

Borealis

the newsletter of the



PO Box 141613, Anchorage, Alaska

February/March 2009

Join us at our Next Meetings!

Monday, Feb 2, 7:30 p.m.

(Campbell Creek Science Center)

**Topic: "Where Have All The Alders
Gone?"**

Speaker: Lori Trummer
U.S. Forestry Service

Plant Family: Sparganiaceae

Presenter: Susanne Kruse

Monday, March 2, 7:30 p.m.

(Campbell Creek Science Center)

**Topic: " Drawing and Painting
Wildflowers Throughout the West"**

Speaker: Linda Vorobik, Botanical
Illustrator

Join Linda for an evening slide lecture of
her botanical travels and resulting
paintings from Alaska, Washington,
Oregon, California, and Hawaii.

Plant Family: Scheuchzeriaceae

Presenter: Stan Vlahovich



**For latest information on ANPS
events, check our website at:**

[http:// AkNPS.org](http://AkNPS.org)

Snout Beetle To The Rescue!

We've talked before about that insidious, invasive plant, *Linaria vulgaris*, or Yellow Toadflax. Imported into North America in the late 1600s as an ornamental and folk remedy, yellow toadflax is found throughout the continent, including Alaska. Reproducing by seeds and rhizomes, it is an aggressive invader, forming dense colonies; it suppresses natives mainly by intense competition for limited soil water. Seeds may remain dormant 8-10 years. Vegetative reproduction may begin as soon as 2-3 weeks after germination, and it can establish from root fragments as short as 1/2 inch. Disturbance promotes invasion and once established toadflax readily spreads into adjacent areas.

Cutting, mowing and tilling are effective ways to eliminate plant reproduction through seeds. Herbicide treatment can significantly reduce plant infestation. These methods must be repeated for ten years to completely remove a stand. Vigorous grasses have also been used to compete with toadflax.



Several insect species have been approved by the USDA as natural biological controls. The snout weevil, *Gymnetron antirrhini*, is the most important agent for biological control in British Columbia and the northwestern U.S.

Guess what?! **That little snout weevil has been positively identified on *Linaria vulgaris* in Anchorage!** It has been sighted on toadflax plants over the last few years, and this past summer some toadflax infestations were completely covered.

Adults are black, oval beetles about 2 mm long, with a pronounced snout. They may be found feeding on toadflax stems, buds, flowers, or fruits. Larvae are 2-4 mm long, legless, and C-shaped when viewed from the side. They are cream-colored with a tan head capsule. Larvae are found within toadflax seed capsules.

The adults emerge in spring, feeding on young toadflax shoots and buds. After mating, females lay eggs inside toadflax flowers, inserting them through the ovary wall. This causes abnormal growths within the ovary, and adjacent ovules and young seeds become distended and yellowish. Larvae hatch from eggs and feed on these "inactivated," abnormal seeds. Mature larvae construct cells within developing seed capsules and then pupate. In several weeks, adults enclose and may feed on toadflax shoots for a short period of time before entering diapause. Winter is spent as an adult in plant litter or within old toadflax seed capsules. There is one generation per year.

G. antirrhini does not kill toadflax plants, but larval seed feeding can reduce a plant's seed production by more than 80%!

Sparganiaceae –The Burr Reed Family

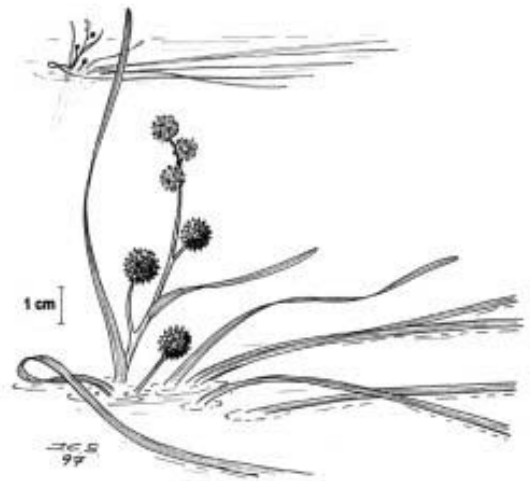
The family consists of 1 genus, *Sparganium*, with 12-20 species. Hulten lists 5 species for Alaska, *eurycarpum*, *minimum*, *hyperboreum*, *angustifolium* and *multipedunculatum*. Currently, *angustifolium* and *multipedunculatum* are both considered to be *angustifolium*. Many taxonomists merge the burr-reed family with the cattail family and both are related to the large sedge family.

