

# Borealis

the newsletter of the



PO Box 141613, Anchorage, Alaska

January/February 2010

## Join us at our Next Meetings!

<sup>2010</sup>  
**Monday, January 4, 7:30 p.m.**

(Campbell Creek Science Center)

**Speaker:** Matt Carlson

"Floral pigmentation in the Arctic:  
Why is the tundra so colorful?"

Plant Families: Pinaceae: *Pinus* and *Larix*

Anjanette Steer

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**Monday, February 1, 7:30 p.m.**

(Campbell Creek Science Center)

**Speaker:** Anne Claerbout

**Topic: " The Botany of Wetland  
Science"**

Plant Families: Pinaceae: *Picea* and *Tsuga*

Ken Johnson

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newsletter electronically, by e-mail?**

**Contact Ginny Moore:**

**tgmoore@gci.net**



**For latest information on ANPS  
events, check our website at:**

**[http:// AkNPS.org](http://AkNPS.org)**

## It Was a "Perfect Storm"

### Spruce Bark Beetle Invasions

Ed Holsten, a retired USDA forest entomologist living in Cooper Landing, has studied spruce bark beetles in Alaska for over 25 years. In November he spoke to the Advance Master Gardening class in Anchorage.

*Dendroctonus rufipennis*, one of the largest of bark beetles in Alaska bores into the phloem layer of the main trunk of white, Sitka and Lutz spruce. This species is responsible for the deforestation of three million acres of south-central Alaska since the 1990s.

Ed's assessment of the epidemic that occurred through the 1990s is that it was caused by several key factors that occurred, creating the "perfect storm". While we will probably continue to see damage to our forests caused by these beetles, it is unlikely that these factors will all come together at the same time to create the kind of destruction we saw then.

**Weather Conditions:** Periodically during warm, dry summers after mild winters, engraver beetle populations build to such proportions that standing live trees are killed over large areas. "In the 1990s we lost more trees than we had in the previous 60 years, by a factor of 10. In the last 10 years we had a real significant increase in mean annual temperature that corresponded to this explosive epidemic of Bark Beetle occurring in Alaska. We have not seen such a long length of favorable weather like this for hundreds if not thousands of years and the Bark Beetle that normally has a two year life cycle many years was able to go through it's life cycle in one year thereby doubling the normal population each season."

**Homogenous Forests:** The lower Kenai Peninsula was most impacted by the beetle infestation. Ed believes that is because that area was composed of a homogeneous spruce forest where trees were mature and all about the same age. Farther up the peninsula, where forests are mixed hardwood/softwood, there was much less devastation. In aerial surveys used to assess insect and disease damage, flying over the mixed forests of the northern peninsula showed five or ten spruce trees per acre killed, and a lot of hardwood trees. "Then all of a sudden you get into another area where you have pure spruce, as far as you can see for 20 miles and there will be a sea of red brown trees and maybe one percent would be green trees."

Spruce bark beetles have been eating their way through Alaska's forest for centuries and will continue to exist, but there is hope that it will not be so disastrous again in our lifetimes.

Pinaceae: *Pinus* and *Larix****Pinus contorta* Lodgepole Pine (Beach Pine, Shore Pine, Tamarack Pine)**

**Description:** The lodgepole pine is easily identified at a distance by its arrow straight trunk, and its lack of branches on the lower trunk. On closer inspection, the needles form groups of two, unlike any other Canadian Rockies pine. The lodgepole pine grows in a very diverse range of conditions, from wet coastal rain forests to dry eastern slope hillsides.

Botanists have separated the lodgepole pine into two subspecies, *Pinus contorta contorta*, or lodgepole pine and *Pinus contorta latifolia* or shore pine. Shore pine refers to the coastal variety while lodgepole pine is used for the inland form. Although contradictory, both the Latin and common names accurately describe the species: members of subsp. *contorta*, first observed growing near the Pacific Ocean, are intricately contorted by the effects of wind and salt spray; while trees of subsp. *latifolia* grow tall and slender, making them ideal material for the lodge-poles of Plains Indian tipis.

*Pinus contorta* is fire successional over most of its range and is characterized by prolific seeding and high seed viability in disturbed habitats, often resulting in extremely slow-growing, overly dense stands.

