

GREAT LAKES CHAPTER

North American Rock Garden Society
FALL NEWSLETTER, AUGUST 2005



Lakeside Daisy

CALENDAR OF CHAPTER MEETINGS

** meeting details below**

****SATURDAY, 17 September: Fall Meeting and Plant Sale**

MEETING: 11:00 AM - ca. 3:30 PM
12:00 noon – bag lunch

PLACE: Arrowhead Alpines (see map insert)

PLANT SALE: 1:30 PM

Mark Your Calendars:

****Our Winter meeting will be Saturday, 21 January 2006**

Reserve the date on your Calendar. We'll send out details with our usual timely postcard.

****Saturday, 18 March 2006** We have the pleasure of having one the most eminent bulb nurserymen, Janis Ruksans, speaking to our chapter. Be sure to attend this meeting. A number of our members buy from his nursery in Latvia, and now we will have a chance to hear him talk about his business. Details will be in the spring newsletter.

UPCOMING NATIONAL MEETINGS – Watch your Quarterly for details. or check the NARGS website (<http://www.nargs.org>) as the time approaches:

Eastern Winter Study Weekend – 27-29 January 2006 Manhattan Chapter New York

Western Winter Study Weekend – 3-5 March 2006 The Mary Winspear Centre, 2243 Beacon Avenue, Sidney-by-the-Sea, B.C. CANADA

Winter 2005 meeting report by Laura Serowicz

Our January 10, 2005 potluck featured Fred Case. The title of Fred's talk was "In Search of Pitcher Plants," and after his talk many in the audience will certainly be in search of them for their gardens. Fred also brought some to show that were auctioned off at the end. Pitcher plants are "In", especially the hybrids. Fred gave an overview of carnivorous plants, discussed all families of pitcher plants and then focused on American pitcher plants. Pitcher plants are carnivorous plants, and carnivorous plants, whether related or not, have similar needs; they grow in areas where the soil is either so sterile that they can't get nitrogen and a few other elements for building protein, or it is so acid or alkaline that the nitrogen is locked up and can't be absorbed. Thus they must resort to trapping insects, etc. to get protein that can be digested and broken down into nitrogen. Active traps are used by venus fly traps (*Dionaea*) and bladderworts (*Utricularia*). Bait and stick-um traps include sundews (*Drosera* sp.) which produce drops of very sticky fluid on the tips of glandular hairs. Flypaper-style traps are used by butterworts (*Pinguicula* spp.), which are found world-wide with one in northern Michigan (*P. vulgaris*). Pitcher plants (including *Sarracenia* spp.) are examples of the last trap, the pitfall trap, where the victim falls into some kind of a trap. The pitfall structure, or pitcher, is a leaf, devised as a trap, which attracts insects to be digested. The pitcher must be erect to work. It has a support wing going up the length of the pitcher, often a double wing, so it won't fold over and collapse on itself. Then to keep the orifice (or mouth) open, almost all of them have a rounded rim which is reinforced. Pitchers in very rainy climates have hoods to prevent rainwater from filling the pitchers and diluting the digestive juices or even tipping them over. The hood can take any shape but in order to work it's got to let bugs into the pitcher. But many insects won't go into a dark place, so some pitchers have little transparent windows at the back giving the illusion that it's brighter inside.

The pitcher is partly filled with rain water, and all along the wing there are bait glands, that are attractive to insects and also narcotic. A fresh leaf is the heaviest trapper with the bait dripping down into the trap. The bugs feed on

the bait, get a little loopy, fall into the pitcher and get wet, but when they try to crawl out the walls of the pitcher are too slippery, and even if they do get up, the down-pointing hairs drive them back down. Ultimately they fall into the digestive region, which produces digestive enzymes (including the same enzyme that humans have for digesting meat).

