

The Kentucky Native Plant Society

NEWSLETTER: Vol. 3. No. 2. May 1988. Editor: Julian Campbell

EDIBLE AND MEDICINAL PLANTS FROM YOUR BACKYARD by Ron Jones

There are a number of plants that occur in our backyard that can be used for foods or medicines. These plants are usually extremely abundant, generally weedy, many are of European origin, and taking a few plants to sample their taste or medicinal qualities will not harm the populations. One example is the meadow violet (Viola papilionacea of most texts, now called V. sororia). The plants are easily recognized by their heart-shaped leaves and long-stalked, purplish flowers. The violets have been used since ancient times because of their beneficial effects on a number of minor ills. It is now known that the leaves are very high in vitamins C and A, and that the flowers are very high in vitamin C. The leaves should be picked while young and can be cooked like most greens, but they may have a laxative effect on some people. The blossoms can be eaten raw, or cooked into jams or syrups.

The spring beauty (Claytonia virginica) is another very early flowering herb of spring. These plants have one pair of opposite, narrow leaves and whitish, pinked-striped flowers with only 2 sepals. The plants produce small, potato-like tubers underground, sometimes called "fairy-spuds". These tubers are rich in starch and can be cooked like small potatoes--boiled, mashed, or fried. As always, don't get over-enthusiastic after tasting these delicacies and harm your population.

The common chickweed (Stellaria media) is another plant that is very common in yards and weedy places. It is recognized by its opposite, simple leaves, and the flowers appear to have 10 white petals, but there are actually 5, each one deeply cleft into two lobes. The whole plant can be cooked as a vegetable, often mixed with wild mustards or shepherds-purse, to spice up the bland taste of the chickweed. It can also be blended with other herbs into a healthful drink.

Ground ivy (Glechoma hederacea) has a long history of medicinal use in Europe. It is now naturalized in the U.S. and is very common in weedy places. It is a member of the mint family, having square stems and opposite leaves; the flowers are bluish-purple. The plants trail along the ground and form mats. Ground ivy was one of the favorite herbs of the ancient Greeks and many of the claims were extravagant. Today the plant is still used by some as a bitter tonic, as a cough medicine, as a poultice for sores, or brewed into a tea.

Lastly, but not least, is the common dandelion (Taraxacum officinale), the plague of the lawn to most. This plant, however, has a respected history of food and medicinal use in Europe. The roots can be used as a laxative, a tonic, or ground into coffee; the leaves picked young are excellent as salad greens; and the flowers can be made into dandelion wine. This plant was one of the most treasured herbs of ancient doctors, used to correct vitamin deficiencies, kidney and liver ailments, and many other illnesses. Today, unfortunately, it has fallen into disrepute.

For those interested in using wild plants for foods or medicines, please be very careful about identifications. Most are safe, some are harmful under certain conditions, and some are dangerous at all times.

If you would like various recipes using the above and other plants, refer to Euell Gibbons' Stalking the Healthful Herbs and Stalking the Wild Asparagus.

CALENDAR OF EVENTS

11th June (Saturday). BRIGADOON STATE NATURE PRESERVE (BARREN COUNTY). Dr. Kenneth Nicely, from Western Kentucky University, will lead a field-trip to this beautiful, old-growth woods. Many species of trees and wildflowers occur here, making it an excellent place to observe plant life. Meet at 10:00 a.m. (CENTRAL TIME) at Houtchen's Park. From I-65, take the Cumberland Parkway to US-31E; go about five miles south on 31E until you come to the Dover Church-Browning Road; turn left (east) on this road and go 1/4 mile to Houtchen's Park.

23rd July (Saturday). PURDUE DAVIS ORCHID SITE (LEE COUNTY). Danny Barrett and Wilson Francis will lead this field trip to a unique area which harbours at least nine species of orchids as well as many ferns and wildflowers. Meet at 10:00 a.m. (EASTERN TIME) in the lobby of the lodge at Natural Bridge State Park, which is about 50 miles east of Lexington on I-64 and the Mountain Parkway.

August--no field trips scheduled.

September--field trip to be announced in August newsletter.