All of the species form colonies in shallow water. They are aquatic herbs with flattened, alternate, 2-ranked leaves. The leaves are simple, entire, linear and basally sheathing. As the stems and leaves reach the surface, the leaves form floating streamers. On vegetative form alone it is easy to recognize the genus *Sparganium*.

When flowers form, they occur in globose staminate and pistillate heads. The flowers are always emergent and floating. The heads are congested or remote along a zig-zag rachis. Flowers are imperfect, regular; the 3-6 scale-like tepals are distinct. There are 3-6 distinct stamens. The ovary consists of 1-2 carpels which are connate; the ovary is superior with 1 pendant ovule/locule. The styles are stiff and persistent, which give the inflorescence a burr-like appearance and lead to the common name of burr-reed.

The flowers are wind pollinated, and the fruit, an achene-like like drupe, is dispersed by water and animals.

Economically the group is of little use, some species are planted as ornamentals in pond gardens and though the rhizomes are edible, they are rarely eaten.



Sparganium angustifolium

Scheuchzeriaceae—The Scheuchzeria family

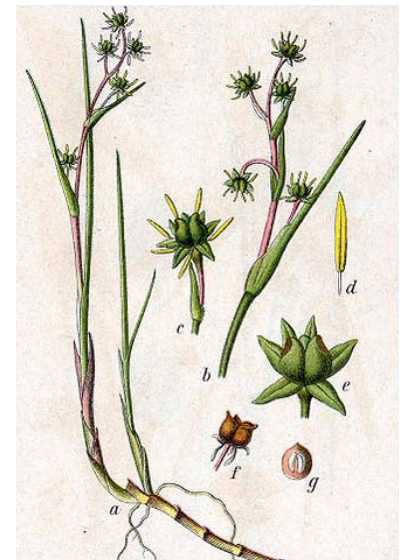
Scheuchzeria palustris is the only species in a monotypic family. *Scheuchzeria* is infrequently found in most cooler regions of the northern hemisphere. In North America it is found in all Canadian provinces, and 25 northern states plus New Mexico. It is considered endangered in Connecticut, Indiana, Massachusetts, New Jersey, Ohio, Pennsylvania, and Rhode Island; and threatened in Vermont. In Alaska *Scheuchzeria* is considered rare. It can be found locally in bogs or fens associated with *Sphagnum* and *Carex*.

Common names are a bit hard to find. The European common name is “rannock rush” from its type location on Rannock Moor in northern Scotland. New Englanders call it “pod grass”.

Taxonomically, the FNA (Flora of North America) places it in the order Najadales. Other members of this order include the arrow grasses (Juncaginaceae) pondweeds (Potamogetonaceae) and eelgrass (Zosteraceae).

Scheuchzeria is a semi-aquatic rhizomatous herb. It has alternate simple entire leaves. The leaves themselves are nearly cylindrical with a conspicuous sheath. Notably there is a prominent round pore near the leaf tip allowing identification of the plant without flowers. The flowers are perfect with 3 green sepals and 3 green petals, 6 stamens and 3 carpels. The latter are nearly distinct. Ovaries are superior with one locule and 2-many basal ovules per carpel. Styles are absent hence stigmas are sessile. The fruit is a cluster of follicles.

Linnaeus named the family and type genus for the Swiss naturalist Johann Jakob Scheuchzer (1672-1733). Scheuchzer began his career as a doctor and participated in most every venue of science and math during his lifetime, medical doctor, botanist, physicist and mathematician. His name honors mountains in Switzerland.



