Borealis

the newsletter of the

Alaska Native Plant Society

PO Box 141613, Anchorage, Alaska May 2006

Join us at our Next Meetings!

Monday, May 1, 7:30 p.m.

Campbell Creek Science Center

"Palmer Hay Flats State Game Refuge: Landscape Tapestry of Interwoven Elements"

Speaker: Kris Abshire

Plant Family Study

***Kobresia*, and *Carex*: The Sedges**

Presenter: Anjanette Steer

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Start Planning For Summer Field Trips Now!

Stay Up-To-Date on all of the summer activities by checking our very own web site: www.aknps.org.

There you'll find information on field trips, meetings, work parties and plant sales!

Be Garden-Wise This Summer

Whether you are looking for new and exciting plants to add to your garden, or to replace invasive plants in your yard, there are some new resources available to help you.

While most exotic plants are not problematic, a few have become invasive in Alaska. When these plants spread to wild areas, they cause serious problems. Invasive knotweed, Orange Hawkweed and Bird Vetch are among a growing number of plants that are changing our stream and river banks and altering our forests. The most efficient way to reduce the spread and impact of invasive species is to prevent their introduction.

Visit **www.cnipm.org** to learn about Alaska's "Voluntary Codes of Conduct," a series of steps that nursery professionals, landscape architects, gardeners, and others can take to help curb the spread of invasive horticultural plants. There's a lot more on this site, too!

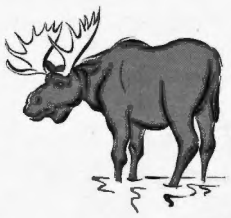
The Washington State Nursery and Landscape Association and the Invasive Species Coalition have information for gardeners in a new booklet "Garden Wise" and on their Web sites. Find out more and download the booklet which provides recommended alternatives at: www.invasivespeciescoalition.org and www.wsnla.org. While not all of their recommendations are relevant to Alaska, many do include Alaska natives. Here are some of their recommendations:

Invasive: Purple Loosestrife (*Lythrum salicaria*) & Garden Loosestrife (*Lysimachia vulgaris*) are common additions to flower gardens. They are a major threat to wetlands because of their ability to tolerate saturated soils and spread rapidly into non-disturbed areas. Purple loose strife is notorious for forming uniform stands; it crowds out all native plants and reduces wetland habitat. Garden loose strife is a new, serious concern as it has been observed outcompeting noxious purple loosestrife in Washington State wetlands. *It has not yet been reported growing wild in Alaska but is grown in Alaska gardens and sold in nurseries and seed catalogs. It is included in "Invasive Plants of Alaska" because of its tremendous destructive potential.*

Recommended Alternatives: *Liatris spicata, Ligularia wilsoniana, Agastache foeniculum, Hebe 'Purple Picture', Lobelia cardinalis, Mimulus guttatus, M. lewisii, Penstemon species, Prunus tenella, Coreopsis grandiflora, Caryopteris incana*

(Continued on page 2)

Opposing Effects of Native and Exotic Herbivores on Plant Invasions



Moose, Snowshoe Hares Working To Eradicate Invasive Exotics

Although conventional wisdom suggests that invasive exotic plants thrive because they escape the natural enemies that kept them in check in their native ranges, a new study in the journal *Science* suggests the opposite.

Exotic plants that are in the presence of their natural enemies actually do better in their introduced ranges. The research from the Georgia Institute of Technology appears in the March 10, 2006 issue of the journal Science, published by the AAAS, the science society, the world's largest general scientific organization.

Each year, invasive exotic species cause an estimated $120 billion in damage in the United States, not to mention the untold amount of harm they do to the structure and function of native ecosystems. In this latest study, researchers found that exotic herbivores, including cattle, rabbits and goats introduced by Old World explorers, can encourage the spread of invasive exotic plants -- increasing their relative abundance by nearly 70 % over native plants.

"Exotic herbivores may facilitate the growth of exotic plants byselectively consuming native plants, potentially freeing resources for exotic plants that can resist these herbivores," said John Parker, graduate researcher in the School of Biology at the Georgia Institute of Technology.

Parker, along with Professor Mark Hay and fellow graduate student Deron Burkepile, analyzed 63 published studies of more than 100 exotic and 400 native plant species. In addition to finding that exotic plant eaters increased the percentage of exotic plants in a community, they found that exotic plant eaters also increased the richness and variety of exotic plants.

They also found that native herbivores, once thought to have little effect on exotic plants, are far more effective in reducing their number. They decreased the relative abundance of exotics by 28 percent and the absolute abundance by 15 percent.

