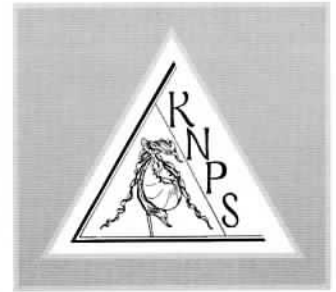


# The Lady-Slipper

Kentucky Native Plant Society

Number 16:1

Early Spring 2001



## A Message from the President:

I WISH YOU HAD ALL BEEN THERE. KNPS had a great fall meeting on November 4, 2000 at the Salato Wildlife Education Center in Frankfort. Our hostess was Mary Carol Cooper, coordinator of the native plant program at Salato and vice-president of KNPS.

What a place! In the greenhouses Mary Carol is growing native plants from all over Kentucky, so you have the opportunity to see western Kentucky prairie specialties growing right beside eastern Kentucky forest species.

If you haven't seen the Salato Center, you'll be pleased to know they have live animal displays with elk, white-tailed deer, bison, and even bobcats. School groups probably think the bobcats are really cool, but we all know the native plant program is the most important part of the operation.

At the November board meeting we talked about our membership roll, which currently shows 1,159 members of KNPS. Maybe it's a good thing you weren't all there, after all. Keeping up with the membership status of 1,159 people is no easy task, even with a computerized database.

We decided to send out a dues notice to all members with the exception of life members, asking that their dues be paid for the coming year before the spring issue of the newsletter is mailed.

We printed special envelopes for dues payment that were preaddressed to our treasurer, Angie Begosh, who will then receive about a thousand envelopes to open and process. I hope Angie believes that it is better to open a thousand envelopes than to have to lick them and seal them up.

We appreciate all the members who have responded to our letter by sending their dues payments.

We had a vacant position on the Executive Board that was filled at the November meeting. Roy Smith, who is in the Veterinary Science Department at the University

of Kentucky and has a great interest in poisonous plants, will now be a member. Be sure to check out his article on toxic native plants on page 4.

We also added some members to the Special Projects Committee which will be advising the Board on issues such as creating a formal state endangered species list, overharvesting of medicinal plants, and exotic and invasive species.

Ed Hartowicz will be the committee chair; other members include Joyce Bender, Sonia McElroy, Portia Brown, Deb White, Jim Durrell, and Mary Carol Cooper.


At the November board meeting we also created an Editorial Committee for our newsletter.

Ron Jones will be the chairman, and Dave Eakin, Beth Galloway, Roy Smith, and Deb White will be committee members. The purpose of the committee is to build a network of regular contributors who will supply articles and columns on news, issues, and outings pertaining to native plants.

We encourage anyone with something to contribute to contact one of the committee members, and we look forward to reading issues of *The Lady-Slipper*.

NOW WE'RE PLANNING a good spring meeting for you at the Wildflower Weekend at Natural Bridge State Park, May 4-6.

I hope you all come, all 1,159 of you. We won't have enough chairs, and the lodge may not have enough fried chicken, but I promise you we will have enough wildflowers to go around. You'll find details on page 3. *It's going to be green, and warm, and there will be warblers singing, and the Trilliums will be in bloom, and I hope you're there!*

And if you're thinking even farther ahead, you'll want to mark your calendar now for our November 10 fall meeting at Shakertown in Mercer Co. Stay tuned for details. It'll be great too. 

**Natural Bridge/  
KNPS WILDFLOWER  
WEEKEND!**

**May 4-6, 2001**

**Natural Bridge State  
Resort Park, Slade, KY**

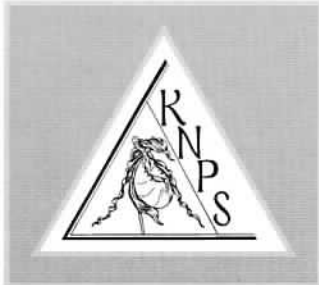
*See p. 3 for details!*

### **In this Issue—**

- From the President – 1**
- Grant Announcements – 2**
- Wildflower Weekend  
2001 / KNPS  
Spring Meeting – 3**
- Toxic Native  
Dicotyledoneae  
of Kentucky – 4**
- Kentucky's  
Wetlands, Part I – 6**
- Summer Course on  
"Coastal Vegetation" – 6**
- The Grape  
Family (Vitaceae) – 8**
- Some Native Plant-related  
Trips, Projects,  
Events & Opportunities – 10**
- 2001 Calendar of Native  
Plant-related Activities – 12**

The KNPS WEB SITE is at  
[http://sac.uky.edu/  
~mthom0/KNPS/knps.htm](http://sac.uky.edu/~mthom0/KNPS/knps.htm)

(Use Capitals and lower case as shown, and that's a zero, not a capital o.)



### The Lady-Slipper

is intended to be published by the Kentucky Native Plant Society [IRC 501(c)(3)] in Feb., May, Aug., and Nov. with deadlines the 1st of the prior months. Members of the Editorial Committee welcome submissions at all times.

Dues and inquiries about membership status should be sent to:

KNPS Membership, P.O. Box 1943, Hyden, KY 41749 or lapham@scrtc.com

ALL OTHER BUSINESS should be sent to an appropriate Officer or Board Member below:

#### KNPS Officers—

President: Wilson Francis – Natural Bridge State Park, 2135 Natural Bridge Rd., Slade, KY 40376; 606-663-2214

Vice-president: Mary Carol Cooper – #1 Game Farm Rd., Frankfort, KY 40601; 502-564-5280; marycarol.cooper@mail.state.ky.us

Secretary: Steve Sensenig – 1694 Fairview Rd., Lawrenceburg, KY 40342; 502-839-7366; digger@wmbinc.com

Treasurer: Angie Begosh – P.O. Box 2058, Hyden, KY 41749; 606-279-6074; abegosh@ca.uky.edu

#### KNPS Board Members—

Charlie Lapham – 16 Winn School Rd., Glasgow, KY 42124; 270-646-4060; lapham@scrtc.com

Deborah White – KY State Nature Preserves Commission, 801 Schenkel Lane, Frankfort, KY 40601; 502-573-2886; deborah.white@mail.state.ky.us

Thomas G. Barnes – Dept. of Forestry, University of Kentucky, Lexington, KY 40546-0073; 859-257-8633; tbarnes@ca.uky.edu

Roy Smith – Livestock Disease Diagnostic Center, University of Kentucky, Lexington, KY 40511; 859-253-0571; rasmith@ca.uky.edu

The Lady-Slipper Editorial Committee – Ron Jones, Deborah White, Roy Smith (see contact info above or below); David Eakin, Biological Sciences, Eastern Kentucky University, Richmond, KY 40475, 859-622-2258, bioeakin@acs.eku.edu; Beth Galloway, 2013 Pond Meadow Rd., Somerset, KY 42503, 606-678-2247, bgallowa@ca.uky.edu

Native Plant Studies Certification Committee Chair—Ron Jones – Biological Sciences, Eastern Kentucky University, Richmond, KY 40475; 859-622-6257; biojones@acs.eku.edu

Grants Committee Chair—David Taylor – USDA-Forest Service, 1700 Bypass Rd., Winchester, KY 40391; 859-745-3167; dtaylor02@fs.fed.us

Conservation & Special Projects Chair—Ed Hartowicz – 500 Laketower, #80, Lexington, KY 40504; 859-266-1721

Communications Committee Chair—Charles Chandler, 924 Maywick Dr., Lexington, KY 40504; 859-278-5085; cdchandler@att.net

## KNPS GRANT ANNOUNCEMENTS for 2001 . . . . .

### KNPS SUMMER 2001 FIELD BOTANY GRANT

KNPS is accepting applications for a \$500 grant for a summer field botany class. The applicant must be a student at a Kentucky college or university and the course must be a summer field class involving plant taxonomy and/or plant ecology. The class does not have to be in Kentucky. The grant can pay for tuition, books, travel, and living expenses while taking the class.

