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Author(s)	TATEWAKI, Misao; KOBAYASHI, Yoshio
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A CONTRIBUTION TO THE FLORA OF THE ALEUTIAN ISLANDS

By

Misao TATEWAKI and Yoshio KOBAYASHI

[With Plates I-VIII and 6 Text-figures]

Introduction

The flora of the Aleutian Islands, as is well known, has not been thoroughly investigated. This is especially true of the western islands in the group. During the course of the senior author's voyage in the north-western part of the Pacific Ocean, he made a brief visit to the middle and western parts of the Aleutian Islands in the early summer of 1929. At that time, the field work carried out was limited to the following localities: Chichagof Harbour, Attu Isl.; Constantine Harbour, Amchitka Isl.; and Nazan Bay, Atka Isl. In 1931, the junior author had occasion to stay and study the flora of the Aleutian Islands for three months, while he visited the following localities: Chichagof Harbour, Attu Isl.; Constantine Harbour, Amchitka Isl.; Nazan, Korovin Bay, Mt. Korovin, and also the Pacific side of Atka Isl.; Nikolski, Umnak Isl.; Unalaska Bay, Unalaska Isl.; and Nikolski, Bering Isl., in the Commander Islands. These islands extend from the extreme east to the extreme west of the Aleutians, so we believe that we were able to make a pretty thorough botanical exploration of the Islands. This paper is here presented for the purpose of calling attention to the general concept of the flora of this interesting district.

The writers tender their sincere thanks to Prof. K. MIYABE, under whose kind direction this research has been continued, and to Profs. K. SHIBATA, S. KUSANO, T. NAKAI and S. ITO for their advice; they also wish to express their gratitude to Dr. A. KIMURA for the determination of Salicaceae, to Mr. Y. SATAKE for working

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out Juncaceae, to Messrs. J. OHWI and S. AKIYAMA for the determination of Carex and to Mr. S. KITAMURA for the determination of Taraxacum.

Finally, the junior author must acknowledge his deep indebtedness to the *Hôchi* Shinbun-sha (*Hôchi* Newspaper Co.), which afforded him a good opportunity of visiting these islands; and the senior author to Mr. KIKUJI TAKAHASHI, who was good enough to share with him the hardships of the present collecting trip.

General View of the Islands

Physical Geography. Separating the Bering Sea from the North Pacific Ocean, the Aleutian Islands form a long volcanic chain between the two continents of Asia and America, ranging from Kamtchatka to Alaska. In the present paper, we have dealt with the islands limited from Attu Island (Long. 179° 21′ E.) to Sannak Island (Long. 162° W.), the section comprising about 150 islands extending over 1500 km. in length. They extend from Lat. 51° N. to 55° N. Beginning at the east, the main islands are Unalaska Isl., Umnak Isl., Atka Isl. and Attu Isl. There are about forty-eight volcanoes, of which more than twenty are now active. The highest peak is Shishaldin of Unimak Islands, which is about 2864 m. in altitude; the others are mostly 1000-1500 m. The slopes above the 1500 m. line are covered with snow all the year round. As a characteristic feature of these volcanic islands, sandy beaches are poorly developed except at a few places in some bays and coves, and, speaking in a general way, precipitous cliffs prevail along the coast. In Kiska and Umnak Islands, there are sand banks formed by lava flow. The interior of most of the Islands is undulated by hills and mountain ranges. They form gentle slopes as if there had been glaciers in ancient times, but they seem to be worn away by its sliding snow on account of the bare ground. Among these hills and mountain sides, many ponds and pools are formed. Their overflowing water often runs down into narrow and deep creeks, taking zigzag courses through the valleys and slopes, and falling into the sea, frequently making waterfalls on their way.

Sea Current. In winter the cold current (Oyashio), which has its origin in the south-western part of the Bering Sea, comes down toward the Kurile Islands between Kamtchatka Peninsula and the

western part of the Aleutian Islands. The warm current (Kuroshio) deflected from the coast of Honshu (Japan) toward Alaska Bay runs at some distance to the south of the Islands, sending its small branches northward to the Bering Sea between them. The main stream of Kuroshio faces toward the coast of the American Continent and divides into the south and north branches. The latter (the Alaska Current) runs westward along the coast of Alaska Bay and finally reaches Long. 180° E. in the Bering Sea through the eastern Aleutian Islands. In summer the course of Kuroshio draws nearer to the Islands than in winter, and sends many branches northward to the Bering Sea, washing almost all the islands on their way. Consequently the strait between each two islands forms a rapid current.

Wind. As the atmospheric pressure in winter is at a minimum on the Islands ("Aleutianminimums") against the high pressures of the surrounding regions, the wind which has its source in the Bering Strait and the Okhotsk Sea blows around these Islands anticlockwise; that is, the north wind prevails in the western part, the west wind in the south, off the sea, and the south-east or east wind in the eastern part. Toward summer the dilation of air occurs in eastern Siberia and Alaska, and the minimum becomes gradually extinct on the Islands. In this season, a narrow ridge of high pressure atmosphere lies from the middle of the Islands to the east end of Chukchi Peninsula through the Pribilof Islands. On the east of this ridge, the wind blows south-west, and on the west it blows south-east.

Climate. Our meteorological observations during our stay at Atka and Attu Islands are recorded as follows.

(We began observations on May 4, and ended Aug. 4.)

			May (4–)	June	July	August (1–4)
Atka	Mean Temp.	10 A.M.	7.7°C	9.6°C	12.6°C	10.6°C
		10 P.M.		5.8°C	8.2°C	10.4°C
	Weather	Fair	6	10	14	0
		Cloudy	14	12	15	1
		Rainfalls	4	8	2	3
		Snowstorm	5	0	0	0
		Dense Fog	0	2	8	0

			May (4–)	June	July	August (1–4)
Attu	Mean Temp.	1 P.M.	3.7°C	8.2°C	12.5°C	
	Weather	Fair	7	4	9	
		Cloudy	16	20	13	
		Rainfalls	5	6	9	
		Snowstorm	10	0	0	
		Dense Fog	4	15	21	

The last snow in the spring comes at the beginning of May. From the beginning of June, the foggy season comes round, and sometimes there continues a long run of foggy weather.

Plant Communities

A classification with a brief description of the plant communities of the Islands, based upon our observations in the limited localities as shown in the preface, is given under the following headings:—

I. Marine Vegetation.
   - A. Sublittoral Belt.
   - B. Littoral Belt.
   - C. Supralittoral Belt.

II. Land Vegetation.
   - A. Sea shore.
   - B. Lake and Pond.
   - C. Muskag.
   - D. Heath.
   - E. Meadow.
   - F. Shrubby Thickets.

I. Marine Vegetation

A. Sublittoral Belt

(A few metres in depth at the low tide)

a. Muddy bottom

Zostera marina-Association

As shown in the foregoing chapter, the muddy bottom of the sea is poorly developed in some limited parts of the bays or coves,

owing to the volcanic conditions of these Islands. The association developed on such muddy bottoms is dominated only by *Zostera marina,* which grows rather densely at a depth of a few metres below the low tide.

b. Rocky bottom

The communities developed on rocky bottoms are represented by the algal flora. They are divided into the following associations:

1. *Alaria fistulosa*-Association

The mouths of bays and passes of the Islands are usually covered by some floating blades of *Alaria fistulosa,* which form a dense group here and there, affording shelter for fishes and marine mammals. On such bottoms, *Pterosiphonia bipinnata* and *P. arctica* are found in company.

2. *Ulva*-Association

In the shallower bottom of Nazan Bay, we noticed the presence of a greenish uniform community of *Ulva* (species undetermined).

3. *Thalassiophyllum clathrus*-Association

The *Thalassiophyllum clathrus*-association is the most characteristic association of this district, showing submerged shrub-like vegetation.

B. Littoral Belt

(Extending from the mean low water up to the mean high water, which, for Nazan Bay, is a belt about 2 metres in depth)

This belt includes many kinds of sea-weeds, and, generally speaking, is divided into three sub-belts:—Lower Littoral, Mid-littoral and Upper littoral sub-belt.

1. *Alaria-Hedophyllum-Laminaria*-Association

The *Alaria-Hedophyllum-Laminaria*-association occupies the layer above and below the mean low water level, that is, the lower littoral sub-belt and the upper sublittoral belt. *Alaria dolichorachis, Alaria tenuifolia, Hedophyllum sessile* and *Laminaria longipes* are the codominant species, and among them the following species are found:—

Phycodrys Riggii	*Ptilota californica*
Enteromorpha intestinalis	*Erythrophyllum Gmelini*
Euthora fruticulosa	*Odonthallia Lyalii*

2. *Halosaccion glandiforme*-Association

The mid-littoral sub-belt, especially that of the mouths of creeks, is occupied by this association, in which *Halosaccion glandiforme* is found growing only on rocks and pebbles.

In some places, a *Corallina*-community covers the exposed rocks of the mid-littoral sub-belt, sometimes forming the bottom layer of the *Alaria-Hedophyllum-Laminaria*-community.

3. *Fucus evanescens*-Association

This is one of the common associations in the upper littoral and mid-littoral sub-belts. Besides the dominant *Fucus evanescens* are scattered such species as *Ahnfeltia plicata* and *Odonthalia aleutica*.

C. Supralittoral Belt (Spritz Belt)

This is the belt about 3 metres above mean high water, which is washed by occasional high tides.

1. *Verrucaria-Porphyra*-Association

Verrucaria maura, the calcivorous lichen, is distributed over the supra-littoral rocks, giving a dark aspect to this belt; *Porphyra perforata* is also found in small patches on such rocks.

2. *Myelophycus intestinalis*-Association

On exposed rocky shoals many tide pools are found about 1-5 metres in diameter. Besides *Myelophycus intestinalis*, the following plants are commonly found:—

Rhodomela Larix
Fucus evanescens
Halosaccion glandiforme
Monostroma Grevillei
Enteromorpha intestinalis

II. Land Vegetation

A. Sea shore

a. Rocky shore and sea-cliff

1. *Caloplaca elegans*-Association

This saxicolous lichen association is developed on such precipitous cliffs that the vascular plants can not grow. The beautiful red colour of *Caloplaca elegans* adorns the monotonous gloomy rock surface. Besides this species, the crustaceous lichens, such as *Lecanora gelida* and *Mycoblastus sanguinarius*, and the fruticose

lichens, such as *Sphaerophorus globosus, Ramalina Almquistii* and *Cetraria lacunosa* are commonly found.

2. *Elymus-Potentilla*-Association

This association, which is developed on crevices in cliffs, consists of the codominant plants, *Elymus mollis* and *Potentilla villosa,* and is accompanied by several elements belonging to other types for example:—

Polypodium vulgare	*Trisetum subspicatum*
Cerastium Fischerianum	*Festuca rubra*
Ligusticum Hultenii	*Hierochloe alpina*
Achillea borealis	*Carex macrochaeta*

b. Gravelly shore

Elymus-Ammodenia-Mertensia-Association

The *Elymus-Ammodenia-Mertensia*-association is developed on gravelly shores often mixed with sandy and rocky shores. The codominant species are *Elymus mollis, Ammodenia oblongifolia* and *Mertensia maritima,* and the characteristic plants are as follows:—

Claytonia sibirica	*Sagina crassicaulis*
Cerastium Beeringianum	*Lathyrus maritimus*
Cerastium Fischerianum	*Senecio Pseudo-Arnica*

In Amaknak Island, in Unalaska Bay, *Elymus mollis* forms small families here and there on a gravelly shore, presenting the aspect of a strand steppe.

c. Sandy shore

Elymus-Association

The *Elymus*-association is mostly dominated by *Elymus mollis. Ammodenia oblongifolia, Lathyrus maritimus, Senecio Pseudo-Arnica* and *Mertensia maritima* maintain subordinate rank. Among the above mentioned, *Ammodenia oblongifolia,* budding from the perennial stolons at the beginning of May, is found very close to the sea and reaches its full growth in the middle of June.

d. Muddy shore and salt marsh

Carex-Potentilla-Juncus-Association

In the limited areas of Unalaska Islands and Atka Island, we have observed associations of muddy shore and salt marsh. They are represented by the *Carex-Potentilla-Juncus*-association, of which

codominant plants are *Carex saxatilis*, *Potentilla pacifica* and *Juncus Haenkei*.

B. Lake and Pond

In the Aleutian Islands, the important lakes of several km. in circumference are Lake Korovin, at the foot of Mt. Korovin in Atka Island, and Lake Unalaska, in Unalaska Island. There are besides many pools, ponds and lakes among the hills and on the gentle slopes of the mountain sides. Their water levels rise when the snow disappears, and then gradually fall towards the summer, exposing a muddy or gravelly margin. The higher aquatic plants of the fresh water vegetation are very poor in kind, represented by such plants as *Potamogeton perfoliatus*, *Myriophyllum spicatum*, etc. In streams, *Fontinalis antipyretica*, var. *gigantea* and *Ranunculus trichophyllus* occur. An aquatic community of the pond in Unalaska Island is represented by the *Nitella-Sparganium*-association, of which *Nitella* sp. is exclusively dominant in the bottom layer, and *Sparganium hyperborea* is a dominant species, accompanied with a submerged fresh water sponge and *Potamogeton alpinus*. So far as the higher forms of plant life are concerned, the aquatic flora of the district under consideration is a subordinate division.

C. Muskag

The term Muskag, here used, includes the associations variously called marshes and bogs, resembling the wet tundra formation. It is usually developed on terraces and mountain sides, accompanied by scattered pools and ponds, the surface area of which varies from a few square metres to several square kilometres. The Muskag is, in general, dominated by the various species of *Cyperaceae* and the ericaceous plants, and the peat beds are not well developed. The typical Muskag is found at the foot of Mt. Korovin and Cape Utes in Atka Island and Lake Unalaska in Unalaska Island. The following associations are observed:

Bog:

1. *Eriophorum-Carex*-Association.
2. *Carex-Sphagnum*-Association.
3. *Carex-Iris*-Association.

Swamp:

Carex-Caltha-Association.

Petasites-Conocephalus-Association.

Hippuris vulgaris-Family.

a. Bog

1. *Eriophorum-Carex*-Association

The *Eriophorum-Carex*-association is the representative type of the bog community. It is codominated by *Eriophorum russeolum, Carex rariflora, Carex saxatilis,* etc. in the field layer, and *Sphagnum* often in the bottom layer. The following species are commonly found associated with the codominant plants mentioned above.

Bistorta vivipara
Anemone narcissiflora
Coptis trifolia
Drosera rotundifolia
Sieversia calthifolia
Rubus Chamaemorus
Empetrum nigrum
Viola Langsdorfii
Cnidium ajanense
Cornus suecica
Vaccinium uliginosum
Pedicularis Chamissonis
Plantago macrocarpa
Pinguicula vulgaris
Arnica unalaschcensis
Carex gynocrates
Carex pachystachya
Scirpus caespitosus
Luzula Kobayashii
Majanthemum dilatatum
Tofieldia nutans
Orchis aristata
Iris setosa
Platanthera hyperborea

2. *Carex-Sphagnum*-Association

The *Carex-Sphagnum*-association seems to be a transitional phase from a swampy community to a boggy one. The chief components are various *Carex* and *Sphagnum* species, of which *Carex Lyngbyei, Carex saxatilis* and *Carex rariflora* are important components of the field layer. *Sphagnum Girgensohnii,* var. *coryphaeum* associated with other *Musci* forms the bottom layer. Among the other components are:—

Caltha palustris
Cardamine pratensis
Drosera rotundifolia
Plantago macrocarpa
Pinguicula vulgaris
Eriophorum russeolum
Orchis aristata
Platanthera hyperborea

3. *Carex-Iris*-Association

The association under consideration is to be placed between the bogs and the meadows of the lowland. The characteristic elements are *Carex* species, (chiefly *Carex Lyngbyei*), *Iris setosa, Rubus stellatus, Trientalis europaea, Sphagnum* species and mosses. The following plants are often found in this association:

Bistorta vivipara
Claytonia sibirica
Anemone narsissiflora
Sieversia calthifolia
Rubus Chamaemorus
Empetrum nigrum
Viola Langsdorfii
Cnidium ajanense
Pinguicula vulgaris
Pedicularis Chamissonis
Aster peregrinus
Carex saxatilis

b. Swamp

1. *Carex-Caltha*-Association

The *Carex-Caltha*-association is one of the most common types of swamp vegetation. The codominant species are *Carex Lyngbyei* and *Caltha palustris*.

2. *Petasites-Conocephalus*-Association

The *Petasites-Conocephalus*-association is found mostly on the lower slopes of the mountain side. *Petasites frigida* and *Conocephalus conicus* are codominant, of which the latter covers the ground layer. It is often accompanied by *Caltha palustris* as a codominant species. Besides the above mentioned, the following species are commonly found.

Ranunculus occidentalis
Saxifraga punctata
Epilobium Behringianum
Epilobium Hornemanni, etc.

3. *Hippuris vulgaris*-Family

The family of *Hippuris vulgaris*, the pioneer phase in the aquatic area, is found in shallow ponds and swamps throughout the Islands.

D. Heath

Heath with a boreal aspect is well developed on the summits and ridges of the mountain, mountain sides and terraces, and sometimes comes down to near the sea shore. Many ericaceous and salicaceous plants, heathberry and the xerophylous mosses and lichens are the chief components. The vernal aspect of the upland heath is very remarkable through the presence of *Anemone narcissiflora* and *Lupinus nootkatensis*. The following associations are observed in the heath-community:—

1) *Empetrum-Vaccinium-Carex-Rubus*-Association.
2) *Empetrum-Vaccinium-Moss*-Association.

3) *Lycopodium-Carex-Cladonia-Moss*-Association.
4) *Rhacomitrium-Cladonia*-Association.
5) *Arctostaphylos-Salix*-Association.

1) *Empetrum-Vaccinium-Carex-Rubus*-Asssociation

The *Empetrum-Vaccinium-Carex-Rubus*-association represents the vegetation of a wet heath. This association with a very constant composition occurs chiefly on the wet upland along the sea coast. *Empetrum nigrum, Vaccinium uliginosum, Carex rariflora* and *Rubus Chamaemorus* are the codominant elements, and mosses, sphagnum and lichens accompany them. Besides these, the following plants are commonly found:—

Bistorta vivipara	*Pinguicula vulgaris*
Sieversia calthifolia	*Plantago macrocarpa*
Cornus suecica	*Vaccinium Vitis-idaea*
Loiseleuria procumbens	*Carex rariflora*
Trientalis europaea	*Tofieldia nutans*

2) *Empetrum-Vaccinium-Cladonia-Moss*-Association

The heath under consideration related to the dry type is well developed on upper mountain sides or hill tops. The codominant species are *Empetrum nigrum, Vaccinium uliginosum, Vaccinium Vitis-idaea,* mosses and lichens, among which *Empetrum nigrum* is sometimes the only dominant species of the higher plants. The following plants often occur in this association:—

Bistorta vivipara	*Primula cuneifolia*
Anemone narcissiflora	*Antennaria dioica*
Sieversia calthifolia	*Antennaria alpina*
Lupinus nootkatensis	*Arnica unalaschcensis*
Cornus suecica	*Artemisia arctica*
Loiseleuria procumbens	*Agrostis melaleuca*
Rhododendron camtschaticum	*Luzula Kobayashii*

One of these associations, represented by the *Empetrum-Rhacomitrium-Cladonia*-association was analysed at the top (100 m.) of a hill near Nazan, Isl. Atka. The result of the quadrats of $(0.5\ m)^2$ made on June 26, 1931 is shown as follows:—

(+) = abundant.
Figures = number of individuals.

Name \ Quadrat	I	II	III	IV	V	VI	VII	VIII	IX	X
Empetrum nigrum	+	+	+	+	+	+	+	+	+	+
Rhacomitrium hypnoides	+	+	+	+	+	+	+	+	+	+
Cladonia impexa	+	+	+	+	+	+	+	+	+	+
Vaccinium Vitis-idaea	+	+	+	+	+	+	+	+	+	+
Lupinus nootkatensis	3	2	1	—	1	3	2	2	2	1
Solidago Virgaurea	14	3	3	4	16	3	2	—	9	35
Cornus suecica	14	7	7	6	4	7	3	15	4	21
Anemone narcissiflora	—	—	1	1	—	—	5	—	2	1
Agrostis melaleuca	3	4	4	10	—	3	3	—	8	4
Lycopodium alpinum	+	—	—	—	—	1	—	—	—	—
Listera cordata	7	3	1	7	3	5	13	—	—	—
Loiseleuria procumbens	—	—	—	—	—	—	+	+	—	—
Achillea borealis	—	2	4	1	4	1	3	—	1	—
Orchis aristata	—	—	—	1	1	—	2	—	—	—
Carex sp.	—	—	—	—	9	—	1	—	—	6
Rubus stellatus	—	—	—	—	—	1	—	—	—	—
Carex leiocarpa	—	—	—	—	—	—	—	1	—	1
Sieversia calthifolia	—	—	—	—	—	—	—	13	—	—
Viola Langsdorfii	—	—	—	—	—	—	—	—	1	—
Linnaea borealis	—	—	—	—	—	—	—	—	+	—
Coptis trifolia	—	—	—	—	—	—	—	—	—	2

3) *Lycopodium-Carex-Cladonia-Moss*-Association

In this case, *Lycopodium* species, such as *Lycopodium alpinum, Lycopodium annotinum, Lycopodium Selago,* etc., *Carex rigida, Carex rariflora, Cladonia* and mosses are codominant, and are associated with *Scirpus caespitosa, Primula cuneifolia* and *Plantago macrocarpa.* Pools and ponds are often found in this association, in the aquatic area of which occur plants such as *Isoetes Braunii* var. *maritima.*

4) *Rhacomitrium-Cladonia*-Association

The *Rhacomitrium-Cladonia*-association is developed on the top of mountains where only a few grasses grow, and is characterised by the absence of dwarf shrubs, such as *Empetrum nigrum,* etc. *Rhacomitrium hypnoides* and *Cladonia impexa,* are codominant, and

Peltigera canina, Cetraria islandica, Antitrichia curtipendula, Polytrichium alpinum, etc. are intermixed.

5) *Arctostaphylos-Salix*-Association

On Amaknak Island, in Unalaska Islands, there is an upland heath dominated by *Arctostaphylos Uva-ursi.* On the lower slope stretches the mat of dwarf shrubs such as *Salix reticulata* and *Salix arctica,* associated with *Arctous alpina, Loiseleuria procumbens, Phyllodoce aleutica, Rhododendron camtschaticum,* etc. Beside these, the following flowering plants are scattered:—

Anemone narcissiflora	*Campanula dasyantha*
Sanguisorba sitchensis	*Arnica unalaschcensis*
Lupinus nootkatensis	*Deschampsia caespitosa*
Pyrola rotundifolia	*Hierochloe alpina*
Pedicularis capitata	*Trisetum spicatum*
Castilleja pallida	*Carex circinata*

E. Meadow

The meadow associations are commonly developed on hill slopes near the sea, along water courses and on flat uplands. They are mainly composed of grasses, sedges, and also tall herbs in the lower region. The following associations were observed during our trip:—

1. *Coelopleurum-Carex-Artemisia*-Association

The *Coelopleurum-Carex-Artemisia*-association codominated by *Coelopleurum Gmelini, Carex macrochaeta* and *Artemisia Tilesii* is developed on hillsides along the sea. The component of this association are represented by the following species:—

Athyrium filix-femina	*Achillea borealis*
Dryopteris dilatata	*Cacalia kamtschatica*
Claytonia sibirica	*Elymus mollis*
Anemone narcissiflora	*Festuca rubra*
Ranunculus occidentalis	*Streptopus amplexifolius*
Geum macrophyllum	*Veratrum oxysepalum*
Geranium erianthum	*Iris setosa*
Heracleum lanatum	*Orchis aristata*

In rather bare places along the coast, plant-growth is sparser than in the association above mentioned. The following list includes characteristic plants found in this environment:—

Cerastium Fischerianum	*Veronica grandiflora*
Cerastium Beeringianum	*Veronica serpyllifolia*
Lupinus nootkatensis	*Linnaea borealis*
Geranium erianthum	*Campanula lasiocarpa*
Epilobium latifolium	*Aster peregrinus*
Ligusticum Hultenii	*Tofieldia nutans*
Rhododendron camtschaticum	*Orchis aristata*

2. *Calamagrostis-Heracleum-Ranunculus*-Association

The *Calamagrostis-Heracleum-Ranunculus*-association is developed along the water course near Dutch Harbour in Unalaska Island. The dominant species are *Calamagrostis Langsdorffii, Heracleum lanatum* and *Ranunculus acris,* var. *borealis,* and tall herbs over 1 metre high are densely associated with them, as for example:—

Rumex domesticus	*Dactylis glomerata*
Rumex Acetosella	*Hordeum boreale*
Ranunculus occidentalis	*Poa stenantha*
Barbarea orthoceras	*Phleum alpinum*
Epilobium glandulosum	*Phleum pratense*
Bromus breviaristata	*Poa pratensis*

The preaestival aspect of this association is adorned by the yellow flower of *Ranunculus* and the white flower of *Heracleum.*

3. *Plantago-Primula*-Association

The *Plantago-Primula*-association has a character intermediate between the bog– and the heath–community. It is developed in places transitional from bog to heath, and also in low land between the hills where the heaths extend. The codominant plants are *Plantago macrocarpa* and *Primula cuneifolia,* and *Coptis trifolia* often maintains subordinate rank.

F. Shrubby Thickets

The ligneous flora (except dwarf shrubs such as *Vaccinium uliginosum, Empetrum nigrum,* etc.) of the Islands is composed of only a few species. Near Unalaska Lake in Unalaska Island, a remarkable willow association is developed over 4 km. in circumference. *Salix Barclayi,* about 2 m. high in average, is the dominant species forming a dense willow thicket, under which is a layer occupied by *Carex sp.* The under layer shows the physiognomy of wet

meadow. Through the Islands low and bushy willow communities are often met with in the valley and on the mountain side. Besides these, the following societies are noticeable in ligneous vegetation.

a) Society of *Rubus spectabilis*

The society of *Rubus spectabilis,* about 1-2 m. high, is found in the meadow along the river and in low lands among the hills near Unalaska.

b) Society of *Vaccinium Chamissonis*

The society of *Vaccinium Chamissonis* is scattered in the meadows and heaths throughout the Islands.

* Society of *Picea sitchensis*

The societies of *Picea sitchensis* are found in the bog near Unalaska. Its stems attain a height of 7-8 m. and is the only tree found during our trip through the Islands.

Note on the Flowering Season of the Wild Flowers of the Aleutian Islands

In May, after the melting of the snow, plants grow very rapidly and at the end of May they reach a fair size. At the beginning of June, wild flowers gradually burst into bloom and after the middle of June, most of them are in full bloom. *Lupinus nootkatensis,* a beautiful and splendid element in the vernal and preaestival aspect, blooms in the middle of June; its fruit ripens early, in the middle of July. The following table is a list of the seasons of the wild flowers observed by the writers during their stay in the Islands.

May: –31

Caltha palustris	*Plantago macrocarpa*
Ranunculus occidentalis	*Coelopleurum Gmelini*

June: 1–10

Anemone narcissiflora	*Claytonia sibirica*
Potentilla villosa	*Eriophorum russeolum*
Coptis trifolia	*Primula cuneifolia*

11–20

Lupinus nootkatensis	*Loiseleuria procumbens*
Ammodenia oblongifolia	*Rubus stellatus*
Orchis aristata	*Luzula Kobayashii*
Viola Langsdorfii	

21–30

Salix arctica	*Fritillaria camschatcensis*
Pedicularis Chamissonis	*Hippuris vulgaris*
Cardamine pratensis	*Lathyrus maritimus*
Veronica serpyllifolia	*Mertensia maritima*
Streptopus amplexifolius	*Cerastium Fischerianum*
Vaccinium uliginosum	

July: 1–10

Heracleum lanatum

11–

Iris setosa	*Pinguicula vulgaris*
Senecio Pseudo-Arnica	*Arnica unalschcensis*
Elymus mollis	

Observation on the Flora

The first impression of the vegetation gained by a cursory observation in the Aleutian Islands is attracted by the poor arboreal flora. The most striking fact in connection with the arboreal flora is the absence of *Pinus pumila, Alnus fruticosa, Juniperus,* etc., which are widely distributed in the northeastern Asia. Taking the floristic composition as well as the physiognomy of the association into consideration, it appears that the flora is of comparatively recent formation. This may be supported by the following facts.

1. In spite of the fact that the Islands do not reach the boundary line of the limit of tree growth, and, moreover, enjoy comparatively favourable climatic conditions, trees grow only in the western part.

2. Throughout the Islands deep *Sphagnum* beds of peat bog are scarcely found.

3. In the vertical section of the soil in several meadows in the vicinity of Nazan Bay, Atka Island, the humous layer is only about 0.3 m. in depth, under which layer the soil is composed of loam, clay and sand. The mother rock is observed under about 2–3 metres below the soil surface. In places, shallow layers of volcanic ashes are found. This shows that the islands were often covered by volcanic ashes.

4. In spite of the fact that the western part of the Islands lies in about the same degree of northern latitude as the eastern part, the floristic composition and the plant associations are some-

what different. Such difference at present is partly owing to the sea current from the American side.

As already mentioned and shown by the materials in the following enumeration, in phytogeographical position the Aleutian Islands are considered to be separated from the "Provinz Subarktisches Sibirien" and placed in the "Provinz Subarktisches Amerika" of Engler's categories.

NOTE

Living Form

For the living forms of enumerated plants, we followed Raunkiaer's System.

Abbreviation

TH—Therophyta	HK—Hemicryptophyta
HY—Hydrophyta	CH—Chamaephyta
GE—Geophyta	PH—Phanerophyta

Type of Distribution

For the sake of convenience, we classified the distribution type of enumerated plants as follows:

Cosmopolite
Circumpolar
Eurasiatic
Eurasiatic–Western American
Asiatic
Asiatic–Western American
Asiatic–American
Eastern Asiatic
Eastern Asiatic–Western American
Western American
American
American–Eastern Asiatic
Europeo–American
Europeo–American–Eastern Asiatic
Northern Pacific
  Asiatic Pacific (including Japanese, Kamtchatka, Bering and Okhotsk Elements)
  American Pacific (American Pacific Elements)
Europeo–Northern Pacific

Enumeration of Plants

PTERIDOPHYTA

Ophioglossaceae

Botrychium Lunaria Sw. in Schrad. Journ. II. (1800), 110; Ledeb. Fl. Ross. IV. (1853), 504; Miyabe, Fl. Kuril. (1890), 273; Britt. & Br. Ill. Fl. I. (1896), 3; Macoun, List Pl. Pribilof Isl. (1899), 573; Yabe & Yendo, Pl. Isl. Shumushu, (1904), 172; Underw. in Nor. Am. Fl. XVI.-1. (1909), 5; C. Chr. Ind. Fil. (1906), 162; Miyabe & Kudo, in Trans. Sapporo Nat. Hist. Soc. VI. (1916), 123, et Fl. Hokkaido & Saghal. I. (1930), 2; Kudo, Fl. Isl. Paramushir, (1922), 61; Abrams, Ill. Fl. Pacif. Stat. I. (1923), 3; Nakai, in Bot. Mag. (Tokyo), XL. (1926), 377; Tatewaki, Pl. Isl. Alaid, (1927), 154, et Phytogeogr. Middle Kuril. (1933), 192, 275; Hult. Fl. Kamtchat. I. (1927), 47; Komar. Fl. Pen. Kamtschat. I. (1927), 74.

Hab. In meadows (HK—Hemikryptophyta scaposa) : Unalaska (1931).

Distr.-Type*: Cosmopolite.

Polypodiaceae

Adiantum pedatum L. var. ***aleuticum*** Rupr. Beitr. Pflanzenk. Russ. Reich. III. (1845), 49; Ledeb. Fl. Ross. IV. (1853), 526; Eaton, Fern N. Amer. I. (1879), 139, in nota; Abrams, Ill. Fl. Pacif. Stat. I. (1923), 24.

Hab. In meadows (GE) : Unalaska (1931).

Distr.-Type: Asiatic-American (unknown from Kamtchatka and Commander Isl.).

Athyrium filix-femina Roth, in Röm. Mag. II. 1. (1799), 106; Kudo, Fl. Isl. Paramushir, (1922), 60; Abrams, Ill. Fl. Pacif. Stat. I. (1923), 19; Hult. Fl. Kamtchat. I. (1927), 40; Miyabe & Kudo, Fl. Hokkaido & Saghal. I. (1930), 28; Tatewaki, in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 153.

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* "Species" is taken as the unit of the distribution-type.

var. *marinum* MOORE, Pop. Hist. Brit. Ferns, 91, et Nat. Print. Brit. Ferns, II. (1859), 9.

HAB. In meadows (GE): Unalaska (1931).

var. *sitchense* RUPRECHT ex MOORE, Index Fil. (1860), 183; BUTTERS, in Rhodora, XIX. (1917), 199.

HAB. In meadows (GE): Atka (1931); Unalaska (1931).
Distr.-Type: Circumpolar.

Cryptogramme crispa R. BR. in Frankl. Narr. Journ. (1823), 767; HOOK. Fl. Bor. Am. II. (1840), 264; HOOK. & BAK. Syn. Fil. (1874), 144; C. CHR. Ind. Fil. (1906), 187; MIYABE & KUDO, Fl. Hokkaido & Saghal. I. (1930), 153.

Allosorus crispus BERNH. in Schrad. Neu. Journ. I. 2. (1806), 36; LEDEB. Fl. Ross. IV. (1853), 525.

HAB. On rocky cliffs (GE): Attu (1929).
Distr.-Type: Europeo-American-Eastern Asiatic.

Cystopteris fragilis BERNH. in Schrad. Neu. Journ. Bot. I.–2. (1806), 26; HOOK. & BAK. Syn. Fil. (1874), 125; LEDEB. Fl. Ross. IV. (1853), 516; MIYABE, Fl. Kuril. (1890), 274; BRITT. & BR. Ill. Fl. I. (1896), 13; MACOUN, List Pl. Pribilof Isl. (1899), 575; C. CHR. Ind. Fil. (1906), 203; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 7; HULT. Fl. Kamtchat. I. (1927), 29; KOMAR. Fl. Pen. Kamtschat. I. (1927), 55; MIYABE & KUDO, Fl. Hokkaido & Saghal. I. (1930), 7; TATEWAKI, in Trans. Sapporo Nat. Hist. Soc. XI. (1930), 152, et Phytogeogr. Middle Kuril. (1933), 192, 223, 245.

Filix fragilis UNDERW. Nat. Ferns, ed. 6, (1900), 119; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 129; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 7.

HAB. On rocky cliffs (GE): Attu (1929); Amchitka (1929); Atka (1929, 1931).
Distr.-Type: Cosmopolite.

Dryopteris dilatata A. GRAY, Man. (1848), 631; KUDO, Fl. Isl. Paramushir, (1922), 59; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 17; KOMAR. Fl. Pen. Kamtschat. I. (1927), 60; TATEWAKI, Pl. Isl. Alaid, (1927), 153, et in Trans. Sapporo Nat. Hist. Soc. XI. (1930), 152, et Phytogeogr. Middle Kuril. (1933), 192, 223, 245, 265, 275; MIYABE & KUDO, Fl. Hokkaido & Saghal. I. (1930), 17.

Aspidium dilatatum SW. Fl. Brit. III. (1804), 1125; BONG. Vég. Sitcha, (1833), 175.

Aspidium spinulosum SW. var. *dilatatum* HOOK. Brit. Fl. (1830), 444; MACOUN, List Pl. Pribilof Isl. (1899), 575.

Dryopteris spinulosa KUNTZE, var. *dilatata* UNDERW. Native Ferns, ed. 4, (1893), 116; BRITT. & BR. Ill. Fl. I. (1896), 18.

Polystichum spinulosum LEDEB. Fl. Ross. IV. (1853), 515, p.p.

HAB. In meadows or on lake-sides (GE): Attu (1929); Amchitka (1929); Atka (1929, 1931).

Distr.-Type: Circumpolar.

Dryopteris Linnaeana C. CHR. Ind. Fil. (1906), 275; HULT. Fl. Kamtchat. I. (1927), 33; KOMAR. Fl. Pen. Kamtschat. I. (1927), 6; MIYABE & KUDO, Fl. Hokkaido & Saghal. I. (1930), 19; TATEWAKI, in Trans. Sapporo Nat. Hist. Soc. XI. (1930), 153.

Polypodium Dryopteris L. Sp. Pl. ed. 1, (1753), 1093; LEDEB. Fl. Ross. IV. (1853), 509.

Phegopteris Dryopteris FÉE, Gen. Fil. (1850–52), 243; BRITT. & BR. Ill. Fl. I. (1896), 19; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 13.

HAB. In meadows (GE): Attu (1929); Amchitka (1929); Atka (1929).

Distr.-Type: Circumpolar.

Dryopteris oreopteris MAXON, in Proc. U. S. Nat. Mus. XXIII. (1901), 336; C. CHR. Ind. Fil. (1906), 281; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 15.

var. ***Fauriei*** MIYABE ET KUDO, in Trans. Sapporo Nat. Hist. Soc. VI. (1916), 119, et Fl. Hokkaido & Saghal. I. (1930), 11; KUDO, Fl. Isl. Paramushir, (1922), 59; HULT. Fl. Kamtchat. I. (1927), 34; TATEWAKI, in Trans. Sapporo Nat. Hist. Soc. XI. (1930), 152, et Phytogeogr. Middle Kuril. (1933), 192, 245.

Dryopteris kamtschatica KOMAR. in Fedde, Repert. XIII. (1914). 84, et Fl. Pen. Kamtschat. I. (1927), 59, *t. 1.*

HAB. In meadows (GE): Attu (1929).

Distr.-Type: Europeo–Northern Pacific.

Dryopteris Phegopteris C. CHR. Ind. Fil. (1906), 284; KUDO, Fl. Isl. Paramushir, (1922), 60; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 14; HULT. Fl. Kamtchat. I. (1927), 36, (var. *cruciata*); KOMAR. Fl. Pen. Kamtschat. I. (1927), 62; MIYABE & KUDO, Fl.

Hokkaido & Saghal. I. (1930), 18; TATEWAKI, in Trans. Sapporo Nat. Hist. Soc. XI. (1930), 153, et Phytogeogr. Middle Kuril. (1933), 193, 245.

Polypodium Phegopteris L. Sp. Pl. ed. 1, (1753), 1089; LEDEB. Fl. Ross. IV. (1853), 508.

Phegopteris Phegopteris UNDERW.; SMALL, in Bull. Torr. Club, XX. (1893), 462; BRITT. & BR. Ill. Fl. I. (1896), 19; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 129.

Phegopteris polypodioides FÉE, Gen. Fil. (1850–52), 19; MACOUN, List Pl. Pribilof Isl. (1899), 575.

HAB. In meadows (GE) : Amchitka (1929) ; Atka (1929, 1931).
Distr.-Type: Circumpolar.

Polypodium vulgare L. Sp. Pl. ed. 1, (1753), 1085; BONG. Vég. Sitcha, (1833), 175; LEDEB. Fl. Ross. IV. (1853), 508; HOOK. & BAK. Syn. Fil. (1874), 334; MIYABE, Fl. Kuril. (1890), 274; BRITT. & BR. Ill. Fl. I. (1896), 32; C. CHR. Ind. Fil. (1906), 574; HULT. Fl. Kamtchat. I. (1927), 44; KOMAR. Fl. Pen. Kamtschat. I. (1927), 71; MIYABE & KUDO, Fl. Hokkaido & Saghal. I. (1930), 39; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 193.

var. ***commune*** MILDE, Fl. Eu. Atl. (1867), 18; FERNALD, in Rhodora, XXIV. (1922), 137; TATEWAKI, in Trans. Sapporo Nat. Hist. Soc. XI. (1930), 153.

HAB. On rocky cliffs (GE): Attu (1929); Atka (1931); Unalaska (1931).
Distr.-Type: Circumpolar.

Polystichum Lonchitis ROTH, in Röm. Mag. II.–1. (1799), 106; C. CHR. Ind. Fil. (1906), 584; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 9; HULT. Fl. Kamtchat. I. (1927), 39; KOMAR. Fl. Pen. Kamtschat. I. (1927), 65; TATEWAKI, in Trans. Sapporo Nat. Hist. Soc. XI. (1930), 153; KUDO, in Rep. Exp. For. Kyushu Imp. Univ. I. (1931), 45; TAGAWA, in Phytotax. et Geobot. I. (1932), 101.

Aspidium Lonchitis SW. in Schrad. Journ. (1800)[2], (1801), 30; LEDEB. Fl. Ross. IV. (1853), 512.

Dryopteris Lonchitis KUNTZE, Rev. Gen. Pl. (1891), 813; BRITT. & BR. Ill. Fl. I. (1896), 14.

HAB. On rocky cliffs along the coast (GE): Attu (1929); Unalaska (1931).
Distr.-Type: Circumpolar.

Struthiopteris spicant WEIS. Pl. Crypt. Fl. Gottingensis, (1770), 287; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 21; NAKAI, in Bot. Mag. (Tokyo), XLVII. (1933), 185, in nota.

Blechnum boreale SW. in Schrad. Journ. (1800)[2], (1801), 75; BONG. Vég. Sitcha, (1833), 176.

Blechnum Spicant WITHER. Bot. Arr. ed. 3, (1796), 765; LEDEB. Fl. Ross. IV. (1853), 523; C. CHR. Ind. Fil. (1906), 159; HULT. Fl. Kamtchat. I. (1927), 42; KOMAR. Fl. Pen. Kamtschat. I. (1927), 69; MIYABE & KUDO, Fl. Hokkaido & Saghal. I. (1930), 34.

