

Borealis

the newsletter of the



PO Box 141613, Anchorage, Alaska

February- March 2016

KEYNOTES

Join us at our Next Meetings!

Monday, Feb. 1, 7:00 p.m

Main Topic: "Flower Photography"

Speakers: Chuck Maas and Ray Bulson

Endangered Plants: *Geum macranthum*

Presenter: Glenn Brown

Saxifrage Family Plant: *Mitella*

Presenter: Joan Tovsen

Monday, March 7, 7:00 p.m

Main Topic: "Arctic Mosses"

Speaker: Dr. Bjartmar Sveinbjornsson
UAA Professor of Biological Sciences

Mosses are common but often unnoticed segments of our botanical world. For this reason they are also less well studied. Dr. Sveinbjornsson, a native of Iceland, has studied arctic mosses all over the world, and will share his enthusiasm and knowledge.

(also see **Book Reviews** on page 6)

Endangered Plants: *Juniperus Horizontalis*

Leader: Marilyn Rimland

Saxifrage Family Plant: *Boykonja*

Presenter: Verna Pratt



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

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"Mossology"

(a fictitious but believable name for the study of true but unbelievable moss facts)

The next time you travel through an Alaskan forest or hike through the tundra or examine the shakes on most Alaskan roofs, you might want to stop and pay tribute to the ever-so-common moss you find there.

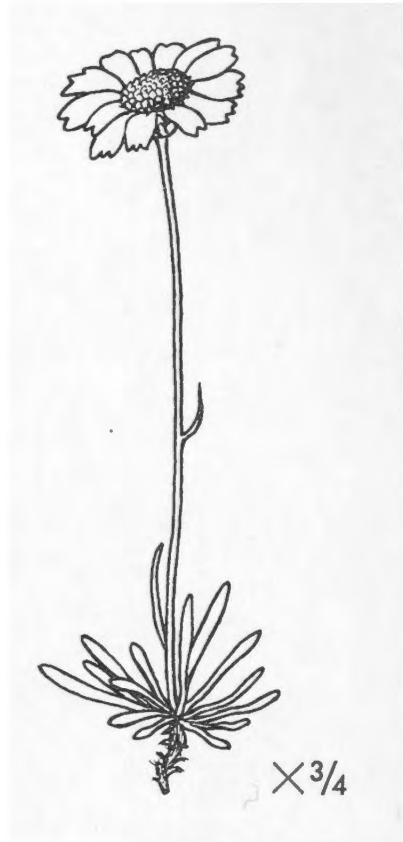
At our March monthly meeting Dr. Bjartmar Sveinbjornsson will provide you with some tools for appreciating these tiny plants. In this issue of our newsletter we also highlight a couple of books that may enhance your enjoyment. Here we'll just whet your appetite by bulleting some of fun facts about moss.

- Moss is the oldest terrestrial plant on earth and helped to create our first soil. They evolved from algae and still require water for fertilization and survival.
- Many varieties of moss are able to dry out (or freeze) and survive for years before beginning to grow again. Moss frozen on an Antarctic island for more than 1,500 years was brought back to life in a British laboratory recently. "This is the very first instance we have of any plant or animal surviving [being frozen] for more than a couple of decades," said study co-author Peter Convey, an ecologist with the British Antarctic Survey.
- Right around the corner from where the Shackleton expedition was marooned on Elephant Island in 1915, are icy cliffs covered in 5,500 year old Antarctic moss, *Chorisodontium aciphyllum*, discovered in 1987. (See Book Review, page 6)
- Unlike most other plants, mosses do not have vascular tissue. Because of that, mosses lack root, stem and flowers. Because of that, mosses are not very tall and are always seen in groups so they can help each other "stand upright".
- Mosses were used as bandages during the First World War to prevent blood loss. Mosses were also used to soothe the infection since they contain chemical with anti-bacterial properties.
- Mosses are reliable indicators of air pollution risks to ecosystems, because they get most of their nutrients direct from the air and rain, rather than the soil.

Verna's MYSTERY PLANT

ANSWER on Page 4 – Don't Peek!

