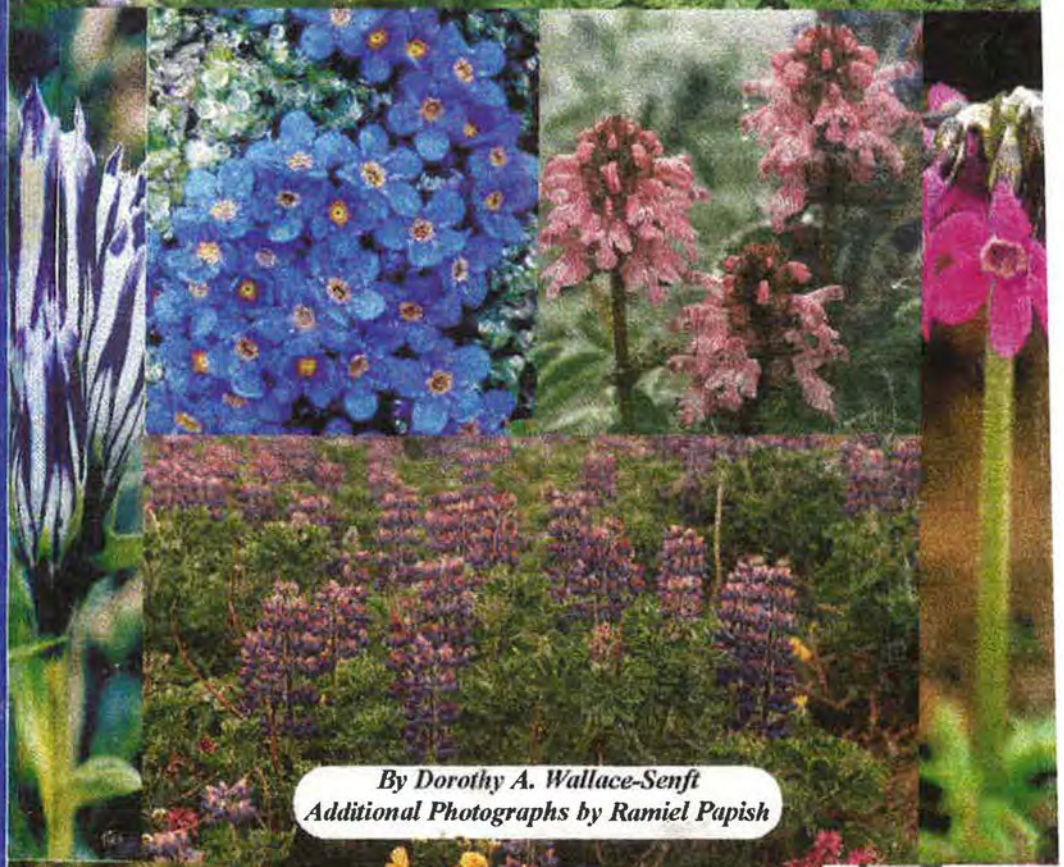
Photographer Ramiel Papish and Author Dorothy A. Wallace-Senft

The Plants of St. Paul Island, Alaska



By Dorothy A. Wallace-Senft
Additional Photographs by Ramiel Papish

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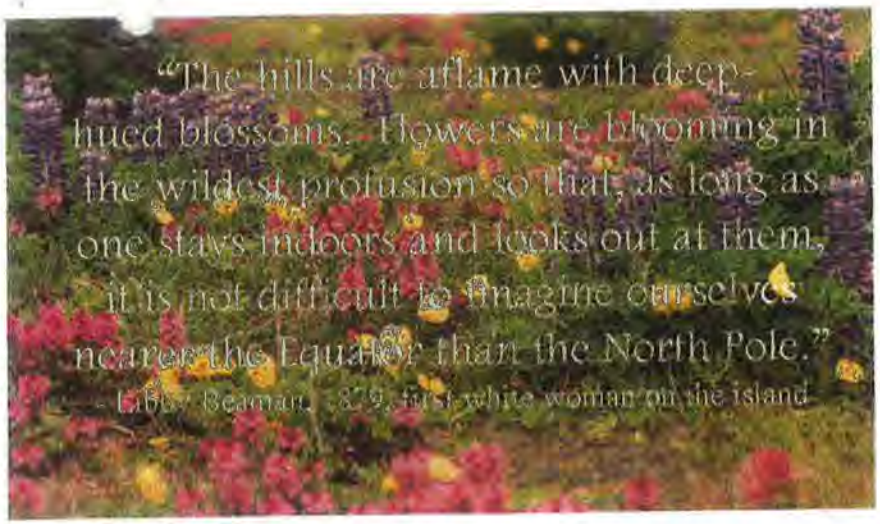

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Acknowledgments

I would like to thank all the people who have thus far given so generously of their time, knowledge and materials to make this plant guide possible: Ram Papish, The Alaska Native Plants Society, The Alaska Plant Materials Center, George Argus, the Arlis Library, Marilyn Barker, Tanya Bitner, Mary Bourdukofsky, Debbie Bourdukofsky, Anselm Bradford, Rich Capitan, Dan Doak, Todd Feeley, Halle Flygare, Mike Froelich, Joan Foote, Feofania Galanin, Margaret George, Steve Gilroy, Karen Holser, Walter Huber, Pachee Kasatok, Tina Kasatok, Irene Kochutin, Nellie Kozloff, Haretina Krukoff, Neon & Tina Krukoff, Rob Lipkin, Linda Mandregan, Jacob Merculief, John Mixon, Mike Mungoven, Harry O'Brien, Carolyn Parker, Peggy Paulus, Ed Philemonof, Ron Philemonoff, Tiny Porath, Verna Pratt, Jim Roetzel, George Rukovishnikoff, Julie & Walter Shane, Stan Sherwood, Scott Schuette, Sean Smith, Anfesa Stepetin, Diodor Stepetin, J. David Swanson, Phyllis Swetzof, Dianne Toebe, the 1998 & 1999 tourists, the 1999 tour guides, Tom Vizo, Anne & Nathan Wallace-Senft, Grace Sherwood Winer, Pam Wolf, Stony Wright, Xena Zacharof, Phil Zavadil. I sincerely regret any names I missed.

Introduction

This book strives to familiarize residents and visitors with the rich assemblage of plants which grow on St. Paul Island, Alaska. The following sections will explain how the guide is set up and give a brief natural history of the Island. I am indebted to the authors of the geology and soils sections for their time and expertise. It is hoped this book will enable all who read it to acquire a greater appreciation of the wildflowers on St. Paul Island.

How the Book is Set Up

This plant guide is fashioned after the plants guides of Pojar and MacKinnon (see under **References**). It includes a **Plant Identification Key** at the beginning. This allows the reader to identify a flower by narrowing down particular traits. This process can be confusing and frustrating, since plant identification has many obscure terms. I have tried to facilitate the process by including a diagram called **Parts of the Flower and Leaf Shape** (p.155) and a **Terms Glossary** (p.21+)(159). The identification key leads the reader to a plant family, and the plant descriptions and photographs follow. These are arranged with flowering plants first in order of evolutionary appearance. The non-flowering plants follow. Accordingly, plant families are grouped together, even though certain species within a family may look very different from one another. This may frustrate the reader, who perhaps looks for plants grouped by color or by habitat, but it is easier to use when the reader is trying to tell two similarly related species apart. Once the reader has used the **Plant Identification Key** and found a plant family which matches their unknown, s/he proceeds to the page number indicated and follows the key at the beginning of each family section until a matching species is found. Then the reader can proceed to the plant photograph and description page for verification. If the reader already has an idea of the plant's identity, an **Index** of common, scientific and family plant names is located at the back. All the terms used in the keys are explained in the **Terms Glossary** located on p.21+(159). The materials used to create this guide are referenced in the **References** section located before the **Index**.


Mary Bourdukovsky

Aleut Names: The Aleut names in the descriptions were related to me by Mary Bourdukofsky, an elder on the island. They are mostly spelled phonetically, but whenever the Aleut Dictionary had the name, I used their spelling, which is not necessarily phonetic. In these cases I usually supplied a phonetic translation as well.

The Natural History of St. Paul Island

St. Paul Island is the largest of the Pribilof Islands, a tiny Bering Sea archipelago located approximately 800 miles west of Anchorage, Alaska and 200 miles north of the Aleutian Chain Islands (lat 57°08'10" N and long 170°17'81" W). It measures 14 miles long and 8 miles wide and includes 44 square miles of land and landlocked water area.

This island, often called "The Galapagos of the North", is the summer home of over 800,000 northern fur seals, millions of colorful sea birds - including the rarely seen red-legged kittiwake - and is refuge for many vagrant birds blown in from Siberia and beyond. About 3,000 of the lesser-seen "blue" color phase arctic foxes are found on the island year-round, as is a herd of about 700 reindeer, and a small population of the elusive, but native Pribilof shrew. The influence of volcanoes and weathering has produced a wide variety of topographical features and microhabitats, including; freshwater lakes, saltmarshes, peat bogs, old lava flows, volcanic rifts, sinks and caves, cinder cones, crater lakes, sea cliffs, shifting sand dunes, beaches, rocky promontories, and more. These places provide ample diversity of habitat for the stunning array of about 200 plants which are found on the island. The diversity and richness of the flora is also attributed to the fact that St. Paul Island is at the crossroads of two continents, being a remnant of the Bering Sea land bridge. The largest community of Aleut natives in the world, over 750, reside on the island. Their culture and history is compelling, showing the influence of enslavement and assimilation by the Russians, forced labor and domination by the US, their interdependence on seal harvest and their struggle to regain their traditions, language and original ways of life. With the breakdown of Alaska into native corporations, St. Paul Island entered a new phase, turning to fishing and crab harvest support for it's main source of lively-hood.

Tourism began with the improvement of the air strip. In order to safeguard the sensitive inhabitants of the island, the native corporation, Tanadgusix (TDX), created The St. Paul Island Tour. This company runs tours on the Island, providing tourists with natural and cultural history of the Island while leading them on walks to the seal rookeries, bird cliffs, geologic features, wildflower hot spots, and through the native village.

Geology

By Grace Sherwood Winer and Todd C. Feeley
Department of Earth Sciences, Montana State University


Grace Sherwood


Todd Feeley

St. Paul Island belongs to the geologically young Pribilof Island group. The Pribilof Islands are exposed tops of submarine volcanoes located in shallow water on the southern edge of the Bering Sea shelf. St. Paul Island, the youngest and largest of the Pribilofs, was constructed during repeated volcanic eruptions that began about 300,000 years ago. The rock deposited by these eruptions is dark-colored, fine-grained, rich in magnesium and iron, and is called basalt. The older layered lava flows that make up the platform of the island are well exposed at the southern promontories of Zapadni Point, Tolstoi Point, and Reef Point where they have been faulted, tilted, and eroded. In contrast, a central highland composed of relatively young volcanic cones and lava flows extends from the area around Bogoslov Hill, near the center of St. Paul, to the western end of the island. These cones and flows have been little affected by erosion and faulting. The shoreline of St. Paul is composed of headlands, wave-eroded cliffs, and beaches of both boulders and sand.

The numerous volcanic vents on the surface of St. Paul are marked by small cinder cones and spatter cones. The cinders, also called scoria, are unconsolidated and quite vesicular (full of bubble-shaped cavities) while the spatter is composed of welded blobs of less vesicular lava. The cones rise 30 to 100 meters above their bases and are surrounded by coalescing, low-viscosity lava flows. The typical evolution of these small volcanoes begins with an initial explosive phase that includes the construction of the cinder cone from the build-up of cinders falling around the vent. As the explosive phase wanes, the eruption of relatively fluid lava spatter may cap the rim of the cinder cone. The explosive phase is often followed by the eruption of liquid lava that breaches the wall of the weakly constructed cone and forms a lava flow. An excellent example of this occurred at Fox Hill, a breached cinder cone with a lava flow that runs down to the sea at Southwest Point. The surfaces of most of the lava flows on St. Paul have been broken into boulders by expansion caused by freezing and thawing.

The basaltic rocks of St. Paul contain three main minerals that can be seen with the unaided eye; glassy green olivine, white and often lath-shaped plagioclase feldspar, and shiny black crystals of a pyroxene called augite. The augite is usually in well-formed crystals that sometimes form clusters. Black Diamond Hill near the village is named for the augite crystals that weather out of its cinders and range in size from barely visible to greater than a centimeter in diameter.

The eruptive style on St. Paul Island is much like Hawaiian style volcanism, though a bit more explosive. Volcanic eruptions on St. Paul may have occurred as often as every 5,000 years and a recent carbon-14 date confirms that perhaps the latest eruption occurred just over 3,000 years ago. St. Paul Island is a potentially active volcano.


Mike Mungoven

The interaction of geologic processes with vegetation on St. Paul can be seen inland and on coastal dunes. Wind blown sediments on the lava flows - thicker on the older flows and at lower elevations - provide a foothold for plants. On the margins of the island, sand dunes are stabilized by grasses and grow as the grass traps blowing sand.

Soils

by Michael Mungoven
Natural Resources Conservation Service Soil Scientist

The soils of Saint Paul Island are the result of interactions between a cold moist maritime climate, easily weatherable volcanic materials, resistant sands, and a diverse plant community. Soils have formed in three types of materials on Saint Paul. Sandy material that overlies much of the Northeast and North, volcanically derived material around the

volcanic cones, and hard basalt bedrock on the uplands. Thickness of the sandy parent materials varies from very shallow to very deep over non-weathered bedrock and is related to many factors, including topographic position, wind direction, and the size of the particles involved. On slopes near the volcanic cones, soils develop in moderately deep layers of coarse textured ashy ejecta. These soils have particular properties associated with the amorphous nature of glassy volcanic material and have textures of sandy loam and coarse silt loam. On some areas of the uplands, "residual" soils formed from the direct weathering of the basalt rock. These soils tend to have very fine clayey textures. Most of the soils on the uplands are very stony. Plant communities help form and are influenced by the type of soil on which they occur. Well drained and aerated deep sandy soils seem to be ideal places for thick stands of grass. Thin cool soils are often associated with a hardy covering of mossberry and low willows. The plant to soil correlation is not often direct but reflects a complex relationship. Proximity to seed source, competition, insulation, and a variety of soil properties all influence the actual plant community that appears and persists on a site.

The dominant soil forming processes on Saint Paul Island are the accumulation of organic matter, the formation and stabilization of organic complexes in the upper horizons, in situ weathering and formation of noncrystalline minerals in deeper horizons, oxidation and reduction of iron, physical breakdown through freeze and thaw cycling, and cryoturbation. Not all processes operate in all soils.

Organic matter accumulates on the surface when addition of plant material exceeds decomposition. Warmer, dryer soils on Saint Paul Island accumulate only thin organic surface layers. Wetter, colder soils have slower decomposition rates resulting in accumulation of thick organic layers. Thick organic layers on Saint Paul Island can be found in areas of poor soil drainage e.g., at the base of some upland areas and in the margins of lakes and ponds.

In many soils formed in volcanic material, organic matter forms stable complexes with aluminum and iron and is retained and endures in the upper mineral (A) horizons. This is typical of Andisols. In other types of soil, organic matter forms mobile complexes with aluminum and iron. Trans-location of these complexes from the upper profile to deeper into the soil can result in the formation of a gray, depleted E horizon above an enriched reddish Bs horizon. This morphology is characteristic of Spodosols. Spodosols on Saint Paul Island tend to occur at the base of long slopes in coarse textured materials. Trans-location is a less important process in Andisols with regard to formation of subsurface horizons. In situ weathering of glassy volcanic material results in formation of noncrystalline minerals with unique chemical properties. In general the soils on Saint Paul Island are well drained and well aerated. In these conditions iron released from primary minerals is oxidized to form a reddish brown 'Bw' horizon. In the poorly drained soils on Saint Paul Island iron is reduced in the presence of organic material and low oxygen content. This results in the formation of gray soil colors. Some soils cycle between wet and dry conditions and iron is alternately reduced and oxidized, resulting in a mottled gray and red soil color.

Soil processes related to freezing and thawing result in the formation of distinct soil properties. Stony surfaces are common on the dip-slopes on Saint Paul Island due to ejection of stones by frost heave. Solifluction lobes are very common on the side slopes of the volcanic cinder cones. These are probably formed when thawed material on steep side lopes slides over a frozen layer. Elsewhere on the island evidence of cryoturbation, or frost churning, is common in many soil profiles in the form of disrupted soil horizons, oriented rocks, and earth hummocks. Cryoturbation occurs mainly in soils with permafrost which is not present today on Saint Paul Island. Some of the features associated with cryoturbation may be relict from a time when permafrost was present.

References **Jenny, H.** 1941. Factors of soil formation. McGraw-Hill, New York, 281 pp.
United States Department of Agriculture. Soil Survey Staff. 1999. Soil Taxonomy: A Basic System of Soil Classification for Making and Interpreting Soil Surveys. Second Edition. Soil Conserv. Serv., US Dept. Agric. Handb. 436, 869 pp., illus.

Weather

St. Paul Island climate is maritime, meaning that temperatures are moderate throughout the year, winds are strong and fairly constant, and cloudiness and fog prevail during the summer. The average annual temperature (compiled over the last 80 years) is 34.7°F. The warmest temperatures occur in July and August, with daily highs averaging around 50°F and nights lows around 45°F. The coldest temperatures occur in January and February with daily high averages around 28°F and nightly low averages around 20°F. The temperature falls below 0°F only about 5 days each winter. The warmest temperature ever recorded was 66°F in August of 1987 and the coldest temperature was -26°F in January 1919. (Not updated since 1999).

The humidity is high from May through September, resulting in an almost continuous cloud layer and

abundant fog in the summer months. Incredibly, the island averages 284 cloudy days per year, 60 partly cloudy days and only 18 totally clear days (most of which occur in the winter). Despite the high humidity of the summer, the island has very little rain fall, averaging just under 24 inches per year. The wettest months are August through October, averaging 3 inches per month, and then the precipitation tapers off gradually until April, which is the driest month, averaging just 1 inch. Snowfall averages 56 inches annually.

Wind is a constant element on the island, with an annual average of 16 mph. The highest wind ever recorded was 69 mph in January of 1997. Winds are generally strongest in the stormy period of October through April. These can often produce blizzard conditions when mixed with the snow. From January through April, the winds are generally constant from the north and northeast, which occasionally brings the ice pack down from the arctic to surround the island. In the last decade or so, the southern limit of the ice pack has been about 20 miles south of St. Paul Island.

The weather conditions on St. Paul Island puts the island above the 50 degree isotherm, a line around the world which delineates the cutoff point of tree growth. If the average high temperature during the growing season is below 50°F, trees will not be able to survive. Hence, there are no trees that grow naturally on the island. Since the island is physically below the Arctic Circle, the vegetation is called maritime tundra. This is because the sea and its weather patterns are the determining influence on the vegetation.

Habitats

St. Paul Island has a great variety of habitats on its relatively small land area. These are delineated by the Department of Environment and Subsistence Resource Management into 28 distinct types. I shall describe the habitats in more general terms. Refer to the Habitat Map for specific locations.

DRY HABITATS

Scoria Scrapes: Flat ground or hillsides with exposed scoria; examples include Ridge Wall, SW Point
Hills: All the cinder cones rising above the island - Rush Hill, Lake Hill, etc.
Dry Meadows: The upland meadows with good drainage - across from Antone Saltmarsh, North Point
Mossberry areas: Large areas dominated by mossberry - below Bogoslov Hill
Lava Flows: Rocky areas - Kaminista, Fox Hill lava flow
Dunes: Sandy areas on the perimeter of the island - Lukanin Beach
Developed Areas: Areas around town, roads, pullouts, quarries, gravel pits

WET HABITATS

Lakes/Ponds: Freshwater - Big Lake, Saucer Pond
Lake Margins: The areas surrounding lakes and ponds
Dry-down wetlands: Muddy areas that hold water early in the spring and then dry up - Lake Hill across from gravel pit
Lagoons/Saltmarshes: Standing brackish water (fresh and saltwater mixed) - Salt Lagoon, the edge of Antone Lake
Depressions/Drainages: Areas were water saturates the ground - Zapadni Ravine, Hill craters
Bogs/marshes: Wet areas - not necessarily but often with standing water that is acidic in content - Kaminista Bog
Wet Meadow: Meadows that remain moist - next to LORAN, around Bogoslov Hill
Seal affected areas: Moist, often rocky ground - any seal rookery

SPECIAL PLANT PLACES

The diversity of the plants responds to the diversity of habitat types. Though most often you will find a species of plant growing in several different habitat types, some plants are more specific and so are found only in particular places on the island. There are a multitude of microhabitats on the island - little places where several habitat features create a unique environment. Below I have described some of the unique microhabitats that are home to some of the rarer plants.

Whitney Pond and pullout: This gem of a pond is in a depression with protection on the west, north and east. Snow remains on the banks until later in the year, shielding the incipient plants from the harsh conditions of winter. This results in an incredible assemblage of species, two of which (wild geranium, p. 108 & coastal fleabane, p. 142) grow nowhere else on the island. Between the parking pullout and the pond is one of the most stunning stretches for plants that grow on dry scoria scrapes. There are many jewel-like plants there that are only found otherwise on the tops of hills. It is a place where you literally have to get down and put your nose to the ground to appreciate the incredible diversity and beauty.

Kaminista Bog: This is the only true bog on the island with organic matter reaching down nearly 15 feet. The build-up of organic matter creates an acidic environment where uniquely evolved species thrive. It is

home to the largest population of cottongrass (p. 40), which only grows in two other places.

Antone Saltmarsh: This marsh is also home to an accumulation of organic matter, but is distinct because of the influence of saltwater. On its edges grows a greatest profusion of saltmarsh starwort (p. 66), arctic creeping buttercup (p. 77), and the two alkaligrasses (p. 35), species that only grow in brackish areas. There are many other species there, too, if you are willing to search around. Salt Lagoon saltmarsh is the other area where many of these plants grow.

Kittiwake Lake and lava tubes: This geologic wonder is well worth the 1 mile hike - just try to avoid a foggy day! The lake margin is home to two species not found anywhere else (pygmy buttercup, p. 80 and spring water-starwort, p. 108). The lava tubes to the west of the lake contain plants that bloom about a month later than their counterparts on other exposed places, since the shielded snow banks often don't melt until July. This is indeed a charming place, even if you are not excited by plants.

Saucer Pond: A large and diverse number of plants grow in and around this little pond, which is just off the road as you drive to the airport. Many plants bloom here first. Northern bur-reed grows nowhere else (p.19). The pond margin is particularly rich in wetland species and the banks are home to many spectacular meadow species, including chocolate lilies.

Other good spots to find wonderful plant assemblages are the east flank of Polovina Hill, the area around the Polovina land bridge, Rush Hill, the SW flank of the Kaminista Quarry, Zapadni Ravine, Fantasy Wetlands and Lake Hill. There are countless other microhabitats on the island, many of which could be harboring plants we have yet to record for the island.

Land Use History

St. Paul Island was uninhabited until just 200 years ago. Then, with the building of villages and subsequent usage, coastal areas were impacted. Roads were built around the perimeter, with gravel pits being dug to facilitate this work. These impacts to the land have brought about the introduction of some dozen species of plants that are not native to the island. Because of the harsh conditions on the island, very few of these species have invaded beyond the disturbed areas. Land moving projects have been re-seeded with non-native grasses, which supposedly die after one year to let the native species come back, but often instead keep the ground open for other non-native species to invade. The opening of land to make way for gravel pits and quarries encourages the introduction and spread of weeds. In 1911 a small herd of reindeer was brought to the island. The animals were allowed to roam all over, foraging on their favored reindeer lichen until it was practically gone. In the 1990s the herd had grown to over 650 animals. They were found to be severely impacting several sites on the island. In place of lichen, the animals were digging and eating the roots of Nootka lupine and wild celery in the winter. This fills the tundra with pits and destroys plants. The trampling is especially evident along a corridor they use in the summer between watering holes at Whitney Pond and Kittiwake Lake.

The Botanists of St. Paul island

The first botanists to come to St. Paul Island with the purpose of recording the flora arrived during the early 1800s. In those days, naturalists accompanied ship voyages with the intent of finding new species for science. Often the ship carried a botanist and zoologist, unless the naturalist was skilled at the identification of both animals and plants. Some of the first collections were done by botanists who were concentrating on the plants of the Aleutian Islands and just came up to the Pribilofs for a short time. Georg Heinrich von Langsdorff, Russian consul-general in Rio de Janeiro, and Wilhelm Tilesius (1769-1857), were part of the crew on the ships *Neva* and *Nadeschda* which circumnavigated the world from 1803-06. They made collections on St. Paul Island, Unalaska, Kodiak, the Alaska Peninsula and Sitka. One of the first appearances of St. Paul plants in publication was in C. F. Ledebouris *Flora Rossica*, published in 1842. Only 35 plants in that book were from St. Paul. Those had probably been collected hastily years earlier. Adalbert Ludwig von Chamisso de Boncourt (1781-1838), a German poet-naturalist, and Johann Friedrich Eschscholtz (1793-1831), zoologist, made the first significant collection on the island during their trip to Alaska in 1816-17 on the ship *Rurik* with Otto von Kotzebue at the helm. Their findings, titled *De Plantis in expeditione speculatoria Romanzoffiana observatis*, were published in the famous plant periodical of the day, the *Limaea*, and were the most significant, scientific work done on Alaskan plants at that time. There was no collecting during the time of the sale of Alaska to the US, save for the modest collection of Lucien McShan Turner (1847-1909), who published *Sketch of the Flora of Alaska* after visiting St. Paul, Unalaska and Atka. Then, a flurry of botanists made large collections between 1875 and 1895. Their efforts were the ground work for the most significant recorder of plants on the island, James Melville Macoun. Macoun (1862-1920), was the curator of the National Herbarium in Canada. He spent 4 years in the 1890s collecting plants, mosses and lichens on the island. His text on the subject (see

References) is still indispensable, despite including archaic scientific names. I have sprinkled quotes from the text throughout this guide. As well as the plants, he collected (or compiled from other collections) 56 species of mosses, 60 species of lichens and 7 species of fungi. Several botanists followed Macoun, those of significance being Edward Johnston, who collected a rare plant on the island in 1923 (it was not found in 1998), and Eric Oskar Gunnar Hultén (1894-1981), Swedish Professor of botany and writer of the massive *Flora of Alaska*. Hultén made a list after his quick travels to the islands in 1930s, probably more a compilation than anything else. After that, most contributions to the flora of the island were done by scientists coming for quick trips. One exception is the work of Alton Y. and D. Colleen Roppel. They were on the island for over 25 years from 1955 to 1980 as seal biologists. They became interested in the flowers after a time, and took it upon themselves to create a book of photographs and pressings. They made 6 of these books in several volumes, at least one of which is in the library on the island. Their location information helped me to find some of the more hidden flowers. Rob Lipkin, of the Alaska Natural Heritage Program, came in 1993 and did an extensive study of the plants in different habitats. He and his team also found yellow globe wormwood (p. 147), a rare species previously found in only two other spots in the world! Several other Alaskan botanists, including Carolyn Parker of the University of Fairbanks Museum Herbarium, visited the island in the 1990s and found a number of unrecorded species. I came in 1998 and found 12 new species for the island.

Eric Hultén

I am indebted to Carolyn Parker for verifying the specimens that are the basis of this book. I am sure botanists will continue to visit St. Paul. It is fascinating to look for plants on an island so far from the mainland. Though I did my best to find them all, there are countless places where yet unrecorded species could be.

Camera Equipment Used

The photographs for this book were taken with a Nikon 2020 camera, with Nikon 35-70, Nikon 80-300, and Sears Macro 70-300 lenses. A Bogan tripod with slick head was used often to prevent blurry images. The film used was Fuji Super G 200 & 400 print film. I took about 60% of the photographs and Ram Papish took about 40%.

Plant Identification Key

How to use this Key: This key is designed to help you identify plants you do not know. In order to use this key, you will probably need to use the **Parts of a Flower** and **Leaf Shape Diagram** pages (p. 155-6) and **Plant Terms Glossary** (p. 159), since some names and terms will be unfamiliar to you. To start, begin at the top of the key (**1a**) and read the condition. If this condition is true for your plant, move on to the number that is indicated at the end of the line (for example (**2**)), and continue. If the first distinguishing characteristic is not true for your plant, continue reading the lines in the first section until a condition matches. If you continue to follow the conditions down the key, you should be able to accept and reject characteristics about your plant until you eventually come to a plant family written at the end of a condition. Go to the page number indicated and find there the key to that family. If you happen to know the family in which your plant occurs, look in the index and go straight to the page number indicated for that family and follow the key from there.

A note about keying: Almost always, keying is based on flower characteristics. If your plant is not flowering at the time of keying, it will be very difficult to use this key. Of course you could always flip through all the plants in the guide until you find leaves which match, or you could familiarize yourself with the plant families on the island by reading the **Plant Family Descriptions** section at the back. From this, you can sometimes determine the family of your unknown by leaf structure and other characteristics and thus narrow down your search. Also, try to trust the key. I have worked hard to make the characteristics very distinguishing. If it says flowers are blue-purple, they are very blue-purple, not pale lilac or light blue. The first attempt at keying is always the most difficult. Once you get used to the key, you should be able to use it with no problem. Good luck!

KEY

1a. Plant with no flowers or berries ever (fern, clubmoss, horsetail, or quillwort - **not grasses**) ..... **(2)**
1b. Plant with flowers or berries that are not obvious or showy (grasses, sedges, rushes, aquatics) ..... **(3)**
1c. Plant with obvious flowers or berries **[INCLUDING WILDFLOWERS]** ..... **(7)**

2a. Plant forming bunches of upright or creeping stems covered with stiff, evergreen, leaf-like scales; some stems topped with a spore cone or spore bract ..... **Clubmoss Family**, p. 11
2b. Plant a tuft of grass-like blades submerged under fresh water with a bunch of spores at the base ..... **Quillwort Family**, p. 13
2c. Plant having a stem which is thin and abrasive (sometimes leathery) with darker rings occurring at intervals; sometimes with jointed branches growing in whorls from the rings ..... **Horsetail Family**, p. 13
2d. Plant with leaflets forming a frond; a fern ..... **4 Fern Families**, p. 16

3a. Plant a grass or grass-like (sedge or rush) ..... **(4)**
3b. Plant not a grass or grass-like; growing exclusively in water ..... **(5)**
3c. Plant not a grass or grass-like; growing in freshwater or mud ..... **(6)**

4a. Plant w/ jointed, often round, stems; leaves thin &flexible ..... **Grass Family**, p. 21
4b. Plant with sharp-edged, often triangular, stems; leaves stiffer, flat or channeled, forming sleeve around stem ..... **Sedge Family**, p. 39
4c. Plant with round, stiff, hollow stems; flowers with 3 styles; leaves stiff, spike-like, dark green ..... **Rush Family**, p. 49
4d. Plant with thin, delicate stems, less than 25 cm high; leaves soft, flexible and flat, often hairy, in tufts; seeds three per capsule ..... **woodrush** in the **Rush Family**, p. 51

5a. Plant with long, flat, fleshy, ribbon-like blades; floating on the surface of (thus far only) Saucer Pond; seed heads small (about 7 mm across) and bur-like; seed heads few, hard to find ..... **Bur-Reed Family**, p. 19
5b. Plant with narrow, firm, branched blades, floating and submerged in a tangled mat; thus far found only in the wetland next to the abandoned trailers; seeds attached opposite in 3 rows; seed heads many ..... **Pondweed Family**, p. 20

6a. Plant with spongy, upright, often red stems; leaves about 6, stubby, whorled from nodes closely spaced on stems; stems can be completely or partially submerged, or growing in mud; like a miniature evergreen forest ..... **Water Milfoil Family**, p. 113-14
6b. Plant with bunches of whorled leaves clustered near top, either floating on the surface of shallow freshwater or growing out of mud; stem thin and week with opposite, spatula-shaped leaves; tiny seeds growing in axils of stem leaves (thus far only found in Kittiwake Lake) ... **Water-Starwort Family**, p. 108

7a. Plant with creeping, woody stems [shrubs and willows] ..... **(8)**
7b. Plant not with woody stems; **WILDFLOWERS** ..... **(9)**

8a. Plant with creeping, woody stems, round to oval-shaped leaves 1-7 cm long; catkins (reproductive cones) upright on stems ..... **Willow Family**, p. 55
8b. Plant with needle-like leaves, flowers tiny with 3 stamens; blue-black berries in August ..... **Crowberry Family**, p. 119
8c. Plant with bell-shaped flowers or flowers with 5 petals united at the base ..... **Heath Family**, p. 120

WILDFLOWERS

9a. Flowers irregularly shaped ..... **(10)**
9b. Flowers with 3-5 yellow parts; stems creeping, with 3-fingered mitten-shaped leaves ..... **arctic creeping buttercup** in the **Buttercup Family**, p. 77
9c. Flowers with 4 regular parts ..... **(12)**
9d. Flowers with 5 regular parts (includes ones that appear to have 10 parts, but have 5 divided parts) ..... **(13)**
9e. Flowers with 6, sometimes 5 yellow regular parts, single on stems with rounded, saw-edged, alternate leaves; leaves crinkled and barely open at flowering time . **yellow anemone** in **Buttercup Family**, p. 75-6
9f. Flowers with 6 regular parts; leaves parallel-veined or grass-like ..... **Lily Family**, p. 53
9g. Flowers with 5-8 regular parts (mostly 7), star-shaped; leaves small and round, bunched in middle of stem ..... **starflower** in the **Primrose Family**, p. 124
9h. Flowers with 10 regular parts (actually, if you look closely, there are 5 divided petals so see **13** Flower with 5 petals separate at base, p. 9)
9i. Flowers with more than 10 regular parts or with many smaller flowers bunched together ..... **(21)**
9j. Flower parts too tiny to distinguish ..... **(23)**

10a. Flowers with five, unequally-shaped petals forming a pea flower (2 petals forming a keel which sticks out in front, 2 forming a tuft or wings over the keel, and one upright in the back); flowers in 2 species are numerous, clumped together in clusters; fruits are pea pods ..... **Pea Family**, p. 104-5
10b. Flower heads spherical, deep blue-purple (**not lilac**), one to 6 on a stalk, with 5 irregular petals forming a chamber over topped by a hood; leaves palmate, hairless, dissected ..... **monkshood** in the **Buttercup Family**, p. 75
10c. Flowers with spurs (or funnel-shaped protrusions) sticking out the back ..... **(11)**
10d. All other irregularly-flowered plants ..... **Snapdragon Family**, p. 130

11a. Plant with dissected leaves ..... **corydalis** in the **Earth Smoke Family**, p. 83
11b. Plant with heart-shaped leaves and the five irregular petals of a violet ..... **Violet Family**, p. 109

12a. Flowers large (about 5 cm across), yellow and cup-shaped; stems and leaves very hairy; leaves stalked and all basal, dissected ..... **Poppy Family**, p. 81
12b. Flowers white, with bunches of small black flowers in the center; leaves parallel-veined, opposite 2-ranked rows on stem ..... **Dogwood Family**, p. 117
12c. Flowers white, small (about 2 mm across); stem 4-sided, creeping, branched; leaves narrow, delicate, 4 in a whorl at intervals along stem; found on margins of lakes ..... **Bedstraw Family**, p. 137
12d. Flowers (having 6 stamens, 4 high and 2 low) with seed pods (called siliques or silicles) protruding from center of the dying flower soon after blooming; basal leaves always present (except in Edwards' mock wallflower); if stem leaves are present, they are alternate ..... **Mustard Family**, p. 83
12e. Flowers move to ends of slender, elongating seed pods soon after blooming; flowers mostly small (>1.5 cm), white to pink to purplish; leaves never basal, opposite on stem; (fireweed has some alternate leaves, which are entire, long [up to 15 cm] and narrow) ..... **Evening Primrose Family**, p. 111

13a. Flowers with 5 fused petals, tube or bell-shaped ..... **(14)**
13b. Flowers with 5 separate petals ..... **(16)**

14a. Flowers balloon-shaped with 5 petals like a blow-out at the end, white with purple stripes ..... **melandrium** in the **Pink Family**, p. 172-3
14b. Plant with about 8-12 pink, nodding, bell-shaped flowers; leaves basal, evergreen and round ..... **Wintergreen Family**, p. 118
14c. Flowers with depressions in centers, in which stamens and styles are sunken or hidden; flowers on stalks with basal leaves only; flowers of two different species; one is white with a yellow center, the other magenta with a white center ..... **Primrose Family**, p. 122-3
14d. Flowers shorter than 1 cm long, blue, rarely white, small, bell-shaped at the end of trailing stalks; growing from a basal rosette of smooth, whitish-green, fleshy leaves; growing flat and matted in sand or scoria along shore ..... **Borage Family**, p. 128
14e. Flowers upright, larger ..... **(15)**

15a. Flowers blue, or blue and white stripped, bell-shaped; leaves opposite..... **Gentian Family**, p. 125
15b. Flowers solid blue, leaves alternate ..... **Bluebell Family**, p. 139

16a. Flowers deep blue with yellow centers, small (about 7 mm), growing in a cushion; leaves tiny (5 mm long), fuzzy, in tight bunches; rich, perfumed odor ..... **Borage Family**, p. 128
16b. Flowers light blue with darker lines, violet-shaped, leaves opposite, roundly-toothed, stems mostly creeping ..... **speedwells** in the **Snapdragon Family**, p. 131-2
16c. Plant with many small, green, white, or pinkish flowers in an umbel; stems hollow; leaves fragrant like parsley ..... **Parsley Family**, p.114
16d. Flowers with 2 green sepals; 2 species, the first having white or pale pink flowers with dark pink lines, and thumb-shaped, fleshy leaves; the second having extremely tiny (about 3 mm), white flowers and very thin, tangled stems/leaves ..... **Purslane Family**, p. 62-3
16e. Flowers with depressions in centers, in which stamens and styles are sunken or hidden; flowers on stalks with basal leaves only; flowers of two different species; one is white with a yellow center, the other magenta w/ white center ..... **Primrose Family**, p. 122-3

16f. Plant with many tiny pinkish flowers not in umbels ..... **(17)**
16g. Flowers purple ..... **(18)**
16h. Flowers with 10 stamens ..... **(19)**
16i. Flowers with more than 10 stamens ..... **(20)**

17a. Flowers in a round head; 2 stem leaves with jagged appendages opposite in middle of stem, often with smaller flower heads protruding from the leaves ..... **Valerian Family**, p. 138
17b. Flowers in an elongated head; leaves narrow, whitish beneath; sheaths around swollen joints at junctures of stem and leaves (also see **21.** Flowers with more than 10 parts)..... **Buckwheat Family**, p. 59

18a. Flower petals rounded at top, thin; leaves palmate, dissected; pod sticking out of flower like a crane's bill; only found around Whitney Pond ..... **Geranium Family**, p. 107-8
18b. Flower petals shining, with yellow centers; leaves pinnately divided ..... **Polemonium Family**, p. 127

19a. Flowers with a single 2-pronged (2 pistillate), dome-shaped ovary; leaves alternate (except magenta flowered one), leaves often only basal; stems and often leaves hairy..... **Saxifrage Family**, p. 92
19b. Flowers with 1-pronged flatter 5-parted ovary; leaves opposite, entire ..... **Pink Family**, p. 64

20a. Flowers with a sphere in center from which stamens stick out in a concentrated clump; fruits achenes (clumps of small, hooked seeds)..... **Buttercup Family**, p. 73
20b. Flowers with a flat, doughnut-shaped ring in center (called a hypanthium), from which stamens protrude (this spreads the stamens over a wider area); fruits strawberry or raspberry-like ..... **Rose Family**, p. 98

21a. Flowers in umbels ..... **Parsley Family**, p. 114
21b. Flowers in elongated clusters, scattered singly down the stem, or extremely tiny in clumps of spatula-shaped leaves; sheaths at swollen nodes of leaves or flowers ..... **Buckwheat Family**, p. 59
21c. Flowers in heads or single, daisy-like flowers ..... **(22)**

22a. Leaves all basal, grass-like; head composed of many tissue-papery clusters, sometimes with bright pink centers ..... **Leadwort Family**, p. 124
22b. Not with grass-like leaves; daisy-like with rays or in heads without rays ..... **Composite Family**, p. 140-1
23a. Plant tiny (1 cm across), growing in moist mud ..... **(24)**
23b. Plant larger ..... **(25)**

24a. Plant with bunches of spatula-shaped leaves; flowers tucked into center of leaves, white; sheaths covering swollen joints at nodes..... **koenigia** in the **Buckwheat Family**, p. 59-60
24b. Plant with narrow, grass-like leaves; flowers cup-shaped, white, tucked into center of leaves ..... **mudwort** in the **Snapdragon Family**, p. 130-1

25a. Plant with a rosette of oval, parallel-veined leaves; flowers tiny, green, in dense, narrow clubs which stick up from center of rosette ..... **Plantain Family**, p. 136
25b. Plant a small rosette (about 6 cm) of thin stems; center basal leaf star-shaped, spiky; flowers tiny (2 mm), petals 5, at end of stems; grows in waste places and along roads ..... **pearlwort** in the **Pink Family**, p. 69
25c. Plant with very thin, yet fleshy, tangled stems and leaves; flowers extremely tiny (about 3 mm), white, with 5 petals and 2 sepals; grows in mats in nutrient rich areas such as the seal grounds and saltmarshes ..... **water blinks** in the **Purslane Family**, p. 63

Explanation Of Terms

* = Introduced plant; one that was brought in unnaturally by people
Botanical names include a family name, and then genus and species names. The Genus name is capitalized, the species is not. The first botanical name listed is the one which is found in Hultén's Flora of Alaska; if there is a second botanical name after a comma, it means the name was changed, becoming the accepted name in the USDA, ITIS, efloras, or Pan-arctic plant list databases. Unfortunately, some of these names conflict, so there is very likely some discrepancy in the names, and for this I apologize, as the fault is mostly my own. If part of the name is in parenthesis, that part is no longer accepted. If the new genus name is the same as the old genus

name, the new genus name is abbreviated. There can be both subspecies and varieties of a plant. These are designed by:

ssp. = subspecies var. = variety

A **subspecies** has traits differing from the parent species due to the distance between populations
A **variety** has traits differing from the parent species or subspecies due to variation in the population

Other Abbreviations:
NC = north central, NE = northeast, NW = northwest, SC = south central, SE = southeast, SW = southwest, ITIS = Integrated Taxonomic Information System, US = United States, USDA = United States Department of Agriculture, NP = National Park

Clubmoss Family
(Lycopodiaceae)

Clubmosses belong to the division of the plant kingdom called *Pteridophyta*, meaning "feather plant" in Greek. There are approximately 450 species of clubmoss worldwide. These plants are characterized by having stems, leaves, roots, a vascular system, but no true seeds. They reproduce either vegetatively or by spores similar to mushrooms. They are thought to have evolved in the Devonian Period some 400 million years ago. They are known as primitive plants, since they have evolved very little over time. Clubmosses grow most abundantly in moist forests, but can also be found in bare, rocky mountaintops and in the tropics. The clubmosses have reproductive cones known as strobili. The 3 St. Paul species can be distinguished by the position of these strobili and by the size of the clubmoss.

1a. Strobili cones mounted directly on the stem ..... **(2)**
1b. Strobili appear as square bracts within leaves near top of stem ..... **fir clubmoss**, p. 11

2a. Clubmoss small, with a tightly braided appearance to the stems ..... **alpine clubmoss**, p. 12
2b. Clubmoss creeping with spaces between the leaves; leaves pointed and smooth ..... **stiff clubmoss**, p. 12

Fir clubmoss

Lycopodium selago, *Huperzia selago* var. *selago*

Description: Clubmosses are like miniature evergreen trees with triangular, tightly overlapping leaves along the stem. This clubmoss has a bunch of upright stems, each about 5 –10 cm tall. The new stems are pointed like paintbrushes, but then become flat-topped as the reproductive bodies, called cones, are produced. The cones in this species are rectangular bracts found near the top of the stem,distinct from the sharp-pointed, triangular leaves. It reproduces by releasing spores like mushrooms.

Habitat and Growing Time: Fir clubmoss appears in late May with spores developing by mid-June. It grows in the protection of crevices in lava flows, such as around the spatter rampart of Kaminista, & under Bogoslov Hill. It is uncommon, & easy to miss.

Notes: Fir clubmoss has a circumboreal distribution. Clubmosses are the infamous trees of yesteryear, towering above the dinosaurs in the Carboniferous period 65 million plus years ago. They are considered to be primitive plants because they have not evolved sophisticated conducting or reproductive systems over time like modern plants, but instead have stayed with the same system for millions of years. Crude oil is thought to come from the layer within the earth that is composed largely of ancient, decomposed clubmoss. **Caution:** This clubmoss especially is ***poisonous***. It has an active alkaloid that can cause mouth pain, diarrhea, and vomiting. There are reports of some western native groups who chewed fir clubmoss because it rendered intoxicating effects. However, chewing as few as 8 stems resulted in unconsciousness. The genus name, *Lycopodium*, comes from the Greek "lycos" meaning wolf and "podus" meaning foot since some species are thought to resemble a wolf's paw.

Stiff clubmoss

Lycopodium annotinum

Description: This clubmoss's stems creep along the ground, branching off to form short, upright stems (up to about 7 cm tall) with cylindrical cones on top. Its creeping stems can be several feet long, making it distinct from the other two clubmosses. The other two are both smaller, more compact, and do not creep.

Growing Time and Habitat: Stiff clubmoss starts its stem growth in early spring (May) and develops cones by early August. This clubmoss is rare, having only been found twice; once on furrowed mud in a depression at the west base of Fox Hill, and once in the lava flows on the rocky meadows above Kaminista. The other two clubmosses were growing right along side stiff clubmoss in both areas, but most abundantly in the Fox Hill area.

Notes: This species changes its form quite a bit depending on where it is growing. In shady old growth forests, it carpets the ground in a thick mat of upright stems, giving a spongy feel to the forest floor. In alpine areas, it is rangy and stays low to the ground. The spores from the cones are called vegetable sulfur, because the texture is yellow and powdery. Native groups in B.C. used it as a drying agent for wounds. Stiff clubmoss has a wide, circumboreal range.

Alpine clubmoss

Lycopodium alpinum

Description: Alpine clubmoss is quite a bit smaller than fir and stiff clubmoss, only reaching up to 5 cm tall. Its leaves are rounder, thicker and hug the stem tighter, giving it a squarish appearance. The stems are slightly crooked and tightly packed into bunches growing off of runners creeping under the soil. The stout, light green, 3 cm tall cones grow right from the top of the stems.

Growing Time and Habitat: This clubmoss appears in late May and produces cones by late June and on through the summer. It is found in crevices in lava flows, often right near to fir and stiff clubmoss, making comparison quite handy. It is quite abundant in the depression beneath Fox Hill (described in the stiff clubmoss description), where, curiously, there were very few rocks. Obviously, it is not specific to rocky areas, but likes open, moist areas with little plant competition. It is difficult to spot, even in the places it occurs, since it is small and blends in with the moss.

Notes: Clubmosses have been useful to people in a number of ways. Since they are evergreen, native people in Alaska use them as Christmas decoration. In earlier times, natives used the spores as a substitute for baby powder. The spores were also used in flash photography, stage lighting and fireworks because they are highly flammable and so explode with a flash of light when ignited.

Quillwort Family

The quillwort family is small, containing only 77 species worldwide. Only a handful occurs in the US. The family is made up of small aquatic plants with quill-like leaves.

Photo by ©Matt Goff, sitkanature.org

Maritime quillwort

Isoetes muricata ssp. *maritima, I. maritima*

Description: Quillworts are aquatic plants that grow in small tufts submerged or not depending on the water level of the lakes and streams. Quillworts reproduce via spores similar to clubmosses. Maritime quillwort looks like a bunch of fleshy quills with an inflated base where the spores are located. The leaves are grass-like and can be up to 20 cm.

Notes: Quillwort was not found in 1998. Evidently it has a very erratic growing pattern, possibly not appearing for years at a time. *Isoetes* means "equal to a year", most likely referring to the fact that the leaves are evergreen (or maybe that's the length of time the plant disappears). For further information on quillworts, see the reference in Pojar and MacKinnon, 1994 (cited in the reference section), p. 436.

Horsetail Family

(Equisetaceae)

The horsetail family is very similar to the clubmoss family in that it originated in the Devonian Period (400 million years ago), the members have kept the same basic form throughout time, and both families' species reproduce via spores instead of seeds. The horsetails reached their peak in abundance and height about 300 million years ago at which time they grew into trees up to 50 feet tall with trunks 1 foot in diameter. In a remote corner of the Amazon, there are still horsetails existing that are tree-size. Now there are only about 23 species left in the family and they all belong to the horsetail genus *Equisetum*. The horsetails are characterized by having thin, abrasive stems punctuated at intervals by joints. On St. Paul Island there are 4 species. They are easy to tell apart.

1a. Stem with no branches ..... **(2)**

1b. Stem with branches ..... **(3)**

2a. Stems very small (less than 10 cm), twisted and wiry, often creeping, growing on rocks or dry sand ..... **dwarf scouring-rush**, p. 14

2b. Stems taller than 10 cm, thick and straight with deep ridges; stems grow in lines from an underground rhizome on wet sand ..... **Alaskan scouring-rush**, p. 13

2c. Stem brown and fleshy with a cone on top ..... fertile frond of **common horsetail**, p. 15

3a. Branches thin, with first joint being shorter than the stem sheath; delicate; branches droop down ..... **meadow horsetail**, p. 14-15

3b. Branches robust; first joint longer than stem sheath; branches reach up; fertile frond with no branches; brown and fleshy ..... **common horsetail**, p. 15

Alaskan scouring-rush

Equisetum variegatum* (ssp.) var. *alaskanum

Description: This horsetail is never branched (which distinguishes it from common and meadow horsetail), but has the typical horsetail joints, which can be pulled apart and then fitted back together (thus the other common name of joint-grass). Its stalk can grow to be about 20 cm tall, and is topped with a black spore cone resembling a paintbrush. The joints (at intervals along the stem) are shaped like black jagged teeth with a whitish fringe. The stems are green and leathery with prominent vertical grooves. The stems spring from underground runners so often grow in lines. They can either hug the ground or stand upright.

Growing Time and Habitat: The stalks of Alaskan scouring-rush are evergreen. New shoots come up in the spring. The spore cones are seen then, and then dry up later in the season. Alaskan scouring-rush grows specifically in shallowly wet or dried-down wetlands in the dune areas, such as Tonki point, Lake Dune and

Fantasy wetland. It is quite abundant in these areas, but tends to blend in and resemble grass.

Notes: Alaskan scouring-rush, like all horsetails, has silicone dioxide in its stem and so feels abrasive when touched. Thus early colonists used horsetails to scour utensils, calling their steel-wool substitute "scouring rush" and "pewterwort". Further back in history, the native people on the NW coast used horsetails to polish their canoes, dishes and other wooden craft, and knights in Europe used them to shine armor. Because they are hollow and durable, horsetails were also used as reeds for wind instruments. The shape of horsetails is unique in the Plant Kingdom. Patches of them are aptly described by Cardinal Newman when he said that horsetails are a "... forest in miniature . . . created by the fairies for their especial use and pleasure."

Dwarf scouring-rush

Equisetum scirpoides

Description: This is a very delicate horsetail, not more than 10 cm tall, with twisted, often ground-hugging stems. It is not branched, and actually looks like a miniature version of Alaskan scouring-rush. It is distinct from this cousin by having smaller, thinner, *twisted* stems.

Growing Time and Habitat: Dwarf scouring-rush's evergreen stems can be found at any time of year, but new ones do form in the spring. It grows on the tops of rocks, on scoria scrapes, and in sand dunes in places like the Kaminista rock quarry, the north side of Little Polovina Hill, the Whitney Lake pullout, and across the road south of Polovina Lake.

Notes: This is a common alpine species, with a circumboreal distribution. It is the smallest of the horsetails and so is often missed. It is devilishly difficult to relocate since it is camouflaged against its background. It almost seems you have to not be looking for it to find it. The genus name, *Equisetum*, comes from the Latin for 'horse bristle' (*Equus* meaning 'horse' and *setum* 'bristle').

Meadow horsetail

Equisetum pratense

Description: This is a branched horsetail, with delicate, arched branches. It is much less abundant on the island than common horsetail, but can be distinguished from it by its slighter form and the fact that the first joint on the branches is shorter then the stem sheath. It can grow to be over a meter high depending on the surrounding vegetation, but is more typically about 20-30 cm high.

Growing Time and Habitat: Meadow horsetail has reproductive cones and the beginnings of branches on its stalks initially, then loses the cones and grows longer branches as the season progresses. The cones are present in early June, and then the branches become longer and the horsetail takes on its typical vegetative form in late June. This one grows around the edges of lakes, such as Saucer, Polovina and Pumphouse.

Notes: Meadow horsetail has a circumboreal distribution. Horsetail is thought to be a good remedy for sore knees because of its silica content. The young stems are picked just after emerging, boiled and made into a tea. It is important to use only young stems and to *boil* them, because horsetails contain thiaminase, an enzyme that destroys the essential amino acid thiamine. Thiamine is essential for carbohydrate metabolism and maintenance of a healthy nervous system. Boiling the horsetails removes the destructive enzyme. Also, older horsetails have a higher silica content, which can be very abrasive to internal organs, especially the kidneys.

Common horsetail

Equisetum arvense

Description: Common horsetail is a branched, coarse horsetail. Its branches are thicker and less curved than meadow horsetail. Another characteristic distinguishing the two is that the first joint of each branch of common horsetail is longer than the stem sheath, whereas the sheath of meadow horsetail is shorter. Common horsetail can be over a meter tall depending on the surrounding vegetation, but is more typically about 30 cm. This horsetail is the only one of the four on the island that has a separate reproductive stem. These reproductive, or fertile stems are brownish and fleshy-looking and are topped by a spore-producing cone. The vegetative stem can take on very different forms. It has a low, creeping form seen most often on sandy roadsides, and a completely submerged, shorter branched form found in ponds - to name only a few. About 99% of the horsetails you see will be common horsetail.

Growing Time and Habitat: The fertile stems appear first in early June, send their spores on the 7 winds, and soon wither away. The vegetative stems appear about a week later and remain all summer. Common horsetail lives up to its name; it is very common. It grows almost anywhere, on roadsides, lake margins and middles, meadows, scoria areas, rocks – you name the area, and you'll probably find common horsetail there.

Notes: Common horsetail is one of the most widespread plants in the temperate world. It grows in every conceivable habitat. It is a well-known garden pest, since its runners allow it to invade all types of habitats

including regularly mowed lawns. It is sometimes called "devils guts" by displeased gardeners. It was the first vascular plant (one with a circulatory system) to emerge from the wasteland left by the eruption of Mt. St. Helens.

The 4 Fern Families

Adder's Tongue Family (Ophioglossaceae)
Marsh Fern Family (Thelypteridaceae)
Lady Fern Family (Athyriaceae)
Shield Fern Family (Aspidiaceae)

Ferns are the largest and most recognizable group of the ancient non-seed producing vascular plants. There are about 12,000 species worldwide, two thirds of which grow in the tropics. Ferns have an incredible variety of sizes and shapes and can grow in extremes of habitat, though the vast majority of them prefer moist places. There are 5 species of fern on St. Paul Island, representing 4 different families. Each is unique, but due to lack of space, I will not explain the characteristics of the families here. Below is the key to the 5 species.

1a. Fern tiny, with fleshy lobes for fronds and a "stalk of grapes" for spores ..... **moonwort**, p. 16

1b. Frond triangular, leaflets once divided; frond only half of the fern, the other half being the stipe ..... **beech fern**, p. 17

1c. Frond extending more than half way down the stipe ..... (2)

2a. Frond with no chaffy scales on lower part of stipe; leaflets delicate, separated; fern narrow; growing in rocky places ..... **fragile fern**, p. 18

2b. Frond with chaffy scales on lower stipe ..... (3)

3a. Fern bushy with the lowest leaflet being as long or longer than the rest of the leaflets; common ..... **wood fern**, p. 19

3b. Frond delicate, but large; frond shaped like a plume with lowest leaflets shorter than the middle ones; stipe fleshy; uncommon on island ..... **lady fern**, p. 17

Adder's Tongue Family (Ophioglossaceae)

Moonwort

Botrychium lunaria

Description: *Botrychium*s are commonly known as grape ferns because their spores are on a stalk which resembles a bunch of green grapes. This grape fern is tiny, only reaching 10 cm tall. There are about 5 rows of paired, half moon-shaped leaflets on the fronds. The "bunch of grapes" or spore stalk sticks out from the middle of the frond, just below the leaflets.

Growing Time and Habitat: This bizarre little fern popped out of the ground in mid-May when snow squalls were still abounding and didn't reach a mature-looking state until mid-August. It grows in vegetated sand dunes. In 1998, it was found only on the south side of the road in Fantasy wetland (also called Novastoshna) and on the north side of a big dune near Sheep Lake. However, in 1999, it was also found in the dunes behind Lukanin Beach and around East Landing. The spottiness of its growth showcases this fern's ability to survive many years without emerging. It has pre-formed buds which can survive up to three years underground with no photosynthetic input. The ferns are usually surrounded by quite a bit of vegetation so are hard to see, but it is well worth the search.

Notes: Grape ferns are sought after the world over by botanists, since they are rare plants in most areas. Their taxonomy is constantly being revised, usually resulting in the creation of a few new species. This one is endangered in Maine, New York, Vermont and Wisconsin, threatened in Minnesota and sensitive in Washington. The strange shape of grape ferns prompted interesting bits of folklore from the British Isles over the years, such as that grape ferns unlock doors and the spores of grape ferns make one invisible. *Botrychium*, the genus name, is Greek for "a bunch of grapes", and *lunaria*, meaning 'moon-like' in Latin, refers to the shape of the leaflets.

Marsh Fern Family (Thelypteridaceae)

Narrow beech fern

Thelypteris phegopteris, Phegopteris connectilis

Description: Beech fern is a small fern, up to 20 cm tall, with twice-divided, saw blade-like leaflets. The leaflets are hairy underneath, and slightly rolled under. The upper leaflets meet in a thickened appendage around the stipe, whereas the other ferns on the island have leaflets that are divided all the way through to the stipe. There are bits of brown, chaffy scales along the thin stipe. The frond forms a pyramid shape, with the two lowest leaflets drooping slightly like a mustache. The small, round sori, or spore pockets, are tucked near the edge of the leaflets or are not present at all.

Growing Time and Habitat: Beech fern fiddleheads appear in mid-June. After the ferns unfurl, they last through August. Each frond grows individually on moist hillsides, such as around Whitney Pond, inside Lake Hill crater, and in drainage areas such as below Bogoslov and Rush Hills. This fern is relatively rare on the island, but is probably more abundant than it may seem since it is easy to miss or mistake for a small wood fern. Two quick distinguishing features are that wood fern has a creased stipe and thrice-divided leaflets.

Notes: Beech fern is one in the group of species which is usually found in dim, moist forests. Its common name is no joke as it is also found in beech forests in central and eastern US. Additionally, it has a broad range worldwide. These forest species seem to be able to grow on the island in the protection of small, moist depressions, which simulate the conditions found in the shade of forests. It is also called "cowboy fern" because the last two, drooping leaflets resemble bowed cowboy's legs.

Lady Fern Family (Athyriaceae)

Subarctic lady fern

Athyrium filix-femina ssp. *cyclosorum*

Aleut Name and Translation: **Usxim Cunungin**, meaning curly tops

Aleut Use: The fiddleheads were collected and used raw in salads along with dandelions. Mary B. remembers her mother saying, "Go get me the curly tops for the salad". She'd then go out and collect them around Kaminista.

Description: This is a very tall, elegant fern, reaching to over a meter in height. It has a fleshy stipe with widely spaced chaffy scales. The leaflets are finely divided 2-3 times. The overall shape of the fern is plume-like since the leaflets are small at the top, largest in the middle and then taper to small again near the bottom. The fern's sori are "J"-shaped and are attached to the middle of the leaflets.

Growing Time and Habitat: Lady fern fiddleheads appear in early June and are completely unfurled by mid-July. They grow in elegant, urn-shaped bunches in moist depressions and drainages where the snow melts

late, such as the west side of Kaminista, at the end of Zapadni Ravine, and in the Fox Hill lava flow. It has a very limited distribution on the island, but is quite abundant and robust in the few places it grows. I did find a stand of it by the side of the road near Icehouse Lake, which was kept moist by the cut of the hill. Unfortunately, it was later obliterated by the road project.

Notes: The fiddleheads of this species can be eaten, but are not nearly as tasty as the Ostrich fern (*Matteuccia struthiopteris*), which is the fern species of the commercially sold fiddleheads. Ostrich fern occurs only spottily in Alaska (Dillingham, Kenai and Anchorage to name a few locations). It is more widely distributed in the eastern US and Canada. Lady fern probably has the next best fiddleheads since it has fewer chaffy scales and a fleshier stipe than most other ferns. Lady fern, like other plants, responds to the conditions in which it grows. I thought the ferns on St. Paul looked fairly vigorous and tall considering the harsh conditions, but when I returned to the mainland and saw ferns in Valdez, I realized the ones on St. Paul were dwarfed in comparison. The Valdez lady ferns were huge, reaching well over my head to about six feet tall. This just shows what a bit of the Bering Sea climate will do to plants.

Lady Fern Family (Athyriaceae)

Fragile fern

Cystopteris fragilis

Description: Fragile fern is small and narrow, growing to be about 20 cm tall and only 3-4 cm wide. It has short, triangular, 2-3 times divided leaflets that are widely spaced, especially near the bottom of the stipe. The stipe is very slender and smooth, with almost no chaffy scales. The sori are grouped in clusters that are covered by a hood in the middle of the leaflets.