HAB. On cliffs along the creek (GE) : Atka (1931).

Distr.-Type: Europeo–Northern Pacific (western to Aleutian Islands—unoknown from Kamtchatka and Commander Islands).

Equisetaceae

Equisetum arvense L. Sp. Pl. ed. 1, (1753), 1061; MIYABE, Fl. Kuril. (1890), 273; MACOUN, List. Pl. Pribilof Isl. (1899), 575; YABE & YENDO, Pl. Isl. Shumushu, (1904), 173; OSTENFELD, Vas. Pl. Arc. Nor. Am. (1910), 31; MACOUN & HOLM, Rep. Can. Arc. Exped. 1913–18, V. (1921), 7–A; KUDO, Fl. Isl. Paramushir, (1922), 61; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 39; TATEWAKI, Pl. Isl. Alaid, (1927), 154; HULT. Fl. Kamtchat. I. (1927), 50; KOMAR. Fl. Pen. Kamtschat. I. (1927), 82.

var. ***boreale*** RUPR. in Beitr. Pfl. Russ. Reich. III. (1845), 19; LEDEB. Fl. Ross. IV. (1853), 486; MIYABE & KUDO, Fl. Hokkaido & Saghal. I. (1930), 45; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 193, 223, 246, 275, 294.

Equisetum boreale BONG. Vég. Sitcha, (1833), 174.

HAB. In wet places (GE) : Attu (1929) ; Amchitka (1929) ; Atka (1929, 1931).

Distr.-Type: Circumpolar, (nearly cosmopolite).

Equisetum variegatum SCHLEICH. Cat. Pl. Helv. (1807), 27; LEDEB. Fl. Ross. IV. (1853), 490; MIYABE, Fl. Kuril. (1890), 273; BRITT. & BR. Ill. Fl. I. (1896), 39; MACOUN, List Pl. Pribilof Isl. (1899), 575; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 129; OSTENFELD, Vas. Pl. Arc. Nor. Am. (1910), 3; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 7–A; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 41; HULT. Fl. Kamtchat. I. (1927), 56; KOMAR. Fl.

Pen. Kamtschat. I. (1927), 80; MIYABE & KUDO, Fl. Hokkaido & Saghal. I. (1930), 50; TATEWAKI, in Trans. Sapporo Nat. Hist. Soc. XI. (1930), 154.

HAB. Along streams and in bogs (GE): Atka (1929, 1931).

Distr.-Type: Circumpolar.

Lycopodiaceae

Lycopodium alpinum L. Sp. Pl. ed. 1, (1753), 1104; BONG. Vég. Sitcha, (1833), 175; LEDEB. Fl. Ross. IV. (1853), 498; BRITT. & BR. Ill. Fl. I. (1896), 42; MACOUN, List Pl. Pribilof Isl. (1899), 575; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 129; YABE & YENDO, Pl. Isl. Shumushu, (1904), 172; TAKEDA, in Bot. Mag. (Tokyo), XXIII. (1909), 227; KUDO, Fl. Isl. Paramushir (1922), 64; HULT. Fl. Kamtchat. I. (1927), 56; KOMAR. Fl. Pen. Kamtschat. I. (1927), 93; MIYABE & KUDO, Fl. Hokkaido & Saghal. I. (1930), 61; TATEWAKI, in Trans. Sapporo Nat. Hist. Soc. XI. (1930), 155, et Phytogeogr. Middle Kuril. (1933), 224, 276.

HAB. In heaths and bogs (CH): Attu (1929); Amchitka (1929); Atka (1929, 1931).

Distr.-Type: Circumpolar.

Lycopodium annotinum L. Sp. Pl. ed. 1. (1753), 1103; BONG. Vég. Sitcha, (1833), 174; LEDEB. Fl. Ross. IV. (1853), 497; MIYABE, Fl. Kuril. (1890), 272; BRITT. & BR. Ill. Fl. I. (1896), 42; MACOUN, List Pl. Pribilof Isl. (1899), 575; YABE & YENDO, Pl. Isl. Shumushu, (1904), 172; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 129; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 45; HULT. Fl. Kamtchat. I. (1927), 57.

var. ***latifolium*** TAKEDA, in Bot. Mag. (Tokyo), XXIII. (1909), 215; KUDO, Fl. Isl. Paramushir, (1922), 64; KOMAR. Fl. Pen. Kamtschat. I. (1927), 90; MIYABE & KUDO, Fl. Hokkaido & Saghal. I. (1930), 56; TATEWAKI, in Trans. Sapporo Nat. Hist. Soc. XI. (1930), 155, et Phytogeogr. Middle Kuril. (1933), 194, 224, 246, 276, 294.

HAB. In heaths (CH): Attu (1929, 1931); Atka (1929, 1931).

var. ***pungens*** DESV. Prodr. Fil. n. 36; MACOUN, Pl. Pribilof Isl. (1899), 575; TAKEDA, l. c. 217; MIYABE & KUDO, l. c. 75; TATEWAKI, l. c. 155.

Lycopodium pungens DE LA PYLAIÉ ex DESV. in Mém. Soc. Linn. Paris VI. (1827), 182; KOMAR. Fl. Pen. Kamtschat. I. (1927), 90.

HAB. In heaths and bogs (CH): Attu (1929); Amchitka (1929); Atka (1929).
Distr.-Type: Circumpolar.

Lycopodium clavatum L. Sp. Pl. ed. 1, (1753), 1101; LEDEB. Fl. Ross. IV. (1853), 499; MIYABE, Fl. Kuril. (1890), 272; BRITT. & BR. Ill. Fl. I. (1896), 43; YABE & YENDO, Pl. Isl. Shumushu, (1904), 172; TAKEDA, in Bot. Mag. (Tokyo), XXIII. (1909), 218; KUDO, Fl. Isl. Paramushir, (1922), 65; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 45; HULT. Fl. Kamtchat. I. (1927), 59; KOMAR. Fl. Pen. Kamtschat. I. (1927), 91; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 194, 224, 246, 276.

var. ***robustius*** NAKAI, in Bot. Mag. (Tokyo), XXXIX. (1925), 197; MIYABE & KUDO, Fl. Hokkaido & Saghal. I. (1930), 58; TATEWAKI, in Trans. Sapporo Nat. Hist. Soc. XI. (1930), 155.

HAB. In meadows and bogs (CH): Attu (1929); Atka (1929, 1931).
Distr-Type: Cosmopolite.

Lycopodium obscurum L. Sp. Pl. ed. 1, (1753), 1102; BRITT. & BR. Ill. Fl. I. (1896), 41; TAKEDA, in Bot. Mag. (Tokyo), XXIII. (1909), 211; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 44; HULT. Fl. Kamtchat. I. (1927), 61.

form. ***juniperoideum*** TAKEDA, l. c. 213; KOMAR. Fl. Pen. Kamtschat. I. (1927), 89; MIYABE & KUDO, Fl. Hokkaido & Saghal. I. (1930), 55; TATEWAKI, in Trans. Sapporo Nat. Hist. Soc. XI. (1930), 155, et Phytogeogr. Middle Kuril. (1933), 223, 246, 276.

HAB. In heaths (CH): Attu (1929).
Distr.-Type: American-Eastern Asiatic.

Lycopodium Selago L. Sp. Pl. ed. 1, (1753), 1102; LEDEB. Fl. Ross. IV. (1853), 496; BRITT. & BR. Ill. Fl. I. (1896), 40; MACOUN, List Pl. Pribilof Isl. (1899), 575; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 129; YABE & YENDO, Pl. Isl. Shumushu, (1905), 172; TAKEDA, in Bot. Mag. (Tokyo), XXIII. (1909), 203; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 7–A; KUDO, Fl. Isl. Paramushir, (1922), 63, (var. *chinense*); ABRAMS, Ill. Fl. Pacif. Stat.

I. (1923), 43; HULT. Fl. Kamtchat. I. (1927), 61; KOMAR. Fl. Pen. Kamtschat. I. (1927), 88; MIYABE & KUDO, Fl. Hokkaido & Saghal. I. (1930), 51; TATEWAKI, in Trans. Sapporo Nat. Hist. Soc. XI. (1930), 154, et Phytogeogr. Middle Kuril. (1933), 193, 224, 246, 266, 275.

HAB. In heaths and bogs (CH): Attu (1929, 1931); Amchitka (1929); Atka (1929, 1931).

Distr.-Type: Cosmopolite.

Lycopodium sitchense RUPR. Beitr. Pflanzenk. Russ. Reich. III. (1845), 30; LEDEB. Fl. Ross. IV. (1853), 499; TAKEDA, in Bot. Mag. (Tokyo), XXIII. (1909), 221; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 45; HULT. Fl. Kamtchat. I. (1927), 62; KOMAR. Fl. Pen. Kamtschat. I. (1927), 94; MIYABE & KUDO, Fl. Hokkaido & Saghal. I. (1930), 59; TATEWAKI, in Trans. Sapporo Nat. Hist. Soc. XI. (1930), 155, et Phytogeogr. Middle Kuril. (1933), 224, 246, 276.

HAB. In heaths and bogs (CH): Attu (1929); Atka (1931).

Distr.-Type: American-Eastern Asiatic.

Selaginellaceae

Selaginella selaginoides LINK, Fil. Spec. Hort. Berol. (1841), 158; BRITT. & BR. Ill. Fl. I. (1896), 44; YABE & YENDO, Pl. Isl. Shumushu, (1904), 173; TAKEDA, in Bot. Mag. (Tokyo), XXIII. (1909), 235; KUDO, Fl. Isl. Paramushir, (1922), 66; HULT. Fl. Kamtchat. I. (1927), 64; KOMAR. Fl. Pen. Kamtschat. I. (1927), 96; MIYABE & KUDO, Fl. Hokkaido & Saghal. I. (1930), 61; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 194, 224, 247, 276.

Selaginella spinosa BEAUV. Prodr. Aetheog. (1805), 112; LEDEB. Fl. Ross. IV. (1853), 501.

HAB. In wet places (TH—Pteridotherophyta): Unalaska (1931).

Distr.-Type: Circumpolar.

Isoetaceae

Isoetes Braunii DURIEU, in Bull. Soc. Bot. Fr. XI. (1864), 101; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 37.

var. ***maritima*** PFEIFFER, in Ann. Missouri Bot. Gard. IX. (1922), 174.

Isoetes maritima UNDERW. in Bot. Gaz. XIII. (1888), 94.

Isoetes echinospora DONAT, in Pfl.-areale, 3 Reihe, Hf. 8. (1933), 93, *Karte 78,* (quaod pl. Aleutian Isl.).

HAB. In ponds (HY—Hydrophyta radicantia): Attu (1929); Atka (1929).

Distr.-Type: Northern Pacific—American Pacific.

Isoetes truncata CULTE, Fern Allies, (1905), 260; PFEIFFER, in Ann. Missouri Bot. Gard. IX. (1922), 175.

HAB. In ponds (HY): Amchitka (1929).

Distr.-Type: Northern Pacific···American Pacific.

PHANEROGAMAE

GYMNOSPERMAE

Pinaceae

Picea sitchensis CARR. Traité Conif. (1855), 260; KURTZ, in ENGL. Bot. Jahrb. XIX. (1895), 425; HOWELL, Fl. NW. Am. I. (1903), 790; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 62: REHD. Man. Cult. Tr. & Shr. (1927), 48.

Pinus sitchensis BONG. Vég. Sitcha, (1833), 164.

Picea sitchensis TRAUTV. ET MEY. Fl. Ochot. (1856), 87, in nota.

Picea falcata VALCK.-SURINGAR, ex BEISS.-FITSCH. Nadelholzkunde, Aufl. 3. (1930), 274, *Abb. 70.*

HAB. Moist situations (PH—Makrophanerophyta): only few localities near Unalaska City and Dutch Harbour, Unalaska (1931).

Distr.-Type: Northern Pacific···American Pacific, (western to Kodiak and Unalaska).

ANGIOSPERMAE

DICOTYLEDONEAE

Salicaceae (by A. KIMURA)

Salix alaxensis COVILLE, in Proc. Wash. Acad. Sc. II. (1900), 280, et *ibid.* III. (1901), 311, *t. 34;* SARG. Silva. N. Amer. XIV.

(1902), 65, *t. 729,* et Man. Tr. N. Amer. ed. 2, (1922), 157, *fig. 153;* OSTENFELD, Vas. Pl. Arc. N. Amer. (1910), 36; SCHNEID. in Journ. Arn. Arb. I. (1920), 223.

Salix arenaria macrostachys RICHARDSON, in FRANKLIN, Narr. Jour. Polar Sea, Bot. App. (1823), 753, et ed. 2, Bot. App. (1823), 37, (non SCHLEICHER).

Salix speciosa HOOK. ET ARN. (non HOST, 1828), in Beechey's Voy. (1832), 130; HOOK. Fl. Bor.-Amer. II. (1839), 145; SEEMANN, Bot. Voy. Herald, (1852–57), 40, *t. 10;* ANDERSSON, in Öfv. Svensk. Vet. Akad. Förh. XV. (1858), 119, et in DC. Prodr. XVI.–2. (1868), 275, excl. var. *α* etc.; GRAY, in Proc. U. S. Nat. Mus. VII. (1885), 528.

Salix speciosa β Alaxensis ANDERSSON, in DC. Prodr. XVI.–2. (1868), 275.

var. ***typica*** SCHNEID. in Journ. Arn. Arb. I. (1920), 213.

HAB. Along road sides (PH): Unalaska (cult.?) (1931).

Distr.-Type: Northern Pacific—American Pacific.

Salix arctica PALL. Fl. Ross. 1.–2. (1788), 86; CHAM. in Linnaea, VI. (1831), 540; ERMAN, Verzeich. Thier. u. Pfl. etc. (1835), 57; LEDEB. Fl. Ross. III. (1849–1851), 619, p. p.; ANDERSSON, in DC. Prodr. XVI.–2. (1868), 286, p. p.; LUNDSTRÖM, in Nov. Act. Reg. Soc. Sc. Upsal. 3 ser. (1877), 31, *t. fig. I. 1–3;* KJELLMAN, Vega-Exped. Vetensk. Arbet. I. (1882), 271, et *ibid.* (1882), 553; BEBB, in Bot. Gaz. XIV. (1899), 115, p. p.; HERDER, in Act. Hort. Petrop. XI.–2. (1891), 438, p. p.; RYDB. in Bull. N. Y. Bot. Gard. I. (1899), 265; COVILLE, in Proc. Wash. Acad. Sc. III. (1901), 326, *t. XL fig. a–f;* SCHNEID. Ill. Handb. Laubholzk. I. (1904), 41, *fig. 20, n–o, fig. 26 d,* et in SARG. Pl. Wilson. III. (1916), 136, et in Bot. Gaz. LXVI. (1918), 118, et *ibid.* LXVII. (1919), 34, 41, 56, et in Journ. Arn. Arb. III. (1921), 67; FLODERUS, in Arkiv f. Bot. XX.–A. No. 6. (1926), 22; KOMAR. Fl. Pen. Kamtschat. I. (1927), 331, et *ibid.* II. (1929), 24; HULT. Fl. Kamtchat. II. (1928), 5.

Salix diplodictya TRAUTV. in Nouv. Mém. Soc. Nat. Mosc. II. (1832), 307, *t. 14.*

Salix crassijulis TREVIRANUS, ex TRAUTV. in Nouv. Mém. Soc. Nat. Mosc. II. (1832), 308, *t. 15.*

Salix Pallasii ANDERSSON, in DC. Prodr. XVI.–2. (1868), 285; HERDER, in Act. Hort. Petrop. XI.–2. (1891), 438; KOMAR. Voy. Kamtchat. (1912), 452, et Fl. Pen. Kamtschat. I. (1927), 331.

Salix Pallasii, var. *diplodictya* ANDERS. in DC. Prodr. XVI.–2. (1868), 285, p. p.

Salix arctica PALLAS, var. *typica* TRAUTV. in Act. Hort. Petrop. V.–1. (1877), 106, et *ibid.* VI.–1. (1879), 36.

Salix arctica PALLAS, form. *crassijulis* TREVIRANUS apud KJELLMAN, Vega-Exped. Vetensk. Arbet. IV. (1885), 303.

HAB. In meadows and heaths (PH): Attu (1929); Atka (1931); Unalaska (1931).

Distr.-Type: Circumpolar.

Salix Barclayi ANDERS. in Svensk. Vetensk. Akad. Ofvers. XV.–3. (1858), 125, et Salic. Bor.–Amer. (1858), 20, et in Kongl. Svensk. Vetensk. Akad. Handl. VI.–1. (1867), 164, *t. 8, fig. 96,* [in cetra], et. in DC. Prodr. XVI.–2. (1868), 254, excl. var. *latiuscula;* MACOUN, Cat. Canad. Pl. II. (1883), 445; DIPPEL, Handb. Laubholzk. II. (1892), 289; KOEHNE, Deutsche Dendrologie, (1893), 98; COVILLE, in Proc. Wash. Acad. Sc. III. (1901), 316, *t. 36;* PIPER, in Contr. U. S. Nat. Herb. XI. (1906), 215; JONES, Will. Fam. (1908), 16, p. p.; BALL, apud COULTER & NELSON, New Man. Rocky Mts. Bot. (1909), 134, et apud PIPER & BEATTIE, Fl. N. W. Coast, (1915), 116; HENRY, Fl. S. Brit. Col. (1915), 100; RYDB. Fl. Rocky Mts. (1917), 193; SCHNEID. in Journ. Arn. Arb. I. (1920), 150; REHDER, Man. Cult. Tr. & Shr. (1927), 115.

HAB. In meadows (PH—Nanophanerophyta): Unalaska (1931).

Distr.-Type: Northern Pacific ··· American Pacific.

Salix Kobayashii KIMURA, sp. nov.

Frutex ad 2 m altus (ex collectore) ramulis ut videtur erecto-patentibus. *Ramuli* recti hornotini laxe villosi dense foliiferi, annotini in sicco castanei nitentes glabri ad 0.5 cm crassi, 9–14.5 cm longi. Lenticellae paucae sub cicatricibus orbiculares. *Gemmae* anguste ovatae apice obtusiusculae latere angulatae glaberrimae brunneae nitentes ad 1.3 cm longae 0.5 cm latae. *Folia* adulta elliptica fere ad medium latissima, margine integerrima, apice late apiculato-acuta vel acuta, basi acuta, 7.4×3.9, 7.0×3.5, 5.7×3.1 cm etc. magna, supra pilis minutis curvulisque laxe pubescentia vel fere glabrescentia, subtus dilute glauca glaberrima sub lente albo-punctata; costa supra pubescente subtus glabra prominente; nervis primariis utrinque 7–10 leviter arcuatis a costa sub angulis 45°–50° divergentibus supra fere planis infra elevatis, secundariis tenuibus paulum elevatis cum tertiis haud elevatis sed in sicco distincte

visibilibus pulchre anastomosantibus, intermediis 0–1–2. *Petioli* graciles 1.4–1.7 cm longi supra sulcati pubescentes infra glabri. Folia inferiora minora. *Stipulae* oblique ovato-lanceolatae apice acuminatae vel anguste acutae margine glanduloso-denticulatae supra laxe puberulae infra glabrae et glaucae 7–9 mm longae 2.5 m latae. *Amenta* tantum ♀ paulum deflorata visa coaetanea cylindrica densiflora, rachide tomentosa, 4–5 cm longa (excl. pedunculis) 1–1.2 cm crassa, foliato-pedunculata, pedunculis 2.5–3.3 cm longis tomentosis; folia pedunculorum 3–5 longe petiolata, elliptica, ad apicem basimque margine plus minusve convexo late acuta vel apice obtusa, margine integerrima, supra glabra vel in superioribus laxe pubescentia, subtus glabra (tantum in inferioribus secus costam saepe laxe villosa) et glauca sub lente albo-punctata ut in adultis, 1.2×0.6, 1.8×1.0, 2.2×1.3, 3.5×1.9, 3.8×2.0 cm etc. magna, costa infra prominente, nervis primariis infra elevatis in superioribus foliis utrinsecus 6–8 sub angulis 20°–30° divergentibus, petiolis ad 1.1 cm longis; stipulae saepe adsunt obovato-ellipticae, oblanceolato-oblongae vel oblongo-ellipticae, apice obtusae, margine glanduloso-denticulatae 2.5×1.0, 5×1.5, 5×2.5 mm etc. magnae. *Bracteolae* discolores obovato-oblongae vel cuneato-obovatae, apice obtusae vel rotundatae, dimidia superiore parte nigrescentes, inferiore brunneae (in sicco), utrinque villosae, villis supremis longitudine bracteam vix aequantibus, 3.0×1.3, 3.3×1.6, 3.5×2.0 mm etc. magnae. *Glandula* una ventralis oblonga apice truncata saepe bifida 0.8–1.0 mm longa. *Ovaria* ex ovata basi conico-cylindracea, tomentoso-sericea circiter 3.5 mm longa, pedicellis sericeis 0.8–0.9 mm longis; stylis paulum obcompressis 1.5–1.8 mm longis. *Stigmata* bipartita, laciniis oblongis divaricatis 0.5–0.7 mm longis.

HAB. In bogs (PH): Unalaska (Y. KOBAYASHI, ♀ 15 Jul. 1931-typus in Herb. Univ. Imp. Tokyo.).

Distr.-Type: Endemic.

S. Barclayi ANDERSSON est affinis, sed ramulis hornotinis sat laxe villosis, annotinis glaberrimis, foliis ab initio supra sat laxius pubescentibus vel fere glabrescentibus, amentis longius pedunculatis, foliis pedunculorum majoribus longiusque petiolatis, florum bracteolis majoribus apice non acutis, ovariis tomentoso-sericeis facile distinguitur.

Salix ovalifolia TRAUTV. in Nouv. Mém. Soc. Imp. Nat. Mosc. II. (1832), 306, *t. 13;* LEDEB. Fl. Ross. III.–2. (1850), 620; ANDERS-

SON, in DC. Prodr. XVI.–2. (1868), 291, p. p.; KJELLMAN, Vega-Exp. Vetensk. Arbet. I. (1882), 554; HERDER, in Act. Hort. Petrop. XI. (1891), 444; COVILLE, in Proc. Wash. Acad. Sc. III. (1901), 331, *fig. 26;* SCHNEID. in SARG. Pl Wilson. III. (1916), 140, et in Bot. Gaz. LXVI. (1918), 138, et in Journ. Arn. Arb. III. (1921), 68; KOMAR. Fl. Pen. Kamtschat. II. (1929), 31.

Salix myrtilloides form. 4 CHAM. in Linnaea VI. (1831), 539.

Salix unalaschkensis CHAM. ex ANDERSSON, in Svensk. Vetensk. Akad. Öfvers. XV. (1858), 131, et Salic. Boreali-Amer. (1858), 26.

Salix rotundata RYDB. apud MACOUN, List Pl. Pribilof Isl. (1899), 571, (non FORBES, 1829).

Salix cyclophylla RYDB. in Bull. N. Y. Bot. Gard. I. (1899), 275, (non GANDOGER, 1881, 1882).

HAB. In rocky places and heaths (CH): Attu (1929); Amchitka (1929); Atka (1929, 1931).

form. ***acrotricha*** KIMURA, f. nov.

A typo nonnisi differre videtur ovariis sub lente apice paucipilosis; cum *β pubescens* ANDERSSON (in DC. Prodr. XVI.–2. 291) non congruere.

HAB. In rocky places (CH): Atka (M. TATEWAKI & K. TAKAHASHI, n. 14381, Jul. 1929–typus f. in Herb. Hokkaido Imp. Univ.)

Distr.-Type: Northern Pacific.

Salix pseudopolaris FLODERUS, in Arkiv f. Bot. XX.–A. No. 6. (1926), 8; HULT. Fl. Kamtchat. II. (1928), 18; KOMAR. Fl. Pen. Kamtschat. II. (1929), 33.

Salix polaris HERDER, in Act. Hort. Petrop. XI.–2. (1891), 448, (quoad pl. Kamtchat.); KOMAR. Voy. Kamtchat. (1912), 452, (sec. HULTEN).

HAB. In rocky places of the upland (CH): Amchitka (1929).

Distr.-Type: Northern Pacific—(East to Aleutian Islands).

Salix reticulata L. Sp. Pl. ed. 1, (1753), 1018; WAHLB. Fl. Svecica, ed. 1, II. (1826), 637; HOST, Sal. (1828), *t. 105;* HOOK. Brit. Fl. (1830), 422; TRAUTV. in LEDEB. Fl. Alt. IV. (1833), 291 excl. var. ' *β*; WIMMER, Salic. Europ. (1866), 129; ANDERSSON, Salic. Lapp. V. (1845), 83, *t. 25,* et in DC. Prodr. XVI.–2. (1868), 301, excl. var. *β*; KOCH, Dendrologie, II.–1. (1872), 621; SCHNEID. Ill. Handb. Laubholzk. I. (1904), 40, *fig. 14 g–h, fig. 18*

a–d; SEEMEN, in ASCHERS. & GRAEBN. Syn. Mitteleurop. Fl. IV. (1908), 67; GÖRZ, in Cavanillesia II. Fasc. VII.-X. (1929), 26.

Chamitea reticulata KERNER, in Verh. Zool.-Bot. Gesel. Wien. X. (1860), 277; DIPPEL, Handb. Laubholzk. II. (1892), 212.

HAB. In heaths and rocky places (CH) : Unalaska (1931).

var. ***orbicularis*** (ANDERSSON) KOMAR. Fl. Pen. Kamtschat. I. (1927), 331.

Salix reticulata MERTENS, in Linnaea V. (1830), 62; LEDEB. Fl. Ross. III.–2. (1850), 623, p. p.; KITTLITZ, Denkwürdigkeiten einer Reise nach dem russisch. Amerika, nach Mikronesien u. durch Kamtschatka, II. (1858), 340; KJELLMAN, Vega-Exped. Vetensk. Iakttag. I. (1882), 554, et *ibid.* II. (1883), 21, et *ibid.* IV. (1885), 304; HERDER, in Act. Hort. Petrop. XI.–2. (1891), 450, (quoad pl. Kamtschat.) ; COVILLE, in Proc. Wash. Acad. Sc. III. (1901), 340, *t. 42;* FEDTSCH. Fl. Îl. Comm. (1906), 103; KOMAR. Voy. Kamtchat. (1912), 452; SCHNEID. in SARG. Pl. Wilson. III. (1916), 144, (quoad pl. Kamtschat.).

Salix orbicularis ANDERSSON, in DC. Prodr. XVI.–2. (1868), 300; TRAUTV. in Act. Hort. Petrop. IX.–1. (1884), 183.

Salix reticulata L. subsp. *orbicularis* FLODERUS, in Arkiv f. Bot. XX.–A. No. 6. (1926), 5; HULT. Fl. Kamtchat. II. (1928), 19; KOMAR. Fl. Pen. Kamtschat. II. (1929), 33.

A typo recedere videtur foliis longius petiolatis, plerisque suborbicularibus vel orbiculari-obovatis, saepe obscure serrulatis, basi interdum leviter cordatis, subtus dilute glaucis nec intense alboglaucis. Foliis variat:

form. ***typica*** KIMURA, nom. nov.

Folia utrinque ab initio glabra.

HAB. In rocky places and heaths (CH) : Attu (1929) ; Unalaska (1931).

form. ***villosa*** KIMURA, f. nov.

Folia sub anthesi subtus (raro etiam supra) villosa vel villosiuscula (demum glaberrima?).

HAB. In heaths and rocky places (CH) : Attu (1929) ; Unalaska (Y. KOBAYASHI, ♂ 23 Jul. 1931–typus f. in Herb. Imp. Univ. Tokyo).

Distr.-Type: Circumpolar.

Salix rotundifolia TRAUTV. in Nouv. Mém. Soc. Imp. Nat. Mosc. II. (1832), 304, *t. 11*, et in Act. Hort. Petrop. I.–1. (1871), 79, et *ibid.* V.–1. (1877), 109, et *ibid.* VI.–1. (1879), 37; ANDERSSON, in DC. Prodr. XVI.–2 (1868), 299; RYDB. in Bull. N. Y. Bot. Gard. I. (1899), 276; WOLF, in Izv. St.-Petersb. Liesn. Inst. V. (1900), 112, *t. 38, fig. 15–20, t. 46, fig. 7–9;* FLODERUS, in Svensk. Bot. Tidskr. VI.–3. (1912), 405; SCHNEID. in SARG. Pl. Wilson. III. (1916), 143, et in Bot. Gaz. LXVII. (1919), 53, et in Journ. Arn. Arb. III. (1921), 67; KOMAR. Fl. Pen. Kamtschat. II. (1929), 30.

Salix polaris, var. *leiocarpa* CHAM. in Linnaea, VI. (1831), 542.

Salix retusa, var. *rotundifolia* TREVIRANUS, ex TRAUTV. in Nouv. Mém. Soc. Imp. Nat. Mosc. II. (1832), 304, p. syn.; TRAUTV. in MIDDENDORFF, Reise Sibir. I.–2. Bot. Abt. 1. (1847), 152.

Salix rotundifolia α *typica* LUNDSTRÖM, in Nov. Act. Reg. Soc. Sc. Upsal. ser. III. (1877), 30, *fig. 3.*

Salix leiocarpa COVILLE, in Proc. Wash. Acad. Sc. III. (1901), 338, *t. 41, fig. 2;*? FEDTSCH. Fl. Îl. Comm. (1906), 103.

HAB. On rocks (CH): Amchitka (1929); Atka (1929; 1931).

form. ***pilosiuscula*** SCHNEID. in Bot. Gaz. LXVII. (1919), 53, et in Journ. Arn. Arb. III. (1921), 67.

HAB. In heaths (CH): Amchitka (1929).

mstr. ***bicapsularis*** KIMURA, mstr. nov.

Ovaria 2 sub singulis bracteolis, carpophyllis singulis, nonnumquam duobus formata, ex ovata basi elongato-conica, 2–2.8 mm longa 0.8–1.3 mm crassa, superne pilosa; *carpophyllis* margine nunc complete commissis nunc dehiscentibus; stipitibus 2 glabris 0.4–0.7 mm longis ad basin usque liberis; stylis glabris circiter 0.5 mm longis. *Stigmata* bilobulata, laciniis linearibus divaricatis. *Glandulae* 2; ventralis oblonga apice truncata vel bifida 1.5 mm longa basi 0.5–0.7 mm lata; dorsalis linearis vel subulato-linearis apice obtusissima 1.2–1.5 mm longa. *Bracteolae* late obovatae apice rotundatae utrinque pubescentes, circiter 2 mm longae 1.7 mm latae. Ceterum ut in typo.

HAB. In rocky places (CH): Atka (Y. KOBAYASHI, 23 Jun. 1931–typus mstr. in Herb. Univ. Imp. Tokyo).

Distr.-Type: Eastern Asiatic—Western American.

Polygonaceae

Bistorta vivipara S. F. GRAY, Nat. Arr. Brit. II. (1821), 268.

Polygonum viviparum L. Sp. Pl. ed. 1, (1753), 360; BONG. Vég. Sitcha, (1833), 161; LEDEB. Fl. Ross. III. (1846–51), 519; MACOUN, Cat. Canad. Pl. III. (1886), 412, et List Pl. Pribilof Isl. (1899), 570; MIYABE, Fl. Kuril. (1890), 257; KURTZ, in ENGL. Bot. Jahrb. XIX. (1895), 403; BRITT. & BR. Ill. Fl. I. (1896), 555; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 136; HOWELL, Fl. NW. Am. I. (1903), 577; YABE & YENDO, Pl. Isl. Shumushu, (1904), 179; FEDTSCH. Fl. Il. Comm. (1906), 100; OSTENFELD, Vas. Pl. Arc. N. Am. (1910), 9; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 206; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 11–A; HOLM, *ibid.* (1922), 21–B; KUDO, Fl. Isl. Paramushir, (1922), 100; HULT. Fl. Kamtchat. II. (1928), 55; KOMAR. Fl. Pen. Kamtschat. II. (1929), 64; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 195, 226, 248, 266, 277, 295.

HAB. In meadows (HK): Attu (1929, 1931); Amchitka (1929); Atka (1929, 1931); Unalaska (1931).

Distr.-Type: Circumpolar.

Oxyria digyna HILL, Hort. Kew. (1769), 158; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 135; OSTENFELD, Vas. Pl. Arc. N. Am. (1910), 9; YABE & YENDO, Pl. Isl. Shumushu, (1904), 179; FEDTSCH. Fl. Il. Comm. (1906), 100; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 206; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 11–A; HOLM, *ibid.* (1922), 21–B; KUDO, Fl. Isl. Paramushir, (1922), 100; HULT. Fl. Kamtchat. II. (1928), 49; KOMAR. Fl. Pen. Kamtschat. II. (1929), 62; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 195, 225, 248, 266, 277, 295.

Oxyria digyna CAMPT. Rumex, (1819), 155; MACOUN, Cat. Cand. Pl. III. (1886), 414; BRITT. & BR. Ill. Fl. I. (1896), 553; HOWELL, Fl. NW. Am. (1903), 588.

Oxyria reniformis HOOK. Fl. Scot. (1821), 111; BONG. Vég. Sitcha, (1833), 161; LEDEB. Fl. Ross. III. (1846–51), 498; MACOUN, List Pl. Pribilof Isl. (1899), 571.

HAB. On rocky places of mountains (HK): Attu (1929, 1931); Atka (1931); Unalaska (1931).

Distr.-Type: Circumpolar.

Rumex Acetosella L. Sp. Pl. ed. 1, (1753), 338; LEDEB. Fl. Ross. III. (1846–51), 511; MACOUN, Cat. Canad. Pl. III. (1883), 418; BRITT. & BR. Ill. Fl. I. (1896), 574; MACOUN, List Pl. Pribilof Isl. (1899), 571; HOWELL, Fl. NW. Am. I. (1903), 585; KUDO, Fl. Isl. Paramushir, (1922), 99; HULT. Fl. Kamtchat. II. (1928), 44; KOMAR. Fl. Pen. Kamtschat. II. (1929), 56; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 225.

HAB. In waste places of Dutch Harbour (HK): Unalaska (1931).

Distr.-Type: Circumpolar (nearly cosmopolite).

Rumex domesticus HARTM. Skand. Fl. ed. 1, (1820), 148; BONG. Vég. Sitcha, (1833), 161; LEDEB. Fl. Ross. III. (1846–51), 506; HULT. Fl. Kamtchat. II. (1928), 46; KOMAR. Fl. Pen. Kamtschat. II. (1929), 61.

HAB. In wet places (HK): Atka (1929, 1931); Umnak (1931); Unalaska (1931).

Distr.-Type: Eurasiatic-Western American.

Portulacaceae

Claytonia sibirica L. Sp. Pl. ed. 1, (1753), 204; MACOUN, Cat. Canad. Pl. I. (1883), 82; KURTZ, in ENGL. Bot. Jahrb. XIX. (1895), 368; PIPER, Fl. St. Wash. (1906), 249; FEDTSCH. Fl. Il. Comm. (1906), 60; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 207; HULT. Fl. Kamtchat. II. (1928), 61; KOMAR. Fl. Pen. Kamtschat. II. (1929), 77; POELLNITZ, in Fedde, Repert. Spec. Nov. Reg. Veg. XXX. (1932), 307.

Claytonia unalaschkensis FISCH. Hort. Gorenk, ed. 2. (1812), 62.

HAB. In damp places near the seashore (HK): Attu (1929); Amchitka (1929); Atka (1929, 1931); Unalaska (1931).

form. ***albiflora***, form. nov.

Flores albi.

HAB. In damp places (HK): Amchitka (1929); Atka (1929, 1931).

var. ***heterophylla*** GRAY, in Proc. Amer. Acad. XXII. (1887), 281; POELLNITZ, l. c. 308.

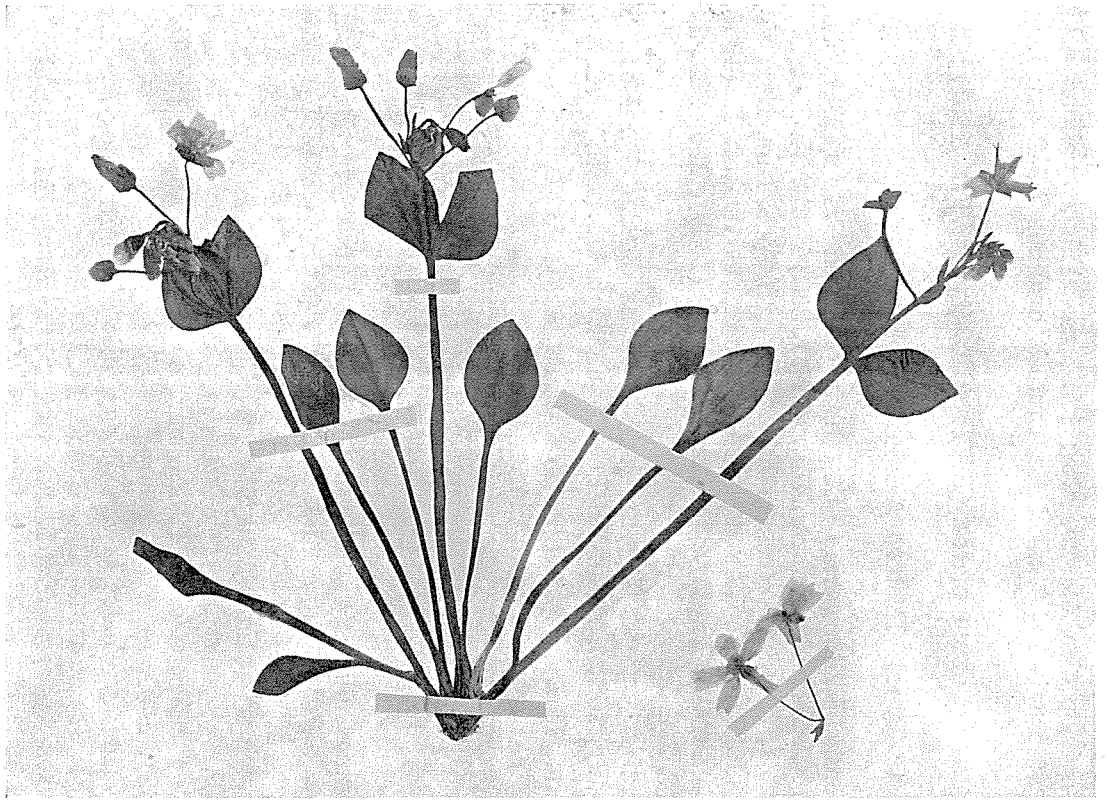

Fig. 1. *Claytonia sibirica* L. var. *minor* TATEWAKI ET KOBAYASHI. The type specimen slightly reduced.

HAB. In damp places near the seashore (HK): Atka (1929); Amchitka (1929) Atka (1931).

var. ***minor***, var. nov.

Humirior circ. 12 cm. alta; foliis radicalibus ovalibus acutis 1.8–2 cm. longis 1–1.3 cm. latis, caulinis ovalibus 1.5–2 cm. longis ca. 1.2 cm. latis.

HAB. In damp places (HK): Attu (typus, VII. 1931); Amchitka (1929).

Distr.-Type: Eastern Asiatic-Western American.

Montia lamprosperma CHAM. in Linnaea VI. (1831), 564; KURTZ, in ENGL. Bot. Jahrb. XIX. (1895), 368; HULT. Fl. Kamtchat. II. (1928), 62; POELLNITZ, in Fedde, Repert. Spec. Nov. Reg. Veg. XXX. (1932), 317; KOIDZUMI, in Phytotax. et Geobot. I. (1932), 323; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 196, 226, 248, 267, 277, 295.

Montia fontana L. var. *lamprosperma* LEDEB. Fl. Ross. II. (1844–46), 152; KOMAR. Fl. Pen. Kamtschat. II. (1929), 78.

HAB. In damp places (TH): Atka (1929).

Distr.-Type: Circumpolar.

Caryophyllaceae

Ammodenia oblongifolia RYDBERG, in Bull. Torr. Bot. Club, XXXIX. (1912), 317; NAKAI, in Bot. Mag. (Tokyo), XLIII. (1929), 457.

Honckenya oblongifolia TORR. ET GRAY, Fl. Nor. Am. I. (1838–40), 176.

Honckenja peploides EHRH. var. *oblongifolia* LEDEB. Fl. Ross. I. (1842), 358.

Arenaria peploides L. var. *oblongifolia* WATSON, Index Am. Bot. I. (1878), 97; MACOUN, Cat. Canad. Pl. I. (1883), 73.

Honckenya peploides EHRH. var. *major* HOOK. Fl. Bor. Am. I. (1833), 102; HULT. Fl. Kamtchat. II. (1928), 83.

Arenaria peploides BONG. Vég. Sitcha, (1833), 128; MACOUN, List Pl. Pribilof Isl. (1899), 564, (non L.).

Arenaria peploides L. var. *major* FERNALD, in Rhodora, XI. (1909), 114.

Halianthus peploides MACOUN & HOLM, Rep. Canad. Exp. 1913–18, V. (1921), 11–A; HOLM, *ibid.* (1922), 25–B.

Minuartia peploides HIERN, subsp. *major* MATTF. in Fedde, Repert. XIX. (1923), 193–195; HIERN, in Pfl.-areale, Reihe II. (1928–30), Ht.–6. 44, *Kt. 52, (3.3)*.

HAB. On sandy beaches (CH—Chamaephyta reptantia): Attu (1929, 1931); Amchitka (1929); Atka (1931); Unalaska (1931).

Distr.-Type: Northern Pacific (including var. *maxima*).

