Borealis

the newsletter of the Alaska Native Plant Society

PO Box 141613, Anchorage, Alaska Feb/Mar 2019

Join us at our Next Meetings!

Monday, Feb.4, 7:00 PM

Main Topic: ***"Highlights of ANPS Newfoundland Field Trip"***

Speaker: **Debbie Hinchey**

Mini-Botany – "What a Plant Knows" Chapter 4:"What a Plant *Feels*"
Speaker: **Glenn Brown**

Monday, March 4, 7:00 PM

Main Topic: ***"iNaturalist" and "Botany in Borneo"***

Speaker: **Campbell Webb**

Caun Webb, a research affiliate at the University of Alaska, Fairbanks will offer us a two-part talk. He lived in Indonesia for 10 years and will share some of its biodiversity.

iNaturalist is a citizen science project and online social network of naturalists, citizen scientists, and biologists built on the concept of mapping and sharing observations of biodiversity across the globe. Learn how you can access it and why you would want to.

All of our meetings, unless otherwise announced, are held at the Campbell Creek Science Center, S600 Science Center Drive, just off Lake Otis Parkway, south of Tudor.

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

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ANPS PROJECT UPDATE

NEEDED: ALASKA NATIVE PLANTS

The Alaska Native Plant Society was awarded a $1000 grant by the Wildflower Garden Club to improve the butterfly garden at the Campbell Creek Science Center. This butterfly garden was originally designed by Verna Pratt. Over the years it has lost some of its original organization and has been invaded by weeds. The improvement grant is a two year project. We completed a great deal of work this past summer including replanting some of the beds, adding soil, and adding rock borders. It is our hope that this garden in addition to attracting butterflies will be educational for children and adults. We plan to use only native plants. If you are willing to donate some native plants or know of someone who is, please call Beth Baker at .

Flower possibilities to plant at CCSC: (Add suggestions)

Purple: *Campanula rotundifolia,* - common harebell
Delfinium glaucum - larkspur
Lupinus arcticus - lupine
Geranium erianthum – wild geranium
Viala Langsdarfii, (for Fritillaries)
Aster sibiricus - Siberian aster
Aconium delphinifolium - monkshood

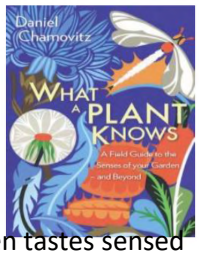
Yellow: *Papaver alaskanum* - Alaska poppy
Potentilla- native species
Arnica sp. - arnica
Solidago lepida - goldenrod
Geum sp. - Geum

Orange: ?

Pink: *Epilobium angustifolium* – common fireweed
Hedysarum alpinum - Eskimo potato
Hedysarum Mackenzii - wild sweet pea
Erigeron spp. - coastal fleabane and other Erigeron composites
Rhodiola rosea - stonecrop

White: *Achillea borealis* – Northern yarrow
Draba borealis – Draba, Northern rockcress
Thalictrum occidentale- Meadow-rue

"What A Plant Knows" – What a Plant "Tastes"



In December and January, member volunteers Joan Tovsen and Debbie Hinchey continued our study of "What a Plant Knows" as they described what a plant smells and tastes.

Our human senses of smell and taste are intimately entwined. Conceptually, smells enhance or dampen tastes sensed by our tongues. Physically, our mouths and nasal cavities are connected so that our noses can pick up smells released as food is chewed. The major difference is that smell deals with volatile chemicals and taste senses soluble chemicals.

The two senses are also connected in plants. This is best seen in their responses to attacks by insects or pathogenic bacteria. As we have already seen, plants under attack emit a variety of volatile chemicals to warn their neighbors, but one called methyl jasmonate is particularly important. This is where taste comes in. Although methyl jasmonate is a gas and so an effective airborne messenger molecule, it is not very active in plants. Instead, when it diffuses in through the stomata – the pores in the surface of the leaf – it gets converted into the water-soluble jasmonic acid. This attaches to a specific receptor in the cells and triggers the leaf's defense responses. Just as our tongues contain receptors for different taste molecules in food, plants contain receptors for different soluble molecules, including jasmonic acid.

