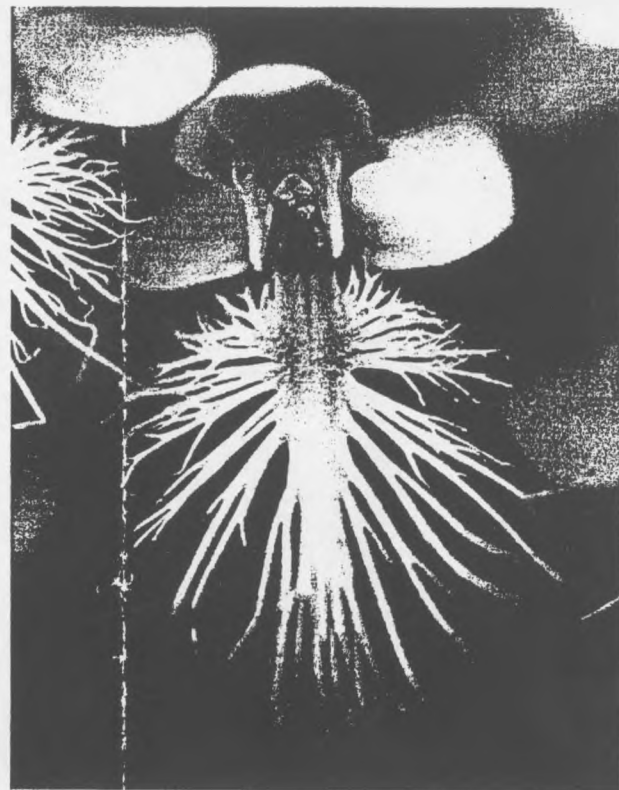


Wildflowers

THE BULLETIN OF THE
BOTANICAL SOCIETY OF W. PA.

MAY
1997



http://www.wisc.edu/botany/images/Orchids/full_P_ciliaris_detail.jpg

MAY MEETING

Next monthly meeting will be Monday, May 12, - 8 P.M. - at Kresge Theater on the Carlow Campus, 3333 Fifth Ave., Oakland.

Our member, Bill Kotsenas of Greensburg, will present the program, "Spring Wildflowers of Western Pennsylvania".



PHIPPS PLANT SALE

Phipps Conservatory's annual plant sale is Mother's Day weekend, May 9-11. Friday and Saturday, 9:30-6:00. Sunday, 11:30-5:00.

FIELD TRIP SCHEDULE

Saturday

May 3, 1997 - Roaring Run, Armstrong County

Leader: Scott Speedy
Time: 1:00

Directions: Take Rte. 22 east from Monroeville to PA Rte. 286 (Golden Mile Highway), which eventually becomes Rte. 380 after the commercial development. Stay north on Rte. 380 to Rte. 66. Take Rte 66 north (right) to Apollo. Cross the Kiskiminetas River into Apollo. After crossing the bridge you will see a traffic light, and a shopping center to the left. Park in the lot; we will meet in the corner of the lot closest to the bridge.

Saturday

May 10, 1997 - Wolf Creek Narrows, Butler County

Leader: Howard McIlvried
Time: 1:00 PM

Directions: From Pgh, take I-79 north to Slippery Rock Exit (the first exit past Route 422 exit). Turn left onto Route 108 toward Slippery Rock. Go about one mile and turn left at the intersection with a Dairy Queen on the right. Continue to first paved road on right. Turn right. Go past a dairy farm on the left to a T intersection. Turn right and park in the lot on the right, just before the bridge over Slippery Rock Creek.

Saturday

May 17, 1997 - Raccoon Creek State Park, Beaver Cty

Leader: Loree Speedy
Time: 1:00

Directions: From Pgh, take I-279 south/US 22-30 (Parkway West). After about 7.5 miles, exit this highway to continue west on U.S. 22-30. After 3.9 miles, exit this highway to continue on U.S. 30 (Imperial exit). 9.5 miles from this exit, watch for the entrance for the Wildflower Reserve, on the right, just over the hill. Meet in the parking lot.

