Borealis

The Newsletter of the

Alaska Native Plant Society

PO Box 141613, Anchorage, Alaska April - May 2024

Join us at our Next Meetings!

Monday, April 1, 7:00 PM

Via Zoom Only

Main Topic: **"SE Alaska – The Mossiest Place in the World"**
Speaker: Martin Hutten

Aquatic Plant Families: **Lentibulariaceae** (carnivorous plants)
Presenter: Beth Baker

Medicinal Plants: ***Equisetum*** **(Horsetail)**
Speaker: Anne Gore

Monday, May 6, 7:00 PM

Via Zoom Only

Main Topic: **"ALA Herbarium Update "**
Speaker: Steffi Ickert-Bond

Aquatic Plant Families: **Nymphaeaceae**
Speaker: Justin Fulkerson

Medicinal Plants: **Cypripedium** – Lady Slipper Orchids
Presenter: Burton Smith

Virtual Meeting Link: **Join via Zoom**
Meeting ID: 938 2833 2935
Passcode: 362610

For the latest information about ANPS events and field trips, go to www.aknps.org/ or find us on Facebook.

Current Events

Anchorage Spring Garden Show: April 27: Anchorage's annual kick-off to spring includes club and event information, a hands-on activity, and members will be available to answer questions. We'll be sending an email to Anchorage members with an opportunity to sign up for two-hour shifts at our information table. The event will be held at the Anchorage Midtown Mall on Northern Lights Blvd.

Along with some free handouts, we will be selling copies of Pat Holloway's wildflower propagation book, native wildflower seed packets from St. Isidore Farm in North Pole, and other merchandise.

And if all goes as planned, we're hoping to debut some fireweed-themed t-shirts and sweatshirts!

Alaska Native Plant Month: May 2024
We've received word that the governor will once again proclaim May as Alaska Native Plant Month; we haven't seen the official proclamation yet, but we're busy working on a list of activities. Check out our website and Facebook.

2024 Native Plant of the Year
One of our board members recently suggested that we identify a Native Plant of the Year and sell t-shirts like some other native plant societies in the Lower 48 are doing.

A few of the board members got their heads together and selected fireweed! In addition to selling shirts, we want to put together some free educational materials about this amazing plant. However, we are stretched thin and could use some writing/design support. If you are interested in helping out, please contact president@aknps.org.

Stay tuned for the **ANPS Summer 2024 FIELD TRIP CALENDAR**!

Learning To Identify Alaskan Willows

Art by Dominique M. Collet

In Alaska, willows are abundantly distributed, from lush coastal meadows to exposed mountain ridges, that some people have said "If you don't know what a woody-stemmed plant is, just say, with conviction, that it is a willow."

At the ANPS meeting in February, **Cam Webb** gave us a willow learning presentation. The large numbers of species colonize almost all habitats within our region: extensive thickets of **shrubby** willows compete for light and space in wetlands, **tree-sized** species reach for sunlight in the upper canopy of the boreal forest, and bonsai-like **dwarfs** defy the elements, embedded in crisp lichen mats on weathered rock chips of mountain ridges. Only in the dense coniferous coastal forest are willows sparse or lacking. Worldwide, 330 to 350 willow species have been described, mostly from temperate and cold regions of the Northern hemisphere. Of the 40 willow species known to occur in Alaska, 26 are found in the Southcentral Alaska area. Cam has created a web document that provides access to many learning sources.

Alaska willow resources *(Short URL for this page is is.gd/akwillow)*

Taxonomic Treatments and Guides

- North America:
  - Argus's treatment of *Salix* in the online Flora of North America.
  - Dorn, Robert. 2010. The Genus *Salix* in North America North of Mexico. PDF
- Alaska:
  - Argus, G. 1973. The Genus *Salix* in Alaska and the Yukon. Publications in Botany No. 2, National Museum of Natural Sciences, Ottawa. PDF
  - Argus, G. 2004. A Guide to the identification of *Salix* (willows) in Alaska, the Yukon Territory, and adjacent regions (workshop on willow identification). PDF (2011 version)
  - Viereck, L.A., and E.L. Little. 1972. Alaska Trees and Shrubs. U.S. Forest Service, Washington, D.C. Online
  - Collet, D.M. 2002. Willows of Southcentral Alaska. Kenai Watershed Forum. PDF
  - Collet, D.M. 2004. Willows of Interior Alaska. U.S. Fish and Wildlife Service. PDF
  - *Salix* in 'e-Hulten', a digitized version of Eric Hultén's 1968 *Flora of Alaska and Neighboring Territories: A Manual of the Vascular Plants*, Stanford University Press.

