glauca</i>	—	—	7	—	—

Table 60—Aboveground phytomass of shrubs on dwarf shrub vegetation types in southwest Alaska (continued)

Species	Vegetation type				
	2D2B Vaccinium tundra- ericaceous dwarf shrub	2D2C Crowberry tundra- ericaceous dwarf shrub	2D2D Mountain heath tundra- ericaceous dwarf shrub	2D2E Cassiope tundra- ericaceous dwarf shrub	2D3A Willow tundra- ericaceous dwarf shrub
	<i>Kilograms per hectare</i>				
<i>Salix phlebophylla</i>	—	—	2	6	—
<i>Salix planifolia</i>	15	—	—	—	—
<i>Salix polaris</i>	—	—	—	5	—
<i>Salix reticulata</i>	—	1	t	—	72
<i>Salix rotundifolia</i>	—	2	t	3	2
<i>Salix setchelliana</i>	—	—	77	—	—
<i>Salix stolonifera</i>	—	1	—	—	—
<i>Salix</i> spp.	96	14	1	—	—
<i>Spiraea beauverdiana</i>	31	22	19	—	—
<i>Vaccinium uliginosum</i>	263	84	160	31	—
<i>Vaccinium vitis-idaea</i>	4	5	4	—	—
Total, shrubs	899	507	536	159	214
Percent, live phytomass	(62.74)	(51.52)	(49.77)	(33.40)	(42.63)
Number of plots	4	13	22	5	2

— = plant not sampled in this vegetation type.

t = trace amount, less than 1 kilogram per hectare.

Table 61—Aboveground phytomass of forbs on dwarf shrub vegetation types in southwest Alaska

Species	Vegetation type				
	2D2B	2D2C	2D2D	2D2E	2D3A
	Vaccinium tundra- ericaceous dwarf shrub	Crowberry tundra- ericaceous dwarf shrub	Mountain heath tundra- ericaceous dwarf shrub	Cassiope tundra- ericaceous dwarf shrub	Willow tundra- ericaceous dwarf shrub
	<i>Kilograms per hectare</i>				
<i>Aconitum delphiniifolium</i>	1	—	—	—	—
<i>Achillea</i> spp.	—	t	—	—	—
<i>Anemone narcissiflora</i>	—	—	1	—	1
<i>Anemone</i> spp.	1	t	—	t	—
<i>Angelica</i> spp.	—	t	—	—	—
<i>Angelica lucida</i>	—	1	—	—	—
<i>Antennaria monocephala</i>	—	1	—	—	—
<i>Antennaria</i> spp.	—	—	t	—	—
<i>Arabis arenicola</i>	—	3	—	—	—
<i>Bupleurum triradiatum</i>	—	—	t	—	—
<i>Campanula lasiocarpa</i>	t	t	t	1	—
<i>Campanula uniflora</i>	—	—	—	t	—
<i>Cardamine pratensis</i>	—	—	t	—	—
<i>Cardamine purpurea</i>	—	—	—	t	—
Compositae family	—	t	1	1	6
<i>Cornus canadensis</i>	3	1	t	—	—
<i>Campanula lasiocarpa</i>	t	t	t	t	—
<i>Cystopteris fragilis</i>	—	—	—	t	—
<i>Dryopteris dilatata</i>	1	1	1	—	—
<i>Dodecatheon frigidum</i>	—	—	—	t	—
<i>Epilobium angustifolium</i>	4	1	1	—	—
<i>Epilobium latifolium</i>	1	t	—	2	3
<i>Epilobium</i> spp.	—	—	t	—	—
<i>Equisetum scirpoides</i>	—	—	—	—	3
<i>Equisetum</i> spp.	—	—	t	—	—
<i>Erigeron</i> spp.	—	—	—	—	1
Forb	—	t	t	2	2
<i>Gentiana glauca</i>	—	—	—	1	—
<i>Gentiana</i> spp.	—	t	—	t	—
<i>Geranium robertianum</i>	—	—	—	t	—
<i>Geranium</i> spp.	—	—	t	—	—
<i>Geum rossii</i>	—	2	—	1	—
<i>Lupinus</i> spp.	—	t	—	—	—
<i>Moneses uniflora</i>	—	—	—	t	—
Mushroom	1	—	t	—	1
<i>Oxytropis</i> spp.	2	t	—	—	3

Table 61—Aboveground phytomass of forbs on dwarf shrub vegetation types in southwest Alaska (continued)

Species	Vegetation type				
	2D2B	2D2C	2D2D	2D2E	2D3A
	Vaccinium tundra- ericaceous dwarf shrub	Crowberry tundra- ericaceous dwarf shrub	Mountain heath tundra- ericaceous dwarf shrub	Cassiope tundra- ericaceous dwarf shrub	Willow tundra- ericaceous dwarf shrub
	<i>Kilograms per hectare</i>				
<i>Parnassia</i> spp.	—	t	—	—	1
<i>Pedicularis kanei</i>	—	—	t	—	—
<i>Pedicularis labradorica</i>	—	—	t	—	—
<i>Pedicularis</i> spp.	t	t	t	t	—
<i>Pedicularis verticillata</i>	—	t	—	—	—
<i>Petasites hyerboreus</i>	—	1	t	—	—
<i>Pinguicula villosa</i>	—	t	—	—	—
<i>Polygonum bistorta</i>	—	—	t	—	—
<i>Polygonum</i> spp.	—	1	—	—	—
<i>Potentilla</i> spp.	—	—	1	—	—
<i>Primula</i> spp.	—	—	—	t	—
<i>Ranunculus</i> spp.	—	—	—	1	—
<i>Rumex acetosella</i>	—	—	t	—	—
<i>Sanguisorba</i> spp.	—	t	t	1	—
<i>Saxifraga bronchialis</i>	—	—	t	—	—
<i>Saxifraga lyallii</i>	—	—	—	1	—
<i>Saxifraga punctata</i>	—	—	—	1	—
<i>Saxifraga</i> spp.	—	—	—	1	4
<i>Sedum rosea</i>	6	1	1	1	—
<i>Silene acaulis</i>	—	—	t	—	—
<i>Stellaria</i> spp.	—	t	t	—	—
<i>Tofieldia coccinea</i>	—	t	—	—	—
<i>Tofieldia pusilla</i>	—	—	t	—	—
<i>Tofieldia</i> spp.	t	—	—	—	—
<i>Trientalis europaea</i>	1	t	t	—	—
<i>Valeriana capitata</i>	—	—	t	—	1
<i>Veratrum viride</i>	—	—	—	3	—
<i>Vicia</i> spp.	—	—	t	—	—
<i>Viola langsдорфii</i>	—	—	t	—	—
<i>Woodsia ilvensis</i>	—	—	t	—	—
Total, forbs	22	13	6	17	26
Percent, live phytomass	(1.54)	(1.32)	(0.56)	(3.57)	(5.18)
Number of plots	4	13	22	5	2

— = plant not sampled in this vegetation type.

t = trace amount, less than 1 kilogram per hectare.

Table 62—Aboveground phytomass of grass and grasslike species on dwarf shrub vegetation types in southwest Alaska

Species	Vegetation type				
	2D2B Vaccinium tundra- ericaceous dwarf shrub	2D2C Crowberry tundra- ericaceous dwarf shrub	2D2D Mountain heath tundra- ericaceous dwarf shrub	2D2E Cassiope tundra- ericaceous dwarf shrub	2D3A Willow tundra- ericaceous dwarf shrub
	<i>Kilograms per hectare</i>				
<i>Calamagrostis canadensis</i>	55	2	1	—	—
<i>Calamagrostis</i> spp.	—	1	t	—	—
<i>Carex</i> spp.	7	27	13	5	5
<i>Eriophorum</i> spp.	—	t	—	—	—
Grass	1	9	1	1	3
<i>Juncus</i> spp.	—	—	t	—	—
Total, grasses	64	39	15	6	8
Percent, live phytomass	(4.47)	(3.96)	(1.39)	(1.26)	(1.59)
Number of plots	4	13	22	5	2

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 63—Aboveground phytomass of lichens on dwarf shrub vegetation types in southwest Alaska

Species	Vegetation type				
	2D2B Vaccinium tundra- ericaceous dwarf shrub	2D2C Crowberry tundra- ericaceous dwarf shrub	2D2D Mountain heath tundra- ericaceous dwarf shrub	2D2E Cassiope tundra- ericaceous dwarf shrub	2D3A Willow tundra- ericaceous dwarf shrub
	<i>Kilograms per hectare</i>				
<i>Cetraria cucullata</i>	3	7	24	2	3
<i>Cetraria islandica</i>	2	1	t	—	—
<i>Cetraria nivalis</i>	2	8	6	—	3
<i>Cetraria</i> spp.	—	5	15	9	—
<i>Cladina mitis</i>	104	—	71	13	—
<i>Cladina rangiferina</i>	68	98	156	17	—
<i>Cladina stellaris (alpestris)</i>	—	26	—	—	—
<i>Cladina</i> spp.	11	1	69	—	—
<i>Cladonia gracilis</i>	—	4	2	2	—
<i>Cladonia</i> spp.	6	2	3	8	—
<i>Dactylina</i> spp.	—	—	1	—	2
Lichen	6	4	32	27	33
<i>Lobaria</i> spp.	—	1	1	8	—
<i>Nephroma</i> spp.	4	7	6	15	—
<i>Parmelia</i> spp.	—	—	t	—	—
<i>Peltigera</i> spp.	4	t	1	1	3
<i>Stereocaulon</i> spp.	1	7	22	4	4
<i>Stereocaulon paschale</i>	—	8	—	—	—
<i>Thamnolia subuliformis</i>	—	—	t	—	—
<i>Thamnolia</i> spp.	1	1	1	2	4
Total, lichens	212	180	410	108	52
Percent, live phytomass	(14.79)	(18.29)	(38.07)	(22.69)	(10.36)
Number of plots	4	13	22	5	2

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 64—Aboveground phytomass of mosses and clubmosses on dwarf shrub vegetation types in southwest Alaska

Species	Vegetation type				
	2D2B Vaccinium tundra- ericaceous dwarf shrub	2D2C Crowberry tundra- ericaceous dwarf shrub	2D2D Mountain heath tundra- ericaceous dwarf shrub	2D2E Cassiope tundra- ericaceous dwarf shrub	2D3A Willow tundra- ericaceous dwarf shrub
	<i>Kilograms per hectare</i>				
<i>Aulacomnium</i> spp.	—	4	1	—	23
<i>Dicranum</i> spp.	35	12	14	29	—
Hepaticae family	—	1	—	1	—
<i>Hylocomium</i> spp.	—	—	5	—	90
<i>Hylocomium splendens</i>	106	97	50	59	—
<i>Lycopodium alpinum</i>	—	—	—	1	—
<i>Lycopodium annotinum</i>	4	t	1	—	—
<i>Lycopodium clavatum</i>	—	—	t	—	—
<i>Lycopodium complanatum</i>	—	—	1	3	—
<i>Lycopodium sabinaefolium</i>	—	—	—	1	—
<i>Lycopodium selago</i>	t	—	t	1	2
Moss	22	34	7	65	84
<i>Pleurozium schreberi</i>	9	3	6	3	3
<i>Polytrichum juniperium</i>	—	t	—	—	—
<i>Polytrichum</i> spp.	33	9	4	—	—
<i>Ptilium cilare</i>	—	—	t	—	—
<i>Ptilium crista-castrensis</i>	14	5	2	—	—
<i>Ptilium</i> spp.	—	1	—	—	—
<i>Rhacomitrium</i> spp.	7	33	t	2	—
<i>Sphagnum</i> spp.	4	—	9	3	—
Total, mosses	234	199	100	168	202
Percent, live phytomass	(16.33)	(20.22)	(9.29)	(35.29)	(40.44)
Number of plots	4	13	22	5	2

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

**Appendix F:
Phytomass on
Nonforest
Herbaceous Vegetation
Types**

Table 65—Aboveground phytomass of trees on herbaceous vegetation types in southwest Alaska

Species	Vegetation type				
	3A2A	3A2D	3A2G	3A2H	3A2I
	Bluejoint meadow mesic graminoid herbaceous	Tussock tundra-mesic graminoid herbaceous	Grass-herb meadow mesic graminoid herbaceous	Sedge-willow tundra-mesic graminoid herbaceous	Sedge-birch tundra-mesic graminoid herbaceous
<i>Kilograms per hectare</i>					
<i>Picea mariana</i>	—	1928	—	—	—
Total, needleleaf	—	1928	—	—	—
Total, all live trees	—	1928	—	—	—
Percent, live phytomass		(40.02)			
Total, other plants	747	2889	630	482	1056
Total, all live plants	747	4817	630	482	1056
Downed trees and logs	—	—	—	—	—
Standing dead trees	—	—	—	—	—
Total, dead trees	—	—	—	—	—
Total, live and dead	747	4817	630	482	1056
Number of plots	2	2	1	2	2

— = plant was not sampled in this vegetation type.

Table 66—Aboveground phytomass of shrubs on herbaceous vegetation types in southwest Alaska

Species	Vegetation type				
	3A2A	3A2D	3A2G	3A2H	3A2I
	Bluejoint meadow mesic graminoid herbaceous	Tussock tundra-mesic graminoid herbaceous	Grass-herb meadow mesic graminoid herbaceous	Sedge-willow tundra-mesic graminoid herbaceous	Sedge-birch tundra-mesic graminoid herbaceous
	<i>Kilograms per hectare</i>				
<i>Arctostaphylos rubra</i>	—	—	—	—	25
<i>Artemisia</i> spp.	—	—	—	4	—
<i>Betula nana</i>	—	481	18	—	72
<i>Cassiope stellariana</i>	—	—	—	4	—
<i>Diapensia lapponica</i>	—	—	—	3	—
<i>Empetrum nigrum</i>	1	—	—	5	9
<i>Ledum palustre</i> var. <i>decumbens</i>	—	1255	—	—	110
<i>Rhododendron camtschaticum</i>	—	—	—	1	—
<i>Rubus arcticus</i>	8	—	34	—	—
<i>Rubus chamaemorus</i>	—	29	4	—	2
<i>Salix arctica</i>	—	—	—	8	—
<i>Salix planifolia</i>	—	—	51	—	—
<i>Salix polaris</i>	—	—	—	10	—
<i>Salix</i> spp.	57	—	—	—	—
<i>Spiraea beauverdiana</i>	—	—	337	—	—
<i>Vaccinium oxycoccus</i>	—	24	—	—	—
<i>Vaccinium uliginosum</i>	—	84	—	105	71
<i>Vaccinium vitis-idaea</i>	1	44	—	—	13
Total, shrubs	67	1917	444	140	302
Percent, live phytomass	(8.97)	(39.80)	(70.48)	(29.05)	(28.60)
Number of plots	2	2	1	2	2

— = plant not sampled in this vegetation type.

Table 67—Aboveground phytomass of forbs on herbaceous vegetation types in southwest Alaska

Species	Vegetation type				
	3A2A	3A2D	3A2G	3A2H	3A2I
	Bluejoint meadow mesic graminoid herbaceous	Tussock tundra-mesic graminoid herbaceous	Grass-herb meadow mesic graminoid herbaceous	Sedge-willow tundra-mesic graminoid herbaceous	Sedge-birch tundra-mesic graminoid herbaceous
	<i>Kilograms per hectare</i>				
<i>Anemone</i> spp.	—	—	—	1	—
<i>Angelica lucida</i>	—	—	12	—	—
<i>Arnica lessingii</i>	—	—	—	1	—
<i>Cardamine pratensis</i>	t	—	—	—	—
<i>Epilobium</i> spp.	t	—	—	—	—
Forb	t	—	—	—	—
<i>Geum calthifolium</i>	—	—	—	1	—
<i>Lagotis glauca</i>	—	—	—	1	—
<i>Ligusticum scoticum</i>	t	—	—	—	—
<i>Lupinus nootkatensis</i>	—	—	—	3	—
Mushroom	—	3	—	—	—
<i>Oxytropis</i> spp.	—	—	6	—	—
<i>Petasites hyberboreus</i>	4	—	—	—	—
<i>Polemonium acutiflorum</i>	2	—	—	—	—
<i>Potentilla palustris</i>	—	—	78	—	—
<i>Saussurea</i> spp.	1	—	—	—	—
<i>Sedum rosea</i>	4	—	—	1	—
<i>Valeriana capitata</i>	2	—	—	—	—
<i>Viola</i> spp.	—	—	6	—	—
Total, forbs	13	3	102	8	—
Percent, live phytomass	(1.74)	(0.06)	(16.19)	(1.66)	
Number of plots	2	2	1	2	2

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 68—Aboveground phytomass of grass and grasslike species on herbaceous vegetation types in southwest Alaska

Species	Vegetation type				
	3A2A	3A2D	3A2G	3A2H	3A2I
	Bluejoint meadow mesic graminoid herbaceous	Tussock tundra-mesic graminoid herbaceous	Grass-herb meadow mesic graminoid herbaceous	Sedge-willow tundra-mesic graminoid herbaceous	Sedge-birch tundra-mesic graminoid herbaceous
	<i>Kilograms per hectare</i>				
<i>Calamagrostis</i> spp.	335	—	—	—	—
<i>Carex</i> spp.	—	—	16	34	105
<i>Eriophorum</i> spp.	—	547	—	—	167
Grass	—	—	68	2	—
Total, grasses	335	547	84	36	272
Percent, live phytomass	(44.85)	(11.36)	(13.33)	(7.47)	(25.76)
Number of plots	2	2	1	2	2

— = plant not sampled in this vegetation type.

Table 69—Aboveground phytomass of lichens on herbaceous vegetation types in southwest Alaska

Species	Vegetation type				
	3A2A	3A2D	3A2G	3A2H	3A2I
	Bluejoint meadow mesic graminoid herbaceous	Tussock tundra-mesic graminoid herbaceous	Grass-herb meadow mesic graminoid herbaceous	Sedge-willow tundra-mesic graminoid herbaceous	Sedge-birch tundra-mesic graminoid herbaceous
	<i>Kilograms per hectare</i>				
<i>Cetraria cucullata</i>	—	5	—	—	31
<i>Cetraria islandica</i>	—	12	—	—	—
<i>Cetraria</i> spp.	—	—	—	3	—
<i>Cladina rangiferina</i>	—	185	—	11	41
<i>Cladina</i> spp.	—	—	—	4	133
<i>Cladonia</i> spp.	—	15	—	2	11
Lichen	—	—	—	25	—
<i>Nephroma</i> spp.	—	12	—	—	3
<i>Stereocaulon paschale</i>	—	—	—	—	9
<i>Thamnolia</i> spp.	—	—	—	4	—
<i>Thamnolia subuliformis</i>	—	—	—	—	2
Total, lichens	—	229	—	49	230
Percent, live phytomass		(4.75)		(10.17)	(21.78)
Number of plots	2	2	1	2	2

— = plant not sampled in this vegetation type.

