

Borealis

the newsletter of the



PO Box 141613, Anchorage, Alaska

April-May 2015

Join us at our Next Meetings!

Monday, April 6, 7:00 p.m

Main Topic: "A rose by any other name..."
Plant nomenclature in the age of molecular systematics

Speaker: Dr. Matt Carlson, UAA Biology

Plants of Scree and Talus: *Claytonia scammaniana*

Leader: Marilyn Barker

Mini-Ethno-Botany: Dandelion, Beach Greens

Presenter: Mike Monterusso

Monday, May 4, 7:00 p.m

Main Topic: "Wild Edible & Medicinal Plants"

Speaker: Rachel Bobka

Plants of Scree and Talus: *Saxifraga oppositifolia* and *Eritrichium arctoides*

Leader: Glenn Brown

Mini-Ethno-Botany: Alder, Horsetail

Presenter: Anjanette Steer



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

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Plant Genealogy

Naming Names - And Renaming Names....

At our April meeting, our guest speaker Dr. Matt Carlson will try to explain to us why so many of the botanical names and even the families to which they belong have changed in recent years. It is always a little disconcerting for those of us who have limited memory capacity as it is. Why do these things happen? Maybe you can take comfort in the knowledge that it has been happening as long as we've been naming plants.

Letter to Linnaeus from Collinson, written in 1758

I have had the pleasure of reading your 'Species Plantarum'. A very laborious and useful work, ' but my dear friend, we that much admire you are much concerned that you should perplex the delightful science of botany with changes of names that have been quite well received and adding new names quite unknown to us.

There are two things going on here: botanical nomenclature is the formal, scientific naming of plants. It is related to, but distinct from **taxonomy**. Plant taxonomy is concerned with grouping and classifying plants; botanical nomenclature then provides names for the results of this process.

Linnaeus had a much broader interpretation of what a plant was than we do today. As our tools for examining plants and classifying them become even more sophisticated, so too have our interpretations of plant families.

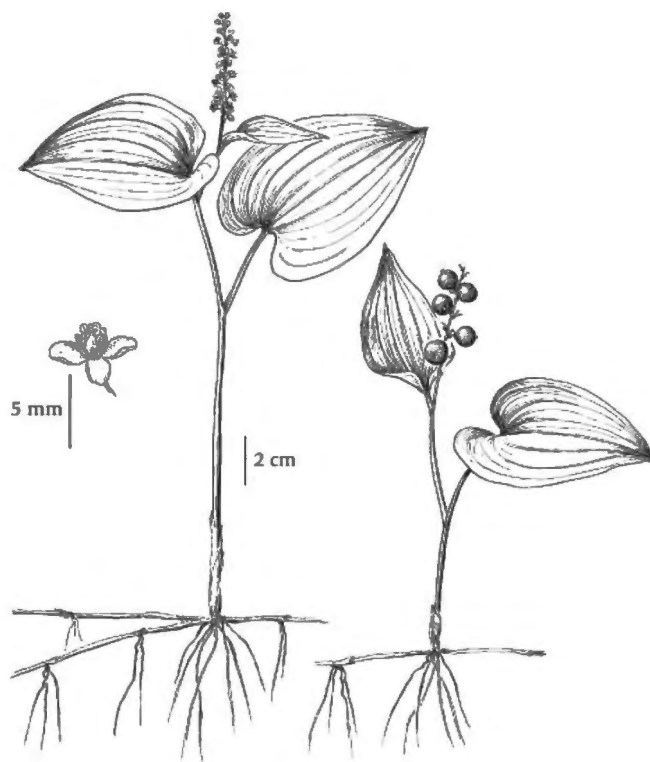
Darwin, in his famous "On the Origin of Species" wrote: "Our classifications will come to be, as far as they can be so made, genealogies."