Three plant families have developed pitcher plants independently of each other. With 60-70 species, *Nepenthes* (in the *Nepenthaceae* family) from the Pacific tropics of Australia and the Seychelles Islands to Burma and possibly south China are vines that can climb 60 feet. The flowers aren't much and plants are dioecious (either male or female). They are very interesting plants with a great deal of variety. Most make two kinds of pitchers, those down in the deep shade, near the jungle floor are big and bulbous and often highly colored to try to catch crawling things on the ground, whereas those up in the sun near the top are a very different shape, and often a different color. The midrib is sensitive to touch and twists itself around like a tendril to help the vine climb. The second genus of pitcher plant, *Cephalotus* (in the *Saxifragaceae* family), is found near Perth in Southwest Australia, and it's a very different plant, with two kinds of leaves, flat photosynthetic leaves and modified leaves shaped like little pitchers above them, that are thumb-sized or slightly larger. The pitcher is an elaborate structure that has windows to let light in but it is not a strong trapper.

There are three genera in the American pitcher plant family (*Sarraceniaceae*). In South America there is *Heliamphora*, meaning sun pitchers, in North America on the west coast is *Darlingtonia*, the cobra plant, and on the East coast and north into Canada is *Sarracenia*.

Heliamphora is a beautiful plant, considered to be the most primitive. It can be multi-flowered and has big, open pitchers. It grows on the Tepuis (flat-topped mountains) in Venezuela. They are not easy to grow. The whole inside of the pitcher may or may not be full of hairs, but they all have a small red hood [nectar spoon], which perhaps evolved for a totally different function than as a rain shield, as the pitchers have a drain hole halfway down so they do not overflow and spoil the trap.

The western North American *Darlingtonia* has wayside parks in both Oregon and California devoted to it. Found in the serpentine rocks in southwest Oregon and north central

California in a wide variety of habitats from near sea level in bogs behind dunes along the Pacific Ocean to mountain streams. They may occur as just a plant or two and can tolerate deep shade. They are not easy to grow in the east. Possibly the plant cannot tolerate soil temperatures above 62°F for very long or its roots need the oxygen from water aeration, but Fred's not sure, and he cannot get big pitchers even on blooming plants. The plants make runners and a large clump may be just one clone. The leaves are evergreen but not very winter-hardy. The hood opening faces downward; the hood becoming a baited path only and looking like a snake with a forked tongue. It has windows to help lure bugs. The flowers start in early April up in the mountains.

There are two basic styles of eastern American pitcher plants (*Sarracenia* spp.). In drier areas of the south the majority of the species are tall, to compete with the lush growth for sunlight. In places both in the north and south where it is very wet and the grasses and sedges don't get as tall, the pitcher plants there are shorter. One of the shorter pitcher plants (*S. purpurea*), which is native to Michigan and further north, is open to the sky and the hood is at the side and is involved in the trapping but it is not used as a rain shield.

Pitcher plant flowers keep their petals on for only a few days, the flower grows upright and then turns over and dangles down and the thing that looks like an umbrella is the inside of the stigma, the female part of the plant. The flower controls a certain amount of cross-pollination, by controlling where the bees can enter and ensuring that any pollen the bee brings with it is deposited on the stigma when they enter and then when they exit they carry away pollen. The flower is either self-pollinated or half of the time is cross-pollinated with pollen from another flower.

Most *Sarracenia* now occur along the eastern coastal plain, but there are vestigial bogs with either same or related species in the inland mountains. The presence of many of them predates the mountains to a time when the mountain area was a vast swamp land following the rivers down to the coastlands. Species distribution can be traced by the river systems, down to the Coastal Plains where their populations have exploded in fairly recent times. The species probably originated up north, because they are all totally winter hardy in central Michigan as long as the roots are planted

in the ground outdoors and not in a pot above ground. Even our Northern pitcher plants will be killed by being planted in a pot above ground, but in the ground in a wet soil they are totally winter hardy. Fred has grown every species in the ground outdoors, and even venus fly traps he has grown for 13 years, so if you have a sunny spot, even if you don't have a greenhouse, you can grow them.