Cerastium* ***arcticum*** LANGE, Fl. Dan. Fasc. 50, (1880), 7, t. 2963, p. p.; DRUCE, in Moss, Camb. Brit. Fl. III. (1920), 175; FERNALD & WIEGAND, in Rhodora, XXII. (1920), 174.

HAB. On rocky cliffs (CH): Amchitka (1929).

Distr.-Type: Circumpolar (?)

Cerastium Beeringianum CHAM. ET SCHL. in Linnaea I. (1826), 62; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 188; LEDEB. Fl. Ross. I. (1842), 409; FERNALD & WIEGAND, in Rhodora, XXII. (1920), 172; HULT. Fl. Kamtchat. IV. (1930), 248.

Cerastium alpinum L. var. *Behringianum* REGEL, Pl. Radd. I. (1862), 434; MACOUN, Cat. Canad. Pl. I. (1883), 78.

Cerastium Fischerianum SERINGE, var. *Beeringianum* HULT. Fl. Kamtchat. II. (1928), 73.

HAB. In meadows (CH—Chamaephyta reptantia): Atka (1929, 1931).

Distr.-Type: Northern Pacific.

Cerastium Fischerianum SERINGE, in DC. Prodr. I. (1824), 419; FERNALD & WIEGAND, in Rhodora, XXII. (1920), 174; HULT. Fl. Kamtchat. IV. (1930), 248, *fig. 19,* (excl. syn.)

Cerastium alpinum L. var. *Fischerianum* TORR. ET GRAY, Fl. Nor. Am. I. (1838–40), 188; MACOUN, Cat. Canad. Pl. I. (1883), 78; MIYABE, Fl. Kuril. (1890), 33; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 139.

Cerastium vulgatum L. var. *grandiflorum* FENZL, in LEDEB. Fl. Ross. I. (1842), 411.

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* As to the nomenclature of the species of the genus "*Celastinum*", we have followed the system of Prof. FERNALD and WIEGAND.

Cerastium unalschkense HULT. Fl. Kamtchat. II. (1928), 76, (excl. syn.).

HAB. In meadows (CH): Attu (1929); Atka (1929).
Distr.-Type: Northern Pacific.

Cerastium unalaschkense TAKEDA, in Kew Bull. (1910), 381; FERNALD & WIEGAND, in Rhodora, XXII. (1920), 177; HULT. Fl. Kamtchat. II. (1928), 76, p. p.; KOMAR. Fl. Pen. Kamtschat. II. (1929), 94.

HAB. In meadows (CH): Atka (1929).
Distr.-Type: Northern Pacific.

Cerastium vulgatum L.: FERNALD & WIEGAND, in Rhodora, XXII. (1920), 172.

Cerastium caespitosum GILIB. Fl. Lithuan. V. (1781), 159; LEDEB. Fl. Ross. I. (1842), 408; HULT. Fl. Kamtchat. II. (1928), 73.

HAB. In meadows (CH): Atka (1929); Unalaska (1931).
Distr.-Type: Cosmopolite.

Minuartia macrocarpa OSTENFELD, in Meddel. in Grφnl. XXXVII. (1921), 226; MATTFELD, in Fedde, Repert. Spec. Nov. XV. (1922), 195; HULT. Fl. Kamtchat. II. (1928), 80, (var. *minutiflora*); HIERN, in Pfl.-areale, Reihe II. (1928–30), Ht.–6. 55, *Kt. 61, (89)*.

Arenaria macrocarpa PURSH, Fl. Am. Sept. I. (1814), 316; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 182; MACOUN, Cat. Canad. Pl. I. (1883), 72, et List Pl. Pribilof Isl. (1899), 564; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 137.

Alsine macrocarpa FENZL, Verb. Alsin. in adnot. (1833), 18, et in LEDEB. Fl. Ross. I. (1842), 353; HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1922), 70–B: KOMAR. Fl. Pen. Kamtschat. II. (1929), 99.

HAB. On rocky cliffs (HK): Attu (1929).
Distr.-Type: Asiatic-Western American.

Moehringia lateriflora FENZL, Verb. Alsin. (1833), t. 18, 38, et in LEDEB. Fl. Ross. I. (1842), 371; BRITT. & BR. Ill. Fl. II. (1897), 35; YABE & YENDO, Pl. Isl. Shumushu, (1904), 180; FEDTSCH. Fl. Il. Comm. (1906), 46; KUDO, Fl. Isl. Paramushir, (1922), 104; HULT. Fl. Kamtchat. II. (1928), 85; KOMAR. Fl. Pen. Kamtschat. II. (1929), 95; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 197, 227, 249, 267, 278, 296.

Arenaria lateriflora L. Sp. Pl. ed. 1, (1753), 423; BONG. Vég. Sitcha, (1832), 128; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 182; MACOUN, Cat. Canad. Pl. I. (1883), 73; MIYABE, Fl. Kuril. (1890), 221; KURTZ, in ENGL. Bot. Jahr. XIX. (1895), 366; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 138; HOWELL, Fl. NW. Am. I. (1903), 84.

HAB. In meadows (HK): Unalaska (1931).
Distr.-Type: Circumpolar.

Sagina crassicaulis S. WATS. in Proc. Am. Acad. XVIII. (1883), 191; PIPER, Fl. Stat. Wash. (1906), 259; NAKAI, in Bot. Mag. (Tokyo), XXXVIII. (1924), (230); HULT. Fl. Kamtchat. IV. (1930), 250; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 196, 249, 267.

HAB. On sea-cliffs (HK): Amchitka (1929).
Distr.-Type: Northern Pacific.

Sagina Linnaei PRESL, Rel. Haenk. I. (1831), 14; LEDEB. Fl. Ross. I. (1842), 339; MACOUN, Cat. Canad. Pl. I. (1883), 79, et List Pl. Prib. Isl. (1899), 565; YABE & YENDO, Pl. Isl. Shumushu, (1904), 180; HULT. Fl. Kamtchat. II. (1928), 77; KOMAR. Fl. Pen. Kamtschat. II. (1929), 101; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 199, 226, 249, 267, 278, 296.

HAB. On rocky cliffs (HK): Amchitka (1929); Atka (1929).
Distr.-Type: Circumpolar, arctic-alpine.

Sagina litoralis HULT. Fl. Kamtchat. II. (1928), 78, *Pl. 2–d, fig. 8,* et *ibid.* IV. (1930), 248; KOMAR. Fl. Pen. Kamtschat. II. (1929), 102.

HAB. On sea-cliffs (HK): Unalaska (1931).
Distr.-Type: Northern Pacific.

Silene acaulis L. Sp. Pl. ed. 2, (1762), 603; HOOK. Fl. Bor. Am. I. (1833), 87; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 186; LEDEB. Fl. Ross. I. (1842), 303; KURTZ, in ENGL. Bot. Jahrb. XIX. (1895), 365; BRITT. & BR. Ill. Fl. II. (1897), 8; MACOUN, List Pl. Pribilof Isl. (1899), 564; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 140; HOWELL, Fl. NW. Am. I. (1903), 75; FEDTSCH. Fl. Il. Comm. (1906), 46; OSTENFELD, Vas. Pl. Arc. Nor. Am. (1910), 9; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 208; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 11–A; HULT. Fl. Kamtchat. II. (1928), 89; KOMAR. Fl. Pen. Kamtschat. II. (1929). 107.

HAB. In gravelly places of mountainsides (CH—Chamaephyta pulvinata): Unalaska (1931).
Distr.-Type: Circumpolar (nearly).

Stellaria borealis BIGEL. Fl. Bost. ed. 2, (1824), 182; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 185; MACOUN, Cat. Canad. Pl. I. (1883), 74.

Stellaria borealis BIGEL. *β corollina* FENZL, in LEDEB. Fl. Ross. I. (1842), 382.

Alsine borealis BRITT. & BR. Ill. Fl. II. (1897), 24.

HAB. In muddy places (HK): Amchitka (1929).
Distr.-Type: Circumpolar (?).

Stellaria calycantha BONG. Vég. Sitcha, (1833), 127; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 186; MACOUN, Cat. Canad. Pl. I. (1883), 74, et List Pl. Pribilof Isl. (1899), 564; HULT. Fl. Kamtchat. II. (1928), 63; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 226, 248, 267, 277, 296.

Stellaria borealis BIGEL. *α apetala* FENZL, in LEDEB. Fl. Ross. I. (1842), 382.

Stellaria borealis KOMAR. Fl. Pen. Kamtschat. II. (1929), 86, p. p.

HAB. In muddy places: Chichagof (1929); Amchitka (1929).
Distr.-Type: Circumpolar (?).

Stellaria media CYRILL, Charm. Comm. (1784), 36; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 183; BONG. Vég. Sitcha, (1833), 126; LEDEB. Fl. Ross. I. (1842), 377; MACOUN, Cat. Canad. Pl. I. (1883), 74, et List Pl. Pribilof Isl. (1899), 564; MIYABE, Fl. Kuril. (1890), 33; YABE & YENDO, Pl. Isl. Shumushu, (1904), 179; KUDO, Fl. Isl. Paramushir, (1922), 102; HULT. Fl. Kamtchat. II. (1928), 68; KOMAR. Fl. Pen. Kamtschat. III. (1929), 82; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 226, 295.

Alsine media L. Sp. Pl. ed. 1, (1753), 272; BRITT. & BR. Ill. Fl. II. (1897), 21; HOWELL, Fl. NW. Am. I. (1903), 81.

HAB. In damp places (TH): Atka (1931).
Distr.-Type: Cosmopolite.

Ranunculaceae

Aconitum maximum PALL. ex DC. Syst. Nat. I. (1818), 380; LEDEB. Fl. Ross. I. (1842), 69; NAKAI, in Bot. Mag. (Tokyo), XXXI. (1917), 221, 229; HULT. Fl. Kamtchat. II. (1928), 107; KOMAR. Fl. Pen. Kamtschat. II. (1929), 122.

HAB. In meadows (HK): Atka (1927).

Distr.-Type: Northern Pacific···Asiatic Pacific (east to Aleutian Islands).

Anemone narcissiflora L. Sp. Pl. ed. 1, (1753), 542; BONG. Vég. Sitcha, (1833), 123; LEDEB. Fl. Ross. I. (1842), 18; MACOUN, Cat. Canad. Pl. I. (1842), 14; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 14; MIYABE, Fl. Kuril. (1890), 215, (v. *villosissima*); EASTWOOD, in Bot. Gaz. XXXIII. (1902), 141, (v. *uniflora*); HOWELL, Fl. NW. Am. I. (1903), 11; YABE & YENDO, Pl. Isl. Shumushu, (1904), (182), (v. *vilosissima*); KUDO, Fl. Isl. Paramushir, (1922), 107; TATEWAKI, Pl. Isl. Alaid, (1927), 15, et Phytogeogr. Middle Kuril. (1933), 197, 227, 249, 278, 296; HULT. Fl. Kamtchat. II. (1928), 111; KOMAR. Fl. Pen. Kamtschat. II. (1929), 131.

HAB. In meadows and rocky places (HK): Attu (1929, 1931); Amchitka (1929); Atka (1931); Unalaska (1931).

Distr.-Type: Eurasiatic-Western American.

Caltha palustris L. Sp. Pl. ed. 1, (1753), 558; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 26; LEDEB. Fl. Ross. I. (1842), 48; BRITT. & BR. Ill. Fl. II. (1897), 51; HOWELL, Fl. NW. Am. I. (1903), 20; FEDTSCH. Fl. Il. Comm. (1906), 46; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 12–A, (f. *radicans*); Holm, *ibid.* (1922), 26–B, *Fig. G;* HULT. Fl. Kamtchat. II. (1928), 95; KOMAR. Fl. Pen. Kamtschat. II. (1929), 113.

var. ***sibirica*** RGL. Pl. Radd. Polypet. I. (1861), 53; MACOUN, Cat. Canad. Pl. I. (1883), 23; KURTZ, in ENGL. Bot. Jahrb. XIX. (1895), 359; YABE & YENDO, Pl. Isl. Shumushu, (1904), 182; HULT. Fl. Kamtchat. II. (1928), 96, in nota.

Caltha palustris L. var. *asarifolia* HUTH, Monogr. Gatt. Caltha, (1891), 19; OSTENFELD, Vas. Pl. Arc. Nor. Am. (1910), 41, *pl. II. fig. 8.*

Caltha asarifolia DC. Syst. Nat. I. (1818), 309; PIPER, in Contr. Unit. Stat. Nat. Herb. XI. (1906), 277.

Caltha palustris L. var. *parvifolia* KUDO, Fl. Isl. Paramushir, (1922), 105.

HAB. In wet places (HK): Amchitka (1929); Atka (1929, 1931); Unalaska (1931).
Distr.-Type: Circumpolar.

Coptis trifolia SALISB. in Trans. Linn. Soc. VIII. (1807), 305; BONG. Vég. Sitcha, (1833), 123; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 28; LEDEB. Fl. Ross. I. (1842), 52; MACOUN, Cat. Canad. Pl. I. (1883), 23, et List Pl. Pribilof Isl. (1899), 562; MIYABE, Fl. Kuril. (1890), 216; BRITT. & BR. Ill. Fl. II. (1897), 54; YABE & YENDO, Pl. Isl. Shumushu, (1904), 181; KUDO, Fl. Isl. Paramushir, (1922), 106; HULT. Fl. Kamtchat. II. (1928), 100; KOMAR. Fl. Pen. Kamtschat. II. (1929), 116; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 197, 227, 249, 267, 278.

HAB. In heaths and moors (HK): Attu (1929, 1931); Amchitka (1929); Atka (1929, 1931).
Distr.-Type: American-Eastern Asiatic.

Ranunculus acris L. Sp. Pl. ed. 1, (1753), 554; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 21; LEDEB. Fl. Ross. I. (1842), 40; MACOUN, Cat. Canad. Pl. I. (1883), 20.

var. ***borealis*** TRAUTV. in RGL. et TIL. Tent. Fl. Ussuri. (1862), 7, in adnot.; REGEL, Pl. Radd. I. (1861), 48; KUDO, Rep. Veg. Nor. Saghalien, (1924), 137.

Ranunculus acris L. subsp. *borealis* HULT. Fl. Kamtchat. II. (1928), 120.

HAB. On hillsides and in bogs (HK): Atka (1929); Unalaska (1931).
Distr.-Type: Circumpolar.

Ranunculus divaricatus SCHRANK, Baier. Fl. II. (1789), 103; LEDEB. Fl. Ross. I. (1842), 28; KOMAR. Fl. Pen. Kamtschat. II. (1929), 136.

Ranunculus aquatilis L. var. *stagnalis* DC. Prodr. I. (1824), 27; MACOUN, Cat. Canad. Pl. I. (1883), 16.

Batrachium divaricatum WIMM.: BRITT. & BR. Ill. Fl. II. (1897), 84.

HAB. In ponds (HY—Hydrophyta radicantia): Atka (1929).
Distr.-Type: Circumpolar.

Ranunculus Eschscholtzii SCHL. in Animadv. Bot. Ranunc. Candoll. (1820), 16; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 21; LEDEB. Fl. Ross. I. (1842), 37; MACOUN, List Pl. Pribilof Isl. (1899), 562; HOWELL, Fl. NW. Am. I. (1903), 16; FEDTSCH. Fl. Il. Comm. (1906), 34; HULT. Fl. Kamtchat. II. (1928), 124.; KOMAR. Fl. Pen. Kamtschat. II. (1929), 140.

HAB. In grassy places on the mountain and on banks (HK): Attu (1929); Atka (1929, 1931); Unalaska (1931).

Distr.-Type: Eastern Asiatic-Western American.

Ranunculus occidentalis NUTT. in TORR. & GRAY, Fl. Nor. Am. I. (1838), 22; GRAY, in Am. Acad. Art & Sc. XVII. (1882), 373, (var. *robustus*); HOWELL, Fl. NW. Am. I. (1903), 17; OSTENFELD, Vas. Pl. Arc. Nor. Am. (1910), 46; HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1922), 71–B.

HAB. In dry open grounds (HK): Attu (1929); Amchitka (1929); Unalaska (1931).

Distr.-Type: American.

Ranunculus recurvatus POIR, in Encycl. VI. (1804), 125; BONG. Vég. Sitcha, (1833), 123; TORR. & GRAY, Fl. Nor. Am. I. (1838), 22; LEDEB. Fl. Ross. I. (1842), 44; GRAY, in Proc. Am. Acad. Art & Sc. XVII. (1882), 372; MACOUN, Cat. Canad. Pl. I. (1883), 19, et *ibid.* III. (1886), 480; BRITT. & BR. Ill. Fl. II. (1898), 79; FEDTSCH. Il. Comm. (1906), 35.

HAB. In meadows (HK): Atka (1929).

Distr.-Type: American.

We used here the species of *Ranunculus recurvatus* followed by Prof. A. GRAY in wide sense.

Ranunculus repens L. Sp. Pl. ed. 1. (1753), 554; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 21; LEDEB. Fl. Ross. I. (1842), 43; MACOUN, Cat. Canad. Pl. I. (1883), 21; BRITT. & BR. Ill. Fl. II. (1897), 81; YABE & YENDO, Pl. Isl. Shumushu, (1904), 181; KUDO, Fl. Isl. Paramushir, (1922), 108; HULT. Fl. Kamtchat. II. (1928), 128; KOMAR. Fl. Pen. Kamtschat. II. (1929), 142.

var. *major* NAKAI, in Bot. Mag. (Tokyo), XLII. (1928), 23; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 198.

HAB. Along roadsides (HK): Attu (1929).

Distr.-Type: Circumpolar.

Ranunculus reptans L. Sp. Pl. ed. 1, (1753), 549; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 16; BRITT. & BR. Ill. Fl. II. (1897), 75; MACOUN, List Pl. Pribilof Isl. (1899), 562; HOWELL, Fl. NW. Am. I. (1903), 14; FERNALD, in Rhodora, XIX. (1917), 135; KUDO, Fl. Isl. Paramushir, (1922), 107; HULT. Fl. Kamtchat. II. (1928), 129; KOMAR. Fl. Pen. Kamtschat. II. (1929), 141.

Ranunculus unalaschcensis BESS. in LEDEB. Fl. Ross. I. (1842), 32; HOWELL, Fl. NW. Am. I. (1903), 14.

Ranunculus Flammula L. var. *unalaschcensis* RGL. Pl. Radd. I.–1. (1861), 41.

HAB. By ponds (HK): Unalaska (1931).

var. ***filiformis*** DC. Prodr. I. (1824), 32; RGL. Pl. Radd. I.–1. (1861), 41; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 16.

Ranunculus Flammula L. β. LEDEB. Fl. Ross. l. c.

HAB. By ponds (HK): Atka (1929).

var. ***intermedia*** HOOK. Fl. Bor. Am. I. (1840), 11; TORR. & GRAY, Fl. Nor. Am. I. (1838), 16.

Ranunculus flammula L. var. *intermedius* HOOK.: MACOUN, Cat. Canad. Pl. I. (1883), 17.

HAB. By ponds (HK): Amchitka (1929).

Distr.-Type: Circumpolar.

Ranunculus trichophyllus CHAIX, in Vill. Hist. Pl. Dauph. I. (1786), 335; MACOUN, List Pl. Pribilof Isl. (1899), 562; MIYABE & KUDO, in Trans. Sapporo Nat. Hist. Soc. VII.–1. (1918), 30; HULT. Fl. Kamtchat. II. (1928), 121, in nota; KOMAR. Fl. Pen. Kamtschat. II. (1929), 135.

Ranunculus aquatilis L. var. *trichophyllus* CHAIX: MACOUN, Cat. Canad. Pl. I. (1883), 16.

Batrachium trichophyllum BOSSCH, Prodr. Fl. Bot. (1850), 5; BRITT. & BR. Ill. Fl. II. (1897), 84.

HAB. In ponds and streams (HY): Amchitka (1929); Atka (1931).

Distr.-Type: Circumpolar.

Thalictrum kemense E. FRIES, Fl. Halland. (1817), 94; LEDEB. Fl. Ross. I. (1842), 13; LECOYER, Monogr. Thalictrum, (1885), 208; HULT. Fl. Kamchat. II. (1927), 134.

HAB. In meadows (HK—Hemikryptophyta scaposa).
Distr.-Type: Eurasiatic (east to Unalaska).

Brassicaceae

Arabis hirsuta SCOP. Fl. Caran. ed. 2, II. (1772), 30; BONG. Vég. Sitcha, (1833), 125; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 80; LEDEB. Fl. Ross. I. (1842), 118; MACOUN, Cat. Canad. Pl. I. (1883), 42; KURTZ, in Engl. Bot. Jahrb. XIX. (1895), 361; BRITT. & BR. Ill. Fl. II. (1897), 149; HOWELL, Fl. NW. Am. I. (1903), 42.

HAB. In rocky places (HK): Atka (1931).
Distr.-Type: Circumpolar.

Arabis lyrata L. Sp. Pl. ed. 1, (1753), 665; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 81; MACOUN, Cat. Canad. Pl. I. (1883), 41; MIYABE, Fl. Kuril. (1890), 217; BRITT. & BR. Ill. Fl. II. (1897), 147; YABE & YENDO, Pl. Isl. Shumushu, (1904), 183, (var. *occidentalis*); FEDTSCH. Fl. Il. Comm. (1906), 39.

var. ***kamtschatica*** FISCH. ex DC. Prodr. I. (1824), 146; NAKAI, in Bot. Mag. (Tokyo), XXXII. (1918), 239; KUDO, Fl. Isl. Paramushir, (1922), 113; TATEWAKI, Pl. Isl. Alaid, (1927), 17, et Phytogeogr. Middle Kuril. (1933), 199, 228, 279, 297; HULT. Fl. Kamtchat. II. (1928), 165.

Arabis kamtschatica FISCH. in DC. Syst. II. (1821), 231; LEDEB. Fl. Ross. I. (1842), 121; KOMAR. Fl. Pen. Kamtschat. II. (1929), 189.

HAB. In meadows (HK—Hemikryptophyta rosulata): Attu (1929); Atka (1929, 1931); Unalaska (1931).
Distr.-Type: American-Eastern Asiatic.

Barbarea orthoceras LEDEB. in Ind. Sem. Hort. Dorpat. (1824), et Fl. Ross. I. (1842), 114; KUDO, Fl. Isl. Paramushir, (1922), 110; TATEWAKI, Pl. Isl. Alaid, (1927), 17, et Phytogeogr. Middle Kuril. (1933), 198, 227, 250, 279, 296; HULT. Fl. Kamtchat. II. (1928), 148; KOMAR. Fl. Pen. Kamtschat. II. (1929), 168.

HAB. In wet places (HK): Atka (1931); Unalaska (1931).
Distr.-Type: American-Eastern Asiatic.

Capsella Bursa-pastoris MEDIC. Pflanzeng. I. (1792), 85; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 117; LEDEB. Fl. Ross. I. (1842),

199; MACOUN, Cat. Canad. Pl. I. (1883), 56; MIYABE, Fl. Kuril. (1890), 219; HULT. Fl. Kamtchat. II. (1928), 157; KOMAR. Fl. Pen. Kamtschat. II. (1929), 180.

Bursa Bursa-Pastoris BRITT. in Mem. Torr. Club, V. (1894), 172; BRITT. & BR. Ill. Fl. II. (1897), 139.

HAB. Along roadsides (HK): Unalaska (1931).

Distr.-Type: Cosmopolite.

Cardamine bellidifolia L. Sp. Pl. ed. 1, (1753), 645; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 84; LEDEB. Fl. Ross. I. (1842), 123; MACOUN, Cat. Canad. Pl. I. (1883), 40; BRITT. & BR. Ill. Fl. II. (1897), 130; MACOUN, List Pl. Pribilof Isl. (1899), 563; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 146; HOWELL, Fl. NW. Am. I. (1903), 49; OSTENFELD, Vas. Pl. Arc. Nor. Am. (1910), 49; HULT. Fl. Kamtchat. II. (1928), 152; KOMAR. Fl. Pen. Kamtschat. II. (1929), 173.

HAB. On rocky mountainsides (HK): Attu (1929).

Distr.-Type: Circumpolar.

Cardamine hirsuta L. Sp. Pl. ed. 1, (1753), 655; BONG. Vég. Sitcha, (1833), 125; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 85; LEDEB. Fl. Ross. I. (1842), 127; WATS. Ind. Nor. Am. Pl. (1878), 53; MACOUN, Cat. Canad. Pl. I. (1883), 41, et List Pl. Pribilof. Isl. (1899), 564; KURTZ, in Engl. Bot. Jahrb. XIX. (1895), 362; BRITT. & BR. Ill. Fl. II. (1897), 128.

HAB. In wet places (HK): Attu (1929); Amchitka (1929); Atka (1929, 1931).

Distr.-Type: Circumpolar (?).

Cochlearia officinalis L. Sp. Pl. ed. 1, (1753), 647; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 110; LEDEB. Fl. Ross. I. (1842), 157; MACOUN, Cat. Canad. Pl. I. (1883), 53, et List Pl. Pribilof Isl. (1899), 563; BRITT. & BR. Ill. Fl. II. (1897), 115; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 147; FEDTSCH. Fl. Il. Comm. (1906), 41; OSTENFELD, Vas. Pl. Arc. Nor. Am. (1910), 14, 48, (var. *groenlandica*); KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 210, (var. *anglica*); HULT. Fl. Kamtchat. II. (1928), 146.

HAB. On sandy grounds along the coast (HK): Atka (1931).

Distr.-Type: Circumpolar.

Draba aurea VAHL, in Hornem. Fors. Danks. Oecon. Pl. ed. 2, (1806), 599; HOOK. Fl. Bor. Am. II. (1833), 55; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 107; MACOUN, Cat. Canad. Pl. I. (1883), 52; KURTZ, in Engl. Bot. Jahrb. XIX. (1895), 364; BRITT. & BR. Ill. Fl. II. (1897), 143; SCHULZ, in Engl. Pfl.-reich. IV.–105. (1927), 175.

HAB. In rocky places of the mountain summit (HK): Unalaska (1931).

Distr.-Type: American (west to Aleutian Islands).

Draba borealis DC. Syst. II. (1821), 342; LEDEB. Fl. Ross. I. (1842), 153; MIYABE, Fl. Kuril. (1890), 218; YABE & YENDO, Pl. Isl. Shumushu, (1904), 183; TAKEDA, in Bot. Mag. (Tokyo), XXIX. (1910), 255; KUDO, Fl. Isl. Paramushir, (1922), 114; TATEWAKI, Pl. Isl. Alaid, (1927), 17, et Phytogeogr. Middle Kuril. (1933), 198, 228, 250, 279; SCHULZ, in Engl. Pfl.-reich. IV.–105, (1927), 280; HULT. Fl. Kamtchat. II. (1928), 159; KOMAR. Fl. Pen. Kamtschat. II. (1929), 182.

Draba incana L. var. *borealis* TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 107; MACOUN, Cat. Canad. Pl. I. (1883), 51.

Draba unalaschkiana DC. Syst. II. (1821), 350, et Prodr. I. (1824), 170; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 107.

HAB. On sea-cliffs (HK): Attu (1929); Atka (1929, 1931); Unalaska (1931).

Distr.-Type: Northern Pacific.

Cardamine parviflora L. Syst. Nat. ed. 10, (1758–59), 1131; DC. Prodr. I. (1824), 152; LEDEB. Fl. Ross. I. (1842), 128; BRITT. & BR. Ill. Fl. Nor. Am. II. (1897), 129; HOWELL, Fl. NW. Am. I. (1903), 50; FEDTSCH. & FLER. Fl. Sib. et Or. Extr. (1915), 249.

HAB. On dampy rocks (HK): Attu (1929).

Distr.-Type: Circumpolar.

Cardamine pratensis L. Sp. Pl. ed. 1, (1753), 656; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 84; MACOUN, Cat. Canad. Pl. I. (1883), 41, et List Pl. Pribilof Isl. (1899), 563; MIYABE, Fl. Kuril. (1890), 217; BRITT. & BR. Ill. Fl. II. (1897), 128; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 147; HOWELL, Fl. NW. Am. I. (1903), 50; YABE & YENDO, Pl. Isl. Shumushu, (1904), 182; FEDTSCH. Fl. Il. Comm. (1906), 39; OSTENFELD, Vas. Pl. Arc. Nor. Am. (1910), 14; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 14–A; Holm, *ibid.* (1922), 37–B, 71–B; KUDO, Fl. Isl. Paramushir, (1922), 112;

HULT. Fl. Kamtchat. II. (1927), 153; KOMAR. Fl. Pen. Kamtschat. II. (1929), 174.

HAB. In bogs and wet meadows (HK): Atka (1929, 1931).

Distr.-Type: Circumpolar.

Cardamine umbellata GREENE, in Pittonia III. (1897), 154; MACOUN, List Pl. Pribilof Isl. (1899), 563; KUDO, Fl. Isl. Paramushir, (1922), 111; HULT. Fl. Kamtchat. II. (1928), 156; KOMAR. Fl. Pen. Kamtschat. II. (1929), 176; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 228, 250, 268, 279.

Cardamine hirsuta L. subsp. *kamtschatica* SCHULZ, in Engl. Bot. Jahrb. XXXII. (1903), 470.

HAB. In damp grounds (TH?): Attu (1929); Amchitka (1929); Atka (1931).

Distr.-Type: Northern Pacific.

Draba fladnizensis WULF, in Jacq. Misc. I. (1778), 147; BRITT. & BR. Ill. Fl. II. (1897), 141; OSTENFELD, Vas. Pl. Arc. Nor. Am. (1910), 14, 50; MACOUN & HOLM, Rep. Canad. Arc. Exp. 1913–18, V. (1921), 13–A; HOLM. *ibid.* (1922), 36–B, 71–B; SCHULZ, in Engl. Pfl.-reich. IV.–105. (1927), 253; HULT. Fl. Kamtchat. II. (1928), 163, in nota.

HAB. On rocky cliffs (HK): Atka (1929).

Distr.-Type: Circumpolar.

Draba hyperborea DESV. in Journ. Bot. III. (1814), 172; MACOUN, Cat. Canad. Pl. I. (1883), 52; SCHULZ, in Engl. Pfl.-reich. IV.–105, (1927), 198, *fig. 24;* HULT. Fl. Kamtchat. II. (1928), 161, in nota; TATEWAKI, in Journ. Fac. Agr. Hokkaido Imp. Univ. XXIX.–5. (1933), 250, 268, 279, 297.

Alyssum hyperborea L. Sp. Pl. ed. 1, (1753), 651; HOOK. Fl. Bor. Am. I. (1833), 49; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 103; LEDEB. Fl. Ross. I. (1842), 139.

Nesodraba grandis GREENE, in Pittonia III. (1897), 253; MACOUN, List. Pl. Pribilof Isl. (1899), 563.

HAB. On dampish rocks and in gravelly places near the sea (HK): Atka (1931).

Distr.-Type: Northern Pacific.

Lesquerella arctica S. WATS. in Proc. Am. Acad. XXIII. (1888), 254; BRITT. & BR. Ill. Fl. II. (1897), 138; MACOUN & HOLM, Rep. Canad. Arc. Exp. 1913–18, V. (1921), 13–A; HOLM, *ibid.* (1922), 35, 71.

var. **minor** var. nov. (Fig. I.).

Lesquerella beringiana TATEWAKI ET KOBAYASHI, mss.

A typo differt, minoribus ca. 3 cm. altis pilis simplicibus non stellatis.

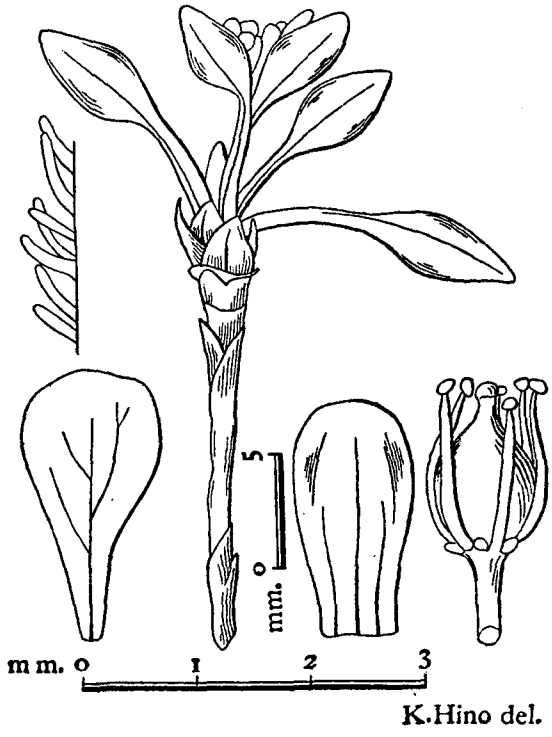


Fig. 2. *Lesquerella arctica* S. WATS. var. *minor* TATEWAKI ET KOBAYASHI

Caudex erect, attaining about 3 cm. in height, simple or branched, scaly in its upper part. Stem very short, less than 5 mm. long, sometimes covered by the basal leaves, pubescent with simple hairs. Basal leaves 3–6 cm. × 1–1.5 cm. long, spatulate, obtuse or acutish, narrowed into petioles, entire, somewhat fleshy, glabrous, with distinct midribs; cauline leaves 2–4, nearly sessile, rhombic ovate,

5 mm. × 3 mm. long. Flowers several, terminal, with short pedicels. Calyx deciduous, obovate with flat base, 2 mm. × 1 mm., obscurely 3 nerved. Petals longer than the calyx, spatulate, entire, narrowed to the base, 2.5 mm. × 1.5 mm., purple, paler towards the margin. Stamens 1.5–2 mm. long. Pod oblong or nearly globose, sessile, about 1.5 mm. in diameter, with short style and capitate stigma.

HAB. In the rock crevices of the mountain summit, about 3000 ft. high. (HK): Atka (1931).

Distr.-Type: American.

Droseraceae

Drosera rotundifolia L. Sp. Pl. ed. 1, (1753), 281; BONG. Vég. Sitcha, (1833), 126; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 146; LEDEB. Fl. Ross. I. (1842), 261; MACOUN, Cat. Cand. Pl. I. (1883), 165; BRITT. & BR. Ill. Fl. II. (1897), 161; HOWELL, Fl. NW. Am. I. (1903), 215; FEDTSCH. Fl. Il. Comm. (1906), 43; KUDO, Fl. Isl. Paramushir, (1922), 115; HULT. Fl. Kamtchat. III. (1929), 4; KOMAR. Fl. Pen. Kamtschat. II. (1929), 196; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 199, 228, 250, 279.

HAB. In sphagnous swamps (HK): Attu (1929); Unalaska (1931).

Distr.-Type: Circumpolar.

Saxifragaceae

Chrysosplenium alternifolium L. Sp. Pl. ed. 1, (1753), 398; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 589; LEDEB. Fl. Ross. II. (1844–46), 226; MACOUN, Cat. Canad. Pl. I. (1883), 159, et List Pl. Piribilof Isl. (1899), 567; BRITT. & BR. Ill. Fl. II. (1897), 181; FEDTSCH. Fl. Il. Comm. (1906), 63; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 14–B, (var. *tetrandrum*); HOLM, *ibid.* (1922), 39–B; HULT. Fl. Kamtchat. III. (1929), 31; KOMAR. Fl. Pen. Kamtschat. II. (1929), 220.

HAB. In wet rocky places of the mountain summit (TH): Atka (1931).

Distr.-Type: Eurasiatic-Western American.

Leptarrhena pyrolifolia R. BR. ex SERINGE, in DC. Prodr. IV. (1830), 48; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 563; LEDEB. Fl. Ross. II. (1844–46), 225; MACOUN, Cat. Canad. Pl. I. (1883), 160, et *ibid.* III. (1886), 527; KURTZ, in Engl. Bot. Jahrb. XIX. (1895), 376; HOWELL, Fl. NW. Am. I. (1903), 189; SMALL & RYDB. in Nor. Am. Fl. XXII.–2. (1905), 151; ENGL. & IRM. in Engl. Pfl.-reich. IV.–117. (1919), (43), *fig. 2;* HULT. Fl. Kamtchat. III. (1929), 11; KOMAR. Fl. Pen. Kamtschat. II. (1929), 219.

HAB. In rocky places along mountain brooks (GE—Geophyta rhizomata): Atka (1929, 1931); Unalaska (1931).

Distr.-Type: American (west to Aleutian Islands).

Parnassia Kotzebuei CHAM. ex SPRENG. Syst. I. (1825), 951; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 149; LEDEB. Fl. Ross. I. (1842), 264; BRITT. & BR. Ill. Fl. II. (1897), 183; MACOUN, Cat. Canad. Pl. I. (1883), 160, et *ibid.* III. (1886), 527, et List Pl. Pribilof Isl. (1899), 567; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 199; RYDB. in Nor. Am. Fl. XXII.–1. (1905), 79; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 14–A; HOLM, *ibid.* (1922), 39–B; KOMAR. Fl. Pen. Kamtschat. II. (1929), 224.

HAB. In wet places (HK): Attu (1929); Atka (1929, 1931); Unalaska (1931).

Distr.-Type: American-Eastern Asiatic.

Saxifraga bracteata D. DON, in Trans. Linn. Soc. XIII.–2. (1822), 367; LEDEB. Fl. Ross. II. (1844–46), 219; MACOUN, List. Pl. Pribilof Isl. (1899), 566; SMALL & RYDB. in Nor. Am. Fl. XXII.–2. (1905), 127; HULT. Fl. Kamtchat. III. (1929), 11; KOMAR. Fl. Pen. Kamtschat. II. (1929), 207; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 199, 228, 250, 268, 279, 297.

HAB. On damp rocks (HK): Amchitka (1929); Atka (1929, 1931); Unalaska (1931).

Distr.-Type: Northern Pacific.

Saxifraga bronchialis L. Sp. Pl. ed. 1, (1753), 400; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 564; LEDEB. Fl. Ross. II. (1844–46), 207; MACOUN, Cat. Canad. Pl. I. (1883), 154, et *ibid.* III. (1886), 524; MIYABE, Fl. Kuril. (1890), 233; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 200; HOWELL, Fl. NW. Am. I. (1903), 190; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 211; ENGL. u. IRM.

in Engl. Pfl.-reich. IV.–117. (1919), 458; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 15–A; HOLM, *ibid.* (1922), 44–B, 72–B; TATEWAKI, Pl. Isl. Alaid, (1927), 20, et Phytogeogr. Middle Kuril. (1933), 199; KOMAR. Fl. Pen. Kamtschat. II. (1929), 217.

subsp. ***Funstonii*** HULT. Fl. Kamtchat. III. (1929), 12, *fig. 2, a–f.*

Leptasea Funstonii SMALL, in Nor. Am. Fl. XXII.–2. (1905), 154.

HAB. On rocky cliffs of the mountain (CH): Attu (1929).

var. ***cherlerioides*** HULT. l. c. 17, *fig. 2, g–i.*

Saxifraga cherlerioides D. DON, in Trans. Linn. Soc. XIII. (1822), 382; KOMAR. Fl. Pen. Kamtschat. II. (1929), 217.

Leptasea cherlerioides SMALL, in Nor. Am. Fl. XXII.–2. (1905), 153.

Saxifraga bronchialis L. var. *cherlerioides* ENGL. form. *pseudoburseriana* ENGL. ET IRM. in Engl. Pfl.-reich. IV.–117. (1919), 463; KUDO, Fl. Isl. Paramushir, (1922), 117.

Saxifraga pseudoburseriana FISCH.: TORR. & GRAY, Fl. Nor. Am. I. (1840), 565.

HAB. On rocky cliffs of the mountain (CH): Attu (1929).

Distr.-Type: Asiatic-Western American.

Saxifraga caespitosa L. emend. ENGL. ET IRM. in Engl. Pflz.-reich. IV.–117. (1916), 358.

subsp. ***eucaespitosa*** ENGL. ET IRM. in Engl. Pflz.-reich. IV.–117. (1916), 369.

Saxifraga caespitosa L. Sp. Pl. ed. 1, (1753), 404, excl. syn.; HOOK. Fl. Bor. Am. I. (1833), 244; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 565; LEDEB. Fl. Ross. II. (1844–46), 224; MACOUN, Cat. Canad. Pl. I. (1883), 150, et *ibid.* III. (1886), 523.

HAB. On rocky cliffs (CH): Unalaska (1931).

Distr.-Type: Circumpolar.

Saxifraga punctata L. Sp. Pl. ed. 1, (1753), 401; BONG. Vég. Sitcha, (1833), 140; LEDEB. Fl. Ross. II. (1844–46), 215; MACOUN, List Canad. Pl. I. (1883), 153, et *ibid.* III. (1886), 524; MIYABE, Fl. Kuril. (1890), 233; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 201; YABE & YENDO, Pl. Isl. Shumushu, (1904), 184; ENGL. u. IRM. in Engl. Pfl.-reich. IV.–117. (1916), 9; KUDO, Fl. Isl. Paramushir,

(1922), 116; JOHNSON, in Am. Journ. Bot. XIV. (1927), 324, 325; TATEWAKI, Pl. Isl. Alaid, (1927), 19, et Phytogeogr. Middle Kuril. (1933), 199, 228, 250, 268, 279, 297; HULT. Fl. Kamtchat. III. (1929), 25; KOMAR. Fl. Pen. Kamtschat. II. (1929), 209.

subsp. ***aestivalis*** HULT. l. c. 27.

Saxifraga aestivalis FISCH. ET MEY. in Ind. Sem. Hort. Petrop. (1835), 37; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 567; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 14–A; HOLM, *ibid.* (1922), 40–B, 72–B.

Micranthes aestivalis SMALL, in Nor. Am. Fl. XXII.–2. (1905), 147.

