The Lady-Slipper

Kentucky Native Plant Society | Number 19:1 | Spring 2004

A Message from the President:

BY THE TIME you read this message, Spring will have sprung. It was a long winter and some of us seemed to receive more than our share of snow.

By all accounts, this issue should be crammed-packed with interesting and informative articles and information.

Please don't forget our Spring meeting at Natural Bridge State Resort Park and if you haven't already sent in your dues for 2004, please do so. Springtime in Kentucky has so much to offer, so get out there and enjoy. Till next time....

Landon McKinney

In this Issue—

April 29–May 2, 2004, Natural Bridge State Resort Park

WILDFLOWER WEEKEND & KNPS SPRING MEETING

DEAR NATIVE PLANT ENTHUSIAST:

It's time to make plans for the 2004 Wildflower Weekend at Natural Bridge, April 29 through May 2, and I hope that you will be able to attend all or any part of the events!

Wildflower Weekend is an opportunity for native plant enthusiasts to enjoy one of the most ecologically diverse areas in Kentucky in bloom. We'll have dozens of field trips throughout the park and the Red River Gorge National Geologic Area for all levels of participation, from beginners to advanced wildflower enthusiasts and from short easy walks to long hikes.

Trips focus on a variety of topics, from trees to rare plants, and are led by university professors, professional biologists, and experienced hobbyists. They are tentatively scheduled to depart from the park lodge from about 8–9 am on Friday, Saturday and Sunday mornings, and from about 1:30–2 pm on Friday and Saturday afternoons. In addition, there will be field trips leaving about 4 pm on Thursday, Friday, and Saturday afternoons.

This year our evening programs are scheduled to include

- Dr. Wilson Francis, co-author of the new *Wildflowers and Ferns of Kentucky,*
- the Indiana Dept. of Natural Resources' Mike Homoya on native orchids of the region,
- and ferns of the Smokies with Dr. Patricia Cox of the TVA Natural Heritage Program.

Registration fees of $5 per adult and $2 per child ages 6–12 are payable upon arrival. No preregistration is required and kids age 5 and under are free.

For accommodation information, please call 1-800-325-1710.

For more details, contact Zeb Weese, Park Naturalist
jason.weese@ky.gov or 1-606-663-2214, ext. 2104

See you there!

(P.S. A special "Thank You!" to the co-sponsors who make this event possible: Natural Bridge State Resort Park, the Kentucky Native Plant Society, East Kentucky Power Cooperative, the Kentucky Society of Natural History, and the United States Forest Service.)

BACK ISSUES of
The Lady-Slipper
and
KNPS GRANT APPLICATION
details are posted
on the
KNPS WEBSITE—
http://www.knps.org

The Lady-Slipper

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ANY VOLUNTEERS?

On April 24, 2004, there will be numerous Earth Day and Arbor Day celebrations all over Kentucky. If you'd like to participate by handing out KNPS brochures and back issues of our newsletter at events in Louisville, Shelbyville, Frankfort, Lexington, or other communities, please contact me as soon as possible.

Charles Chandler, 859-277-9718, cdchandler@att.net

UPDATE & NEW COURSE: KNPS Certification in Native Plant Studies

by Landon McKinney and Ron Jones

We are making the following change in the KNPS Certification Program in Native Plant Studies. This change will be in reference to our special topic courses only. We had previously required those interested in certification to take at least 3 special topic courses. Each special topic course consisted of the same 12-hour format (over 4 weeks) as our required core courses. Please take note of the following changes:

Each special topic course will now be a one-day (6-hour) course, and 6 special topic courses will now be required for certification. This change will allow for completion of the program in 6 fewer days. It is anticipated that the cost for each one-day course will be about $45. This change will also allow KNPS a greater level of flexibility in the number of special topic courses offered, instructors, and locations. We hope everyone will welcome these changes. KNPS members and all other interested individuals are invited and encouraged to participate. Full details of the Certification Program are available at the KNPS website:

www.knps.org

THE FOLLOWING SPECIAL TOPIC COURSE taught by Dr. Ron Jones, EKU Professor of Biological Sciences, will be available this summer:

Aquatic Plants of Kentucky — Aquatic plants are among the most fascinating members of the plant kingdom. They include a variety of forms — from rooted types with emergent stems, to completely free-floating forms. These plants often have very unusual morphological and ecological modifications for life in the water. They are important parts of many aquatic


The Kentucky Native Plant Society
awards this
Certificate in Native Plant Studies
to
Your Name Here
for completing a series of courses in
the biology, ecology & systematics
of Kentucky's native plants.

ecosystems, and there is increasing interest in their use as ornamentals, in their use in wetland septic systems, and in controlling those species that become troublesome weeds.

This one-day course will consist of a 3-hour morning session that will involve a general introduction to the taxonomy and ecology of aquatic plants, followed by a 3-hour afternoon field trip to aquatic habitats in the vicinity of Richmond, KY.

No previous botanical background is required, but participants should e-mail the instructor at least one month prior to the course to obtain a list of websites on aquatic plants. Participants should review these websites in preparation for the course. A textbook is not required, but participants should bring a hand lens, lunch, and be prepared for wet conditions.