As taste involves soluble chemicals, it is perhaps not surprising that much of a plant's sense of taste is in its roots, surrounded as they are by soil and water. A classic experiment reveals that plants can use underground chemical messages to recognize their relatives nearby (*New Scientist*, 26 March 2011, p 46). There is also root-to-root communication between unrelated neighbors.When a row of plants was subjected to drought conditions, it took just one hour for the message to travel to plants that were five rows away, causing them to close their stomata in preparation for a lack of water (PLoS One, vol6, pe23625). Other plants that were just as close but not connected by their roots failed to react. So the signal must have been passed from root to root, probably taking the form of a soluble molecule.

In February, we'll be discussing what a plant "feels" and in April and May we'll continue with the senses of location and hearing. Plants "know" more than we knew!

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ALASKA NATIVE PLANT SOCIETY

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Membership	Mary Stella
Plant Family	Dennis Ronsse
Mini-Botany	Marilyn Barker
Field Trips	Dennis Ronsse

Newsletter ("*Borealis*")

Editor	Ginny Moore

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

Travel With Us…..

As many of us realize, and you will certainly be aware after seeing Debbie Hinchey's presentation on the ANPS Summer Field Trip to Newfoundland, field trips are the best part of ANPS membership! All summer we offer short day or evening hikes to local areas where we can get down and dirty identifying our native flora. In May we will send out the Summer 2019 Field Trip Calendar. But we also offer trips that take more planning and lead time and in this newsletter we want to highlight several trips that are currently being organized, so that you can clear your calendars and join us!

Sitka ANPS trip June 16-20

Tentative schedule with details to follow:

Tentative Schedule (details to follow)

- **June 16, Sunday** - fly into Sitka (Ak Air#62 lvs Anchorage 7:41 am and into Sitka 10:47 am) and explore Sitka or botanize; Super 8 hotel or other lodging of your choice in Sitka;
- **June 17, Monday** - early water taxi to and explore Mt Edgecumbe volcano, muskegs, and beach; we have reserved Fred Creek Forest Service Cabin; cabin is designed to hold 8; some may wish to tent outside depending on the number;
- **June 18, Tuesday** - explore Kruzof Island that did not do Monday; overnight Fred Creek FS cabin;
- **June 19, Wed** - early water taxi back to Sitka; botany hikes am, pm, ?after supper ; overnight Super 8 hotel or other lodging of your choice in Sitka;
- **June 20, Thurs** - hikes am and afternoon; fly back to Anchorage (Ak Air #67 leaves Sitka 7:04 pm and into Anchorage 10:18pm).

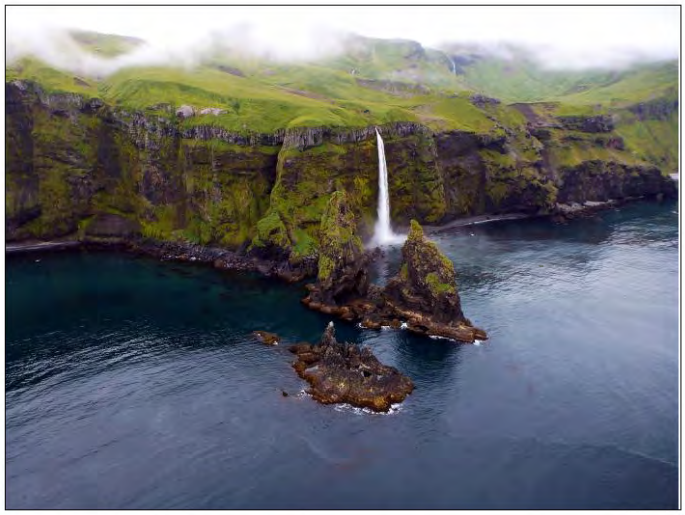
For those who want to extent their Sitka trip on there own, the Sitka music festival is active on Fri, Sat, and Sun; also museums, totem poles, kayaking, fishing options.

Trip Costs (You are responsible for booking the air travel and your Sitka lodging for Sunday and Wednesday nights.)