**Leaf:** Evergreen needles, 1 1/2 to 3 inches long in fascicles of two, twisted, fascicle sheath present; yellow-green to green.

**Flower:** Monoecious; males are yellow, cylindrical and clustered at branch tips; females reddish purple at branch tips in the upper crown.

**Fruit:** Woody cone, 1 to 2 inches long, often asymmetrical and becoming lumpy near the base, apophysis armed with a short spine; light brown to brown; prolific greenish-yellow pollen. They may remain closed for several years because they are sealed with a hard resin which has a very high melting point, often at temperatures in excess of 120 F.

**Twig:** Orange-brown, turning darker with age, needles are persistent for several years; buds are narrowly ovoid, reddish brown and resinous.

**Bark:** Thin, typically grayish brown but can be very dark with many small close scales.

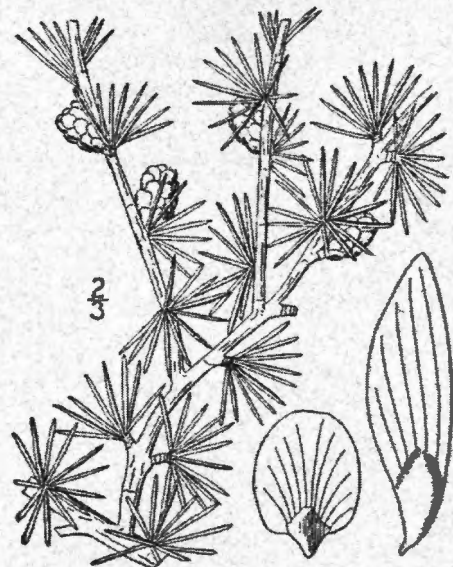
**Form:** Tall, slender trees with a narrow loose crown reaching up to 80 feet tall; some varieties which grow along the Pacific Coast are very short and scrubby.

**Range:** Southeast Alaska, central Yukon and southwestern Mackenzie, south in mountains and along coast to Colorado, Utah and California; also local in northern Baja California. It has become naturalized in some areas including New Zealand, and more locally in Britain; in New Zealand this has become a serious problem adversely affecting native vegetation.

***Larix laricina* (American larch, eastern larch, black larch, red larch, eastern tamarack, hackmatack)**

This lone species of *Larix* in Alaska is a small to medium sized deciduous conifer characteristic of damp or boggy habitats in bogs, swamps, and along streams and lakes, sometimes in drier, but loamy soils, and as krummholz at the arctic (and locally, alpine) timberline.

Disjunct Alaskan populations of *Larix laricina*, originally described as *Larix alaskensis* on the basis of narrower cone scales and bracts, are indistinguishable from other populations of the species



The strong durable wood is used for railway ties, pilings, and posts; it formerly was used for boat construction. Slow-growing trees develop wood with high resin content, making it decay resistant but limiting its value as pulpwood. The bark contains a tannin that has been used for tanning leather. Although tamarack is the most rapidly growing boreal conifer under favorable conditions, it is of little commercial interest because of insect and disease problems and its poor pulping properties.

**Description:** The bush like clumps of needles on woody sprus (characteristic of the genus *Larix*) and the range of this species will identify Tamarack.

**Measurements:** Mature individuals are typically between 50 and 75 feet tall, although occasional specimens reach over 100 feet; diameter at breast height 1 to 1.75 feet.

**Cones:** Cones 0.5 to 0.8 in length, ovoid; cone bracts shorter than cone scales and not projecting beyond the outer lip of the cone scales.





Pinaceae: *Picea* and *Tsuga*

The February meeting will highlight the two most common evergreens to this part of Alaska. *Picea* (spruce) and *Tsuga* (hemlock). Ken Johnson will give us some insights into their natural history. Here we will just highlight a single species, *Picea sitchensis*, Sitka spruce. You'll learn much more about all of these fascinating species at the meeting!

There are 3 species of spruce in Alaska: *Picea mariana* (black spruce), *Picea glauca* (white spruce) and *Picea sitchensis* (Sitka spruce). Species within the genus *Picea* form hybrid swarms at the interface of their ranges. Sitka spruce naturally hybridizes with white spruce (*P. glauca*) to produce Lutz spruce (*Picea X lutzii* Little). It is often difficult to identify *Picea X lutzii* by morphological characteristics.

