

Borealis

The Newsletter of the



PO Box 141613, Anchorage, Alaska

February – March 2024

Join us at our Next Meetings!

Monday, February 5, 7:00 PM

Via Zoom and at CCSC

Main Topic: "Willows"

Speaker: Cam Webb

Aquatic Plant Families: Isoetaceae,

Presenter: Justin Fulkerson

Medicinal Plants: *Achillea millefolium*

Presenter: Abby Zito

Monday, March 4, 7:00 PM

Via Zoom Only

Main Topic: "St. Isidore Farm: an Alaska
Native Seed Company "

Speaker: Sarah Jansen

Aquatic Plant Families: Haloragaceae (wa-
ter milfoil family)

Speaker: Justin Fulkerson

Medicinal Plants: *Valeriana (valerian)*

Presenter: Lorene Lynn

Meeting Location

Campbell Creek Science Center

5600 Science Center Drive

Anchorage, Alaska

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.ak-nps.org/**

Field-trippin' '24



The snow is deep in Southcentral Alaska, but the days are already getting longer and the sunshine gives us a promise of greener landscapes. Even as we bask in the beauty of our winter season, it is time to begin to plan for summer field trips. Do you have a favorite spot for checking out native plants? How about sharing it with our group?

You don't need to be a botanical expert in order to organize a trip. There are almost always people along who will be able to identify plants that others may not know. Everyone gets stumped at times – and that, too, can be a learning experience as the group can work together to make an identification. Those are sometimes the best remembered plants!

E-mail Dennis Ronsse at dennis.ronsse@gmail.com with the necessary information, including date, name of tour, meeting time/location, description of field trip including estimated distance, difficulty, etc., and contact info for tour leader. **PLEASE CONTACT DENNIS BY APRIL 1.**

Here's an example:

May 7, Saturday: "Emerging Spring Plants and First Flowers at Windy Corner"

Meeting time/location: 1 pm at roadside parking at Milepost 106.6 of Seward Highway (12 miles south of Anchorage)

Description: Early snowmelt on Turnagain Arm makes it one of the first places to find plant growth near Anchorage. Join Annie Ronsse and Marilyn Watts for a 2.5-hour, 2-mile hike on the Turnagain Arm Trail. Fairly level, but rocky in places.

Contact: Annie Ronsse at akronsse@gmail.com or phone/text 907-202-4186

University of Alaska Ethnobotany Classes

Intro to Edible and Medicinal Plants of Alaska EBOT F120 1 credit

Zoom and canvas February 20 -April 23 Tuesdays 5:30-7 pm

Ethobotany Seminar EBOT F200 2 credits CRN: 36517

Zoom: Mondays 5:30-7:00 pm

To register, contact the campus: 907-543-4500

Kuskokwim-SS-Dept@alaska.edu



Aquatic Plants - Mini-botany Presentations at ANPS Meetings

December 2023 – Aquatic plants – **Sparganiaceae** (Bur-reed Family)

Presented by Justin Fulkerson

Sparganiaceae – bur-reed – includes only one genus with 14 species worldwide, 5 of which are found in Alaska. You'll need fruits and flowers in order to identify them – if not, try to be satisfied with the genus name. Hulten is missing one species (*Sparganium emersum*). The **Flora North America** key is more helpful. These plants are generally found on shoreline edges of lakes all over Alaska. They have floating leaves that grow up from the ground and float at top of surface; some plants are .6 to 2 m in length with unisexual flowers in single inflorescence. Range maps are pretty sparse because people aren't looking for them; for *Sparganium eurcarpum* the nearest population currently shown is 777 miles away in BC.

January 2024: **Araceae** – Arum Family

Presented by **Preston Villumsen**



While the Arum family includes over 4000 species, only a few occur here in Alaska. They include giant plants like ***Calla palustris*** (water arum) and ***Lysichiton americanum*** (skunk cabbage) and tiny duck weeds, including ***Lemna minor*** as well as ***Lemna trisulca***, which has submerged fronds.