HAB. In rocky places along the mountain brook (HK): Atka (1929).

subsp. ***Nelsoniana*** HULT. l. c. 27.

Saxifraga Nelsoniana DON, in Trans. Linn. Soc. XIII. (1822), 355; LEDEB. Fl. Ross. II. (1844–46), 216; MACOUN, List Pl. Pribilof Isl. (1899), 566; OSTENFELD, Vas. Pl. Arc. Nor. Am. (1910), 57; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 15–A; HOLM, *ibid.* (1922), 41–B; KOMAR. Fl. Pen. Kamtschat. II. (1929), 209.

Saxifraga punctata L. var. *typica* ENGL. ET IRM. form. *coarctata* ENGL. ET IRM l. c. 11.

Saxifraga aestivalis FISCH. ET MEY. var. *Nelsoniana* TORR. ET GRAY, Fl. Nor. Am. I. (1838), 567; MACOUN, Cat. Canad. Pl. I. (1883), 153.

Micranthes Nelsoniana SMALL, in Nor. Am. Fl. XXII.–2. (1905), 147.

HAB. On rocky banks (HK): Attu (1929); Amchitka (1929).

Distr.-Type: Asiatic-Western American.

Saxifraga rivularis L. Sp. Pl. ed. 1, (1753), 404; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 574; LEDEB. Fl. Ross. II. (1844–46), 221; MACOUN, Cat. Canad. Pl. I. (1883), 151, et *ibid.* III. (1886), 523; BRITT. & BR. Ill. Fl. II. (1897), 172; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 404; SMALL & RYDB. in Nor. Am. Fl. XXII.–2. (1905), 127; FEDTSCH. Fl. Il. Comm. (1906), 46; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 211; ENGL. u. IRM. in Engl. Pfl.-reich. IV.–117. (1916), 279; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 14–A; HOLM, *ibid.* (1922), 43–B, 72–B; TATEWAKI, Pl. Isl. Alaid,

(1927), 19; HULT. Fl. Kamtchat. III. (1929), 28, (var. *flexuosa*); KOMAR. Fl. Pen. Kamtschat. II. (1929), 206.

HAB. On rocky mountainsides (HK): Attu (1929).
Distr.-Type: Circumpolar.

Saxifraga unalaschkensis STERNB. Rev. Sax. Suppl. II. (1831), *9, t. 21, (unalaschensis);* ENGL. u. IRM. in Engl. Pfl.-reich. IV.–117. (1916), 34; HULT. Fl. Kamtchat. III. (1929), 30.

Saxifraga flabellifolia R. BR. ex TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 569.

Micranthes flabellifolia SMALL, in Nor. Am. Fl. XXII.–2. (1905), 143.

HAB. In rocky places (HK): Atka (1929, 1931).
Distr.-Type: Northern Pacific.

Spiraeaceae

Aruncus kamtschaticus RYDB. in Nor. Am. Fl. XXII.–3. (1908), 256.

Aruncus sylvester KOSTEL. var. *kamtschatica* MAXIM. in Act. Hort. Petrop. VI. (1879), 170; MIYABE, Fl. Kuril. (1890), 227; YABE & YENDO, Pl. Isl. Shumushu, (1904), 186; KUDO, Fl. Isl. Paramushir, (1922), 119; TATEWAKI, Pl. Isl. Alaid, (1927), 20, et Phytogeogr. Middle Kuril. (1933), 200, 229, 251, 280, 297.

HAB. In meadows (HK): Attu (1929, 1931).
Distr.-Type: Northern Pacific.

Pomaceae

Sorbus sambucifolia ROEM. Syn. Mon. III. (1847), 39; C. K. SCHN. Ill. Handb. Laubholzk. I. (1906), 667; KUDO, Fl. Isl. Paramushir, (1922), 119; REHD. Man. Cult. Tr. & Shr. (1927), 378; TATEWAKI, Pl. Isl. Alaid. (1927), 21, et Phytogeogr. Middle Kuril. (1933), 200, 229, 251, 268, 280, 297; HULT. Fl. Kamtchat. III. (1929), 46; KOMAR. Fl. Pen. Kamtschat. II. (1929), 237.

Pyrus sambucifolia CHAM. ET SCHL. in Linnaea II. (1827), 36; BONG. Vég. Sitcha, (1833), 134; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 472; MIYABE, Fl. Kuril. (1890), 232; HOWELL, Fl. NW. Am. I. (1903), 164; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 212.

HAB. In heaths near the seashore (PH—Nanophanerophyta): Attu (1931).

Distr.-Type: Northern Pacific.

Rosaceae

Acomastylis humilis RYDB. in Nor. Am. Fl. XXII.–5. (1913), 412; HULT. Fl. Kamtchat. III. (1929), 74, in nota.

Sieversia humilis R. BR. Chlor. Melv. (1823), 18; CHAM. & SCHL. in Linnaea II. (1827), 6.

Geum Rossi SER. var. *humilis* TORR. ET GRAY, Fl. Nor. Am. I. (1838–40), 424, p.p.; MACOUN, Cat. Canad. Pl. I. (1883), 134.

Geum humile STEUD. Nom. Bot. ed. 2, I. (1841), 682.

Sieversia Rossii R. BR. var. *humilis* LEDEB. Fl. Ross. II. (1844–46), 25; FEDTSCH. Fl. Il. Comm. (1906), 46.

HAB. In rocky places along the stream or of mountainside (HK): Atka (1929, 1931); Unalaska (1931).

Distr.-Type: Asiatic–Western American.

Fragaria chiloensis DUCHESNE, Hist. Nat. Frais. (1766), 165; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 448; MACOUN, Cat. Canad. Pl. I. (1883), 135, et *ibid.* III. (1886), 516; KURTZ, in Engler Bot. Jahrb. XIX. (1895), 375; RYDB. in Nor. Am. Fl. XXII.–4. (1908), 357.

HAB. In meadows (HK—Hemikryptophyta rosulata): Atka (1931).

Distr.-Type: American.

Geum macrophyllum WILLD. Enum. Pl. Hort. Berol. I. (1809), 557; BONG. Vég. Sitcha, (1833), 132; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 421; LEDEB. Fl. Ross. II. (1844–46), 22; MACOUN, Cat. Canad. Pl. I. (1883), 133, et *ibid.* III. (1886), 515; KURTZ, in Engl. Bot. Jahrb. XIX. (1895), 373; BRITT. & BR. Ill. Fl II. (1897), 221; HOWELL, Fl. NW. Am. I. (1903), 173; FEDTSCH. Fl. Il. Comm. (1906), 51; RYDB. in Nor. Am. Fl. XXII.–5. (1913), 404; HULT. Fl. Kamtchat. III. (1929), 71; KOMAR. Fl. Pen. Kamtschat. II. (1929), 256.

HAB. In meadows (HK): Attu (1929); Amchitka (1929); Atka (1931); Unalaska (1931).

Distr.-Type: American–Eastern Asiatic.

Potentilla Anserina L. Sp. Pl. ed. 1, (1753), 495; BONG. Vég. Sitcha, (1833), 132; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 444; LEDEB. Fl. Ross. II. (1844–46), 44; MACOUN, Cat. Canad. Pl. I. (1883), 141, et List Pl. Pribilof Isl. (1899), 565; BRITT. & BR. Ill. Fl. II. (1897), 216; HOWELL, Fl. NW. Am. I. (1903), 179; FEDTSCH. Fl. Il. Comm. (1906), 53; HULT. Fl. Kamtchat. III. (1929), 63, in nota; KOMAR. Fl. Pen. Kamtschat. II. (1929), 253, p.p.

Argentina Anserina RYDB. in Mem. Dep. Bot. Col. Univ. II. (1898), 159, et in Nor. Am. Fl. XXII.–4. (1908), 353.

HAB. On shores and in salt marshes (CH—Chamaephyta reptantia): Amchitka (1929).

Distr.-Type: Cosmopolite.

Potentilla fragiformis WILLD. ex SCHLECHT. in Ges. Nat. Fr. Berl. Mag. VII. (1813), 294; LEDEB. Fl. Ross. II. (1844–46), 59; MACOUN, Cat. Canad. Pl. I. (1883), 140; RYDB. in Nor. Am. Fl. XXII.–4. (1908), 334; HULT. Fl. Kamtchat. III. (1929), 57; KOMAR. Fl. Pen. Kamtschat. II. (1929), 248.

HAB. On sea-cliffs (CH): Attu (1929).

Distr.-Type: Northern Pacific.

Potentilla pacifica HOWELL, Fl. NW. Am. I. (1903), 179; HULT. Fl. Kamtchat. III. (1929), 63.

Argentina pacifica RYDB. in Nor. Am. Fl. XXII.–4. (1908), 353.

Potentilla Anserina L. var. *grandis* TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 444; LEDEB. Fl. Ross. II. (1844–46), 45; MACOUN, Cat. Canad. Pl. I. (1883), 141.

HAB. In marshes of the sea-shore (CH): Unalaska (1931).

Distr.-Type: American–Eastern Asiatic.

Potentilla villosa PALL. ex PURSH, Fl. Am. Sept. I. (1814), 353; BONG. Vég. Sitcha, (1833), 132; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 442; LEDEB. Fl. Ross. II. (1844–46), 58; HOWELL, Fl. NW. Am. I. (1903), 178; FEDTSCH. Fl. Il. Comm. (1906), 54; RYDB. in Nor. Am. Fl. XXII.–4. (1908), 333; HULT. Fl. Kamtchat. III. (1929), 69; KOMAR. Fl. Pen. Kamtschat. II. (1929), 249.

Potentilla fragiformis WILLD. form. *villosa* PALL.: MACOUN, List Pl. Pribilof Isl. (1899), 566.

Potentilla fragiformis WILLD. var. *villosa* RGL. ET TIL. Fl. Ajan. (1858), 85; MACOUN, Cat. Canad. Pl. I. (1883), 140.

Potentilla grandiflora L. var. *villosa* KURTZ, in Engl. Bot. Jahrb. XIX. (1895), 374.

HAB. On rocky banks (CH): Attu (1929, 1931); Atka (1929, 1931).

Distr.-Type: Eastern Asiatic–Western American.

Rubus acaulis MICHX. Fl. Bor. Am. I. (1803), 298; RYDB. in Nor. Am. Fl. XXII.–5. (1913), 437; HULT. Fl. Kamtchat. III. (1929). 52, in nota.

Rubus arcticus L. var. *acaulis* TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 452.

Rubus arcticus L. var. *grandiflorus* LEDEB. Fl. Ross. II. (1844), 70; MACOUN, Cat. Canad. Pl. I. (1883), 129, et *ibid.* III. (1886), 514; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 204.

HAB. In swampy places (HK): Attu (1931).

Distr.-Type: American.

Rubus Chamaemorus L. Sp. Pl. ed. 1, (1753), 494; PALL. Fl. Ross. I. 2, (1788), 66; BONG. Vég. Sitcha, (1833), 132; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 451; LEDEB. Fl. Ross. II. (1844–46), 71; MACOUN, Cat. Canad. Pl. I. (1883), 128, et *ibid.* III. (1886), 514, et List Pl. Pribilof Isl. (1899), 565; MIYABE, Fl. Kuril. (1890), 228; KURTZ, in Engl. Bot. Jahrb. XIX. (1895), 372; BRITT. & BR. Ill. Fl. II. (1897), 200; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 204; YABE & YENDO, Pl. Isl. Shumushu, (1904), 185; FEDTSCH. Fl. Il. Comm. (1906), 55; OSTENFELD, Vas. Pl. Arc. Nor. Am. (1910), 52; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 213; RYDB. in Nor. Am. Fl. XXII.–5. (1913), 435; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 16–A; KUDO, Fl. Isl. Paramushir, (1922), 120; HULT. Fl. Kamtchat. III. (1928), 53; KOMAR. Fl. Pen. Kamtschat. II. (1929), 242; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 200, 229, 251, 268, 280, 297.

HAB. In boggy places (HK): Attu (1929); Amchitka (1929).

Distr.-Type: Circumpolar.

Rubus spectabilis PURSH, Fl. Am. Sept. I. (1814), 342; BONG. Vég. Sitcha, (1833), 131; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 454; LEDEB. Fl. Ross. II. (1844–46), 67; MACOUN, Cat. Canad. Pl. I. (1883), 130; KURTZ, in Engl. Bot. Jahrb. XIX. (1895), 372; RYDB. in Nor. Am. Fl. XXII.–5. (1913), 440; HULT. Fl. Kamtchat. III. (1929), 56.

HAB. On banks along the stream (PH—Nanophanerophyta): Atka (cult.? 1931); Unalaska (1931).
Distr.-Type: American Pacific.

Rubus stellatus SMITH, Pl. Icon. Ined. (1791), *pl. 64;* TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 451; LEDEB. Fl. Ross. II. (1844–46), 71; MACOUN, Cat. Canad. Pl. I. (1883), 130, et *ibid.* III. (1886), 514, et List Pl. Pribilof Isl. (1899), 565; RYDB. in Nor. Am. Fl. XXII.–5. (1913), 436; HULT. Fl. Kamtchat. III. (1929), 56.

HAB. In upland meadows (HK): Attu (1929, 1931); Amchitka (1929); Atka (1929); Unalaska (1931).
Distr.-Type: Northern Pacific.

Sanguisorba sitchensis C. A. MEY. Fl. Ochot. (1856), 34; HOWELL, Fl. NW. Am. I. (1903), 170; RYDB. in Nor. Am. Fl. XXII.–4. (1908), 386; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 201, 229.

Sanguisorba canadensis L. var. *sitchensis* KOIDZUMI, in Bot. Mag. (Tokyo), XXXI. (1917), 137.

HAB. In meadows (HK): Unalaska (1931).
Distr.-Type: Northern Pacific.

Sibbaldia procumbens L. Sp. Pl. ed. 1, (1753), 284; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 433; LEDEB. Fl. Ross. II. (1844–46), 32; MACOUN, Cat. Canad. Pl. I. (1883), 135, et *ibid.* III. (1886), 516; BRITT. & BR. Ill. Fl. II. (1897), 217; MACOUN, List Pl. Pribilof Isl. (1899), 565; HOWELL, Fl. NW. Am. I. (1903), 175; FEDTSCH. Fl. Il. Comm. (1906), 52; RYDB. in Nor. Am. Fl. XXII.–4. (1908), 365; HULT. Fl. Kamtchat. III. (1929), 70; KOMAR. Fl. Pen. Kamtschat. II. (1929), 255.

Potentilla Sibbaldia (L.) F. KURTZ, in Engl. Bot. Jahrb. XIX. (1895), 375.

HAB. On exposed banks and in exposed rocky mountainsides (HK): Attu (1929); Amchitka (1929); Atka (1929, 1931); Unalaska (1931).
Distr.-Type: Circumpolar.

Sieversia calthifolia D. DON, ex TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 425, sub. syn.; RYDB. in Nor. Am. Fl. XXII.–5. (1913), 411.

Geum calthifolium MENZIES, apud SMITH, in Rees. Cycl. 16. Geum, no. 13, (1819); TORR. & GRAY, Fl. Nor. Am. I. (1838–40),

425; MACOUN, Cat. Canad. Pl. I. (1883), 134; KURTZ, in Engl. Bot. Jahrb. XIX. (1895), 373; YABE & YENDO, Pl. Isl. Shumushu, (1904), 185; KUDO, Fl. Isl. Paramushir, (1922), 123; TATEWAKI, Pl. Isl. Alaid, (1927), 22, et Phytogeogr. Middle Kuril. (1933), 201, 229, 251, 269, 280, 297.

Geum rotundifolium FISCH. in Mem. Soc. Nat. Mosc. II. (1809), 187; HULT. Fl. Kamtchat. III. (1929), 75, (non MOENCH).

Sieversia rotundifolia CHAM. ET SCHL. in Linnaea II. (1827), 4; BONG. Vég. Sitcha, (1833), 132; LEDEB. Fl. Ross. II. (1844–46), 24; FEDTSCH. Fl. Il. Comm. (1906), 51; KOMAR. Fl. Pen. Kamtschat. II. (1929), 258.

HAB. In meadows (HK): Attu (1929, 1931); Amchitka (1929); Atka (1929, 1931); Unalaska (1931).

Distr.-Type: Northern Pacific.

Fabaceae

Lathyrus maritimus BIGEL. Fl. Bost. ed. 2, (1824), 268; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 273; LEDEB. Fl. Ross. I. (1842), 661; MACOUN, Cat. Canad. Pl. I. (1883), 121, et List Pl. Pribilof Isl. (1899), 565, (var. *aleutica*); MIYABE, Fl. Kuril. (1890), 225; BRITT. & BR. Ill. Fl. II. (1897), 330; HOWELL, Fl. NW. Am. I. (1903), 157; YABE & YENDO, Pl. Isl. Shumushu, (1904), 186; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 213; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 17–A; KUDO, Fl. Isl. Paramushir, (1922), 127; TATEWAKI, Pl. Isl. Alaid, (1927), 24, et Phytogeogr. Middle Kuril. (1933), 202, 230, 252, 281, 298; HULT. Fl. Kamtchat. III. (1929), 114; KOMAR. Fl. Pen. Kamtschat. II. (1929), 291.

HAB. On sea-beaches (HK): Attu (1929, 1931); Amchitka (1929, 1931); Atka (1929, 1931).

Distr.-Type: Circumpolar.

Lathyrus palustris L. Sp. Pl. ed. 1, (1753), 733; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 275; MACOUN, Cat. Canad. Pl. I. (1843), 122; BRITT. & BR. Ill. Fl. II. (1897), 330; KUDO, Fl. Isl. Paramushir, (1922), 128.

var. ***pilosus*** LEDEB. Fl. Ross. I. (1842), 686; MIYABE, Fl. Kuril. (1890), 225; YABE & YENDO, Pl. Isl. Shumushu, (1904), 186; FEDTSCH. Fl. Il. Comm. (1906), 50; HULT. Fl. Kamtchat. III. (1929), 115; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 203, 230.

Lathyrus pilosus CHAM. in Linnaea VI. (1831), 548; KOMAR. Fl. Pen. Kamtschat. II. (1929), 292.

HAB. In wet ground (HK): Amchitka (1929).

Distr.-Type: Circumpolar.

Lupinus nootkatensis DONN, Cat. Cantab. ed. III. (1804), 135; SIMS, in Bot. Mag. (1809), *t. 1311;* TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 375; LEDEB. Fl. Ross. I. (1842), 512; MACOUN, Cat. Canad. Pl. I. (1883), 103 et List Pl. Pribilof Isl. (1899), 565; KURTZ, in Engl. Bot. Jahrb. XIX. (1895), 369; HOWELL, Fl. NW. Am. I. (1903), 123; OSTENFELD, Vas. Pl. Arc. Nor. Am. (1910), 52, *Pl. I. fig. 6,* (var. *Kjellmanii*); MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 16–A; HOLM, *ibid.* (1922), 48–B.

HAB. One of the most conspicuous plants of the upland meadow (HK—Hemikryptophyta scaposa): Attu (1929, 1931); Amchitka (1929); Atka (1929, 1931); Unalaska (1931).

Distr.-Type: Northern Pacific···American Pacific.

Trifolium repens L. Sp. Pl. ed. 1, (1753), 767; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 316; LEDEB. Fl. Ross. I. (1842), 553; MACOUN, Cat. Canad. Pl. I. (1883), 105; BRITT. & BR. Ill. Fl. II. (1897), 279; HOWELL, Fl. NW. Am. I. (1903), 135; FEDTSCH. Fl. Il. Comm. (1906), 49; HULT. Fl. Kamtchat. III. (1929), 96; KOMAR. Fl. Pen. Kamtschat. II. (1929), 273; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 230.

HAB. In meadows (CH—Chamaephyta reptantia): Unalaska (1931).

Distr.-Type: Circumpolar.

Geraniaceae

Geranium erianthum DC. Prodr. I. (1824), 641; BONG. Vég. Sitcha, (1833), 129; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 206; LEDEB. Fl. Ross. I. (1842), 464; MACOUN, Cat. Canad. Pl. I. (1883), 90, et List Pl. Pribilof Isl. (1899), 565; MIYABE, Fl. Kuril. (1890), 222; KURTZ, in Engl. Bot. Jahrb. XIX. (1895), 368; YABE & YENDO, Pl. Isl. Shumushu, (1904), 187; FEDTSCH. Fl. Il. Comm. (1906), 48; HANKS & SMALL, in Nor. Am. Fl. XXV. I. (1907), 13; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 214; KNUTH, in Engl. Pfl.-reich. IV.–129. (1912), 122; KUDO, Fl. Isl. Paramushir, (1922), 128; TATEWAKI, Pl. Isl. Alaid, (1927), 175, et Phytogeogr. Middle Kuril.

(1933), 203, 230, 252, 269, 281, 298; HULT. Fl. Kamtchat. III. (1929), 117; KOMAR. Fl. Pen. Kamtschat. II. (1929), 294.

HAB. In grassy places (HK—Hemikryptophyta scaposa): Attu (1929, 1931); Atka (1929, 1931); Unalaska (1931).

Distr.-Type: Eastern Asiatic–Western American.

Empetraceae

Empetrum nigrum L. Sp. Pl. ed. 1, (1753), 1022; PALL. Fl. Ross. I. 2, (1788), 49; BONG. Vég. Sitcha, (1833), 152; LEDEB. Fl. Ross. III. (1846–51), 555; MACOUN, Cat. Canad. Pl. III. (1886), 458, et List Pl. Pribilof Isl. (1899), 571; MIYABE, Fl. Kuril. (1890), 260; BRITT. & BR. Ill. Fl. II. (1897), 383; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 207; HOWELL, Fl. NW. Am. I. (1903), 606; YABE & YENDO, Pl. Isl. Shumushu, (1904), 187; FEDTSCH. Fl. Il. Comm. (1906), 101; OSTENFELD, Vas. Pl. Arc. Nor. Am. (1910), 57; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 17–A; HOLM, *ibid.* (1922), 49–B; KUDO, Fl. Isl .Paramushir, (1922), 129; TATEWAKI, Pl. Isl. Alaid, (1927), 175, et Phytogeogr. Middle Kuril. (1933), 203, 230, 252, 269, 281, 298; HULT. Fl. Kamtchat. III. (1929), 122; KOMAR. Fl. Pen. Kamtschat. II. (1929), 300.

HAB. In heaths or rocky and boggy places from seashores to mountain summits (CH—Chamaephyta velantia): Attu (1929, 1931); Amchitka (1929); Atka (1929, 1931); Unalaska (1931).

Distr.-Type: Circumpolar.

Violaceae

Viola Langsdorfii FISCH. in DC. Prodr. I. (1824), 296; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 139; LEDEB. Fl. Ross. I. (1842), 250; MACOUN, Cat. Canad. Pl. I. (1883), 63, et List Pl. Pribilof Isl. (1899), 564; MIYABE, Fl. Kuril. (1890), 119, p.p.; KURTZ, in Engl. Bot. Jahrb. XIX. (1895), 364; HOWELL, Fl. NW. Am. I. (1903), 69; FEDTSCH. Fl. Il. Comm. (1906), 46; BCKR. in Beihft. Bot. Centralbl. XL.–2. (1923), 145; BCKR. ET HULT. in Sv. Vet. Ak. Ark. f. Bot. 22. A. No. 3. (1929), 7; HULT. Fl. Kamtchat. III. (1929), 137, (var. *ursina* in nota.); KOMAR. Fl. Pen. Kamtschat. II. (1929), 311.

HAB. In wet places (HK—Hemikryptophyta rosulata): Attu (1929, 1931); Amchitka (1929); Atka (1929, 1931); Unalaska (1931).
Distr.-Type: Northern Pacific.

Viola epipsila LEDEB. subsp. ***repens*** BCKR. var. ***palustroides*** BCKR. ET HULT. in Sv. Vet. Ak. Ark. f. Bot. 22. A. No. 3. (1929), 4; HULT. Fl. Kamtchat. III. (1929), 132.

Viola epipsila LEDEB. subsp. *palustroides* BCKR. in Fedde, Repert. XVII. (1921), 72, et in Beihft. Bot. Centralbl. XXXIV.–2. (1923), 146; KOMAR. Fl. Pen. Kamtschat. II. (1929), 309.

HAB. In wet places of the mountainside (HK): Attu (1929).
Distr.-Type: Eurasiatic–Western American.

Oenotheraceae

Epilobium angustifolium L. Sp. Pl. ed. 1, (1753), 347; BONG. Vég. Sitcha, (1833), 134; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 487; LEDEB. Fl. Ross. II. (1844–46), 105; MACOUN, Cat. Canad. Pl. I. (1883), 168; MIYABE, Fl. Kuril. (1890), 235; TRELEASE, Nor. Am. Sp. Epilob. (1891), 81, *pl. 2;* YABE & YENDO, Pl. Isl. Shumushu, (1904), 188; OSTENFELD, Vas. Pl. Arc. Nor. Am. (1910), 58; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 214; HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1922), 49–B, 73–B; KUDO, Fl. Isl. Paramushir, (1922), 133; TATEWAKI, Pl. Isl. Alaid, (1927), 176; HULT. Fl. Kamtchat. III. (1929), 142.

Chamaenerium angustifolium SCOP. Fl. Carn. ed. 2, I. (1772), 271; BRITT. & BR. Ill. Fl. II. (1897), 481; KOMAR. Fl. Pen. Kamtschat. II. (1929), 317.

HAB. On grassy banks (HK): Unalaska (1931).
Distr.-Type: Circumpolar.

Epilobium Behringianum HAUSSKN. Monogr. Epilob. (1884), 277; TRELEASE, Nor. Am. Sp. Epilob. (1891), 107; MIYABE, Fl. Kuril. (1890), 235; MACOUN, List Pl. Pribilof Isl. (1899), 567; KUDO, Fl. Isl. Paramushir, (1922), 135; TATEWAKI, Pl. Isl. Alaid, (1927), 176, et Phytogeogr. Middle Kuril. (1933), 204, 253, 269; HULT. Fl. Kamtchat. III. (1929), 144; KOMAR. Fl. Pen. Kamtschat. II. (1929), 325.

HAB. In wet ground (HK): Attu (1929).
Distr.-Type: Northern Pacific.

Epilobium glandulosum LEHM. Pug. II. (1830), 14; HAUSSKN. Monogr. Epilob. (1884), 273; TRELEASE, Nor. Am. Sp. Epilob. (1891), 99, *Pl. 29;* HOWELL, Fl. NW. Am. I. (1903), 226; KUDO, Fl. Isl. Paramushir, (1922), 134; HULT. Fl. Kamtchat. III. (1929), 145; KOMAR. Fl. Pen. Kamtschat. II. (1929), 322; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 204, 231, 253, 282, 298.

HAB. In wet grounds (HK): Unalaska (1931).

Distr.-Type: American-Eastern Asiatic.

Epilobium Hornemanni REICHB. Ic. Crit. II. (1824), 73, *tab. 180, fig. 313;* BONG. Vég. Sitcha, (1833), 136; LEDEB. Fl. Ross. II. (1844–46), 112; HAUSSKN. Monogr. Epilob. (1884), 174; TRELEASE, Nor. Am. Sp. Epilob. (1891), 105, *pl. 41;* BRITT. & BR. Ill. Fl. II. (1897), 485; HOWELL, Fl. NW. Am. I. (1903), 227; KUDO, Fl. Isl. Paramushir, (1922), 135; TATEWAKI, Pl. Isl. Alaid, (1927), 177 et Phytogeogr. Middle Kuril. (1933), 205, 231, 253, 269, 282, 299; HULT. Fl. Kamtchat. III. (1929), 146; KOMAR. Fl. Pen. Kamtschat. II. (1929), 326.

HAB. In wet places (HK): Attu (1929); Atka (1929).

Distr.-Type: Circumpolar.

Epilobium latifolium L. Sp. Pl. ed. 1, (1753), 347; BONG. Vég. Sitcha, (1833), 134; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 487; LEDEB. Fl. Ross. II. (1844–46), 106; MACOUN, Cat. Canad. Pl. I. (1883), 169; HAUSSKN. Monogr. Epilob. (1884), 191, (var. *arctica*); MIYABE, Fl. Kuril. (1890), 235, (var. *kamtschatica*); TRELEASE, Nor. Am. Sp. Epilob. (1891), 81; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 208; HOWELL, Fl. NW. Am. I. (1903), 222; OSTENFELD, Vas. Pl. Arc. Nor. Am. (1910), 23, 58; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 214; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 17–A; HOLM, *ibid.* (1922), 49–B; KUDO, Fl. Isl. Paramushir, (1922), 133, (var. *arctica*); HULT. Fl. Kamtchat. III. (1929), 146.

Chamaenerion (um) latifolium SWEET, Hort. Brit. ed. 2, (1830), 198; BRITT. & BR. Ill. Fl. II. (1897), 481; KOMAR. Fl. Pen. Kamtschat. II. (1929), 319.

HAB. On river banks or rocky places of seashores (HK): Isl. Attu (1929, 1931); Unalaska (1931).

Distr.-Type: Circumpolar.

Epilobium sertulatum HAUSSKN. in Oesterr. Bot. Zeitschr. XXIX. (1879), 52, et Monogr. Epilob. (1884), 220, *tab. IV. fig. 43, a–b;* HULT. Fl. Kamtchat. III. (1929), 149; KOMAR. Fl. Pen. Kamtschat. II. (1929)., 321.

HAB. In wet places (HK): Amchitka (1929); Atka (1929).
Distr.-Type: Northern Pacific.

Halorrhagaceae

Myriophyllum spicatum L. Sp. Pl. ed. 1, (1753), 992; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 528; LEDEB. Fl. Ross. II. (1844–46), 118; MACOUN, Cat. Canad. Pl. I. (1883), 166, et *ibid.* III. (1886), 529; BRITT. & BR. Ill. Fl. II. (1897), 503; HOWELL, Fl. NW. Am. I. (1903), 219; SCHINDLER, in Engl. Pfl.-reich. IV.–225. (1905), 90; HULT. Fl. Kamtchat. II. (1929), 151; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 205.

HAB. In ponds (HY): Atka (1929, 1931).
Distr.-Type: Cosmopolite.

Hippuridaceae

Hippuris vulgaris L. Sp. Pl. ed. 1, (1753), 4; BONG. Vég. Sitcha, (1833), 136; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 531; LEDEB. Fl. Ross. II. (1844–46), 119; MACOUN, Cat. Canad. Pl. I. (1883), 167, et *ibid.* III. (1886), 529, et List Pl. Pribilof Isl. (1899), 567; BRITT. & BR. Ill. Fl. II. (1897), 501; HOWELL, Fl. NW. Am. I. (1903), 217; YABE & YENDO, Pl. Isl. Shumushu, (1904), 188; FEDTSCH. Fl. Il. Comm. (1906), 59; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 17–A, (var. *maritima*); KUDO, Fl. Isl. Paramushir, (1922), 136; HULT. Fl. Kamtchat. III. (1929), 153; KOMAR. Fl. Pen. Kamtschat. II. (1929), 330; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 205, 232, 253, 282, 299.

HAB. In swamps and bogs (HY): Attu (1929); Amchitka (1929); Atka (1929, 1931); Unalaska (1931).
Distr.-Type: Circumpolar.

Apiaceae

Coelopleurum Gmelini LEDEB. Fl. Ross. II. (1844–46), 361; MIYABE, Fl. Kuril. (1890), 236; BRITT. & BR. Ill. Fl. II. (1897), 520;

MACOUN, List Pl. Pribilof Isl. (1899), 567; HOWELL, Fl. NW. Am. I. (1903), 261; YABE & YENDO, Pl. Isl. Shumushu, (1904), 189; FEDTSCH. Fl. Il. Comm. (1906), 65; KUDO, Fl. Isl. Paramushir, (1922), 138; TATEWAKI, Pl. Isl. Alaid, (1927), 178, et Phytogeogr. Middle Kuril. (1933), 205, 254, 269, 282; HULT. Fl. Kamtchat. III. (1929), 166; KOMAR. Fl. Pen. Kamtschat. II. (1929), 344.

HAB. In meadows near the sea-coast (HK): Attu (1929); Amchitka (1929); Atka (1929, 1931); Unalaska (1931).
Distr.-Type: Northern Pacific.

Conioselinum Gmelinii COULT. ET ROSE, in Contr. Unit. Stat. Nat. Herb. VII.–1. (1900), 150; HULT. Fl. Kamtchat. III. (1929), 161; TATEWAKI, Phytogeogr. Middle Kuril. 205, 232, 254, 269, 299.

Conioselinum kamtschaticum RUPR. Rev. Umbellif. Kamtschat. (1859), 22, 30; FEDTSCH. Fl. Il. Comm. (1906), 64; KOMAR. Fl. Pen. Kamtschat. II. (1929), 343.

HAB. In meadows along the sea-coast (HK): Atka (1929); Unalaska (1931).
Distr.-Type: Northern Pacific.

Heracleum lanatum MICHX. Fl. Bor. Am. I. (1803), 166; BONG. Vég. Sitcha, (1833), 142; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 632; LEDEB. Fl. Ross. II. (1844–46), 323; MACOUN, Cat. Canad. Pl. I. (1883), 187, et List Pl. Pribilof Isl. (1899), 567; MIYABE, Fl. Kuril. (1890), 236; BRITT. & BR. Ill. Fl. II. (1897), 514; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 208; HOWELL, Fl. NW. Am. I. (1903), 249; FEDTSCH. Fl. Il. Comm. (1906), 65; KUDO, Fl. Isl. Paramushir, (1922), 139; TATEWAKI, Pl. Isl. Alaid, (1927), 178, et Phytogeogr. Middle Kuril. (1933), 206, 232, 254, 269, 283, 299; HULT. Fl. Kamtchat. III. (1929), 171.

Heracleum dulca FISCH. in Ind. Sem. Hort. Petrop. IX. Suppl. (1844), 23; KOMAR. Fl. Pen. Kamtschat. II. (1929), 348.

HAB. In meadows (HK): Atka (1931); Unalaska (1931).
Distr.-Type: American–Eastern Asiatic.

Ligusticum Hultenii FERNALD, in Rhodora XXXII. (1930), 7; HULT. Fl. Kamtchat. IV. (1930), 257; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 205, 232, 253, 269, 282, 299.

Ligusticum scoticum BONG. Vég. Sitcha, (1833), 141; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 618, p.p; LEDEB. Fl. Ross. II.

(1844–46), 286; MIYABE, Fl. Kuril. (1890), 236; MACOUN, List Pl. Pribilof Isl. (1899), 567; YABE & YENDO, Pl. Isl. Shumushu, (1904), 189; FEDTSCH. Fl. Il. Comm. (1906), 64; KUDO, Fl. Isl. Paramushir, (1922), 138; TATEWAKI, Pl. Isl. Alaid, (1927), 178; KOMAR. Fl. Pen. Kamtschat. II. (1929), 343.

HAB. Along sea-coasts (HK): Atka (1929, 1931); Unalaska (1931).

Distr.-Type: Northern Pacific.

Cornaceae

Cornus suecica L. Sp. Pl. ed. 1, (1753), 118; TORR. & GRAY, Fl. Nor. Am. I. (1838–40), 653; LEDEB. Fl. Ross. II. (1844–46), 377; MACOUN, Cat. Canad. Pl. I. (1883), 190, et List Pl. Pribilof. Isl. (1899), 567; MIYABE, Fl. Kuril (1890), 237; BRITT. & BR. Ill. Fl. II. (1897), 543; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 209; HOWELL, Fl. NW. Am. I. (1903), 272; YABE & YENDO, Pl. Isl. Shumushu, (1904), 189; FEDTSCH. Fl. Il. Comm. (1906), 66; WANG. in Engl. Pfl.-reich. IV.–229. (1910), 82; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 214; KUDO, Fl. Isl. Paramushir, (1922), 139; TATEWAKI, Pl. Isl. Alaid, (1927), 178, et Phytogeogr. Middle Kuril. (1933), 206, 232, 254, 269, 283, 299; HULT. Fl. Kamtchat. III. (1929), 175; KOMAR. Fl. Pen. Kamtschat. II. (1929), 349; REGEL, in Pfl.-areale, Reihe II. Ht.–7, 70–72, *Kt. 69*.

Chamaepericlymenum suecicum ASCHERS. ET GRAEBN. Fl. Nord. Flachl. (1898), 539; BRITT. & BR. Ill. Fl. ed. 2, II. (1913), 665.

Arctocrania suecica NAKAI, in Bot. Mag. (Tokyo), XXIII. (1909), 39.

HAB. In meadows (HK): Attu (1929, 1931); Amchitka (1929); Atka (1929, 1931).

Distr.-Type: Circumpolar.

Pyrolaceae

Pyrola rotundifolia L. Sp. Pl. ed. 1, (1753), 396.

var. ***incarnata*** DC. Prodr. VII. (1839), 773; LEDEB. Fl. Ross. II. (1844–46), 928; TORR. & GRAY, Fl. Nor. Am. II.–1. (1878), 48; MACOUN, Cat. Canad. Pl. II. (1884), 305; HOWELL, Fl. NW. Am. I. (1903), 425; HULT. Fl. Kamtchat. IV. (1930), 5.

Pyrola incarnata FISCH. ex DC. Prodr. VII. (1839), 773; KOMAR. Fl. Pen. Kamtschat. II. (1929), 351.

HAB. In heaths (HK): Unalaska (1931).

Distr.-Type: Circumpolar.

Our specimens are somewhat equally related to *P. rotundifolia* var. *incarnata*, *P. bracteata* HOOK. and *P. asarifolia* MICHX., consequently we can find no pronounced difference among them, and yet it seems most natural to take our specimens for one form of *P. rotundifolia* var. *incarnata* in its wider sense.

Scape 20–25 cm. high, with one bract (rarely several) about the middle, 10–18-flowered. Leaf-blades mostly reniform, someones elliptic or oval. Bracts lanceolate, its lower one about 1 cm. long, tinged with rose colour in its upper ones; pedicels 5–6 cm. long; calyx-lobes deltoid-lanceolate or ovate-lanceolate, acute, about 3 mm. long, 2 mm. wide; petals obtuse, about 7 mm. long, rose.

Pyrola minor L. Sp. Pl. ed. 1. (1753), 396; LEDEB. Fl. Ross. II. (1844–46), 930; MACOUN, Cat. Canad. Pl. II. (1884), 303, et *ibid.* III. (1886), 563, et Pl. Pribilof Isl. (1899), 568; A. GRAY, Syn. Fl. Nor. Am. II.–1. (1878), 46; MIYABE, Fl. Kuril. (1890), 248; BRITT. & BR. Ill. Fl. II. (1897), 552; HOWELL, Fl. NW. Am. I. (1903), 424; KUDO, Fl. Isl. Paramushir, (1922), 140; KOMAR. Fl. Pen. Kamtschat. II. (1929), 353; HULT. Fl. Kamtchat. IV. (1930), 4; TATEWAKI, in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 200, et Phytogeogr. Middle Kuril. (1933), 232, 283, 299.

Erxlebenia minor RYDB. in Nor. Am. Fl. XXIX.–1. (1914), 28.

HAB. In heaths and meadows (HK): Attu (1929); Atka (1929, 1931).

Distr.-Type: Circumpolar.

Rhodoraceae

Arctostaphylos Uva-ursi SPR. Syst. II. (1825), 287; LEDEB. Fl. Ross. II. (1844–46), 909; A. GRAY, Syn. Fl. Nor. Am. II.–1. (1878), 27; MACOUN, Cat. Canad. Pl. II. (1884), 295; BRITT. & BR. Ill. Fl. II. (1897), 572; HOWELL, Fl. NW. Am. I. (1903), 415; KUDO, Rep. Veg. Nor. Saghal. (1924), 199; HULT. Fl. Kamtchat. IV. (1930), 36.

Uva-ursi Uva-ursi BRITT. in BRITT. & BR. Ill. Fl. ed. 2, II. (1913), 693; SMALL, in Nor. Am. Fl. XXIX.–1. (1914), 94.

HAB. In heaths (CH—Chamaephyta velantia): Unalaska (1931).

Distr.-Type: Circumpolar.

Arctous alpina NIEDZ. in Engl. Bot Jahrb. XI. (1890), 141; SMALL, in Nor. Am. Fl. XXIX.–1. (1914), 102; KOMAR. Fl. Pen. Kamtschat. III. (1930), 9.

Arctostaphylos alpina SPRENG. Syst. Veg. II. (1825), 287; LEDEB. Fl. Ross. II. (1844–46), 908; A. GRAY, Syn. Fl. Nor. Am. II.–1. (1878), 27; MACOUN, Cat. Canad. Pl. II. (1884), 294, et *ibid.* III. (1886), 561; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 209; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 18–A; HOLM, *ibid.* (1922), 51–B; HULT. Fl. Kamtchat. IV. (1930), 34.

Mariania alpina DESV. in Journ. Bot. (II) 1. (1813), 37; BRITT. & BR. Ill. Fl. II. (1897), 573.

HAB. In heaths (CH): Unalaska (1931).

Distr.-Type: Circumpolar.

Judging from the specimen collected at Unalaska, it is closely related to *Arctous japonicus* NAKAI [in Bot. Mag. (Tokyo), XXXV. (1921), 134].

