

Borealis

the newsletter of the



P.O. Box 141613 Anchorage, Alaska 99514

March 1993

Anchorage Chapter News

The March meeting of the ANPS Anchorage Chapter will be held Monday, March 1st at 7:30PM in the First Congregational Church at 2610 E. Northern Lights Blvd. Please use the entrance at the rear of the church.

Carolyn Parker will present a program on the botanical inventory currently being conducted on Afognak Island and the surrounding area. Her program, "Where in the Heck is Shuyak?", subtitled "Botanizing the Emerald Islands", will describe the effort being made to assess the natural and archeological resources found on the Afognak Native land with an eye toward future management and land sales. She will introduce the area, including its history, the major vegetation types and the flora characteristic of each. A slide presentation will aid in discussion of the taxonomic, botanical and historical studies and problems found there.

Plant Family - Saxifraginaceae

The saxifrage plants discussed this month have cordate (heart-shaped) leaves with coarse teeth and long stems. All have small white flowers on tall stems. They

include Brook Saxifrage, *Saxifraga punctata*, and Bulblet Saxifrage, *S. cernua*, both common in wet alpine areas or stream beds. Others are *S. spicata*, *S. nudicaulis*, *S. rivularis*, *S. bractata* and *S. mertensiana*. *S. exilis* has larger flowers. Virginia Moran will present this program.

Arizona Native Plant Society 1993 Annual Meeting

On March 13 and 14, the Arizona Native Plant Society will meet in Yuma, Arizona to present information about the ecology of the Lower Colorado River region. A winter meeting is scheduled to take advantage of the interesting plant life in the Yuma area during the cool season when flowers should be in bloom. This region offers a fascinating diversity of habitat, from dunes to arid mountainous areas to a lush marsh with numerous rare species. Non-members are encouraged to attend. For more information, see the flyer included with this newsletter or contact:

ANPS Annual Meeting

Hereford, AZ 85615

Mystery Plant

Our mystery plant is something of a change in late fall when most plants have died back to pods and stalks only. It is quite common in wooded regions in much of Alaska and is very fragrant.



BOREALIS - The Newsletter of the Alaska Native Plant Society

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Editor - Lynne Balogh
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Borealis is published monthly except for June, July, and August. For information on how to join the Alaska Native Plant Society or to send questions, comments and articles, please contact:

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

Alaska Botanical Garden Update

After ten years of volunteer dedication, the Alaska Botanical Garden is finally evolving into a place to learn about plants and the environment around Anchorage. In the summer of 1992, irrigation pipe was laid under the existing army tank trail and openings in the woods for the gardens and the nursery holding area were cleared. A beautiful nature trail winding through old-growth spruce and second-growth birch forest was created by teenagers from Alaska Children's Services.

This summer, the goal is to complete the two gardens, the nature trails, add identification and interpretive signs, install an entrance gate to help prevent vandalism and to place six donated benches.

The first garden will consist of native and exotic perennials. The second garden is called a demonstration garden and will display many types of plants, settings and construction techniques suitable to Southcentral Alaska.

Along the nature trail, interpretive signs will identify native plants and their habitats, site history and geological features. As progress on the Botanical Garden continues, the nature trail system will move south through the 110 acre site. Only five acres north of the dog mushing trail are currently under development.

Access to the Alaska Botanical Garden is off Campbell Airstrip Road which turns south from Tudor Road. Park in the Benny Benson Secondary School parking lot and walk south across the driveway into the garden. For more information, contact Debbie Hinchey at

A Discussion of Plant Rarity

January's newsletter featured a fern listed as endangered by the U.S. Fish and Wildlife Service (Service), the Aleutian Shield Fern (*Polystichum aleuticum*). Currently, only 112 plants are known to exist on Adak Island within a fairly restricted habitat. A primary task of the Service's Endangered Species Program is to evaluate the causes contributing to species rarity and while recognizing the Aleutian Shield Fern as a "rare" plant seems pretty clear cut, there are many factors that come into play with the term "rare".

Just like the word "natural", the definition of "rare" is sometimes in the eye of the beholder. So how does one determine true rarity?

