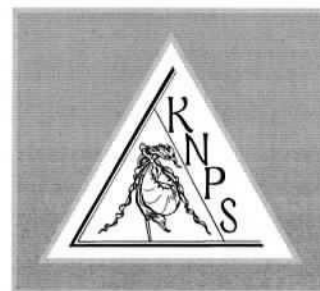


The Lady-Slipper

Kentucky Native Plant Society

DOUBLE ISSUE / Nos. 15:2-15:3

Late Summer 2000



COLLECTING WILD MEDICINAL PLANTS IN KENTUCKY: Some Perspectives and Concerns

The following article first appeared in the KNPS Newsletter 13 years ago (Sept., 1987, no. 2:3).

GINSENG— The Legendary Herb

by Ron Jones

The generic name for ginseng is *Panax*, from the Greek word *panacea*, referring to the many curative powers attributed to the herb. The word ginseng is a derivative of *jin-chen*, a Chinese word for man-like, alluding to the shape of the roots. This resemblance indicated to ancient peoples that the herb could be used to treat various ailments of the body. This ancient belief, that the shape of a plant revealed its medical usage, is called the Doctrine of Signatures. The major species used by the Asiatic peoples is *Panax ginseng*, and there are several other species distributed through China, Japan, Korea and India. The North American species that is most similar to these Asiatic species is *Panax quinquefolius*, the American ginseng. These species are in the family Araliaceae, which also includes the Devil's Walking Stick (*Aralia spinosa*) and English Ivy (*Hedera helix*).

The American ginseng is a plant typical of moist, rich woodlands in the eastern United States. It is a perennial herb from a tuberous, branched taproot, with a single stem bearing a whorl of leaves, usually

(Continued on page 2)

WANTED: KNPS Members to Plan Initiatives on Native Medicinal and Exotic Invasive Plants

by Wilson Francis, KNPS President

AT A RECENT BRAINSTORMING SESSION of the KNPS Executive Board it was suggested that we should become more involved in increasing public awareness of the dangers of over collecting medicinal plants such as ginseng and goldenseal. Most KNPS members probably know that there are people across the state actively digging medicinal plants for sale to herb buyers. Much of the digging takes place on public land, where digging herbs for profit should be completely banned. Most of the digging occurs on private land without the landowners' knowledge or permission. Most landowners are probably not able to recognize medicinal plants when they see them, and are not aware of the true financial loss they have incurred when someone digs on their property. There should be a role for the KNPS in educating the citizens of Kentucky about the impacts of the herb trade in our state. This edition of *The Lady-Slipper* is a step in that direction.

Most of us are also aware that plants from Europe and Asia have been introduced into our natural communities and in some cases are rapidly displacing native species. Several highly invasive species are being sold by nurseries and garden centers, perhaps because the sellers and buyers are not aware of their potential for escape. Here again, KNPS can help bring this issue to the attention of the public, and again, a future issue of the newsletter will focus on these concerns.



Wilson Francis

The Executive Board is looking for several members to serve on the Conservation and Special Projects Committee, which will look into these issues and advise the Board on how the KNPS should proceed. If you would be willing to help, please contact:

Wilson Francis, KNPS President
2135 Natural Bridge Road
Slade, KY 40376
(606) 663-2214

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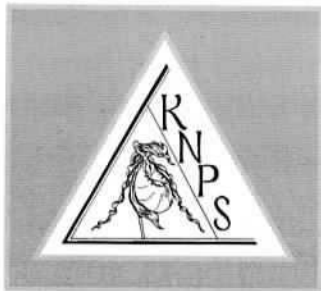
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The KNPS WEB SITE is at
[http://sac.uky.edu/
~mthom0/KNPS/knps.htm](http://sac.uky.edu/~mthom0/KNPS/knps.htm)

(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 February, May, August, and November. Best intentions and efforts notwithstanding, the actual schedule tends to be less frequent and regular. Submission of letters or articles is welcomed at all times.

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... COLLECTING WILD MEDICINAL PLANTS IN

GINSENG: The Legendary Herb (Continued)

three, with each leaf divided into five toothed leaflets. The stem is topped with an umbel of greenish-white bisexual flowers, and the fruits are bright red berries. The plants flower in mid-summer and fruit in early fall. It is a slow grower, and may take 3–8 years to produce a root at marketable size.