All pitcher plants get their best shape, size, color and best looks all-around in full, hot bright sun. As succession occurs in the open habitats that the pitcher plants need, the vegetation becomes denser and the *Sarracenia* hang on clinging to banks along rivers or in open swamps. In some of the places in the Carolinas where plant succession happens very fast they just barely hang on until a disturbance like fire provides them more sunlight and then they quickly spread. Pitcher plants can usually tolerate burning well in a sand soil but not in a peat soil, and in these burn-over areas they develop huge populations, with lots of hybrids. A lot of species that formerly were isolated are now sharing habitats and hybrids are forming. Normally, related plants occurring in the same habitats do not hybridize, since they would have developed barriers to keep themselves pure. In this case when people started going into the pine lands to gather turpentine by scarring the trees and collecting the turpentine in trays, they had to burn the land first because the shrubs were nearly impenetrable. This opened up the wet southern pine lands creating a wet savannah which is perfect pitcher plant country and species formerly isolated now occur together – without hybridization barriers. However, plant succession occurs very quickly in the south. There starting with raw soil after a burn you can, within 8 years, cut 2×4's from the pine seedlings, and by that time the pitcher plants are struggling in patches of light without full sun and are often reduced to false pitchers just gasping for photosynthesis.

Neat companion plants in the burnt-over land include the coastal plain variety of *Iris verma*, which doesn't form clumps, four species of *Calapogon*, orange-fringed orchid, *Platanthera ciliaris*, a beautiful sedge with white flower-like bracts, *Dichromena latifolia*, which is not winter hardy; *Drosera filiformis* var. *tracyi*, the big form of thread-leaf sundew, which gets 10 - 12 inches tall, beautiful butterworts of which Fred is testing a couple, *Pinguicula lutea* and *P.*

pumila, outside this winter, and finally *Dionaea muscipula*, the venus fly trap.

Only one species of pitcher plant extends from North Carolina all the way to Miami, although it's not very common in peninsular Florida, and that is *Sarracenia minor*, the hooded pitcher plant, usually 8-10" tall with beautiful yellow flowers and tolerating more drying than most so you find it in dry ditches and low pine land that isn't terribly wet. It has not been a very easy one for Fred to grow. There are always one or two developed pitchers, but most of the leaves in the south are not evergreen, so they die down and make new leaves every year. In the center of the Okefenokee Swamp, a vast peat bog, grows a giant form of *S. minor* that gets up to 3 feet tall, which is spectacular and easier to grow than the common kind.

Sarracenia flava, the yellow pitcher plant, is the hardiest of the southern pitcher plants. The plants change color from mostly green to more spectacular coloring as they go south, but of course they are a little less hardy further south. The northern form is a little more slender and taller, often bronze colored, the southern form has a deep zone of brilliant dark purple and bigger hoods, but they all have the same stinky yellow flowers with long hanging petals that bloom very early.

The parrot-beak pitcher plant, *Sarracenia psittacina*, with its hood and opening fused into what looks like a minnow trap, is one of two low-growing, decumbent pitcher plants, but very different from our northern native *S. purpurea*. It usually grows in wet ruts and edges of ponds and places where you can get a lot of flooding, so they trap a lot of aquatic insects. When it gets overgrown the crowded ones die and only those around the pond and those that stretch out into the water survive, the plant preferring wet open soil. Hybrids are extremely colorful, but the hybrid pitchers are faulty and sometimes don't open at all.

The most beautiful of all the pitcher plants is the white topped pitcher plant, *S. leucophylla*, a favorite of florists, distributed along the Gulf Coast from Alabama through the Florida panhandle, in an area that has been devastated by development. This pitcher plant has two kinds of leaves, colorful trap leaves and food-making leaves, so if florists pick the trap leaves it doesn't hurt the plant. There are color forms that are spectacular plants.

In the Gulf coast pitcher plant area, there are 5 species and large populations of them. It is extremely hot in summer, and the thing that keeps them going is violent storms with the wet rain and heat all winter and into the early summer. *S. alata* makes it all the way to Mobile bay but does not go east of there. It has the showiest, huge, yellow flowers with dangling petals that curl outward but not very showy green leaves, although there are areas where there are solid purple forms and they can grow thick in the wet meadows. Another yellow-flowered species, *S. flava*, makes it all the way from Virginia to the east bank of Mobile but doesn't cross the river, yet the other species growing with it crosses the river so it is not a physical barrier, and Fred grows them all in the garden together. When species grow together it's hard to find a pure plant, and there are exquisite colored hybrids.