Table 70—Aboveground phytomass of mosses and clubmosses on herbaceous vegetation types in southwest Alaska

Species	Vegetation type				
	3A2A	3A2D	3A2G	3A2H	3A2I
	Bluejoint meadow mesic graminoid herbaceous	Tussock tundra-mesic graminoid herbaceous	Grass-herb meadow mesic graminoid herbaceous	Sedge-willow tundra-mesic graminoid herbaceous	Sedge-birch tundra-mesic graminoid herbaceous
	<i>Kilograms per hectare</i>				
<i>Aulacomnium</i> spp.	—	12	—	—	—
<i>Dicranum</i> spp.	—	—	—	26	—
<i>Hylocomium splendens</i>	216	—	—	—	—
<i>Lycopodium selago</i>	—	—	—	1	—
Moss	19	—	—	198	—
<i>Pleurozium schreberi</i>	79	18	—	—	—
<i>Polytrichum</i> spp.	—	4	—	—	—
<i>Ptilium crista-castrensis</i>	18	—	—	—	—
<i>Rhacomitrium</i> spp.	—	—	—	21	—
<i>Sphagnum</i> spp.	—	160	—	5	253
Total, mosses	332	194	—	251	253
Percent, live phytomass	(44.44)	(4.03)		(52.07)	(23.96)
Number of plots	2	2	1	2	2

— = plant not sampled in this vegetation type.

Table 71—Aboveground phytomass of trees on herbaceous tundra and marsh vegetation types in southwest Alaska

Species	Vegetation type				
	3A3A Wet sedge- mesic meadow tundra	3A3B Wet sedge- grass mesic meadow tundra	3A3C Wet sedge- herb mesic meadow tundra	3A3D Fresh- water sedge marsh	3A3E Fresh- water grass marsh
	<i>Kilograms per hectare</i>				
<i>Picea mariana</i>	—	—	—	—	820
Total, needleleaf	—	—	—	—	820
<i>Betula papyrifera</i>	—	—	—	67	—
Total, broadleaf	—	—	—	67	820
Total, all live trees	—	—	—	67	820
Percent, live phytomass				(3.11)	(17.38)
Total, other plants	1017	748	1475	2085	3898
Total, all live plants	1017	748	1475	2152	4718
Downed trees and logs	—	—	—	—	—
Standing dead trees	—	—	—	—	—
Total, dead trees	—	—	—	—	—
Total, live and dead	1017	748	1475	2152	4718
Number of plots	3	3	2	8	1

— = plant was not sampled in this vegetation type.

Table 72—Aboveground phytomass of shrubs on herbaceous tundra and marsh vegetation types in southwest Alaska

Species	Vegetation type				
	3A3A Wet sedge- mesic meadow tundra	3A3B Wet sedge- grass mesic meadow tundra	3A3C Wet sedge- herb mesic meadow tundra	3A3D Fresh- water sedge marsh	3A3E Fresh- water grass marsh
	<i>Kilograms per hectare</i>				
<i>Andromeda polifolia</i>	52	—	36	8	—
<i>Arctostaphylos alpina</i>	5	—	—	—	—
<i>Betula glandulosa</i>	15	—	—	—	—
<i>Betula nana</i>	93	25	142	5	446
<i>Chamaedaphne calyculata</i>	33	—	—	2	—
<i>Empetrum nigrum</i>	23	2	34	1	—
<i>Ledum palustre</i> var. <i>decumbens</i>	50	21	—	7	—
<i>Myrica gale</i>	—	25	—	—	—
<i>Rumex arcticus</i>	—	—	—	2	—
<i>Salix fuscescens</i>	13	3	—	—	—
<i>Salix planifolia</i>	—	—	—	197	1348
<i>Salix stolonifera</i>	—	—	—	9	—
<i>Salix</i> spp.	—	—	7	—	270
<i>Vaccinium oxycoccus</i>	1	1	2	1	8
<i>Vaccinium uliginosum</i>	36	12	—	—	478
<i>Vaccinium vitis-idaea</i>	2	—	—	1	—
Total, shrubs	323	89	221	233	2550
Percent, live phytomass	(31.76)	(11.90)	(14.98)	(10.83)	(54.05)
Number of plots	3	3	2	8	1

— = plant not sampled in this vegetation type.

Table 73—Aboveground phytomass of forbs on herbaceous tundra and marsh vegetation types in southwest Alaska

Species	Vegetation type				
	3A3A	3A3B	3A3C	3A3D	3A3E
	Wet sedge meadow tundra	Wet sedge-grass meadow tundra	Wet sedge-herb meadow tundra	Fresh-water sedge marsh	Fresh-water grass marsh
<i>Kilograms per hectare</i>					
<i>Angelica</i> spp.	—	—	—	4	—
<i>Cicuta mackenzieana</i>	—	—	—	1	—
<i>Drosera rotundifolia</i>	—	—	13	—	—
<i>Drosera</i> spp.	—	—	—	1	—
<i>Epilobium</i> spp.	—	10	—	t	—
<i>Equisetum arvense</i>	—	—	—	t	—
<i>Equisetum fluviatile</i>	—	—	120	1	—
<i>Equisetum</i> spp.	—	—	—	—	14
Forb	—	—	2	1	—
<i>Hippuris vulgaris</i>	—	—	—	10	—
<i>Menyanthes trifoliata</i>	—	3	22	4	—
Mushroom	—	t	—	t	—
<i>Pedicularis</i> spp.	—	—	2	—	—
<i>Pinguicula vulgaris</i>	—	—	3	—	—
<i>Polemonium</i> spp.	—	t	—	—	—
<i>Potentilla palustris</i>	10	95	368	700	—
<i>Potentilla</i> spp.	—	—	—	—	644
<i>Rumex</i> spp.	—	5	—	t	—
<i>Stellaria</i> spp.	—	t	—	—	—
<i>Trientalis europaea</i>	—	t	—	—	2
<i>Utricularia</i> spp.	—	—	—	t	—
<i>Valeriana capitata</i>	—	1	—	—	—
<i>Viola</i> spp.	—	—	—	3	—
Total, forbs	10	114	530	725	660
Percent, live phytomass	(0.98)	(15.24)	(35.93)	(33.69)	(13.99)
Number of plots	3	3	2	8	1

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 74—Aboveground phytomass of grass and grasslike species on herbaceous tundra and marsh vegetation types in southwest Alaska

Species	Vegetation type				
	3A3A Wet sedge meadow tundra	3A3B Wet sedge- grass meadow tundra	3A3C Wet sedge- herb meadow tundra	3A3D Fresh- water sedge marsh	3A3E Fresh- water grass marsh
	<i>Kilograms per hectare</i>				
<i>Calamagrostis canadensis</i>	—	—	—	81	268
<i>Calamagrostis</i> spp.	1	—	—	245	—
<i>Carex aquatilis</i>	—	—	—	43	—
<i>Carex rostrata</i>	—	—	—	27	—
<i>Carex</i> spp.	96	358	312	377	228
<i>Eriophorum</i> spp.	91	22	91	155	62
Grass	—	16	—	6	—
Total, grasses	188	396	403	934	558
Percent, live phytomass	(18.49)	(52.94)	(27.32)	(43.40)	(11.83)
Number of plots	3	3	2	8	1

— = plant not sampled in this vegetation type.

Table 75—Aboveground phytomass of lichens on herbaceous tundra and marsh vegetation types in southwest Alaska

Species	Vegetation type				
	3A3A	3A3B	3A3C	3A3D	3A3E
	Wet sedge meadow tundra	Wet sedge-grass meadow tundra	Wet sedge-herb meadow tundra	Fresh-water sedge marsh	Fresh-water grass marsh
	<i>Kilograms per hectare</i>				
<i>Cladina</i> spp.	155	—	—	—	—
<i>Cladonia gracilis</i>	3	—	—	—	—
<i>Cladonia</i> spp.	—	—	—	1	—
Lichen	—	—	—	2	—
<i>Nephroma</i> spp.	2	—	—	—	—
<i>Parmelia</i> spp.	—	—	—	1	44
<i>Usnea</i> spp.	—	—	—	1	—
Total, lichens	160	—	—	5	44
Percent, live phytomass	(15.73)			(0.23)	(0.93)
Number of plots	3	3	2	8	1

— = plant not sampled in this vegetation type.

Table 76—Aboveground phytomass of mosses and clubmosses on herbaceous tundra and marsh vegetation types in southwest Alaska

Species	Vegetation type				
	3A3A Wet sedge meadow tundra	3A3B Wet sedge- grass meadow tundra	3A3C Wet sedge- herb meadow tundra	3A3D Fresh- water sedge marsh	3A3E Fresh- water grass marsh
	<i>Kilograms per hectare</i>				
<i>Aulacomnium</i> spp.	8	—	—	—	—
<i>Dicranum</i> spp.	5	—	—	—	22
<i>Mnium</i> spp.	—	—	20	—	—
Moss	—	7	69	18	—
<i>Pleurozium schreberi</i>	—	6	—	—	21
<i>Polytrichum</i> spp.	3	—	—	2	—
<i>Sphagnum</i> spp.	320	136	233	168	43
Total, mosses	336	149	322	188	86
Percent, live phytomass	(33.04)	(19.92)	(21.83)	(8.74)	(1.82)
Number of plots	3	3	2	8	1

— = plant not sampled in this vegetation type.

Table 77—Aboveground phytomass of trees on wet-graminoid and dry-forb herbaceous vegetation types in southwest Alaska

Species	Vegetation type				
	3A3G Subarctic lowland sedge-shrub meadow wet-graminoid herbaceous	3A3J Subarctic lowland sedge bog wet-graminoid herbaceous	3A3K Subarctic lowland sedge-moss bog wet-graminoid herbaceous	3B1B Alpine herb- sedge (snowbed) dry-forb herbaceous	3B1C Alpine herb tundra dry-forb herbaceous
	<i>Kilograms per hectare</i>				
<i>Picea glauca</i>	151	—	—	—	—
<i>Picea mariana</i>	110	—	—	—	—
Total, needleleaf	261	—	—	—	—
Total, all live trees	261	—	—	—	—
Percent, live phytomass	(16.37)				
Total, other plants	1333	2671	622	123	179
Total, all live plants	1594	2671	622	123	179
Downed trees and logs	—	—	—	—	—
Standing dead trees	—	—	—	—	—
Total, dead trees	—	—	—	—	—
Total, live and dead	1594	2671	622	123	179
Number of plots	3	2	6	2	2

— = plant was not sampled in this vegetation type.

Table 78—Aboveground phytomass of shrubs on wet-graminoid and dry-forb herbaceous vegetation types in southwest Alaska

Species	Vegetation type				
	3A3G Subarctic lowland sedge-shrub meadow wet-graminoid herbaceous	3A3J Subarctic lowland sedge bog wet-graminoid herbaceous	3A3K Subarctic lowland sedge-moss bog wet-graminoid herbaceous	3B1B Alpine herb- sedge (snowbed) dry-forb herbaceous	3B1C Alpine herb tundra dry-forb herbaceous
	<i>Kilograms per hectare</i>				
<i>Andromeda polifolia</i>	19	—	31	—	—
<i>Artemisia arctica</i>	—	—	—	—	t
<i>Betula glandulosa</i>	75	—	—	—	—
<i>Betula nana</i>	77	868	7	—	—
<i>Cassiope tetragona</i>	—	—	—	t	—
<i>Chamaedaphne calyculata</i>	—	—	9	—	—
<i>Diapensia lapponica</i>	—	—	—	1	—
<i>Dryas octopetala</i>	—	—	—	—	3
<i>Empetrum nigrum</i>	—	54	t	—	19
<i>Kalmia polifolia</i>	3	—	38	—	—
<i>Ledum groenlandicum</i>	15	—	—	—	—
<i>Ledum palustre</i> var. <i>decumbens</i>	1	522	—	1	—
<i>Myrica gale</i>	100	—	—	—	—
<i>Potentilla fruticosa</i>	286	—	—	—	—
<i>Rhododendron camtschaticum</i>	—	—	—	—	9
<i>Rubus arcticus</i>	—	—	t	—	—
<i>Rubus chamaemorus</i>	—	18	—	—	—
<i>Rubus pedatus</i>	2	—	t	—	—
<i>Salix arctica</i>	—	—	—	—	52
<i>Salix fuscescens</i>	—	—	2	—	—
<i>Salix planifolia</i>	—	—	—	1	—
<i>Salix reticulata</i>	1	—	—	—	1
<i>Salix</i> spp.	37	468	12	—	—
<i>Spiraea beauverdiana</i>	—	169	4	—	—
<i>Vaccinium oxycoccus</i>	2	—	—	—	—
<i>Vaccinium uliginosum</i>	65	55	—	—	5
<i>Vaccinium vitis-ideae</i>	2	10	t	—	—
Total, shrubs	685	2164	103	3	89
Percent, phytomass	(42.97)	(81.02)	(16.56)	(2.44)	(49.72)
Number of plots	3	2	6	2	2

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 79—Aboveground phytomass of forbs on wet-graminoid and dry-forb herbaceous vegetation types in southwest Alaska

Species	Vegetation type				
	3A3G Subarctic lowland sedge-shrub meadow wet-graminoid herbaceous	3A3J Subarctic lowland sedge bog wet-graminoid herbaceous	3A3K Subarctic lowland sedge-moss bog wet-graminoid herbaceous	3B1B Alpine herb- sedge (snowbed) dry-forb herbaceous	3B1C Alpine herb tundra dry-forb herbaceous
	<i>Kilograms per hectare</i>				
<i>Arabis arenicola</i>	—	—	—	—	1
<i>Campanula lasiocarpa</i>	—	—	—	—	t
<i>Campanula</i> spp.	—	—	—	t	—
Compositae family	—	—	—	—	1
<i>Cornus canadensis</i>	—	1	t	—	—
<i>Drosera rotundifolia</i>	3	—	3	—	—
<i>Epilobium latifolium</i>	—	—	—	—	1
<i>Equisetum arvense</i>	t	1	—	—	—
<i>Equisetum silvaticum</i>	—	2	1	—	—
Forb	2	—	—	—	t
<i>Geum rossii</i>	—	—	—	—	4
<i>Gymnocarpium dryopteris</i>	—	4	—	—	—
<i>Menyanthes trifoliata</i>	—	—	4	—	—
<i>Moneses uniflora</i>	—	—	t	—	—
Mushroom	—	—	t	—	—
<i>Potentilla palustris</i>	—	—	7	—	—
<i>Rumex</i> spp.	2	—	—	—	—
<i>Saxifraga bronchialis</i>	—	—	—	—	t
<i>Sedum rosea</i>	—	—	—	1	—
<i>Silene acaulis</i>	—	—	—	—	2
<i>Trientalis europaea</i>	—	1	t	—	—
Total, forbs	7	9	15	1	9
Percent, live phytomass	(0.44)	(0.34)	(2.41)	(0.81)	(5.03)
Number of plots	3	2	6	2	2

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 80—Aboveground phytomass of grass and grasslike species on wet-graminoid and dry-forb herbaceous vegetation types in southwest Alaska

Species	Vegetation type				
	3A3G Subarctic lowland sedge-shrub meadow wet-graminoid herbaceous	3A3J Subarctic lowland sedge bog wet-graminoid herbaceous	3A3K Subarctic lowland sedge-moss bog wet-graminoid herbaceous	3B1B Alpine herb- sedge (snowbed) dry-forb herbaceous	3B1C Alpine herb tundra dry-forb herbaceous
	<i>Kilograms per hectare</i>				
<i>Calamagrostis canadensis</i>	—	—	1	—	—
<i>Carex</i> spp.	32	96	237	26	2
<i>Eriophorum</i> spp.	247	—	22	—	—
Grass	2	6	t	—	—
<i>Juncus</i> spp.	1	—	1	—	—
Total, grasses	282	102	261	26	2
Percent, live phytomass	(17.69)	(3.82)	(41.96)	(21.14)	(1.12)
Total, all live plants	1595	2670	621	117	178
Number of plots	3	2	6	2	2

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 81—Aboveground phytomass of lichens on wet-graminoid and dry-forb herbaceous vegetation types in southwest Alaska

Species	Vegetation type				
	3A3G Subarctic lowland sedge-shrub meadow wet-graminoid herbaceous	3A3J Subarctic lowland sedge bog wet-graminoid herbaceous	3A3K Subarctic lowland sedge-moss bog wet-graminoid herbaceous	3B1B Alpine herb- sedge (snowbed) dry-forb herbaceous	3B1C Alpine herb tundra dry-forb herbaceous
	<i>Kilograms per hectare</i>				
<i>Cetraria cucullata</i>	—	5	—	—	—
<i>Cetraria</i> spp.	6	—	1	—	—
<i>Cladina rangiferina</i>	35	4	—	30	—
<i>Cladina</i> spp.	7	7	—	—	—
<i>Cladonia</i> spp.	3	—	1	9	—
Lichen	8	—	1	37	33
<i>Nephroma</i> spp.	—	8	—	—	—
<i>Stereocaulon</i> spp.	—	—	—	—	17
Total, lichens	59	24	3	76	50
Percent, live phytomass	(3.70)	(0.90)	(0.48)	(65.04)	(27.93)
Total, all live plants	1595	2670	621	117	178
Number of plots	3	2	6	2	2

— = plant not sampled in this vegetation type.

Table 82—Aboveground phytomass of mosses and clubmosses on wet-graminoid and dry-forb herbaceous vegetation types in southwest Alaska

Species	Vegetation type				
	3A3G Subarctic lowland sedge-shrub meadow wet-graminoid herbaceous	3A3J Subarctic lowland sedge bog wet-graminoid herbaceous	3A3K Subarctic lowland sedge-moss bog wet-graminoid herbaceous	3B1B Alpine herb- sedge (snowbed) dry-forb herbaceous	3B1C Alpine herb tundra dry-forb herbaceous
	<i>Kilograms per hectare</i>				
<i>Dicranum</i> spp.	5	4	—	7	—
<i>Ditrichum</i> spp.	31	—	—	—	—
Hepaticae family	2	—	—	—	—
<i>Hylocomium</i> spp.	—	27	t	—	—
<i>Hylocomium splendens</i>	26	—	—	—	—
Moss	83	—	1	6	20
<i>Pleurozium schreberi</i>	43	—	1	—	—
<i>Polytrichum juniperium</i>	—	9	—	—	—
<i>Polytrichum</i> spp.	21	—	1	—	—
<i>Ptilium cilare</i>	9	—	—	—	—
<i>Ptilium crista-castrensis</i>	—	71	—	—	—
<i>Rhacomitrium</i> spp.	—	—	—	—	9
<i>Sphagnum</i> spp.	80	261	237	—	—
Total, mosses	300	372	240	13	29
Percent, live phytomass	(18.83)	(13.93)	(38.59)	(10.57)	(16.29)
Total, all live plants	1595	2670	621	117	178
Number of plots	3	2	6	2	2

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 83—Aboveground phytomass of trees on mesic-forb and lichen-bryoid herbaceous vegetation types in southwest Alaska

Species	Vegetation type				
	3B2A Mixed subarctic herbs mesic-forb herbaceous	3B2B Fireweed- subarctic herbs mesic-forb herbaceous	3B3A Freshwater herb marsh wet-forb herbaceous	3C2A Crustose lichen lichen-bryoid herbaceous	3C2B Foliose and fruticose lichen lichen-bryoid herbaceous
	<i>Kilograms per hectare</i>				
<i>Picea glauca</i>	—	1	—	—	—
<i>Picea mariana</i>	—	4	—	—	—
Total, needleleaf	—	5	—	—	—
<i>Betula papyrifera</i>	—	146	—	—	—
Total, broadleaf	—	146	—	—	—
Total, all live trees	—	151	—	—	—
Percent, live phytomass		(12.41)			
Total, other plants	1929	1066	729	160	1750
Total, all live plants	1929	1217	729	160	1750
Downed trees and logs	—	4015	—	—	—
Standing dead trees	—	—	—	—	—
Total, dead trees	—	4015	—	—	—
Total, live and dead	1929	5232	729	160	1750
Number of plots	1	3	3	2	4

— = plant was not sampled in this vegetation type.