The Chinese have used ginseng for thousands of years, and considered it to have nearly miraculous curative powers. A reference from the 2nd century described it as a "tonic to the five viscera, quieting the spirits, establishing the soul, allaying fear, expelling evil effluvia, brightening the eye, opening up the heart, benefiting the understanding, and if taken for some time it will invigorate the body and prolong life" (1). It was also a favorite remedy for impotence, and was used as an aphrodisiac, and for treating anemia, atherosclerosis, diabetes, ulcers and hypertension. The roots were eaten raw or dried in herbal preparations. They were also carried as sexual charms or worn in the shoes for warmth. By the 12th

century, ginseng was sold for near its weight in silver, indicating the increasing scarcity. Early efforts at cultivation were begun about this time in Korea. Ginseng was nearing extinction in some parts of Asia by the 19th century, and collection was forbidden by royal decree in certain areas. By this time it was so expensive that its use was limited to the royal families and other high-ranking officials.

Ginseng was discovered in the New World by a Jesuit priest, Joseph Lafitau, around Montreal in 1715 (1). It was a herb known to the Indians and had numerous uses, including treatment for rheumatism, fevers and the prevention of conception (2). As in Asia, the root was eaten either raw or dried, or brewed into a herbal tea. With the realization of the value of the plants, the Indians and early settlers began collecting the herb for sale overseas, and soon a thriving trade was established. A new character had emerged on the American scene, the "Sang Digger," and "sanging" became a profitable enterprise for many of the early



Tim Weckman



Charlie Lapham Dave Eakin

Ron Jones

From the Spring 2000 KNPS Meeting...

MANY THANKS to outgoing KNPS officers and board members Dave Eakin, Varley Wiedeman, Jan Jenneman, and Michael Thompson;

A HEARTY WELCOME to new officers and board members Wilson Francis, Deborah White, and Tom Barnes;

AND SPECIAL THANKS AND CONGRATULATIONS to the recipients of the KNPS Ronald L. Jones Award of Merit, former newsletter editor Tim Weckman, and long-time officer and board member Charlie Lapham.

KENTUCKY: Some Perspectives and Concerns (Cont.) . . .

settlers. Actually ginseng collecting was an important source of income for many struggling pioneer families, and sometimes made the difference in their financial success(3). To the Asians, the American ginseng was a somewhat inferior herb to their Asiatic varieties, but still usable and therefore in demand. Over the last century, the plants have been heavily over-collected, causing the species to become very rare in some states. Sometimes large patches, hundreds of years old, were totally harvested, yielding as much as 100 lbs of roots. As plants became more scarce, many efforts were made at cultivation, mostly unsuccessful. The successful growers were those that could best imitate the natural habitat of the plants.

As of 1986, the trade continues with both wild and cultivated stock, and the species is protected by state and federal guidelines. In some areas, it appears that the species is making a comeback in population numbers. The following information on the Kentucky ginseng program was obtained from the Ky. Dept. of Agriculture:

- Kentucky is the number one state in the Union in ginseng production, totaling about 25,000 lbs/year.
- The harvest season is from August 15th to November 30th, and diggers are to remove seeds from collected plants and plant them in the vicinity of the parent.
- Dealers must be certified with the state and must keep accurate records of their ginseng business.
- The current value of ginseng is \$125-140/lb for wild stock and \$25-30/lb for cultivated [1986].
- An on-going research program on ginseng propagation is being carried out by investigators at the University of Kentucky School of Agriculture.

The supposed curative properties of ginseng have long been scoffed at, and even considered worthless by some scientists. Modern research, however, indicates that ginseng should be considered as an "adaptogen" (4), allowing the body to adapt to certain stresses. Naturally occurring chemical compounds in ginseng appear to have a variety of effects, including stimulation of the circulatory and nervous systems, decrease of blood sugar, and increase of vitamin C levels. It seems to generally increase both mental and physical efficiency. Thus, although many of the reported qualities of ginseng are undoubtedly based on folklore and superstition, the long history of usage, as well as recent studies, show that ginseng does merit its reputation as one of the healing herbs of nature.