Interactive keys

- George Argus's DELTA interactive key for '*Salix* of the New World'
- The Flora of North America uses Semantic Mediawiki and can be searched for character states. On this page, enter, e.g., [[Taxon family::Salicaceae]] [[Distribution::Alaska]] [[Largest medial blade shape::obovate]] [[Blade pubescence::tomentose]] into 'Condition'. To see all the states for a particular character, enter, e.g., [[Taxon family::Salicaceae]] [[Distribution::Alaska]] into 'Condition' and ?Largest medial blade shape into 'Printout selection'.

Specimens and Observations

- *Salix* in 'Alaska flora quick maps: comparative maps of specimens and observations in Alaska.
- *Salix* observations for Alaska in Arctos: data for ALA herbarium at the University of Alaska, Fairbanks.
- *Salix* observations for Alaska in iNaturalist.

Other

- Webb, C.O., J.G. Burleigh, and S.M. Ickert-Bond. 2022. Phylogenomics of willows (*Salix* L.) in Alaska. Poster presented at annual Botany Soc. America meeting, Anchorage. PDF
- Webb, C.O. 2024. Learning Alaska Willows. Presentation to the Alaska Native Plant Society, Anchorage, 2024-02-05. Excerpted slides: Alaska willow mini-guide, References

St. Isidore Farm – An Alaska Native Seeds Source

St. Isidore the Farmer (1070-1130 AD) is considered the patron saint of farmers. After listening to **Sarah Jansen's** talk at the ANPS meeting in March, we are even more aware of how useful it must be for Alaskan farmers to have a patron saint! Sarah is part of a 3-generation family-operated farm on the outskirts of Fairbanks, near North Pole. Over three decades ago the family cleared land on a tributary of the Tanana and began farming native plants for seed. They started with three varieties of native grasses on just a few fields and have grown to a business, with more than a dozen species of native Alaskan grasses and wildflowers on over 50 acres of land.

Every Alaskan gardener is aware of the challenges of growing anything but common "weeds". Add to that the goal of producing viable seed that can be commercially sold as **Alaskan** native plant seed. Sara stressed that they are farmers, not botanists, but through this process they have certainly become plant scientists!

First, they had to determine *which* natives to grow – plants that could be practically grown as well as have a commercial application for their seed value. Some beautiful native wildflowers don't propagate too well from seed. They also needed to create the market – to convince the public that Alaskan seed is the most desirable revegetation choice – for fields and gardens. And for the pollinators!

At St. Isidore's, they begin with seed that they are convinced is actually from native Alaskan plants – many seeds that are sold as Alaskan (such as Forget-me-nots) are actually from a non-native, aggressively- spreading species. Their seed is either wild-gathered or from the Plant Materials Center in Palmer. Grasses may be directly field-seeded, but wild flowers begin in pots that are started indoors. When they become viable plants they are hand-planted in the fields. Then comes the growing season that requires a lot of hand-weeding and watering.

The proper harvesting procedure has been another learning process. Every species is harvested in the best way to maximize healthy seed retrieval. The harvested material must be dried and cleaned. The process involves a variety of tools from heat mats and large dryers to hand and machine threshers. Seeds are then *scarified* and *stratified* so they will be ready for planting from the packet.

It took them 3 years to successfully market their first packets of native seeds. Today, seed packets are available at garden supply stores in Anchorage and Fairbanks, as well as through their website: https://www.stisidorefarmak.com.

Seed Scarification and Stratification

Seed scarification is the process of altering the seed coat to allow quicker water absorption and improve rates of germination. Many seeds that are scarified also need stratification – a cold chill.

The learning process continues as they develop ways to keep true natives away from hybrids, to ensure their product is pure. They are constantly customizing and modifying tools and equipment to improve on every aspect of the process, from planting to growing, harvesting, drying and packaging.

A side business was developed when they decided to create compost from the straw that was left over after harvesting the grass seed. It is available for sale to the public.

St. Isidore must be proud!

