The Kentucky Native Plant Society

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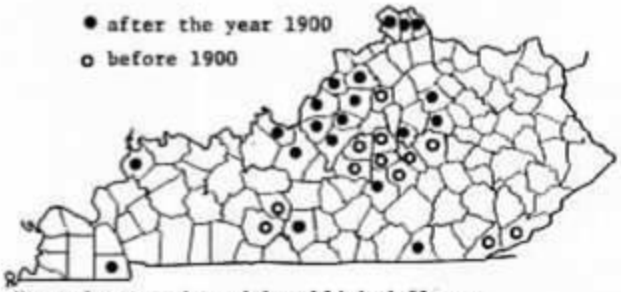
THE NEED FOR COUNTY FLORAS by Ron Jones

Kentucky is a state that is badly in need of additional county floras. I have reviewed the literature, and found records of only 32 counties with published floras, as shown in the map below. Many of these county floras are preliminary in nature, and only a few provide comprehensive surveys. Twelve of the studies were published prior to the turn of the century, and only nine have been completed since 1950! The counties in the eastern and western parts of the state are especially in need of floristic treatments. Kentucky has obviously fallen far behind its neighboring states in the study of the state flora. The completion of additional county floras would add invaluable information to our knowledge of the occurrence and distribution of species in the state.

If you are a person who enjoys the study of your local flora, you might consider working on the flora of your county, or a nearby one, over a period of several years. By doing so, you could make an important contribution to botanical science in Kentucky. Also, it would give you an excuse to travel around and discover all the interesting little corners of the county. If you are a student with plans to work on a Master's degree, I encourage you to consider a county flora for your research project. Travel funds are available through application to the Botany Fund of the Kentucky Academy of Science for students conducting floristic studies (as well as other kinds of botanical research).

In most county floras, the objective is to inventory the vascular plants--the ferns, gymnosperms, and flowering plants--and prepare a checklist of the species. Specimens are collected and prepared as vouchers, except in the case of rare species, which may be documented by photographs. The set of collected specimens is then deposited at an appropriate university or college herbarium. An article reporting the results of the study should be prepared as a final step and submitted for publication. The researcher may include various other kinds of information as part of the county flora--such as the history, physiography, climate, and vegetation of the county. Statistical analysis of the kinds of species--introduced versus native, or northern versus southern, can be done. The result is a significant document on the natural history of the county.

Anyone interested in conducting a county flora should contact the botanist at your local college or university. If you would like additional information on floristic studies, feel free to contact me at the return address on this newsletter. Also, if anyone knows of on-going or completed county floras not shown on the map, please let me know.



Kentucky counties with published floras

SPECIAL NOTE ON THE LOGO CONTEST

The logo contest has been extended to January 1st, 1987. If you have an idea for a logo please submit it for consideration. We need to have a good number to choose from to make the best selection. For more information, refer to the logo contest form in the May 1986 newsletter.