Cassiope lycopodioides D. DON, in Edinb. New Phil. Journ. XVII. (1834), 158; LEDEB. Fl. Ross. II. (1844–46), 912; A. GRAY, Syn. Fl. Nor. Am. II.–1. (1878), 36; MACOUN, Cat. Canad. Pl. II. (1884), 296; MIYABE, Fl. Kuril. (1890), 247; HOWELL, Fl. NW. Am. I. (1903), 418; YABE & YENDO, Pl. Isl. Shumushu (1904), 191; FEDTSCH. Fl. Il. Comm. (1906), 85; SMALL, in Nor. Am. Fl. XXIX.–1. (1914), 60; KUDO, Fl. Isl. Paramushir, (1922), 143; NAKAI, Tr. & Shr. Jap. I. ed. 3, (1927), 164; TATEWAKI, Pl. Isl. Alaid, (1927), 179, et in Tran. Sapporo Nat. Hist. Soc. XI. (1931), 202, et Phytogeogr. Middle Kuril. (1933), 207, 233, 254, 270, 283, 300; KOMAR. Fl. Pen. Kamtschat. III. (1930), 6; HULT. Fl. Kamtchat. IV. (1930), 27.

Andromeda lycopodioides PALL. Fl. Ross. I. 2, (1788), 55, *Tab. LXXIII. fig. 1.*

HAB. In heaths and on rocky cliffs (CH): Attu (1929); Amchitka (1929); Atka (1929, 1931).

Distr.-Type: Northern Pacific.

Loiseleuria procumbens DESV. in Journ. Bot. III. (1813), 35; LEDEB. Fl. Ross. II. (1844–46), 918; A. GRAY, Syn. Fl. Am. II.–1. (1878), 45; MACOUN, Cat. Canad. Pl. II. (1884), 298, et *ibid.* III. (1886), 562; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 210; YABE & YENDO, Pl. Isl. Shumushu, (1904), 190; FEDTSCH. Fl. Il. Comm. (1906), 87; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 215; SMALL, in Nor. Am. Fl. XXIX.–1. (1914), 40; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 18–A; HOLM. *ibid.* (1922), 51–B; KUDO, Fl. Isl. Paramushir, (1922), 142; NAKAI, Tr. & Shr. Jap. I. ed 3, (1927), 27; KOMAR. Fl. Pen. Kamtschat. II. (1929), 362; HULT. Fl. Kamtchat. IV. (1930), 17; TATEWAKI, in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 201, et Phytogeogr. Middle Kuril. (1933), 207, 233, 254, 270, 283, 300.

Azalea procumbens L. Sp. Pl. ed. 1, (1753), 151; PALL. Fl. Ross. I. 2, (1788), 52, *Tab. LXX. Fig. 2, A.B.C.*

Chamaecistus procumbens KUNTZE, Rev. Gen. Pl. (1891), 388; BRITT. & BR. II. (1897), 563.

HAB. In heaths and bogs (CH): Attu (1929, 1931); Amchitka (1929); Atka (1929, 1931); Unalaska (1931).

Distr.-Type: Europeo–American–Eastern Asiatic.

Phyllodoce aleutica A. HELLER, in Muhlenbergia I. (1900), 1; SMALL, in Nor. Am. Fl. XXIX.–1. (1914), 51; NAKAI, Tr. & Shr. Jap. I. ed. 3, (1927), 29; HULT. Fl. Kamtchat. IV. (1930), 19; TATEWAKI, in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 201, et Phytogeogr. Middle Kuril. (1933), 207, 233, 254, 283.

Phyllodoce Pallasiana DON, in Edinb. New Phil. Journ. XVII. (1834), 160; LEDEB. Fl. Ross. II. (1884–86), 917; YABE & YENDO, Pl. Isl. Shumushu, (1904), 191.

Bryanthus aleuticus A. GRAY, in Proc. Am. Acad. VII. (1868), 368, et Syn. Fl. Nor. Am. II.–1. (1878), 37; MACOUN, Cat. Canad. Pl. II. (1884), 299.

Phyllodoce aleutica MAKINO, in Bot. Mag. (Tokyo), XIX. (1905), 134; KUDO, Fl. Isl. Paramushir, (1922), 143; KOMAR. Fl. Pen. Kamtschat. II. (1929), 365.

HAB. In heaths (CH): Attu (1929, 1931); Atka (1929, 1931); Unalaska (1931).

Distr.-Type: Northern Pacific.

Phyllodoce coerulea BAB. Man. Brit. Bot. ed. 1, (1843), 194; BRITT. & BR. Ill. Fl. II. 565; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 215; SMALL, in Nor. Am. Fl. XXIX.–1. (1914), 50; NAKAI, Tr. & Shr. Jap. I. ed. 3, (1927), 35; KOMAR. Fl. Pen. Kamtschat. II. (1929), 363.

Andromeda coerulea L. Sp. Pl. ed. 1, (1753), 393; PALL. Fl. Ross. I.–2. (1788), *Tab. LXXII. fig. 2.*

Andromeda taxifolia PALL. Fl. Ross. I.–2. (1788), 54.

Phyllodoce taxifolia SALISB. Parad. Lond. (1806), *t. 56;* LEDEB. Fl. Ross. II. (1844–46), 916.

Bryanthus taxifolius A. GRAY, in Proc. Am. Acad. VII. (1868). 368, et Syn. Fl. Nor. Am. II.–1. (1878), 37; MACOUN, Cat. Canad. Pl. II. (1884), 299; MIYABE, Fl. Kuril. (1890), 247.

var. ***yezoensis*** KOIDZUMI, in Bot. Mag. (Tokyo), XXXII. (1918), 58; TATEWAKI, in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 201.

Phyllodoce coerulea BAB. form. *yezoensis* NAKAI, Tr. & Shr. Jap. I. ed. 3, (1927), 36.

Phyllodoce aleutica × *coerulea* HULT. Fl. Kamtchat. IV. (1930), 20.

HAB. In heaths (CH): Attu (1929).

Distr.-Type: Circumpolar.

Rhododendron camtschaticum PALL. Fl. Ross. I.–1. (1784), 48, *Tab. XXXIII.;* LEDEB. Fl. Ross. II. (1844–46), 922; A. GRAY, Syn. Fl. Nor. Am. II.–1. (1878), 40; MACOUN, Cat. Canad. Pl. II. (1884), 301; MIYABE, Fl. Kuril. (1890), 247; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 210; YABE & YENDO, Pl. Isl. Shumushu, (1904), 190; FEDTSCH. Fl. Il. Comm. (1906), 88; KUDO, Fl. Isl. Paramushir, (1922), 142; KOMAR. Fl. Pen. Kamtschat. II. (1929), 360; HULT. Fl. Kamtchat. IV. (1930), 14; TATEWAKI, in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 201, et Phytogeogr. Middle Kuril. (1933), 206, 233, 254, 270, 283, 299.

Therorhodion camtschaticum SMALL, in Nor. Am. Fl. XXIX.–1. (1914), 45; NAKAI, Tr. & Shr. Jap. I. ed. 3, (1927), 40; TATEWAKI, Pl. Isl. Alaid. (1927), 179.

HAB. In heaths and on rocky cliffs (CH): Attu (1929); Atka (1929, 1931); Unalaska (1931).

Distr.-Type: Eastern Asiatic–Western American.

Vaccinium Chamissonis BONG. Vég. Sitcha, (1833), 151; LEDEB. Fl. Ross. II. (1844–46), 903; FEDTSCH. Fl. Il. Comm. (1906), 82; NAKAI, Tr. & Shr. Jap. I. ed. 3, (1927), 261; TATEWAKI, in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 203.

Vaccinium ovalifolium A. GRAY, Syn. Fl. Nor. Am. II.–1. (1878), 24, p.p.; MACOUN, Cat. Canad. Pl. II. (1884), 293.

HAB. In meadows (PH—Nanophanerophyta): Attu (1929); Unalaska (1931).

Distr.-Type: Northern Pacific.

Vaccinium uliginosum L. Sp. Pl. ed. 1, (1753), 350; PALL. Fl. Ross. I. 2, (1788), 45; BONG. Vég. Sitcha, (1833), 150; LEDEB. Fl. Ross. II. (1884–86), 904; A. GRAY, Syn. Fl. Nor. Am. II.–1. (1878), 23; MACOUN, Cat. Canad. Pl. II. (1884), 291, et *ibid.* III. (1886), 561; MIYABE, Fl. Kuril. (1890), 246; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 211; BRITT. & BR. Ill. Fl. (1897), 576; HOWELL, Fl. NW. Am. I. (1903), 411; YABE & YENDO, Pl. Isl. Shumushu, (1904), 191; FEDTSCH. Fl. Il. Comm. (1906), 82; OSTENFELD, Vas. Pl. Arc. Nor. Am. (1910), 60; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 216; MACOUN & HOLM, Rep. Canad. Arc. Exp. V. (1921), 18–A, (form. *microphylla*); HOLM, *ibid.* (1922), 51–B; KUDO, Fl. Isl. Paramushir, (1922), 146; NAKAI, Tr. & Shr. Jap. I. ed. 3, (1927), 264; TATEWAKI, Pl. Isl. Alaid, (1927), 180, et in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 202, et Phytogeogr. Middle Kuril. (1933), 207, 233, 255, 270, 284, 300; KOMAR. Fl. Pen. Kamtschat. II. (1929), 333; HULT. Fl. Kamtchat. IV. (1930), 38.

HAB. In heaths (CH—Chamaephyta velantia): Attu (1929); Atka (1931); Unalaska (1931).

Distr.-Type: Circumpolar.

Vaccinium Vitis-idaea L. Sp. Pl. ed. 1, (1753), 351; PALL. Fl. Ross. I. 2. (1788), 46; BONG. Vég. Sitcha, (1833), 152; LEDEB. Fl. Ross. II. (1844–46), 901; A. GRAY, Fl. Syn. Nor. Am. II.–1. (1878), 25; MACOUN, Cat. Canad. Pl. II. (1884), 293; MIYABE, Fl. Kuril. (1890), 246; BRITT. & BR. Ill. Fl. II. (1897), 580; HOWELL, Fl. NW. Am. I. (1903), 412; YABE & YENDO, Pl. Isl. Shumushu, (1904), 190; FEDTSCH. Fl. Il. Comm. (1906), 81; OSTENFELD, Vas. Pl. Arc. Nor. Am. (1910), 60; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 216; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 18–A, (var. *pumilum*); HOLM, *ibid.* (1922), 51–B; KUDO, Fl. Isl.

Paramushir, (1922), 146; NAKAI, Tr. & Shr. Jap. I. ed. 3, (1927), 245; TATEWAKI, Pl. Isl. Alaid, (1927), 180, et in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 202, et Phytogeogr. Middle Kuril. (1933), 207, 233, 255, 270, 284, 300; HULT. Fl. Kamtchat. IV. (1930), 41; KOMAR. Fl. Pen. Kamtschat. III. (1930), 15.

HAB. In heaths and boggy places (CH): Attu (1929, 1931); Amchitka (1929); Atka (1929, 1931); Unalaska (1931).

Distr-Type: Circumpolar.

Primulaceae

Primula cuneifolia LEDEB. in Mem. Acad. St. Petersb. V. (1814), 522, et Fl. Ross. III. (1846–51), 15; MACOUN, Cat. Canad. Pl. II. (1884), 310; A. GRAY, Syn. Fl. Nor. Am. II.–1. (1878), 59; MIYABE, Fl. Kuril. (1890), 249; YABE & YENDO, Pl. Isl. Shumushu, (1904), 191; PAX u. KNUTH, in Engl. Pfl.-reich. IV.–237. (1905), 112; FEDTSCH. Fl. Il. Comm. (1906), 90; KUDO, Fl. Isl. Paramushir, (1922), 148; TATEWAKI, Pl. Isl. Alaid, (1927), 180, et in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 203, et Phytogeogr. Middle Kuril. (1933), 208, 234, 255, 270, 284, 300; HULT. Fl. Kamchat. IV. (1930), 48; KOMAR. Fl. Pen. Kamtschat. III. (1930), 21.

HAB. In meadows and heaths (HK): Attu (1929, 1931); Amchitka (1929); Atka (1929, 1931).

var. ***albiflora*** KOIDZUMI, in Bot. Mag. (Tokyo), XXXI. (1917), 34; TATEWAKI, in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 203.

HAB. In boggy places (HK): Attu (1929); Amchitka (1929); Atka (1929).

Distr.-Type: Northern Pacific.

Primula egalliccensis WORMSK. ex LEHMANN, Monogr. Prim. (1817), 64, *t. VII;* PAX, in Engl. Bot. Jahrb. X. (1889), 198; PAX u. KNUTH, in Engl. Pfl.-reich. IV.–237. (1905), 77.

Primula egaliksensis HORNEM. Fl. Dan. (1818), *t. 1511;* A. GRAY, Syn. Fl. Nor. Am. II.–1. (1886), 399; BRITT. & BR. Ill. Fl. II. (1897), 585.

HAB. In meadows (HK): Unalaska (1931).

Distr.-Type: American.

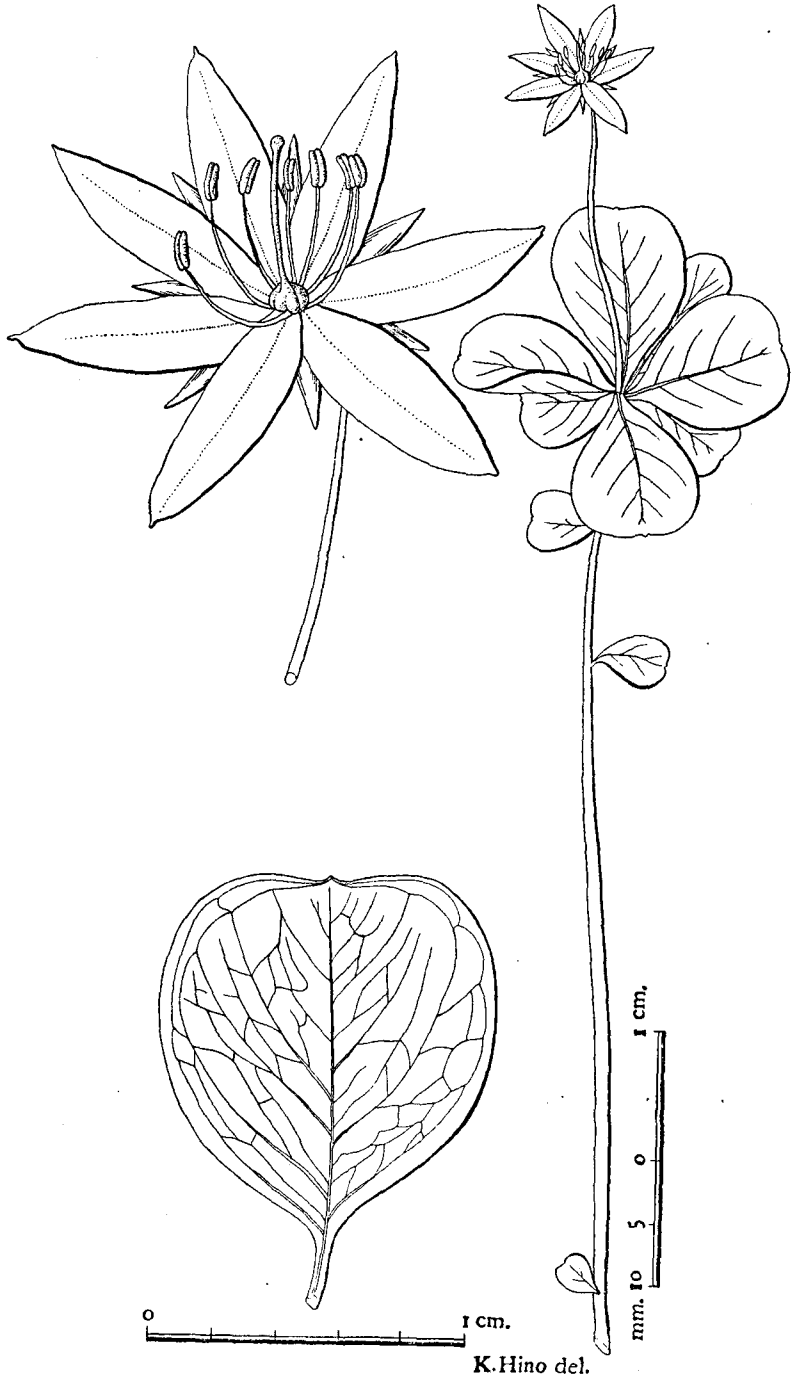


Fig. 3. *Trientalis europaea* L. var. *aleutica* TATEWAKI et KOBAYASHI

Trientalis europaea L. Sp. Pl. ed. 1, (1753), 344; MIYABE, Fl. Kuril. (1890), 250; YABE & YENDO, Pl. Isl. Shumushu, (1904), 191; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 217.

var. ***arctica*** LEDEB. Fl. Ross. III. (1846–1851), 25; A. GRAY, Syn. Fl. Nor. Am. II.–1. (1878), 61; MACOUN, Cat. Canad. Pl. II. (1884), 313, et List Pl. Pribilof Isl. (1899), 569; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 213; PAX u. KNUTH, in Engl. Pfl.-reich. IV.–237, (1905), 315; KUDO, Fl. Isl. Paramushir, (1922), 149; TATEWAKI, Pl. Isl. Alaid, (1927), 181, et Phytogeogr. Middle Kuril. (1933), 208, 234, 256, 270, 285; KOMAR. Fl. Pen. Kamtschat. III. (1930), 29.

Trientalis arctica FISCH. in HOOK. Fl. Bor. Am. II. (1840), 121; HOWELL, Fl. NW. Am. I. (1903), 436; TATEWAKI, in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 203.

Trientalis europaea L. subsp. *arctica* HULT. Fl. Kamtchat. IV. (1930), 56.

HAB. In meadows (HK): Attu (1929, 1931); Amchitka (1929); Atka (1929, 1931); Unalaska (1931).

var. ***aleutica*** TATEWAKI ET KOBAYASHI, var. nov. *(Fig. 3.)*.

Trientalis aleutica TATEWAKI, mss.

Caulis foliatus. Folia caulina apicalibus simila parva; orvicularia vel obovalia, apice saepe retusa submucronati, basi rotundata vel subcuneata. Corollae lobi latiores mucronati.

HAB. In meadows and bogs (HK): Amchitka (Typus, 1929); Attu (1929).

Distr.-Type: Eurasiatic–Western American.

Gentianaceae

Gentiana Amarella L. Sp. Pl. ed. 1, (1753), 230; PALL. Fl. Ross. I. 2. (1788), 104; BONG. Vég. Sitcha, (1833), 156; LEDEB. Fl. Ross. III. (1846–51), 52; HERDER, in Acta Horti Petrop. I. (1872), 427; MACOUN, Cat. Canad. Pl. II. (1884), 322; A. GRAY, Syn. Fl. Nor. Am. II.–1. (1878), 118; HULT. Fl. Kamtchat. IV. (1930), 61.

HAB. In wet places (TH—Eutherophyta): Unalaska (1931).

Distr.-Type: Circumpolar.

Hydrophyllaceae

Romanzoffia unalschcensis CHAM. in Linnaea II. (1827), 608; LEDEB. Fl. Ross. III. (1846–51), 181; MACOUN, Cat. Canad. Pl. II. (1884), 334; A. GRAY, Syn. Fl. Nor. Am. II.–1. (1878), 172; BRAND, in Engl. Pflz.-reich. IV.–251. (1913), 169; HULT. Fl. Kamtchat. IV. (1930), 75.

HAB. On cliffs of the mountain summit (HK): Unalaska (1931).

Distr.-Type: American Pacific.

Heliotropiaceae

Mertensia maritima G. DON, Gen. Syst. IV. (1838), 320; LEDEB. Fl. Ross. III. (1846–51), 132; A. GRAY, Syn. Fl. Nor. Am. I.–2. (1878), 200; MACOUN, Cat. Canad. Pl. II. (1884), 338, et List Pl. Pribilof Isl. (1899), 569; KURTZ, in Engl. Bot. Jahrb. XIX. (1895), 399; FEDTSCH. Fl. Il Comm. (1906), 94; OSTENFELD, Vas. Pl. Arc. Nor. Am. (1910), 63; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 218; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 19–A; HOLM, *ibid.* (1922), 56–B; HULT. Fl. Kamtchat. IV. (1930), 85, (subsp. *asiatica*); TATEWAKI, in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 203.

HAB. On beaches (HK): Attu (1929); Atka (1929, 1931); Unalaska (1931).

Distr.-Type: Europeo–American–Eastern Asiatic.

Plagiobotrys orientalis JOHNST. in Contr. GRAY Herb. LXXXI. (1928), 80; HULT. Fl. Kamtchat. IV. (1930), 78.

Krynitzia plebeia A. GRAY, in Proc. Am. Acad. XX. (1885), 266, et Syn. Fl. Nor. Am. II.–1. (1886), 423.

Eritrichium plebeium DC. Prodr. X. (1846), 133; GRAY, Syn. Fl. Nor. Am. II.–1. (1878), 191.

Lithospermum plebeium CHAM. ET SCHLECHT. in Linnaea IX. (1829), 446.

Plagiobotrys plebejus JOHNST. in Contr. GRAY, Herb. LXVIII. (1923), 77.

HAB. Along coast (TH): Atka (1931); Unalaska (1931).

Distr.-Type: Northern Pacific.

Lamiaceae

Prunella vulgaris L. Sp. Pl. ed. 1, (1753), 600; BONG. Vég. Sitcha, (1832), 159; LEDEB. Fl. Ross. III. (1846–51), 392; A. GRAY, Fl. Nor. Am. II.–1. (1878), 382; MACOUN, Cat. Canad. Pl. II. (1884), 388; BRITT. & BR. Ill. Fl. III. (1898), 88; HOWELL, Fl. NW. Am. I. (1903), 556; KUDO, Fl. Isl. Paramushir, (1922), 153, (var. *japonica*), et Labiat. Sino-Jap. Prodr. (1929), 248; HULT. Fl. Kamtchat. IV. (1930), 89; KOMAR. Fl. Pen. Kamtschat. III. (1930), 58.

HAB. In meadows (HK): Unalaska (1931).
Distr.-Type: Cosmopolite (nearly).

Rhinanthaceae

Castilleja pallida KUNTH, Syn. Pl. Aequin. (1823), 100; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–15, (1921), 19–A; HOLM, *ibid.* (1922), 56–B; HULT. Fl. Kamtchat. IV. (1930), 105.

var. ***unalaschcensis*** CHAM. ET SCHL. in Linnaea II. (1827), 581; BONG. Vég. Sitcha, (1832), 158; LEDEB. Fl. Ross. III. (1846–51), 258; OSTENFELD, Vas. Pl. Arc. Nor. Am. (1910), 64.

Castilleja acuminata SPR. Syst. II. (1825), 775; BRITT. & BR. Ill. Fl. III. (1898), 180.

Castilleja pallida KNUTH, var. *septentrionalis* GRAY, Syn. Fl. Nor. Am. II.–1. (1878), 297, p.p.; MACOUN, Cat. Canad. Pl. II. (1884), 365.

HAB. In meadows (HK): Attu (1929); Unalaska (1931).
Distr.-Type: Circumpolar (nearly).

Lagotis glauca GAERTN. in Nov. Comm. Ac. Sc. St. Petersb. XIV. (1770), 534; FEDTSCH. Fl. Il. Comm. (1906), 98. (var. *Gmelini* et var. *Stelleri*); OSTENFELD, Vas. Pl. Arc. Nor. Am. (1910), 66; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 20–A; HOLM, *ibid.* (1922), 58–B; KUDO, Fl. Isl. Paramushir, (1922), 155; TATEWAKI, Pl. Isl. Alaid, (1927), 183, et Phytogeogr. Middle Kuril. (1933), 210, 235, 257, 285; HULT. Fl. Kamtchat. IV. (1930), 102.

Gymnandra Gmelini CHAM. ET SCHLECHT. in Linnaea II. (1827), 561; LEDEB. Fl. Ross. III. (1846–51), 332; A. GRAY, Fl. Nor. Am. II.–1. (1878), 332, p.p.; MACOUN, Cat. Canad. Pl. II. (1884), 378; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 293.

HAB. In gravelly places of the mountain (HK): Attu (1931).
Distr.-Type: Northern Pacific.

Mimulus Langsdorffii SIMS. in Bot. Mag. (1812), *Pl. 1501;* HOWELL, Fl. NW. Am. I. (1903), 520; PIPER, Fl. St. Wash. (1906), 509; FRYE ET RIGG, Element. Fl. Northwest, (1914), 203; TATEWAKI, in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 204.

HAB. In swampy places (HK): Atka (1929, 1931); Unalaska (1931).
Distr.-Type: Northern Pacific···American Pacific.

Pedicularis capitata ADAMS, in Mem. Soc. Nat. Mosc. V. (1817), 100; LEDEB. Fl. Ross. III. (1846–51), 301; MAXIM. in Mél. Biol. X. (1877), 127; A. GRAY, Syn. Fl. Nor. Am. II.–1. (1878), 309; MACOUN, Cat. Canad. Pl. II. (1884), 371; KURTZ, in Engl. Bot. Jahrb. XIX. (1895), 401; BRITT. & BR. Ill. Fl. III. (1898), 187; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 288; OSTENFELD, Vas. Pl. Arc. Nor. Am. (1910), 24, 65; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 218; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 20–A; HOLM, *ibid.* (1922), 58–B; HULT. Fl. Kamtchat. IV. (1930), 108; KOMAR. Fl. Pen. Kamtschat. III. (1930), 86.

HAB. In heaths (HK): Unalaska (1931).
Distr.-Type: Asiatic–American.

Pedicularis Chamissonis STEV. in Monogr. Ped. (1822), 20; LEDEB. Fl. Ross. III. (1846–51), 274; MAXIM. in Mél. Biol. X. (1877), 90; A. GRAY, Syn. Fl. Nor. Am. II.–1. (1878), 306; MACOUN, Cat. Canad. Pl. II. (1884), 368; MIYABE, Fl. Kuril. (1890), 254; YABE & YENDO, Pl. Isl. Shumushu, (1904), 193; FEDTSCH. Fl. Il. Comm. (1906), 97; KUDO, Fl. Isl. Paramushir, (1922), 156; SIMPR. in Fedde, Rep. Spec. Nov. XX. (1924), 242; TATEWAKI, Pl. Isl. Alaid, (1927), 183, et in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 204, et Phytogeogr. Middle Kuril. (1933), 210, 235, 257, 271, 286, 301; HULT. Fl. Kamtchat. IV. (1930), 109; KOMAR. Fl. Pen. Kamtschat. III. (1930), 76.

HAB. In meadows (HK): Attu (1929); Atka (1929, 1931); Unalaska (1931).
Distr.-Type: Northern Pacific.

Pedicularis Langsdorffii FISCH. ex STEV. in Mém. Soc. Hist. Nat.. Mosc. VI. (1823), 49; LEDEB. Fl. Ross. III. (1846–51), 288; MAXIM.

in Mél. Biol. X. (1877), 130; A. GRAY, Syn. Fl. Nor. Am. II.–1. (1878), 309; MACOUN, Cat. Canad. Pl. II. (1884), 370, et List Pl. Pribilof Isl. (1899), 570; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 291; HULT. Fl. Kamtchat. IV. (1930), 116.

HAB. In heaths (HK): Unalaska (1931).
Distr.-Type: Northern Pacific.

Rhinanthus Crista-Galli L. Sp. Pl. ed. 1, (1753), 603; LEDEB. Fl. Ross. III. (1846–51), 265; A. GRAY, Syn. Pl. Nor. Am. II.–1. (1878), 310; MACOUN, Cat. Canad. Pl. II. (1884), 371, et *ibid.* III. (1886), 573; KURTZ, in Engl. Bot. Jahrb. XIX. (1895), 401; BRITT. & BR. Ill. Fl. III. (1898), 187; HOWELL, Fl. NW. Am. I. (1903), 539; FEDTSCH. Fl. Il. Comm. (1906), 96; KOMAR. Fl. Pen. Kamtschat. III. (1930), 74.

HAB. In meadows (TH): Unalaska (1931).
Distr.-Type: Circumpolar.

Veronica americana SCHWEIN. apud BENTH. in DC. Prodr. X. (1846), 468; A. GRAY, Syn. Fl. Nor. Am. II.–1. (1878), 287; MACOUN, Cat. Canad. Pl. II. (1884), 360; BRITT. & BR. Ill. Fl. III, (1898), 167; HOWELL, Fl. NW. Am. I. (1903), 526; YABE & YENDO, Pl. Isl. Shumushu, (1904), 194; KUDO, Fl. Isl. Paramushir, (1922), 154; HULT. Fl. Kamtchat. IV. (1930), 96; KOMAR. Fl. Pen. Kamtschat. III. (1930), 66; TATEWAKI, in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 205, et Phytogeogr. Middle Kuril. (1933), 209, 235, 257, 285.

Veronica Beccabunga L. var. *americana* GLEHN, ex MAXIM. in Mél. Biol. XI. (1881), 278; MIYABE, Fl. Kuril. (1890), 253.

HAB. In brooks and ditches (CH—Perennial by stolones or by shoots): Amchitka (1929); Atka (1929); Unalaska (1931).
Distr.-Type: American-Eastern Asiatic.

Veronica grandiflora GAERTN. in Nov. Comm. Ac. Imp. Ac. Imp. Sc. St. Petersb. XIV. (1770), 531; HULT. Fl. Kamtchat. IV. (1930), 97; KOMAR. Fl. Pen. Kamtschat. III. (1930), 67.

Veronica aphylla L. var. *grandiflora* BENTH. in DC. Prodr. X. (1846), 476; LEDEB. Fl. Ross. III. (1846–51), 245; MIYABE, Fl. Kuril. (1890), 253; FEDTSCH. Fl. Il. Comm. (1906), 95; FURUMI, in Bot. Mag. (Tokyo), XXV. (1916), 126; KUDO, Fl. Isl. Paramushir, (1922), 155; TATEWAKI, Pl. Isl. Alaid, (1927), 183, et in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 205.

Veronica kamtschatica L. f. Suppl. Syst. Veg. (1781), 83; A. GRAY, Syn. Fl. Nor. Am. II.–1. (1878), 287; MACOUN, Cat. Canad. Pl. II. (1884), 361; YABE & YENDO, Pl. Isl. Shumushu, (1904), 194.

HAB. In alpine meadows (HK): Attu (1929); Atka (1929, 1931).

Distr.-Type: Northern Pacific.

Veronica serpyllifolia L. Sp. Pl. ed. 1, (1753), 12; BONG. Vég. Sitcha, (1833), 157; LEDEB. Fl. Ross. III. (1846–51), 248; A. GRAY, Syn. Fl. Nor. Am. II.–1. (1878), 288; MACOUN, Cat. Canad. Pl. II. (1884), 362, et Pl. Pribilof Isl. (1899), 569; MIYABE, Fl. Kuril. (1890), 254; BRITT. & BR. Ill. Fl. III. (1898), 169; HOWELL, Fl. NW. Am. I. (1903), 527; FEDTSCH. Fl. Il. Comm. (1906), 96; KOMAR. Fl. Pen. Kamtschat. III. (1930), 69; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 209.

? Veronica humifusa DICKSON, in Trans. Linn. Soc. II. (1794), 288; HULT. Fl. Kamtchat. IV. (1930), 99.

HAB. In wet meadows (HK): Attu (1929, 1931); Amchitka (1929); Atka (1929, 1931); Unalaska (1931).

Distr.-Type: Circumpolar.

Veronica Stelleri PALL. ex LINK, Jahrb. III. (1820), 40; LEDEB. Fl. Ross. III. (1846–51), 247; A. GRAY, Syn. Fl. Nor. Am. II.–1. (1878), 288; MACOUN, Cat. Canad. Pl. II. (1884), 361; MIYABE, Fl. Kuril. (1890), 254; MACOUN, List Pl. Pribilof Isl. (1899), 570; YABE & YENDO, Pl. Isl. Shumushu, (1904), 194; FEDTSCH. Fl. Il. Comm. (1906), 95; FURUMI, in Bot. Mag. (Tokyo), XXX. (1916), 124; KUDO, Fl. Isl. Paramushir, (1922), 154; TATEWAKI, Pl. Isl. Alaid, (1927), 182, et in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 204, et Phytogeogr. Middle Kuril. (1933), 235, 256, 271, 285, 300; HUBER, in Pfl.-areale, Reihe II. (1928–30), *Ht.–4, 33, Kt. 37, (4);* HULT. Fl. Kamtchat. IV. (1930), 101; KOMAR. Fl. Pen. Kamtschat. III. (1930), 68.

? Veronica nutans BONG. Vég. Sitcha, (1832), 157.

HAB. In meadows and heaths (HK): Attu (1929, 1931); Amchitka (1929); Atka (1929, 1931); Unalaska (1931).

Distr.-Type: Northern Pacific.

Lentibulariaceae

Pinguicula vulgaris L. Sp. Pl. ed. 1, (1753), 17; BONG. Vég. Sitcha, (1833), 160; A. GRAY, Syn. Fl. Nor. Am. II.–1. (1878), 317; MACOUN, Cat. Canad. Pl. II. (1884), 376; BRITT. & BR. Ill. Fl. III. (1898), 194; HOWELL, Fl. NW. Am. I. (1903), 544; YABE & YENDO, Pl. Isl. Shumushu, (1904), 193; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 20–A; HULT. Fl. Kamtchat. IV. (1930), 127.

var. ***macroceras*** HERD. Pl. Radd. Monop. IV. 1. 98; KUDO, Fl. Isl. Paramushir, (1922), 159; TATEWAKI, Pl. Isl. Alaid, (1927), 184, et in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 205, et Phytogeogr. Middle Kuril. (1933), 210, 236, 257, 286.

Pinguicula macroceras WILLD. ex LEDEB. Fl. Ross. III. (1846–51), 3; KOMAR. Fl. Pen. Kamtschat. III. (1930), 92.

HAB. In bogs and on wet rocks (HK): Attu (1929, 1931); Amchitka (1929); Atka (1929, 1931); Unalaska (1931).

Distr.-Type: Circumpolar.

Plantaginaceae

Plantago macrocarpa CHAM. ET SCHL. in Linnaea I. (1826), 166; BONG. Vég. Sitcha, (1833), 160; LEDEB. Fl. Ross. III. (1846–51), 483; A. GRAY, Syn. Fl. Nor. Am. II.–1. (1878), 390; MACOUN, Cat. Canad. Pl. II. (1884), 392; KURTZ, in Engl. Bot. Jahrb. XIX. (1895), 402; HOWELL, Fl. NW. Am. I. (1903), 561; FEDTSCH. Fl. Il. Comm. (1906), 99; HULT. Fl. Kamtchat. IV. (1930), 130; KOMAR. Fl. Pen. Kamtschat. III. (1930), 95.

HAB. In boggy places (HK): Attu (1931); Atka (1931); Unalaska (1931).

Distr.-Type: Northern Pacific.

Plantago media L. Sp. Pl. ed. 1, (1753), 113; LEDEB. Fl. Ross. III. (1846–51), 480; BRITT. & BR. Ill. Fl. III. (1898), 207; MACOUN, Cat. Canad. Pl. II. (1884), 394; HULT. Fl. Kamtchat. IV. (1930), 132; KOMAR. Fl. Pen. Kamtschat. III. (1930), 96.

HAB. In waste places (HK—Hemikryptophyta rosulata): Unalaska (1931)—may be introduced.

Distr.-Type: Eurasiatic. (introduced into N. America).

Rubiaceae

Galium Aparine L. Sp. Pl. ed. 1, (1753), 108; BONG. Vég. Sitcha, (1833), 144; LEDEB. Fl. Ross. II. (1844–46), 419; A. GRAY, Syn. Fl. Nor. Am. I.–2. (1884), 36; MACOUN, Cat. Canad. Pl. II. (1884), 200; BRITT. & BR. Ill. Fl. III. (1898), 220; HOWELL, Fl. NW. Am. I. (1903), 284; HULT. Fl. Kamtchat. IV. (1930), 132; KOMAR. Fl. Pen. Kamtschat. III. (1930), 104.

HAB. In meadows and gravelly beaches (TH?): Atka (1929); Unalaska (1931).

Distr.-Type: Eurasiatic (introduced into N. America).

Galium trifidum L. Sp. Pl. ed. 1, (1753), 159; BONG. Vég. Sitcha, (1833), 144; LEDEB. Fl. Ross. II. (1844–46), 409; A. GRAY, Syn. Fl. Nor. Am. I.–2. (1884), 38; MACOUN, Cat. Canad. Pl. II. (1884), 201, et List Pl. Pribilof Isl. (1899), 567; BRITT. & BR. Ill. Fl. III. (1898), 224; HOWELL, Fl. NW. Am. I. (1903), 285; YABE & YENDO, Pl. Isl. Shumushu, (1904), 195; FEDTSCH. Fl. Il. Comm. (1906), 68; KUDO, Fl. Isl. Paramushir, (1922), 159; HULT. Fl. Kamtchat. IV. (1930), 137; KOMAR. Fl. Pen. Kamtschat. III. (1930), 99; TATEWAKI, in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 205, et Phytogeogr. Middle Kuril. (1933), 236, 271, 286, 301.

HAB. In damp places (HK ?): Amchitka (1929); Atka (1929); Unalaska (1931).

Distr.-Type: Circumpolar.

Galium triflorum MICHX. Fl. Bor. Am. I. (1803), 80; BONG. Vég. Sitcha, (1833), 144; LEDEB. Fl. Ross. II. (1844–46), 413; A. GRAY, Syn. Fl. Nor. Am. I.–2. (1884), 39; MACOUN, Cat. Canad. Pl. II. (1884), 202; KURTZ, in Engl. Bot. Jahrb. XIX. (1895), 385; BRITT. & BR. Ill. Fl. III. (1898), 223; HOWELL, Fl. NW. Am. I. (1903), 285; HULT. Fl. Kamtchat. IV. (1930), 138; KOMAR. Fl. Pen. Kamtschat. III. (1930), 100; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 236.

HAB. In meadows (HK ?): Unalaska (1931).

Distr.-Type: Circumpolar (?).

Caprifoliaceae

Linnaea borealis L. Sp. Pl. ed. 1, (1753), 631; BONG. Vég. Sitcha, (1833), 144; LEDEB. Fl. Ross. II. (1844–46), 392; A. GRAY, Syn. Fl. Nor. Am. I.–2. (1884), 13; MACOUN, Cat. Canad. Pl. II. (1884), 195; MIYABE, Fl. Kuril. (1890), 238; KURTZ, in Engl. Bot. Jahrb. XIX. (1895), 384; BRITT. & BR. Ill. Fl. III. (1898), 235; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 294; HOWELL, Fl. NW. Am. I. (1903), 280; YABE & YENDO, Pl. Isl. Shumushu, (1904), 194; FEDTSCH. Fl. Il. Comm. (1906), 67; NAKAI, Tr. & Shr. Jap. I. ed. 3, (1927), 614; KUDO, Fl. Isl. Paramushir, (1922), 161; HULT. Fl. Kamtchat. IV. (1930), 141; KOMAR. Fl. Pen. Kamtschat. III. (1930), 106; TATEWAKI, in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 206, et Phytogeogr. Middle Kuril. (1933), 211, 236, 257, 271, 287, 301.

HAB. In heaths (CH—Chamaephyta reptantia): Attu (1929); Amchitka (1929); Atka (1929, 1931); Unalaska (1931).

Distr.-Type: Circumpolar.

Sambucus racemosa L. Sp. Pl. ed. 1, (1753), 270; HOOK, Fl. Bor. Am. I. (1840), 279; LEDEB. Fl. Ross. II. (1844–46), 383; A. GRAY, Syn. Fl. Nor. Am. I.–2. (1884), 8; MACOUN, Cat. Canad. Pl. II. (1884), 193, et *ibid.* III. (1886), 538; REHD. Man. Cult. Tr. & Shr. (1927), 797.

Sambucus pubens MICHX. Fl. Bor. Am. I. (1803), 181; BONG. Vég. Sitcha (1833), 144; BRITT. & BR. Ill. Fl. III. (1898), 228.

HAB. In meadows (PH—Nanophanerophyta): Unalasaka (1931).

Distr.-Type: Circumpolar.

Campanulaceae

Campanula dasyantha BIEB. Fl. Taur. Caucas. III. (1819), 147; LEDEB. Fl. Ross. II. (1844–46), 877; YABE & YENDO, Pl. Isl. Shumushu, (1904), 195; KUDO, Fl. Isl. Paramushir, (1922), 162; TATEWAKI, Pl. Isl. Alaid, (1927), 185, et in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 206, et Phytogeogr. Middle Kuril. (1933), 212, 237, 258, 287; HULT. Fl. Kamtchat. IV. (1930), 149.

Campanula pilosa A. GRAY, Syn. Fl. Nor. Am. II.–1. (1887), 11, p.p.; MACOUN, Cat. Canad. Pl. II. (1884), 287.

HAB. In heaths (HK): Atka (1929); Unalaska (1931).
Distr.-Type: Northern Pacific.

Campanula lasiocarpa CHAM. in Linnaea IV. (1829), 39; LEDEB. Fl. Ross. II. (1844–46), 890; A. GRAY, Syn. Fl. Nor. Am. II.–1. (1878), 12; MACOUN, Cat. Canad. Pl. II. (1884), 287, et List Pl. Pribilof. Isl. (1899), 568; KURTZ, in Engl. Bot. Jahrb. XIX. (1895), 391; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 285; FEDTSCH. Fl. Il. Comm. (1906), 80; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 220; KUDO, Fl. Isl. Paramushir, (1922), 163; TATEWAKI, Pl. Isl. Alaid, (1927), 186, et in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 206, et Phytogeogr. Middle Kuril. (1933), 237, 258, 271, 287, 301; HULT. Fl. Kamtchat. IV. (1930), 150; KOMAR. Fl. Pen. Kamtschat. III. (1930), 113.

HAB. In heaths and on rocky places (HK): Attu (1929, 1931); Amchitka (1929); Atka (1929, 1931); Unalaska (1931).
Distr.-Type: Northern Pacific.