Table 84—Aboveground phytomass of shrubs on mesic-forb and lichen-byroid herbaceous vegetation types in southwest Alaska

Species	Vegetation type				
	3B2A Mixed subarctic herbs mesic-forb herbaceous	3B2B Fireweed- subarctic herbs mesic-forb herbaceous	3B3A Freshwater herb marsh wet-forb herbaceous	3C2A Crustose lichen lichen-bryoid herbaceous	3C2B Foliose and fruticose lichen lichen-bryoid herbaceous
	<i>Kilograms per hectare</i>				
<i>Alnus sinuata</i>	1319	—	—	—	—
<i>Alnus</i> spp.	—	—	—	—	156
<i>Andromeda polifolia</i>	—	—	—	—	6
<i>Arctostaphylos uva-ursi</i>	—	—	—	—	16
<i>Artemisia</i> spp.	—	—	—	t	—
<i>Betula glandulosa</i>	—	—	—	—	125
<i>Betula nana</i>	—	211	—	—	310
<i>Diapensia lapponica</i>	—	—	—	—	5
<i>Empetrum nigrum</i>	6	—	—	—	54
<i>Ledum groenlandicum</i>	—	77	—	—	22
<i>Ledum palustre</i> var. <i>decumbens</i>	—	—	—	3	163
<i>Rhododendron camtschaticum</i>	10	—	—	—	—
<i>Rosa acicularis</i>	—	31	—	—	—
<i>Rubus chamaemorus</i>	—	—	—	—	2
<i>Rubus idaeus</i>	—	3	—	—	—
<i>Rumex arcticus</i>	—	—	14	—	—
<i>Salix arctica</i>	49	—	—	1	—
<i>Salix ovalifolia</i>	—	—	—	—	2
<i>Salix</i> spp.	—	26	—	—	—
<i>Spiraea beauverdiana</i>	—	57	—	3	12
<i>Vaccinium uliginosum</i>	93	—	—	2	207
<i>Vaccinium vitis-idaea</i>	—	11	—	—	25
Total, shrubs	1477	416	14	9	1105
Percent, live phytomass	(14.77)	(34.18)	(1.92)	(5.63)	(64.14)
Number of plots	1	3	3	2	4

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 85—Aboveground phytomass of forbs on mesic-forb and lichen-bryoid herbaceous vegetation types in southwest Alaska

Species	Vegetation type				
	3B2A Mixed subarctic herbs mesic-forb herbaceous	3B2B Fireweed- subarctic herbs mesic-forb herbaceous	3B3A Freshwater herb marsh wet-forb herbaceous	3C2A Crustose lichen lichen-bryoid herbaceous	3C2B Foliose and fruticose lichen lichen-bryoid herbaceous
	<i>Kilograms per hectare</i>				
<i>Achillea</i> spp.	1	—	—	—	—
<i>Anemone narcissiflora</i>	—	—	—	—	1
<i>Angelica genuflexa</i>	—	—	89	—	—
<i>Angelica lucida</i>	63	—	—	—	—
<i>Astragalus nutzotinensis</i>	—	—	—	—	1
Compositae family	6	—	—	—	—
<i>Cornus canadensis</i>	24	29	—	—	—
<i>Dryopteris</i> spp.	8	—	—	—	—
<i>Epilobium angustifolium</i>	31	337	—	—	3
<i>Equisetum arvense</i>	1	—	—	—	—
<i>Equisetum fluviatile</i>	—	—	132	—	—
<i>Equisetum silvaticum</i>	—	117	—	—	1
<i>Equisetum</i> spp.	—	—	80	—	—
Forb	—	—	—	—	t
<i>Geranium</i> spp.	12	—	—	—	—
<i>Hippuris vulgaris</i>	—	—	8	—	—
<i>Menyanthes trifoliata</i>	—	—	83	—	—
Mushroom	—	—	—	—	t
<i>Petasites frigidus</i>	3	—	—	—	—
<i>Potentilla palustris</i>	—	—	158	—	—
<i>Sanguisorba</i> spp.	13	—	—	—	—
<i>Silene acaulis</i>	9	—	—	—	—
<i>Stellaria</i> spp.	—	—	7	—	—
<i>Trientalis europaea</i>	2	—	—	—	1
<i>Viola</i> spp.	—	—	22	—	—
Total, forbs	173	483	579	—	7
Percent, live phytomass	(8.97)	(39.69)	(79.42)		(0.40)
Number of plots	1	3	3	2	4

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 86—Aboveground phytomass of grass and grasslike species on mesic-forb and lichen-bryoid vegetation types in southwest Alaska

Species	Vegetation type				
	3B2A Mixed subarctic herbs mesic-forb herbaceous	3B2B Fireweed- subarctic herbs mesic-forb herbaceous	3B3A Freshwater herb marsh wet-forb herbaceous	3C2A Crustose lichen lichen-bryoid herbaceous	3C2B Foliose and fruticose lichen lichen-bryoid herbaceous
	<i>Kilograms per hectare</i>				
<i>Calamagrostis canadensis</i>	—	8	—	—	—
<i>Calamagrostis</i> spp.	58	—	—	—	—
<i>Carex</i> spp.	122	—	115	t	58
<i>Eriophorum</i> spp.	—	—	—	—	62
Grass	17	22	—	t	9
<i>Poa trivialis</i>	—	1	—	—	—
Total, grasses	197	31	115	t	129
Percent, live phytomass	(10.21)	(2.55)	(15.78)		(7.37)
Number of plots	1	3	3	2	4

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 87—Aboveground phytomass of lichens on mesic-forb and lichen-bryoid vegetation types in southwest Alaska

Species	Vegetation type				
	3B2A	3B2B	3B3A	3C2A	3C2B
	Mixed subarctic herbs mesic-forb herbaceous	Fireweed-subarctic herbs mesic-forb herbaceous	Freshwater herb marsh wet-forb herbaceous	Crustose lichen lichen-bryoid herbaceous	Foliose and fruticose lichen lichen-bryoid herbaceous
	Kilograms per hectare				
<i>Cetraria cucullata</i>	—	—	—	—	1
<i>Cetraria islandica</i>	—	—	—	—	9
<i>Cetraria nivalis</i>	—	—	—	—	7
<i>Cetraria</i> spp.	—	—	—	—	20
<i>Cladina mitis</i>	—	—	—	—	41
<i>Cladina rangiferina</i>	—	—	—	8	11
<i>Cladina stellaris (alpestris)</i>	—	—	—	—	84
<i>Cladina</i> spp.	—	—	—	—	125
<i>Cladonia</i> spp.	—	—	—	2	1
<i>Cornicularia divergens</i>	—	—	—	—	1
<i>Hypogymnia</i> spp.	—	5	—	—	—
Lichen	—	—	—	135	36
<i>Nephroma</i> spp.	5	—	—	—	—
<i>Stereocaulon</i> spp.	—	—	—	3	5
<i>Thamnolia</i> spp.	—	—	—	2	—
Total, lichens	5	5	—	149	341
Percent, live phytomass	(0.26)	(0.41)		(93.13)	(19.49)
Number of plots	1	3	3	2	4

— = plant not sampled in this vegetation type.

Table 88—Aboveground phytomass of mosses and clubmosses on mesic-forb and lichen-bryoid vegetation types in southwest Alaska

Species	Vegetation type				
	3B2A Mixed subarctic herbs mesic-forb herbaceous	3B2B Fireweed- subarctic herbs mesic-forb herbaceous	3B3A Freshwater herb marsh wet-forb herbaceous	3C2A Crustose lichen lichen-bryoid herbaceous	3C2B Foliose and fruticose lichen lichen-bryoid herbaceous
	<i>Kilograms per hectare</i>				
<i>Dicranum</i> spp.	—	—	—	—	23
<i>Ditrichum</i> spp.	—	—	—	—	62
Hepaticae family	—	—	1	—	—
<i>Herbertus lutchensis</i>	—	—	—	—	3
<i>Mnium</i> spp.	—	—	3	—	—
Moss	59	111	17	2	1
<i>Pleurozium schreberi</i>	18	6	—	—	6
<i>Polytrichum juniperium</i>	—	—	—	—	2
<i>Polytrichum</i> spp.	—	14	—	—	22
<i>Rhacomitrium</i> spp.	—	—	—	—	1
<i>Sphagnum</i> spp.	—	—	—	—	48
Total, mosses	77	131	21	2	168
Percent, live phytomass	(3.99)	(10.76)	(2.88)	(1.24)	(9.60)
Number of plots	1	3	3	2	4

— = plant not sampled in this vegetation type.

Table 89—Aboveground phytomass of shrubs on bryoid, aquatic and talus vegetation types in southwest Alaska

Species	Vegetation type		
	3C1A Wet bryophyte bryoid herbaceous	3D1B Common marestail freshwater aquatic	7B3 Scree- talus slope barren
	<i>Kilograms per hectare</i>		
<i>Betula nana</i>	44	—	—
<i>Dryas octopetala</i>	—	—	1
<i>Empetrum nigrum</i>	3	—	—
<i>Ledum palustre</i> var. <i>decumbens</i>	20	—	—
<i>Potentilla fruticosa</i>	—	—	25
<i>Salix arctica</i>	—	—	4
<i>Salix fuscescens</i>	1	—	—
<i>Vaccinium oxycoccus</i>	1	—	—
<i>Vaccinium uliginosum</i>	1	—	3
<i>Vaccinium vitis-idaea</i>	4	—	—
Total, shrubs	74	—	33
Percent, live phytomass	(59.46)		(67.35)
Number of plots	2	1	1

— = plant not sampled in this vegetation type.

Table 90—Aboveground phytomass of forbs on bryoid, aquatic and talus vegetation types in southwest Alaska

Species	Vegetation type		
	3C1A Wet bryophyte bryoid herbaceous	3D1B Common marestail freshwater aquatic	7B3 Scree- talus slope barren
	<i>Kilograms per hectare</i>		
<i>Epilobium</i> spp.	—	—	1
<i>Equisetum</i> spp.	—	12	—
<i>Hippuris vulgaris</i>	—	148	—
<i>Ranunculus pallasii</i>	—	28	—
Total, forbs	—	188	1
Percent, live phytomass		(90.38)	(2.04)
Number of plots	2	1	1

— = plant not sampled in this vegetation type.

Table 91—Aboveground phytomass of grass and grasslike species on bryoid, aquatic and talus vegetation types in southwest Alaska

Species	Vegetation type		
	3C1A Wet bryophyte bryoid herbaceous	3D1B Common marestail freshwater aquatic	7B3 Scree- talus slope barren
	<i>Kilograms per hectare</i>		
<i>Carex</i> spp.	139	20	t
<i>Eriophorum</i> spp.	63	—	—
Total, grasses	202	20	t
Percent, live phytomass	(28.90)	(9.62)	
Number of plots	2	1	1

— = plant not sampled in this vegetation type.
t = trace amount, less than 1 kilogram per hectare.

Table 92—Aboveground phytomass of lichens on bryoid, aquatic and talus vegetation types in southwest Alaska

Species	Vegetation type		
	3C1A Wet bryophyte bryoid herbaceous	3D1B Common marestail freshwater aquatic	7B3 Scree- talus slope barren
	<i>Kilograms per hectare</i>		
<i>Cladina rangiferina</i>	4	—	—
<i>Cladina</i> spp.	22	—	—
Lichen	—	—	15
Total, lichens	26	—	15
Percent, live phytomass	(3.58)		(30.61)
Number of plots	2	1	1

— = plant not sampled in this vegetation type.

Table 93—Aboveground phytomass of mosses and clubmosses on bryoid, aquatic and talus vegetation types in southwest Alaska

Species	Vegetation type		
	3C1A Wet bryophyte bryoid herbaceous	3D1B Common marestail freshwater aquatic	7B3 Scree- talus slope barren
	<i>Kilograms per hectare</i>		
<i>Polytrichum</i> spp.	10	—	—
<i>Sphagnum</i> spp.	388	—	—
Total, mosses	398	—	—
Percent, live phytomass	(56.94)		
Number of plots	2	1	1

— = plant not sampled in this vegetation type.

Appendix G:
Species Constancy
on Forest Vegetation
Types

Table 94—Constancy of trees and shrubs on forest vegetation types in south-west Alaska

Species	Plots in types on which plant species occurred, by vegetation type code ^a and number of plots										
	1A2E	1A2F	1A2G	1A2H	1A3C	1A3D	1B1D	1B2A	1C1A	1C2A	1C3A
	53	69	8	6	46	40	27	6	17	62	9
	Percent										
<i>Alnus crispa</i>	11	25	—	50	4	13	44	33	41	24	22
<i>Alnus sinuata</i>	13	—	—	—	4	8	19	17	6	16	—
<i>Alnus</i> spp.	2	—	—	—	4	—	—	—	6	—	—
<i>Alnus tenuifolia</i>	9	1	—	—	7	5	22	—	12	15	11
<i>Andromeda polifolia</i>	—	6	13	—	7	15	—	—	—	—	11
<i>Arctostaphylos alpina</i>	—	—	—	—	—	3	—	—	—	—	—
<i>Arctostaphylos rubra</i>	15	3	13	—	11	3	—	17	—	3	—
<i>Artemisia tilesii</i>	4	—	—	—	—	—	—	—	—	2	—
<i>Artemisia</i> spp.	8	—	—	—	2	—	7	—	—	—	—
<i>Betula glandulosa</i>	36	28	25	—	30	25	7	—	12	8	22
<i>Betula nana</i>	17	59	75	100	54	63	7	50	12	13	56
<i>Betula papyrifera</i>	19	14	13	—	24	15	74	100	65	58	44
<i>Betula</i> spp.	—	—	13	—	—	—	—	—	—	—	—
<i>Cassiope tetragona</i>	—	—	—	—	—	—	—	—	—	2	—
<i>Chamaedaphne calyculata</i>	—	20	—	17	—	25	—	—	—	—	—
<i>Diapensia lapponica</i>	—	—	—	—	2	—	—	—	—	—	—
<i>Dryas octopetala</i>	—	—	—	—	—	—	—	—	—	2	—
<i>Dryas</i> spp.	—	—	—	—	—	3	—	—	—	—	—
<i>Empetrum nigrum</i>	62	84	100	67	72	70	22	50	53	42	67
<i>Kalmia polifolia</i>	—	—	—	—	2	—	—	—	—	—	—
<i>Larix laricina</i>	2	9	—	50	—	40	—	17	—	—	—
<i>Ledum groenlandicum</i>	17	38	25	33	17	18	7	17	29	5	11
<i>Ledum palustre</i> var. <i>decumbens</i>	21	68	38	67	43	83	4	50	6	6	56
<i>Ledum</i> spp.	—	—	—	—	—	3	—	—	—	—	—
<i>Linnaea borealis</i>	30	1	13	33	9	3	52	—	47	53	22
<i>Menziesia ferruginea</i>	8	—	—	—	2	—	—	—	—	3	—
<i>Myrica gale</i>	—	3	—	—	11	10	—	—	—	—	—
<i>Oplopanax horridus</i>	4	—	—	—	4	—	—	—	—	—	—
<i>Picea glauca</i>	68	6	50	17	59	15	59	17	65	53	33
<i>Picea mariana</i>	4	97	63	100	—	88	74	100	29	18	33
<i>Populus balsamifera</i>	—	—	—	—	—	—	—	—	—	2	—
<i>Populus tremuloides</i>	—	4	—	—	2	—	7	—	—	—	22
<i>Populus trichocarpa</i>	2	—	—	—	2	—	—	17	—	—	—
<i>Potentilla fruticosa</i>	9	4	25	—	20	8	—	—	—	3	—

Table 94—Constancy of trees and shrubs on forest vegetation types in south-west Alaska (continued)

Species	Plots in types on which plant species occurred, by vegetation type code ^a and number of plots										
	1A2E	1A2F	1A2G	1A2H	1A3C	1A3D	1B1D	1B2A	1C1A	1C2A	1C3A
	53	69	8	6	46	40	27	6	17	62	9
	<i>Percent</i>										
<i>Ribes bracteosum</i>	—	—	—	—	—	—	4	—	—	—	—
<i>Ribes hudsonianum</i>	2	—	—	—	—	—	—	—	—	—	11
<i>Ribes laxiflorum</i>	—	—	—	—	—	—	—	—	—	3	—
<i>Ribes</i> spp.	19	1	—	—	2	5	37	—	6	19	—
<i>Ribes triste</i>	2	—	—	—	4	—	—	—	—	2	—
<i>Rosa acicularis</i>	42	9	50	—	4	5	48	17	6	24	11
<i>Rubus arcticus</i>	45	6	13	17	35	18	22	—	47	42	22
<i>Rubus chamaemorus</i>	23	72	63	100	35	70	15	—	53	27	56
<i>Rubus idaeus</i>	—	3	—	—	—	—	4	—	—	2	—
<i>Rubus pedatus</i>	19	—	13	—	17	—	—	—	24	44	—
<i>Rumex arcticus</i>	—	1	—	—	13	5	—	—	6	—	—
<i>Salix alaxensis</i>	2	1	—	—	7	3	7	—	6	—	22
<i>Salix arbusculoides</i>	4	—	—	—	2	3	—	33	—	8	—
<i>Salix arctica</i>	—	—	—	—	2	—	—	—	—	—	—
<i>Salix barclayi</i>	13	4	13	—	15	5	11	—	6	10	—
<i>Salix barrattiana</i>	2	—	—	—	—	—	—	—	—	—	—
<i>Salix bebbiana</i>	2	—	—	—	—	5	—	—	—	2	11
<i>Salix commutata</i>	—	—	—	—	—	5	—	—	—	—	—
<i>Salix fuscescens</i>	4	1	—	—	11	—	—	—	—	—	—
<i>Salix glauca</i>	15	—	—	—	4	—	4	—	—	2	—
<i>Salix hastata</i>	—	—	—	—	—	5	—	—	6	—	—
<i>Salix interior</i>	—	—	—	—	—	5	—	—	12	—	—
<i>Salix lanata</i>	—	4	—	—	9	—	—	—	—	—	—
<i>Salix monticola</i>	11	4	50	67	—	—	—	—	—	2	—
<i>Salix myrtilifolia</i>	9	—	—	—	2	8	7	33	—	3	11
<i>Salix planifolia</i>	15	16	13	—	26	15	11	—	12	11	—
<i>Salix reticulata</i>	6	3	—	—	15	3	—	—	—	2	—
<i>Salix setchelliana</i>	—	—	—	—	2	—	—	—	—	—	—
<i>Salix</i> spp.	26	16	25	—	39	10	7	—	6	19	67
<i>Salix stolonifera</i>	—	—	—	—	2	5	—	—	—	—	—
<i>Sorbus scopulina</i>	2	—	—	—	—	—	—	—	—	—	—
<i>Sorbus</i> spp.	2	—	—	—	—	—	4	—	—	8	—
<i>Spirea beauverdiana</i>	55	30	38	—	61	23	52	67	41	55	56
<i>Spirea</i> spp.	6	17	25	—	4	15	30	—	41	13	—
<i>Vaccinium ovalifolium</i>	4	3	—	—	7	10	—	—	12	18	—
<i>Vaccinium oxycoccus</i>	—	35	13	33	11	53	—	—	6	2	—
<i>Vaccinium uliginosum</i>	62	91	100	100	72	85	26	50	59	40	89
<i>Vaccinium vitis-idaea</i>	75	94	100	100	76	90	56	67	82	60	67
<i>Viburnum edule</i>	15	—	13	—	4	—	19	33	6	32	—

— = plant was not sampled in this vegetation type.