8-9 October (Saturday-Sunday). CUMBERLAND FALLS STATE RESORT PARK: GENERAL FALL MEETING OF KNPS. This is our first 2-day meeting, so please mark the date on your calendar and try to attend. The meeting will consist of an afternoon field trip on Saturday, an evening business meeting and lecture, and a Sunday morning field trip. Meet at 12 noon in the large conference room on the first floor of the lodge for a brief orientation, then Julian Campbell and Max Medley will lead a field trip along the banks of the Cumberland River, following the Sheltopee Trace for most of the way, with short side-tracks to the bouldery banks to look for unusual grasses, legumes, and composites, and to large rockhouses with the rare Lucy Braun's white snakeroot. We will return to the Park for supper at the lodge, and then regroup at 7 p.m. for a business meeting and slide show by Julian Campbell and Max Medley on the plants of the Cumberland and Rockcastle Rivers. On Sunday morning we will gather at 9:15 a.m. in the lobby of the lodge and then J.C. and M.M. will lead a field trip to the Rockcastle River near the Bee Rock Recreational Area at the "Narrows," to see some extremely rare plants including their new species of Aster.

A block of 10 rooms at the Park's Lodge has been reserved for KNPS members. If you would like one of these double-occupancy rooms you will need to call the Park at 1-800-633-2093 if in state, or 1-800-325-0063 if out of state, and make your reservation and then send the cost of the room \$53.55 as your deposit. The rooms will be held no longer than September 8. Lodging can also be obtained in the several motels in nearby Corbin. Please identify yourself as a KNPS member when calling the Park. Further details in the August newsletter.

E D I T O R I A L

In this issue of the newsletter, we have included mostly "article" type items. I know that people appreciate these. However, I would like to see more true "news" items - plants and places that people have found in the state, issues in conservation, education, etc. I would like to see a network of people from different sections of the state, who would send in reports on things of interest in their area. I would like to know their current interests, no matter how limited. Small informal field trips could be organized by these people, inviting others to come along on local exploration or regular trails. Just telephone numbers and approximate dates could be given. For example, I will be looking for rare plants in the Stanton Ranger District this year and would like to go along with others interested (606-271-4392). Julian Campbell.

KNPS SEED BANK PROJECT by Ron Jones

We hope that we can get the seed bank project off the ground this season. It was initiated last year but there was little participation from the membership. This is one way for individual members to get involved in KNPS activities. What we would like to do is have our members collect seeds from various species, preferably common wildflowers with garden potential, and not from rare or endangered species, unless a very large population is located. The seeds will be kept in a protected location, and a list of available seeds will be periodically published by KNPS. Members can then write in to request certain seeds, at a small charge, to grow in their gardens. The following guidelines should be followed in collecting seeds.

1. Stake out the populations that you have selected and watch for fruit ripening and seed set; this determination is sometimes difficult, but usually when the fruits and seeds darken and/or change colors, and the seeds become loose, then they are mature. You may want to enclose the ripening fruits in a nylon stocking or muslin bag to catch the seeds in some plants.

2. The seeds should be allowed to dry. For fleshy fruits, first crush the fruits and remove the seeds, then wash them of debris. You may need to use a fine wire screen to separate the seeds from other material. For dry fruits the seeds can simply be shaken out or otherwise removed, and cleaned using a wire screen. The seeds, whether from fleshy or dry fruits, should then be dried. They can be air-dried in the sun--just lay them out on newspapers for about a week (watch for birds). Seeds can also be dried by using a dessicant such as silica gel, calcium chloride, or powdered milk--place the dessicant along with paper with seeds in an airtight jar for about a week.

3. Package the seeds in paper envelopes, not plastic bags, and mail them to: KNPS, Department of Biological Sciences, ECU, Richmond, KY 40475. They will be stored in paper bags in a dessicant and refrigerated at ECU.

