Borealis

the newsletter of the

Alaska Native Plant Society

PO Box 141613, Anchorage, Alaska February-March 2018

Join us at our Next Meetings!

Monday, February 5, 7:00 p.m

Main Topic: ***"The Mountains Are Where It's At"* Patterns in Plant Peak Diversity: Ecological History of AK**

Speaker: **Carl Roland, Plant Ecologist Denali National Park**

Mini –Botany: ***"What is the difference between a moss and a club moss"***
Presenter: **Dennis Ronsse**

Roseacea Family: ***Dryas***
Presenter: **Glenn Brown**

Monday, March 5, 7:00 p.m

Main Topic: ***"Ethnobotany From An Anthropologist's Point of View"***

Speaker: **Dr. David Yesner**

Mini-Botany: "What causes a plant to turn toward the light?"
Speaker: **Rachel Mills**

Roseaceae Family Plant: ***Luetkea***
Presenter: **Charlene Johnson**

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

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THE BIG PICTURE

Finding New Species Before They Become Extinct

In 2017, researchers at the California Academy of Sciences added 85 new plant and animal species to the family tree, enriching our understanding of Earth's complex web of life and strengthening our ability to make informed conservation decisions. The new species include 16 flowering plants, one elephant-shrew, 10 sharks, 22 fish, three scorpions, 7 ants, 13 nudibranchs, seven spiders, three wasps, one fossil sand dollar, one deep-water coral, and one lizard. More than a dozen Academy scientists—along with several dozen international collaborators—described the discoveries.

Proving that our planet contains unexplored places with never-before-recorded plants and animals, the scientists made their finds over five continents and three oceans, venturing into vast deserts, diving to extreme depths, and scouring rugged mountain ranges. Their results help advance the Academy's mission to explore, explain, and sustain life on Earth.

Dr. Shannon Bennett, Chief of Science at the California Academy of Sciences, said in a statement: Despite tireless efforts to explore from the far-flung corners of the globe to our backyard crannies, scientists estimate that more than 90 percent of species have yet to be discovered — with many going extinct before we even know they exist. We are not only losing members of the tree of life; we are also forfeiting potential breakthroughs in medicine, agricultural pollinators, water purifiers, and many other critical components of a healthy planet.

Plateau princesses

Every spring, plants in the princess flower family color the rocky plateaus in Southeastern Brazil with flowers ranging from shades of purple, magenta, and pink to white, yellow, and orange. The plants have evolved small, thick leaves to retain water during the dry season and a woody underground root for water storage and weathering periodic fires. *Lavoisiera canastrensis*—one of several new species described this year—is critically endangered. This species is known from fewer than a dozen populations that grow on a single loaf-like mountaintop in Brazil's Serra da Canastra National Park—their only known habitat on Earth. Read more from California Academy of Sciences.

Photo by Frank Almeda
California Academy of Sciences 2001

INTERIOR ANPS JANUARY MEETING

January 10, 2018 Alaska Native Plant Society Meeting – Interior Chapter;
Presenter: Carl Roland, Plant ecologist for the National Park Service

Carl discussed data and insights gathered over about two decades of studying plant distribution and diversity in Denali National Park, including completing a variety of inventory, research and monitoring projects during this span. The Denali Botany program has assembled species occurrence and species richness data from more than 3000 sites across the Park from original fieldwork as well as cooperating projects and mining historical botanical projects for information. These data have been published in several articles in recent years and this talk covered information about diversity patterns from these different sources and also made some initial comparisons to similar patterns in other central Alaska parklands. Carl also gave a brief introduction and overview of two web-based resources that present information about the botany, vegetation and landscape change dynamics in Denali National Park, and interior Alaska more generally: 1) the Ecological Atlas of Denali's Flora; and 2) Exploring Land Cover Change Through Repeat Photography.

For those of you who participated in the ***Flower Vase Challenge*** presented in November by Pat Holloway (see Dec/Jan issue of *Borealis*), the winners were Al Batten and Carolyn Parker. But no one noticed the spruce root basket! Winners present at the meeting in Fairbanks received a 6-pack of their favorite beer! Let's bring on some more of those contests!

