

Borealis

the newsletter of the



PO Box 141613, Anchorage, Alaska

October/November 2013

Celebrating Summer!

Join us at our Next Meetings!

Saturday, September 28 – Public Lands Day – Campbell Creek Science Center –HELP, HELP, HELP!

We desperately need people to come and volunteer time. We are committed to 40 volunteer hours each year, which gives us a lower room rental fee. A few hours will help. Sign in time is 8:30 to 9:00 A.M. **Be sure to sign in with Louisa so that ANPS gets the credit.** You can work on any project. There's pizza, drinks, and cookies at noon and even door prizes. It is a fun workday and will greatly help ANPS keep down our annual costs.

Monday, October 7, 6:00 p.m

Annual Potluck and Slideshow

Join us as we regroup after a summer of field trips and adventures. Share some food and up to 10 slides of summer activities! Plates, cups and drinks will be provided.

Monday, November 4, 7:00 p.m

Main Topic: TBA

Speaker: TBA

Plant Family: *Plants of Bogs & Marshes*

Leader: Marilyn Barker

Mini-Botany: Growth forms

Presenter: Verna Pratt

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

Notes from the Field

We're all getting back into winter mode after a summer of field work and play – and what an amazing summer it was! How long has it been since you saw fireweed blooming like this? Here are a few notes from the ANPS summer.

WEED WARRIOR ACTIVITIES: Special thanks to Verna Pratt, Diane Toebe, Dennis and Annie Ronsse, Brigitte Ressel, Anne Nevaldine, Beth Baker and James Sowerwine, who all put in time this year on ANPS's ongoing *Tragopogon dubious* (western salsify) removal efforts. While the summer's hot weather led to an early seeding by the remaining *T. dubious* on Turnagain Arm, ANPS members were able to remove every plant found in the three main infestation areas located between McHugh and Indian. Overall, ANPS weed warriors noted the presence of fewer plants through the area, suggesting that ongoing efforts to remove the plant by hand pulling are continuing to *T. dubious* towards eventual statewide eradication.

Loenfels Trail at ABG: This is probably an ongoing project as there are dandelions on Campbell airfield road near the Botanical Garden, but most that we find now are young plants. It seems that Diane's dog likes to eat dandelion roots! This could be a useful trait to enhance!

Campbell Creek Science Center. ANPS volunteers kept the native gardens well maintained and earned volunteer hours to offset room rental. A special thanks to Stacy and other BLM staff and high school volunteers as well.

In other related activities, Gino Graziano led a field trip to Little Campbell Lake in Kincaid Park that was attended by several ANPS members. Attendees floated the lake and performed an informal survey of the extent of invasive *Elodea* using a rake on a rope to sample deeper areas. *Elodea* is now known to be present in fourteen Alaska water bodies. This plant will be familiar to most as the greenery often found in fish tanks, but when released into freshwater lakes and sloughs it tends to edge out native species.

The last outing of the year, led by Joan Tovsen, was to the Portage Flats and Spencer Glacier. We boarded the train at Portage and had two hours to explore the flora, flowers and trees, around the Spencer Glacier area. The trees were changing colors and autumn was in the air with all the delightful odors and a little chill too. Some walked to the glacier and others went on a forest service guide led hike. This train trip happens daily apparently all summer. It was the last scheduled train for the summer 2013 season. It was a great way to end summer. Be sure to come to the potluck on Oct. 7 to see pictures of many of the summer field activities. **THANKS TO ALL WHO LED!**

“The Northerners” A Mini-Series Coming Soon!

Following up on our successful botany mini-series last year focusing on botanists, beginning with our November meeting, the mini-botany presentations this year will focus on how plants adapt to northern climates. As Ann Zwinger says in “Land Above The Trees” *Life survives at these outer and upper extremes of the environment because it has been rigorously selected and adapted to the harsh conditions that surround it. The more severe the environmental conditions, the more pronounced are the adaptations for plant and animal survival. Adaptations generally involve characteristic that are immediately responsive to environmental conditions of temperature, light, moisture, etc. Most adaptations persist, retained by a plant even if moved to another habitat, where the same plant may or may not be adapted to survive; a dwarf alpine, for as long as it survives in a lowland garden, remains a dwarf.*” Join us as we examine the many forms of adaptations.