DEFEAT OF LAND TRANSFER TAX FOR PRESERVATION OF NATURAL AREAS

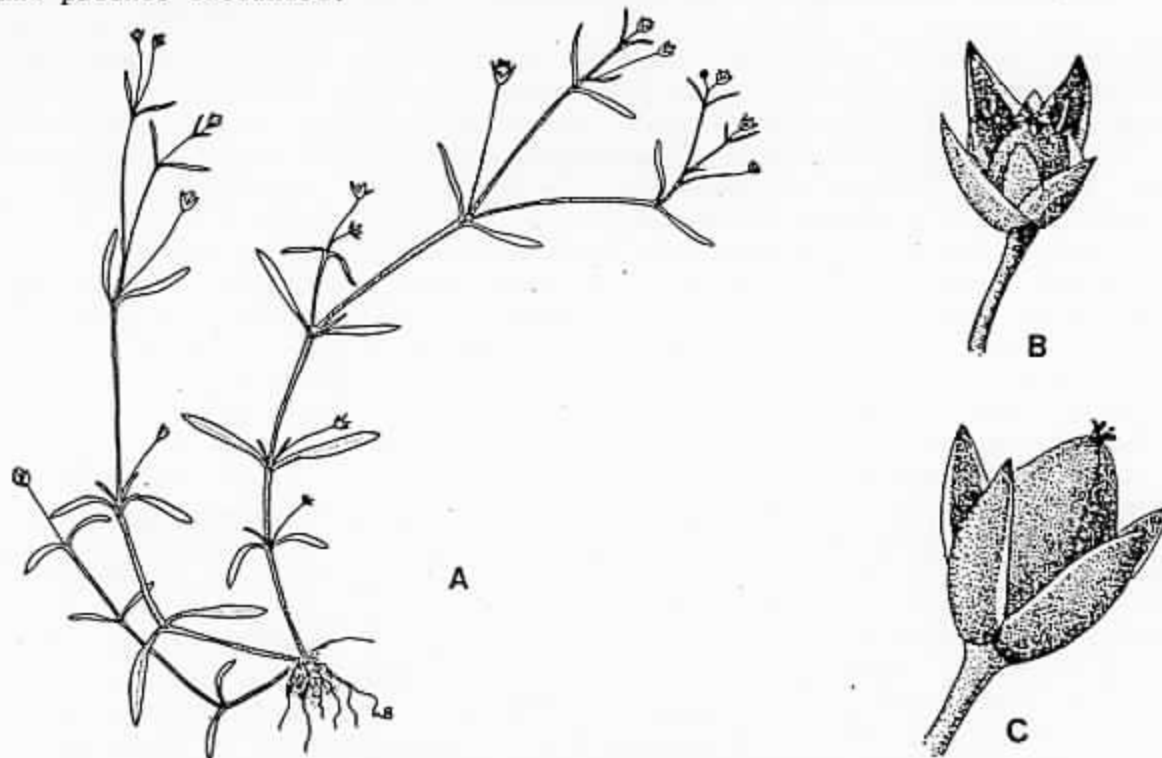
Members of KNPS and other groups in Kentucky recently urged their representatives in Frankfort to vote for House Bill 589. This Bill would have increased the Land Transfer Tax from \$1 per \$1000 dollars of each real estate sale to \$2. It would have generated approximately \$3.5 million per annum within Kentucky, for the state to purchase wetlands, park-lands, nature preserves, and other natural areas. However, some leaders of the real estate industry lobbied strongly against the bill, causing some last minute finagling on the floor and a sudden switch from a predicted 2:1 passage, based on our interviews with representatives, to a 3:1 defeat. Apparently, some leading realtors, on principle, are not yet ready to let Kentucky donate 0.1% (one thousandth) of its land sale income to this cause, even with a 5-10 year "sunset" provision added to the bill. Some representatives might have voted yes except for the fact that the prevailing theme of the session was not to increase taxes even for some most worthy causes (including education). Also, the rush to reap resources from every square inch still pervades Kentucky. The 21 representatives who did vote yes should be commended by their constituents: Adkins, Ark, Arnold, Barrows, Blandford, Blevins, M. Brown, J. Clarke (sponsor), Curd, Donnermeyer, Freibert, Hancock, T. Jones, Lear, Mason, Moberly, Morris, Noe, Rapier, P. Richardson, Scorsone. These representatives had all been lobbied face-to-face by people supporting the bill. However, a number of representatives voted contrary to the position they indicated to us during the lobbying. None of the people we did not talk to voted for the bill. A similar bill will no doubt be introduced in two years, and increased lobbying efforts will be needed to succeed. If your representative does not appear in the above list, make sure you let him or her know, and remember their vote when you next vote. J.C.