Asteraceae

Achillea Millefolium L. Sp. Pl. ed. 1, (1753), 899; BONG. Vég. Sitcha, (1833), 148; LEDEB. Fl. Ross. II. (1844–46), 531; A. GRAY, Syn. Fl. Nor. Am. I.–2. (1884), 363; MACOUN, Cat. Canad. Pl. II. (1884), 251, et List Pl. Pribirof Isl. (1899), 568; MIYABE, Fl. Kuril. (1890), 241; BRITT. & BR. Ill. Fl. III. (1898), 455; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 294; HOWELL, Fl. NW. Am. I. (1903), 361; OSTENFELD, Vas. Pl. Arc. Nor. Am. (1910), 67. (var. *lanulosa*); KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 221; HULT. Fl. Kamtchat. III. (1930), 167; KOMAR. Fl. Pen. Kamtschat. III. (1930), 136.

HAB. In meadows (HK): Amchitka (1929); Atka (1929).
Distr.-Type: Circumpolar.

Achillea borealis BONG. Vég. Sitcha, (1833), 149; BRITT. & BR. Ill. Fl. ed. 2, III. (1913), 516; RYDBG. in Nor. Am. Fl. XXXIV.–3. (1916), 220; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. 21–A; HULT. Fl. Kamtchat. IV. (1933), 166.

Ptarmica borealis DC. Prodr. VI. (1837), 21; LEDEB. Fl. Ross. II. (1844–46), 527.

HAB. In meadows (HK): Attu (1929); Amchitka (1929); Atka (1931); Umanak (1931); Unalaska (1931).
Distr.-Type: Northern Pacific···American Pacific.

Anaphalis margaritacea BENTH. ET HOOK. f. Gen. Pl. II. (1876), 303; A. GRAY, Syn. Fl. Nor. Am. I.–2. (1884), 233; MACOUN, Cat. Canad. Pl. II. (1884), 237; MIYABE, Fl. Kuril. (1890), 241; KURTZ, in Engl. Bot. Jahrb. XIX. (1895), 387; BRITT. & BR. Ill. Fl. III. (1898), 400; HOWELL, Fl. NW. Am. I. (1903), 330; YABE & YENDO, Pl. Isl. Shumushu, (1904), 196; FEDTSCH. Fl. Il. Comm. (1906), 74; KUDO, Fl. Isl. Paramushir, (1922), 165; TATEWAKI, Pl. Isl. Alaid, (1927), 187, et in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 206, et Phytogeogr. Middle Kuril. (1933), 212, 237, 258, 271, 287; HULT. Fl. Kamtchat. IV. (1930), 164. (var. *occidentalis*); KOMAR. Fl. Pen. Kamtschat. III. (1930), 132.

Antennaria margaritacea R. BR. in Trans. Linn. Soc. XII. (1817), 123; LEDEB. Fl. Ross. II. (1844–46), 613.

HAB. In dry meadows (HK): Attu (1929); Atka (1931).
Distr.-Type: American–Eastern Asiatic.

Antennaria alpina GAERTN. Fruct. II. (1807), 410; LEDEB. Fl. Ross. II. (1844–46), 611; A. GRAY, Syn. Fl. Nor. Am. I.–2. (1884), 232; MACOUN, Cat. Canad. Pl. II. (1884), 236, et *ibid.* III. (1886), 548; BRITT. & BR. Ill. Fl. III. (1898), 398; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 295; MACOUN & HOLM, Rep. Can. Arc. Exped. 1913–18, V. (1921), 21–A, *pl. XII. fig. 2;* HOLM, *ibid.* (1922), 60–B; HULT. Fl. Kamtchat. IV. (1930), 161.

HAB. In dry meadows (HK): Amchitka (1929); Atka (1929, 1931).
Distr.-Type: Circumpolar (nearly).

Antennaria dioica GAERTN. Fl. & Sem. II. (1791), 398; LEDEB. Fl. Ross. II. (1844–46), 612; A. GRAY, Syn. Fl. Nor. Am. I.–2. (1884), 233; MACOUN, Cat. Canad. Pl. II. (1884), 236; BRITT. & BR. Ill. Fl. III. (1898), 398; YABE & YENDO, Pl. Isl. Shumushu, (1904), 197; FEDTSCH, Fl. Il. Comm. (1906), 74; KUDO, Fl. Isl. Paramushir, (1922), 164; TATEWAKI, Pl. Isl. Alaid, (1927), 187; HULT. Fl. Kamtchat. IV. (1930), 162; KOMAR. Fl. Pen. Kamtschat. III. (1930), 129.

HAB. In dry places (HK): Attu (1929, 1931); Amchitka (1929).
Distr.-Type: Eurasiatic.

Antennaria monocephala DC. Prodr. VI. (1837), 269; LEDEB. Fl. Ross. II. (1844–46), 611; HULT. Fl. Kamtchat. IV. (1930), 163.

Antennaria alpina GAERTN. var. *monocephala* TORR. ET GRAY, in A. GRAY, Syn. Fl. Nor. Am. I.–2. (1884), 232; KURTZ, in Engl. Bot. Jahrb. XIX. (1895), 387.

HAB. In dry places (HK): Unalaska (1931).
Distr.-Type: Northern Pacific.

Arnica elongata RYDBG. in Nor. Am. Fl. XXXIV.–4. (1927), 350.

HAB. In meadows (HK): Unalaska (1931).
Distr.-Type: Western American.

Arnica unalaschcensis LESS. in Linnaea VI. (1831), 238; LEDEB. Fl. Ross. II. (1844–46), 623; A. GRAY, Syn. Fl. Nor. Am. I.–2. (1884), 383; MACOUN, Cat. Canad. Pl. II. (1884), 262, et List Pl. Pribilof Isl. (1899), 568; KURTZ, in Engl. Bot. Jahrb. XIX. (1895), 389; FEDTSCH. Fl. Il. Comm. (1906), 75; FERNALD, in Rhodora, XI. (1909), 141; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 220; KUDO, Fl. Isl. Paramushir, (1922), 170; RYDBG. in Nor. Am. Fl. XXXIV.–4. (1927), 347; HULT. Fl. Kamtchat. IV. (1930), 193; TATEWAKI, in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 208, et Phytogeogr. Middle Kuril. (1933), 213, 238, 259, 272, 288.

HAB. In meadows (HK): Attu (1929); Amchitka (1929); Atka (1929); Unalaska (1931).
Distr.-Type: Northern Pacific.

Artemisia arctica LESS. in Linnaea VI. (1831), 213; BONG. Vég. Sitcha, (1832), 147; LEDEB. Fl. Ross. II. (1844–46), 591; FEDTSCH. Fl. Il. Comm. (1906), 73; RYDBG. in Nor. Am. Fl. XXXIV.–3. (1916), 263; HULT. Fl. Kamtchat. IV. (1930), 176; TATEWAKI, in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 207, et Phytogeogr. Middle Kuril. (1933), 213, 237.

Artemisia norvegica MAXIM. in Mél. Biol. VIII. (1872), 533; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 221.

Artemisia norvegica FRIES, form. *arctica* KUDO, Fl. Isl. Paramushir, (1922), 169.

Artemisia norvegica FRIES, var. *pacifica* A. GRAY, Syn. Fl. Nor. Am. I.–2. (1884), 371; MACOUN, Cat. Canad. Pl. II. (1884), 258, et List Pl. Pribilof Isl. (1899), 568; MIYABE, Fl. Kuril. (1890), 243; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 296; YABE & YENDO, Pl.

Isl. Shumushu, (1904), 196; KOMAR. Fl. Pen. Kamtschat. III. (1930), 150.

HAB. In alpine meadows (HK): Attu (1929); Unalaska (1931).

Distr.-Type: Eastern Asiatic–Western American.

Artemisia Tilesii LEDEB. in Mém. Ac. Imp. St. Pétersb. V. (1812), 568; RYDBG. in Nor. Am. Fl. XXXIV.–3. (1916), 267; HULT. Fl. Kamtchat. IV. (1930), 186; KOMAR. Fl. Pen. Kamtschat. III. (1930), 155.

Artemisia vulgaris L. var. *Tilesii* LEDEB. Fl. Ross. II. (1844–46), 586; A. GRAY, Syn. Fl. Nor. Am. I.–2. (1884), 373;MACOUN, Cat. Canad. Pl. II. (1884), 258, et List Pl. Pribilof Isl. (1899), 568; OSTENFELD, Vas. Pl. Arc. Nor. Am. (1910), 68; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 22–A; HOLM, *ibid.* (1922), 51–B; TATEWAKI, in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 207.

HAB. On hill-sides (HK): Attu (1929); Atka (1931).

Distr.-Type: Eurasiatic–Western American.

Aster peregrinus PURSH, Fl. Am. Sept. II. (1814), 556; LEDEB. Fl. Ross. II. (1844–46), 473; LESS. in Linnaea VI. (1831), 123; A. GRAY, Syn. Fl. Nor. Am. I.–2. (1884), 196; MACOUN, Cat. Canad. Pl. II. (1884), 226.

? Aster Tilesii WIKSTR. in Acta HOLM. (1822), 13; HULT. Fl. Kamtchat. IV. (1930), 159.

Erigeron peregrinus GREENE, Pitt. III. (1896), 166; HOWELL, Fl. NW. Am. I. (1903), 316.

HAB. In meadows (HK): Attu (1929, 1931); Atka (1929); Unalaska (1931).

Distr.-Type: Northern Pacific.

Cacalia kamtschatica KUDO, Contr. Fl. Nor. Saghal. (1923), 60, et Rep. Veg. Nor. Saghal. (1924), 238; KOMAR. Fl. Pen. Kamtschat. III. (1930), 175; TATEWAKI, in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 208, et Phytogeogr. Middle Kuril. (1933), 213, 238, 259, 272, 289.

Senecio davuricus SCHULTZ-BIP. var. *kamtschaticus* MAXIM. in Mél. Biol. IX. (1874), 296; MIYABE, Fl. Kuril. (1890), 244; YABE & YENDO, Pl. Isl. Shumushu, (1904), 197.

Cacaria auriculata HULT. Fl. Kamtchat. IV. (1930), 195, p.p.
Cacaria auriculata MAXIM. var. *kamtschatica* MATSUM. ex Shokubutsu Meii, I. ed. 3, (1897), 56; KUDO, in Bot. Mag. (Tokyo), XXIX. (1915), 225, et Fl. Isl. Paramushir, (1922), 170.

HAB. On hill-sides (HK): Attu (1929).
Distr.-Type: Northern Pacific···Asiatic Pacific (east to the Aleutian Islands).

Chrysanthemum arcticum L. Sp. Pl. ed. 1, (1753), 889; A. GRAY, Syn. Fl. Nor. Am. I.–2. (1884), 365; MACOUN, Cat. Canad. Pl. II. (1884), 253, et List Pl. Pribilof Isl. (1899), 568; BRITT. & BR. Ill. Fl. III. (1898), 457; MIYABE, Fl. Kuril. (1890), 242; YABE & YENDO, Pl. Isl. Shumushu, (1904), 196; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 221; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913.–18, V. (1921), 21–A; MAYEKAWA, in Trans. Sapporo Nat. Hist. Soc. VIII. (1921), 5; KUDO, Fl. Isl. Paramushir, (1922), 167; TATEWAKI, Pl. Isl. Alaid, (1927), 188, et in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 207, et Phytogeogr. Middle Kuril. (1933), 212, 258, 287, 301; HULT. Fl. Kamtchat. IV. (1930), 172; KOMAR. Fl. Pen. Kamtschat. III. (1930), 142.

Leucanthemum arcticum DC. Prodr. VI. (1837), 45; LEDEB. Fl. Ross. II. (1844–46), 541; FEDTSCH. Fl. Il. Comm. (1906), 71; RYDBG. in Nor. Am. Fl. XXXIV.–3. (1916), 235.

HAB. In heaths and along sea coasts (HK): Attu (1929, 1931); Amchitka (1929).
Distr.-Type: Circumpolar.

Cirsium kamtschaticum LEDEB. ex DC. Prodr. VI. (1837), 644; LEDEB. Fl. Ross. II. (1844–46), 736; YABE & YENDO, Pl. Isl. Shumushu, (1904), 198; FEDTSCH. Fl. Il. Comm. (1906), 214 (var. *alatum* TRAUTV.); KUDO, Fl. Isl. Paramushir, (1922), 172; TATEWAKI, Pl. Isl. Alaid, (1927), 190, et in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 208, et Phytogeogr. Middle Kuril. (1933), 214, 238, 259, 272, 288, 302; HULT. Fl. Kamtchat. IV. (1930), 214; KOMAR. Fl. Pen. Kamtschat. III. (1930), 182.

Cnicus kamtschaticus MAXIM. in Mél. Biol. IX. (1874), 310; MACOUN, Cat. Canad. Pl. II. (1884), 271; MIYABE, Fl. Kuril. (1890), 244.

HAB. In meadows (HK): Attu (1929, 1931).
Distr.-Type: Northern Pacific···Asiatic Pacific (east to the Aleutian Islands).

Hieracium triste WILLD. Spr. Syst. III. (1826), 640; FROEL. in DC. Prodr. VII. (1838), 209; LEDEB. Fl. Ross. II. (1844–46), 853; TORR. & GRAY, Fl. Nor. Am. (1840), 478; A. GRAY, Syn. Fl. Nor. Am. I.–2. (1884), 427; MACOUN, Cat. Canad. Pl. II. (1884), 276; HOWELL, Fl. NW. Am. I. (1903), 395; FEDTSCH. Fl. Il. Comm. (1906), 80; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 222; HULT. Fl. Kamtchat. IV. (1930), 233; KOMAR. Fl. Pen. Kamtschat. III. (1930), 206; TATEWAKI, in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 209.

HAB. In heaths (HK): Attu (1929); Amchitka (1929); Atka (1929, 1931); Unalaska (1931).

Distr.-Type: Northern Pacific.

Matricaria suaveolens BUCH. Fl. Brem. ed. 4, (1894), 142; HULT. Fl. Kamtchat. IV. (1930), 171.

Chamomilla suaveolens RYDBG. in Nor. Am. Fl. XXXIV.–3. (1916), 232.

Matricaria discoidea DC. Prodr. VI. (1837), 50; LEDEB. Fl. Ross. II. (1844–46), 544; A. GRAY, Syn. Fl. Nor. Am. I.–2. (1884), 364; MACOUN, Cat. Canad. Pl. II. (1884), 254; MIYABE, Fl. Kuril. (1890), 242; HOWELL, Fl. NW. Am. I. (1903), 362; FEDTSCH. Fl. II. Comm. (1906), 71.

HAB. In waste places along the coast (TH): Unalaska (1931).

Distr.-Type: Circumpolar.

Petasites frigida FRIES, Summa Veg. Scand. I. (1845), 182; A. GRAY, Syn. Fl. Nor. Am. I.–2. (1884), 376; MACOUN, Cat. Canad. Pl. II. (1884), 260; BRITT. & BR. Ill. Fl. Nor. Am. III. (1898), 470; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 297; OSTENFELD, Vas. Pl. Arc. Nor. Am. (1910), 68. (var. *corymbosa*); KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 220; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 22–A; HOLM, *ibid.* (1922), 62–B, *fig. S. 1–2;* RYDBG. in Nor. Am. Fl. XXXIV.–4. (1927), 312; HULT. Fl. Kamtchat. IV. (1930), 192; TATEWAKI, in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 208.

HAB. In boggy places (GE?): Atka (1929, 1931); Unalaska (1931).

Distr.-Type: Eurasiatic–Western American.

Senecio palmatus PALL. Reise III. (1776), 321; LEDEB. Fl. Ross. (1844–46), 636, 858; MIYABE, Fl. Kuril. (1890), 244; YABE & YENDO,

Pl. Isl. Shumushu, (1904), 196; FEDTSCH. Fl. Il. Comm. (1906), 76; KUDO, Fl. Isl. Paramushir, (1922), 171; TATEWAKI, Pl. Isl. Alaid, (1927), 189, et in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 208, et Phytogeogr. Middle Kuril. (1933), 214, 238, 259, 272, 288, 302; HULT. Fl. Kamtchat. IV. (1930), 199; KOMAR. Fl. Pen. Kamtschat. III. (1930), 173.

HAB. On hill-sides (HK): Attu (1929, 1931).
Distr.-Type: Eastern Asiatic (east to the Aleutian Islands).

Senecio Pseudo-Arnica LESS. in Linnaea VI. (1831), 240; LEDEB. Fl. Ross. II. (1844–46), 642; A. GRAY, Syn. Fl. Nor. Am. I.–2. (1884), 384; MACOUN, Cat. Canad. Pl. II. (1884), 267, et *ibid.* III. (1886), 555; MIYABE, Fl. Kuril. (1890), 244; BRITT. & BR. Ill. Fl. III. (1898), 476; MACOUN, List Pl. Pribilof Isl. (1899), 568; YABE & YENDO, Pl. Isl. Shumushu, (1904), 197; FEDTSCH. Fl. Il. Comm. (1906), 76; KUDO, Fl. Isl. Paramushir, (1922), 171; TATEWAKI, Pl. Isl. Alaid, (1927), 189, et in Trans. Sapporo Nat. Hist. Soc. XI. (1931), 208, et Phytogeogr. Middle Kuril. (1933), 214, 238, 259, 272, 288, 302; HULT. Fl. Kamtchat. IV. (1930), 203; KOMAR. Fl. Pen. Kamtschat. III. (1930), 163.

HAB. On beaches (HK): Attu (1929, 1931); Atka (1931); Unalaska (1931).
Distr.-Type: American–Eastern Asiatic.

Solidago Virgaurea L. Sp. Pl. ed. 1, (1753), 880; LEDEB. Fl. Ross. II. (1844–46), 493.

var. ***arctica*** DC. Prodr. V. (1836), 239; KURTZ, in Engl. Bot. Jahrb. XIX. (1895), 385.

Solidago multiradiata AIT. Hort. Kew. III. (1789), 218; A. GRAY, Syn. Fl. Nor. Am. I.–2. (1884), 147; MACOUN, Cat. Canad. Pl. II. (1884), 212; BRITT. & BR. Ill. Fl. III. (1898), 346.

HAB. In meadows (HK): Atka (1931); Unalaska (1931).
Distr.-Type: Circumpolar.

Taraxacum aleuticum TATEWAKI ET KITAMURA sp. nov.

A *T. platycere*, involucri squamis exterioribus latissimis caudatis, interioribus corniculatis, foliis plerumque apice rotundatis distincte mucronulatis differt.

Radix crassa oligocephala, collo foliorum fragmentis persistentibus dense squamato. *Folia* patentia lingulata vel oblanceolata

9–16 cm. longa 3–5 cm. lata apice rotundata vel subtruncata semper distincte mucronulata basi saepe sessilia, interdum basim versus angustata breve petiolata utrinque glabrata, margine plerumque irregulariter mucronulato-serrata, rarius sub integra remote mucronulata, interdum pinnatifida, laciniis triangularibus patentibus apice acutis margine integris vel subsinuatis, interlobiis angustis, lobo terminali obtusissimo magno vel parvo.

Scapi plures vel simplices sub anthesin quam folia longiores erecti, primum arachnoideo-pilosi denique glabrati. Capitula erecta mediocria parva 3.5–4 cm. lata in sicco. Involucrum 14–16 mm. longum 20–25 mm. latum in sicco, nigrescens, squamae exteriores imbricatae longitudine interiorum circ. 1/3 attingentes, inferiores latissimae 4.5–5 mm. longae 3–4 mm. latae abrupte caudato-acuminatae, plerumque ecorniculatae rarius parvicorniculatae subglabrae, basi fere cordatae margine distincte albo-marginatae, superiores late-ovatae apice caudato-acuminatae, squamae interiores circ. 12 mm. longae lanceolato-oblongae apice breve corniculatae glabrae roseocoloratae margine albo-membranaceae.

Corolla flavescens extima 16–17 mm. longa, tubus 5 mm. longus pilosus, ligula extus stria lata nigrescente ornata. Achenia straminea oblonga angulata striata tota minute scabra 4 mm. longa apice tuberculato-spinulosa in cuspidem circ. 1 mm. longam sensim abientia, rostrum circ. 8 mm. longum. Pappus albescens 5–6 mm. longus.

HAB. In meadows and on hill-sides (HK): Atka (M. TATEWAKI & K. TAKAHASHI, 6. Jul. 1929–Typus); Attu (1929); Amchitka (1929); Unalaska (1931).

Distr.-Type: Endemic.

Taraxacum atkaense TATEWAKI ET KITAMURA sp. nov.

A *T. aleutico* capitulis majoribus, squamis exterioribus breve caudatis magnicorniculatis, foliis scapisque 2 pro elongatis distinguendum.

Radix elongata lignosa angusta pluricephala, collo foliorum fragmentis nigrescentibus plus minus squamato. *Folia* erecto-patentia vel ascendentia magna elongato-lingulata, usque ad 30 cm. longa 5 cm. lata apice rotundata mucronulata basi longissime in petiolum exalatum sensim angustata, exteriora saepe minor 17–20 cm. longa pinnatifida laciniis triangularibus patentibus apice mucronulato-acutis margine remote mucronulato-serratis, interlobiis subnullis, lobo terminali parvo obtusissimo depresso-rhomboideo margine integro,

interiora multolongiora saepe indivisa, margine irregulariter mucronulato-serrata interdum subintegra, apice dilatata rotundata mucronulata integra, utrinque primum arachnoideo-pilosa demum glabrata.

Scapi pluresnumerosi erecto-ascendentia sub anthesin quam folia longiores vel ea aequantes, primum arachnoideo-pilosi denique glabrati. Capitula erecta magna-mediocria 4 cm. lata in sicco. Involucrum 16–20 mm. longum 30–35 mm. latum nigrescens. Squamae exteriores adpressae infra medium interiorum attingentes, inferiores late-ovatae circ. 8 mm. longae 4.5–5.8 mm. latae apice fere contractae brevicorniculatae, superiores ovatae apice magnicorniculatae, omnes glabrae anguste albomarginatae, squamae interiores 15–16 mm. longae lanceolato-oblongae apice distincte corniculis magnis instructae, margine glabrae albomembranaceae.

Corolla flava circ. 18 mm. longa, tubus 4.5 mm. longus pilosus, ligula extus stria lata nigrescente ornata. Achenia brunnea oblonga 3.5 mm. longa angulata striata apice tuberculato-spinulosa in cuspidem 1 mm. longum attenuata basi contracta, rostrum 13 mm. longum. Pappus 8 mm. longus.

HAB. On hill-sides (HK): Atka (Y. KOBAYASHI, 27 Jun. 1931–Typus), ibidem (1 Jun. 1931).

Distr.-Type: Endemic.

MONOCOTYLEDONEAE

Sparganiaceae

Sparganium minimum FRIES, Summa Veg. Scand. II. (1849), 560; BRITT. & BR. Ill. Fl. I. (1896), 64; GRAEBN. in Engl. Pfl.-reich. IV.–10. (1900), 22; FEDTSCH. Fl. Il. Comm. (1906), 105; RYDB. in Nor. Am. Fl. XVII.–1. (1909), 10; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 83; HULT. Fl. Kamtchat. I. (1927), 74; KOMAR. Fl. Pen. Kamtschat. I. (1927), 111; MIYABE & KUDO, Fl. Hokkaido & Saghal. II. (1931), 84; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 259, 288.

HAB. In ponds (HY—Hydrophyta radicantia): Attu (1929); Amchitka (1929); Unalaska (1931).

Distr.-Type: Circumpolar.

Potamogetonaceae

Potamogeton alpinus BALBIS, in Act. Jurin. X. XI. (1802–3), 329, emend ASCHERS. Fl. Prov. Brand. (1864), 658; ASCHERS. u. GRAEB. in Engl. Pfl.-reich. IV.–11. (1907), 70; TAYLOR, in Nor. Am. Fl. XVII.–1. (1909), 19; KUDO, Fl. Isl. Paramushir, (1922), 67; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 86; HULT. Fl. Kamtchat. I. (1927), 75; KOMAR. Fl. Pen. Kamtschat. I. (1927), 117.

Potamogeton rufescens SCHRAD. in CHAM. Adnot. ad KNUTH, Fl. Berol. (1815), 5; CHAM. ET SCHL. in Linnaea II. (1827), 210; LEDEB. Fl. Ross. IV. (1853), 25.

prol. ***microstachys*** GRAEBN. in ENGL. Pfl.-reich. IV.–11. (1907), 72; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 215.

Potamogeton microstachys WOLF, in ROEM. ET SCHUL. Mant. III. (1827), 359; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 89.

HAB. In ponds (HY): Unalaska (1931).
Distr.-Type: Circumpolar.

Potamogeton perfoliatus L. Sp. Pl. ed. 1, (1753), 126; CHAM. ET SCHL. in Linnaea II. (1827), 188; LEDEB. Fl. Ross. IV. (1853), 27; BRITT. & BR. Ill. Fl. I. (1896), 71; FEDTSCH. Fl. Il. Comm. (1906), 106; ASCHERS. u. GRAEBN. in ENGL. Pfl.-reich. IV.–11. (1907), 92; TAYLOR, in Nor. Am. Fl. XVII.–1. (1909), 22; HULT. Fl. Kamtchat. I. (1927), 79; KOMAR. Fl. Pen. Kamtschat. I. (1927), 117; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 92; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 215.

HAB. In ponds (HY): Atka (1931).
Distr.-Type: Cosmopolite.

Zostera marina L. Sp. Pl. ed. 1, (1753), 968; LEDEB. Fl. Ross. IV. (1853), 20; BRITT. & BR. Ill. Fl. I. (1896), 82; ASCHERS. u. GRAEBN. in ENGL. Pfl.-reich. IV.–11. (1907), 28; TAYLOR, in Nor. Am. Fl. XVII.–1. (1909), 29; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 94; OSTENFELD, in Pfl.-areale, 1. Reihe, Ht. 4, (1927), *Karte 38;* HULT. Fl. Kamtchat. I. (1927), 75; KOMAR. Fl. Pen. Kamtschat. I. (1927), 112; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 85; MIKI, in Bot. Mag. (Tokyo), XLVI. (1932), 781.

HAB. In bays (HY): Unalaska (1931).
Distr.-Type: Circumpolar.

Scheuchzeriaceae

Triglochin palustre L. Sp. Pl. ed. 1, (1753), 338; BONG. Vég. Sitcha, (1933), 165; LEDEB. Fl. Ross. IV. (1853), 35; KURTZ, in ENGL. Bot. Jahrb. XIX. (1895), 413; BRITT. & BR. Ill. Fl. I. (1896), 33; BUCH. in ENGL. Pfl.-reich. IV.–14. (1903), 15; YABE & YENDO, Pl. Isl. Shumushu, (1904), 173; TAYLOR, in Nor. Am. Fl. XVII.–1. (1909), 41; KUDO, Fl. Isl. Paramushir, (1922), 67; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 96; HULT. Fl. Kamtchat. I. (1927), 81; KOMAR. Fl. Pen. Kamtschat. I. (1927), 125; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1930), 99; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 215, 239, 259.

HAB. In bogs (HK): Unalaska (1931).
Distr.-Type: Circumpolar (also in the Southern Hemisphere).

Poaceae

Agrostis melaleuca HITCH. in U. S. Dept. Agr. Bur. Pl. Ind. Bull. LXVIII. (1905), 51; SCRIBN. & MER. in Contr. U. S. Nat. Herb. XIII.–3. (1910), 57.

Agrostis canina L. var. *melaleuca* TRIN. in BONG. Vég. Sitcha, (1833), 170.

HAB. In meadows (HK): Unalaska (1931).
Distr.-Type: American.

Alopeculus aequalis SOBOLOW. Fl. Petrop. (1799), 16; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 143; HULT. Fl. Kamtchat. I. (1927), 89; KOMAR. Fl. Pen. Kamtschat. I. (1927), 135; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 130; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 216.

Alopeculus fulvus SM. in Engl. Bot. XXI. (1805), *t. 1467;* GRISEB. in LEDEB. Fl. Ross. IV. (1853), 464; YABE & YENDO, Pl. Isl. Shumushu, (1904), 175.

Alopeculus genuiculatus L. var. *fulvus* SCHRAD. in Linnaea XII. (1838), 424; SCRBN. & MER. in Contr. U. S. Nat. Herb. XIII.–3. (1910), 53.

Alopeculus genuiculatus L. subsp. *fulvus* RICHT. Pl. Europ. I. (1890), 38; MIYABE, Fl. Kuril. (1890), 269.

HAB. In wet places (HK): Amchitka (1929); Atka (1929).
Distr.-Type: Circumpolar.

Anthoxanthum odoratum L. Sp. Pl. ed. 1, (1753), 28; GRISEB. in LEDEB. Fl. Ross. IV. (1853), 408; BRITT. & BR. Ill. Fl. I. (1896), 131; HOWELL, Fl. NW. Am. I. (1903), 721; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 123; HONDA, Monogr. Poac. Jap. (1930), 226; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 125.

HAB. In meadows (HK): Unalaska (1931).
Distr.-Type: Eurasiatic (introduced—unknown from Kamtchatka and Commander Isls.).

Bromus breviaristatus BUCKL. in Proc. Acad. Phila. '1862' (1863), 98; BRITT. & BR. Ill. Fl. I. (1896), 223.
Ceratochloa breviaristata HOOK. Fl. Bor. Am. II. (1840), 253, *pl. 234.*
? Bromus marginatus STEUD. Syn. Pl. Gram. I. (1854), 322; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 228.

HAB. In meadows (HK): Unalaska (1931).
Distr.-Type: American (west to the Aleutian Islands).

Calamagrostis aleutica TRIN. in BONG. Vég. Sitcha, (1833), 171; GRISEB. in LEDEB. Fl. Ross. IV. (1853), 427; HOWELL, Fl. NW. Am. I. (1903), 731; SCRIBN. & MER. in Contr. U. S. Nat. Herb. XIII. (1910), 60; HULT. Fl. Kamtchat. I. (1927), 99.

HAB. In grassy lands (HK): Attu (1929).
Distr.-Type: Northern Pacific.

Calamagrostis Langsdorffii TRIN. Gram. Unifl. (1824), 225, *pl 4. f. 10;* GRISEB. in LEDEB. Fl. Ross. IV. (1853), 430; BRITT. & BR. Ill. Fl. I. (1896), 164; HOWELL. Fl. NW. Am. I. (1903), 732; FEDTSCH. Fl. Il. Comm. (1906), 122; SCRIBN. & MER. in Contr. U. S. Nat. Herb. XIII.–3. (1910), 60; HULT. Fl. Kamtchat. I. (1927), 100; KOMAR. Fl. Pen. Kamtschat. I. (1927), 145; HONDA, Monogr. Poac. Jap. (1930), 168; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 139; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 216, 239, 260, 272, 289, 302.

HAB. In meadows (HK): Unalaska (1931).
Distr.-Type: Circumpolar.

Calamagrostis purpurascens R. BR. in RICHARDS. Bot. App. Frankl. Journ. (1823), 731; MACOUN, List Pl. Pribilof Isl. (1899), 574; HOWELL, Fl. NW. Am. I. (1903), 730; SCRIBN. & MER. in Contr. U. S. Nat. Herb. XIII.–3. (1910), 59; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 7–A; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 158; HULT. Fl. Kamtchat. I. (1927), 105; KOMAR. Fl. Pen. Kamtschat. I. (1927), 150; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 144; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 216, 239, 260, 272, 289, 302.

Calamagrostis arundinacea ROTH, var. *purpurascens* FEDTSCH. Fl. Il. Comm. (1906), 123.

Calamagrostis urelytra HACK. ex MATSUMURA, in Bot. Mag. (Tokyo), XII. (1897), 28, et in Bull Herb. Boiss. VII. (1899), 653; YABE & YENDO, Pl. Isl. Shumushu, (1904), 176; KUDO, Fl. Isl. Paramushir, (1927), 69; HONDA, Monogr. Poac. Jap. (1930), 184.

HAB. In heaths (HK): Atka (1929).

Distr.-Type: American–Eastern Asiatic.

Dactylis glomerata L. Sp. Pl. ed. 1, (1753), 71; GRISEB. in LEDEB. Fl. Ross. IV. (1853), 368; BRITT. & BR. Ill. Fl. I. (1896), 200; HOWELL, Fl. NW. Am. I. (1903), 748; SCRIBN. & MER. in Contr. U. S. Nat. Herb. XIII.–3. (1910), 66; ABRAMS, Ill. Fl. Pacif. Stat. II. (1923), 195; HULT. Fl. Kamtchat. I. (1927), 123; HONDA, Monogr. Poac. Jap. (1930), 88; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 55.

HAB. In meadows (HK): Unalaska (1931).

Distr.-Type: Circumpolar (native of Europe, naturalized throughout northern Hemisphere).

Deschampsia aleutica TATEWAKI ET OHWI, sp. nov.

Herba perennis caespitosa. Culmi ca. 30 cm. alti erecti laeves striati, infra medium tantum 1–2–nodi, basi conferte foliati. Folia basalia numerosa, vaginis sordide albidis rigidis laevibus 4–6 cm. longis, laminis conduplicatis vel conduplicatoplanis usque ad 3 mm. latis 5–15 cm. longis crassiusculis, subtus laevibus, supra elevato–5–7–costatis, costis marginibusque scaberulis, ligulis ovatis acutis 2–3 mm. longis. Folia culmorum pauca, vaginis 10–20 cm. longis, quam lamina longioribus, ligulis 5–6 mm. longis acutis. Panicula demum exserta nutans 15–20 cm. longa saepius purpurascens, ramis plerumque geminis supra medium spiculiferis scabris. Spiculae breviter

pedicellatae angustae 6–7 mm. longae 2–usque 3–florae, floribus glumas steriles non excedentibus. Glumae steriles subaequales lanceolatae, praeter carinas superne scaberulas laeves, apice attenuato acutae, prima uninervis vel obscure trinervis, secunda paullulo major

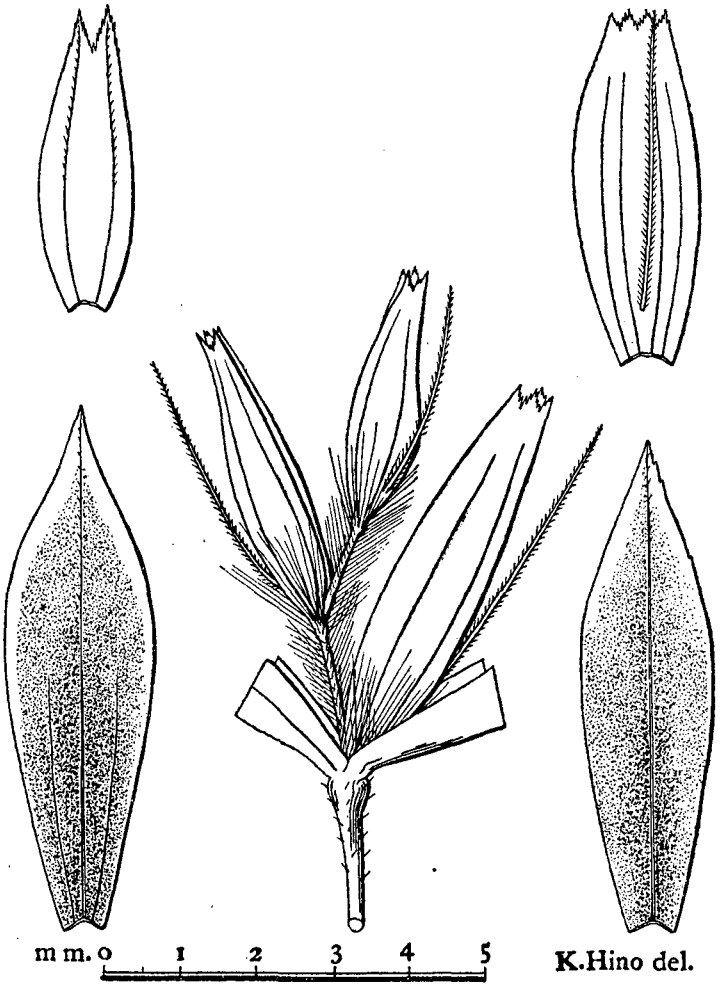


Fig. 4. *Deschampsia aleutica* TATEWAKI ET OHWI

trinervis, nervis lateralibus 1/2–2/3 glumae percurrentibus. Glumae fertiles 3.5–4.5 mm. longae oblongae membranaceae laeves indistincte 4–5–nerviae, superne late scariosae, apice truncato eroso-denticulatae,

denticulis deltoides minute ciliolatis, arista supra basin glumae oriunda tenui rectiuscula scaberula 4–5 mm. longa glumam suam excedente, callo pilis fere 1 mm. longis cincto. Palea glumam aequans apice beviter bifida acuta, carinis infra medium usque ad apicem scabris. Rhachilla 1.5 mm. longa sursum barbata. Stamina 3, antheris (paullo praematuris) 2–2.5 mm. longis dimidium glumae aequantibus.

HAB. Nazan, Isl. Atka (M. TATEWAKI & K. TAKAHASHI, No. 14485, 1927–Type, in Herb. Hok. Imp. Univ.).

Distr.-Type: Endemic. (?)

Deschampsia alpina ROEM. ET SCHL. Syst. Veg. II. (1817), 686; GRISEB. in LEDEB. Fl. Ross. IV. (1853), 422; SCRIBN. & MER. in Contr. U. S. Nat. Herb. XIII.–3. (1910), 63.

HAB. In upland heaths (HK): Amchitka (1929).

Distr.-Type: Circumpolar.

Deschampsia caespitosa BEAUV. Ess. Agrost. (1812), 91; GRISEB. in LEDEB. Fl. Ross. IV. (1853), 421; BRITT. & BR. Ill. Fl. I. (1896), 169; MACOUN, List Pl. Pribilof Isl. (1899), 574; HOWELL, Fl. NW. Am. I. (1903), 745; SCRIBN. & MER. in Contr. U. S. Nat. Herb. XIII.–3. (1910), 63; KUDO, Fl. Isl. Paramushir, (1922), 70; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 165; HULT. Fl. Kamtchat. I. (1927), 109, (subsp. *orientalis*); KOMAR. Fl. Pen. Kamtschat. I. (1927), 152; HONDA, Monogr. Poac. Jap. (1930), 138; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 146; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 216, 240, 260, 273, 303.

HAB. In bogs (HK): Attu (1929).

Distr.-Type: Circumpolar.

Deschampsia pacifica TATEWAKI ET OHWI, nom. nov.

Vahlodea atropurpurea FR. subsp. *paramushirensis* HULT. Fl. Kamtchat. I. (1927), 111.

Deschampsia atropurpurea SCHEELE, var. *paramushirensis* KUDO, Fl. Isl. Paramushir, (1922), 71.

Deschampsia atropurpurea SCRIBN. ET MER. in Contr. U. S. Nat. Herb. XIII.–3. (1910), 62; KOIDZUMI, in Bot. Mag. (Tokyo), XXXI. (1917), 142; KOMAR. Fl. Pen. Kamtschat. I. (1927), 154.

Aira atropurpurea BONG. Vég. Sitcha, (1932), 172; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 165.

Vahlodea flexuosa OHWI, in Phytotax. et Geobot. II. (1933), 33.

Erioblastus flexuosus HONDA, ex NAKAI, Rep. Veg. Daisetsu Mts. (1930), 58, 73; HONDA, Monogr. Poac. Jap. (1930), 143; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 145; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 260, 273, 289, 302.

HAB. In moist soils (HK): Attu (1929); Amchitka (1929).

Distr.-Type: Northern Pacific.

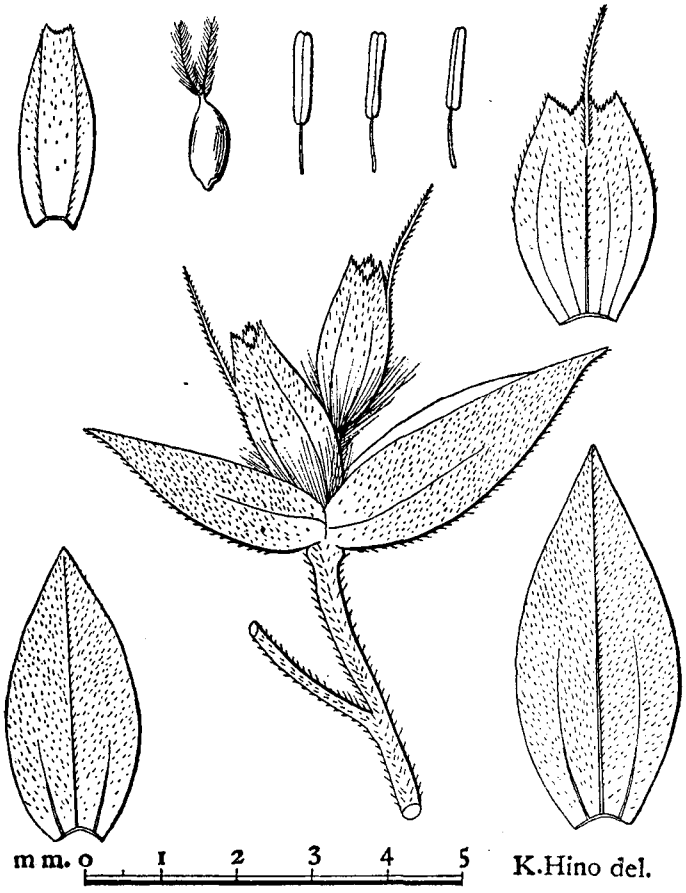


Fig. 5. *Deschampsia pacifica* TATEWAKI ET OHWI

Elymus mollis TRIN. in SPRENG. N. Entd. II. (1821), 72; BONG. Vég. Sitcha, (1833), 174; GRISEB. in LEDEB. Fl. Ross. IV. (1853), 332;

MIYABE, Fl. Kuril. (1890), 271; KURTZ, in Engl. Bot. Jahrb. XIX. (1895), 482; MACOUN, List Pl. Pribilof Isl. (1899), 575; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 130; HOWELL, Fl. NW. Am. I. (1903), 778; YABE & YENDO, Pl. Isl. Shumushu, (1904), 175; FEDTSCH. Fl. Il. Comm. (1906), 117; OSTENFELD, Vas. Pl. Arc. Nor. Am. (1910), 8; SCRIBN. & MER. in Contr. U. S. Nat. Herb. XIII.–3. (1910), 88; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 203; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 8–A; HOLM, *ibid.* (1922), 15–B; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 248; KUDO, Fl. Isl. Paramushir, (1922), 75; TATEWAKI, Pl. Isl. Alaid, (1927), 156, et Phytogeogr. Middle Kuril. (1933), 217, 241, 261, 273, 290, 303; KOMAR. Fl. Pen. Kamtschat. I. (1927), 198; HONDA, Monogr. Poac. Jap. (1930), 20; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 177.