"These findings were interesting to us because, on most continents, many of the resident herbivores have been hunted to extinction by early settlers, often times to make room for their own domesticated and feral herbivores from the old world," said Parker.

He also noted that this radical shift in herbivore composition may favor exotic plants over natives.

Recent research, including a paper authored by Parker in Ecology Letters last year, suggests that native herbivores actually prefer to eat exotic plants over native plants. This research proposes that since the exotic plants haven't yet adapted to the threats posed by native plant eaters, they may not have the right defenses and are often easier prey than the native herbivores' usual meal.

Moreover, most previous assessments of this "natural enemies hypothesis," have focused on the effect that specialized insects have on plants. However, Parker notes that insects commonly reduce plant growth and biomass, but vertebrate herbivores are often larger and thus more commonly kill plants outright. Because of this, vertebrate herbivores often have a stronger impact on plant communities.

The study's findings have serious implications for conserving ecosystems and reducing the economic damage that invasive exotic species cause.

"Restoring native vertebrate herbivores to their natural ranges, while reducing the number of exotic herbivores, could be an effective tool in reducing invasive exotic plants," said Parker.

Carex and *Kobresia*

By Allen Batten

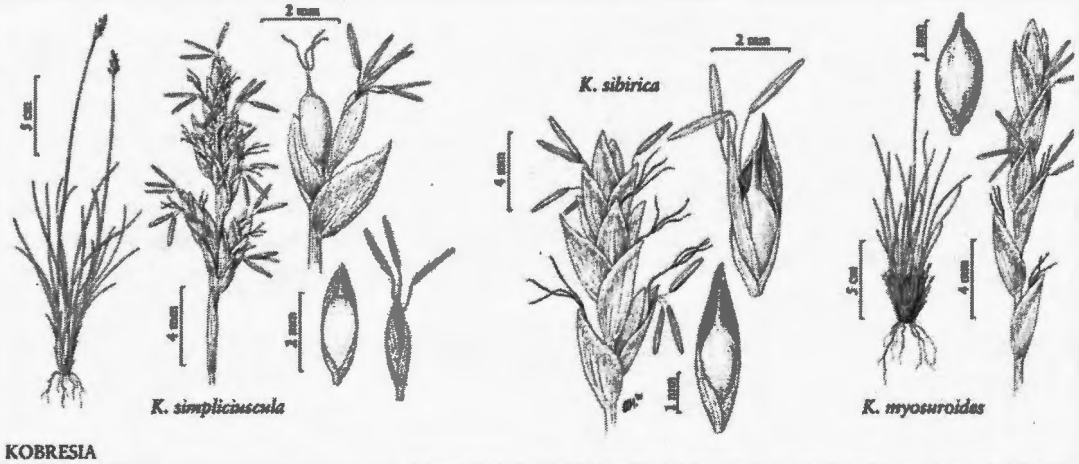
Carex is one of the largest genera of vascular plants, with roughly 2,000 species worldwide. It is most diverse and abundant in temperate, boreal and low arctic regions. Alaska's flora includes 120 species according to Hultén's 1968 flora. *Kobresia* is primarily an Asian genus, but 3 species reach North America in our arctic and subarctic regions and in the western mountain systems.

Carex and *Kobresia* are closely related genera in the family Cyperaceae. Flowers in all the Cyperaceae are strongly reduced in that the petals and sepals of the typical flower have either been lost completely or reduced to bristles. Instead of a perianth, specialized bracts subtend or surround the flowers. In these two genera, unique among Alaskan Cyperaceae, this reduction is carried even farther in that their flowers are unisexual, each individual flower consisting of either stamens or a pistil. Most species of these two groups are monoecious: one "household" with male and female flowers in different places on the same plant; a few are dioecious: two "households" with male and female flowers on different plants. All species of both groups are perennials, though some species of *Carex* may be short-lived. All are also rhizomatous, though some plants have rhizomes that are quite short and are described as tufted in many floras.

In addition to having unisexual flowers, *Carex* and *Kobresia* are differentiated from other Alaskan Cyperaceae in having a bract modified into an urn shape (perigynium) which surrounds the female flower. In *Kobresia* the perigynium is open on one side, but in *Carex* it is completely closed except for a small opening at the top through which the style and stigmas protrude. In *Carex* the unisexual flowers are grouped into one or more spikes. The spikes may be sessile to the flowering stem and held erect, or they may be drooping at the end of long peduncles. In any case, the male and female flowers are separated spatially from each other. Usually they are on different spikes or confined to opposite ends of the same spike. When both male and female flowers are present on one spike the spike is said to be gynaecandrous if the female flowers are at the far end (top) of the spike, and androgynous if the staminate flowers are at the far end. In extreme cases, like *Carex scirpoidea*, male and female flowers are on different plants,

Although Kobresia also has unisexual flowers the staminate (male) flowers are in close proximity to the female flowers throughout the spike. If you can see both stamens and stigmas sticking out from the same subtending bract and if the ovaries are enveloped in perigynia, then you must be looking at a *Kobresia* (a hand lens helps a lot for this). All three Alaskan *Kobresias* are densely tufted, with densely packed stem and leaf bases. *K. myosuroides* and *K. sibirica* occur in meadows on well-drained alpine slopes and provide excellent forage for Dall sheep. *K. simpliciuscula* usually occurs in marly wet meadows at the bases of calcareous slopes.