WATER STITCHWORT (*Arenaria fontinalis*): A RARE PLANT IN KENTUCKY. By Hal Bryan

In the last issue, I wrote about Kentucky's next federally protected plant, Cumberland sandwort (*Arenaria cumberlandensis*). A closely related member of the Pink Family (Caryophyllaceae), water stitchwort (*Arenaria fontinalis*), is also a rare plant throughout its range, in Kentucky and Tennessee. It is considered to be threatened in the Commonwealth by the Kentucky Academy of Science and the Kentucky Nature Preserves Commission. The species is also under review for federal listing as endangered or threatened by the U.S. Fish and Wildlife Service.

This tiny plant is known from only six counties of central Kentucky, where it grows on rills and wet limestone rocks above larger streams. It sometimes spills down onto the thin soil along the creek into the area disturbed by flooding. Like many of our rare plants, it requires habitats of natural disturbance. Unlike Cumberland sandwort, water stitchwort thrives in full sun or appears before the overstory trees have fully leafed. Water stitchwort usually has no petals, but small four-parted sepals give the appearance of flowers in late April to early June. It is a winter annual and seems to depend for its precarious survival on fortuitous winter and spring rains. A few dry years could conceivably eliminate the species from a locality. It looks like a long-legged chickweed, often resembling a mist on the moss from which it sprouts. Mosses are often essential for its survival because the seeds find refuge in the moisture-retaining crevices. An almost constant supply of water during the growing season is also essential to the species.

Although it is a tiny plant that is easily overlooked, a large colony is quite conspicuous. Weedy competitors, shading by trees, and anything that changes the water regime are its greatest enemies. It has also been extirpated from sites in Tennessee by grazing. The Kentucky population is in Jessamine Gorge, with one large patch flourishing on the low limestone cliffs, and a few small patches elsewhere.



Arenaria fontinalis. A: Habit (x1). B: Flower (x10). C: Capsule (x10).
From report by B.E. Wofford & D.K. Smith to U.S. Fish and Wildlife Service.

THE FUNGUS AMONG US, OR, A HOBBY TO COMPETE WITH BIRD WATCHING
By Branley Allan Branson, Dept. Biol. Sci., ECU, Richmond KY 40475

What, you may wonder, prompts a zoologist to write about plants—many experts consider the fungi as a separate kingdom, distinct from the Protista, "real" (photosynthesizing) plants, and so forth—when there is so much that needs to be accomplished in any field of endeavor? The answer is simple: everybody needs diversion. Some of us turn to bird watching for much-needed relaxation, and that is, admittedly, a truly engrossing pastime. I prefer fungus watching, however. The fungi have much to recommend them for a life-long hobby. Many of them, such as the boletes, russulas, milky caps and parasol mushrooms, are beautifully colored. Their lifestyles and habitats are most aesthetically pleasing and interesting, and fungi do not flee the scene as soon as one approaches. Furthermore, the number of species frequenting even a small woodlot is large enough to satisfy even the most fastidious hunter. As many as 3,000 to 4,000 fungal species may occur within the political confines of Kentucky, judging from published distributional patterns, although only a small fraction of that number have been formally reported in the scientific literature. Fungi, of course, do not sing, but, then, all hobbies have drawbacks.

The most lucrative periods of the year for hunting mushrooms, slime molds, and other fungi are spring to early summer, and fall, when there is plenty of moisture and warmth, although some kinds of fungi can be found nearly all year-round. The best places for fungus hunting are woodlots, particularly long-undisturbed ones like those in Red River Gorge, Berea Woods, and the various State Parks, but don't overlook lawns and gardens for fairying mushrooms (*Marasmius oreades*) and brightly colored little parasols (*Lepiota* sp.). Mixed forests are best, particularly those that include hemlocks, pines, oaks and other hardwoods, but stream-side woods, swamplands, and even dry, sandy soil beneath pure stands of pines often provide habitats for a colorful array of fungi.

Getting started as a mycophile is the first order of business. Not much is required, other than a well-developed sense of curiosity. Reliable field guides—"reliable" is a relative term, for no one field guide, or even all of them combined, covers more than a small percentage of the species likely to be encountered—are necessities. Here are some of the better ones:

Lincoff, G.H. 1981. The Audubon Society Field Guide to North American Mushrooms. Knopf, New York (about \$15.00).

Arora, D. 1986. Mushrooms Demystified. Ten Speed Press, Berkeley, California (\$25.00).