Date: June 19, Saturday

Location: Moore 202, EKU Campus (turn on University Drive off Lancaster Avenue, and Moore Building is second building on the left)

Class fee: $45

Contact instructor by MAY 19: ron.jones@eku.edu

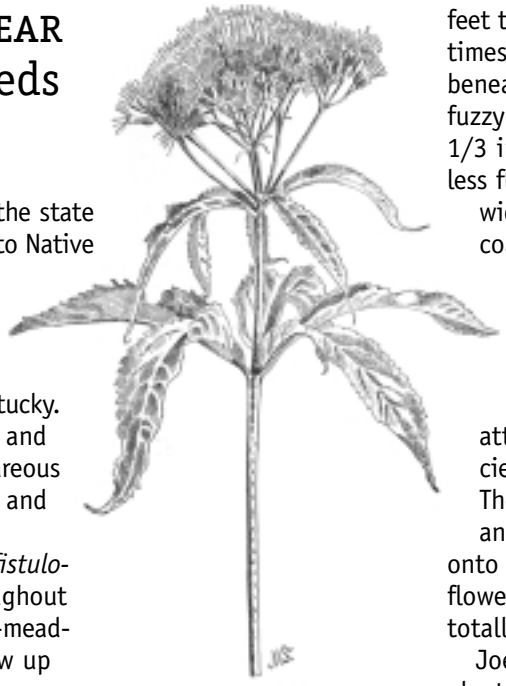
Limit: 20 participants

Wildflowers of the Year 2004: the Joe-Pye Weeds

by Mary Carol Cooper,
Salato Wildlife Education Center

Wildflower advocates from all across the state have selected Joe-Pye weed as the Salato Native Plant Program's Wildflower of the Year for 2004. All the species of the genus *Eupatorium* with whorled leaves are referred to as Joe-Pye weed, and several of these species are known in Kentucky. They are members of the Aster Family and they are generally found in moist calcareous areas, damp meadows, thickets, bogs, and marshes.

Hollow Joe-Pye weed (*Eupatorium fistulosum*) is common and widespread throughout Kentucky. Also known as "queen-of-the-meadow," it is a stately plant that will grow up to 10 feet high. It has a rounded, dome-shaped inflorescence of many purplish pink heads. Its stem is usually purple, smooth, and hollow, and its blunt-toothed leaves are usually in whorls of 4–7. It is found in open meadows and other sunny moist areas.



Spotted Joe-Pye Weed is a historical constituent of Kentucky wetlands. (from Mrs. William Starr Dana's *How to Know the Wild Flowers,* 1900)

Sweet Joe-Pye weed (*E. purpureum*) has a solid and mostly green stem, sharply toothed leaves in whorls of 3–4, and very pale pinkish flowers. It gets its common name from the sweet smell of its crushed leaves. It is frequent in Kentucky and grows in open woods.

Two other species of Kentucky Joe-Pye weed, however, are not at all common. Steele's Joe-Pye weed (*E. steelei*) is listed as Endangered by the Kentucky State Nature Preserves Commission. It is also known as Appalachian Joe-Pye weed because it is endemic to a fairly small area of the Cumberland Mountains shared by Kentucky, Virginia, Tennessee, and North Carolina. It is similar to sweet Joe-Pye weed, but its stems are covered with bristly hairs below its flowers rather than being smooth.

The most rare of the Kentucky Joe-Pye weeds is spotted Joe-Pye weed (*E. maculatum*). In fact, it may be completely gone from the state. The KSNPC lists it as Historical since there are old reports of its existence in swamps and along the Ohio River in Jefferson and Campbell counties as well as more doubtful accounts from Barren, Estill, Harlan, and Nelson counties. It does occur all across the northern U.S., and its range extends south into the mountains of Tennessee and North Carolina, but it has been decades since anyone has seen it in Kentucky. Be sure to let the folks at KSNPC know if you happen to run across it. It grows 2–6 feet tall with sturdy, purple-spotted or sometimes evenly purplish stems which are hairy beneath the clusters of pinkish-purplish, fuzzy flowers. Individual flower heads are 1/3 inch wide and they occur in more-or-less flat-topped clusters of 4 to 5-1/2 inches wide. The leaves are lance-shaped with coarse teeth, 2-1/2 to 8 inches long, and generally in whorls of 4 to 5.

The more common Joe-Pye weeds bloom in late summer and they are a wonderful nectaring source for bees, butterflies and hummingbirds. They attract at least 9 different butterfly species as well as other insect pollinators. The hairs on the flowers hold the pollen, and when insects land, pollen brushes onto them. Pollen is also brushed from one flower to another, so the plants are not totally dependent upon insect pollination.

Joe-Pye weed will likely be the tallest plant in your garden and should be considered as the high point in your design. Use it as a background at the very rear of a sunny perennial garden or put it in the middle of a circular or oval garden. If you wish, you can keep it at a manageable size by topping the plant when it is about 4 feet tall. Stems grow from a large crown with a fibrous root system that spreads quickly. Nice companion plants are Boltonia, rough-leaved goldenrod, native asters, and brown-eyed Susans. In a moist, sunny area, it will naturalize well with ironweed and rose mallow. Whether in flower or in fruit, the plants are also outstanding in arrangements.

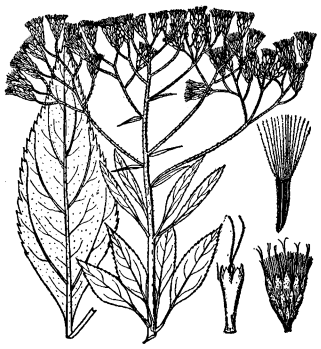
(Continued on page 4)

Hollow Joe-Pye weed is a popular nectar source for tiger swallowtail butterflies and many other insects. (Photo by Thomas G. Barnes @ USDA-NRCS PLANTS Database / Barnes, T.G. & S.W. Francis, 2004. *Wildflowers and Ferns of Kentucky*. University Press of Kentucky.)

Wildflower 2004: Joe-Pye Weed (continued)

There are several stories about who Joe Pye really was. Some say he was a 19th-century Caucasian "Indian theme promoter" who used the root to induce sweating in typhus fever, but the general consensus is that he was a Native American medicine man who lived in New England in the late 1700s. He became famous for "curing" typhoid and several other diseases with concoctions made from Joe-Pye weed. Historically, Native Americans had many uses for this plant. They used a tea of the whole herb as a diuretic for dropsy, gout, kidney infections, and rheumatism. Root tea was used for fevers, colds, chills, diarrhea, and liver and kidney ailments. As "Gravelroot," Joe-Pye weed was used to clear urinary stones. It was also used to improve the appetite and soothe frazzled nerves, and the crushed leaves were said to improve the complexion.