The water or bog arum (*Calla palustris*) is a hermaphroditic plant that is pollinated by flies and other insects. The stem arises from a creeping rhizomatous root system near the surface. It has a few large basal leaves, from a 6-30 cm petiole. The blade is cordate (heart-shaped) and about 4-14 cm (1.5-6 in) wide, and only slightly longer. The inflorescence is typically a single, large, white spathe (sheathed bract) and spadix on a thick short stem (a subspecies exists with 2-3 spathes per plant, *C. palustris* forma *polyspathacea*). The spadix is usually light green early in the year and densely packed with small flowers, each with a green ovoid pistil with 6-9 stamens. The ellipsoid seeds ripen to a reddish or dark brown later in summer.

WARNING: *Calla palustris* contains calcium oxalate, which acts as an oral irritant. It causes a burning sensation in the mouth, swelling, and difficulty swallowing. Because the flower is considered ornamental, it is very hazardous to dogs and cats when ingested.

Borealis
the newsletter of the



ALASKA NATIVE PLANT SOCIETY

State and Anchorage Chapter Officers

President	Elizabeth Bluemink
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Education	Beth Baker, Marilyn Barker
Mini-Botany	Timm Nawrocki
Field Trips	Dennis Ronsse

Newsletter ("**Borealis**")

Editor	Ginny Moore
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Borealis is published bi-monthly, fall through spring. Articles may be sent to Ginny Moore, 14530 Echo Street, Anchorage, AK 99516. Phone or FAX: 345-1355, E-mail: elfinwood@gmail.com

KUDOS TO OUR MEMBERS!

Our current active membership is close to 280 members! Our goal is to have at least 300 members in 2024!

Anne Billman, of Anchorage, and **Carol Griswold**, of Seward, were recognized by the Alaska Invasive Species Partnership in their annual awards program. Anne was recognized for her recent efforts in restarting the Anchorage Soil and Water Conservation District. She has been a great collaborator with our organization, and she made it possible for us to co-host a native plant rescue project in fall 2023 at the Campbell Tract in Anchorage. Carol was recognized for her tireless work in Seward on invasive choke-cherry removal in the community, from private and public property.

Additionally, Anchorage member **Lili Naves** received the 2023 Isleib Award for Bird Conservation during the statewide Alaska Bird Conference. Lili is very involved in our native seed program, but over many years, she also has worked very hard to fill data gaps and develop rigorous studies related to subsistence bird harvesting in Alaska.

Medicinal Plants - Mini-botany Presentations at ANPS Meetings

December 2023: **Moneses uniflora**

Presented by Val Cancino

Moneses uniflora, the **one-flowered wintergreen**, **single delight**, **wax-flower**, **shy maiden**, **star of Bethlehem** (Aleutians)¹, **St. Olaf's candlestick** (Norway), **wood nymph**, or **frog's reading lamp**, is a plant of the family of Ericaceae, that is indigenous to moist coniferous forests in temperate regions of the Northern Hemisphere from Spain to Japan and across North America. It is the sole member of genus ***Moneses***, alternate host for a disease caused by rust fungus.



Indigenous Alaskans have traditionally used *Moneses* to treat an array of illnesses, including pleurisy, pneumonia, tuberculosis, sore throat, and stomach disorders. The tea can also be used as a wash for wounds, sores, rashes, bunions, or corns. Some wash skin ailments with single delight tea before applying old salmonberry leaves. Single delight flowers are used in the steam bath to treat uterine tumors and other hard lumps that may be tumors. Several First Nations within North America have indicated *Moneses uniflora* as a traditional medicine for tuberculosis. Some scientific studies have explored the antifungal/viral/biotoxic properties of single delight flower extracts, and found that aerial parts from *Moneses uniflora* have inhibited growth against *M. tuberculosis* and *M. avium* mycobacteria.

