

Borealis

the newsletter of the



PO Box 141613, Anchorage, Alaska

MAY 2000

Join us at our May meeting!

**Monday, May 1, 7:30 p.m.
at the Campbell Creek Center
off 68th and Lake Otis**

**Topic: Using mathematics to
model plant development**

Speaker: Curvin Metzler

Alaska Native Plant Society member Curvin Metzler will present a program on using fractal techniques (IFS and L-systems) in the modeling of plants. He will specifically discuss algorithms to simulate plant development.

Plant Family Study:

Weeds/ Introduced Mustards

BRASSICACEAE/Mustard Family

Presenter: Connie Kison

Have you seen this plant?

It is our Mystery Plant for May
Clues on page 5. Answer on page 7.



Gardening With Natives

GROWING NATIVE PLANTS FROM SEEDS

It is that time of year again – time to put away the catalogs and get out the rake and the hoe, time to get into the hustle and bustle of the Alaska Gardening Season!

As members of the Alaska Native Plant Society, we are concerned about the protection of native plants in their natural habitat, and at the same time we are interested in growing native plants, either in gardens or in restoration projects. Washington State University has offered some guidelines for planting natives from seeds we have already acquired and for collecting and storing seeds for future uses, such as the ANPS annual seed exchange.

Almost all native plants can be propagated from seeds, although it can be time-consuming and, with some species, undependable. However, using seeds is a valuable propagation method because it reduces the likelihood of injuring the parent plant, minimizes your impact on natural settings, and makes it possible to grow a large number of seedlings.

Most seeds can be planted as soon as they are ripe, or dried and stored for later use. The best time to collect seeds is when they are mature. Most seeds begin to ripen in early summer and can be harvested in the fall.

As the seeds or fruits mature, check them frequently for ripeness—seeds are ripe when they have turned dark and hard, while berries are ripe when they turn their ripe color(s). Try to collect shortly before they reach full maturity: if you wait too long you may lose all the seeds or berries to animals or the wind. When collecting seed capsules or cones, look to see whether there still are seeds inside. Make a note of the dates you find particular species of seed ripening for collecting in future years.

It is important to consider genetic diversity when propagating plants from seed. Collect seeds from several different plants to ensure genetic diversity—preferably plants at least 100 feet apart. Collect from areas that are similar to your planting site and, if possible, from within the same watershed. These strategies will help ensure that plant genes match their growing environment for the best chance of successful propagation. *(Continued on Page 2)*

Growing Native Plants From Seed, *Continued from P.1*

1. Collecting Seeds

Collect seeds in paper bags, as plastic bags will trap moisture and rot the seed. However, plastic bags do work well for moister berries, such as cascara and salmonberry. Be sure to write the plant species and the collection date and location on the bags.

Most fruits or seed capsules can be picked directly off the plant. You may need to use a ladder to reach them on trees and taller shrubs. Don't cut off branches to get the seeds!

Cones should be collected before they open, usually after they start to turn brown. To remove cones from conifers, pick easy-to-reach cones and use a ladder or long pruners to reach cones in upper branches. Don't cut off branches to get the cones, and take care not to damage the tree.

The seed heads of rushes, sedges, and bulrushes should be picked just before they are ripe, and placed in a paper bag to dry. As they dry, the seed capsules will burst open and the seed will fall to the bottom of the bag. If not planted immediately, these seeds should be stored in moist sand at about 40° F.

2. Extracting the Seeds

Most seeds need to be separated from their fruits before planting. The exceptions to this rule are conifer seeds (once they are out of their cone they do not need to be separated from their "wing") and acorns.

Capsules:

Separate the seed by hand-crushing the capsules, and then sift through a strainer or shake in a bag so the seed falls to the bottom.

Fleshy fruit:

Place fruits in a jar of warm water and crush the pulp with your fingers. Let the jar sit in a warm place until it stinks: this will make separating the pulp from the seeds much easier. The pulp can then be removed from many fruits by hands.

For fruit with many seeds (e.g., berries), place some of the fermented fruit in a blender or food processor, add water, and then run the machine just long enough to mash the fruit (to avoid ruining the seeds, use a plastic blade and a slow speed). Allow the seeds to settle, then pour off most of the water and any floating pulp or seed ("floaters" are not good seed). If you are going to plant the seeds right away, they do not need to be completely clean, and can be strained out at this point.