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The following article is reprinted with permission from the August 15, 2000 Lexington Herald-Leader.

GINSENG HARVEST DELAYED—Plant's Scarcity a Concern

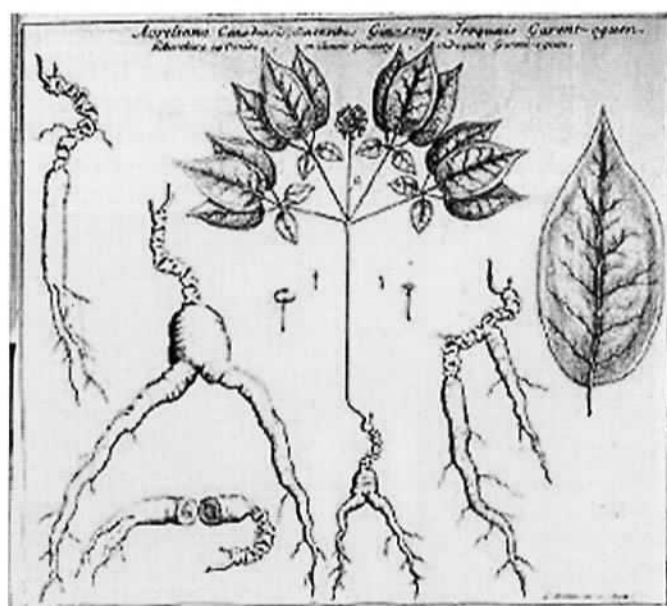
by Andy Mead,
Lexington Herald-Leader staff writer

Legal harvesting of ginseng in the Daniel Boone National Forest will be postponed for two weeks this year to give the valuable but increasingly rare plants a better chance to reproduce.

Digging permits usually are available beginning Aug. 15. But Forest Service botanist David Taylor said yesterday that the agency is concerned that that doesn't give the plant's red berries enough time to mature.

No permits will be issued this year until Aug. 28 for digging that can begin Sept. 1.

(Continued on page 4)



JOSEPH FRANCOIS LAFITAU, a Jesuit missionary working above present day Montreal, documented his successful search for ginseng in his 1718 *Mémoire présenté à son altesse royale Monseigneur le Duc d'Orléans...concernant la précieuse plante du Gin seng de Tartarie*. His quest was inspired by a fellow Jesuit in China, Petrus Jartoux, who had observed Chinese esteem for the plant and speculated "if it is to be found in any other country in the world, it may be particularly in Canada, where the forest and mountains...very much resemble these here."

Lafitau sent dried samples to Jartoux who returned detailed processing requirements from the Chinese. By 1752, \$100,000 worth of ginseng, at \$5 per pound, was being sold annually to China. By just two years later, however, exports fell to \$6,500 because of Chinese refusal to buy hastily processed roots and increasing complications from the French and Indian war. (Source: <http://www.progenix.com>)

..... COLLECTING WILD MEDICINAL PLANTS IN KENTUCKY:

GINSENG HARVEST 2000 DELAYED (Continued)

"We're concerned about the decline of ginseng within the national forest," forest supervisor Ben Worthington said.

Collecting outside the national forest will be allowed as usual starting today, said Chris Kring, a state agricultural official. A permit is not required from the state, but buyers must be licensed. The season ends Nov. 30.

Ginseng is a herb that is a popular ingredient in folk medicines and tonics. For some Kentucky families, digging wild ginseng, or "sengin'," is a tradition that goes back generations. But the search becomes more difficult every year.

Some blame logging and urban sprawl that destroys the shaded woodlands the plant requires.

But a major factor in ginseng's increasing scarcity is overcollecting driven by prices of hundreds of dollars a pound. Laws regulating harvesting are difficult to enforce and a black market flourishes. Last year the herb in its dried form brought \$350 to \$400 per pound, Kring said.

Kentucky harvests had averaged 25,000 pounds a year, but are down by 40 percent the last two years, Kring said.

The World Wildlife Fund has warned that ginseng is disappearing throughout its North American range. Earlier this year, the U.S. Fish and Wildlife Service announced a multi-state survey of the plant.