Growing Time and Habitat: Fragile ferns form tiny, delicate fiddleheads in late May and completely unfurl by late June. They grow mostly out of rocks, a few at a time, especially on the spatter rampart of Kaminista, the east side of Polovina Hill near the pit, and in the Fox Hill lava flows. It has also been found on hillsides, specifically the south face of Little Polovina Hill. It is relatively common, probably being the second most abundant fern on the island next to wood fern.

Notes: Fragile fern, also called brittle bladderfern, grows spottily all over the world. It was first found in Europe. The fragile fern rhizomes (the root and its runners) have been used as an emergency food source. Just like their allies, clubmoss and horsetail, ferns were part of the dominant, tree-sized vegetation before the onslaught of flowering plants. The botanical name, *Cystopteris* is Greek for bladder fern (*krystos* meaning 'bladder' and *pteris* meaning 'fern') referring to the hood over the sori (spore pocket). The species name, *fragilis*, mostly like refers to the fern's delicate appearance.

Shield Fern Family (Aspidiaceae)

Wood fern

Dryopteris dilatata* ssp. *americana, D. expansa

Aleut Name and Translation:
Usxim cunungin, meaning curly tops

Aleut Use: The fiddleheads were collected and used raw in salads along with dandelions. The Aleuts picked them around the Kaminista area.

Other Common Names: Shield fern, spinulous shield fern, trailing wood fern, spreading woodfern

Description: This is a large fern (up to a meter tall), which has robust, thrice-divided leaflets. The frond is triangular in shape, ending halfway down the stipe. It has abundant, chaffy scales at the base, and the stipe has a center crease extending the whole length of the fern. The lowest leaflets are much larger than the other leaflets, and often protrude forward. The sori are shaped like round dots under the leaflets.

Growing Time and Habitat: This fern's fiddleheads begin pushing up from the ground very early, probably in late April. They are completely covered with brown chaffy scales. The fiddleheads come up in bunches, slowing unfurling as the season progresses. They are completely unfurled by late June. The mature, individual fronds grow in leafy tufts. Occasionally, ferns growing in poor microhabitats can be dwarfed so don't identify them by size alone. Wood fern is the most abundant fern on the island, often growing in mossberry areas such as on Kaminista and the Fox Hill lava flow, and in moist depressions such as around Bogoslov Hill and on the sides of the Whitney pond depression.

Notes: Wood fern is the only evergreen fern out of the 5 on the island. Its matted old fronds can be seen after the snow melts in spring. This species has a wide circumboreal distribution in forests and on the tundra. Historically, its fronds were used to thatch houses, wipe down fish, and stuff mattresses. The Yupik, of SW Alaska, used wood fern tea as a remedy to 'comfort the gut' (Viereck, p. 59), and the Tanaina, of east-central Alaska, used the cooled tea for an eye wash, kidney trouble and asthma.

Bur-Reed Family

(Sparganiaceae)

The bur-reed family has 1 genus and 20 species which mostly grow in the cooler or temperate regions of the world. Only a few species grow in the US. Bur-reeds are fleshy, aquatic plants with long, grass-like blades. Their fruits are sphere-shaped and prickly.

Northern bur-reed

Sparganium hyperboreum

Description: Bur-reeds are aquatic plants, with leaf blades that are submerged or float like ribbons on the surface of fresh, still water.

Northern bur-reed has fleshy leaf blades with veins which resemble wooden floor planking. The leaf tips are rounded. The plants are attached by roots to the lake bottom. There are 2-3 bur-shaped seed heads to a stalk. The lowest seed head is individually stalked and the upper 1-2 are stalkless. The topmost stalkless head is male, evident by the tuft of stamens protruding during flowering time.

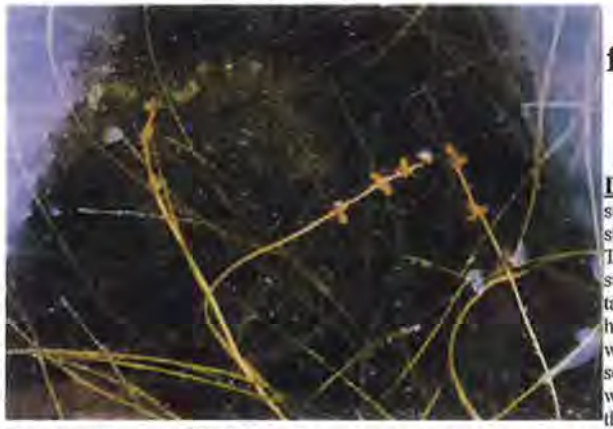
Growing Time and Habitat: Northern bur-reed appears in mid-July as the water level drops. It flowers later in the month, and then continues growing through August. It was only found in Saucer Pond.

Notes: Bur-reeds are very dependent on water level. They, along with other aquatic plants, can be erratic in their emergence and growing time depending on the wetness of each year. This may explain why I was the first person to "find" this species on St. Paul, even though it grows very obviously in Saucer Pond which is right by the road. The year I found it was quite a wet one. If there is not enough water in the pond, bur-reed probably would not appear. However, it is possible, since this pond is so close to civilization, that it was brought in from the mainland by people, explaining why it does not show up on earlier plant lists. The reason why it is only in Saucer Pond when there are plenty of other lakes in the vicinity may be explained by the fact that Saucer Pond is a very rich habitat for aquatics. It could be that Saucer Pond's combination of water table level, site location, and nutrient dynamics make it the only place where bur-reed can take hold.

Pondweed Family

(Potamogetonaceae)

The pondweed family has about 100 species which grow all over the world. They are aquatic plants which grow in fresh water of lakes, swamps or marshes. The stems are usually many branched and matted and the flowers and seeds are very tiny, often growing in the branch axils.



Thread-leaved or fine-leaf pondweed

Potamogeton filiformis, Stuckenia filiformis* ssp. *filiformis

Description: Pondweeds are submerged, branching aquatics of still, fresh or brackish water. Thread-leaved Pondweed has thin stems that branch often, forming a tangled mass. The plentiful seed heads float to the surface of the water, making them easy to see. The seeds are round, and are in four whorled bunches spaced at the top of the flowering stem.

Growing Time and Habitat: Thread-leaved pondweed emerges in late July and flowers throughout August, with mature seeds being produced by the end of August. It is found in the wetland between the road and the old abandoned trailers by Salt Lagoon, in the wetlands across from Polovina Lake and most likely in other similar habitats.

Notes: Like bur-reed, pondweed is affected by water table level and so probably occurs in other wetlands in other years. It is dark green and so blends nicely into the murky color of the water it inhabits, making it quite unnoticeable. The seeds of pondweeds are adapted for dispersal by birds. When they are eaten by birds, the hard seeds come out intact and the chances that they will germinate is much more likely than if they are eaten by some other creature. Pondweed seeds can be carried for over 1,000 miles by migrating waterfowl. This broadens the pondweed's range and ensures that it will be deposited in favorable habitat. Interestingly, there was a least one pair of pintails who nested on the wetland with the pondweed during the summer. They probably ate a lot of pondweed seeds and will distribute them when they migrate. Or perhaps they were the ones who brought the pondweed to the island in the first place. The genus name, *Potamogeton* is Greek for 'river neighbor' (*potamos* meaning 'a river' and *geiton* meaning 'a neighbor'). *Fillformis* means thread-like.

USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. An illustrated flora of the northern United States, Canada and the British Possessions. 3 vols. Charles Scribner's Sons, New York. Vol. 1: 258.

Ditch grass

Ruppia spiralis

Description: Ditch grass is very similar to thread-leaved pondweed, except it has only one to two pear-shaped seeds on top of the seed stem. Also, the stems are slightly less bushy than pondweeds. Other than that, they are very similar and hard to distinguish.

Notes: This plant was not found on St. Paul in the summer of 1998, and I have not heard whether other people found it, so I do not know its vital statistics. It could easily be on the island and just be lost in the murk of one of the lakes, ponds or wetlands. Or perhaps all the ravenous migrant ducks ate it up; who knows?

The Grass Family

(Poaceae)

The grass family has the most economic importance of any plant family. Among its 10,000 members worldwide are the leading sources of food for the world's people and livestock. The most important species for use as food are called cereals and in temperate climates these include wheat, barley, rye and oats. In tropical climates, rice is the most important cereal, with sugar, millet and sorghum also being important. Corn, the only species native to the Americas, is cultivated in both climates. The grass family is in the branch of the plant kingdom called the monocotyledons, or monocots. These plants make up only 20 percent of the plant kingdom (about 55,000 species), but they are considered to be the most evolved of all the plants. The dicotyledons, or dicots, make up the other 80 percent. The monocots have developed along two diverging pathways; one being toward very elaborate flowers as seen in the orchid and lily families, and the other being towards very reduced, small flowers as seen in the grass family. The members of the grass family don't need big showy flowers, because they have become very efficient at dispersing their pollen and seeds by wind. The distinctive feathery stigmas are designed to provide a large surface area to catch pollen. Grass plants can also reproduce vegetatively via underground root systems called rhizomes. The ability of grasses to colonize bare ground rapidly by seed and by sprouting from rhizomes makes them the best at surviving grazing and fire, and significantly contributes to their success as a family.

On St. Paul Island, there are probably close to 30 species of grass, the most important, abundant and noticeable being beach grass (*Elymus arenarius* ssp. *mollis*). This is the only grass used by the Aleut people in any significant way. In the following grass key, I present the 21 species I was able to find and successfully key to a reasonable identification.

Since the flowers of the grasses are so reduced, identification is very difficult. One must learn basic grass terminology to even begin. The following diagram and glossary will familiarize you with those terms and enable you to proceed with the grass key.

Grass, sedge and rush terms glossary

anther: the top, pollen-bearing part of the male organ (or stamen)
awn: the tiny bristle which, for our purposes, sticks up from a grass spikelet or a sedge scale
basal leaves: leaves which initiate from the very bottom of a grass, sedge or rush plant, and often are not attached to the flowering stem, being altogether separate
blade: the leaf of a grass, sedge or rush which is free of the stem; either it comes off the midsection or bottom of the stem or grows entirely independent of the stem
bract: the leaf-like projection which sticks off a grass or sedge stalk from directly under the flower; (rushes) the leafy "bed" on which the seed sits, with points on it like a crown
capsule: a chamber of a fruit which can hold one to many seeds
elliptic (inflorescence): an arrangement of flowering stems off one stalk which forms the shape of an ellipse
floret: a single grass flower within a spikelet

glume: in grasses, the lowest pair of leaf-like appendages which surround the floret(s), located at the bottom of a spikelet
inflorescence = flowering head: the section of the grass, sedge or rush which includes all the flowers and associated branches, often located at the top end of the stalk
lemma: in grasses, the leaf-like appendages inside the glumes which directly surround the floret(s)
midrib: the middle line on scales (sedges), which are often a different color than the main part of the scale
nerved: having thin lines apparent on the surface
node: the place where 1 to several branches with spikelets stick out from the stem in a whorl
panicle: a flowering stalk with flowers on bushy branches which come off the stalk alternately; a compound raceme
perigynia: the inflated sack around the seed in sedges
pistillate: referring to the seed-producing (or female) flowers of grasses, sedges or rushes
raceme: a flowering head where the flowers are at the ends of stalks which alternate down the length of the inflorescence
scale: the covering of the perigynia in sedges
sheath: the lower part of a stem leaf which entirely surrounds the grass stalk, usually in an overlapping fashion as in a wrap-around skirt
spike: (grasses)an inflorescence where all the spikelets are packed tightly together around the stalk with no branches, as in a head of wheat: (sedges) an individual head of flowers within an inflorescence
spikelet: an individual cluster of a grass inflorescence which contains all the flower parts
stalk/stem: the main upward support of a grass, sedge or rush (or other plant), on top of which is usually the flowering head or inflorescence
stalkless = sessile: having no individual stem; sitting directly on the main stalk
staminate: referring to the pollen-bearing (or male) part of the flowers (the stamens)
stem leaves: leaves which come off the stem of the grass, sedge or rush
stigma: the top, or receptive bit of the seed-producing (or female) organ
terminal: at the very top of the stalk, usually referring to an inflorescence, an individual spikelet or spike
tufts: bunches of leaves and stalks with flowering heads growing from one point
whorl: a ring of branches or leaves all sticking out from the stem at the same level

1a. Flowering head (or inflorescence) forming a tight spike ..... (2)
1b. Flowering head not forming a tight spike ..... (7)

2a. Spike over 8 cm long, spikelets very large and without awns, stalks tall with abundant shiny leaves; most common grass along the coast ..... **beach grass**, p. 37-8
2b. Spike shorter than 8 cm long, awns present ..... (3)

3a. Spike compact, sheath inflated around stalk ..... (4)
3b. Spike otherwise ..... (5)

4a. Spike with white woolly hairs among the spikelets ..... **alpine foxtail**, p. 25
4b. Spike without white woolly hairs, florets purple-tinged ..... **mountain timothy**, p. 25

5a. Spike gold-colored with long awns, stem fuzzy ..... **spike trisetum**, p. 31
5b. Spike not as above ..... (6)

6a. Spike long and narrow with tiny spikelets, bract and stem leaves over-topping inflorescence, often submerged in water ..... **short-awn foxtail**, p. 26

6b. Spike with spikelets alternating sides down the inflorescence, spikelets resembling little stalks of wheat ..... **Italian ryegrass**, p. 37

7a. Grass growing half submerged in water, with nested V-shaped leaves, red stems and a large inflorescence ..... **pendant grass**, p. 34
7b. Grass otherwise ..... (8)

8a. Grass less than 20 cm tall ..... (9)
8b. Grass greater than 20 cm tall ..... (11)

9a. Grass growing in trampled areas such as the harbor or the paths to the seal blinds; matted, with a small inflorescence and often growing in tufts ..... **annual bluegrass**, p. 34
9b. Grass with one floret; glumes nearly absent; leaves tufted, shorter than flowering heads; grows in late melting snow beds and wet tundra ..... **ice grass**, p. 26
9c. Grass growing in saltmarshes or shores ..... (10)

10a. Grass with reddish stems snaking across the mud like suns with spiky, green blades protruding; a grass with few flowering stalks ..... **creeping alkaligrass**, p. 35
10b. Grass blades forming a distinctive light green patch in Salt Lagoon, or flat tufts in Antone; inflorescence 5 cm long, narrow, with 3 florets ..... **tundra alkaligrass**, p. 35

11a. Grass very tall (over 40 cm) ..... (12)
11b. Grass medium-sized (between 20 and 40 cm tall) ..... (15)

12a. Grass which doesn't bloom until late August; leaves long, stems thin, growing very tall (up to 1.5 m): Inflorescence plume-like, purple-tinged, with the single floret in each spikelet being over-topped with a tuft of hairs ..... **bluejoint grass**, p. 28
12b. Grass otherwise ..... (13)

13a. Grass up to 1 meter tall with a distinctively mauve-colored, pyramid-shaped inflorescence; spikelets with one floret that has no hairs or awns; stem thick and robust ..... **polargrass**, p. 27
13b. Grass otherwise ..... (14)

14a. Grass 1/2 - 1 meter tall, inflorescence long (10-25 cm), elliptic and light green; 5 florets per spikelets; spikelets 7-12 mm long; lemmas hairy along edge, but not at the base; grows along shores ..... **large-flower speargrass**, p. 32
14b. Grass 60-80 cm tall, with a drooping inflorescence crowded with many spikelets; 2-3 florets per spikelet; spikelets with cobwebby hairs at base; glumes having 3-6 grooves; grows in meadows near shores ..... **large-glume bluegrass**, p. 32

15a. Grass with yellow, glistening spikelets, each with 2-3 florets at different levels; inflorescence drooping; grows around town in clumps; very common ..... **tufted hairgrass**, p. 30
15b. Grass otherwise ..... (16)

16a. Grass with whitish cast to the spikelets; inflorescence starting as a tight spike then opening to be pyramid-shaped ..... (17)
16b. Grass otherwise ..... (18)

17a. Grass to 30 cm tall; inflorescence spreading to be 5 cm wide; grows at lower elevations or along shores ..... **red fescue**, p. 36

17b. Grass less than 25 cm tall; inflorescence not as wide as above; growing on tops of hills inland ..... **alpine fescue**, p. 36

18a. Grass with no awns, a tuft of cobwebby hairs at the base of the lemmas and 2-6 florets per spikelet ..... (19)
18b. Grass otherwise ..... (20)

19a. Grass having two branches at the lowest node; cobweb hairs at the base of the lemmas not prominent ..... **arctic bluegrass**, p. 32
19b. Grass having 3-5 branches at the lowest node; cobweb hairs at base of lemmas thick, very common in disturbed areas ..... **Kentucky bluegrass**, p. 33

20a. Grass with one floret ..... (21)
20b. Grass with 2 or 3 florets ..... (22)

21a. Grass with no awns or hairs around the lemmas; stems red and creeping with green leaves if growing in muddy areas; upright and tufted if growing in scoria ..... **Alaska bentgrass**, p. 28
21b. Grass with straight awn and hairs half way up the floret; inflorescence narrow and purplish-black; grows in muddy areas and dry-down ponds ..... **slim-stem reedgrass**, p. 29
21c. Grass with twisted or bent awn; inflorescence more open with fewer spikelets; grows on lake margins ..... **circumpolar reedgrass**, p. 29

22a. Grass with 2 florets; awn sticking out from middle of lemma; inflorescence delicate, drooping with few spikelets; green with a purplish tinge, grows in rocky or moist areas ..... **mountain hairgrass**, p. 31
22b. Grass with 2 florets; no awn ..... **Fisher's tundragrass**, p. 35
22c. Grass with 3 florets all at the same level; spikelets tulip-shaped and lustrous gold in color; inflorescence slightly drooping; grows next to ponds or on moist hillsides ..... **vanilla grass**, p. 24

Vanilla grass

Hierochloe odorata

Description: Vanilla grass is a medium to tall (30-60 cm), drooping grass, with 3 florets all at the same level in each spikelet. The spikelets are lustrous golden-colored, tulip-shaped and awnless. Each inflorescence has about 10 thin branches coming off the main stem with 6-10 spikelets on each branch.

Growing Time and Habitat: The spikelets of vanilla grass emerge from the panicle in mid-June, making this one of the earlier grasses to bloom. Vanilla grass is found on wetland margins such as around the little pond to the west of the Kaminista rock quarry, and on moist hillsides such as inside the Lake Hill crater. It is also found along the west side of the main road across from Telegraph Hill.

Notes: It is a remarkably pretty grass with a pleasant smell. I couldn't quite detect the vanilla scent, but this is probably because I didn't know at the time that the vanilla smell is emitted from the base of the stem after being rubbed repeatedly. Also, stronger vanilla odor usually comes from grasses found at drier sites. Other common names are sweet grass and holy grass. The last name arises from the traditional use of it during religious ceremonies for cleansing

and purifying in Europe. The sweet, or vanilla-like smell comes from the chemical coumarin, which was used as a flavoring agent. The genus name, *Hierochloe*, means 'sacred grass' (*Hieros* is Greek for 'sacred' and *chloe* for 'grass'), and the species name, *odorata*, refers to the sweet smell. Another species, **few-flowered or arctic sweet grass (*Hierchloe pauciflora*)**, is on Hultén's list for the island, but I did not find it. It differs from Vanilla grass by having a narrower inflorescence with fewer spikelets.

Mountain timothy

Phleum commutatum var. *americanum*, *P. alpinum*

Description: Mountain timothy is a medium-sized grass, 25-50 cm in height. It has a small, compact, purplish-hued flowering head (2-4 cm long and 1 cm wide) which forms a spike. It has smooth, hairless florets each with 2 sharp awns. The stem leaf covers most of the flowering head until it reaches its full height later in the summer. The leaves are purplish and relatively wide (7 mm). The sheath below the leaves is inflated around the stalk.

Growing Time and Habitat: Mountain timothy first comes out of the ground as a miniature grass with the leaf over most of the flowering head in early July, and then can reach up to 50 cm at its full height in mid-August. It grows in sandy, rocky and wet margin habitats, such as on the dunes by the Polovina land bridge, on the path up to the top of Hutchinson Hill, on the side of the Cone Hill calderra, and on the edge of Saucer Pond. This grass is quite common on the island, but not as common as alpine foxtail. Alpine foxtail looks similar, but is grayer and has a hairy flowering head.

Notes: Mountain timothy is basically the late season counterpart of alpine foxtail, since the two look so similar. In June and early July, you will most likely see alpine foxtail; in late July and August, the similar-looking grass will probably be mountain timothy. Mountain timothy is a common coastal species, extending across the Aleutians, down through western and NE North America. It is the native, northern relative to common timothy which was introduced from Europe as fodder and is very abundant in meadows throughout North America. Actually, **common timothy (*Phleum pratense*)** is included on Hultén's St. Paul island list, but I never found it. If it is there, it was definitely introduced and is probably hiding out in someone's backyard. I doubt if it would ever be a threat to the native vegetation. The common name of timothy recognizes the efforts of Timothy Hanson, a New York agrologist of the 19th century who encouraged the use of the grass in domestic pastures across the country. The genus name, *Phleum* is from the Greek word *pleos*, meaning 'a grass of reedy quality'. The species name, *commutatum*, is Latin for 'clumped'.

Alpine foxtail

Alopecurus alpinus

Aleut Name and Translation: Kexah, meaning grass **Other Common Name:** Boreal alopecurus

Aleut Use: As decoration in the home

Description: Alpine foxtail is a tall grass, growing up to 60 cm. Its compact, gray-hairy flowering head (1-4 cm long and 1-1.5 cm wide) forms a spike. It has short, green stem leaves and a firm, straight stalk. The glumes are hairy on the edges and the lemma is awned from the middle. When it releases its pollen, the flowering head looks shaggy, with bits and pieces of anthers and

stigmas sticking out all over it.

Growing Time and Habitat: Alpine foxtail is the earliest grass to flower, and does so usually around mid-June. It goes through a variety of changes as the season progresses. After the initial cute and fuzzy stage, it begins to look ragged and then leggy as the grass gets taller. It tends to grow in large patches where the distinctive tufts of its flowering head are all that is visible. It is very common, growing all over the island on wet, sandy or rocky soil. It forms the densest bunches in open, moist areas on the tundra, such as the meadow just before Saucer Pond, around the parking lot at Southwest Point, and in the tundra around Bogoslov Hill.

Notes: Alpine foxtail is aptly named, since the tuft looks like a miniature fox's tail (a white color morph fox, that is). It grows in tundra and alpine all around the Arctic Circle, throughout Canada and down to the central Rocky Mountains. The common name of the grass is a direct translation of the scientific name, since *alopex* is Greek for 'fox' and *oura* for 'tail'.

Short-awn foxtail

Alopecurus aequalis

Description: This grass is amphibious, mostly growing half submerged in the water, but also growing happily on dry soil. When in water, the flowering heads extend out of the water as they develop. The single florets are purple-rimmed and are awned from the middle of the lemma. The florets form tight, narrow heads that are 2-7 cm long and 5 mm wide. The slender, tapering leaves float on the surface of the water or curve out from the stem. In places where the water dries up, short-awn foxtail will continue to stand upright and grow as a normal, terrestrial grass, reaching up to 60 cm tall.

Growing Time and Habitat: Short-awn foxtail starts blooming in late July. It grows in shallow water, such as Saucer Pond, and dry-down wetlands, such as the sandy areas in the dunes on top of Tolstoi Bluffs or the ephemeral pond on Lake Hill across from the gravel pit.

Notes: Since the anthers of short-awn foxtail are yellow to orange, this grass has sometimes been called 'orange foxtail'. It is considered to be a good forage grass, and its seeds are presumably rich in oils like most northern grasses. This is a very widespread grass, growing in the majority of the Northern Hemisphere. The genus name is translated in the preceding description. The species name, *aequalis*, means 'equal', which refers to the glumes and lemmas.

***Phippsia algida* photo by Norman Hagen taken in Norway**
Courtesy of Norsk Bontanisk Forening, nhm2.uio.no

Ice grass
Phippsia algida

Description: Ice grass is small, 2-10 cm high, with one floret per spikelet. Each spikelet has 3 stamens. The glumes are very small or are absent, and the lemmas are not awn tipped. Ice grass grows in small dense tufts, with the flower heads protruding above the leaves. It is usually found in bogs, late melting snow beds or wet places on the tundra.

Notes: Ice grass was not found in 1998, and I do not believe other botanists have found it in the recent past. Macoun (and fellow botanist William Palmer) found it in the 1890s (but didn't specify where) and hence it was included on Hultén's list. The fact that I didn't find it does not mean it is no longer on the island, since there are a remarkable number of places for little plants to hide. The genus name is named for Constantine John Phipps, 2nd Baron Mulgrave (1844-92), an arctic explorer. The species name, *algida*, is derived from the Latin verb, *algere*, which means 'to be cold'.

Wide-leaf polargrass and 'reed-like' polargrass

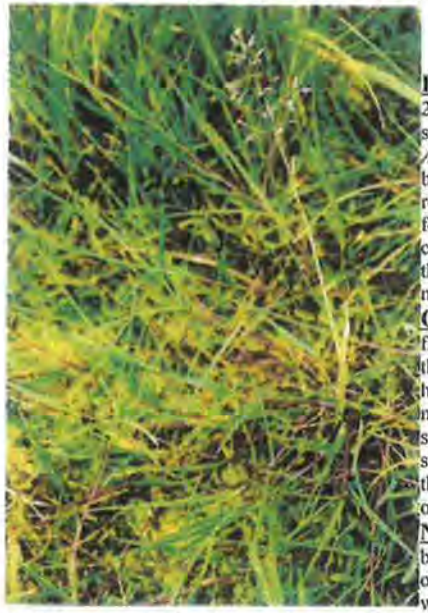
Arctagrostis latifolia* (var.) ssp. *latifolia and
Arctagrostis latifolia* (var.) ssp. *arundinacea

Description: The polargrasses are tall (over 1 meter), with a distinctive mauve-tinged, pyramid-shaped inflorescence. The spikelets have one floret, no awns or hairs, and have unequally-sized glumes. The glumes are nearly as long as the spikelets. There are two subspecies growing on the island. The *latifolia* subspecies' spikelets are over 4 mm long and the anthers are 2 mm long, whereas the *arundinacea* subspecies' spikelets are less than 4 mm long and the anthers are 1.5 mm long. The *latifolia* subspecies is also taller than the *arundinacea*, growing to 1.5 meters tall. The stems on both are thick and stout with broad leaves (up to 1 cm wide).

Growing Time and Habitat: The *arundinacea* subspecies is by far the most common. It blooms in mid-July and the grass is in full dominance through August. Polargrass grows abundantly all over the island, especially in wet meadow areas. It forms large patches, reddening the tundra with its striking mauve-colored inflorescence. The distinction between the wet meadow and tundra is particularly noticeable on the flat plain across from Antone Lake in August. Look for the line between green and mauve. The *latifolia* subspecies is much rarer, seeming to grow only around lake margins, specifically around Saucer Pond.

Red-neck stint in polargrass

Notes: The name polargrass probably stems from the fact that the grass' distribution extends almost entirely around the North Pole, coming about as close to the pole as a plant can. The *latifolia* subspecies also grows as far south as central Canada, while the *arundinacea* subspecies grows in a smaller swath between NW Canada and central Siberia. The genus name loosely means 'grass of cold regions'. The species name, *latifolia*, means 'wide-leaf'. The subspecies name, *arundinacea*, is Latin for 'reed (*arundo*) -like (*acea*)'.



Alaska or spike bentgrass

Agrostis alaskana, A. exarata

Description: This grass is small to medium-sized (up to 20 cm high) and is very delicate. It has dark purple spikelets, each with one floret. Like grasses in the *Arctagrostis* genus, the spikelets are awnless and hairless, but unlike the above, the glumes are equal in height and reach beyond the lemmas. The leaves on Alaska bentgrass form short tufts or creep along the ground with green leaves coming off of red runners. These runners can form mats on the ground. This growth form is especially prominent in muddy areas.

Growing Time and Habitat: Alaska bentgrass flowers in mid-July and persists through August. It forms thick mats on the mud flats in the Antone saltmarsh a few hundred yards from the road (beyond the initial alkaligrass marsh). It can also be found in late snow melting areas, such as the bog near Ridge Wall, and dry down wetlands, such as those around Sheep Lake and on the north side of the High Bluffs. Dwarfed versions (up to 10 cm tall) grow on scoria hillsides such as the south side of Rush Hill.

Notes: Alaska bentgrass was lumped into the spike bentgrass species, so the range has expanded to include all of western North America, with 2 outlier populations in Kentucky and Vermont. Bentgrass is a name given to a grass that grows on a 'bent', a name for unbroken, neglected land. *Agrostis* is Latin for 'grass'.

Bluejoint grass

Calamagrostis canadensis* (ssp.) var. *langsdorffii

Description: Bluejoint is a very tall grass, growing up to 1.7 meters, making it one of the tallest plants on the island! It has a soft, drooping, purple-tinged inflorescence, which is narrow when it first emerges and then opens fully into a plume-like panicle by the end of the summer. Key characteristics of the *Calamagrostis* genus (also called reed bent grasses) are; a tuft of hairs at the base of the lemmas, a single floret in each spikelet, and an awn protruding from the lemma. If you have this combination, you can be pretty sure you have a reed bent grass. Bluejoint's tuft of hairs is longer than the lemma and this distinguishes it from other reed bent grasses. On St. Paul, it is also far taller than the other three species of reed bent grass.

Growing Time and Habitat: Bluejoint grass blooms in late August, making it one of the last grasses to

bloom. Its stalks and leaf blades emerge quite a bit earlier, baffling botanists to its identity until the flower heads appear. It is relatively common on the island, but grows very spottily on the margins of wet areas (though usually in dense patches). Specifically, some of the places it is found are on the edges of Saucer Pond, Antone saltmarsh, Webster Lake and the Kaminista bog.

Notes: Bluejoint grows circumboreally and spottily south in the lower 48 and Asia. One of the oddest patches of bluejoint grass grows on the east side of Tolstoi Bluffs up from Salt Lagoon. There it grows in a pure stand forming a perfect circle. It is noticeable from the road into town since it is a different color from the surrounding vegetation. It is probably the tallest vegetation on the island, reaching almost 6 feet high. Underneath there is a thick mat of old stems, telling of its many years of residence there. Why it grows in a perfect circle, I do not know. Perhaps it is the effect of the water table, soils or competition. Whatever the reason, it makes a good landmark to site when trying to point out groups of rare ducks. It is surprising and curious to me that Macoun doesn't include this grass on his 1899 list. The genus name *Calamagrostis* comes from the Latin *calamos* meaning reed and *agrostis* meaning grass. The species name, *canadensis*, refers to the grasses major area of distribution, an the subspecies honors Georg Heinrich von Langsdorff, a Russian consul-general in Rio de Janeiro who went with Krusenstern on the 'round the world trip in the *Nadeschda* and *Neva*. Another of his namesakes in this guide is the Aleutian violet p. 107

Slim-stem or northern reedgrass

Calamagrostis inexpansa, C. stricta ssp. *inexpansa*

Description: Slim-stem reedgrass has a purplish-black, narrow (7 mm wide), spear-like flower head when it first appears. Later, the head will expand, becoming wider and lighter in color. The grass grows to a medium height, averaging about 30 cm. The reedgrass genus has three distinguishing characteristics; there is a tuft of hairs at the base of the lemmas, a single floret in each spikelet, and an awn protruding from the lemma. In slim-stem reedgrass, the tuft of hairs is 1/2-3/4 as long as the lemmas, and the awn is thin and straight. The glumes are shiny and smooth.

Growing Time and Habitat: Slim-stem reedgrass appears in late July, and the flower head expands through August. It grows in wet areas such as the dry down pond near the gravel pit on Lake Hill, and around Saucer Pond. It is uncommon on the island.

Notes: Hultén has ***Calamagrostis holmii*** on his plant list, and not this one, so there is a slight possibility we could be talking about the same grass which we identified differently. **Holm's reedgrass** differs from slim-stem reedgrass in being very dainty and having entirely hyaline glumes which are barely scabrous. I did not find a grass of this description, which is unfortunate since its southern-most distribution is St. Paul Island. Slim-stem's distribution is throughout northern North America. It is a rare plant in many states in the NE. Another species, **purple** or **one and a half flower reedgrass** (***Calamagrostis purpurascens* ssp. *arctica, C. sesquiflora***), is listed for the island, but I did not find that one either. It is mentioned on Macoun's 1899 list as being rare on the island, so I could have easily missed it. It is shorter and the panicle is smaller than slim-stem reedgrass (1-4 cm long). Also, its awn is bent at the base.

Circumpolar reedgrass

Calamagrostis deschampsioides

Description: This grass is similar to slim-stem reedgrass except it has a large, twisted or bent awn and it has a more open flower head, with fewer spikelets. The stem is distinctively kinked near the base. It is about 30 cm tall with purplish, long tapering glumes.

Growing Time and Habitat: It flowers in mid-July to August. It grows on the margins of lakes and ponds such as Saucer Pond. It is uncommon.

Notes: Circumpolar reedgrass grows spottily around the Arctic Circle on shores.

Tufted hairgrass

Deschampsia c(a)espitosa (ssp. *orientalis*)

Description: Tufted hairgrass is a medium to tall grass (30-60 cm). It has purple-tinged to glistening gold spikelets with 2-3 florets on top of one another. The topmost floret exceeds the glumes. Early in its flowering cycle, the inflorescence droops, then later it becomes a spreading panicle with the spikelets concentrated near the ends. It grows in dense clumps in disturbed areas. This species is extremely variable; size, shape and color can be very different for grasses from different habitats.

Growing Time and Habitat: This grass flowers from mid-July through August. It is found all over town, especially huddled against buildings, and on roadsides, in scoria scraps and on rocky tundra and also in wet meadows and lake margins such as Antone saltmarsh, Saucer Pond and Webster Lake. Specific drier spots include the parking area at SW Point, the trampled area near the garbage can at the Reef bird rookery, and by the TDX office in town. It is very common and abundant.

Notes: Tufted hairgrass grows in many different types of habitat, from saltmarshes to alpine tundra, and a broad range of locations, from the high arctic to the tropics. This is a very confusing species taxonomically, since the grass often hybridizes with other species. Two hairgrasses can look very different, but come up as being the same species when keyed out. Now botanists advise lumping many of the former *Deschampsias* species, subspecies and varieties into the *cespitosa* species since they are so variable. Some past plant lists also include **Bering's tufted hairgrass** (***Deschampsia beringensis***), which is still considered a distinct species. It is found coastally around the North Pacific Rim and very spottily in the Pacific NW. It's glumes are over 5 mm long as opposed to usually less than 5 mm in *D. cespitosa*. Taxonomist need to study this further, however, as there is enough overlap as to be unsure whether it is a distinct species. Good luck to all those brave souls who attempt keying them. This grass genus is named after French botanist Jean Louis Auguste Loiseleur-Deslongchamps (1774-1849 - I don't know why they bothered to shorten his name to create the genus name, since it would have gone nicely with the cumbersomeness of keying the grass!). Curiously, the genus name for alpine azalea is also named after this chap, but the *first* part of his last name is used (see p.129) I can understand the split name dilemma, having a hyphenated name myself, but at least he got both of them out there, even if it wasn't at the same time. Tufted hairgrass is a popular grass to use in native mixes to re-seed roadsides and other open ground.

Mountain hairgrass

***Vahlodea atropurpurea* (ssp. *paramushirensis*)**

Description: Mountain hairgrass is a delicate, drooping grass of medium height (about 30 cm). The flower structure is somewhat similar to the other hairgrasses, with one distinctive difference; the glumes reach beyond the lemmas, covering the 2 florets. Otherwise, there are very few spikelets in the inflorescence, with only about 5 or so slender flower stalks connecting them to the stem. The florets are green with a purplish tinge. There is a very small awn attached to the lemma and a tuft of hairs at the lemma's base.

Growing Time and Habitat: Mountain hairgrass flowers from late July through August. It is found in rocky mossberry areas or moist areas, such as the upper Kaminista rocky meadows and the moist, north-facing Lake Hill slope.

Notes: Mountain hairgrass grows on shores around the North Pacific Rim and spottily on shores and in mountains in northern North America. The genus was possibly named for Martin Hendricksen Vahl (1749-1804), professor of botany in Copenhagen. The species name means 'dark purple', though the plants on the island can be almost green. The subspecies name comes from the name of an island where this grass was first found. It is called Paramushiro Island, and is one of the North Kurile Islands near Japan. Sadly, modern botanists have seen fit to lump this subspecies into the species.

Spike trisetum

***Trisetum spicatum* (ssp. *alaskanum*)**

Description: This is a distinctive, medium-sized grass (10-30 cm tall), with a compact spike (5 cm long and 1.5 cm wide) of gold colored flowers which looks almost like a wheat flower head. The flowers have long, highly-visible awns. The stem sheath is woolly. There are two florets per spikelet.

Growing Time and Habitat: Spike trisetum emerges in early July and continues flowering and growing throughout the summer. Since the flowering head is a spike, there isn't a huge change in the shape of the head as it matures, but there is definitely a little expansion. This grass grows all over the island and is very abundant. It tends to grow singly instead of in clumps, so may not be as noticeable as, say, alpine foxtail, but it is definitely widespread. It seems to prefer rocky habitats where the soil is drier such as around the pullout to Whitney Pond, Kaminista, on the High Bluffs and in the SW lava flows.

Notes: This grass is widespread in the north regions, mostly coastal, arctic, and alpine North America and Asia, but then it or closes related types also occur in Borneo, Australia, New Zealand, Hispaniola and South America. Perhaps a vagrant pterodactyl carried its seeds down under.

If I am remembering my Latin correctly, *Trisetum* means "three stiff hairs", which is odd, because this grass has but two awns per spikelet.

Arctic bluegrass

Poa arctica* ssp. *arctica

Photo not necessarily accurate

Description: The bluegrasses are extremely tricky to key out. There are probably more on St. Paul than are listed here, but I have at least tried to include all the ones on lists compiled from several different botanical surveys. Bluegrasses are characterized by having awnless lemmas - some with cobwebby hairs at the base - and feathery stigmas. There are between 2-6 florets per spikelet. Arctic bluegrass has 2 branches at the lowest node in the panicle, spikelets are violet-colored, and there is a only a small tuft of cobwebby hairs at the base of the lemma. It is 20-30 cm tall.

Growing Time and Habitat: Arctic bluegrass flowers in early to mid-July. It grows in wet meadows and margins, such as the edge of Saucer Pond, and in drier areas, such as the scoria scrapes in the Praying Aleut area and the Kaminista spatter rampart. It is fairly common in scattered locations.

Notes: The common name for the genus, bluegrass, comes from the bluish color of the stems. Bluegrasses are good forage for both domestic and wild animals. A subspecies of arctic bluegrass, **Williams' arctic bluegrass (*Poa arctica* ssp. *williamsii*)** is on Hultén's list, but it has since been lumped into the arctica subspecies. James Macoun calls the *arctica* species 'variable' on the island, so we are probably safe keying just to *arctica*. In case you're interested, in the keys, this subspecies of arctic bluegrass differs from its sister grass by having more cobwebby hairs at the base of the lemma, and by having yellow tinges on the spikelets. This subspecies was probably named after Robert Stetham Williams (1859-1945), a Bryologist from the New York Botanical Gardens.

Large-flower speargrass

Poa eminens

Description: Large-flower speargrass is very tall (1/2 - 1 meter) with wide leaf blades (5-10 mm). Besides these striking features, it has a long (10-25 cm), elliptic inflorescence with many light green spikelets. There are generally 5 florets per spikelets and the spikelets are 7-12 mm long. The lemmas are hairy along the edge, but not at the base, as is typical with many of the other bluegrasses.

Growing Time and Habitat: Speargrass grows along the shores. I did not find it, but botanists who visited the island before me did. It is on Hultén's list, and Macoun lists it as rare on St. Paul Island.

Notes: This is a true coastal grass, growing around the North Pacific Rim, eastern Asia, and then in eastern maritime Canada. The species name is Latin meaning "towering" or "standing out above others".

USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. An illustrated flora of the northern United States, Canada and the British Possessions. 3 vols. Charles Scribner's Sons, New York. Vol. 1: 258.

Large-glume bluegrass

Poa macrocalyx

Description: This bluegrass is tall (60-80 cm), with a drooping inflorescence that is crowded with many spikelets. There are 2-3 florets per spikelet. The spikelets don't have hairs along the edge of the lemmas, but do have the cobwebby hairs at the base of the spikelets. The glumes are brown to green and are distinctive because they have 3-6 grooves in them, which makes them look a bit like tiny, dried-out sunflower seeds. The leaves are 2-4 mm broad and can over-top the inflorescence, but sometimes does not.

Growing Time and Habitat: This bluegrass flowers from late-July through August. It grows in moist meadows near the shore, often in conjunction with wideleaf polargrass (*Arctagrostis latifolia* ssp. *latifolia*) and bluejoint (*Calamagrostis canadensis*). I found it only on the east side of the Antone saltmarsh, but I believe it could be found in other similarly composed and situated meadows. It is rare on the island.

Notes: This is the first time this species has been recorded for the island, though the identification was done by a scientist off island from an over-mature specimen, so it is not entirely certain. However, neither is it surprising, since this grass was only found twice, and being a seashore grass, it could easily have migrated in from other islands via people or birds. It grows spottily along the west and southern coasts of Alaska, all along the Aleutians Islands, into Russia's Kamchatka Peninsula, and south along the BC coast. Like all bluegrasses, it is not easily identified and could have been mistaken for any number of other species by past botanists. The scientific name, *macrocalyx*, means "big calyx". The calyx is the part of a flower directly below the petals, usually containing a ring of green sepals (counterparts of the petals). In the case of grasses, the calyx is the glumes.

Kentucky bluegrass*

Poa pratensis

Description: Kentucky bluegrass is a medium-sized grass (25-40 cm tall), with 3-5 branches of flowers at the lowest node. There is a tuft of cobwebby hairs at the base of the lemmas and there are 2-5 florets. The flower head is pyramid-shaped, and the spikelets brownish green.

Growing Time and Habitat: Kentucky bluegrass begins flowering in early to mid-July. It grows in waste places around town (specifically on the slope under the surveyors' gazebo), along the roadsides all over the island, in dry areas such as the Kaminista spatter rampart, and various scoria scrapes, and on lake margins such as Icehouse Lake.

Notes: This is mostly an introduced weed, brought over from Europe to be used as fodder. Some Kentucky bluegrass is native, but not in this region. It is one of the major components of lawns since it is able to tolerate close mowing and grazing. It seems to have established itself into the flora of St. Paul without adverse affect on the native grass species. This is the state flower of Kentucky. When Mandolin Player Bill Monroe named his band 'The Bluegrass Boys', the term 'bluegrass' was coined for the new type of folk music he was playing.

Annual bluegrass*

Poa annua

Description: Annual bluegrass is a small, often creeping or tufted grass (10-15 cm tall). It has a pyramid-shaped, spreading inflorescence of about six branches with the spikelets at the ends. The spikelets have 3-6 florets, which are hairy near the base, but don't have the distinctive cobwebby hairs typical of the other bluegrasses. The leaves are soft, short and often bunched, not over-topping the inflorescence.

Growing Time and Habitat: This grass flowers from early July through August. It has two distinctive forms. One is in the harbor area, on the bare scoria, where it flowers earliest, growing in separate tufts, usually with only a few flowering stalks to each tuft. The other is on trampled paths to seal rookeries (specifically Reef and Hutchinson Hill), where it grows in a sprawling mat in the middle and edges of the path, with the flowering stalks often flattened to the ground. It is uncommon on the island, but abundant in the specific patches mentioned.

Notes: This is an European species of grass which has invaded lawns and gardens all over the world. It is successful because it is quite tolerant of trampling and mowing. Though it is prevalent on St. Paul Island, it is good to see that it is contained in disturbed areas and doesn't seem to be invading native plant communities.

Pendant grass

Arctophila fulva

Description: Pendant grass is very distinctive since it grows half submerged in water. It has elegant blades that resemble nested 'Vs' arising from a thick, fleshy, reddish stem. Groups of them together look like delicate fans dotting the surface of the water. The flowering head is large (up to 15 cm long), with spreading branches forming a pyramid shape. There are 1-7 florets per spikelet.

Growing Time and Habitat: Pendant grass arises from the water in mid-July and becomes more and more noticeable as the water level drops. It grows half-submerged in the shallows around the edges of freshwater ponds and lakes, such as Saucer Pond, Polovina Lake, Big Lake and Webster Lake.

Notes: This grass has a very northerly distribution, being found all around the Arctic Circle and slightly south. Tzvelev (1976) reported that A. fulva is one of the best fodder plants and recommended it for introduction into cultivation in the northern-most regions of Russia, "as it maintains a high nutritive value even at the fruiting stage and can be used as a pasture plant for deer even during the winter. The species is also good fodder for water birds." The genus name *Arctophila*, is Greek for 'bear [i.e. polar bear = arctic] (*arktos*) loving (*philos*)'. The species name, *fulva*, means reddish-yellowish, aptly describing the grass' color.

Fisher's tundragrass

***Dupontia fis(c)heri* (ssp. *psilosantha*)**

Description: This is a medium-sized grass (30 cm tall), with 2 awnless florets per spikelet. The florets are included in the glumes. The flower head is sparse, with 1-2 branches at the lowest node. The leaves are spiky and short.

Notes: This grass was not found during the summer of 1998, though it is on Hultén's list. It grows spottily around the Arctic Circle specifically on shores. The genus *Dupontia*, was named for I.D. Dupont, a French botanist, who studied the taxonomy of the genus *Atriplex* (commonly called shadscale, saltbush and orache) and also studied the sheaths of grasses.

Dupontia fisheri
Photo by ©J. Wagner, Cape Bounty, Melville Island, Nunavut

Creeping alkaligrass

Puccinellia phryganodes

Description: Alkaligrasses are small (10-20 cm tall), golden-green grasses that are found in salty areas such as seashores and saltmarshes. This species rarely flowers, but is easy to identify by its spiky, creeping stems. The creeping stems have brown, papery sheaths at the nodes of the short, spiky, alternate leaf blades. The flowering heads are small (up to 5 cm long), narrow and purplish with 2-3 branches at the lowest node and 3-6 florets per spikelet.

Growing Time and Habitat: The leaves of alkaligrass appear in early July, and it flowers in late July if at all. It grows abundantly along the south edge of Salt Lagoon and the east and west edges of Antone Lake. It may grow along the shore in other locations, but I think it is pretty specific to those two saltmarshes.

Notes: Creeping alkaligrass circles the North Pole on just about all the northern-most seashores that exist. See below for the origin of the genus name.

Tundra alkaligrass

Puccinellia langeana, P. tenella* ssp. *langeana

Description: This alkaligrass is a bit taller than creeping alkaligrass; the flowering heads grow to 15 cm and the leaf blades just over 20 cm. The leaf blades are thin and straight, and either form green-golden patches on the saltmarshes, or form round, flat tufts on the mud flats. The flower head is a little more elongated than creeping alkaligrass and is green instead of reddish. It also rarely flowers, and if it does, it is mostly along the edge of the saltmarsh, right next to the water.

Growing Time and Habitat: Tundra alkaligrass appears in early to mid-July and flowers in late July. It grows abundantly in both

Salt Lagoon and Antone saltmarsh along with creeping alkaligrass, but I have also found this one in the tide pool area of SW Point, so it could range along the coast all around the island. It is particularly striking in Salt Lagoon, where it forms patches of gold surrounded by the green of polargrass, Lyngbye's and MacKenzie's sedge. Wherever it grows, the water table is nearer the surface, favoring alkaligrass since it is hard for the less salt tolerant species to grow there. In Antone saltmarsh, it forms round, flat tufts on top of the mat of northern creeping buttercup and saltmarsh starwort.

Notes: There are as many as 20 species of alkaligrass in the Alaska region, most with very small, spotty ranges. This one has an even smaller range than creeping alkaligrass, being found mostly on islands in the north pacific and NE Canada/Greenland region. The genus was named after Italian botanist Benedetto Puccinelli (1808-1850), and the subspecies after Johan Martin Christian Lange (1818-1898), a professor of botany from Copenhagen. *Tenella* is Latin for slender.

Photo by John Riley, taken in Ontario, Canada

Alpine fescue

Festuca brachyphylla

Description: Alpine fescue is slightly smaller (5-25 cm tall) and much more densely tufted than red fescue, and the anthers are a bit shorter (1 mm as compared to 1.5 mm).

Growing Time and Habitat: Alpine fescue appears in early July and fully opens by late July. It grows on scoria scraps on tops of the hills, such as Bogoslov and Rush Hills. It is uncommon and hard to find (I never found it, but other scientists recently had).

Notes: Alpine fescue grows circumboreally and down into mountains. The genus name, *Festuca*, is a word of unknown, ancient origin meaning 'a straw', or alternately 'a mere nothing'.

Red fescue

Festuca rubra

Description: The fescues on the island have glumes that are shorter than the lemmas and the 3-6 lemmas have straight, sharp awns protruding from the tip. The spikelets have a whitish bloom which gives them a frosty appearance. When young, the flower heads are very narrow; when older, they spread out, forming a pyramid. Red fescue grows to be 30 cm tall and the flower head spreads to 5 cm when fully open.

Growing Time and Habitat: Red fescue is first a narrow, short spike in early July and then opens fully by early August. It grows on roadsides such as on the Polovina land bridge, on scoria scraps and lava flows, such as on Black Diamond Hill and the Praying Aleut area, and in dry meadows, such as on the High Bluffs. It is common on the island.

Notes: Red fescue is cultivated and used widely in lawns, agriculture, horticulture, and as forage food. Because it is grows through underground roots, it can survive heavy grazing or mowing. It is drought resistant, so is often found as a component in seed mixes used for re-vegetation and erosion control. The red fescue on St. Paul is most likely a native, but some of the introduced variety may be present as well.

Roadside grasses:

Italian or annual ryegrass (*Lolium multiflorum, L. perenne* ssp. *multiflorum*)*

Description and Location: This is an annual, non-native grass. The spikelets are stalkless, and alternate on flowering stalk. There are 6-10 awned florets. It is found by the water tanks. It is native to France.

Red fescue (*Festuca rubra*)*

Description and Location: This is an annual, non-native or native grass. The spikelets are on thin, drooping branches, and have 3-8 awned florets. The flowering head is long (average 15 cm). It is found in the roadside mixes described below. It is native to Germany or North America. (See photo above)

Hairgrass (*Deschampsia cespitosa*)

Description and Location: This is either an annual or a perennial, non-native or native. There are 2 glistening-white florets, and the spikelets are on many, delicate branches. The flowering head is large (average 17 cm tall) and plume-like. It is found with non-native red fescue on roadsides. (See photo on p. 30)

Hordeum brachyantherum **by Stephen Layman, c. CA**

Bromus commutatus **by Roger Griffith, Ayrshire, Scotland**

Growing Time: All appear and flower in mid to late-July.

Notes: Another non-native grass that I did not notice, but is on the Island plant list is **hairy brome (*Bromus commutatus*)*. Meadow barley (*Hordeum brachyantherum*)** is on the list but wasn't found either. It is native, but can act weedy. These grasses come from a seed mix put together by a commercial seed company to be used for projects which disturb land and so need re-seeding, such as road building or erosion control projects. These grasses can be found most abundantly across from Salt Lagoon, across the road from Ice House Lake and on the road to the airport and the weather station. Only one of these grasses if native to St. Paul, and, even though the mixes are supposed to only include grasses that will die within a year, sometimes they do not. They prevent natives from colonizing as quickly and invite other non-native species to spread. Hopefully someone has or will take the initiative to create some native grass seed mixes.

Beach grass

Elymus arenarius ssp. *mollis, Leymus mollis* ssp. *mollis*

Aleut Name: **Qiiga-x** (kayxahn), meaning grass

Aleut Use: Aleuts used beach grass as decoration. They would stick the flowering heads in dye, such as blueberry juice, red flannel solution or onion peelings, to add color (they also used these homemade dyes for coloring eggs). Mary B's mother used to tell Mary that the grass that grew near the salt water was the strongest and thus was the best kind to use for weaving. They would weave baskets, buckets with handles for berry picking, and mats for the house. However, Doris Krukoff, an Aleut basket weaver, found the St. Paul Island beach grass to be too brittle to weave, unlike the Aleutian chain beach grass she was used to. She would use rafia in her baskets or ask relatives to bring grass from Atka if she wanted to make traditional baskets. The basket weaving art is extremely intricate and skilled; very few living people still know how to do it. Also, Aleuts thought if they wrapped beach grass around warts, the warts would soon disappear.

Other Common Names: Lyme grass, American dune grass, wildrye grass, dune wildrye grass, ryegrass.

Description: Beach grass is unmistakable; it has tough, shiny, bluish-green leaf blades (up to 2 cm wide), which blow about like streamers in the wind. The grass stalks are tall (over 1 meter), with long flowering heads

(average 10 cm), containing tightly packed, large (average 2 cm long), white, fuzzy spikelets.

Growing Time and Habitat: The dried, old leaves and stalks of beach grass blanket the shoreline of the island all during the winter months, often in lumpy tussocks. The grass begins to green up in mid-June and flowers in late July or early August. This is the most obvious grass on the island since it is so dominant, abundant and large. It grows wherever there is sand. It is interesting to see little, disjunctive patches of beach grass inland where you think it wouldn't occur. However, there is always a sand swale under the patch, probably blown and deposited by some random event. Beach grass usually forms robust, pure stands along the dunes, and then peters out and becomes dwarfed as the sand ends inland.

A fox finds beach grass a tasty treat

Notes: Beach grass is very important ecologically for dune erosion control. It has an extensive root system that forms a net around the sand, holding it in place. Thus it is very useful in seed mixes, though it establishes much more effectively when transplanted. Beach grass was and still is important for many native groups. The Eskimos in Nome use it to make small biscuits and as insoles for their mukluks. Other native groups in the SE used it to make tumplines and packstraps for reef-nets, for basket and twine making, and for mats on which to dry berries. The Japanese cultivate it to make ropes, mats and paper. There is another variety of *Elymus* on Hultén's list, **'silky' beach grass (*Elymus arenarius* ssp. *mollis* var. *villosissimus, Leymus mollis* ssp. *villosissimus)***, which has densely tangled fuzzy lemmas. I could never detect inordinate amounts of fuzziness on any of the beach grasses I looked at. The genus name, *Elymus*, is ancient Greek for *elumos*, a name for a certain type of grain. The species name, *arenarius*, comes from the Latin word for 'sandy' (*arena*), and *mollis* from the word meaning 'fuzzy'. The accepted genus name, *Leymus*, is an anagram of the old genus name, *Elymus*. Anagrams are used when an author cannot find any other fitting name for a new genus.

The Sedge Family
(Cyperaceae)

The sedge family is made up of a variety of grass-like plants with specific reproductive parts that distinguish them from grasses. The family has relatively little economic value for people, so is not well known. Ecologically, sedges are very important, acting as barriers to erosion, forage for wildlife, and cover and breeding grounds for waterfowl and wildlife. All the sedges but one on St. Paul Island belong to one genus, *Carex*. The *Carex* are distinguished by having an inflated sack around the seed on the female flower spikes called a perigynia. There are then scales around the perigynia which can be critical to identification. The easiest way to distinguish between a sedge, a grass and a rush is to look at the stem and remember this little poem: "sedges have edges, rushes are round and grasses have joints when the cops aren't around." That is to say, sedges often have triangular to square stems, whereas grasses have roundish, hollow stems with joints and rushes have round, solid stems. Below is a drawing of sedge parts. Turn to the grass, sedge and rush glossary on page 21 for description of terms.

1a. Sedge with cottony tufts on the spikes; in bogs ..... **tall cottongrass**, p. 40
1b. Sedge having all stalkless spikes ..... **(2)**
1c. Sedge otherwise ..... **(5)**

2a. Sedge with a single, terminal spike ..... **(3)**
2b. Sedge with more than one spike ..... **(4)**

3a. Spike narrow and long (to 3 cm), with a yellow midrib on the scale; stem leaves nearly over-top spike ..... **grassy-slope arctic sedge**, p. 41
3b. Spike short, compact and dark; basal leaves very short ..... **Pyrenean sedge**, p. 41

4a. Sedge with 3-5 tiny spikes spaced apart on stalk, the top being a narrow male spike, the lower being round, female spikes ..... **Ramensk's sedge**, p. 44
4b. Spikes so bunched on stalk there appears to be only one; stem leaves over-top spikes; scales dark with a light green midrib; perigynia round and green ..... **Garber's sedge**, p.
4c. Spikes 3, all bunched near the top; basal leaves reach only to midsection of the stalk; stalks and leaves often forming a round, flat tuft on ground ..... **two-lipped sedge**, p. 42
4d. Spikes usually 5, the top 3 bunched, the lower spaced; basal leaves reach to midsection of stalk, sedge stalk often curved ..... **MacKenzie's sedge**, p. 43

5a. Sedge with lower spikes on drooping branches ..... **(6)**
5b. Sedge with lower spikes on upright branches ..... **(8)**

6a. Sedge tall, with wide, shiny-green leaves; spikes 3-7, long and narrow; the lower 2-4 female having pointed, dark scales with lighter midribs; the upper 1-2 being male; grows around lakes in dense patches ..... **Lyngbye's sedge**, p. 44-5
6b. Sedge medium-sized with 3-5 spikes; the upper a narrow male, the lower round females with dark scales *and* perigynia; grows in muddy places ..... **rock sedge**, p. 48-9
6c. Sedge having 2-3 spikes; the terminal being upright, narrow and male; the lower drooping with a few large perigynia in a roundish spike (1 cm long); lowest bract a short bristle; grows in marshy places ..... **many flower sedge**, p. 48

7a. Sedge growing in wet places ..... **(8)**
7b. Sedge growing in meadows or drier places ..... **(9)**

8a. Sedge tall with long, narrow spikes; the top 1-2 are male and the lower 2-4 are female; the scales and perigynia are brown and shredding ..... **water sedge**, p. 43

8b. Sedge medium-sized with a single stalked male spike and 2-4 lower female spikes which are shorter and rounded; the scales are very dark with a distinct lighter midrib and light green perigynia ..... **Kellogg's sedge**, p. 43
8c. Spikes so bunched on stalk there appears to be only one; stem leaves over-top spikes; scales dark with a light green midrib; perigynia round and green ..... **Garber's sedge**, p. 45

9a. Sedge short to medium-sized, usually with 3 narrow spikes, the top male, and lower female; bracts and leaves not over-topping the terminal spike ..... **(10)**
9b. Sedge tall, with more than 3 spikes; spikes rounder ..... **(11)**

10a. Sedge short with no stem leaves, only the bract below the lowest spike; all other leaves are basal and come about half way up the stalk ..... **Bering Sea sedge**, p. 47
10b. Sedge medium-sized with stem leaves which come just to the top of the terminal spike; the lowest spike is often long-stalked and tucked into the leaf-like bract ..... **showy sedge**, p. 47

11a. Sedge with 3 or more spikes bunched at the top and then 2-3 spikes spaced below; scales on perigynia roundish with short awns; perigynia light green and scales dark ..... **Gmelin's sedge**, p. 46
11b. Sedge with the terminal spike having male flowers which are shaped like an ice cream cone; scales on perigynia very long, pointy, and dark with a pale midrib; awns very long, up to 1 cm longer than the scale ..... **long-awn sedge**, p. 46-7

Tall cottongrass
Eriophorum angustifolium ssp. *subarcticum* var. *coloratum*, *E.angustifolium* ssp. *angustifolium*

Anfesa Stepetin still makes wall hangings out of cottongrass for gifts. Nellie Kozloff relates that her husband, Patrick, a wildlife biologist and wildflower enthusiast, picks her cotton flowers from one special spot yearly.

Aleut Name: Cotton flower
(no Aleut word)

Aleut Use: The Aleuts picked them in the bog beneath the spatter rampart of Kaminista. They would pick them just as the "cotton" began to appear so the plants would stay intact all winter, and then they would use them as decoration in the home or in artwork.

Anfesa Stepetin with a bunch of cotton flowers

Description: Cottongrasses are no problem to identify because they hav a distinctive tuft of cotton around their flowering heads, making them look like no other plant. There is a rusty cast to the usually white cotton tuft in this species, giving it a coppery sheen. The leaves are narrow and stiff, like rushes. It has 3-6 spikes (or flower heads), the lowest on a long stalk,

the upper sessile, or on short stalks.

Growing Time and Habitat: Cottongrass flowers in all its cottony glory in mid to late-July. The actual flowering time is relatively short, maybe two weeks long, and then the cotton blows off and the bare stalks are all that remain. It grows in boggy areas, most abundantly in the Kaminista Bog, but also in the boggy part of the Antone saltmarsh, and in a boggy area between Bogoslov and Slope Hills. Those are the only places I found it, but it probably grows in a few other remote, inland boggy areas.

Notes: Cottongrass is actually a sedge, as you can tell by its lack of joints and by its flowering parts. It is a very complicated genus taxonomically, with much hybridizing between species. This species is usually pure white, but probably hybridized with a rusty cottongrass. That is why Hultén has given it the variety name *coloratum* (this variety is now lumped into another subspecies, but it's still fun to know the history). Biologically, the cotton of this genus is an ingenious mechanism to aid seed dispersal by wind. The cotton was highly regarded by native groups, some of which called it by the same name they used for eagle down. It was collected for stuffing pillows and used in homemade paper and as wicks for candles and lamps. There was a short-lived industry of 'arctic wool', spawned by the thought that the cotton tufts could be substituted for real cotton. However, this cotton is too brittle to be twisted, so the industry was abandoned. Eskimo children in mainland coastal villages on the Bering Sea raided mouse caches of cottongrass shoots, which are fleshy and sweet. Raised lumps on the wet tundra would indicate where these caches were located. Those shoots were called 'mousenuts'. The genus name, *Eriophorum*, is Greek for 'wool bearing' (*erion* 'wool', *phoros* 'bearing'). The species name, *angustifolium*, means narrow-leaved.