So plant reclassification is kind of like what happens when you have been a Brown all your life, but suddenly DNA test results indicate that you father was not a Brown after all. Do you change your name to be more accurate or just assume it doesn't make you any different and would only confuse everyone who knows you? That's for you to decide - and even in the botanical world you may decide that it isn't worth the effort to reprogram your brain. Let's see if Dr. Carlson can convince us that we should!

MYSTERY PLANT

The plant chosen for this month is very common in Southeast Alaska, literally covering the ground in the moist, shady, coastal forests. It also occurs in Prince Williams Sound and in recent decades has managed to creep over the Chugach Mountains and in some areas approaching Turnagain Arm. Although very attractive, it could become a terrible pest if it reaches the rain forests in Girdwood. It doesn't take much imagination to realize that it spreads by rhizomes when you see it en masse. The vertical stalk produces two or three fairly large, heart shaped leaves with obvious arcuate veins and one spike of many, very small, lacy looking, white, 3 petalled flowers. These produce round red poisonous berries in the fall.

ANSWER on Page 6 – Don't Peek!



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Mini-Botany	Dennis Ronsee
Field Trips	Marilyn Barker

Newsletter ("Borealis")

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

The Search For *Astragalus nutzotinensis* and *A. aboriginum*

In the summer of 2014 ANPS member Dennis Ronsse gave himself the mission of finding *Astragalus nutzotinensis* and/or *A. aboriginum*. He began with maps that pinpointed locations for some of the herbarium specimens from the Pacific Northwest, and with many friends he hiked and paddled and berry picked in numerous likely places. Unfortunately, for Dennis in the summer of 2014, this turned out to be mission impossible. But he did learn a lot about these two plants. And at our February meeting he taught us.

Astragalus is the largest genus of flowering plants in the world (3200 species). Then there are the species that used to be part of this genus, such as a number of *Oxytropis*. *Oxytropis campestris* was formerly *Astragalus campestris*. But as any truly discerning botanist, including Dennis, could tell you, in *Oxytropis* the keel of the corolla has an erect point, while in *Astragalus* the keel is blunt.

Most of the *Astragalus* species found in Alaska are found on sandy, gravelly, rocky soils in mountains, along streams, rivers and seashores. As you can see from the table and the photos that Dennis gathered, seed pods are important in keying out these two species.

<i>Astragalus nutzotinensis</i>	<i>Astragalus aboriginum</i>
Endemic to Alaska and the Yukon Territory (rare in YT)	Circumpolar with large gaps Alaska to Quebec, and south to Colorado
Weak slender stems on the ground	Upright ascending stems
1-4 flowers per stem	10-20 flowers per stem
Pods straight at first becoming circular	Pods curved but not circular

Now it is your turn. Can you identify these plants? Maybe next summer you can venture out with Dennis for another mission! Thank you, Dennis for the informative and fun presentation!



Long-term Changes In The Vegetation of Southcentral Alaska

We read a lot about climate caused changes in vegetation in arctic and subarctic areas around the world. At the March ANPS meeting, guest speaker Christina Rinas, a graduate student at Alaska Pacific University in Anchorage described her research project that is studying the changes in shrub vegetation in the Anchorage area. She is working with Dr. Roman Dial and Professor Carl Tobin and other students to understand these changes and their causes. They use historic aerial imagery to quantify changes in shrub distribution and abundance since 1950. They also collect data on soils, snow depth, and vegetation composition to see if differences exist between areas where shrubs are expanding and areas where they are not. The preliminary data indicate that alder and tall-growing willow species are increasing in distribution and abundance at elevations above treeline.

In addition to Christina's research, APU students are working on other plant and wildlife projects in the Anchorage area.

- Scott Smeltz, a former graduate student, found that in the past 60 years tree cover has nearly doubled in herbaceous wetlands. His research suggests that these changes in wetlands are a result of warmer and dryer summers.
- Trevor Golden, a former undergraduate student, found that unseasonably high winds in the fall of 2012 resulted in widespread, large-scale forest blowdowns. These phenomena were identifiable in aerial imagery and could be modeled based on LiDAR-derived topographical characteristics.
- Students are also using historical aerial imagery to create a vegetation map, which will be used to identify anthropogenic and natural changes over the last 60 years.
- Finally, they are conducting rodent, pika, and wood frog research as these species can be indicators of change.