Soule (1983) identifies two types of rarity:

intrinsic or "built-in" rarity: the species distribution is determined by the presence or absence of a naturally occurring variable in its environment it must have for survival, such as a particular type of soil, geological substrate, moisture regime, pollinator, fungus or symbiont. (For example, *Smelowskia pyriformis* of the upper Kuskokwim River drainage grows in calcareous substrate (Murray and Lipkin, 1987). The presence or absence of this variable is often referred to as the **limiting factor** in its distribution. If a species is highly localized in its distribution, it is referred to as an **endemic**. Not all endemic species are rare and not all rare species are endemic Hultén (1968) lists 80 endemic species for Alaska.

An endemic Aleutian Island species is the Aleutian wormwood or *Artemisia aleutica* that occurs on fellfield habitat of

the Kiska and Rat Islands (Murray and Lipkin, 1987). Another endemic species is *Rumex krausei* found near Cape Thompson and near the tip of the Seward Peninsula (Murray and Lipkin, 1987).

Many of Alaska's known rare plant species fall into the category of being intrinsically rare.

extrinsic rarity: something outside the species' immediate biological needs that influences its distribution. We most often associate these types of impacts with human induced-activities, such as development, strip mining, road construction, the continuous exposure of a species to a toxin (water or air pollution), but it can be "abiotic" such as a severe storm, earthquake or other natural catastrophic event. Natural catastrophic events may not always have adverse impacts on a species, however, in cases where a population is small in number and limited to a small area, catastrophic events can eliminate the whole population and possible the species.

The Endangered Species Act requires the Service to evaluate the threats to species based on five factors:

- a.) the present or threatened destruction, modification, or curtailment of a species habitat or range;
- b.) over utilization for commercial, recreational, scientific or educational purposes;
- c.) disease or predation;
- d.) the inadequacy of existing regulatory mechanisms;
- e.) other natural or manmade factors affecting its continued existence.

As you can see by looking over the five factors, all of them relate to the presence

of some type of past, present or future threat.

The type of threats the Act targets to reduce or protect species from are mainly extrinsic threats. However, it is important to note, as always, that nature does not adhere as tightly to our definitions as we do and when analyzing "threats" biologists must always attempt to analyze the threat on three levels: the individual biology of the species; its habitat; and the species as a component of a larger ecosystem. These factors interrelate and threats may exist for a species in all three areas and comprise both "extrinsic" and "intrinsic" threats.

In 1981, a plant population biologist by the name of Deborah Rabinowitz defined seven types of rarity as shown below. (Figure 1 was taken from the article "Seven Forms of Rarity". See D. Rabinowitz, 1981.)

GEOGRAPHICAL RANGE	Large		Small	
	Wide	Narrow	Wide	Narrow
HABITAT SPECIFICITY				
LOCAL POPULATION SIZE				
Large, Dominant somewhere	Locally abundant over a large range in several habitats	Locally abundant over a large range in a specific habitats	Locally abundant in several habitats by restricted geographically	Locally abundant in a specific habitat but restricted geographically
Small, non-dominant	Constantly sparse over a large range and in several habitats	Constantly scarce in a specific habitat but over a large range	Constantly sparse and geographically restricted in several habitats	Constantly scarce and geographically restricted in a specific habitat

The general variations of the seven types of rarity include species with large ranges that occur in scattered or restricted location within their total range, to species that have a narrow range but may occur in abundance in suitable habitat. Many intrinsically rare species fit into this category.

What are the questions that need to be answered in order to establish baseline data for determining species rarity?

1.) Has potential habitat been identified?

- 2.) What amount of the potential habitat has been searched?
- 3.) How many populations are known (naturally occurring or created from a fragmentation event, such as a road?) How many individuals exist?
- 4.) What is the known total area of the population and distribution pattern of populations?
- 5.) What are the causes of mortality? (Often times long-term demographic studies are required to determine causes of mortality.)
- 6.) What are the past and present impacts?

