

Borealis

the newsletter of the



PO Box 141613, Anchorage, Alaska

April/May 2011

Citizen Monitoring

Join us at our Next Meetings!

Monday, April 4, 7:30 p.m.

(Campbell Creek Science Center)

Topic: "Botany in the Aleutians"

Speaker: Leah Kenney

Leah will discuss USFWS plant work at many islands throughout the Aleutians, including information on a recently written plant guide for the Near Islands (mostly Agattu Island).

Plant Family: Apiaceae/ Parsley Family
Oenanthe and Cnidium

Presenter: Diane Toebe

Monday, May 2, 7:30 p.m.

Topic: "Ordering the Chaos: A Historic Perspective on the Life and Legacy of Carl Linnaeus"

Speaker: Beth Baker

Back by popular demand, this overview of the work of Carl Linnaeus is lively and entertaining as well as most informative. Don't miss it!

Plant Family: Apiaceae/Osmorhiza, Bupleurum
Presenter: Verna Pratt

For the latest information about ANPS events and field trips, go to www.aknps.org/

What Might Be Lurking In Our Forests

The United Nations (UN) General Assembly has declared 2011 the International Year of Forests. As we take time to celebrate our boreal forests, it is also a time to become more aware of the increase in invasive pests (introduced non-indigenous plants, insects, microbes into Alaska. The threat that these introduced invasive pests may have on our forest resources and urban health is undocumented and unknown, but the loss of biodiversity in forest ecosystems and the increase in chemicals necessary to combat introduced pests in urban areas is already a reality in much of the lower 48. Here in Alaska our geographical isolation has given us time to possibly prevent many of the same problems associated with invasive pests that occur in every other state. But we must all be vigilant monitors.

You may be hiking along a local trail, casting in a favorite fishing hole, working in your garden, or strolling through the neighborhood when you come across a creature or plant that seems out of place or unusual in your area. If you do, it is important to report it. Your vigilance could help us intercept and prevent the spread of an unwanted biological invader – an invasive species that shouldn't be here and which could cause serious harm to Alaska's native habitats.

Note the location (maybe even get a GPS coordinate) and, if you can, take a picture. Then report your find to one or more of the agencies that are coordinating this information locally. Check out both of these websites for more information on what people have been finding, what the threats might be, and how humans may play a part in bringing in these invasives.

Alaska Department of Fish and Game, Invasive Species Program at dfg.dsf.InvasiveSpecies@alaska.gov, or call the Invasive Species Hotline: 1-877-INVASIV (1-877-468-2748).

The Cooperative Extension Services, UAF Integrated Pest Management Program offers a form for you to fill in, including photos if possible. Insect, Disease and Plant Specimen Form: <http://www.uaf.edu/ces/ipm/form>.

Preventing the spread of invasive species is our best means of ensuring they don't take over our valued natural areas and eliminate or decrease populations of native species we cherish or depend on.

MYSTERY PLANT

Provided by Verna Pratt

This plant has woody stems and usually lives in bogs or very wet areas. It is often mistaken for another shrub during the winter or early spring. Both plants are woody, grow in damp areas and have thick, tough, evergreen leaves. With the lack of warmth in the winter the leaves do not produce chlorophyll, so are a drab brown color and basically look dead. The small white, bell-shaped flowers have 5 joined petals and 5 joined sepals. There are many small bells hanging from the arching branches in early spring. It usually does not grow in coastal areas but otherwise can be seen in most of Alaska at low elevations. Answer on Page 7.



Willow Workshops This Summer

Two willow identification workshops will be given in Anchorage this June by North American willow authority Dr. George Argus of the Canadian Museum of Nature (retired). The workshop will be approximately 2.5 days long and will take place on the University of Alaska Anchorage campus at the Integrated Science Building room ISB 210. The first session will be Friday evening, June 24 through Sunday June 26. The second workshop will be Wednesday June 29 through Friday July 1. Tuition for the class is \$200 per person, payable to Susan Klein (Susan C. Klein Research and Consulting - susan@susanklein.biz) who is organizing the workshops on behalf of Dr. Argus. **If you are interested in attending please email her as soon as possible at susan@susanklein.biz**, stating your preferred session. Each session is limited to no more than 15 participants and space is filling fast.