Elymus arenarius L. subsp. *mollis* HULT. Fl. Kamtchat. I. (1927), 153.

HAB. On sandy grounds along the coast and in meadows (GE—Geophyta rhizomata): Atka (1929, 1931); Unalaska (1931).
Distr.-Type: Northern Pacific.

Festuca rubra L. Sp. Pl. ed. 1, (1753), 20; BONG. Vég. Sitcha, (1833), 173; GRISEB. in LEDEB. Fl. Ross. IV. (1853), 352; MIYABE, Fl. Kuril. (1890), 271; BRITT. & BR. Ill. Fl. I. (1896), 216; MACOUN, List Pl. Pribilof Isl. (1899), 574; HOWELL, Fl. NW. Am. I. (1903), 769; YABE & YENDO, Pl. Isl. Shumushu, (1904), 175; OSTENFELD, Vas. Pl. Arc. Nor. Am. (1910), 33; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 8–A, (var. *arenaria*); KUDO, Fl. Isl. Paramushir, (1922), 74; HULT. Fl. Kamtchat. I. (1927), 144; KOMAR. Fl. Pen. Kamtschat. I. (1927), 187; HONDA, Monogr. Poac. Jap. (1930), 51; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 169.

var. ***kitaibeliana*** PIPER, in Contr. U. S. Nat. Herb. X. (1906), 23; SCRIBN. & MER. in *ibid.* XIII.–3. (1910), 80; TATEWAKI, Pl. Isl. Alaid. (1927), 156, et Phytogeogr. Middle Kuril. (1933), 217, 241, 261, 290; MIYABE & KUDO, l. c.

? Festuca rubra L. var. *subvillosa* MERT. et KOCH, in Roehling, Deutsch. Fl. ed. 3, I. (1823), 654; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 223.

HAB. In grassy land (HK): Attu (1929); Amchitka (1929).
Distr.-Type: Circumpolar.

Hierochloe alpina ROEM. ET SCHL. Syst. II. (1817), 514; GRISEB. in LEDEB. Fl. Ross. IV. (1853), 408; KURTZ, in Engl. Bot. Jahrb. XIX. (1895), 419; FEDTSCH. Fl. Il. Comm. (1906), 121; OSTENFELD, Vas. Pl. Nor. Am. (1910), 32; HULT. Fl. Kamtchat. I. (1927), 84; KOMAR. Fl. Pen. Kamtschat. I. (1927), 132; HONDA, Monogr. Poac. Jap. (1930), 219; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 126; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 239, 259.

Savastana alpina SCRIBN. in Mem. TORR. Bot. Club, V. (1894), 34; BRITT. & BR. Ill. Fl. I. (1896), 132; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 130; SCRIBN. & MER. in Contr. U. S. Nat. Herb. XIII.–3. (1910), 52.

HAB. In upland grassy meadows (HK): Attu (1929); Unalaska (1931).

Distr.-Type: Circumpolar.

Hierochloe odorata WAHLB. Fl. Ups. (1820), 32; FEDTSCH. Fl. Il. Comm. (1906), 120; HULT. Fl. Kamtchat. I. (1927), 85; KOMAR. Fl. Pen. Kamtschat. I. (1927), 131; HONDA, Monogr. Poac. Jap. (1930), 220; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 126.

Savastana odorata SCRIBN. in Mem. Torr. Bot. Club, V. (1894), 34; BRITT. & BR. Ill. Fl. I. (1896), 132; SCRIBN. & MER. in Contr. U. S. Nat. Herb. XIII.–3. (1910), 52.

Torresia odorata HITCHC. in Am. Journ. Bot. II. (1915), 301; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 124.

Hierochloe borealis ROEM. ET SCHL. Syst. II. (1817), 513; GRISEB. in LEDEB. Fl. Ross. IV. (1853), 407; MIYABE, Fl. Kuril. (1890), 269; MACOUN, List Pl. Pribilof Isl. (1899), 573; HOWELL, Fl. NW. Am. I. (1903), 722.

HAB. In meadows (HK): Attu (1929); Atka (1931); Unalaska (1931).

Distr.-Type: Circumpolar.

Hordeum boreale SCRIBN. ET SMITH, in U. S. Dept. Agr. Div. Agrost. Bull. IV. (1897), 24; HOWELL, Fl. NW. Am. I. (1903), 777; SCRIBN. & MER. in Contr. U. S. Nat. Herb. XIII.–3. (1910), 88; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 247; HULT. Fl. Kamtchat. I. (1927), 152; KOMAR. Fl. Pen. Kamtschat. I. (1927), 195; OHWI, in Phytotax. et Geobot. II. (1933), 31.

Hordeum pratense FEDTSCH. Fl. Il. Comm. (1906), 117.

Hordeum secalinum KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 203.

HAB. In meadows (TH?): Unalaska (1931).

Distr.-Type: American–Eastern Asiatic (western to Kamtchatka, including Commander Isls. and Paramushir Isl.)

Phleum alpinum L. Sp. Pl. ed. 1, (1753), 59; BONG. Vég. Sitcha, (1833), 169; GRISEB. in LEDEB. Fl. Ross. IV. (1853), 458; BRITT. & BR. Ill. Fl. I. (1896), 148; MACOUN, List Pl. Pribilof Isl. (1899), 574; HOWELL, Fl. NW. Am. I. (1903), 740; YABE & YENDO, Pl. Isl. Shumushu, (1904), 176; FEDTSCH. Fl. Il. Comm. (1906), 123; SCRIBN. & MER. in Contr. U. S. Nat. Herb. XIII.–3. (1910), 53; KUDO, Fl. Isl. Paramushir, (1922), 68; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 142; TATEWAKI, Pl. Isl. Alaid, (1927), 155, et Phytogeogr. Middle Kuril. (1933), 239, 288, 302; HULT. Fl. Kamtchat. I. (1927), 88; KOMAR. Fl. Pen. Kamtschat. I. (1927), 134; HONDA, Monogr. Poac. Jap. (1930), 207; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 131.

HAB. In meadows and wet places (HK): Attu (1929); Amchitka (1929); Atka (1929, 1931); Unalaska (1931).

Distr.-Type: Circumpolar.

Phleum pratense L. Sp. Pl. ed. 1, (1753), 59; GRISEB. in LEDEB. Fl. Ross. IV. (1853), 457; BRITT. & BR. Ill. Fl. I. (1896), 147; HOWELL, Fl. NW. Am. I. (1903), 740; SCRIBN. & MER. in Contr. U. S. Nat. Herb. XIII.–3. (1910), 53; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 142; HULT. Fl. Kamtchat. I. (1927), 89; HONDA, Monogr. Poac. Jap. (1930), 208; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 132; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 239, 260.

HAB. In meadows (HK): Unalaska (1931).

Distr.-Type: Circumpolar.

Poa alpina L. Sp. Pl. ed. 1, (1753), 67; GRISEB. in LEDEB. Fl. Ross. IV. (1853), 370; BRITT. & BR. Ill. Fl. I. (1896), 203; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 130; SCRIBN. & MER. in Contr. U. S. Nat. Herb. XIII.–3. (1910), 68; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 204.

HAB. In meadows and along cold mountain streams (HK): Isl. Attu (1929); Isl. Atka (1929).

var. ***vivipara*** KOCH, in Linnaea XXI. (1848), 402; ASCHERS. u. GRAEBN. Syn. Mitteleurop. Fl. II. (1900), 394; SCRIBN. & MER. l. c.

HAB. Along cold mountain streams (HK): Attu (1929); Atka (1929).

Distr.-Type: Circumpolar.

Poa annua L. Sp. Pl. ed. 1, (1753), 68; BONG. Vég. Sitcha, (1833), 172; GRISEB. in LEDEB. Fl. Ross. IV. (1853), 377; MIYABE, Fl. Kuril. (1890), 270; BRITT. & BR. Ill. Fl. I. (1896), 201; HOWELL, Fl. NW. Am. I. (1903), 756; YABE & YENDO, Pl. Isl. Shumushu, (1904), 175; SCRIBN. & MER. in Contr. U. S. Nat. Herb. XIII.–3. (1910), 68; KUDO, Fl. Isl. Paramushir, (1922), 72; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 198; HULT. Fl. Kamtchat. I. (1927), 124; KOMAR. Fl. Pen. Kamtschat. I. (1927), 165; HONDA, Monogr. Poac. Jap. (1930), 71; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 156; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 240, 260, 303.

HAB. In waste places (TH): Attu (1929); Atka (1931); Umnak (1931); Unalaska (1931).
Distr.-Type: Cosmopolite.

Poa arctica R. BR. Sup. App. Parry's Voy. (1824), 288; GRISEB. in LEDEB. Fl. Ross. IV. (1853), 373; KURTZ, in ENGL. Bot. Jahrb. XIX. (1895), 480; MACOUN, List Pl. Pribilof Isl. (1899), 574; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 130; SCRIBN. & MER. in Contr. U. S. Nat. Herb. XIII.–3. (1910), 68; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 204; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 8–A; HOLM, *ibid.* (1922), 6–B; KUDO, Fl. Isl. Paramushir, (1922), 74; HULT. Fl. Kamtchat. I. (1927), 124; KOMAR. Fl. Pen. Kamtschat. I. (1927), 179; HONDA, Monogr. Poac. Jap. (1930), 72; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 156; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 261, 273.

HAB. In heaths and bogs (HK): Attu (1929); Amchitka (1929); Atka (1929).
Distr.-Type: Circumpolar.

Poa eminens PRESL, Reliq. Haenkean. I. (1830), 273; SCRIBN. & MER. in Contr. U. S. Nat. Herb. XIII.–3. (1910), 73; ROSHEW, in Bull. Jard. Bot. U. R. S. S. XXVI. (1927), 285; HULT. Fl. Kamtchat. I. (1927), 126; HONDA, Monogr. Poac. Jap. (1930), 73; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 163; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 217.

Poa glumaris TRIN. in Mém. Ac. Im. Sc. St. Petersb. sér. VI.–1. (1831), 379; BONG. Vég. Sitcha, (1833), 173; MIYABE, Fl. Kuril. (1890), 270; BRITT. & BR. Ill. Fl. I. (1896), 208; MACOUN, List Pl. Pribilof Isl. (1899), 574; YABE & YENDO, Pl. Isl. Shumushu, (1904), 175.

Glyceria glumaris GRISEB. in LEDEB. Fl. Ross. (1853), 392; FEDTSCH. Fl. Il. Comm. (1906), 120.

HAB. On damp soils and sands along the coast (GE?): Attu (1929); Amchitka (1929); Umnak (1931).

Distr.-Type: American–Eastern Asiatic.

?Poa bracteosa KOMAR. in Nat. Syst. Herb. H. P. V. (1924), 147, et Fl. Pen. Kamtschat. I. (1927), 167; HULT. Fl. Kamtchat. I. (1927), 125; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 157; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 216, 240, 261.

HAB. In grassy places (HK): Attu (1929).

Distr.-Type: Northern Pacific···Asiatic Pacific.

Poa leptochoma TRIN. in Mem. Acad. Petersb. sér. VI.–1. (1831), 374; BONG. Vég. Sitcha, (1833), 172; SCRIBN. & MER. in Contr. U. S. Nat. Herb. XIII.–3. (1910), 70; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 203; KOMAR. Fl. Pen. Kamtschat. I. (1927), 179.

Poa stenantha TRIN. var. *leptochoma* GRISEB. in LEDEB. Fl. Ross. IV. (1853), 373; HONDA, Monogr. Poac. Jap. (1930), 85.

HAB. In grassy places (HK): Atka (1929; 1931).

Distr.-Type: Northern Pacific.

Poa palustris L. Syst. Veg. ed. 10, II. (1759), 874; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 204; HULT. Fl. Kamtchat. I. (1927), 130; KOMAR. Fl. Pen. Kamtschat. I. (1927), 176; HONDA, Monogr. Poac. Jap. (1930), 78; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 162.

Poa triflora GILIB. Exerc. Phyt. II. (1790), 531; SCRIBN. & MER. in Contr. U. S. Nat. Herb. XIII.–3. (1910), 69.

Poa serotina EHRH. Beitr. VI. (1791), 86; GRISEB. in LEDEB. Fl. Ross. IV. (1853), 78.

HAB. In wet places (GE?): Unalaska (1931).

Distr.-Type: Circumpolar.

Poa pratensis L. Sp. Pl. ed. 1, (1753), 67; GRISEB. in LEDEB. Fl. Ross. IV. (1853), 378; MIYABE, Fl. Kuril. (1890), 270; BRITT. & BR. Ill. Fl. I. (1896), 204; HOWELL, Fl. NW. Am. I. (1903), 759; YABE & YENDO, Pl. Isl. Shumushu, (1904), 175; OSTENFELD, Vas. Pl. Arc. Nor. Am. (1910), 33; SCRIBN. & MER. in Contr. U. S. Nat. Herb. XIII.–3. (1910), 70; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 204; KUDO, Fl. Isl. Paramushir, (1922), 73; ABRAMS, Ill. Fl. Pacif.

Stat. I. (1923), 202; HULT. Fl. Kamtchat. I. (1927), 133; KOMAR. Fl. Pen. Kamtschat. I. (1927), 173; HONDA, Monogr. Poac. Jap. (1930), 79; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 160; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 217, 240.

HAB. In meadows (GE): Unalaska (1931).
Distr.-Type: Circumpolar.

Poa stenantha TRIN. in Mém. Acad. St. Petersb. VI. Math. Phys. Nat. I. (1830), 376; BONG. Vég. Sitcha, (1833), 172; GRISEB. in LEDEB. Fl. Ross. IV. (1853), 372; SCRIBN. & MER. in Contr. U. S. Nat. Herb. XIII.–3. (1910), 71; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 204; KOMAR. Fl. Pen. Kamtschat. I. (1927), 169; HONDA, Monogr. Poac. Jap. (1930), 85; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 157; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 261.

HAB. In wet places (HK): Atka (1931).

var. ***vivipara*** TRIN. l. c.; SCRIBN. & MER. l. c.

HAB. In meadows near the coast (HK): Unalaska (1931).
Distr.-Type: Northern Pacific.

Poa trivialis L. Sp. Pl. ed. 1, (1753), 67; GRISEB. in LEDEB. Fl. Ross. IV. (1853), 379; BRITT. & BR. Ill. Fl. I. (1896), 204; SCRIBN. & MER. in Contr. U. S. Nat. Herb. XIII.–3. (1910), 70; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 203; HONDA, Monogr. Poac. Jap. (1930), 86; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 161.

HAB. In meadows (HK?): Unalaska (1931).
Distr.-Type: Circumpolar.

Puccinellia alaskana SCRIBN. ET MER. in Contr. U. S. Nat. Herb. XIII.–3. (1910), 78.

Puccinellia paupercula FERNALD ET WEATH. var. *alaskana* FERNALD ET WEALTH. in Rhodora XVIII. (1916), 18, *fig. 68–72;* ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 215; HULT. Fl. Kamtchat. I. (1927), 141, in nota.

HAB. On saline sands (HK?): Amchitka (1929).
Distr.-Type: Northern Pacific··· American Pacific.

Our specimen collected at Constantine, Isl. Amchitka differs from the original description by the hairing keel of the palea. If the alaskan specimen have the glabrous keels, we shall propose the varietas name "var. *aleutica*".

Trisetum spicatum RICHT. Pl. Europ. I. (1890), 59; OSTENFELD, Vas. Pl. Arc. Nor. Am. (1910), 33; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 7–A; KUDO, Fl. Isl. Paramushir, (1922), 71; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 168; HULT. Fl. Kamtchat. I. (1927), 115; KOMAR. Fl. Pen. Kamtschat. I. (1927), 155; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 148; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 216, 240, 260, 289.

Trisetum subspicatum BEAUV. Agrost. (1812), 180; BRITT. & BR. Ill. Fl. I. (1896), 171; MACOUN, List Pl. Pribilof Isl. (1899), 574; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 203; HONDA, Monogr. Poac. Jap. (1930), 129.

Avena subspicata CALIV. Man. (1811), 17; GRISEB. in LEDEB. Fl. Ross. IV. (1853), 418.

var. ***molle*** SCRIBN. ET MER. in Contr. U. S. Nat. Herb. XIII.–3. (1910), 64.

Trisetum subspicatum BEAUV. var. *molle* A. GRAY, Man. ed. 2, (1856), 572; HOWELL, Fl. NW. Am. I. (1903), 745.

HAB. In heaths (HK): Attu (1929); Amchitka (1929).

var. ***alaskanum*** TATEWAKI ET KOBAYASHI.

Trisetum alaskanum NASH, in Bull. N. Y. Bot. Gard. II. (1901), 155; SCRIBN. & MER. in Contr. U. S. Nat. Herb. XIII.–3. (1910), 64.

HAB. On open hill-sides (HK): Amchitka (1929); Atka (1929, 1931); Unalaska (1931).

Distr.-Type: Cosmopolite.

Cyperaceae

Carex aleutica AKIYAMA, sp. nov.

Carex sp. in Bot. Mag. (Tokyo), XLVII. (1933), 69.

HAB. In bogs (CH): Unalaska (1931–Type); Attu (1929); Atka (1931).

Distr.-Type: Endemic. (?).

Carex circinata C. A. MEY. in Mém. Acad. St. Pétersb. I. (1831), 209, *t. VI.;* BONG. Vég. Sitcha, (1833), 168; LEDEB. Fl. Ross. IV. (1853), 268, (excl. pl. Kamtschat.); KUEK. Cyp.-Car. (1909), 97; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 290; HULT. Fl. Kamtchat. I. (1927), 173, in nota; MACKENZ. in Nor. Am. Fl. XVIII.–1. (1931), 25; AKIYAMA, in Bot. Mag. (Tokyo), XLVII. (1933), 68.

HAB. In heaths and rocky places (HK): Attu (1929); Amchitka (1929); Atka (1929); Unalaska (1931).

Distr.-Type: Northern Pacific ··· American Pacific.

Carex gynocrates WORMSK. apud DREJER, Rev. Crit. (1841), 16; KURTZ, in ENGL. Bot. Jahrb. XIX. (1895), 414; FEDTSCH. Fl. Il. Comm. (1906), 114; KUEK. Cyp.-Car. (1909), 79; HULT. Fl. Kamtchat. I. (1927), 172, et *ibid.* IV. (1930), 242; KOMAR. Fl. Pen. Kamtschat. I. (1927), 223; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 214; MACKENZ. in Nor. Am. Fl. XVIII.–2. (1931), 98; AKIYAMA, Consp. Car. Jap. (1932), 48; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 218, 241, 262, 291.

Carex dioica L. var. γ LEDEB. Fl. Ross. IV. (1853), 264.

Carex dioica L. var. *gynocrates* OSTENF. Fl. Arc. (1902), 60.

HAB. In bogs (CH—Chamaephyta reptantia): Attu (1929).

Distr.-Type: American–Eastern Asiatic.

Carex leiocarpa C. A. MEY. in Mém. Acad. St. Pétersb. I. (1831), 208, *t. V;* BONG. Vég. Sitcha, (1833), 168; LEDEB. Fl. Ross. IV. (1853), 265; MACOUN, List Pl. Pribilof Isl. (1899), 572; AKIYAMA, in Bot. Mag. (Tokyo), XLVII. (1933), 67.

Carex anthoxanthea PRESL, var. *leiocarpa* KUEK. Cyp.-Car. (1909), 97.

Carex anthoxanthea MACKENZ. in Nor. Am. Fl. XVIII.–1. (1931), 25, p.p.

HAB. In bogs and grassy places (CH): Attu (1929); Amchitka (1929); Atka (1929; 1931).

Distr.-Type: Northern Pacific ··· American Pacific.

Carex Lyngbyei HORNEM. Fl. Dan. (1827), Tab. 1888; KUEK. Cyp.-Car. (1909), 363; KUDO, Fl. Isl. Paramushir, (1922), 79; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 339; KOMAR. Fl. Pen. Kamtschat. I. (1927), 240.

subsp. ***cryptocarpa*** HULT. Fl. Kamtchat. I. (1927), 188; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 238; AKIYAMA, Consp. Car. Jap. (1932), 109, *fig. 58,* et in Bot. Mag. (Tokyo), XLVII. (1933), 68; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 218, 241, 262, 273, 290, 303.

Carex cryptocarpa C. A. MEY. in Mém. Acad. St. Pétersb. I. (1831), 226; BONG. Vég. Sitcha, (1833), 169; LEDEB. Fl. Ross. IV.

(1853), 313; BRITT. & BR. Ill. Fl. I. (1896), 314; MACOUN, List Pl. Pribilof Isl. (1899), 573; HOWELL, Fl. NW. Am. I. (1903), 702.

HAB. In swampy places (HK): Attu (1929, 1931); Amchitka (1929); Atka (1929, 1931); Unalaska (1931).

Distr.-Type: Eurasiatic–Western American.

Carex macrochaeta C. A. MEY. in Mém. Acad. St. Pétersb. I. (1831), 224. *tab. 13;* BONG. Vég. Sitcha, (1833), 169; LEDEB. Fl. Ross. IV. (1853), 305; KURTZ, in ENGL. Bot. Jahrb. XIX. (1895), 418; MACOUN, List Pl. Pribilof Isl. (1899), 573; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 130; FEDTSCH. Fl. Il. Comm. (1906), 116; KUEK. Cyp.-Car. (1909), 412, *fig. 65, A–C;* KUDO, Fl. Isl. Paramushir, (1922), 81; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 328; HULT. Fl. Kamtchat. I. (1927), 195; KOMAR. Fl. Pen. Kamtschat. I. (1927), 250; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 243; AKIYAMA, Consp. Car. Jap. (1932), 120, et in Bot. Mag. (Tokyo), XLVII. (1933), 68; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 242, 262, 274, 291, 304.

HAB. In heaths and meadows (CH): Attu (1929); Amchitka (1929); Atka (1929, 1931); Unalaska (1931).

var. ***emarginata*** TH. HOLM, in Am. Jour. Sc. XVII. (1904), 314; KUEK. Cyp.-Car. (1909), 412.

HAB. In heaths and meadows (CH): Attu (1929); Amchitka (1929); Atka (1929).

var. ***subrigida*** KUEK. apud MACOUN, List Pl. Pribilof Isl. (1899), 573; KUEK. Cyp.-Car. (1909), 412.

HAB. In heaths (CH): Amchitka (1929).

Distr.-Type: Eastern Asiatic–Western American.

Carex pachystachya CHAM. ex STEUD. Syn. Cyp. (1855), 197; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 311; MACKENZ. in Nor. Am. Fl. XVIII.–3. (1931), 135.

Carex macloviana D'URV. var. *pachystachya* KUEK. Cyp.-Car. (1909), 197.

Carex festiva DEWEY, var. *pachystachya* L. H. BAILEY, in Mem. Torr. Club, I. (1889), 51; HOWELL, Fl. NW. Am. I. (1903), 713.

Carex macroviana AKIYAMA, in Bot. Mag. (Tokyo), XLVII. (1933), 67.

HAB. In muddy places near the pond (HK): Unalaska (1931).
Distr.-Type: Northern Pacific.

Carex pribylovensis MACOUN, List Pl. Pribilof Isl. (1899), 572; MACKENZ. in Nor. Am. Fl. XVIII.–2. (1931), 91.

Carex lagopina WAHLB. var. *pribylovensis* KUEK. Cyp.-Car. (1909), 214.

Carex norvegica AKIYAMA, in Bot. Mag. (Tokyo), XLVII. (1933), 67.

HAB. In heaths (HK): Attu (1929); Atka (1931).
Distr.-Type: Northern Pacific.

Carex rariflora SM. Engl. Bot. t. 2516, (1813); LEDEB. Fl. Ross. IV. (1853), 297; BRITT. & BR. Ill. Fl. I. (1896), 312; MACOUN, List Pl. Pribilof Isl. (1899), 573; YABE & YENDO, Pl. Isl. Shumushu, (1904), 174; FEDTSCH. Fl. Il. Comm. (1906), 116; KUEK. Cyp.-Car. (1909), 502; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 9–A; KUDO, Fl. Isl. Paramushir, (1922), 82; HULT. Fl. Kamtchat. I. (1927), 200; KOMAR. Fl. Pen. Kamtschat. I. (1927), 257; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 254; AKIYAMA, Consp. Car. Jap. (1932), 158, et in Bot. Mag. (Tokyo), XLVII. (1933), 67; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 242, 263, 274. 291, 304.

HAB. In bogs (CH): Attu (1929); Amchitka (1929); Atka (1929, 1931).

var. ***stygia*** ANDERS. Cyp. Scand. (1849), 35 (pro subsp.); KUEK. Cyp.-Car. (1909), 504.

HAB. In bogs (CH): Amchitka (1929); Atka (1929, 1931); Unalaska (1931).
Distr.--Type: Circumpolar.

Carex rigida GOOD. in Trans. Linn. Soc. II. (1794), 193, *t. 22;* EASTWOOD, in Bot. Gaz. XXXIII. (1902), 130; KUEK. Cyp.-Car. (1909), 299, *fig. 46, A–E;* MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 9–A; HULT. Fl. Kamtchat. I. (1927), 185; KOMAR. Fl. Pen. Kamtschat. I. (1927), 236; OHWI, in Mem. Coll. Sc. Kyoto Imp. Univ. Ser. B. No. 5. (1931), 261; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 262, 273.

HAB. In heaths (CH): Isl. Attu (1929); Isl. Amchitka (1929).
Distr.-Type: Circumpolar.

Carex saxatilis L. Sp. Pl. ed. 1, (1753), 976; LEDEB. Fl. Ross. IV. (1853), 308, (excl. syn.); BRITT. & BR. Ill. Fl. I. (1896), 296; KUEK. Cyp.-Car. (1904), 727, (subsp.); KUDO, Fl. Isl. Paramushir, (1922), 85; HULT. Fl. Kamtchat. I. (1927), 211; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 272; AKIYAMA, Consp. Car. Jap. (1932), 226, et in Bot. Mag. (Tokyo), XLVII. (1933), 68; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 242, 291.

HAB. In bogs and around ponds (CH): Attu (1929); Amchitka (1929); Atka (1929, 1931); Unalaska (1931).
Distr.-Type: Circumpolar.

Carex spectabilis DEWEY, in Am. Journ. Soc. XXIX. (1836), 248, *pl. 10, fig. 76;* ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 328; HULT. Fl. Kamtchat. I. (1927), 195, in nota.

HAB. In bogs (CH): Unalaska (1931).
Distr.-Type: Northern Pacific ··· American Pacific.

Carex Tolmiei BOOTT, in HOOK. Fl. Bor. Am. II. (1840), 224; KUEK. Cypr.-Car. (1909), 411; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 328; HULT. Fl. Kamtchat. I. (1927), 193; KOMAR. Fl. Pen. Kamtschat. I. (1927), 249; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 243.

HAB. In heaths (CH): Isl. Attu (1929).
Distr.-Type: American–Eastern Asiatic.

Eriophorum angustifolium ROTH, Tent. Fl. Germ. II. (1789), 24; LEDEB. Fl. Ross. IV. (1853), 254; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 130; YABE & YENDO, Pl. Isl. Shumushu, (1904), 174; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 269; HULT. Fl. Kamtchat. I. (1927), 159, et *ibid.* IV. (1930), 242; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 201; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 261, 290.

Eriophorum polystachyon L. Sp. Pl. ed. 1, (1753), 52; BRITT. & BR. Ill. Fl. I. (1896), 273; HOWELL, Fl. NW. I. (1903), 692; FERNALD, in Rhodora VII. (1905), 88; FEDTSCH. Fl. Il. Comm. (1906), 114; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 204; KOMAR. Fl. Pen. Kamtschat. I. (1927), 204.

HAB. In bogs (CH): Unalaska (1931).
Distr.-Type: Circumpolar.

Eriophorum medium ANDERS. in Bot. Not. (1857), 67; HULT. Fl. Kamtchat. I. (1927), 161.

HAB. In bogs (CH): Attu (1929); Atka (1931).
Distr.-Type: Eurasiatic–Western American.

Eriophorum russeolum FR. in HARTM. Handb. Skand. Fl. ed. 3, (1838), 13; BRITT. & BR. Ill. Fl. I. (1896), 272; HOWELL, Fl. NW. Am. I. (1903), 692; HULT. Fl. Kamtchat. I. (1927), 162.

Eriophorum Chamissonis C. A. MEY. in LEDEB. Fl. Alt. I. (1829), 70; LEDEB. Fl. Ross. IV. (1853), 253; FERNALD, in Rhodora VII. (1905), 83; ABRAMS, Ill. Fl. Pacif. St. I. (1923), 268; KOMAR. Fl. Pen. Kamtschat. I. (1927), 203.

HAB. In bogs (CH): Attu (1929); Amchitka (1929); Unalaska (1931).
Distr.-Type: Eurasiatic–Western American.

Eriophorum Scheuchzeri HOPPE, Taschenb. (1800), 104; LEDEB. Fl. Ross. IV. (1853), 255; BRITT. & BR. Ill. Fl. I. (1896), 272; HOWELL, Fl. NW. Am. I. (1903), 692; FERNALD, in Rhodora VII. (1905), 82, et *ibid.* XXVII. (1925), 206; HULT. Fl. Kamtchat. I. (1927), 163; KOMAR. Fl. Pen. Kamtschat. I. (1927), 202.

HAB. In bogs (CH): Attu (1929).
Distr.-Type: Circumpolar.

Scirpus caespitosa L. Sp. Pl. ed. 1, (1753), 48; BONG. Vég. Sitcha, (1833), 169; LEDEB. Fl. Ross. IV. (1853), 246; KURTZ, in ENGL. Bot. Jahrb. XIX. (1895), 414; BRITT. & BR. Ill. Fl. I. (1896), 262; FEDTSCH. Fl. Il. Comm. (1906), 114; KUDO, Fl. Isl. Paramushir, (1922), 76; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 271; HULT. Fl. Kamtchat. I. (1927), 164, et *ibid.* IV. (1930), 242; MIYABE & KUDO, Fl. Hok. & Saghal. II. (1931), 202; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 217, 241, 261, 290.

Trichophorum caespitosum HARTM. Handb. 5, Suppl. 259, (1849); KOMAR. Fl. Pen. Kamtschat. I. (1927), 205.

HAB. In wet grounds (CH): Attu (1929, 1931); Unalaska (1931).
Distr.-Type: Circumpolar.

Juncaceae

Juncus castaneus SMITH, Fl. Brit. I. (1800), 383; LEDEB. Fl. Ross. IV. (1853), 232; KURTZ, in ENGL. Bot. Jahrb. XIX. (1895),

412; BRITT. & BR. Ill. Fl. I. (1896), 389; HOWELL, Fl. NW. Am. I. (1903), 682; FEDTSCH. Fl. Il. Comm. (1906), 113; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 205; KUDO, Fl. Isl. Paramushir, (1922), 89; HULT. Fl. Kamtchat. I. (1927), 219, et *ibid.* IV. (1930), 244; KOMAR. Fl. Pen. Kamtschat. I. (1927), 282; MIYABE & KUDO, Fl. Hok. & Saghal. III. (1932), 305; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 304; SATAKE, in Journ. Facult. Sc. Imp. Univ. Tokyo, IV. (1933), 190.

HAB. In swamps (GE): Atka (1929).
Distr.-Type: Circumpolar.

Juncus falcatus E. MEYER, Syn. Luzularum, (1823), 34; LEDEB. Fl. Ross. IV. (1853), 228, p.p.; HOWELL, Fl. NW. Am. I. (1903), 684; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 359.

var. ***genuinus*** BUCHENAU, Monogr. Juncac. (1890), 428, et in ENGL. Pfl.-reich. IV.–36. (1906), 247; SATAKE, in Bot. Mag. (Tokyo), XLVI. (1932), 185.

HAB. In wet meadows (HK): Unalaska (1931).

var. ***sitchensis*** BUCHENAU, Monogr. Juncac. (1890), 428, et in ENGL. Pfl.-reich. IV.–36. (1906), 247; SATAKE, in Bot. Mag. (Tokyo), XLVI. (1932), 185.

Juncus falcatus E. MEYER, var. *alaskensis* COVILLE, in Contr. Nat. Herb. III. No. 6, (1895), 347.

HAB. In wet meadows and swamps (HK): Atka (1929, 1931).
Distr.-Type: Pacific.

Juncus Haenkei E. MEYER, Syn. Juncorum, (1822), 10; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 9–A; KOMAR. Fl. Pen. Kamtschat. I. (1927), 278; SATAKE, in Bot. Mag. (Tokyo), XLVI. (1932), 185, 365, et in Journ. Facult. Sc. Imp. Univ. Tokyo, IV. (1933), 179.

Juncus balticus WILLD. var. *Haenkei* BUCHENAU, Monogr. Juncac. (1890), 215; MACOUN, List Pl. Pribilof Isl. (1899), 571; FEDTSCH. Fl. Il. Comm. (1906), 113; KUDO, Fl. Isl. Paramushir, (1922), 88.

Juncus balticus LEDEB. Fl. Ross. IV. (1853), 222, p.p.; SAMUELSSON, in HULT. Fl. Kamtchat. I. (1927), 216. p.p.

Juncus articus WILLD. var. *sitchensis* ENGELMANN, in Trans. St. Louis Acad. II. (1866), 445.

HAB. In muddy places (GE): Atka (1931).
Distr.-Type: Northern Pacific.

Juncus Mertensianus BONGARD, in Mém. Acad. St. Peters. Sér. 6, II. (1833), 167; KURTZ, in ENGL. Bot. Jahrb. XIX. (1895), 412; HOWELL, Fl. NW. Am. I. (1903), 686; ABRAMS, Ill. Fl. Pac. Stat. I. (1923), 363; SATAKE, in Bot. Mag. (Tokyo), XLVI. (1932), 185, et in Journ. Facult. Sc. Imp. Univ. Tokyo, IV. (1933), 185.

HAB. In swamps (GE): Atka (1931); Unalaska (1931).
Distr.-Type: Northern Pacific.

Juncus phaeocephalus ENGELMANN, in Trans. St. Louis Acad. II. (1868), 484.

var. *glomeratus* ENGELMANN, l. c.; BUCHENAU, in ENGL. Pfl.-reich. IV.–36. (1906), 179; SATAKE, in Bot. Mag. (Tokyo), XLVI. (1932), 186.

HAB. In swamps (GE): Attu (1929); Unalaska (1931).
Distr.-Type: Northern Pacific–American Pacific.

Juncus triglumis L. Sp. Pl. ed. 1, (1753), 328; LEDEB. Fl. Ross. IV. (1853), 233; BRITT. & BR. Ill. Fl. I. (1896), 390; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 9–A; KUDO, Fl. Isl. Paramushir, (1922), 89; HULT. Fl. Kamtchat. I. (1927), 223.

var. *albescens* LANGE, Conspect. Fl. Grönland. (1880), 123; BUCHENAU, in ENGL. Pfl.-reich. IV.–36. (1906), 224; SATAKE, in Bot. Mag. (Tokyo), XLVI. (1932), 186.

HAB. In muddy places (HK): Atka (1931).
Distr.-Type: Circumpolar.

Luzula arcuata WAHLENBERG, Fl. Suecica, I. (1824), 218; LEDEB. Fl. Ross. IV. (1853), 218.

var. *typica* BUCHENAU, in ENGL. Pfl.-reich. IV.–36. (1906), 70; SATAKE, in Bot. Mag. (Tokyo), XLVI. (1932), 186.

HAB. In heaths (HK): Atka (1931).
Distr.-Type: Circumpolar.

Luzula divaricata WATSON, in Proc. Amer. Acad. XIV. n. ser. VI. (1879), 303; BUCHENAU, Monogr. Juncac. (1890), 111.
Juncoides divaricatum COVILLE, in Contr. U. S. Nat. Herb. IV. (1893), 209; HOWELL, Fl. NW. Am. I. (1903), 681; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 370.

Luzula spadicea DC. var. *divaricata* BUCHEN. in ENGL. Pfl.-reich. IV.–36. (1906), 63.

HAB. In wet meadows (HK): Amchitka (1929).
Distr.-Type: Northern Pacific··· American Pacific.

Luzula Kobayasii SATAKE, in Bot. Mag. (Tokyo), XLVI. (1932), 186.

HAB. In wet meadows (HK): Attu (1929); Amchitka (1929); Atka (1929); Unalaska (1931).

var. ***minor*** SATAKE, in Bot. Mag. (Tokyo), XLVI. (1932), 186.

HAB. In wet meadows (HK): Attu (1929); Amchitka (1929); Atka (1929, 1931); Unalaska (1931).
Distr.-Type: Northern Pacific···endemic.

Luzula Kjellmanniana MIYABE ET KUDO, in Trans. Nat. Hist. Soc. Sapporo, V. (1913), 38, et Fl. Hok. & Saghal. III. (1932), 294; KUDO, Fl. Isl. Paramushir, (1922), 86; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 219, 243, 263, 274, 292, 304; SATAKE, in Journ. Facult. Sc. Imp. Univ. Tokyo, IV. (1933), 199.

Luzula multiflora LEJEUNE, var. *Kjellmanniana* SAMUELSSON, in HULT. Fl. Kamtchat. I. (1927), 227; SATAKE, in Bot. Mag. (Tokyo), XLVI. (1932), 187.

HAB. In rocky places (HK): Atka (1931).
Distr.-Type: Eastern Asiatic.

Luzula parviflora DESVAUX, Journ. de bot. I. (1808), 144; BONG. Vég. Sitcha, (1833), 167; BUCHENAU, in ENGL. Pfl.-reich. IV.–36, (1906), 61; HULT. Fl. Kamtchat. I. (1927), 229, et *ibid.* IV. (1930), 245; KOMAR. Fl. Pen. Kamtschat. I. (1927), 284.

Juncoides parviflorum COVILLE, in Contr. U. S. Nat. Herb. IV. (1893), 209; BRITT. & BR. Ill. Fl. I. (1896), 397; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 130; HOWELL, Fl. NW. Am. I. (1903), 680; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 369.

Luzula spadicea DC. var. *parviflora* LEDEB. Fl. Ross. IV. (1853), 217.

var. ***fastigiata*** BUCHENAU, Krit. Verz. aller··· Juncaceen, (1880), 83, et in ENGL. Pfl.-reich. IV.–36. (1906), 61.

Luzula fastigiata E. MEY. Synops. Luzul. (1823), 9.

Luzula melanocarpa DESV. *β fastigiata* E. MEY. in Linnaea III. (1823), 374.

Luzula melanocarpa DESV. var. *fusca* HOOK. Fl. Bor. Amer. II. (1840), 188.

HAB. In wet meadows (HK): Attu (1929).

var. ***melanocarpa*** BUCHENAU, Krit. Verz. aller Juncac. (1880), 83, et Monogr. Juncac. (1890), 83, et in ENGL. Pfl.-reich. IV.–36. (1906), 62; MIYABE & KUDO, Fl. Hok. & Saghal. III. (1932), 293; SATAKE, in Journ. Facult. Sc. Imp. Univ. Tokyo, IV. (1933), 197.

Juncus melanocarpus MICHX. Fl. Bor. Amer. I. (1803), 190.

Luzula melanocarpa MICHX. *β pallida* HOOK. Fl. Bor. Amer. II. (1840), 188.

Luzula spadicea DC. var. *melanocarpa* E. MEY. in Linnaea, XXII. (1849), 403; LEDEB. Fl. Ross IV. (1853), 217.

Juncoides parviflorum COVILLE, var. *melanocarpum* SHELDON, in Bull. Geol. Surv. Minn. IX. 63; HOWELL, Fl. NW. Am. I. (1903), 680.

HAB. In wet meadows (HK): Attu (1929, 1931); Atka (1931); Unalaska (1931).

Distr.-Type: Circumpolar.

Liliaceae

Fritillaria camschatcensis KER-GAWL, in Curtis's Bot. Mag. XXX. (1809), sub. *t. 1216;* LEDEB. Fl. Ross. IV. (1853), 147; MIYABE, Fl. Kuril. (1890), 265; KURTZ, in Engl. Bot. Jahrb. XIX. (1895), 410; MACOUN, List Pl. Pribilof Isl. (1899), 571; YABE & YENDO, Pl. Isl. Shumushu, (1904), 176; FEDTSCH. Fl. Il. Comm. (1906), 110; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 205; KUDO, Fl. Isl. Paramushir, (1922), 91; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 423; TATEWAKI, Pl. Isl. Alaid, (1927), 159, et Phytogeogr. Middle Kuril. (1933), 221, 244, 264, 274, 292, 304; HULT. Fl. Kamtchat. I. (1927), 243, et *ibid.* IV. (1930), 246; KOMAR. Fl. Pen. Kamtschat. I. (1927), 300; MIYABE & KUDO, Fl. Hok. & Saghal. III. (1932), 326.