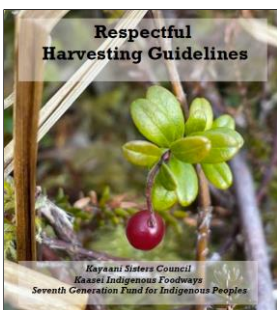
January 2024: **Artemisia**

Presented by Beth Baker

Artemisia is a plant that has been used as a medicinal plant for many centuries all over the world. Ethnobotanist Janice Schofield said that “wormwood is to interior Alaska as devil’s club is to the panhandle – the native “herb of choice” for many medical complaints. While Hulten lists over 20 species of Artemisia in Alaska, *Artemisia tilesii* is the species most mentioned by Alaska natives as medicine. Generally, it is the leaves that are used, and they can be chewed, or made into tea, plaster or powder. It has been used to stop bleeding, disinfect wounds, alleviate skin conditions and arthritis, dispel fever and headaches. It is also believed that switching with wormwood during a steam bath opens pores and causes the patient to sweat, promoting healing. All species of artemisia contain thujone which affects the nervous system, and taken in larger doses may cause serious problems. It is also known that *Artemisia tilesii* contains artilisin which is antibacterial but the parasite fighting property has been attributed to thujone. Coincidentally, Tu Tyoyou, received a Nobel Prize in 2015 for her work in studying artemisinin which was found to inhibit the parasite that causes malaria.



Guidelines for Harvesting Wild Plants



The Kaayani Sisters, consisting of Trixie Bennett, Louise Brady, Eva Burk, Tia Holley, Gloria Simeon, Disney Williams and Naomi Michalsen have developed **The Respectful Harvesting Guidelines**, a living document which they edit and update as necessary. The project has been initiated and organized by Naomi Michalsen (Kaasei Training & Consulting), and generously funded by the Seventh Generation Fund for Indigenous Peoples, Inc. The Respectful Harvesting Guidelines are dedicated to the memory of the late Dr. Rita Pitka Blumenstein. **You can download the 2022 Revised Respectful Harvesting Guidelines [here](https://alaskaethnobotany.community.uaf.edu/).**

Climate Has Always Shaped Tree Species Distributions

At the December 2023 ANPS monthly meeting, the main topic was “How Climate Shapes Past, Present & Future Tree Species Distributions in Coastal Alaska”, presented via Zoom by Paul Hennon and Robin Mulvey. Both of them have worked for many years to understand what affects forest growth and sustainability in Alaska. They began by describing the two general forest biomes in Alaska that are defined by climate: **boreal forests** with a continental climate, and **temperate forests** with a maritime climate. But climates are constantly changing. A survey of climate maps over the years shows us that in 2023 more than half of the country moved into warmer hardiness zones. How will this warming trend affect our forests? Their research looks at cases where 1. climate favors pathogen biology which then leads to tree mortality or 2. where diseases are caused primarily by climate-driven physiological injury or stress to trees.

Past Conditions

When predicting the future, it is always useful to look to the past to try to understand how we got to the present. Paul explained that it was previously believed that that all of SE Alaska was under ice during Pleistocene (2.6 mil years ago- 12, 000 yrs ago) (except for nunataks) and that all current tree species migrated from elsewhere. Now we believe that there were more ice-free areas during Pleistocene and that some of our current forest species were already here. By studying weather station data, glacial advances and retreats, tree rings, and pollen profiles scientists are better able to create past climate profiles.

Current coastal profiles



Future Predictions

Based on their work, several generalizations for forest management have emerged for adapting to changing climate conditions. First, favor the desired tree species through active management in climate zones where that species is well adapted, and the future climate-disease risk is expected to be low. Unfortunately, the magnitude of forecast climatic changes, high levels of uncertainty particularly with precipitation trends, and the increased frequency of extreme events limit the opportunities to apply this approach. A second broad theme is to favor a greater number of alternative tree species in areas of high climate-disease risk. But this approach doesn't mitigate the loss of keystone species in existing ecosystems.

Paul and Robin closed by leaving us with this “food for thought”. How much human manipulation and management is desirable? When do trees stop becoming “native species” and what impact will that have on Alaskan forest biomes of the future?

Eastern Beringian Grasslands: An Endangered Ecosystem

Our keynote speaker at the January 2024 monthly meeting was **Bruce Bennett**, the Curator of B A Bennet Herbarium in Yukon, the only official herbarium in Northern Canada. You can learn more about him at the following link where you'll also learn that he has a plant species named after him because he discovered it! [Bruce Bennett Herbarium](#)

Grasslands are one of the most threatened and least protected biomes, worldwide, and haven't been targeted for protection. The Grassland biome includes **Meadows, Salt Flats** and **Dunes**.

The **East Beringian Grasslands** are remnants of ancient ecosystems that have been identified through plant macro-fossils and fossil pollen grains from Beringia.

Meadows may be flat or sloped and flat meadows are the most threatened because of human pressures.