Borealis

the newsletter of the



ALASKA NATIVE PLANT SOCIETY

State and Anchorage Chapter Officers

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Newsletter ("Borealis")

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| 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: tgmooore@gci.net

Alaska Native Plant Society Treasurer's Report March 2011

| | |
|-------------------|------------|
| Bank Account | \$6,342.34 |
| Outstanding Bills | \$ 320.42 |
| Net Income | \$6,021.92 |

Thank You!

To
Stacey Studebaker and Amy Miller who for
GREAT presentations at our February and
March meetings!
And to
Beth Baker and Mary Hopson for providing
ENLIGHTENING plant family presentations!

You make it happen!

Apiaceae/Umbelliferae (Parsley) Family – *Oenanthe* and *Cnidium*

At our April meeting, Diane Toebe will help us learn more about the *Oenanthe* and *Cnidium* genera of the Apiaceae.

Oenanthe sarmentosa, water parsley, a dicot, is a perennial herb that is native to Alaska and is native only to western North America, where it occurs along rivers, marshes, and fens. Recently, it has been used as an adaptable wetland species by the horticultural industry. Unfortunately, Pacific Water Parsley appears to be aggressive and it has already begun to spread into new areas. This plant flourishes in wet mucky soil or shallow water, and is semi-aquatic. In situations with little sun, fewer flowers will be produced. This plant can spread aggressively in wetland areas.



Oenanthe sarmentosa

As one might guess from this very strangely spelled name, the *Cnidium* genus has its taxonomical roots in Russia. A look at the names gives some insight into those roots. Hultén says the species *Cnidium ajanense* was first described by Regel and Tiling. Today the name of the species is *Tilingia ajanense*.

Heinrich Sylvester Theodor Tiling was a German–Russian physician and naturalist. During his later years he became an American citizen. Tiling became a physician at the "Russian North American Co." in Ayan, Siberia from 1845 through 1851. He went to Ayan over land with his young wife and arrived in winter 1845. The difficulties during the overland journey were extreme in parts. He published an account of it in "Eine Reise um die Welt ...". The German title of the book translates into: "A journey around the world from West to East through Siberia and the pacific and atlantic seas." During his time in Ayan, he kept a daily register of the temperature and rainfall for Ayan. He described all plants in the area and published an account of it with the director of the botanical gardens in St. Petersburg, Russia, Eduard August von Regel (*Florula Ajanensis*). So here we find the names Regel and Tiling. During the course of his life, Regel described and named over 3000 new plant species and Tiling had more than 20 species named after him, including the genus name *Tilingia*. The species name "Ajanensis" means that the species was first described from Ayan, by Tiling.

Interesting sidenote: After his time in Siberia, Tiling returned to Riga to practice medicine and then then 1863-1868 when he moved to Sitka. After the Alaska purchase, Tiling stayed on and later moved to California where he collected and described numerous plants and species in Siberia, Alaska, and California from 1844 to 1871.

Hultén's map shows only one location where the species had been found, at "Old Man Creek" in S. Brooks Range, collected in 1901, and he may have been skeptical, even then. It is not know

Cnidium cnidiifolium, also known as **Jakutsk snowparsley** after the Siberian town Jakutsk (Yakutsk), is found in Russia, Canada, and Alaska. It is also know as "northern hemlock-parsley". The scientific name is also sometimes given as *Conioselinum cnidiifolium*.

The flowers are in umbels of light-purple to white and bloom from late June to August, each with five lanceolate bracts. The fruits of *Cnidium cnidiifolium* are ovate. The lower leaves are glabrous, bi- to tripinnate, and petiolate, and the upper leaves are nearly sessile to sessile. The stems are split at the caudex and are up to 60 cm tall. *Cnidium cnidiifolium* grows in low elevations along rivers and in wet meadows and along roadsides.

Swallowtail butterflies from the *Papilio machaon* group use plants of the Apiaceae as their primary hosts and in Alaska and northwestern Canada the main local apiaceous host is *Cnidium cnidiifolium*.