Lilium camschatcense L. Sp. Pl. ed. 1, (1753), 303; BONG. Vég. Sitcha, (1833), 166.

HAB. In wet grounds, generally by rivulets and brooks (GE—geophyta bulbosa): Attu (1929, 1931); Amchitka (1929); Atka (1929, 1931); Unalaska (1931).

Distr.-Type: Northern Pacific.

Lloydia serotina REICHB. Fl. Germ. Excurs. (1830), 102; LEDEB. Fl. Ross. IV. (1853), 144; KURTZ, in ENGL. Bot. Jahrb. XIX. (1895), 410; MACOUN, List Pl. Pribilof Isl. (1899), 571; EASTWOOD, in Bot. Gaz. XXXIII. (1902), 130; HOWELL, Fl. NW. Am. I. (1903), 651; YABE & YENDO, Pl. Isl. Shumushu, (1904), 177; KOIDZUMI, in Bot. Mag. (Tokyo), XXV. (1911), 205; MACOUN & HOLM, Rep. Canad. Arc. Exped. 1913–18, V. (1921), 10–A; HOLM, *ibid.* (1922), 17–B; KUDO, Fl. Isl. Paramushir, (1922), 92; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 430; TATEWAKI, Pl. Isl. Alaid, (1927), 159, et Phytogeogr. Middle Kuril. (1933), 221, 244, 264, 274, 292; HULT. Fl. Kamtchat. I. (1927), 245, et *ibid.* IV. (1930), 246; KOMAR. Fl. Pen. Kamtschat. I. (1927), 294.

Lloydia alpina SALISB. in Trans. Hort. Soc. I. (1872), 328; MIYABE & KUDO, Fl. Hok. & Saghal. III. (1932), 328.

HAB. In heaths (GE): Atka (1929); Unalaska (1931).
Distr.-Type: Eurasiatic–Western American.

Majanthemum dilatatum NELS. ET MACBR. in Bot. Gaz. LXI. (1916), 30; NAKAI, in Bot. Mag. (Tokyo), XXXVIII. (1924), (180); TATEWAKI, Pl. Isl. Alaid, (1927), 159, et Phytogeogr. Middle Kuril. (1933), 221, 244, 264, 274, 293; HULT. Fl. Kamtschat. I. (1927), 247; MIYABE & KUDO, Fl. Hok. & Saghal. III. (1932), 333.

Unifolium dilatatum HOWELL, Fl. NW. Am. I. (1903), 657; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 455.

Smilacina bifolia DESF. var. *kamtschatica* LEDEB. Fl. Ross. IV. (1853), 127; KURTZ, in ENGL. Bot. Jahrb. XIX. (1895), 409; FEDTSCH. Fl. Il. Comm. (1906), 109.

Majanthemum bifolium DC. var. *kamtschaticum* TRAUTV. ET MEY. Fl. Ochot. (1856), 92; MIYABE, Fl. Kuril. (1890), 264; YABE & YENDO, Pl. Isl. Shumushu, (1904), 177.

Majanthemum canadense DESF. var. *kamtschaticum* KUDO, Fl. Isl. Paramushir, (1922), 92.

Majanthemum kamtschaticum NAKAI, in Bot. Mag. (Tokyo), XXXI. (1917), 282; KOMAR. Fl. Pen. Kamtschat. I. (1927), 302.

HAB. In meadows (GE): Attu (1929, 1931).
Distr.-Type: Northern Pacific.

Streptopus amplexifolius DC. in LAM. ET DC. Fl. Fr. III. (1805), 174; BONG. Vég. Sitcha, (1833), 166, (var. *americanus*); LEDEB. Fl. Ross. IV. (1853), 122; MIYABE, Fl. Kuril. (1890), 263; KURTZ, in ENGL. Bot. Jahrb. XIX. (1895), 409; BRITT. & BR. Ill. Fl. I. (1896),

432; MACOUN, List Pl. Pribilof Isl. (1899), 571; FEDTSCH. Fl. Il. Comm. (1906), 109; KUDO, Fl. Isl. Paramushir, (1922), 93; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 457; HULT. Fl. Kamtchat. I. (1927), 250; KOMAR. Fl. Pen.. Kamtschat. I. (1927), 304; MIYABE & KUDO, Fl. Hok. & Saghal. III. (1932), 335; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 221, 244, 264, 274, 293, 304.

HAB. Along ravines (GE): Attu (1929); Amchitka (1929); Atka (1929, 1931).

Distr.-Type: Circumpolar.

Tofieldia nutans WILLD. ex L. Syst. Veg. (1830), 1573; LEDEB. Fl. Ross. IV. (1853), 210; YABE & YENDO, Pl. Isl. Shumushu, (1904), 177; MIYABE & KUDO, in Trans. Sapporo Nat. Hist. V.–2. (1914), 75, et Fl. Hok. & Saghal. III. (1932), 307; KUDO, Fl. Isl. Paramushir, (1922), 89; TATEWAKI, Pl. Isl. Alaid, (1927), 157, et Phytogeogr. Middle Kuril. (1933), 220, 243, 264, 292; HULT. Fl. Kamtchat. I. (1927), 230, *fig. 15*, et *ibid.* IV. (1930), 245; KOMAR. Fl. Pen. Kamtschat. I. (1927), 289.

HAB. In heaths and rocky places (HK): Attu (1929, 1931); Atka (1929, 1931); Unalaska (1931).

Distr.-Type: Eastern Asiatic–Western American.

Veratrum oxysepalum TURCZ. in Bull. Soc. Nat. Mosc. (1840), 79; MIYABE & KUDO, Fl. Hok. & Saghal. III. (1932), 312.

Veratrum album L. var. *oxysepalum* MIYABE ET KUDO, in MIYABE & MIYAKE, Fl. Saghal. (1915), 484; KUDO, Fl. Isl. Paramushir, (1922), 90; TATEWAKI, Pl. Isl. Alaid, (1927), 158, et Phytogeogr. Middle Kuril. (1933), 220, 243, 292, 304.

Veratrum album L. subsp. *oxysepalum* HULT. Fl. Kamtchat. I. (1927), 233.

HAB. In meadows (GE): Attu (1929, 1931).

Distr.-Type: Northern Pacific.

Iridaceae

Iris setosa PALL, ex LINK, in SPRENG. SCHRAD. & LINK, Jahrb. d. Gew.-kunde, I.–3. (1820), 71; LEDEB. Fl. Ross. IV. (1853), 96; MIYABE, Fl. Kuril. (1890), 263; YABE & YENDO, Pl. Isl. Shumushu, (1904), 178; FEDTSCH. Fl. Il. Comm. (1906), 108; KUDO, Fl. Isl. Paramushir, (1922), 93; TATEWAKI, Pl. Isl. Alaid, (1927), 159, et

Phytogeogr. Middle Kuril. (1933), 221, 244, 264, 293, 305; HULT. Fl. Kamtchat. I. (1927), 254, et *ibid.* IV. (1930), 246; KOMAR. Fl. Pen. Kamtschat. I. (1927), 306; MIYABE & KUDO, Fl. Hok. & Saghal. III. (1932), 351.

HAB. In meadows and boggy places (GE): Attu (1929); Atka (1929, 1931); Unalaska (1931).

Distr.-Type: Northern Pacific.

Orchidaceae

Coeloglossum viride HARTM. Hand. Skand. Fl. ed. 1, (1820), 329.

var. ***bracteatum*** RICHT. Pl. Europ. I. (1890), 279; HULT. Fl. Kamtchat. I. (1927), 260; KOMAR. Fl. Pen. Kamtschat. I. (1927), 313; MIYABE & KUDO, Fl. Hok. & Saghal. III. (1932), 360; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 222, 244, 265, 293.

Habenaria bracteata R. BR. in Ait. Hort. Kew. ed. 2, V. (1813), 192; BRITT. & BR. Ill. Fl. I. (1896), 463.

Peristylis bracteatus LINDL. Gen. & Sp. Orchid. (1835), 298; LEDEB. Fl. Ross. IV. (1853), 71.

Platanthera bracteata TORR. Fl. N.Y. II. (1843), 279; SCHLTR. Orchideol. Sino-Jap. Prodr. (1919), 108.

HAB. In meadows (GE): Atka (1929).

Distr.-Type: Circumpolar.

Cypripedium *Yatabeanum* MAKINO, in Bot. Mag. (Tokyo), XIII. (1899), 91; HULT. Fl. Kamtchat. I. (1927), 258, *fig. 18*, et *ibid.* IV. (1930), 246; KOMAR. Fl. Pen. Kamtschat. I. (1927), 309; MIYABE & KUDO, Fl. Hok. & Saghal. III. (1932), 354; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 244, 265, 293.

Cypripedium guttatum SW. var. *Yatabeanum* PFITZ, in ENGL. Pfl.-reich. IV.–50. (1903), 33; SCHLTR. Orchideol. Sino-Jap. Prodr. (1919), 82.

HAB. In meadows (GE): Unalaska (1931).

Distr.-Type: Northern Pacific.

Listera cordata R. BR. in Ait. Hort. Kew. ed. 2, V. (1813), 201; BONG. Vég. Sitcha, (1833), 165; LEDEB. Fl. Ross. IV. (1853), 80; KURTZ, in Engl. Bot. Jahrb. XIX. (1895), 407; BRITT. & BR. Ill. Fl. I. (1896), 473; HOWELL, Fl. NW. Am. I. (1903), 630; FEDTSCH. Fl.

Il. Comm. (1906), 108; SCHLTR. Orchideol. Sino-Jap. Prodr. (1919), 141; KUDO, Fl. Isl. Paramushir, (1922), 95; HULT. Fl. Kamtchat. I. (1927), 268, et *ibid.* IV. (1930), 246; KOMAR. Fl. Pen. Kamtschat. I. (1927), 320; MIYABE & KUDO, Fl. Hok. & Saghal. III. (1932), 370; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 222, 245, 265, 294, 305.

Ophrys cordata L. Sp. Pl. ed. 1, (1753), 946; ABRAMS, Ill. Fl. Pacif. Stat. I. (1923), 480.

HAB. In meadows (GE): Attu (1929); Amchitka (1929); Atka (1929, 1931).

Distr.-Type: Circumpolar.

Orchis aristata FISCH. ex LINDL. Gen. & Sp. Orchid. (1835), 262; MIYABE, Fl. Kuril. (1890), 262; YABE & YENDO, Pl. Isl. Shumushu, (1904), 178; FEDTSCH. Fl. Il. Comm. (1906), 106; SCHLTR. Orchideol. Sino-Jap. Prodr. (1919), 87; TATEWAKI, Pl. Isl. Alaid, (1927), 10, et Phytogeogr. Middle Kuril. (1933), 222, 244, 265, 293, 305; HULT. Fl. Kamtchat. I. (1927), 259, et *ibid.* IV. (1930), 246; KOMAR. Fl. Pen. Kamtschat. I. (1927), 311; MIYABE & KUDO, Fl. Hok. & Saghal. III. (1932), 356.

Orchis latifolia L. var. *beeringiana* CHAM. ET SCHL. in Linnaea, III. (1828), 26; LEDEB. Fl. Ross. IV. (1853), 54.

Orchis Beeringiana KUDO, Fl. Isl. Paramushir, (1922), 94.

HAB. *In meadows and boggy places (GE): Attu (1929, 1931);* Amchitka (1929); Atka (1929, 1931); Unalaska (1931).

Distr.-Type: Northern Pacific.

Platanthera behringiana TATEWAKI ET KOBAYASHI, comb. nov.

Limnorchis behringiana RYDB. in Bull. Torr. Bot. Cl. XXVIII. (1901), 620; HULT. Fl. Kamtchat. I. (1927), 267, in nota.

Habenaria behringiana AMES, Stud. Fam. Orchid. IV. (1910), 91.

HAB. In heaths (GE): Attu (1929).

Distr.-Type: Northern Pacific.

The plant is closely related to *P. tipuloides* of Asiatic Pacific Region, from which it differs in its lower growth (about 8–10 cm. in height), denser spike and shorter lip (about 4 mm. long).

Platanthera Chorisiana REICHB. Icon. Germ. XIII. (1851), 162; Schltr. Orchideol. Sino-Jap. Prodr. (1919), 109; HULT. Fl. Kamtchat. I. (1927), 263, in nota; MIYABE & KUDO, Fl. Hok. & Saghal. III. (1932), 366.

Peristylus Chorisianus LINDL. Gen. & Sp. Orchid. (1835), 297; LEDEB. Fl. Ross. IV. (1853), 71.

? Platanthera Ditmariana KOMAR. in Fedde, Rep. XIII. (1914), 165, et Fl. Pen. Kamtschat. I. (1927), 317, p. p.

HAB. In heaths (GE): Attu (1929); Atka (1929).

Distr.-Type: Northern Pacific.

Platanthera dilatata LINDL. ex BECK, Bot. North & Midd. St. (1838), 347; LEDEB. Fl. Ross. IV. (1853), 70; KURTZ, in Engl. Bot. Jahrb. XIX. (1895), 408; HULT. Fl. Kamtchat. I. (1927), 262.

Habenaria dilatata HOOK. Exot. Fl. II. (1825), *pl. 95;* BRITT. & BR. Ill. Fl. I. (1896), 462; HOWELL, Fl. NW. Am. I. (1903), 628.

Limnorchis dilatata RYDB. in Bull. Torr. Club, XXVIII. (1901), 622.

HAB. In boggy places (GE): Unalaska (1931).

Distr.-Type: American–Eastern Asiatic.

Platanthera hyperborea LINDL. Gen. & Sp. Orchid. (1835), 287; KURTZ, in ENGL. Bot. Jahrb. XIX. (1895), 408; FEDTSCH. Fl. Il. Comm. (1906), 107; SCHLTR. Orchideol. Sino-Jap. Prodr. (1919), 113, in nota; HULT. Fl. Kamtchat. I. (1927), 264; KOMAR. Fl. Pen. Kamtschat. I. (1927), 315; MIYABE & KUDO, Fl. Hok. & Saghal. III. (1932), 368; TATEWAKI, Phytogeogr. Middle Kuril. (1933), 222, 245, 265, 274, 293.

Habenaria hyperborea R. BR. in Ait. Hort. Kew. ed. 2, V. (1813), 193; BRITT. & BR. Ill. Fl. I. (1896), 462; HOWELL, Fl. NW. Am. I. (1903), 628.

Plantanthera Makinoi KUDO, Fl. Isl. Paramushir, (1922), 95.

HAB. In wet places (GE): Attu (1929, 1931); Amchitka (1929); Atka (1929, 1931).

Distr.-Type: American–Eastern Asiatic.

M. TATEWAKI, in Botanical Inst. Fac. Agr. Hokkaido Imp. Univ. Sapporo.

Y. KOBAYASHI, in Botanical Inst. Tokyo Univ. of Literature and Science.

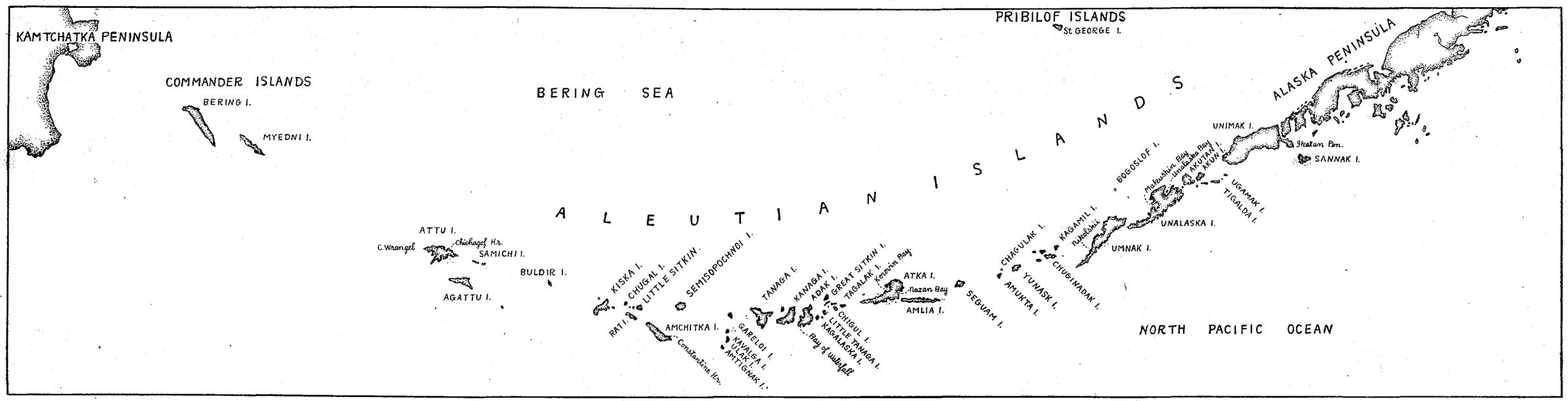

KAMTCHATKA PENINSULA
COMMANDER ISLANDS
BERING I.
MYEDNI I.
BERING SEA
PRIBILOF ISLANDS
St. GEORGE I.
ALASKA PENINSULA
ALEUTIAN ISLANDS
UNIMAK I.
Skaton Pen.
SANNAK I.
BOGOSLOF I.
Makushin Bay
Unalaska Bay
AKUTAN I.
AKUN I.
UGAMAK I.
TIGALDA I.
UNALASKA I.
KAGAMIL I.
Nikolski
UMNAK I.
CHAGULAK I.
YUNASK I.
CHUGINADAK I.
AMUKTA I.
ATTU I.
Chichagof Hr.
C. Wrangel
SAMICHI I.
BULDIR I.
AGATTU I.
KISKA I.
CHUGAL I.
LITTLE SITKIN
SEMISOPOCHNOI I.
RAT I.
AMCHITKA I.
Constantine Hr.
GARELOI I.
KAVALGA I.
ULAK I.
AMTIGNAK I.
TANAGA I.
KANAGA I.
ADAK I.
GREAT SITKIN I.
TAGALAK I.
CHIGUL I.
LITTLE TANAGA I.
KAGALASKA I.
Bay of Waterfall
ATKA I.
Korovin Bay
Nazan Bay
AMLIA I.
SEGUAM I.
NORTH PACIFIC OCEAN

Fig. 6.

EXPLANATION OF PLATES

Plate I

Fig. 1. Near Constantine Bay, Amchitka Isl. (July 11, 1929).

Fig. 2. Mountain ranges in the western side of the Holz Bay, Attu Isl. (July 23, 1929).

Fig. 3. Littoral Belt at low tide, showing *Alaria-Hedophyllum-Laminaria*-Association (foreground and a right), Atka Isl. (June, 1931).

Fig. 4. Littoral Belt, showing *Halosaccion glandiforme* on pebbles (at left) and *Fucus evanescens*-Association (at right), Atka Isl. (June, 1931).

Plate II

Fig. 5. Plants in crevice along coast, showing *Potentilla villosa*, *Ligusticum Hultenii* and *Carex macrochaeta*, Nazan Bay, Atka Isl. (June, 1931).

Fig. 6. Plants of sandy shore, showing *Ammodenia oblongifolia* (foreground) and *Elymus mollis* (background), Nazan Bay, Atka Isl. (June, 1931).

Fig. 7. Sea cliffs, showing *Caloplaca elegans*, Atka Isl. (May, 1931).

Fig. 8. Beachslope, showing *Carex macrochaeta*, *Heracleum lanatum* and other elements of meadows, Nazan Bay, Atka Isl. (July 1931).

Plate III

Fig. 9. Lower edge of heath on the marine terrace, showing *Empetrum nigrum*, *Lupinus nootkatensis*, *Artemisia Tilesii*, *Anemone narcissiflora* and others, Atka Isl. (July, 1931).

Fig. 10. Creek, Atka Isl. (June, 1931).

Fig. 11. Distance view of Amlia Isl. across the Amlia Pass, and several islets in the Nazan Bay, Atka Isl. (July 6, 1929).

Fig. 12. Saxicolous plants on hill tops, showing *Gyrophora*, *Rhizocarpon* and *Polytricum*, Attu Isl. (June, 1931).

Plate IV

Fig. 13. Valley in the vicinity of Chichagof Bay, Attu Isl. (July 15, 1929).

Fig. 14. *Saxifraga punctata*, on rocky cliff, Attu Isl. (July 15, 1929).

Fig. 15. *Saxifraga unalaschkensis*, in rocky place in the vicinity of Nazan Bay, Atka Isl. (July 6, 1929).

Fig. 16. *Veronica grandiflora*, in rocky place, in the vicinity of Chichagof Bay, Isl. Attu (July 15, 1929).

Plate V

Fig. 17. Bog and Swamp, in the vicinity of Nazan Bay, Atka Isl. (July 7, 1929).

Fig. 18. *Eriophorum-Carex*-Bog near Constantine Bay, Amchitka Isl. (July 12, 1929).

Fig. 19. *Hippuris vulgaris*, in pond and *Carex-Caltha*-Association across middle distance, Atka Isl. (June, 1931).

Fig. 20. *Rubus Chamaemorus*, associated with *Carex rariflora* and *Cornus canadensis* in heath, Attu Isl. (June 28, 1929).

Plate VI

Fig. 21. *Epilobium latifolium* on river bank, near Chichagof Bay, Attu Isl. (Jul. 15, 1929).

Fig. 22. *Plantago macrocarpa*, Chichagof Bay, Attu Isl. (June 28, 1929).

Fig. 23. *Lupinus nootkatensis* in upland heath, Chichagof, Attu Isl. (June 27, 1929).

Fig. 24. *Anemone narcissiflora*, in grassy land, Atka Isl. (July, 1931).

Plate VII

Fig. 25. Looking over Swamp and Bog, in the vicinity of Nazan Bay, Atka Isl. (June, 1931).

Fig. 26. *Picea sitchensis* among meadow and some floating islands in the pond, Unalaska Isl. (July, 1931).

Fig. 27. *Elymus mollis*, forming small families on a gravelly shore, Unalaska Isl. (July, 1931).

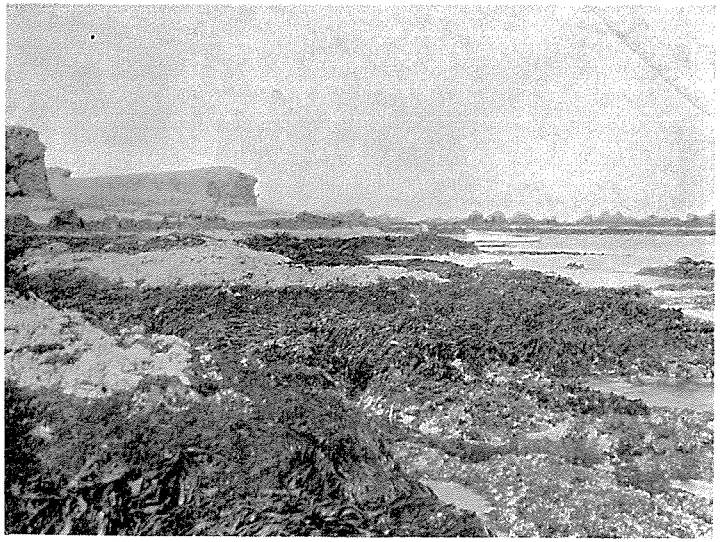
Fig. 28. *Salix alaxensis* in Unalaska (may be cultivated), Unalaska Isl. (July, 1931).

Plate VIII

Fig. 29. Upland heath characterised by the preaestival aspect of *Anemone-Lupinus*, near West Peak, Attu Isl. (July 15, 1929).

Fig. 30. A preaestival aspect characterised by *Lupinus-Anemone*, near Central Peak, Attu Isl. (July 15, 1929).

Fig. 31. Upland near Central Peak in the vicinity of Chichagof Bay, Attu Isl. (July 15, 1929).



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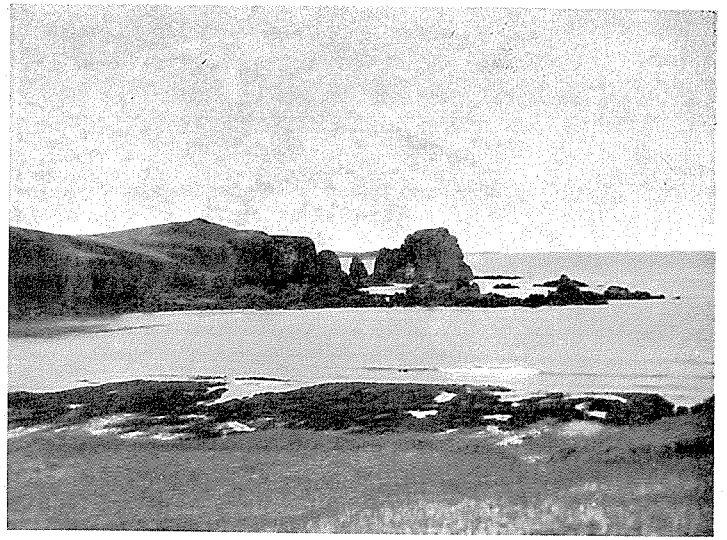

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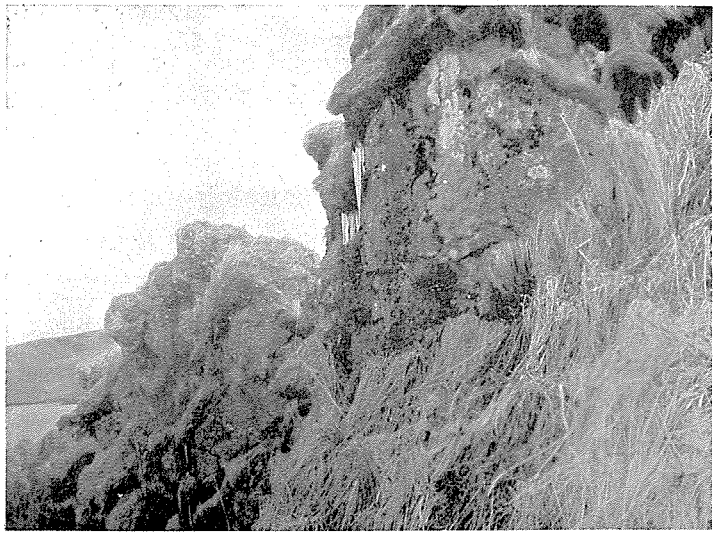

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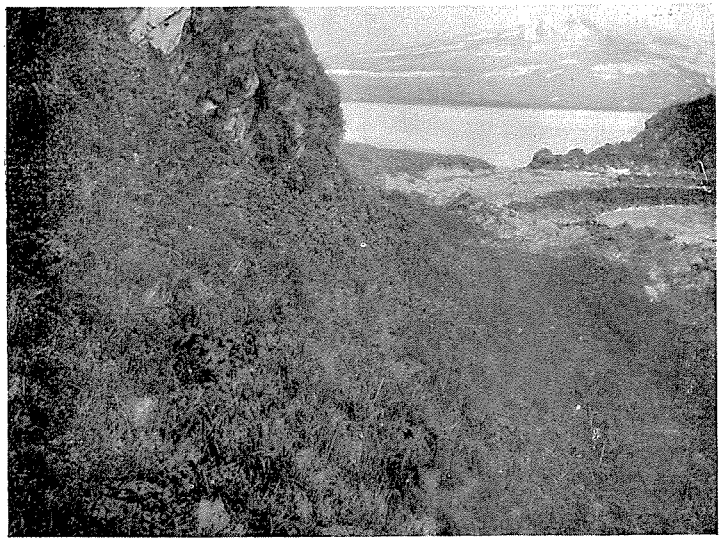

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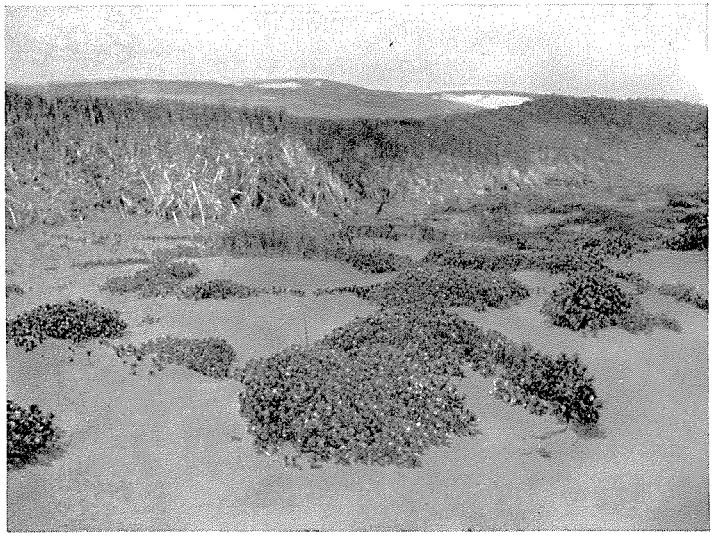

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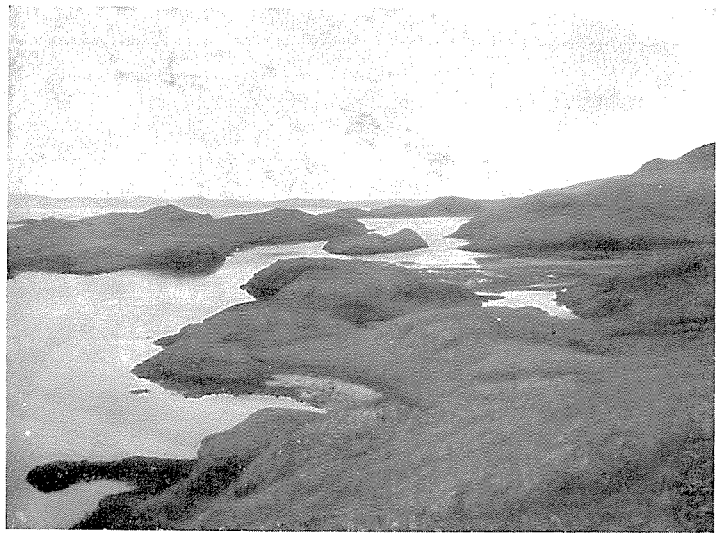

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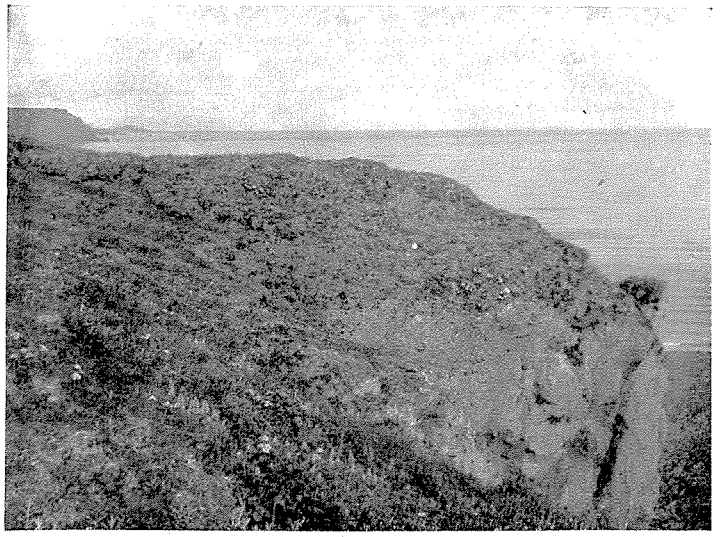

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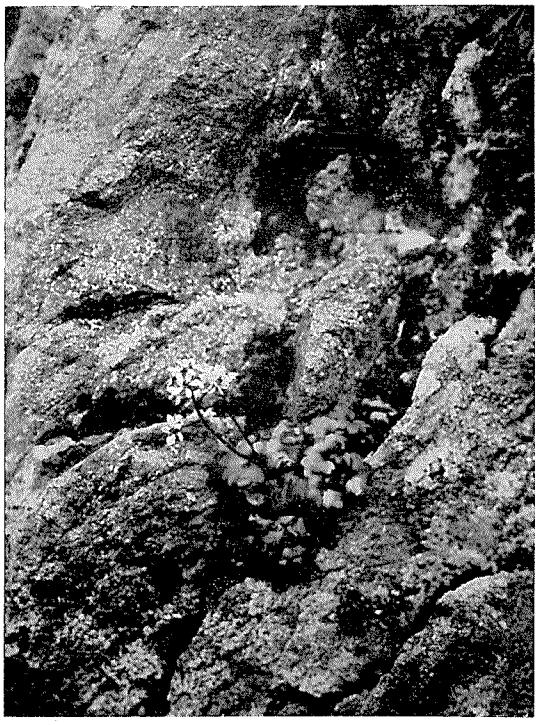
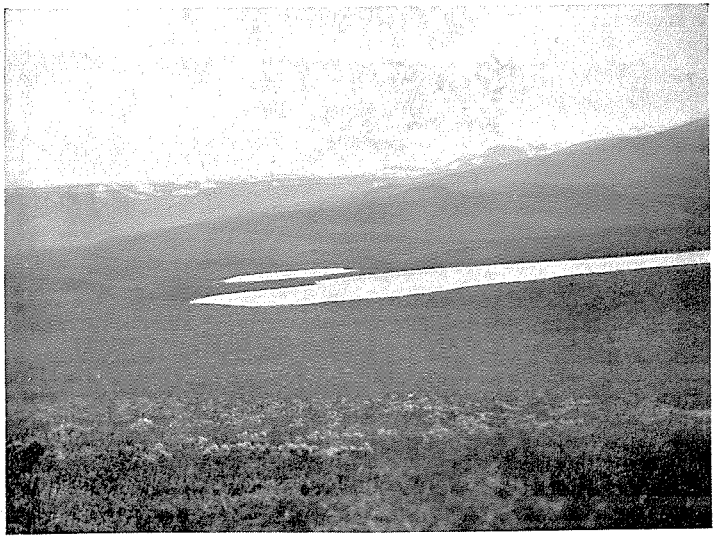


Fig. 14.

Fig. 19.



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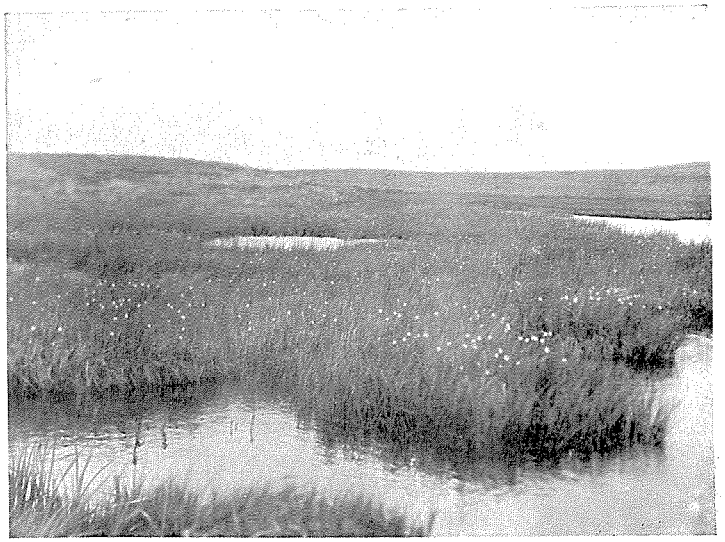

Fig. 18.

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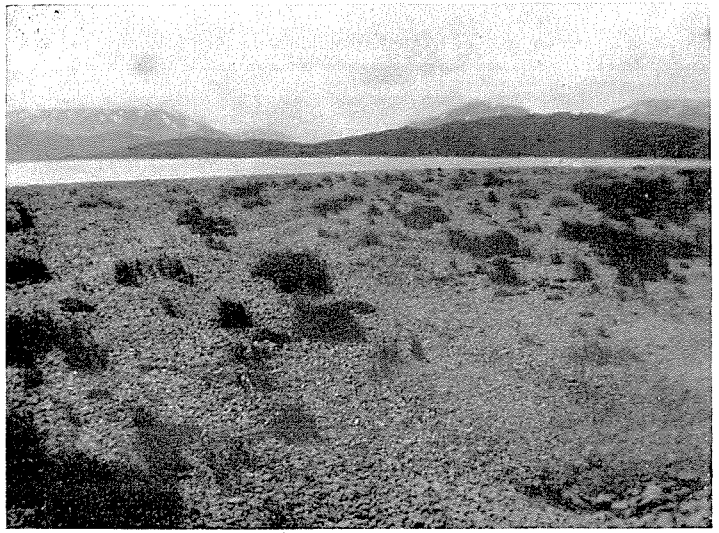

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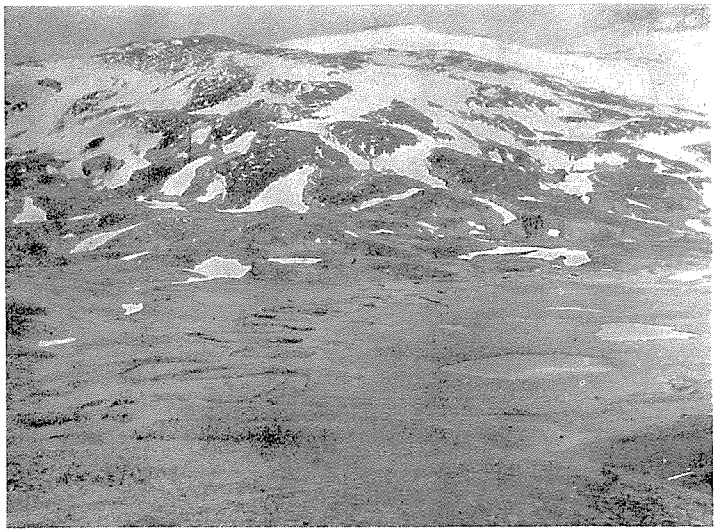

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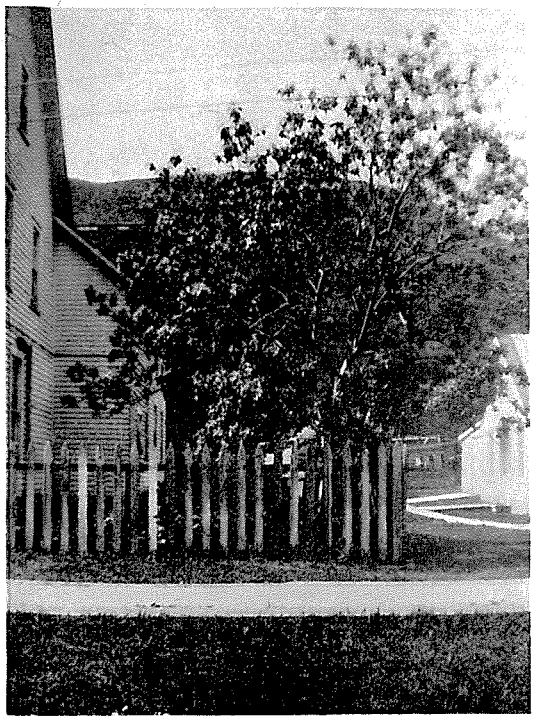

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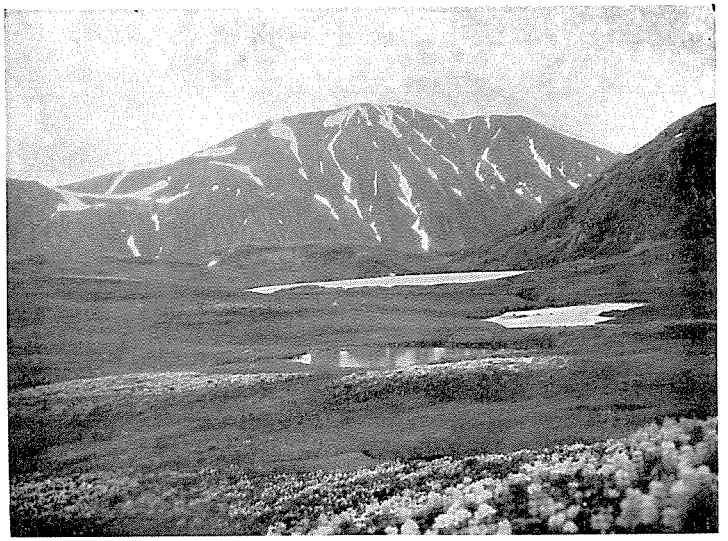

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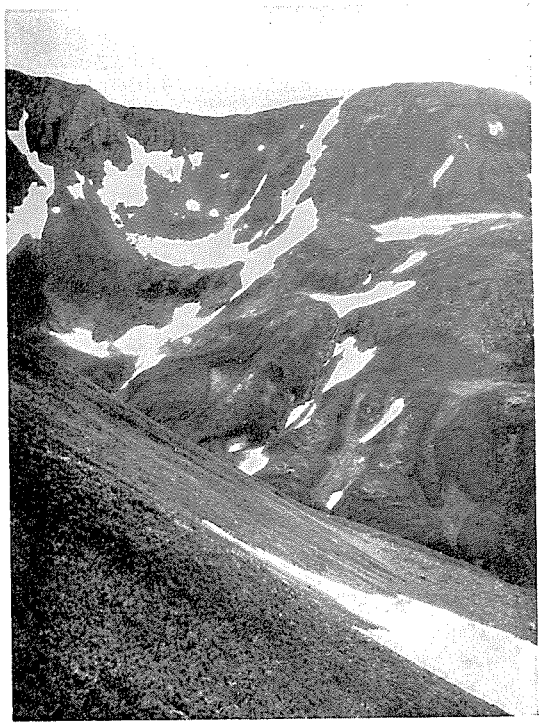

Fig. 31.

Fig. 30.