The students conduct their research on lands managed by the Joint Base-Elmendorf Richardson (JBER). In 1960 the passing of the Sikes Act mandated that natural resources on military lands be monitored and maintained. As a result, JBER has four sections that work together to ensure that environmental goals are reached. The JBER conservation program manages 74,000 acres of relatively undeveloped land. These areas serve as an important habitat for local wildlife, and are used by the community of Anchorage for outdoor recreation, berry picking, and hunting. The results of these research projects will help scientists and natural resource managers make informed land management decisions and better understand how vegetation and wildlife communities may be changing.

This research is funded in part by the Alaska Space Grants Program (2014-2015), and the National Wildlife Federation's Campus Ecology Program (2013). All projects are supported by the Joint Base Elmendorf-Richardson.

THINK SUMMER - THINK FIELD TRIPS!!



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? Please contact Marilyn Barker afmhb@uaa.alaska.edu (phone: _____) about how you can set up a field trip.

Don't feel you have 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! We'd like to have all the completed forms returned by April 15th, so we can put together and distribute the Field Trip Calendar in early May.

NEWS FROM AROUND THE STATE

UAF Offers Summer Ethnobotany Class

This summer's 'Introduction to Ethnobotany' class, administrated through the UAF-Bethel campus (KUC) will be offered for 2 weeks starting in late June at a site, yet to be determined, in the lower Yukon-Kuskokwim delta region. This 100-level class is part of a certification program that has some funding available to help support eligible students. The class is oriented toward rural students, but open to all interested. When dates and a location are established, they will be posted at www.uaf.edu/drumbeats/ethnobotany/. There is a link to a draft of a Yup'ik ethnobotany booklet also found at this site. The primary contact person for the program is Rose Meier at rameier@alaska.edu. Contact ANPS member Carolyn Parker at clparker@alaska.edu if you want further information or a sample syllabus from past classes.

ANPS Interior Group Activities – from Jeff Mason

The ANPS Interior regional group has been meeting monthly since this past November. We have upcoming meetings scheduled for April and May to round out our 2nd year of activity. This season we had a presentation on wild berry production in proximity to exotic species and the role pollinators play in that relationship (Katie Spellman – UAF). We've had two great presentations on Austral flora- one on the plants of Patagonia (Janet & Torre Jorgenson) and one on the plants of Tasmania (Wendy Elsner). We had a presentation on floristic inventories conducted over the last several years in interior Alaska National Wildlife Refuges (Robert Lierberman -USFWS), and an awesome presentation on vegetation communities and specialized flora associated with hot springs in Kamchatka (Lisa Strecker – UAF).

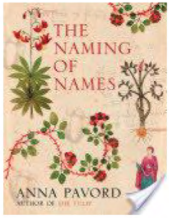
Tom Kuhn of UAF gave a really great presentation on the incredible health benefits of our favorite bog blueberry (*Vaccinium uliginosum*). The health benefits of blueberries and their high levels of antioxidants have been much touted by the health industry in recent years. Turns out our native blueberries have approximately 100 times higher levels of antioxidants than lower 48 blueberries found in the grocery store. The role our Alaska berries can play in aiding in recovery after brain trauma and slowing or halting neurologic degeneration in the brain, and the implications to the natural ageing process and in treating conditions like Alzheimer's or Parkinson's disease are just now being realized. The bottom line there – pick and eat as many blueberries as you can!

If you are interested in joining this group that meets on the first Wednesday of the month, contact Jeff Mason (jdotmason@gmail.com) or Amy Tippery (Amy.Tippery@colostate.edu).