Tok Germplasm Jakutsk snowparsley seed is maintained by the Alaska Plant Materials Center for commercial production. It was collected by Stoney Wright near Tok, Alaska, in 1995. This native herb is a Selected Class Release by the Alaska Plant Materials Center (PMC). This means it has been grown and harvested at the PMC and continues to preserve its excellent performance. This herb is recommended for use in revegetation because it adds beauty and variety to the revegetation project.

Apiaceae/Umbelliferae Family – *Osmorhiza* and *Bupleurum*

In May Verna Pratt will complete our study of the Apiaceae family with a discussion on the *Osmorhiza* and *Bupleurum* genera.

Osmorhiza is a genus perennial herbs, known generally as **Sweet Cicely** or **Sweetroot**. Most species are native to North America, but some grow in South America and Asia. Some species are used for medicinal purposes, but have dangerous lookalikes. The seeds of this plant have barbs on the end allowing them to stick to clothing, fur, or feathers. Hulten describes 3 *Osmorhiza* genera in Alaska.

***Osmorhiza purpurea* - Purple Sweet-cicely:** One of the first spring flowers, this plant is fairly common in open forested areas, and abundant in riparian alder forest.

***Osmorhiza berteroi* - Mountain Sweet-cicely, Chilean Sweet-cicely, or Common sweet cicely** Synonyms: *Osmorhiza brevipes*, *Osmorhiza chilensis*, *Osmorhiza divaricata*, *Osmorhiza intermedia*, *Osmorhiza nuda*, *Osmorhiza nuda* var. *brevipes*, *Osmorhiza nuda* var. *divaricata*, *Scandix divaricata*, *Washingtonia brevipes*, *Washingtonia divaricata*, *Washingtonia intermedia*

Mountain sweet cicely is a perennial herb with stout, erect stems from 40-120 cm high. The stems and leaves are strongly scented with a licorice-like odor. The herbage varies from glabrous to fairly densely covered with very small, coarse, stiff hairs. The leaves are one to three times ternate or ternate-pinnate. The individual leaflets are lanceolate, lance-elliptic or ovate in shape with coarsely toothed to incised margins, or occasionally parted into 3 lobes. The leaflets are 2-10 cm long and 0.5-5 cm wide. The basal leaves are clustered and long-petiolate and several shorter petioled leaves on the stems.

The inflorescence consists of several umbels which are 6-16 rayed, the rays measuring from 1-5 cm long in flower and elongating up to 7 cm long in fruit. Bracts are typically lacking at the base of both the umbel and individual umbellets. The flowers are atop pedicels from 2-5 cm long and are usually yellow in color, although they may also be greenish-white. The fruits are glabrous, linear-oblong in shape with a rounded rather than tapered base (See photo below.), and measure from 12-20 mm long.

Range: Common sweet cicely may be found from southern Alaska south to California on both sides of the Cascade and Sierra Nevada mountains and east to the Rocky Mts from Colorado south to Arizona and New Mexico. It may found eastward in South Dakota and also from Wisconsin and Michigan east to Ontario Newfoundland and northern New Hampshire. It is also native to Chile and Argentina.

Bupleurum is a very large [genus](#) of plants of the [Apiaceae](#) family, represented by 185 to 195 species. *Bupleurum* is another genus that has been getting some revamping in recent years. As revised by I.M. Krasnoborov, (Bot. Zhur.83:120. 1998), *Bupleurum triradiatum* is now restricted to Asia and the name *Bupleurum sibiricum subsp americanum* now applies to our plants from the Interior. He recognizes *B. arcticum* and a *B. ajanense*.

Some websites include *Bupleurum Americanum* (American thoroughwax) as an Alaskan species: American thorough-wax may be found from Alaska east to the Yukon and Northwest Territories and south along the eastern base of the Rocky Mountains to northern and west central Wyoming. It is found westward to Lemhi and Fremont Counties in Idaho and the Wallowa Mts. in northeastern Oregon." American thorough-wax is a perennial wildflower with several erect to spreading stems arising 5-50 cm high from a persistent, woody base atop a taproot. Plants are glabrous and noticeably glaucous as seen in the photos on this page. The narrow leaves are lanceolate to lance-ovate in shape narrowing gradually to the petiolate base and with several faint veins. The blades are up to 16 cm long and 1 cm wide and the margins are entire. The leaves are more numerous near the base but are also found well up the stems, although they become reduced in size up the stem.