Applicants should send a Curriculum Vitae detailing their course and work background, emphasizing past botanical training, and a letter stating their reasons for taking the course and how it will further their career plans. Give one reference (with phone no. and/or email), preferably a college or university professor. Application deadline is April 15, 2001. Send application to:

**Dr. David Eakin**  
Department of Biological Sciences  
Eastern Kentucky University  
Richmond, KY 40475

### KNPS NATIVE PLANT DEMONSTRATION GARDEN GRANTS for Kentucky Primary and Secondary Schools

KNPS is pleased to announce the fifth year of offering funding for school demonstration gardens to further awareness by young Kentuckians of native plants and their importance in the environment.

In June of 2001 up to two grants of \$250 each will be awarded to help fund the cost of establishing native plant gardens on school grounds to promote an understanding and appreciation of Kentucky's flora and natural communities. Grants may be awarded to Kentucky primary or secondary schools or other educational organizations, but preference is for primary/middle schools.

The awarded funds are intended to supplement funds already secured from other

sources. Grants may be used to purchase native plants (seeds or plants of wildflowers and shrubs). Up to \$75 may be used to purchase native plant reference materials such as books and slide sets. The grant may not be used to pay for earthwork, pond building, building supplies, equipment rental, field trip expenses, or classroom equipment. Proposals may be submitted by groups or individuals from Kentucky educational organizations.

Preference will be given to 1) proposals which create native plant gardens reflecting the species of particular communities (e.g., prairie, woodland) bringing a piece of the wild close to classroom areas; 2) proposals which create a garden comparing and contrasting common, usually non-native, garden plants with native species promoting the idea of landscaping with nursery grown natives; or 3) rehabilitation of deteriorated wild areas with native species.

Proposals will be reviewed by the KNPS Grant Committee. Proposals must include:

1. A brief resume presenting project direction experience, educational experience, etc., which indicates the knowledge/experience to carry the project to completion;
2. A proposal (not to exceed three pages, excluding supporting drawings/diagrams) which describes the project, explains how it promotes education toward botanical/ecological understanding of Kentucky's environment, lists other project contributors (e.g., financial, in-kind and labor), and describes the role the grant would play in the project;
3. A maintenance plan and schedule for the garden;
4. An itemized budget; and
5. A letter of support from the school principal.

Applicants are encouraged to become members of the KNPS, but membership is not required to be awarded a grant. Submit three copies of all items listed above, including letters of support, to:

**David D. Taylor**  
USDA Forest Service  
1700 Bypass Road  
Winchester, KY 40391

Proposals may be submitted at any time. To be considered for the June 2001 disbursement, all material must be received by April 15, 2001. Proposals received after this date will be held and considered for the next disbursement.

#### E-MAIL Anyone?

If you have an e-mail address, and would like to be notified of last-minute native plant rescues or other time-critical native plant-related activities, send your e-mail address to Michael Thompson at

[KNPS\\_events@hotmail.com](mailto:KNPS_events@hotmail.com)

## KNPS STUDENT RESEARCH GRANT

KNPS is pleased to announce the fifth year of offering a funding source to support botanical knowledge and understanding in Kentucky. One award of \$500 will be distributed for a *field-based botanical project which contributes to the knowledge of Kentucky's flora or natural communities*. A grant will be awarded to a student attending a Kentucky college or university. Both graduate and undergraduate students are eligible. The grant may be used to purchase consumable supplies and materials such as rebar, herbarium paper, label stock, and topographic maps. The grant may also be used to cover mileage expenses. It may not be used to pay time (e.g., labor) for any party. The successful applicant will be notified by the end of June 2001.


Proposals will be reviewed by the KNPS Grant Committee. Proposals must include:

1. A current curriculum vitae;
2. A proposal (not to exceed two single-spaced typed pages) describing the proposed research and the role the grant would play in the research;
3. An itemized budget; and
4. Two letters of recommendation, one of which must be from the applicant's major professor or project director.

Applicants are encouraged to become members of the KNPS, but membership is not required to be awarded a grant. Grant recipients are expected to provide KNPS with a short summary of the funded research suitable for publishing in KNPS's newsletter *The Lady-Slipper* within one year of receiving the grant. Grant recipients are also expected to present their work at the annual Kentucky Academy of Sciences meeting within one year of completion of their research.

Submit three copies of all items listed above including letters of recommendation to:

**David D. Taylor**  
 USDA Forest Service  
 1700 Bypass Road  
 Winchester, KY 40391

Proposals may be submitted at any time. *To be considered for the June 2001 award date, all materials must be received by April 15, 2001.* Any proposals received after that date will be held and considered in the next available disbursement. 



Thomas G. Barnes

## Don't Miss KNPS WILDFLOWER WEEKEND, May 4-6, 2001!


WHEN YOU'RE SCRAPING FROST OFF your windshield and shoveling snow from your front walk, just try to remember that all those spring wildflowers have made the necessary preparations to start blooming as soon as weather permits. The annual Kentucky Native Plant Society Wildflower Weekend is timed to catch the peak of the spring wildflower season. This year's program at Natural Bridge State Park will be held on May 4-6.

For those who are able to arrive early for the weekend, we'll offer a Thursday (May 3) evening program on the life histories and identification of spring wildflowers. Earlybird field trips to view wildflowers will begin on Friday morning at 9:00 am, with additional trips leaving at 1:30 pm.

The Wildflower Weekend will officially begin on Friday evening at 8:00 pm with a program in the Activities Center. Saturday field trips will start at Hemlock Lodge at 8:30 and 9:00 am, with more trips at 1:30 pm. There will be morning bird walks, tree walks, ecology walks, general wildflower walks, and special programs just for children. There will be an evening program on Saturday and more walks on Sunday morning.

Our featured guest speakers will include Fred Case from Saginaw, Michigan, with a program on "North American Trilliums." Mr. Case is a retired science teacher and co-author, along with his late wife Roberta, of *Trilliums* published by Timber Press. He is the author of *Orchids of the Western Great Lakes Region* and *Wildflowers of the Western Great Lakes*. Some of you may remember that Mr. Case spoke on native orchids at Wildflower Weekend in 1993.

Lodge rooms and cabins for the weekend are available by contacting **Natural Bridge State Park at (800) 325-1710**. Campsites are also available on a first-come-first-served basis.