FROM WHAT WE GATHER

ANPS monthly meetings are always fun and educational! Have you been missing out? This month you are in luck, because Beryl Wardlaw has been willing to provide us with a review of some recent topics covered.

November 2008 – “The role of fungi and other organisms that live in and on plant roots” - Speaker: Professor Dave Ianson, UAA

Mycorrhizal fungi are so important to plants that the vast majority of vascular plants live in association with them and benefit from their presence, and even may depend on them for survival. Typically a few pioneering species, often invasive weeds that don't mind poor soil, are indifferent to their effects. Here is what Dr. Ianson told me:

“The average American does not take the time to realize just how vast and complex the subsurface ecosystem is. Our ancestors had more of a connection to the land but we kind of lost that with the "Green Revolution" and cheap fertilizer. Well now we realize that fertilizer is no longer cheap, so we are scrambling to grow more on less land. Native plants however, have a built-in system for survival (that being these beneficial symbioses).”

A dramatic example of the importance of mycorrhizae occurred after the eruption of Mt. St. Helens destroyed the nearby forests and rendered the soil sterile by the intense heat of the ashfall. The Weyerhaeuser forest products company donated thousands of seedlings for reforestation, but neglected to inoculate their roots with the required fungi. None of the seedlings survived.

In two situations studied, plants were able to recolonize fairly soon; both involved the reintroduction of mycorrhizae. One is where elk droppings fertilized the barren ground. The elk pull up the plants they eat root and all, so that their feces contain the fungi that live in association with the roots. The other instances were on gopher mounds. The gophers dug down deep to escape the heat. The layer of tephra was 200 feet deep in places, so they reached down far enough to bring up undamaged forest soil from their burrows.

The mycorrhizae belong to the crown fungi in the Fungus Kingdom. Fungi reproduce from spores. The Ascomycota produce their spores inside mother cells called asci. A more common group, the Basidiomycota, grow spores on the outside of cells. Not all of the fungi in these groups are mycorrhizae, but those that are form a mantle of fungal cells around plant roots, which makes it easier for the plant to absorb minerals from the soil. The fungi that form sheaths around plant roots are known as ectomycorrhizae. Another subdivision of the crown fungi, Glomeromycota, produce arbuscules, which are exchange sites between plant and fungus, and

fungus filaments called hyphae which in this case actually grow between the plant root cells. These are therefore known as Arbuscular mycorrhizae.

Dr. Ianson described a 1986 study by Allen and Allen of the role of fungi in providing greater access to water and minerals for the grass *Agropyron smithii*.

Legumes are an interesting case of symbiosis between plant and microorganisms. In this case a rhizobium bacterium forms nodules on the legume root in which it fixes nitrogen from the air into a chemical compound usable to the plant. The bacterium provides nitrogen to the plant in exchange for carbohydrates.

Dr. Ianson outlined some of the pros and cons of our relatively recent dependence on chemical fertilizers as opposed to traditional agricultural methods. There is no doubt that the artificial nitrogen fertilizers derived from petroleum work---in the short run. However, these methods are not sustainable, for several reasons. First is they use a non renewable resource: cheap oil. Chemical fertilizers are extremely energy intensive to produce. They are also not efficient. About half is lost to leaching and to deterioration known as denitrification. Only 40% gets anywhere near enough to the plant to be used. One of the most damaging effects is that these chemicals kill the organisms that naturally provide plants with nutrients. Natural soil is teeming with life. If these organisms die they no longer function to feed the plants and hold the soil together. Dust bowl conditions result where topsoil is blown away in the wind or washed down by rain. The nitrogen overloads the ecology of lakes and streams, depleting the oxygen supply.

Reintroducing mycorrhizae to depleted soils is not simply a matter of developing some super strain commercially for a one kind fits all kind of fix. Unfortunately the strains that work in a particular area have evolved over a long time and are very specifically adapted to local conditions. Dr. Ianson advises mining companies to save the soil they remove to reach the ores and use this as a source of the organisms relevant to local conditions when revegetating the mined out land.