BOTANY BOOKSHELF



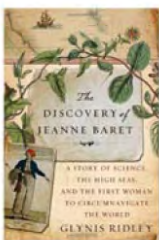
“The Brother Gardeners” by Andrea Wulf, 2008
Winner of the American Horticultural Society 2010 Book Award

One January morning in 1734, cloth merchant Peter Collinson hurried down to the docks at London's Custom House to collect cargo just arrived from John Bartram, his new contact in the American colonies. But it was not reels of wool or bales of cotton that awaited him, but plants and seeds...

Over the next forty years, Bartram would send hundreds of American species to England, where Collinson was one of a handful of men who would foster a national obsession and change the gardens of Britain forever, introducing lustrous evergreens, fiery autumn foliage and colourful shrubs. They were men of wealth and taste but also of knowledge and experience like Philip Miller, author of the bestselling *Gardeners Dictionary*, and the Swede Carl Linnaeus, whose standardised botanical nomenclature popularised botany as a genteel pastime for the middle-classes; and the botanist-adventurer Joseph Banks and his colleague Daniel Solander who both explored the strange flora of Tahiti and Australia on the greatest voyage of discovery of modern times, Captain Cook's Endeavour.

This is the story of these men - friends, rivals, enemies, united by a passion for plants - whose correspondence, collaborations and squabbles make for a riveting human tale which is set against the backdrop of the emerging empire, the uncharted world beyond and London as the capital of science.

This is the fascinating story of a small group of eighteenth-century naturalists who made Britain a nation of gardeners and the epicenter of horticultural and botanical expertise. It is the story of a garden revolution that began in America.



“The Discovery of Jeanne Baret: A Story of Science, the High Seas, and the First Woman to Circumnavigate the Globe” By Glynis Ridley, 2010 -

A available in Anchorage and Kenai Public Libraries!

The year was 1765. Eminent botanist Philibert Commerson had just been appointed to a grand new expedition: the first French circumnavigation of the world. As the ships' official naturalist, Commerson would seek out resources—medicines, spices, timber, food—that could give the French an edge in the ever-accelerating race for empire.

Jeanne Baret, Commerson's young mistress and collaborator, was desperate not to be left behind. She disguised herself as a teenage boy and signed on as his assistant. The journey made the twenty-six-year-old, known to her shipmates as “Jean” rather than “Jeanne,” the first woman to ever sail around the globe. Yet so little is known about this extraordinary woman, whose accomplishments were considered to be subversive, even impossible for someone of her sex and class.

When the ships made landfall and the secret lovers disembarked to explore, Baret carried heavy wooden field presses and bulky optical instruments over beaches and hills, impressing observers on the ships' decks with her obvious strength and stamina. Less obvious were the strips of linen wound tight around her upper body and the months she had spent perfecting her masculine disguise in the streets and marketplaces of Paris.

Expedition commander Louis-Antoine de Bougainville recorded in his journal that curious Tahitian natives exposed Baret as a woman, eighteen months into the voyage. But the true story, it turns out, is more complicated.

In *The Discovery of Jeanne Baret*, Glynis Ridley unravels the conflicting accounts recorded by Baret's crewmates to piece together the real story: how Baret's identity was in fact widely suspected within just a couple of weeks of embarking, and the painful consequences of those suspicions; the newly discovered notebook, written in Baret's own hand, that proves her scientific acumen; and the thousands of specimens she collected, most famously the showy vine bougainvillea.

Ridley also richly explores Baret's awkward, sometimes dangerous interactions with the men on the ship, including Baret's lover, the obsessive and sometimes prickly naturalist; a fashion-plate prince who, with his elaborate wigs and velvet garments, was often mistaken for a woman himself; the sour ship's surgeon, who despised Baret and Commerson; even a Tahitian islander who joined the expedition and asked Baret to show him how to behave like a Frenchman.

But the central character of this true story is Jeanne Baret herself, a working-class woman whose scientific contributions were quietly dismissed and written out of history—until now. Anchored in impeccable original research and bursting with unforgettable characters and exotic settings, *The Discovery of Jeanne Baret* offers this forgotten heroine a chance to bloom at long last.

Do you have a good botany book to recommend? Do tell!