This plant is mostly found on gravelly soil or rocky tundra in the arctic, and its range extends from Eastern Siberia to Eastern Canada. It has a branched caudex of mostly narrow, slightly hairy, linear leaves. The flowering stem can be 4 to 6 inches tall and has one flower of a dense cluster of yellow disc flowers surrounded by good-sized long, white 3-toothed ray flowers. This should be familiar to people who have been to the Seward Peninsula and will soon be a familiar plant to those going on the *field trip to Barrow*.



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ALASKA NATIVE PLANT SOCIETY

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Newsletter ("Borealis")

Editor	Ginny Moore
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Borealis is published bi-monthly, fall through spring. Articles may be sent to Ginny Moore, , Anchorage, AK 99516. Phone or FAX: , E-mail: elfinwood@gmail.com

At our December monthly meeting Anjanette Steer provided us with a good summary of the concept of “rare plants in general, before going on to focus on *Maianthemum*.

The “Rare Vascular Plant List” that we are using to study Alaska’s rare plants this year was developed by the Alaska Natural Heritage Program at the University of Alaska, Anchorage. They use a ranking system developed by non-profit NatureServe (NS), whose goal is to provide a scientific basis for effective conservation action. This ranking system provides a quick glimpse at a plant’s status in global (G) and state (S) terms. For each area, plants are ranked on a scale of 1-5: 1 = critically imperiled (worst), 2 = imperiled; 3 = vulnerable; 4 = apparently secure; 5 = secure (best). While NS determines the Global status which covers the entire range of the plant, State programs take care of evaluating plants within their boundaries. The Alaska Natural Heritage Program (AKNHP) adheres to the protocols developed by NS to maintain and update a list of vascular plant species and lichens that are rare in the state. A plant ranked by ANHP as S3 to S1 becomes part of the rare vascular plant list as established by ANHP and available on the web at www.accs.uaa.alaska.edu

It is important to know that while a plant may be listed on the “rare vascular plant list” for Alaska, this list has nothing to do with the “Threatened or Endangered” terms used by US FWS. “Threatened or endangered” status has legal ramifications; being listed on the rare plant does not. US FWS does consult these rankings when recommending which plants should be officially listed as “endangered” or “threatened”. Currently only one native plant in Alaska is on the Endangered/Threatened list: Aleutian holly fern=*Polystichum aleuticum*). And in Alaska, “rare” doesn’t necessarily mean “threatened”.

Which brings us to Anjanette’s “rare plant”: *Maianthemum racemosum* ssp. *amplexicaule*. (*Smilacina racemosa* var. *amplexicaulis* in Hultén).

This *Maianthemum* subspecies (from the Greek *maios*, meaning May, and *antheon*, meaning flower) is commonly known as Western or False Solomon’s Seal, or Feathery False Lily of the Valley. It is a tall rhizomatous native perennial commonly found in shaded deciduous woodland, from California to British Columbia, and east to the Rockies. This plant typically grows between 60-90 cm tall, with alternate, oblong-lanceolate leaves that range from 7-15 cm long and 3-6 cm broad, with subtle parallel veins. The fragrant white flowers emerge in dense panicles at the terminus of each stem, unlike true Solomon’s Seal (*Polygonatum*) where the flowers form at each leaf axilla. Flowers consist of 6 tepals, 6 stamens, and a central pistil. In late summer the flowers give way to clusters of red round berries that are favored by wildlife.



Maianthemum racemosum ssp. *amplexicaule* is ranked as G5, S1. While it is very common in much of its range, it is rare in Alaska. The AKNHP database lists only 8 reported occurrences. Anjanette suggests that maybe it should be considered “less common” rather than “rare”. The other *Maianthemum* species found in Alaska, *Maianthemum stellatum* is more common in Alaska, with an S3 ranking. *Maianthemum stellatum* (Little False Solomon’s Seal) is smaller than *M. racemosum*. *M. stellatum* has smaller, more open inflorescences, flowers with stamens shorter rather than longer than the petals, and somewhat narrower and more curved leaves. Both species show the characteristic zigzag of the stem between the alternate leaves.

Mystery Plant Answer (See Page 2):

Chrysanthemum integrifolium/Entire Leaf Chrysanthemum Asteraceae/Compositaceae Family

This name is a synonym of *Arctanthemum integrifolium* (Richardson) Tzvelev, and *Leucanthemum integrifolium* and is sometimes called “Entire Leaf Daisy”.