Many grassland meadows are often dominated by other plant species like artemisia and pasture sage, and some say it may be more accurate to call them "Dry herbaceous meadows". Many are endemic species, but many are also found in Midwestern Grasslands of lower North America, although we don't have the tall grass prairies.

Some unique Meadow species include:

Comandra umbellata ssp. *Pallida* - Pale Bastard Toadflax

Krascheninnikovia lanaga - Winterfat

Eriogonum flavum - Yellow Buckwheat

Helictochloa hookeri - Hooker's Oatgrass

Geum triflorum - Prairie Smoke

Artemisia laciniata - Siberian Wormwood in Alaska as well Yukon and Alaska sites separated by several hundred miles.

Koeleria asiatica - Eurasian Junegrass

Draba Yukonensis Yukon Draba poster child for endemic species at risk

Nestotus macleanii Yukon Goldenweed endemic

Silene williamsii William's Catchfly – more in Alaska than Yukon - along the Yukon River

Additional grasslands at risk:

Salt flats, represented by *Salicornia borealis* - Arctic Glassword

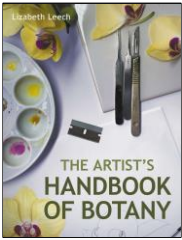
Sand dunes, represented by *Carex sabulosa*, Baikal Sedge.

Threats

- Climate change and habitat shift - since 2005 there is evidence of more meadows being invaded by boreal forests, starting with aspen and poplar and then willow and spruce.
- Gravel extraction
- Conversion to agriculture
- Cottage and recreational developments
- Road construction



FROM OUR BOOKSHELVES

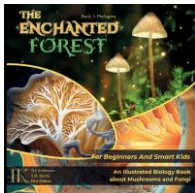


The Artist's Handbook of Botany

Author: Elizabeth Leach
Crowood Press; October 2023
ISBN-10 : 071984181X

This handbook is for everyone who wants to observe and understand plants and the differences between them, but is particularly aimed at botanical artists. It explains the most important diagnostic features that are essential when identifying a plant and painting an accurate picture. With practical advice on how to approach a painting, this book is sure to become an invaluable reference for artists and an insightful aid so all gardeners can enjoy their plants to the full.

Lizabeth Leech trained and worked as a botanist before becoming a well-respected botanical artist and teacher. She is a founder member and current Chair of the Hampton Court Palace Florilegium, as well as an active member of the Institute of Analytical Plant Illustrators and the American Society of Botanical Artists.



The Enchanted Forest

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

Authors: Hans Joachim Kuhlmann, Sonja Maria Mattila, H K
September 2023

This enchanting biology book is designed to ignite the curiosity of beginners and inspire the young minds of smart kids, leading them into a realm teeming with fascinating organisms that often go unnoticed.

Key Features:

- **More Than 126 Species Illustrations:** Delight in the intricate and captivating illustrations that bring the magical world of mushrooms and fungi to life. Each page is a work of art, making the learning experience both educational and visually immersive.
- **Easy-to-Understand Language:** Written in clear, accessible language, this book is perfect for beginners and smart kids alike. Complex biological concepts are broken down into simple, engaging explanations that encourage a deeper understanding of these mysterious organisms.
- **Interactive Learning:** Engage in fun and informative activities and experiments that encourage hands-on learning. From creating spore prints to exploring the life cycle of fungi, readers will be inspired to actively explore the world around them.
- **Phylogeny:** Explore the Latin and English names of the classes, families and orders, learning cool facts about species from all corners of the fungal kingdom
- **Curiosity Piqued:** Encourage a lifelong love of learning with "The Enchanted Forest." This book sparks curiosity and invites readers to observe, identify, and appreciate the diverse world of fungi they encounter in their own backyard or on woodland adventures.

Whether you're a parent seeking to introduce your child to the wonders of nature or a curious individual looking to deepen your understanding of the natural world, "The Enchanted Forest" is your gateway to the mesmerizing world of mushrooms and fungi. Dive into this enchanting journey and unlock the secrets of the forest floor, where fungi thrive in silent splendor, waiting to be discovered.