However, if you wish to dry and store the seeds, they will need to be fairly clean. After pouring off the water with the floating pulp and bad seed, add more water, blend, and

pour off excess water again. Repeat process until the water runs fairly clear. Strain the good seeds out with an appropriately-sized screen or sieve (very small seeds can be strained through pantyhose), and dry them.

Cones:

Cones must be dried to remove the seeds. To preserve the seeds and prevent molding, spread out the cones on a screen or sheet in a warm place with good air circulation immediately after collecting them. Turn them every few days to prevent molding. When the cones have opened fully (a few days to a couple weeks), the seeds can be extracted. Cones can also be dried in an oven set below 100° F (drying times can be found under the species descriptions of the particular plant in the native plant database), but they should first be allowed to dry at room temperature for 3-7 days. If your oven will not keep such a low temperature, turn it off and use a light bulb on an extension cord to heat the oven.

Once the cones have opened, dump them in a large paper bag, roll the top shut, and shake the bag vigorously for at least 5-10 minutes, until you think your arm is going to fall off! When you remove the cones, the seeds will be lying at the bottom of the bag. If you are not sure you have recovered all the seeds, put the cones back on the drying screen, wait a few more days, and try again.

An alternative to shaking is to place the cones in a heavy cloth bag (not your best bag, since you will get pitch on its interior). Tightly tie the neck of the bag shut with strong rope or cord, place the bag in a heavy-duty clothes dryer, and turn it on without heat the seeds will drop from the cones to the bottom of the bag.

3. Drying and Storing Seeds

Native plant seeds perform best when planted soon after collecting. Try to plan your projects so you can sow the seed on-site or in beds or trays shortly after collecting and cleaning it.

If you are not going to use the seeds immediately, spread them thinly on screens in a warm, well-ventilated area that is not in the sun. DO NOT dry seeds in an oven. If you use a food dehydrator, turn off most of the heating elements, and don't let the temperature exceed 100° F. Turn the seeds over every other day to avoid damage from insects, fungi, or moisture. Berry seeds are sufficiently dry if, when you try to crush them between your fingernails they feel totally hard.

You can separate dried seeds from chaff or debris by using different-sized screens, but don't spend too much time trying to obtain pure seeds a little debris is usually okay. However, be sure to throw out broken, shrivelled, moldy, and bug-eaten seeds.

Place the dried seeds in a labelled, airtight container, and store in the coolest place in the refrigerator or in a cool, dry place. However, DON'T expose them to freezing temperatures (the ideal storage temperature is 34°-38° F) unless there are instructions to the contrary in the species description found at the plant database.

4. Breaking Seed Dormancy

Seed dormancy is a state of delayed growth, and is a seed's way of ensuring it does not germinate (sprout) until conditions are suitable (usually in the spring). In the Pacific Northwest, the dormancy of almost all native seeds is naturally broken by exposure to cold and moisture (winter), followed by lengthening amounts of daylight (spring).

If you sow the seeds in the fall, either directly on-site or in containers that are kept outside over the winter, you won't have to do anything special to break the seeds' dormancy—the weather will do it for you. However, if you want the seeds to germinate without over-wintering outside (say, by storing them and then planting them in the spring), you will need to artificially recreate the conditions that break the seeds' dormancy. The seeds of a few species require additional factors to break their dormancy, such as the heat from a fire or passing through a bird's digestive system, and you will need to artificially recreate these conditions if you want the seeds of these species to germinate.

Three of the easier methods for breaking seed dormancy are described below. Which method should be used with which species can be determined by consulting the particular plant in the plant database.

COLD, MOIST STRATIFICATION (mimics over-wintering): Combine one part water with four parts sand, perlite, or other absorbent, sterile material. Add seeds to the mixture, place in a sealable polyethylene bag (small ziplock ® bags work well), and label the bag. Put it in the refrigerator (NOT the freezer). Once a week the bag should be opened (lets fresh air in), checked for adequate moisture and seed germination, resealed, and turned over (prevents compaction). The chilling time needed may vary from 3-18 weeks, depending on the species.

However, unless noted otherwise in the information provided on the particular plant which can be found in the native plant database, 2-3 months generally works fine. Toward the end of prescribed time period, look for emerging white root tips if any are detected, sow the whole batch of seeds immediately.