Romanzoffia unalaschensis

Alaska's Rare Plants

Beth Baker's Rare Plant talk in January highlighted *Romanzoffia*, a lovely flower in the Hydrophyllaceae family. Hultén lists only 2 species of Hydrophyllaceae in Alaska and both are in the genus *Romanzoffia*: *R. unalaschensis* and *R. sitchensis*. *Romanzoffia* is listed as vulnerable globally and nationally, and a little less so in Alaska: G3N3S3/4.

Beautiful images of *R. unalaschensis* by Glenn Brown highlighted these characteristics: Stem is reddish and pubescent and grows to 10 inches; leaves are round to cordate, scalloped with 6-8 round teeth and reddish edge; short petiolate leaves that are crowded at the base base are round to cordate, scalloped with 6-8 round teeth. Flower is pubescent with 5-lobed nodding bell shape with yellow center and reddish green sepals.



Hultén's key points out the telltale differences between these two species

1. *R. sitchensis*: leaves glabrous on both sides; pedicels (up to 2.5 cm) slender, longer than calyx
2. *R. unalaschensis*: leaves pubescent beneath; pedicels about as long as calyx

Kodiak botanist Stacy Studebaker describes it this way: "*R. sitchensis*...has a more overall delicate appearance, is almost hairless, and the long slender pedicels make the flower arrangement more open and lax. The flower arrangement is more branched than curled on one side of the stem."

Romanzoffia, like Cape Romanzof on Alaska's west coast, was named for Count Nikolai von Romanzoff, the promoter of a Russian expedition that sailed through the Bering Strait and searched for the Northeast Passage in 1815. Otto von Kotzebue commanded the expedition and Adelbert von Chamisso was the naturalist who named many plants.

Romanzoffia is often mistaken for a saxifrage, but if you've been following along with us on our study of the Saxifrage family this year, you know that most saxifrage have double beaked fruit while in our two *Romanzoffia* sp. the fruit is a single round capsule. See the photo below for an example of a double-beaked saxifrage.

Plant Family Study

Saxifragaceae – The "rock-breakers"

Leptarrhena pyrolifolia



Leptarrhena pyrolifolia highlights double-beaked seed head, typical of saxifrages.

Leptarrhena pyrolifolia is commonly known as "fireleaf leptarrhena" or "Leatherleaf saxifrage",

Leatherleaf is a perennial with a cluster of basal leather leaves at the stem base. Stems are erect and 10-20 inches, often in groups. Small white flowers cluster at the top of stems and develop into reddish colored, urn-shaped fruit. This plant is widespread in alpine and subalpine elevations, growing in damp meadows and along stream banks. The Aleuts of Alaska traditionally used an infusion of *Leptarrhena pyrolifolia* leaves to treat influenza, and the Thompson Indians of British Columbia applied a poultice of chewed leaves to wounds. While once considered a species of the *Saxifraga* genus, *Leptarrhena* has been moved to its own genus, still within the Saxifrage family.

Thanks to Beth Baker for researching and sharing this information in January!

Photo courtesy of Doug Houck.

Tolmiea menziesii

Tolmiea menziesii is known by many common names including Youth on age, Pick-a-back-plant, Piggyback Plant, and Thousand Mothers. These names are an indication of its unique characteristic of growing plantlets from the petiole near the base of each leaf. The plantlets drop off, fall in the soil and take root there. It will also reproduce by rhizomes and by seeds.

It is an herbaceous perennial native only to the West Coast of North America and may be found in moist dark woods with rich soil, from southern Alaska south along the coast (and usually no further east than the Cascade crest) to near Santa Cruz, CA. *Tolmiea* has been introduced as a garden plant in other locations, and is in fact considered an invasive alien in Scotland. See video: [Invasive Alien Piggyback Plant](#).



Tolmiea is very distinct morphologically among members of the Sax family, not only because it can reproduce vegetatively, but because it possesses an irregular flower, 4 petals, and only three stamens. It has hairy, five to seven-lobed, toothed leaves and a capsule fruit containing spiny seeds. The flowers are small and are formed on a loose raceme. Each flower consists of a tubular purple-green to brown-green calyx and four linear or subulate (awl-shaped) red-brown petals, about twice the length of the sepals.