Smith, A.H., and N.S. Weber. 1980. The Mushroom Hunter's Field Guide. University of Michigan Press, Ann Arbor (\$15.00).

Weber, N.S., and A.H. Smith. 1985. A Field Guide to Southern Mushrooms. University of Michigan Press (\$15.00).

As your interest and expertise progresses, you may wish to invest in some more specialized literature, such as monographs and journals like *Mycologia* (New York Botanical Garden, Bronx, New York 10458). The University of Michigan Press at Ann Arbor, and Lubrtecht and Cramer (Box 244, Forestbergh, New York 12777) have published or reprinted many treatises on fungi.

In addition to literary sources (you should probably comb the journal literature as well and request reprints of important papers), mycological hobbyists will require a good botanical magnifying glass, access to a microscope for hyphae and spore study, a place to dry specimens of the larger fungi and mushrooms (you can manufacture an effective drying stand from a few pieces of lumber, some screen wire, and a couple of cheap lamps), bottles and formalin for

the preservation of the smaller fragile species (like Mycena) and those that practice autodigestion (such as Coprinus), some forceps and a sharp, sturdy knife, field notebook for making observations on weather conditions, growth habitat and habitats, some dark and light paper for taking spore prints, and a couple of chemical reagents, specifically a 5-10% aqueous solution of potassium hydroxide and Melzer's Reagent (44 parts water, 3 parts potassium iodide, 1 part iodine, and 40 parts chloral hydrate). These chemicals are used to determine color reactions of spores on microscope slides.

Thus armed, the mushroom hunter is ready to sally forth with great expectations, expectations that are nearly always satisfied to a greater or lesser degree. On 15 July 1987, this mycophile went to Berea Woods on a fungus-hunting trip. In less than six hours I found 131 species of mushrooms and other fungi, including beautiful examples of Collybia, Mycena, Amanita, Suillus, Boletus, Cantharellus, Geastrum, Lactarius, Laccinum, Polyporus, Hygrophorus, Pluteus and Inocybe.

Which poses a question: where could one find that many species of birds in such a short amount of time? Where indeed?

JEWELWEEDS by M. Anthony Powell.

"SPROING." This is what I think of when I watch a jewelweed seed capsule "explode." Actually, I suggest that "sproing" should be the verb that describes the way the sides of the capsule coil violently toward the bottom, thereby ejecting the seeds. "The jewelweed sproinged."

If one explains how jewelweed can "sproing" and then adds that they have translucent, watery stems; that they are usually between 2 and 5 feet tall; and that their flowers are either orange with red spots or yellow, then many Kentuckians will recall one or both of our species.

Jewelweeds are common and well-known members of many natural plant communities in Kentucky. The two species native to our state are the orange jewelweed (Impatiens capensis), whose flowers are orange with red spots, and the pale jewelweed (I. pallida), whose flowers are yellow.

The generic name Impatiens comes from Latin for "impatient," referring to the bursting open of the seed caspsules when touched. The plants are cousins to the old-fashioned garden balsam (I. balsaminea) and to the more recently popular plants known as "New Guinea impatiens." The genus is large--about 500 species, mostly of tropical Africa and Asia, especially India and Burma. Five species of Impatiens are native to North America.

Jewelweeds grow in a variety of conditions, from deep shade to full sun, and from wet to rather dry ground. Most commonly, they are found in moist, wooded areas. They generally are 2 to 5 feet tall, but under the best conditions (ample moisture and high light intensities) they can grow larger yet). Plants of I. capensis 7 feet 5 inches were reported from Maine. I observed I. pallida towering to 7 feet 6 inches in Campbell County, KY, where the plants grew in rich, moist soil near a stream.

The large flowers produced by jewelweeds for cross-pollination (another kind of jewelweed flower will be described shortly) are noteworthy for their structure. In the genus Impatiens, one of the sepals bears a "spur," or tube, the site of nectar production. In several species (including our two), this spurred sepal is described as saclike. In orange jewelweed, this sepal resembles a duncecap; in pale jewelweed, a funnel.



A - Orange jewelweed (*Impatiens capensis*). B - Flowers of Kentucky jewelweeds: orange jewelweed (*I. capensis*), left; pale jewelweed (*I. pallida*), right. C - Fruit of orange jewelweed (*I. capensis*) before (above) and after (below) "sproinging." Drawings courtesy of Arnold Arboretum, Harvard University.