Grassy-slope arctic sedge

Carex anthoxanthea

Description: This sedge is small to medium-sized (up to 25 cm tall), with narrow (3 mm wide), terminal, stalkless spikes. The spikes are solitary and are either all male or all female. The yellowish, widely-spaced perigynia have 3 stigmas. The midrib of the reddish-brown scales is also yellow.

Growing Time and Habitat: Grassy-slope arctic sedge comes up in early July and flowers until the end of August. It grows on ground where the snow melts late, such as the area on the north edge of Whitney Pond, in a sandy depression near the Polovina bridge and in the sunken lava tubes near Kittiwake Lake. It is uncommon, but not unusual on the island.

Notes: This sedge has a coastal distribution, ranging along the Aleutians and down as far the central Washington coast. Its northern most distribution is on the Chukchi Peninsula. The sedges, sadly, are even more neglected by the general public than grasses, and so have not acquired many popular common names. Accordingly, the species name, *anthoxanthea*, meaning 'yellow-flowered', was given to this sedge as one common name by Pojar and MacKinnon, 1994 (p. 392). The USDA accepted plant names is the source for the common name I use here. It is equally appropriate, since in his flora, Hultén puts the grass' habitat as being simply 'grassy slopes.' The genus name, *Carex*, comes from the Greek word ***keirein*** meaning 'to cut', referring to this genus' sharp leaves.

Pyrenean sedge

Carex pyrenaica ssp. *micropoda*

Description: Pyrenean sedge is a small (about 20 cm tall), matted sedge. It has a single, terminal, stalkless spike (1 cm long). The male flowers are on top of the spike and the female on the bottom. Each perigynia has 2 or 3 stigmas and is reddish brown with a paler midrib. The leaves are narrow and channeled with a "v"-shaped cross-section. The stalks with flowering spikes are few among the matted leaves.

Growing Time and Habitat: Pyrenean sedge flowers late, in the second half of August, because of its habit of growing on ground where the snow melts late and at the bottom of sunken lava tube depressions. I

specifically found it only in the large sunken tube just west of Kittiwake Lake, but it probably occurs in other late melting areas inland. Macoun claims to have found it along with grassy lope arctic sedge next to Whitney Pond (which is very possible since it is easy to miss). It is rare on the island.

Notes: Pyrenean sedge can survive with a short growing season and so is well adapted to growing in areas where the snow melts late in high mountains or on the tundra. Pyrenean sedge was first found, appropriately, in the Pyrenees. This subspecies was first found in Alaska, where it grows spottily. It grows as far south as BC and Alberta, Canada.

Two-lipped or Lachenal's sedge

Carex lachenalii

Description: This sedge has 2-4 (usually 3) stalkless spikes concentrated at the top of the stiff, straight flowering stem (which ranges in height from 15-25 cm). The spikes are densely packed with flowers, the females at the top and the males at the bottom. The scales of the perigynia are dark in color with a yellowish-green midrib. Each has 2 stigmas.

Growing Time and Habitat: Two-lipped sedge flowers first in early July in wetlands such as Antone saltmarsh and Fantasy wetlands. It flowers later, in early to mid-August in other wetlands such as those around Sheep Lake, and inland near Slope Hill and Kittiwake Lake. This sedge has the interesting habit of growing in a flat, circular tuft with the abundant flowering heads flattened to the ground like rays on a sun (Macoun noted this growth habit also and neither of us are sure whether it is specific to the Island or not). The sedge definitely grows only in wetlands and the upright ones are often hard to tell apart from MacKenzie's sedge (which usually has at least 5 spikes on top of the flowering stalk instead of the 2-4). Two-lipped sedge is relatively common on the island in scattered wetlands.

Notes: Two-lipped sedge grows on areas which melt late, alpine tundra, and above tree line all around the Arctic Circle and south in the mountains to the central Rockies. It is also found in New Zealand in the southern hemisphere. It is also called Lachenal's sedge as it is named after Werner de Lachenal (1736-1800), who was a professor of botany in Basel, northern Switzerland. Macoun and Hultén list another closely related sedge, **lesser saltmarsh sedge (*Carex glareosa* ssp. *pribylovensis)*** as being present on the island. In fact, this particular subspecies was first found on St. Paul by Macoun. It is a federal and state rare plant and is listed as S2, threatened throughout its range (21-100 individuals in existence) and is only found in about 7 other places in Alaska. The only real difference between the two sedges is in the width of the leaves (*lachenalii*'s being 2 mm broad and *glareosa*'s being 1.5 - 2.5 mm broad), and that the scales on *C. glareosa* are longer than the perigynia, whereas on *lachenalii*'s the scales are shorter than the perigynia. Another more distinctive one, **maritime** or **curved sedge (*Carex maritima)***, is also shown as being on the Island, but was not found. It has a compact spike with pistillate flowers at base and long, creeping rhizomes. It grows across northern North America and spottily

Photo by Tim Rich, taken in Britain?, ispot.org.uk

around the Arctic Circle, and strangely to over 9,000 ft in the St. Elias range (though those are reported as being sterile plants).

MacKenzie's sedge

Carex mackenziei

Description: MacKenzie's sedge has 3-6 stalkless spikes on top of a stiff, relatively tall (30 cm), often curved stalk. The lowest spike is often a bit removed from the more terminal spikes. The leaves are short and bunched, not even coming close to over-topping the flowering stalk. The terminal spike is usually the largest (over 1 cm long) and has female flowers on top and male flowers below. The lower spikes have only female flowers. The coloration of the scales and perigynia can vary, but in general the scales are dark with a light green or tan-colored midrib, and the perigynia are lighter than the scales (usually light green).

Growing Time and Habitat: This sedge flowers from late June to early August. It grows in wetlands such as Salt Lagoon and Antone saltmarshes, the dry-down pond across from the gravel pit on Lake Hill, and around Whitney Pond. Its stalks often grow with a wiry curve. It is common around the island, seeming to prefer wetlands near the seashore.

Notes: MacKenzie's sedge grows along the seashores of the North Pacific Rim and spottily around the Arctic Circle and down to Maine. It was first found in Norway. The sedge was named for Kenneth Kent MacKenzie (1877-1934) from New York, who studied the *Carex* genus.

Kellogg's sedge

Carex kelloggii, C. lenticularis var. *lipocarpa*

Description: This sedge is medium-sized (25 cm tall; can be taller in water) with a cluster of 3-5 stalkless female spikes topped by a stalked, brown male spike. The bract (or leaf beneath the spikes) significantly over-tops the terminal spike. The basal leaves also usually over-top the flowering spikes. The female spikes are robust and cylindrical, having green, nerved (or lined) perigynia. The scales are egg-shaped and shorter than the perigynia. The scales have a light-colored midrib. The perigynia have 2 stigmas.

Growing Time and Habitat: Kellogg's sedge flowers in mid-July. It grows almost exclusively in shallowly wet areas, such as Saucer Pond and the dry-down ponds by the gravel pit on Lake Hill. It seems to thrive either partially submerged in water or in wet mud. It is uncommon on the island.

Notes: This sedge is widespread in wetlands on the west coast of the continent from Alaska to California and west through the Rocky Mountains. It was named for Albert Kellogg (1813-37) who was a physician and botanist based in San Francisco. He founded the California Academy of Sciences, and traveled to many places, including Alaska, to find plants.

Water sedge

Carex aquatilis ssp. *aquatilis*

Description: Water sedge is a tall (30-50 cm) sedge, often growing taller to emerge from the water. It has tall (2+cm), narrow spikes, the top several being male and the bottom several being female (sometimes with male flowers at the tip). The upper spikes are stalkless and the lowest spike has a stalk. The bract and leaves over-top the spikes. The scales of the perigynia are brown and shready. The perigynia is light-colored with 2 stigmas.

Growing Time and Habitat: Water sedge flowers from mid-July to late August depending on its location. It grows in similar habitat to that of Kellogg's sedge, shallow water or bogs. It is more common in the upland bogs than Kellogg's sedge, and there its flowering is delayed by late melting snow and harsher conditions. It is found specifically in Saucer Pond, a late-melting gully near Ridge Wall Hill, the bog near Slope Hill, and Antone saltmarsh.

Notes: This is a very widespread sedge, occurring all around the Arctic Circle and throughout western North America. A subspecies of water sedge (***Carex aquatilis* ssp. *stans)*** is on the list for St. Paul Island and probably occurs there. I mistook Kellogg's sedge for this subspecies and by the time I realized my mistake, it was too late to go back and inspect the water sedges more closely to see if any were the *stans* subspecies. This variety is smaller than water sedge, and has just one male terminal spike. It is found in the same wetland-type habitats as water sedge, around the Arctic Circle, spottily south into Canada, with a disjunctive population in the Colorado Rockies.

Ramensk's sedge

Carex ramenskii

Description: This is a short (12-15 cm), saltmarsh sedge. The leaves are narrow and thin, and usually extend beyond the flowering spikes. There are tiny 3-5 spikes (5-7 mm long). The top two (usually male) are longer and skinnier than the lower three female spikes. The female spikes are round and are spaced evenly along the stalk. The bract of the lowest spike over-tops the terminal spike.

Growing Time and Habitat: Ramensk's sedge flowers in mid-June. It is found exclusively in saltmarshes such as Salt Lagoon saltmarsh. This sedge rarely flowers, and so is hard to identify with assurance. I only found one flowering inflorescence the entire season, which was at the edge of the water at Salt Lagoon. More leaf blades could have occurred among the alkaligrass blades, but it was hard to verify this without the flowering spikes attached. However, I did compare the leaf blades of other off-island specimens of Ramensk's sedge with the blades of alkaligrass and they were not only different, but also unlike anything I had found on the island except for the one specimen of Ramensk's sedge. Perhaps Ramensk's sedge is another plant with the habitat of growing and flowering sporadically, depending on nutrients and weather conditions of the particular growing season.

Notes: Ramensk's sedge grows in coastal saltmarshes along the coast of Alaska, the Bering Sea Islands, on one island in the Aleutians, and along the NE coast of Russia (Valdez and Anchorage were where I picked my mainland specimens). There is some evidence that *Carex ramenskii* is a form of Hoppner's sedge (*Carex subspathacea)* where the 2 overlap (in northern Beringia and southern Kamchatka). It depends mainly on rhizome and vegetative spread. This sedge is named for Leonid Grigorevich Ramenskij (1884-1953), a Russian botanist who was a member of the Rijabouschinski expedition to Kamchatka in 1908.

Lyngbye's sedge

Carex lyngbyei

Description: Lyngbye's sedge is very tall (up to 1.5 m). I would say that it and bluejoint grass are the tallest plants on St. Paul Island. Lyngbye's sedge has wide (5 mm), flat, shiny-green leaves and a robust, triangular stem. The inflorescence is also long (12 cm on average), and includes 4-7 spikes on drooping stalks. The top

2-3 spikes have male flowers (which are gold in color when the anthers are out early in their flowering season) and the bottom 2-4 have female flowers, occasionally with male flowers at the tip. The spikes are long (2-4 cm) with very dark, sharp-pointed bracts covering the perigynia. There are two stigmas.

Growing Time and Habitat: Lyngbye's sedge flowers in mid-July. It grows on muddy banks around ponds in a distinctive ring. It is especially noticeable around the wetlands south of the Polovina land bridge, around Webster Lake, Saucer Pond and Icehouse Lake. Some of the tallest sedges I found were on the north edge of Sheep Lake, where the plants practically came up to my shoulders (over 4 feet).

Notes: Lyngbye's sedge is the NW coast's most common sedge. It also grows around the eastern part of the Pacific Rim and spottily in the north Atlantic. It is easy to spot since it often grows in pure stands. It is important ecologically as one of the first plants to colonize tidal mudflats. Since eddies form around its stems, the sedges help sediment to concentrate, thus building strong banks. During spring migration, geese seek out this sedge, as do trumpeter swans and grizzly bears, because when young, the stems can contain as much as 25% crude protein. This sedge was first found on the Faeroe Islands of Denmark (between Iceland and the Shetland Islands) despite having its main concentration on the northern coasts of the Pacific Rim. The sedge was named after a Dane, Hans Christian Lyngbye (1782-1827), who was a preacher.

Garber's or elk sedge

Carex garberi (ssp. *bifaria*)

Description: This sedge is short (15 cm) and upright with the leaves extending beyond the flowering head. There are 2-3 stalkless, very tightly packed spikes (which can look like one) at the top of the spike (all of them total about 1 cm in length), with a side branch of spikes also possible. The terminal spike has female flowers above and male flowers below. The perigynia are inflated and are a distinctive light green with dark brown scales. At the right time of the year, there are two long, robust stigmas protruding from each perigynia.

Growing Time and Habitat: This sedge flowers in mid-July. The only place I found it was in Fantasy wetlands on the north side of the road. There it is quite abundant. It is possible it could also be found in wet depressions in the dunes north of Sheep Lake, since that is similar habitat which I did not explore thoroughly.

Notes: Garber's sedge is found strictly on the North American continent, growing as far south as the central California coast and east to Labrador. It is a rare plant in many states in the Mid-West and NE US. It supposedly grows on calcium-rich sites. I am not sure whether Fantasy wetlands is calcium-rich or not. Hultén does not show it growing as far west as St. Paul Island, and Macoun does not list it at all,

so both botanists must have missed it or identified it as something else. It is named for Adam Paschal Garber (1838-81).

Gmelin's sedge

Carex gmelinii

Description: This sedge is medium-sized (25-50 cm tall), with a clump of 2-4 roundish, stalkless spikes at the top and 1-2 lateral stalked spikes beneath. The upper spikes are topped by female flowers and the lower are entirely female. The upper spikes have a short bract and the lower spikes have a long bract which just barely exceeds the top spikes. The scales are described as being dark brown, but on the Island, they often seem to be quite a bit lighter. The mid-rib of the scales sticks out, has a short, bristle-tip and is light green. The perigynia are longer than the scales and are usually light green. There are three stigmas.

Growing Time and Habitat: Gmelin's sedge flowers in mid-July. It grows in a variety of habitats, including wet or sandy meadows, wetlands and shores. It can be found on Tolstoi bluffs, in Polovina wetlands, under Telegraph Hill and around Webster Lake. It is common but scattered on the Island.

Notes: Gmelin's sedge grows on saline shores around the Pacific Rim, often with lyngbye's sedge. It can have highly variable looks so can be tricky to key out and identify. The sedge was named for Johann Georg Gmelin (1709-1755) of T bingen in SW Germany, where he was a professor. He traveled in Siberia, and wrote *Flora Sibirica*, in which there were some notes on the plants Georg Wilhelm Steller found in Alaska during his ill-fated voyage with Vitus Bering in 1741.

Long-awn sedge

Carex macrochaeta

Description: This sedge can grow to be quite tall (60 cm), though on the island it is often shorter. The terminal spike is stalkless with male flowers. It has a distinctive ice cream cone shape. There are 2-4 other spikes, the upper ones having mostly female flowers with a few male flowers at the tip and the lower ones having all female flowers. These lower ones are on thin, delicate stalks. The bract over-tops the inflorescence. The distinctive feature is the unusually long awn which is sometimes up to 1 cm longer than the scale. The mid-rib of the scale is quite light in comparison with the dark scale. There are usually 3 stigmas. Supposedly, if you dig up a bit of root, it should have yellowish felt-like furriness on it, which will help to distinguish from showy sedge. However, I was unable to find the felt on the few specimens I dug up.

Growing Time and Habitat: The terminal spike of long-awn sedge explodes with a bright gold puff of stamens in late June and matures through August. It grows in meadows and around wetlands in places such as around a pond on the west flank of the Kaminista rock quarry, in the meadow on the west side of Telegraph

Hill, and in the meadows on Tolstoi Bluffs. It appears to be relatively rare on the Island, but that may only be because it probably often gets lost in the tangle of the lush vegetation in late season meadows.

Notes: This sedge is found on shores around the Pacific Rim, scattered spots in interior Alaska, and down to the NW coast of Oregon. It was first found on Unalaska Island in the Aleutians almost directly below St. Paul Island. It is good forage for mountain goats in Alaska and British Columbia.

Showy sedge

Carex spectabilis

Description: Showy sedge is medium-sized (20-30 cm tall) with 3-5 spikes. The terminal one is stalkless with all male flowers. The lower spikes are mostly female, but occasionally have male flowers at the tips. The lowest spike usually has a very thin, long stalk which comes from the mid-stalk leaf. The spikes are narrow and compact, the scales are dark purple with short awns and whitish midribs. There are 3 stigmas. The lowest leaf is usually equal to the top of the spike. There are almost always stem leaves, unlike Bering Sea sedge.

Growing Time and Habitat: Showy sedge blooms first in mid-June with a puff of golden stamens, making it look very showy (which I think is how it got its name). It can be found in almost any non-submerged habitat, such as the High Bluffs, the Praying Aleut area, road-edges, the meadows around and on Polovina Hill, etc. It blooms late in the year in the uplands inside the lava tube depressions and where snow hasn't melted until July. It is probably the most abundant and widespread sedge on the island.

Notes: Showy sedge grows commonly in the west from the Kamchatka Peninsula, through Alaska to California, occupying mostly rocky slopes, moist meadows and subalpine areas.

Bering Sea sedge

Carex microchaeta ssp. *nesophila*

Description: This sedge is short (10-15 cm tall) with 3-4 spikes, the terminal being stalkless and male, and the lateral 2-3 being female. The lowest spike is usually stalked and comes from a bract which does not over top the terminal spike. The spikes are small (up to 1 cm) and the scales are dark brown with short awns. There are never any stem leaves, only the bract below the spikes and basal leaves. The basal leaves are short, only reaching about half way up the stalk (this helps to distinguish it from small specimens of showy sedge).

Drawing from *Flora of Alaska* by Hultén

Growing Time and Habitat: This sedge blooms in early to mid-June in moist scoria areas such as South West Point, around the Praying Aleut area, and then blooms into August at the bottom of lava tube depressions near Bogoslov Hill. It is fairly common in scattered locations on the Island.

Notes: Bering Sea sedge grows around the North Pacific Rim and in Alaska in moist places. St. Paul Island is the place where this grass was first found and described. I did not distinguish it's features correctly, so my information is suspect, but other botanists found it on the island recently. Its species name, *microchaeta*, literally means "small bristle", coming from the Latin *micro* "small" and *chaeta* "bristle". Interestingly, instead of using Latin or Greek, botanists use the old Norse word "awn" to refer to the bristle at the end of flower scales on grasses and sedges. The species name, *nesophila*, means 'island-loving' in Latin.

Many flower sedge

Carex pluriflora

Description: This is a small to medium-sized sedge (15-25 cm tall), with 2-3 spikes. The terminal, stalkless spike is narrow, upright and is composed of all male flowers. The lateral 1-2 spikes are spaced evenly apart on thin, drooping stalks and are composed of female flowers. The bract of the lowest spike is but a short, sharp-pointed bristle. The basal leaves of the sedge only reach to about the mid-section of the flowering stalk. The female spikes have 10-20 flowers arranged in an oval spike. The dark scales, which barely cover the light green perigynia, have a short, sharp awn. The perigynia are large and easily counted. There are 3 stigmas. This sedge has yellowish felt on its roots.

Growing Time and Habitat: Many flower sedge blooms in late July and on through August. It is found in boggy wetlands such as the northern late melting bank of Whitney Pond, the wetland to the east of Sheep Lake, and the bog under the east flank of Ridge Wall Hill. It is isolated to these specific spots (plus probably similar habitat I didn't get to survey), making it relatively rare on the island.

Notes: Many flower sedge is common in bogs and edges of ponds along the coast from the Aleutians down to the extreme NW tip of Oregon. It is a member of a group of sedges which all have yellowish felt on their roots (including long-awn sedge described earlier). The common name is a direct translation of the specific name *pluriflora*.

Rock sedge

Carex saxatilis (ssp. *laxa*)

Description: Rock sedge is a medium-sized sedge (30-40 cm tall), usually with 4 spikes. The terminal one is long (about 4 cm), narrow and composed of males flowers. The 3 lateral spikes are roundish and are composed of female flowers. The perigynia are shiny, dark reddish-brown and have nearly black, sharp-pointed scales, which makes the whole spike appear quite dark. The perigynia are slightly longer than the scales. The female spikes mostly droop on long stalks, though the upper one is often upright. The bract of the lowest spike comes equal to or over tops the terminal male spike. The basal leaves are shorter than the flowering stalk. There are 3 stigmas.

Growing Time and Habitat: Rock sedge flowers from late July through August. It is found in the mud of dry-down wetlands, or bare openings in

meadows such as in the dry-down pond across from the gravel pit on Lake Hill and a bare, moist spot in the meadow on the west side of Telegraph Hill. I was unable to find it in any other spots so conjecture that it is rare on the Island.

Notes: Rock sedge is widespread in wetlands around the Arctic Circle and down into mountains to the central Rockies and mountains of central Asia. This subspecies was first found in Lapland, but it has subsequently been lumped into the parent species, which was first found in Europe. The specific name *saxatilis* means 'of rocks' and comes from the Latin for rock (*saxum*). On the Island, it seems to be more 'of the mud'.

The Rush Family

(Juncaceae)

The rush family includes grass-like plants which have round, solid stems. Most often, rushes, especially the *Juncus* genus, grow near or in water. Rushes have some economic importance as ornamentals and material for craft items such as baskets and chair seats. On St. Paul Island, the 6 species of rush are divided in two different genera, *Juncus* and *Luzula*, each having 3 species apiece. *Juncus* includes traditional rushes with dark green, sharp-pointed stems which grow near water. The species in the *Luzula* genus are called woodrushes. These have a very different appearance, looking more like small, tufted grasses. It is important therefore, to look at the flowering structure of the plant to help distinguish whether it is a grass, sedge or rush; the rushes will usually have two cupped bracts each with 3 teeth around the flower. The flower will mature into fruits with 3-chambered capsules containing many seeds. Following is the key to the rushes and woodrushes.

1a. Flower heads balls with many flowers bunched together, either on thin branches or on the flowering stem; leaves wide in a bushy basal whorl; stem leaves obvious ..... woodrushes **(2)**

1b. Flower heads with large, few flowers; leaves few, narrow; stem leaves not obvious ..... rushes **(3)**

2a. Flower heads dark; white, woolly hairs on leaves and junctions of stem and leaves ..... **many-flowered woodrush**, p. 52

2b. Flower heads brown, 1-3 on stem or on branches, medium-sized (7-10 mm); leaves wide and short, very tufted; most common woodrush ..... **tundra woodrush**, p. 52

2c. Flower heads very small (2-5 mm long) on many, forked branches; leaves narrower and fewer ..... **curved woodrush**, p. 51

3a. Rush tall, sharp-pointed, dark green; flowers growing out from middle of stem; very common in wet areas ..... **arctic rush**, p. 49-50

3b. Rush small to medium-sized; flower head capsules large, chestnut-colored in 2-3 heads spaced along stem (one being terminal); leaves relatively wide, but few ..... **chestnut rush**, p. 50

3c. Rush small with two terminal flowers (or seeds) per stem; leaves very narrow, short and few ..... **two-flowered rush**, p. 51

Arctic or Haenke's rush

Juncus arcticus ssp. *sitchcensis, J. haenkei*

Description: Arctic rush is by far the tallest rush on the island (ranging from 20-80 cm). It has dark, olive green stalks which are stiff and form a sharp point at the tip. The rush flowers all stick out from one side of the stalk near the middle. The flowers are on short, thin stalks and have dark brown bracts and yellowish nutlets. The stigmas are red and twisted. There are 6 stamens.

Growing Time and Habitat: Arctic rush blooms in mid-July. It is found all over the island in moist or partially submerged places, where it grows in round or concentrated patches. Specific places includes the border of Saucer Pond, Salt Lagoon saltmarsh, along the road leading to Sheep Lake, and in the wetlands near the Polovina bridge. It is also found in Fantasy wetlands and Novastoshna (and other wet depressions in the dunes). Here it takes on a slightly different growth form where the rush stems stick up from the sand in snaky lines, following underground rhizomes. It is common on the island.

Notes: This is one plant which is easy to identify at a distance. Its distinctive dark round patches can be seen from quite a ways off. I would assume there is some difference in the soil quality or moisture where these

patches occur, or other interesting, unknown factors. Haenke's rush grows on coasts along the eastern Pacific Rim and on the islands and western shore of Alaska. Rushes are important colonizers of open sites. This is evident on the Island from the patches of rush which grow along roadways. Rushes were used in many ceremonies by various native groups here and on the British Isles. One particularly interesting belief that ties in with rush biology is an Irish tradition which says that St. Patrick cursed the rush and thus it goes brown from the top down. Hence it is considered good luck to find a green-topped rush. The accepted name is for Thaddeus Haenke (1761-1817) from the Czech Republic, the descriptive botanist (phytographer) for the King of Spain.

Chestnut rush

Juncus castaneus ssp. *castaneus*

Description: Chestnut rush is a small to medium-sized rush (10-20 cm) with 1-3 separated heads. The terminal head sits on top of the stalk. The 3-10 capsules within the heads are apple-seed-shaped, dark brown (chestnut-colored), and shining. The bracts usually just barely over-top the uppermost head, and the relatively broad (3-5 mm wide) basal leaves reach about mid-way up the stem.

Growing Time and Habitat: Chestnut rush blooms in early August. I found it in only one place on the Island, inside a moist, open muddy patch along the 4 wheeler track on the north side of the High Bluffs heading toward Tsamana. It could also be growing in other isolated wet patches, especially in the northwest corner of the island, but even then it is without a doubt quite rare (I was lucky to happen upon it at all).

Notes: Chestnut rush is spottily distributed in Alaska and around the Arctic Circle in wet places on the tundra and in the mountains down through the Rockies and mountains of central Asia. The species name, *castaneus*, meaning 'chestnut', refers to the color of the capsules. The word 'rush' is derived from a Norwegian word *rusk*, meaning 'to plait' or 'to twist'. A rush formerly was any plant that could be used as a string or rope substitute, such as a cattail, sedge, horsetail, or bulrush. Now it refers only to the rush family.

Two-flowered rush

Juncus biglumis

Description: This is a small rush (5-15 cm tall) with two small (5 mm long) flowers (later seeds) at the top of the stalk. The bract is a bristle that reaches just beyond the two flowers. The stalks are straight and slender and the basal leaves are hardly noticeable being so few, short and thin.

Growing Time and Habitat: This rush blooms from early July through August. I found it in two spots, the moist scoria scrapes of the Praying Aleut area, and the open, muddy patch on the north side of the High Bluffs along with chestnut rush. It could probably be found in other moist scoria areas inland, but I would still consider it rare on the island.

Notes: This rush is found in moist gravel, snow beds and edges of tundra ponds in scattered locations around the Arctic Circle and down through the mountains to the central Rockies. It was first found in Lapland. The genus name, *Juncus*, is derived from the Latin word *jungo*, meaning 'to bind' or 'to join', since rushes were often used to tie items together. The common and botanical names refer to the fact that the rush has but two flowers.

Curved woodrush

Luzula arcuata ssp. *arcuata*

Description: Curved woodrush has a very delicate, medium-sized stem (10-20 cm tall). The small flowering heads (3-5 mm long) hang from the ends of 2-8 thin, curved branches which initiate at the top of the stem. Some of the branches are forked and thus contain additional flowering heads. There are 3-5 flowers per head. The bracts around the flowers are frilly and brown. There are 1-3 narrow, clasping stem leaves. The basal leaves are purplish, thin (up to 3 mm wide) and relatively smooth.

Growing Time and Habitat: Curved woodrush blooms in mid-July. It grows in scoria scrapes and rocky places such as the Praying Aleut area, the Kaminista spatter rampart, and inland on the bare scoria on top of the hills.

Notes: This is the most delicate of the three or so woodrush species on the Island. Curved woodrush grows across Beringia (including central Alaska mountains), Quebec, Greenland and northern Scandinavia. Hultén lists another subspecies, **Alaska curved woodrush (*Luzula arcuata* ssp. *unalaschcensis*)**, which is noted as being first found both on St. Paul Island and Unalaska. It grows down the mountains to the Oregon Cascades. However, the descriptive differences are so slight that it is difficult to know what to look for, much less try to distinguish a subspecies. Macoun includes the *unalaschcensis* subspecies rather than the *arcuata* on his list. He notes that curved woodrush grows on "exposed hilltops on both islands". Hultén's list includes another, **small-flowered woodrush (*Luzula parviflora*)**, which is somewhat similar to curved woodrush except it has very broad stem

leaves, more flowers per arching branch and only 1 flower per spike. I was not able to find this species, but it is possible I missed it. It is said to grow in moist places in forest and tundra, and is widespread around the Arctic Circle and the boreal forests of North America and Asia.

Tundra or wide-leaf arctic woodrush

Luzula tundricola, L. arctica ssp. *latifolia*

Description: Tundra woodrush is a medium-sized (10-20 cm tall), often robust plant, which usually forms tufts of basal leaves with many protruding flowering heads. The basal leaves are wide (5+ mm) and sharp-pointed. The stem leaves are also relatively wide. The flowering heads are bunched into balls. One head usually sits at the fork of the thin flowering branches. These have one to several heads at the tips. The bract at the lowest head is wide but short, not over-topping the upper heads.

Growing Time and Habitat: Tundra woodrush blooms in mid-June. It grows in dry meadows, hilltops, scoria scrapes, snow beds and lava tubes, such as the slopes of Polovina Hill, in Zapadni Ravine, on the Praying Aleut scoria scrape and on the Kaminista spatter rampart. It is the most abundant and widespread woodrush on the island and is commonly encountered.

Notes: Tundra woodrush grows (appropriately) on the tundra and shores in Alaska, the Bering Sea and Aleutian Islands, and the Russian part of the Arctic Circle. The genus name, *Luzula*, comes from the phrase '*Gramen Luzulae* (or *Luxulae*)' meaning "grass with a small light". *Luxulae* is the diminutive of *lux* which means "light" in Latin. This name was given to the woodrush genus because some of its species catch dew on their leaves and then shimmer in the light. The new subspecies name, *latifolia*, is Latin for 'wide-leaf'.

Many-flowered or common woodrush

Luzula multiflora ssp. *multiflora* var. *frigida* or *(L. campestris var. frigida)*, *L. multiflora* ssp. *frigida*

Description: This woodrush is medium-sized (15-25 cm tall). It has wide stem leaves (6 mm wide) with distinctive white, woolly hairs along the lower fringes of the leaves. The flowers are in spherical, dark heads bunched at the ends of the stalk. There are 1-4 heads at the same level, the bracts of which over top the flowering heads. Occasionally, some of the heads will be on thin branches above the main bunch.

Growing Time and Habitat: Many-flowered woodrush blooms in mid-July. It grows in sandy areas and along the shore such as the dunes around the wetlands near the Polovina bridge and the High Bluffs. It is uncommon, but not rare on the Island.

Notes: Another common name for this species is field woodrush. It grows in meadows and in mountains around the Arctic Circle,

down through the western and NE US and in central Asia. When they become wet, the coating of woodrush seeds produce a sticky mucilage which helps to establish the seedlings. This also allows the seeds to stick to passing animals, aiding in the plant's dispersal.

The Lily Family

(Liliaceae)

The lily family is akin to the grasses, sedges and rushes in that all are monocots, or plants with parallel-veined leaves and flower parts in 3's. The lilies, however, have for the most part, evolved their flowers into elaborate and beautiful structures. Lilies spend part of the year in a dormant state as bulbs, making them ideal and hardy ornamental plants. Tulips, crocuses, daffodils, hyacinths and day lilies are all very important horticulturally, and grace gardens around the world. Lilies are very important economically as food and medicine since onions, leeks, garlic, asparagus and aloe vera are all part of the family. On St. Paul Island, there are three species of lily.

Following is the key and descriptions.

1a. Flowers large, petals brown ..... **chocolate lily**, p. 53

1b. Flowers small, single on stalk, white with purple stripes and yellowish centers; leaves grass-like: entire plant about 10 cm tall ..... **alp lily**, p. 54

1c. Flowers tiny, hanging under alternate leaves on a large branched stems, yellow tinged with purple, drooping and bell-shaped; entire plant up to over 1 meter tall .....**twisted stalk**, p. 54-5

Lily Family (Liliaceae)

Chocolate lily

Fritillaria camschatcensis

Aleut Name and Translation: **Surrunen.**

The roots were called **cartufo**.

Other Common Name:

Rice root, Kamchatka fritillary

Aleut Use: The Aleuts picked the chocolate lily and then ate the roots, which taste like potatoes, only sweeter. The root nodules are so small that it took 2 hours to pick just one quart. The best picking time was in mid-July when the flowers were just coming out. The Aleuts would boil the roots with one drop of seal oil and then eat them with seal meat.

Description: The Chocolate Lily is unmistakable with 6 dark purplish-brown petals, 3 green stigmas and 6 yellow stamens. The thick stems have 3-5 whorls of 5-10 thick, parallel-veined leaves. The lily can reach up to 60 cm tall.

Growing Time and Habitat: The lily buds emerge in early July and then the flowers are at their height for only 1-2 weeks after. By late July, there is very little left of them to see. They are relatively rare on this island, blooming in damp meadows or depressions where they are often over-topped by taller vegetation. They can be found on the margin of Saucer Lake, across the road from Antone saltmarsh next to the pullout and in a drainage area on the west flank of the Kaminista rock quarry.

Notes: The starchy roots of chocolate lilies are used by many native groups. The lilies are far more abundant on St. George since that island has more wet meadow habitat. The dark purplish-brown color of the flower and the putrid smell of the fragrance simulates carrion, and this attracts gnats to pollinate the flowers. This species of chocolate lily is specific to coastal areas of the Pacific Rim, from Japan to NW Oregon.

Alp lily

Lloydia serotina

Description: This is a short lily (10 cm tall) with 6 white petals having purple lines and yellow in the center. The leaves are narrow with pointed tips, very much resembling blades of grass. There is usually 2-3 basal leaves and 2-3 stem leaves.

Growing Time and Habitat: Alp lily blooms in early to mid-June and is ephemeral, only lasting about two weeks before all trace of it is lost in the burgeoning vegetation. It grows on rocky hillsides, such as on the east slope of Polovina Hill near the gravel pit, the rocky meadows around the blubber dump and inland on any of the Hills (Slope, Bogoslov, Venusian Pancake Dome, etc.). It is uncommon and easy to miss on the island.

Notes: Alp lily grows throughout Alaska, western Canada, down the mountains through Oregon to New Mexico and west, as the name implies, to Europe. It is most abundant in Europe, but can be quite abundant in some parts of the arctic. It is unique in being the only relatively showy lily with a circumpolar arctic-alpine distribution. Its genus name, *Lloydia*, is named for Welsh naturalist Edward Llwyd (1660-1709), and the species name, *serotina*, comes from the Latin word *serus* meaning 'late' (or late opening). Since the Alp lily blooms very early, this species name is rather puzzling.

Twisted stalk

Streptopus amplexifolius

Other Common Names: Watermelon berry, wild cucumber, scoot berry, clasping twisted stalk

New Growth Description: The new shoots are green with a reddish tinge and have fine black hairs. The leaves are enclosed in a tight clam-like wad at the top. The stems are fleshy and watery.

Mature Description: Twisted stalk grows up to 1 meter tall. It has a branched stem with spade-shaped clasping leaves alternating down it. The leaves have parallel veins (like all lilies), are green on top and paler below. The yellow and red-tinged flowers grow out from under the leaves in singles on top and pairs near the bottom. They grow on kinked stems, are bell-shaped and drooping with 6 petals that flange out. The berries never fully ripen, so are sad-looking, shriveled yellowish droops.

Growing Time and Habitat: Twisted stalk emerges in early July, flowers in mid to late July and produces sad berries in late August. It grows in only a few protected, moist depressions, including the west flank of the Kaminista quarry and the north end of Zapadni Ravine. It is rare on the island, but abundant in those two spots.

Notes: Twisted stalk is another in the group of plants found on the island that you would normally find in shady moist forests in the NW and NE parts of North America (it also grows in the Eastern Siberia, Japan, bits of SE Asia and Europe). Even though the vegetative part of the plant is quite robust, it is obviously at the limit of its comfort on the island since the fruits do not gain full maturity. This plant's new stalk and berries are edible; the

stalk is juicy and tastes like cucumber and the juice of the berries taste like watermelon. However, the berries are full of seeds, so sampling them is an odd experience (not that you would know that from the Island's berries: I sampled mainland ones). Mature berries on the mainland are bright red or yellow, juicy and oval-shaped. Some native groups, including the Bristol Bay Eskimos, ate the plant, but other groups thought it to be poisonous and avoided it. Evidently the common name "scoot berry" came into being because if you overindulge on the berries, they will make you go scooting to the bathroom since they have a laxative effect. Makah woman ate the root to induce labor when having protracted delays. *Streptopus* is Greek for twisted (*streptos*) foot (*podus*), and *amplexifolius* is Latin for clasping (*amplexor*) leaf (*folius*).

The Iris Family (Iridaceae)

has over 2,000sp including gladiolus & iris

Beachhead iris
Iris setosa

Iris is shown as being on St. Paul Island by Hultén, but was never found by botanists after that.

The Orchid Family (Orchidaceae)

1 of 2 biggest families (see p. 140 for other) 21,000-26,000 sp worldwide

White bog orchid
Platanthera dilatata

This is another species shown on Hultén's map, but has not been seen by me or other botanists who recently visited the Island. If you see either of these species, let us know.

Orchid photo courtesy of nps.gov, taken off Island

Iris photo taken on mainland Alaska

The Willow Family (Salicaceae)

The willow family includes some 300 species worldwide, over 50 of which occur in Alaska. St. Paul Island boasts at least 4 species, which average about 5 inches in height and so cannot in practicality be called trees, or even shrubs. Thus, we call them subshrubs. They have extensive underground root systems, which are visible on some thinly-soiled hill tops. These roots resemble gnarled trunks which belies their old age. Willows are dioecious, meaning they have male and female flowers on different shrubs.

Thus in a certain willow patch, you may only see female flowers or vice-versa. The flowers are formed into catkins, which resemble upright, soft cones, like a pussy willow. Pollination by wind is possible, but insects are probably equally important as a pollination method for the willows, since they are attracted by the colorful red and yellow pollen and the sweet nectar of the blooming flowers. Willows are notorious hybridizers making identification extremely difficult, since easily seen parts of the willow such as leaves, stems, and colors can be completely variable. Willow are distinguished generally by the fact that they have a single bud scale and by their catkins. The four species I describe from the island have relatively easily identified surface characteristics so should not be difficult for the average person to identify. Willows have long been used by people for food, medicine and tools. The name *Salix*, is from classical Latin, and is a direct translation.

1a. Leaves round and leathery, with prominently netted veins; catkins smaller; ovaries finely hairy; grows on scoria on the hills .... **net-leaved willow**, p. 56

1b. Leaves round, not leathery, veins not prominently netted; catkins larger; ovaries with dense gray-woolly hairs; very common .... **arctic willow**, p. 57

1c. Leaves round, but often flat-bottomed; capsules not hairy, with prominent red lines; stems creeping; grows on mud and damp sand .... **dwarf willow**, p. 58

1d. Leaves pointed, diamond-shaped; capsules hairy, stems erect or somewhat matted; grows on lake margins .... **diamond-leaf willow**, p. 58-9

Willow Family (Salicaceae)

Net-leaved willow
Salix reticulata (ssp. *orbicularis*) ssp. *reticulata*

Description: Like all the willows, this one creeps along the ground in a woody mesh. The leaves unfurl from fuzzy buds and are round and deeply net-veined, which distinguishes them from all the other willows. The underside of the leaves, especially the young ones, often have long, silky hairs. The new stems are reddish and smooth. female catkins have fuzzy capsules with red scales which are spaced sparsely on the catkin.

Growing Time and Habitat: The buds begin to open in late May and early June. The catkins, which appear about the same time as the leaves, are entirely open in early June. The leaves fully open in mid to late June. This willow is the latest to leaf out and flower since it is pretty specific to scoria scrapes and dry grassy areas on the tops of the Hills. It can be found on the top of Telegraph, Polovina, Lake, and Bogoslov Hill, to name a few. It is relatively common on the island.

Notes: Of the 4 or so species of willow on the island, this one is the most widespread world-wide, growing all around the Arctic Circle and down into Canada, Russia and Europe. It was first found in Lapland and Switzerland. Net-leaved willow is often used in rock gardens since it is so attractive. Willow is the original aspirin, since the whole plant contains salicylic acid, a natural painkiller. Its painkilling properties were noted as far back as 4,000 B.C. on a Sumerian papyrus. Its leaves are also high in vitamin C, having 7-10 times more than an orange. The leaves and inner bark are edible on all species, and can be tasty if eaten at the right time of year, although some species are bitter regardless. Supposedly, the more bitter, the higher the content of vitamin C and salicylic acid, so the more potent the medicinal effect. Willows usually grow in moist areas in northern regions. They are one of the most hardy deciduous trees, growing closer to the North Pole than any other tree or shrub which loses its leaves in the winter.

Arctic willow

Salix arctica

Aleut Name and Translation:
no Aleut name, but called **pussy willow**

Use: The Aleuts used willow branches on Palm Sunday instead of palms, since it was the only bit of greenery available at that time of the year. On Great Thursday, the Aleuts would collect the branches, put them in a vase and then on Palm Sunday, after the Priest gave the blessing, he would give the branches out to the people during the service.

Description: Arctic willow has a large variety of leaf shapes and catkin sizes and is therefore sort of the default willow on the island. Generally, the leaves are roundish and are from 1-7 cm long. The creeping new stems are mostly green. The female catkins' capsules are very fuzzy, and fairly densely packed. They range in length from 2-7 cm. The male catkins are red with splashes of yellow (which is the pollen at the ends of the stamens).

Growing Time and Habitat: Arctic willow can bud as early as April with catkins flowering and leaves unfurling into June. It is the most widespread willow on the island, growing in a wide variety of locations, from moist flats, to dry scoria areas, to tops of hills, to rock outcroppings. Specific spots include the splatter bombs around Bogoslov Hill, the edge of the cliffs at SW point, and the top of Hutchinson Hill. It is very common on the island.

Photo by Chrisitne Donovan, tea.armadaproject.org, Barrow, AK

Notes: Arctic willow grows all around the world in arctic regions, as well as in the alpine in Alaska, Canada, the Pacific NW and Vermont. It is possible what I am calling arctic willow could be a complex of several different species or subspecies. The morphological variation of arctic willow is highlighted by the fact that it grows to be 6 feet tall on Attu Island in the Aleutian Chain, while elsewhere in exposed areas it barely reaches 1 inch in height. George Argus, the Alaska willow expert, also verified **least willow (*Salix rotundifolia*)** from St. Paul, so some of these could be that. *Salix rotundifolia* has smaller leaves, and short, few-flowered, smooth catkins. It grows in Alaska, Kamchatka, NW Canada, Montana and Wyoming. However, robust specimens of the latter and sickly specimens of *Salix arctica* could definitely be mistaken for one another. Native Alaskans often added the young leaves to salads and used the catkins as decoration in the home. The twigs are important forage food for many wild animals, including moose, elk, deer, porcupine and snowshoe hair. Interestingly, willows that have been browsed too much by animals can produce new shoots with increased amounts of toxic compounds such as phenols which are unpalatable to the browsers. This can lead to crashes especially in the hare population.

Dwarf or oval-leaf willow

Salix ovalifolia var. *cyclophylla*

Description: This creeping willow has very round, small leaves (up to 2 cm long). The capsules on the female catkins are hairless and smooth, unlike all the other species on the island. The capsules have distinct red lines on them. The new twigs are light green and the older branches reddish.

Growing Time and Habitat: Dwarf willow begins to leaf out in early June and flowers in late June. It grows pretty specifically on sand or mud near the coast, be it on the top of Town Bluffs, on the edge of Salt Lagoon near the crab pots or in the moist depressions of the dunes behind Lukanin Beach.

Notes: The parent species, ***Salix ovalifolia* var. *ovalifolia***, also occurs on the island, according to George Argus. It grows on arctic shores from the Northwest Territories west to Kamchatka. The *cyclophylla* variety of dwarf willow was first described from St. Paul Island, Hall Island and Cape Vancouver, and is restricted to the Bering Sea Islands and the west coast of Alaska. It has rounder leaves, shorter creeping branches, and more prominently net-veined leaves than the parent species. The botanist Eric Hultén, a notorious splitter of species, would have made the Bering Sea dwarf willow into a distinct species because, along with the slight morphological differences, he claimed it grew in upland areas as well as the coastal habitats of its parent species. However, George Argus, the present expert on Alaska willows, has found the parent species and this variety in both kinds of habitats, so believes at this time that the St. Paul (and environs) willow is (barely) a variety of the parent species. The translation of the scientific name seems a parody of the species/variety dilemma, since the species name is Latin for "egg-shape-leaved" and the variety name is Greek for "circle-leaved" - hardly much of a distinction!

Diamond-leaf or tea-leaf willow

Salix pulchra

Description: This willow is the only one on the island with most leaves being distinctly pointed (some have rounded ends). The leaves are diamond-shaped, tapering at both ends. The leaves and catkins can be very large depending on the habitat (up to 7 cm). The catkins are very woolly, tightly packed and have a reddish cast. This willow can, again depending on the conditions, have stems which reach 20 cm into the air, making it the tallest willow on the island.

Growing Time and Habitat: Diamond-leaf willow's leaves unfurl and the catkins appear in early June and the leaves are fully open by late June and early July. It grows

along the margins of ponds and lakes and wet places, most notably Saucer pond, the lakes in the Lake Hill crater, Sheep Lake, and the Kaminista bog. It is fairly common on lake margins on the island.

Notes: This species of willow is one of the more common on the mainland, where it grows on river bars and in meadows from Nunavut in Canada through Siberia. Native crafts are often carved out of "diamond wood" willow. This is not a specific species of willow, but a type of deformation in the wood caused by fungal attack. This attack creates high contrasts between the diseased and healthy wood and so makes a wonderful carving material. Native people of the NW coast would peel the inner bark of willows, tear it into strips and make them into ropes. They used these ropes as binding and tying agents for making fishing lines, nets, baskets, slings and harpoon lines.

Buckwheat Family

(Polygonaceae)

The buckwheat family has about 750 species worldwide, which mostly grow in the north temperate regions. The buckwheat family is famous for its edible grain, buckwheat (*Fagopyrum esculentum*) and the common garden vegetable, rhubarb (*Rheum rhaponticum*),. Many buckwheats are annoying garden and waste area weeds, which often twine along the ground. An extremely troublesome weed which has sprung up recently on both coasts is the annual Japanese knotweed (*Polygonum cuspidatum* etc.), which escaped from cultivation and is now choking many stream corridors and waterways. Buckwheats are recognized by having swollen joints and sheaths around the joints. The seeds (grain) are usually 3-sided and sometimes have little wings protruding from them. On St. Paul Island there are 5 buckwheats, one of which is a non-native weed.

1a. Leaves oval (kidney bean-shaped), flowers tiny, red and white, growing in a spike from a central stalk ..... **mountain sorrel**, p.

1b. Leaves spatula or spear-shaped ..... **(2)**

2a. Leaves small (less than 3 cm long) ..... **(3)**

2b. Leaves longer ..... **(4)**

3a. Leaves spear to arrow-shaped, mostly in a basal rosette; flowers tiny, reddish, in long, thin spikes ..... **sheep sorrel**, p. 60

3b. Leaves spatula-shaped to roundish, 5 mm long on average, in bunched rosettes; flowers very tiny, white; grows in wet mud, either creeping or in flat, tiny rosettes ..... **koenigia**, p. 59-60

4a. Leaves long, spear-shaped; flower head narrow (5 mm wide) having a compact spike of pinkish flowers on top of the spike and brownish seed scales below; often with tiny leaves growing from the spike ..... **alpine bistort**, p.

4b. Leaves long, spear-shaped; flower head larger, wider (1 cm), a compact spike of pink to white flowers with dark brown seeds often half way up the spike; stem and leaves taller; grows by lakes ..... **pink plumes**, p.

Koenigia

Koenigia islandica

Description: Koenigia is a tiny plant which has tiny leaves (5 mm long on average). The leaves are oval to spatula-shaped with a single prominent mid-vein. The flowers are incredibly small and white with 3-4 petals. They are nestled in the center of a rosette of leaves. The leaves are often reddish, especially when they first appear. Robust plants can be connected by a yellow, creeping stem with bunches of leaves along it. If you look closely, you can see the sheaths around the joints which indicates that it is in the buckwheat family.

Growing Time and Habitat: Koenigia appears in late July and early August and blooms soon after. It grows on wet mud, usually after a body of water has dried up. I found it on the mud of the dry-down pond by the gravel pit on Lake Hill, on the edge of Whitney pond, on a patch of bare mud near the airport and along the road across from Icehouse Lake. It is uncommon.

Notes: Koenigia, also called island purslane, is an annual plant and has the unique honor of having the most northern range of any native annual. It grows spottily all around the Arctic Circle and down mountain ranges – including to the central Rockies - on bare mud and wet moss. The genus was named for Carl Dietrich Eberhard Koenig (1774-1851), a German geologist who worked for the British Museum. Since it is a very small, non-showy plant, with little popular appeal, it has no common name other than the genus name.

Sheep sorrel*

Rumex acetosella

Description: A small plant, sheep sorrel reaches 10-15 cm in height. It has a rosette of spear-shaped leaves, which often have two protrusions at the bottom like a sword hilt. The stem leaves, if present, are narrow and alternate. The flowers are on 2-5 alternate, upright branches. They are tiny, reddish and stalkless, and are arranged down the branches in narrow spikes. There are 3 petals per flower (not that you could tell since the flowers are so small). The flowers are dioecious, meaning the female and male flowers are on different plants. The male flowers can be distinguished by their long, dangling stamens.

Growing Time and Habitat: This blooms from late July through August. I only found it on the northern side of the road across from Icehouse Lake and underneath Telegraph Hill. It is rare on the island.

Notes: This is an exotic weed introduced from Europe. Lucky, it has obviously not taken hold on the island, as it was only found in one, disturbed site. **Grass-leaf sorrel (*Rumex graminifolius*)** is shown as being on the island, but no botanists have found it recently. It has nearly all linear leaves. Interestingly, the Alaska Natural Heritage program says that reports of the grass-leaf sorrel from Alaska were based on misidentified material. Sheep sorrel successfully colonizes new places because of its ability to re-sprout from a single broken piece of its rhizomes. This weed is edible. It has a tart taste since it is high in oxalic acid, which is the substance that makes rhubarb and spinach taste sour. It must have been introduced quickly, because native people reportedly enjoyed eating it as a lemony-tasting snack. The Aleuts (probably of the Aleutian Islands) steam the leaves and apply on warts and bruised skin. The genus name, *Rumex*, means 'sour' in Latin, and the species name, *acetosella*, is the diminutive of 'sour-tasting'.

***Rumex graminifolius* photo taken by Ivar Haggelund,in n. Norway, nordaflora.no**

Mountain sorrel

Oxyria digyna

Description: Mountain sorrel has a basal rosette of roundish, kidney-shaped leaves, which are crumpled and reddish when first emerging. The often branched flowering stalk sticks up from the middle and from it dangles the many small, red and white flowers. The flowers each have 4 petals, which actually look more like scales. The seeds, when mature, are called achenes, and are obviously winged. The whole plant can grow to heights of about 20 cm.

Growing Time and Habitat: Mountain sorrel unfurls in early June and flowers soon after. It is found on meadows and damp ravines on the Hills, such as the north side of Little Polovina, the east slope of Polovina, inside Lake Hill and North Hill, etc. It is uncommon, but easy to find in its specific habitat.

Notes: Also called alpine mountain sorrel, its grows all over the world in mountains, including Alaska, Canada, the western US and New Hampshire. Its leaves are also edible, but should never be eaten in great quantity because they contain oxalic acid. The acid binds with calcium from tissues in the body and forms calcium oxalate crystals. This can cause poisoning with symptoms such as muscle spasms, burning in the mouth, stomach pains and cramps. If you have arthritis or any other calcium deficiency related condition, the leaves can be detrimental to you. The name sorrel comes from the French word *surelle*, which is the diminutive of the Lower German language word *suur* which means sour. The genus name, *Oxyria*, is Greek meaning acid-tasting. The species name, *digyna*, means two carpels (the fruit chambers).

Alpine bistort

Polygonum viviparum, Bistorta vivipara

Description: This is a slender, medium-sized plant (10-15 cm tall), with alternate, lanceolate leaves on long stalks which are pale on the underside. The joints on the stem are red and swollen, with obvious sheaths. The flower spike is narrow (5 mm wide) and contains small pinkish flowers with 5 parts. The upper half of the spike has sterile flowers so is in bloom constantly. The lower half of the spike has brown, chaffy scales around the incipient bulblets (or tiny new plants). This plant is viviparous, meaning the bulblets begin to germinate while still on the mother plant. Thus, miniature leaves and/or roots can often be seen extending from the bulblets.

Growing Time and Habitat: Alpine bistort blooms starting in mid-July and on through August. It grows in the scoria areas or near wetlands, such as the meadow between the road and Whitney pond, and the boggy area below Ridge Wall Hill. It is relatively uncommon.

Notes: Alpine bistort grows all over the world in the arctic, boreal forests, and mountains. It is one of the more interesting buckwheats, since it bypasses the seed stage and actually germinates tiny bulbs (called bulblets) among its flowers while some are still in bloom.

Tiny leaves and roots often begin to grow from the bulblets while they are still attached, which enables them to get valuable nutrients from the parent plant. When they do fall off shortly thereafter, the bulblets begin growing immediately into new plants, therefore bypassing the seed stage. This adaptation is fairly common in arctic plants since the short growing season often doesn't give seeds time to mature. The leaves, bulblets and roots of this plant can be eaten raw and are high in vitamins A and C. Natives of Siberia say the roots taste like small potatoes or almonds. Macoun described a larger version of this plant and Hultén named it ***Polygonum viviparum* var. *macounii***. I believe I saw some of these, but thought them to be specimens of pink plumes, but evidently pink plumes is not viviparous, so large viviparous specimens used to be the above variety, before they were all lumped into *vivipara*. The species name means 'bearing live young'.

Pink plumes

Polygonum bistorta ssp. *plumosum*, *Bistorta plumosa*

Other Common Names: Meadow bistort, Dragonwort, Easter man-giant, pudding grass, gentle dock

Description: Pink plumes has long, elliptic leaves (approximately 7 cm long) which crowd at the base and are arranged alternately up the stalk. There is a strong mid-vein and the underside of the leaves are whitish. The flower head is in a tight spike about 5 cm long and 1 cm wide. There are pink or white tiny flowers with 5 parts each which bloom on the top half of the stalk. Dark brown seeds shaped like apple seeds occupy the bottom half of the spike. The plant can grow to be up to 35 cm tall.

Growing Time and Habitat: Pink plumes blooms from late July through August. It grows on the edges of wet areas such as around Polovina Lake on the south side of the land bridge, around Pumphouse, Icehouse, and Sheep Lake, and in Village Swamp. It always grows in big patches, so is noticeable. It is fairly common on the island.

Notes: Pink plumes, or meadow bistort, is the large version of alpine bistort on the island. It is much more robust and pinker than alpine bistort. It may hybridize with alpine bistort because I have found large plants with viviparous leaves sticking out of the "seeds". This might be the *Polygonum viviparum* var. *macounii* described above, since pink plumes itself is not viviparous. Pink plumes ranges from the Northwest Territories across Alaska to eastern Siberia. Its leaves and root are edible and were eaten by native peoples. Its old genus name, *Polygonum*, is Greek for "many knees", referring to the swollen joints indicative of the buckwheats. The "new" genus name, *bistorta*, is Latin for "twice (*bis*) twisted (*torta*)", referring to the appearance of the roots.

Purslane Family

(Portulacaceae)

This is a small family with just under 600 species. The members are usually small herbs with delicate flowers. Purslane family species

are mostly distributed in NW and NE US and South America, with the largest concentration in the NW US. Moss-rose, the popular rock garden ornamental, is part of this family. These plants are characterized by having two sepals and fleshy stems and leaves. St. Paul Island has but two species.

Alaska spring beauty

Claytonia sarmentosa

Description: The flower of spring beauty has 5 regular parts that are white to pinkish lined with deep pink. The parts are nearly square, with a notch in the middle, and are 2-2.5 cm wide. There are generally 2-3 flowers per stalk, usually with only one blooming at a time. The buds clearly have the 2 green sepals which is indicative of the purslane family. The stems are bright green and fleshy. The stem leaves are opposite and clasping. The basal leaves, also fleshy, often grow apart from the flowering stem, and are spoon-shaped with a thumb-like depression in the center. They grow to be about 10 cm high.

Growing Time and Habitat: Spring beauty blooms in early to mid-June and on through July. It is found in moist meadows all over the island, such as around Pumphouse Lake, at North Point, SW point, on Polovina Hill, across the road from Antone Lake, etc. It is very common and abundant on the island.

Notes: This spring beauty grows around the North Pacific Rim. The name spring beauty was given to this genus because in some places, these pretty little flowers are the first thing to bloom in the spring. That is not so on St. Paul Island, as it is about the 20th showy flower to bloom. Another difference is that St. Paul's spring beauties persist in their blooming for a long time, whereas in other areas spring beauties have ephemeral flowers. The flowers and leaves of this plant are edible and nutritious, being rich in vitamin A and C, so make tasty additions to salads. The fleshy leaves and stems have a substance called allantoin in them which is good for binding wounds back together. The genus is named after John Clayton (1685-1773), one of the first botanist in the "new world". His collections contributed to an early new world plant guide, Gronovius's *Flora Virginica*. *Sarmentosa*, the species name, is Latin for "full of twigs", meaning a plant whose stem roots at intervals on the ground (which I was not aware this plant does).

Photo by Mike Danzenbaker courtesy TDX

Water blinks

Montia fontana

Description: Water blinks is a very tiny, sprawling plant with tangled, thin, fleshy stems which branch often and root at intervals. The tiny smooth-margined leaves (about 5 mm long) are opposite on the stems with short stalks. The flowers are located at the ends of branches or out from the axils of the leaves, and are extremely tiny with 5 white petals that are very hard to see. The two green sepals are the hallmark of this family and are relatively easy to see on the flowers of water blinks, since the petals are so ephemeral . Round seeds form after the flowers are fertilized.

Growing Time and Habitat: Water blinks blooms beginning in early July. It persists through late August. It is found in moist or trampled ground such as the Antone saltmarsh, near the seal area on top of Hutchinson Hill and around the edge of Pumphouse Lake. It is uncommon, but not unusual on the island.

Notes: The name water blinks fits this plant well since it is found in wet places and is so tiny it can be lost from sight in the blink of an eye. Another common name is annual water minerslettuce. It is an annual primarily with a circumpolar distribution (and spottily in mountains including down through California and in Virginia) but it also grows in New Zealand and South America. The genus was named after Giuseppe Monti (1682-1760), who was a professor of botany in Bologna, Italy.

Pink or Chickweed Family

(Caryophyllaceae)

This family is only medium-sized, having 2,000 species worldwide, but it contains a variety of different flower shapes and colors. There are several theories why the family got the common name, 'pink'. One is that pink is the color of carnations, which are popular ornamental members. Another theory is that pink is short for 'pinking'(wavy or notched margins), referring to the petals of most members. The other common name, chickweed, comes from a group of species whose stems, leaves and seeds were used as hen and chicken feed, especially if they were ill. Most of the plants are native to the northern temperate regions. A few of the species of this family are important ornamentally, namely; carnation (*Dianthus*), baby's breath, dusty miller, and chickweed. Characteristics of this family are; swollen nodes, opposite, mostly narrow leaves, 4-5 petals, 5-10 stamens and numerous seeds. There are 15 species of pink on St. Paul Island, many of which look very different from each other. Below is the key.