The plant was formerly considered to be the only member of a monotypic genus (meaning there are no other species in the genus), but *Tolmiea diplomenziesii*, found in Oregon and California is now considered as a separate species. *T. menziesii* are tetraploid, *T. diplomenziesii* are diploid. These are terms that refer to the number of chromosomes that a plant cell contains. Most plants in general are diploid, meaning they have two complete sets of chromosomes, 1 set from the pod parent and one set from the pollen parent. Tetraploids contain 4 sets of chromosomes, essentially giving them twice the amount of genetic material as diploids and increasing their cell size.

Tolmiea menziesii is named for William Fraser Tolmie (1812–1886), surgeon for the Hudson's Bay Company at Fort Vancouver, and Archibald Menzies, the Scottish naturalist for the Vancouver Expedition (1791-1795).

Similar Species: The three-leaf foamflower (*Tiarella trifoliata*) has a similar basal growth form, bright green leaves and terminal spike-like flower cluster, but leaves are compound with three leaflets and flowers are minute and white. White fringecup (*Tellima grandiflora*) has similar basal, bright green, lobed leaves and erect terminal spikes, the leaves are round, flowers are yellow-green (sometimes pinkish) large (6-8 mm) cup-shaped with lace-like petals that curve backwards, and it grows in drier areas.

Tolmiea is a relatively new addition to the collections at Alaska Botanical Garden and is located in one of the interior beds of the Lower Perennial Garden. It thrived during the 2015 growing season and we hope to propagate it for sale in 2016. Look for it in our Plant Nursery later in the season. *Tolmiea* also makes an excellent houseplant in a standard pot or hanging basket.

Thanks to Mike Monterusso for researching and sharing this information in January!

Grant Opportunities

Community Orchard and Food Forest Grants: Applications are due Feb. 16, 2015
<http://forestry.alaska.gov/community/grants>

Arbor Day Events: Applications due Feb. 12, 2016.

<http://www.forestry.org/alaska/arborday2015/>

FROM OUR BOOKSHELVES



A Natural and Cultural History of Mosses

Robin Wall Kimmerer

6 × 9 inches. Line drawings. 176 pages.

2003. ISBN 978-0-87071-499-3. Paperback, \$18.95.

Living at the limits of our ordinary perception, mosses are a common but largely unnoticed element of the natural world. *Gathering Moss* is a beautifully written mix of science and personal reflection that invites readers to explore and learn from the elegantly simple lives of mosses. One of the world's foremost bryologists, Kimmerer is a scientist blessed with the rare privilege of belonging to a long lineage of storytellers — her family comes from the Bear Clan of the Potawatomi.

Robin Wall Kimmerer's book is not an identification guide, nor is it a scientific treatise. Rather, it is a series of linked personal essays that will lead general readers and scientists alike to an understanding of how mosses live and how their lives are intertwined with the lives of countless other beings, from salmon and hummingbirds to redwoods and rednecks. Kimmerer clearly and artfully explains the biology of mosses, while at the same time reflecting on what these fascinating organisms have to teach us.

Drawing on her diverse experiences as a scientist, mother, teacher, and writer of Native American heritage, Kimmerer explains the stories of mosses in scientific terms as well as in the framework of indigenous ways of knowing. In her book, the natural history and cultural relationships of mosses become a powerful metaphor for ways of living in the world.

Gathering Moss will appeal to a wide range of readers, from bryologists to those interested in natural history and the environment, Native Americans, and contemporary nature and science writing.



The Oldest Living Things In The World

Author: Rachel Sussman

Publisher: University of Chicago Press

Publication Date: 2014

ISBN: 978-0-226-06977-7

The Oldest Living Things in the World is an epic journey through time and space. Over the past decade, artist Rachel Sussman has researched, worked with biologists, and traveled the world to photograph continuously living organisms that are 2,000 years old and older. Spanning from Antarctica to Greenland, the Mojave Desert to the Australian Outback, the result is a stunning and unique visual collection of ancient organisms unlike anything that has been created in the arts or sciences before, insightfully and accessibly narrated by Sussman along the way.