Medicinal Plants - Mini-botany at ANPS Meetings

February 2024: ***Achillea millefolium* – Common Yarrow** **Presented by Abby Zito**

A. millefolium, or common yarrow, is one of the most widely used medicinal herbs today. The Latin name *Achillea* comes from the mythical Greek warrior Achilles, who was said to have used this plant to heal soldiers wounded in war. It was referred to in the classical period as *herba militaris*, because of its use in wound healing on the battlefield. Use may date back even further. Evidence of yarrow has even been found in some Neanderthal grave sites.

Due to its styptic and antimicrobial properties, it is famously known for its ability to stop bleeding (when applied directly to a wound), prevent infection, and aid blood circulation when taken internally. It is often used as a poultice, wash, soak, or salve to relieve pain, and help to heal wounds and injuries of various types. It can be beneficial in alleviating digestive complaints and symptoms of colds and flu, and is also used to treat hemorrhoids, ease menstrual discomfort and postpartum bleeding, and reduce inflammation in the gums.

Yarrow is generally recognized as safe for use, though in rare cases yarrow may cause an allergic reaction. It should not be used if you are sensitive to plants in the aster (Asteraceae) family. It should also be used with caution during pregnancy or if you are taking any prescription medication. Always remember to consult your doctor or healthcare practitioner before using any herbal remedy. According to the ASPCA, yarrow is toxic to dogs, cats, and horses.

March 2024: **Valeriana (Valerian)** **Presented by Lorene Lynn**

Harvest

- Spring to fall: roots
- Spring to summer: entire herb
- Roots should have at least 2 years of growth
- Roots are dried in the shade before use

Chemistry

- Contains alkaloids chatinine and valerene, which act as central nervous system depressants
- Over 150 compounds have been identified in the essential oils, mainly monoterpenes and sesquiterpenes

Cautions

- Large doses may lead to addiction; Because it is an herbal medicine, dosages in tea or tinctures are unclear
- Side effects: headache, dizziness, stomach problems
- Not safe if pregnant, breastfeeding or have liver damage
- May interact with other drugs
- Cat attractant

Medicinal Information (Edible and Medicinal Plants of Southwest Alaska (Fienup-Riordan et al 2020)

- Leaves stuffed in nose can alleviate headache
- Roots boiled for calming tea, relieve anxiety, reduce throat congestion
- Small amount of leaves added to soup for flavor
- Roots tied to fishing nets to better catch fish (scent)
- Tlingit applied crushed roots to mother's nipples when weening, rubbed roots on sore muscles
- Western (usually *V. officianalis,* but local substitutes considered good
- Mildly sedative and antispasmodic
- Roots treat tension, anxiety, insomnia, migraine, nervous ailments, colic, cramps, hot flashes, restless leg
- External infusion for eye problems
- Soothing bath herb to induce drowsiness
- Janice Schofield suggests replacing coffee with valerian tea for marital counseling and international diplomatic meetings!

Alaska Berry Futures

Last fall, a team of scientists at the University of Alaska Fairbanks released a booklet, "***Cloudberry in a Changing Climate***". Soon after came "***Blueberry in a Changing Climate***". They are part of a larger project that focuses on the future of Alaska's wild berries as the climate warms, highlighting what we know and don't know. They can be freely downloaded from: https://sites.google.com/alaska.edu/alaska-berry-futures/home

Berries, regardless of species, are a huge part of rural Alaska's subsistence lifestyle. They are often the only fresh, local fruit available in remote villages. A warming climate means where and how people harvest berries is changing. Alaska Climate Science Center's tribal resilience liaison, Malinda Chase, along with University of Alaska Fairbanks Research Association professor Katie Spellman, and Christa Mulder, a plant ecologist at UAF set out to learn everything they could about how climate change could affect these important plants. These booklets, their first products, blend scientific research with traditional knowledge and current observations on how climate change is altering where and how berries grow in Alaska.