Sitka spruce is a native, long-lived (greater than 800 years), evergreen, monoecious tree. Female strobili are produced at the ends of primary branches near the top, while the male strobili are positioned lower in the tree on secondary branches.

Sitka spruce occurs in the hypermaritime to maritime cool mesothermal climates. It occurs from shoreline to timberline in the northern portion of its range but is restricted to shoreline in the southern portion of its range. It grows best on sites with deep, moist, well-drained soils. It can tolerate the salty ocean spray of seaside dunes, headlands, and beaches, and the brackish water of bogs but is limited to areas of high annual precipitation with cool, moist summers.

Sitka spruce is the world's largest spruce. It can obtain heights of greater than 210 feet (65 m) with a d.b.h. of 16 feet (5 m) on better sites. The base of the bole is buttressed. When forest grown, the bole is long and free of lower limbs.

The root system of Sitka spruce is shallow and platelike with long lateral roots with few branchings. On deep well-drained soils the root system may reach depths of 6.5 feet (2 m), especially on alluvial soils. Root grafting often occurs between roots of the same tree and adjacent trees.

Sitka spruce's natural range is a narrow strip of land along the northern Pacific coast from south-central Alaska to northern California. In 1962, three years after Statehood, House Bill No. 325 proposed the Sitka spruce, "the most valuable tree species in Alaska," as the official state tree. The legislation was approved and the Sitka spruce (*Picea sitchensis*) became the official tree of the state on February 28, 1962. The Sitka spruce is also called the tideland spruce, coast spruce, and yellow spruce.

Sitka spruce is the most important timber species in Alaska. The wood, with its high strength to weight ratio, is valuable for use as turbine blades for wind-driven electrical generators, masts for sailboats, ladders, oars, boats, and racing sculls. Sitka spruce's high resonant quality makes it valuable in the manufacture of piano sounding boards and guitars. The wood from Sitka spruce is also used in saw timber, high-grade wood pulp, and plywood.

Sitka spruce is slightly palatable to large ungulates. It is browsed only in the spring, and then only the new growth. In Alaska and British Columbia the needles comprise up to 90 percent of the winter diet of blue grouse.



FIG. 80.—*PICEA SITCHENSIS*.  
a, spray; b, branch ending in male catkin; c, shoot and leaves, from beneath; d, leaf from above; e, section of leaf; f, stamens.



# From What We Gather .....



**Member Contact List:** The Alaska Native Plant Society Board has discussed printing a list of members with contact numbers and sending it out with one of the upcoming newsletters. Any member who doesn't want this information distributed, should let us know. Contact President Mel

**Image Request:** Greetings from Victoria BC. My son and I have a great nature site including a page of the official wildflowers of the States and Provinces of Canada. We are fortunate enough to have all the images except for the North West Territories and Nunavut. As there appears to be no plant groups for these two areas, I would like to ask if any of your members would have an images of the Purple Saxifrage or the Western Red Lily that they could help us with. We give credit to the photographer. eNature and Nature Canada have links to our site along with many others. Please look at the site as I'm sure there will be many things to interest you and your members. The State flower page is <http://www.dereilanatureinn.ca/garden/stateflowers/index.htm> Thank you for your time. Derrick Ditchburn.

**Information Request:**

From: Nicholas John Dowie <[ndowie@uwyo.edu](mailto:ndowie@uwyo.edu)>

Date: November 17, 2009 6:33:01 AM AKST

**Subject:** pinedrops

I was curious to know if you have ever found pinedrops (*pterospora andromedeae*) in Alaska. I have seen no past records indicating this is true, but it is found frequently in conifer forests. I'm currently working on my PhD at the University of Wyoming and this is one target organism for my research. I'm from Kodiak and I know its not found there, but I am unsure of its status in the interior or other places in Alaska. Any help you can provide me would be appreciated.