Saturday

May 31, 1997 - Beechwood Farms Nature Reserve, Allegheny Cty

Leader: Luc Berger
Time: 1:00

Directions: From Pgh, take Rte 28 to Rte. 8 North in Etna. At the first traffic light in Etna, turn right and climb Kittanning Street. Travel 4.3 miles on Kittanning Street, which soon becomes Dorseyville Road. Then turn left into the parking lot of Beechwood Farms. If you encounter Hart's Run Road, you have gone 0.3 mile too far on Dorseyville Road.

Expectations: See the pond, the recently transplanted wildflowers on Spring Hollow Walk, the nature center, library and herb garden.

Saturday

June 7, 1997 - Titus Bog, Erie County

Leader: Jeanne Poremski
Time: 1:00

Directions: From Pgh., take I-79 north to Rt. 6N (Edinboro exit) head east on 6N through Union City. After taking the turn out of Union City, drive 5.7 miles to the intersection of Rte. 89 North, where we will meet at a Drive-in Theater on the left.

Expectations: This is our own bog, jointly owned by the Botanical Society and the Presque Isle Audubon Society. Expect to see orchids (arethusa, rose pogonia), buckbean, pitcher plant, and sundew. Plan on getting wet and climbing over tree trunks.

For field trip questions, comments, ideas, call Loree Speedy at 521-9425.

Field trips do not get canceled due to rain. Put on your raincoat and join the hardy souls!

PLATANThERA CILIARIS

Sister Constance Bahl was researching the Internet. She was looking up orchids, and came up with this picture of the Yellow Fringed Orchis.



STUDY OF FRASERA CAROLINIENSIS - 1996 SUMMARY

1996 was the twelfth year of studies in *Frasera caroliniensis*. The station at Jennings seems to be expanding somewhat, both in area and in concentration.

This was a year of the largest bolting we have observed. a total of 269 plants flowered. However, the heights were considerably shorter than in other years.

	1996	1993	1990
Maximum	233 cm	256 cm.	268 cm
Mean	183 cm	209 cm	208 cm
Average	179 cm	207 cm	206 cm

The irregular bolting history of this station has been:

1984	50*	1989	61	1994	0
1985	10	1990	251	1995	28
1986	63	1991	7	1996	269
1987	2	1992	2		
1988	0	1993	174		* estimated

As yet, no plants have been seen that bolted in twelve years or less. The triggering mechanism is not known at this time. I believe that some triggering is necessary; otherwise the bolting history would be more evenly spaced.

Examination of data from my 126 square meter plot does lead me to a tentative projection that many plants have some chance to produce flowers in about 17 years. The data show that the minimum years would be about 14. Many more plants would require longer, possibly up to 25 years. There is evidence that some plants do not increase leaf-count over several years: dormant, but vegetative.

Juvenile plants run the gamut of sizes, although few very large rosettes remain after a large flowering year. Bolting in 1997 is expected to be very low or completely lacking.

Some of the plants which were planted as seeds in 1989 continue to persist, although taking 2-5 years to germinate. A tight cluster of three plants, difficult to separate, now has a total of 50 leaves for the three. Last year it had 40. No new 2-leaved seedlings were visible in 1996. 23 plants are growing, with 4-20 leaves each; 8 had only 4 leaves.

There has been a continuation of the study of plants with four, five or six leaves per whorl, but there has been a shift in proportions.

YEAR	4's	5's	6's
1996	17.1%	80.3%	2.6%
1993	18.1%	69.0%	12.9%
1990	22.9%	64.5%	12.6%

This was one of the original purposes for the study as most of the literature says basically four leaves per whorl.

1996 has been a year of highest number of poorly seed-producing plants; 15 of the 269 had only 0-12 capsules. Unfortunately, I neglected to check on the number of seeds per capsule. Normal average is 12 ± 6 . I was not in Pennsylvania during the flowering period, but in 1990 the four such plants seen had imperfect flowers. Some lacked pistil or stamens, even gland spots.

Two new species were added to the list of associated plants. One specimen of bottle gentian was found; also three scattered specimens of spiranthes, probably ochroleuca. This was in the entire station.

- Virginia A. Phelps



EXTRA PAGE

There is a second page to our bulletin this month. It is an article by our member, Tim Manka.

All members are encouraged to submit material for *Wildflowers*, long or short. We may not be able to print it immediately, but eventually it will make it.