1a. Petals white, divided in half (appearing as if there are 10 petals when there are actually 5) ..... **(2)**

1b. Petals white, notched in the middle ..... **(4)**

1c. Petals white, rounded, without notches ..... **(5)**

1d. Petals not white, and/or shaped otherwise ..... **(6)**

2a. Plant creeping flat on ground with very obvious flowers like a bed of stars; leaves opposite, close together, short and pointed; grows in saltmarshes ..... **saltmarsh starwort**, p. 65-6

2b. Plant weedy; upright or sprawling with two lines of hairs down opposite sides of stem; lowest pair of leaves with stalks; flowers often with no petals; common ..... **chickweed**, p. 65

2c. Plant otherwise ..... **(3)**

3a. Stem leaves opposite, elongated (4 mm), sharp-pointed with smooth margins; flowers several, small, growing from axils of stem leaves or from top of stem ..... **fleshy starwort**, p. 66

3b. Stem leaves opposite, wider (6 mm), sharp-pointed with hairs on margins, 3-5 pairs per stem; flower petals usually absent, 5 green sepals prominent; plants grows in patches, either upright or sprawling ..... **northern starwort**, p. 66-7

3c. Mid-part of stem with one pair of narrow, needle-like leaves; lower stem "j"-shaped with a cluster of spiky leaves near the stem base; flower single on top of stem ..... **long-stalk starwort**, p. 67

4a. Plant with long, sprawling stems; flowers relatively large (1.5 cm wide) with shallow notches in the petals, at least twice as long as sepals, several flower heads to a stem; leaves, stem with short hairs; leaves opposite, 5 mm wide ..... **Bering Sea chickweed**, p. 68

4b. Plant in a flatten tuft with flowers sticking out the sides; flowers smaller (1 cm) with deeper notches; flower petals barely exceeding the green sepals, 2-3 flower heads per stem; grows in dry areas, especially scoria ..... **mouse-ear chickweed**, p. 67-8

4c. Plant also in tufts, and also with flowers just exceeding sepals, but with only one flower per stalk; stem leaves bunched together with withered leaves at base; rare ..... **Aleutian chickweed**, p. 69

5a. Leaves broad (5 mm), elliptic, in 3-5 opposite pairs spaced along stem; flowers 1 cm wide with oval petals, often dark spot in center; plant trailing in rocky places; rare ..... **wilhelmsia**, p. 71-2

5b. Leaves very narrow, like needles; plant tufted into cushions close to ground; flowers set into leaves, cup-shaped, petals wide (5 mm) with transparent lines ..... **arctic sandwort**, p. 70

5c. Leaves wider than 5b above, not needle-like; similar in all other respects to 5b ..... **long-pod stitchwort**, p. 69-70

6a. Plants tiny tufts (2-5 cm across) with a thicker, star-shaped rosette of leaves in center of tuft; flowers tiny spheres on the ends of thread-like branches; waste places ..... **snow pearlwort**, p. 69

6b. Flowers balloon-shaped with purple stripes on white; leaves long and narrow, opposite along stem ..... **melandrium**, p. 72-3

6c. Plant growing in large, low patches all over beaches; leaves elliptic, thick and leathery, opposite; flowers with white, spaced petals, yellow sepals and yellow centers ..... **beach greens**, p. 70-1

6d. Flowers bright pink; buds like rubies; growing in a cushion of short, mossy-looking leaves ..... **moss campion**, p. 72

Chickweed*

Stellaria media

Description: Chickweed has small, white flowers (up to 1 cm in diameter) with 5 petals so deeply divided that there appears to be 10. The petals fall quickly, leaving behind the five green sepals. There are several flower heads per stem, growing both terminally and from the axils of the stem leaves. The stem leaves are opposite, the upper being stalkless and the lowest pair having short stalks. The stem is often reddish and sprawls in tangled patches. The stem has two rows of minute hairs running down opposite sides. If you pull the stem apart, you'll find it is attached by an inner, elastic-like "thread". The plant height is very variable according to location, ranging from 5-25 cm.

Growing Time and Habitat: Chickweed begins to blooms in late June in the seal killing areas and blooms through August in waste places around town. It is very common in disturbed sites, growing beside buildings, in nutrient enriched seal areas and along roads (there are especially large patches along the road at the barrier after the Webster House). It is common on the island.

Notes: Chickweed is an exotic weed, imported from Europe and is common throughout the US and around the world, especially in gardens. In fact, the Alaska Cooperative Extension Service proclaims it "the most troublesome annual weed in Alaskan gardens". Its ability to invade can be attributed to its incredible reproductive power, as it often produces 5 generations of offspring per season. It is an edible, very nutritious green, having a high content of assimilable copper, as well as iron, phosphorus, calcium, potassium and vitamin C. Thus it is a valuable component in herbal weight loss teas. Its nutrient content has earned it the reputation of being good food for caged birds. As the common name implies, the plant is well liked by chickens and poultry. The Romans called it the "elixir of life". The genus name, *Stellaria*, is Latin for 'star-like'. The species name, *media*, is Latin for 'intermediate'.

Saltmarsh starwort

Stellaria humifusa

Description: Saltmarsh starwort grows in a flat mat on the ground, and has very showy flowers. The flowers are white with 5 petals divided so deeply that it appears there are 10. The flowers are over 1 cm in diameter and together look like a bed of stars since they grow crowded together. The leaves are small, elliptical, stalkless with many pairs per trailing stem. They have one prominent vein and are thick and leathery, often with reddish tints among the green.

Growing Time and Habitat: Saltmarsh starwort blooms in early July, with the peak being relatively short-lived. It grows in saltmarshes, and on the island I only found it in the Antone and Salt Lagoon saltmarshes. It was most abundant in the Antone saltmarsh. It is relatively rare on the island.

Notes: Saltmarsh starwort is predominantly a seashore plant which grows all along the shores of Alaska south

to Oregon and northeast to Maine and Labrador, as well as patchily in Siberia and northern Europe. It was first found in Scandinavia. It takes on very different forms depending on its competition, being mat-forming on seashores and tall and viny in thicker vegetation. The species name, *humifusa*, means 'sprawling or spreading over the ground.'

Fleshy starwort

Stellaria crassifolia

Description: Fleshy starwort is a weak stemmed plant with small white flowers. The flowers are white with 5 petals divided so deeply that it appears there are 10. The flowers are about 0.5 cm in diameter. The flowers grow from the axils of the leaves. The stem leaves are elongated (about 1.5 cm long), elliptical, without stalks and hairs. They are fleshy in texture. The plant is 10-20 cm tall.

Growing Time and Habitat: Fleshy starwort blooms in mid-July. It is found in wet areas such as the wetlands south of the Polovina land bridge, around Saucer Pond and in the bog below Ridge Wall Hill. It is uncommon on the island.

Notes: This is more of an interior species than saltmarsh starwort, growing in the northern mainlands and mountains of North America, Asia, and Europe. It was first found in Germany. It is distinguished from the northern starwort (the next plant) by having hairless leaves and stem, which is often hard to verify. Many native groups used the plant to treat sores, skin problems, scurvy, eye inflammation (a common malady on St. Paul Island because of the wind), colds, and snakebite. Fleshy starwort doesn't always produce viable seeds in its northern reaches, relying instead on over-wintering buds and the runners produced from the leaf axils. The species name, *crassifolia*, means 'thick-leaved'.

Northern starwort

Stellaria calycantha

Description: Northern starwort has small white flowers (5 mm in diameter or less) with 5 petals divided into 10 segments, but the petals fall off so quickly that the flowers are rarely seen. In their place are 5 green sepals (forming the calyx), usually located on top of the stem or in the axils of the upper stem leaves. The stem leaves are opposite, stalkless, 5 mm wide, 1-3 cm long, elliptic and sharply pointed. There are short, hard-to-see hairs on the margins of the leaves and in the axils at the base of the leaves. The individual stems grow together in

dense patches, often sprawling and lying horizontal. The stalks can reach up to about 15 cm in height.

Growing Time and Habitat: Northern starwort blooms in early July in wet meadows such as the ones in the depressions on the Fox Hill lava flow, along the High Bluffs, around Pumphouse Lake and in the Lake Hill crater. It is widespread and common, forming an important middle layer in the meadows around the island.

Notes: Northern starwort ranges widely from eastern Siberia (where it was first found) throughout the northern half of North America and northern Europe. It is known to have many different forms and sizes of parts so can be confusing to identify. The species name, *calycantha*, is Latin for 'calyx (*calyc*) flower (*antho*)', since the petals are so rarely seen and reduced that it appears the calyx (or sepals beneath the flower) is the actual flower.

Long-stalk starwort

Stellaria longipes

Description: Long-stalk starwort has a single white flower at the top of its flowering stalk. The flower is white with 5 petals divided into 10 segments and is about 5-7 mm in diameter. The upright stems have one set of stem leaves which are small (3 mm long), stalkless and sharply pointed. The lower part of the stem has a cluster of bunched leaves which are longer and narrower (up to 1 cm long and 2 mm wide). Brownish, withered leaves cling to the very bottom of the stalk. The Bottom of the stalk is curved somewhat into a "J" shape. The stalk is approximately 8-10 cm in height.

Growing Time and Habitat: Long-stalk starwort blooms in mid-July. It is found in a variety of habitats from the splatter bombs of west Kaminista to the bog beneath Ridge Wall Hill. It is very scattered and very uncommon.

Notes: Long-stalk starwort is very common and widespread around the subarctic, arctic and alpine. It is a highly variable species with many variations being claimed as different species by botanists. Taxonomic work in the 1990's concludes that all but two variations should be considered as the one, variable species, *Stellaria longipes*. This species was not listed for the island on Hultén's list, but was on Macoun's list. Macoun commented that "a few immature specimens . . . were collected on St. Paul Island in 1891. Dr. Robinson (Macoun's herbarium specialist), however, thinks them a form of *S. ruscifolia*." Hultén must have taken that hint, because he lists **circumpolar starwort (*Stellaria ruscifolia* ssp. *aleutica*)** on his list. I did not find any evidence of this plant, which has the same form as *Stellaria longipes*, but with much wider leaves and larger flowers. It is listed as being rare in the state, a S3 designation, with only about 12 places it is found. It is a G4, so is apparently secure, but rare on the periphery of its range. *Longipes* means 'long-stalked'.

Photo of *Stellaria ruscifolia* courtesy of Wikipedia.org taken in an unknown place

Mouse-ear chickweed

Cerastium beeringianum ssp. *beeringianum* var. *beeringianum*

Description: Mouse-ear chickweed grows in compact, flat tufts with the flower stalks sticking out the sides. The flowers are white with 5 notched petals which barely exceed the green sepals. They seem to be in a perpetual state of half-openness. The stems are short (3-10 cm long) with rounded, hairy, opposite, stalkless stem leaves (1 cm long and .5 cm wide). The tufts are usually only about 5 cm high.

Growing Time and Habitat: Mouse-ear chickweed blooms in late June on scoria scrapes around town and on low hills such as Black Diamond Hill and Lake Hill. It is relatively uncommon on the island.

Notes: Mouse-ear chickweed in common throughout Alaska and Canada and west to central Siberia. It grows in dry, gravelly places. The genus name, *Cerastium*, comes from the Greek meaning 'a horn' (*ceras*), referring to the shape of the seed capsules in some species which are long and curved.

Bering Sea chickweed

Cerastium beeringianum ssp. *beeringianum* var. *grandiflorum*

Aleut Nick-Name:
Popcorn flower

Description: Bering Sea chickweed is a sprawling or upright plant with large white flowers (2 cm in diameter) with 5 notched petals. The flowers are located on bunches of branches which grow from the top of the stem or out of the uppermost leaf axil. The leaves are opposite, elliptic, and hairy, with only 3-4 pairs per stem. They are 1 cm long and 0.5 cm wide. The stems grow in patches of both upright and curved stems, with most plants gaining about 20 cm in height.

Growing Time and Habitat: Bering Sea chickweed blooms in late June and early July with blooming persisting throughout the summer. It grows in meadows and the edges of wet, dry or disturbed areas such as along the old Polovina land bridge, along the path to the Ridge Wall bird cliffs, in the meadows around Pumphouse Lake, on the High Bluffs, etc. It is very abundant and widespread on the island, and though it isn't as showy as lupine, it certainly matches it in abundance and outlasts it in its duration of blooming, and is one of the signature flowers of St. Paul Island.

Notes: Bering Sea chickweed is restricted (appropriately) to the Bering Sea area, ranging from the Chukchi peninsula to interior Alaska with the most abundance along the coasts and on the Bering Sea islands (with rogue populations in Northwest Territories). It was first found in Kamchatka and Alaska. Even though they are varieties of the same species, mouse-ear and Bering Sea chickweed are very distinct from each other, the biggest differences being in the growth form (tufted as opposed to upright or sprawling) and the size of the flowers. The variety name of this species, *grandiflorum*, gives you a rather big hint as to which one has the larger flowers. Hultén lists another plant, **Fischer's chickweed (*Cerastium fischerianum*)**, which is similarly to the above, but is more robust, with bigger leaves and stems with yellowish hairs. I did not find it on the island, though it is said to hybridize with the above which could have resulted in me over-looking it. It grows around the North Pacific Rim and down to Japan.

Aleutian chickweed

Cerastium aleuticum

Description: Aleutian chickweed is very similar to mouse-ear chickweed in that it grows in round, flat tufts and has small, white flowers with 5 notched petals. The differences are that Aleutian chickweed has only one flower per stalk, the leaves are much narrower (2-3 mm wide), more bunched and have sparse, long hairs rather than abundant, short fuzzy hairs. The matted tufts only reach to about 3-4 cm tall.

Growing Time and Habitat: Aleutian chickweed blooms probably in mid-July to early August. It grows on the scoria scrapes of the higher hills inland. It is rare on the island.

Notes: I never did conclusively find this species, but certain specimens were very nearly it and two other botanists found it during the 1990's. It is just difficult to see, being so matted to the ground and so rare. Its range is limited to the Aleutian Islands and St. Paul Island. It is listed as a sensitive plant, being a S3 in Alaska (having 21-100 occurrences, in this case in about 8 spots in the Aleutian, Pribilof and Kodiac islands) and a G3 globally, meaning that it is threatened throughout its range.

Snow pearlwort

Sagina nivalis or ***S. intermedia***

Description: Snow pearlwort grows in tiny tufts (from 2-5 cm in diameter) and has a center rosette of thicker leaves which form a dark green star. The many thin branches sticking out from the center have tiny, round, yellowish-green balls at the ends. These are the flowers, which are practically impossible to see clearly. There are 4 petals and 4 sepals. After the flowers fade, the stems and sepals become purplish in color. There are tiny leaves on all the branches, giving the tuft a spiky look.

Growing Time and Habitat: Snow pearlwort appears in late June. It grows in waste areas, scoria areas and dried muddy places, such as the waste area near the gas station, Black Diamond Hill and bare ground around the airport. It is uncommon, but easy to find on the island.

Notes: Snow pearlwort grows spottily along coasts in the arctic and along the Aleutian Islands, as well as in Alberta and Montana. Hultén also includes **arctic pearlwort (*Sagina saginoides*)** on his list, which has larger, drooping flowers. I found no evidence of this plant, but Hultén does add that these two pearlworts do hybridize. The latter one has a slightly more boreal worldwide range, growing on grassy slopes and snow beds throughout the alpine. There are two stories of how the plants of this genus came to be called pearlworts; one story relates that the plants were used as a remedy for an eye infection called 'pearl'; the other story claims that the flowers look like pearls. The genus name, *Sagina*, means 'fodder' or 'nourishing' since the plants used to be used to feed domestic animals.

***Sagina saginoides* photo by Mcl ©Harte 2010, Discoverlife.org, location unknown**

Long-pod stitchwort

Minuartia macrocarpa

Description: Long-pod stitchwort is a mat-forming plant with large (1-1.5 cm in diameter), showy white flowers with 5 petals. The petals are rounded at the ends and generally open into a cup shape. The petals have translucent lines on them. The ovary in the middle appears as a largish green cone. The leaves are very small

and crowded together. They have a crease down the middle, are mostly triangle shaped and are approximately 3 mm wide. They form mats out of which the flowers grow. The mat reaches about 5 cm high.

Growing Time and Habitat: This plant blooms in early July. It is found on scoria scrapes and on the tops and sides of the hills such as Little Polovina Hill, between the parking area and Whitney Pond and on North Hill. It is uncommon.

Notes: The only obvious difference between this and arctic sandwort described below is the leaf width. Long-pod stitchwort also seems to bloom a little later and is definitely a lot rarer than arctic sandwort. It ranges from the NW Canada across Alaska and over to the north coast of Siberia. It was first found on the west coast of Alaska. The *Minuartia* genus is named for Juan Minuart (1693-1768), a botanist from Barcelona, Spain. The species name, *macrocarpa*, means 'large-fruited'.

Arctic sandwort

Minuartia arctica

Description: Arctic sandwort is a mat-forming plant with large (1-1.5 cm in diameter), showy white flowers with 5 petals. The petals are rounded at the ends and generally open in a cup shape. The petals have translucent lines on them. The ovary in the middle appears as a largish green cone. The leaves are needle-like with no lines. They are curved, smooth and bright green. They form mats out of which the flowers grow. The plant reaches about 5 cm high and general forms compact clumps about 30 cm in diameter.

Growing Time and Habitat: Arctic sandwort blooms in late June in scoria scrapes and on hills all over the island, especially between the parking area and Whitney Pond, in the Fox Hill lava flows, on Telegraph, Bogoslov, Polovina, North and Rush (etc.) Hills. It is common on the island.

Notes: Arctic sandwort (or stitchwort) ranges from NW Canada through Alaska to the north and eastern coasts of Siberia, where it was first found. The common name sandwort was given originally to sand-growing species of the *Arenaria* genus (which literally means 'sand-growing'). Plants in the *Minuartia* genus or its sister genus, *Arenaria* (with similar flowers and matted forms), are found on mountains all over the Northern Hemisphere and all around the arctic.

Beach greens

Honckenya peploides* ssp. *major

Other Common Names: Seabeach sandwort, sea purslane, sea chickweed

Description: Beach greens forms luxurious green mats of short fleshy stems and leaves. Occasionally, the stems turn red. The leaves are opposite and two-ranked, stalkless, shiny green, leathery, and elliptic in shape. There is one crease down the middle which makes the leaf curl around the stem. The flowers grow out of the leaves on top of each stem and have 5 white petals and 5 yellow sepals which are staggered in the flower head. The center is yellow and prominent. The flowers are 1-2 centimeters in diameter. The whole plant can reach up to 20 cm, though a more typical height is about 10 cm.

Growing Time and Habitat: The young spring leaves appear long before the flowers, in late May and early June. The first flowers generally bloom in mid-June. It grows abundantly and lushly on all the sandy beaches on the island, especially Lukanin and Tolstoi beaches. It is very common on the island.

Notes: Beach Greens grows along seashores around the Pacific Rim from Oregon to Japan. As its common name implies, the plant is edible and highly nutritious. It has high vitamin C and A contents so was popular with sailors who were battling scurvy. Many native Alaskans still use it in various dishes, often fermenting it for added flavor. The taste of beach greens has been likened to anything from cabbage to watercress. The genus is named after German botanist, Gerhard Honckeny (1724-1805). The species name, *peploides*, is Greek for 'cloak' (*peplis*), referring to how the leaves wrap around the stem and often hide the flowers.

Wilhelmsia or merckia

Wilhelmsia physodes

Description: Wilhelmsia has medium-sized (1 cm in diameter) white flowers with 5 petals which are slightly pointed at the tips. The centers of the flowers have a cone shaped ovary which turns from green to red during the summer. The stems are somewhat wiry. They can be red as well. The leaves are small (1 cm long and 0.5 cm wide), elliptic, stalkless, and smooth. There are usually 2 larger leaves per node with several smaller leaves growing there as well. The plant often sprawls, but can be upright as well. It grows to be about 10 cm in height.

Growing Time and Habitat: Wilhelmsia blooms in mid-August. I only found one plant in the caldera below Cone Hill in a moist, rocky area. Thus, I would think it to be very rare on the island.

Notes: The wilhelmsia plant I found was a first record for the island. The normal range of this plant is on the islands north of the Pribilofs and the west coast and interior of Alaska, and spottily in NE Siberia (it was first found and described from Karaginskiy Island near the Kamchatka Peninsula). It normally grows along rocky stream banks and gravel bars so was growing in about as similar a habitat as it could on St. Paul Island. Botanist Rob Lipkin, with the Natural Heritage Program, was interested to hear about the St. Paul wilhelmsia because of how it extended its range. Natural range extenders can give botanists an idea of how plants are dispersed and expand geographically, giving insights into historic geographic distribution and plant relatedness. This is especially interesting in the light of the discovery by plant geneticists that *Wilhelmsia* and *Honckenya* are more closely related to a Hawaiian endemic, *Schiedea*, than they are to the rest of the pink family. There is conjecture that the Hawaiian plant came to where it is via a single dispersal event through arctic North America. In fact, there is growing evidence that other Hawaiian natives originated from northern North America plants rather than from ones on land masses to the west and south, as was originally assumed. The other

***Schiedea obovata* taken by G.D. Carr, *Wilhelmsia* by L. Brothers, aob.oxfordjournals.org**

common name, merckia, was the former genus name. The main part of the species name, *physos*, comes from the Greek meaning 'bellows' or 'bladder', which could refer to the fact that the pods are generally globe-like.

Moss campion

Silene acaulis ssp. *acaulis*

Description: Moss campion is unmistakeable when in flower since the flowers are bright pink with 5 petals. The flowers appear stalkless since they are set into a cushion of moss-like leaves. The leaves appear before and stay after the flowers, so the distinctive moss-like cover can indicate a moss campion patch. The buds look like tiny rubies before they open since they are such a brilliant, glowing pink. The plant stands only a few centimeters high.

Growing Time and Habitat: Moss campion first blooms in mid-June. It grows on dry areas and scoria, such as SW Point, the scoria scrapes between the parking area and Whitney Pond, the tops of Hills, on rocks on top of Black Diamond Hill and along the road going past Polovina Hill. It is common on the island.

Notes: Moss campion is one of the more well known alpine/arctic cushion plants because of its wide range and because of its striking beauty and colors. It is found in Alaska, the mountains of the NW, Rockies and NE (New Hampshire and Maine – where it is possibly extirpated), and in northern Europe and Asia. It was first found in the mountains of Europe. The flowers have a scent that attracts night flying insects to pollinate them. The plants have two sexes of flowers; ones with perfect flowers and ones with only female flowers. Researchers studying the plants in Alaska have found that cushions of 30 cm in diameter average between 100-300 years old! The name 'campion' is derived from the word for champion (probably French), since Europeans used these flowers to make wreaths to place on the heads of champions at public games, as well as to adorn the alters of chapels. The genus name, *Silene*, has two derivations. The first comes from the Latin *sialon* meaning 'saliva', since the hairs on the stem and leaves are very sticky. The second derivation, from Greek mythology, comes from the name of a woodland satyr (a god having the short horns, legs and pointy ears of a goat), Seilenos, who was frequently in the company of Bacchus, and so was also frequently intoxicated and said to be covered with foam. Some members of this species mimic that state since they excrete a foamy substance. The species name, *acaulis*, means 'stemless'.

Melandrium

Melandrium apetalum ssp. *arcticum* var. *glabrum*, *Silene uralensis* ssp. *uralensis* (*Lychnis apetala*)

Other Common Name: Nodding lychnis, apetalous catchfly

Description: Melandrium has inflated flowers which look a bit like striped, miniature Zeppelins. The balloon-like flowers are white with prominent purple stripes. The end of the balloon-shaped flower has five small points indicating that this flower would have five parts if it weren't inflated. The balloons are about 2 cm long and hang down slightly as though they were nodding. There is usually one flower per stalk, though sometimes more. The stems are slightly hairy and have 2-3 opposite stem leaves and a bushy bunch of basal leaves. The leaves are long and narrow, tapering to a point. The flower stalks grow singly or in big bunches. The stalks stand anywhere from 10-30 cm tall.

Growing Time and Habitat: Melandrium blooms from mid-July through to mid-August. It grows on dry, open, rocky meadows such as the scoria meadow between the parking area and Whitney Pond, the rim of

Kittiwake Lake, the east side of Polovina Hill, and on the ledges at the far end of Zapadni Ravine. It is uncommon and often hard to find on the island.

Notes: The melandriums on St. Paul Island was initially considered a local race (hence the var. *glabrum*) because they grow taller, have petals as long as the calyx and nearly hairless leaves. Now they've been lumped into the parent species. Many people from mainland Alaska commented that the melandriums on St. Paul looked very different from the ones they knew. James Macoun, the botanist on St. Paul Island from 1896-99, commented that, "The St. Paul Island plants are widely different from typical *L. apetala* and probably constitute a good species". With the current tendency to lump, it no longer seems we will have our own species of melandrium. The more common form grows around the Arctic Circle in both North America and Eurasia, extending south into the Rocky Mountains and the mountains in Russia. The genus name *Melandrium* is Greek meaning 'black (*melas*) oak' (*drys*). The name was first used by Homer as a label for the dark heartwood of oak, but then was used as the name for this plant by Clusius in his 1601 book *Rariorus Plantarum Historia* for unknown reasons. The species name, *apetalum*, means 'without petals' in Greek. The variety name, *glabrum*, comes from the Latin word *glaber*, meaning bald (smooth, hairless), referring to the leaves.

Buttercup Family

(Ranunculaceae)

The buttercup family is a relatively large family of about 1,800 species worldwide, which grow mostly in the cooler areas of the world, especially North America. The flowers of the family are characterized by having many stamens all bunched together on a raised dome in the center of the flower. There are generally many sickle-shaped seeds called achenes. Some of the more famous members of the family include common buttercup, columbine, delphinium (or larkspur), and meadow rue. Some species are highly poisonous so eating any of the buttercup family members should be avoided. Below, I describe the12 buttercup members I found on St. Paul Island, plus a 13th which has not been found since Macoun's day 100 years ago, but that I could have missed. Following is the key.

1a. Flowers not yellow ..... **(2)**
1b. Flowers yellow ..... **(4)**

2a. Flowers purple ..... **(3)**
2b. Flowers white, petals 5, floating on or submerged in water; leaves very finely divided, like dill leaves ..... **thread-leaf crowfoot**, p. 76

3a. Flower heads several per stalk; stalk tall (over 30 cm); purple flowers forming a chamber around fuzzy-looking reproductive parts; leaves palmate, large and alternate with many dissections ..... **big monkshood**, p. 74-5
3b. Flower head one per stalk; stalk shorter (15-20 cm tall); purple flowers forming a chamber around fuzzy-looking reproductive parts; leaves palmate, small and alternate with many dissections ..... **little monkshood**, p. 75

4a. Flowers yellow with mostly 6 petals; flowers single on stalk; stem leaves large and frilly, rounded in shape with many serrations; basal leaves on short stalks ..... **yellow anemone**, p. 75-6

4b. Leaves strongly 3 parted (like clovers), very shiny; flowers small on long stalks, petals sharp-pointed ..... **goldthread**, p. 74
4c. Flowers otherwise ..... **(5)**

5a. Plant creeping with many runners ..... **(6)**
5b. Plant not creeping ..... **(7)**

6a. Plant with 3-lobed, mitt-like leaves on thin runners; flowers mostly with 3 petals ..... **arctic creeping buttercup**, p. 77
6b. Leaves long and narrow, like a slight bulging of the stem; flowers bright and abundant (1.5 cm in diameter); runners often reddish ..... **creeping spearwort**, p. 77-8
6c. Leaves prominently flat-bottomed, with a rounded, wavy upper edge; flowers small, ephemeral; plant growing in tufts ..... **alkali buttercup**, p. 78

7a. Plant with hairy leaves and stems; tall (30+ cm), growing in weedy areas around town ..... **common buttercup**, p. 80-1
7b. Plant not noticeably hairy; under 30 cm tall ..... **(8)**

8a. Upright plant with shiny yellow petals; sepals smooth; stem and basal leaves mainly divided into threes with other, smaller divisions ..... **subalpine buttercup**, p. 78
8b. Sepals hairy; stem and basal leaves mainly divided into threes with other, smaller divisions ..... **snow buttercup**, p. 79
8c. Sepals hairy; basal leaves shaped like a solid half circle with a flat base and with rounded serrations ..... **sulphur buttercup**, p. 80
8d. Similar to subalpine buttercup but flower and plant quite small, with larger stem leaves below flowers ..... **pygmy buttercup**, p. 80

Photo taken in Vermont

Goldthread

Coptis trifolia

Goldthread has a basal tuft of shiny leaves divided deeply into 3 parts. Each leaflet is sharply toothed. The root is gold when unearthed. The flowers have 5 white, sharply-pointed petals. It grows to be about 10 cm tall. This plant has not been found since Macoun found it on the Island 100 years ago. If you find it, please let us know.

'Big' monkshood

Aconitum delphinilifolium* ssp. *chamissonianum

Aleut Name and Translation: **Anisnaadam Ulax** (ahnees nahltham oolah), meaning bumblebee's house

Aleut Use: The Aleuts knew the plants were poisonous, so to ensure the children stayed away from them, mother's would warn the children that if they touched the flower, the bumblebee would come out of its house and sting them.

Description: Big monkshood has flowers with five deep purple petals arranged in the shape of a hooded chamber. The top petal is like a roof over two side petals and then the 2 lowest petals are like mustaches, sticking out from under the chamber. The petals have a minute hook at the top. There are usually 2-6 flower heads per stem, arranged alternately on thin stalks. The stem leaves are deeply divided like fingers of a glove. The basal and lower leaves are palmate, also with many deep divisions. The entire plant can be up to 50 cm.

Growing Time and Habitat: Big monkshood's vegetative stalk and leaves appear long before the flowers open, usually in late June. It seems like forever before the flowers bloom in mid-July, since the buds open very slowly. The flowers have a long blooming interval, with flowers continuing to open well into August. It grows in meadows all over the island, including along the High Bluffs, on top of Zapadni Cliffs, across from Antone Lake and on Hutchinson Hill, to name a few. It is common.

Notes: The distribution of this subspecies of monkshood is relatively limited, running only along the southern coast of Alaska, and the Aleutian and Pribilof Islands. Monkshood is infamous for being one of the more poisonous buttercup family members. The tubers contain an ester alkaloid called aconitin which paralyzes the nerves, lowers the blood pressure and body temperature. Even so, the plant is used medicinally for such things as a lice killer, heart and nerve sedative, pain reliever and fever reducer. It is used in homeopathy under the name *Aconite* to treat colds. The genus name, *Aconitum*, is Greek for "little dart" (*akontion*). This is because native peoples smeared the plant on their arrows before hunting wolves, whales, foxes, and tigers. The species name, *delphiniifolium*, means "with delphinium-like leaves". Accordingly, another common name is larkspurleaf monkshood. Delphinium is a wildflower commonly known as larkspur. The subspecies is named for Adalbert Ludwig von Chamisso de Boncourt, (1781-1838), a German poet-naturalist, who was the botanist on the ship *Rurik*, which visited Alaska in 1816-17. He has a forget-me-not named for him as well, on p. 128.

'Little' monkshood

Aconitum delphiniifolium ssp. *paradoxum*

Aleut Name and Translation and Use: See above.

Description: The flowers are similar to big monkshood, but with no hook at the top of the petals. There is usually only one flower head per stem, but occasionally there can be two. The stem leaves have 3 main divisions. The basal and lower leaves are palmate, delicate and on long thin stalks. The entire plant usually reaches 15-20 cm in height.

Growing Time and Habitat: Little monkshood appears and blooms at a similar time to big monkshood, emerging from the ground in mid-June and blooming in mid-July. It also grows in meadows all over the island, most notably on the High Bluffs, between the road and Whitney Pond and in the meadows around Bogoslov Hill. It is relatively common on the island.

Notes: This subspecies of monkshood is an arctic-alpine one, occurring only on the Bering Sea islands, on the Chukchi Peninsula, in northern Alaska and spottily in the interior to the Yukon. Just like big monkshood, this monkshood is also deadly poisonous. Monkshoods were called "thung" in medieval times, which is a name for a deadly plant. It was used during warfare to poison an enemies' water supply. Witches smeared the root on their broomsticks and bodies, drank a dram of the herb belladonna (which is delirium-producing) and went "flying". The plants are more poisonous when young and, in this guise, have killed many a cattle. Sheep can withstand the toxin better, and so are sometimes put out in pastures with an abundance of monkshood to clear the way for the cattle.

Yellow anemone

Anemone richardsonii

Description: Yellow anemone has 5 or often 6 yellow petals which taper to a point. There are no bracts

under the flower. The stem leaves are opposite and kidney-shaped with teeth-like indentations. The basal leaves are usually on separate stalks, larger, shaped similarly to the stem leaves, but with 5 main divisions. The leaves are usually crinkled up when the flowers bloom. Underground runners attach the plants together. The plant is about 10 cm high.

Growing Time and Habitat: Yellow anemone blooms in mid to late June. It grows on moist meadows on the sides of hills, specifically the east side of Polovina Hill, the knob west of the Kaminista quarry, below Bogoslov Hill and the north side of Little Polovina Hill. It is uncommon on the island.

Notes: Yellow anemone, also called yellow thimbleweed, grows in a few spots in northern Siberia, the Chukchi Peninsula, all throughout Alaska and west through Canada and Greenland. The anemone genus contains the poison anemonin. Macoun reports that "specimens (were) collected with underground stems from 2-3 feet long". The genus name, *Anemone*, comes from the Greek, *anemo*, meaning wind. One source claims the name springs from the belief that the flowers did not open until beaten by the wind, and usually, these plants do grow on windy ridges and mountain tops. Another source claims the genus name came from the Semitic word *Na'aman* meaning handsome. This was a nickname for Adonis, the lover of Aphrodite. The Greek poet Bion described how the flowers grew from the tears of Aphrodite as she cried over her slain lover. The species is named after Sir John Richardson (1787-1865), a Scottish naturalist who went on Sir John Franklin's expedition to arctic America.

Thread-leaf crowfoot

Ranunculus trichophyllus var. *trichophyllus*

Description: Thread-leaf crowfoot has 5 white petals with a yellow center. The petals often fall off, so flowers with 4 and 3 petals are common. The flowers are single on long, thin runners which are attached to a floating mat of very thin, finely-divided, net-like leaves. The flowers generally float near the surface, but the leaves are submerged. The flower can grow upright on dry edges of lakes, but this form is rare. The flower heads are 1 cm across.

Growing Time and Habitat: Thread-leaf crowfoot first blooms in early July, and continues on through August. It grows in shallow ponds, such as the south side of Polovina Lake, north edge of Big Lake and the water-filled ditch near the abandoned trailers. It is uncommon on the island. Interestingly Macoun writes that it is "found in only one locality on St. Paul Island-a small lake near the village. The water in this lake varies in depth in different years, and three forms have been collected there: the typical, the subterrestrial, and 'the dwarf form with capillary, flabby leaves'". It has obviously spread a bit in the last 100 years.

Notes: Thread-leaf crowfoot (which Hultén and others call white water crowfoot) has a huge worldwide range, growing throughout The Americas, Eurasia, Africa, and

Australia. Studies indicate that leaf form in white water crowfoot (*R. aquatilis*), which has floating leaves unlike this species, depends both on day length and water level. The common name 'crowfoot' comes from the fact that the leaves of some of the species resemble the footprint of a crow. The species and variety names, *trichophyllus*, mean 'with hair-like leaves'.

Arctic creeping or high northern buttercup

Ranunculus hyperboreus

Description: Arctic creeping buttercup creeps along the ground with many thin runners. The flowers grow out from these runners on short stalks. They are yellow with 3 petals and 3 stubby sepals and are about 0.5-1 cm in diameter. The leaves are very distinctive, being 3-lobed (sometimes 5-lobed) and mitt-shaped. They range from 0.3-2 cm across. They grow off the runners on long, thin stalks, usually forming a tangled mat. The plant can grow on mud or on water. It is only a few centimeters high.

Growing Time and Habitat: Arctic creeping buttercup starts blooming in early July. It grows in saltmarshes and on edges of lakes such as Antone saltmarsh (where it forms a lush mat of yellow, white and green along with saltmarsh starwort), the boggy area below Ridge Wall Hill and on the surface of Saucer Pond. It is uncommon, but locally abundant.

Notes: Arctic creeping buttercup ranges around the Arctic Circle, the North Pacific Rim, across Canada and down into the central Rocky Mountains. The plants on nutrient-rich soils (such as the ones in the saltmarshes) tend to be much more luxuriant than ones elsewhere. another common name is northern creeping buttercup. The species name, *hyperboreus*, means 'high-northern'.

Creeping spearwort

Ranunculus reptans, R. flammula* var. *filiformis

Description: Creeping spearwort has smallish yellow flowers (up to 2 cm in diameter) with 5 petals. The plant creeps along the ground or on the water with long, thin runners, which periodically root in the ground. The leaves generally grow from these rooting nodes and look like slightly flattened stem ends, being narrowly oval and spear-shaped. The runners are occasionally reddish. The plant is only a few centimeters high.

Growing Time and Habitat: Creeping spearwort begins blooming in early July. It grows in wetlands and on lake margins such as around Saucer Pond, in Fantasy Wetlands and on the mud of the dry-down pond across from the gravel pit on Lake Hill. It is uncommon on the island, but locally abundant.

Notes: Creeping spearwort grows circumboreally all around the world, reaching up to the arctic on occasion, and down into the central US. It was first found in Sweden and Russia. The native people on the Isle of Skye used creeping spearwort to raise blisters. This plant was also used in an alcoholic extract to cure ulcers. An old common name is 'banewort' since people believed it caused sheep to have ulcerated entrails. The new species name, *flammula*, refers to the burning juices that are produced by this plant. The old species name, *reptans*, means 'creeping'.

Alkali buttercup

Ranunculus cymbalaria

Description: Alkali buttercup has 5 yellow petals on small flowers (about 5 mm in diameter). The petals are very ephemeral, so often the buds or the seed head are the only parts seen. The plant creeps along the ground, usually forming distinct clumps of about 3-6 leaves on longish stalks and 1-3 flowers. The leaves have a flattened base, with a rounded top that has about 5 crenulations. The leaves range in size from 2-7 mm across. The plants stand about 3-10 cm tall.

Growing Time and Habitat: Alkali buttercup blooms in early July, but the flowers only last about a week. It was only found in Fantasy Wetlands on the north side of the road. Obviously, it is rare on the island.

Notes: Alkali buttercup has a very spotty distribution in Alaska, being more abundant in the lower 48 (though it skips Vermont and central to SE US) and Eurasia. Actually neither Macoun nor Hultén listed it for St. Paul Island, so either it recently came in from Hall's Island, or they missed it. The Roppels, plant enthusiasts who were here from 1956-1980, were the first ones to find it on the island as far as I know. They pictured it in their herbarium/plant guide, finding it in the same place I relocated it. Interestingly, Hultén notes that this plant is often spread by human activity, and some populations in Europe were introduced, so perhaps it did arrive on the island courtesy of humans. The plant usually grows in brackish (or salty) areas, hence the common name. The species name, *cymbalaria*, means cymbal-like, referring to the leaves, which indeed could be elfin cymbals.

Eschscholtz buttercup

Ranunculus eschscholtzii

Aleut Name: **Chumux**, meaning yellow **Other Common Name:** Subalpine buttercup

Description: Eschscholtz buttercup is an upright plant with bright yellow, medium-sized flowers having 5 shiny petals (about 2 cm across). The 5 green sepals under the petals are smooth and essentially hairless.

Depending on the age of the plant, there is either a leaf right under the flower or in the middle of the stem which is deeply divided into 5-9 finger-like divisions. The basal leaves are both separate and attached to the main flower stalk. They are deeply divided into three parts with each division having rounded teeth. Some of the basal leaves can be variable in that they have no deep divisions. The plants are also variable in height, ranging from 5-25 cm tall.

Growing Time and Habitat: Eschscholtz buttercup is about the 7th flower to bloom on St. Paul Island, in late May. It can still be blooming in late August in the lava tubes and depressions inland where snow melts late. It grows in meadows all over the island, including the meadows beside Saucer Pond, the meadows around Bogoslov Hill, and the east side of Polovina Hill. It is common on the island.

Notes: Eschscholtz buttercup's range shows a perfect Beringian migration route; it starts in NE Siberia and goes across the Bering Strait via its islands to Alaska and down the coast and through the mountains where it ends in the southern Rocky Mountains. It is one of 3 upright, large-flowered buttercups on the island that look similar. The main distinguishing features are the color of the hairs (or lack thereof) on the sepals and how entire the leaves are. This buttercup was named for Johann Friedrich Eschscholtz (1793-1831) who was the zoologist on the ship the *Rurik*. This vessel was used by the expedition lead by Kotzebue and included the botanist Chamisso (both of whom also have plants named for them; see p. 98 and 74). They sailed from Alaska to California in 1816.

Snow buttercup

Ranunculus nivalis

Description: Snow buttercup is upright with bright yellow, small to medium-sized flowers having 5 shiny petals (1 - 2 cm across). The 5 green sepals under the petals have stiff, brown hairs. Depending on the age of the plant, there is either a leaf right under the flower or in the middle of the stem which is deeply divided into 5-9 finger-like divisions. There are from 1-3 stem leaves. The basal leaves are both separate and attached to the main flower stalk. They are deeply divided into three parts with each part having rounded teeth. Some of the basal leaves can be variable in that they have no deep divisions, and are shaped more like a half circle. The plants are also variable in height, ranging from 5-25 cm tall.

Growing Time and Habitat: I listed this as being the first flower to bloom on St. Paul Island in mid-May. It is ephemeral in its blooming, and is hard to find in flower after about a month. It grows in moist areas and in meadows such as the path to Rocky Lake, in the meadows between the road and Bogoslov Hill, and under Telegraph Hill. It is uncommon on the island.

Notes: Snow buttercup grows all around the Arctic Circle and in a few mountain ranges in Canada and Eurasia. It was first found in Lapland and Switzerland. It is difficult to distinguish from Eschscholtz and sulphur buttercup. The best distinguishing features to seek out for snow buttercup are whether there are dark brown hairs on the sepals and thrice divided, thin leaves.

Sulphur buttercup

Ranunculus sulphureus

Aleut Name: **Chumux**, meaning yellow

Description: Sulphur buttercup is upright with bright yellow, medium to large flowers having 5 shiny petals (2-4 cm across). The 5 green sepals under the petals have stiff, brown hairs. There are 1-3 stem leaves which have 5-9 finger-like divisions. The basal leaves are somewhat thick, shiny and shaped like half circles with rounded teeth. This is the tallest buttercup on the island, growing to be 40 cm tall.

Growing Time and Habitat: Sulphur buttercup blooms beginning in late May. It grows in dry, rocky places in meadows all over the island including the High Bluffs, Kaminista upper meadows, around Whitney Pond, and at North Point. It is common and abundant on the island.

Notes: Sulphur buttercup's range is very similar to snow buttercup's, though it grows on stonier ground. The genus name, *Ranunculus*, is derived from the Greek word *rana* meaning frog, most likely referring to the marshy, froggy places in which buttercups usually grow. Also, the buttercups all usually bloom early, about the time the frogs sing in the spring (though, of course, St. Paul Island has no frogs so residents cannot appreciate this).

Pygmy or dwarf buttercup

Ranunculus pygmaeus

Description: Pygmy buttercup has small yellow flowers with 5 petals (up to 1 cm in diameter). The stem leaves directly under the flowers have 3 entire lobes. The basal leaves are divided into 3-5 rounded teeth. The plant is short, reaching about 5 cm in height.

Growing Time and Habitat: Pygmy buttercup blooms in mid-July. I only found it on the edge of Kittiwake Lake. The Roppels found in it the lava tubes on the rift leading up to Cone Hill from Kittiwake Lake as well. It may grow in other inland late-melting areas. It is rare on the island.

Notes: Pygmy buttercup grows around the Arctic Circle and down into the mountains to the central Rockies and NE Canada, with, I believe, disjunctive populations in Mongolia and Nepal. It usually grows in moist areas and where the snow melts late.

Common buttercup*

Ranunculus acris

Other Common Names: Meadow buttercup, tall buttercup

Description: Common buttercup has flowers with 5 yellow petals that are approximately 2-3 cm in diameter. There are one to many flowers per stalk, each on a long stem. The stem and basal leaves have 5 main divisions which are deeply divided. The leaves and the stem have fine white hairs. The leaves tend to be 4-8 cm across. The flower stalks stand about 30-50 cm high.

Growing Time and Habitat: Common buttercup blooms in late July. It grows in great profusion in the field across from the topmost road in the new part of the village, and beside houses down the hill from there.

Notes: Common buttercup is an exotic plant which had not been found on the island yet. Unfortunately it must have recently arrived, most likely via people in some way. The only places it was found in Alaska when Hultén made his flora were on the Aleutian chain and 3 places in SW Alaska. More recent publications have actually not found it to be spreading very fast. It is native to Europe. Native people used the root of common buttercup in salves to treat abscesses and boils. The species name *acris* (meaning acrid) refers to the burning juices that are common in most buttercups. Another invasive weed, **creeping buttercup (*Ranunculus repens*)** is also shown as being on the Island, but I did not see it.

Poppy Family

(Papaveraceae)

The poppy family is small having just 200 members. The members mostly grow in subtropical or temperate regions of the world. Poppies are mostly herbs, but some members of the family are shrubs or trees. The members often have milky or colored latex which oozes out when the plant is crushed. There are usually 2-3 sepals and 4-6 petals. The family includes several famous ornamentals including agremone, celandine and of course, poppy. There are 2 species of poppy on St. Paul Island.

1a. Poppy blooming in early summer; seed capsule widest at the base; base and underground root covered densely with old leaf bases ..... **Alaska poppy**, p. 82

1b. Poppy blooming later, usually July; seed capsule widest in the middle; lower stalk clear of old leaf bases ..... **Macoun's poppy**, p. 81

Macoun's poppy

Papaver macounii ssp. *macounii*

Aleut Name and Translation: **Xolasis** (holahsees - one Aleut told me this is translated as "to pee on the ground"), commonly called rain flower. It was sometimes called jarrin by kids since they thought it looked like a little jar in which to hold water

Aleut Use: The Aleuts have a popular belief that if you pick a poppy, it will rain. Since wetness seems ever abundant on the island, kids were told never to pick them.

Description: Macoun's poppy has 4 large, rounded yellow petals arranged in a saucer shape. There are many yellow stamens in the center. The buds are very hairy and almost look like seed pods because the 2 calyx walls which make up the bud is quite thick. The stem has no leaves and is wiry and very hairy. There are about 2-10 flower stalks per rosette, which usually take turns blooming. The basal leaves are arranged in a bushy rosette and are finely divided into parsley-like segments, which are also hairy. The seed capsule, when mature, forms a cylinder shape with a bulge at the middle. The plant stands about 15-20 cm high.

Growing Time and Habitat: Macoun's poppy generally starts blooming in early July and then blooms throughout the rest of the summer. It grows all over the island in dry areas such as the scoria along side roads, in the Kaminista quarry, on the sides and tops of hills, and on scoria meadows such as the one between the road and Whitney Pond. It is common and abundant on the island.

Notes: Macoun's poppy was first found on St. Paul island by James Macoun, the botanist on the island from 1896-99. He writes that, since the 2 poppies on the island look remarkably similar, he only noticed the differences between them after he observed that some of the poppies were blooming 2 weeks later than the others. This eventually lead him to describe the new species. The major difference structurally is the seed capsules. Alaska poppy has capsules widest at the base whereas Macoun's poppy has seed capsules that are taller with widest part at the middle. This poppy has a very limited distribution, growing only on the Pribilof Islands and a few locations on the western Alaska coast as far north as the Seward Peninsula. The name poppy comes from the classical Latin word *papaver*. The juice of the unripe pods of *Papaver somniferum* (native to

SE Europe and western Asia), yields opium, a highly addictive drug which contains morphine, narcotine, codeine and paperavine. Some of these alkaloids are extracted and used as anesthetics and sedatives.

Alaska poppy

Papaver alaskanum, P. radicatum ssp. *alaskanum*

Aleut Name and Translation and Use: See above.

Description: It is similar to Macoun's poppy except that the base of the rosette is thickly covered with the old, withered stalks of former leaves (sometimes you have to dig up the plant to see this). The seed capsule, when mature, forms a short, stout cylinder which is almost spherical. The plant is about 15-20 cm high.

Growing Time and Habitat: Alaska poppy starts blooming in mid-June after what seems like an agonizingly long time watching the buds swell. It blooms throughout the early part of the summer probably until early July, after which Macoun's poppy takes over the blooming. It grows all over the island, especially along roadsides and in waste places on scoria. It also grows on the Hills in scoria scrapes and meadows. It is very common and abundant on the island.

Notes: Alaska poppy grows in the Bering Sea and Aleutian Islands and interior Alaska. Macoun said that "the flowers of this poppy are on the Pribilof Islands larger and more showy than I have seen them elsewhere." Opium poppies not only produce addictive drugs (which have an incredibly long history, including pods found in burial sites in Sumeria *ca.* 4000 BC), they also are the source of poppy seeds and poppy seed oil, which are healthy and have many uses. Opium was used medicinally to treat asthma, stomach illnesses and bad eyesight. The new species name, *radicatum*, means 'having strong roots', which is why this poppy also has the common name of rooted poppy.

Earth Smoke Family

(Fumariaceae)

The earth smoke family is a small, but very distinctive family, having 450 species. Most of these are native to north temperate regions of Eurasia, but a few are native to North America. Several of these are rare plants in the US. The plants are distinguished by having watery juice, alternate leaves, and 4 petals that form two groups; one pair which forms spurs and the pair which closes around the ovary. The family includes bleeding heart, a popular garden ornamental. There is one species on St. Paul Island, described below.

Few-flowered corydalis

Corydalis pauciflora

Description: Few-flowered corydalis has flowers that are shaped like a small tube with a spur at one end and an open mouth at the other. They are light lilac to bluish in color and are 1-2 cm long. Occasionally white-flowered plants are found. There are 1-3 flowers per plant. The flowers are on top of stalks that rise above the bunches of primarily basal leaves. The leaves are delicate, on long stalks, are palmate and deeply divided into long, rounded segments which have a whitish cast to them. The plant is between 5-15 cm tall.

Growing Time and Habitat: Few-flowered corydalis blooms first in early June in meadows and around wetlands, such as around Webster Lake, in the North Point meadows and in the meadow on the east flank of Polovina Hill. It flowers before all the higher vegetation, so is easy to see

at first, but then gets lost. It especially seems to like to grow in mossy areas. It is common on the island.

Notes: Few-flowered corydalis, also called fewflower fumewort, grows around the North Pacific Rim, in Alaska and NW Canada, and spottily through NC Russia. It was first found in the Altai mountains of Russia and south central Asia. Hultén claims that white-flowered plants occur in the Ogilvie Mountains (in the Yukon), but I found them on St. Paul as well. These were once separated as being **var. *albiflora***, but are lumped into the parent species now. The species of corydalis are considered to be poisonous because they contain isoquinoline and other alkaloids. These plants give insects a difficult time when they attempt to get nectar. The insects have to force their way in through the mouth-like end of the flower and scramble back to the nectar at the end of the spur. In so doing, of course, they come in contact with the pollen which they then hopefully spread to other flowers. Some long-tongued insects have an easier time, while other, shorter-tongued insects get crafty and drill holes in the ends of the spurs and rob the nectar. *Corydalis* is Greek for 'crested-lark', referring to the shape of the flowers.

The Mustard Family

(Brassicaceae)

The mustard family has about 3,200 species, most of which grow in the northern regions. Many famous food plants come from this family, including cabbage, cauliflower, broccoli, brussel sprouts, kohlrabi (which actually all come from one species, *Brassica oleracea*), rape (which is made into Canola oil), rutabaga, radish and watercress. From the seeds and roots of various of these members comes mustard and horseradish. The name mustard comes from the Latin *mustum* which means 'new wine' (or the first pressings of new grapes). The new wine was mixed with powered mustard seed to make a kind of mustard sauce, which would eventually become the condiment mustard as we know it. Many kinds of noxious weeds are members of this family, as well as many rare and endangered species. The primary characteristics of mustards are the 4-parted flowers (thought to resemble a cross, hence the old family name of Cruciferae), the forked and stellate hairs and the long or round seed pods. If the seed pod is 3 times longer than wide, it is called a 'silique', and if it is less it is called a 'silicle'.

In keeping with the many food plants this family contains, almost all mustards are edible, however they become very bitter as the season progresses. Early spring is the best time to eat them. They are often some of the first plants to appear or green up in the spring. Several of their members actually over winter without losing the leaves from their basal rosettes. On St. Paul Island, there are 13 definite species and one that has not been found for a while. Below is the key.

1a. Flowers yellow ..... (2)
1b. Flowers white, pink or not obvious ..... (3)

2a. Flowers 1 cm across, in clusters, pale yellow, appearing early; silicles flat and egg-shaped; leaves mostly in basal rosettes, fleshy, wedge-shaped with terminal points ..... **northern draba**, p.
2b. Flowers 0.5 cm across, in dense heads congregated at the top of the stem; stem firm and tall, with lyrate stem leaves, the top lobe being serrated; leaves shiny, blue-green ..... **wintercress**, p. 86
2c. Flowers 2-3 cm across, bright yellow, in dense elongated heads on top of tall stalk; stem leaves small, but basal leaves large, lyrate and crinkled; siliques long and thin ..... **field mustard**, p. 85

3a. Flowers pink, or pinkish-white ..... (4)
3b. Flowers white ..... (5)

4a. Flowers bright pink to white, 1.5 cm across, 5-10 in a terminal cluster; leaves variable; pinnate with narrow lobes near the top and rounder lobes near the bottom ..... **cuckoo flower**, p. 87
4b. Flowers pale pink to white, 0.5 cm across, often don't open the whole way; leaves mostly basal, hairy pinnately divided; stem leaves clasping; silicles heart-shaped on stalks alternately along stem; rare and weedy ..... **shepherd's purse**, p. 88

5a. Plant with stem leaves only, flowers small and clustered near the top, siliques narrow and tapering ..... **Edwards' mock wallflower**, p. 85

5b. Plant with basal leaves only; leaves small, round to oval; plant 4-8 cm high; siliques with two distinctive dark stripes on sides ..... **alpine bittercress**, p. 86-7
5c. Plant otherwise ..... (6)

6a. Plant's basal leaves spoon-shaped, small; silicles round, in clusters on top of elongated stems, often along with the flowers; plant mostly staying low to the ground ..... **scurvy grass**, p. 84-5
6b. Plant's basal leaves mostly lyrate, stem leaves mostly forked into 3's like a crow's foot, thin delicate stalks; flowers small; siliques long and thin ..... **Siberian bittercress**, p. 88
6c. Plant otherwise ..... (7)

7a. Plant very small (1-5 cm high) ..... (8)
7b. Plant larger (greater than 5 cm tall) ..... (9)

8a. Plant 1-2 cm tall, tufted, tucked into rocks; flowers tiny, several on top of stem, silicles oval on stems ..... **milky draba**, p. 89
8b. Plant's flowers white to pale yellow, very densely tufted; roundish silicles emerge right from the basal leaves with very little stem; leaves round and tightly bunched ..... **Aleutian whitlow-grass**, p. 89-90

9a. Plants with medium-tall stems (10 cm) in bunches; basal leaves hairy and mostly entire; stems fuzzy; flowers white, silicles roundish ..... **northern whitlow-grass**, p. 90
9b. Plants with medium-tall stems (10 cm) in bunches; basal leaves smooth and lyrate; stems smooth, flowers white, 0.5 cm across ..... **Kamchatka rockcress**, p. 91-92
9c. Plant mostly a tangled basal rosette of long, narrow, dagger-shaped leaves; flowers small and white at the ends of long thin stems which exceed the rosette and trail on the ground; siliques long and narrow; found in sand ..... **leafy braya**, p. 92

Scurvy grass

Cochlearia officinalis* ssp. *oblongifolia*, *C. groenlandica

Other Common Name: Spoonwort, Danish scurvygrass

Description: The flowers of scurvy grass are white with 4 petals. The flowers are bunched into terminal clusters on stems which elongate as the season progresses. The seed pods, or silicles, of scurvy grass form little round balls. Scurvy grass is a biennial; the first year it grows only a basal rosettes which are made up of many small spoon-shaped leaves. The second year, it grows stalks which includes the flowers and alternate rows of egg-shaped leaves which are either stalkless or have a short stalk. Generally, the plant stays low to the ground, except when it is competing with higher vegetation or has gone completely to seed. On average the plant stands 5-15 cm high.

Growing Time and Habitat: Scurvy grass starts blooming near the end of May and continues on through the entire summer, which makes it one of the most persistent flowers on the island. It is the ninth earliest flower to bloom on the island. It is found almost everywhere, from roadsides to rocky outcrops to meadows to wet areas. It is probably the most common plant on the island.

Notes: Scurvy grass grows on shores all around the Arctic Circle, and Pacific Rim as far south as the north coast of California and SE Russia. Even though it is most certainly not a grass, this name, given to it by the sailors of the 1700s, has persisted. As one might expect, scurvy grass is packed with vitamin C so was a great

antidote to scurvy for sea bound sailors. Since it was readily found on coasts, it was probably one of the first things the sailors went for when they disembarked. The sailors reportedly tried to dry it and bring it along, but scurvy grass stores poorly. Adapting to this, the sailors learned to tincture the plant, essentially making scurvy grass ale. Those sailors who did not take scurvy grass along in some form often died from complications of malnutrition. The plant's essential oils contain sulfur compounds which have been used in treating venereal disease, paralysis and rheumatism. The genus name, *Cochlearia*, comes from the Latin *cochlear*, meaning 'spoon'. The species name, *officinalis*, means 'of the shops' and is given to plants which are used medicinally.

Edwards' mock wallflower

Eutrema edwardsii

Description: This plant consists of one straight stalk with alternate, lance-shaped stem leaves near the bottom and stalkless leaves near the top. The cluster of small, white, 4-parted flowers is located at the top of the stalk. The flowers soon give way to siliques which are medium length (1-2 cm) and elliptic, tapering to a fine tip. The siliques are arranged alternately along the stem. There are no visible basal leaves, distinguishing *Eutrema* from all other mustards. The plant usually stands about 15 cm high.

Growing Time and Habitat: It blooms in early to mid-June and then the siliques appear from late June through the end of the summer. It grows singly in dry meadows scattered all over the island such as the meadow between the road and Kittiwake Lake, the meadow south of Little Polovina Hill and the area across the road from the pond near the top of Lake Hill. It seems rare on the island, but is probably more common than it appears since it is so hard to see.

Notes: Edwards' mock wallflower grows mostly around the Arctic Circle, and down via mountains into Canada and Eurasia. Inland species, such as in Denali National Park, have large, spade-shaped basal leaves that are separate from the flower stalks. I saw no evidence of these, but had trouble finding the plant in the first place. The species is probably named for John Edwards, the ship surgeon on two different arctic explorers' voyages: William Parry's aboard the *Hecla* and Sir James Ross' aboard the *Isabel* in 1818.

Field mustard*

Brassica campestris, B. rapa var. *rapa*

Other Common Names: Bird's rape, turnip **Description:** Field mustard is a tall plant with a large head of bright yellow flowers. The flowers are 4-parted and about 3 cm across. The flower head elongates throughout the season, sometimes extending halfway down the stalk. The siliques are sausage-shaped with pointed ends and are about 2-3 cm long. The stem leaves are triangular-shaped with wavy edges. They clasp the stem and are alternate. The lower and basal leaves are very large (5 cm wide and 15 cm long) and are lyrate in shape. The lowest lobes hang like mustaches, often clasping the stem. It is up to 1.5 meters tall.

Growing Time and Habitat: Field mustard blooms in mid-July in magnificent yellow glory. The only two places I have seen it (luckily) are in Marvy's backyard and around the steps leading to Anfesa Stepetin's house.

Notes: Field mustard is an introduced weed native to England, Belgium and Gotland, Sweden. It escaped from cultivation and now grows all over the world. It is closely related to bird's rape, another introduced plant, which has a much more global distribution. Bird's rape has hairy leaves and smaller flowers. The patch on St. Paul Island probably arrived in bird seed, flower seed or other human means. It could also have been carried by a bird, which would make the introduction more 'natural'. Nonetheless, field mustard is obviously hardy enough to survive and reproduce in the harsh island climate. Close monitoring of this patch of plants would be a good idea, since it has the potential to be an invasive plant. The fact that I found some shoots across town from the original patch is rather sobering, meaning it is spreading successfully. One of the common names, rape, comes from the Latin *rapa* or *rapum* which means 'turnip', since this species was formerly thought to be a subspecies of the cultivated turnip. The genus name, *Brassica*, is the Latin name for 'cabbage'. The species name, *campestris*, is Latin for 'field'.

Wintercress

Barbarea orthoceras

Description: Wintercress has a terminal head of small to medium-sized yellow flowers which usually bloom from the bottom up. The flowers are about 7 mm across. The siliques are very thin and are about 2 cm long. The stems are stiff and smooth. There are many stem leaves which are lyrate in shape with teeth in the terminal lobe. The upper stem leaves have short stalks and the lower stem leaves have longer stalks. The plant stands 20-30 cm tall.

Growing Time and Habitat: Wintercress blooms in late July. It is found concentrated along the roadside leading to the top of Lake Hill, especially around the gravel pit. It is also leaking into the road going to the Kaminista quarry.

Notes: Wintercress, also called American yellowrocket, is a recent arrival on the island. It was on no previous lists or records and its location indicates it probably came in on machines or by other human means. It occurs naturally on land masses all around St. Paul Island, from central Asia, around the Pacific Rim, down the NW coast, through Canada, and finally skimming across NC and NE US. It is native to all these areas, but is acting strangely weedy on St. Paul since it arrived only by colonizing disturbed ground. Interestingly, it is listed as being a rare plant in Maine and New Hampshire. Wintercress is high in vitamin C and was often used by the natives of Alaska for salad greens. There are two different stories given to explain the derivation of the genus name, *Barbarea*. The first claims that the genus was named for St. Barbara, a martyr of the 4th century A.D., since the cress was eaten around St. Barbara's day, which is December 4th. St. Barbara became a saint because refused to renounce her belief in God. St. Barbara's protection was traditionally requested when lightening or fire threatened, so she became the patron saint of the military, miners, and other gunpowder and flame users. The second story, of German origin, is that the freshwater carp, the barbel, eats the leaves of *Barbarea*, and thus its name was given to the plant. The species name, *orthoceras*, is Greek for 'straight horns', which I assume refers to the siliques.

Alpine bittercress

Cardamine bellidifolia

Description: Alpine bittercress is a small, tufted plant with a tight bunch of tiny, rounded basal leaves (about 5 mm long). These leaves are shiny and dark green with short stalks. There are no stem leaves. The flowers are white with 4 parts and grow in terminal bunches. After the flowers, siliques elongate to

between 2-3 cm. These siliques are very dramatic looking since each has two dark stripes down the sides. In flower, the plant averages about 3-5 cm tall. With siliques, the plant is about 7 cm tall.