Joe-Pye weed seeds and plants are available from many native plant nurseries. It is also very easy to propagate by seeds or division. Collect seeds in mid to late September by cutting off the top of the plant or individual heads and placing them upside down in a large paper bag. Let them dry for up to a week and then shake them in the bag and put the seeds in a sealed container.



Spotted Joe-Pye Weed

Sweet Joe-Pye Weed

Illus. Flora of the Northern U.S.... / Britton & Brown / 1913

Sow seeds directly outdoors after collecting in the fall for spring germination. Or sow them thickly in a flat of good germination mix indoors or in a cold frame in late winter. Germination is usually spotty, but when seedlings are large enough to transplant, they don't demand much attention beyond keeping the soil evenly moist. They will reach their full height and flower during their second season. Plants can be simply divided in the fall as they go dormant or in the spring when the first shoots appear. Replant divisions immediately and water thoroughly.

Brigadoon State Nature Preserve Now Open to the Public

by Lane Linnenkohl and Joyce Bender, Kentucky State Nature Preserves Commission

Dutchman's Breeches

New American Botanist and Florist / Alphonso Wood / 1870

If you are looking for a nice place to see spring wildflowers and get a little exercise, Brigadoon State Nature Preserve (SNP) may be the place for you. The Kentucky State Nature Preserves Commission (KSNPC) officially opened Brigadoon to public use in September 2003. Kentucky Heritage Land Conservation Fund money was spent to acquire a one acre tract for a parking lot and trail head, so visitors can now visit the preserve on their own. Brigadoon is the 24th SNP to be opened to the public, sunrise to sunset, all year round.

Located near Glasgow in Barren County, Brigadoon SNP shares a special history with the region. The property was originally part of a Revolutionary War land grant issued to John Renfro, a war veteran from Virginia. The property remained with his descendants until 1960, when Dr. and Mrs. Russell Starr purchased it. They maintained it as a private preserve, hideaway, and hobby farm until 1983 when they donated 90 acres to the Kentucky Chapter of the Nature Conservancy. KSNPC acquired the preserve in 1985. At his death, Dr. Starr bequeathed the additional acreage to KSNPC to make the preserve 180 acres.

Russell and Faye Starr felt that their property was nothing short of a magical place, so they named it Brigadoon. The Merriam-Webster dictionary defines Brigadoon as a place that is idyllic, unaffected by time, or remote from reality. We at KSNPC agree. Nestled on the shores of the Barren River Lake, Brigadoon SNP is composed of a mature western mesophytic forest containing old growth tulip poplar, beech and red oak trees. Thick, rich soils support an impressive springtime wildflower display with trillium, spring beauty, rue anemone, mayflower, jack-in-the-pulpit, bloodroot, hepatica and Dutchman's breeches. With its diverse bird population, Brigadoon is also a great place for birding. Its approximately one mile hiking trail is of moderate difficulty and runs along ridge tops and through mature forest and scenic ravines.

To get to Brigadoon, travel approximately 6–3/4 miles south of Cumberland Parkway on Highway 31E to Browning School Road. Travel east on Browning School Road for approximately 1.2 miles to Mutter Road. Turn right onto Mutter Road and the gravel parking lot will be approximately 1/4 mile on the west side of the road.

Please be respectful of the preserve and follow the rules so that everyone who visits can enjoy the preserve. Pets, horses, picnics, hunting, collecting, fishing, ATVs and camping are not allowed. Peaceful nature observation and appreciation are encouraged!

Rare Goldenrods of Kentucky

by Jeffrey L. Walck, Department of Biology, Middle Tennessee State University

Plants in the genus *Solidago*, commonly called goldenrods, belong to the Asteraceae family and are highly diversified, particularly in eastern North America. Approximately 80 species are recognized (Mabberly 1997).

Nine species of goldenrod are listed currently by the Kentucky State Nature Preserves Commission as rare in Kentucky (KSNPC 2001). Four of these taxa are found commonly in specialized habitats (e.g. rockhouses, cedar glades, bogs), and the other five are found commonly in forested habitats. The distribution and identification of these goldenrods are covered in this article.

Rare Goldenrods in Kentucky Forests

On the KSNPC's list of rare Kentucky plants, **Buckley's goldenrod** (*S. buckleyi* T. & G.) and **downy goldenrod** (*S. puberula* Nutt.) are considered to be of special concern, and **Curtis' goldenrod** (*S. curtisii* T. & G.) and **Roan Mountain goldenrod** (*S. roanensis* Porter) are threatened. Although **squarrose goldenrod** (*S. squarrosa* Nutt.) is included on the list, it is possibly extirpated from the state.

Buckley's goldenrod is a name applied to a heterogeneous group of plants from the Ozarkian and southern Appalachian regions whose taxonomic status is uncertain. The species can be found from Virginia, west to Missouri and Arkansas, and south to Alabama. It inhabitats dry rocky woods and bluffs usually on acidic soil. Indiana also considers the species as rare (Steyermark 1963, Cronquist 1980, NatureServe 2003). In Kentucky, it can be found in Crittenden, Livingston, Lyon, and McCracken counties (USDA, NRCS 2002). The species resembles the downy ragged goldenrod (*S. petiolaris* Ait.), and differs from it by having larger, thinner, more toothed, and unvarnished leaves and slightly longer hairs on the leaves. Downy ragged goldenrod grows in woods primarily in southeastern and south-central United States (Cronquist 1980, NatureServe 2003).

Curtis' goldenrod occurs in woods at relatively moderate elevations (up to ca. 5200 ft) in the mountains of Pennsylvania to Alabama, Georgia, and South Carolina. The species is sometimes considered a variety of wreath goldenrod (*S. caesia* L.), and it also closely resembles the broadleaf goldenrod [*S. lancifolia* (T. & G.) Chapman]. This latter species is sometimes synonymized with Curtis' goldenrod; it grows primarily at high elevations (>5000 ft) (Cronquist 1980, NatureServe 2003). In Kentucky, Curtis' goldenrod grows in Harlan and Letcher counties (USDA, NRCS 2002). Maryland, North Carolina, and Pennsylvania also consider the species to be rare (NatureServe 2003). Curtis' goldenrod differs from the geographically widespread wreath goldenrod in having striate-angled (vs. terete) and green (vs. glaucous) stems (Cronquist 1980).