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'ON SABBATICAL LEAVE'

BY RANGER TIM MANKA

(TIM, A SHALER AREA SCIENCE TEACHER, TOOK A SABBATICAL DURING THE 1994 -95 SCHOOL YEAR)

"The glories of another world are opened in a tropical rain forest". Charles Darwin

One-fourth of all prescription drugs come from the rain forest.

Algin from seaweed is used in paint, toothpaste, ice cream, and hand lotion.

The algae grows 1-2 feet per day.

Salt marsh wetlands trap rich silt and organic matter. Also, they are stormbarriers acting as sponges to absorb the force of winter storms.

Since 1900, over half of the world's rainforests have been destroyed. At the present rate, they will be gone by 2050. Global population is expected to double by the year 2000. Lumber, agriculture, mining, and livestock pasture replace rain forests for a few years. Extinction is not an unnatural phenomena. The current rate is. Rain forests moderate weather extremes around the globe. The rain forest soil only has 8% of the nutrients needed for the plants so big roots must absorb nutrients direct from decaying biomass.

"In the end, we will conserve only what we love. We will love only what we understand. We will understand only what we were taught." author?

Fraser fir is named for John Fraser, a Scottish explorer who discovered it and introduced it to Europe in 1800.

More species of trees exist in the Southern Appalachians than in the whole continent of Europe.

Acid fog is a problem. It causes stress to plants.

Cattails were used to make waterproof mats for the sides of Native American homes.

Sweet gum tree-fruit is bitter tasting but the fragrant resin was used in the past as a chewing gum.

Golden Club is sometimes called "neverwet" because its waxy leaves repel water. Its spike of flowers adds beauty in the spring.

Duckweed- beneath each plant is a small world of micro-organisms.

Fire is an essential part of most environments.

Long leaf pine-looks like a clump of grass for the first five years while developing a strong taproot. Its long needles and thick bark help make it fire resistant.

Turkey oak leaves turn on edge reducing the area affected by bright sunshine reflected from the white sandy soil in the one million acre sandhills area of North Caroline.

Wire grass - old leaves last a long time.

Venus-fly-trap was called by Charles Darwin "the most beautiful plant in the world."

Saguaro is Spanish for "sentinel". Flowers last 24 hours and are pollinated by ants, bees, butterflies, bats, small mammals, and birds. Unlike other cacti, it can only reproduce by seeds and not by cuttings. 40 million seeds are produced from one plant. About 2,000 seeds are in each fruit, 13-20 wood ribs run the entire length of the plant.



The Sonoran desert is the richest of all North American deserts. It has the most species. Long spring and fall droughts are normal.

Desert brittlebush-resinous stems can be chewed or used for incense.

Hedgehog cactus- first cactus flowers to bloom in the spring.

Apache boots- Gila or gilded flicker makes several holes a year in the Saguaro. A hard callous forms around the woodpecker nesting hole. When the cactus dies, the boot resists decay and lays on the ground long after the cactus decays.

Saguaro grows 2/10 of an inch the first year. After 5 years, it rarely exceeds one inch. At 25 years, it's 1-3' tall but has such an extensive root system that it absorbs all the nearby water which kills the "nurse" plant that shaded and protected it for all those years. At 100 years, it's 22' tall and the first arms develop near the thickest part; 200 years old and 50' tall, it begins to decline, its surface bearing countless scars from many years as the matriarch of the desert.

Thousands of saguaros are dug up every year and planted in peoples' front yards. They seldom last a year.

Two-thirds of all of the plants in the rain forest still are not known to men.

20 Brazil nuts are in one pod. A lady was almost killed when one fell on her head. They must be picked from wild trees. They can't be cultivated. Natives get 4 cents a pound for collecting them.

Nutmeg comes from the seed itself. Mace comes from the red net-like seed casting of the nutmeg.

Museum exhibitions wish all dioramas were winter scenes so the plants would be dead. Vinyl leaves are formed into shapes using a vacuumform machine. Many, many, many hours are spent cutting leaves from the vinyl sheets, wiring them to stems, and painting them their natural color. Sometimes holes are drilled in the stem to insert leaf wires which are glued in.

Think of this next time you look at a display. (In one display, a fan rippled the sycamore leaves.)