Rooms and cabins are available near the park at: 

<b>Little Abner's Motel</b>	606-663-5384	<b>Natural Bridge Cabins</b>	606-663-4900
<b>Tecumseh Resort</b>	606-663-0283	<b>Shadow Mountain Mist</b>	606-663-8018
<b>Red River Gorgeous</b>	606-663-5060	<b>Old School Bed &amp; Breakfast</b>	606-464-9991
<b>Torrent Falls</b>	606-668-6441	<b>Seven Sisters' Inn</b>	606-668-6444
<b>Cliffview Resort</b>	606-668-6550		

Large-flowered Trillium (*T. grandiflorum*) is just one of the Trilliums you're likely to see at Natural Bridge. Fred Case, co-author of Timber Press' *Trilliums*, will present "North American Trilliums" at Wildflower Weekend.



# Toxic Native Dicotyledoneae of Kentucky . . . . .



Water Hemlock



Oblong-leaved Milkweed



Dwarf Larkspur



White Snakeroot

by Roy Smith  
Livestock Disease Diagnostic Center,  
Veterinary Science Department,  
University of Kentucky

ARGUMENTS STILL RAGE among botanists as to the role of plant alkaloids that are toxic to animals. Are they simply intermediate products of the biosynthesis of more complex compounds, or are they present because of their deterrent effect on grazing?

Certainly *Asclepias* spp. are not toxic to the Monarch butterfly, and indeed the toxic compounds in *Asclepias* spp. in turn protect the butterfly from predators. One cannot look for long at a specimen of honey locust (*Gleditsia triacanthos* L.) without realizing that herbivores would be very reluctant indeed to eat much of it.

I personally assume that the various toxins of the native flora have evolved as a deterrent to being grazed. A small number of toxic native dicots come to mind, and these are listed below. In these cases reports of the toxicity can be found in the literature, or my own investigations have implicated them as poisonous.

*Cicuta maculata* L. or *C. bulbifera* L. – Water hemlock contains an unsaturated diol, cicutoxin, and it is almost certainly our most toxic native plant. As its name suggests, water hemlock grows on the banks of lakes or streams. Cicutoxin, acting directly on the central nervous system, is an extremely violent convulsant—the head and neck are thrown rigidly back, and legs may flex as though running. In some cases the tongue is chewed to shreds. Most poisonings in humans can be attributed to misidentification of the plant as an edible member of the Apiaceae (carrot family) by foragers (Sweeney et al. 1992, 1994).

*Asclepias* spp. – Several species of Milkweed are found in Kentucky. The nasty ones include *A. syriaca* L., *A. tuberosa* L., *A. verticillata* L., *A. incarnata* L., *A. viridis* Walt. and *A. hirtella* (Pennell) Woodson. The toxins in the genus are complex glycosides and only recently was the structure of verticenolide from a milkweed published (Ogden et al. 1998).

There are two types of toxin present in milkweeds depending on the species. *A. verticillata* and *A. incarnata* cause neurological symptoms such as tremors, seizures, lip twitching and head shaking

or pressing. *A. hirtella* and *A. viridis* give rise to respiratory and cardiovascular symptoms including dyspnea and respiratory groan and weakness, ventricular fibrillation and EKG changes.

Milkweed plants remain green even in the driest of summers and only under conditions of drought are they normally problematical. Many sheep died in Fleming County in 1999 after consumption of oblong-leaved milkweed, *A. viridis*.

*Delphinium tricorne* Michx. – This plant, the dwarf larkspur, contains a number of alkaloids including methyllycaconitine (MLA). MLA is a nicotinic receptor antagonist. Animals that have ingested it display weakness, uneasiness, stiffness of gait, and a characteristic straddled stance with hind legs far apart as though to prop up the animal. The animal collapses suddenly, usually the fore legs first. Death results from respiratory paralysis.

*Kalmia latifolia* L. – The mountain laurel is a beautiful evergreen found mostly in the higher elevations of the Commonwealth. Several cows died in Pulaski County in 1996 after grazing on this plant. Because it is an evergreen, situations arise where it is the only green vegetation available, and then it is consumed.

Bees that make their honey from mountain laurel or other members of the Ericaceae produce a honey toxic to humans. The toxins, known as grayanotoxins increase the permeability of sodium ions in excitable membranes. The result of this is low blood pressure, slow pulse, paralysis and death. The Delaware Indians used the plant to commit suicide.

*Eupatorium rugosum* Houtt. – White snakeroot is far less of a problem than it once was. The plant contains tremetol. Animals, which consume the plant, can be poisoned, but much of the poison is excreted in their milk so that the milk, or any product made from it, such as cheese or butter, is itself toxic. Abraham Lincoln's mother is reputed to have died from "milk-sickness" as the disease was called.

Animals that have consumed the plant exhibit muscle tremors, ataxia, heavy sweating, reluctance to move, sluggish behavior, stiff gait, myoglobinuria and listlessness. Death eventually ensues. As recently as 1999 this plant poisoned three horses in Pendleton County.



Mountain Laurel



Black Cherry



Jimson Weed



Indian Tobacco

**Prunus serotina** Ehrh. – The wild black cherry contains the glucoside amygdalin. Amygdalin contains cyanide bonded to a sugar. The leaves and twigs are especially dangerous when they have wilted. This might happen if a limb is broken off a tree during a period of high winds. When the plant is eaten cells are ruptured and an enzyme is released. This enzyme cleaves the cyanide from the sugar forming hydrocyanic acid. Breathing becomes difficult and the mucous membranes turn blue. Death is rapid.

**Datura stramonium** L. – There is room for debate about whether or not Jimsonweed is truly native. It was certainly growing in Virginia in 1676 at the time of the Bacon Rebellion. A large number of British soldiers sent to put down the rebellion stopped near Jamestown and made tea from the leaves of this plant. Shortly after that most were unconscious, and those who were not were reeling as if drunk. A much smaller number of colonists were able to capture them, guns and all. The plant contains atropine, an alkaloid. Decoctions of the plant, especially the seeds, are widely used by young people as a drug of abuse (Levy 1997; Shervette et al. 1979; Tiongson and Salen 1998; Urich et al. 1982; Taha and Mahdi 1984.).

**Lobelia inflata** L. – Indian tobacco contains the alkaloid lobeline, somewhat similar in structure to nicotine. Quite a large amount has to be eaten for signs of poison-

ing to occur. These include nausea, vomiting and dilated pupils. A poisoned animal will stagger, voluntarily get down, convulse, and go into a coma and then die.

**Acalypha ostryifolia** Riddell. – Rough-pod copperleaf killed several head of cattle in Bath County in 1998. A member of the Euphorbiaceae, *A. ostryifolia* has an irritant milky sap. The animals displayed severe gastric irritation with diarrhea and hematuria with severe anemia developing. This plant, therefore, has very similar properties (Welchman et al. 1995; Watson 1998) to *Mercurialis* spp., which are exotics in the New World. Animals have to graze all these plants for several days before the onset of symptoms.

**Robinia pseudoacacia** L. – The black locust contains a phytotoxin, robin. Poisoned animals become stupid, failing to recognize their surroundings. They stand with their legs apart. Heart action is irregular, and breathing is feeble. Cattle are often very nervous and dizzy and eventually die.

**Apocynum cannabinum** L. – Dogbane contains the glucoside cymarin. As little as one ounce of the fresh green leaves can kill a cow. Poisoned animals show elevated body temperatures, sweat, and show a strong pulse, but the ears and legs become cold. Bowel action is frequent, and in advanced cases death occurs.