Besides the usual orange flowers with red spots, several other color forms of I. capensis are known. For example, a lemon-yellow, crimson spotted form was described from Connecticut; a cream- or white-colored, brownish-red- or pink-spotted form, from Maine; and an orange, non-spotted form, also from Maine. Cream-colored or pale yellow forms of I. pallida are known. [Johnnie Falconer, U.S.F.S., reports a pure white form of I. pallida (?) along Indian Creek, Menifee Co. - Ed.]

Considering the different color forms of the common garden impatiens, these wild variations are not surprising. It seems, too, that even the foliage can be variable. Found in Indiana in 1925 was a new form of I. capensis with leaves that were "deep red throughout except for a green border 3 mm wide," reminiscent of the common coleus. Whether or not any of that strange form still survives is unknown.

In addition to the showy yellow or orange flowers that attract pollinators and sometimes humans, jewelweeds produce small, inconspicuous flowers that rarely grow longer than ca. 3 mm. Self-pollinating, these are an adaptation to adverse conditions. In times of stress (due to drought, deep shade, or injury) these plants can forego the resources gamble of cross-pollination in favor of the more certain return on their low-resource investment of self-pollinated flowers. The relatively large, cross-pollinated flowers require more resources (products of photosynthesis) for an uncertain return--there is no guarantee that a showy flower will be pollinated.

When the showy flowers are pollinated, the pollinators are usually either hummingbirds or bumblebees. However, many types of insects that do not pollinate the flowers visit them for nectar. Some even bypass the entrance to the flowers by biting holes in the saclike sepal to reach the nectar. Other non-pollinators either get nectar via already-made holes in the sepal or are small enough to crawl into the flower without touching the stamens.

Impatiens capensis hybridizes readily with I. ecalcarata in the Pacific Northwest. Our two eastern North American species, though often growing together, apparently do not form hybrids.

Being annual plants, the jewelweeds must rely solely on their seeds for reproduction and dispersal. When the seed capsules "spring," the seeds (up to eight per capsule) are thrown mostly within a radius of about 3 feet but occasionally go nearly 5 feet. Thus can jewelweeds advance slowly, a few feet at a time, through a forest.

Also available is another, more rapid means of dispersal: the seeds float (up to 6 months) and can be carried by watercourses. A spectacular example of such dispersal was observed in England. Starting from gardens about 1820, I. capensis moved rapidly along rivers--especially the Thames and its tributaries--for many miles from the point of original escape. Floating logs, too, can carry seeds or even mature plants. In addition, seeds may be shot onto barges heading upstream as the barges brush against streamside plants. In these various ways, seeds can be carried many miles; eventually some of them find their way to land, where they can germinate.

Like the seeds of many other plants, those of the jewelweeds require a certain amount of winter cold before they are able to germinate in spring. This is an adaptation to prevent sprouting during, say, a warm spell in November or December. Experiments have demonstrated that seed dormancy can be broken by storage (5 degrees C) of damp seeds--with adequate aeration--for about 4 to 5 months.

Many who are familiar with jewelweeds are also familiar with their reputation as remedies for both poison-ivy rash and stinging-nettle irritation. Reports of their use on poison-ivy rash differ, however, in details. On the positive side, many authors cite them as effective in treating an already existing rash; typical methods range from simply rubbing the crushed leaves and stems on the rash to preparing tinctures from the crushed plant. Other writers claim that the juice of the plant, when applied immediately to a part of the body that has just contacted poison-ivy, will prevent a rash from occurring. On the negative side, some research indicates that jewelweeds are not effective at all for poison-ivy or any other kind of rash.

I have never used jewelweeds for poison-ivy, but have used I. pallida for stinging-nettle irritation. In a most subjective and non-scientific way I found it soothing.

The young plants, up to 6 inches tall, can be cooked and eaten as a vegetable. They should be boiled for 10 to 15 minutes in two changes of water (discard the water). Serve them with salt, pepper, and butter. I have eaten the maturing seeds, which make an O.K. nibble. However, I cannot recommend without reservation the use of jewelweeds as an edible. Although these plants are not included in most poisonous plant books available to me, the one source where I have noted them has this to say--about the genus Impatiens in general, not our jewelweeds in particular: "Caution, toxicity not well defined. Some species are said to be acrid with a burning taste and promote vomiting and diarrhoea. Thought to be dangerous internally." This source lists an article titled, "Balsam [I. balsamina, the garden balsam] as a cause of contact dermatitis in a florist." Obviously more investigation of the toxicology of Impatiens is called for.