Fred and Roberta spent a lot of their time working on the rare species, all of which are US endangered and hard to come by. Fred did his Masters research on the *S. rubra* complex for which you can trace their origin to the mountains near Asheville. There are two forms, the shorter ones grow on the coast, the taller ones on the grassier, inner bogs. One species, discovered by Dr. Wherry, the green mountain pitcher plant, *S. jonesii*, occurs along streams and in low flat woods and meadows. This species is the first pitcher plant classed as US endangered and there are 26 known colonies at the moment, some of them contain only a few plants. These are green, something like *S. flava*, dark color inside, growing up in the mountain flat woods, or along streams. The species survives along mountain waterfalls. Where the water crashes against the edge so it never dries, you'll find clumps of this very shaded pitcher plant, but most of the time they are so shaded that they can't bloom. They make flat down-type winter leaves, instead of the upright leaves, the leaves do not break off when the flash floods come. Also protected, *S. oreophylla* is very similar to *S. flava* but with smaller flower petals and less of a cat urine odor to the flowers. It lives in the gravel along the streams and occasionally in dry flat woods where they have a hard time and very quickly die off, otherwise they are an easy plant to grow as long as they've got sun. In the canebrake where cane grass and thickets grow is where Fred & Boots found a new species *S. alabamensis*, which is in the *S. rubra* complex but is not the same

species, and when it came time for them to name this new species they decided to name it the canebrake pitcher plant, because they had only seen it in the canebrakes. Only about 13 colonies exist. *Sarracenia alabamensis* has fragrant flowers and it makes two kinds of pitchers, one in the spring with little folded leaves that look deformed, and in the summer leaves that are huge, with a hint of translucent windows on it. As it is the only pitcher plant that occurs in only one state, they thought they should name it for the state – *Sarracenia alabamensis* –and also naming a subspecies of it after Dr. Edgar T. Wherry, *S. alabamensis* subsp. *wherryi*. The best place to look for this plant is where two side streams of a larger stream come together on a hill contour, and halfway up the hill there is often formed a small, open seep where, with more light the plants survive until fire or something opens the area up and then they bloom and set seed. The plants can survive for more than 50 years in the shade, just barely hanging on.

There is also a southern form of our native pitcher plant, *S. purpurea*, which is not quite like ours, but is common down south. It is shorter, bigger, broader, with pinker and often pale, almost white flowers, and big short, squatty leaves that are not fully evergreen. It had been called *S. purpurea* var. *burkii*, but recently Rob Naczi and Fred have renamed it *S. rosea*, a new species, and biochemical tests so far are supporting their conclusion. Our native pitcher plant, *S. purpurea* is found from the coastal plains throughout our region and all the way up to mile 33 on the Al-Can highway in northwest Canada. It had to have originally been in the south and then expanded north when it found a new habitat. It is speculated that the southern form which lived in the burned over sand lands, jumped to the new glacially formed bogs during the ice age and discovered that sphagnum moss was just as good a habitat, just as sterile and free of competition as the wet acid sand was. The northern *S. purpurea* is found on floating mats in peat bogs, where they grow in shrubby thickets and open areas. Most of our lake pothole bogs like the ones around Ann Arbor were formed by a ring of floating sphagnum moss growing on the edge of the water which was gradually filled in by water plants that don't fully decay, building up layers of peat and on the sheltered land side where it gets anchored first by sedges, then shrubs, then trees, the mat gradually extending out over the