Current and Historic Spruce Beetle Outbreaks in Alaska: Insights Gained from Tree-Ring studies

Amy Miller, a National Park Service botanist, was the main speaker at our March monthly meeting. She shared insights gained from studies related to spruce bark outbreaks in Southcentral and Southwest Alaska. Their spruce beetle study sites are located on the Kenai Peninsula and across Cook Inlet in Lake Clark and Katmai National Parks, as well as some private sites outside the parks. Working with Rosemary L. Sherriff, from Humboldt State University, and Edward E. Berg, U.S. Fish & Wildlife Service, they built on previous studies Ed had done on the Kenai Peninsula.

Amy began with a map showing the wide areas of beetle disturbances (both pine and spruce beetles) in the western part of the U.S., including Alaska. There has been some conjecture that these recent outbreaks are due to a generalized pattern of regional warming. Her project focused on attempts to analyze the extent of previous outbreaks to determine if this is just a natural part of the cycle, or a more serious outbreak, based on a warming trend.

Here are some things we think we know about Spruce bark beetles and their behavior: Spruce beetles have a 1-3 year life cycle; it normally requires 2 years to complete but in exceptionally warm summers, it can complete reproduction in one year. Warmer winters increase beetle survival. Two successive cold winters will reduce survival of the overwintering population to the point that it has little outbreak potential. Recent (since 1977) climate warming in Alaska has removed those limitations; winters especially have been milder and a few summers have been exceptionally warm.

Spruce bark beetles bore into trunks and feed on the live cambium layer between the bark and wood. A major spruce bark beetle outbreak is also facilitated by weak resistance in host trees. Some of the typical factors in weakening the resistance of spruce stands include defoliation, flooding, prolonged drought, and old age in crowded stands.

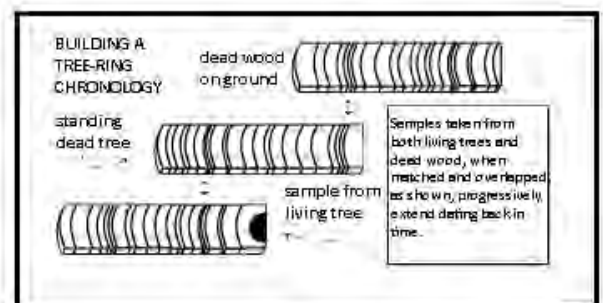
Spruce beetles concentrate their attack on mature spruce in the late spring when trees experience seasonal drought stress because cold or partially frozen soils retard water uptake and precipitation is normally low. Spruce on southfacing slopes are typically less prone to infestations by spruce beetles than spruce growing on north-facing slopes because of warmer soil temperatures. However, during warm summers, excessive heat causes drought stress of white spruce on south-facing slopes and can lead to greater mortality by spruce beetles.

At least as interesting as the results of the study were the dendrochronology techniques used to determine them. Simply put, dendrochronology is the dating of past events (such as climatic changes) through the study of tree ring growth.

The dendrochronologist reads the distinctive patterns of wide and narrow rings which appear in pieces of wood or core samples from different trees. It is more than simply a matter of counting rings. Patterns from different trees must be matched to pinpoint the year a tree produced a particular ring, a process known as crossdating.

Year-to-year changes in the weather create the patterns. Trees respond to temperature, rainfall and other environmental conditions by altering growth. During lean years, growth is slowed and rings are thinner. Trees grow better or worse in response to a combination of weather conditions, depending on their physiology and where they are growing.