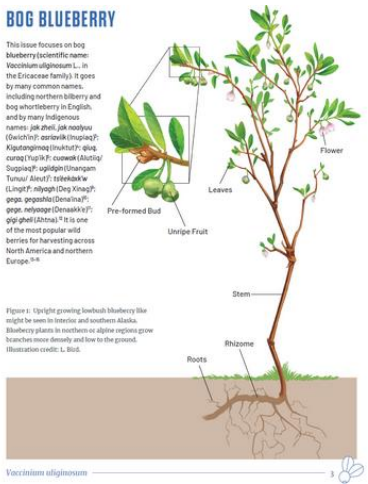
The first berry booklet focused on cloudberries. Many people also call them "salmonberries." You can listen to an interview with Emily Schwing on Alaska Public Radio for KYUK in Bethel , they were enthusiastic about their subject:

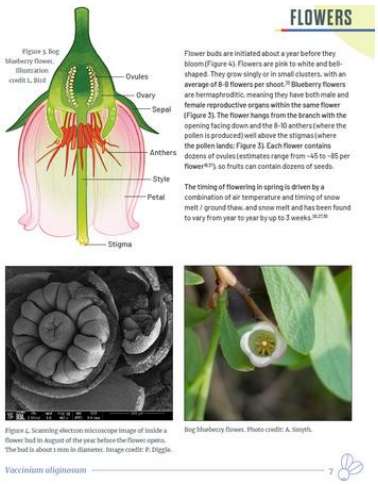
Mulder said that the team worked hard to make sure to include the potential benefits of a changing climate. She said that the booklets include advice on how people who rely on berries can help them thrive. "So very simple pruning, for example, of blueberries can give a gazillion blueberries on a single plant. And that's not a solution for everything, of course, but if you have Elders who can't go very far, having patches of forest where sort of cultivate, semi-cultivate, have a bit of a food forest could be a really good thing," Mulder said.

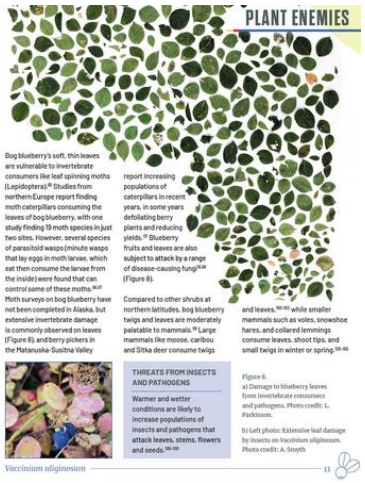
Three other booklets are due out in the coming months. Those will focus on lingonberries, also known as low-bush cranberries; crowberries, also known as blackberries; and red currants. They've already garnered so much interest that the team is looking at ways to combine all the booklets into one main resource.

They plan to produce three types of resources:

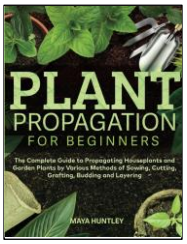
- **Berry booklets for community members and resource managers**. These are accessible, illustrated descriptions of each species, the threats it faces from climate change, and the opportunities for increasing berry production.
- **Species vulnerability indices** for resource managers. These will be semi-quantitative assessments of the vulnerability of our focal berry species to climate change, similar to the approach taken for the "Invasiveness Ranking System for Non-Native Plants of Alaska".
- **A Zotero database** for researchers that underlies all our other documents and can be filtered by tags. This database is in progress, and while it is not yet ready for public consumption, if you are studying cloudberry (*Rubus chamaemorus*), bog blueberry (*Vaccinium uliginosum*) or lowbush cranberry (*V. vitis-idaea*), they are happy to provide you with access to the database. Please send an email to cpmulder@alaska.edu to request access.







From Our Bookshelves



Plant Propagation For Beginners

Author: Maya Huntley
Independently Published: January 22, 2023
ISBN-13 : 979-8875710513

From the Publishers: While plant propagation is a science and an essential part of the horticultural industry, gardening enthusiasts or even beginners can take part at home. There is usually more than one way to propagate a plant, ranging from seeds, stem or leaf cuttings, to division and layering. A slightly more advanced method is referred to as grafting, and we'll cover the basics of this as well.

We'll begin with some background in plant biology, as understanding the basic structure of plants and their methods of survival and reproduction can make it easier to determine which propagation method should be used to achieve the greatest success. From there, we'll explore what to prepare for your plant propagation endeavor. While there might not be as many tools as you'd anticipate, choosing a suitable soil or medium and creating a favorable environment will be key.

Plant propagation can be broken down into five main techniques - seed sowing and germination, cuttings, division, layering, and grafting. We'll discuss each of these in detail and potential issues that could arise.