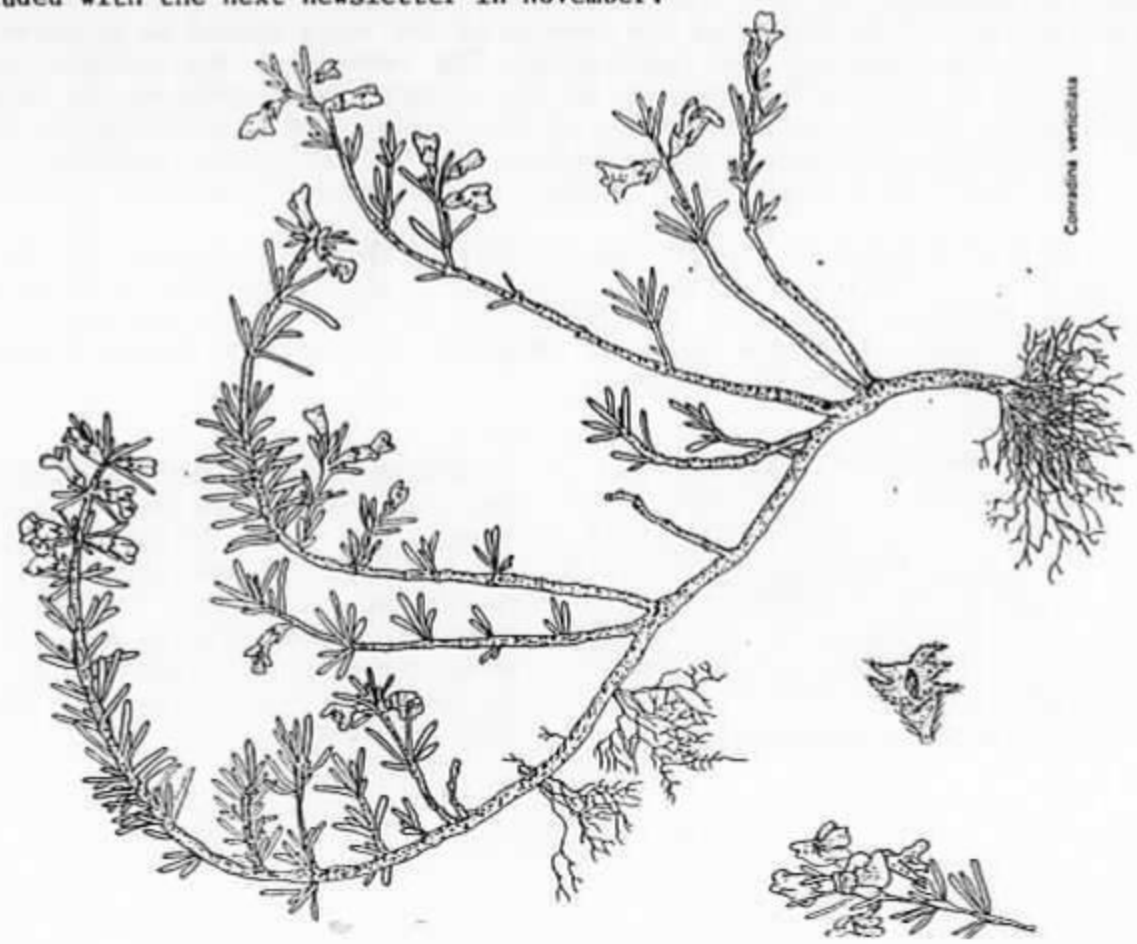
FIELD TRIP AND MEETING SCHEDULE

September 27th, Saturday, Blue Licks State Park. Meet at 10 a.m. in the parking lot of the State Park, on U.S. 68 in Robertson Co. just north of the Nicholas Co. line. There is little walking to do, and the land is not steep. The glade on the old buffalo trail is most interesting, and the woods on surrounding Eden Shale hills are also worth visiting. With the Baskins, who are most knowledgeable about this site, we will have a special look at Short's goldenrod (*Solidago shortii*), the federally endangered species know only within a few miles of this area. It may be possible to find more sites along local country roads, once we get our eyes attuned to the species. Also, several uncommon or rare species of glades and prairies have been found here, e.g., the ladies tresses orchid (*Spiranthes magnicamporum*).

October 18th, Saturday, Bernheim Forest. Meet at 10 a.m. near the main entrance, in the first parking lot on the right hand side next to the driveway. Ron Jones and Ralph Thompson will lead us through the woods on a woody plant identification workshop, and Bob McNiel (U.K. Horticulture) will show us the splendid collection of exotic trees and shrubs. The walking is easy, with good trails, though you can go far if you want. Fall leaf colors will be a special interest, along with other seasonal things like goldenrods, asters, hickory nuts and acorns. This may be your last chance in 1986 to learn identification of all these subtle autumnal delights, so don't miss it! (off KY 245, west of Bardstown).

November 6th, Thursday, General Meeting in Lexington. Meet in Rm. 107 of the Biological Sciences Building, University of Kentucky at 7-30 p.m. for business and 8 p.m. for talks and slide shows by Vic Soukup (Univ. of Cincinnatti) on "Botanizing in Yunnan, China" and "Trilliums of Kentucky".