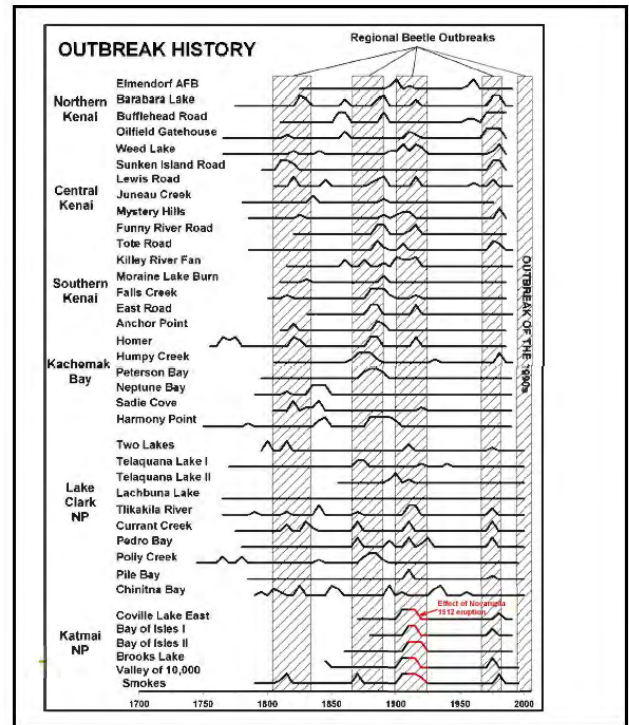
Dendroclimatology specializes in the study of annual growth patterns from old trees to see what they reflect about environmental conditions as they grew. Amy reminded us that in Alaska weather records are short, so we don't know the full range of variations that can occur naturally, and thus we can't tell whether there have been recent, human-induced changes. From a network of tree ring data being collected around the entire Northern Hemisphere tree line, the Tree Ring Lab in Ohio has reconstructed temperature records for the Arctic and Northern Hemisphere dating back to the 1600s.



Amy's study was based on the premise that evidence for past outbreaks of spruce beetles can be found in growth spurts (growth releases) of trees that survived previous outbreaks. Since spruce beetles selectively attack mature spruce, after they are killed by spruce beetles, the smaller surviving spruce have less competition for light, soil moisture, and nutrients, and often increase their growth abruptly. They assumed that growth releases of understory spruce, as evidenced by larger growth rings, are best explained by past attacks by spruce beetles and not by some other source of spruce mortality. They used measurements of spruce growth rings to detect past outbreaks of spruce beetles following the methods Ed Berg had previously used in the Kenai Peninsula study.

Amy's team was able to add to the data to reconstruct spruce beetle outbreak histories among mature spruce forests back to the mid-1700s using measurements in annual growth rings. By examining tree ring width they could see the areas of growth releases from stand-thinning events. In examining tree-ring data to identify these growth spurts, the criteria they looked for was a doubling of ring-width ratio within a 10-year window. By matching the tree ring data they were able to see a regional synchrony in beetle outbreaks. Outbreaks in Kenai occurred in the same time frames as outbreaks in other areas of Kachemak Bay as well as Katmai.

Meanwhile, Amy's team is doing on-the-ground monitoring of understory and stand structure for those areas they could physically reach as well as reviewing satellite data for the region as a whole. In the future they hope to be able to monitor areas of spruce expansion as well as forest decline. They also want to know if and how the forest understory composition is changing in response to beetle disturbance, and if and how the forest is regenerating.



**Alaska
Botanical
Garden**

LOCAL WILDFLOWERS with Verna Pratt & Marilyn Barker

What: A month-long field botany course about local plants, their identification and uses. This course includes lectures, short walks, and a bonus all-day field trip. \$ 95 per person (Course price does not include field trip transportation, which students must provide on their own. Optional books and field botany tools are available through the Alaska Botanical Garden gift shop.)

When: 4 Wednesdays, May 11 - June 1, your choice of Morning (10am - 1pm) or Evening (6pm - 9 pm)

Where: Alaska Cooperative Extension Service Office (corner of 16th & C Street)

How to Register: Please pre-register by contacting ABG;

You may register via:

- Phone: 907-770-3692
- Fax: 907-770-3692 (download pdf of ABG Order form at www.alaskabg.org)
- Mail: Alaska Botanical Garden, P.O. Box 202202, Anchorage, AK 99520

Questions? Call ABG: 907-770-3692



Mystery Plant Answer

Chamaedaphne calyculata
Cassandra
Ericaceae (Heath) Family

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,
Anchorage, AK 99514**

STATUS New RENEWAL
CATEGORY

- | | | |
|--------------------------|-------------------|------|
| <input type="checkbox"/> | Full-time Student | \$12 |
| <input type="checkbox"/> | Senior Citizen | \$12 |
| <input type="checkbox"/> | Individual | \$15 |
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| <input type="checkbox"/> | Organization | \$30 |

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Membership is on a calendar year basis.

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