**Botany Forum Recap:** The following website contains links to pdf files of some of the topics that were presented at the November 2009 Botany Forum in Anchorage:

[http://aknhp.uaa.alaska.edu/botany/Botany\\_BotanyForum2009.htm](http://aknhp.uaa.alaska.edu/botany/Botany_BotanyForum2009.htm)

**Botany Listserve:** The Alaska Botany Forum listserv (aka Rare Plant Forum listserv) is a main means of communicating information about each year's forum (call for presentations, agenda, dates, location, etc.), as well as sharing information on the systematics and distribution of Alaskan rare plant species, and related topics. To subscribe (or unsubscribe) from this listserv, please go to:

<https://lists.uaf.edu:8025/mailman/listinfo/akrareplant-l>

**Mystery Plant Answer**

*Lonicera involucre*

Involucred Fly-Honeysuckle

Caprifoliaceae

(Honeysuckle) Family



## Natural History of the Willow Rosette Gall Midges in Alaska

At our November meeting Dominique Collet regaled us with the life of the willow rosette gall midges in Alaska. It is another fabulous story of how everything in nature has found a special niche in which to thrive. Gall midges are members of a family of insects called Cecidomyiidae, including midges, sawflies, and mites, many of which form galls on plants. The galls are usually very specific and many species can be identified by the shape of their gall. For some unknown reason, willows are extremely susceptible to gall induction and growth manipulation - in fact, *Salix* is one of the plant genera with the highest known numbers of associated galler species.

*Rabdophaga rosaria* is the midge responsible for the "willow rose" which can often be seen on *Salix barclayi*. In the spring before buds leaf out, the gall-maker midge lays an egg on the terminal bud of a willow. The egg hatches into a larva which promptly burrows into the bud.

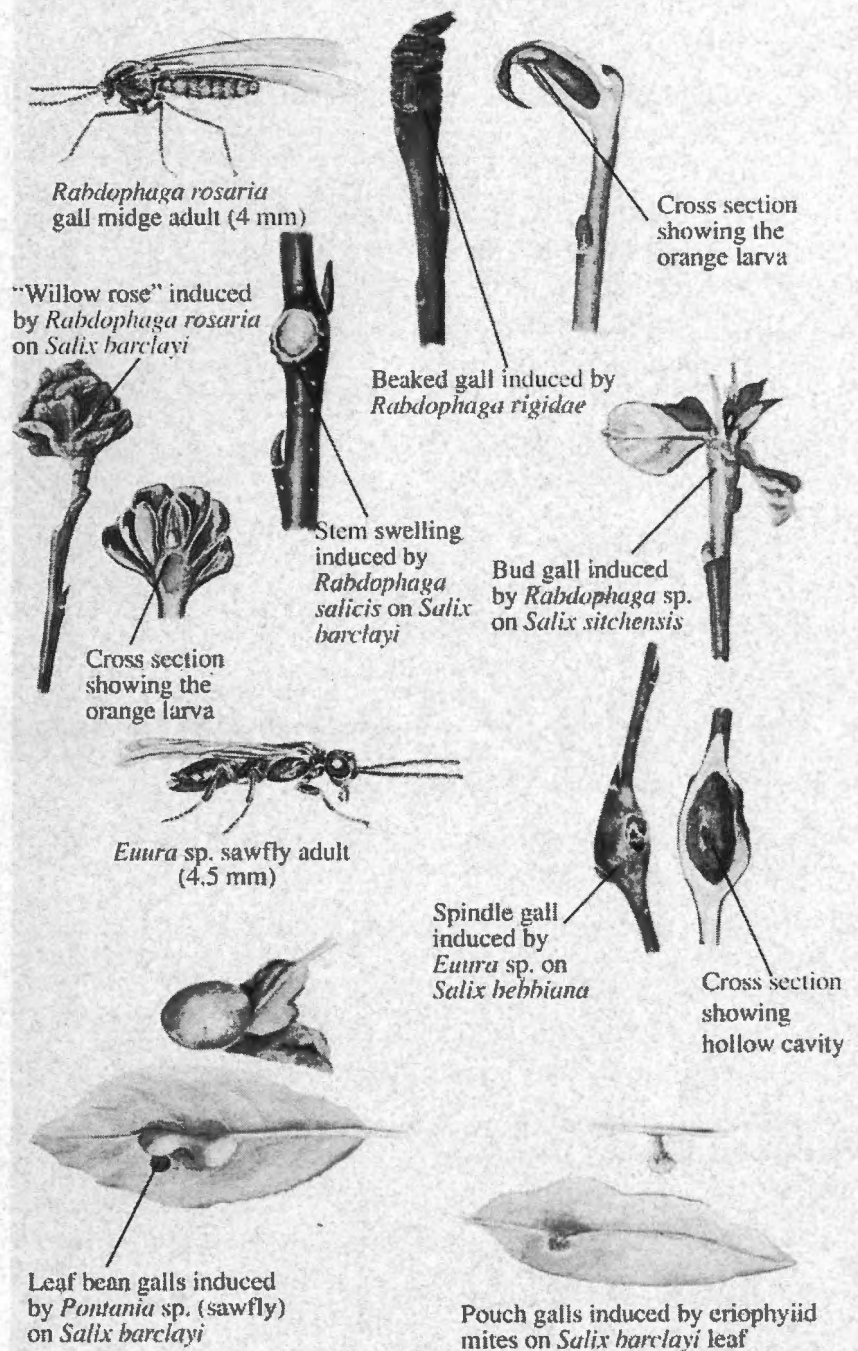
These larvae take advantage of the way plant buds grow by producing new meristematic cells at the base of the stem. As the larva burrows in and begins eating the new plant cells, their normal growth is stopped, and instead the leaves come out on top of one another in a pile - called a "rosette".