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ALASKA NATIVE PLANT SOCIETY

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

Solidago multiradiata – Northern Goldenrod

Solidago multiradiata goes by many common names, Northern Goldenrod, Rocky Mountain Goldenrod, Woundwort and Alpine Goldenrod. It is the most widespread Goldenrod in Alaska. There are 2 other species of goldenrod in Alaska, *S. lepida* with a S-SE coastal distribution, *S. decumbens* found more to the interior. All are perennial herbs. *Solidago lepida* is easily separated from the other 2 species by the presence of numerous large stem leaves crowding toward the flower heads. *Solidago decumbens* is harder to distinguish from *S. multiradiata*, however, *S. multiradiata* is much hairier and the heads form a rounded corymbose array, rather than an elongate array.

As with all members of the Aster family, each "flower" is actually an inflorescence of many flowers, in the case of Northern Goldenrod, most heads consist of 12-18 ray florets and 10-35 disc florets. The specific epithet "*multiradiata*" is a reference to the many showy ray florets produced on each head.

Northern Goldenrod (*Solidago multiradiata*). Photo by M. Barker

The Latin name *Solidago* was given to the genus in 1753 by Carolus Linnaeus. a comes from the Latin word "solidus" meaning whole or solid, referring to the plants supposed ability to heal wounds. In fact, powdered leaves of all species of *Solidago* are used as a styptic agent to stop bleeding. In addition, Goldenrod tea can be used to drink, or as an antiseptic to clean a wound. Goldenrod tea has also been known to aid in the passage of kidney stones.

There are lots of other uses for Goldenrod from highlighting hair to dying cloth. Goldenrod is also edible. Whole flowers can be chopped and added to batters and soups. Both goldenrod flowers and leaves can be added to tobaccos, potpourris, and tea blends.

Northern Goldenrod can be found in many habitats, from open forests to alpine meadows. It seems to thrive on rocky slopes and poor soils. Interestingly enough, it is one of the first plants to re-sprout after an oil spill and has been used frequently in Alaska revegetation projects.

The plant has gotten a bad rap as it has been falsely accused of causing respiratory allergies. It is innocent. Goldenrod pollen is large and sticky (each grain looks like a miniature mace!), and is not easily airborne hence requires an insect pollinator. The plant produces nectar and has special food value to both native butterflies and bees. In the rocky mountains it is the larval host of the beautiful checker-spot butterfly (*Chlosyne damoetas*).

***Solidago decumbens* with a northern blue butterfly. Note the elongate inflorescence. Photo by Mary Hopson**

In the early 1900's Goldenrod sap was developed as a rubber substitute, by none other than Thomas Edison, It is said that Henry Ford gave him a model T with goldenrod rubber tires. There is no evidence than anyone has tried to extract rubber from our Alaska species.

I'll end this short article with a quote from Henry David Thoreau on Solidago:

"The Sun has shone on the earth, and the Golden-rod is his fruit."

ABG Welcomes Michael Monterusso Back to the Garden!

As many of you know, the Alaska Botanical Garden's current executive director Robin Dublin is stepping down in January to pursue new adventures, and the Garden is excited and delighted to announce the return of Michael Monterusso as their new ED.

Mike spent five years with the Garden as the gardens and facilities manager before taking a position in April with the Minnesota Landscape Arboretum. Mike returned to Alaska in December and overlaps with Robin through January 5th to insure a seamless transition.

Mike holds a Master of Science degree in horticulture. During his time at ABG, he was also a board member of the Alaska Native Plant Society and a volunteer at Covenant House Alaska. He is currently co-chair of the 2018 APGA Plant Collections Symposium.

Mike has always been passionate about the growth of ABG, and returns with new plans and ideas to build on ABG strengths.

On January 5th, from 4-6, there will be a gathering in the new ABG greenhouse to bid a fond farewell to Robin and welcome Mike back to Alaska. Please join ABG as they celebrate the latest milestone for the Garden!