As a bonus, we will look at a range of popular plants and provide detailed instructions on how best to propagate each one. These include houseplants, garden plants, succulents, and various flowers and herbs. If you start with one of these, you'll have all the information at your fingertips to successfully propagate new plants from the ones you already have.

Whether you're a brand-new gardener, plant enthusiast, or someone keen to preserve endangered plant species, you'll know exactly how to propagate plants from just one specimen after reading this book. Let this book be your guide to all things plant propagation - soon, your garden (and those of your friends and family) will be packed to the brim with thriving plants!

Planta Sapiens

An Illustrated Biology Book About Mushrooms And Fungi For Beginners And Smart Kids

Authors**: Paco Calvo, Natalie Lawrence**
March 14, 2023
ISBN-10: 0393881083

Decades of research document plants' impressive abilities: they communicate with one another, manipulate other species, and move in sophisticated ways. Lesser known, however, is the new evidence that plants may actually be sentient. Although plants may not have brains, their microscopic commerce exposes a system not unlike the neuronal networks running through our own bodies. They can learn and remember, possessing an intelligence that allows them to behave in adaptive, flexible, anticipatory, and goal-directed ways.

A leading figure in the philosophy of plant signaling and behavior, Paco Calvo offers an entirely new perspective on plant biology. In Planta Sapiens, he shows for the first time how we can use tools developed in animal cognition studies in a quest to deeply understand plant intelligence. He illuminates how plants inspire technological advancements: from robotics and AI to tackling the ecological crisis. Most importantly, he demonstrates that plants are neither objects nor resources; they are agents in themselves, and for themselves.

From What We Gather

Flowers are evolving to have less sex – it's called "Selfing"

Every spring, trillions of flowers mate with the help of bees and other animals. They lure the pollinators to their flowers with flashy colors and nectar. As the animals travel from flower to flower, they take pollen with them, which can fertilize the seeds of other plants. These plant-pollinator interactions are responsible for the astonishing diversification of angiosperms, which started 100 million years ago. More than 80% of living angiosperms rely on animals for pollination; thus, plants and pollinators have a close relationship.

Photo by Derek Sykes

A study recently published in *New Phytologist*, suggests that humans are quickly altering this annual rite of spring. As toxic pesticides and vanishing habitats have driven down the populations of bees, the cost of producing nectar and big, attractive flowers may have become a burden on some flowering plants. Instead of investing energy into luring pollinators, the plants have evolved to fertilize their own seeds more often, rather than those of other plants. And this change has occurred in just 20 generations.

"Selfing" is more convenient than sex since a flower does not have to wait for a bee to drop by. But a selfing flower can use only its own genes to produce new seeds. Sexual reproduction allows flowers to mix their DNA, creating new combinations that may make them better prepared for diseases, droughts and other challenges that future generations may face.

The researchers studied a common field pansy, comparing plants grown from seeds of older, pollinated plants with new ones from across the French countryside. After growing the new and old seeds side by side in the lab under identical conditions, they discovered that selfing had increased 27 percent since the 1990s. The researchers also compared the anatomy of the plants. Although the new field pansies had not changed in their overall size, their flowers had shrunk by 10 percent and produced 20 percent less nectar.

If this trend is true of many other plants, the plants may be making a bad situation worse for pollinating insects. Many pollinators depend on nectar as food; if the plants make less, the insects will go hungry. Pollinators and flowers may be locked in a downward spiral. Less nectar will drive down populations of insects even more, making sexual reproduction even less rewarding for any plants.

The spiral will not be bad for just the insects, the study warned. If some plants eventually give up on sexual reproduction altogether, it is unlikely that they will be able to regain that ability again. In the long term, the genetic limitations of selfing could put plants at risk of extinction. "They will not be able to adapt, so extinction will become more likely," said Dr. Pierre-Olivier Cheptou, the study's co-author.

Along with a decline of pollinators, flowering plants are facing other challenges that may be driving them to abandon sexual reproduction. Global warming, for example, is speeding up the growth of flowers. It may be shrinking the window of time before flowers wilt in which they can offer pollinators nectar.