**Helenium autumnale** L. – Sneezeweed contains an

(Continued on page 6)

Unless noted otherwise, illustrations are from  
*An Illustrated Flora of the Northern United States...*  
Britton & Brown / 1913



Rough-pod Copperleaf



Black Locust



Hemp Dogbane



Sneezeweed

## Toxic Native Dicotyledons of Ky. (Cont.)

unknown toxin. Most poisonings occur when the plant is in flower. Affected animals have a rapid pulse, are restless, have difficulty breathing, lose muscular control and stagger blindly. They are very sensitive to the touch. After eating a lot of the plant, the animal may convulse and die suddenly.

**Quercus spp.** – The oaks are most dangerous in the budding and leafing stages. Poisonings occur in the spring when very little other forage is available. Animals turned into wooded areas before grass becomes abundant may consume large quantities of the buds, young leaves and last fall's acorns. Large amounts need to be consumed before death occurs.

**Aesculus glabra** Willd. – The Ohio buckeye contains the toxin aesculin. Conditions of poisoning are as for the oaks above.

**Gymnocladus dioica** L. Koch. – Poisonings occur from Kentucky coffeetree in late winter or spring when other forage is scarce. Animals are affected by eating very large quantities of pods and seeds left lying on the ground from the previous year's crop.

### REFERENCES

Levy R (1977). Jimson seed poisoning—a new hallucinogen on the horizon. *JACEP*; (6)2, 58–61.

Ogden L, Burrows G, Tyrl RJ and Ely RW (1998). Investigation of the Neurotoxic Compound in *Asclepias subverticillata*, Western-whorled Milkweed in "Toxic Plants and Other Natural Toxicants"; Eds. T Garland and C Barr. CAB International, New York, NY 435–439.

Shervette RE III, Schydlower M, Lampe RM and Fearnow RG (1979). Jimson "loco" weed abuse in adolescents. *Pediatrics*; 63(4), 520–523.

Sweeney K, Gensheimer KF, Knowltonfield J, Smith RA. Water Hemlock Poisoning—Maine, 1992. *MMWR*; 43(13), 229–231, 1994.

Taha SA and Mahdi AH (1984). Datura intoxication in Riyadh. *Trans R Soc Trop Med Hyg*; 78(1), 134–135

Tiongson J and Salen P (1998). Mass ingestion of jimson weed by eleven teenagers. *Del Med J*; 70(11), 471–476.

Urich RW, Bowerman DL, Levinski JA and Pflug J (1982). Datura Stramonium, a fatal poisoning. *J. Forensic Science*; 27(4), 948–954.

Watson PJ (1998). Suspected dog's mercury (*Mercurialis perennis*) poisoning in cattle. *Vet Rec*; Jan. 31, 142(5), 116–7.

Welchman DB, Gibbens JC, Giles N, Piercy DWT, and Skinner PH (1995). Suspected annual mercury (*Mercurialis annua*) poisoning of lambs grazing fallow arable land. *Vet Rec*; Dec. 2, 137(23), 592–3.

## Kentucky's Wetlands — Part I

by Landon E. McKinney

Let me take just a brief moment to say how happy I am to be back and involved with one of the finest Native Plant Societies in the country. After being absent from the state for about a year, I returned in August of 1997, accepting a job in Cincinnati, and taking up residence with my family in Kenton County, Kentucky. While I immediately had visions of becoming an active member again, my job kept me out of town and busy (perhaps, a little procrastination set in as well). (*Editor's note—Landon is a former President of the KNPS!*)

THIS ARTICLE BEGINS A SERIES ON WETLANDS and the wetlands of Kentucky, a subject that has grown near and dear to my heart. Over the last several years I have had the opportunity to observe and briefly study wetlands throughout much of the eastern part of the country. This series of articles will provide each of you with a better understanding and appreciation for wetlands of all types, sizes, and shapes.

We will begin by defining a wetland and discussing what criteria or characteristics are required to make a piece of ground a wetland. I am sure that all of you can easily form a mental picture of what a wetland is, a marsh, swamp, or essentially a piece of ground with standing water throughout much, if not all, of the year. While wetlands often fit this visual image, they are often not quite so obvious.

The U.S. Army Corps of Engineers defines wetlands this way:

Those areas that are inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances, do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Essentially, a wetland is a piece of ground that is wet for an adequate amount of time to provide habitat for plants that live and thrive in wet conditions. Wetlands are characterized by three, generally observable, conditions which are:

## Summer Course on "Coastal Vegetation" at

by Ron Jones

THIS SUMMER I WILL BE TEACHING a 3-week course titled "Coastal Vegetation." The course will be held at Ocean Springs, Mississippi, at the Gulf Coast Research Lab, from May 28–June 15, 2001. The course can be taken as an audit, or for 3 college credits at either the undergraduate or graduate levels.

Students will be introduced to the wide range of habitats along the Mississippi coast, as well as those on nearby barrier islands, including Deer Island and Horn Island. The latter is the largest and is part of the Gulf Islands National Seashore.

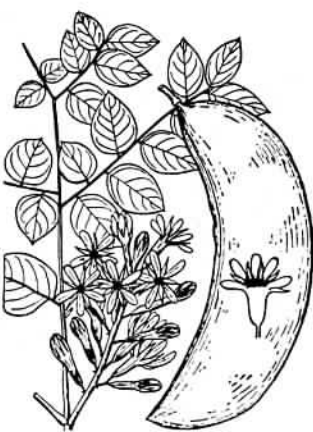
Habitats to be studied include: sea grass beds, salt marsh, estuary and intermediate marsh, freshwater marsh, pitcher-plant savanna, seashore, dune, and relict dune. Dominant and characteristic plants of each habitat will be identified, as well as unusual and rare species.



White Oak



Ohio Buckeye

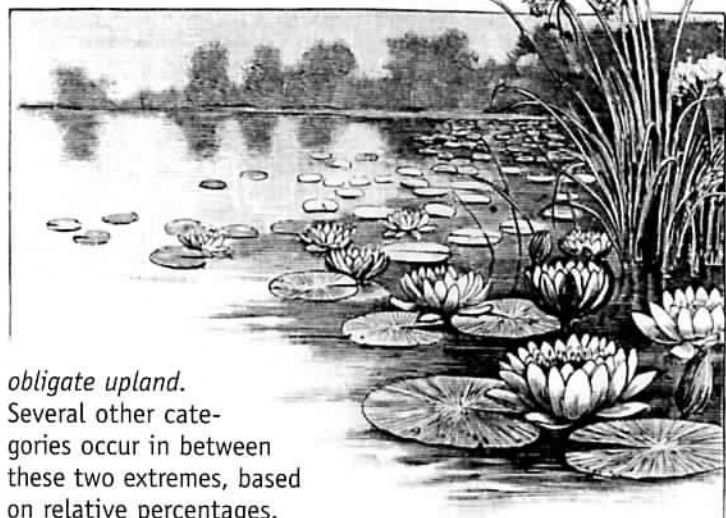


Kentucky Coffeetree



- Wetland (*hydrophytic*) vegetation
- Wetland (*hydric*) soils
- Wetland hydrology

PLANT LIFE can be defined and divided by how tolerant they are of wet conditions. Plants that almost always occur in wetlands are characterized as *obligates* whereas plants that rarely, if ever, occur in wetlands are characterized as



#### *obligate upland.*

Several other categories occur in between these two extremes, based on relative percentages.