November 22nd, Saturday, Kentucky Academy of Science Symposium in Lexington. A special symposium on "The Vegetation and Flora of Kentucky" is being arranged by the Baskins at this year's KAS meeting. This will be held at the Radisson Hotel in Lexington from 8 a.m. to 5 p.m. Members of the Society and public are welcome to attend. A complete schedule of the day's presentations will be included with the next newsletter in November.



FIELD TRIP REPORTS

SOUTH FORK OF CUMBERLAND RIVER (May 17th). On this beautiful day, there was a good turn out (about 30) and much to see, wandering through big woods with green and gold (Chrysogonum virginianum), monkshood (Aconitum uncinatum) and spurge (Euphorbia mercurialis), wading in the river and rambling over rocks with golden club (Orontium aquaticum), picnicking with rosemary (Conradina verticillata), indigo (Baptisia australis) and goat's rue (Tephrosia virginica). However, despite a special exploration later in the day further downstream, we could not find any more rosemary, nor Barbara's buttons (Marshallia grandiflora), nor riverweed (Podostemon ceratopyllum), as previously discovered by Max Medley. There are no reports of the riverweed in Kentucky since about 1981. It seems to have declined rapidly due to water pollution by strip-mining and other factors. On the following day, M.M. and J.C. went to Virginia and Tennessee to get living material of the undescribed cedar glade clover species (Trifolium) discovered by Leo Collins (T.V.A.).

BAD BRANCH (June 7th). This was another great day, but too far from civilization for a large turnout (about 15). We saw the thyme-leaved bluets (Hedyotis cf. michauxii) in the falls, and the burnet (Sanguisorba americana) below as well as above. We did not see all the rare plants recorded here, but later in the day, one group drove further around to the upper gorge, found Michaux's saxifrage (S. michauxii), matricary grapefern (B. matricariaefolium), and Pogonia ophioglossoides, a very rare plant in Kentucky, not known at this site before. Further botanical discoveries are rumoured here, but some previously recorded plants cannot be refound: Allegheny crowfoot (Ranunculus allegheniensis), fetterbush (Leucothoe recurcva), brook saxifrage (Boykinia aconitifolia), and the small enchanter's nighshade (Circaea alpina).

MURPHY'S POND (also June 7th). Harold Eversmeyer reports this was a rainy day with moderate turnout (about 14), but enhanced by Mike Woods' visit from Illinois. He found the rare sedge, Carex socialis.

BALLARD CO. WILDLIFE MANAGEMENT AREA (July 19th). On this oppressively hot and humid day, we had a small turnout (about 10, again with Mike Woods and Tom Hieneke from Illinois) but we worked hard in adding to Mark Evans' species list and collections for the U.K. arboretum. The area is well-mapped, with many roads, and Mark had little problem showing us the interesting plants. J.C. found a little swim in the Ohio River, following by walking on blistering hot sand and bur-grass (Cenchrus longispinus) most stimulating.

GOING, GOING, GONE by Julian Campbell and Max Medley.

Radcliff Barrens (Hardin Co.). In 1982, Division of Environmental Analysis personnel discovered an interesting area of about 40 acres dominated by little bluestem (Schizachyrium scoparius) and other plants typical of old barrens vegetation in west-central Kentucky. This area, at the northwestern edge of Radcliff, adjacent to the railroad and Fort Knox, has now been greatly reduced by the new access road to the Industrial Park. Despite a proposal in the Division's Ecological Assessment against scraping and reseeding the road banks, the standard practice of sowing fescue or crown-vetch is being followed. More damage will likely come as the Industrial Park is built. However, a good 10-20 acres might still be preserved and restored, if only there was more local interest. Special features here are six species of milkweed, including the rare or endangered Asclepias hirtella and A. amplexicaulis, blue-hearts (Buchnera americana), a rare milkwort (Polygala incarnata) and nut-rush (Scleria ciliata), along with several other colorful flowers, especially legumes. The site probably ranked among the top ten relics of Barrens vegetation. The Dept. of Transportation has no policy of preserving interesting native plants (except when forced to on federally funded projects). The main reasons for uniform scraping and reseeding of road banks seem to be habit and a deep-seated phytophobia. Would some initiative from this society perhaps help persuade the D.O.T. to care a little about the few remaining scraps of wild stuff that its roads traverse?