You might want to investigate personally other aspects of jewelweeds, especially the "sproing" feature. Here's a bonus: when the seed capsules are becoming ripe in July and August, one of the coolest places to be during the hottest part of the day is in the woodland habitat of jewelweeds. What a refreshing way to escape the heat, ambling down a stream course and watching new (or old) friends "sproing."

THE AIMS, HISTORY AND PROSPECTS OF BOTANICAL COLLECTING IN KENTUCKY
By Willem Meijer, University of Kentucky

The botanical situation in our state was clearly stated about four years ago in a letter from Dr. Peter Raven (Director of the Missouri Botanical Garden) to the University of Kentucky: "It is a tragedy that the plants of Kentucky are so poorly documented and the the herbarium of the main state university has received such little attention since its early destruction by fire. Although Kentucky is a very interesting state in terms of its plants, and although their distribution needs badly to be documented and understood well for all sorts of purposes in agricultural and other kinds of development, as well as in conservation, successive botanists at the University have made little or no progress in getting support for the development of the herbarium."

In our desperate attempts to reach these goals, we could learn some lessons from a study of the history of these kinds of pursuits in the southern environment. Lloyd Shinnars (1962) wrote a very unusual and frank article about American Botany, especially in the southeast. He pointed out the cultural, economic and social factors, and the intellectual climate that plays a role in the local progress of systematic botany. If we were more aware of this, we could organize our efforts better, with the least amount of suffering from the

cultural handicaps. Shinnors (p. 16) wrote about the hostile attitude towards public education among the political and social aristocracy after the Civil War, citing Nichols' *THE STAKES OF POWER*: "Simple lack of education made it impossible for botanical manuals to be written or even read by the very people in the South who, judging by what happened in the North, were most apt to have produced them. All of the South remained impoverished long after the Civil War... The North went through the age of the Empire Builders to the Age of the Dilettantes, passing into the age of the Conformists. Meanwhile for the South there was a long stagnation from the 1830s to the 1940s. A running theme in Geiser's "Naturalists of the Frontier" is that of gifted men crushed by unfavorable frontier conditions, men who in more civilized surroundings might have risen high." These quotations serve as an introduction to our subject.

The first botanical collections in Kentucky were made in 1734 by Andre Michaux, who found *Podostemon ceratophyllum* ("river-weed") in the Falls of the Ohio River near Louisville. His fruiting specimen of this waterfall plant is still preserved in the Michaux Herbarium of the Musee d'Histoire Naturelle in Paris, France, where I saw it during the summer of 1980. A good description and excellent illustration of this plant can be found in his "Flora Boreali-Americana" published in 1803 (reprinted in 1974 by Hafner Press with introduction by Joseph Ewan. 2 vols.). His son Francois visited Lexington and the Barrens in 1902 on his way to Knoxville.

The next botanist who made Kentucky his happy hunting ground was Rafinesque, who floated in 1818 down the Ohio River on a flatboat to Henderson, where he visited Audubon. This was a year before he accepted the post as Professor of Botany and Natural History at the Transylvania University in Lexington. His botanical explorations in Kentucky, many in the five counties around Lexington, lasted until the spring of 1826. We have no clear idea how many specimens he collected in the state. He came here four years after his return from Europe, during which he lost all his earlier collections in a shipwreck. On January 1st, 1824, he noted that his herbarium contained 5000 species of North American plants, with 23050 specimens. Some of these collections (perhaps about 3000?) were obtained through exchange (he and other botanists treated their herbaria like postage stamp collections). Somewhere between 5000 and 10000 specimens may have been collected in Kentucky. All we know for sure is that at his departure, his books and collections filled 25 boxes, according to Francis W. Pennell's "The Life and Work of Rafinesque" (1942 Transylvania College Bulletin 15:10-70.)