WETLAND OR HYDRIC SOILS develop unique conditions after having been wet for an adequate amount of time. These include a depletion of oxygen that promotes changes in iron or other elements present that in turn tend to color the soil some shade of gray. The iron content of soils that are often wet but occasionally dry will appear as reddish-brown mottling imbedded within the grayish base color. Wetland soils that do not fit this profile are organic soils associated with the accumulation of peat (identifiable organic matter) or muck (unidentifiable organic matter). Organic soils are often associated with sphagnum moss-dominated wetlands like bogs.

WETLAND HYDROLOGY may or may not be obvious. Easily rec-

ognizable wetlands display the most obvious hydrologic characteristic, standing water or inundation. However, many wetlands may seldom, if ever, be inundated. Inundation may be only seasonal from year to year or it may be absent during a drought. The soils may only be saturated, never inundated. There are other characteristics of wetland hydrology that may or may not be obvious depending on the time of year, climatic conditions, and the presence or absence of forested conditions.

With these three characteristics in mind, is any one characteristic slightly more important than the others? Why of course. This is a native plant society newsletter and I am a botanist, so plants have to be a little more important. *If you generally know your wetland plants or at least the more common ones, you have the first and most significant clue in establishing that a piece of ground is a wetland*, especially for those not-so-obvious wetlands.

This discussion of wetland characteristics applies to jurisdictional (legal) wetlands. These are the wetlands that cannot be impacted without some permitting process through the U.S. Army Corps of Engineers and generally some oversight by concerned state agencies. Any piece of ground not meeting all three criteria are not considered jurisdictional wetlands and are thus, not afforded any level of protection.

Needless to say, most obvious and not-so-obvious wetlands will meet all three criteria. An example of a wet piece of ground that is not considered jurisdictional would be, for instance, a developing wetland. A developing wetland may have the hydrology and may have the plants but may not have been wet enough long enough to develop hydric soils.

Please understand that I have simplified the characterization of wetlands to some extent. For those of us who deal with wetland identification and delineation frequently, there are often cases where determining whether a piece of ground is a wetland involves contemplating many other factors and characteristics. In upcoming issues, I will discuss the functions and importance of wetlands, types of wetlands, and I will also dwell on our most controversial wetlands, namely isolated wetlands.



## on" at the Gulf Coast Research Lab

Usually three major trips on 38- and 98-ft ocean-going research vessels are taken—a morning trip to Deer Island, an all-day trip to Horn Island, and an all-day trip up the Pascagoula River. The river trip is particularly instructive, because it includes nearly all the wetland habitats from salt marsh to estuary to freshwater marsh, as well as excellent examples of deep-water swamps in the Whiskey Bayou region.

A van will be available for additional trips to sites on and near the coast, including the DeSoto National Forest, the Sandhill Crane National Wildlife Refuge, and the Gulf Islands National Seashore. Other topics to be discussed include vegetation composition of coastal communities, the uses of mapping, aerial photography and remote sensing, and ecological threats to the coastal communities.

Most students will live in the dormitories at the Gulf Coast Research Lab and eat at the cafeteria. Total cost for tuition,

books, room, and board for the three weeks is about \$650 for auditing students and undergraduates, and \$830 for graduate students. Registration deadline is May 1, 2001.

Extracurricular activities could include the top-ranked beach at Ship Island, the J.L. Scott Marine Education Center and Aquarium, or the casinos that occupy the coastal region.

For more details about the course, or to register, contact:

**Sally Starks, Gulf Coast Research Lab**

**Phone: 228-872-4201**

**Email: sally.starks@usm.edu**

**Website: <http://www.ims.usm.edu/gindex.htm>**

The course instructor can be reached at:

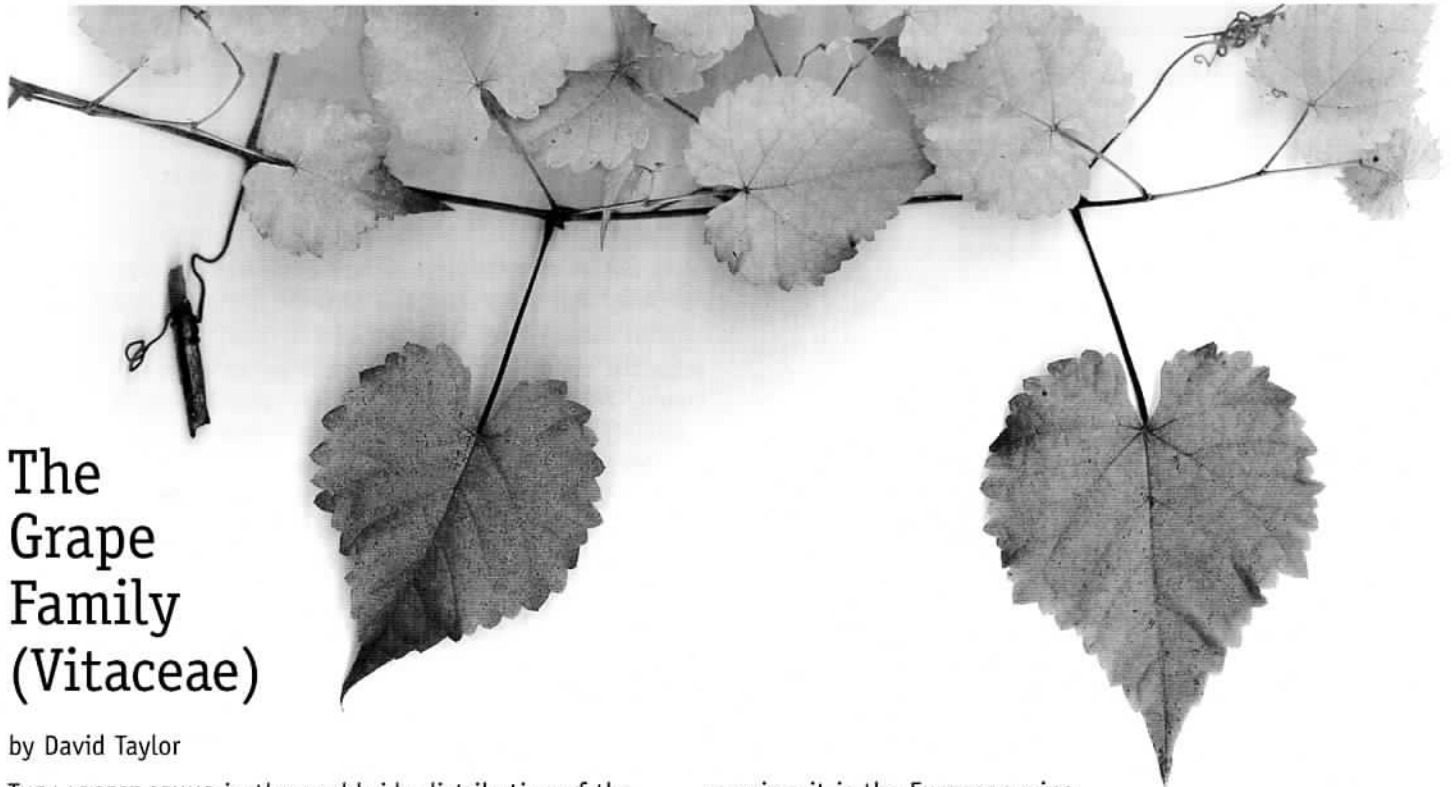
**Ron Jones, Eastern Kentucky University**

**Phone: 859-622-6257**

**Email: biojones@acs.eku.edu**

I have taught at GCRL four times, have typically had classes of 10 students or less, and we've always had a great time!