Frankfort Bluffs. Within the last month, an important discovery was made in Franklin County, north of Frankfort. A very rare grass occurs on the dry slopes above Route 421 as it ascends the long hill up from the river. This grass, a wild-rye (Elymus svensonii), is locally abundant along this short bluff, and it has also been found on two other bluffs on the opposite side of the river. Elsewhere, it is only known in three small areas of central Tennessee. Very little research has been done on this species, but it may well warrant special emergency listing by the U.S. Fish and Wildlife Service. Another rare species, bladder-pod (Lesquerella globosa), proposed for listing as a federal endangered species, also occurs here. This site has particularly large populations of both species. However, most of the wild-rye and all of the bladder-pod here would be destroyed by the planned widening of Route 421 in the next year or so. Exact plans for the route, as it will affect these species, have not been studied. A complete botanical survey of the hillside has not been made. Even if these two species were fully listed by the U.S. Fish and Wildlife Service, there may be no legal barrier to their destruction by a state-funded road project. Another large population of bladder-pod was destroyed recently by the widening of Route 1005 near Benson Creek, west of Frankfort, and a large population of Braun's rock cress (Arabis perstellata) will be partially destroyed this year by the planned road through the bluff north of Capitol Plaza in Frankfort. About 5-20% of the above three species in Kentucky are being eliminated by these road projects. Should we botanists should accept this without question, for the good of traffic safety and all? No! The shortage of thorough study is alarming, to say the least. Just what is being destroyed? The threatened bluff along route 421 may assume national significance as an ecosystem, if the abundance of the wild-rye, together with bladder-pod, is as great as it seems from the road. Little or no area with these species is protected elsewhere in Franklin County or elsewhere in Kentucky. Every effort should be made to study the plants of this area now and adjust the road widening so as preserve some part of this ecosystem.

A LITTLE GOOD NEWS: The Mount Washington Glade, which we visited in April, was threatened by a planned bypass extension of Route 31E. However, state biologists at the D.O.T. and Nature Preserves Commission persuaded the planners to adopt a route that will come close, but will not actually damage the glade itself.

BOTANICAL HISTORY IN KENTUCKY: CONSTANTIN SAMUEL RAFINESQUE by Julian Campbell

A huge amount was written by, and has since been written about, C.S. Rafinesque (1783-1840), a Southern European who became the first person to study Kentucky plants with persistence, as a resident during 1818-1826. Here I just want to note some of the more interesting things he wrote concerning the vegetation of Kentucky. Most of his effort was devoted to naming plants and animals new to him. Many of these names have no valid scientific use today, since other people had already given names to the same species, or his descriptions are too brief to know what he meant. It is unfortunate that he did not describe his plants and collecting localities in more detail. For an introduction to this amazing man's life, read "A Species of Eternity" by Joseph Kastner (1977, pub. by A.K. Knopf), and Audubon's story of their meeting, with Rafinesque attacking a bat using a violin, getting chased by a bear and lost in the cane, and believing Audubon's imaginary devil-fish and red-hooded swallow.

His "Botany of Kentucky" (Western Review and Miscellaneous Magazine of 1819, 1:92-95) is a pioneering plant geographical article, outling Fluviatile (river valleys), Central (Bluegrass), Hilly (Cumberland-Allegheny) and Barren (southwestern) Regions with their characteristic species. The Central Region "is remarkably poor in the number of botanical species growing spontaneously; I consider that its flora hardly contains 500 species, including trees, shrubs, and naturalized plants!...It is also highly singular that in this region, the woods are open as parks, without shrubs and with very few plants, except grass and some social weeds." The barrens and associated licks "Both have a growth of plants very similar to the vegetation of the prairies of Ohio, Indiana, and Illinois..." This insightful article deserves more attention, along with his elaborating letter to C.S. Short of 1834 (Filson Club Quart. of 1938, 12:233-237). However, his plant names must first be translated.