- Group share of cost of 2 night cabin rental ($65 per night-total $130)
- Group share cost of water taxi
- $50 per person logistics fee—entire amount will go to the Verna Pratt Educational Fund to increase our pool of speakers for the monthly ANPS meetings
- Group share in cost of taxi to trailheads; vans very expensive so hope to avoid renting one to keep the costs down.

Trip # limited to 12 persons. You must be a current member of ANPS to participate.

If interested call Beth Baker and leave a message with your name, phone number, and email and she will return your call or send you an email.



Kobuk Sand Dunes ANPS trip July 12-17 – 10 Person Maximum

Kobuk Valley's sand dunes are a relic of the last Ice Age. 28,000 years ago, the Earth cooled and glaciers began to form high in the mountains surrounding the valley. Over time, the slow, grinding advance and retreat of the glaciers ground the rocks beneath them into a fine sand which was blown by the wind into the sheltered, ice free Kobuk Valley.

When the glaciers began to retreat 14,000 years ago, they left behind 200,000 acres of rolling sand dunes along the banks of the river. Over time, however, vegetation has reclaimed all but 16,000 acres of the sand, and continues to slowly eat away at the margins of the dunes. Sparse grasses, sedges, wild rye and the occasional wildflower, including the Kobuk locoweed which is only found on the slopes of Kobuk Valley's sand dunes, grow in the shifting sand of the dunes. These plants stabilize the sand and pave the way for a succession of mosses and algae, lichen and shrubs before the aspen, birch and spruce of the forest take root.

Life is abundant on the fringe of Kobuk Valley's dunes. Black and grizzly bears, wolves, foxes, porcupines and moose call the surrounding woods and tundra their home. During the spring and fall, the mighty Western Arctic Caribou Herd passes through Kobuk Valley twice a year on their annual migration to and from their calving grounds north of the Brooks Range

Tentative schedule with details to follow:

- July 12: AK Air 165, Depart Anch 6:10 AM / Arr Kotz 7:44 AM, $299
  Shuttle to lodging provided by LaVonne Hendrick's Fish Camp (LFC) www.fishcamp.org
  Botanize near LFC, Lunch on our own, Dinner purchased from LFC, Sleep at LFC
- July 13-14: Botanize near LFC; breakfast and dinner purchased from LFC, lunch on our own.

  Some may wish to stay at Fish Camp rather than travel to the dunes.
- July 15- PM air charter to Kobuk Dunes (KD) (2 flights / 10 persons = $520 / person); Dinner (freeze dried) at KD on your own; Light tent camp at KD on your own

- July 16- Exploring Kobuk Dunes; Breakfast, lunch and dinner on our own (bring lightweight camp stove); Light tent camp at KD on your own
- July 17- PM Charter KD to Kotz airport; 6:60 PM AK Air # 153 Kotz to Anch

Trip Costs

- (You are responsible for arranging air fare to and from Kotzebue)
- LFC Food & Lodging 3 nights ($150 / night) = $450
- Charter to KB ($2600 / 5 persons) = $520 / person
- Guide / organizer (Carolyn $10 / day) = $60
- 1 day van rental TBA shared by all for areas around Kotz

For the Dunes make arrangements / pay directly to Arctic Backcountry Flying Service (Eric) (907) 412-2954
Eric reports no need to have permit for Nat Park. He has permit to take visitors.
Google shows 100 miles Kotz to Dunes, about 1 hour in a 206.

Farther Afield: Michigan's Upper Peninsula Field Trips

Registration is now open for two 2019 Plant Identification (I.D.) workshops*, both of which will be held in Michigan's western Upper Peninsula near the shore of scenic Lake. This is an excellent chance to visit a remote and wild portion of the northernmost part of Michigan near Lake Superior and learn the flora of the area at the same time. Both of these workshop locations feature rugged bedrock shorelines, ridges (with amazing views!), forests, and wetlands, which provide diverse habitat for numerous plant species, including boreal species and rare arctic disjuncts.