Downy goldenrod is divided into two varieties: var. *puberula*, found primarily in the mountains from Nova Scotia and Ontario to North Carolina, Alabama, and Mississippi, and var. *pulverulenta* (Nutt.) Chapman, found on the Coastal Plain from Delaware and Maryland to Florida and Louisiana (Cronquist 1980, NatureServe 2003). The variety *puberula* is found in Bell, Harlan, and Whitley counties, Kentucky (USDA, NRCS 2002). Strausbaugh and Core (1977) lists the habitat as dry rocky or sandy soil, open banks, margins of woodland or in sparse woodland, whereas Radford (1968) records it as bogs, wet meadows, and wet woods. North Carolina and Ontario also consider the var. *puberula* as rare. Downy goldenrod resembles another Kentucky rare goldenrod, Roan Mountain goldenrod.

Roan Mountain goldenrod is found in woods and clearings from Pennsylvania to Alabama and Georgia. In Kentucky, it occurs in Harlan and Rowan counties. Pennsylvania and Maryland also list the species as rare. Roan Mountain goldenrod differs from downy goldenrod in being mostly glabrous and having 6–9 (vs. 9–16) rays (Cronquist 1980, USDA, NRCS 2002, NatureServe 2003).

Squarrose goldenrod is unique among the goldenrods in having involucral bracts with squarrose (recurved) tips. The species grows in rocky woods from New Brunswick and southern Ontario, south to Indiana and Ohio and in the mountains to North Carolina (Cronquist 1980). In Kentucky, the species is known historically from Pike and Letcher counties (USDA, NRCS 2002). The species also is considered rare in Indiana, New Jersey, North Carolina, Ohio, and Vermont, and is presumed extirpated in Delaware (NatureServe 2003).

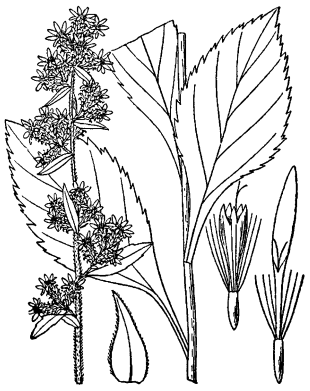
(Continued on page 6)

Jerry Drown, TNPS / Univ. of TN Herbarium — http://tenn.bio.utk.edu/vascular

Roan Mountain Goldenrod

Curtis' Goldenrod

Downy Goldenrod



Illustrated Flora of the Northern United States and Canada / Britton & Brown / 1913

Squarrose Goldenrod

Rare Goldenrods of Kentucky (continued)

Rare Goldenrods in Specialized Habitats of Kentucky

White-haired goldenrod (*S. albopilosa* Braun) is listed as threatened by both Kentucky and by the U.S. Fish and Wildlife Service, whereas **Short's goldenrod** (*S. shortii* T. & G.) is recorded as endangered at both levels. **Rand's goldenrod** [*S. simplex* Kunth ssp. *randii* (Porter) Ringius] and **southern bog goldenrod** (*S. gracillima* T. & G.) are considered to be species of special concern in the state.

Short's goldenrod grows primarily in cedar glade-like openings, rocky pastures, and power-line right-of-ways, and also in hardwood and red cedar thickets/woodlands. The species is known historically from Jefferson County, Kentucky and currently occurs in a small area of Fleming, Nicholas, and Robertson counties, Kentucky (Walck et al. 2001). Recently, the species was discovered in southern Indiana growing in rock crevices of limestone along the Blue River (Baskin and Baskin 2003). It differs from other goldenrod species, particularly Canada goldenrod (*S. canadensis* L.) or rock goldenrod (*S. rupestris* Raf.) by having essentially glabrous leaves, 5–8 ray flowers with a 2–3 mm long ligule, and a 4–5 mm high involucre (Cronquist 1980, Gleason and Cronquist 1991).

White-haired goldenrod is endemic to sandstone rockhouses in Kentucky, where it grows almost exclusively on their floors. The species is known to occur only along tributaries of the Red River in Menifee, Powell, and Wolfe counties. The rockhouse habitat, decumbent stems, white-pilose stems and lower-leaf surfaces, and thinner leaves separate white-haired goldenrod from its close relative, zigzag goldenrod (*S. flexicaulis* L.). Zigzag goldenrod grows throughout eastern North America and is a common forest herb often found on slopes below rockhouses containing white-haired goldenrod (Walck et al. 1996).

Thomas G. Barnes

Short's Goldenrod

Rand's goldenrod belongs to the *S. simplex* complex and is found primarily on rocky river banks. This complex is comprised of two subspecies. Subspecies *simplex* has three or four varieties which occur primarily in western North America, with some taxa having range extensions as far east as Quebec and New Hampshire and one taxon being endemic to Quebec. Subspecies *randii* has five varieties

Service Trip to Restore

Short's Goldenrod Habitat

Blue Licks State Park, Robertson Co., KY

by Mary Carol Cooper

The Sierra Club and the Kentucky Native Plant Society scheduled a service trip at Blue Licks State Park for Saturday, January 31. At the State Nature Preserve in this park an old buffalo trace is the habitat for a Federally Endangered Species—Short's goldenrod *(Solidago shortii)*. Up until 2001 when an Indiana population of this species was discovered, Short's goldenrod was known only from a 2 square mile area around Blue Licks State Park. Over the years, a pioneer species, red cedar, has come into this area where it is shading out the goldenrod and other species such as little bluestem, a native warm season grass. This has caused a decline in these beautiful native plants.