In a lecture at Transylvania "On Botany" (1820, reprinted in 1983, Whippoorwill Press, Frankfort), he made some rare comments on human impacts. "We have wantonly allowed the useful cane, or Miegia arundinacea, to disappear from our country. This becomes already a motive of regret, and our cattle are nearly starved in winter. This might have been prevented by the cultivation of the cane and by cutting it in winter instead of allowing cattle to eat it up as fast as it grows and trample upon it.....The seeds of the cane are also very useful... The valuable sugar maple disappears also gradually from our woods, being wantonly burned to clear the ground or cut down to make fences and afford fuel." My own historical research suggests that sugar maple was indeed selectively removed during settlement of the Bluegrass Region, relative to oaks and ashes.

In "A Life of Travels", his autobiography (1836, reprinted 1944 in Chronica Botanica 8:298-353), description of Kentucky is too tantalizingly brief. In 1822 "The longest of my excursions was to Danville and Knob-licks....The big Knob-lick is a very singular spot, a large barren volcanic hill of clay, of which I took maps and drawings. Here I found a new Pachysandra [erecta] and many rare plants." This lick, also described by James Nourse in 1775, may have been created by buffalo, elk and deer. In 1823, Rafinesque "skirted the knobs of the N. side from Cedar lick to Knob lick, to complete my map of them." But no such map survives, and there has been no proper effort to relocate these sites and see what plants remain. In his letter to Short (see above), he noted that the Knobs "are filled with fine localities particularly at their contact with the Limestone Region". Indeed, exciting relics of natural openings in this zone (especially near Silurian rock) have been rediscovered in the past decade, like the Mount Washington glade we visited earlier this year.

If anyone finds further Rafinesquiana along these lines, please let me know.

PROPOSED FEDERAL ENDANGERED SPECIES: RUNNING BUFFALO CLOVER by Hal Bryan

When the great herds of buffalo, elk and deer roamed Kentucky in the time of its early settlement by Europeans, much of our Bluegrass Region was an open, park-like woodland with a rich understory of such herbaceous plants as "wild rye, buffalo grass and clover". Although a few of these open woodlands or savannahs persist today as scattered ancient trees, none are known that have an intact understory. The exact species of many of these native forage plants were never recorded and so their identification was left to botanists who have tried to reconstruct these plant communities by scrutinizing historical manuscripts and inference from similar areas in other states.

Running buffalo clover (Trifolium stoloniferum), one of only two native clovers known from Kentucky, may well have been one of these important food plants which sustained the abundance of grazing animals that made Kentucky the hunting grounds of both Indians and early pioneers. The U.S. Fish and Wildlife Service has recently proposed that running buffalo clovere be listed as a federally endangered species. Although there are documented specimens from Arkansas, Illinois, Indiana, Kansas, Missouri, West Virginia and Kentucky, collected in the 1800's and early 1900's, the species was believed extinct until very recently. In 1983 and 1984, a biologist discovered 2 small populations in West Virginia. The smallest of these populations (4 plants) could not be relocated in 1985, and may have been destroyed by repeated mowing of the field where it grew, or by competition from fescue and other pasture plants. The other population (18 plants) is along an off-road vehicle trail and is also in jeopardy from excessive disturbance and introduced plants (japanese honeysuckle and ground-ivy). One vegetative shoot was taken to propagate at the University of Kentucky and elsewhere.

Running buffalo clover looks like an exceptionally robust form of the common introduced white clover (Trifolium repens). Leaves occur on the flowering stalk, unlike white clover. Both species produce prostrate stems (stolons) which take root and produce more shoots, but those of running buffalo clover are much thicker. Also, the lobes of the calyx (the green cup that supports the flower) are 2 to 4 times the length of the tube (the rest of the calyx) in running buffalo clover, but only a little longer in white clover. Our only other native clover--buffalo clover (T. reflexum)--is extremely rare in Kentucky. It is similar to running buffalo clover, but it grows upright from a taproot rather than producing stolons.