Growing Time and Habitat: The flowers of alpine bittercress bloom in early to mid-June and the siliques appear in early July. It grows in rocky lava and and scoria areas, such as the spatter rampart of Kaminista, the scoria scrapes between the pullout and Whitney Pond and on top of Lake Hill. It is uncommon, but usually can be found if you're willing to get down on your hands and knees and stare at the ground for a while.

Notes: Alpine bittercress grows around the Arctic Circle, down through the mountains in Canada and Europe, as far south as northern California, and Maine and New Hampshire where it is endangered. It was first found in the Alps of Lapland and Switzerland. Interestingly, the siliques found on the mainland do not have the distinctive dark stripes that occur on St. Paul Island. Part of the common name, 'cress', comes from the Old English word of Indo-European derivation which means 'to nibble or eat'. Since the leaves can be bitter at times, the common name bitter-cress was adopted for this genus. The genus name *Cardamine* comes from the Greek *kardamon* meaning 'heart' (*kardia*) 'sedative' (*damao*). *Kardamon* is the Greek name for water-cress since that plant was used as a heart sedative. The species name, *bellidifolia*, means 'with leaves like *Bellis*' (*Bellis perennis* is the English daisy, an introduced species common in waste areas on the NW coast).

Cuckoo flower

Cardamine pratensis (ssp.) var. *angustifolia*

Other Common Name: Lady's smock

Description: Cuckoo flower has medium-sized (2 cm across) flowers with 4 parts which can be anywhere from bright pink to white. The flowers are clustered at the top of the stem in bunches of 5-10. The siliques are long (2-3 cm) and narrow. The stems are straight and tall. The upper stem leaves are divided into long, narrow divisions, some pinnate, some palmate. The lower leaves and basal leaves are pinnately divided with rounded divisions on thin stalks. Cuckoo flower averages about 30 cm in height.

Growing Time and Habitat: Cuckoo flower begins blooming in late June and continues blooming through the summer. It grows on the edges of wetlands and has the charming habit of blooming all around the edge moving in as the water recedes. Thus, in early July, there will be a big circle of cuckoo flower at the water's edge, and in mid-August there will be a tight circle of cuckoo flower around the last bit of remaining water. Specific wet areas where it can be found include Saucer Pond, Icehouse Lake, the lake at North Point and the Polovina wetlands. It is uncommon but easy to find in specific locations on the island.

Notes: Cuckoo flower grows all around the Arctic Circle and spottily in the mountains of Canada and Eurasia. It was first found on Igloolik, an island in the Arctic Sea. One suggestion as to why it is called cuckoo flower is the fact that the foam of the frog-hopper larvae, which is often found on these flowers, looks like cuckoo spit. Another suggestion is that it is said to bloom when the cuckoo first sings in the spring. Still another interpretation is that since the basal and stem leaves are very different, it makes the plant look 'cuckoo'. The

alternate common name 'lady's smock' probably was used because the flowers resembled miniature smocks hung to dry. A quote from Shakespeare's *Love's Labours Lost (Act v. Sc 1. Lines 904-7&916.)* - the Cuckoo Song - uses this common name:

When daisies pied and violets blue,
And lady-smocks all silver-white,
And cuckoo-buds of yellow hue
Do paint the meadows with delight,
. . . And maidens bleach their summer smocks,
... etc. ....

Siberian bittercress

Cardamine umbellata, ~~C. oligosperma~~ var. kamtschatica not accepted

Description: Siberian bittercress has thin, weak stems with a terminal cluster of very small flowers (3 mm across) with 4 parts. The siliques are narrowly elliptic and about 1 cm long. The upper stem leaves are mostly divided into 3 or 5 lobes which resemble a crow's footprint. The lower stem leaves and the basal leaves are pinnately divided and somewhat lyrate. The lobes are rounded on short, thin stalks. The leaf and stem structure is highly variable. The plants, on average, reach between 15-25 cm tall.

Growing Time and Habitat: Siberian bittercress blooms in late June. It can still be found blooming in Zapadni Ravine in late August. It grows in organic soil and moist meadows such as the Zapadni Killing fields (where it blooms earliest), Zapadni Ravine and the waste areas around town. It is uncommon on the island.

Notes: Siberian bittercress grows around the Pacific Rim and down into the mountains of the NW to Oregon and Montana. Macoun commented that it was "collected in a great variety of forms, according to habitat (on St. Paul Island) . . ." Like most all mustards, this plant can be added to salads to add a little peppery flavor. The genus *Cardamon*, which includes over 100 species worldwide, has been studied by botanists since the 1st century A.D. when a drawing of it appeared in *De Materia Medica* authored by Dioscorides. In India, the seeds are eaten after meals to aid in digestion. All mustards, in fact, are thought to be good for digestion. The genus name is described in the alpine bittercress description. The old species name, *umbellata*, was given because the flowers crowded at the top of the stalk resemble an umbel, the flower structure characteristic of the parsley family (especially evident on dill plants). Accordingly, another common name is umbel bittercress. ~~The accepted name~~ means 'few (*oligo*) seeded' (*sperma*).

Shepherd's purse*

Capsella rubella, C. bursa-pastoris

Description: This plant has a small cluster of pinkish flowers at the top with 4 parts which often don't open all the way. The sepals are reddish. The silicles are broadly heart-shaped, stalked and are also reddish. The stem leaves are lance-shaped with small teeth. They clasp the stem. The basal leaves are both divided and elliptic, are slightly hairy and sometimes have little teeth around the margin. The plant stands 10-15 cm high.

Growing Time and Habitat: Shepherd's purse blooms in late July. It grows at a few houses in the middle of "Old Town".

Notes: Shepherd's purse is an introduced weed native to Europe which grows all over the world. This used to be considered a separate species with a smaller range, mostly in southern Alaska, the NW coast, the NE coast, and Europe, but now it is all lumped

together. Luckily, on St. Paul Island, it is isolated to protected yards around houses, so is not likely to be a threat to native vegetation. This plant has been eaten by many native people since the early greens are quite nice in salads and are very nutritious, containing calcium, vitamin C & K, and sodium. It is a blood coagulant and vasoconstrictor, especially useful in stopping post-partum hemorrhaging. It can be a nasty weed for farmers, not only because of the ground in can overrun, but also because the roots harbor a fungus that is harmful to cabbage, turnips and other mustard family members. This plant can produce between 40,000 and 64,000 seeds, which little birds find tasty. If the seeds fall into water, they excrete a sticky mucilage which contains a protease that digests any insect (including mosquito larvae!) that gets caught in the goo. Then the tiny seeds have a protein rich substance to start out their life. The common name arises from the shape of the silicles, as does the scientific name. *Capsella* is the diminutive of 'box' in Latin. *Rubella* means 'reddish'. The common name is a direct translation of *bursa-pastoris*.

Milky draba

Draba lactea

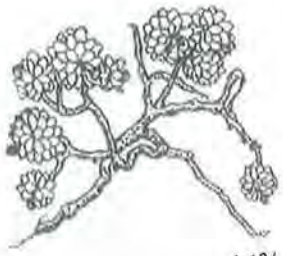
Description: Milky draba is a tiny cushion plant with tufts of elliptic leaves on short stalks, often encased in the remains of old leaves. The tiny 4 parted white flowers (3 mm across) are clustered in the center of the leaves. The stem elongates slightly when the elliptic silicles appear. The plant generally grows in dense, but small patches. It only grows to be about 1-2 cm tall.

Growing Time and Habitat: Milky draba blooms in mid-June and the silicles appear in mid-July. It grows on scoria scrapes on tops of Hills such as Polovina, Little Polovina, Lake, and Rush, and on the scoria scrape between the pullout and Whitney Pond. It is rare.

Notes: Milky draba grows around the Arctic Circle and spottily in the alpine of Eurasia, Canada and Maine. It is probably close to being the smallest plant I could find on St. Paul Island (of course, all the plants I couldn't find were smaller, but that's another story). The genus name, *Draba*, comes from the Greek *drabe*, meaning 'bitter or acrid'. The species name, *lactea*, comes from the Latin *lac*, meaning milk, hence the common name. I am not sure if it refers to a milky juice (which I did not notice) or some other milky part of the plant.

Aleutian whitlow-grass

Draba aleutica



×3/4

Drawing courtesy of Hulten's *Flora of Alaska*

Description: This plant's leaves are so tightly bunched that it looks like a round ball on the ground. Its 4 parted whitish-yellow flowers barely exceed the leaves, like its silicles, which are shaped like even tinier round balls. Its stems creep underground, connecting the tufted bunches.

Notes: This plant was last seen in 1923 by a botanist named Edward Johnston who supposedly brought a specimen to Gray's Herbarium in Harvard. He reportedly collected it from what was then called Dot Hill and what we now call Ridge Hill. Unfortunately, I didn't know this at the time, so when exploring Ridge Hill, I was not specifically looking for a tiny, ball-like draba. The drabas are a very difficult genus taxonomically because they are so small and so similar-looking. In many places, they are rare plants, as this one certainly is. It has only been found in 6 places in the last century; 4 being on the Aleutian Islands, one on St. Paul and one on the Chukchi Peninsula. This makes it a S2 designation in Alaska and G2 in the world, meaning there are only 6-20 individuals so is endangered throughout its range. Please feel free to go look for this rare plant on Ridge Hill and let us know if you find it.

DRABA

Drawing courtesy of efloras.org

Northern whitlow-grass

Draba borealis

Other Common Name: Boreal whitlow-grass, boreal draba

Description: Northern whitlow-grass has many stems in a bunch, each with 3-5 four-parted white flowers at the top. The flowers are 5-7 mm across. The stems and leaves are fuzzy. The stem leaves are stalkless, and broadly elliptic with little spiky teeth. The basal leaves have short stalks and are narrowly elliptic, and very fuzzy. The silicles are also elliptic. The plant grows in extensive patches, intertwined with other plants. It is usually about 10 cm tall.

Growing Time and Habitat: Northern whitlow-grass blooms in mid-June. It grows all over the island in drier areas in meadows and waste areas such as the road bordering the Kaminista quarry, the scoria areas between the pullout and Whitney Pond, and the waste area near the gas station. It is common and abundant.

Notes: Northern whitlow-grass grows around the Pacific Rim, western Canada and to central Colorado in the mountains. It is an important member of the flowering display on St. Paul Island, since it finds its way into most assemblages, but is often overlooked because showier flowers bloom around it. Like all mustards, its greens can be eaten, but usually aren't because the fuzziness is disconcerting. The common name for this genus, whitlow-grass, is a bit of a mystery. In the dictionary, whitlow means the inflammation of the finger or toe around the nail. Herbal medicine books list this as an ailment that can be cured by certain herbal applications, so perhaps these mustards were at one time used to remedy whitlow. For some odd reason, mustards keep being called 'grasses' commonly. The species name, *borealis*, means northern and is basically a default species name for any of the plants that grow on St. Paul Island.

Northern draba

Draba hyperborea

Other Common Name: North Pacific draba

Description: Northern draba has clusters of pale yellow, 4-parted flowers which open when the plant is still bunched low to the ground. The stems eventually elongate to accommodate the flat, egg-shaped silicles. The stem leaves are wedge-shaped with course teeth around the top. The basal leaves are very characteristic, starting narrow and

widening to a wedge with coarse teeth. The basal leaves are fleshy and shiny and, as the season progresses, can grow to be up to 15 cm long. On average, the plants are about 10 cm high.

Growing Time and Habitat: Northern draba blooms first in mid-May and continues blooming throughout the summer. It was the second wildflower to bloom on the island in 1998. It is found in moist and rocky places and nutrient-rich areas all over the island including the seal rookeries, the bird cliffs, on top of Hutchinson Hill, in the barabaras near the Polovina Rookery and in the splatter bombs around Kaminista. It is common and abundant on the island.

Notes: Northern draba grows in a narrow band on cliffs beside the ocean from the Kuril Islands (below Kamchatka) along the Aleutian Islands and the south and west coasts of Alaska and BC. It is a juicy, flavorful green. It can be found to eat all summer long if one looks in cool, protected places (such as the lava tubes). In 1968 researchers found that on the Queen Charlotte islands northern draba was located most abundantly on the cliffs where the sea birds nested (which is also true of St. Paul Island). They speculated that glaucous-winged gulls may help to distribute this species (and there are many glaucous-winged gulls on St. Paul Island). Drabas in general are very good at blooming early and surviving cold, arctic climates because they have the smart habit of blooming low to the ground where the air is warmest and where the early insects tend to hover. They then lengthen their seed pods and leaves in the summer heat, making themselves visible to seed dispersers (such as the glaucous-winged gulls). The species name, *hyperborea*, means 'above boreal'.

Kamchatka rockcress

Arabis (*lyrata* ssp.) *kamchatica*

Description: This plant has a bunch of small, white, 4-parted flowers at the top of a thin, relatively smooth stem. The flowers are about 5 mm across. The siliques are long and narrow. The stem leaves are small, stalkless and elliptic with entire edges. The basal leaves form a rosette of lyrate leaves with rounded lobes that are about 3-4 cm long. The plants grow in big bunches with many stems together. The plant is about 10-15 cm tall.

Growing Time and Habitat: Kamchatka rockcress blooms in mid to late June. It is found in scattered, dry spots such as beside the road near the Kaminista quarry, and in the waste areas around town. It is uncommon on the island.

Notes: Kamchatka rockcress is found spottily around the Pacific Rim and inland through Washington and Montana, with a disjunctive population in Ontario. The rockcresses are a very difficult genus to key because their identification often relies on the difference between minute hair structure. There are usually one or two *Arabis* on any rare and endangered plant list, and actually this rockcress is threatened in North Carolina, and rare in many other places. The *Drabas* are distinguished from the *Arabis* by the pod shape; *Drabas* have round to elliptic pods (silicles) and *Arabis* have linear pods (siliques). Kamchatka rockcress was eaten by the Inuit of Alaska in salads and is said to be one of the more tasty wild greens. The genus was given the name of rockcress since the

plants are generally found in rockier places than other members of the mustard family. The genus name *Arabis*, means 'from Arabia'. The species name, *lyrata*, refers to the lyre-shaped leaves.

Leafy braya

Braya humilis ssp. *arctica*

Description: Leafy braya has a leafy basal rosette with many lance to lyrate-shaped leaves which are about 3-5 cm long and 5 mm wide. The flower stalks overreach the rosette and are wiry and trailing with small elliptic stem leaves. The small, white flowers (3 mm across) are bunched at the ends of the stalks and have 4 parts. The siliques are narrow and about 2-3 cm long. The rosettes grow separately in sandy soil. The plant is about 5-10 cm tall.

Growing Time and Habitat: Leafy braya blooms in late May. It is found in dunes, sandy soil and waste places around town such as the waste area near the gas station, and the dune across from the new post office. It is common in town, but not present in other parts of the island.

Notes: Leafy braya, also called low northern-rockcress, grows usually on limestone riverbeds and sandy bars from east-central Asia to Greenland and south spottily to Colorado and Virginia. It is threatened in Michigan and Vermont. It is not on any of the botanical lists for the island, and was only documented a few years ago by a visiting botanist. Since it is isolated to disturbed places around town, I would conjecture that it is a recent arrival, perhaps brought by some human means. At this time is does not seem like it is going to be a threat to the native plant order, and in fact seems to add nicely to the flora since it colonizes open sandy spots. The botanical name for this plant has been changed many times. The Hultén genus name, *Braya*, is named for Franz Gabriel, Count de Bray (1765-1832) of Rouen, France. The species name, *humilis*, means 'low'.

The Saxifrage Family

(Saxifragaceae)

The saxifrage family is a medium-sized family with about 580 species. The saxifrage genus has 350 species alone. It is widespread all over the world, but is most diverse and abundant in western North America. Saxifrages usually grow in moist, rocky places, and are often a component of the 'hanging gardens' one finds near waterfalls. Some important ornamentals that come from this family include the saxifrages, coral-bells (*Heuchera*), astilbe, bergenia and piggyback plant (*Tolmiea*). The flowers can take on a wide variety of shapes and sizes, but mostly they have 5 parts, 10 stamens, 1 large ovary which is often cone shaped with two follicles resembling horns. These characteristics hold true for most of the St. Paul saxifrages, but not all of them. There are 9 different species of saxifrage on St. Paul Island. Below is the key.

1a. Flowers magenta ..... **purple mountain saxifrage**, p. 93

1b. Flowers yellow ..... **(2)**

1c. Flowers white ..... **(3)**

1d. Flowers reddish ..... **(4)**

2a. Flowers bright yellow, larger (about 2 cm across), with orange dots inside corolla, one flower to a stem; basal leaves 1-2 cm long ..... **bog saxifrage**, p. 94

2b. Flowers bright yellow, smaller (about 1 cm across), one to a stem; stems reddish; basal and stem leaves about 5 mm long, matted ..... **thyme-leaf saxifrage**, p. 93-4

2c. Flowers pale yellow to white with yellow spots, small (about 7 mm across), several to a stem; basal leaves prickly, in little round balls (7 mm in diameter) ..... **yellow-spotted saxifrage**, p. 94-5

3a. Plant with long, thick reddish stem with many fuzzy white hairs; no stem leaves; basal leaves kidney-shaped with saw-like serrations ..... **brook saxifrage**, p. 95

3b. Plant with bracts right under flowers; leaves and bracts with 5-7 rounded lobes; often forming a cushion ..... **bract saxifrage**, p. 95-6

3c. Plant with entire-margined basal leaves ..... **Kotzebue's grass of Parnassus**, p. 98

4a. Flowers pinkish-white, bunched at top of stem; basal leaves thick, light bulb-shaped with coarse teeth around the top ..... **Unalaska saxifrage**, p. 96

4b. Flowers pale rusty-red, in an elongated head on top of the stalk; basal leaves elliptic, mostly entire with little points, stalks medium-sized ..... **rusty saxifrage**, p. 96-7

4c. Plant a mat close to the ground; flowers tiny (5 mm across), strange, reddish with yellow ovary and stamens; leaves kidney-shaped with bristly hairs (1-2 cm across) ..... **Bering Sea water carpet**, p. 97

Purple mountain saxifrage

Saxifraga oppositifolia

Description: This is a cushion plant with the flowers set right into the mat of leaves. The flowers are bright magenta, have 5 parts and are about 1 cm across. They resemble miniature roses. The leaves are tiny, pointed, very hairy and are arranged oppositely in 4 rows. The plant is only 3 cm high, and grows in mats ranging in size from 5-30 cm in diameter.

Growing Time and Habitat: Purple mountain saxifrage blooms in mid-May, about the 5th earliest flower to bloom on the island. It grows on scoria scrapes on a few hillsides such as Big Polovina, Little Polovina and Lake. Its flowers quickly disappear and the plant is very deceiving to identify without its flowers, so it may be on other hills around the island as well. It is relatively rare on the island.

Notes: Purple mountain saxifrage grows all around the Arctic Circle and in mountains south to central Asia, northern Europe and Colorado. It is endangered in New York. It was first found in Spitzbergen, Norway, as well as in Lapland, Switzerland and the Pyrenees. It is known to be one of the first flowers to bloom in the spring in many places and it also is one of the first flowers to colonize rocky ground left by receding glaciers. It seems to especially like calcium-rich terrain. It has an interesting distribution on St. Paul Island, growing only on the eastern-most hills, which are the oldest geologically. Perhaps these have a bit more calcium? The genus name, *Saxifraga*, is Latin for 'rock' (*saxum*) 'breaker' (*fragere*), since these plants appear to crack open rocks as they grow. It used to be believed that these plants were good for ridding gall stones when this ailment was less well understood. The plants were ground and fed to gall stone sufferers. Others believed that the fresh roots of saxifrages could remove freckles and relieve toothaches. The species name means 'opposite-leaved'.

Thyme-leaf saxifrage

Saxifraga serpyllifolia

Description: Thyme-leaf saxifrage has bright yellow flowers with 5 parts. The petals are rounded and the ovary in the center is greenish. There is one flower per stem. The sepals and stems are reddish and have tiny (3-5 mm long), alternately arranged stem leaves. The basal leaves are matted and very small and are shaped like small thyme leaves. The seed pods are two-pronged. The plant is about 5-7 cm high.

Growing Time and Habitat: Thyme-leaf saxifrage starts with tiny gold buds in a mat of leaves in mid-June and then blooms in late June. It grows on scoria scrapes all over the island, including between the pullout

and Whitney Pond, on Lake Hill and on Little Polovina Hill. It is relatively common on the island in its habitat.

Notes: Thyme-leaf saxifrage grows spottily in the mountains and coastal islands of Alaska, NE Siberia and NW Canada. It is definitely one of the more dainty and cheery flowers on the island. The members of this genus have edible leaves, some of which are better than others. In China, some saxifrages were used to treat nausea and ear infections. They also burned saxifrage leaves, thinking the smoke and steam would shrink swollen hemorrhoids. The species name, *serpyllifolia*, means 'thyme-leaved.'

Bog saxifrage

Saxifraga hirculus

Description: Bog saxifrage has medium-sized (2 cm across), bright yellow flowers which have 5 parts and orange spots on the lower insides of the petals. The stems have fuzzy red hairs. The stem leaves are entire, narrow and rounded (1 cm long). The basal rosette is leafy, also with entire, narrow, rounded leaves (1-2 cm long). The plant is about 10 cm high.

Growing Time and Habitat: Bog saxifrage blooms in early July. It grows on moist rocky and scoria areas such as between Whitney Pond and the edge of the cliff, on top of Ridge Wall Hill and west of Kittiwake Lake. It is uncommon on the island.

Notes: Bog saxifrage, also called yellow marsh saxifrage, grows all around the Arctic Circle and spottily in the mountains in Eurasia, Canada and Montana, Utah and Colorado. It was first found in Lapland, Switzerland and Siberia. It supposedly grows in bogs elsewhere, but that certainly is not true for the island, where it is mostly found in rockier terrain. The species name means 'little goat (*hircus*)'.

Yellow-spotted saxifrage

Saxifraga bronchialis ssp. *funstonii*

Description: Yellow-spotted saxifrage has pale yellowish-white flowers with yellow spots on the inside of the petals. The ovaries and follicles are brighter yellow. The flowers are about 1 cm across. There are 2-10 flowers per stalk and they are all bunched at the end. The stem leaves are tiny alternate scraps and the basal leaves are tiny and triangular-shaped with spiky hairs on the edges. The leaves are all balled together like miniature cabbages and matted along the ground. The plant is about 3-7 cm tall.

Growing Time and Habitat: Yellow-spotted saxifrage blooms in mid-July. It grows in scoria scrapes on

the sides of hills such as North, Fox, Rush and Low, and in the scoria scrape west of Kittiwake Lake. It is uncommon on the island.

Notes: Yellow-spotted saxifrage grows on the south and northern coasts of Alaska, eastern Siberia, and NW Canada, evidently avoiding calcareous soil. There are several subspecies in the North Pacific Rim. Yellow-spotted saxifrage is often used as a ground cover in gardens since certain subspecies spread like grass. The species name, *bronchialis*, is Greek for 'windpipe' (*bronkhos*). The subspecies name, *funstonii*, is named for Frederick Funston (1865-1917), who worked for the US Department of Agriculture. The plant is also called Funston's saxifrage.

Brook saxifrage

Saxifraga punctata ssp. *nelsoniana*, *S. nelsoniana* ssp. *nelsoniana*

Other Common Names: Cordate-leaved, heart-leaved saxifrage, salad greens, wild cucumber, deer tongue

Description: Brook saxifrage has a branched cluster of smallish white flowers on top of a long stem. The flowering head elongates down the stem as it ages. The flowers have 5 parts with red-tipped stamens and follicles. The stem is stout, reddish with abundant white glandular hairs. There are no stem leaves. The basal leaves are circular to kidney-shaped with coarse serrations and small white hairs. The edges are often red-rimmed. The leaves are somewhat fleshy. The plant grows in clumps of several stalks and a bunch of basal leaves. It grows to be 10-20cm.

Growing Time and Habitat: Brook saxifrage blooms in late June. It grows on scoria, dry meadows, open areas and rocky cliffs. It can be found in the gravel pit across from the Kaminista quarry, in the meadow between the pullout and Whitney Pond and on McKay's Folly. It is fairly common on the island.

Notes: Brook saxifrage grows around the North Pacific Rim and east through the Northwest Territories. It was first found in Siberia. It is a favorite of many native peoples in Alaska, who use the leaves for salads. Diomede Islanders reportedly would come to Kotzebue to trade ivory and as an aside, would stuff seal bags full of brook saxifrage leaves and cure them in oil for the winter. The Pennsylvania Dutch evidently used them as salad greens as well. Like mustards, brook saxifrage's leaves are high in vitamins A and C, so were effective in combating scurvy. The species name, *punctata*, is Latin for 'dotted', referring, possibly, to minute dots on the leaves. The accepted species name, *nelsoniana*, is named for David Nelson (mid 1700s), a gardener at Kew and member of Captain Cook's third expedition in the ships *Resolution* and *Discovery*. A subspecies, **heartleaf saxifrage** (***S. nelsoniana ssp. insularis***) is shown on Hultén's map, but was not distinguished by present botanists. It has fleshier leaves with no hairs and no glandular hairs on the flower stalks.

Bract saxifrage

Saxifraga bracteata

Description: Bract saxifrage has smallish flowers (1.5 cm) with 5 white parts. The petals are rounded and the ovary is green. The ends of the stamens are pink to yellow. The flowers are arranged singly or in clusters with leafy bracts right under them. The other stem and basal leaves are very bushy and branched, usually forming a cushion shape. All the leaves are kidney-shaped with 5-7 deep, sometimes pointed, lobes. The stems

are hairy. The plant is about 5-10 cm tall.

Growing Time and Habitat: Bract saxifrage blooms in early June. It grows in nutrient-rich and waste areas all around the edge of the island, such as on the bird cliffs near the harbor and at Ridge Wall, and in the waste area near the gas station. It is common.

Notes: Bract saxifrage grows on rocky cliffs on the islands and along the coasts in the North Pacific Rim and in mountains down into Alberta. It is one of the more abundant plants found on the bird cliffs, along with scurvy grass and northern draba. Tiny cubes of the plant or huge sprawling patches of the plant can be found depending on the habitat.

Unalaska saxifrage, fire-leaf leptarrhena

Saxifraga unalaschcensis, *Leptarrhena pyrolifolia*

Description: Unalaska saxifrage has pinkish-white flowers with dark red, plump follicles. There are 5 petals and a branched cluster of about 5 flowers on top of the stalk. The stalk is red and fuzzy. The stem leaves are very small and alternate. The basal leaves form a rosette. They are shaped like an exploding light bulb and are fleshy with reddish color near the base and shiny green elsewhere. The plant is about 5-15 cm high.

Growing Time and Habitat: Unalaska saxifrage blooms in mid-June. It grows on scoria scrapes around the island such as on Lake Hill, Polovina Hill, Rush Hill and between the pullout and Whitney Pond. It is uncommon on the island, but easy to find in its specific habitat.

Notes: Unalaska saxifrage was lumped into the *Leptarrhena* genus, so now grows not only around the Pacific Rim, but also down the coast and in the mountains as far south as central Oregon. It was first found in Unalaska in the Aleutian Island chain (which is about 200 miles directly south of St. Paul Island). It is definitely one of the more jewel-like flowers on the island as it catches dew in the cup formed by its basal leaves and in its flowers and sparkles ruby-like. This mechanism of catching moisture from dew and fog is very important for these tiny arctic/alpine plants since the ground they grow on is often rocky and dry. Especially on a place like St. Paul Island, which only gets an average of 23 inches of rain per year, the moisture absorbed from dew and fog can make all the difference for a plant. The accepted name means 'slender (*leptos*) male (*arrhen*)' (referring to the thin filaments of the stamens) and 'with pyrola-like leaves (*folia*)' – see p. 118.

Rusty saxifrage *Saxifraga hieracifolia*

Other Common Name: Stiffstem saxifrage

Description: Rusty saxifrage has small, rust-colored flowers. The flowers have 5 parts and are arranged in little bunches starting at the top of the stem and on down. There is one narrow bract below each flower clump, but otherwise the stem is leafless. The stem is reddish and very hairy. The basal leaves are elliptic and pointed with small pricks around the edge. They are long-stalked and can be reddish beneath. The plant generally

grows in small groups of single stems and is about 10-15 cm.
Growing Time and Habitat: Rusty saxifrage blooms in mid-July and grows in moist drainages in meadows and lake edges such as the moist drainage inland from the High Bluffs near the bottom of Rush Hill, and around the edge of the lake inside Crater Hill. It is uncommon and hard to find.
Notes: Rusty saxifrage grows spottily around the Arctic Circle and the mountains, with a disjunctive population in Montana. It is concentrated in northern Siberia. It was first found in the Carpathian Mountains in what is now Hungary. This is a hard flower to find on the island because it is often covered and hidden by dense grasses and sedges. However, I did find it growing in abundance around the lake inside Crater Hill, which was beguiling. The species name, *hieracifolia*, probably means 'hieracium-leaved'. *Hieracium* is a plant genus commonly known as hawkweed.

Bering Sea water carpet

Chrysosplenium wrightii

Description: Bering Sea water carpet is a matted cushion plant which hugs the ground tightly. It has flat-topped, branching clusters of bizarre-looking tiny flowers (5 mm across) which are rusty red to greenish-yellow. The flowers are filled almost entirely with the ovary, with 5 small tongues of petals around the edge. There are bracts right under the flowers, but otherwise the leaves are mostly basal. They spread out along the ground, again forming a carpet. The leaves are roundly kidney-shaped with stiff white hairs and five rounded lobes. They can be very small to medium-sized (1-3 cm across). The plant is about 5 cm tall.

Growing Time and Habitat: Bering Sea water carpet blooms in mid-May, the 3rd earliest flower to bloom on the island. The flowers persist almost the entire summer. It grows on scoria scrapes, often where the soil has blown out and left a mud patch. Specific sites include the scoria scrapes on either side of the road next to the pullout to Whitney Pond, on top of Lake, Polovina and most any Hill on the island. It is common.

Notes: Bering Sea water carpet, also called Wright's golden saxifrage, appropriately, grows in eastern Siberia, on all the Bering Sea Islands, the Aleutian Islands and parts of northern Alaska (including Denali NP) and NW Canada. The shape of the Bering Sea water carpet flowers is thought to promote seed dispersal since they act like splash cups, whereby well-directed raindrops wash the seeds out of the flowers and into the neighboring soil. If the raindrops are large enough, the seeds can be thrown several meters. The common name comes from the fact that the plants of this genus prefer wet habitats and form a ground carpet. The genus name, *Chrysosplenium*, is Greek for 'golden (*chrysos*) spleen (*splen*)' since these plants were thought to have some curative value for the spleen. Another name for this genus is golden saxifrage. The species is named after C. Wright, a member of the North Pacific surveying expedition lead by Ringold and Rodgers in 1853-56.

Kotzebue's or small grass of Parnassus

Parnassia kotzebuei

Description: Kotzebue's grass of Parnassus has one small flower (5 mm across) a top its stemless stalk. The flower has 5 white parts which form a cup. The petals have translucent lines on them. The ovary is round and green. There are 5 narrow, green sepals, a smooth stem and a basal rosette of some 5-10 stalked, small (5 mm long) leaves that are entire and spade-shaped. The plant forms bunches of single stems. It is about 5-7 cm tall.

Growing Time and Habitat: Kotzebue's grass of Parnassus blooms in early July. It grows in wet sandy areas such as Fantasy Wetlands and the Polovina Wetlands. It is rare on the island, but abundant in spots.

Notes: Kotzebue's grass of Parnassus grows all around the North Pacific Rim, across Canada and south to the Colorado Rockies. It was first found in Unalaska in the Aleutian Islands, in the Kotzebue sound and on the Chukchi Peninsula. On St. Paul Island, this plant is deceptive, because it is hard to see. But if you stand by the edge of Fantasy Wetland in mid-July and look hard as you walk into the wet sand, you will suddenly see many, many Kotzebue's grass of Parnassus plants. The genus, *Parnassia*, was named after the mountain in central Greece which was sacred to Apollo and the muses. Evidently, Dioscorides was climbing the 8,060 ft. tall mountain and saw what he thought looked like a grass-like plant and called it grass of Parnassus. The name remained despite it becoming clear later that the plant was not a grass. The species is named after Otto von Kotzebue (1787-1846), who was the master of the ship *Rurik* when it circumnavigated the world.

Rose Family

(Rosaceae)

The rose family is quite large, numbering 3,400 species worldwide. Members include trees, thorny shrubs and herbs. This family is very important economically since it includes the bulk of our fruit trees, namely apple, pear, quince, cherry, plum, prune, peach , apricot, nectarine, almond, raspberry, blackberry, and strawberry. Notable ornaments include, of course, the rose, the mountain-ash, hawthorn and cotoneaster. The flowers of the rose family members have 5 parts and have a hypantheum, a circular ring around the center of the flower which holds the many stamens. There are 9 species of the rose family on St. Paul Island. The key is below.

1a. Flowers white ..... **cloudberry**, p. 99
1b. Flowers pink ..... **nagoonberry**, p. 99-100
1c. Flowers reddish-purple ..... **marsh cinquefoil**, p. 100
1d. Flowers yellow ..... (2)

2a. Flowers less than 1 cm across ..... **sibbaldia**, p. 103
2b. Flowers greater than 1 cm across ..... (3)

3a. Leaves very silky-fuzzy on both sides and white beneath; flowers large (2-3 cm) and bright yellow; several to a stalk; common ..... **villous cinquefoil**, p. 101
3b. Leaves hairy but not silky-fuzzy and leaves light green underneath instead of being white; flowers smaller (1.5 cm across), several to a stalk ..... **arctic cinquefoil**, p. 102
3c. Very similar to (3b) above but only one flower to a stalk ..... **one-flowered cinquefoil**, p. 101
3d. Plant not as above ..... (4)

4a. Leaves pinnate with at least 7 lobes; flowers bright yellow with no notch in the petals; red runners trailing out from plant ..... **beach cinquefoil**, p. 102-3

4b. Flowers small, petals falling quickly, half covered by leafy bracts; basal leaves large, lyrate with large, 3-lobed stem leaves; stem hairy and thick ..... **large-leaf avens**, p. 103-104

4c. Flowers bright yellow and large (3-3.5 cm across); hypantheum prominent like a rose; leaves pinnate with ragged lobes crowded near the tip of the leaf ..... **Ross' avens**, p. 104

Cloudberry

Rubus chamaemorus

Aleut Name and Translation: **Barushkan**, meaning berries

Aleut Use: These berries made good jams and jellies. The jams were very seedy, but were a beautiful light cranberry color. The Aleuts also made cobblers with the berries and a special kind of Russian bread.

Other Common Names: Salmonberry, baked appleberry, *akpik* (Iupiat), ground mulberry

Description: Cloudberry has white flowers with 5 parts. The petals are delicate and fairly large (2.5 cm across). It has green sepals, and 1-3 stem leaves which have 3-5 lobes, are crinkled and deeply veined. There are brown sheaths where the leaves meet the stem. The leaves are about 2-5 cm across. The berries are hard and red when they appear and look just like raspberries, but actually are a soft orangish-yellow when ripe. The plant stands about 7-10 cm tall.

Growing Time and Habitat: Cloudberry blooms in mid-June. The berries begin to appear in late August and don't ripen until early September. It is found in rocky mossberry areas and bogs such as on the upper Kaminista meadows, in the bog below the Kaminista spatter rampart, on the Fox Hill lava flow, and on the edge of Whitney Pond. It is fairly common on the island.

Notes: Cloudberry grows all around the Northern Hemisphere in bogs. It is endangered in New Hampshire and threatened in Minnesota. It was first found in Sweden. Cloudberry is a very good indicator of peaty soil, since it grows there almost exclusively. The flowers are either male or female and not both, which explains why some plants have berries and some don't. In some areas which have frosts late into the spring and early summer (such as St. Paul Island), the flowers may become damaged which will make a poor berry crop. Cloudberries are a favorite fall hiker snack. Many natives mix the berries with oil and sugar and eat this for dessert. The Inupiat mixed cloudberries with crowberries and dock leaves and stored the mix in a cool place for eating in the winter. The leaves were used for smoking and a tincture of the root was used to cure barrenness in women. Yup'ik people drank seedless cloudberry juice for hives. The Scandinavians export a cloudberry liqueur that is quite popular. The genus name, *Rubus*, is Latin for 'red', referring to the color of the fruits in many of the species. The species name, *chamaemorus*, is Latin for 'ground mulberry'.

Nagoonberry *Rubus arcticus*

Aleut Name, Translation and Use: See above.

Other Common Names: Wineberry, arctic raspberry, bramble dewberry

Description: Nagoonberry has bright pink flowers with 5 medium-length, tapering petals and a center that looks like a tightly closed, pink belly button (the petals are about 1.5 cm long). The single flower comes off the

side of the stem on a thin stalk. There are usually 2-5 stem leaves which have two notches that reach halfway down the leaf, dividing it into 3 lobes. The lobes have fine serrations. Where the long stalked leaves meet the stem are little stipules. The lower part of the stalk is often woody. The berries are bright red, hard at first and then soft when ripe. It resembles a small raspberry. The plant is ~ 10cm.

Growing Time and Habitat: Nagoonberry blooms in early July and the fruit ripens (if at all) in September. It grows in rocky mossberry areas such as the Fox Hill lava flow and along the High Bluffs. It is uncommon on the island.

Notes: Nagoonberry grows circumboreally from NW Canada west to Scandinavia. Three subspecies overlap in the Bering Sea area, and though the St. Paul plants resemble the ***stellatus*** subspecies, they are probably a hybrid swarm of **ssp. *stellatus*** and **ssp. *arcticus***. The nagoonberries on the island probably don't produce berries every year, similar to the cloudberries, since frost and minimal sun shortens the growing season too much. When they are present,nagoonberries are said to be much softer and sweeter after a frost. In fact, Carolus Linnaeus, the father of scientific names, claimed that nagoonberries were the choicest of all the *Rubus* berries, both in taste and smell. In Russian, the name (княженика) means 'berry of kings' . The flowers of nagoonberry can be added to salads and are said to be quite sweet tasting. In the 1970s, an Alaskan preserve company sold nagoonberries for $45 a pint! Any *Rubus* genus leaf can be dried and made into a tea. This tea is rich in calcium, iron, magnesium and phosphorus and thus is helpful for many female specific ailments. Additionally, the leaves contain fragrine, a substance which helps tone reproductive organs. The origin of the common name, nagoonberry, comes from the Tlingit, neigóon.

Marsh cinquefoil

Potentilla palustris, Comarum palustre

Description: The flowers of marsh cinquefoil are brownish-purple and smallish (1.5 cm across), usually not exceeding the sepals. They have 5 parts and large centers. The stem leaves start in miniature directly under the flowers and are usually completely divided into 3 serrated divisions. The lower leaves have 5-7 divisions and are larger (6 cm across). There tends to be many separate lower leaves around each flowering stalk, giving the appearance of a bushy plant. The stalks tend to be 20 cm high.

Growing Time and Habitat: Marsh cinquefoil blooms in late July. It grows in wet areas and bogs including the Antone saltmarsh, on the edge of Cup Pond, and Sheep lake. It is rare on the island, but abundant it those specific sites.

Notes: Marsh cinquefoil grows all around the northern part of the Northern Hemisphere. It is unique among the cinquefoils – which is clearly why it got moved into a new genus - with its strange brownish flowers and marsh habitat. The color of the flowers does have a purpose, since the flower also emits a rotten-meat odor which attracts carrion-feeding insects as pollinators. The Siberian Eskimos and other arctic natives used dried

marsh cinquefoil leaves to make a tea to treat stomach cramps and dysentery (a lower intestinal tract infection). The species name, *palustris*, means 'of the the marshes'.

Villous cinquefoil

Potentilla villosa

Aleut Name and Translation:
Anexrilooksluksi, meaning medicine for asthma

Aleut Use: Mary B.'s father, who suffered from asthma, would dig up the root of this plant on Tolstoi Bluffs to make into a tea to help his asthma.

Description: Villous cinquefoil has large, bright yellow flowers (2-3 cm across). The petals have a notch in the top. The flower stalk is branched and there are 2-5 flowers per stem. The flowers just exceed the basal rosette of leaves. The basal leaves are divided into 3 completely separate lobes (like clover leaves) with about 10 serrations. The leaves and stem are very silky-hairy and the underside of the leaves are white. The basal rosette generally forms a little clump with 10-20 flowers each. The fruits are small and dry and resemble a fleshless strawberry. The plant is about 5-10 cm tall.

Growing Time and Habitat: Villous cinquefoil starts blooming in early June and continues for several months. It grows in dry soil including scoria and sand such as all over SW Point, around East Landing, and at North Point. It is common and abundant on the island.

Notes: Villous cinquefoil grows on the eastern side of the North Pacific Rim and down into the mountains to Oregon. There are over 300 species of *Potentilla* world-wide. It is a very confusing and difficult genus to identify. *Potentillas* were long known to be powerful astringent medicinal plants. Native people boiled the whole plant to aid in 'tightening tissues', reducing inflammations of the tonsils and gums, curing dysentery, fevers and diarrhea. Distilled cinquefoil water was used as a facial wash for oily skin, sunburn, removing freckles and pimples. The common name, cinquefoil, is French for 'five finger', referring to the number of leaf divisions (though there aren't always five). Five finger is another common name that is occasionally used. The genus name, *Potentilla* is Latin for 'powerful', 'strong', or 'potent' (*potens*), referring to its medicinal prowess. The species name, *villous*, means 'silky hairy'.

One-flowered cinquefoil

Potentilla uniflora

Photo courtesy of flora.dempstercountry.org, c. Yukon

Description: As the name implies, one-flowered cinquefoil has but one flower per stalk. The flowers are largish (2-3 cm across), and yellow with 5 notched petals. The leaves are completely divided into 3 divisions with coarse serrations, and are generally smallish. They have silky-fuzzy hairs. The basal leaves form leafy tufts. The plant grows to be 5 cm high.

Notes: I mistook arctic cinquefoil (*P. hyparctica*) for this species and it was too late to determine if any other of the plants were actually one-flowered cinquefoil by the time I realized my mistake. Thus, I imagine that there are some one-flowered cinquefoils out there, but I cannot confirm it. Essentially, if there are any yellow-flowered *Potentillas* with only one flower per stalk, and fuzzy hairs on the leaves, it should be this species. One-flowered cinquefoil generally grows on hills in rocky areas and are smaller than villous cinquefoil. It could potentially be found on some of the higher hills. Hultén lists it in his report, but Macoun does not, so there is some question whether it is on the island at all. It grows from NE Siberia all the way down through the Rocky Mountains.

Arctic cinquefoil

Potentilla hyparctica, P. nana

Description: Arctic cinquefoil has large, bright yellow flowers (2-3 cm across). The petals have a notch in the top. The flower stalk is branched and there are 2-5 flowers per stem. The flowers just exceed the basal rosette of leaves. The basal leaves are divided into 3 completely separate lobes with about 7-8 serrations. The leaves and stem are hairy and the underside of the leaves are pale green. The basal rosette generally forms a little clump with about 10 flowers each. The fruits are small and dry and resemble a fleshless strawberry. The plant is about 5-10 cm tall.

Growing Time and Habitat: Arctic cinquefoil blooms in late June in sandy and rocky areas around the island, such as East Landing, SW Point and Rush Hill. It is rare on the island.

Notes: Arctic cinquefoil grows spottily around the Arctic Circle, across Canada and south to the northern Rockies. It was first found in the St. Elsmere Mountains, which are very close to the North Pole. Basically, any yellow-flowered *Potentilla* which does not have fuzzy-silky hairs on the leaves and has more than one flower per stalk is high arctic cinquefoil. The plants on St. Paul are more dwarfed then those on the mainland, where they can grow quite a bit larger. Leaves of potentilla plants were brewed into teas and poured over the backs of horses to prevent saddle sores. Leaves added to hikers' shoes have reportedly been useful in reducing blisters. The species name, *hyparctica*, means 'above arctic' in Greek. The newly accepted species name, *nana*, means 'dwarf' in Greek.

Beach cinquefoil

Potentilla egedii, Argentina egedii

Other Common Names:
Silverweed, Pacific silverweed, wild sweet potato, moor grass, goose tansy

Description: Beach cinquefoil has largish yellow flowers (2.5 cm across) with 5 un-notched petals. They grow singly off of red runners which spread spider-like from the central basal rosette. The leaves are pinnate and divided into 7 or more leaflets. The leaflets have medium-coarse serrations and are whitish underneath. Within the rosette, the leaves grow to be about 5 cm in length, and are often quite tangled-looking. In taller vegetation, separate leaves can grow to be 20-30 cm long. The flowering basal rosette grows to be about 5 cm tall.

Growing Time and Habitat: Beach cinquefoil blooms in late June. It grows on sandy soil including East Landing, the town swamp (where the longest leaf length was found), Salt Lagoon, and North Point beach. It is uncommon on the island, but easy to find in its specific habitat.

Notes: Beach cinquefoil has several subspecies. These subspecies grow spottily on shores from the arctic south to southern California. It is threatened in New York. There are probably two subspecies on St. Paul

Island, **ssp. *groenlandica*** and **ssp *egedii*** (formerly ***grandis***). The first subspecies has gray, finely fuzzy hairs on the underside of the leaves and the second has huge, 30 cm long leaves. Beach cinquefoil was an important food for native people, especially in Canada. In fact they would hold beach cinquefoil parties. Chiefs would claim certain beach cinquefoil patches. They mostly dug up the older roots and the runners, which they said tasted like potatoes. Commoners were only allowed to dig the small, curly roots, since the large, juicy roots were reserved for the chiefs. Festivals were held where the roots were eaten by the men, with leftovers being brought back to the women (who had originally dug the roots). Roots were a valued wedding present. The juice of the roots was used as a poultice and as an aid in cooling inflamed eyes. The roots contain tannins, so some people used them to tan leather. Geese are fond of this plant, hence one of the common names 'goose tansy'. The species, *egedii*, is named for Hans Egede (1686-1758), a missionary from Greenland.

Sibbaldia

Sibbaldia procumbens

Description: The flowers of sibbaldia are very tiny and hard to see. They have 5 yellow petals which are spaced apart, making them virtually disappear into the green sepals. The entire flower is only about 5 mm across. There are about 5 flowers in a leafy terminal cluster which can get over-topped by basal leaves. The stems and leaves are hairy. All the leaves are completely divided into 3 lobes which are roundly wedge-shaped and have 3 or 4 serrations. The plant is 5 cm tall.

Growing Time and Habitat: Sibbaldia blooms in mid-July. It grows in sandy margins and edges such as along the road leading to North Point and on an old road within the Kaminista quarry. It is rare on the island.

Notes: Sibbaldia, also called creeping sibbaldia, grows spottily in mountains and tundra in the Northern Hemisphere. It is endangered in New Hampshire. It was first found in Lapland, Switzerland and Scotland. It is another species which grows much taller on the mainland. The minute size of the flower distinguishes it right away from the *Potentilla* genus. The genus is named in dedication to Sir Robert Sibbald (1641-1722), first professor of medicine at Edinburgh. The species name, ***procumbens***, means 'lying on the ground'.

Large-leaf avens

Geum macrophyllum

Description: Large-leaf avens has smallish yellow flowers with 5 rounded petals that are surrounded by leafy bracts. There are 3-5 flowers in a terminal branched cluster. The stem is stout and hairy and can be reddish. The stem leaves clasp the stem and are large with 3 cloud-shaped lobes with fine serrations and deep veins. The basal leaves are lyrate with a large top lobe and smaller lower lobes. The seed-heads resemble red-haired mop-tops and are made up of many small, hooked seeds. The plant is about 20-30 cm tall.

Growing Time and Habitat: Large-leaf avens blooming time was not recorded; its seed head was out in mid-August. It probably bloomed in July. It was only found on the edge of the High Bluffs about half way up.

Notes: Large-leaf avens grows in NE and NW North America. This species had not been recorded for the

island, though it is found on St. George Island. So one day in August on an Elderhostel hike, I saw its seed head and mistook it for the seed head of yellow anemone. I blithely took its photo, and later, a botanist on the mainland pointed out my mistake. This means that a bird or something must have carried its seed over and started this tiny population of plants. The hooked seeds would have been good at hitching a ride. I am still confused why I didn't see the flowers earlier since it was growing along a common hiking path, but such is the life of a botanist on St. Paul Island. Medicinally, this plant was important for native women during pregnancy. The Quileute and Klallam women chewed the leaves during labor, since they noticed the plant bloomed during the time the seals gave birth to their pups (too bad I didn't notice if this was true on St. Paul Island). It was also used medicinally as an eyewash, for treating rheumatism, stomach pains, and was made into poultices for boils. The genus name, *Geum*, was given by Pliny and has no translation. The species name means 'large-leaved'.

Ross' avens

Geum rossii, (Acomastylis rossii)

Description: Ross' avens has large, yellow rose-like flowers (2-4 cm across) with 5 rounded petals and a prominent hypantheum. There is one to several flowers per stalk. The stems are slightly hairy with only a few small, sharply-pointed stem leaves. The basal leaves are pinnate with many narrow, pointed divisions which crowd into each other like a badly pulled window shade. The plants are very leafy and form clumps with about 3 flowers each. The plants grow to be about 10 cm tall.

Growing Time and Habitat: Ross' avens blooms in early June. It grows in meadows and scoria areas on hillsides such as the east flank of Polovina Hill, on top of the nob overlooking the Kaminista quarry, and on Bogoslov Hill. It is uncommon on the island, but easily found in its habitat.

Notes: Ross' avens grows spottily throughout the North Pacific Rim, some spots in the Canadian Rockies and on some arctic islands. The common name for the genus, avens, comes from the Greek word for 'antidote' since these plants were thought to be able to ward off 'the devil and evil spirits, venomous serpents and wild beasts.' The species was named after Sir James Clark Ross (1800-1862), an Arctic and Antarctic explorer.

Pea Family

(Fabaceae)

The pea or bean family is the third largest plant family in the world, after the aster and orchid families, with about 13,000 species worldwide. The pea family is one of the most economically important families, probably second only to the grass family. It gives us peanuts, lentils, soybeans, green beans, kidney beans, garbanzo beans, snow peas, split peas, etc. Since pea family members have the ability to fix their own nitrogen, they are

used regularly as cover crops, specific species being clover, alfalfa, sweet clover and vetch. Species in over 150 genera are cultivated as ornamentals, including wisteria, sweet pea, lupine, redbud, mimosa, and acacia. Pea family members are recognizable by their distinctive flowers. They are irregular and are composed of 5 petals. The upper petal is called the banner, the 2 side petals are called the wings and the lower two petals, which are usually fused over the reproductive parts, form the keel. There are 5 fused sepals and 10 stamens. The fruits are the all familiar pea pods. There are 3 species of pea on the island; one which is probably the most dominant of the showy wildflowers, one which is only found on sandy seashores, and one which is an introduced weed. The key follows.

1a. Plants with many pea flowers in a conical raceme; leaves palmate ..... **Nootka lupine**, p. 105
1b. Plants with single, large pea flowers in clusters; leaves pinnate and trailing ..... **beach pea**, p. 107
1c. Plants with many tiny pea flowers in a sphere; leaves divided into 3 leaflets ..... **white clover**, p. 106

Nootka lupine

Lupinus nootkatensis

Aleut Name and Translation: **Chidgaayu-lix** (chil-rye-yoo-then), meaning bluish or blue flower

Aleut Use: The Aleuts dug up the roots when the buds were just emerging, washed and sliced them and ate them raw with a dip composed of homemade mayonnaise.

Description: Nootka lupine is an elongated cluster of many, medium-sized pea flowers which vary in color from deep purple to blue to yellow to white. The color variation is truly astounding considering it is a wild plant. There are many color mixtures, including one that is red, white and blue. The flowers are irregularly shaped, with 5 parts; two forming a keel, two forming wings, and one forming a flag over top the other four. The clusters are usually 10-15 cm tall. The stems are thick and very fuzzy. The leaves are on thin branches and are basal. They are palmate, completely divided mostly into 8 sections resembling an umbrella. The fruits are fuzzy pea pods. The plants can reach 50 cm.

Growing Time and Habitat: Nootka lupine starts in mid-May as a tiny rosette of miniature, palmate leaves, which often bewilder wanderers wondering about their identity. However, the dried flower stalks of last year's lupine are usually around to alert you. The flowers start to bloom in early June, eventually transforming the island into an explosion of lush color, definitely one of the most dramatic events of the summer. The explosion is relatively short-lived, with flowers disappearing by early July. The pods mature in August. Lupine grows all through island meadows. Don't worry, you can't miss it.

Notes: Nootka lupine is a coastal species, growing along the BC and Alaska coast and the Aleutian chain. Its seeds are poisonous, since they cause the stomach and intestines to inflame. The roots, however, are fair game, not only for the Aleut people, but also for their reindeer. The reindeer herd, having depleted most of the lichens on the island (their staple winter food elsewhere), have turned to lupine roots for their winter subsistence, deftly digging them out of the frozen ground and creating much pitting of the tundra. Evidently, on the mainland, grizzly bears enjoy the lupine roots as well. The members of the pea family have the ability to fix their own nitrogen from airborn sources so do not rely on its being in the soil. Therefore, they

generally grow only in nutrient deficient areas. On St. Paul Island you can see this especially on Hutchinson Hill, where lupine covers the southern slope and then suddenly stops on top of the hill right where the soil affected by seal enrichment begins. The lupine on the island seems to be especially fuzzy, which again is a strategy of dry climate plants, enabling them to capture as much moisture as possible. Most of the moisture in the summer comes as fog, so being fuzzy is an especially good idea, and creates a lovely jeweled effect for photographers. The name Nootka is after the area in southeast Alaska where this lupine was first described. Lupine, the genus and common name, has several possible derivations. One is that it comes from *lupus* which means wolf, because it was 'a pea only fit for wolves', while another possibility is that it is derived from the Greek word *lopos*, meaning 'a husk' or *lepo*, 'a hull' or 'peel' in reference to the pea pods.

White clover*

Trifolium repens

Description: The many tiny pea flowers are white and are arranged in a flat-topped sphere, 3 cm in diameter. The leaves are clover-like and are divided into 3 rounded lobes (2.5 cm across) with white arcs. They are long stalked (5-15 cm) and grow spaced a part on creeping stems. There are no stem leaves. The fruits are 1-2 seeded small pea pods. The plants grow to be ~15 cm.

Growing Time and Habitat: White clover is the latest flower to bloom on the island in mid to late-August. It only grows in the old part of town, in the yards of houses where it is protected from the west wind. I actually found it in just one yard. Fortunately, then, it is rare on the island.

Notes: White clover, also called Dutch clover, was introduced from Europe, escaped from cultivation and has spread over much of the world. It was first found in Italy, southern France, and Switzerland. It is common lawn weed in much of the temperate world. It is interesting to see weeds, which can be quite noxious in other areas, huddle miserably in the most protected spots on St. Paul Island. Obviously, introduced plants have to be of the hardiest type to survive the harsh weather conditions and very few, luckily, have passed muster, which is a good thing for the integrity of the native plant community. White clover is an excellent forage plant for animals since it is high in protein. It is often used as a cover crop since clovers fix their own nitrogen and thus enrich the soil. Children the world over enjoy sucking the sweet nectar from the flowers. This nectar is transformed by bees with long tongues into the popular clover honey. People have eaten it in times of food shortage. In Ireland, dried seeds and flowers were mashed into flour for bread making. However, clovers are hard to digest. Clovers are used medicinally for skin problems and for purifying the blood. Red clover tea is known to be especially high in calcium. The genus name, *Trifolium*, is Latin for 'three (*tri*) leaves (*folium*)', alluding to the number of leaflets. The species name, *repens*, is Latin for 'creeping', referring to the creeping stems.

Beach pea

Lathyrus maritimus, L. japonicus var. *maritimus*

Aleut Name: **Sweet Pea,** because of its pleasant fragrance

Description: Beach pea has purple to magenta to white flowers which have the typical garden sweet pea shape. The flower is irregular, having an upright (usually) dark purple banner, two (usually) whitish fused wings and a (usually) whitish keel under the wings (there is much variation in the colors and combinations). The flowers are about 1.5 cm long by 2 cm tall. They have a green, toothed calyx and grow in clusters of about 3-6 heads. The stems are trailing and viny, branching off in all directions. The leaves are pinnately compound with forked, curling tendrils coming off the ends. The leaflets are entire and elliptic. There are arrow-shaped, clasping stipules where the leaves meet with the stem. The stems are somewhat woody at their base. The stems and leaves form large patches. The fruit is a smooth, reddish pea pod about 5 cm long. Generally, the beach pea mat reaches about 15 cm tall.

Growing Time and Habitat: Beach pea blooms in early July. The pods come out in early August. It grows in sandy areas along the shore, including the dunes behind Lukanin Beach, around Fantasy Wetlands and on Tolstoi Bluffs. It is common on the island, and abundant along the shore.

Notes: There is possibly another subspecies on the Island: **Downy beach pea (*L. japonicus* var. *pubescens*).** Downy beach pea has fuzzy stems with no spots and beach pea only short-hairy stems with dark brown spots. Beach pea grows on sandy shores around the North Pacific Rim, in the central and NE US and in Europe, where it was first found. It is endangered in Illinois, Indiana, and threatened in Ohio, Pennsylvania, and Vermont. It has such a wide range because its seeds are able to float in seawater for up to 5 years and still be viable. Waves crush sand onto the pods, helping to open them and start the germination process. On St. Paul Island, the patches of beach pea emit a wonderful fragrance which is well worth experiencing. White blossomed beach peas are occasionally found. The young shoots and pods have been eaten by a few natives, and, even though they are high in vitamins A and B and protein, it is unwise to eat them even as a survival food since most contain toxins which can accumulate to poison you. The poisoning is called lathyrism and can cause partial or total irreversible paralysis. The *lathyrus* genus is large with more than 100 species in the north temperate region alone. Some species have been cultivated for human or domesticated animal consumption as well as for garden ornamentals (and at least one of those escaped and is on the loose as a noxious weed). The Haida natives of the central B.C. coast called beach pea 'raven's canoe' because of the shape of the pea pods, which there were black when ripe. The genus name, *lathyrus*, comes from the Greek *thouros*, which means 'something exciting', in reference to the belief that the peas have medicinal value, and indeed, the leaves are used in Chinese traditional medicine. The species name, *maritimus*, is, Latin for 'of the sea'.

Geranium Family

(Geraniaceae)

The geranium family is medium-sized with 780 members which grow all over the world, but are mostly concentrated in the north temperate zone and South Africa. Many geranium species are cultivated and used as ornamental plants. The flowers have 5 parts with 5, 10 or 15 stamens. The ovary is superior and is shaped like a crane's bill sticking out of the middle of the flower. The "bill" splits open at maturity and the seeds are explosively ejected. There is one species on St. Paul Island.

Wild geranium

Geranium erlanthum

Other Common Name: Crane's bill, woolly geranium

Description: The flowers are lavender with dark purple lines and beak-like centers. They are 3-4 cm wide with 5 rounded petals and hairy sepals beneath the flowers. There are 1-5 flowers clustered on top of stalk. The leaves are palmately-lobed into five ragged, serrated segments and are 7-10 cm wide. The upper stem leaves are opposite and stalkless. The lower stem and basal leaves are on long, thin stalks. The fruits are long, thin capsules (2 cm long) with one explosively ejected seed. They reach 25-40 cm tall and grow in large, leafy patches.

Growing Time and Habitat: Wild geranium blooms in mid-July. It grows only on the banks of Whitney Pond in a thick, robust patch.

Notes: Wild geranium grows around the Pacific Rim from northern BC around to Japan. It was first found in Kamchatka and NW North America. On mainland Alaska, wild geranium grows on the edges of moist woods, in meadows and on up beyond treeline. It is fascinating to find wild geranium in so particular a spot on St. Paul Island as the protected, moist microhabitat of Whitney Pond. This microhabitat harbors at least 2 other species which grow nowhere else on the island. I have wondered what phenomenon might have caused this plant to grow only in this single location. Perhaps the seeds are flown to the island in great numbers from migrating birds, but can only germinate in that one spot. Or perhaps the plant used to be more abundant in the past, but weather changes forced its population to shrink. Or perhaps someone brought geranium seeds to the island and planted some there, hoping to start a garden. There are endless possibilities and we can only conjecture as to the reason, but can certainly be delighted in the plants' existence on the island. The flowers and leaves of wild geranium are edible, but not very tasty. The Aleuts of the Aleutian chain boiled wild geranium leaves to use as a gargle for sore throats. The root is an astringent, containing tannic and gallic acid and so is good for stopping bleeding (it was used for the wounded in the Civil War), treating stomach ulcers, diarrhea and dysentery (a nasty disease of the lower intestine). The genus name, *Geranium*, is Greek for crane (*geranos*), since the seed capsule resembles a crane's bill. The species name, *erianthum*, is Greek for 'woolly (*erion*) flower (*anthos*)', referring to the hairiness at the base of the petals and on the sepals.

Water-Starwort Family

(Callitrichaceae)

The water-starwort family is very small, having only 25 species. These grow all over the world. The members are all aquatic plants with tiny, nondescript, uni-sexual flowers, and floating or submerged leaves. There is one species on St. Paul Island.

Spring water-starwort

Callitriche verna, C. palustris

Description: The flowers are tiny (1 mm long), green, and round, and are located in the axils of the leaves. They have a split down the middle. The most evident part of the plant is the bunch of star-shaped leaves which float on top of the water. They are 10 x 3 mm in size. The lower submerged leaves are opposite, small (5 x 1 mm) and spatula-shaped. The very thin stems are rooted in mud at the bottom of shallow water or are free floating. There are many single stems in green starry mats as well as single stems floating alone. Their height is about 10 cm.