ABG 2018 Spring Garden Conference – March 3

As ABG celebrates its 25th Anniversary they are seeking vendors for their **2018 Spring Garden Conference**. The conference reaches a wide audience of long-time garden enthusiasts to the first time gardener. This is a great event for networking and exposure for your business!

Click click here for a vendor application and more specific information about the event such as times and cost. If you have any other questions please contact Brooke Wegner at 907-770-3692 ext 0 or garden@alaskabg.org

Annie Nevaldine Passes On

On January 8, 2018, exactly a year after the loss of ANPS founder and leader, Verna Pratt, another very active member, Annie Nevaldine, died unexpectedly at her home. She will be remembered as a fabulous gardener, an accomplished macro-photographer and an engaging speaker.

Her beautiful flower beds were packed full of perennials and unusual annuals. Always generous, Annie would open her garden for others to enjoy. These could be elaborate 'tea-party' affairs or simple come-by-and-see-the-garden events. Annie was a Master Gardener and served as mistress of ceremonies for the 2016 Master Gardener Conference.

Her contributions to the Alaska Native Plant Society included many presentations, participation in field trips, work parties, and photo identifications.

She was a master swimmer, an avid kayaker and hiker, had many walking buddies, was "Auntie Annie" to several generations of kids, and had a special bond with cats - her own and those she pet-sat. Her passing is being mourned by friends and clients all around the world.

Late Bloomers – Get Involved!

Katie Spellman, an ecologist with the University of Alaska Fairbanks, is collecting observations of flowers blooming at unusual times in late summer or fall throughout Alaska. Her research looks at arctic and boreal plant responses to warmer temperatures and longer growing seasons. She is wondering if some plants are blooming late during spring because they are trying to bud in the fall. Specifically, she is looking for observations of flower buds on Bearberry (*Arctostaphylos rubra*), Labrador tea (*Rhododendron groenlandicum*), Prickly rose (*Rosa acicularis*), cloudberry (*Rubus chamaemorus*), Buffalo berry (*Shepherdia canadensis*), Lowbush cranberry (*Vaccinium vitis-idaea*), Lowbush blueberry (*Vaccinium uliginosum*), and Highbush cranberry (*Viburnum edule*) during early weinter.

She is asking for the observation to contain three pieces of information:

- At least two photos of the late blooming flower for the post, one up close so that the species can be identified, and one approximately 3 ft away from the flower, so we can get a sense of the proportion of flowers that are blooming on the plant and nearby plants.
- In the notes, please record your location as accurately as possible. If you can capture the latitude and longitude, that would be great! Please also include an estimate of the percent of the buds on the plant that have popped open in the area. To do this, imagine a square area with the late blooming flower at the center that is the length and width of your arms fully spread out. What percent of the buds in the square have popped: less than 1%, 1-5%, 6-10%, greater than 10%?
- Make other notes you think are relevant in your post, like unseasonable weather, pollinators or insects being observed, or proximity to trails or buildings.

If anyone has any questions about this project, or about LEO, please contact:

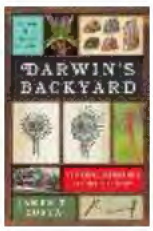
Erica Mitchell LEO Network Coordinator, ANTHC
enmitchell@anthc.org 907-729-3596

Description: The Late Bloomers project is looking for observations of flowers blooming at unusual times in late summer or fall throughout Alaska. We have been finding a weird signal in arctic and boreal plant responses to warmer temperatures and longer growing seasons, and think it might be because some species are busting their buds in the fall, making them delayed in the spring. Have you seen wild rose or cranberry species flowering late in the fall, and you think, "man, little flower, why are you doing that? Don't you know the snow is coming??" All these woody plants pre-form their buds for the next year, but we think there might be something to longer summers leading to these buds being able to now develop a little too far along. University of Alaska Fairbanks and University of Connecticut researchers need your observations of Alaskan plants that seem to be flowering way too late in the fall.