Another important aspect of determining rarity is what Rabinowitz refers to as "observer bias" (1985). However, this was discussed in 1793 by the botanist renowned for collecting within the Appalachian Mountains, Andre Michaux, in which he commented:

"I shall take this opportunity of observing that in North America, perhaps more so than in Europe, there are plants which are peculiar to certain determinate spots, hence it happens that one botanist, not withstanding all his zeal and activity, does not discover them till after a search of several years; while another at a fortunate moment will meet them in his first excursion." (Michaux, 1797.)

The definition of "rare" is based on the information that constitutes baseline data. If the data is constantly being collected, the definition of "baseline" and "rare" will no doubt change. In 1986, just one week before I was to present the results of my thesis research on my "rare" plant to the ecological Society, a fellow botanist discovered a population of my "rare" plant (10,000 plus) in a remote

hollow in southeastern Ohio! The species' ranking was changed shortly thereafter to indicate a lower level of rarity. That was a direct example for me of the dynamic nature of the definition of "rare".

One must also remember that the location of "rare" plants often times mysteriously corresponds with where botanists have been. This is related to the accessibility of the area and the botanist's finances! (I have yet to meet a botanist who was featured in Forbes magazine because he/she got rich botanizing!)

Additionally, "rarity" is defined within the context of the human life span. What is "rare" to us now may have been around 10,000 years ago.

As you can see, the definition of "rare" is indeed based on many factors. Most important is the need to gather information about known rare species continuously in order to ascertain an accurate picture of what may or may not be rare! All amateur and professional botanists share in this responsibility. Should you have information about a rare plant, you can contact me at the Fish and Wildlife Service:

Virginia Moran, Listing
Coordinator/Botanist
U. S. Fish & Wildlife Service
Division of Ecological Services
1011 East Tudor Road
Anchorage, Alaska 99515
(907)-786-3562

In summary, seldom is the designation of a species as "rare" an all-inclusive and absolute finding. In order to best protect and manage species and their ecosystems, human beings are inherently tied to nominalism; having to define and

delineate components of nature; but nature has its own set of "definitions" and ultimately, these are the ones we end up using.

References cited:

- Michaux, A. 1797. Journal of Andre Michaux, 1793-1796. From the French London. Printed for R. Phillips. Reprinted by Cleveland, 1904.
- Murray, D. F. and R. Lipkin, 1987. Candidate Threatened and Endangered Plants of Alaska. University of Alaska Museum, Fairbanks, Alaska.
- Rabinowitz, D. 1985. Biologists Attitudes Towards Rare Species. Plant Science Bulletin 31:41-42.
- Rabinowitz, D. 1981. Seven forms of rarity. The Biological Aspects of Rare Plant Conservation. Edited by H. Synge. pages 205-219.
- Soule, M. E. 1983. What do we really know about extinction? Genetics and Conservation. C. Schonewald-Cox, S. Chambers, B. MacBryde, and L. Thomas. Benjamin/Cummings, Menlo Park, California. pages 111-124.

Donations Needed

A small non-profit educational organization in McCarthy, Alaska wants to obtain two used copies of Hultén's Flora of Alaska. Donations are tax-deductible, although the organization is willing to purchase. Please call 563-6642 and leave a message with Jenny.

Mystery Plant Answer

At the very least you should have been able to pinpoint this as one member of the grass family (Graminaceae). The

fragrance of this small plant gives *Hierochloe odorata*, one of the holy grasses, its common names of sweetgrass or vanilla grass. -- Contributed by Richard (Toby) Tyler.



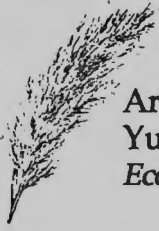
Just A Reminder...

WHATEVER YOUR EXCUSE MAY BE ...

- the dog ate it
- the postman never delivered it
- I threw it away
- I forgot about it ...

if your expiration date is circled in red on your mailing label -- we haven't heard from you. We hope to hear from you soon! This is the last reminder we will send you.





Arizona Native Plant Society 1993 Annual Meeting - March 13 - 14
 Yuma, Arizona, at the Shiloh Inn
Ecology of the Lower Colorado River Region



Saturday Talks

Dr. Richard Felger will tell us about the flora of the Lower Colorado Region, including the rich delta region at the mouth of the Colorado in Mexico - the Cienega de Santa Clara.