Sunlight is absorbed and reflected so much that only 24% of the sunlight actually reaches the leaves. 2.5% is reflected (mostly green light) while 20 % is absorbed and changed into heat. 1.2% passes through the leaf. That means only 0.3% of the sun's incoming energy is used for photosynthesis.

Water cools the plants and brings minerals up to leaves as well as being used to make food. Oak leaves have 375,000 stomata per square inch. They close at night. A 150' tall tree can move 30 gallons of water a day.

A plant may produce 20 times more food than it needs that day. Fluid pressure causes the sugar to flow through the phloem. Pressure passes the sugar from one cell to the next in small pores in the cell wall.

A single rye plant has 13,815,672 roots- a total distance of 387 miles. Aren't you glad you didn't have to count and measure them?

To the casual eye, wetlands are useless- stinky places to fill or drain but wetlands are important areas-especially to people who like to eat seafood and game animals.

If the right side of the brain controls the left side of the body, then only left-handed people are in their right minds.

Gardens were built in Egypt and Babylon. Some plants were brought in from far away. "The plants are there for us. Who cares if they die?" attitude developed. In 1492, 21% of the earth was a rain forest. Today its 6%. Are today's gardens going to be used to keep species alive?

Desert plants take years to heal wounds. They can't escape to other places when the damage is done. Tire scars remain for years. Wells drain springs. Overgrazing kills the grass so there are no roots to hold the tiny bits of topsoil.

Rain forests- wreck them and you wreck everything. 80 acres are lost every minute. Once cut, they don't grow back. Their life blood lies in a living web. It isn't stored in the soil. When the forest goes, so does everything that

over

makes the forest possible. Houseplants like philodendron, white sails, fiddle leaf fig, rubber plant, and banyan trees grow there. There are 30 million rainforest species; only 1 in 6 is known to man. Gums, resins, fibers, medicines, species, oils, etc. are being lost before we even discover them.

Rosemary bush coats its leaves with wax to hold in water. Sedges have a fibrous root system to form a web just below the surface to catch the rain before it sinks too deep. During a fire, the cluster of long thin leaves of a sedge burn instead of the stem (which regrows quickly before competing plants can grow.)

Cord grass Spartina alterniflora secretes excess salt through special cells in its leaves. It only grows in mud flooded regularly by tides.

The top 6" of fertile soil in an acre may contain 2 tons of fungi and bacteria.

The Cabbage Palm Sabal palmetto is South Carolina's state tree. It grows 50' tall. The leaf stalk extends through the leaf blade. It's spongy wood, used in Ft. Moultrie's walls, absorbed the cannonballs in June, 1776 when the English attacked Charleston. South Carolina became the Palmetto state.

Cotton gin- saw blades took out cotton seeds and brushes took cotton fibers off the saw blades. They fell into two different compartments. Before 1790, it took one day for a worker to remove enough seeds to make one pound of lint cotton. It took Eli Whitney seven months to make the first one. Whitney, a Yale graduate, got very little money from it. In 1796, Homes got a patent for using iron teeth rather than wire teeth so Homes became rich.

Southern Blue Flag- from middle English "flagge" meaning reed or rush. Its rhizomes are used to treat swellings and congestions. Insects that are attracted must crawl into the flower to get the nectar.

St. John's River in Florida is one of the few major rivers in the world that flows north. Its watershed is 1/6 of the state. High spring tide moves tidal action up stream 183 miles. In 1947, 18 million gallons of raw sewage was dumped in the river daily. Paper mills and phosphate rock processors dumped everything straight into the river. The plants loved it. They clogged up the river killing all fish and shellfish. In 1972, finally, 5 water treatment plants were set up.

Open a door that is labelled "Our #1 Pollution Source" and see a mirror.

Mushrooms- When puffballs get dark in color, they turn bitter tasting. Russula lepida grows under beechtrees. Beefsteak mushrooms grow under chestnut or oak. Fly amanita was used by early settlers to make fly paper. Birds nest fungus is "edible, but not first class". Cordyceps militaris is parasitic on an insect. Earthstars are dangerous if eaten.

"Bermuda" grass used in lawns comes from Africa where it is called Star Grass. It survives the yearly rainy season and dry season. It's constantly mown by animals. Animal remains become fertilizer. Thus, the grass is often greener at the sight of last year's kill.