FROM WHAT WE GATHER



See-Through Wood Is Stronger Than Plastic and Tougher Than Glass

In December Jude Coleman, [Knowable Magazine](#), reported scientists in labs around the world have invented a way to make translucent wood that is capable of absorbing and releasing light and heat. This transparent wood could, one day, be used in the construction industry to make buildings with **eco-friendly** characteristics. In 2016, a team in Stockholm developed a type of transparent wood by removing a component from the cell walls of wood that absorbs light. Now, after years of experiments, the research of these groups is starting to bear fruit. Transparent wood could soon find uses in super-strong screens for smart phones; in soft, glowing light fixtures; and even as structural features, such as color-changing windows.

Wood is made up of countless little vertical channels, like a tight bundle of straws bound together with lignin. These tube-shaped cells transport water and nutrients throughout a tree, and when the tree is harvested and the moisture evaporates, pockets of air are left behind. To create see-through wood, scientists remove the lignin, leaving a milky-white skeleton of hollow cells. This skeleton is still opaque but filling the air pockets with a substance like epoxy resin that bends light to a similar degree to the cell walls renders the wood transparent.

The material the scientists worked with is thin—typically less than a millimeter to around a centimeter thick. But the cells create a sturdy honeycomb structure, and the tiny wood fibers are stronger than the best carbon fibers. And with the resin added, transparent wood outperforms plastic and glass: In tests measuring how easily materials fracture or break under pressure, transparent wood came out around three times stronger than transparent plastics like Plexiglass and about ten times tougher than glass.

But most research has centered on transparent wood as an architectural feature, with windows a particularly promising use. Transparent wood is a far better insulator than glass, so it could help buildings retain heat or keep it out. Researchers have also used polyvinyl alcohol, or PVA—a polymer used in glue and food packaging—to infiltrate the wood skeletons, making transparent wood that conducts heat at a rate five times lower than that of glass.

And researchers are coming up with other tweaks to increase wood's ability to hold or release heat, which would be useful for energy-efficient buildings. Céline Montanari, a materials scientist at RISE Research Institutes of Sweden, and colleagues experimented with phase-change materials, which flip from storing to releasing heat when they change from solid to liquid, or vice-versa. By incorporating polyethylene glycol, for example, the scientists found that their wood could store heat when it was warm and release heat as it cooled.

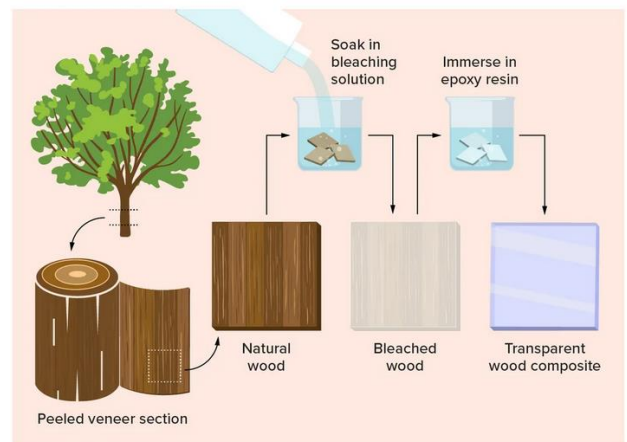
Recently, researchers have shifted their attention to improving the sustainability of transparent wood production. For example, the resin used to fill the wood scaffolding is typically a petroleum-derived plastic product, so as a replacement, they invented a fully bio-based polymer, derived from citrus peels. They have also found a greener lignin-bleaching method.

These more environmentally friendly approaches are positive steps, but for now, glass still has lower end-of-life environmental impacts than transparent wood. The scientists are confident it can be done and believe in its potential as a sustainable material.

Knowable Magazine is an independent journalistic endeavor from Annual Reviews

Making transparent wood

Two processes are central to creating see-through wood: removing the color and impregnating a polymer. Soaking or brushing boards or veneer sections with a bleaching solution alters or removes the pigmented lignin. Immersing the wood in a clear polymer, such as epoxy resin, then makes the wood transparent.



SOURCE: ADAPTED FROM P. BISHT ET AL. / MATERIALS TODAY COMMUNICATIONS 2022 KNOWABLE MAGAZINE

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
<input type="checkbox"/> Full-time Student	\$12	\$22	\$22
<input type="checkbox"/> Senior Citizen	\$12	\$22	\$22
<input type="checkbox"/> Individual	\$15	\$25	\$25
<input type="checkbox"/> 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

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