## The Grape Family (Vitaceae)

by David Taylor

THE LARGEST GENUS in the worldwide distribution of the Grape family is *Cissus*, represented in the tropics by about 350 species of high-climbing lianas and small, stocky and succulent trees. The latter are often put in a separate genus, *Cyphostema*. Three species of *Cissus* are found in the southeastern U.S. (marine vine, *C. incisa*; *C. sicyoides*; and *C. trifoliata*). The latter, "grape ivy" and two others, kangaroo ivy, *C. antarctica*, and ivy cactus, *C. quadrangulata*, are common houseplants.

*Ampelocissus* is a tropical genus of about 70 species. Two other genera are monotypic with only one species in each genus. The first, *Pterocissus*, is endemic to Hispanola and the other, *Clematocissus*, is endemic to Australia.

*Rhoicissus*, mostly a South African genus, includes both tree and liana species. *Tetrastigma* ("four stigmas," flower formula 4-4-4) is a genus of the Asian tropics with about 40 species. Some species serve as the host plant of species of *Rafflesia*, a parasitic plant with the largest flowers in the world.

*Cayratia* is a temperate to tropical Asian genus represented by about 1 1/2 dozen species. *C. japonica* has become established in places in the southeast U.S. *Pterisanthes* is a southeast Asian genus of about 20 species. *Leea* is a genus of about 70 species of mostly Old World tropical trees and shrubs. Depending on how the grape family is defined, this genus is sometimes included in the Vitaceae and sometimes put into its own family, the Leeaceae.

*Parthenocissus* is a temperate climate genus represented by about one dozen species in the Himalayas, eastern Asia and North America. *Ampelopsis* is another temperate climate genus of North America and Asia with about 1 1/2 dozen species. Both genera are strictly lianas, although many creep rather than climb.

The best known genus is *Vitis*, the grape genus. *Vitis* is a north temperate taxon with about 5 dozen species and hundreds of cultivars worldwide. *Vitis vinifera* is the most famous

species; it is the European wine grape, which, however, has its origins in India.

IN KENTUCKY, ONE CAN FIND 3 species of *Ampelopsis*, 2 species of *Parthenocissus*, and 8 species of *Vitis* (more if varieties are recognized as distinct species).

*Ampelopsis* is represented by two native species, *A. cordata* (heart-leaved peppervine) and *A. arborea* (peppervine), and one occasionally cultivated species, *A. brevipedunculata*. Heart-leaved peppervine has simple grape-like leaves, light gray to light brown stems and fruits which are usually a combination of pastel blue, pink, purple, and green colors. Peppervine has twice-pinnately compound leaves, dark twigs and reddish turning black-blue berries. *A. brevipedunculata* usually has palmately lobed leaves with berries which turn from lilac to bright blue. It usually is found on building walls, but it has begun to escape to more wild habitats.

*Parthenocissus* is represented by one native species, *P. quinquefolia* (Virginia creeper), in Kentucky. The leaves are palmately compound, almost always with 5 leaflets. Climbing stems are usually copiously covered with adhesive disc-tipped rootlets; creeping stems often have none. The fruits are dark blue to black. It is widespread and found in a variety of habitats. It seldom flowers or fruits in shaded areas which may have contributed to the genus name: virgin (i.e., no fruit) cissus. Another species, *P. tricuspidata* (Boston ivy) is frequently planted on college campuses and around public buildings. It has palmately lobed leaves which somewhat resemble those of red maple. The fruit is a blue-black berry.

*Vitis* is a taxonomically difficult genus with much variability. Many of the species will hybridize and thousands of intentional crosses have been made in the attempt to improve rootstock, table grape and wine grape qualities. In Kentucky one can expect to find *V. aestivalis* (summergrape), a common, widespread grape with one or two upland and one lowland variety; *V. rotundifolia* (muscadine), in western



and southeastern Kentucky; *V. cinerea* (gray grape), with a widely distributed lowland variety and an upland variety found in eastern Kentucky; *V. riparia*, a widespread lowland grape; *V. vulpina* (fox grape), a widespread lowland grape; *V. rupestris* (rockbar or sand grape), rare and in specialized habitat along rocky stream banks; *V. palmata* (red grape), a lowland species limited to swampy areas; and *V. labrusca* (fox grape), a northern species, uncommon in the mountains and Cumberland Plateau of eastern Kentucky. Hybrids of *V. labrusca* ('Concord' and 'Niagara' type grapes) may be found around old homesites. Varieties of *V. vinifera* may also be occasionally found around old farms.

Most grape family members are *polygamo-monoecious*, that is, they have separate staminate flowers (with stamens only), pistillate flowers (with pistils only) and a few perfect flowers (with both stamens and pistils) on the same plant. Some species are *polygamo-dioecious*, that is, some plants produce flowers with just stamens and other plants produce flowers with both stamens and pistils. In any given population, the number of stamen-only vines is usually greater than those which produce pistils and are therefore able to bear fruit. When looking for grapes, one may have to inspect many vines to find fruit. The flowers of many grapes and their relatives have stamens attached to a circular, often gland-bearing structure called a *disc*. In *Vitis* flowers, the stamens are united at the top and fall from the flower as a cap-like unit.

The vines of some liana species in the grape family can reach over 1 foot in diameter. Some of our native grapes can grow to 6 inches or more. The wood of many of these lianas (and of many lianas in other families) has some of the largest water-conducting tissue of any woody plant group. The *vessel elements*, the primary cells for conducting water and minerals from the roots to the leaves, are large enough to see with the naked eye; some approach 1/16" or more in diameter. It is possible to blow through a short piece of grape vine into a glass of water and produce a few bubbles. The large size is an apparent adaptation to allow the movement of large quantities of water up to several hundred feet through twisting and looping vines.

The tendrils of some genera (notably *Vitis* and *Parthenocissus*) are *negatively phototropic*, i.e., they grow away from light. Tendril tips in some species are adhesive discs which stick to various surfaces. Other species (e.g. Boston ivy) have tendril tips which expand within cracks. These species have the ability, over time, to damage buildings. The disc enters a crack and expands to create a tight anchor. With thousands of these discs per vine, the combined action can separate bricks and mortar leading to structural damage. Many old buildings have been cleared of Boston ivy for preservation purposes.

Grapes and their kin provide habitat and food for many animal species. Birds and mammals relish the fruits, and a number of butterfly larvae feed on the leaves of grape family members. Many creatures hide or seek shelter in grape arbors where the weight of grape vines causes trees to bend over. Grape arbors can sometimes kill their supporting trees and eventually, the arbor collapses.