But some flowers might respond to the decline of pollinators in the opposite way. In another study on morning glories in the southern United States, scientists found that between 2003 and 2012, the flowers became bigger, not smaller. The scientists see that shift as a strategy to keep attracting bees as they become less common. They could invest in selfing, or they could invest in attracting pollinators.

A Washington State University study found "selfing" monkeyflower plants lost 13% to 24% of their genetic variation in a less than 10 generations.

Save a Pollinator – Save our Native Plants!

We're learning that some plants are adapting to the decline of insect pollinators by becoming self-pollinators (see page 7). And we know that this isn't necessarily good for the species or the future of the pollinators. And what about those plants who aren't so quick to adapt? What can you do to help?

Photo by Derek Sykes

Go native! Native plants co-evolved with the native wildlife of our region. Native plants form the foundation of habitat for pollinators by providing them with pollen and nectar for food, cover from the elements and predators, and places where their young can grow..

Photo by Derek Sykes

The best way to attract beautiful butterflies, busy bees, speedy hummingbirds and other pollinators is to fill your yard with native plants that attract and bolster pollinators. Fireweed, arnica, valerian, northern geranium, monkshood, yarrow, violets, Indian paintbrush, and western columbine are some good pollinator-friendly plants that are native to Alaska. Examples of bee-attracting flowers include monkey flowers, leopard's bane, shrubby cinquefoil, forget-me-nots, iris, and delphinium. Lastly, avoid using pesticides and herbicides, as they are almost always toxic to our pollinators as well as unwanted pests. Instead, try natural deterrents such as a garlic spray.

Fun fact: bees prefer flowers that are colors other than red (most bees can't see red) so blue, yellow, white, or purple are often their favorites.

For more information on specific Alaska native plants for your garden, you can find some recommendations in the downloadable brochure "Alaska Native Plants in Your Garden", posted on our website. And be sure to stop by the ANPS-created Pollinator Garden at the Campbell Creek Science Center to see what has found to work.

If you are concerned about how pollinators are doing in Alaska, you might be interested in a publication of the National Academies Press: "Pollinator Habitat Conservation Along Roadways, Volume 1: Alaska (2023)". It profiles five species of imperiled pollinators found in Alaska. These include pollinators that have the potential to be listed in the future, including three imperiled bumble bees and two imperiled butterflies.

Table 3-2. Plants used by the frigga fritillary.

Species Name	Common Name
Larval Host Plants	
Salix spp.	Willow
Betula spp.	Birch
Dryas integrifolia	Entireleaf mountain avens[1]
Andromeda spp.	Bog rosemary
Vaccinium spp.	Blueberry[2]
Nectar Plants	
Cardamine spp.	Bittercress
Pedicularis spp.	Lousewort
Polygonum spp.	Knotweed[3]
Salix spp.	Willow
Sedum spp.	Stonecrop
Valeriana spp.	Valerian[3]

[1] Potential host
[2] Specifically, wild cranberry
[3] This genus includes native and nonnative species; some of the nonnative species can be invasive.

Table 3-3. Plants used by bumble bees.

Species Name by Bloom Period	Common Name	Notes
Early		
Armeria maritima	Thrift seapink	Pink; perennial
Hedysarum boreale	Utah sweetvetch	Pink; perennial
Lupinus nootkatensis	Nootka lupine	Purple; perennial
Prunella vulgaris ssp. *lanceolata*	Lance selfheal	Purple; perennial
Mid		
Astragalus americanus	American milkvetch	White; perennial
Dasiphora fruticosa ssp. *floribunda*	Shrubby Cinquefoil	Yellow; perennial
Hedysarum alpinum	Alpine sweetvetch	Pink/purple; perennial
Rosa nutkana	Nootka's rose	Pink; perennial
Late		
Chamerion angustifolium	Fireweed	Pink; perennial
Potentilla arguta	Tall cinquefoil	White/yellow; perennial
Solidago canadensis	Canada goldenrod	Yellow; perennial
Symphyotrichum subspicatum	Douglas aster	Purple; perennial

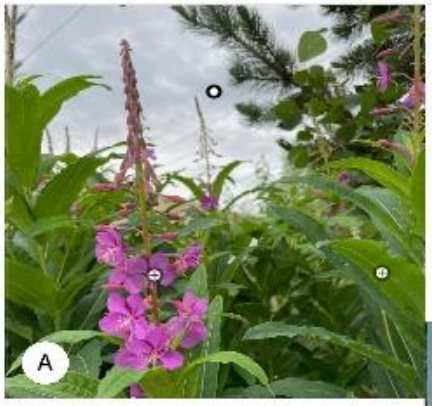
BIOL 190
Intro to AK Flora

Are you interested in learning about the Flora of Alaska as well as getting familiar with some unique approaches to delivering a systematic botany course online, this might be the one for you.