Alaska Botanical Garden Spring Conference – April 10-11

The 9th Annual Spring Garden Conference and Annual Meeting of the Alaska Botanical Garden will be held on April 10th and 11th at Alaska Pacific University in Anchorage. To echo the Centennial Celebration in Anchorage, this year's theme will be "Learning from the Past: Our Horticultural Heritage." The keynote speaker will be Jim Fox, a renowned horticulturalist, garden designer, historian, and author from Washington. Jim will be speaking alongside Ayse Gilbert to deliver a talk about the history of horticulture in the Anchorage area and specific plants from our past that can lead us into the future. They are also welcoming plant experts from across the state with topics on garden design, composting, biointensive gardening, food preservation, traditional uses of plants, and more. You can find out more about the event and how to register at the ABG Website: www.alaskabg.org.

FROM OUR BOOKSHELVES



The Naming of Names

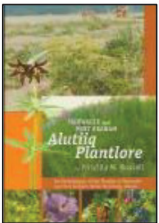
By Anna Pavord

Bloomsbury Publishing USA, Dec 7, 2008

Matt Carlson will talk about plant taxonomy since Linnaeus, but who began the work of naming plants and how was it done? A Greek, Theophrastus (370-285 BC) is the first person in the European tradition of plant taxonomy. He was concerned with identifying the essential features of plants - what aspect consistently differentiated one plant from another. To appreciate what an enormous question this was, and how great Theophrastus' contribution, *The Naming of Names* is a great place to start. It traces the search for order in the natural world, a search that for hundreds of years occupied some of the most brilliant minds in Europe, reaching its apex during the renaissance.

Anna Pavord takes us on a thrilling adventure into botanical history, travelling from Athens in the third century BC, through Constantinople, Venice, the medical school at Salerno to the universities of Pisa and Padua. The journey, traced here for the first time, involves the culture of Islam, the first expeditions to the Indies and the first settlers in the New World. Gradually, over a long period in Europe, plants assumed identities and acquired names. Artists painted the first pictures of them. Plants acquired the two-part names that show how they are related to other plants. But who began all this work, and how was it done?

Anna Pavord is the gardening correspondent for the *Independent* and the author of eight previous books, including the bestselling *The Tulip*. She contributes to a number of magazines, both in the US and the UK and regularly fronts programs for BBC Radio 3 and 4. She chairs the Gardens Panel of the National Trust and sits on the Parks and Gardens Panel of English Heritage.



Alutiiq Plantlore: An Ethnobotany of the Peoples of Nanwalek and Port Graham, Kenai Peninsula, Alaska

by Priscilla N. Russell

Published by Alaska Native Knowledge Network, Center for Cross-Cultural Studies 2011

The Nanwalek and Port Graham Alutiiq of Alaska use many of the plants that grow in their country. They have a rich cultural heritage in which they deserve to have pride. This book contains detailed documentation of their ethnobotanical knowledge.

Edible plants used by Siberian Yupik Eskimos of southeastern Chukotka Peninsula, Russia

Lyudmila Ainana and Igor Zagrebin ; English translation by Richard L. Bland.

Anchorage, Alaska : National Park Service, Shared Beringian Heritage Program, 2014.

101 pages : illustrations (most color), maps ; 26 cm; English and Russian

Originally published in Russian, 2014.

This book that was originally published in Russian in 2014, provides information about the natural features of the southeastern Chukotka Peninsula; and the role of native plants in the diet of the Central Siberian Yupik. The second section is divided into groups of plants: Berry plants; Leafy plants; Leaf and root plants; Root plant; Mushrooms; Seaweeds. Appendices include: Implements used to collect and preserve plants; Lexical constructions; Edible plants (alphabetized by English and Russian common names).

Answer to Mystery Plant (Page 2)
Maianthemum dilatatum
False Lily of the Valley
Liliaceae / Lily Family

From What We Gather – Around the Web

Bladderworts – Carnivores or Omnivores?