Here’s a look at what’s coming:

November: **Growth Forms- Cushion plants/tussocks**

Presenter: Verna Pratt

December: **Growth Forms: Hairs, stems, mats**

Presenter: Marilyn Barker

January: **Suntracking – Heliostrpism**

Presenter: Beth Baker

February: **Vegetative Reproduction: Rhizomes/tillers**

Presenter: Rachel Bobka

March: **Vegetative Reproduction: Branch layering/Viviparity/Apomixis**

Presenter: Annie Nevaldine

April: **Perennial vs Annual/Biennial**

Presenter: Anjanette Steer

May: **Compensation For Poor Soil**

Presenter: Greg Kalal

MYSTERY PLANT

This plant may go basically unnoticed by most people as it tends to grow in areas where introduced plants grow, and is not very common. It can be found in a few locations of South-central Alaska and the Yukon Territory. It can be easily seen on the Seward Highway from McHugh park to Indian, but it is not prolific. It is 15 to 20 inches tall, usually branched and has flat topped clusters of white flowers.

This is an unusual color for flowers in this genus. The flowers are numerous and have sepals that are about as long as the rounded petals. The basal leaves have 7 to 9 sharply toothed broad segments that have stiff short hairs. Stem leaves are reduced but still mostly divided.



Answer on Page 3.

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ALASKA NATIVE PLANT SOCIETY

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Anchorage Chapter Program Coordinators

Membership	Bernadine Raiskums
Plant Family	Beth Baker
Mini-Botany	Beth Baker
Field Trips	Marilyn Barker

Newsletter ("Borealis")

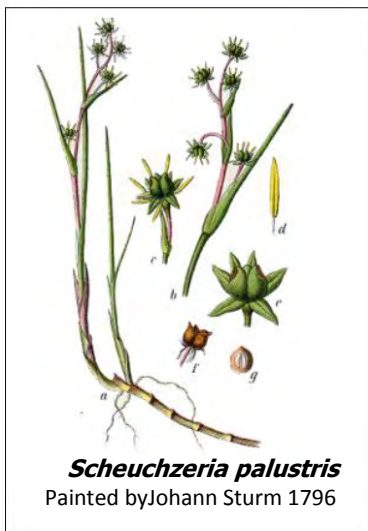
Editor: Ginny Moore

FAX:

Borealis is published bi-monthly, fall through spring. Articles may be sent to Ginny Moore, , Anchorage, AK 99516. Phone or FAX: , E-mail: tgmoore@eci.net

Plants of Bogs & Marshes - Intro

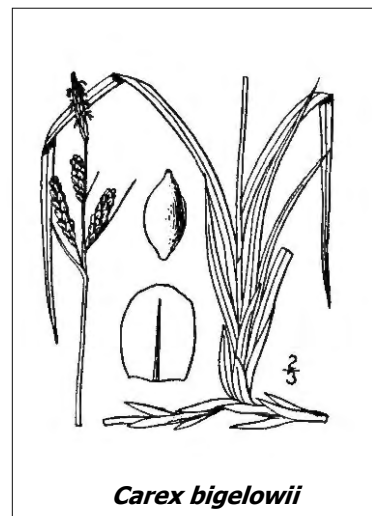
In November, Marilyn Barker will begin our second year of study of plants of bogs and marshes by discussing *Zosteria* (eelgrass), *Scheuchzeriaceae* and several *Carex* species.



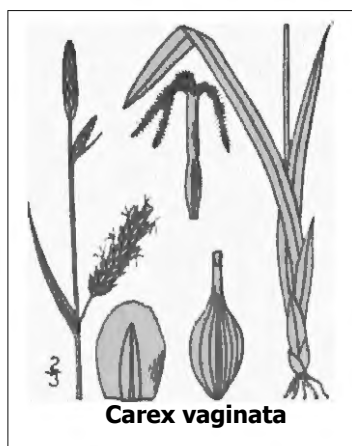
Scheuchzeria palustris, is a flowering plant, the only species in the genus *Scheuchzeria*, itself the only genus in the family Scheuchzeriaceae. It is an herbaceous perennial that grows in peat bogs, growing from a creeping rhizome clothed in papery, straw colored remains of old leaf bases. The flowers are greenish-yellow, 4–6 mm diameter, with six tepals. They have an inflated sheathing base, 6 stamens and 3 carpels. It flowers from June until August.

Carex bigelowii, one of our most common sedges, has a circumpolar distribution throughout the northern latitudes. It produces angled stems up to 1.6 ft tall, growing in a tuft or singly. The leaves are stiff and dark green and the leaves of previous seasons may remain on the plant. The inflorescence is accompanied by a short bract. The inflorescence has 1-3 black pistillate spikes under 1-2 staminate spikes. The plant usually reproduces vegetatively, sprouting tillers

from its rhizome. It spreads via stolons as well. It has a thick root network that allows it to form a turf and the roots may grow 2.6 feet deep in the soil. The plant sometimes reproduces sexually, producing seeds, which can remain viable for 200 years. It grows in many types of Arctic and alpine habitat. It occurs in forest, bog, meadows and tundra. It occurs alongside plants such as willows (*Salix* spp.), dwarf arctic birch (*Betula nana*), lingonberry (*Vaccinium vitis-idaea*), bog blueberry (*V. uliginosum*), crowberry (*Empetrum nigrum*), northern Labrador tea (*Ledum palustre*), , etc.