Over the past few years the Sierra Club and Native Plant Society have partnered in several service trips with the Kentucky State Nature Preserves Commission to help clear out many of the red cedars. There is still a great deal to do, but last summer a nice comeback of Short's goldenrod and little bluestem was noted.

Courtesy of Kentucky State Nature Preserves Commission

White-haired Goldenrod

which occur in eastern North America including the variety *racemosa* (Greene) Ringius that occurs in Kentucky. This variety is found from New Brunswick and Quebec, south to Kentucky and Tennessee, and is considered rare throughout most of its range. In Kentucky, it is found along the Cumberland River and its tributaries in Laurel, McCreary, Pulaski, and Whitley counties. The var. *racemosa* has basal (nearly subentire) leaves 7–10 times as long as wide, an inflorescence tending to be loose, and heads on relatively long (5–15 mm) pedicels (Strausbaugh and Core 1977, Cronquist 1980, Kartesz and Meacham 1999, USDA, NRCS 2002, NatureServe 2003).

SOUTHERN BOG GOLDENROD grows in swamps and other moist places of the Coastal Plain and mountain provinces from West Virginia to Alabama, Florida, and South Carolina. The species resembles the northern bog goldenrod (*S. uliginosa* Nutt.) that occurs primarily from Newfoundland and Nunavut (Canada) south to Iowa and in the mountains to North Carolina and Tennessee. In North Carolina, some material of the northern bog goldenrod is transitional to the southern bog goldenrod. Another species, the Carolina goldenrod (*S. pulchra* Small), is allied to the southern bog goldenrod, and is endemic to the Coastal Plain wetland savannas of the Carolinas. Plants of southern bog goldenrod differ from those of northern bog goldenrod in having glabrous inflorescences and pubescent achenes. In Kentucky, the southern bog goldenrod is

(Continued on page 8)

Illus. Flora of the Northern U.S... / Britton & Brown / 1913

Rand's Goldenrod (var. *racemosa*)

NOW YOU HAVE TO UNDERSTAND that on Friday, Jan. 30, the weather report said Saturday would start out *Below Zero!* and be the coldest day this winter. When I called Dave Skinner to whine, "Surely you're going to cancel this trip," he allowed as how it sounded like I didn't want to go! But he promised hot chocolate and warm fires, so being a well raised outings leader who carries on come rain, snow, sleet and ice, I told him my gang would be there with bells on.

We had 7 hearty souls, and believe it or not, we never were very cold. Dave had 2 fires going and a hot chocolate stand set up, and after dragging a few red cedars around, we were all shedding layers of clothing. It turned into a wonderful sunny, cold (crisp), beautiful, productive day. We ended up around the dying fires, eating s'mores, chatting, telling jokes and wondering why everyone wasn't out playing on a 19-degree day! Put a service trip on your calendar this year. They are fun, productive, and make you feel really good.

Habitat restorers from the KSNPC staff were Joyce Bender, Ron Cicerello, Byron Brooks, Dave Skinner, and Clare Sipple. From the Sierra Club and the Kentucky Native Plant Society were Mary Carol Cooper, Donna DePenning, Ann Blevins, Panaea Rue, Charlie Chandler, Ron Colwell, and his nephew, Adam.

TENN / University of Tennessee Herbarium — http://tenn.bio.utk.edu/vascular

Southern Bog Goldenrod

Rare Goldenrods of Kentucky (cont.)

found in Laurel and Pulaski counties. North Carolina and Virginia also consider the species as rare (Cronquist 1980, USDA, NRCS 2002, NatureServe 2003).

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What's New? Recent Additions

by Deborah White, Botanist
Kentucky State Nature Preserves Commission

As botanist at the Kentucky State Nature Preserves Commission (KSNPC) I get a lot of botanical news — especially exciting finds for the state. It never fails to astound me that species that have never been seen here before are discovered or that we discover new occurrences of plants that are very rare. Here are a few of the exciting finds for Kentucky from recent years.

Black Mountain is a very unique place in Kentucky in having the highest elevations, over 4,000 feet, and the only stands of northern hardwood in the state. Dr. Ron Jones found three species new to the state a few years ago during his survey of Black Mountain — a true botanical bonanza. ***Viburnum lantanoides*** (alderleaf viburnum) is found in rich cove forests at mid to high elevations in the Appalachian region. Another rare shrub species, ***Vaccinium erythrocarpum*** (southern mountain cranberry) is an Appalachian high elevation species. Also, an interesting sedge, ***Carex roanensis*** (Roan mountain sedge) turned up on Black Mountain. This is a sedge that was only known from North Carolina mountains before Dr. Jones discovered it — should we call it Black and Roan mountain sedge now?

Hydrocotyle ranunculoides (floating pennywort). This was found in 2002 at the KSNPC's Terrapin Creek Preserve during a general floristic survey. I found large floating mats of this species throughout the large marsh at this site. Ed Hartowicz noted it from the Henderson County area too. It looks like other pennyworts in having round leaves at the end of a stalk.

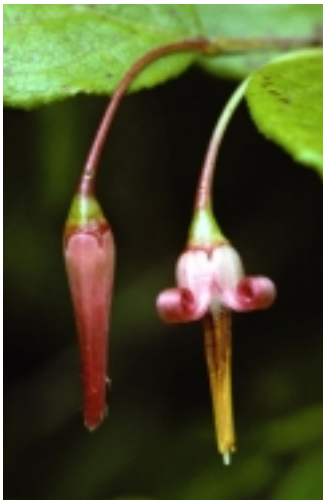
Drosera intermedia (spoon-leaved sundew). I actually thought Martina Hines was pulling my leg when she first brought this in from Russell County because it hasn't been seen in 50 years! These little sundews are notorious for being carnivorous. You can sleep at night however, because this one is only a few inches tall and catches (and digests) insects, presumably for a nitrogen source. This grassy opening has a very interesting flora rich in native sedges

Dennis D. Horn / TENN — http://tenn.bio.utk.edu/vascular

From left to right: floating pennywort, spoon-leaved sundew, and Fraser's sedge.

to Kentucky's List of Botanical Rarities . . . . . .