Background: For plants, the timing of flowering is a critical part of their life cycle. If plants flower too early or too late, they could miss the timing of their important pollinators or the timing of when animals like migrating birds come through and disperse their fruit. Many flowering plants bloom earlier in response to warmer temperatures, and earlier flowering times of plants is often considered a fingerprint of global warming. Some species, however, either do not respond or delay flowering when there are warmer temperatures. What explains these exceptions to the common association of earlier flowering with warming temperatures? It could be due to several things: 1) responses to other cues like photoperiod or soil moisture that may oppose the effects of warming, 2) increased snow fall that may result in delayed snow melt, or 3) warmer winter temperatures that may result in unmet chilling requirements that delay when a plant emerges from dormancy. We think that another reason may help explain why some species seem to break the rule: the timing of bud formation and its interaction with warmer temperatures and longer growing seasons. Shrubs, trees and berry plants in the northern latitudes start to develop their flower buds one or two years before they are needed. In a year with a longer than usual growing season, a first set of buds may open in spring, and then a second set of buds, intended for the next year, may open late in late summer or fall (a “late bloomer,” as we are calling it). The following spring, even if the timing of spring is early, these plants could take longer to flower as they wait to develop their next cohort of flower buds. University of Alaska Fairbanks and University of Connecticut researchers are looking for your help to make observations and find patterns in late bloomers.

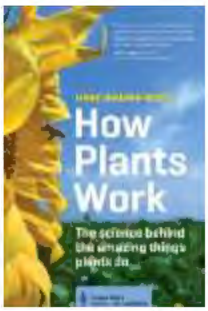
Project information and observing guidance can be found at the Late Bloomers Project Website.

FROM OUR BOOKSHELVES



Darwin's Backyard
By James T. Costa
September 2017

An instructive and entertaining look at Darwin's "experimentising" and how it can be readily duplicated using mostly simple household tools. Costa presents not just a how-to, but also a profile of Darwin in his time and place as he connected with other scientists and relied on them and on friends and family for assistance in his fieldwork. Darwin's enormous curiosity about how nature works and how adaptations arise from natural selection led him to constantly examine his surroundings with a careful eye. Costa shows him investigating the anatomy of barnacles, honeycombs of bees, dispersion of seeds, reproduction techniques of orchids, behavior of carnivorous plants, twisting of vines, and earth-moving capacity of worms. Occasionally, Darwin called on other naturalists for help in gathering specimens, and he relied on the labor of his own children, who apparently were enthusiastic assistants. In each chapter, Costa describes a specific area of Darwin's work and includes a materials list and a step-by-step procedure that demonstrates how to set up a related experiment, what to look for, and how to record one's observations—in other words, how to think like a scientist. What makes this more than a textbook is the full portrait of Darwin that emerges. We see him as an inquisitive youngster; a beetle-collecting college student; a hardworking naturalist who endured seasickness and other obstacles during his years on the *Beagle*; a husband and family man, enduring the illnesses and deaths of three of his children; and always as a man consumed with curiosity about the natural world and finding many of the answers in his own backyard.



How Plants Work: The Science of What Plants Do
by Linda Chalker-Scott

Plants are capable of interesting and unexpected things. Why do container plants wilt when they've been regularly watered? Why did the hydrangea that thrived last year never bloom this year? Why do slugs wipe out the vegetable garden instead of eating the weeds? Plant physiology—the study of how living things function—can solve these and most other problems gardeners regularly encounter.

In *How Plants Work*, horticulture expert and contributor to the popular blog *The Garden Professors*, Linda Chalker-Scott brings the stranger-than-fiction science of the plant world to vivid life. She uncovers the mysteries of how and why plants do the things they do, and arms the home gardener with fascinating knowledge that will change the way they garden.