water and ultimately filling in the lake, but every year there is a little bit of new raw soil and pitcher plants come in and grow in that. Our northern pitcher plant seeds germinate better on sand and peat as the other species do, but they will also germinate even in the sphagnum moss. They grow not only in acid bogs but also just as well in an alkaline bog, but they won't grow in neutral soil, because there are too many heavy metal ions in neutral soil. There is an albino form, *S. purpurea* forma *heterophylla*, with absolutely no red anthocyanin pigment, which is protected by the Michigan State Threatened and Endangered species law. They are very different, rare, and worth protecting because of collecting. The northern pitcher plant is the provincial flower of Newfoundland and Labrador in Canada, is on coins, is all over the place, and it's virtually a roadside weed up there. In the moor lands of southern Newfoundland you have a mixture of pond, stony outcrop, and bog plants, including the purple *Arethusa* orchid. This is serpentine country, where the soil contains so much nickel that trees are dwarfed or killed by it, and in some places where plants will hardly grow at all there are areas of very sterile rocks called "moonscape" by the locals. Looking closely, however, one sees there is *S. purpurea*, *Phyllodoce caerulea*, *Cassiope hypnoides*, purple saxifrages, *Dryas* species, and other alpenes.

Today pitcher plants are under a lot of stress, with lots of problems, including the lack of fire which is allowing other plants to fill in the swamps, the draining/ditching of low swamp land for better use of equipment in timber production, mining for silica sand, mining peat bogs, and then worst of all, off-road vehicles are tearing up our beautiful beach bogs, where the raw sand has many rare plants. Also very distressing is the southern way of lumbering, where the big lumber companies buy up the land then clear-cut everything because they can use even the chipped shrubbery for chipboard, then weed-kill everything to plant hybrid trees that completely change the vegetation, competition, and habitat. You can't save a species in a greenhouse, you can only keep it going. You could build artificial habitats, but they're not going to be too happy. You've got to recognize the conservation problems and support the Michigan Nature Conservancy and other conservation organizations.

Fred also did a great talk afterwards on how to build a bog. I will not report on it here due to lack of space. I suggest you look up past articles by Roberta and Fred Case in the NARGS Bulletins or:
<http://www.orchidmall.com/general/sphagbog.htm> for an article by them on “Building a Sphagnum Bog Garden”.

NARGS Annual Meeting – 14-17 July 2005
 by
Bev Walters

We arrived in St. John’s Newfoundland at about midnight, my fellow NARGS friend Judy Kelly and I, where we were met by my brother and sister-in-law, who had graciously offered us a place to stay during the meeting. As we sat around their dining room table chatting, the phone rang and a neighbor reported she had just seen a moose in their back yard and it was now two doors down. Always up for adventure, we rushed outside and hopped in the car for a “wild moose chase” around the neighborhood. We didn’t encounter the beast, though we talked with the wildlife people who were also out searching. My in-laws live within easy walking distance of the conference hotel, so it was immediately evident that this year’s meeting was conveniently located near some truly untamed wilderness. Judy and I had allowed extra time pre- and post-meeting for garden tours and exploring, and, though we didn’t see any moose, we did have close encounters with whales and caribou.

During the conference, our days were filled with field trips and the evenings were reserved for lectures. The first night’s speakers introduced us to the native flora of Newfoundland and Labrador, and the next morning we were off early to see the real thing. Our first field excursion was to Cape St. Mary’s Ecological Reserve, a popular bird watching site. The two hour bus trip took us through endless spruce forests punctuated with tamarack, and past pristine ponds. As we neared the Atlantic, the forest trees were stunted due to persistent strong winds. Dense fog shrouded the Cape when we arrived, and our leader, Todd Boland, took us directly to have a look at the gannet rookery off the Cape’s 400 ft. cliffs. Then most of the group ambled back looking at plants along the way, while the hard-core birders lingered behind.

Most notable plants here were ones that grew at the edges of “frost polygons”, where bare patches of rock fragments were continually churned by frost heaving action. Here we found the low growing *Salix uva-ursi*, and buns of the arctic *Silene acaulis* and *Diapensia lapponica*. I also enjoyed seeing *Iris setosa* that I grow in my garden, blooming in its native habitat.