When officially listed (probably in November), running buffalo clover will become Kentucky's second federally endangered plant. However, it may well be extinct here, the last record being from 1902 in Lexington (along Mt Tabor Rd.). Our only other listed plant, Short's goldenrod (Solidago shortii) is also associated with the historic presence of buffalo around Blue Licks State Park. Interestingly, the only known wild site where running buffalo survives, in West Virginia, is the last place where buffalo were known in that state.

BOTANICAL BOOKS FOR KENTUCKY

For those of you who are beginning to study Kentucky plants, we recommend looking at the following books. They are arranged chronologically, rather than in order of preference.

M.L. Fernald. 1950. Gray's Manual of Botany (8th edition). A Handbook of the Flowering Plants and Ferns of the Central and Northeastern United States and adjacent Canada. American Book Company. This book is the most comprehensive and standard reference of the modern era, and should be consulted by the serious botanist. However, the limited illustrations and complex keys make it virtually useless for the beginner.

H.A. Gleason. 1963. New Britton and Brown Illustrated Flora of the Northeastern United States and Adjacent Canada (2nd edition). New York Botanical Garden, 3 vols. This is well-illustrated and fairly comprehensive, yet concise, which makes it useful for the serious beginner and the professional. However, the scientific names are somewhat outdated. The earlier Britton and Brown Flora of 1913, recently reprinted by Dover, cannot be generally recommended, except for historical interest.
H.A. Gleason and A.C. Cronquist. 1963. Manual of Vascular Plants of the Northeastern United States and adjacent Canada. D. Van Nostrand Co., Princeton. This unillustrated condensation of the New Britton and Brown is useful and easier to carry around.

M.E. Wharton and R.W. Barbour. 1973. Trees and Shrubs of Kentucky.
M.E. Wharton and R.W. Barbour. 1977. A Guide to the Wildflowers and Ferns of Kentucky. The University Press of Kentucky. These two books are essential for the beginner in Kentucky, with good photographs and not too much technical detail. However, many of the rare species, and all grasses and sedges, are not covered.

R.C. Cranfill. 1980. Ferns and Fern Allies of Kentucky. Kentucky Nature Preserves Commission Scientific and Technical Series. No. 1 (about $4.50 from their office in Frankfort.) This is a comprehensive, well-illustrated book by the most brilliant young botanist to come out of Kentucky in the past decade. His move to Law School in California is much regretted here.

E. Beals and J. Thieret. 1986 (almost in press). Aquatic Vascular Plants of Kentucky. Kentucky Nature Preserves Commission Scientific and Technical Series. This book is eagerly anticipated.

With a complete Kentucky Flora still not in sight, for the serious student it remains very useful to consult floras now completed in nearby States, especially J.A. Steyermark's of Missouri (1963, Iowa State Univ.), A.E. Radford et al.'s of the Carolinas (1968, Univ. N.C. Press), R.H. Mohlenbrock's of Illinois (especially the illustrated series of 1971-, Southern Illinois Univ.), P.D. Strasbaugh and E.L. Core's of West Virginia (1978, 2nd ed., Seneca Books).

There are many other popular introductory books on Eastern North American plants which are more widely available in book shops. The Peterson and Audubon series are relatively good for general use. However, the Wharton and Barbour books remain the best start for budding botanists in Kentucky, followed by Gleason's New Britton and Brown Illustrated.

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PAT'S WEED PATCH by Patricia Dalton Haragan

Musk thistle (Carduus nutans L.) is a Eurasian immigrant that is a member of the sunflower family (Asteraceae or Compositae). Also known as nodding thistle, it is a stout biennial herb that grows from 3 to 6 feet tall. The branched stem has alternate spiny leaves that extend down the stem, giving the plant a winged appearance. The large, solitary, purplish-pink flower heads are produced at the ends of the branches on long, naked stalks that nod or bend slightly. The fruit is a yellowish brown achene. Musk thistle has spread rapidly in Kentucky and is considered to be one of the 10 most troublesome weeds in the state. It was first found in Warren County in the 1940's (by College of Agriculture County Agent Survey), and since then it has been reported in all 120 counties. It grows in waste places, along roadsides and cultivated fields. It is especially common in pastures and old fields where it can be seen blooming in June through October.