1. Isle Royale Plant I.D. workshop: This will be the 15th Plant I.D. workshop sponsored by IRKPA* that will be taught in Isle Royale National Park.
Dates: June 3-8
Fee: US$699 ($25 discount for IRKPA members) NOTE: In addition to three days of instruction, the fee includes 13 meals from Tuesday lunch - Saturday lunch, transportation between Houghton MI and Isle Royale via the National Park Service ferry Ranger III (and while on Isle Royale), camping in a group campsite, park fees, and two IRKPA publications.

For more detailed information about Isle Royale (including map), workshop activities, evening options, instructor's background, workshop fee, cancellation policy, and how to register, please click on the flyer at: http://irkpa.org/get-involved/workshops

2. Keweenaw Plant I.D. workshop: This will be the third year that an IRKPA-sponsored plant I.D. workshop will be taught in the Keweenaw, a picturesque peninsula on Michigan's Upper Peninsula that juts out into Lake Superior.
Dates: July 9-11
Fee: US$375 ($25 discount for IKRPA members)

For more detailed information about the Keweenaw (including map), workshop activities, evening options, instructor's background, workshop fee, cancellation policy, and how to register, please click on the flyer at http://irkpa.org/get-involved/workshops Enrollment is limited to 12 participants, so be sure to register early to guarantee a spot.

If you have questions or would like more information on either of these workshops, please contact Janet Marr at jkmarr@mtu.edu or phone # below. If you know of someone who may be interested in hearing about these Plant I.D. workshops, that would be great if you would pass this announcement on to them. If you would be able to post one or both flyers, that would be wonderful, too. Thank you!

*IRKPA (Isle Royale & Keweenaw Parks Association) is the non-profit sponsor of these plant I.D. workshops and other workshops. Information is available at: http://irkpa.org/get-involved/workshops

FROM WHAT WE GATHER

Blueberries – The Superfood Only Recently Cultivated

By Ryan Pankau

Prior to the early 20th century, blueberries were not the staple fruit we think of today as they have only been in cultivation for about the last 100 years or so. Although they appeared in U.S. markets, harvested from the wild, their distribution was limited. Compare that to another staple fruit, the apple, which has been cultivated for thousands of years. Apples, however, do have one advantage. Their parent species, Malus sieversii, originated in central Asia, where there is a long history of permanent human settlement, with the first humans arriving some 100,000 years ago.

Blueberries, members of the genus Vaccinium, include 35 species native to North America, which humans first inhabited much later (15,000 years ago), based on the most widely accepted theories, although some recent research suggests much earlier human inhabitants on our continent.

Although the first cultivated crop of blueberries was not successfully grown until 1912, they were an important source of food for Native Americans for thousands of years prior. Blueberries keep longer in storage than many other similar berries, making them an important forage crop that Native Americans dried and stored for winter. They were eaten fresh when in season and incorporated into a variety of basic stews and other food combinations. In addition, Native American use of Vaccinium species for medical purposes was widespread, including the use of roots, stems, leaves, flowers and fruits in various preparations.

In many ways, Native Americans directly influenced the development of modern blueberry varieties by passing on knowledge about edible use of the berries, growth habits and occurrence of blueberry shrubs and other information to European immigrants.

The story of how modern commercial blueberry cultivation came to be starts with the daughter of a New Jersey cranberry farmer. As early as the late 1890s, Elizabeth White was interested in the blueberry's potential as a cultivated crop. However, most other growers at the time did not believe they could be domesticated. There was simply a lack of understanding on the basic needs of blueberries.

In the early 1900s, a USDA botanist named Frank Colville, who later became chief botanist at the USDA, began to study North American blueberry species with intent to develop improved varieties for commercial cultivation. Interestingly, Colville had already made history in the world of U.S. botany as a field botanist on the first comprehensive, multidisciplinary expedition to Death Valley in the early 1890s. He would later go on to become the chief botanist for the USDA, publishing more than 170 scientific papers and books in his lifetime.

In 1911, Colville published a book, "Experiments in Blueberry Culture," in which he documented his research and the work of others in the early 1900s focused on cultivation of Vaccinium species in the U.S. Colville's groundbreaking discovery was that blueberries require very acidic soil conditions, which was previously not understood.