On Friday evening Maria Galletti, proprietor of Alpines Mont Echo in Quebec, discussed some of my favorite rock garden plants – the Arctic willows and other dwarf shrubs. Her pictures of *Salix vestita*, *S. caucicola* and *Larix laricina prostrata* convinced me that I need to add more woody plants to my garden. The next lecture by Jamie Ellison of Nova Scotia showed us many delightful Ericaceous plants that are suitable for the rock garden, especially dwarf Rhododendrons.

Saturday morning found us heading to the nearby Hawke Hills, a rugged jumble of rocks and boulders dumped by the receding glaciers. Only a few tough low growing species can eke out a living in this harsh environment. *Diapensia lapponica* was common here, as were various club mosses (*Diphasiastrum complanatum*, *D. sitchense*, *D. tristachyum*) and two species of crowberry, *Empetrum nigrum* and *E. eamesii*. We also saw the alpine azalea, *Loiseleuria procumbens*, in fruit, and occasionally a solitary blossom of the pink lady’s slipper, *Cypripedium acaule*.

In the afternoon we went to the Foxtrap Orchid Bog where we met up with our leader, John Mauder, a retired natural history museum curator. While our group huddled together in boots and jackets, he appeared clad only in a blue sleeveless t-shirt, purple shorts and water shoes. With a ruddy face, slouch hat and grey beard, he looked more prepared to wrestle an alligator than lead a bog tour. But we soon discovered the depth of his knowledge, as he led us to orchids (*Pogonia ophioglossoides*, *Arethusa bulbosa*, *Platanthera* spp.), sundews (*Drosera rotundifolia*, *D. ×anglica*), picture plants (*Sarracenia purpurea*), and the very rare and diminutive curly grass fern (*Schizaea pusilla*). On the way out, those near him were treated to a fascinating discourse on the complex geology of Newfoundland. This was truly a memorable excursion!

On Saturday evening a sumptuous banquet was followed by an interesting lecture by Dr. Finn Haugli of the University of Tromso in Norway. He talked about the many Asian

alpines they are able to grow in their botanical garden in the far north, at latitude of 70 degrees. He was also the keynote speaker the following morning, this time reflecting on the challenges of growing alpine plants from the South American region of Patagonia, located at 50 degrees south latitude.

The annual conference was a great opportunity to learn more about rock garden plants and to see some of the more northerly ones growing in their natural habitats. I also enjoyed meeting other gardeners and touring the fine rock gardens opened by our NARGS counterparts in Newfoundland.

Volunteers for the Seed Exchange 2005

This winter and spring was the first year (of three) of our Chapter's commitment to run round two of the NARGS seed exchange. The work went very well, and we are grateful to Bev Walters for the use of the heated garage at her home for the operation and to all the chapter volunteers who devoted afternoons and evenings to helping out. Thanks to:

Lorna Amsbaugh
Vivienne Armentrout
Bob Berarducci
Joan Bolt
Andy Duvall
Georgian Franczyk
Liz Greaves-Hoxsie
Barb Haman
Michael Kaericher
Don LaFond
Sue Lambarth
Bette Lowe
Lura Metzler
Jan & Cliff Moore
Diane Pruden
Susan & Tony Reznicek
Laura & John Serowicz
Russell Stafford
Andrea & Jacques Thompson
Bev Walters
Robin Weirick
Guerin Wilkinson & his young friend David

There were several others who wanted to help but the times or their health prevented it – we hope that you can help next year!.

Our Chapter's National Activities

Although we have had members in the past who served on the board of directors, and other committees, following up on the note about service to the seed exchange, it is worth pointing out that our chapter has recently been very active in the National Organization. We can start the list with Winter Study weekend that we hosted in 2003. Following that, we have had Michael Kaericher, our present treasurer, also serving as treasurer of the National Organization. And, as most of you already know from the NARGS mailings, our secretary, Laura Serowicz, has taken on the task of being Intake Manager for the National Seed Exchange. Congratulations to everyone!

Chapter Officers 2005

Please feel free to contact your officers if you have any questions or comments

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or pay in person at the next GLC meeting

National Organization:

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Send \$30.00 dues (check payable to NARGS)

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We strongly encourage people to join both the Great Lakes Chapter and the National Organization.

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