Growing Time and Habitat: Spring water-starwort blooms in mid-August. It was first found in 1998 growing on the edge of Kittiwake Lake.

Notes: Spring water-starwort grows in most of the temperate Northern Hemisphere as well as parts of South America, Australia and New Zealand. It was first found in Sweden. Interestingly, the range is very limited in the Bering Sea area, growing only on the edge of mainland Alaska and the Chukchi Peninsula. So it is curious that it was suddenly found on St. Paul Island in the summer of 1998, where it has never been found before. It is another plant that could easily have been brought in by migrating birds. Kittiwake Lake is protected and stays decently full throughout the entire summer, so it attracts birds and provides good habitat conditions for more sensitive plants to take hold. Unlike some plants, which have hints of basal leaves from early spring before finally blooming later in the summer, spring water-starwort appeared suddenly with no warning in August. Another factor which may have contributed to the establishment of this plant at Kittiwake Lake is the high use of the lake by the reindeer. I am sure their frequent visits greatly enhanced the level of nitrogen and other nutrients, perhaps just enough so this plant could take hold. The members of the *Callitriche* genus are the only flowering plants for which scientists have found three distinct pollination systems. These plants are pollinated through the air, on the surface of the water and under the water. The seeds have a waxy coating which makes them quite good at being dispersed by water currents (and perhaps contribute to the longevity and thus the establishment chances of seeds brought in by birds). The genus name, *Callitriche*, is Greek for 'beautiful (*callos*) hair (*thrix*)' referring to the plant's delicately thin stems. The species name, *verna*, is Latin for 'spring' (though on St. Paul it should really be called 'late summer water-starwort').

Violet Family

(Violaceae)

The violet family is medium-sized with 850 species. These species grow on all the continents of the world. Most are herbs but some are tropical trees. The genus *Viola* is the most well-known since over 120 of them are cultivated horticulturally, including the popular pansy (the word 'pansy' is derived from the French *pensee*, meaning 'a thought' or 'remembrance', originally given by Proust). Violets have five irregular petals. The lowest one has a spur which protrudes out the back. The leaves are usually heart-shaped. There are two species of violet on St. Paul Island. The key follows.

1a. Flowers purple, 2.5 cm across; stalk with stem leaves ..... **Aleutian violet**, p. 109-10

1b. Flowers pale lilac, 1.5 cm across; no stem leaves on stalk ..... **marsh violet**, p. 110

Aleutian or Alaska violet

Viola langsdorffii

Aleut Name: **Violetaden**, meaning small violet, or **chilxrayooden**, = blue flower

Aleut Use: The Aleuts picked the violets for bouquets, and sometimes pressed the flowers between the pages of the Sears catalog to use as decoration in the house.

Description: Aleutian violet has purple flowers with five irregular petals. The top two are opposite and stick up. The middle two are also opposite and hang down a bit like a mustache. The lowest one is like a goatee and has the darkest striping. There is a group of yellow reproductive parts below some fuzzy hairs where the petals meet. There is a small spur out the back of the flower. The flowers are about 2.5 cm across with one per stem. The stem is smooth and has opposite stem leaves with jagged stipules. The leaves are heart-shaped with a blunted end and broad space where the stem meets the leaf. There are rounded serrations. Basal

leaves can grow from the flowering stem or separately close to the flowering stem. The plant is about 10 cm.

Growing Time and Habitat: Aleutian violet blooms in early June and is found in meadows all over the island such as the meadows around the Barabaras at Polovina Rookery, below Telegraph Hill, around the pullout to Kittiwake Lake and across from Antone Lake. It is common and abundant on the island.

Notes: Aleutian violet grows in a band from the Kamchatka Peninsula east across the Aleutian Islands and down along the NW coast to California. Violets have an elaborate pollination system. First, all the darker lines in the petals act as guides, shuttling the insects towards the nectar. The insect is then forced in through the opening in the middle, alternately capturing pollen on its back and then being brushed with pollen as it struggles to suck the nectar from the spur. Bumblebees go for nectar in short-spurred violets (such as this one) and butterflies attempt to collect nectar in long-spurred violets (which may help to explain why there are no butterflies on St. Paul Island). Violet leaves, stems and flowers are edible, especially the young leaves, which are very tasty in salads. Two leaves are said to fulfill the daily requirement for vitamin C. The fruits, seeds and roots are poisonous. Violets have been added to vinegars, made into wines (which were popular in ancient Rome), candied for cake decorations, made into salves for cuts, brewed into teas for constipation and creamed into lotions for skin care. The Celts infused violets in fresh goats' milk to use as a beauty wash for the skin. The genus name, *Viola*, is the Latin name for the Greek nymph Io. For some odd reason, Zeus changed her into a cow and made her tears come out as violets. The species is named for Georg Heinrich von Langsdorff, (late 1700s - early 1800s) a Russian consul-general to Rio de Janeiro who accompanied Krusenstern on the circumnavigation of the globe in the ships *Nadeschda* and *Neva*.

Marsh violet

Viola epipsila* ssp. *repens

Aleut Name and Use: See above.

Other Common Name:

Dwarf marsh violet

Description: Marsh violet has pale lilac-colored flowers with five irregular petals. The top two are opposite and stick up and curl back. The middle two are also opposite and hang down a bit like a mustache. The lowest one is like a goatee and has the darkest striping. There is a group of yellow reproductive parts where the petals meet. There is a small spur out the back of the flower. The flowers are about 1.5 cm across with one per stem. The stem is smooth and has no stem leaves. The basal leaves are heart-shaped and shiny with small serrations. Basal leaves can grow from the flowering stem or separately close to the flowering stem. The plant stands about 5-7 cm high.

Growing Time and Habitat: Marsh violet first blooms in early June in wettish meadows such as the one between North Point and North Hill, the meadows in from the High Bluffs leading to Rush Hill, and around a small pond on the west flank of the Kaminista Quarry. It is not nearly as common as Aleutian violet on the island, and is, in fact, uncommon to find.

Notes: Marsh violet grows in boreal forests and the arctic around most of the globe. It was first found in Baikal and Dahuria in SE Siberia. The first showy flowers of violets often don't produce seed, but later in the summer, green bud-like flowers appear near the surface of the soil which are self-pollinated and do produce seed. These types of flowers are referred to as cleistogamous. The seeds are shot explosively from the flower in an attempt at far-flung dispersal. Dispersal is also aided by the fact that many violet seeds excrete oily bodies called elaiosomes, which attract ants who take the seeds to their hills. The Dena'ina Athapaskans burn the roots of marsh violet to ward off disease. Other native people thought that if violets bloomed in autumn, a death or epidemic would occur. Some wore violets as a neck wreath to prevent drunkenness. Violets were used as laxatives for children. The species name, *epipsila*, is Greek for 'upon bareness' (I am not sure what that refers to) and the subspecies name, *repens*, means creeping, since the underground roots do just that.

Evening Primrose Family
(Onagraceae)

The evening primrose family is fairly small worldwide with 650 species. Its distribution is mostly temperate and subtropical. It has many members which are cultivated for garden ornamentals, the most notable being Fuchsia (and its cultivars) and evening primrose. The family gets its name from the fact that certain species become fragrant in the evening to attract evening-active pollinators (most notably moths). The key characteristics of this family are the 4 petals, 4 sepals, 4-8 stamens and 1 inferior ovary. The fruits for many of the species are long, thin pods. There are 3 species on St. Paul Island. The key follows.

1a. Plant over a meter tall; leaves 10+ cm long; flowers never opening ..... **fireweed**, p. 111-12
1b. Plant shorter ..... (2)

2a. Stem leaves rounded, 1 cm long; stems short, 10 cm tall; green shoots at base ..... **alpine willowherb**, p. 112
2b. Stem leaves pointed, toothed and long stalked, 4 cm long; stems 20+cm tall ... **Bering willowherb**, p. 112-3

Fireweed

Epilobium angustifolium* ssp. *macrophyllum*, *Chamerion angustifolium* ssp. *circumvagum

Description: The flowers of fireweed have yet to open on the island. They only get to the bud stage, which are pink, and are arranged in terminal pyramids. The leaves are basically alternate, are large, long, lance-shaped, short-stalked, and are 10-15 x 2-4 cm with prominent veins. The plants reach 1.5 meters and usually grow in thick stands of stout, leafy stems.

Growing Time and Habitat: Fireweed begins as small, stalked bunches of reddish leaves that resemble anemic feather dusters, and look very different from the mature plant. The flowers never bloom on the island, but the buds do come out in late-August. They wither and die before they are able to flower. Fireweed grows on moist hillsides in thick vegetation, such as on the north side of the Papishka swamp next to Icehouse Lake, on the east flank of Tolstoi Bluffs, and on the way to Bogoslov Hill from the rise in the road across from Tolstoi-Zapadni beach. It is relatively rare on the island.

Notes: This subspecies of fireweed grows all over the Northern Hemisphere and slightly farther south than the parent species. It was first found in Alaska and the Magdalene Islands. On mainland Alaska, it grows abundantly along roads. There the flowers come out properly in a brilliant display of magenta, 4-petaled flowers in a pyramid-shape. It is the floral emblem of the Yukon Territory. Macoun writes that fireweed was 'not noted until 1897, when plants were found in several places on St. Paul Island. It is doubtful if it ever matures its seed there, as the only specimen seen in bloom was collected by Mr. Kincaid September 1, very soon after which date all plants are frozen'. So this plant is another in the group whose seed was probably brought to the island by birds and got established, but just barely, and is only surviving through vegetative stands, and not by reproduction. It is interesting that these stands continue to persist, despite not being able to flower. However, this plant is known to survive harsh conditions by spreading with rhizomes. Then, when a fire comes through or the canopy opens and flushes it with nutrients or light, it bursts vigorously forth. Unfortunately for the plant, this probably will not happen on St. Paul Island. It would be nice to know if these patches are growing or shrinking. The stems certainly get as tall and robust as any plant on the island. The mainland species of fireweed was very important to many native groups. The young shoots are tender and are

often eaten in salads, though some can be bitter. The mature pith is also eaten. Fireweed is high in vitamin A and C and makes good survival food since the plant often grows in comparatively barren habitats, such as gravel bars and burned over areas. Fireweed tea was made by Russian peasants and was called *kaporte*. Fireweed was used as a remedy for such things as constipation, upset stomachs, coughs, asthma, spasms, insects bites, and boils. The dried stems were used as a talc to prevent skin chapping in the winter, was rubbed on clothing as waterproofing and was made into cord. The fluff of the seed pods was woven with mountain goat hair to make cloth, blankets and to stuff mattresses. The fluff was also used by trappers as tinder to start fires. The nectar of the flowers makes an excellent honey. Fireweed is so named because it often is the first plant to grow back in a burned area. The new genus name, *Chamerion*, is Greek for "dwarf (*chamai*) oleander (*nerion*)". Oleander is a highly poisonous bushy ornamental of warmer climates which indeed resembles fireweed. The species name, *angustifolium*, is Latin for 'narrow-leaved', and the old subspecies name, *macrophyllum*, is Greek for 'large-leaved'. The new subspecies name, when flipped, translates as "wandering (*vagum*) around (*circum*)". It is not clear what this refers to, but could have to do with this subspecies' distribution.

Alpine willowherb

Epilobium anagallidifolium

Description: The flowers are lavender, with 4 notched petals which rarely open. They are 5 mm across and there are 2 on top of the stem. The leaves are opposite and stalkless. There are up to 4 sets on the stem which are1-1.5 cm long, oval, entire or wavy-edged, and often reddish. The fruits are narrow, thin pods (1-2 cm long) which elongate with the flowers on top. The stems are thin and straight. Miniature green leafy shoots often grow from the base.The plant's10cm.

Similar Species: **Bering willowherb** is much taller, also with pointed leaves, but with dead leaves at base.

Growing Time and Habitat: Alpine willowherb blooms in mid-July. It grows in marshy areas such as Antone saltmarsh. Interestingly, this was the only place I found it, and Macoun reports that it is 'rather rare with *Gentiana tenella* on bare spots on low hills'. *Gentiana tenella*, or slender gentian (p. 127) is a species I never found on the island, so perhaps the two are out there somewhere avoiding contact. They are both certainly small enough to go undetected, especially if their primary habitat is the great St. Paul Island interior.

Notes: Alpine willowherb, also called pimpernel willowherb, grows spottily around the Arctic Circle and down through the mountains. It is usually found in moist or rocky spots, often above treeline. Since it is so small, it is often overlooked, but is relatively common in much of its range. The species name, *anagallidifolium*, is Latin meaning 'with leaves like *Anagallis*'. The members of the *Anagallis* genus are known as pimpernels (hence one of the common names) and are a weed found throughout the Northern Hemisphere. They were made famous by the play/adventure story written by Baroness Emmuska Orczy called *The Scarlet Pimpernel*. The story was set during the reign of terror after the French revolution and included a hero whose emblem was a scarlet pimpernel. This story become the precursor to the genre of disguised superheroes, with Zorro, Batman and the like following in its footsteps. *Anagallis* is Latin for 'unpretentious, without boasting' or 'without adornment', which perhaps explains why this plant is often missed.

Bering willowherb

Epilobium hornemannii* ssp. *behringianum

Description: Bering willowherb has 1-4 medium-sized (1-1.5 cm wide) flowers varying in color from white to deep lavender. There are 4 notched petals with dark nectar lines on them. The flowers are often found closed, especially in cloudy weather. The flowers are on top of a tall, straight flowering stem. There are about 4-7 pairs of opposite stem leaves, which are arranged in two rows down the straight stem. Three pairs are clustered under the flowers and the 3 others from mid-stem down have longish (5 mm) stalks. The leaves are about 4 cm long by 2 cm wide. There are no basal leaves, but there are many brown, withered leaves at the

base. The fruit is a long (greater than 4 cm), thin pod which elongates with the flower on top. At maturity, the pod splits into 4 curling sections emitting fluffy, dandelion-like seeds. The plant grows to be up to 40 cm, and averages 25 cm.

Growing Time and Habitat: Bering willowherb blooms from late June to mid-August. It grows in moist meadows, often obscured by taller vegetation, including around the Kaminista boulder rampart, in the meadow across from Antone Lake, and in Zapadni Ravine. It is relatively common on the island.

Notes: Bering willowherb is found around the North Pacific Rim. It was first found in Sitka, Unalaska, Kodiak, and Kamchatka. Willowherbs are very difficult to key out since they includes many similar-looking species. Accordingly, ***Epilobium certulatum***, once a separate species on the Island, has since been lumped into this species and so no longer exists. It is interesting that the flowers of Bering willowherb only seems to open on sunny days. On cloudy days the flowers shut up again and wait for the next sunny day (like so many other inhabitants of the island). The willowherbs are all edible, though can be bitter. They are high in vitamin A and C. They make good survival food since they often grow in barren places where other plants are scarce such as areas with poor soil, river bars, gravelly slopes, etc. The name 'willowherb' comes from the resemblance of the plant's leaves to those of weeping willow. The genus name, *Epilobium*, is Greek for 'upon (*epi*) pod (*lobos*)', which refers to the fact that the flowers stay on top of the pod as the pod elongates. The species, *hornemanni*, is named for Jens Wilken Hornemann (1770-1841), a Copenhagen botany professor.

Water Milfoil Family

(Haloragaceae)

The water milfoil family is small with 120 species found worldwide. The members are mostly aquatics with upright stems. There is one species on St. Paul Island.

Mare's tail

Hippuris vulgaris

Description: Mare's tail is an upright plant which resembles a miniature evergreen tree. It has no apparent flowers. (The flowers actually are always on the submerged part of the plant so cannot be seen unless uprooted, and even then a hand lens would probably be needed). The stems are fleshy and reddish with whorls of 4-8 short, stubby leaves which are slightly pointed and about 1 cm long. The leaves are arranged approximately 1 cm apart down the stem. Many stems grow together either partially submerged or completely out of the water. The stems are generally 20 cm.

Growing Time and Habitat: Mare's tail comes up in mid-June and basically stays the same size the

entire summer. It grows in shallow fresh or brackish water or wet mud in places like the old dirt bridge of Polovina, the town swamp, and the boggy place under Ridgewall Hill. It is uncommon but easy to find.

Notes: Mare's tail, or common mare's tail, grows all around the Northern Hemisphere where it is concentrated in the north and the arctic. It is extirpated in Indiana, endangered in New York and Vermont, threatened in New Hampshire and is a special concern plant in Maine. It was first found in Europe. The species on St. Paul Island has some of the same characteristics as *H. tetraphylla*, a species which supposedly occurs on St. George Island. This species has 4-6 leaves in whorls and are more rounded at the ends and spaced wider apart. The submerged leaves are much longer than the above water leaves since the light needed for photosynthesis is reduced there. Some Alaskans have used this as a food plant, taking the young stems and adding them to soups and salads. The dense stands provide shelter for small aquatic animals and the seeds are eaten by wildlife. The common name comes from the thought that this plant was the female version of aquatic horsetails. The genus name, *Hippuris*, means 'horse (*hippos*) tail (*oura*)' in Greek. The species name, *vulgaris*, is Latin for 'common'.

Parsley Family

(Apiaceae)

The parsley (or carrot or celery) family is a fairly large family of nearly 3,000 species, whose members are mostly found in the Northern Hemisphere. This family has many famous edible species with high commercial value, such as carrots, parsley, celery, parsnip, and spices such as anise, caraway, dill, fennel and chervil. This family also has some of the most famous deadly poisonous species, including water-hemlock and poison-hemlock, the plant which was fed to Socrates to kill him. Common weeds include Queen Anne's lace and cow parsnip. The family is very easy to recognize since most species have flowers in umbels (flat to dome-shaped heads of many, tiny flowers whose stems all meet on top of the stem - like a head of dill). The tiny flowers have 5 petals and 5 stamens. The stems are usually hollow between the leaves, and the leaves are alternate and usually compound with sheaths where the leaves meet the stem. Two of the 3 species on St. Paul Island are important to the Aleuts as food, with wild celery probably being the most important plant to the Aleut people period. Below is the key.

1a. Umbels over 8 cm wide, dome-shaped; stems thick, leaves with many leaflets ..... **wild celery**, p. 116-7

1b. Umbels smaller, stems not as thick and plants much shorter ..... **(2)**

2a. Only 1 whitish-flowered umbel per stalk, leaves fern-like ..... **hemlock parsley**, p. 115-6

2b. 3-7 long-stalked pinkish-flowered umbels per stalk; leaves in 3 segments ..... **Scotch lovage**, p. 114-5

Scotch lovage

Ligusticum scoticum ssp. *hultènii*

Aleut Name and Translation: **Petruskan** (peetrooskan), Russian in origin, meaning wild parsley. Some sources say that the Aleut people were introduced to the edibility and uses of Scotch lovage by the Russians, and this is why it bares a Russian name.

Aleut Use: Aleuts chopped the leaves and stems and added them to salads, soups and stews as a parsley substitute. They would dry the stems so they could use them all winter. Nowadays, with the modern convenience of freezers, they freeze the stems and use them as a green along with wild celery and dandelions for soups, salads and with seal meat.

Other Common Names: Hultén's licorice-root, sea lovage, beach lovage

Description: There are many pinkish flowers in small umbels (3-5 cm wide). There are 3-5 long-stalked umbels per stem. The leaves are alternate, divided into 3 serrated segments, which are often deeply cut, and shining and are 5x8 cm in size. The fruits are greenish, 7 mm long winged

seeds. The stems are branched and grow in leafy groups. There are thin red lines which run down the stems. It grows to be 30 cm high.

Similar Species: Wild celery and **hemlock parsley**. Both also have umbels, but wild celery's are larger (often over 10 cm) and dome-shaped, and the leaves are divided into more than 3 segments. Hemlock parsley has slightly larger, whiter umbels (6 cm) with fern-like leaves.

Growing Time and Habitat: Scotch lovage leaves come out before the flowers in early July. The flowers bloom from late July through August. It is found in sandy areas relatively near the coast, such as on Black Diamond Hill, beside the old Polovina dirt bridge and on Reef Point. It is uncommon on the island.

Notes: This subspecies of Scotch lovage grows on the shores of the North Pacific Rim. The more common subspecies was first found in England and Sweden. The leaves of this species are very fragrant smelling when crushed, with an odor reminiscent of parsley. The leaves and stems of Scotch lovage have been eaten by many native groups in all sorts of food, especially fish dishes, to which the leaves add a pleasant, spicy flavor. The seeds were ground and sprinkled onto food as a pepper substitute. Lovage tea was used as a digestive aid and for treating rheumatism. The whole plant was used as a natural deodorizer and deodorant. This lovage is called Scotch because it was thought that the Scottish sailors (who took the plant with them to help combat scurvy) introduced it to many of the seacoasts of the world. The genus name, *Ligusticum*, meaning 'from Liguria', was given by Dioscorides, who found a profusion of lovage in Liguria, Italy. The subspecies is named for Eric Hultén (1894-1981), a Swedish professor of botany who wrote the incomparable *Flora of Alaska* and contributed so much to plant taxonomy in Alaska and the American arctic.

Hemlock parsley

Conioselinum chinense, C. pacificum

Description: The many, tiny flowers are white to pinkish, and are in a twice compound umbel (6 cm across). The leaves are alternate and compound (8x6 cm). The leaflets are divided into fern-like segments and the bottom of the leaf is sheathed. The fruits are greenish, winged seeds which are 6 mm long. The stalk is hollow and ridged and measures 5 mm in width. The stems usually grow singly with one umbel per stalk. It reaches 25-35 cm in height.

Similar Species: Wild celery and **Scotch lovage**. Both also have umbels, but wild celery's is larger (often over 10 cm) and more dome-shaped, and the leaves are not divided into fern-like segments. Scotch lovage has smaller, pinker umbels (3-5 cm) and there are several umbels per stalk.

Growing Time and Habitat: Hemlock parsley's leaves appear before the flowers in early July. The flowers bloom from late July through August. It grows on the edges of meadows and in sandy areas such as at East Landing, near the gravel pit on Lake Hill and beside the road next to Salt Lagoon. It is uncommon.

Notes: Hemlock parsley, also known as Chinese hemlock parsley, grows from the islands north of Japan, across the Aleutian and Bering Sea Islands, down the NW coast to California, in the NE and NC US and eastern Canada. It was first found in New York state. While not growing in enough abundance on St. Paul island to be of any food significance, other native groups on the NW coast identified this plant as their version of wild carrot. The natives would dig the roots in the spring, and cook and eat them like carrots long before conventional carrots came on to the scene. Now, the harvesting of 'wild carrots' is no longer in practice. The parsley family is definitely ambivalent; some species are edible and make very good food, such as wild celery, Scotch lovage and all the commercially derived species, like parsley, carrots, celery, parsnip and dill, while on the other hand other species are deadly poisonous such as poisonous hemlock and water hemlock. Accordingly, every species of the parsley family should be approached with caution, with hemlock parsley being no exception. It certainly is not on record as being deadly poisonous, but, except for the root, I haven't read anywhere that it is safe to eat. The genus name, *Conioselinum*, is a Latin word derived from the Greek words

meaning 'hemlock' and 'poison (*conio*)' and 'any celery-like plant with shining petals (*selenum*)'. The old species name, *chinense*, is so named because it was thought that this plant was first found in China, but actually the identification was incorrect, so that species name is misleading. Accordingly, the species name has been changed to *pacificum*.

Wild celery

Angelica lucida

Aleut Name and Translation: **Sax^oden**, meaning wild celery. **Poochki** is the Russian equivalent and is used far more than the Aleut word.

Aleut Use: Aleut children especially like to eat this tasty treat out in the meadows. They break off the stalk, peal off the outer fibrous layer and eat the tender inner part. Often the children will carry peanut butter out with them to enhance the taste. The adult Aleuts use poochki as an addition to salads, soups and main dishes or anywhere commercial celery is used. For big celebrations, the Aleuts cook seal meat, spread poochki leaves on outside tables draped with oil cloths and then put the cooked meat on top of the leaves for eating.

Other Common Name: Seacoast angelica, sea-watch

Description: Wild celery has a big (10+ cm in diameter), dome-shaped head of many tiny greenish-white flowers in an umbel. The large umbel is made up of many smaller umbels and thus is twice compound. The stem is hollow, ridged and often reddish. Where the leaves attach to the stem there is a large reddish sheath. The leaves are divided into branching leaflets which are short-stalked, have small serrations, are elliptic in shape and pointed. The leaves can get huge (30+ cm long). They come off the stalk alternately. Large, branched plants of wild celery form extensive patches. The umbels turn brown when they are finished flowering and small, winged seeds form. Other vegetative forms of wild celery that can be tricky to identify are single stems with 3 short stalked leaves 10-15 cm high and odd patches of tiny green sprouts. These forms probably come about via reindeer disturbance of the roots and/or the reindeer droppings containing the plant. The normal plant grows to be up to 1.5 meters high.

Neon and Tina Krukoff enjoy some poochki

Growing Time and Habitat: Wild celery begins to emerge in early June and then blooms in early July through August. It grows all over the island in moist meadows and sea shores. It is very common.

Notes: Wild celery grows along the North Pacific Rim, the Aleutian Islands, NE US, adjacent Canada and around some of the Great Lakes. It was first found in Canada. Wild celery is certainly a signature plant of the Aleut people, central in their sealing ceremonies, and sought after as a wild treat. Interestingly, the roots have become a winter staple for other residents of the island, the reindeer. Reindeer generally subsist on (reindeer) lichen in the winter, but the greedy beasts have eaten nearly

all that occurred on the island. So they became resourceful and began digging up the most abundant roots on the island, those happen to be from wild celery and probably also lupine. It is not advisable for people to eat the wild celery roots, since the raw ones can disrupt the heart and blood pressure and paralyze the central nervous system. Even so, many native groups use the root for diverse purposes. The Siberian Eskimos wore the root as an amulet to protect themselves from polar bears. They also breathed in the burning root as a cure for seasickness. Natives from Lapland chewed the dry root as a substitute for snuff to promote long life. The root was used to prepare many alcoholic beverages in England and if carried, was believed to protect one from devilish influences. If the powdered dust was cast upon one's home, it supposedly kept witches away. Chinese healers were using angelica in various ways since 400 BC. The modern commercial Chinese remedy for women's ailments, ***dong quai***, is made from the roots of several *Angelica* species. Angelica is closely related to the deadly poisonous water hemlock, and where the two grow together, hybridizing has been found to occur. In these cases, extreme caution should be used in consuming any of the plant. Happily, on St. Paul Island, none of the parsley family members are poisonous, so there is little harm in consuming them. The genus name, *Angelica*, is Latin for 'angel' and comes from the word *Archangelica*. This name was given to a plant that supposedly was revealed by an archangel to Matthaeus Sylvaticus as a cure for cholera and plague. Thus began the plant's long tradition of healing. Another story says that the name was given to the plant because it bloomed about the time of the feast of the Apparition of St. Michael (which is on May 8th, so doesn't apply to St. Paul Island). So sprung the belief that the plant was protection against evil spirits, witches and a peculiar cattle disease called 'elfshot'. The species name, *lucida*, means 'shining' or 'glittering', which is quite apt on a dewy St. Paul morning.

Dogwood Family
(Cornaceae)

The dogwood family is small with just 100 species. The members includes small trees, shrubs and herbs and have a scattered distribution throughout the world. Probably the most famous member is flowering dogwood, a small tree with large, white, showy blossoms, which is often planted as an ornamental in cities. The distinctive characteristics of the dogwood family are opposite, oval-shaped, entire leaves with deep veins which appear to be parallel (but are not). The flowers are 4-parted and often have large white bracts which look like petals, but also are not. In species with floral bracts, the flowers are tiny and crowded into the center of the bracts. There is one species of dogwood on St. Paul Island.

Swedish dwarf cornel
Cornus suecica

Other Common Names: Bog bunchberry, Lapland cornel

Description: Swedish dwarf cornel has 4 showy white bracts which appear to be petals surrounding a circle of black dots. Each bract is about 5 mm long. The dots are actually buds, which open into tiny flowers. There are parallel veins on both the bracts and the leaves, a distinctive feature of the dogwood family. There is a single flower per stem. Beneath the flower is a bunch of oval, pointed leaves (about 1.5 cm long) arranged opposite each other on the stem. On the rest of the stem there are 1-2 pairs of leaves. The plants grow in large patches. Each plant gets 4 small red fruits in late summer. The plants grow to be about 5-7 cm high.

Growing Time and Habitat: Swedish dwarf cornel blooms in late June and fruits in late August. It grows in moist, protected areas such as the bank around Whitney Pond, inside the crater of Lake Hill, and in the depressions near the road on the Fox Hill lava flow. It is uncommon.

Notes: Swedish dwarf cornel grows around the North Pacific Rim and in Eurasia. It was first found in Sweden (hence the common and species name), Norway and

Russia. It is closely related to the better known species *Cornus canadensis*, which carpets boreal forest floors. Our species is smaller with a more northerly distribution. The flowers have a unique pollination system. The petals of the unopened flowers suddenly bend, sprung by minute antennae sticking from a petal tip, which then trigger the anthers to pop out and explode the pollen into the air. The berries, though bland, are high in pectin so make a great addition to jams where other berries are present to provide the flavor. Many indigenous people harvested them and kept them for such purposes. Scottish people believed that the plant steeped in water improved the appetite, and went so far as to call it "the herb of gluttony". There are two possible reasons why the plants' common name is dogwood; one is that the bark of shrubs in the genus were soaked and used to wash mangy dogs: Another reason is that the wood of the shrubs (being very hard) used to be made into *dagges* (an old English term for sharp pointed object) and so was called 'dagwood'. The plants are popular forage for deer on the mainland. On the island, the plants have been too rare for the reindeer to bother with, which will hopefully remain the case. The genus name, *Cornus*, is Latin for horn, in reference again to the hard wood of the dogwood shrubs.

Wintergreen Family
(Pyrolaceae)

The wintergreen family is very small with only about 46 species. It is closely associated with the heath family. The flowers in both families look similar, both usually have evergreen leaves and grow in similar habitats - mainly bogs or boreal forests with acid soil. The major difference is that the flowers in the wintergreen family are not fused together at the base as they are in the heath family. The wintergreens have 4-5 sepals and petals with 8-10 stamens. Some of the famous members of the wintergreen family are the pyrolas, prince's pine and the ghost-like saprophytes (which live off the roots of other plants). Saprophytic plants have no chlorophyl and include indian pipe, pinedrops and pinesap. There is one species of wintergreen on St. Paul Island. It is described below.

Lesser wintergreen
Pyrola minor

Description: The flowers are pink with white edges and have 5 petals. The flowers are cup-shaped and nodding and are 7 mm across. The 5-8 flowers are arranged in a raceme. There are no stem leaves. There are 3-5 basal leaves, which are rounded, evergreen, and dark with white veins. They are 1.5 cm wide and are on 1 cm long stalks. The fruits are 5-chambered spherical capsules. The stalks are straight and smooth and grow singly or with several stems together. The plants reach 8-10 cm in height.

Growing Time and Habitat: Lesser wintergreen starts blooming in mid-July and blooms for several weeks. It is found in moist depressions, often with mossy rocks such as the banks of Whitney Pond, the lava tube depressions near Bogoslov Hill and a moist sandy depression next to the old Polovina dirt bridge. It is relatively rare on the island.

Notes: Lesser wintergreen, or snowline wintergreen, grows in the boreal forests and the mountains of the world. It was first found in Europe. It is endangered in New York, Vermont, and Wisconsin and of special concern in Maine. This plant certainly is a treat to stumble across after battling fog and slippery lava rocks while traversing the great interior of St. Paul Island. It is another species whose typical habitat is that of a mossy, shaded (usually conifer) forest. Its presence on the island is curious, but it is delightful that it seems to have only established in spots that are as similar to shady conifer forest as they can be on the island. Native groups have used other species of *Pyrola*, which has several active chemicals, including ursolic acid, and the glycosides arbutin and ericolin. These aid in remedying various ailments such as kidney trouble, toothaches, sore eyes, sore throats, skin diseases, painful tumors and coughing of blood. The different species were called 'bear's ears', 'beaver's

ears' and 'frog's plant' by native people, referring to the shape of the leaves. The common name of wintergreen comes from the fact that the leaves are evergreen. Ironically, the actual wintergreen plant (*Gaultheria procumbens*) which was the prototype for the flavoring, is in the heath family and grows in the eastern US. The genus name, *Pyrola*, is derived from the Latin word for 'pear' (*pyrus*), because the shape of the leaves is similar to pear tree leaves. The genus name, *minor*, means 'smaller' in Latin.

Crowberry Family
(Empetraceae)

The crowberry family is very, very small, having only 3 genera and 10 species. They grow in northern regions. It is closely allied to the heath family, but is different in the number of reproductive parts. Its members are evergreen shrubs with needle-like leaves that produce black, rounded berries. The barely visible flowers have 3 bracts, 3-6 sepals and 2-4 stamens. There is one species on St. Paul Island.

Mossberry/ black crowberry

Empetrum nigrum

Aleut Name and Translation: Qaayu-x^ (Kahyum), meaning berries

Aleut Use: The Aleut women went out with the children and picked mossberries in August and September. They then made the berries into pies, jams and jellies (which are all quite delightful tasting). The tradition of making mossberry pie is still strong in the Aleut community, and now the men as well as the women enjoy picking the berries. Some opt to mix the mossberries with blueberries in their pies since the mossberries are not really very sweet, but ample sugar fixes that and the texture of all mossberry pies cannot be beaten.

Description: Mossberries have insignificant flowers but the vegetative mat covers much of the rocky tundra on the island, and is very distinctive. It resembles a juniper mat with a softer appearance. The leaves are actually somewhat fleshy and are rolled under, bright green, about 4 mm long and are spaced along the woody stems like conifer needles. The woody branches creep along the ground, completely covering it in many cases. The plants have either male or female flowers. The female flowers are tiny brown things and the males are tiny but have long stamens so are a bit more visible. The fruits are round, shiny, black berries which are about 5-7 mm in diameter (much smaller than the mainland berries). The male plants obviously don't have berries so large patches will be devoid of them. The mat grows to be about 5-10 cm in height.

Growing Time and Habitat: The leaves are evergreen so the mat is around all year long. The flowers bloom in early July and the berries ripen in mid to late August. Mossberry grows on rocky tundra all over the island, primarily inland, but also along the coast if rocky enough. Good patches for berry picking include the north facing side of the Lake Hill Crater, at the base of Polovina Hill and around and on top of the Kaminista boulder rampart. It is very common and abundant on the island.

Notes: Mossberry grows around the Arctic Circle and down into the mountains of the west and NE US, Europe and Asia. It was first found in Europe. It grows almost exclusively in bogs dominated by black spruce in much of its range and is definitely associated with sphagnum moss on the island. These areas often seem boggy, but there is only one small true bog on the island and there are acres of other mossberry patches, many of which are quite dry. One patch on the north-facing side of Lake Hill crater had two heath plants growing in it that had never been found on the island before. It seemed the mossberry was trying to create its own little bog. The dense mat of short needle-like leaves resembles moss, which brought about its common name. Most native groups pick the berries to eat raw (they have a unique watery flavor, but juicy ones can be good) or make

into jams, etc., or mix them with grease and store them. The berries on the island are definitely smaller and tarter than found elsewhere, but their sweetness may improve later in the fall after multiple frosts. The leaves and bark were used medicinally by some groups to reduce fevers in children, diarrhea, tuberculosis and kidney trouble. Birds, bears and pikas enjoy the fruits as well. The genus name, *Empetrum*, means 'on (*en*) rock (*petros*)' in Greek. The species name, *nigrum*, means black.

Heath Family
(Ericaceae)

The heath (or heather) family is large, having 1,350-2,500 species. It includes mostly shrubs and some herbs, usually with evergreen leaves. The family is particularly abundant and diverse in alpine and arctic areas as well as areas of the NW coast, mostly where the soil is very dry or very acidic. Some of its most famous members include blueberries, rhododendrons, azaleas, cranberries and heathers. The members of the heath family are characterized by having bell-shaped flowers with 4-5 usually united sepals, 4-5 usually united petals, 4-5 stamens and 1 ovary. The leaves are usually evergreen and entire, with no divisions. There are 3 species on St. Paul Island. The key follows.

1a. Flowers nodding ..... **(2)**

1b. Flowers open upward, 5 pointed petals; leaves oval and tiny (3 mm long) ..... **alpine azalea**, p. 120

2a. Leaves evergreen, shiny with one main vein; flowers teacup shaped, berries small and red ..... **low-bush cranberry**, p. 121

2b. Leaves not evergreen, many veined, round; flowers bell-shaped..... **bog blueberry**, p. 121-2

Alpine azalea

Loiseleuria procumbens

Description: Alpine azalea has pink teacup-shaped flowers that are about 3-4 cm across with 5 sharply-pointed petals. The flowers sit in a mat of tiny (3 mm long) oval evergreen leaves, with curled-under edges and white undersides. The flowers generally cluster together forming patches of about 15 cm in diameter. The plant reaches about 3-5 cm tall.

Growing Time and Habitat: Alpine azalea blooms in late June. It is only found on the north slope of the Lake Hill Crater in a mat of mossberry underlain with sphagnum moss, so obviously it is rare.

Notes: Alpine azalea grows spottily in boreal forests and down through some mountain ranges around the world. It grows as far south in the US as Washington, New York, New Hampshire and Maine, and in all these states it is a rare plant. It was first found in the European alps. It was first found on St. Paul Island in the summer of 1998 in tiny patches on Lake Hill. It was probably inevitable that it would one day reach the island since it is found on all land masses surrounding the island. It is very likely that it was brought in by a bird. It will be exciting to see how this charming little heath grows and spreads. It is a popular ornamental in rock gardens. It was first put into the *Azalea* genus by Linneaus. *Azalea* means 'of dry habitats' in Latin. But after some closer inspection it was put into a new genus, *Loiseleuria*, named for Jean Louis Auguste Loiseleuria-Deslongchamps (1774-1849), a French botanist who also has a grass named after part of his last name (see p. 30). The species name, *procumbens*, means 'trailing'.

Low-bush cranberry

Vaccinium vitis-idaea* ssp. *minus

Aleut Name and Translation:
Cheethigno, meaning sour.

Aleut Use: These berries were not picked even though they are edible because they were too sour.

Other Common Names:
Lingonberry, northern mountain cranberry, partridgeberry

Description: Low-bush cranberry has very small (6 mm across), pink bell-shaped flowers. The flowers are tucked amongst the leaves which are evergreen, shiny and rounded with one main vein, and are about 5 mm long. They have whitish undersides with darkish spots and rolled under edges, making them appear slightly concave. The leaves are opposite on woody, creeping stem. The leaves can cover fairly large patches, but the patches are rarely continuous, and are often obscured by other vegetation such as mossberry. After the flowers, the plant forms a round, red berry at the end of the branches. The plant grows to be 5 cm.

Growing Time and Habitat: Low-bush cranberry's leaves are evergreen so they remain all year long. The flowers appear in late June and the berries ripen from late August to mid-September. It grows in moist depressions usually along with mossberry, including the north side of the Lake Hill crater, in the Fox Hill lava flow near the road and around the Kaminista bog. It is uncommon on the island.

Notes: Low-bush cranberry has an arctic and circumboreal distribution and grows down into the mountain ranges of Eurasia, Canada and Mid-West and NE US. It was first found in northern Europe and North America. It is a plant which prefers to grow in bogs or in mountain heaths and is a good indicator of acidic soils. Its berries are tart to eat raw, but make very nice jams and beverages. The taste is akin to commercial cranberries. Many native people picked the berries and prepared them in various ways. The berries were highly reputed as being very sustaining and revitalizing, especially as a survival food. They also are said to aid digestion and keep remarkably well since they contain natural benzoic acid. Native Alaskans used the crushed berries and leaves as relief for itchy skin, rashes and sore throats, and also made them into dyes. Many native Alaskans consider low-bush cranberries to be the third most important berry after blueberries and cloudberries. The Swedish word, *lingon*, means 'a kind of berry'. The word *cranberry* is Old German meaning 'crane berry'. The genus name, *Vaccinium*, is probably from the Latin word *vaccinus* meaning 'of cows', perhaps because these animals enjoyed the berries. The species name, *vitis-idaea*, means 'vine of Mount Ida', and is named for a Crete mountain (now named Mount Idhi) where the plant presumably first grew.

Bog blueberry

***Vaccinium uliginosum* (var. *microphyllum*)**

Description: Bog blueberry has small (5 mm long), bright pink, urn-shaped flowers that hang off the ends of woody stems. The insides of the flowers are white and the ends are somewhat pinched, like a plastic bag with a loose tie. The woody stems are short and creeping and are half hidden since they protrude from under other vegetation. The leaves are clustered near the top of the stem and are

roundish with small, sharp tips. The leaves are thin and light green with many white veins and are 5-8 mm long. They are alternate on the stem. The stems are scattered and seemingly unconnected since they creep beneath other vegetation, but probably quite a bit of the stems connect to form a creeping shrub. The stems just barely rise above the other vegetation and reach about 5 cm tall. The fruit is a tiny (3 mm in diameter) round blueberry.

Growing Time and Habitat: Bog blueberry blooms in late June and should fruit by late August. It only grows on the north side of the Lake Hill Crater nearly engulfed by mossberry, sphagnum and other vegetation, thus making it very rare.

Notes: Bog blueberry, some places known as alpine blueberry, grows around the Arctic Circle, in boreal forests and mountains, including south through the western and NE US. It was first found in western Greenland. This plant was first found on St. Paul Island in the summer of 1998. There were only a few shoots of woody stems sticking out of the mossberry/sphagnum mat that year and the handful of flowers that bloomed did not produce ripe blueberries, only pitiful, withered, greenish things. Again, a bird probably brought the seeds in from the mainland, as it is one of the most prized bird food plants, and it is in question whether the blueberry will be able to establish on the island. Only time will tell. Certainly, the little plants chose an ideal place to try to get established since that slope very well simulates a heath. This plant has larger sized blueberries elsewhere and is the most important berry plant of the mainland Alaskan natives. There are many rituals and festivals created around blueberry picking and many wonderful foods made from them. The number of barrels of berries a family picked was a measure of success. Medicinally, tinctures of blueberry leaves with alfalfa is reported to help stabilize blood sugar levels in borderline diabetics and is used to treat hypoglycemia. The berries are high in iron and mineral salts. The berries were used as dyes and fish bait. Birds, bears and wildlife are also very fond of the berries. The common name, blueberry, is derived from *blae*, a Scottish word of the 15th century meaning 'blue-black'. The species name, *uliginosum*, means 'of swamps'.

Primrose Family

(Primulaceae)

The primrose family is medium sized with 800 species worldwide. In North America, more species are concentrated in the east, but there are still plenty in the west. The family includes many dainty and colorful flowers, including primroses, shooting stars, starflowers, rock jasmines, and loosestrifes. The family name was given because some members bloom first in the spring, and since they have 5 parts, they were called 'first roses', or primroses. The family's main characteristics are the 5 parted flowers (except starflower which has 5-8 parts) which are united at the base, 5 sepals and stamens and a 5 parted ovary. The leaves are mostly basal, simple, hairless (except rock jasmine), and entire. Occasionally, there are few opposite stem leaves. There are 3 species on St. Paul Island. The key follows.

1a. Petals magenta; basal leaves long and spatula-shaped, no stem leaves ..... **Chukchi primrose**, p. 123
1b. Petals white ..... (2)

2a. Petals 5, rounded; stems hairy, no stem leaves; basal leaves very small ..... **rock jasmine**, p. 123-4
2b. Petals mostly 7, pointed; stem leaves rounded, bunched in middle, stem very thin **arctic starflower**, p. 124

Chukchi primrose

Primula tschuktschorum* var. *arctica*, *P. eximia

Aleut Name and Translation: **Trooyichen**, = resurrection

Aleut Use: Since Chukchi primrose blooms in mid-May, and is one of the first flowers to bloom in the spring, the Aleuts used it to decorate the church to celebrate the ascension, which comes 50 days after the resurrection of Christ.

Other Common Names: Pixie-eyes, arctic primrose

Description: Chukchi primrose has pink to magenta-colored flowers with five petals and a hollow, white center. The flowers are bunched in a head of 2-10 on top of a thick, leafless stalk. The basal leaves are long, and spatula-shaped with shallow serrations. They are about 6-10 cm long. The seed pods look like miniature, light brown honey pots sitting on top of the stems. The plant is very variable in height reaching from 5-15 cm.

Growing Time and Habitat: Chukchi primrose is the 6th earliest plant to flower on St. Paul. It blooms in mid-May and actually can be found blooming into August in the lava tubes. It grows on rocky meadows such as at SW Point, the High Cliffs, around the caldera lakes on Polovina Hill and Crater Hill and in the lava tubes near Kittiwake Lake. It is relatively common on the island.

Notes: Chukchi primrose grows all through the Bering Sea and Aleutian Islands, east through northern Canada and west into the Chukchi Peninsula (where it was first found). Most primroses seem to grow on calcium-rich soil. The common name, primrose, is an interesting misnomer stemming from years of derivation. First, the flowers were named *flor di prima vera*, which is Latin for 'first flower of spring'. This then became incorporated into the French *primaverole*, which in turn got taken up by the English and made into *primerole* and then *pryme rolle*, from which 'primrose' finally came. Of course, the flower has nothing to do with roses, so it lives with its pretty, but inaccurate name grudgingly. At least its status as one of the first flowers to bloom is more on target. The genus name, *Primula*, is Latin for 'first', since primroses are often the first flower to bloom where they occur, which is no exception on St. Paul. The old species name is a strange, Latin-ized version of Chukchi. The new species name, *eximia*, means 'exceedingly' or 'excellently'.

Rock jasmine

Androsace chamaejasme* ssp. *lehmanniana

Aleut Name and Translation: Umpseenaden, meaning 'smells good'. Popcorn flower is a nick name.

Aleut Use: The Aleuts appreciated rock jasmine for its perfume-like fragrance.

Description: Rock Jasmine has small white flowers (6 mm across) with yellow centers. They grow in clumps of 1 to many on top of a thin, hairy, leafless stalk. The basal leaves are small, hairy and elliptic with a point. They grow in little rosettes and have thin runners which connect other basal

rosettes. The flowers tend to grow in large patches with many stems. The fragrance is quite strong and lovely. The plants are about 6 cm high.

Growing Time and Habitat: Rock Jasmine blooms in late-May to early June. It grows on sandy or dry soil, one of the largest patches being on the dune next to Fantasy Wetland. It also grows at SW Point, Black Diamond Hill and North Hill. It is common on the island.

Notes: Rock Jasmine, also called Lehmann's rockjasmine, grows spottily in Alaska, the Arctic Sea area and in Asian mountains. It was first found in the 'orient'. This plant is named rock jasmine because it grows in rocky places and because its fragrance is like that of the jasmine, a viny shrub with yellow flowers native to Asia, which is used commercially to produce the perfume. The genus name, *Androsace*, was given to an unidentified sea plant by Pliny (A.D. 23-79), a Roman scholar (how it finally made its way to this plant is not specified). The species name is Greek for 'ground (*chamo*) jasmine'. The subspecies is named for Johann Georg Christian Lehmann (1792-1860), the Director of the Botanic Garden in Hamburg who concentrated in studying the genus *Potentilla* (the cinquefoils).

Arctic starflower

Trientalis europaea* ssp. *arctica

Aleut Name and Translation: **Svisda-x^**(zavisdah), meaning star - no use.

Description: Arctic starflower has 5-8 (mostly 7) white to pinkish pointed petals which together resemble stars. The flowers are about 1.5 cm across. There are 1-3 flowers at the top of very thin stems. The 2-6 stem leaves are round and entire and mostly bunched at the center of the stem. They are green, thin, approximately 1 cm long and have one main vein. The individual stems grow scattered around and reach about 5-8 cm tall.

Growing Time and Habitat: Arctic starflower blooms in late June. It grows in protected, moist, and rocky areas and depressions such as the banks of Whitney Pond, on the Kaminista boulder rampart and in the depressions on the Fox Hill lava flow. It is uncommon on the island.

Notes: Arctic starflower grows around the North Pacific Rim. It was first found in SE Alaska, Unalaska and Kamchatka. It is the small, rounder-leaved cousin to starflower (*Trientalis borealis*) which grows around the globe in boreal forests. The common name of starflower was given to this plant because the extra thin stem makes it seem as though the flowers are stars suspended on the dark green background. The starflowers are especially delightful to see on the Kaminista boulder rampart since the rocks are covered with a mat of dark green mossberry, making the starflowers blaze out like their celestial counterparts. Some native Alaskans supposedly collected the tubers of the starflower to eat. The genus name, *Trientalis*, is Latin for '1/3 of a foot in length' referring to the height of the plant. The species name, *europaea*, refers to the other subspecies which was first found in Europe.

Leadwort Family

(Plumbaginaceae)

The leadwort family is medium-sized with 775 species found all over the world. There are 3 genera found in the US. The plants, which take the form of herbs and shrubs, have 5 petals, 5 stamens and 5 pistils. There is one species on St. Paul Island.

Thrift *Armeria maritima* (ssp. *arctica*) ssp. sibirica

Aleut Name and Translation: **Barxuten**, meaning velvety.

Aleut Use: Aleuts pick these flowers and use them in dried flower arrangements since they last all winter

Other Common Name: Sea pink, Siberian sea thrift

Description: Thrift has a single tight head of tiny, bright pink flowers surrounded by tissue paper-like bracts. When the flowers are mature, the head fans out into a half sphere, resembling an onion flower head. The stem is smooth, thin and leafless. The basal leaves are grass-like and wiry, only reaching about half way up the stem. Single stems either grow in tufts or by themselves. The plants generally grow to be about 10-15 cm high.

Growing Time and Habitat: The thrift buds appear in early June, but do not fully open until nearly mid-July. For those experiencing thrift for the first time, it is hard to tell when they are fully open. Basically it is when the brightest pink is showing and the head is a full half sphere. The window of full bloom is very short, but the tissue-paper bracts remain well into fall. Thrift grows on cliffs along the shore such as the High Bluffs, Ridgewall and between the pullout and Whitney Pond. It is common on the island.

Notes: Thrift grows spottily around the Arctic Circle, occasionally moving south along shores. This subspecies is restricted to the North Pacific Rim. It was first found in Unalaska, among other places. The common name, thrift, probably comes from *thrive* meaning 'to press close together', since the plants often grow in dense tufts. Others believe it to be called thrift because it survives well in poor soils. The other common name, sea pink, came about because the flowers resemble a 'pink', which is an opening in a muslin sleeve of Elizabethan dresses which shows a bright (often pink) color inside. In Europe these were sometimes called Whitsuntide gilliflowers since they bloomed near Pentecost Sunday. The genus name, *Armeria*, is Latin for a species of carnation, perhaps because thrift resembles a small carnation. The species name, *maritima*, means 'of the sea'.

Gentian Family

(Gentianaceae)

The gentian family is medium-sized with 1,100 species. These mostly grow in temperate and subtropical areas. Other than the cultivated gentians and centaury, the family is not economically important. Gentians have opposite, simple leaves, with flowers that range from tubular to bell to star-shaped. They have 4 or 5 fused sepals, 4 to 5 fused, tubular petals and the same number of stamens. In northern temperate regions, specific gentian populations can have very low numbers, so are often rare to see. They are usually very showy with rich hues so are quite a treat to find. There are two definite gentians on St. Paul Island, and a third that has not been seen in a while. Below is the key.

1a. Flowers white tubes with purple stripes ..... **whitish gentians**, p. 125-6
1b. Flowers blue ..... (2)

2a. Flowers in a bunch on top of a single stalk ..... **glaucous gentian**, p. 126-7
2b. Flowers single on 3-8 stems branching from the central stalk ..... **slender gentian**, p. 127

Whitish gentian

Gentiana algida

Description: The flowers are white with thick purple stripes. They are upright and tubular (2-4 cm long) with 5 lobes. The leaves are opposite, entire, lance-shaped, and shining. There are 1-2 pairs of stem leaves, which are 3 x 1 cm. The basal leaves are similar, but are longer and narrower (10 x 0.5 cm). The fruits are

capsules with spindle-shaped seeds. There are 3-6 flowers which grow crowded on top of a single smooth, straight stalk. The plants reach 10-15 cm.

Growing Time and Habitat: The leaves of whitish gentian appear long before the flowers, probably in mid-June, and tantalize the botanist. The entire, shiny, dark green surface and the long-narrowness of the leaves should give them away as being from this species. The flowers bloom from late July through August. It grows in scoria scrapes and mossberry areas such as the scoria area next to the pullout for Whitney Pond, on the High Bluffs, and on the east flank of Crater Hill. It is uncommon on the island, but easy to find in the appropriate habitat.

Notes: Whitish gentian grows on the Bering Sea islands, in central Alaska, the central Rocky Mountains and spottily through Siberia. It was first found in Yenisei, Baikal, Dahuria, and Kamchatka (all in Siberia). This startlingly colored plant is certainly a welcome addition to the flower scheme on the island, especially since it generally blooms after a lot of the colorful jewel-like plants on the scoria scrapes have died. Gentians have been used since the 1st Century AD as bitter tonics to stimulate the appetite. They contain many potent alkaloids, so will cause vomiting if too much is taken. The genus, *Gentiana*, is named for King Gentius of Illyria (an ancient country close to present day Albania), who, according to Pliny, first used gentians medicinally. The species name, *algida*, is Latin for 'whitish'.

Glaucous gentian

Gentiana glauca

Description: The flowers are blue (almost blue-green), upright and tubular (1.5 cm long) with 5 lobes closed to a point. The leaves are opposite, entire, oval, shining, and thick. There are 1-3 pairs of stem leaves spaced down the stalk, which are 1 x 0.7 cm. The basal leaves are similar, but are more bunched. The fruits are capsules with spindle-shaped seeds. There are 3-6 flowers which grow crowded on top of a single, smooth, straight, purplish stalk. The flowers reach 5-7 cm high.

Growing Time and Habitat: Glaucous gentian blooms in late July and into August. It only grows on a few spots in mossberry areas in the interior, specifically just southwest of Cone Hill along the Rift, and south of Bogoslov Hill. Since it is very small and hard to spot, it could be in other similar areas in the interior, but obviously isn't in any great concentration anywhere. It is very rare on the island.

Notes: Glaucous, also known as pale gentian, grows from Kamchatka north across to Alaska and down into the north Rocky Mountains. This little, gem-like plant must only shoot up a few stalks a year on St. Paul Island. I feel lucky to have seen the shimmering blue colored flowers in the wild, since I stumbled upon the few plants totally by accident.

Another gentian, **slender gentian** or **Dane's dwarf gentian** (***Gentiana tenella, Gentianella tenella***), is on Macoun and Hultén's lists, and Alton and Colleen Roppel evidently found it east of the Polovina bridge when they were here from 1956-1980, but I did not find it. Seeing as how Macoun says that it is 'rather rare on St. Paul Island' and is 'found only on a few bare spots on low hills', it is not surprising that I missed it. Slender gentian has many flowering stems per stalk and each stem has a single flower. The flowers are much smaller with divergent lobes. Gentians were made into liqueurs, teas and syrups to stimulate the appetite. In the 18th century, gentian tonic was served as an aperitif. Its bitterness is legendary and too much can cause vomiting. The species name, *glauca*, is Latin for 'glaucous', i.e., smooth and shining.

Photo by Daniela Longo courtesy luirig.altervista.org, location unknown

Phlox Family
(Polemoniaceae)

The polemonium or phlox family is small with 320 species and is only distributed in North America, primarily in the west. It has a few important ornamentals, namely phlox, Jacob's ladder, and cup-and-saucer vine. Species have 5 petals which are fused into a tube, with 5 stamens and a 3-chambered fruit. It is closely related to the morning glory family (Convolvulaceae). There are two species on St. Paul Island. Below is the key.

1a. Petals sharp-pointed; leaflets sharp-pointed and spaced a part on leaf ..... **tall Jacob's ladder**, p. 127

1b. Petals blunt, squarish; leaflets rounded to elliptic, crowded on leaf ..... **northern Jacob's ladder**, p. 128

Tall Jacob's ladder
Polemonium acutiflorum

Aleut Name: **Culuklax^**, meaning little bells. They also called them bluebells.

Description: Tall Jacob's ladder has 1-5 bluish, 5-petaled flowers (3 cm across) on top of its flowering stalk. The petals are sharp-pointed and there is a darker, purplish ring in the center of the flower. The flower tube is slightly hairy. The stem leaves are spaced wide apart. The leaf nearest to the flowers usually has only a few leaflets and is short. The lower leaves are pinnately compound (like a feather) with sharp-pointed, spaced leaflets. The plants usually have single flowering stems that reach 25-35 cm high. However, there can be dwarf specimens which only reach 7 cm high.

Growing Time and Habitat: Tall Jacob's ladder first blooms in late June. It grows on margins of wetlands and in meadows such as on the edge of Saucer Pond, in the meadow across from Antone Lake and on top of Hutchinson Hill (as a dwarf flower). It is uncommon on the island.

Notes: Tall Jacob's ladder grows around the Arctic Circle and down some mountains from western North America west to Scandinavia. Tea made from this plant stimulates sweating so is used by modern herbalists to cleanse the body. Earlier herbalists used it to treat such things as epilepsy, heart palpitations, rabies and fever. This species is grown as an ornamental in gardens. The smell of the flowers, for some unknown reason, is pleasing to cats, who often roll in and do damage to the plants (so cat and Jacob's ladder owners beware!). The common name was given to this plant because the leaves resemble a ladder, specifically the one seen in a dream by the patriarch Jacob (the father of the12 sons who started the 12 tribes of Israel). The genus name, *Polemonium*, is either named for an early Athenian philosopher Polemon, or is derived from the Greek word *polemos*, meaning war. The species name, *acutiflorum*, means 'sharp-flowered', referring to the pointed petals.

Northern Jacob's ladder
Polemonium boreale* ssp. *macranthum

Aleut Name: **Culuklax^** (coolukladen), meaning little bells. The Aleuts also called them bluebells.

Description: Northern Jacob's ladder has a cluster of nodding, shiny bluish (occasionally white), dark lined, 5-petaled flowers on top of its flowering stalk. The flowers are large (3 cm across), have yellow centers and squarish ends to the petals. The flower tubes and stalks are sticky fuzzy. The stem leaves are opposite and are pinnately compound, like a feather, with many elliptic leaflets crowded close together. The basal leaves are similar. Clumps of flowering stalks grow close together with basal leaves, forming dense patches in the sand. The plant grows to be about 15-20 cm high.

Growing Time and Habitat: Northern Jacob's ladder first blooms in mid-June. It grows on dunes all over the island, most abundantly in the dunes near Lukanin Beach, Black Diamond Hill, and Fantasy wetlands. It is common on the island.

Notes: This subspecies of northern Jacob's ladder grows only in the eastern Aleutian Islands and on St. Paul Island, where it was first found. On the island, white flowers are relatively common to find. The flowers have a sweet odor, which is very distinct when you walk through a large patch of them. The flowers absorb and reflect ultraviolet light in such a way as to allow insects to see three distinct color bands which attracts them to the flowers. The species name, *boreale*, means 'northern' in Latin. The subspecies name, *macranthum*, means 'large (*marco*) flowered (*anthos*)' in Greek.

Borage Family
(Boraginaceae)

The borage family is relatively large with 2,000 species. It is widely distributed in the temperate and tropical areas of the world. Most of the members have distinctive five-parted flowers, either bell-shaped or flat, with sunken centers. The leaves and stem are usually entire, often hairy and/or fleshy with a unique smoky flavor. As ornamentals, many members are well-known including forget-me-nots, bluebells, viper's bugloss and hound's tongue (the last is also a noxious weed). Common garden borage and comfrey are the best known edible-medicinal species. On St. Paul Island, there are two species.

1a. Flowers blue with yellow centers, flat in a cushion of fuzzy leaves ..... **arctic forget-me-not**, p. 128-9

1b. Flowers blue, bell-shaped on trailing fleshy stems; leaves smoky blue ..... **beach bluebells**, p. 129

Arctic forget-me-not
Eritrichium chamissonis,
E. nanum* var. *chamissonis

Aleut Name: **Umpseenaden**, meaning "smells good". The Aleut phrase for "don't forget me" is *Tingooxoonoxtamaxting*.

Aleut Use: The Aleuts picked the flowers, usually keeping them intact in their cushions, and used them in potpourris to make their homes smell good.

Description: Arctic forget-me-not is a cushion plant, growing close to the ground. The cushions are covered with small (5-7 mm across) blue flowers with five petals which have yellow centers. The cushion leaves are tiny (5 mm long), opposite, and oval-shaped with gray fuzz. The flowers are stalkless and are set right into the cushion of the leaves. A wonderful, sweet fragrance comes from the flowers. The cushions tend to grow to about 2-5 cm high and 5-20 cm in diameter.

Growing Time and Habitat: Arctic forget-me-not blooms in early June on Diamond Hill and into August on exposed places on Rush Hill. It grows wherever there are exposed patches of scoria, both down low and on the hills, such as Black Diamond Hill, Polovina Hill, and between the turnout and Whitney Pond. It is relatively common on the island.