More than one-third of all species of carnivorous plants on earth are bladderworts, and species of *Utricularia* occur from the tropics into the arctic. Some species of these rootless plants grow in mud or even as epiphytes in rain-forest trees, but most, like Alaska's three species, are aquatic. They all produce bladder-like traps with doors that open and close. Touching the hairs around the door causes it to open and suck in whatever is just outside. The traps are capable of capturing small animals and absorbing nutrients from them. But there's more to the story; it seems that some bladderworts may be more gardener than carnivore.

Several years ago researchers at the University of Wisconsin made a confusing discovery. They found that *Utricularia vulgaris* (= *U. macrorhiza*, our most common species) grown in water with a high density of invertebrates (potential prey) did not respond by producing more traps. However, they did produce more traps when the water was higher in nutrients. Apparently bladderworts produce traps for a reason other than just capturing prey, a reason related to the fertility of their surroundings.

Recently Jennifer Richards at Florida International University made some observations that may help explain the Wisconsin findings. Richards examined 1,400 traps from *Utricularia purpurea* in the Everglades. She found that 63% had something in them. Of these only 8% contained dead prey items, but all contained algae, diatoms or other photosynthetic organisms. Peter Lesica has made the same observation in Montana. All the old bladders have green stuff in them, but it's devilishly hard to show people a trap with a dead bug in it.

Richards proposes that bladderwort bladders act not so much as traps but as tiny microcosms, absorbing the waste products produced by their photosynthetic and bacterial occupants. This hypothesis may also explain the Wisconsin finding that bladderworts produce more traps in nutrient-rich water but not in prey-rich water. Algae grow better in nutrient-rich water, so a bladderwort's captive algae gardens will be more productive. In addition the bladders may also absorb nutrients directly from the water. This is an unusual strategy to compensate for a lack of nutrient-absorbing roots, but it is not unique.

Certain tropical epiphytes called tank bromeliads obtain nutrients in a similar fashion. These plants live in tree canopies and are unable to absorb nutrients through their roots. Instead they hold water at the base of their leaves. These miniature "ponds" support all manner of aquatic life including mosquito larvae and even frogs. The bromeliads absorb the waste products from these little ecosystems directly into specialized cells at the base of the leaves.

More research needs to be done to prove that algal waste products are contributing to bladderwort nutrition. Still, it seems likely that bladderworts are really omnivores, obtaining more of what they need from gardening than from carnivory. It's just another case of "whatever works."

By Peter Lesica, University of Montana Herbarium, published March 17, 2015 in BEN Botanical Electronic News, an electronic newsletter produced by Dr. Adolph Cesca, Victoria B.C. Canada. Subscriptions are available at <http://victoria.tc.ca/mailman/listinfo/ben-l>. BEN is archived at <http://mpb.ou.edu/ben/>.

You can watch a video of the bladderwort's ultra-fast trapping mechanism in action at: <http://hubpages.com/hub/The-Waterworld-of-the-Ubiquitous-Bladderworts-Utricularia-from-the-Arctic-Tundra-to-the-Southern-Tasmania>

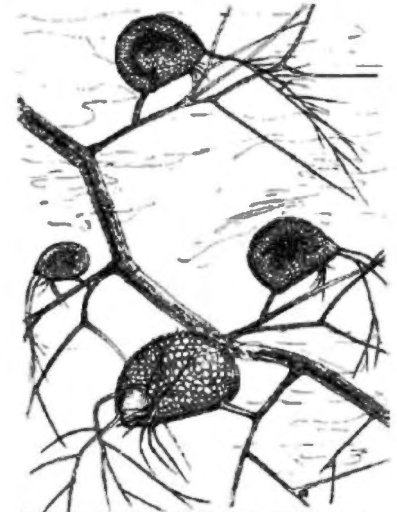


Figure 1. Bladders of *Utricularia* (bladderwort).
(from Poole & Poole, 1963)

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
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Membership is on a calendar year basis.

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Think Summer - Think Field Trips!!

We need you to help us plan summer field trips NOW!

Please send your ideas for places and dates as soon as possible!

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