^a See table 2 for code descriptions.

Source for vegetation types: Viereck and others 1992.

Table 95—Constancy of forbs on forest vegetation types in southwest Alaska

Species	Plots in types on which plant species occurred, by vegetation type code ^a and number of plots										
	1A2E	1A2F	1A2G	1A2H	1A3C	1A3D	1B1D	1B2A	1C1A	1C2A	1C3A
	53	69	8	6	46	40	27	6	17	62	9
	<i>Percent</i>										
<i>Achillea borealis</i>	2	—	—	—	—	—	—	—	—	—	—
<i>Achillea</i> spp.	2	—	—	—	2	—	—	—	—	—	11
<i>Aconitum delphinifolium</i>	9	—	—	—	7	—	—	7	—	6	—
<i>Anemone richardsonii</i>	6	—	—	—	—	—	—	—	—	—	—
<i>Anemone</i>	—	—	—	—	—	—	—	—	—	2	—
<i>Angelica lucida</i>	—	—	—	—	—	—	—	—	—	2	—
<i>Angelica</i> spp.	4	—	—	—	—	—	—	—	—	—	—
<i>Astragalus</i> spp.	—	—	—	—	2	—	—	—	—	—	—
<i>Athyrium filix-femina</i>	—	—	—	—	—	—	—	—	—	3	—
<i>Boykinia richardsonii</i>	—	—	13	—	—	—	—	—	12	—	—
<i>Cardamine pratensis</i>	—	—	—	—	2	—	—	—	—	—	—
<i>Cicuta mackenzieana</i>	—	—	—	—	—	3	—	—	—	—	—
<i>Collomia linearis</i>	2	1	—	—	—	3	—	—	—	5	—
Compositae family	9	1	—	—	2	—	—	—	—	—	—
<i>Cornus canadensis</i>	42	20	25	—	39	3	33	17	29	39	11
<i>Cornus suecica</i>	9	4	50	—	9	3	37	—	12	16	22
Cruciferae family	—	—	—	—	2	—	—	—	—	—	—
<i>Cypripedium montanum</i>	—	—	—	—	—	—	—	—	—	2	—
<i>Delphinium glaucum</i>	—	—	—	—	—	—	—	—	—	—	—
<i>Draba aurea</i>	2	—	—	—	—	—	—	—	—	—	—
<i>Drosera</i> spp.	—	1	—	—	2	13	—	—	—	—	—
<i>Dryopteris dilatata</i>	21	—	—	—	7	—	—	22	41	32	—
<i>Dryopteris fragrans</i>	2	—	—	—	—	—	—	—	—	3	—
<i>Dryopteris</i> spp.	13	1	—	—	7	—	—	11	12	19	—
<i>Epilobium angustifolium</i>	47	7	25	—	15	15	33	83	6	19	11
<i>Epilobium</i> spp.	—	—	—	—	2	—	—	—	6	—	—
<i>Equisetum arvense</i>	15	13	13	—	26	8	4	17	24	31	22
<i>Equisetum fluviatile</i>	—	—	—	—	—	5	—	—	—	—	—
<i>Equisetum pratense</i>	6	—	13	—	—	—	7	—	—	—	—
<i>Equisetum scirpoides</i>	6	—	—	—	2	—	—	—	—	—	—
<i>Equisetum silvaticum</i>	25	55	63	33	13	50	—	17	53	27	67
<i>Equisetum</i> spp.	11	12	13	33	15	10	33	—	—	23	22
<i>Erigeron purpuratus</i>	—	—	—	—	—	3	—	—	—	—	—
Forb	11	4	—	17	7	5	4	—	29	3	11
<i>Galium aparine</i>	2	—	—	—	—	—	—	—	—	—	—
<i>Galium boreale</i>	8	1	—	—	2	—	—	—	—	6	—
<i>Galium</i> spp.	8	—	—	—	4	—	7	—	—	3	11
<i>Galium trifidum</i>	—	—	—	—	4	—	—	—	—	—	—

Table 95—Constancy of forbs on forest vegetation types in southwest Alaska (continued)

Species	Plots in types on which plant species occurred, by vegetation type code ^a and number of plots										
	1A2E	1A2F	1A2G	1A2H	1A3C	1A3D	1B1D	1B2A	1C1A	1C2A	1C3A
	53	69	8	6	46	40	27	6	17	62	9
	<i>Percent</i>										
<i>Gentiana</i>	—	—	—	—	2	—	—	—	—	—	—
<i>Geocaulon lividum</i>	13	14	—	—	—	15	4	33	6	5	—
<i>Geranium bicknellii</i>	4	—	—	—	—	—	—	—	—	—	—
<i>Geranium erianthum</i>	2	—	—	—	4	—	4	—	—	3	—
<i>Geranium</i> spp.	11	3	—	—	—	—	—	—	—	13	11
<i>Goodyera repens</i>	—	—	—	—	—	—	—	—	—	2	—
<i>Gymnocarpium dryopteris</i>	19	—	—	—	4	—	19	—	12	34	—
<i>Heracleum lanatum</i>	—	—	—	—	—	—	—	—	—	3	—
<i>Hippuris vulgaris</i>	—	—	—	—	—	—	—	—	6	—	—
<i>Iris setosa</i>	4	—	—	—	2	—	—	—	—	—	—
<i>Lepidium densiflorum</i>	—	—	—	—	2	—	—	—	—	—	—
<i>Listera cordata</i>	2	—	—	—	2	—	4	—	—	5	—
<i>Lupinus arcticus</i>	2	—	—	—	—	—	—	—	—	—	—
<i>Lupinus</i> spp.	4	—	—	—	—	—	—	—	—	2	—
<i>Mertensia paniculata</i>	26	1	—	—	—	3	4	—	12	13	—
<i>Mertensia</i> spp.	—	—	—	—	4	—	—	—	—	2	22
<i>Mitella pentandra</i>	—	—	—	—	4	—	—	—	—	—	—
<i>Moneses uniflora</i>	6	1	—	—	4	—	4	—	6	6	—
Mushroom	19	23	25	—	17	30	70	67	47	40	11
<i>Parnassia palustris</i>	—	—	—	—	—	5	—	—	—	—	—
<i>Parnassia</i> spp.	—	—	—	—	7	5	—	—	—	—	—
<i>Pedicularis</i> spp.	2	1	—	—	2	—	—	—	—	—	—
<i>Petasites frigidus</i>	—	1	—	—	—	—	—	—	—	—	—
<i>Petasites hyperboreus</i>	9	6	13	33	2	13	—	—	6	—	—
<i>Platanthera hyperboreus</i>	—	—	—	—	2	—	—	—	—	—	—
<i>Polemonium acutiflorum</i>	4	—	—	—	4	—	—	—	—	—	—
<i>Polemonium</i> spp.	9	1	13	—	7	—	15	—	6	5	22
<i>Polygonum alaskanum</i>	—	—	—	—	—	—	—	—	—	2	—
<i>Potentilla palustris</i>	8	3	—	—	13	8	4	—	8	8	22
<i>Potentilla</i> spp.	—	3	—	—	2	5	—	—	—	—	—
<i>Pyrola asarifolia</i>	6	—	13	—	4	—	—	33	—	—	—
<i>Pyrola secunda</i>	25	7	25	—	20	—	11	17	12	34	—
<i>Pyrola</i> spp.	8	4	13	—	2	8	11	—	6	3	11
<i>Ranunculus lapponicus</i>	—	1	—	—	—	—	—	—	6	—	—
<i>Ranunculus</i> spp.	4	—	—	—	13	3	7	—	—	—	11
<i>Rumex acetosella</i>	—	—	—	—	—	3	—	—	—	—	—
<i>Rumex fenestratus</i>	2	—	—	—	—	—	—	—	—	—	—
<i>Rumex</i> spp.	6	6	—	—	2	8	—	—	6	2	—

Table 95—Constancy of forbs on forest vegetation types in southwest Alaska (continued)

Species	Plots in types on which plant species occurred, by vegetation type code ^a and number of plots										
	1A2E	1A2F	1A2G	1A2H	1A3C	1A3D	1B1D	1B2A	1C1A	1C2A	1C3A
	53	69	8	6	46	40	27	6	17	62	9
	Percent										
<i>Sanguisorba menziesii</i>	6	—	—	—	2	—	—	—	—	—	—
<i>Sanguisorba</i> spp.	21	3	25	—	26	3	—	—	—	18	11
<i>Sanguisorba stipulata</i>	—	—	—	—	4	—	—	—	—	—	—
<i>Saxifraga bronchialis</i>	—	1	—	—	—	—	—	—	—	—	—
<i>Sedum rosea</i>	6	1	—	—	7	—	—	—	—	—	—
<i>Senecio</i> spp.	—	—	—	—	2	—	—	—	—	—	—
<i>Smilacina</i> spp.	—	—	—	—	—	—	4	—	—	3	—
<i>Solidago multiradiata</i>	4	—	—	—	—	—	—	—	—	—	—
<i>Stellaria crispa</i>	—	—	—	—	2	—	—	—	—	—	—
<i>Stellaria</i> spp.	2	—	—	—	2	—	7	—	12	6	—
<i>Streptopus</i>											
<i>amplexifolius</i>	11	—	—	—	2	—	—	—	—	15	—
<i>Streptopus</i> spp.	—	—	—	—	2	—	—	—	—	6	11
<i>Streptopus</i>											
<i>streptopoides</i>	4	—	—	—	—	—	—	17	—	—	—
<i>Swertia perennis</i>	—	—	—	—	4	—	—	—	—	—	—
<i>Thalictrum alpinum</i>	2	1	—	—	—	—	—	—	—	—	—
<i>Thalictrum occidentale</i>	—	—	—	—	2	—	—	—	—	—	—
<i>Thalictrum</i> spp.	—	—	—	—	—	—	7	—	—	6	11
<i>Thalictrum sparsiflorum</i>	4	—	—	—	2	—	—	—	—	2	—
<i>Thelypteris phegopteris</i>	2	—	—	—	—	—	—	—	—	2	—
<i>Trientalis europaea</i>	51	3	—	—	37	5	30	33	35	74	33
<i>Valeriana capitata</i>	2	1	—	—	4	—	—	—	—	6	—
<i>Valeriana sitchensis</i>	4	—	—	—	—	—	—	—	—	—	—
<i>Valeriana</i> spp.	4	—	—	—	—	—	4	—	—	5	22
<i>Veratrum viride</i>	8	—	—	—	2	—	—	—	—	13	—
<i>Vicia</i> spp.	2	—	—	—	2	—	—	—	—	—	—
<i>Viola epipsila</i>	2	—	—	—	4	—	—	—	—	—	—
<i>Viola langsдорffii</i>	2	—	—	—	—	—	—	—	—	2	—
<i>Viola</i> spp.	17	—	—	—	7	5	11	—	—	23	22
<i>Luzula</i> spp.	—	—	—	—	4	—	—	—	—	—	—

— = plant was not sampled in this vegetation type.

^a See table 2 for code descriptions.

Source for vegetation types: Viereck and others 1992.

Table 96—Constancy of grasses on forest vegetation types in southwest Alaska

Species	Plots in types on which plant species occurred, by vegetation type code ^a and number of plots										
	1A2E	1A2F	1A2G	1A2H	1A3C	1A3D	1B1D	1B2A	1C1A	1C2A	1C3A
	53	69	8	6	46	40	27	6	17	62	9
<i>Percent</i>											
<i>Calamagrostis canadensis</i>	43	20	50	33	48	45	85	50	47	48	22
<i>Calamagrostis</i> spp.	25	4	—	—	11	18	—	17	24	27	33
<i>Carex</i> spp.	15	39	25	67	43	55	4	—	6	3	56
<i>Eriophorum</i> spp.	—	12	—	—	9	13	—	—	—	—	11
Grass	15	6	25	17	13	3	—	17	12	15	33
<i>Juncus</i> spp.	2	—	—	—	2	—	—	—	—	—	—
<i>Luzula</i> spp.	—	—	—	—	4	—	—	—	—	—	—

— = plant was not sampled in this vegetation type.

^a See table 2 for code descriptions.

Source for vegetation types: Viereck and others 1992.

Table 97—Constancy of lichens on forest vegetation types in southwest Alaska

Species	Plots in types on which plant species occurred, by vegetation type code ^a and number of plots										
	1A2E	1A2F	1A2G	1A2H	1A3C	1A3D	1B1D	1B2A	1C1A	1C2A	1C3A
	53	69	8	6	46	40	27	6	17	62	9
<i>Percent</i>											
<i>Alectoria nigricans</i>	—	—	25	—	—	—	—	—	—	—	—
<i>Alectoria</i> spp.	4	1	—	—	7	—	—	—	6	3	—
<i>Bryoria</i> spp.	6	4	25	—	15	—	—	—	—	2	11
<i>Cetraria cucullata</i>	—	4	—	17	9	3	—	17	—	—	—
<i>Cetraria islandica</i>	6	13	—	—	4	30	—	—	—	3	—
<i>Cetraria nivalis</i>	—	—	—	—	4	—	—	—	—	2	11
<i>Cetraria</i> spp.	25	19	63	33	17	25	41	—	6	5	11
<i>Cladina mitis</i>	8	3	—	50	4	3	—	—	6	—	—
<i>Cladina rangiferina</i>	36	71	75	67	50	70	15	67	12	15	44
<i>Cladina</i> spp.	13	6	13	—	15	8	—	—	—	15	—
<i>Cladina stellaria</i> (<i>alpestris</i>)	6	12	—	—	9	5	—	—	—	—	11
<i>Cladonia bellidiflora</i>	2	—	—	—	—	—	—	—	—	2	—
<i>Cladonia gracilis</i>	21	42	38	—	28	35	7	17	12	15	—
<i>Cladonia</i> spp.	68	68	75	33	61	70	93	17	82	69	22
<i>Hypogymnia</i> spp.	28	6	63	17	17	—	7	—	24	19	11
Lichen	32	29	25	—	22	8	26	67	35	23	11
<i>Lobaria</i> spp.	8	—	—	—	4	—	15	—	18	13	—

<i>Nephroma arcticum</i>	11	9	13	33	—	8	11	—	12	5	22
<i>Nephroma</i> spp.	21	67	63	50	46	60	15	17	24	19	22
<i>Parmelia</i> spp.	49	62	25	17	54	68	93	83	71	74	78
<i>Peltigera canina</i>	15	—	38	—	4	—	—	—	—	2	—
<i>Peltigera</i> spp.	32	28	—	17	22	43	26	67	41	26	56
<i>Stereocaulon paschale</i>	—	1	—	—	—	3	—	—	—	—	—
<i>Stereocaulon</i> spp.	2	—	—	—	7	3	—	—	—	—	—
<i>Usnea</i> spp.	40	57	25	—	35	63	19	—	29	34	33

— = plant was not sampled in this vegetation type.

^a See table 2 for code descriptions.

Source for vegetation types: Viereck and others 1992.

Table 98—Constancy of mosses on forest vegetation types in southwest Alaska

Species	Plots in types on which plant species occurred, by vegetation type code ^a and number of plots										
	1A2E	1A2F	1A2G	1A2H	1A3C	1A3D	1B1D	1B2A	1C1A	1C2A	1C3A
	53	69	8	6	46	40	27	6	17	62	9
	<i>Percent</i>										
<i>Aulacomnium</i> spp.	15	14	—	17	30	25	11	17	29	8	22
<i>Climacium dendroides</i>	4	—	—	—	2	—	—	—	—	2	—
<i>Dicranum scoparium</i>	—	—	—	—	—	—	—	—	—	2	—
<i>Dicranum</i> spp.	43	28	38	—	46	8	63	17	59	45	11
<i>Ditrichum</i> spp.	—	—	13	—	2	—	4	—	—	2	—
Hepaticae family	8	6	—	—	9	18	4	17	6	6	—
<i>Hylocomium splendens</i>	70	71	63	17	61	43	70	83	76	69	11
<i>Hylocomium</i> spp.	11	1	38	—	13	5	4	—	12	11	11
<i>Lycopodium annotinum</i>	34	22	—	17	11	3	37	—	41	44	22
<i>Lycopodium</i>											
<i>complanatum</i>	8	—	—	—	4	—	4	—	6	10	—
<i>Lycopodium selago</i>	2	—	—	—	2	—	—	—	—	—	—
<i>Lycopodium</i> spp.	2	—	—	—	7	—	—	—	—	—	—
<i>Mnium</i> spp.	8	1	—	—	11	5	—	—	—	10	—
Moss	47	14	13	—	37	23	59	67	35	37	33
<i>Pleurozium schreberi</i>	70	58	63	100	61	83	74	67	53	60	67
<i>Polytrichum juniperium</i>	8	—	38	50	2	—	—	—	—	3	—
<i>Polytrichum</i> spp.	49	35	50	17	72	53	56	67	53	45	56
<i>Ptilium ciliare</i>	4	—	—	—	4	—	—	—	—	2	—
<i>Ptilium crista-castrensis</i>	42	19	50	17	46	13	56	50	53	32	22
<i>Ptilium</i> spp.	—	—	—	—	4	—	—	—	—	2	—
<i>Rhacomitrium</i>											
<i>lanuginosum</i>	2	—	—	—	—	—	—	—	—	—	—
<i>Rhytidiadelphus</i> spp.	9	1	—	—	2	3	—	—	6	5	—
<i>Rhytidium</i> spp.	—	1	—	—	—	—	—	—	—	—	11
<i>Sphagnum</i> spp.	36	86	75	100	70	90	11	50	65	31	89

— = plant was not sampled in this vegetation type.