We have carefully chosen technology that will allow students from all over the state (and even outside Alaska) to collect data in their home communities, perform plant dissections and have a hands-on learning experience within the flora's native environment. Instead of traditional course materials like textbooks, students will purchase an inexpensive wide-angle macro lens that connects to their smartphone or tablet. The technology not only lets students mimic lab spaces in their own natural areas but also expands their digital networks through the submission of images to iNaturalist, enabling them to share and collaborate with enthusiasts around the world and contribute citizen science data . Students don't just sit at their computers in this class, they go outside, touch with their hands and share what they discover. The course design includes videotaped lectures using the Learning Glass platform, video dissection demonstrations, virtual biome exploration using a 360° camera, and selected interactive reading materials. This course is an exciting intersection of curiosity for wild plants, an exploration of Alaska's plant communities and an accessible introduction to botany.

https://introtoflora.community.uaf.edu/module-1/

BIOL F190
Dates: June 16 - July 14
CRN: 50755
2 Credits
Steffi Ickert-Bond
smickertbond@alaska.edu

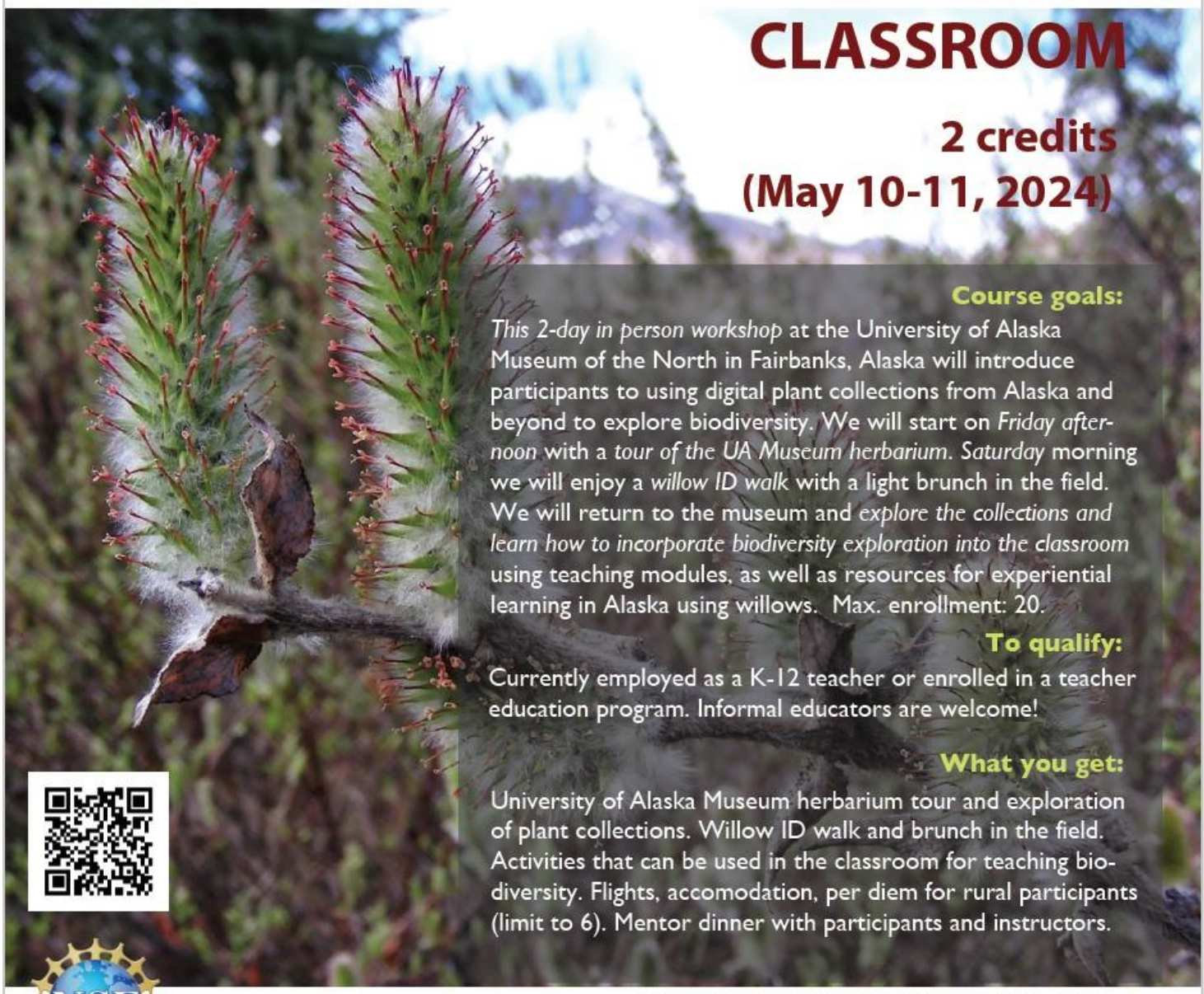


A-D. Examples from students posting their own floral dissections.

UNIVERSITY OF ALASKA MUSEUM OF THE NORTH

Professional Development ED F593 (2 credits)

USE DIGITAL PLANT COLLECTIONS TO TEACH BIODIVERSITY IN YOUR CLASSROOM



2 credits (May 10-11, 2024)

Course goals:

This 2-day in person workshop at the University of Alaska Museum of the North in Fairbanks, Alaska will introduce participants to using digital plant collections from Alaska and beyond to explore biodiversity. We will start on *Friday afternoon* with a *tour of the UA Museum herbarium*. *Saturday* morning we will enjoy a *willow ID walk* with a light brunch in the field. We will return to the museum and *explore the collections and learn how to incorporate biodiversity exploration into the classroom* using teaching modules, as well as resources for experiential learning in Alaska using willows. Max. enrollment: 20.