Carex bigelowii can colonize disturbed habitat. It has been noted to grow at oil spill sites within two months of the disturbance, and it grows alongside the Dempster Highway in northwestern Canada. Its long-lasting soil seed bank allows it to sprout after the soil is disturbed, and the rhizomes may prevent erosion.



Carex vaginata is a species of sedge known by the common name **sheathed sedge**. It has a circumboreal distribution, occurring throughout the northern latitudes of the Northern Hemisphere. It occurs in Alaska, throughout most all of Canada to Greenland and in Eurasia. In North America it occurs as far south as Minnesota and New York.

This sedge produces stems up to 60 centimeters tall, growing from a long rhizome. The stem just below the inflorescence is sheathed in the base of the bract, the characteristic that gives the plant its name. The inflorescence contains a terminal spike and usually at least one lateral spike. The plant reproduces by seed and by sprouting from the rhizome and the stolons, and from buds at the bases of the stems.

This sedge grows in many types of moist and wet habitat. It is present on tundra and in boreal forests. It grows in sandy, calcareous, and acidic, peaty soils. It may be found

growing in snow, which might help to protect it from dry and cold conditions.

Rosaceae/Rose Family

Potentilla arguta ssp. *convallaria* "cream cinquefoil"

MYSTERY PLANT ANSWER:

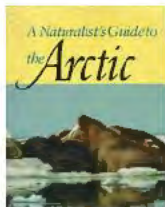


FROM OUR BOOKSHELVES

To get you in the mood for the coming season and for this year's mini-botany theme, all year we'll be highlighting books that focus on adapting to northern environments. Do you have a favorite to add? Send us an e-mail.

This newsletter focuses on books by two women scientists of a former generation who are still current. They both have an exceptional talent for conveying scientific facts to lay people in vivid terms and a most delightful manner – both by words and by delicate, accurate drawing.

Evelyn Chrystalla Pielou (born February 20, 1924 in England) is a statistical ecologist who spent much of her career researching and writing about northern environments. Pielou was the second woman to win the Eminent Ecologist Award (1986) from the Ecological Society of America. She has contributed significantly to the development of mathematical ecology, the mathematical modeling of natural systems and wrote six academic books on the subject. While Pielou was too brilliant for many a graduate student brain to wrap their head around mathematical ecology, in her retirement she had taken to writing an incredible array of very accessible, delightful books for a popular audience. Many, including *After the Ice Age* and *The Naturalist's Guide to the Arctic*, have her own sketches as the illustrations. I have spoken to several people who read *Fresh Water* at an impressionable point in their career and found it changed their life. Her most recent book, *The Energy of Nature*, came out in 2007. In her retirement (in her eighties!), Dr. Pielou has been on a number of Arctic expeditions, often as a scientific advisor for ecotourism trips.



A Naturalist's Guide to the Arctic A guide to American Alpine Tundra
by E. C. Pielou; 1994

This book is a practical, portable guide to all of the Arctic's natural history—sky, atmosphere, terrain, ice, the sea, plants, birds, mammals, fish, and insects—for those who will experience the Arctic firsthand and for armchair travelers who would just as soon read about its splendors and surprises. It is packed with answers to naturalists' questions and with questions—some of them answered—that naturalists may not even have thought of.



The World of Northern Evergreens

By E. C. Pielou

Pielou conveys in everyday language her knowledge of the fascinating things to be seen in the evergreen forests of the northern United States and Canada and on the major mountain ranges of the eastern and western United States. She discusses the distinctive features of various evergreen trees, providing information on how to recognize different kinds; describes how they reproduce and grow; and assesses the impact of fire, wind, snow, ice, clear-cutting, and air pollution.

Ann Haymond Zwinger was born March 12, 1925, in Muncie, Indiana. While young, she lived along the White River. She studied art history and was awarded two degrees, an A.B. in Arts in 1946 by Wellesley College with the designation "Wellesley College Scholar" now considered roughly equivalent to "cum laude" and an A.M. in Fine Arts by Indiana University in 1950. Ann Zwinger lives in Colorado Springs and teaches English and Southwest Studies at Colorado College. Her latest book, published in 2000, is *Shaped by Wind and Water: Reflections of a Naturalist*. She has written eighteen books since 1970, including the acclaimed *Run, River, Run*; *Wind in the Rock*; *Downcanyon*; and *The Near-Sighted Naturalist*.