^a See table 2 for code descriptions.

Source for vegetation types: Viereck and others 1992.

**Appendix H:
Species Constancy
on Nonforest
Vegetation Types**

Table 99—Constancy of trees and shrubs on nonforest vegetation types in southwest Alaska

Species	Plots in types on which plant species occurred, by vegetation type code ^a and number of plots									
	2B1A	2B1B	2B1D	2B2B	2B2D	2C1A	2C1B	2C1D	2C2A	2C2C
	16	34	15	7	6	6	4	16	10	18
	<i>Percent</i>									
<i>Alnus crispa</i>	6	44	20	—	33	—	25	—	—	6
<i>Alnus sinuata</i>	6	53	13	100	17	17	—	6	—	—
<i>Alnus</i> spp.	—	—	7	—	—	—	—	—	—	6
<i>Alnus tenuifolia</i>	13	3	60	—	17	—	—	—	—	—
<i>Andromeda polifolia</i>	—	—	—	—	17	—	—	12	30	22
<i>Arctostaphylos alpina</i>	—	—	—	—	—	—	—	—	20	22
<i>Arctostaphylos rubra</i>	—	6	13	14	17	67	—	24	20	22
<i>Arctostaphylos</i> spp.	—	3	—	—	—	—	—	—	—	—
<i>Arctostaphylos uva-ursi</i>	—	—	—	14	—	—	—	—	—	—
<i>Artemisia arctica</i>	—	—	—	—	—	—	—	6	—	—
<i>Artemisia</i> spp.	—	3	—	14	—	17	—	—	—	—
<i>Betula glandulosa</i>	13	9	—	14	—	83	—	12	—	6
<i>Betula nana</i>	25	6	—	71	67	67	75	94	100	100
<i>Betula papyrifera</i>	13	—	7	14	—	—	50	29	—	—
<i>Cassiope stelleriana</i>	—	—	—	—	17	—	—	—	—	—
<i>Chamaedaphne calyculata</i>	—	3	—	—	—	—	25	12	—	—
<i>Diapensia lapponica</i>	—	3	—	—	—	—	—	12	—	11
<i>Empetrum nigrum</i>	13	18	20	71	100	67	25	76	40	72
<i>Kalmia polifolia</i>	—	—	—	14	—	—	—	—	—	—
<i>Ledum groenlandicum</i>	—	9	—	29	50	—	—	—	—	—
<i>Ledum palustre</i> var. <i>decumbens</i>	6	9	—	57	33	100	25	94	100	83
<i>Ledum</i> spp.	—	—	—	—	—	—	—	—	—	6
<i>Linnaea borealis</i>	13	9	7	14	—	—	—	6	—	—
<i>Loiseleuria procumbens</i>	—	—	—	—	17	—	—	—	—	—
<i>Luetkea pectinata</i>	—	—	—	—	33	—	—	—	—	—
<i>Menziesia ferruginea</i>	—	9	—	14	—	—	—	—	—	—
<i>Myrica gale</i>	—	6	—	—	—	—	—	—	—	—
<i>Oplopanax horridus</i>	—	18	—	—	—	—	—	—	—	—
<i>Picea glauca</i>	25	6	27	—	—	17	25	29	—	22
<i>Picea mariana</i>	13	—	—	—	17	—	25	12	—	22
<i>Phyllodoce coerulea</i>	—	—	—	—	—	—	—	6	—	—
<i>Populus balsamifera</i>	—	—	7	—	—	—	—	—	—	—
<i>Potentilla fruticosa</i>	6	—	7	—	—	—	—	—	—	—

Table 99—Constancy of trees and shrubs on nonforest vegetation types in south-west Alaska (continued)

Species	Plots in types on which plant species occurred, by vegetation type code ^a and number of plots									
	2B1A	2B1B	2B1D	2B2B	2B2D	2C1A	2C1B	2C1D	2C2A	2C2C
	16	34	15	7	6	6	4	16	10	18
	<i>Percent</i>									
<i>Rhododendron camtschaticum</i>	—	9	—	—	—	—	—	—	—	—
<i>Ribes</i> spp.	13	12	13	14	—	—	—	—	—	—
<i>Ribes triste</i>	6	3	20	—	—	—	—	—	—	—
<i>Rosa acicularis</i>	6	—	40	—	—	—	—	—	—	—
<i>Rubus arcticus</i>	75	24	93	43	33	—	75	12	30	11
<i>Rubus chamaemorus</i>	25	24	13	29	50	17	25	47	60	50
<i>Rubus idaeus</i>	—	3	13	—	—	—	—	—	—	—
<i>Rubus pedatus</i>	6	32	—	29	17	—	—	—	—	—
<i>Rubus</i> spp.	—	—	7	—	—	—	—	—	—	—
<i>Rubus spectabilis</i>	—	18	—	—	—	—	—	—	—	—
<i>Rumex arcticus</i>	13	3	27	—	—	—	—	—	—	—
<i>Salix alaxensis</i>	13	3	40	—	—	—	—	—	—	—
<i>Salix arbusculoides</i>	13	—	7	—	—	—	—	—	—	—
<i>Salix arctica</i>	6	9	—	14	—	17	—	12	20	—
<i>Salix barclayi</i>	31	3	20	—	—	17	—	—	—	—
<i>Salix bebbiana</i>	—	—	7	—	—	—	—	—	—	—
<i>Salix commutata</i>	13	—	—	—	—	—	—	—	—	—
<i>Salix fuscescens</i>	—	—	—	—	—	—	—	12	10	—
<i>Salix glauca</i>	13	—	—	—	—	33	—	—	—	—
<i>Salix lanata</i>	—	—	7	—	—	—	—	—	—	—
<i>Salix lasiandra</i>	—	3	—	—	—	—	—	—	—	—
<i>Salix monticola</i>	13	—	—	—	—	—	—	—	—	—
<i>Salix myrtillofolia</i>	—	—	7	—	—	—	—	—	—	—
<i>Salix planifolia</i>	63	3	47	14	17	—	25	—	10	17
<i>Salix reticulata</i>	—	—	20	—	17	—	—	—	—	11
<i>Salix rotundifolia</i>	—	—	—	—	—	—	—	—	10	—
<i>Salix setchelliana</i>	—	—	—	—	—	—	—	6	—	—
<i>Sorbus sitchensis</i>	13	—	—	—	—	—	—	—	—	—
<i>Salix</i> spp.	6	12	33	29	50	—	50	29	—	—
<i>Sambucus racemosa</i>	—	18	—	—	—	—	—	—	—	—
<i>Sorbus</i> spp.	—	3	—	—	—	—	—	—	—	—
<i>Spirea beauverdiana</i>	19	53	20	86	50	33	50	47	10	56
<i>Spirea</i> spp.	—	—	7	—	—	—	—	—	—	—
<i>Vaccinium ovalifolium</i>	—	6	—	—	—	33	—	—	—	—
<i>Vaccinium oxycoccus</i>	13	—	—	—	17	—	25	6	30	6
<i>Vaccinium uliginosum</i>	25	26	7	57	83	67	75	88	100	78
<i>Vaccinium vitis-idaea</i>	19	15	13	86	83	83	50	88	70	83
<i>Viburnum edule</i>	19	—	33	—	—	—	—	—	—	—

— = plant was not sampled in this vegetation type.

^a See table 3 for code descriptions.

Source for vegetation types: Viereck and others 1992.

Table 100—Constancy of forbs on nonforest vegetation types in southwest Alaska

Species	Plots in types on which plant species occurred, by vegetation type code ^a and number of plots									
	2B1A	2B1B	2B1D	2B2B	2B2D	2C1A	2C1B	2C1D	2C2A	2C2C
	16	34	15	7	6	6	4	16	10	18
	<i>Percent</i>									
<i>Achillea</i> spp.	25	3	—	—	—	—	—	—	—	—
<i>Aconitum delphinifolium</i>	31	3	20	14	—	—	—	—	—	—
<i>Actaea rubra</i>	—	6	—	—	—	—	—	—	—	—
<i>Anemone richardsonii</i>	6	—	—	—	—	—	—	—	—	—
<i>Angelica lucida</i>	—	6	—	—	—	—	—	—	—	—
<i>Angelica</i> spp.	6	9	13	29	—	—	—	—	—	—
<i>Artemisia arctica</i>	—	—	—	—	—	—	—	6	—	—
<i>Aruncus sylvester</i>	—	—	7	—	—	—	—	—	—	—
<i>Astragalus</i> spp.	6	—	—	—	—	—	—	—	—	—
<i>Athyrium filix-femina</i>	—	18	—	—	—	—	—	6	—	—
<i>Athyrium</i> spp.	—	3	—	—	—	—	—	—	—	—
<i>Boykinia richardsonii</i>	—	3	7	14	—	—	—	—	—	—
<i>Cardamine pratensis</i>	—	—	7	—	—	—	—	—	—	—
<i>Cardamine</i> spp.	—	6	—	—	—	—	—	—	—	—
<i>Cardamine umbellata</i>	—	3	—	—	—	—	—	—	—	—
<i>Cerastium</i> spp.	—	—	—	—	—	—	25	—	—	—
<i>Chrysosplenium tetrandrum</i>	—	—	13	—	—	—	—	—	—	—
<i>Cicuta douglasii</i>	—	3	7	—	—	—	—	—	—	—
Compositae family	6	3	13	14	—	—	—	—	—	—
<i>Cornus canadensis</i>	19	6	33	14	—	33	—	18	—	22
<i>Cornus suecica</i>	—	3	7	—	33	33	—	12	—	17
Cruciferae family	—	—	20	—	—	—	—	—	—	—
<i>Cryptogramma</i> spp.	—	3	—	—	—	—	—	—	—	—
<i>Delphinium brachycentrum</i>	6	—	—	—	—	—	—	—	—	—
<i>Dryopteris dilatata</i>	6	59	7	29	50	—	—	18	—	—
<i>Dryopteris</i> spp.	—	3	—	—	—	—	—	—	—	—
<i>Epilobium angustifolium</i>	50	35	33	29	50	33	25	12	10	17
<i>Epilobium latifolium</i>	—	—	—	—	17	—	—	—	—	—
<i>Epilobium</i> spp.	6	6	7	—	—	—	—	—	—	—
<i>Equisetum arvense</i>	50	9	73	14	—	—	25	12	—	—
<i>Equisetum silvaticum</i>	6	9	40	29	—	—	—	—	—	17
<i>Equisetum</i> spp.	25	—	13	—	17	—	—	—	—	—
<i>Galium boreale</i>	—	—	27	—	—	—	25	—	—	—
<i>Galium</i> spp.	19	—	20	—	—	—	—	—	—	—
<i>Geocaulon lividum</i>	—	3	—	—	—	—	—	—	—	—
<i>Geranium</i> spp.	19	9	7	—	—	17	—	—	—	—
<i>Gymnocarpium dryopteris</i>	19	26	20	—	17	17	—	—	—	6
<i>Heracleum lanatum</i>	19	12	—	—	—	—	—	—	—	—

Table 100—Constancy of forbs on nonforest vegetation types in southwest Alaska (continued)

Species	Plots in types on which plant species occurred, by vegetation type code ^a and number of plots									
	2B1A	2B1B	2B1D	2B2B	2B2D	2C1A	2C1B	2C1D	2C2A	2C2C
	16	34	15	7	6	6	4	16	10	18
	<i>Percent</i>									
<i>Iris setosa</i>	—	3	—	—	—	—	25	—	—	—
<i>Listera cordata</i>	6	3	7	—	—	—	—	—	—	—
<i>Lupinus</i> spp.	6	—	—	—	—	—	—	—	—	—
<i>Mertensia paniculata</i>	13	3	40	—	—	—	—	—	—	—
<i>Mertensia</i> spp.	—	—	7	—	—	—	—	—	—	—
Mushroom	19	24	47	—	17	17	—	18	10	6
<i>Parnassia palustris</i>	6	—	7	—	—	—	—	—	—	—
<i>Pedicularis</i> spp.	—	—	—	—	—	—	—	—	20	—
<i>Petasites frigidus</i>	—	—	13	—	—	—	—	—	—	—
<i>Petasites hyerboreus</i>	13	—	7	—	17	—	—	6	10	—
<i>Polemonium acutiflorum</i>	—	—	13	—	—	—	—	—	—	—
<i>Polemonium</i> spp.	44	—	33	—	—	—	25	—	10	—
<i>Polygonum bistorta</i>	—	—	—	14	—	—	—	—	—	—
<i>Potentilla palustris</i>	56	—	33	—	—	—	75	—	—	—
<i>Pyrola asarifolia</i>	19	3	—	—	—	—	—	—	—	—
<i>Pyrola secunda</i>	—	—	—	—	—	—	—	6	—	6
<i>Pyrola</i> spp.	25	—	13	—	17	—	—	—	—	—
<i>Ranunculus lapponicus</i>	—	—	—	—	—	—	25	—	—	—
<i>Ranunculus</i> spp.	—	3	27	—	—	—	—	—	—	—
<i>Romanzoffia</i> spp.	—	3	—	—	—	—	—	—	—	—
<i>Rumex</i> spp.	—	—	7	—	17	—	25	—	—	—
<i>Sanguisorba</i> spp.	63	21	53	—	17	—	—	6	—	—
<i>Saxifraga punctata</i>	—	6	—	—	—	—	—	—	—	—
<i>Sedum rosea</i>	6	9	20	—	33	—	—	6	—	—
<i>Senecio</i> spp.	—	3	—	—	—	—	—	—	—	—
<i>Stellaria crassifolia</i>	—	—	13	—	—	—	—	—	—	—
<i>Stellaria</i> spp.	25	15	20	14	—	—	—	—	—	—
<i>Streptopus amplexifolius</i>	—	32	—	—	—	—	—	—	—	—
<i>Streptopus</i> spp.	6	6	—	—	—	—	—	—	—	—
<i>Streptopus streptopoides</i>	—	6	—	—	—	—	—	—	—	—
<i>Thalictrum occidentale</i>	—	—	27	—	—	—	—	—	—	—
<i>Thalictrum</i> spp.	—	—	7	—	—	—	—	—	—	—
<i>Thalictrum sparsiflorum</i>	—	—	7	—	—	—	—	—	—	—
<i>Thelypteris phegopteris</i>	—	9	—	14	—	—	—	—	—	—
<i>Thelypteris</i> spp.	—	—	13	—	—	—	—	—	—	—
<i>Trientalis europaea</i>	31	76	73	86	33	33	50	18	—	6

Table 100—Constancy of forbs on nonforest vegetation types in southwest Alaska (continued)

Species	Plots in types on which plant species occurred, by vegetation type code ^a and number of plots									
	2B1A	2B1B	2B1D	2B2B	2B2D	2C1A	2C1B	2C1D	2C2A	2C2C
	16	34	15	7	6	6	4	16	10	18
	<i>Percent</i>									
<i>Valeriana capitata</i>	38	—	53	—	—	—	—	—	—	—
<i>Valeriana sitchensis</i>	—	—	7	—	—	—	—	—	—	—
<i>Valeriana</i> spp.	—	—	7	—	—	—	—	—	—	—
<i>Veratrum viride</i>	—	18	—	—	17	—	—	—	—	—
<i>Viola langsдорфii</i>	—	6	13	—	—	—	—	—	—	—
<i>Viola</i> spp.	13	12	47	—	—	—	25	—	—	—

— = plant was not sampled in this vegetation type.

^a See table 3 for code descriptions.

Source for vegetation types: Viereck and others 1992.

Table 101—Constancy of grasses on nonforest vegetation types in southwest Alaska

Species	Plots in types on which plant species occurred, by vegetation type code ^a and number of plots									
	2B1A	2B1B	2B1D	2B2B	2B2D	2C1A	2C1B	2C1D	2C2A	2C2C
	16	34	15	7	6	6	4	16	10	18
	<i>Percent</i>									
<i>Calamagrostis canadensis</i>	50	29	73	—	17	—	100	24	—	11
<i>Calamagrostis</i> spp.	38	32	27	43	17	—	—	18	40	28
<i>Carex</i> spp.	25	12	13	14	50	67	—	82	100	78
<i>Eriophorum</i> spp.	—	—	—	—	—	—	—	24	90	17
Grass	13	18	—	57	50	33	—	12	—	—
<i>Poa</i> spp.	—	—	—	—	—	—	—	—	—	6

— = plant was not sampled in this vegetation type.

^a See table 3 for code descriptions.

Source for vegetation types: Viereck and others 1992.

Table 102—Constancy of lichens on nonforest vegetation types in southwest Alaska

Species	Plots in types on which plant species occurred, by vegetation type code ^a and number of plots									
	2B1A 16	2B1B 34	2B1D 15	2B2B 7	2B2D 6	2C1A 6	2C1B 4	2C1D 16	2C2A 10	2C2C 18
	<i>Percent</i>									
<i>Alectoria delicta</i>	—	—	13	—	—	—	—	—	—	—
<i>Cetraria cucullata</i>	—	—	—	14	—	—	—	29	50	50
<i>Cetraria islandica</i>	—	—	—	—	17	—	—	29	20	17
<i>Cetraria nivalis</i>	—	—	—	—	—	—	—	12	10	6
<i>Cetraria</i> spp.	—	9	27	14	—	—	25	29	30	22
<i>Cladina mitis</i>	—	—	—	—	—	—	—	—	—	11
<i>Cladina rangiferina</i>	6	6	7	43	50	83	25	65	90	72
<i>Cladina</i> spp.	—	6	7	14	17	—	—	—	30	44
<i>Cladina stellaria</i> (<i>alpestris</i>)	—	—	—	14	—	—	—	18	20	11
<i>Cladonia digitata</i>	—	—	—	—	—	—	—	—	20	—
<i>Cladonia gracilis</i>	—	6	7	14	17	33	25	35	10	33
<i>Cladonia</i> spp.	6	41	40	14	67	67	50	47	40	56
<i>Hypogymnia</i> spp.	—	—	13	—	—	—	—	6	—	—
Lichen	38	44	47	14	17	—	—	29	60	11
<i>Lobaria</i> spp.	—	3	20	—	—	—	—	6	—	—
<i>Nephroma arcticum</i>	13	—	—	—	17	—	—	—	—	—
<i>Nephroma</i> spp.	—	6	13	14	17	17	25	35	20	22
<i>Parmelia</i> spp.	19	15	67	—	17	33	75	41	—	11
<i>Peltigera</i> spp.	13	9	13	14	17	50	50	29	—	6
<i>Stereocaulon paschale</i>	—	—	—	—	—	—	—	6	—	11
<i>Stereocaulon</i> spp.	—	3	—	14	17	33	—	12	10	17
<i>Thamnolia subuliformis</i>	—	—	—	—	—	—	—	—	50	—
<i>Usnea</i> spp.	6	6	13	—	17	33	—	18	—	11

— = plant was not sampled in this vegetation type.