What A Plant Knows
By Daniel Chamovitz

How does a Venus flytrap know when to snap shut? Can it feel an insect's tiny, spindly legs? And how do cherry blossoms know when to bloom? Can they remember the weather?
For centuries we have marveled at plant diversity and form—from Charles Darwin's early fascination with stems to Seymour Krelborn's distorted doting in *Little Shop of Horrors*. But now, in *What a Plant Knows*, the renowned biologist Daniel Chamovitz presents an intriguing and scrupulous look at how plants themselves experience the world—from the colors they see to the schedules they keep. Highlighting the latest research in genetics and more, he takes us into the inner lives of plants and draws parallels with the human senses to reveal that we have much more in common with sunflowers and oak trees than we may realize. Chamovitz shows how plants know up from down, how they know when a neighbor has been infested by a group of hungry beetles, and whether they appreciate the Led Zeppelin you've been playing for them or if they're more partial to the melodic riffs of Bach. Covering touch, sound, smell, sight, and even memory, Chamovitz encourages us to consider whether plants might even be *aware*.
A rare inside look at what life is really like for the grass we walk on, the flowers we sniff, and the trees we climb, *What a Plant Knows* offers us a greater understanding of botany and science and our place in nature.

Alaska Native Plant Society Seed Exchange

The Alaska Native Plant Society sells seed of plants native to Alaska which have been collected by members during the year. Seeds can be purchased at the regular monthly meetings or by mail order. **NOTE to Other Donors: If you have gathered seeds that you'd like to donate, please do. We will offer them at meetings and upcoming mall shows.**

The price is $0.50 per package for current year. Package sizes vary considerably due to the number or amount of seeds collected. Some rare or difficult to collect species may contain few seeds, while some easy to collect species may contain a large number of seeds. For mail orders, include an additional $0.50 for 1 - 5 packages, or $1.00 for 6 or more. Make checks payable to: Alaska Native Plant Society. Send order to Alaska Native Plant Society, PO Box 141613, Anchorage, AK, 99514.

You can download a copy of the order form with these instructions at http://aknps.org/pdfs/Seed_Order_Form.pdf

Scientific Name	Common Name	Height	Flower	Blooms
Aconitum delphiinifolium	Monkshood	2-3ft	blue	
Aconitum maximum	Kamchatka aconite	8"	blue	Ju-Sep
Alyssum americanum	American Madwort		yellow	
Aster sibiricus	Siberian Aster	8-12"	lavender	July-Aug
Caltha leptasepala	Alpine Marsh Marigold	5-30 cm	white	
Campanula aurita	Yukon Bellflower		blue	
Carex mertensii	Mertens Sedge	2-4 ft	purple	spring
Crepis elegans	Elegant Hawksbeard	12"	yellow	June
Erigeron glabellus	Streamside Fleabane	28 in.	white, pink, or blue ray florets surrounding numerous yellow disc florets.	
Erigeron peregrinus	Subalpine Fleabane	28"	blue, purple, pink, or white ray florets surrounding numerous disc florets	
Fritillaria camschatcensis	Chocolate Lily		brown	July-Aug
Lupinus nootkatensis	Nootka Lupine	1-3"	blue, purple or pink	June
Papaver lapponicum	Lapland Poppy	15 cm	pale yellow	July-Aug
Phacelia mollis	Coffee Creek Scorpionweed		blue, yellow or pink	
Saussurea angustifolia	Narrow-leaf Saw wort		purple	July
Thallictrum sparsiflorum	Few-flower Meadowrue	60-180 cm	pink-white	June-Aug
Valeriana sitchensis	Sitka Valerian	4 ft	white	
Veronica wormskjoldii	Alpine Speedwell	14 inches	blue	June-Sept
Viola langsdorffii	Alaskan Violet	3-5"	blue	May-Sept
Wilhelmsia physoedes	Merckia	prostrate	white	July

1. http://nativeplants.for.uidaho.edu/network - Good site to search for germination protocols by common or scientific name. Have found that protocols from northern states are most applicable to our species. **Seed Germination Theory and Practice**. 2nd edition. Norman Deno. 1993. http://www.slideshare.net/PX8/t3b244
2. **Seeds of Wildland Plants: Collecting, Processing and Germinating**. James A. Young & Cheryl G. Young. 1986.

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.

Would you rather receive the newsletter by e-mail instead of by snail mail?
It will save ANPS some postage and you'll always receive your newsletter in a timely manner.
Let us know when renewing or by e-mail to elfinwood@gmail.com.

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