B. Eugene Wofford / TENN — http://tenn.bio.utk.edu/vascular



Alan S. Heilman / TENN Herbarium — http://tenn.bio.utk.edu/vascular

TENN / Univ. of Tennessee Herbarium — http://tenn.bio.utk.edu/vascular

A trio of Black Mountain finds (from left): alderleaf viburnum, southern mountain cranberry, and Roan mountain sedge.

and unusual herbaceous species. Martina has applied for funding to improve the habitat at this site through the federal Landowner Incentive Program (see *www.usfs.gov*).

Cymophyllus fraseri (Fraser's sedge). I know what you're thinking — another little sedge that looks like other little sedges. Think again! This species has large, glossy, strap-like, lily-looking leaves and a very distinctive fuzzy-headed infloresence. A new large population was found last year by KSNPC botanists and ecologists surveying Stone mountain, a site on the Virginia border that is being protected and developed for recreation through the Heritage Land Conservation Fund. In fact, nine rare plants were found at this site during this survey — crinkled hair grass, Appalachian sedge, rock harlequin, southern bog clubmoss, showy gentian, jointed rush, Curtis' goldenrod and variable-leaved heartleaf. This will be a wonderful place to hike once it is developed.

Also, Dr. Robert Naczi (with Robert Kral and Charles Bryson) has been working on sedges (the genus *Carex*) and has described a new species in this genus, ***Carex cumberlandensis*** (Cumberland sedge). This is a species of mesic forests in the southeast United States and a few adjacent states, with an apparent center of distribution on the Cumberland Plateau of Kentucky-Tennessee-northern Alabama. Another species is rare and newly described in their article, ***Carex timida*** (timid sedge). The type specimen for the species is from the Sugar Camp Creek area of the Daniel Boone National Forest's Morehead Ranger District. Thanks to David Taylor at DBNF for providing some background on these new species.

Dennis D. Horn / TENN — http://tenn.bio.utk.edu/vascular

Courtesy of Kentucky State Nature Preserves Commission

COMING SOON! The Kentucky State Nature Preserves Commission has developed a website that will provide information on Kentucky rare plants. One feature of this site is a brief description of the unique characters that distinguish these species from other look-a-likes. Other information will include their official status on rare and endangered lists and their flowering period. The rare plant database will soon be available for public use through a link from our homepage at

http://www.naturepreserves.ky.gov

Until then, be sure to check out the many wildflower-related websites already available on the internet. I find these especially useful:

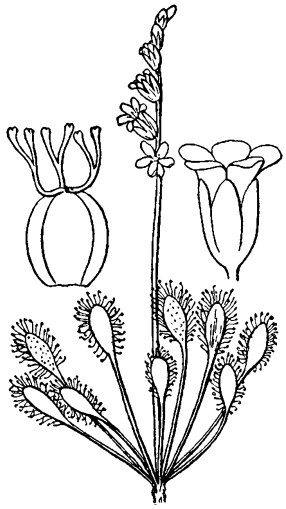
http://www.wildflower2.org/
http://www.natureserve.org/explorer/
http://www.nps.gov/plants/

—Deborah White

Kentucky Plants with Unusual "Lifestyles"– Part II, Carnivorous Plants

by Ron Jones

THE VAST MAJORITY of vascular plants in Kentucky exhibit a "typical" life history, that is, they are rooted in the soil, and have green above-ground parts that carry on photosynthesis. Thus, the typical plant is composed of roots, stems, and leaves, and it obtains all the necessities of life from sunlight, air, water, and soil nutrients. Some Kentucky plants, however, exhibit atypical forms or life histories. Having discussed parasites in the first part of this series, the subject turns to:



Illustrated Flora of the Northern United States... / Britton & Brown / 1913

Drosera intermedia

Practical Botany / Joseph Y. Bergen and Otis W. Caldwell / 1911

***Drosera rotundifolia* is currently unknown in Kentucky. At left below is an example of its fully opened leaf blade, and to its right, some typical responses while trapping and digesting prey.**

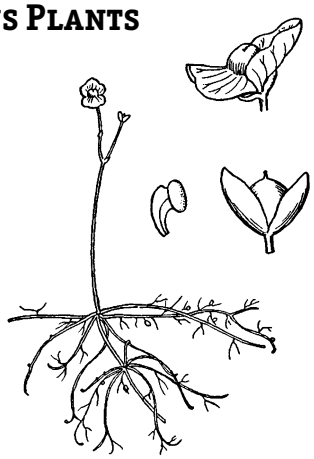
Carnivorous Plants

Carnivorous plants obtain their sugar-based nutrients from photosynthesis, but they derive at least a portion of their minerals, especially nitrogen, from animal sources. These plants grow in nitrogen-poor habitats (acidic soils or water) and have evolved structures that enable them to trap small animals. In Kentucky there are two groups of carnivorous plants — sundews (*Drosera* spp.) and bladderworts (*Utricularia* spp.).

Sundews —

In sundews the leaves consist of a narrow petiole and an expanded blade that acts as an insect trap. The trapping mechanism consists of sticky, reddish trichomes (hairlike appendages) that coat the leaf surface. The longer trichomes, which secrete a sticky mucilage, occur along the edges of the leaf. The shorter ones, located toward the center of the leaf, secrete digestive enzymes. Small insects, probably attracted by the plant colors or glandular secretions, crawl across the leaf and become mired. The longer trichomes then bend over the insect, further trapping it, and often the entire leaf will curl around its struggling prey. After the digestive process has occurred, and the needed nutrients absorbed, the leaf dies and is replaced by another leaf.

Sundews have been nearly extirpated from the state — *Drosera brevifolia* is Endangered, *D. intermedia* was previously listed as Historical (see page 8), and *D. rotundifolia* is currently unknown in Kentucky but has been credited to the state in some publications.