Islands in the sea of grass in Africa are called Kopje (hah'pē) meaning "little heads". Stone mountain in Atlanta, Georgia is a very large kopje. Layers of granite peel away like the layers of an onion. Fig trees root in the crevices where water is trapped. Shrubs surround them and use the water that runs off them. Since lions hide in the shrubs, there is a definite "Mow line" around them where antelope will not feed.

Nothing is ever wasted in the cycle of life and death.

The tall buttressed roots of a Microberlinia tree holds on to this poor, sandy soil. The nutrients are held in the trees themselves, not the soil. No annual rings are made since there are no seasons. People don't know the age of these trees.

Rainforest Midcanopy, 15-45" high, has many vines. One has strychnine from which rodent poisons are made. Cissus vine stores water. You can cut the vine and drink the water that pours out.

Rainforests get 80-400" of precipitation per year. On the edges, vegetation grows in a thick tangle and is called a "jungle". Inside the forest, the trees are widely spaced and it's easy to walk between them.

In a rainforest, it's so humid that it takes 3 days to dry clothes on a clothes line-- and that's only if it doesn't rain.

The rainforest in Korup National Park in Cameron (Africa) has been undisturbed since the Miocene period 20 million years ago.

The tree, Barteria fistulosa has ants to help it. If 5 ants bite a human, the person can die. The ants clear away any moss, lichen, vines, and any animals that touch the tree. In return, the ants get sap from the tree.

Sign "Please do not annoy, torment, pester, plague, molest, worry, badger, harry, harass, heckle, persecute, irk, bullyrag, vex, disquiet, grate, beset, bother, tease, nettle, tantalize, or ruffle the living organisms in this zoo. Thanks!"

Okefenoke means "Land of Trembling Earth." The thick peat floor is not attached to the underlying mineral soil and is often unstable. Sudden pressure or movement on it causes people to fall through it or causes trees to tremble. Pond cypress, red bay, loblolly bay, and swamp black gum are common.

Magnet boards can be for children to build fantasy plants out of plant parts.

Put hand in crate and identify plant part by touch--pine cone, acorn, etc.

Walk on thick sponges--like walking on the Okefenoke swamp.

Needlerush, a small marsh plant and glassswart with red and green stem sections stabilize the peat and mud.

Live oak is Georgia's state tree. It can live over 300 years.

Pampas are South America's great grasslands,

Grasses have 1/2 of their biomass underground while oak trees have only 10%.

Aspect is the direction a slope faces. South and west facing slopes receive the brunt of prevailing summer winds and intense sunshine. In contrast, north facing hillsides generally favor moisture loving trees, ferns, and mosses. The greater shade and cooler temperatures on these slopes keeps them moist.

In Missouri, where soil is thick, nearly pure stands of oak and hickory thrive. Where soil is thin, glades develop. Grasses and cedars prevail.

Relief-- trees thrive in stream and river bottoms where they are sheltered from prevailing winds and hot summer sun. Trees can be protected from wind and wildfire on steeper slopes or breaks in topography.

Drainage--Chert and clay-poor drainage. Limestone and caves well-drained.

Soil can be from forest vegetation, grass prairie vegetation, flood plains, or stream beds.

Polluted water indicators--Blue green algae such as Oscillatoria and Anabaena. mosquito larva, and midge larva.

Red cedar is a pioneer tree after a fire or some other disturbance. One cedar is over 1,000 years old, covered with sapsucker holes, has an aromatic, not resistant, red heartwood and barely survives with only a strip along the trunk still alive. Cedars have genetic variations and grow in different shapes.

Adder's tongue fern. Sporangia resemble a serpent's tongue.

Grasslands used to have tall grasses that would completely hide a man on horseback. Today, they are gone. Man suppressed wildfire that rejuvenated them for centuries, acres were plowed and covered with crops, grazing, and stomping killed them so stockmen replaced the tall grasses with single species stands of agricultural pasture. They introduced fescue grass which took over native bluestem and switchgrass. Now, fescue covers virtually every open hillside in the Ozarks.

Prickly pear has soft leaves 1/4 inch long mixed in with sharp spines and a tuft of red bristles. The leaves wither away almost as soon as they appear.