Notes: Arctic, or arctic alpine forget-me-not, grows on the Bering Sea islands, Chukchi Peninsula, much of Alaska, and the Yukon, and the eastern most part of the Aleutian chain. It is the only forget-me-not in Alaska which is a true cushion plant. Mountain forget-me-not, a larger, interior species is the official state flower of Alaska. The fragrance of arctic forget-me-not is incredibly lovely, and anyone lucky enough to be on the island while it is blooming should definitely get down on their hands and knees to smell it. The yellow circle around the middle of the flower helps guide insects to the nectaries. Even though the flowers are insect pollinated, they have the characteristic tiny pollen grains of a wind pollinated plant, probably an adaptation to the harsh places where it grows. There are many stories of how it got its common name, one of them being that as a young man walked along with his true love, doing antics to impress her on a river wall, he suddenly slipped in and as he was swept away, he flung back these flowers, crying "Forget me not!". The genus name, *Eritrichium*, is Greek for 'woolly (*erion*) hairs (*trichos*)' referring to the fuzziness of the plant. The species is named for Adalbert Ludwig von Chamisso de Boncourt (1781-1838), a German poet-naturalist who was the botanists on the ship *Rurik*, which sailed to Alaska in 1816-17. Big monkshood, p. 74, is named for him as well.

Beach bluebells

Mertensia maritima

Other Common Names:
Oysterleaf, oyster plant

Description: Beach bluebells has small (1 cm long) bell-shaped blue (or occasionally white) flowers with five parts. The flowers trail out beyond the round, flat rosette of leaves. The leaves are elliptic, have an entire margin with sharp tips, are fleshy and have one central vein. They have a whitish bloom which makes them look smoky green. They are arranged alternately on trailing, fleshy stems. The leaves, on average, are 2-3 cm long and decrease in size out from the center. The plant generally grows into rosettes with a diameter of about 20-30 cm that are about 5 cm high.

Growing Time and Habitat: Beach bluebells begins each season as a few fleshy leaves poking up out of the sand in early to mid-June. In late June the flowers finally bloom, adding bits of blue color to the distinctive basal rosettes. Beach bluebells grows in pure sand. Good patches of it are found on East Landing, Antone Lake causeway, and the dunes on the north side of Fantasy Wetlands. It is uncommon on the island.

Notes: Beach bluebells grows on shores all around the North Pacific Rim, through the eastern Arctic Ocean, northern Europe, and NE US, where it is a rare plant in Massachusetts and New Hampshire. It was first found in England. It is edible, as most borage family members are, and, as the other two common names imply, the

leaves, which are often dowsed in salt spray, take on a distinctly oyster-like taste. This can be a bit disconcerting, but the leaves do make a nice addition to soups and stir fries, and the flowers can be added to salads. In northern Europe, beach bluebells, fennel and honey water is blended together as a syrup to calm coughs. In Scotland, sheep especially like to eat the plant, making it nearly disappear. It is now endangered there, prompting many sea-side dwellers to fence in their patches. The genus is named for Franz Carl Mertens (1764-1831), a German botanist.

Snapdragon Family

(Scrophulariaceae)

The snapdragon or figwort family is a large family with around 3,000 species world wide. The most famous members are garden ornamentals including snapdragons, monkey-flowers, foxgloves and speedwells. As these names imply, the flowers resemble animal faces. This is because their 4-5 petals are fused; the top two form a hood or beak and the bottom few form a lip. Some members are more ornate and irregular than others. For instance, fern-leaf lousewort flowers look like cobra heads whereas the speedwells seem to have five regularly shaped petals, but 2 are slightly smaller than the others, keeping them irregular and thus in the snapdragon family. There are 8 species in the snapdragon family on the island. Below is the key.

1a. Flowers white, tiny; plants tiny, growing in mud ..... **mudwort**, p. 131
1b. Flowers lilac or bluish with 5 seemingly regular petals; leaves opposite with rounded serrations ..... (2)
1c. Flowers with many hooded, lipped flowers in a cluster; leaves like small ferns ..... (3)
1d. Flowers purple, many small ones in a snout-like cluster; leaves shiny and large ..... **weasel-snout**, p. 132-3

2a. Flowers bluish to lilac; lowest petal very small; dark purple striping on petals; petals rounded and falling off easily; stems and leaves often matted with flower stalks ascending ..... **thyme-leaf speedwell**, p. 131-2
2b. Flowers pale lilac with fainter dark purple striping on petals; petals squarish at ends; leaves in two rows on stem; stems shorter, upright; never matted or creeping ..... **Steller's speedwell**, p. 132

3a. Flowers dark pink or magenta ..... (4)
3b. Flowers pale pink ..... (5)

4a. Flowers magenta; flower heads flat topped; stem nearly leafless ..... **fern-leaf lousewort**, p. 135
4b. Flowers dark pink, cluster elongated with leafy bracts between; stem leafy ..... **arctic lousewort**, p. 134-5

5a. Flowers not woolly; three small leaves whorled in middle of stem ..... **whorled lousewort**, p. 133-4
5b. Flowers very woolly; stems short and very leafy ..... **woolly lousewort**, p. 136

Yellow monkeyflower

Mimulus guttatus

This well-known yellow-flowered trailing plant is shown as being on St. Paul Island, but has not been found by recent botanists. It grows on margins of wet places, both muddy and rocky. If you see this, please let us know.

Photo taken on mainland Alaska

Mudwort

Limosella aquatica

Description: The flowers are white, tiny (2 mm), and bell-shaped, with 5 lobes. They sit at the center of a basal rosette of leaves. There are 3-6 leaves, all in a basal rosette. The individual leaves are tiny, grass to

spatula -shaped and are 1-2 cm long. Single rosettes are scattered about in patches and there are usually 1-5 flowers per rosette. The fruit are tiny, round to elliptic capsules with many seeds. The plants only reach 1-2 cm high.

Similar Species: **Koenigia** shares the same habitat and is similarly small, but has rounded, heart-shaped leaves, with sheaths where the leaves meet the stem

Growing Time and Habitat: Mudwort blooms beginning in late-July. It is found on wet mud or shallow water. I only found it on the dry-down pond near the gravel pit on Lake Hill, but I presume it grows elsewhere on the island in similar habitats. It is so tiny, that it would not be surprising if I missed it. Note that the depressions in the lower photo are from a reindeer hoof print. Other potential places would be in the mud at the edge of Whitney Pond and in muddy depressions on the Fox Hill lava flow and in the interior. It is rare on the island.

Notes: Mudwort, also known as water or northern mudwort, grows around the northern reaches of the Northern Hemisphere. It was first found in northern Europe. Interestingly, it occurs in only a few places in Alaska and on the Bering Sea Islands. And indeed, it is on the state rare plant list as a S3, meaning it is rare and uncommon in the state having 21-100 occurrences (in this case about 16 locations). It was not noted by Macoun, but is on Hultén's list. Mudwort, the very appropriate common name, obviously, is made up of the words 'mud' and 'wort'. We know what mud means, but wort is not so well known. The word 'wort' is derived from *wyrt*, an Old English word meaning 'plant'. Wort, if you start looking, is attached to the end of quite a few common names, and now, perhaps, makes a bit more sense. The genus name, *Limosella*, is Latin for 'little mud (*limus*)'. The one who named it, Linnaeus, explained the reason for this name thus; "*a limo natali dicte*", which means 'called from its native mud'. The species name, *aquatica*, is Latin for 'of the water'.

Thyme-leaf speedwell

Veronica serpyllifolia ssp. *humifusa*

Description: The flowers are blue to violet (with darker lines on the petals) and are 0.5-1 cm wide. There are 5 rounded petals, 4 are of equal size and the 5th, the bottom 'lip' petal, is smaller. The flowers are located in a top cluster and in the upper leaf nodes. They are often closed, and are delicate because the petals fall off easily. The upper stem leaves are alternate, and the lower are opposite. They are rounded elliptic and stalkless and are 7-10 mm long. The stems are upright or trailing, and often form a tangled mat, which is very leafy, and roots at the nodes. The fruits are thin, green, bluntly heart-shaped seed capsules which are 3 mm wide. The plant grows to be about 5-10 cm tall.

Similar Species: **Stellar's speedwell** is never matted, has lavender flowers with squarish petals, and has shallowly-serrated leaves with sharply pointed tips.

Growing Time and Habitat: Thyme-leaf speedwell blooms from early July through August. It is found in waste areas and wettish places such as the roadways in the Kaminista Quarry, in the boggy area below Ridge Wall Hill and the dry-down pond across from the gravel pit on Lake Hill. It is uncommon.

Notes: Thyme-leaf speedwell, also known as brightblue speedwell, has a very spotty, but wide distribution. It grows across the Aleutian and Bering Sea Islands

down through Alaska and the Rocky mountains, in the NE US, central Asia and northern Europe. It was first found in Scotland. The speedwells are edible, but can be bitter. They are high in vitamin C and have been used medicinally as an expectorant and to soothe lung, liver, throat and skin problems. The common name, speedwell, was given because the plants were traditionally given to guests as gifts of remembrance and good luck with the words, "God's speed" or "speedwell". The genus name, *Veronica*, has two derivations. One is from an Arabic word meaning 'beautiful memory'. The other is from St. Veronica who wiped the sweat from Christ's face as he was being taken to be crucified. Christ's *vera iconica* or 'true likeness' was left as an imprint on her handkerchief. The species name, *serpyllifolia*, is Latin for 'thyme-leaf'. The subspecies name, *humifusa*, means 'spreading on the ground'.

Steller's speedwell

Veronica stelleri, V. wormskjoldii var. *stelleri*

Description: The flowers are lavender (with darker lines) and are 1 cm wide. There are 5 square petals, 4 are of equal size and the 5th, a bottom 'lip' petal, is slightly smaller. The flowers are located in a terminal cluster of 5-10 flowers. The leaves are opposite, in alternating rows. They are spade-shaped, have small serrations, are stalkless, and are 1.5 cm long. The plants are on single, straight stems. The fruits are thin, green, bluntly heart-shaped, slightly hairy seed capsules which are 3 mm wide. The plants are 5-7 cm.

Similar Species: **Thyme-leaf speedwell** is trailing and matted, has smaller blue flowers with rounded petals, and has smaller, more entire leaves with rounded tips.

Growing Time and Habitat: Steller's speedwell blooms in early August. It grows on the moist side of the Hills and depressions, including Low and Rush Hills, around Kittiwake Lake, and in the boggy area below Ridge Wall Hill. It is rare .

Notes: Steller's speedwell grows on the Aleutian and Pribilof Islands, the islands north of Japan and in a very few spots on the mainlands of Alaska and Japan. It was first found on the islands south of the Commander Islands. Some species of *Veronica* are said to have tastier leaves than watercress, but those are probably the larger species that live closer to water. A tea of the larger species is very popular in Europe and is called *tea de l'europe*. This little species is quite a bit rarer and usually is found in the mountains. The species is named for the intrepid German naturalist Georg Wilhelm Steller (1709-46), who sailed with Vitus Bering on one of the first voyages by white people into Alaska and Siberia. Steller was the first scientific collector of Alaskan plants and so has several named for him. The new species name is after Morten Wormskjold (1783-1845), a Danish lieutenant, who was on Kotzebue's first expedition. He left ship in Kamchatka and collected plants also in Kodiak and Sitka before returning.

Weasel-snout *Lagotis glauca*

Other Common Name: Lagotis

Description: Weasel-snout has many tiny purple flowers arranged into a cone shape. The flowers are irregular and are a variation on the theme of the distinctive hood and lip of the snapdragon family if you look closely. The flowers bloom from the bottom up so the top of the cone is often still green while the bottom is crammed with purple flowers. There are a cluster of smallish bract-like leaves beneath the flowering head and

about 2-4 elliptic, shiny smooth stem leaves arranged alternately down the fleshy stem. The basal leaves are very distinctive and are usually the first things seen. They are long-elliptic and very shiny fleshy green with a whitish mid-vein and rounded serrations. They can be up to 10 cm long and seem to almost sprawl around the flowering stalk. At first, the leaves surround the small green snout-like flowering head before it blooms. As all the flowers bloom the head elongates and can be up to 4 cm long. The whole plant grows to be 15-17 cm tall.

Growing Time and Habitat: Weasel-snout leaves appear in early to mid-June and then the flowering heads begin to bloom in late June. It grows in moist drainages and meadows on the sides of hills such as the east flank of Polovina Hill and the backside of Little Polovina Hill. It is uncommon on the island.

Notes: Weasel-snout grows around the North Pacific Rim and on the Bering Sea and Aleutian Islands. It is thought to have been first found in Kamchatka. Closely related species grow up to 18,000 ft in the Himalayas. The early flower head resembles the snout of a weasel sticking up out of the ground, hence the common name. The genus name, *Lagotis*, may be derived from *lagos* meaning 'hare' in Greek. The species name, *glauca*, means having a smooth, shiny appearance.

Alaska Indian paintbrush

Castilleja unalaschcensis

This plant, with many irregular, bract-like yellow flowers in a bunch on a tall, straight stalk with alternate stem leaves, is shown as being on the Island, but has not been found recently.

Photo taken on the Kenai Peninsula

Whorled lousewort

Pedicularis verticillata

Aleut Name and Translation: **Tax-tu** (tanktoodan), = little water carrier

Aleut Use: When the Aleut children became thirsty while walking on the tundra, they would pick the flowers off of the whorled louseworts and suck out their water and nectar.

Description: Whorled lousewort is the most common of the louseworts on the island. It has many small irregularly-shaped pink (occasionally white) flowers in heads. The flowers have a beaked hood over-topping three lip-like lobes. The individual flowers are approximately 1 cm long. The cylindrical heads are on

average 5 cm high. The distinguishing feature that separates it out from the three other louseworts on the island are its three whorled leaves in the middle of the stem. Except for these leaves, the stem is virtually bare, though on occasion it can have a few other widely spaced whorls of leaves. The stem leaves are pinnate and small (about 2 cm long). The basal leaves are also whorled, but are much bushier (like ferns) and a little longer. The flowering stems come up in bunches or grow singly. They tend to reach 15 cm in height.

Growing Time and Habitat: Whorled lousewort has a very distinctive early basal rosette of leaves which appears long before the flowers bloom. They look like a clump of small, reddish ferns and usually appear in late May and early June. The flowers start to bloom in mid to late June and form a wonderful floral display with Nootka lupine and Alaska poppy into July. Whorled lousewort grows all over on scoria scrapes, roadsides and meadows including Black Diamond Hill, Zapadni Ravine and near Whitney Pond. It is common on the island.

Notes: Whorled lousewort grows around the North Pacific Rim and west across Siberia and into Europe. It was first found in Siberia, Switzerland and Austria. Wildlife seem to particularly like louseworts. I noticed the reindeer on the island uprooting some of these plants presumably to get to the tasty roots. The species name, *verticillata*, means 'whorled', referring to the arrangement of the stem leaves.

Arctic lousewort

Pedicularis langsdorffii* ssp. *langsdorffii

Aleut Name, Translation and Use: See above

Description: Arctic lousewort has an elongated cluster of bright pink, irregularly-shaped flowers with smooth, leafy bracts in between. The flowers have arching hoods and curved tongues. The cluster extends about 2/3s the way down the flowering stalk and can be up to 7 cm long. Below the cluster, a bunch of leaves extends straight out. They are pinnately divided and have rounded leaflets. As they grow older, the leaves become stalked. The flower grow out of the ground head first, with no leaves visible at first, then progressively gain height and leaves. They generally reach 10-15 cm at full height.

Growing Time and Habitat: Arctic lousewort starts blooming in mid-June and extends its blooming into July. It grows in wet sand and scoria scrapes scattered around the island such as the dunes around Tonki Point, the scoria knob on the west flank of the Kaminista Quarry, and on the Polovina dirt bridge. It is uncommon on the island.

Notes: This subspecies of arctic lousewort grows on the Bering Sea and east Aleutian Islands. It is also called Langsdorff's lousewort. It can form bizarre pure patches on the flats south of the road by Polovina Hill. The patches are bright pink and very photogenic, as some photographers I was guiding found when we stumbled across them. This lousewort grows like a mushroom, with a few flowers appearing first and then more and more until the full stalk is showing. Louseworts have a very complicated pollination system done by specific bees which have adapted to the odd flower structure. The common name, lousewort, came from the belief that the woolliness of some species harbored lice, and so were

responsible for the lice-infested cattle who shared their habitat. Alternately, others believed that if the plant was dried and the powder sprinkled on your hair or wigs, it would expel the lice. The genus name, *Pedicularis*, is Latin for 'little louse'. The species was named for Georg Heinrich von Langsdorff, (late 1700s - early 1800s) a Russian consul-general to Rio de Janeiro who accompanied Krusenstern on the circumnavigation of the globe in the ships *Nadeschda* and *Neva* (he also has a violet named for him on p. 109).

Hälle Flygare, R., co-author of *Wildflowers of the Canadian Rockies*, and a fellow tourist, photograph arctic lousewort

Fern-leaf lousewort

Pedicularis sudetica ssp. *pacifica*

Other Common Names: Sudetan lousewort, fernweed, Pacific lousewort

Description: Fern-leaf lousewort has a flat head of irregularly-shaped flowers which resemble small rearing cobras over flanged smocks. The flowers vary in color from deep magenta (which is most common) to mixed pink and white to all white. The flowering heads are about 4 cm across and 3 cm tall. The individual flowers can be 1.5 cm long, the longest of any of the louseworts on the island. If you look at the flower heads from above they resemble whirligigs, since all the hoods on the flowers are bent in the same direction. There are miniature, fern-like bracts below the flower head and generally just one, small fern-like stem leaf. The stem is otherwise thick and smooth. The basal leaves are long stalked and are also fern-like. The leaves are green tinged with red. The flowering stalks grow in groups, often with mixed colors. They grow to be ~ 15 cm.

Growing Time and Habitat: Fern-leaf lousewort starts blooming in mid-June and continues through to about mid-July, when it all but disappears. It grows on wet sand such as in Fantasy Wetlands, on the shores and dunes of Big Lake and in Polovina wetlands. It is uncommon, but easy to find on the island.

Notes: This subspecies of fern-leaf lousewort grows around the North Pacific Rim. The original species was first found in the Sudetan mountains in the Czech Republic (hence the common name). Siberian Eskimos pick the young shoots of fern-leaf lousewort, boil them and eat them. This genus has sedative properties and many of them are rare so any harvesting should be done sparingly. I think the color of these flowers is the deepest shade of magenta I have seen in the wild. Also, the charming whirligig effect of the flowers definitely makes a walk through Fantasy wetlands well worth the effort.

←Heads from above

Woolly lousewort

Pedicularis lanata, (*P. kanei*)

Description: Woolly lousewort begins to emerge as a small, woolly lump on the ground. It slowly elongates into a stout spike covered with pink flowers which are irregularly-shaped. They resemble little monkey faces with a beak on top and a flanged lip below. The stem is very woolly and has many fern-like leaves which are slightly black in color. The leaves are whorled around the stem in rows and are very bushy. The plant elongates often up to 20 cm, but more commonly is about 10 cm tall.

Growing Time and Habitat: Woolly lousewort emerges as a little woolly lump in late May to early June. It grows in meadows on Hillsides and rocky areas, such as the east flank of Polovina Hill, the dunes across from Big Lake and the boulder rampart of the Venusian Pancake Dome. It is uncommon, but easy to find in its specific habitat on the island.

Notes: Woolly lousewort grows all over the North American portion of the Arctic Circle. It was first found in Greenland. It is a fantastic example of adaptation to cold climates with short growing seasons, as it uses its wool to keep itself warm and protected. It is able to bloom early this way, starting out very short with much wool around it and then elongating out of its wool as the weather warms. **Oeder's lousewort (*P. oederi*)** is shown as being on the island, but has not been found recently. It was yellow flowers tipped with brownish red and 2 red spots, so should be pretty distinctive. It grows from Eurasia east to Yellowstone NP. The Inupiat pick woolly lousewort flowers and ferment them like sauerkraut. Its root is edible either raw or cooked, and was dug and eaten in many forms by many native groups. Medicinally, lousewort is a mild sedative, and was so used. Therefore, it should be eaten sparingly. It is not easy to transplant to rock gardens because it has been found to be partially parasitic on the roots of other plants, which may not be present in the gardens. *Lanata* is Latin for wool. The old species name, *kanei*, is named for Elias Kent Kane (1820-57), a member of the US Navy and an arctic explorer,

Pedicularis oederi photo taken on mainland Alaska

Plantain Family

(Plantaginaceae)

The plantain family is small, with 3 genera and almost 300 species. Common plantain is the most famous, since it has been introduced all over the world from Europe. Other familiar species are sea-side plantain and English plantain. The members are distinguished by having spikes of tiny flowers with 4 parts on leafless stalks and grass-like to egg-shaped basal leaves with a single or parallel veins. There is possibly one species on St. Paul Island, described below.

Common plantain*

Plantago major

Description: The flowers are greenish and tiny, in a narrow, tightly-packed spike (6 cm long). The spike is on a 5 cm long stalk which rises from the center of the basal rosette. The leaves are all in a basal rosette, are

Photo courtesy of wikipedia.org, unknown location

egg-shaped with short stalks, and have parallel veins. There are typically 5 leaves per plant, and they are 10 x 6 cm. There are 1-3 spikes per basal rosette. The fruits are egg-shaped capsules with 6-20 mucilaginous black seeds. The plant grows to be 15-25 cm high.

Growing Time and Habitat: Common plantain comes up and blooms in mid-July. I found only one plant on the island in the harbor near one of the trailers. I ripped it out unceremoniously, since I knew it was an introduced weed. So hopefully there are now none on the island, but I wouldn't count on it.

Notes: Common plantain has been introduced to the entire world (even the Galapagos Islands) from Europe. It had not been reported as being on St. Paul island, so the one I pulled out is probably the first one to establish itself on the island. Even though I didn't see any more, the one plant indicates that there is the potential. Since this is an introduced weed, I invite all people who see it to also pull it out, careful to get all the roots, put it in a paper bag and either burn it or throw it into a dumpster. Interestingly, the native people of the world named this plant 'white man's foot' since the leaves resemble a footprint and since the plant seemed to spring up whenever white people entered a new land. Common plantain is edible and the leaves are rich in vitamins A, C and K (the vitamin essential for promotion of blood clotting and prevention of hemorrhage). Common plantain has long been reputed for its healing qualities. The leaves are somewhat mucilaginous and so are good for treating wounds, infection, snake bite, ear aches and rashes. It can be made into salves and used for soothing sore eyes (though the application makes you look like a strange, green monster). The seeds are sold commercially under the name 'psyllium' and are used as a laxative. So, perhaps if you do find the plant on the island, just eat it or use it medicinally. The genus name, *plantain*, is Latin for 'sole of the foot (*planta*)' referring to its shape. The species name, *major*, is Latin for 'greater'.

Bedstraw Family

(Rubiaceae)

The bedstraw family is very large with 6,000 - 7,000 members. Its distribution is mainly pan-tropical with the members growing into trees, shrubs, and herbs. The most famous members are the coffee bean tree and *Cinchona* (the source of anti-malarial quinine). This family also produces many ornamentals including bluets, pentas, button bush, and gardenia. Madder (or bedstraw) is a famous source of dye. The members are distinguished by having opposite or whorled leaves, mostly 4 parts (but sometimes 3 or 5) with 4-5 stamens. There are only about 20 genera in the US, so it is hard for us to appreciate the extent of the family. There is but one species on St. Paul Island.

Small bedstraw

Galium trifidum ssp. *columbianum*

Description: The flowers are tiny (3 mm across) with 3-4 white petals. There are 1-3 flowers per stalk which bloom terminally or from the leaf axils. There are 4-5 narrowly oval leaves (1 cm long) with 1 prominent mid-vein which are arranged in whorls at intervals down stem. The thin, delicate stem is 4-sided, and is often branched, trailing and matted. The fruits are smooth, round nutlets which grow in pairs. The plants grow to be about 10 cm tall.

Growing Time and Habitat: Small bedstraw blooms in mid July. It grows in wet places, often partially submerged. Bedstraw can rarely be seen from a far, since dense water-side vegetation must be pushed back to reveal it creepinginconspicuously near the surface of the water at the base of the other plants. It can be found matted on the margin of

Saucer Pond, at the edge of the Polovina Wetlands and Webster Lake. It is fairly rare on the island.

Notes: This subspecies, also known as three-petal bedstraw, grows around the North Pacific Rim from California to Japan and into some of the Rocky Mountains. It was first found in the mountains between Montana and Washington and in Alaska. Since bedstraw is in the plant family which includes coffee, the fruits can be dried and used as a caffeine-free coffee substitute. The leaves have been eaten by some natives as a green, used as a hair rinse, perfume and pain reliever. Bedstraws have been used to successfully treat cancer and tumors. The Dena'ina Athapascans call the plant 'wormwood's partner', since it has many of the same pain-relieving and cancer-reducing qualities as wormwood (see p.147). Some species, especially *G. triflorum*, have sweet-smelling coumarins, so large matted patches were used as mattress stuffing, hence the common name of bedstraw. Additionally, the plants used to be called 'Our Lady of Bedstraw', from a legend that Jesus was put on a bed of this plant and bracken (which is a fern). Bedstraw acknowledged its birth and received lovely sweet-smelling flowers, whereas bracken did not and got no flowers at all. The genus name, *Galium*, is derived from the Greek word *gala* meaning 'milk', since the species *G. verum* was used to curdle milk. The species name, *trifidum*, means 'cleft into three', referring to the number of petals on many of the flowers. I am guessing that the subspecies name, *columbianum*, refers to the fact that one of the places it was first found was along the Columbia River.

Valerian Family

(Valerianaceae)

The valerian family is small, with about 400 species worldwide. It only has a few members in North America, mostly concentrated in the west. The stem leaves are opposite and the flowers are 5-parted and usually joined at the base to form a tube. The European herb, *Valeriana officinalis*, is famous for its use as a sedative and reliever of insomnia. There is one species on St. Paul Island.

Capitate valerian

Valeriana capitata

Aleut Name and Translation: Ameen (or tanin), no meaning.

Aleut Use: Many roots were dug and then used to rub on the halibut jigging to attract the fish, since valerian root has a very strong odor. The women would also hang the exposed roots in the house and ones wrapped in cloths in the drawers for potpourri. The roots were also used medicinally.

Description: Capitate valerian has many tiny white flowers all bunched together in a head on top of the stalk. The tiny flowers have 5 petals each and are pinkish in bud. The head is spherical in shape (and about 1.5 x 2 cm). There are thin, sharp bracts beneath the head. There are usually two sets of stem leaves, one right under the head which includes several whorled leaves which are sharply-pointed and rounded at the base. The second set is usually right in the middle of the stem and has slightly larger leaves, often with one or two deeply-cut lobes. The basal leaves are broadly lyrate. Separate from the flowering stalk, there are basal leaves which are roundly spade-shaped. They can be of varying sizes (usually from 3-5 cm long) and are certainly confusing since they do not seem associated with the main flowering stalk at all. The plant grows to be 25-40 cm.

Basal leaves separate from flowering stalk.

Growing Time and Habitat: Capitate valerian leaves appear

much earlier than the flowers, in early June. The flowers start blooming in late June and continue well into August. It is found around wet areas, in moist meadows, and along roadsides all over the island, including on the edge of Whitney Pond, Saucer Pond and on the Polovina dirt bridge. It is fairly common on the island.

Notes: Capitate valerian grows in Alaska and the North Pacific Rim, into northern Siberia and down through the mountains. A subspecies grows in the mountains of the west and NW US. Valerian is famous for its use as a relaxant and relief for insomnia. It contains the alkaloids chatinine and valerine which depress the central nervous system. The European species (*V. officinalis*) is sold commercially for such uses, but other species, such as this one, have similar properties. The food value of valerian is minimal and can be toxic in large doses, but the medicinal uses, where the root is steeped in tea or made into a tincture, are endless. Herbalists used it for over 1000 years to treat nervousness, hysteria, epilepsy, migraines, irregular menstruation, childhood diseases, and optical nerve damage. It is considered by many native groups to be a 'female medicine plant' since it is used to heal many ailments of women. Valerian is also famous for its smell, which is rather bad, like sweaty socks. The Alaskan Tlingit's name for it translates as 'medicine that smells'. In Europe, the tea was used as an aphrodisiac and love potion. Cats and rats also seem to be enchanted by its odor, and it is said that the Pied Piper had valerian in his pocket and that is why these creatures followed him in such profusion. The common and genus name have several possible derivations; one is that it was named after Valeria in Hungary (which was once a Roman province), where *V. officinalis* supposedly originated. Another derivation is that it was named for Valerius, the first person to use valerian medicinally. And yet another derivation is that it comes from the Latin word *valere*, which means 'to be worth' or 'to be healthy'.

Bluebell Family

(Campanulaceae)

The bluebell family is fairly large with about 2,000 members. The members grow in tropical, subtropical and temperate areas worldwide. It has little economic importance except for a few ornamentals, most famously bluebells itself. The members have 5 fused petals (which often form bell-shaped flowers). There are two species on St. Paul Island.

Mountain harebell

Campanula lasiocarpa

Aleut Name and Translation: **Kulukula-^x** (coolukladen), meaning little bell or bluebell. No use.

Description: The flowers are light blue-purple and bell-shaped (2 x 2 cm) with 5 pointed lobes. The sepals are densely hairy. The leaves are alternate with small sharp serrations; the stem leaves are spear-shaped (10 x 2 mm); the basal leaves are oval (10 x 6 mm). The stem is upright, and the flowers point up or sideways, like a megaphone. There is usually 1 flower per plant, the plants grow singly and are scattered. The fruits are capsules and are long, oval, and hairy with many flattened seeds. It grows to be 5 cm tall.

Similar Species: **Arctic harebell** has smaller, funnel-shaped flowers (1 x 0.5 cm); the leaves are entire, the stem bends over onto the ground, and the sepals are only sparsely hairy

Growing Time and Habitat: Mountain harebell's basal leaves with their small, sharp serrations are out long before the flowers and baffled me to no end until the flowers appeared. The basal leaves somewhat resemble a tiny back-scratcher since they are slightly cupped. The flowers finally bloom in late July in scoria and rocky areas such as the Kaminista boulder rampart, the scoria area at the pullout to Whitney Pond and on the way to Kittiwake Lake from the road. It is uncommon on the island.

Notes: Mountain harebell grows in the North Pacific Rim and down through the northern rocky mountains to Washington state. Its flowers look similar to common harebell (*C. rotundifolia*), which is more widespread and grows in the temperate regions of the Northern Hemisphere. Common harebell is the 'Blue Bell of Scotland' made famous

by poets. The Navajo used common harebell as an agent to ward away witches by rubbing it on their bodies while hunting. Interestingly, the Haida of the central B.C. coast called common harebell 'blue rain flower' and children were told that if they picked it, it would rain. This mirrors a similar belief by the St. Paul Island Aleuts, only their rain flower is the poppy. The common name, harebell, is of Middle English origin, and perhaps was named because the flowers are the right size to be bells for hares (or rabbits). The species name, *lasiocarpa*, is Latin for 'split fruit' referring to the fact that the fruit capsules form cracks which emit the seeds when the capsules blow about in the wind.

Arctic harebell

Campanula uniflora

Aleut Name and Translation: See above. **Other Common Name:** Arctic bellflower

Description: The flowers are light blue-purple, funnel-shaped (10 x 5 mm), with 5 pointed lobes. There is usually 1 flower per plant. The sepals are sparsely hairy. The leaves are alternate, lance to oval-shaped, entire, and short-stalked. The upper leaves are small, and the lower larger (25 x 5 mm). The stems are usually bent over onto the ground with flowers opening sideways. The plants grow singly and are scattered. The fruits are oval capsules with many flattened seeds. It grows to be 5 cm tall.

Similar Species: **Mountain harebell** has larger, wider, bell-shaped flowers (2 x 2 cm), leaves with small, sharp serrations, and densely hairy sepals.

Growing Time and Habitat: Arctic harebell blooms in mid-July for a few short weeks. It grows in rocky areas or scoria scrapes such as the scoria area at the Whitney Pond pullout, on the east flank of North Hill and on the scoria ridge of Rush Hill. It is uncommon on the island.

Notes: Arctic harebell grows very spottily in the arctic, and boreal forests down the Rocky Mountains and NE Canada. On the island, it is very hard to spot, since it blends into the scoria, but if you look closely, there are a good number scattered here and there. The Navajo crushed a similar species of harebell to a powder and used it to soothe sores. The genus name, *Campanula*, is Latin for 'small bell' (*campana*), referring to the shape of the flower. The species name, *uniflora*, means 'one-flowered' in Latin despite the fact that there are occasionally 2 flowers per plant.

Composite or Aster Family

(Asteraceae)

The composite (also called the aster or sunflower family) is the first or second largest plant family in the world with over 21,000 species. The orchid family is practically as large or larger. Since both families have many confusing species groups, it is hard to say who tops out with the most species. The composite family has species all over the world, but is especially common in dry, temperate, and cool climates. It is easy to recognize because the members have many tiny flowers bunched into one 'flower', often giving them a sunflower-like appearance. The flowers are of two types; disk and ray flowers. If you pluck a ray, you will see reproductive parts in the cupped section at the base of the ray. If you pull out some of the disk, you will find that each one is a separate flower. The disk flowers are sometimes surrounded by hairs, which are often important in keying. These hairs are called the pappus, and are thought to be greatly reduced sepals. Seed dispersal is aided by the pappus, as the hairs act like miniature parachutes (like dandelion fluff) letting the wind carry them far and wide. The green scale-like leaves underneath the disk are called involucral bracts and are also sometimes important in keying. Some species will have no ray flowers, such as tansy, and some will have only ray flowers, such as dandelions. Many species of composite are important as food, namely lettuce (*Lactuca*), chicory and endive (*Cichorium*), artichoke (*Cynara*) and sunflower (*Helianthus*). Chamomile (*Anthemis*) is a popular tea. Many

ornamentals come from the composite family, including daisies, chrysanthemums, marigolds, coreopsis, cosmos, dahlias, sunflowers, zinnias, and edelweiss. Another large group of species are introduced weeds, both noxious and benign, including dandelions, tansies, thistles, knapweeds, hawkweeds and daisies. There is a nice cross section of composite family members on St. Paul Island, since only 2 of the 11 genera have multiple species. There are 16 species of composite on the island. Below is the key.

1a. Flowers purple, in globe-shaped heads; stems short (10 cm) ..... **globe wormwood**, p. 146
1b. Flowers greenish-yellow, conical disk flowers only; leaves very ferny ..... **pineapple weed**, p. 144-5
1c. Flowers with white rays and yellow disks; leaves ragged, white woolly beneath ..... **arctic daisy**. p. 145-6
1d. Flower color otherwise ..... (2)

2a. Flowers with purple (or lilac) rays and yellow disks ..... (3)
2b. Flowers white (one species occasionally has pink flowers) ..... (4)
2c. Flowers yellow ..... (5)

3a. Plants10 cm tall or shorter; growing in dry, often sandy areas ..... **Siberian aster**, p. 141-2
3b. Plants over10 cm tall; only growing in one patch beside Whitney Pond ..... **coastal fleabane**, p. 142-3

4a. Plants 5 cm tall or less; flowers resembling kitten's toes ..... **pygmy pussytoes**, p. 143
4b. Plant over 5 cm tall; stems thick, fleshy; flower heads spherical; leaves later **arctic sweet coltsfoot**, p. 149
4c. Plant with finely divided, narrow fern-like leaves; flower heads flat-topped ..... **northern yarrow**, p. 144

5a. Flowers rayless ..... (6)
5b. Flowers sunflower-like (with rays and disks, and both yellow) ..... (7)
5c. Flowers dandelion-like (rays only) ..... (8)

6a. Plants 10 cm or less tall; flower head globe shaped; leaves silvery ..... **yellow globe wormwood**, p. 147
6b. Plants tall (1 m); disks with red in center; leaves white beneath, spiky ..... **northern wormwood**, p. 147-8
6c. Plants medium height; disk heads scattered down stem; leaves all green, finely cut ..... **arctic sage**, p. 148-9

7a. Flower heads 5 cm across or less; leaves opposite, prominent parallel veins ..... **Alaska arnica**, p. 150
7b. Flower heads 8 cm across or greater; leaves alternate, whitish beneath ..... **beach sunflower**, p. 150-1

8a. Dandelions growing around town; tall (averaging over 15 cm high) ..... **common dandelion**, p. 151-2
8b. Dandelions growing in meadows, leaf tops rounded, 8-15 cm high ..... **horned dandelion**, p. 152
8c. Dandelions growing in interior, 7 cm high or less; leaves deeply cut; long stalked ..... **Kamchatka dandelion**, p. 153

Siberian or arctic aster

Aster sibiricus, Eurybia sibirica

Description: The flowers have purple rays which are 1.5 cm long and yellow disks which are 1 cm wide. There is one terminal head per stalk. The leaves are alternate, with 5-6 per stem. They are elliptic, and sharp-pointed with small serrations. The basal leaves are rounder and are 3-4 cm long. The fruits are veined, hairless achenes with whitish pappus hairs. Stems usually grow in patches with bunches of leafy basal rosettes. The plants grow to be 6-12 cm high.

Similar Species: Coastal fleabane has the same color scheme and flower type but it is much taller (15-30 cm), with much narrower rays, and only grows in one patch on the banks of Whitney Pond.

Growing Time and Habitat: Siberian aster starts blooming in late July and continues through August. It

grows in vegetated sandy areas and bare spots such as the dunes by the old Polovina dirt bridge, on the northwest flank of Telegraph Hill, in the dunes north of Sheep Lake, and in the middle of the 2-track going around Weather Bureau Lake. It is relatively rare on the island.

Notes: Siberian aster grows around the Arctic Circle and down into the mountains to NW US It has very different growth forms depending on its habitat; protected mainland species can be tall and robust, whereas the species on St. Paul and other exposed sites are short and scrawny. Supposedly the leaves are strongly scented when rubbed. The aster genus is very large, with many confusing species throughout the world. We are lucky to have just one species on the island, making identification extremely easy. Native groups used various aster species to remedy certain illnesses, especially headaches (they actually named the plant aspirin in their language), as well as heart ailments, fever and toothaches. The genus name, *Aster*, is Greek for 'a star', referring to the flower shape. The species name, *sibiricus*, refers to the fact that the flower's major distribution is in Siberia and was first found there. The new genus name is Greek for 'wide (*eurys*) few (*baios*)', possibly referring to the smaller number of wider ray flowers this species has compared to other species.

Coastal fleabane

Erigeron peregrinus* ssp. *peregrinus

Other Common Names: Subalpine fleabane, pink daisy, seaside daisy, wandering daisy

Description: The flowers have narrow, pink rays and yellow disks. The entire flower is about 3-4 cm wide. The flower heads are single on the stems. The leaves are alternate, narrow, and lance-shaped (4 x 1 cm), with the lower leaves being slightly longer. There are 10 or more per stem. The fruits are hairy, ribbed achenes that have tawny pappus. The stems grow in a leafy bunch. The plants reach about 20-40 cm tall.

Similar Species: Siberian aster has similarly colored rays and disks, but is much shorter (10 cm or less), with wider rays that are more purple.

Growing Time and Habitat: Coastal fleabane slowly blooms from late July and finally reaches full flower in early to mid-August. It is one of the latest blooming flowers on the island. Coastal fleabane is found only in one 1 x 1 meter patch beside Whitney Pond.

Notes: Coastal fleabane grows along the coast from the Aleutian Islands down to Oregon. It is the same species as subalpine daisy, which grows in the mountains of the western US, but a different subspecies. The two look very similar, differences being in leaf size, hairiness and ray color. This plant was not found on St. Paul Island until the late1950's or 60's when Alton and Colleen Roppel, managers of the seal program and

wildflower enthusiasts, discovered it by Whitney Pond. It is definitely one of the more bizarre plant distributions I have seen, encompassing just one tiny patch on the entire island. Again, the seeds were probably brought in by a bird and luckily dropped where they could establish. Seeing as how the patch probably has enlarged in 40-50 years, it is unlikely that the flowers are able to produce viable seed, especially since they bloom so late. Thus, it is probably surviving via vegetative reproduction. If it is not trampled to death by the reindeer, it will be interesting to monitor this patch in the future. The fleabane genus is large,and in some parts of the world, the species are incredibly difficult to distinguish and identify. The flowers are often used in ornamental displays. The genus name, *Erigeron*, is Greek for 'early (*eri*) old man (*geron*)' referring to the fact that it is usually an early blooming flower (not on St. Paul!) and has white, downy pappus resembling the hair of an old man. The species name, *peregrinus*, is Latin for 'foreigner' or 'wanderer'; literally 'one who goes through (*per*) the land (*ager*)', which seems very appropriate since this species is a fairly recent migrant to the island.

Pygmy pussytoes

Antennaria monocephala ssp. *monocephala*

Description: Pygmy pussytoes has white flowering heads with many tiny disk hairs (really individual flowers) which resembles a miniature pin cushion. The heads are about 7-10 mm across and are surrounded by brownish bracts. The heads are single on short stems (2 cm tall), which have 2-4 alternate, thin, narrow leaves which are pressed close to the stem. The basal leaves are short (1 cm long), spatula-shaped and form a thick mat below the flowering stems. Both stems and leaves have woolly hairy which gives them a greenish-white cast. The underside of the leaves is woolier than the topside. The plants grows to be about 2-4 cm high.

Growing Time and Habitat: Pygmy pussytoes blooms in early July. It grows on the tops of hills and/or in the scoria scrapes, including on Polovina and Lakes Hills, and around the turnout to Whitney Pond. It is uncommon on the island.

Notes: Pygmy pussytoes grows in the mountains along the coast of the Aleutian and Bering Sea Islands, through mainland Alaska and into NW Canada. A variety (***A. monocephala* ssp. *monocephala* var. *exilis*)** was listed by Hultén as being first found on St. Paul Island and occurring only in a very few spots elsewhere, but, as with many of his other varieties and subspecies, it was lumped into the parent species by present taxonomists. This variety supposedly had white wooliness on the top side of the leaves as well as the underside. Although I closely examined every pussytoes I came in contact with, I never saw this particular feature, which either adds credence to why it needed to be lumped, or means I missed it. The *Antennaria* genus members often have separate male and female flowers, and sometimes the male plants are not present in a population. In this case, the female plants will produce seed without fertilization, generating offspring genetically identical to themselves. The white wool on the stems of pussytoes helps the plant contain the scanty heat and water it receives in the harsh environments in which it grows. This wooliness may also help to deflect harm that could be done by potent ultraviolet rays which blaze down at high elevations. This genus is quite large and diverse, growing in many different dry or harsh habitats, which goes to show how well its adaptations work. Since the flower bracts are somewhat chaffy and keep their shape, pussytoes picked soon after blooming make a good addition to dried flower arrangements. Pussytoes are so named because of the similarity of the flowers to the soft paws of cats and kittens. The genus name, *Antennaria*, is Latin for 'antenna', referring to the similarity of the pappus hairs of the male flowers to insect antennae. The species name, *monocephala*, is Greek for 'one-headed', referring to the single flower head on each stalk.

Northern or boreal yarrow

Achillea borealis, A. millefolium var. *borealis*

Aleut Name and Translation: **Ulngig^din** (ulnyex^theegan), meaning medicine

Aleut Use: The Aleuts picked the leaves and tied them in bundles behind the stove to dry. Whenever they had a cold or problem with asthma, they would boil the dried leaves in hot water to make a tea. They would gargle the lukewarm tea to alleviate sore throats.

Description: The flowers are white or more rarely pink. They have slightly dome-shaped to flat-topped heads (also called corymbs) measuring 3-5 cm across. There are many, tiny, 5-parted flowers (5 mm across) within the corymb. The stems are short hairy and stout. The leaves are alternate and pinnate with many very thin divisions. These are fern-like and delicate, (5-10 x 1-2 cm), with short white hairs. Single pinnate basal leaves growing without flowers is very common. The fruits are hairless, flattened achenes. The plants grow to be 15-30 cm high.

Growing Time and Habitat: Northern yarrow's pinnate, ferny basal leaves are out long before the plant begins to bloom, probably by early June. The flowers bloom from mid-July through August. It grows along roadsides, in meadows, and in the dunes such as in Zapadni Ravine, along the road by the Kaminista Quarry and in the Lukanin dunes. It is very common and abundant on the island.

Notes: Northern yarrow grows on the Aleutian and Pribilof Islands, through Alaska, south to Washington and east along the arctic sea to NE Canada and New England. The parent species, *Achillea millefolium*, was introduced from Europe and grows widely throughout the Northern Hemisphere, but, for the most part, has not invaded into Alaska, where 4 native species are found. The medicinal powers of yarrow have benefited almost all native groups who live in its range. Yarrow's main use has been as a remedy for colds and 'flu, both taken internally and externally in steam baths or saunas. The herb induces sweating so was often used to treat fevers. Another major use of it is as a blood stauncher. Aleuts on the chain used it to stop bleeding and to alleviate aches and pains. Most plants with blood clotting abilities seem to also be reputed for healing women's ailments, and so it is with yarrow. It was used to remedy irregular and difficult menstruation, pregnancy and menopause. Yarrow is often used as a salve for oily and irritated skin.. It was used also as an insect repellent, ear ache remedy, foot soother, compost quickener, beer additive and divination aid in witchcraft. The genus name, *Achillea*, is named for the Greek hero Achilles, whose mother dunked him into a yarrow bath as an infant to make him invincible, but of course didn't wet his heel, which was his weak point and eventual downfall. Interestingly, legend has it that Achilles staunched fellow soldiers' bleeding with yarrow. The species, *borealis*, means 'northern' in Latin.

Pineapple weed*

Matricaria matricarioides , M. discoidea

Description: The flowers are yellowish-green rayless, cone-shaped disks, which are1 cm wide. There are 1-5 heads in a terminal cluster. The leaves are alternate and are much divided into thin segments. They surround the flowers in a bushy cluster. There are no basal leaves. The stems grow singly in a straggly patch. The fruits are hairless, veined achenes. The pappus is a short, membranous crown. The plants are 8-12 cm high.

Growing Time and Habitat: Pineapple weed's leaves appear in mid to late July and the flowers bloom in early August. It only grows near the cafeteria entrance of the Trident Sea Foods plant.

Notes: Pineapple weed, also called disc mayweed, is native to western North America, but, in a bit of a switch, was introduced into Europe and the vast majority of the rest of the Northern Hemisphere. It is not present on Macoun's list, but is on Hultén's, so was introduced on to the island sometime before 1960. Luckily, it is not spreading and is in very low numbers, so does not pose a threat to the native vegetation. When you crush pineapple weed, you will realize why it was so named (though people I have had smell it have come up with other interesting interpretations, such as apples, citrus and watermelon). Natives have stuffed pillows with the weed, which is related to wild chamomile (famous for its sleep-inducing effect). The plant was also made into a tea to treat colds, stomach aches, fever, diarrhea, and menstrual cramps. Dried plants were used to reduce spoilage and keep flies away. At one point, the Stoney natives reportedly crossed mountains to trade for this plant. The genus name, *Matricaria*, is Latin for 'mother' or 'womb (*matrix*) dear (*caria*)', since this plant was often used to aid in pregnancy and associated with women's health problems. The species name, *matricarioides*, means 'resembling matricaria', since initially, the describer, Christian Friedrich Lessing (1809-62), who was a German physician, thought this plant was a member of the *Artemisia* genus. Taxonomists have fixed this error by changing the species name to *discoidea*, which means 'disk-shaped' in reference to the flowering head.

Arctic daisy

Chrysanthemum arcticum ssp. *arcticum*

Description: The flowers have white rays and flat yellow disks which are 4 cm wide (rays 1 cm, disks 2 cm). The stem leaves are narrow (1.5 cm long). The basal leaves are in bushy clusters. They are divided slightly into 3 rounded, irregularly serrated parts, and are 5 cm long. All the leaves have white, woolly felt on the underside and are leathery in texture. Many single-headed stems arise from the mat of basal leaves. The fruits are black achenes with etched lines. The plant reaches 10-15 cm in height.

Similar Species: **Coastal fleabane** has narrower pink rays and longer, entire leaves

Growing Time and Habitat: Arctic daisy blooms from early July through August. It grows along the coast in moist and rocky areas such as in the Antone saltmarsh, at SW Point and the High Bluffs. It is uncommon, but showy.

Notes: Arctic daisy grows on seashores and saltmarshes around the North Pacific Rim. It was first found in Kamchatka and North America. The leaves of this maritime species of daisy are unusually thick and leathery. Add to that the white woolliness on the undersides and you get a leaf which is very good at retaining water and withstanding salt spray. Some species of daisies were used to treat sore eyes since the Doctrine of Signatures of the 16th and 17th centuries dictated that ailments were cured by plants which resembled the affected part. The name daisy is derived from the Old English words *doeges eage*, meaning 'day's eye', since the ray flowers open each morning to reveal the flower's 'eye'. Later on, daisies were used to stop bleeding and treat stomach ulcers. The genus name, *Chrysanthemum*, is Greek for 'gold (*chrysos*) flower (*anthos*)', referring to the yellow central disk.

Globe or purple wormwood

Artemisia globularia

Photo by Loren Taft courtesy TDX

Description: Globe wormwood has many tiny dark purple flowers bunched into rounded heads. The flowering heads are made up of 5-10 clumps that are short stalked and arise from the central stalk (like broccoli). The stalk is white-woolly and thick with intermittent bracts and rarely a small leaf or two. The leaves are matted around the flowering stalks in large patches. They are stalked and reach up like little hands since the tops of the leaves are divided into finger-like projections. The leaves are covered with whitish hairs which gives them a silvery-green cast. The flower stalks rise 1-2 cm above this mat of leaves. The plant is 5-7 cm.

Growing Time and Habitat: Globe wormwood blooms in late-June. Its silvery leaves can be seen much earlier - probably as soon as mid-May - carpeting the ground in patches. It grows on scoria all over the island, including between the pullout and Whitney Pond, Lake Hill, Polovina Hill, Bogoslov Hill, SW Point and Telegraph Hill. It is common on the island.

Notes: Globe wormwood grows on islands and shores around the upper North Pacific Rim. This species is unique in being mat-forming and is probably one of the smallest sages there is. St. Paul Island is a wonderful place to see it because here it grows in relatively great abundance. Elsewhere its distribution is limited and is considered to be a plant that is rarely found. Wormwood, or sage, is probably the plant used most for herbal remedies in Alaska by native people. The common name, wormwood, comes from the plant's use as a vermifuge (or expeller of worms). There are many species of wormwood, but the ones used most medicinally are the larger plants. This little mat-forming species probably has similar medicinal value, but since it is much rarer and so small, it was probably never directly used by native people. Historically, wormwoods were used in ancient times in papyrus (dating from 1600 B.C.), mentioned in Shakespeare plays, and written about in classic herbals. Wormwood was traditionally smoked on Summer Solstice (St. John's Day) beside hilltop bonfires to ward off evil spirits. Ancient legend has it that wormwood sprang to life in the wake of the serpent of Eden when he slithered forth from the garden. Accordingly, unwanted beasts are supposed to stay away from those who wear a salve made from wormwood. The genus, *Artemisia*, is named for the Greek goddess Artemis, who represented the moon and female energies. Appropriately, wormwoods are often used to aid in pregnancies and female ailments. The species name, *globularia*, means globe-shaped in reference to the shape of the flower heads.

Yellow globe wormwood

Artemisia globularia var. *lutea*

Description: The flowers are yellow globular heads of many, smaller flowers (2 cm wide). There are no stem leaves. The basal leaves are long-stalked, and spread to form the shape of a hand. They are covered with silvery-gray hairs and form a dense basal mat. The stems grow upright from the mat of leaves. The fruits are tiny, brownish achenes. The plants grow to be 5-7 cm tall.
Similar Species: Globe wormwood: It has purple flower heads.
Growing Time and Habitat: Yellow globe wormwood blooms in early July. It grows in a moist depression on a flank of Rush Hill. It is very rare.
Notes: Yellow globe wormwood supposedly only grew on Hall Island initially, which is just north of the Pribilof Islands near St. Matthew Island. Then Rob Lipkin found it on one spot on the Seward Peninsula and in 1994 on St. Paul Island! It is on the Alaska Natural Heritage Rare and Endangered plant list, so it is very exciting that there are some plants on St. Paul Island. It has the S2 designation in Alaska, meaning there are only 6-20 individuals known to exist, and in this case, in 5 different spots. It has a G4 worldwide designation, meaning it is apparently globally secure, though might be quite rare in parts of its range. I.T.I.S. no longer accepts this variety, but the *Flora of North America* and Pan-arctic flora both do, so there is a disconnect in the taxonomic world. The variety name, *lutea*, is Latin for 'yellow'.

Northern wormwood

Artemisia tilesii ssp. *tilesii*

Aleut Name and Translation:
Sixsiqdam (sic-sic-then), means wormwood
Aleut Use: Aleuts used northern wormwood in steam baths to alleviate arthritis by slapping the leaves over the affected joints. Also, it was used during the last month of pregnancy. The midwife would make a lukewarm steam bath, lay the leaves over the stomach of the pregnant woman and then gently massage to find the position of the baby. The midwife would then help to turn the baby if it was in the wrong position to be born.
Description: Northern wormwood has an elongated head of many small clumps of tiny yellow flowers with rusty red centers. There are sharp-pointed silvery-green bracts in amongst the flowers. The flower heads are about 3-5 cm tall and 1-2 cm wide. The flowering stalk has many alternate leaves which are divided into three parts and additionally have many more sharp mini-divisions. The tops of the leaves are greenish and the underside is white-woolly. There are many more stalks with leaves only and the leaves on these tend to be larger. The plant grows in big patches and can reach 50-80 cm in height.
Growing Time and Habitat: Northern wormwood leaves appear much earlier than the flowers, in

A fox peeps out from in front of a patch of northern wormwood

early June. The flowers bloom in late-July. It grows along roads and in meadows all over the island such as by the gravel pit on Lake Hill, on top of the Reef bird cliffs and around town. It is very common and abundant on the island.
Notes: Northern wormwood, also called Tilesius' wormwood, grows around the North Pacific Rim, west across the Arctic, down through Alaska, and into BC and Manitoba. It was first found in Kamchatka. It has a tendency to form local races so can look different depending where you are. Northern wormwood was one of the most important medicinal herbs for native people. It was and still is used as a remedy for colds, sore throats, arthritis, menstrual cramps, emotional trauma, upset stomachs, minor wounds and aches to name a few. It was powdered and used to repel moths and insects. It was and still is used in cosmetics such as deodorizers, deodorants and shampoos. For some reason, the juices in wormwood are easily absorbed into the body, which is why it is so effective in helping cure stiffness and aches. Appropriately, the other common name for this genus, sage, comes from the Latin *salvus*, which means 'healthy'. It is best to be forewarned that the plants contain the volatile oil absinthol in small amounts. This oil is very potent, and, taken in large quantities, can cause convulsions and coma. However, taking small amounts in teas, as a spice or steam baths does not present a health hazard. This oil makes wormwoods unpalatable by livestock, wildlife and insects, so wormwood (or sage) is often the main component of pastures where it occurs. The species name, *tilesii*, is named for Wilhelm Gottlieb Tilesius von Tilenau (1769-1857), a member of the expedition which circumnavigated the world on the ships *Neva* and *Nadeschda* captained by Krusenstern.

Arctic sage

Artemisia arctica ssp. *arctica*

Other Common Name: Arctic wormwood, mountain sagewort, boreal sagebrush
Description: The flowers are yellow, rayless disks (1 cm) which are long-stalked, and grow in long, loose clusters. The bracts around the disk are dark. The stem is ridged and hairy. The flowers stalks have 10-20 heads. There are a few stalks to each bushy patch of leaves. The leaves are alternate, and are divided into fine, sharp segments. The leaves are scattered on stem. The basal leaves are green and bushy. The fruits are hairless achenes. There are no pappus hairs. The plants grow to be 30-40 cm tall.
Similar Species: Northern wormwood is much larger (up to 1 meter tall), has a tight cluster of rayless yellow disks with red in the center. The leaves are white woolly beneath and are not as finely divided.
Growing Time and Habitat: Arctic sage's leaves appear in about mid-June and then the flowers bloom from late-July through August. It grows in rocky places and scoria areas, mostly in the interior, including along the road in the Kaminista Quarry, and on Bogoslov and Polovina Hill. It is uncommon on the island.

Notes: Arctic sage grows throughout the North Pacific Rim, in the central Rocky Mountains, Washington and California cascades and Sierra mountains. It was first found in Kamchatka and Unalaska among other places. A very similar species, **Bering sage (*Artemisia arctica* ssp. *beringensis*)** is on Hultén's list. It has rusty red hairs on the stems of the flowers. I looked at tons of arctic sage plants and never saw this rustiness. I'm sure it is there though, or that I was looking for the wrong thing, because Bering sage was first found on St. Paul Island. It is only shown to occur on the Bering Sea Islands and a few spots on the Aleutian chain. Arctic sage doesn't have the typical pungent smell of most sages. This could mean it also has less active chemical composition so probably wasn't used medicinally like northern wormwood. Other more potent sages were used in wormwood wines to aid the digestion, burned in campfires to repel mosquitoes, placed around garden plants to repel slugs, and added to animal feed to prevent pinworm. King Henry the VIII placed sage in his closet as a deodorizer.

Arctic sweet coltsfoot

Petasites hyperboreus, P. frigidus var. *frigidus*

Description: Arctic sweet coltsfoot has many white flowers in a tight, spherical head which sits a top a thick stalk. The flowers have reddish-brown bracts and are composed of many tiny white flowers. Sometimes the centers are pink. The stalk has a few, alternate, brown stem leaves. At flowering time, the basal leaves are separated from the flowering stalks and are small and just opening. Later, they enlarge and are the only thing left after the flower withers away. The basal leaves are triangular with coarse serrations. The underside is woolly white. The leaves are thick and leathery.

Growing Time and Habitat: Arctic sweet coltsfoot is the 4th earliest flower to bloom. It blooms in mid-May and grows in meadows on rocky tundra including cliff edges all around the western half of the island (Ridge Wall bird cliffs, SW Point and High Bluffs), as well as in the rocky meadows above the Kaminista quarry. It is common.

Notes: Arctic sweet coltsfoot grows across Beringia and western Canada and south to the Pacific NW. It was first found on the Skagit River in BC. It forms many hybrid swarms, and the plants on St. Paul are no exception. They definitely look a lot like *Petasites frigidus*, so are probably a combination of that and *P. hyperboreus*. Fittingly, taxonomists have recently lumped those two into the above accepted name. Arctic sweet coltsfoot was used medicinally by natives as a remedy for tuberculosis, chest problems, sore throat and stomach problems. The common name, coltsfoot, was given to a species that is from Europe, which is closely related. However, that plant's leaf most definitely looks like the foot of a colt, which is not the case for St. Paul's plants, and that puzzles people to no end. The genus name, *Petasites*, is from the Greek *petasos* meaning 'a broad-brimmed hat', since the leaf of the NW coast species is rather umbrella-like. The species name, *hyperboreus*, means 'above the north'.

Alaska arnica

Arnica unalaschcensis

Description: The flowers have yellow disk and ray flowers. The rays are 7 mm long and squarish and the disks are 2 cm wide. The heads are single on hairy stalks. The single stems form scattered patches. The leave are opposite, oval-elliptic (5-7 x 3 cm), mostly entire and hairy, with 3 parallel veins. There are two sets of leaves on the stem, which are generally off-set. The basal leaves are similar. The leaves are fruity smelling when crushed. The fruits are achenes with tiny hairs. The pappus is tawny. The height is 20 cm.

Growing Time and Habitat: Alaska arnica blooms slowly from mid-July through August. It seems to takes forever for its flower to fully open. It was reported as only growing on the banks of Whitney Pond (Macoun: "A few places in one locality near the south end of St. Paul Island"), but after scrounging around late in August, I found it blooming inside lava tube depressions all along the Rift from the Fox Hill lava flow to Cone Hill. Though it was rare on the island, it now seems to be spreading. This could very well be a recent, reindeer-induced phenomenon.

Notes: Alaska arnica grows on the Pribilof Islands and west along the Aleutians to Kamchatka. Presumably, it was first found on Unalaska Island. *Arnica* is a large genus with many confusing species (over a dozen in Alaska alone). It often grows in harsh habitats, such as the arctic/alpine. Arnica is a commercially sold homeopathic remedy for pain and trauma. There are reports of observations of mountain goats chewing the plants after they injured themselves on rocks. People, however, should not chew on the plants, since they contain arnicin, choline, arnidendiol, angelic and formic acids and other potent substances. These cause skin irritation, pulse abnormalities, cardiovascular collapse and death. So, admire it from a far, or use it externally on closed skin. The genus name, *Arnica*, is, by some accounts, Latin for 'lamb's skin' referring to the fuzziness of the flower bracts.

Beach sunflower

Senecio pseudo(-)arnica

Aleut Name and Translation: **Chumnux^**, meaning yellow flower. No use.

Other Common Names: False arnica, seabeach senecio, beach groundsel, seaside ragwort

Description: The flowers have yellow rays and dark yellow disks. Together they are 10-15 cm wide (rays 2-6 cm, disks 4-8 cm). The single flower heads grow on thick, woolly stalks. The leaves are alternate, club-shaped with small serrations and white-woolly on the underside. The leaves are 10-15 cm long, and there are many scattered down the stem, though most are clustered under the flower. The plants form large, leafy patches. The fruits are hairless achenes. The plants grow to be 20-30 cm tall.

Growing Time and Habitat: Beach sunflower blooms from mid-July through August. It grows on dunes all around the island, most prominently beside the road leading out of town, the dunes around Lukanin and by Reef Point. It is common on the island.