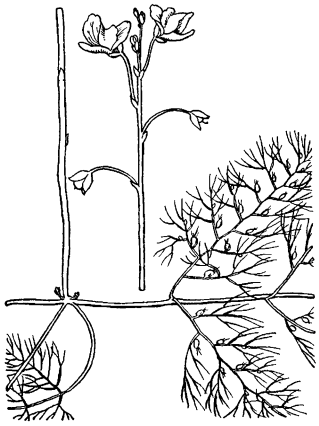


Illustrated Flora of the Northern United States and Canada / Britton & Brown / 1913

Utricularia gibba

Bladderworts —

Bladderworts are aquatic plants, typically found floating on or near the surface in bodies of water, or occasionally in damp or muddy soil. They are rootless, with the plant body consisting of a slender stem, sometimes elongating to 9 m or more, with whorls of branches bearing tiny bladders. The bladders are bulbous, 0.5–3 mm long. Kentucky bladderworts produce yellow, 2-lipped flowers on stalks arising from the main axis.



Utricularia macrorhiza

The bladderwort bladders have a tiny opening with a trap door mechanism surrounded by branched trigger hairs. When the door is closed, a negative pressure builds up inside the bladder. The trap is sprung when a passing aquatic animal disturbs one of the trigger hairs, causing the door to snap inward, resulting in an inrush of water that draws in the animal. The speed of the trap has been estimated at 1/460 second. Because of the small size of the traps, only very small animals are caught, such as water insects, protozoans, tiny crustaceans, and rotifers. Larger animals, such as mosquito larvae and even tadpoles and small fishes are sometimes caught by species with larger bladders.

Two species of *Utricularia* are known to occur in Kentucky — *U. gibba,* which is widespread across the state; and *U. macrorhiza,* which is rare in western Kentucky. Probably other species await discovery in the state.

Pitcher Plants?

Pitcher plants (*Sarracenia* spp.) are well-known carnivorous plants of the southern U.S., but there are no documented occurrences of pitcher plants in Kentucky. Since the green pitcher plant, *Sarracenia oreophila,* was known to occur in Fentress Co., Tennessee, in the mid-20th century, there is a remote possibility that pitcher plants could still be discovered in Kentucky, most likely at seepage sites in remote regions of the Cumberland Mountains.

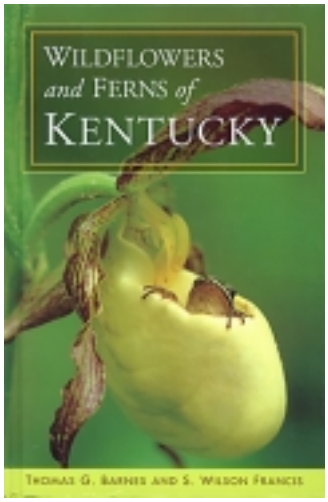
CALENDAR of KNPS and Other Native Plant-related Events

Sat., April 17 – KNPS CENTRAL KY FIELD TRIP, Grayson Co., KY. Enjoy spectacular and diverse spring wildflowers on rarely accessible private land. Meet at 9:30 am (Central) at the grocery store/Chevron station in Short Creek, KY—12 miles west of Leitchfield at the intersection of highways 54 and 79. If you come from the west on Western KY Parkway, exit at Caneyville and take Hwy. 79 north to above location. Bring lunch, get a sandwich and drink at the Short Creek store, or dine at nearby Rough River State Park. Notify the trip leader, long-time KNPS member Joyce Porter, by phone or mail if you're coming: (270) 879-9765; 10995 Owensboro Rd., Falls of Rough, KY 40119.

Fri.–Sun., April 16–18 – Pine Mountain Wildflower Weekend, Pine Mountain Settlement School, Harlan Co., KY. Various hikes around the Pine Mountain Settlement School grounds led by Kentucky State Nature Preserves Commission ecologist, Marc Evans, and PMSS naturalist, Ben Begley. Contact PMSS online at *www.pinemountainsettlementschool.com* for more details.

Sat., April 24 – Salato Center Spring Native Plant Sale, 9 am–4 pm., at the Ky. Dept. of Fish and Wildlife Resources Game Farm, 3 mi. west of Frankfort, KY, on U.S. 60. The Salato Center is selling its surplus plants to make room for future planting needs. Get advice on planting native species from the greenhouse volunteers and Salato staff and tour the gardens to see mature native plants in their home soil.

Sat., April 24 – Open House/Book Signing at the Garden for the Birds, 8 am–dusk, Lexington, KY. KNPS board member Tom Barnes, author and photographer of *Gardening for the Birds* and *Kentucky's Last Great Places,* has invited KNPS members to tour his front and backyard wildflower gardens at 1733 Albemarle Rd. in Lexington. Visitors will also be able to purchase Dr. Barnes' latest book, the new *Wildflowers and Ferns of Kentucky* (co-authored by former KNPS president Wilson Francis) at a discount.



Sat., April 24 – KSNPC Hike at Floracliff State Nature Preserve, Fayette Co., KY. 1 pm –3 pm. Difficulty: moderate. Join the Nature Preserve Commission's Joyce Bender on a hike to view spring wildflowers and Elk Lick Falls at Mary Wharton's wildflower sanctuary. To help participants learn to identify wildflowers, copies of the new *Wildflowers and Ferns of Kentucky* by Thomas G. Barnes and S. Wilson Francis will be available at a discount. Contact Carey Ruff at 859-351-7770 or e-mail *floracliff@aol.com* to sign up and get directions.

Sat., April 24 – Arbor Day at the Arboretum, Lexington, KY. UK/LFUCG Arboretum, 9 am–2 pm. A celebration of tree planting, gardening, and the environment. Activities for children and adults, an information-filled exhibit tent, experts with answers to gardening questions. Speakers include Rich McCourt, curator of the Lewis and Clark herbarium in Philadelphia, and local author George Ella Lyon.