Gary Farrier, Bureau of Reclamation biologist, will talk about revegetation of back-water areas of the Colorado River.

Dr. Robert Ohmart, Arizona State University biologist, and Scott Mills, biologist with SWCA, Inc. will talk about riparian habitat restoration along Colorado River floodplains.

Umberto Suzan, Arizona State University biologist will talk about the effects of wood-harvesting on ironwood (*Olneya tesota*) in the Arizona-Mexico border region.



Peter Warren, Arizona Nature Conservancy, will talk about threatened, endangered and rare plants of the lower Colorado River dunes.

Dr. Steven McLaughlin will talk about floristic issues of the Lower Colorado desert region.

and we'll hear about the Cabeza Prieta region and its vegetation.

Dinner will feature Anita Alvarez speaking about

Ethnobotany of the Cocopah Indians and their widespread utilization of Indian Wheat.

The board has scheduled a winter Annual Meeting this year, in order to meet in Yuma to experience its interesting plant life in the cool season when flowers should be in bloom. Next year's Annual Meeting will be in the summer or fall of 1994.

Sunday Field Trips

Santa Clara Cienega - David Ortiz and Richard Felger will lead a field trip to the Santa Clara Cienega in the delta region of the Colorado River in Mexico. This is an all-day trip, with minimal walking. Be prepared to get wet.

The Sand Dunes - Steve McLaughlin will lead a trip into one of the dunes near Yuma. If we are lucky, a large bloom will be present. We will be hiking in the dunes. This is a 3-4 hour trip.

Kofa Mountains - Ron Kerns, manager of the Kofa National Wildlife Refuge will lead a trip into Palm Canyon. This will be a 4-5 hour trip, with some rugged hiking.

Colorado River Backwater Area - Gary Farrier will lead a trip to one of the backwater areas along the river to an area where the Bureau of Reclamation has been restoring riparian habitat. This short trip will be planned so that people going on another trip may visit this area briefly first. 2 hours, not much walking.

Registration Form

Registration \$16 per person ____
 (including lunch Saturday)
 Registration \$24 per person ____
 (including lunch and dinner)
 Dinner only \$12 per person ____
 (guests and family)
 Children ____
 (half price under age 12)
 I (we) prefer vegetarian meals ____
 Total enclosed \$ ____

Field trip preferences:

- Santa Clara Cienega
- Dunes
- Kofa
- Cabeza Prieta
- Backwater Areas

You are free to change your mind about trips, but we need an indication of trip popularity for planning purposes. Please note any one person can take only one trip, except for the Backwater trip can be integrated into other trips.

All trips are subject to the vagaries of weather. Meeting place instructions will be provided at the meeting. You must provide your own lunch and plenty of water.

Please return the registration form by March 5, 1993.

Late registration is only possible by special arrangement.
 (Continued on reverse side.)

Registration Form Continued

Please send me information about local hotels. (You must make your own reservations. Reserve early. This is the height of Yuma's tourist season.)

Please send me information about camping, including backcountry camping suggestions.

Name(s) _____
 (Please give full names of everyone registering, so name tags can be made.)

Address _____

City _____

State _____ Zip _____

Mail to

ANPS Annual Meeting
 c/o The Stallcups
 6469 Calle de la Ceraza
 Hereford AZ 85615

by March 5. When we receive your registration, we will mail directions to the hotel and further information if requested. If you don't make this deadline, call Nancy or Larry Stallcup at _____ for special arrangements.

Ecology of the Lower Colorado River Region



This region offers a fascinating diversity of habitat, from dunes to arid mountainous areas to a lush marsh with numerous rare species. The region has changed drastically in many ways in historic times. Come hear talks about the flora of these areas and attempts to revegetate stretches of the Colorado River. Join us on a field trip to a marsh, a dune, a revegetated section of the Colorado River or a mountainous place. Non-members are encouraged to join us.

ALASKA NATIVE PLANT SOCIETY
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