Buds galled by *R. rosaria* die after the summer, but the dry roses remain on the plants over the winter. In the spring, a new generation of midges emerges from pupae inside the roses.

Dry "willow roses" induced by *Rabdophaga rosaria* are easy to find during winter and early spring. The pupa of the gall midge (or attacking parasitoids) can be found in the center of the rosette by cautiously removing the dry leaves.

If you split open one of these dried rosettes, you'll see the red/orange larva (about 1/4 inch) inside. There may be a variety of other insect residents in the gall as well. Then, you can dissect the larva under a microscope and if you're lucky, you may see a different tinier larva inside. This is the larva of a parasitic wasp that has grown from an egg injected into the midge larva. The egg lies dormant inside the larva until the following spring when it hatches and begins to eat the gall midge larva. After consuming its host, the wasp matures into an adult about 3 mm long, which tunnels out of the gall and seeks another fat, unsuspecting midge larva on a willow bud. This "checks and balances"

effect is what keeps willow gall midges from creating too much havoc on the willow host. Dominique has found other galls on Kenai Peninsula willows - a swollen stem gall and a beaked gall on branch tips. He has also found about a dozen species of parasitic wasps that attack the gall makers.



From "Willows of Southcentral Alaska" by Dominique M. Collet

# Weed Organizations in Alaska

Where to find information about invasive plant species – Thanks to Susan Klein

## Action groups

**CANWIN – Citizens Against Noxious Weeds Invading the North** – started by hobby gardeners Troy and Lori Zaumseil who formed a non-profit dedicated to getting the word out about invasive plant species. Also conduct weed pulls and worked on getting legislation on weeds through the legislature.

Website: <http://weedwar.org>

**CNIPM – Alaska Committee for Noxious and Invasive Plants Management** – started by a group of agency individuals concerned about invasive plants in Alaska. An “informal group comprised of individuals representing agencies and organizations statewide.”

Website: <http://www.uaf.edu/ces/cnipm/index.html>

**Alaska Exotic Plant Management Team** – rapid detection and eradication – also looks for volunteers to help with projects. And lists a gardener’s code in regards to helping prevent establishment of invasive plant species.

Website: [http://www.nps.gov/akso/NatRes/EPMT/what\\_you\\_can\\_do.html](http://www.nps.gov/akso/NatRes/EPMT/what_you_can_do.html)

**Alaska Invasive Species Work Group** - works “to minimize invasive species impacts in Alaska”.

Website: <http://www.uaf.edu/ces/aiswg/>

## Identification of Weeds

**Non-Native Plants of Alaska** - website hosted through UAA’s Alaska Natural Heritage Program. AKNHP also hosts occasional classes on identification.

Website: <http://akweeds.uaa.alaska.edu/>

**USDA Plants Database** - Invasive and noxious weed link

Website: <http://plants.usda.gov/java/noxiousDriver>

## Databases and Mapping

**AKEPIC – Alaska Exotic Plant Information Clearing House** – database for all sightings/locations of exotic plants. Anyone can report and send in information.

Website: <http://akweeds.uaa.alaska.edu/index.htm>

**EDDMapS – Early Detection & Distribution Mapping System** - begun in SE US, now in many states. Maps data in Google maps.