Sat., April 24, 9 am–5 pm – Griffith Woods Workday, Harrison Co., KY. April 24 will be a special day at Griffith Woods with announcements, press, and tours and probably a big picnic and celebration of some kind, and prizes to "volunteers of the year." From Lexington, go north on Russell Cave Rd. (KY 353) to US 62; turn right and enter first driveway on right. Please don't visit at other times without permission. Details from Julian Campbell, 859-271-4392 or *jcampbell@tnc.org*

Sat., April 24 – KSNPC Hike at Brigadoon State Nature Preserve, Barren Co., KY, 10:00 am CDT–12:00 noon. Difficulty: moderate. Join the KSNPC's Lane Linnenkohl for an interpretive hike at Brigadoon SNP through the mature forested ridges and scenic ravines overlooking the Skaggs Creek portion of Barren Lake in Barren County. Contact Lane to sign up, (270) 745-7005 or *lane.linnenkohl@ky.gov*

Fri.–Sun., April 23–25 – 7th Annual Native Plant Symposium, sponsored by the SC Native Plant Soc., Greenville, SC. Speakers and field trips will explore the science and beauty of the Jocassee Gorges, a treasure trove of biodiversity in South Carolina's rugged highlands. Details at *www.scnps.org/activities.html*

Thurs.–Sun., April 29–May 2 – NATURAL BRIDGE WILDFLOWER WEEKEND AND KNPS SPRING MEETING, Natural Bridge State Resort Park, Slade, KY. *Details on page one.*

Sat., May 1 – Griffith Woods Workday. A repeat of some of the April 24 activities for those who couldn't come. *See April 24*.

Sat., May 8 – Bluegrass Woods Restoration Workday, 9–11:30 am, Lexington, KY. Meet at UK/LFUCG Arboretum east entrance to Bluegrass Woods. Bring work gloves. Refreshments served. Details: Jim Lempke, 859-257-9339, *arboretum@lsv.uky.edu*

(Continued on page 12)

Kentucky Native Plant Society
MEMBERSHIP FORM

Memberships are for the calendar year (January–December).

Name(s) _____

Address _____

City, State, Zip _____

KY County _____

Tel.: (Home) _____ (Work) _____

E-mail _____

☐ Add me to the e-mail list for time-critical native plant news.

☐ Include my contact info in any future KNPS Member Directory

Membership Categories: *Annual* – ☐ $10; *Lifetime* – ☐ $150

☐ *This is a renewal.* ☐ *This is a new membership.*

Membership $_____

Gift (optional) $_____ Gifts are tax deductible. [IRC 501(c)(3)]

Total $_____ (payable to *Kentucky Native Plant Society)*

Return form & dues to:

KNPS MEMBERSHIP, P.O. Box 1152, Berea, KY 40403

Calendar of KNPS and Other Native Plant-related Events (continued)

Sat., May 15 – KSNPC Hike at Bad Branch State Nature Preserve, Letcher Co., KY, 9:00 am–5:00 pm. Difficulty: Strenuous. Many plants and animals found at Bad Branch are more common to northern climates and several are considered rare for the state. We will pass through the steep cliffs that form the Bad Branch gorge and visit a 60-foot waterfall that plunges down its face. The final destination will be the crest of Pine Mountain to a massive slab of sandstone known as High Rock. From this point we will have the opportunity to view the many hills and valleys that make up the Cumberland Plateau. The distance of the hike is approximately 7.5 miles. Wear sturdy hiking boots and bring lunch and water. Contact Kyle Napier at the Ky. State Nature Preserves Commission to sign up, (606) 663-0362 or *kyle.napier@ky.gov*

Wed., May 19 – Registration Deadline for Aquatic Plants of Kentucky, *Details on page 2*.

Sat., May 29 – Ferns of Floracliff, The Mary E. Wharton Nature Sanctuary at Floracliff, Fayette Co., KY. Rob Paratley, herbarium curator and professor at the University of Kentucky will introduce participants to a variety of ferns, their lifecycle, and identification. Call 859-351-7770 for details and to register.

Sat., June 12 – KSNPC Hike at Thompson Creek Glade State Nature Preserve, Larue Co., KY, 11:00 am–2:30 pm. Difficulty: Moderate–Strenuous. Thompson Creek Glade SNP is not usually open to the public. Explore three high quality limestone slope glades connected by woodland communities. Glades like these are refugia for many showy prairie wildflowers that were once much more common in western Kentucky. The hike will be about 2 to 2.5 miles off trail and on uneven terrain. Wear sturdy shoes and bring water. Contact Nick Drozda to sign up, 502-573-2886 or *nicholas.drozda@ky.gov*

Sat., June 19 – Aquatic Plants of Kentucky, Special Topics course, KNPS Certification in Native Plant Studies. *Details, p. 2*.

Aug. 31–Sept. 15 – Native Plants and Birds of Peru. The nonprofit, community-based tourism organization, Crooked Trails, based in Seattle, WA, is inviting native plant enthusiasts across the country to participate in a trip to Peru to explore the native plants of the Peruvian Andes and Amazon. Walking with scientists, professors and tribal people we will explore some of the ecological zones, agricultural crops, medicinal plants and traditional uses of Peru's native plants. An optional extension to Sept. 19, will include a trip to Lake Titicaca. For details see *http://www.crookedtrails.com/peru_nativeplants.htm* or call Christine Mackay, 206-372-4405.

Sun.–Wed., October 3–6 – Fourth Eastern Native Grass Symposium, 4 Points Sheraton, Lexington, KY. Symposium goals are to share information, experiences, and research about recent projects involving native grasses. Presentations and field trips will highlight diverse aspects of native grass uses, adaptations, and importance. For more information, see *http://forestry2.ca.uky.edu/grass_symposium* or contact Thomas Barnes, *tbarnes@uky.edu*

See Page 2 for Contact Information.

(*Return address below is for POST OFFICE USE ONLY.*)

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