Notes: Beach sunflower grows on sandy beaches around the North Pacific Rim and in NE Canada. It was first found in Kamchatka and North America. The *Senecio* genus is one of the largest genera of plants. It has over 1,000 species which grow all over the world. One of the common names, groundsel, is derived from the Old English word, *grundeswylige*, meaning 'ground-swallower', since many of the plants in this genus are rampant weeds. Beach sunflower is not a weed, but it certainly swallows the dunes on St. Paul Island when it is in flower. Many species of *Senecio* have been used medicinally, even though the genus as a whole is considered to be toxic. A good portion of the plants contain the alkaloid pyrrolizidine which causes liver cancer in rats. Ailments treated included kidney stones, urinary tract problems, bot-worms in horses, slow and painful childbirths and headaches.. The genus name, *Senecio*, is derived from the Latin word for 'old' (*senex*), alluding to the white hairs of the pappus (the hairs attached to the achenes) on some of the species.

Common dandelion*

Taraxacum officinale

Aleut Name and Translation: **Chumnux^** (chumnoogi), meaning yellow flower

Aleut Use: Aleuts used dandelions as a green in salads and soups, often with wild celery (p. 116) and scotch lovage (p. 114).

Description: The common dandelion is pretty universal and unmistakeable, so I won't belabor the description. It has one yellow flower head which is made up of many ray flowers. The heads are on hollow stalks. There are no stem leaves. The basal leaves are arranged in a rosette and are long (about 20 cm) and pointed at the top with large, deep serrations. After flowering, the sphere of white seeds appears quickly and is then blown away and dispersed on the wind. Then the basal leaves are all that is left. The plants generally grow to be about 20-40 cm tall. It is by far the largest dandelion on the island.

Growing Time and Habitat: The basal leaves of common dandelion appear in mid-June and the flowers bloom in early July, with the seed heads following soon after. It grows around town, around buildings, and in waste areas. It is not terribly common on the island as a whole, but is highly visible since its main distribution is around town.

Notes: Common dandelion is an exotic plant intentionally introduced to the US via the *Mayflower*. It was introduced to most of the rest of the world from western Europe soon after. Common dandelion is now so

common that it is considered a denizen (something that has established itself in a place and adapted to its surroundings without much adverse affect) rather than a noxious weed. Certainly it is one of the most well-known weedy wildflowers in the world. It is interesting to note the plant's late flowering time on the island, since it usually is one of the first flowers to bloom in the spring on the mainland. That seems to be the trend with most of the exotics on the island, they struggle to flower at all and usually end up not flowering until later in the growing season. In Europe, dandelions are entered into flower shows, and the plant is cultivated to be made into foods and beverages. The entire plant is edible, with the greens being the most nutritious. Shaded plants picked before they flower are sweetest. The greens are full of calcium, iron, assimilable copper, phosphorus, potassium, magnesium, vitamins A, B and C. The flowers are rich in vitamin D and have been added to salads or steamed in the bud to add to stir fries. The common name, dandelion, is a word from middle English (originally derived from Medieval Latin) meaning lion's tooth (*dens leonis*) in reference to its deeply serrated leaves. The genus name, *Taraxacum*, is Greek for 'disorder (*taraxos*) remedy (*akos*)'. The species name, *officinale*, is Latin for 'of the shops', meaning it is of medicinal value.

Horned dandelion

Taraxacum ceratophorum,
T. officinale ssp. *ceratophorum*

Aleut Name, Translation and Use:

See above.

Description: Horned dandelion looks very much like common dandelion with the single yellow flower head, but it is smaller, shorter and the leaves have serrations which are less deeply cut. Also, the tips of the leaves tend to be rounded rather than pointed, and the leaf tends to taper from its larger tip to where it meets the stalk, appearing club-like rather than Christmas tree-like. The leaf shape, however, is highly variable, and so can be more sharply pointed. Also the bracts on the flowers are 'horn-tipped' instead of bent back like they are on the common dandelion. The leaves of horned dandelion are about 10 cm long and the plant grows to be about 15 cm tall.

Growing Time and Habitat: The basal leaves of horned dandelion appear in mid-June and the flowers bloom in late June, with the seed heads following soon after. It grows in moist meadows off the road, such as Zapadni Bluffs, High Cliffs and in the meadows across from Antone Lake. It is uncommon on the island.

Notes: Horned dandelion is the most common of the native dandelions. It grows around the North Pacific Rim, the Arctic Circle, down into the mountains, east across Canada and down onto the NE coast. It was first found in Kamchatka. The dandelion genus is a difficult group taxonomically since its members are so variable. The scientific keys have identified a staggering number of species, so the species breakdown on St. Paul Island is rough at best. One of the reasons why this particular group is so confusing is that small patches of horned dandelion keep themselves as distinct units by seeds that are formed without fertilization. Dandelions in general can form new plants when a root breaks, which gives rise to the huge number of plants found in pastures and such. The heads can have up to 150 seeds, which, after landing and being wetted, can germinate in 3 days and produce flowers in 6 months. The roots reportedly draw calcium up from lower depths in the soil, and so are regarded as soil enrichers. The roots are made up of 25% inulin (a sugar), and 75% latex (the milky substance that oozes out when the plant is broken), mucilage, resin, a waxy substance, teraxacerin (a bitter resin) and taraxacin (a crystalline substance). This makes the root very medicinal and is especially recommended for liver trouble. The species name, *ceratophorum*, means 'horn (*keras*) bearing' in Greek.

Kamchatka dandelion

Taraxacum kamtschaticum, T. lyratum

Aleut Name, Translation and Use: See above.

Other Common Names: Harp & alpine dandelion

Description: Kamchatka dandelion looks similar to common dandelion with the single yellow flower head, but it is much smaller and shorter. The leaf stalks tend to be purplish in color and longer and thinner than the other two species of dandelion. The leaves are cut all the way to the stalk and are about 5 cm long (including the stalk). The plant is much more delicate and grows to be only about 5-7 cm tall.

Growing Time and Habitat: Kamchatka dandelion blooms in late July. It is found inland around or on the hills, such as at the base of Fox Hill, around Rush Hill and Bogoslov Hill. It is rare on the island.

Notes: Kamchatka dandelion grows spottily around the North Pacific Rim, Alaska south through the Rocky Mountains and east to Greenland. It also was first found in Kamchatka. It is one of many small, native arctic/alpine dandelions which grow in this region and in the mountains. The milky substance that oozes out of the plant after breakage is actually a latex. Irish tradition says that if you put the latex on your warts and drink a tea of the plant for three successive days, your warts will disappear. In WWII the Russians cultivated a native dandelion (which had 10 percent latex in its roots) as a source of rubber. Medicinally, the plant helps to lower blood pressure, remedies liver and skin problems and aids premenstrual syndrome (PMS). It has been in use medicinally since at least the 10th century. The flowers are brewed into dandelion wine and beer. These were the preferred alcoholic beverages by workers in industrial England because they were less intoxicating and cheaper than hard liquor. The wine and beer is said to be excellent for the blood. The new species name, *lyratum*, means 'lyre-shaped', referring to the leaves.

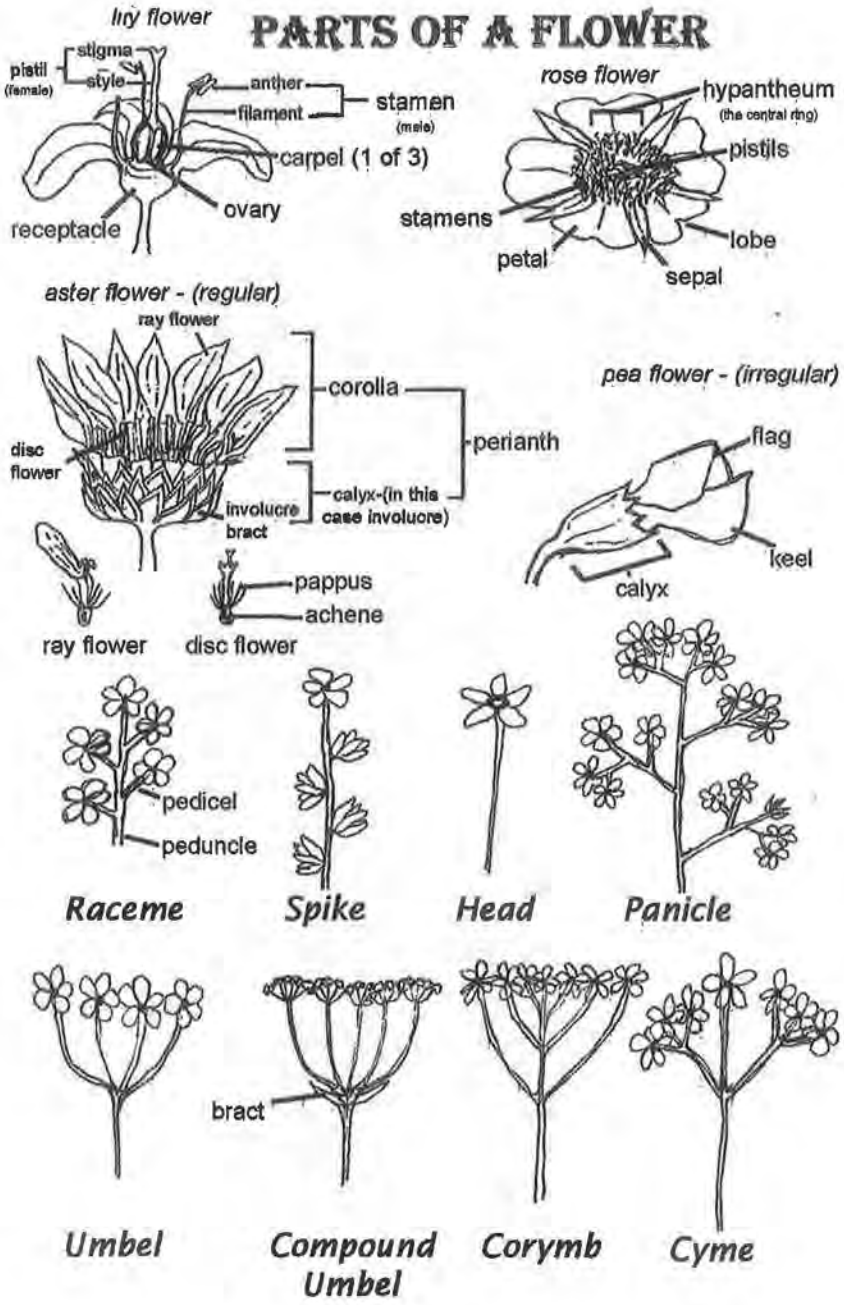
"In among the tussocks of green are patches of the most vivid flowers imaginable . . ."

– Libby Beaman, 1879, first white woman on the island

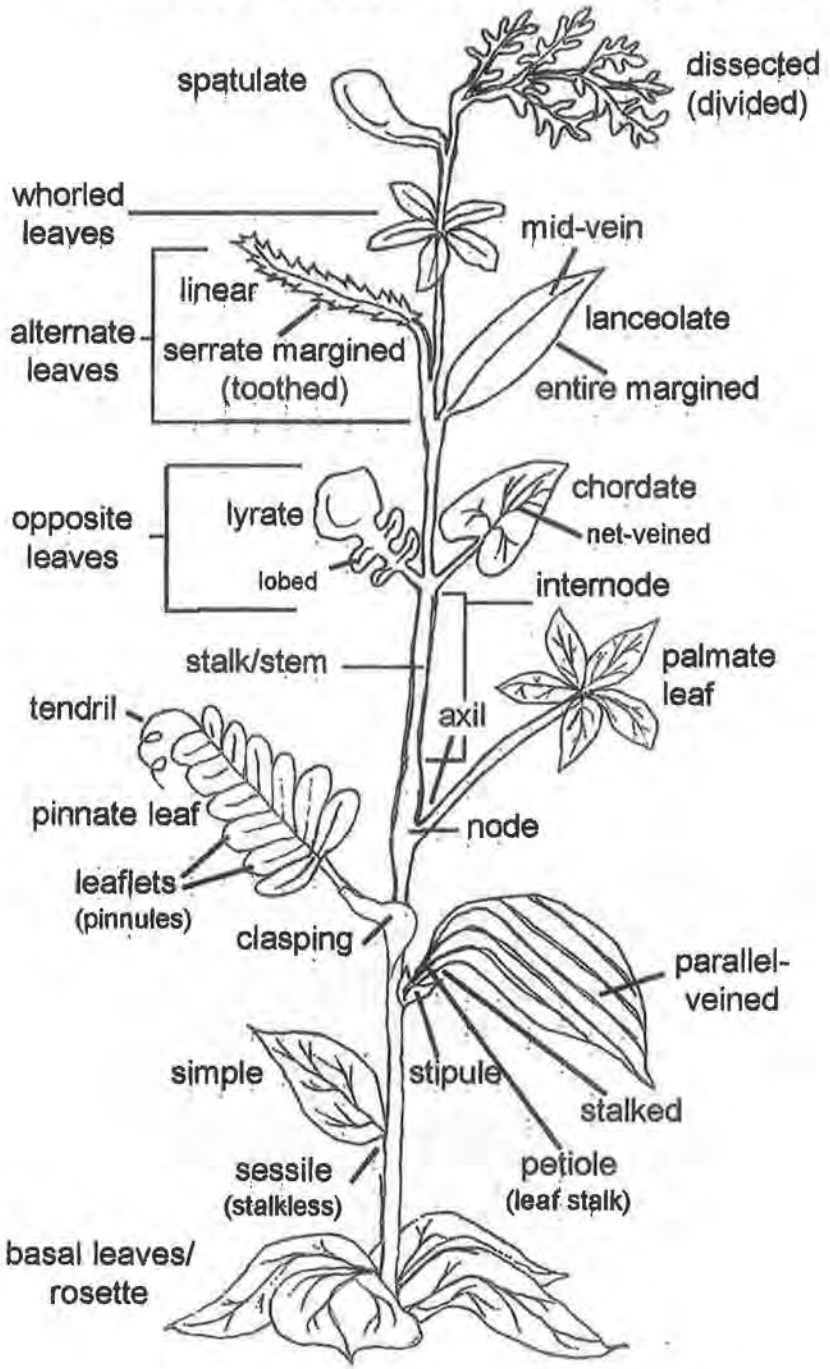
Reindeer munch plants on the tundra

Curtis Melovidov sucks the nectar out of a whorled lousewort flower

PARTS OF A FLOWER



LEAF SHAPE DIAGRAM



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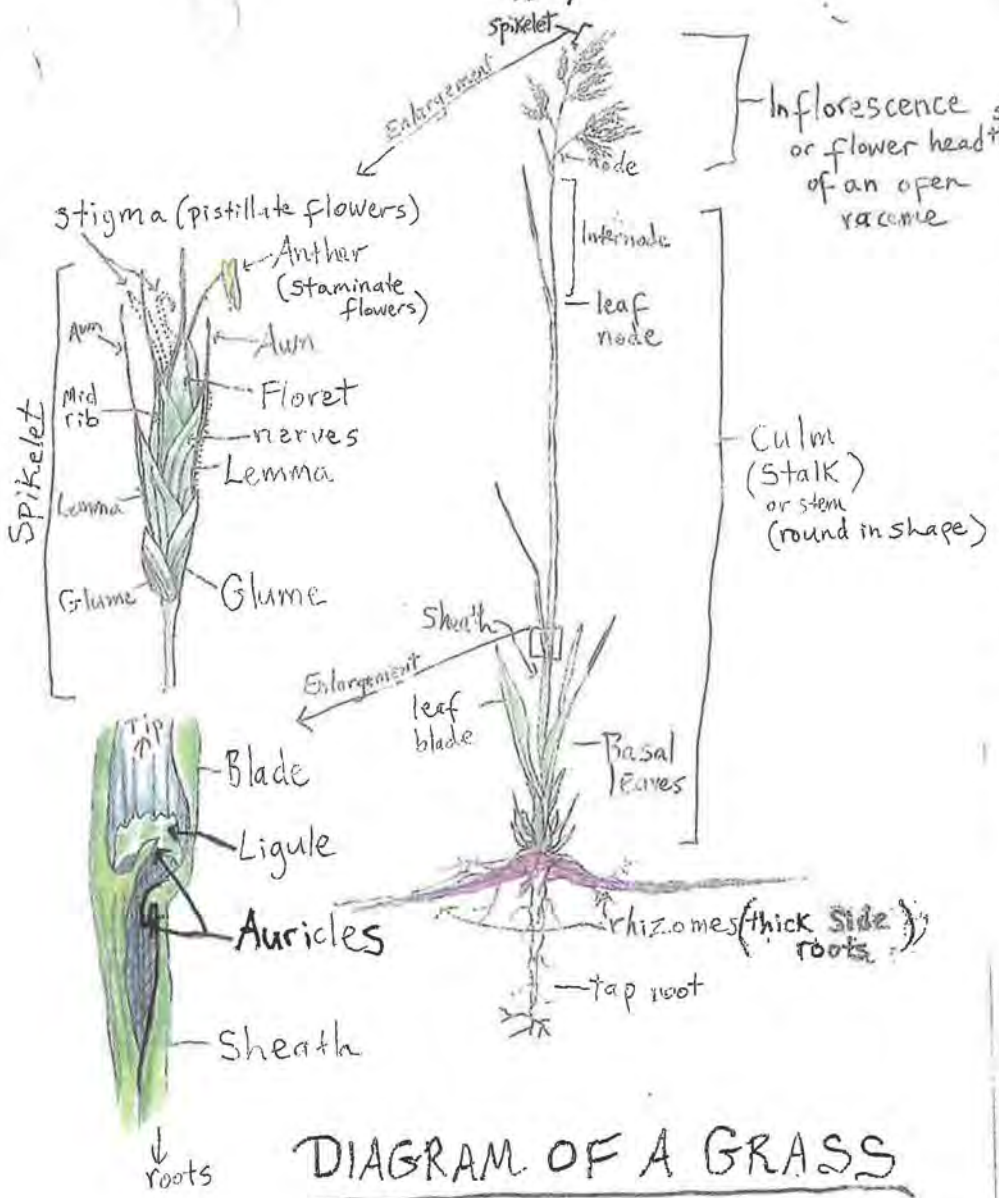

DIAGRAM OF A GRASS

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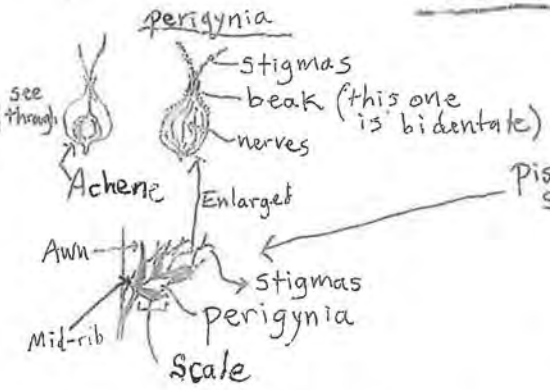
DIAGRAM OF A SEDGE



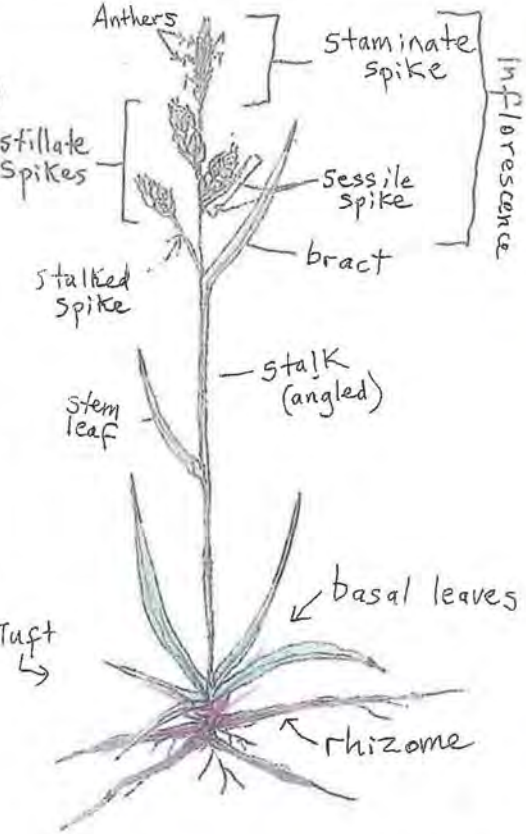


DIAGRAM OF A RUSH

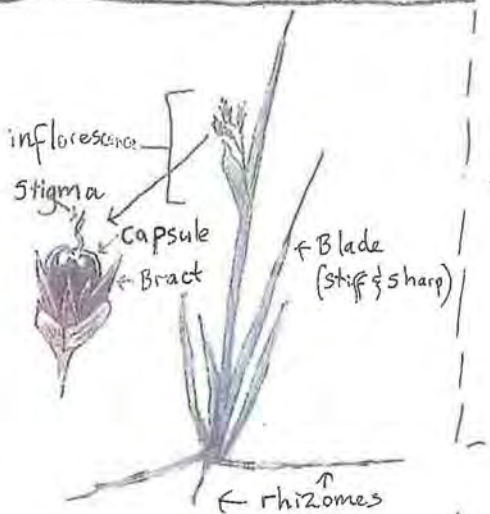
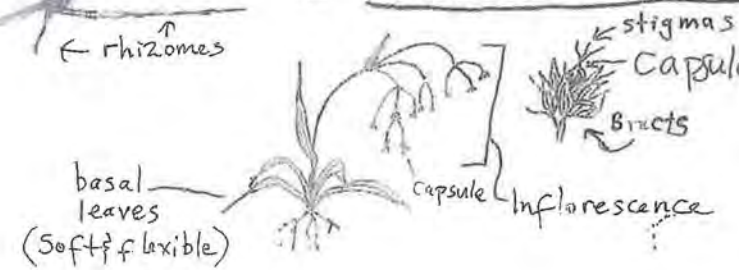


DIAGRAM OF A WOOD RUSH



Terms Glossary

achene: a 1-seeded, dry nut-like fruit, which remains closed after ripening
alkaloid: a chemical manufactured by a plant usually for the purpose of defense; occasionally extracted and used for medicinal purposes by humans
alpine: terrain in the mountains
alternate: parts of a plant (usually leaves) leaving the stem one down from the other
annual: a plant which flowers, seeds and dies all in the same season
anther: the top, pollen-bearing part of the male organ (or stamen)
appendage: a part or organ that is joined to the stem or main part of the plant
aquatic: growing in or on the water
arctic: an area treeless because of latitude, extending from treeline to the North Pole
awn: the tiny bristle which sticks up (for example) from a grass spikelet or a sedge scale
axil: the angle which is formed by a leaf and stem
basal leaves: leaves which initiate from the very bottom of a plant, not necessarily attached to the flowering stem
basal rosette: a cluster of (usually) leaves arranged in a circle at the base of a plant
beak: a short, sharp, often curved protrusion
binomial: the two parted scientific name of a plant, consisting of a genus name and a species name
blade: the wide part of a leaf or petal
bloom: a whitish coating on a plant which, when rubbed, comes off
bog: a wetland dominated by mosses which is acidic in content
boreal forest: the most northern or high elevation forests before subalpine and subarctic forests
brackish: a mix of salt and fresh water
bract: a reduced leaf-like structure which comes off the stem right under the flower
calyx: all the sepals (or appendages under the petals) of a flower
capsule: a chamber of a fruit which can hold one to many seeds
carpel: the undeveloped seeds in a flower

catkin: the linear reproductive head of certain plants, e.g. willows
chafy scales: the papery bits attached to the stipes (stems) of some ferns
channeled: (usually a grass leaf blade that is) V-shaped in cross section
ciliate: hairy
circumboreal: occurring in the band around the earth where boreal forest grows (the most northern or high elevation forests before subalpine and subarctic forests)
circumpolar: occurring in the band around the earth which includes all arctic areas
clasping: connected partially or wholly around the stem or other part of a plant
compound: a leaf or flower which is composed of many similar but distinct parts
cordate: heart-shaped
corolla: all the petals of a flower together
culm: the stalk of a grass
cyme: the arrangement of a flower head where flowers bloom from the top down
deciduous: a plant whose leaves die off and are renewed seasonally or annually
dehiscence: the act of a fruit opening to let go its seeds
disc flower: the individual flower in the cluster located in the central disc for plants of the aster family
dissected (leaves): finely divided into many sections (like parsley)
dry-down wetland: a pond or other wetland which has had its water dry out of it
elliptic (inflorescence): an arrangement of flowers stems from the main stalk which forms the shape of an ellipse
endemic: a native plant which grows only in a certain area
entire: smooth-edged
exotic (introduced): a non-native plant, which was introduced to an area by human interference
family: a group of plants with certain similarities
fertile frond: the reproductive stem usually of a fern or horsetail, sometimes separate from the vegetative stalk

fiddlehead: the frond of a fern when it is all rolled up
filament: the stalk of a stamen which supports the anther
floret: a single grass flower within a spikelet
flower head: all parts of the reproductive cluster of a plant
frond: the whole leafy part of a fern
genus: a group of closely related plants, each given the same first part of the binomial
glabrous: without hairs
glandular: plant parts with sticky substance
glaucous: with a whitish coating
globular: rounded
glume: in grasses, the lowest pair of leaf-like appendages which surround the floret(s), located at the bottom of a spikelet
graminoid: grass, sedge, rush, woodrush or the like collectively
herbaceous: plant parts that are non-woody
hybrid: a plant which is a cross between two species or subspecies
hypantheum: a low cup or donut-shaped structure around the ovary of a flower, formed by the union of the tepals and stamens
indusium: a covering of the spore cluster in ferns
inflorescence = flowering head: the section of a plant which includes all the flowers and associated branches, often located at the top end of the stalk
internode: the space between two nodes (joints or joinings)
introduced: a non-native plant, which was introduced to an area by human interference
involucre: the leafy bracts beneath the flower disc of aster or parsley family members
irregular flower: a flower with different sized and shaped petals
joint: a slight bulging of the stem or the point at which two parts of a plant join
keel: the two partly joined lower petals of the flowers in the pea family
lanceolate: widest below the middle and tapering to both ends
lance-shaped: widest below the middle and tapering to both ends
lateral: on the side of
leaflet: one part of a compound leaf
lemma: in grasses, the leaf-like appendages inside the glumes which directly surrounds the floret(s)

ligule: in grasses, the sheath inside the blade next to the joint
linear: long and evenly narrow
lobed: with rounded divisions
lyrate: a plant part (usually a leaf) shaped like a lyre; rounded upper lobe and linear lower lobe(s) (often in the mustard family)
margin: edge
maritime tundra: a treeless expanse by the sea; made treeless by the influence of the sea and its associated weather patterns rather than by latitude or elevation
midrib: the middle line on scales (sedges), which are often a different color than the main part of the scale
midvein: the middle line (vein) on a plant part (usually the leaf)
monocot: the group of plants, including lilies, orchids and grasses, which have one vein per leaf and flower parts in multiples of 3, and a single cotyledon (1st seed leaf)
montane: of the mountains
mucilaginous: slimy; producing gelatinous-like substances
nerved: having thin lines apparent on the surface
net-veined: having a many radiating veins resembling a net
node: the junction of stem and leaf or branch
once, twice, trice-divided: usually in reference to a fern frond where the leaflets are either not cut, cut to the stem once or and cut twice
opposite: two plant parts which are positioned across from each other
ovary: the plant organ at the center of the flower which encloses the undeveloped seeds
palea: the uppermost bract enclosing a grass flower
palmate: hand-shaped; all parts radiating from a central point
panicle: a flowering stalk with many alternate, branched flowers; a compound raceme
pappus: the white fluff on the tops of achenes (seeds) in members of the aster family, e.g. dandelion fluff
parallel-veined: veins which run side by side, not forming angles
pea flower: the irregular arrangement of petals distinctive to pea family members
pedicel: the stalk of an individual flower
peduncle: the stalk of an entire flower cluster
perennial: a plant which lives through more than two years

perianth: the whole blossom of a plant, including the corolla and the calyx
perigynia: the inflated sack around the seed in sedges
persistent: remaining on
petal (part): the pieces which make up the corolla (flower blossom)
petiole: leaf stalk
pinnate: feather-shaped; with plant parts opposite and in a line
pistil: the female organ of a flower made up of the ovary, style and stigma
pistillate: referring to the seed-producing (or female) part of flowers
potherb: a plant which is cooked as a vegetable and has a history of use
raceme: a compound flowering head with flowers on alternate branches
rachis: the part of the fern stem that is between the leaflets
ray flower: an individual flower of an aster family member, resembling the petal of a daisy
receptacle: the end of the stem where the flower parts are attached
regular flower: a flower where each circle of parts are similar in size and shape
reproductive stem: the stem to which the reproductive parts are attached
rhizome: an underground stem, distinguished from a root by small buds, leaves and nodes
runner: a stem attached to the base of a plant which creeps horizontally along the ground, often rooting at intervals
rush: a grass-like plant with a round cross-section; usually growing in wet areas
saltmarsh: a wetland dominated by graminoids which receives regular inundations of salt water
saprophyte: a plant which receives its nutrition from other plants, thus not necessarily having to photosynthesize
scale: (sedges) the covering of the perigynia; (general) any number of small structures on a plant, often acting as a covering
scientific name (botanical name): the binomial (two part name) which is assigned each plant to place it in the family tree of the plant kingdom; the names are either Latin or Greek for universal purposes

scoria: the usually reddish, eroded cinders of volcanoes w ch make up a good bit of the ground cover on St. Paul Island
sedge: a grass-like plant with edged-stems and reproductive parts in little sacks (perigynia)
seed head: the mature reproductive part of a plant in its entirety
sepals: the often greenish ring of leafy structures beneath the petals of a flower
serrated: an edge resembling a saw blade
sessile: stalkless
sheath: the lower part of a stem leaf which entirely surrounds a stalk, usually in an overlapping fashion as in a wrap-around skirt
silicle: a seed pod which is only 2-3 times as long as wide, usually in members of the mustard family
silique: a seed pod of members of the mustard family which is much longer than wide (more than 4x)
simple: not divided or branched
sori: a group of small spore cases on the underside of a fern frond
spatulate: long, tapering base and wide, rounded top
species: a distinct organism; the last part of the scientific name
spike (of a flower): an arrangement of a flowering head where flowers are alternate and stalkless
spike: (grasses)an inflorescence where all the spikelets are packed tightly together around the stalk with no branches, as in a head of wheat: (sedges) an individual head of flowers within an inflorescence
spikelet: an individual cluster of a grass inflorescence which contains all the reproductive parts
spore bract: the small, stiff, leaf-like structure which covers the spores on some clubmosses
spore cone: the upright, cone-shaped structure which holds the spores on some clubmosses
spore: the dust-like, one-celled reproductive body of a non-flowering plant
spur: a protrusion, often sticking out the back of a flower, which usually contains nectar
stalk/stem: the main upright support of a plant, on top of which is usually the flowering head or inflorescence

stalkless/sessile: having no individual stem; sitting directly on the main stalk
stamen: the male reproductive organ in its entirety, including the filament and anther
staminate: referring to the pollen-bearing (or male) part of the flowers (the stamens)
stellate: star-shaped
stem leaves: leaves which begin on the stem of a plant
stigma: the top, or receptive bit of the seed-producing (or female) organ
stipe: the stem of a fern frond
stolon: a thin, trailing stem, which often roots at intervals
strobilus: the reproductive cluster of a non-flowering plant, e.g. a clubmoss' spore cone
style: the stalk of the female reproductive organ, which begins at the ovary and ends at the stigma
subspecies: a taxonomic designation of a plant having traits differing from the "parent" species thought to be brought about by distance between populations
taproot: a thick, downward reaching root, which stores nutrients
teeth: small, sharp notches on an edge
tendril: the thin, flexible elongation of the stem of some plants, usually in the pea family, which enables the plant to clasp and climb
tepal: a petal or a sepal, when these parts are too similar to distinguish
terminal: at the very top of the stalk; usually in reference to an inflorescence, an individual spikelet or a spike
terrestrial: of the ground or earth; distinguished from aquatic (or water) plants
toothed: with small, sharp notches
toxin: a poisonous secretion made of protein structures
translucent: allowing light through
tubular: having a tube (long, rounded) shape
tufted: tightly clustered; all parts beginning from the same point
tufts: bunches of plant parts growing from one point
two-ranked rows: sets of opposite parts which are each 90° from the next set

umbel: a flower arrangement where all the branches of the flowers begin from the same point, as in a dill flower
unisexual: containing only either male or female reproductive parts
variety: a further taxonomic breakdown of plant which has traits differing from the "parent" species or subspecies thought to be brought about by variation in the population
vegetative reproduction: when a plant reproduces itself without seed
vein: a thin line apparent on a plant part
vermifuge: a remedy which kills intestinal worms
waste place: an area disturbed by people and then left
whorl: a ring of branches or leaves all at the same level on a stem
winged: thin appendages on a plant part which protrude from each side
woody: having stiff, hard, persistent roots, stems and branches

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General Index (very incomplete and random, my apologies)

Aleut, Botanical and Common Name Index

Checklist of St. Paul Island Plants

Alphabetically by common name

Note: some grass names, such as bluegrass, were split apart so that the grasses would be grouped together. * = introduced, + = rare.

__anemone, yellow	*Anemone richardsonii*
__arnica, Unalaska	*Arnica unalaschcensis*
__aster, Siberian	*Eurybia sibirica*
__avens, large-leaf	*Geum macrophyllum*
__avens, Ross'	*Geum rossii*
__azalea, alpine	*Loiseleuria procumbens*
__beach greens	*Honckenya peploides* ssp. *major*
__bedstraw, small	*Galium trifidum* ssp. *columbianum*
__bistort, alpine	*Bistorta vivipara*
__bittercress, alpine	*Cardamine bellidifolia*
__bittercress, Siberian	*Cardamine umbellata*
__bluebells, beach	*Mertensia maritima*
__blueberry, bog	*Vaccinium uliginosum* ssp. *microphyllum*
__braya, leafy	*Braya humilis* ssp. *arctica*
__bur-reed, northern	*Sparganium hyperboreum*
__buttercup, alkali	*Ranunculus cymbalaria*
__buttercup, arctic creeping	*Ranunculus hyperboreus*
__buttercup, common*	*Ranunculus acris**
__buttercup, pygmy	*Ranunculus pygmaeus*
__buttercup, snow	*Ranunculus nivalis*
__buttercup, subalpine	*Ranunculus eschscholtzii*
__buttercup, sulphur	*Ranunculus sulphureus*
__celery, wild	*Angelica lucida*
__chickweed, Aleutian+	*Cerastium aleuticum+*
__chickweed, Bering Sea	*Cerastium beeringianum* var. *grandiflorum*
__chickweed, Fischer's	*Cerastium fischerianum*
__chickweed, mouse-ear	*Cerastium beeringianum*
__chickweed*	*Stellaria media**
__cinquefoil, arctic	*Potentilla nana*
__cinquefoil, beach	*Argentina egedii*
__cinquefoil, marsh	*Comarum palustre*
__cinquefoil, one-flowered	*Potentilla uniflora*
__cinquefoil, villous	*Potentilla villosa*
__cloudberry	*Rubus chamaemorus*
__clover, white*	*Trifolium repens**
__clubmoss, alpine	*Lycopodium alpinum*
__clubmoss, fir	*Lycopodium selago*
__clubmoss, stiff	*Lycopodium annotinum*
__cornel, Swedish dwarf	*Cornus suecica*
__corydalis, few-flowered	*Corydalis pauciflora*
__cottongrass, tall	*Eriophorum angustifolium* ssp. *angustifolium*
__cranberry, low-bush	*Vaccinium vitis-idaea* ssp. *minus*
__crowfoot, thread-leaf	*Ranunculus trichophyllus* var. *trichophyllus*
__cuckoo flower	*Cardamine pratensis* var. *angustifolia*
__daisy, arctic	*Chrysanthemum arcticum*
__dandelion, common*	*Taraxacum officinale**
__dandelion, horned	*Taraxacum officinale* ssp. *ceratophorum*
__dandelion, Kamchatka	*Taraxacum lyratum*
__ditch grass	*Ruppia spiralis*
__draba, Aleutian+	*Draba aleutica+*
__draba, milky	*Draba lactea*
__draba, northern	*Draba hyperborea*
__fern, fragile	*Cystopteris fragilis*
__fern, lady subalpine	*Athyrium filix-femina*
__fern, narrow beech	*Phegopteris connectilis*
__fern, wood	*Dryopteris expansa*

__fescue, alpine *Festuca brachyphylla*
__fescue, red *Festuca rubra*
__fireweed *Chamerion angustifolium* ssp. *circumvagum*
__fleabane, coastal *Erigeron peregrinus*
__forget-me-not, arctic *Eritrichium nanum* ssp. *chamissonis*
__foxtail, alpine *Alopecurus alpinus*
__ tail, short-awn *Alopecurus aequalis*
__gentian, glaucous *Gentiana glauca*
__gentian, slender *Gentianella tenella*
__gentian, whitish *Gentiana algida*
__geranium, wild *Geranium erianthum*
__goldthread *Coptis trifolia*
__grass of parnassus, Kotzebue's *Parnassia kotzebuei*
__grass, alkali-, creeping *Puccinellia phryganodes*
__grass, alkali-, tundra *Puccinellia tenella* ssp. *langeana*
__grass, beach *Leymus mollis* ssp. *mollis* var. *villosissimus*
__grass, beach *Leymus mollis* ssp. *mollis*
__grass, bent- Alaska *Agrostis exarata*
__grass, blue- , annual* *Poa annua**
__grass, blue-, arctic *Poa arctica*
__grass, blue-, Kentucky* *Poa pratensis**
__grass, blue-, large-glume *Poa macrocalyx*
__grass, bluejoint *Calamagrostis canadensis* var. *langsdorffii*
__grass, Dupont's *Dupontia fisheri*
__grass, hair-, mountain *Vahlodea atropupurea* ssp. *paramushirensis*
__grass, hair-, tufted *Deschampsia cespitosa*
__grass, ice *Phippsia algida*
__grass, pendant *Arctophila fulva*
__grass, polar- reed-like *Arctagrostis latifolia* ssp. *arundinacea*
__grass, polar-, wide-leaf *Arctagrostis latifolia*
__grass, reed-, circumpolar *Calamagrostis deschampsioides*
__rass, reed-, purple *Calamagrostis sesquiflora*
__ ass, reed-, slim-stem *Calamagrostis stricta* ssp. *inexpansa*
__grass, rye-, annual* *Lolium perenne* ssp. *multiflorum**
__grass, spear-, large-flower *Poa eminens*
__grass, sweet-, few-flowered *Hierochloe pauciflora*
__grass, vanilla *Hierochloe odorata*
__harebell, arctic *Campanula uniflora*
__harebell, mountain *Campanula lasiocarpa*
__horsetail, common *Equisetum arvense*
__horsetail, meadow *Equisetum pratense*
__Jacob's ladder, northern *Polemonium boreale* ssp. *macranthum*
__Jacob's ladder, tall *Polemonium acutiflorum*
__koenigia *Koenigia islandica*
__lily, Alp *Lloydia serotina*
__lily, chocolate *Fritillaria camschatcensis*
__lousewort, arctic *Pedicularis langsdorffii*
__lousewort, fern-leaf *Pedicularis sudetica* ssp. *pacifica*
__lousewort, whorled *Pedicularis verticillata*
__lousewort, woolly *Pedicularis lanata*
__lovage, Scotch *Ligusticum scoticum* ssp. *hultenii*
__lupine, Nootka *Lupinus nootkatensis*
__mare's tail *Hippuris vulgaris*
__melandrium *Silene uralensis*
__monkshood, big *Aconitum delphinifolium* ssp. *chamissonianum*
__monkshood, little *Aconitum delphinifolium* ssp. *paradoxum*
__moonwort *Botrychium lunaria*
__ oss campion *Silene acaulis*
__mossberry *Empetrum nigrum*
__mudwort+ *Limosella aquatica+*
__mustard, field* *Brassica rapa**
__nagoonberry *Rubus arcticus*
__parsley, hemlock *Conioselinum pacificum*

__pea, beach — *Lathyrus japonicus* var. *maritimus*
__pearlwort, snow — *Sagina nivalis*
__pineapple weed* — *Matricaria discoidea**
__plaintain, common* — *Plantago major**
__plumes, pink — *Bistorta plumosa*
__pondweed, thread-leaved — *Stuckenia filiformis*
__poppy, Alaska — *Papaver radicatum* ssp. *alaskanum*
__poppy, Macoun's — *Papaver macounii* ssp. *macounii*
__primrose, Chukchi — *Primula eximia*
__pussytoes, pygmy — *Antennaria monocephala*
__quillwort, maritime — *Isoetes maritima*
__rock jasmine — *Androsace chamaejasme* ssp. *lehmanniana*
__rockcress, Kamchatka — *Arabis kamchatica*
__rush, arctic — *Juncus haenkei*
__rush, chestnut — *Juncus castaneus*
__rush, two-flowered — *Juncus biglumis*
__sandwort, arctic — *Minuartia arctica*
__sandwort, long-pod arctic — *Minuartia macrocarpa*
__saxifrage, bog — *Saxifraga hirculus*
__saxifrage, bract — *Saxifraga bracteata*
__saxifrage, brook — *Saxifraga nelsoniana*
__saxifrage, purple mountain — *Saxifraga oppositifolia*
__saxifrage, rusty — *Saxifraga hieracifolia*
__saxifrage, thyme-leaf — *Saxifraga serpyllifolia*
__saxifrage, Unalaska — *Leptarrhena pyrolifolia*
__saxifrage, yellow-spotted — *Saxifraga bronchialis* ssp. *funstonii*
__scouring-rush, dwarf — *Equisetum scirpoides*
__scouring-rush, northern — *Equisetum variegatum* var. *alaskanum*
__scurvy grass — *Cochlearia groenlandica*
__sedge, Bering Sea — *Carex microchaeta* ssp. *nesophila*
__sedge, Garber's — *Carex garberi*
__sedge, Gmelin's — *Carex gmelinii*
__sedge, grassy-slope — *Carex anthoxanthea*
__sedge, Kellogg's — *Carex lenticularis* var. *lipocarpa*
__sedge, Lachenal's — *Carex lachenalii*
__sedge, lesser saltmarsh+ — *Carex glareosa* ssp. *pribylovensis*+
__sedge, long-awn — *Carex macrochaeta*
__sedge, Lyngbye's — *Carex lyngbyei*
__sedge, MacKenzie's — *Carex mackenziei*
__sedge, many flower — *Carex pluriflora*
__sedge, maritime — *Carex maritima*
__sedge, Pyrenean — *Carex pyrenaica* ssp. *micropoda*
__sedge, Ramensk's — *Carex ramenskii*
__sedge, rock — *Carex saxatilis*
__sedge, showy — *Carex spectabilis*
__sedge, water — *Carex aquatilis*
__shepherd's purse* — *Capsella rubella**
__sibbaldia — *Sibbaldia procumbens*
__sorrel, mountain — *Oxyria digyna*
__sorrel, sheep* — *Rumex acetosella**
__spearwort, creeping — *Ranunculus flammula* var. *filiformis*
__speedwell, Steller's — *Veronica stelleri*
__speedwell, thyme-leaf — *Veronica serpyllifolia* ssp. *humifusa*
__spring beauty, Alaska — *Claytonia sarmentosa*
__starflower, arctic — *Trientalis europaea* ssp. *arctica*
__starwort, circumpolar+ — *Stellaria ruscifolia* ssp. *aleutica*+
__starwort, fleshy — *Stellaria crassifolia*
__starwort, long-stalk — *Stellaria longipes*
__starwort, northern — *Stellaria calycantha*
__starwort, saltmarsh — *Stellaria humifusa*
__sunflower, beach — *Senecio pseudoarnica*
__thrift — *Armeria maritima* ssp. *sibirica*
__timothy, mountain — *Phleum alpinum*

__trisetum, spike — *Trisetum spicatum*
__twisted stalk — *Streptopus amplexifolius*
__valerian, capitate — *Valeriana capitata*
__violet, Aleutian — *Viola langsdorffii*
__violet, marsh — *Viola epipsila* ssp. *repens*
__wallflower, Edward's mock — *Eutrema edwardsii*
ter blinks — *Montia fontana*
__water-carpet, Bering Sea — *Chrysosplenium wrightii*
__water-starwort, spring — *Callitriche verna*
__weasel snout — *Lagotis glauca*
__whitlow-grass, northern — *Draba borealis*
__Wilhelmsia — *Wilhelmsia physodes*
__willow, arctic — *Salix arctica*
__willow, diamond-leaf — *Salix pulchra*
__willow, dwarf — *Salix ovalifolia* var. *cyclophylla*
__willow, net-leaved — *Salix reticulata*
__willow, round-leafed — *Salix rotundifolia*
__willowherb, alpine — *Epilobium anagallidifolium*
__willowherb, Bering — *Epilobium hornemannii* ssp. *behringianum*
__wintercress — *Barbarea orthoceras*
__wintergreen, lesser — *Pyrola minor*
__wood rush, small-flowered — *Luzula parviflora*
__woodrush, curved — *Luzula arcuata*
__woodrush, many-flowered — *Luzula multiflora* ssp. *frigida*
__woodrush, tundra — *Luzula arcuata* ssp. *latifolia*
__wormwood, arctic — *Artemisia arctica*
__wormwood, globe — *Artemisia globularia*
__wormwood, northern — *Artemisia tilesii*
__wormwood, yellow globe+ — *Artemisia globularia* var. *lutea+*
__yarrow, northern — *Achillea millefolium* var. *borealis*

PLANT FAMILY DESCRIPTIONS

BEDSTRAW FAMILY (Rubiaceae). The bedstraw family members are distinguished by having opposite or whorled leaves, mostly 4 petals and sepals (but sometimes 3 or 5) with 4 -5 stamens. 1 species.

BLUEBELL FAMILY (Campanulaceae). The bluebell family members' leaves are alternate and simple. The flowers are usually bell or tube-shaped and have 5 fused petals, 5 sepals and 5 stamens. 2 species.

BORAGE FAMILY (Boraginaceae). The borage family members have leaves and stem which are usually entire, often hairy and/or fleshy with a unique smoky flavor. The flowers, usually tube or bell-shaped, have 5 fused petals, 5 sepals, 5 stamens and 2 united carpels. 2 species.

BUCKWHEAT FAMILY (Polygonaceae). Buckwheats are recognized by having swollen joints with sheaths around them, where the almost always alternate leaf is attached. The flowers are tiny, and are made up of 3-6 sepals and no petals. The fruit is a 3-sided achene, which is sometimes winged. 5 species.

BUR-REED FAMILY (Sparganiaceae). Bur-reeds are fleshy, aquatic plants with long, grass-like blades. The flowers have 3-6 linear scales. The sexes are separate on the same plant, with 2-5 male heads above and 2-4 female heads below. The fruits are sphere-shaped and prickly-looking. These fruits contain many achenes, each with 2 seeds. 1 species.

BUTTERCUP FAMILY (Ranunculaceae). The buttercups are characterized by having many stamens all bunched together on a raised dome in the center of the flower. The leaves are mostly alternate, and are often palmately compound with a sheathing leaf base. The fruits on many of the species are made up of a cluster of sickle-shaped achenes. 12-13 species.

CLUBMOSS FAMILY (Lycopodiaceae). Clubmosses have upright or creeping stems to about 15 cm high, and scale-like leaves pressed close to the stem or prickly leaves, resembling conifer branches. They reproduce either vegetatively or by spores similar to mushrooms. The clubmosses hold their spores in reproductive cones on top of their stems, or packets beneath their scales. These cones and scales are called strobili. 3 species.

COMPOSITE OR ASTER FAMILY (Asteraceae). The composite family members have alternate, simple or compound leaves, often with basal rosettes. The flowers are composites of many tiny flowers bunched into one 'flower', often giving them a sunflower-like appearence with rays and a central disk. The tiny flowers are of two types; disk and ray flowers. If you pluck a ray, you will see reproductive parts in the cupped section at the base of the ray. If you pull out some of the disk, you will find that each one is a separate flower. The disk flowers are surrounded by hairs. These hairs are called the pappus, and are thought to be greatly reduced sepals. The green scale-like leaves underneath the disk are called involucral bracts . 16 species.

CROWBERRY FAMILY (Empetraceae). The crowberry family is woody, with needle-like, evergreen leaves, and barely visible flowers which have 3 bracts, 3-6 sepals and 2-4 stamens. 1 species.

DOGWOOD ILY (Cornaceae). The distinctive characteristics of the dogwood family opposite, oval-shaped, entire leaves with deep veins which appear tc parallel (but are not). The flowers are 4-parted and often have large white bracts which look like petals, but also are not. There are 4-5 stamens and 2 united carpels. In species with floral bracts, the flowers are tiny and crowded into the center of the bracts. 1 species.

EARTH SMOKE FAMILY (Fumariaceae). These plants are distinguished by having watery juice. The leaves are alternate, and usually finely divided. There are 2 sepals and 4 petals that form two groups; one pair which forms spurs and one pair which closes around the ovary. There are 4 or 6 stamens. 1 species.

EVENING PRIMROSE FAMILY (Onagraceae). The key characteristics of this family are the 4 petals, 4 sepals, 4-8 stamens and inferior ovary. The fruits for many of the species are long, thin pods. 3 species.

FERN FAMILIES (4): Adder's Tongue Family (Ophioglossaceae), **Marsh Fern Family** (Thelypteridaceae), **Lady Fern Family** (Athyriaceae), **Shield Fern Family** (Aspidiaceae). Ferns are non-seed producing, but vascular system-containing plants. They have a stipe and a frond of leaflets. They reproduce via spores, like the above families, but the spores are grouped together into clusters called sori. These sori are usually found under the leaflets or in a separate, but attached, branch of the fern. 5 species.

GENTIAN FAMILY (Gentianaceae). The gentian family members have opposite, simple leaves, with flowers that range from tube to bell to star-shaped. They have 4 or 5 fused sepals, 4 to 5 fused petals and the same number of stamens. 2-3 species.

GERANIUM FAMILY (Geraniaceae). The flowers have 5 sepals and petals with 5, 10 or 15 stamens. There are 5 (rarely 3) styles. The ovary is superior and is shaped like a crane's bill sticking out of the middle of the flower. The "bill" splits open at maturity and rolls back. 1 species.

GRASS FAMILY (Poaceae). The grasses are linear and mostly upright, with blades for leaves and sheaths around their stems. The flowers are small and mostly located at the top of the stems in clusters of various shapes, sizes, and numbers. The basic grass flower is composed of a spikelet with 2 lower bracts called glumes, which surround the floret. The floret contains intermediate bracts, called lemmas, an inner bract, called a palea, and the male and female reproductive parts. Approximately 21 species.

HEATH FAMILY (Ericaceae). The heath family members are woody, and usually have evergreen, entire, undivided leaves. The flowers are often bell-shaped with 4-5 usually united sepals, 4-5 usually united petals, 4-5 stamens and 1 ovary. 3 species.

HORSETAIL FAMILY (Equisetaceae). The horsetails have thin, ridged, abrasive stems punctuated at intervals by joints. They have no leaves, but instead, some have whorls of branches. The horsetail family is very similar to the clubmoss family in that both family's species reproduce via spores instead of seeds. Some species have their strobili (or spore cases) on separate "fertile"stems and some have them at the top of their vegetative stems. 4 species.

LEADWORT FAMILY (Plumbaginaceae). The leadwort family members have 5 petals, 5 stamens and 5 pistils. 1 species.

LILY FAMILY (. .ceae). The lilies have parallel-veined leaves and flower parts in 3's. .re are 6 stamens and one pistil ending in a 3-lobed stigma. 3 species.

MUSTARD FAMILY (Brassicaceae). The primary characteristics of mustards are the 4-parted flowers, and the (often hard to see) simple, forked and stellate hairs on the stems and leaves. The plants contain watery, acrid jucies. The leaves are usually alternate. There are 4 sepals, and 6 stamens (4 long and 2 short). The fruits are pods, either linear or rounded. If the seed pod is 3 times longer than wide, it is called a 'silique', and if it is less it is called a 'silicle'. 13-14 species.

PARSLEY FAMILY (Apiaceae). The family is very easy to recognize since most species have flowers in umbels. The tiny flowers have 5 each of petals, sepals, stamens, and united carpels. The stems are usually hollow between the leaves, and the leaves are alternate and usually compound with sheaths where the leaves meet the stem. 3 species.

PEA FAMILY (Fabaceae). Pea family members are recognizable by their distinctive flowers. They are irregular and are composed of 5 petals. The upper petal is called the banner, the 2 side petals are called the wings and the lower two petals, which are usually fused over the reproductive parts, form the keel. There are 5 fused sepals and 10 stamens. The leaves are alternate, often with stipules. The fruits are the all familiar pods. 3 species.

PHLOX FAMILY (Polemoniaceae). The polemonium family members have leaves which are entire, divided or pinnately compound. The flowers have 5 petals which are fused at the base, with 5 stamens and a 3-chambered fruit. 2 species.

PINK or **CHICKWEED FAMILY** (Caryophyllaceae). Characteristics of this variable family are swollen nodes, opposite, mostly narrow leaves, 5 petals (which are often notched or cleft), 5 sepals, 5 or 10 stamens and numerous seeds. 15 species.

PLANTAIN FAMILY (Plantaginaceae). The plantain family members are distinguished by having spikes of tiny flowers with 4 petals, sepals and stamens on leafless stalks and grass-like to egg-shaped basal leaves with a single or parallel veins. Possibly 1 species.

PONDWEED FAMILY (Potamogetonaceae). The pondweeds are aquatic plants which grow in fresh water. The stems are usually many branched and matted and the flowers and seeds are very tiny, often growing in the branch axils. The flowers have 4 ovaries and 4 stamens. 1 species.

POPPY FAMILY (Papaveraceae). Poppies often have milky or colored (yellow or red) latex which oozes out when the plant is crushed. The leaves are alternate. There are usually 2-3 sepals, 4-6 or 8-12 petals, and numerous stamens. 2 species.

PRIMROSE FAMILY (Primulaceae). The primrose family members have 5 parted flowers (except starflower which has 5-8 parts) which are united at the base, 5 sepals and stamens and a 5 parted ovary. The leaves are mostly basal, simple, hairless (except rock jasmine), and entire. Occasionally, there are few opposite stem leaves. 1 species.

PURSLANE FAMILY (Portulacaceae). These plants are characterized by having two sepals and usually 5 petals. The leaves are usually opposite and entire. The stems and leaves

are fleshy. cies.

QUILLWORT FAMILY (Isoetaceae). The quillwort family is made up of small aquatic plants composed of tufts of stiff leaves with spore clusters at the base. Possibly 1 species.

ROSE FAMILY (Rosaceae). The flowers of the rose family members have 5 sepals and petals and have a hypantheum, a circular ring around the center of the flower which holds the many stamens. The leaves are alternate and often have stipules. 9 species.

RUSH FAMILY (Juncaceae). The rush family includes grass-like plants which have round, solid stems. The rushes are divided in two different genera, *Juncus* and *Luzula*. *Juncus* includes traditional rushes with dark green, sharp-pointed stems which grow near water. The species in the *Luzula* genus are called wood rushes. These have a very different appearance, looking more like small, tufted grasses. Both genera have two cupped bracts, each with 3 teeth, which surround the flower. *Juncus* flowers will mature into fruits with 3-chambered capsules containing many seeds. *Luzula* flowers have 1-chambered capsules with 3 seeds. 6 species.

SAXIFRAGE FAMILY (Saxifragaceae). Saxifrage flowers can take on a wide variety of shapes and sizes, but mostly they have 5 sepals and petals, 5 or 10 stamens, and a large ovary made of two carpels resembling horns. These characteristics hold true for most of the St. Paul saxifrages, but not all of them. The stem leaves are few, alternate, and reduced or not present. Basal leaves are the norm. 10 species.

SEDGE FAMILY (Cyperaceae). Sedges are grass-like plants which have stems with edges, and are either triangular or square in cross-section. The flowers of the sedges are small and often grouped at the top of the stem. The two genera of the sedge family on the Island have different reproductive parts. The *Carex* are distinguished by having separate male and female flowers either on the same or different plants, and by having an inflated sack (perigynia) around the reproductive parts of the female flower. The *Eriophorum* have male and female parts in the same flower and white, woolly bristles surrounding the flowers. Approximately 16 species.

SNAPDRAGON FAMILY (Scrophulariaceae). The snapdragon flowers have 4-5 irregular, fused petals; the top two form a hood or beak and the bottom few form a lip. There are 2-5 stamens. 8 species.

VALERIAN FAMILY (Valerianaceae). The valerian family members have opposite stem leaves with a basal rosette. The flowers are bunched into cymose panicles. The individual flowers are tiny, 5-parted and usually joined at the base to form a tube. 1 species.

VIOLET FAMILY (Violaceae). Violets have five irregular petals. The lowest one has a spur which protrudes out the back. There are 5 sepals and stamens and the ovary is composed of 3 united carpels. The leaves are alternate and have stipules. 2 species.

WATER MILFOIL FAMILY (Haloragaceae). The members are mostly aquatic to semi-aquatic with upright stems. The flowers are tiny and inconspicuous with no petals, 1 stamen and 1 single-celled ovary. The leaves are whorled. 1 species.

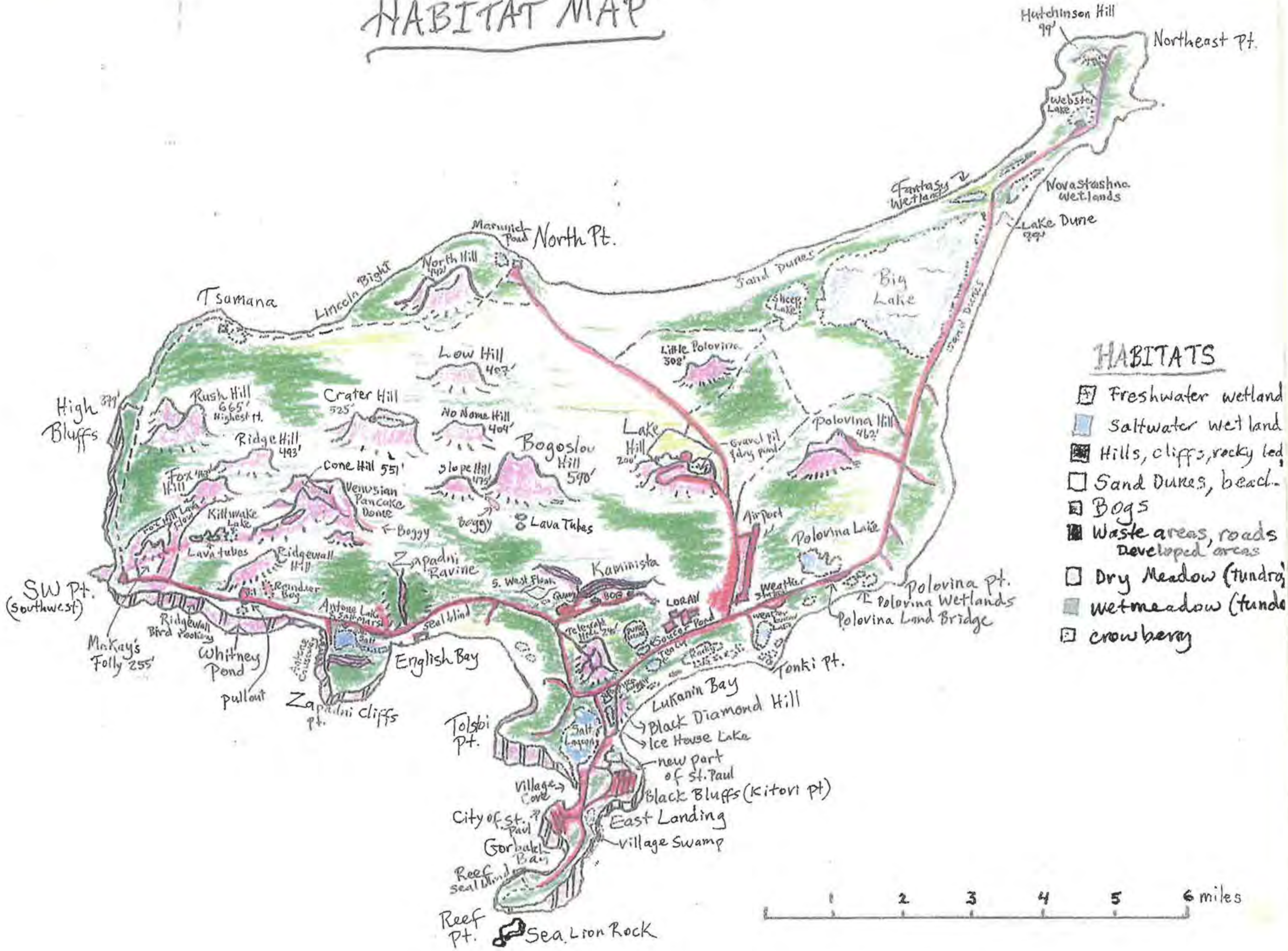
WATER-STAR\ T FAMILY (Callitrichaceae). The members are aquatic plants with tiny flowers, which include a pair of bracts, a 4-lobed ovary or single stamen both. It has opposite floating or submerged leaves. 1 species.

WILLOW FAMILY (Salicaceae). The willows on the Island are woody, dwarf shrubs. The leaves are alternate and there is one-bud scale per leaf. Willows are dioecious, meaning they have male and female flowers on different shrubs. The flowers clusters are called catkins, and resemble upright, soft cones. Female flowers have 2-4 stigmas and a superior ovary, and male flowers have 2 or more stamens. Approximately 4 species.

WINTERGREEN FAMILY (Pyrolaceae). The wintergreen family has members that are somewhat woody, and flowers which are occasionally bell-shaped, but are not fused together at the base as they are in the heath family. The wintergreens have 4-5 sepals and petals. There are 8-10 stamens. 1 species.

St. Paul Island

HABITAT MAP



Regional Map

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