It certainly is enlightening to realize how dependent native plants are on the soil organisms and that the food we eat will also depend on the health of the soil. Thanks Dr. Ianson for giving us some insight.

December 1, 2008 - Day Hikes in the Anchorage Area” Bob and Ann Fisher

The Eagle River Nature Center lies at the end of the road into the scenic Eagle River valley, housed in a log building that back in the seventies was a bar called Paradise Haven Lodge. Alaska State Parks has converted it into a visitor center, with interpretive displays and programs and a system of local hiking trails. When in 1996 this threatened to close from lack of funding, a small group of dedicated local nature lovers formed a non profit organization, Friends of Eagle River Nature Center, to help maintain the trails and continue the programs. Bob and Ann have been part of this effort for many years, leading informal hikes throughout the year, some for adults, some including families with children.

The main trail along the valley floor was part of a mushing route to the Iditarod mining District a century ago, following even older Denaina hunting trails. It leads into the valley from Crow Pass out of Girdwood at the end of Turnagain Arm. Hiking out from the Nature Center in the opposite direction involves only a gentle elevation gain and a well worn path with some spectacular scenery to reach the lake at the foot of Eagle Glacier. Near the Nature Center several shorter trails branch out. A favorite hike leads along the Albert Loop to the river bank and back through spruce and birch forest, crossing several little creeks with an active beaver population. Bob and Ann like to take a small group here on a moonlit walk. If you don't make too much noise you are likely to hear owls calling in their late winter courtship season. It is fun to end the hike

with a bonfire on the gravel bar. You might hear a wolf howl or the yip yip of coyotes. Another local hike leads 6 1/2 miles up the Iditarod trail and branches out through the woods to Dew Lake, nestled in a small hollow beneath Dew Mound. This hill in the middle of the valley was worn smooth by Ice Age glaciers, and the river makes a bend around it.

Bob and Ann also take groups out along other trails in the Chugach State Park. The route from McHugh creek has some splendid views over the tidal flats along Turnagain Arm, and lovely little flowers in springtime. Further out beyond the park other trails beckon. One is Lost Lake Traverse on the Kenai peninsula, leading up the side of Primrose Creek below Mt. Ascension. Service berry bushes abound. Kettle ponds pocket the forest. From the heights you can catch a glimpse of Resurrection Bay beyond Seward. Another of their trips starts by driving the Glenn Highway along the Matanuska river and then hiking up the Sheep Mountain area toward Gunsight mountain, (named for the notch at the peak.) Here you can find all sorts of alpine flowers in early summer. Anjanette Steer also leads a hike every summer from Sheep Mountain Lodge for the Alaska Native Plant Society.

To find out about upcoming hikes visit the Nature Center's website <http://www.ernc.org/default.html>
Thank you Bob and Ann for sharing your appreciation of our local treasures in South Central Alaska's scenery.

January 5, 2009 : ‘Trekking in the Land of the Blue Poppy’ – Ginny Moore

Ginny Moore has had the great fortune to trek all over the Himalayan country of Nepal, on numerous trips from 1970 and 2007. Nepal is a tiny country about the size of Alabama but it is home to over 6500 native plants. The country rises from a narrow strip of jungle in the south through the middle hills and up to the towering peaks, including Mount Everest.

Nepal is incredibly diverse. In one country there is hot lowland jungles, deciduous forests filled with oak, birch and alder, valleys full of rice terraces, alpine meadows, vast, icy peaks and high-altitude deserts above the reach of the monsoon. This means there are as many ecosystems and the amount of different animals and insects is breathtaking. Most people trek in the middle, hill country, at elevations 3,000-10,000 feet.