Species of the genus *Carex* occupy a wide range of habitats, from sites with a meter of standing water to very dry sites, and in substrates ranging from organic-rich muck to rocky coarse mineral soils. Most Alaskan species require partial to full sun; they are rarely if ever found in dense forest. Sedges are very important components of the ecosystem, especially in northern environments. Some of them are important sources of food for mammals large and small and for waterfowl. They also provide habitat for huge numbers of invertebrates that ultimately support our wildlife populations. Many sedges are important components of wetlands whose value in storing and filtering water and in recycling nutrients are well-known.

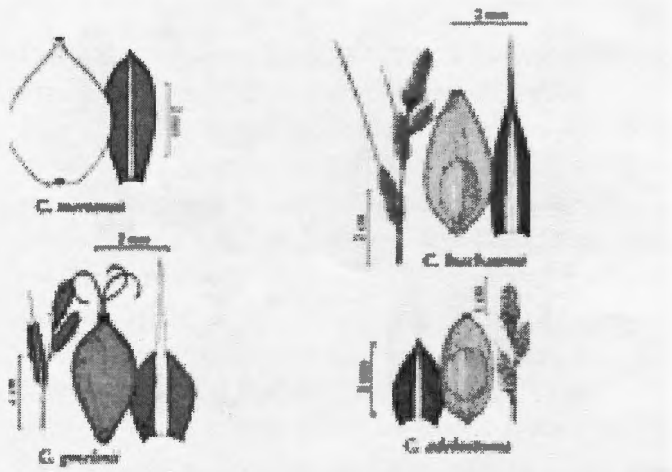


KOBRESIA

Illustration from Flora of North America (www.efloras.org)

Carex utriculata (Northwest Territory sedge, including most of *C. rostrata* in the sense used by Hultén 1968) is a very large sedge growing in deep water on the edges of sloughs and oxbows. *Carex mertensii* (Mertens sedge) is a showy and handsome sedge (see Hultén's color section, where it is mislabeled as *C. gmelinii*) characteristic of forest openings such as trail and road margins. *Carex lyngbyei* (Lyngbye's sedge) forms pure stands in coastal marshes from the Bering Sea to Puget Sound. *Carex scirpoidea* (northern singlespike sedge) and *C. microchaeta* (smallawned sedge) are common on well-drained alpine slopes. The former is easy to recognize in that it has a single spike and is dioecious. *Carex podocarpa* (short-stalk sedge) is common in moist sheltered hollows and ravines in alpine and subalpine settings. *Carex pauciflora* (few-flowered sedge) is common in bogs and is easily recognized by the narrow pointy perigynia that are reflexed and pointed backwards down the stem at maturity. *C. canescens* (silvery sedge) is also common in acidic wetlands. *Carex bigelowii* (spruce muskeg sedge, including *C. lugens* recognized by some authors) dominates vast areas of muskeg and poorly drained tundra. *C. aquatilis* (water sedge) is characteristic of wet sedge meadows in both forest and tundra regions and, along with *Eriophorum angustifolium*, dominates vast areas of the Arctic Coastal Plain.

Carex aquatilis



References:

1. Hultén, Eric. 1968. Flora of Alaska and Neighboring Territories. Stanford University Press. Stanford. 1008 pp.
2. Tande, Gerald and Robert Lipkin. 2003. Wetland sedges of Alaska. Alaska Natural Heritage Program, ENRI, UAA. Anchorage, 138 pp. (http://aknhp.uaa.alaska.edu/aksedges/)

Flora of North America Editorial Committee (eds.) 2002. Flora of North America North of Mexico, Vol. 23. Magnoliophyta: Commelinidae (in part): Cyperaceae. Oxford University Press, New York. 608 pp. (http://www.fna.org/)

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BE GARDEN-WISE (Cont. from Page 1)