Website: <http://www.eddmaps.org/>

**Pest Tracker – National Agricultural Pest Information System** - A USDA program to track pests and has a searchable database that leads to articles on the weed you look for. Website below lists local contact people with the State of Alaska and APHIS.

Website: <http://pest.ceris.purdue.edu/searchstate.php?abbr=AK>

**USDA Plants Database** – Invasive and noxious weed link

Website: <http://plants.usda.gov/java/noxiousDriver>

## Government Agency links

### State of Alaska

**ADF&G** – track specific species of concern.

Website: <http://www.adfg.state.ak.us/special/invasive/invasive.php>

**DNR – Alaska Plant Materials Center** – prohibited list of noxious and invasive plants – specifically for agriculture and uses on roads etc.

Website: [http://dnr.alaska.gov/ag/ag\\_pmc.htm](http://dnr.alaska.gov/ag/ag_pmc.htm)

### Federal

**USDA – Soil & Water Conservation Districts** – monitor and act on weed invasions

Website: <http://www.alaskaconservationdistricts.org/invasivePlants.htm#Invasive%20Plants%20Management>

**USDA Forest Service Forest Health Protection Program** – surveys and monitors for invasive species outbreaks

Website: <http://www.fs.fed.us/r10/spf/fhp/>

**NPS – Exotic Pest Management Team** – monitors and removes weeds. Often uses volunteers

Website: [http://www.nps.gov/akso/NatRes/EPMT/what\\_you\\_can\\_do.html](http://www.nps.gov/akso/NatRes/EPMT/what_you_can_do.html)



## MYSTERY PLANT

This native woodland specie is one of the many that come to Alaska via the Pacific Northwest, but can also be found across the continent at about 52° Latitude. It is a woody upright shrub that often sprawls on the ground. The stems are square and glabrous. The mid-green leaves are pale on the underside, are obovate with a pointed top and are opposite on the stems. The corolla consists of 4 green to purple bracts with 2 tubular yellow flowers and are also in pairs on the stem. They bloom sequentially so the flowers and shiny black berries can both be seen at the same time. In Alaska, it can only be found in Southeast.

Answer on Page 4.



### **Borealis**

the newsletter of the



#### ALASKA NATIVE PLANT SOCIETY State and Anchorage Chapter Officers

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#### Newsletter ("*Borealis*")

Editor	Ginny Moore
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FAX:

*Borealis* is published bi-monthly October through May. Articles may be sent to Ginny Moore, Anchorage, AK 99516. Phone or FAX: E-mail: [tgmoore@gci.net](mailto:tgmoore@gci.net)

## Upcoming Botanical Events

January 18, 2010: AMGA Meeting - Program: Vines: A Slide Show by Dana Klinkhart -

February 15: AMGA Meeting - Program - IPM: Bugs, Slugs & Other Pests, Organic & Least Toxic Means of Control by Corlene Rose, CES IPM

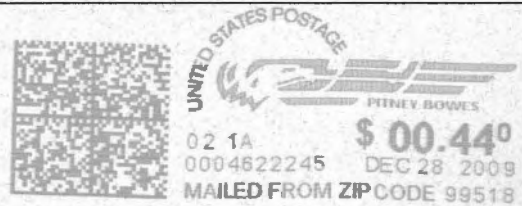
# Thank You!

To

Dominique Collet and Ayse Gilbert,  
Speakers at the November and December meetings  
And to the Mini-Botanists, Susan Klein and Greg Kalal  
and Plant Family hosts: Joyce and Beth Baker

**You make it happen!**

Alaska Native Plant Society  
P.O. Box 141613  
Anchorage, AK 99514



### ANNUAL MEMBERSHIP APPLICATION/RENEWAL

The **Alaska Native Plant Society** was organized in 1982 by an enthusiastic group of amateur and professional botanists. It is a non-profit educational organization with the goal of uniting all persons interested in the flora of Alaska. Membership is open to any interested individual or organization. If you wish to join us, please indicate the category of membership you desire, fill in the form below and mail it with the appropriate remittance to:

**Alaska Native Plant Society,  
P.O. Box 141613,  
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STATUS  New       RENEWAL  
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**Membership is on a calendar year basis.**

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