^a See table 3 for code descriptions.

Source for vegetation types: Viereck and others 1992.

Table 103—Constancy of mosses on nonforest vegetation types in southwest Alaska

Species	Plots in types on which plant species occurred, by vegetation type code ^a and number of plots									
	2B1A 16	2B1B 34	2B1D 15	2B2B 7	2B2D 6	2C1A 6	2C1B 4	2C1D 16	2C2A 10	2C2C 18
	<i>Percent</i>									
<i>Aulacomnium</i> spp.	6	3	7	29	17	—	—	41	20	11
<i>Conocephalum conicum</i>	—	6	—	—	—	—	—	—	—	—
<i>Dicranum</i> spp.	19	32	47	43	67	33	—	18	30	56
<i>Ditrichum</i> spp.	—	3	—	—	—	—	—	—	—	—
Hepaticae family	6	9	27	—	17	17	25	6	—	11
<i>Hylocomium splendens</i>	38	18	47	71	67	33	—	53	10	28
<i>Lycopodium annotinum</i>	25	29	20	71	67	17	—	24	—	11
<i>Lycopodium complanatum</i>	—	—	—	—	—	17	—	—	—	6
<i>Lycopodium</i> spp.	—	—	—	—	—	—	—	—	—	6
<i>Mnium</i> spp.	6	9	20	—	—	—	25	—	—	—
Moss	69	79	87	57	33	—	25	12	50	17
<i>Pleurozium schreberi</i>	50	32	33	57	67	33	75	35	40	61
<i>Polytrichum juniperium</i>	—	—	—	29	—	—	—	—	—	—
<i>Polytrichum</i> spp.	—	26	40	29	67	67	50	59	50	50
<i>Ptilium ciliare</i>	—	3	—	—	—	—	—	—	—	—
<i>Ptilium crista-castrensis</i>	25	3	20	57	33	33	—	24	—	17
<i>Ptilium</i> spp.	—	—	—	14	—	—	—	—	—	—
<i>Rhacomitrium</i> spp.	—	6	—	—	—	17	—	—	10	—
<i>Rhytidiadelphus</i> spp.	—	3	—	—	—	—	—	—	—	—
<i>Rhytidium</i> spp.	—	—	7	—	—	—	—	—	—	—
<i>Sphagnum</i> spp.	25	6	13	29	67	33	75	65	100	72
<i>Thuidium abietinum</i>	—	3	—	—	—	—	—	—	—	—

— = plant was not sampled in this vegetation type.

^a See table 3 for code descriptions.

Source for vegetation types: Viereck and others 1992.

Table 104—Constancy of trees and shrubs on nonforest low shrub and herb vegetation types in southwest Alaska

Species	Plots in types on which plant species occurred, by vegetation type code ^a and number of plots									
	2C2E 4	2C2G 6	2C2J 10	2D2B 4	2D2C 13	2D2D 22	2D2E 5	3A3E 8	3A3K 6	3C2B 4
	<i>Percent</i>									
<i>Alnus crispa</i>	—	—	—	50	8	9	—	—	—	—
<i>Alnus sinuata</i>	—	—	—	25	5	4	20	—	—	—
<i>Alnus</i> spp.	—	—	—	—	—	—	—	—	—	25
<i>Andromeda polifolia</i>	25	—	60	—	—	—	—	13	50	25
<i>Arctostaphylos alpina</i>	—	—	—	—	15	9	—	—	—	—
<i>Arctostaphylos rubra</i>	—	—	—	50	23	55	20	—	—	—
<i>Arctostaphylos uva-ursi</i>	—	—	—	—	15	—	—	—	—	—
<i>Artemisia arctica</i>	—	17	—	25	—	27	40	—	—	—
<i>Artemisia globularia</i>	—	—	—	—	—	9	—	—	—	—
<i>Artemisia</i> spp.	—	—	—	50	23	27	20	—	—	—
<i>Betula glandulosa</i>	—	—	10	—	8	—	—	—	—	25
<i>Betula nana</i>	100	17	90	75	46	68	—	13	67	100
<i>Betula papyrifera</i>	—	—	—	—	—	5	—	13	—	—
<i>Cassiope stellariana</i>	—	—	—	25	—	—	80	—	—	—
<i>Cassiope tetragona</i>	—	—	—	50	—	—	20	—	—	—
<i>Chamaedaphne calyculata</i>	—	—	10	—	—	—	—	13	17	—
<i>Diapensia lapponica</i>	—	—	—	50	62	68	20	—	—	25
<i>Dryas drummondii</i>	—	—	—	—	—	5	—	—	—	—
<i>Dryas octopetala</i>	—	—	—	—	31	32	40	—	—	—
<i>Empetrum nigrum</i>	100	33	60	75	100	91	60	13	17	100
<i>Kalmia polifolia</i>	—	—	20	—	—	—	—	—	33	—
<i>Ledum groenlandicum</i>	50	—	—	—	—	—	—	—	—	25
<i>Ledum palustre</i> var. <i>decumbens</i>	50	—	60	50	62	82	20	25	—	75
<i>Linnaea borealis</i>	—	—	—	25	15	—	—	—	—	—
<i>Loiseleuria procumbens</i>	—	—	—	25	—	—	—	—	—	—
<i>Luetkea pectinata</i>	—	17	—	25	—	—	100	—	—	—
<i>Myrica gale</i>	50	—	100	—	—	—	—	—	—	—
<i>Phyllodoce aleutica</i>	—	—	—	—	—	5	40	—	—	—
<i>Phyllodoce coerulea</i>	—	—	—	—	—	—	20	—	—	—
<i>Picea glauca</i>	—	17	—	25	8	14	20	—	—	—
<i>Picea mariana</i>	—	—	10	—	—	—	—	—	—	—
<i>Potentilla fruticosa</i>	—	—	20	—	—	—	—	—	—	—
<i>Rhododendron camtschaticum</i>	—	—	—	—	23	—	—	—	—	—
<i>Ribes</i> spp.	—	—	—	—	—	5	—	—	—	—
<i>Rubus arcticus</i>	25	83	10	25	23	5	—	—	17	—
<i>Rubus chamaemorus</i>	50	—	50	—	23	5	—	—	—	25

Table 104—Constancy of trees and shrubs on nonforest low shrub and herb vegetation types in southwest Alaska (continued)

Species	Plots in types on which plant species occurred, by vegetation type code ^a and number of plots									
	2C2E 4	2C2G 6	2C2J 10	2D2B 4	2D2C 13	2D2D 22	2D2E 5	3A3E 8	3A3K 6	3C2B 4
	<i>Percent</i>									
<i>Rubus pedatus</i>	—	—	—	—	—	—	—	—	17	—
<i>Rumex arcticus</i>	—	—	—	—	—	—	—	13	—	—
<i>Salix alaxensis</i>	—	—	—	—	—	5	—	—	—	—
<i>Salix arctica</i>	—	—	—	25	38	55	20	—	—	—
<i>Salix barrattiana</i>	—	—	—	—	—	9	—	—	—	—
<i>Salix fuscescens</i>	—	—	—	—	—	9	—	—	17	—
<i>Salix glauca</i>	—	—	—	—	—	14	—	—	—	—
<i>Salix myrtillofolia</i>	—	17	—	—	—	—	—	—	—	—
<i>Salix ovalifolia</i>	—	—	—	—	—	—	—	—	—	25
<i>Salix phlebophylla</i>	—	—	—	—	—	18	40	—	—	—
<i>Salix planifolia</i>	—	67	—	25	—	—	—	13	—	—
<i>Salix polaris</i>	—	17	—	—	—	—	20	—	—	—
<i>Salix reticulata</i>	—	—	—	—	15	5	—	—	—	—
<i>Salix rotundifolia</i>	—	—	—	—	23	9	20	—	—	—
<i>Salix setchelliana</i>	—	—	—	—	—	5	—	—	—	—
<i>Salix</i> spp.	25	17	10	25	54	5	—	—	33	—
<i>Salix stolonifera</i>	—	—	—	—	8	—	—	13	—	—
<i>Spirea beauverdiana</i>	—	33	20	75	31	45	—	—	17	25
<i>Vaccinium oxycoccus</i>	50	—	70	—	—	—	—	13	—	25
<i>Vaccinium uliginosum</i>	—	50	50	100	54	86	60	—	—	100
<i>Vaccinium vitis-idaea</i>	75	33	30	100	62	50	—	13	17	100

— = plant was not sampled in this vegetation type.

^a See table 3 for code descriptions.

Source for vegetation types: Viereck and others 1992.

Table 105—Constancy of forbs on nonforest low shrub and herb vegetation types in southwest Alaska

Species	Plots in types on which plant species occurred, by vegetation type code ^a and number of plots									
	2C2E 4	2C2G 6	2C2J 10	2D2B 4	2D2C 13	2D2D 22	2D2E 5	3A3E 8	3A3K 6	3C2B 4
	<i>Percent</i>									
<i>Achillea</i> spp.	—	—	—	—	8	—	—	—	—	—
<i>Aconitum delphinifolium</i>	—	17	—	25	—	—	—	—	—	—
<i>Anemone narcissiflora</i>	—	17	—	—	—	18	—	—	—	25
<i>Anemone</i> spp.	—	—	—	25	8	—	20	—	—	—
<i>Angelica lucida</i>	—	17	—	—	15	—	—	—	—	—
<i>Angelica</i> spp.	—	—	—	—	8	—	—	13	—	—
<i>Antennaria monocephala</i>	—	—	—	—	8	—	—	—	—	—
<i>Antennaria</i> spp.	—	—	—	—	—	9	—	—	—	—
<i>Arabis arenicola</i>	—	—	—	—	8	—	—	—	—	—
<i>Artemisia arctica</i>	—	17	—	25	—	27	40	—	—	—
<i>Astragalus nutzotinensis</i>	—	—	—	—	—	—	—	—	—	25
<i>Bupleurum triradiatum</i>	—	—	—	—	—	5	—	—	—	—
<i>Campanula lasiocarpa</i>	—	—	—	50	8	23	20	—	—	—
<i>Cardamine pratensis</i>	—	—	—	—	—	5	—	—	—	—
<i>Cardamine purpurea</i>	—	—	—	—	—	—	20	—	—	—
<i>Cicuta mackenzieana</i>	—	—	—	—	—	—	40	—	—	—
Compositae family	—	—	—	—	8	27	40	—	—	—
<i>Cornus canadensis</i>	—	17	—	25	8	5	—	—	17	—
<i>Cystopteris fragilis</i>	—	—	—	—	—	—	20	—	—	—
<i>Dodecatheon frigidum</i>	—	—	—	—	—	—	40	—	—	—
<i>Dodecatheon</i> spp.	—	17	—	—	—	—	—	—	—	—
<i>Drosera rotundifolia</i>	—	—	20	—	—	—	—	—	17	—
<i>Drosera</i> spp.	—	—	10	—	—	—	—	13	—	—
<i>Dryopteris dilatata</i>	—	17	—	50	8	5	—	—	—	—
<i>Epilobium angustifolium</i>	—	50	—	25	38	5	—	—	—	—
<i>Epilobium latifolium</i>	—	—	—	25	8	—	60	—	—	—
<i>Epilobium</i> spp.	—	—	—	—	—	5	—	13	—	—
<i>Equisetum arvense</i>	—	33	20	—	—	—	—	13	—	—
<i>Equisetum fluviatile</i>	—	—	20	—	—	—	—	13	—	—
<i>Equisetum silvaticum</i>	—	—	—	—	—	—	—	—	17	25
<i>Equisetum</i> spp.	—	33	20	—	—	14	—	—	—	—
<i>Equisetum variegatum</i>	—	—	10	—	—	—	—	—	—	—
Forb	—	17	—	—	23	5	60	25	—	25
<i>Galium trifidum</i>	—	17	—	—	—	—	—	—	—	—
<i>Gentiana glauca</i>	—	—	—	—	—	—	20	—	—	—
<i>Gentiana</i> spp.	—	—	—	—	8	—	20	—	—	—

Table 105—Constancy of forbs on nonforest low shrub and herb vegetation types in southwest Alaska (continued)

Species	Plots in types on which plant species occurred, by vegetation type code ^a and number of plots									
	2C2E 4	2C2G 6	2C2J 10	2D2B 4	2D2C 13	2D2D 22	2D2E 5	3A3E 8	3A3K 6	3C2B 4
	<i>Percent</i>									
<i>Geranium robertianum</i>	—	—	—	—	—	—	20	—	—	—
<i>Geranium</i> spp.	—	—	—	—	—	5	—	—	—	—
<i>Geum rossii</i>	—	—	—	—	23	—	40	—	—	—
<i>Gymnocarpium dryopteris</i>	—	33	—	—	—	—	—	—	—	—
<i>Hippuris vulgaris</i>	—	—	—	—	—	—	—	13	—	—
<i>Lupinus</i> spp.	—	17	—	—	8	—	—	—	—	—
<i>Menyanthes trifoliata</i>	—	—	30	—	—	—	—	38	17	—
<i>Moneses uniflora</i>	—	—	—	—	—	—	20	—	17	—
Mushroom	—	—	—	50	—	18	—	13	17	25
<i>Oxytropis</i> spp.	—	—	—	25	8	—	—	—	—	—
<i>Parnassia palustris</i>	—	—	10	—	—	—	—	—	—	—
<i>Parnassia</i> spp.	—	—	—	—	8	—	—	—	—	—
<i>Pedicularis kanei</i>	—	—	—	—	—	5	—	—	—	—
<i>Pedicularis labradorica</i>	—	—	—	—	—	5	—	—	—	—
<i>Pedicularis</i> spp.	50	—	20	25	8	23	20	—	—	—
<i>Pedicularis verticillata</i>	—	—	—	—	8	—	—	—	—	—
<i>Petasites hyerboreus</i>	—	—	—	—	23	9	—	—	—	—
<i>Pinguicula villosa</i>	—	—	—	—	8	—	—	—	—	—
<i>Platanthera</i> spp.	—	17	10	—	—	—	—	—	—	—
<i>Polemonium</i> spp.	—	17	—	—	—	—	—	—	—	—
<i>Polygonum bistorta</i>	—	—	—	—	—	14	—	—	—	—
<i>Polygonum</i> spp.	—	—	—	—	15	—	—	—	—	—
<i>Potentilla palustris</i>	—	33	10	—	—	—	—	88	33	—
<i>Potentilla</i> spp.	—	—	—	—	—	9	—	—	—	—
<i>Primula</i> spp.	—	—	—	—	—	—	20	—	—	—
<i>Pyrola secunda</i>	—	17	—	—	—	—	—	—	—	—
<i>Ranunculus</i> spp.	—	17	—	—	—	—	20	—	—	—
<i>Rumex acetosella</i>	—	—	—	—	—	5	—	—	—	—
<i>Rumex</i> spp.	—	—	—	—	—	—	—	13	—	—
<i>Sanguisorba</i> spp.	—	67	—	—	8	9	60	—	—	—
<i>Saxifraga bronchialis</i>	—	17	—	—	—	9	—	—	—	—
<i>Saxifraga lyallii</i>	—	—	—	—	—	—	20	—	—	—
<i>Saxifraga punctata</i>	—	—	—	—	—	—	20	—	—	—
<i>Saxifraga</i> spp.	—	—	—	—	—	—	20	—	—	—
<i>Sedum rosea</i>	—	33	—	25	54	45	80	—	—	—
<i>Silene acaulis</i>	—	—	—	—	—	9	—	—	—	—

Table 105—Constancy of forbs on nonforest low shrub and herb vegetation types in southwest Alaska (continued)

Species	Plots in types on which plant species occurred, by vegetation type code ^a and number of plots									
	2C2E 4	2C2G 6	2C2J 10	2D2B 4	2D2C 13	2D2D 22	2D2E 5	3A3E 8	3A3K 6	3C2B 4
	<i>Percent</i>									
<i>Stellaria</i> spp.	—	17	—	—	8	5	—	—	—	—
<i>Tofieldia coccinea</i>	—	—	—	—	8	—	—	—	—	—
<i>Tofieldia pusilla</i>	—	—	—	—	—	9	—	—	—	—
<i>Tofieldia</i> spp.	—	—	—	25	—	—	—	—	—	—
<i>Trientalis europaea</i>	—	50	20	50	15	18	—	—	17	25
<i>Utricularia</i> spp.	—	—	—	—	—	—	—	13	—	—
<i>Valeriana capitata</i>	—	33	—	—	—	5	—	—	—	—
<i>Veratrum viride</i>	—	17	—	—	—	—	40	—	—	—
<i>Vicia</i> spp.	—	—	—	—	—	5	—	—	—	—
<i>Viola langsdorfii</i>	—	—	—	—	—	9	—	—	—	—
<i>Viola</i> spp.	—	33	—	—	—	—	—	13	—	—
<i>Woodsia ilvensis</i>	—	—	—	—	—	5	—	—	—	—

— = plant was not sampled in this vegetation type.

^a See table 3 for code descriptions.

Source for vegetation types: Viereck and others 1992.

Table 106—Constancy of grasses on nonforest low shrub and herb vegetation types in southwest Alaska

Species	Plots in types on which plant species occurred, by vegetation type code ^a and number of plots									
	2C2E 4	2C2G 6	2C2J 10	2D2B 4	2D2C 13	2D2D 22	2D2E 5	3A3E 8	3A3K 6	3C2B 4
	<i>Percent</i>									
<i>Calamagrostis canadensis</i>	—	—	20	—	8	5	—	13	17	—
<i>Calamagrostis</i> spp.	—	83	10	25	8	9	—	63	—	—
<i>Carex aquatilis</i>	—	—	—	—	—	—	—	13	—	—
<i>Carex rostrata</i>	—	—	—	—	—	—	—	13	—	—
<i>Carex</i> spp.	100	50	100	100	100	100	100	88	100	100
<i>Eriophorum</i> spp.	100	17	50	—	8	—	—	38	83	50
Grass	25	17	20	50	54	18	40	13	17	50
<i>Juncus</i> spp.	—	—	30	—	—	5	—	—	17	—

— = plant was not sampled in this vegetation type.

^a See table 3 for code descriptions.

Source for vegetation types: Viereck and others 1992.