## A FEW GRAPE FAMILY FACTS:

**Blossom Formula:** 4-4-4 or 5-5-5 (sepals, petals, stamens); often petals and/or pistils are missing

**Fruit:** a berry, 2-4 seeded, either plump and fleshy or dryish

**Number of species in the world:** about 700 species in 12 genera

**Number of species in Kentucky:** about 11 native species in 3 genera, plus 3 introduced species in 3 genera

**Distribution:** worldwide

**Growth habit:** lianas (woody vines) and small trees; the lianas often climb by means of tendrils—modified inflorescences which can twist around or attach to nearby objects



At left, a high climbing native grape (*Vitis* sp.) from a Fayette County backyard. Below, its more down-to-earth kin, Virginia creeper (*Parthenocissus quinquefolia*), from the same backyard.



## Some Native Plant-related Trips, Projects, Events & Opportunities . . . .

Many thanks to Dave Skinner, Mary Carol Cooper, Jim Durrell, Deborah White, Margaret Shea, and Ron Jones for the following announcements. Additional events are listed on p. 12.

### KNPS Service Project: Enhancing Habitat for ENDANGERED SHORT'S GOLDENROD

Short's goldenrod (*Solidago shortii*) is a federally endangered plant that occurs only in about a two square mile area surrounding Blue Licks State Park Nature Preserve in Robertson County. Certainly it is one of the rarest plants on earth. This plant may have evolved to exploit a unique but inhospitable niche along bison traces. The intermittent, but intense disturbance caused by grazing and trampling bison would be a survival challenge for any plant, but plants that could coexist with such activity would occupy a niche free of many other plant competitors.

While there are many unknowns in the life history and ecology of Short's goldenrod, Ky. State Nature Preserve Commission (KSNPC) biologists and land stewards are working hard to help this plant gain ground by enlarging the nature preserve and enhancing its habitat. Historical accounts describe the uplands in the Blue Licks area as very rocky and nearly treeless. The area that is now the nature preserve is more forested than previously and the goldenrod and other glade and grassland plants are being shaded out. To let more sunlight through to where the goldenrod can use it, cedar and selected hardwood trees will be removed from the preserve. Once the trees are cut, their crowns must be carried from the site to make room for the goldenrod. We need strong backs and energetic volunteers to accomplish this.

If you would like to help this endangered plant, register for this project with Preserve Manager **Dave Skinner** at 502-573-2886 or <david.skinner@mail.state.ky.us>. The project is limited to 20 people and is set for **March 17** at 9:30 am EST. Participants should wear work clothes, sturdy boots and gloves.

### Salato Native Plant Program's ANNUAL SPRING NATIVE PLANT SALE

Just in time for spring planting! The Ky. Dept. of Fish and Wildlife Resources' Native Plant Program will hold its annual spring native plant sale on Saturday, **April 28**, from 9:00 am-4:00 pm EST. The sale will be held at the KDFWR's Salato Wildlife Education Center's native plant greenhouse area.

Stock up on beautiful, wildlife friendly native plants for your yard, garden, or outdoor classroom. Over 100 native perennials will be available including black-eyed Susan, purple

and orange coneflower, cardinal flower, wild columbine, wild blue indigo, several different blazing stars, and many other native favorites.

In addition to the sale, ongoing walks in the native habitat gardens will help you see how big the plants will get, when they bloom, and what color they will be. For more details, call 502-564-7863 or 800-858-1549. The KDFWR Game Farm is about 3 miles west of Frankfort on US 60.

### AMERICAN CHESTNUT FOUNDATION— Kentucky Chapter Annual Meeting

The Kentucky Chapter of the American Chestnut Foundation will hold its annual meeting on **May 11-12** at Natural Bridge State Resort Park, in conjunction with the Kentucky Woodland Owners Association. This meeting will be about restoring the American chestnut (*Castanea dentata*) which was almost wiped out by the chestnut blight. It will feature field trips, chestnut identification, location and preservation of surviving American chestnut trees, nut collection and sources of seedlings.

Some topics to be discussed are the catastrophe of chestnut blight, the history of the Appalachian forest since the last ice age 10,000 years ago, the role of Indians and fire in the forest evolution, projects of the American Chestnut Foundation, chestnut management on small farms, The Wild Turkey Federation's role in Kentucky's chestnut restoration, ways to overcome the blight, breeding resistant strains and Kentucky research on chestnut restoration.

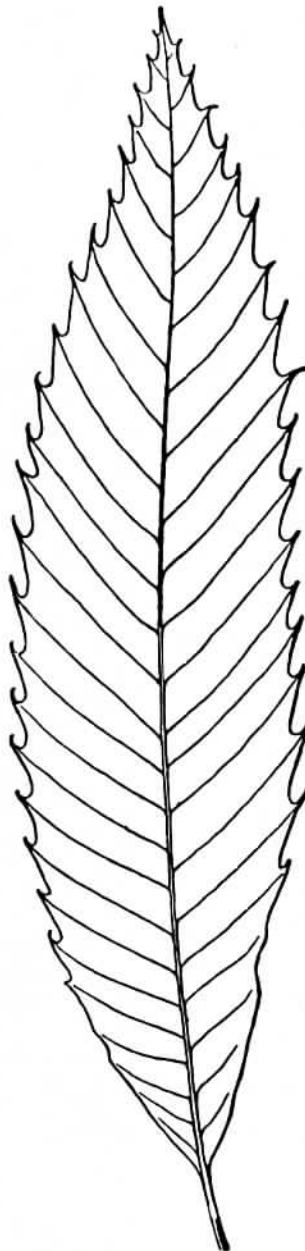
For more information, write **Rex Mann**, Daniel Boone National Forest, 1700 By-pass Road, Winchester, KY 40391.

### KSNPC BOTANY WEEKEND!

Twenty-five years of the Nature Preserves Commission! Can you believe it?

We want to celebrate our 25th and thank all the people who have enjoyed plants with us over the years with a **May 11-13** "Mountain Wildflower Weekend" of botanical hikes in southeast Kentucky. We'll target the floristic beauty of Bad Branch including the rare and elusive painted trillium, Frazier's sedge and others. Hi Lewis Pine Barrens, the only pine barrens known in Kentucky, will also be featured in another hike. And Blanton Forest—need we say more?

Pine Mountain State Resort Park at Pineville will be our base for the hikes and a Friday evening program. Reserve your room (800-325-1712) before April 1 and



American Chestnut

Lessons with Plants / L.H. Bailey / 1898

..... (See the Calendar on p. 12, too!) .....

be sure to ask for the Mountain Wildflower Weekend 10% discount.

More details will be available as spring approaches, but if you are so excited that you want to sign up now, contact **Deborah White** at **502-573-2886** or [deborah.white@mail.state.ky.us](mailto:deborah.white@mail.state.ky.us). Operators are standing by...it might be another quarter of a century before the next KSNPC botany weekend will be scheduled.....

**KNPS Service Project: Native Grassland SEED PLANTING AT BERNHEIM ARBORETUM**

Help Bernheim Arboretum and Research Forest in Bullitt County restore a ten acre hillside to native grassland on **May 26**. Approximately four acres of the hillside are too rocky and steep to use a seed drill, so we must scatter the seed by hand.

We will take time to look at the area seeded last year and see some of the native plants coming up. This is a relaxing and satisfying way to spend a spring day. Call **Margaret Shea** for reservations at **502-955-8512**. We will meet at the Bernheim Visitor's Center and the planting will take place from 9:00 am-3:00 pm EST.