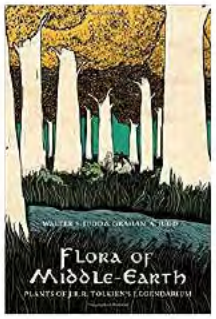
Back on her cranberry farm in New Jersey, White read Colville's book and immediately sought to contact him. She offered acreage on her farm for research and development, partnering with Colville to lay the groundwork for our modern blueberry varieties.

The next time you enjoy these little blue superfoods, consider their interesting history on our continent and give a little thanks to the early innovation of indigenous people and later horticulturalists who made it all possible. They would not be commonplace on our grocery store shelves without them.

Ryan Pankau is a horticulture educator with the University of Illinois Extension, serving Champaign, Ford, Iroquois and Vermilion counties. Published at http://www.news-gazette.com/living/2019-01-19/the-garden-super-berry.html

FROM OUR BOOKSHELVES

While reading *The Lord of the Rings* saga, it's hard not to notice J.R.R. Tolkien's clear love of nature. The books are replete with descriptions of lush foliage, rolling prairies, and coniferous forests. Several botany books build on that knowledge, providing fantasy-loving naturalists with a round-up of plants that grow in Middle-Earth.

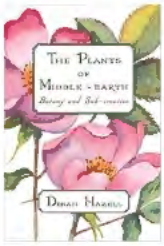


Flora of Middle Earth

by Walter S. Judd, Gordon Judd
2017

Few settings in literature are as widely known or celebrated as J.R.R. Tolkien's Middle-Earth. The natural landscape plays a major role in nearly all of Tolkien's major works, and readers have come to view the geography of this fictional universe as integral to understanding and enjoying Tolkien's works. And in laying out this continent, Tolkien paid special attention to its plant life; in total, over 160 plants are explicitly mentioned and described as a part of Middle-Earth. Nearly all of these plants are real species, and many of the fictional plants are based on scientifically grounded botanic principles.

In *Flora of Middle Earth: Plants of Tolkien's Legendarium*, botanist Walter Judd gives a detailed species account of every plant found in Tolkien's universe, complete with the etymology of the plant's name, a discussion of its significance within Tolkien's work, a description of the plant's distribution and ecology, and an original hand-drawn illustration by artist Graham Judd in the style of a woodcut print. Among the over three-thousand vascular plants Tolkien would have seen in the British Isles, the authors show why Tolkien may have selected certain plants for inclusion in his universe over others, in terms of their botanic properties and traditional uses. The clear, comprehensive alphabetical listing of each species, along with the visual identification key of the plant drawings, adds to the reader's understanding and appreciation of the Tolkien canon.



Plants of Middle Earth

By Dinah Hazell
2015

Beautifully illustrated with dozens of original full-color and black-and-white drawings, *The Plants of Middle-earth* connects readers visually to the world of Middle-earth, its cultures and characters and the scenes of their adventures. Tolkien's use of flowers, herbs, trees, and other flora creates verisimilitude in Middle-earth, with the flora serving important narrative functions. This botanical tour through Middle-earth increases appreciation of Tolkien's contribution as preserver and transmitter of English cultural expression, provides a refreshing and enlivening perspective for approaching and experiencing Tolkien's text, and allows readers to observe his artistry as sub-creator and his imaginative life as medievalist, philologist, scholar, and gardener.

The Plants of Middle-earth draws on biography, literary sources, and cultural history and is unique in using botany as the focal point for examining the complex network of elements that comprise Tolkien's creation. Each chapter includes the plants' description, uses, history, and lore, which frequently lead to their thematic and interpretive implications. The book will appeal to general readers, students, and teachers of Tolkien as well as to those with an interest in plant lore and botanical illustration.

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, pleas 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

☐	**Full-time Student**	**$12**
☐	**Senior Citizen**	**$12**
☐	**Individual**	**$15**
☐	**Family**	**$20**
☐	**Organization**	**$30**

Name _____

Address _____

City: _____ State_____Zip_____

Telephone: (Home)_____(Work)_____E-Mail: _____

Membership is on a calendar year basis.

IT IS TIME TO RENEW MEMBERSHIP

All memberships are on a calendar-year basis and expire at the end of the year.

Don't miss out on our latest news!

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