Throughout the year there are botanical delights at every elevation, but the best seasons to trek are fall and spring. October is post monsoon time, thus the countryside is lush green, with excellent visibility and generally balmy temperatures. In February, temperatures are a little cooler, particularly at the higher altitudes. The land is dryer and the visibility may not be quite so good, but by April flowers begin to bloom, adding wonderful color to the landscape. The best time to see flowers in bloom, however is during monsoon season, but then you have rain and leeches to contend with, as well. In the Himalayas, generally, the lower part of the alpine zone is a summer grazing-ground with meadows bright with alpine flowers including the famous blue poppy, as well as other *Meconopsis species*, *Saxafraga*, *Pedicularis*, *Primula*, *Gentiana*, *Saussurea*, *Corydalis*. Most of the genera found in alpine Nepal are common in arctic regions of the northern hemisphere. There are many international and local threats to the plants of Nepal, from global warming to tourism.

MYSTERY PLANT ANSWER
Cassiope hypopodioides
Ericaceae/Heath family

Upcoming Botanical Events

An Introduction To Botanical Art

February 27th, 6:30 pm Join Linda Vorobik (see below) for a show of her work, reception, and introductory lecture on An Introduction to Botanical Art. Sponsored by the Alaska Botanical Garden

Drawing and Painting from the Garden: Understanding Plants and Flowers

Saturday February 28th 7-9p Z.J.Loussac Library; AMGA Winter Lecture Series- Linda Ann Vorobik, professional Botanist and Botanical Artist for over 25 years, looks at plants and flowers from the garden from the perspective of drawing and painting them. As gardeners, we all celebrate the great diversity of form and color of plants; Linda, through images from plants from her mother's garden, other's gardens, as well as Alaskan wildflowers, discusses how to understand form and color from her perspective as a botanist and as an artist, and suggests what one might do to start sketching garden plants with a minimum of supplies, and in a way that is comfortable, enjoyable, and hopefully, successful!

Tree Anatomy 101 March 23: Marilyn Barker for Treerific - Anchorage Senior Center

Anchorage TREErific is a community group with a mission: Enriching our community through the planting, caring, and promotion of trees. TREErific volunteers meet monthly for educational presentations or activities and to plan and sponsor tree planting or maintenance projects. For information or to be added to the e-mail distribution list for notice of events, contact treerificAnchorage@yahoo.com.

BIOL A075 Local Flora 1 CR (Pass/Fail) May 6-27 Wed Morning section 8:30- 12:15, Evening section 6:00-9:45

Wednesdays. Most classes will be out of doors.

Join Marilyn Barker in a study of wild flowers and plants in the surrounding locale with emphasis on use and identification. May include preparation of pressed plant specimens and field trips. Contact: UAA to register for this spring semester class.

CALLING FOR FIELD TRIPS

It's that time of year again - time to "Think Summer" - as in "Field Trips"!

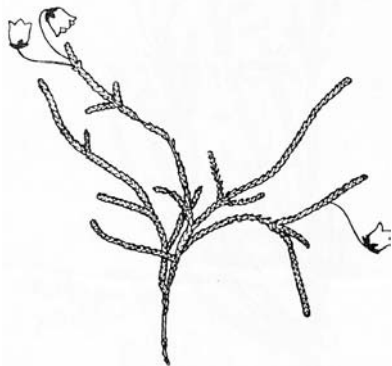
It is time to start planning this summer's field trips so that all members can arrange their own summer plans accordingly, especially if trips require extra time or money, or a limit on how many can attend. Our outings are ALWAYS fun, no matter what size the group, or whatever the weather. There have been many memorable trips. Let's make this a memorable year.

On the next page you'll find the standard Field Trip Planning Worksheet and once again we're asking you to get all excited about taking a group of plant lovers to one of your favorite places to enjoy the summer bounty.

All members are encouraged to submit field trip proposals. Preliminary proposals for field trips should include the following: 1) your name and email address, 2) title of the field trip, 3) name(s) and contact information for all organizers, 4) a brief description of the field trip, 5) preferred day(s) of the field trip, 6) special needs, 7) enrollment limit and 8) tentative budget (e.g., travel and food items; estimated cost per participant). It would be great if we could have the whole slate of summer activities lined up by the end of April! **PLEASE RETURN THE FIELD TRIP FORM TO ANJANETTE STEER BY APRIL 15.** E-mail: anj@ak.net, Tel: 1-907-745-5121
Slow Mail: 17701 W. Glenn Hwy, Sutton AK 99674.