**KNPS Field Trip to CROOKED CREEK BARRENS Nature Preserve**

When we think of Kentucky glades and barrens our minds immediately transport us to various locales in the western part of the state. Crooked Creek Barrens is one of the largest complexes of glade, barrens and prairie habitat in Kentucky, but it is located in a seemingly unlikely place, Lewis County, in the northeastern part of the state.

The preserve is home to ten species of state listed plants. One of the rare species, the ear-leaf false foxglove (*Agalinis auriculata*), occurs nowhere else in Kentucky. The preserve also protects some of the highest quality glade and barrens in the state. Prairie dock (*Silphium terebinthinaceum*), blazing stars (*Liatris* spp.) and rattlesnake master (*Eryngium yuccifolium*) are some of the other species that occur on the preserve.

This **June 3** field trip is limited to 20 people. To register and obtain directions to the preserve contact Preserve Manager **Dave Skinner** at **502-573-2886** or [david.skinner@mail.state.ky.us](mailto:david.skinner@mail.state.ky.us).

**AUSTRALIAN COURSE with Kentucky Ties to be Offered in Winter 2001-2002**

Northern Kentucky University's Cooperative Center for Study Abroad will offer a field course, "Biodiversity and Conservation of Australian Ecosystems," from December 26, 2001-January 9, 2002.

The course, taught by Dr. Ron Jones of Eastern Kentucky University, will be based in Sydney and Cairns, Australia, and it will introduce students to the extraordinary variety of plants, animals, and ecosystems of the world "down

under." It will include visits to rain forest, dry forest, coral reefs, and volcanic lakes. The unique biodiversity and conservation issues in Australia will be emphasized, and such topics as evolutionary patterns, ecosystem structure, and endemism/extinction will be addressed.

Students will have the opportunity to visit the Great Barrier Reef, take guided hikes through nature reserves to observe the unique plants and wildlife, and tour the Sydney Aquarium. Cultural activities will include visits to aboriginal villages and sightseeing in Cairns and Sydney. Prerequisite: One year of college-level biology or permission of the instructor.

Participants will reside in research station facilities, dormitories, and/or hotels. Homestays with local families may also be utilized. Accommodations are based primarily on double/triple occupancy; single rooms may be available at additional cost. The \$4250 cost of the Australia Program includes round-trip transportation from designated cities, International Student Identification Card (if eligible), accommodations, daily breakfast, some additional meals, program visits, airport transfers, and other excursions as scheduled. Tuition and fees are extra.

Application deadline is October 5, 2001. For more information, contact the instructor, **Ron Jones**, at **859-622-6257** or [biojones@acs.eku.edu](mailto:biojones@acs.eku.edu), or call the NKU Cooperative Center for Study Abroad toll free at **800-319-6015**. The Center's website is at <http://www.nku.edu/ccsa>.



**Kentucky Native Plant Society MEMBERSHIP FORM**

Memberships are for the calendar year (Jan.-Dec.). Our dues are modest, please keep your membership current.

Name(s) \_\_\_\_\_

Address \_\_\_\_\_

City, State, Zip \_\_\_\_\_

KY County \_\_\_\_\_

Tel.: (Home) \_\_\_\_\_ (Work) \_\_\_\_\_

Membership Category (check appropriate boxes):

Annual —  \$7 -Individual  \$10 -Family

Lifetime —  \$100 -Individual  \$140 -Family

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 1943, Hyden, KY 41749**



## KNPS 2001 CALENDAR of Native Plant-related Activities

Mary Carol Cooper, KNPS Field Trip Coordinator

**MARCH 17, Sat. / Short's Goldenrod Habitat Restoration Project.** Blue Licks State Park Nature Preserve, Robertston County, KY. See description and details on page 10.

**MARCH 31, Sat. / Annual "Reforest the Bluegrass" Project,** Lexington. Volunteers for tree planting and other tasks will receive T-shirt and lunch. For details: Tim Query, 859-258-3286.

**APRIL 15 / Application Deadline for KNPS Grants.** See pages 2-3.

**APRIL 21, Sat. / Arbor Day at the Arboretum.** UK-LFUCG Arboretum on Alumni Dr., UK Campus, Lexington. 10:00 am-2:00 pm. An educational, fun, family event to celebrate environmental awareness, urban forestry, and beautification of the Arboretum.

**APRIL 21-22, Sat.-Sun. / Mammoth Cave Springfest.** Wildflowers, music and art. Details: 270-758-2254, <maca\_park\_information@nps.gov>, or <http://www.nps.gov/macac>.

**APRIL 26-28, Thurs.-Sat. / 51st Annual Smoky Mountain Wildflower Pilgrimage.** Gatlinburg, TN. The oldest and best event. Call 1-800-267-7088 for a brochure.

**APRIL 28, Sat. / Kentucky Dept. of Fish & Wildlife Resources Native Plant Sale** at the KDFWR game farm on US 60 about 2 miles west of US 127 in Frankfort. Details on page 10.

**MAY 4-6, Fri.-Sun. / 16th Annual Wildflower Weekend and KNPS Spring Meeting.** Natural Bridge State Resort Park, Slade, KY. Reservations and info: 1-800-325-1710 or 606-663-2214. Registration begins 3:00 pm Friday at Hemlock Lodge. Field trips Friday-Sunday. Guest speakers Friday & Saturday evenings. Brief KNPS meeting Saturday at 7:00 p.m. More details on page 3.

**MAY 11-12, Fri.-Sat. / American Chestnut Foundation, Kentucky Chapter Meeting** at Natural Bridge State Resort Park, Slade, KY. See article on p. 10 for details.

**MAY 11-13, Fri.-Sun. / KSNPC Mountain Wildflower Weekend** to celebrate 25 years of the Kentucky State Nature Preserves Commission, Pine Mountain State Resort Park, Pineville, KY. See article on page 10 for details.

**JUNE 3, Sat. / KNPS Field Trip to Crooked Creek Barrens State Nature Preserve.** Lewis County, KY. Details on page 11.

**SEPTEMBER 21-22, Fri.-Sat. / Second International Pawpaw Conference.** Frankfort, KY. Contact Kirk Pomper, Kentucky State University, 129 Atwood Research Facility, Frankfort, KY 40601; 502-597-5942; fax 502-597-6381; <kpomper@gwmail.kysu.edu>; or <http://www.pawpaw.kysu.edu>.

**AUGUST 11, Sat. / National Wild Ones Annual Membership Meeting** hosted by the KY Wild Ones Chapters. Contact Portia Brown, 502-454-4007 or <oneskylink@earthlink.net> for membership and program details, or to participate in planning.

**OCTOBER 20-21, Sat.-Sun. / Colorfest at Bernheim Arboretum & Research Forest,** Clermont, KY. Information: 502-955-8512.

**NOVEMBER 10, Sat. / KNPS Fall Meeting & Program at Shakertown at Pleasant Hill,** Mercer County, KY. All KNPS members are encouraged to attend and participate in an open Board meeting in the morning. For all those who RSVP, a catered lunch from Shakertown will be provided. Hikes and programs for everyone in the afternoon. *More details to come!*

### Kentucky Native Plant Society

c/o Department of Biological Sciences  
Eastern Kentucky University  
521 Lancaster Ave.  
Richmond, KY 40475-3102

NON-PROFIT ORG.

U.S. POSTAGE

**PAID**

RICHMOND KY 40475

PERMIT NO. 116