To qualify:

Currently employed as a K-12 teacher or enrolled in a teacher education program. Informal educators are welcome!

What you get:

University of Alaska Museum herbarium tour and exploration of plant collections. Willow ID walk and brunch in the field. Activities that can be used in the classroom for teaching biodiversity. Flights, accomodation, per diem for rural participants (limit to 6). Mentor dinner with participants and instructors.

Award # 2101884

Please click on the QR code to apply!
https://forms.gle/g4oSXHgyp9SkHzHC9

- **$150 stipend for all participants who complete the course!**
- **Free tuition!**

Introduction to Ethnobotany

ELITELTA NAUNRANEK
ETHNOBOTANY AT KUC

EBOT F100/ANTH 102 | 3 cr., Alaska Native -Themed

Two tracks offered:

100% ONLINE, mainly asynchronous (EBOT 100 CRN: 51457)

BLENDED: online + field course in Bethel, Alaska (EBOT 100 CRN: 51456)

$ 810 + book (+ field course expenses)
Please email for scholarship information.
uaf-ethnobotany@alaska.edu

DELIVERY METHOD

100% online OR online + field course

DATES/ TIMES

100% online: 5/20-6/24
OR online: 5/20 - 6/14 +
field course: 7/26-7/30

INSTRUCTOR

Lisa Strecker

Kuskokwim Campus
University of Alaska Fairbanks

UAF
UNIVERSITY OF ALASKA FAIRBANKS

To register for the class, contact the campus: 907-543-4500 Kuskokwim-SS-Dept@alaska.edu

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 or to renew, you can either use our convenient on-line method by going to https://aknps.org/membership, or 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	E-Mail Newsletter	Snail-Mail Newsletter	Both Mail Deliveries
☐ **Full-time Student**	**$12**	**$22**	**$22**
☐ **Senior Citizen**	**$12**	**$22**	**$22**
☐ **Individual**	**$15**	**$25**	**$25**
☐ **Family**	**$20**	**$30**	**$30**

Name: _____

Address:_____

City _____**State:** _____**Zip:**_____

Telephone: (Home)_____**(Cell)**_____**E-mail**_____

PLEASE RENEW OR JOIN TODAY!
ANPS Membership is on a calendar-year basis, unless you are on recurring payment.
Join now for 2024!

Meeting ID: 938 2833 2935; Passcode: 362610

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