Table 107—Constancy of lichens on nonforest low shrub and forb vegetation types in southwest Alaska

Species	Plots in types on which plant species occurred, by vegetation type code ^a and number of plots									
	2C2E 4	2C2G 6	2C2J 10	2D2B 4	2D2C 13	2D2D 22	2D2E 5	3A3E 8	3A3K 6	3C2B 4
	<i>Percent</i>									
<i>Cetraria cucullata</i>	50	—	—	50	31	55	40	—	—	25
<i>Cetraria islandica</i>	50	17	10	25	8	9	—	—	—	50
<i>Cetraria nivalis</i>	—	—	—	25	31	9	—	—	—	50
<i>Cetraria</i> spp.	—	17	—	—	46	32	20	—	17	50
<i>Cladina mitis</i>	—	—	—	50	—	41	60	—	—	25
<i>Cladina rangiferina</i>	—	33	10	50	62	91	100	—	—	25
<i>Cladina</i> spp.	75	17	30	50	8	36	—	—	—	50
<i>Cladina stellaria</i> (<i>alpestris</i>)	—	—	—	—	31	—	—	—	—	75
<i>Cladonia gracilis</i>	—	—	—	—	15	23	20	—	—	—
<i>Cladonia</i> spp.	25	50	10	50	15	23	80	13	17	25
<i>Cornicularia divergens</i>	—	—	—	—	—	—	—	—	—	25
<i>Dactylina</i> spp.	—	—	—	25	—	14	—	—	—	—
Lichen	—	—	10	50	38	73	80	13	17	50
<i>Lobaria</i> spp.	—	—	—	—	15	14	60	—	—	—
<i>Masonhalea richardsonii</i>	—	—	10	—	—	—	—	—	—	—
<i>Nephroma</i> spp.	—	33	—	75	38	23	100	—	—	—
<i>Parmelia</i> spp.	—	—	—	—	—	5	—	13	—	—
<i>Peltigera</i> spp.	—	—	—	25	8	18	20	—	—	—
<i>Stereocaulon paschale</i>	—	—	—	—	15	—	—	—	—	—
<i>Stereocaulon</i> spp.	25	—	—	25	38	50	80	—	—	—
<i>Thamnolia</i> spp.	—	—	—	25	15	23	40	—	—	—
<i>Thamnolia subuliformis</i>	50	—	—	—	—	5	—	—	—	—
<i>Usnea</i> spp.	—	—	—	—	—	—	—	13	—	—

— = plant was not sampled in this vegetation type.

^a See table 3 for code descriptions.

Source for vegetation types: Viereck and others 1992.

Table 108—Constancy of mosses on nonforest low shrub and herb vegetation types in southwest Alaska

Species	Plots in types on which plant species occurred, by vegetation type code ^a and number of plots									
	2C2E 4	2C2G 6	2C2J 10	2D2B 4	2D2C 13	2D2D 22	2D2E 5	3A3E 8	3A3K 6	3C2B 4
	<i>Percent</i>									
<i>Aulacomnium</i> spp.	50	17	10	—	15	23	—	—	—	—
<i>Dicranum</i> spp.	50	33	10	100	23	27	40	—	—	50
<i>Ditrichum</i> spp.	—	—	—	—	—	—	—	—	—	50
Hepaticae family	50	—	—	—	23	—	20	—	—	50
<i>Hylocomium splendens</i>	—	50	20	75	54	32	40	—	—	50
<i>Lycopodium annotinum</i>	—	33	—	50	15	9	—	—	—	—
<i>Lycopodium clavatum</i>	—	—	—	—	—	5	—	—	—	—
<i>Lycopodium complanatum</i>	—	17	—	—	—	9	20	—	—	—
<i>Lycopodium sabinaefolium</i>	—	—	—	—	—	—	20	—	—	—
<i>Lycopodium selago</i>	—	—	—	25	—	18	20	—	—	—
Moss	50	67	40	50	54	41	100	25	33	25
<i>Pleurozium schreberi</i>	100	50	40	25	31	18	20	—	17	25
<i>Polytrichum juniperium</i>	—	—	—	—	8	—	—	—	—	50
<i>Polytrichum</i> spp.	50	33	10	25	38	32	—	13	17	25
<i>Ptilium ciliare</i>	—	—	10	—	—	5	—	—	—	—
<i>Ptilium crista-castrensis</i>	25	33	—	75	23	18	—	—	—	—
<i>Ptilium</i> spp.	—	—	—	—	15	—	—	—	—	—
<i>Rhacomitrium lanuginosum</i>	—	17	—	—	—	—	—	—	—	25
<i>Rhacomitrium</i> spp.	—	—	—	25	15	9	40	—	—	—
<i>Sphagnum</i> spp.	100	33	90	50	—	18	40	50	100	50

— = plant was not sampled in this vegetation type.

^a See table 3 for code descriptions.

Source for vegetation types: Viereck and others 1992.

**Appendix I :
Scientific Name
and Authority,
Frequency of
Occurrence,
Phytomass
Coefficient Used,
and Common
Name**

Readers are referred to page 15, "Nontree Phytomass," for application and use of the biomass coefficients.

Table 109—Scientific name and authority, frequency of forb species occurrence on sampled plots, phytomass coefficient used,^a and common name

Scientific name	Frequency	Coefficient	Common name
<i>Achillea</i> L.	10	1.28	Yarrow
<i>Achillea borealis</i> Bong.	1	1.28	Common yarrow
<i>Aconitum delphinifolium</i> DC.	31	.96	Monkshood
<i>Actaea rubra</i> (Ait.) Willd.	4	3.50	Baneberry
<i>Anemone narcissiflora</i> L.	8	1.86	Narcissus-flowered anemone
<i>Anemone richardsonii</i> Hook.	5	1.86	Yellow anemone
<i>Anemone</i> L.	8	1.86	Anemone
<i>Angelica genuflexa</i> Nutt.	2	3.50	Bent-leaved angelica
<i>Angelica lucida</i> L.	10	3.50	Sea coast angelica
<i>Angelica</i> L.	15	1.86	Wild celery
<i>Antennaria monocephala</i> DC.	1	6.76	One-head pussytoes
<i>Antennaria</i> Gaertn.	2	3.79	Pussytoes
<i>Arabis arenicola</i> (Richards.) Gelert	2	1.81	Sand rockcress
<i>Armeria maritima</i> (Mill.) Willd.	2	1.81	Thrift sea-pink
<i>Arnica lessingii</i> Greene	1	3.50	Arnica
<i>Aruncus sylvestris</i> Kostel.	1	1.88	Goatsbeard
<i>Astragalus nutzotinensis</i> Rousseau	1	3.29	Nutzotin milkvetch
<i>Astragalus</i> L.	2	1.28	Milkvetch
<i>Athyrium filix-femina</i> (L.) Roth	9	3.50	Lady fern
<i>Athyrium</i> Roth	1	3.50	Lady fern genus
<i>Boschniakia rossica</i> (Cham. & Schlecht.) Fedtsch.	6	2.94	Ground-cone
<i>Boykinia richardsonii</i> (Hook.) Gray	1	1.86	Richardson's boykinia
<i>Bupleurum triradiatum</i> Adams	1	0.96	Thoroughwax
<i>Campanula lasiocarpa</i> Cham.	11	1.81	Mountain harebell
<i>Campanula</i> L.	1	1.81	Harebell genus
<i>Campanula uniflora</i> L.	1	1.81	Arctic harebell
<i>Cardamine pratensis</i> L.	5	.96	Cuckoo flower
<i>Cardamine purpurea</i> Cham. & Schlecht.	1	.96	Purple bittercress
<i>Cardamine</i> L.	2	.96	Bittercress
<i>Cardamine umbellata</i> Greene	1	.96	Umbell bittercress
<i>Cerastium</i> L.	1	.96	Chickweed
<i>Chrysosplenium tetrandum</i> (Lund) T. Fries	4	1.86	Northern water carpet
<i>Chrysanthemum bipinnatum</i> L.	1	1.81	Two-feathered daisy
<i>Cicuta douglasii</i> (DC.) Coult. & Rose	2	3.50	Water hemlock
<i>Cicuta mackenzieana</i> Raup	2	3.50	Mackenzie water hemlock

Table 109—Scientific name and authority, frequency of forb species occurrence on sampled plots, phytomass coefficient used,^a and common name (continued)

Scientific name	Frequency	Coefficient	Common name
<i>Circaea alpina</i> L.	1	1.88	Enchanted nightshade
<i>Collomia linearis</i> Nutt.	6	3.50	Slender leaf collomia
Compositae family	30	3.50	Aster-daisy family
<i>Cornus canadensis</i> L. ^b	132	1.48	Bunchberry
<i>Cornus suecica</i> L.	55	1.48	Swedish cornel
Cruciferae family	4	3.50	Mustard family
<i>Cryptogramma</i> R.Br.	1	1.86	Cryptogramma genus
<i>Cypripedium montanum</i> Dougl.	1	1.88	Mountain lady's slipper
<i>Cystopteris fragilis</i> (L.) Bernh.	1	1.28	Fragile fern
<i>Delphinium brachycentrum</i> Ledeb.	1	.96	Northern larkspur
<i>Delphinium glaucum</i> S. Wats.	1	.96	Glaucous larkspur
<i>Dodecatheon frigidum</i> Cham. & Schlecht.	2	.96	North shooting-star
<i>Dodecatheon</i> L.	1	.96	Shooting-star
<i>Draba aurea</i> Vahl.	2	1.81	Rockcress
<i>Drosera rotundifolia</i> L.	7	3.79	Long-leaf sundew
<i>Drosera</i> L.	9	3.79	Sundew genus
<i>Dryopteris dilatata</i> (Hoffm.) Gray	86	3.50	Spinulose shield-fern
<i>Dryopteris fragrans</i> (L.) Schott	3	3.50	Fragrant shield-fern
<i>Dryopteris</i> Adans.	50	3.50	Shield-fern genus
<i>Epilobium angustifolium</i> L. ^b	146	3.50	Common fireweed
<i>Epilobium glandulosum</i> Lehm.	1	3.50	Glandular willow-herb
<i>Epilobium latifolium</i> L.	9	3.50	Dwarf fireweed
<i>Epilobium</i> L.	10	3.50	Willow-herb
<i>Equisetum arvense</i> L. ^b	116	1.28	Meadow horsetail
<i>Equisetum fluviatile</i> L. ampl. Ehrh.	10	1.28	Swamp horsetail
<i>Equisetum pratense</i> L.	6	1.28	Meadow horsetail
<i>Equisetum scirpoides</i> Michx.	6	7.09	Dwarf scouring rush
<i>Equisetum silvaticum</i> L.	158	1.28	Wood horsetail
<i>Equisetum</i> L.	82	1.28	Horsetail
<i>Equisetum variegatum</i> Schleich.	1	7.09	Variiegated scouring rush
<i>Erigeron purpuratus</i> Greene	1	1.81	Fleabane
<i>Erigeron</i> L.	4	1.81	Fleabane
Fern	1	1.88	Unknown fern
Forb	72	1.81	Unknown forb
<i>Galium aparine</i> L.	1	3.70	Cleavers
<i>Galium boreale</i> L.	15	3.79	Northern bedstraw
<i>Galium</i> L.	22	3.79	Bedstraw
<i>Galium trifidum</i> L.	3	3.79	Small bedstraw
<i>Gentiana glauca</i> Pall.	1	3.79	Glaucous gentian
<i>Gentiana</i> L.	3	3.79	Gentian
<i>Geocaulon lividum</i> (Richards.) Fern. ^b	36	1.88	Northern commandra
<i>Geranium bicknellii</i> Britt.	2	0.96	Bicknell cranebill

Table 109—Scientific name authority, frequency of forb species occurrence on sampled plots, phytomass coefficient used,^a and common name (continued)

Scientific name	Frequency	Coefficient	Common name
<i>Geranium erianthum</i> DC.	7	0.96	Northern geranium
<i>Geranium robertianum</i> L.	1	0.96	Robert's geranium
<i>Geranium</i> L.	32	0.96	Geranium genus
<i>Geum calthifolium</i> Menzies	2	1.81	Caltha-leaved avens
<i>Geum rossii</i> (R.Br.) Ser.	7	1.81	Ross avens
<i>Goodyera repens</i> (L.) R. Br.	1	3.79	Rattlesnake plantain
<i>Gymnocarpium dryopteris</i> (L.) Newm.	68	1.88	Oak-fern
<i>Hedysarum alpinum</i> L.	0	3.50	Eskimo potato
<i>Heracleum lanatum</i> Michx.	13	3.50	Cow parsnip
<i>Heuchera glabra</i> Willd.	3	1.88	Alpine heuchera
<i>Hippuris vulgaris</i> L.	5	1.28	Common marestail
<i>Iris setosa</i> Pall.	5	3.50	Wild iris
<i>Lagotis glauca</i> Gaertn.	1	1.88	Glaucous weaselsnout
<i>Lepidium densiflorum</i> Schrad.	1	1.88	Common peppergrass
<i>Ligusticum scoticum</i> L.	1	.96	Beach lovage
<i>Listera cordata</i> (L.) R. Br.	9	2.94	Heart twayblade
<i>Lupinus arcticus</i> S. Wats.	1	3.79	Arctic lupine
<i>Lupinus nootkatensis</i> Donn	2	1.88	Nootka lupine
<i>Lupinus</i> L.	8	1.88	Lupine
<i>Menyanthes trifoliata</i> L.	12	1.48	Buckbean
<i>Mertensia paniculata</i> (Ait.) G. Don	40	0.96	Tall bluebell
<i>Mertensia</i> Roth	6	0.96	Bluebell genus
<i>Mitella pentandra</i> Hook.	2	3.79	Alpine mitrewort
<i>Moneses uniflora</i> (L.) Gray	17	1.86	Single delight
Mushroom	160	0.96	Unknown mushroom
<i>Oxytropis nigrescens</i> (Pall.) Fisch.	1	1.81	Black oxytrope
<i>Oxytropis</i> L.	8	1.81	Oxytrope
<i>Parnassia palustris</i> L.	7	1.86	Northern grass-of- Parnassus
<i>Parnassia</i> spp. L.	7	1.86	Grass-of-Parnassus
<i>Pedicularis capitata</i> Adams	7	1.81	Capitate lousewort
<i>Pedicularis kanei</i> Durand	1	1.81	Kane lousewort
<i>Pedicularis labradorica</i> Wirsing	1	1.81	Labrador lousewort
<i>Pedicularis</i> L.	21	1.81	Lousewort
<i>Pedicularis verticillata</i> L.	1	1.81	Whorled lousewort
<i>Petasites frigidus</i> (L.) Franch.	6	3.50	Arctic sweet coltsfoot
<i>Petasites hyperboreus</i> Rydb.	35	3.50	Far northern coltsfoot
<i>Pinguicula villosa</i> L.	1	3.79	Hairy butterwort
<i>Pinguicula vulgaris</i> L.	1	3.79	Common butterwort
<i>Platanthera hyperborea</i> (L.) Lindl.	1	2.94	Northern bog orchid
<i>Platanthera</i> L.C. Rich.	3	2.94	Bog orchid
<i>Platanthera unalaschcensis</i> (Spreng.) Kurtz	1	2.94	Alaska bog orchid
<i>Polemonium acutiflorum</i> Willd.	12	1.81	Tall jacob's ladder

Table 109—Scientific name authority, frequency of forb species occurrence on sampled plots, phytomass coefficient used,^a and common name (continued)

Scientific name	Frequency	Coefficient	Common name
<i>Polemonium</i> L.	39	1.81	Jacob's ladder
<i>Polygonum alaskanum</i> (Small) Wight	1	8.23	Wild rhubarb
<i>Polygonum bistorta</i> L.	4	8.23	Meadow bistort
<i>Polygonum</i> L.	3	8.23	Bistort
<i>Potentilla palustris</i> (L.) Scop. ^b	71	10.95	Marsh fivefinger
<i>Potentilla</i> L.	8	10.95	Cinquefoil
<i>Primula</i> L.	1	1.86	Primrose
<i>Pyrola asarifolia</i> Michx.	14	3.79	Liverleaf wintergreen
<i>Pyrola secunda</i> L. ^b	60	3.79	One-sided wintergreen
<i>Pyrola</i> L. ^b	33	4.30	Wintergreen
<i>Ranunculus lapponicus</i> L.	3	3.79	Lapland buttercup
<i>Ranunculus pallasii</i> Schlecht.	1	3.79	Pallas buttercup
<i>Ranunculus</i> L.	22	3.79	Buttercup
<i>Romanzoffia</i> Cham.	1	1.86	Waterleaf
<i>Rumex acetosella</i> L.	2	1.81	Sheep sorrel
<i>Rumex fenestratus</i> Greene	1	3.50	Western dock
<i>Rumex</i> L.	21	3.50	Dock
<i>Sanguisorba menziesii</i> Rydb.	4	1.88	Buttercup
<i>Sanguisorba</i> L.	82	1.88	Burnet
<i>Sanguisorba stipulata</i> Raf.	3	1.88	Sitka burnet
<i>Saussurea americana</i> DC.	2	3.50	American saussurea
<i>Saussurea</i> DC.	1	3.79	Saussurea
<i>Saxifraga bronchialis</i> L.	7	1.81	Spotted saxifrage
<i>Saxifraga lyallii</i> Engler	1	1.86	Red stem saxifrage
<i>Saxifraga punctata</i> L.	3	1.86	Brook saxifrage
<i>Saxifraga</i> L.	3	3.79	Saxifrage
<i>Sedum rosea</i> (L.) Scop.	48	1.81	Roseroot
<i>Sedum</i> L.	1	1.88	Stonecrop
<i>Senecio</i> L.	2	1.81	Groundsel
<i>Silene acaulis</i> L.	4	1.81	Moss campion
<i>Smilacina</i> L.	3	1.81	Solomon-seal
<i>Solidago multiradiata</i> Ait.	2	1.88	Northern goldenrod
<i>Stellaria crassifolia</i> Ehrh.	2	1.28	Fleshy starwort
<i>Stellaria crispa</i> Cham. & Schlecht.	1	1.28	Crisp starwort
<i>Stellaria</i> L.	32	1.28	Chickweed
<i>Streptopus amplexifolius</i> (L.) DC.	32	.96	Cucumber-root twisted-stalk
<i>Streptopus</i> Michx.	10	.96	Twisted-stalk nettle
<i>Streptopus streptopoides</i> (Ledeb.) Fyre & Rigg	5	.96	Kruhsea
<i>Swertia perennis</i> L.	2	1.88	Alpine bog swertia
<i>Thalictrum alpinum</i> L.	2	.96	Arctic meadowrue
<i>Thalictrum occidentale</i> Gray	5	.96	Western meadowrue
<i>Thalictrum</i> L.	12	.96	Meadowrue

Table 109—Scientific name and authority, frequency of forb species occurrence on sampled plots, phytomass coefficient used,^a and common name (continued)

Scientific name	Frequency	Coefficient	Common name
<i>Thalictrum sparsiflorum</i> Turcz.	7	.96	Few-flowered meadowrue
<i>Thelypteris phegopteris</i> (L.) Slosson	7	.96	Beech fern
<i>Thelypteris</i> Schmidel	2	.96	Wood fern
<i>Tofieldia coccinea</i> Richards.	1	3.70	Northern asphodel
<i>Tofieldia pusilla</i> (Michx.) Pers.	2	3.70	Scotch asphodel
<i>Tofieldia</i> Huds.	1	3.70	Asphodel
<i>Trientalis europaea</i> L.	205	1.48	Starflower
<i>Utricularia</i> L.	1	1.28	Bladderwort
<i>Valeriana capitata</i> L.	34	.96	Capitate valerian
<i>Valeriana sitchensis</i> Bong.	4	.96	Sitka valerian
<i>Valeriana</i> L.	11	.96	Valerian
<i>Veratrum viride</i> Ait.	26	3.50	False hellbore
<i>Vicia</i> L.	3	2.94	Vetch
<i>Viola epipsila</i> Ledeb.	4	2.94	Marsh violet
<i>Viola langsdorfii</i> Fisch.	10	2.94	Alaska violet
<i>Viola</i> L.	60	2.94	Violet
<i>Woodsia ilvensis</i> (L.) R. Br.	1	1.28	Rusty ilvenis

— = no common name.