MYSTERY PLANT

This is a very low, sprawly evergreen shrub found on rocky alpine mountains of the Aleutian chain, southern Southcentral Alaska (especially coastal mountains) and Southeast Alaska. It is often overlooked because of its size and locations. The tiny evergreen leaves are tough and scale-like, imbricate (stacked, like tiles on a roof) and hug close to the thin stems. The small white bell shaped flowers have 5 petals, they are on long, slim rather frail stems arising from between the tightly packed leaves. The seeds are very small and enclosed in a hard capsule.



Bring Warmth to These Cold Winter Evenings!

LABRADOR SPRUCE TODDY

2T Labrador Tea leaves
 Generous double handful spruce tips
 4C boiling water
 4T brandy or cognac

Place Labrador tea leaves and spruce tips in teapot, add boiling water and seep 5-10 minutes. Strain. Pour into mugs and add 1T brandy or cognac per mug.

from National Wildlife Federation
 People and Nature--www.nwf.org



Borealis
 the newsletter of the



ALASKA NATIVE PLANT SOCIETY

State and Anchorage Chapter Officers

President	Mel Langdon	
Vice President	Ken Johnson	562-9787
Sec/Treasurer	Beryl Wardlaw	698-3385
Treasurer	Bernadine Raiskums	333-2399

Anchorage Chapter Program Coordinators

Membership	Verna Pratt	333-8212
Plant Family	Marilyn Barker	333-0602
Mini-Botany	Ken Johnson	562-9787
Field Trips	Anjanette Steer	(907)745-5121

Newsletter ("Borealis")

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Borealis is published bi-monthly October through May. Articles may be sent to Ginny Moore, 14530 Echo Street, Anchorage, AK 99516. Phone or FAX: 345-1355, E-mail: tgmoore@gci.net

ALASKA NATIVE PLANT SOCIETY FINANCIAL STATEMENT

	12/31/2008	12/31/2007
Beginning Cash Balance	\$6,068.47	\$6,257.68
Receipts		
Membership Dues	\$1639.50	\$1,416.00
Sale of Prints	\$54.00	\$61.50
Sale of Books	\$42.20	\$97.50
Sale of Decals	\$1.00	\$0.00
Sale of Stickers	\$3.75	\$0.75
Sale of Patches	\$3.00	\$5.00
Sale of Seeds	\$97.50	\$84.00
Donations	\$57.25	\$26.00
Total Receipts	\$1,898.20	\$1,690.75
Disbursements		
Newsletter, Printing	\$754.65	\$493.14
Postage		
Administrative Supplies, Postage	\$77.50	\$233.78
P.O Box Rental	\$128.00	\$196.00
Room Rental CCSC	\$700.00	\$600.00
Refreshments	\$44.49	\$74.49
Website	\$198.00	\$0
Donations/Scholarships	\$200.00	\$400.00
Bank Fees	\$30.00	\$30.00
Checks	\$0.00	\$40.85
Total Disbursements	\$2,132.64	\$2,068.26
	(\$234.44)	(377.51)
Year-end Balance	\$5,834.03	\$6,068.47

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

- | | | |
|--------------------------|-------------------|------|
| <input type="checkbox"/> | Full-time Student | \$12 |
| <input type="checkbox"/> | Senior Citizen | \$12 |
| <input type="checkbox"/> | Individual | \$15 |
| <input type="checkbox"/> | Family | \$20 |
| <input type="checkbox"/> | Organization | \$30 |

Name _____

Address _____

City: _____ State _____ Zip _____

Telephone: (Home) _____ (Work) _____ E-Mail: _____

Membership is on a calendar year basis.

NOW IS THE TIME TO RENEW YOU MEMBERSHIP FOR 2009!!

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