These ancient individuals live on every continent and range from Greenlandic lichens that grow only one centimeter a century, to unique desert shrubs in Africa and South America, a predatory fungus in Oregon, Caribbean brain coral, to an 80,000-year-old colony of aspen in Utah. Sussman journeyed to Antarctica to photograph 5,500-year-old moss; Australia for stromatolites, primeval organisms tied to the oxygenation of the planet and the beginnings of life on Earth; and to Tasmania to capture a 43,600-year-old self-propagating shrub that's the last individual of its kind. Her portraits reveal the living history of our planet—and what we stand to lose in the future. These ancient survivors have weathered millennia in some of the world's most extreme environments, yet climate change and human encroachment have put many of them in danger. Two of her subjects have already met with untimely deaths by human hands.

You can also see and learn more about these fascinating “living dinosaurs” by watching Rachel Sussman's TED Talk at https://www.ted.com/speakers/rachel_sussman.

From What We Gather – The Neighborhood, State and Beyond

Applied Zoopharmacognosy – Through Michelle’s Eyes

At our ANPS January meeting, Michelle Coburn was our guest speaker and gave a fascinating presentation on a topic you may never have heard before: “zoopharmacognosy”. Michelle has a working relationship with the Alaska Zoo and its veterinary staff, merging the benefits of traditional medicine and this emerging science. She described how animals in the wild are able to self-medicate by finding their own natural plant “medicines” when they are needed. By learning what wild animals know and use, she is able to work with zoo and domesticated animals to improve their lives. It was fascinating to hear about the research and work that has been done so far. Here is how she described the concept.

“Imagine walking into a deep virgin forest, and being witness to a perfect world of co-existence, where plant and animal are one; where they communicate with each other on a very deep, cellular level and they are all part of the same breath, same heartbeat. None apart from the other, all supporting life in each other in loving harmony and connection. This is what plant, animal and earth have: a perfect relationship with each other which sustains and supports each part of the system, from the smallest bacteria and fungi to the largest living creature on earth. It’s a heartbeat woven through rock, soil, air and water. This deep forest is before us in every living thing we see every day.

It is in the interest of connecting animals to their healing allies that I find such fascination in this work. To facilitate the millennia old connection of an animal to a plant or constituent that has forever existed in nature as hits healer is a deeply moving, grounding and humbling experience. It is as if I’ve connect myself to the primordial rhythm and heartbeat that has echoed from the beginnings of time for these creatures and the plants they have known since their creation on the planet.”

The **Fairbanks** Alaska Native Plant Society group kicked off their 2016 season on January 13, with a visit to the Museum of the North and a talk with Steffi Ickert-Bond, Curator of the Herbarium. They had a special chance to visit the museum after hours and chat with a well-traveled botanist who has great insights on Alaska’s flora. The Fairbanks group meets on the 2nd Wednesday of the month. For more information, contact Amy Tippery, Wetland Specialist and Program Manager Center for Environmental Management of Military Lands, Colorado State University; USAG Fort Wainwright, DPW Environmental Division: Amy.Tipper@colostate.edu or amy.c.tippery.ctr@mail.mil or: 907-361-3551.

ANPS SUMMER FIELD TRIP TO BARROW, ALASKA – July 20-22, 2016

Haven’t you always wanted to explore the North Slope in the summer? To see the amazing plants that live and flower during that brief time. Here is the perfect opportunity ANPS President, Beth Baker, is organizing a summer field trip to Barrow. Beth is planning the site visits and will make reservations for 11-passenger vans to transport participants around the area.

You’ll be responsible for arranging your own transportation and hotel accommodations. Hotel options include King Eider (907-852-4700) and Top of the World (907-852-3900). There is no ANPS group discount. The King Eider is already 85% booked, so **make your reservations as soon as possible!**

This is an **ANPS Exclusive**, so be sure your membership is current! If you are interested in participating, contact Beth as soon as possible.

E-mail: daisymae@mtaonline.net

Phone:



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

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|--------------------------|-------------------|------|
| <input type="checkbox"/> | Full-time Student | \$12 |
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Membership is on a calendar year basis.

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