HOT WATER (mimics passage through a stomach or heat from a fire): Boil 3-6 cups of water for every cup of seeds. Don't use an aluminum pan or softened water, as

either might introduce chemicals toxic to seeds.¹¹ Turn off the heat when it reaches boiling, and let the water cool for a minute or two. Pour the seeds into the water and let them sit at room temperature for 24 hours. Seeds may still need to overwinter or be cold-stratified before they will sprout. Try this technique with *Arctostaphylos columbiana*, *Arctostaphylos uva-ursi*, or *Ceanothus velutinus*.

SCARIFICATION (mimics passage through a stomach): Line the inside of a lidded jar with a strip of sandpaper so the rough side faces inward. Put the seeds in the jar so they are surrounded by the sandpaper, close the lid, and swirl the seeds around until their seed coats are worn down enough to take in water. Unfortunately, it is difficult to tell how much scarring is enough and it varies from species to species, so we have no guidelines to offer. However, you might want to try this method with species that produce a berry or a pulp-covered seed.

5. Planting Seeds

Planting seeds in flats, pots, or seed beds, and carefully tending them until they are ready to be transplanted will improve their survival rate. However, it also requires a certain amount of time, effort, and space. Furthermore, seedlings growing in flats need to be replanted into pots once they have their second set of leaves before they develop too much root growth.

Planting seeds directly onto the final planting site requires less time and effort, and produces satisfactory results in most cases if a few guidelines are followed:

Rake the area free of large clods of earth and rocks, and compress the soil slightly. Press the seed into the soil to a depth equal to its diameter, and cover it, preferably with sifted soil or sand; don't bury the seed too deeply. Small seed can be raked into the soil surface.

Cover the soil with a thin layer of mulch, such as leaves, straw, or composted sawdust. This will soften the impact of raindrops and prevent the seeds from being splashed or washed away.

Don't plant the seeds too close together! Try to space them so the plants will not compete with each other for sunlight and water. Be aware that some seed may be eaten by birds or rodents; you may find that certain species, such as beaked hazelnut, must be raised under some sort of protection and planted out as seedlings to prevent this.

Keep the seed well-watered. If the planted area will receive occasional visitors and is near a convenient water source, consider marking your plot and posting a sign asking visitors to water it.

Source: Washington State University Cooperative Extension Service, Master Gardener Guide

The Introduced Mustards

The mustard family is noted for many introduced species. Annuals and perennials alike grow easily from seed and are common in waste areas and along roadsides. Some of their seeds are inevitably present in seed mixes used for roadside revegetation, and they can become a prominent feature along roadsides. There are about 20 introduced species in Alaska and the number is undoubtedly growing. The following are some of the more common species.

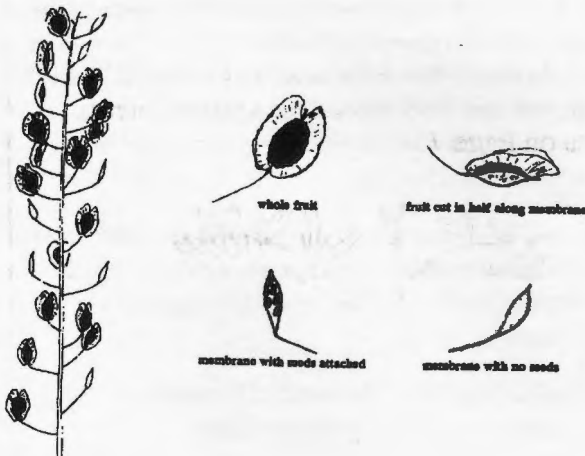
Brassica rapa, once merely thought to be just a common weed, is now highly respected as a source of cooking oil. Its showy yellow flowers are common along roadsides and bordering farm areas. Most other weedy yellow species have very small flowers and distinction between genera is determined by seed pod shape and divisions and often quite difficult. Most have lyrate basal leaves and often seed capsules appear to be very similar.

Neslia paniculata, with its slightly hairy toothed leaves and round capsule and long stigma is very common.

Descurainia and *Sisymbrium* genera have long skinny siliques and leaves that are finely divided.

The white-flowered species are as follows:

Thlaspi arvense, Penny Cress, with its large, flat, round silicles, is easy to recognize by the flat, papery wings which taper from the top to the bottom of the fruit and are notched at the tip. Penny Cress grows anywhere from four inches to three feet high, sometimes as a single stalk, sometimes with many branches. It is found as an annual in fields and waste places. The Latin *arvense* means "of the fields").



Brassicaceae/Mustard Family

There are several *Lepidium* species that are similar in general size and appearance and that have the common name of Peppergrass.