Invasive Plant: Ornamental Jewelweed (*Impatiens glandulifera)* has pink-to-purple flowers and is unusually tall for an annual plant, reaching a maxi mum height of 10 feet. A garden escapee, this prolific, self seeding plant has heavily colonized lowland riparian areas, including forests, stream banks, and roadside thickets, where it dominates native plant communities. This plant produces large quantities of nectar, drawing pollinator bees away from native plants and thereby reducing the ability of the native species to reproduce. Already considered a serious problem in Great Britain, it is still often illegally exchanged amongst garden groups here. *In Alaska, patches of ornamental jewelweed have been found outside of cultivation in Juneau and Anchorage, and an acre-sized infestation was documented in a beach meadow in Haines.*

Recommended Alternatives: *Linum perenne, Mimulus guttata, M. lewisii,*

Invasive Plant: Knotweeds: Polygonum species (Giant, Bohemian, Himalayan, & Japanese) Feathery white flower heads, large foliage, and tall, bamboo-like stems once made this group of knotweeds popular as garden ornamentals. Native to Asia, knot weeds have become a serious problem worldwide and are increasingly prevalent in Alaska. They rapidly invade riparian zones, blocking sunlight, disturbing nutrient cycling, and facilitating stream bank erosion. These knotweeds are a serious problem along waterways where they degrade habitat for wildlife and fish, including salmon. *Infestations are common around most communities in southeast Alaska. It has also been observed growing in the understory of alder thickets in Alaska.*

Recommended Alternatives: *Aruncus sylvester, Amelanchier alnifolia, Cornus stolonifera, Physocarpus capitatus*

SPRING PLANT SALES

Alaska Botanical Garden – Sat. May 20 10AM - Noon - ABG Members only

Noon - 4PM – General Public

ABG Nursery Open May 22 thru Sept. 15 Tues-Sat 11am-4pm. ABG and American Horticultural Society members get 10% discount on plant sales.

9th Annual Garden Fair June 24-25. Both days include: invitational garden art show, craft and plant vendors, speakers, demonstrations, Children's Village, music and food. Alpine & Rock Garden Plant Show. Admission $5/person, $15/family

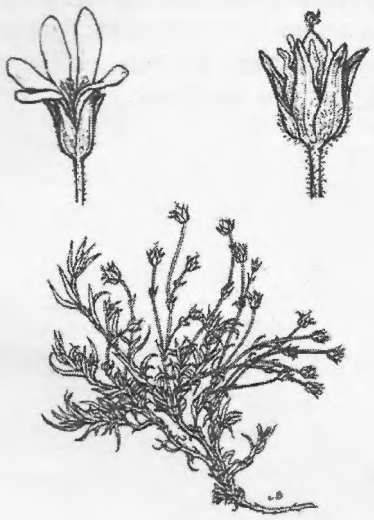
Alaska Rock Garden Society –

Sat. May 20 10-4 at Alaska Botanical Garden

Sat. May 27, 9AM-4PM: Matanuska Valley - Inlet Vista Circle off of Fairview Loop Road, last house on right

Wildflower Garden Club – Sat. June 3: , 9AM-4PM

Anchorage Garden Club – Sat. June 3: 10AM-4PM



Mystery Plant:

This small plant could easily be missed if it was not in bloom. The small four-petaled yellow flowers are nearly stemless, the small oblanceolate leaves form tight rosettes. They have ciliate hairs and sometimes may also have a few hairs on the flat leaf surfaces. The silicle is pubescent and has a short style.

It can be found on scree slopes or tucked between rocks in dry tundra. This plant has very limited distribution in Alaska, as it is only found in Denali Park and in a few alpine locations from Circle to Chicken. It can also be found in the Central Rocky Mountains westward into the Cascade Mountains.

To. Prof. Bjartmar Sveinbjörnsson and Anjanette Steer, our main speakers in March and April;
To **Andy Anderson-Smith, Ken Johnson, Verna Pratt, Diane Toebe, and Marilyn Barker** for providing mini-programs.

YOU MAKE IT HAPPEN!

Mystery Plant Answer

Draba densifolia
Brassicaceae/Mustard Family

PLANT ID CLASS in MAY:

UAA class "Local Flora" Biology 075 will be running again in May 4-25.

There are 2 sections, a day section and an evening section. Contact: Marilyn Barker or UAA for more information.

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**	**$ 5**
☐	**Senior Citizen**	**$10**
☐	**Individual**	**$12**
☐	**Family**	**$18**
☐	**Organization**	**$30**

Name _____

Address _____

City: _____ State_____Zip_____

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

Membership is on a calendar year basis.

Alaska Native Plant Society
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Anchorage, AK 99514

HAVE YOU RENEWED YOUR MEMBERSHIP??

Don't Miss The Summer Field Trip Calendar!