Only a few of his specimens survived after his death (according to Stuckey). I have photographed some in the Darlington Herbarium, West Chester. Dr. Boewe, the Rafinesque historian, has assured me that the handwriting on these specimens is that of Rafinesque himself. We might be able to trace more Rafinesque specimens back in European herbaria by making use of our knowledge of the literature, especially Elmer D. Merrill's (1949) "Index Rafinesquianus", and Charles Boewe's "Fitzpatrick's Rafinesque: a Sketch of his Life with Bibliography" (1982, M&S Press, Weston, Mass.) and the local flora data culled from Rafinesque's letters (being edited by Dr. Boewe). Photocopies of all these collections will be deposited in the University of Kentucky Herbarium, which is the central depository of botanical collections in the state, by virtue of its being the original Land Grant Institution of Higher Learning in Kentucky.

We cannot say that this state has ever taken the herbarium as a serious responsibility. Botanical collecting has most of the time been left more or less for a spare time hobby of medical or natural science teachers. Such people succeeded Rafinesque, Charles Wilkes Short and Robert Peter at Transylvania, and others were at the early Agricultural College, later to become the University of

Kentucky. Given the historical anti-intellectualism of this state, still "swimming in the backwaters of American education" (Richard Wilson, "Politized School Districts and anti-intellectualism cited as a double whammy," *Courier-Journal*, Sunday, October 30, 1983), this situation should not surprise us. Rafinesque himself had serious problems with this attitude. It was not until 1838 that a state school system was begun in Kentucky, and not until 1908 that trustees were required to be able to read and write (R. Wilson, loc. cit.).

Now we have to explain the aims and prospects of botanical surveys of this state to the least educated adult population in the nation, where botany is very low on the totempole in high schools as well as in the colleges and universities.

The University of Kentucky started around the years of the Civil War of 1861-65. The Morrill Land Grant Act, which made this a Land Grant Institution, dates from 1862. In pursuance of this act the Kentucky Legislature chartered the Agricultural and Mechanical College to be a department of a private school to be known as Kentucky University. This institution was to be joined with the Transylvania University. The Civil War postponed action on the Morrill Act until 1865 in this state. The Agricultural College had to teach sciences as related to agriculture. The college moved in 1879 to the main campus, which was until that date a city park (see Laws, Federal and State, Incorporating, Regulating and Endowing State University of Kentucky, Lexington KY, 1913, in the Archives of M.I. King Library at U.K.).

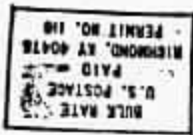
In 1878, the association with Transylvania University was finished. However, there was still a kind of continuity in the botanical field. Robert Peter, a professor at Transylvania, gave courses in agricultural chemistry, according to his son, A.M. Peter in a letter to Frank McFarland dated Dec. 18, 1939 (also in Archives at U.K., containing some corrections to the *Courier-Journal's* story on the herbarium). Around 1878, Robert Peter gave his private herbarium to the University. He did most of his collecting while he was professor at Transylvania, from 1832 onwards, where he had been associated with Dr. C.W. Short - another important early botanist in Kentucky. When the Agricultural College was separated from the University in 1878, his herbarium stayed with the University.

Professor Crandall continued at the Agricultural College as professor of Natural History and probably added some specimens. Recently Prof. Hugh Iltis at the University of Wisconsin Herbarium returned to us some of the Crandall collections, made around Corbin, including one of Cypripedium reginae (showy lady's slipper orchid), which is now unknown in the state. After Crandall came William Ashbrook Kellerman, Thomas Hunt Morgan and Clarence Mathews, each of whom probably added to the herbarium. Mathews added the most. The collection of 500 specimens given by John Fox, Jr. (the novelist) was made by his father, according to Miss Mary Didlake, another agriculture school teacher. Interesting references to this period are as follows:

Didlake, Marey Le Grand. ca. 1940 (unpublished). Notes on the History of the Department of Entomology and Botany. Archives, M.I. King Library, U.K.

Smith, J. Allan. 1981. "College of Agriculture, University of Kentucky. Early and Middle Years 1865-1951." Kentucky Agricultural Experiment Station..

In 1880, a Department of Botany, Agriculture and Horticulture was started with W.A. Kellerman as head (Herbert Riley. 1965. "History of the College of Arts and Sciences, U.K.). From this, a Department of Botany was transferred in about 1918 to the College of Arts and Sciences leaving Agriculture and Horticulture behind in the Agriculture College. In 1885, the Experimental Station was started in the Agr. School. To be continued.....



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