^a Coefficients are used in the following equation to determine plant weight:

Phytomass = [(% foliar cover of 1st layer) (coefficient) (height of 1st layer in decimeters)]

+ [(% foliar cover of 2d layer) (coefficient) (height of 2d layer in decimeters)]....

... + [(% foliar cover of layer *n*) (coefficient) (height of layer *n* in decimeters)].

^b Species for which a phytomass coefficient was developed. Other species were assigned coefficients of the most similar species.

Source of scientific names: Hulten 1974.

Table 110—Scientific name and authority, frequency of grass and grasslike species occurrence on sampled plots, phytomass coefficient used,^a and common name

Scientific name	Frequency	Coefficient	Common name
<i>Calamagrostis canadensis</i> (Michx.) Beauv. ^b	217	2.38	Bluejoint
<i>Calamagrostis</i> Adans.	121	2.38	Reed bent grass
<i>Carex albo-nigra</i> Mack.	1	1.28	Black and white sedge
<i>Carex aquatilis</i> Wahlenb. ^b	1	4.56	Water sedge
<i>Carex rostrata</i> Stokes	1	2.38	Beaked sedge
<i>Carex</i> L. ^b	279	2.85	Sedge
<i>Elymus</i> L.	1	2.38	Ryegrass
<i>Eriophorum</i> L. ^b	79	3.70	Cottongrass
Grass	102	2.28	Unknown grass
<i>Juncus</i> L.	8	2.28	Rush
<i>Luzula</i> DC.	2	2.28	Woodrush genus
<i>Poa</i> L.	1	4.56	Bluegrass
<i>Poa trivialis</i> L.	1	4.56	Rough bluegrass

^a Coefficients are used in the following equation to determine plant weight:

Phytomass = [(% foliar cover of 1st layer) (coefficient) (height of 1st layer in decimeters)]

+ [(% foliar cover of 2d layer) (coefficient) (height of 2d layer in decimeters)].....

... + [(% foliar cover of layer *n*) (coefficient) (height of layer *n* in decimeters)].

^b Species for which a phytomass coefficient was developed. Other species were assigned coefficients of the most similar species.

Source of scientific names: Hulten 1974.

Table 111—Scientific name and authority, frequency of lichen species occurrence on sampled plots, phytomass coefficient used,^a and common name

Scientific name	Frequency	Coefficient	Common name
<i>Alectoria delicta</i>	2	4.98	Delicate alectoria
<i>Alectoria nigricans</i> (Ach.) Nyl.	4	4.98	Black alectoria
<i>Alectoria</i>	10	4.98	Alectoria
<i>Bryoria</i>	19	4.98	Aborial lichen
<i>Cetraria</i>	115	5.63	Iceland moss
<i>Cetraria cucullata</i> (Bell.) Ach. ^b	65	4.77	Reindeer moss
<i>Cetraria islandica</i> (L.) Ach. ^b	54	5.63	Reindeer moss
<i>Cetraria nivalis</i> (L.) Ach.	21	5.63	Reindeer moss
<i>Cladina</i> ^b	83	7.41	Reindeer moss
<i>Cladina mitis</i> (Sandst.) Hale & Culb.	31	7.41	Reindeer moss
<i>Cladina rangiferina</i> (L.) Harm.	277	7.41	Reindeer moss
<i>Cladina stellaris</i> (Opiz) Brodo	37	7.41	Reindeer moss
<i>Cladonia</i> ^b	336	4.32	Fruticose lichen
<i>Cladonia belliflora</i> (Ach.) Schaer.	3	4.32	Red-cap cladonia
<i>Cladonia digitata</i> (L.) Hoffm.	2	4.32	Fruticose lichen
<i>Cladonia gracilis</i> (L.) Willd.	119	4.32	Fruticose lichen
<i>Dactylina</i>	5	4.32	Finger lichen
<i>Hypogymnia</i>	61	4.98	Hypogymnia
Lichen	192	4.98	Unknown lichen
<i>Lobaria</i>	39	4.98	Lobaria
<i>Masonhalea richardsonii</i>	1	4.77	Richardson's lichen
<i>Nephroma</i>	187	4.98	—
<i>Nephroma arcticum</i> (L.) Torss.	35	4.98	Lettuce lichen
<i>Parmelia</i>	277	4.98	—
<i>Peltigera</i>	139	4.98	Veined lichen
<i>Peltigera canina</i> (L.) Willd.	15	4.98	—
<i>Stereocaulon</i>	48	4.76	Stereocaulon lichen
<i>Stereocaulon paschale</i> (L.) Hoffm.	11	4.76	Blue sandy lichen
<i>Stereocaulon paschale</i> (L.) Hoffm.	11	4.76	Blue sandy lichen
<i>Thamnolia</i>	16	4.32	Thamnolia
<i>Thamnolia subuliformis</i> (Ehrh.) Culb.	10	4.32	White worm lichen
<i>Usnea</i>	156	3.32	Usnea

— = no common name.

a Coefficients are used in the following equation to determine plant weight:
 Phytomass = [(% foliar cover of 1st layer) (coefficient) (height of 1st layer in decimeters)]...
 + [(% foliar cover of 2d layer) (coefficient) (height of 2d layer in decimeters)]...
 ... + [(% foliar cover of layer *n*) (coefficient) (height of layer *n* in decimeters)].

^b Species for which a phytomass coefficient was developed. Other species were assigned coefficients of the most similar species.

Source of scientific names: Hale 1979.

Table 112—Scientific name and authority, frequency of moss and clubmoss occurrence on sampled plots, phytomass coefficient used,^a and common name

Scientific name	Frequency	Coefficient	Common name
<i>Aulacomnium</i> Schwaegr. ^b	93	4.73	Bog moss
<i>Climacium dendroides</i> (Hedw.) Web.& Mohr	4	2.32	Northern tree moss
<i>Conocephalum conicum</i> (L.) Dum.	3	5.36	Conocephalum liverwort
<i>Dicranum scoparium</i> Hedw.	2	7.29	—
<i>Dicranum</i> Hedw. ^b	215	7.29	—
<i>Ditrichum</i> Hampe	10	15.50	—
Hepaticae family ^b	54	1.79	Liverwort
<i>Hylocomium</i> BSG	40	2.20	Feathermoss
<i>Hylocomium splendens</i> (Hedw.) BSG	311	7.20	—
<i>Lycopodium alpinum</i> (L.) Rothm.	3	3.61	Alpine clubmoss
<i>Lycopodium annotinum</i> L.	134	3.61	Stiff clubmoss
<i>Lycopodium clavatum</i> L.	2	3.61	Running clubmoss
<i>Lycopodium complanatum</i> L.	22	3.61	Ground cedar
<i>Lycopodium sabinaefolium</i> Willd.	1	3.61	Alaska clubmoss
<i>Lycopodium selago</i> L.	11	3.61	Fir clubmoss
<i>Lycopodium</i> L.	6	3.61	Clubmoss
<i>Mnium</i> Hedw., nom. cons.	36	3.92	—
Moss	268	3.92	Unknown moss
<i>Pleurozium schreberi</i> (Brid.) Mitt. ^b	350	3.52	Schreber's moss
<i>Polytrichum juniperium</i> Hedw. ^b	21	3.92	—
<i>Polytrichum</i> Hedw.	269	3.92	—
<i>Ptilium ciliare</i>	10	3.52	Moss
<i>Ptilium crista-castrensis</i> (Hedw.) De Not.	166	3.52	Knight's plume
<i>Ptilium</i> De Not.	7	3.52	Plume moss
<i>Rhacomitrium lanuginosum</i> (Hedw.) Brid.	4	3.61	—
<i>Rhacomitrium</i> Brid.	16	3.61	—
<i>Rhytidiadelphus triquetrus</i> (Hedw.) Warnst. ^b	13	2.32	Shaggy moss
<i>Rhytidium</i>	3	3.61	—
<i>Sphagnum</i> L. ^b	340	4.76	Sphagnum moss
<i>Thuidium</i> BSG	1	3.61	Fern moss

— = no common name.

^a Coefficients are used in the following equation to determine plant weight:
 Phytomass = [(% foliar cover of 1st layer) (coefficient) (height of 1st layer in decimeters)]
 + [(% foliar cover of 2d layer) (coefficient) (height of 2d layer in decimeters)]...
 ... + [(% foliar cover of layer *n*) (coefficient) (height of layer *n* in decimeters)].

^b Species for which a phytomass coefficient was developed. Other species were assigned coefficients of the most similar species.

Source of scientific names: Crum 1976.

Table 113—Scientific name and authority, frequency of shrub species occurrence on sampled plots, phytomass coefficient used,^a and common name

Scientific name	Frequency	Coefficient	Common name
<i>Alnus</i> Nutt.	8	4.50	Alder
<i>Alnus crispa</i> (Ait.) Pursh ^b	107	4.50	American green alder
<i>Alnus sinuata</i> (Reg.) Rydb.	74	4.43	Sitka alder
<i>Alnus tenuifolia</i> Nutt. ^b	53	4.43	Thinleaf alder
<i>Andromeda polifolia</i> L.	44	10.32	Bog rosemary
<i>Anemone parviflora</i> Michx.	2	1.86	North anemone
<i>Arctostaphylos</i> Adans.	1	6.76	Alpine bearberry
<i>Arctostaphylos alpina</i> L. Spreng.	14	6.76	Alpine bearberry
<i>Arctostaphylos rubra</i> (Rehd. & Wilson) Fern.	66	6.76	Alpine bearberry
<i>Arctostaphylos uva-ursi</i> (L.) Spreng.	6	2.23	Kinnikinnik
<i>Artemisia arctica</i> Less.	13	1.88	Purple wormwood
<i>Artemisia globularia</i> Bess.	2	1.88	Arctic wormwood
<i>Artemisia</i> L.	36	1.88	Sagebrush
<i>Artemisia tilesii</i> Ledeb.	2	1.88	Aleutian mugwort
<i>Betula glandulosa</i> Michx. ^b	105	9.00	Resin birch
<i>Betula nana</i> L. ^b	286	10.15	Dwarf arctic birch
<i>Betula</i> L.	1	9.18	Dwarf birch
<i>Cassiope stelleriana</i> (Pall.) DC.	9	1.81	Four-angle heather
<i>Cassiope tetragona</i> (L.) D. Don	10	1.81	Four-angle heather
<i>Chamaedaphne calyculata</i> (L.) Moench	41	6.20	Leatherleaf
<i>Diapensia lapponica</i> L.	40	1.81	Diapensia
<i>Dryas drummondii</i> Richards.	1	1.81	Yellow dryas
<i>Dryas octopetala</i> L.	20	1.81	White mountain-avens
<i>Dryas</i> L. ^b	3	1.81	Mountain-avens
<i>Empetrum nigrum</i> L. ^b	372	2.41	Black crowberry
<i>Kalmia polifolia</i> Wang.	7	10.32	Bog laurel
<i>Ledum groenlandicum</i> Oeder ^b	92	8.23	Labrador-tea
<i>Ledum palustre</i> var. <i>decumbens</i> (L.) Ait. ^b	267	10.32	Northern labrador-tea
<i>Ledum</i> L.	2	3.55	Labrador-tea
<i>Linnaea borealis</i> L. ^b	95	3.29	Twin flower
<i>Loiseleuria procumbens</i> (L.) Desv. ^b	2	6.76	Alpine azalea
<i>Luetkea pectinata</i> (Pursh) Kuntze	9	4.30	Luetkea
<i>Menziesia ferruginea</i> Sm.	13	6.20	Rusty menziesia
<i>Myrica gale</i> L.	34	6.20	Sweet gale
<i>Oplopanax horridus</i> (Sm.) Miq.	10	4.29	Devil's club
<i>Phyllodoce aleutica</i> (Spreng.) Heller	3	2.41	Aleutian mountain heather

Table 113—Scientific name and authority, frequency of shrub species occurrence on sampled plots, phytomass coefficient used,^a and common name (continued)

Scientific name	Frequency	Coefficient	Common name
<i>Phyllodoce coerulea</i> (L.) Bab.	2	2.41	Blue mountain heather
<i>Potentilla fruticosa</i> L.	35	10.95	Bush cinquefoil
<i>Rhododendron camtschaticum</i> Pall.	9	6.20	Lapland rosebay
<i>Rhododendron</i> L.	1	6.76	Rhododendron
<i>Ribes bracteosum</i> Dougl.	1	3.45	Stink currant
<i>Ribes hudsonianum</i> Richards.	2	3.45	Northern black currant
<i>Ribes laxiflorum</i> Pursh	2	3.45	Trailing black currant
<i>Ribes</i> L.	50	3.45	Currant
<i>Ribes triste</i> Pall. ^b	11	3.45	American red currant
<i>Rosa acicularis</i> Lindl. ^b	89	2.20	Prickly rose
<i>Rubus arcticus</i> L.	177	1.86	Nagoon berry
<i>Rubus chamaemorus</i> L. ^b	239	1.86	Cloudberry
<i>Rubus idaeus</i> L.	10	2.20	American red raspberry
<i>Rubus pedatus</i> Sm.	68	1.86	Five-leaf bramble
<i>Rubus</i> L.	1	1.86	Raspberry
<i>Rubus spectabilis</i> Pursh	6	2.20	Salmonberry
<i>Rumex arcticus</i> Trautv.	20	3.50	Arctic dock
<i>Salix alaxensis</i> (Anderss.) Cov. ^b	25	6.45	Feltleaf willow
<i>Salix arbusculoides</i> Anderss.	15	8.70	Littleleaf willow
<i>Salix arctica</i> Pall.	38	10.15	Arctic willow
<i>Salix barclayi</i> Anderss.	43	6.45	Barclay willow
<i>Salix barrattiana</i> Hook.	5	6.20	Barratt willow
<i>Salix bebbiana</i> Sarg. ^b	10	4.39	Bebb willow
<i>Salix commutata</i> Bebb	4	6.45	Undergreen willow
<i>Salix fuscescens</i> Anderss.	19	6.45	Alaska bog willow
<i>Salix glauca</i> L. ^b	22	8.70	Grayleaf willow
<i>Salix hastata</i> L.	3	8.70	Halberd willow
<i>Salix interior</i> Rowlee ^b	4	5.16	Sandbar willow
<i>Salix lanata</i> L.	8	8.70	Lanate willow
<i>Salix lasiandra</i> Benth.	1	8.70	Grayleaf willow
<i>Salix monticola</i> Bebb	27	8.70	Park willow
<i>Salix myrtillifolia</i> Anders.	22	6.20	Low blueberry willow
<i>Salix ovalifolia</i> Trautv.	1	6.45	Ovalleaf willow
<i>Salix phlebophylla</i> Anderss. ^b	9	5.16	Skeletonleaf willow
<i>Salix planifolia</i> Pursh ^b	99	6.98	Diamondleaf willow
<i>Salix polaris</i> Wahlenb.	4	1.48	Polar willow
<i>Salix reticulata</i> L.	30	2.23	Netleaf willow
<i>Salix rotundifolia</i> Trautv.	8	2.23	Least willow
<i>Salix setchelliana</i> Ball	3	6.98	Setchell willow
<i>Salix sitchensis</i> Sanson	2	4.03	Sitka willow
<i>Salix stolonifera</i> Cov.	6	10.15	Sprouting-leaf willow

Table 113—Scientific name and authority, frequency of shrub species occurrence on sampled plots, phytomass coefficient used,^a and common name (continued)

Scientific name	Frequency	Coefficient	Common name
<i>Salix</i> L.	125	5.16	Willow
<i>Sambucus racemosa</i> L.	7	4.29	Red elderberry
<i>Sorbus scopulina</i> Greene	1	8.70	Greene mountain ash
<i>Sorbus</i> S.F. Gray	8	8.70	Mountain ash genus
<i>Spiraea beauverdiana</i> Schneid.	256	10.95	Beauverd spirea
<i>Spiraea</i> L.	49	10.95	Spirea
<i>Vaccinium ovalifolium</i> Sm.	30	6.20	Early blueberry
<i>Vaccinium oxycoccus</i> var. <i>microcarpus</i> (Turcz.) Fedtsch. & Flerov. ^b	92	2.41	Bog cranberry
<i>Vaccinium uliginosum</i> L. ^b	391	11.64	Bog blueberry
<i>Vaccinium vitis-idaea</i> L. ^b	412	2.23	Lowbush cranberry
<i>Viburnum edule</i> (Michx.) Raf. ^b	60	4.29	Highbush cranberry

^a Coefficients are used in the following equation to determine plant weight:

Phytomass = [(% foliar cover of 1st layer) (coefficient) (height of 1st layer in decimeters)]

+ [(% foliar cover of 2d layer) (coefficient) (height of 2d layer in decimeters)]....

... + [(% foliar cover of layer *n*) (coefficient) (height of layer *n* in decimeters)].

^b Species for which a phytomass coefficient was developed. Other species were assigned coefficients of the most similar species.

Sources of scientific names: Hulten 1974, Viereck and Little 1972.

Table 114—Scientific name and authority, frequency of tree-seedling species occurrence on sampled plots, phytomass coefficient used,^a and common name

Scientific name	Frequency	Coefficient	Common name
<i>Betula papyrifera</i> Marsh.	144	9.18	Paper birch
<i>Larix laricina</i> (Du Roi) K. Koch	31	17.64	Tamarack
<i>Picea glauca</i> (Moench) Voss ^b	185	20.02	White spruce
<i>Picea mariana</i> (Mill.) B.S.P. ^b	170	17.64	Black spruce
<i>Populus balsamifera</i> L. ^b	1	9.33	Balsam poplar
<i>Populus tremuloides</i> Michx.	11	9.33	Quaking aspen
<i>Populus trichocarpa</i> Torr. & Gray	9	9.33	Black cottonwood

^a Coefficients are used in the following equation to determine plant weight:

Phytomass = [(% foliar cover of 1st layer) (coefficient) (height of 1st layer in decimeters)]

+ [(% foliar cover of 2d layer) (coefficient) (height of 2d layer in decimeters)]....

... + [(% foliar cover of layer *n*) (coefficient) (height of layer *n* in decimeters)].

^b Species for which a phytomass coefficient was developed. Other species were assigned coefficients of the most similar species.

Source of scientific names: Viereck and Little 1972.

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