L. densiflorum, Peppergrass, has many small, round, flat, slightly peppery seed capsules.

L. campestre has fruits that are deeper and more oblong. Both can be found growing either as a single stalk or as practically a small bush. They last well when picked and make good winter decorations. They grow up to three feet high, sometimes as annuals and sometimes biennials. They are among the most common "weeds" of roadsides, fields, and parking lots.



Capsella bursa-pastoris, Shepherd's purse, has very distinct heart shaped seed capsules, apparently shaped like a medieval purse. *Bursa-pastoris* means "purse of a shepherd", and *Capsella* is the diminutive of *capsa* "box". Shepherd's purse is one of the earliest-blooming flowers in spring, and it forms its fruit almost immediately after blooming. However, the plant continues to bloom and set fruit through the summer and fall. It grows as high as two feet in gardens, waste places, and lawns.

The seeds of many of these species frequently are present in grass seed mixes used along our highways.

Illustrations are from *Weeds in Winter*, written and illustrated by Lauren Brown, 1976, Houghton Mifflin, Boston.



Collecting Alaska Native Plants From Wild Stands

From Georgeson Botanical Notes No. 19 by Dr. Patricia S. Holoway, University of Alaska Georgeson Botanical Garden

The First Rule of Native Plant Collecting: Do not dig any native plant unless you have a suitable location for transplanting and can provide the conditions necessary for survival. Also:

Get Permission First

Before attempting to dig any live plants from the wild, know the legal, ethical and common sense regulations for collecting wild plants. Do not collect plants in national parks and wilderness areas, state parks, on private property (including native land claims) without permission, in state or national campgrounds and trails. Plants may be collected at construction and excavation sites or on private property with permission. Plants may be collected at least 50 feet back from highways on undesignated state lands, and at least 200 feet back from established trails, roads and campgrounds in national forests. Some restrictions may apply in specific national forests. For instance in the Chugach National Forest collecting is prohibited in the Portage Valley and Turnagain Pass. All national forests require permits for commercial collection of wild plants.

Timing

The timing of collection can mean the difference between success and failure. Plants are best collected very early in the season before bud break or late in the season after terminal growth has ceased and buds have set. Avoid very late collection dates if plants will be grown outdoors. Plants require a period for root growth prior to freeze-up to avoid problems with frost heaving the following spring. Avoid plants that are flowering or setting seed, or remove all flowers and seeds during collection.

Know Your Roots

Probably the single most influential factors in determining whether or not a plant will transplant well are the structure and extent of the root system and the soils. Plants with very large tap roots rarely transplant well. Other plants such as wild rose, *Rosa acicularis*, grow vegetatively by spreading rhizomes. Small shoots far from the mother plant may be very poorly rooted. Success in transplanting is significantly lower for these young shoots than the mother plant. The most desirable plants always seem to be the ones virtually rooted into pure rock! If it will be impossible to obtain a large amount of soil surrounding the roots, leave the plant alone. The key to good transplanting is to dig the plants with as much soil as possible around the roots, keep that soil with the roots, and transplant both to a new site or container.

Clear plastic bags, from tiny quart-sized Ziplocs to double-layer garbage bags work best for transporting plants. Always

try to stabilize the soil around the roots. In tiny Ziplocs, insert the whole plant into the bag, then wrap any excess plastic around the roots. Secure the root ball with a rubber band tied on the outside of the bag. For larger plants, wrap the plastic bag tightly around the root ball, and secure with string or a twist-tie around the crown of the plant. A second bag may be necessary to enclose plant stems and leaves. All foliage and stems should be enclosed in a plastic bag for transport. Moisten the soils prior to transporting, but take care not to overwater. Any standing water in the plastic bag should be removed. Be sure to fill in your hole after digging. It can be harmful to unwary passersby and can cause roots of adjacent plants to dry out or die.

Plants with tall stems, leaves or flower stalks such as fireweed, wild larkspur and many ferns, require stabilizing before transporting. Leaves and shoots may be tied together with flagging or string. Single shoots should be tied to a stake or tree branch that is inserted into the soil near the shoot. Tie the shoot to the stick prior to digging, and transport both.

Plants should be kept moist and out of direct sunlight during transport, especially if they are enclosed in plastic bags. They should be planted in containers or outdoors as soon as possible after collection. If planting is not possible, store the plants in a cool place (4-50°F) out of the full sun. Use a planting medium that emulates the texture, pH and drainage of the soils found at the collection site. Do not fertilize, but keep the plants watered and shaded until they become established.