Land Above the Trees by Ann H. Zwinger and Beatrice E. Willard

This book, published in 1972, is the classic guide to the alpine tundra in the United States. No other book has ever looked so closely, so thoroughly, and so charmingly at this important and fragile ecological zone. While this book focuses on alpine tundra of the Lower 48, the science it describes of life in the tundra is very relevant to much of Alaska.

From What We Gather - around the web

Researchers find 400 year old Ice Age plants in Arctic able to grow anew as glaciers retreat

A team of researchers from the University of Alberta led by, Catherine La Farge, has found that mosses and liverworts covered by ice over 400 years ago and now exposed due to glacial melting, are able to start growing again. In their paper published in the journal *Proceedings of the National Academy of Sciences*, the team describes how carbon dating showed the plants to be from a time just prior to the Little Ice Age.

The research team ventured to the Canadian Arctic Archipelago to see what changes were occurring in the Arctic due to global warming—the Teardrop Glacier on Ellesmere Island in Nunavut, they note, has retreated more than 650 feet over the past several hundred years. Just next to the glacier's edge, the team found some green growth among clumps of exposed dead plant material that had been under the ice for centuries. Intrigued, they collected some samples and brought them back to their lab for study.

The team put 24 cultures in an ideal environment and found that 11 of them began to grow, representing four distinct taxa. The plants, known as bryophytes—moss, lichen, liverworts, etc—don't have vascular tissue to pump fluids, a property that helps them survive in very cold climates. Carbon dating of the samples showed that the plants had been living approximately 400 to 615 years ago—a time just before the Little Ice Age (1550-1850). Bryophytes have another property, called totipotency that allows any cell of the plant to reproduce and grow into a whole new plant.

The findings dispel the common belief that land exposed by melting glaciers becomes populated by new plant growth exclusively via seeds or spores carried by the wind. Instead, some plants lying frozen beneath the ice are apparently able to survive and begin growing again when the environment changes. This suggests that Earth scientists will have to take a new look at models meant to portray how ecosystems recover from glaciers after they retreat.

The researchers note that plants aren't the only type of life being exposed by melting glaciers—cyanobacteria and green terrestrial algae have also been spotted, some of which haven't ever been seen before.

More information: "Regeneration of Little Ice Age bryophytes emerging from a polar glacier with implications of totipotency in extreme environments" available at www.pnas.org/cgi/doi/10.1073/pnas.1304199110

Study Shows Boreal Forest Burning At Historic Rate

FAIRBANKS — A new study of the Yukon Flats region has revealed that the world's boreal forests are burning at an historically unprecedented rate. The authors also concluded fire rates likely will continue to grow in coming decades. Both fire frequency and the amount of total biomass burned are higher now than they have ever been in the past 10,000 years, according to the study, which was published in June in the *Proceedings of the National Academy of the Sciences*. The researchers chose the Yukon Flats region because fire frequency there has been higher than nearly anywhere else in the North American boreal forests.

In the Yukon Flats, researchers sampled charcoal records from 14 separate lakes to infer biomass burning during most of the Holocene epoch — a geologic time-frame spanning from about 11,700 years ago to the present. They combined these historical data with observational records of the past 60 years to reach their findings. Until now, the era of highest biomass burning took place about 800 years ago, in what experts refer to as the Medieval Climate Anomaly. During that time temperatures were higher than normal, but not as high as they have reached presently. Although a great amount of biomass burned during the Medieval Climate Anomaly, fire frequency was relatively low. Ryan Kelly, the paper's lead author, said they believe this was in part because the forest was made up of less combustible deciduous trees. The deciduous trees tend to move into heavily burned areas following forest fires.

In Interior Alaska, the study predicted increased fire activity would lead to forest makeup shifting from coniferous species such as black spruce to deciduous species like aspen and birch. That could, in turn, change wildlife patterns throughout the Interior.

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

CATEGORY

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| <input type="checkbox"/> | Full-time Student | \$12 |
| <input type="checkbox"/> | Senior Citizen | \$12 |
| <input type="checkbox"/> | Individual | \$15 |
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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 tgmoore@gci.net.**

PLEASE CONSIDER HELPING ANPS AT NATIONAL TRAILS DAY!

**Volunteer at the Campbell Creek Science Center to help us "pay off" meeting space rental all year.
See front page for more details and be sure to tell Louisa that you're with ANPS!**

Alaska Native Plant Society
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