MYSTERY PLANT

This may very well be one of the first flowers of spring, but often missed unless you are tempted to go sloshing through a bog. The oblong to lanceolate evergreen leaves are thick and leathery. In late winter the upward-facing, reddish-brown leaves on woody branches give rusty cast to the bogs and marshes. In summer they become green and are hardly noticed as they blend well with the leaves of *Ledum palustre* (Labrador Tea). The small white, bell-shaped flowers hang down under the arched branches. This low erect shrub can be seen in peaty bogs throughout Alaska, except coastal areas.

Answer is on Page 7.



NATIVE PLANT GARDENING QUESTIONNAIRE

Please help us compile helpful information on native gardening by telling us briefly of your experiences.

1. What native species have you had luck with, or are especially pleased with?

2. Tell us what you like best about these plants (e.g. fit my climate, attract birds, good for beginners, good for those who want a challenge, good ground-cover; etc.)

3. How does one acquire this plant without exploiting existing wild populations?

4. What aspect of growing natives would you like to see covered in Northern Borealis? (e.g. attracting wildlife, drought-tolerant plants, etc.)

5. Check which best describes your gardening environment:

Mild climate with long season Harsh climate, short season

Limiting factors frost elevation other

6. Additional Comments?

**Please return to: Alaska Native Plant Society
P.O. Box 141613
Anchorage, AK 99514**

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

- Full-time Student \$ 5
 Senior Citizen \$10
 Individual \$12
 Family \$18
 Organization \$30

Name _____

Address _____

City: _____ State _____ Zip _____

Telephone: (Home) _____ (Work) _____

Membership is on a calendar year basis.

ALASKA NATIVE PLANT SOCIETY State and Anchorage Chapter Officers

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 Field Trips Diane Toebe

Newsletter ("Borealis")

Editor Ginny Moore
 Circulation Martha Hatch

Borealis is published monthly October through May.
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 Anchorage, AK 99516. Phone or FAX:
 or E-mail: mooretg@alaska.net

DENALI NATIONAL PARK VOLUNTEER OPPORTUNITY

Denali National Park has an active revegetation program in the Park and is committed to using only native seed from sources close to our revegetation efforts (we collect literally pounds of *Oxytropis*, *Hedysarum*, and other native plant seeds every year).

This work requires folks who are familiar with the flora.

They are looking for folks interested in coming up to the Park to work 3 to 4 day stints around the third week of August. They will offer free camping sites in the park for interested volunteers (work would be at both the East and West ends of Denali Park road). Folks would work in crews about 8 hours each day collecting and drying native plant seeds for the revegetation program.

Interested? Contact Carl Roland, Plant Ecologist, Research and Resource Protection Office of Denali National Park at 683-9541. E-mail him at Carl_Roland@nps.gov. After May 15th, ask for Wendy Mahovlic, Revegetation Technician.



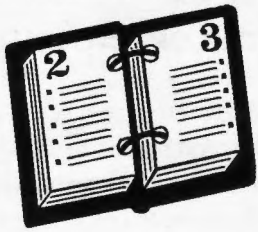
Collect Those Seeds

This is our last chance before fall to remind you about collecting seeds of native plants so that next year we'll have a great selection of seeds for the Seed Exchange. Read up on how to collect and store seeds in this month's feature article, Pages 1-3.

MYSTERY PLANT ANSWER

Leather-leaf/Cassandra

Chamaedaphne Calyculata



UPCOMING PLANTS & NATURE EVENTS

May 1, 7:30 PM – **ANPS May monthly meeting**, Campbell Creek Science Center

May 4-6 **Alaska Master Gardener Conference**, Juneau. Contact:

May 17-19 - **5th Biennial Urban Forestry Conference for the Pacific Northwest**, Anchorage, Holiday Inn. Contact Alaska Urban & Community Forestry office: 269-8465 or e-mail: info@pnwisa.org

June 8-17 – **Celebrating Wildflowers** – Thursday evening: Opening Talk, Verna Pratt; Neighborhood walks Friday June 9, and Saturday June 10 through Saturday June 17 (Please sign up on the enclosed worksheet to lead a walk during this week!)

Don't forget to pick up schedules for Summer Field Trips and "Celebrating Wildflowers" at the May meeting! We'll see you "in the field".

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



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