If that survey shows a decline, Kring said, it could lead

to a change in the state law on harvesting.

Here are guidelines for sustainable ginseng harvesting:

- Harvest only during the permitted dates after the berries have turned red.
- Dig only mature plants that have three or more leaves, called "prongs" and abundant red berries. Underdeveloped roots are almost worthless.
- Replant seeds from the red berries an inch deep within 50 feet of the digging site.



The following is reprinted with permission from the Summer 2000 (No. 32) edition of Naturally Kentucky, the KSNPC newsletter.

Raiding Mother Earth's Medicine Chest

by Deborah White, senior botanist,
Kentucky State Nature Preserves Commission

Like most issues where humans are involved, the motivation for herb dealing ranges from severe reverence to exploitation. The traditional folk and new wave have been married into a movement that has resulted in a million dollar industry. Herb collection in parts of Kentucky has spanned several generations. This interest in herbs combined with the challenges of making a living in rural counties have resulted in increased collection for sale to pharmaceutical companies. And this all adds up to impacts to these highly sought native plants.

The two species that have been the most severely affected by medicinal collecting in Kentucky are American ginseng (*Panax quinquefolius*) and goldenseal (*Hydrastis canadensis*). While the sale of these herbs is regulated by federal law, there are no specific laws against collecting on private land with landowner permission. However, substantial poaching has been reported from Kentucky's public lands. The U.S. Fish and Wildlife Service reports 16,500 pounds of ginseng collected in the state in 1999, twice that of any other state. The price of ginseng has been \$400 per pound in the last few years, which is driving the collection frenzy. While some ginseng is now farm grown, a premium price is paid by Asian companies for wild grown roots because their consumers are looking for roots that look like the human body and are thus thought to have more healing power. Consumers in the U.S. are not so picky (a pack of ginseng can be bought from the Quick-mart counter), but the demand has soared.

Ginseng (primarily the two Asiatic species of *Panax*) has been used in China for thousands of years to build energy and zest, sharpen vision and hearing, increase the efficiency of the brain, restore virility and prolong life. It has been a gift from emperors and in some periods was more valuable by weight than gold. The genus name *Panax*

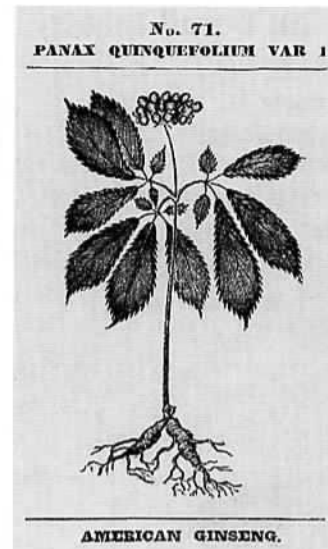
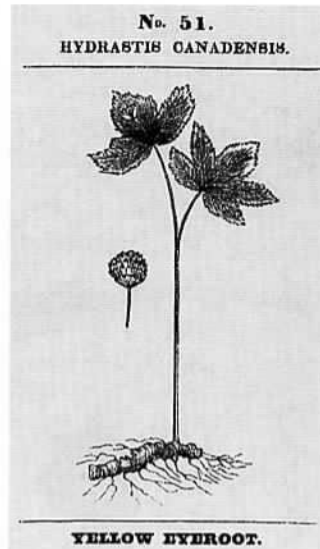


THE FOLKS GEORGE CALEB BINGHAM IMAGINED in 1851 for "Daniel Boone Escorting Settlers Through the Cumberland Gap" don't seem to be dressed for sengin', but it wasn't long before many of them were heavily involved in the trade.

Ted Franklin Belue's chronology in Draper's *Life of Daniel Boone* notes for 1788: "Boone transports 15 tons of damaged ginseng to Hagerstown, Maryland." By 1788, Boone was living near present day Maysville and gathering and purchasing ginseng from the mountains of eastern Kentucky and West Virginia. A barge accident on the Ohio contaminated his 1788 shipment, but in later years Boone continued collecting ginseng and credited it with providing a considerable amount of wealth for his family. (Source: <http://www.progenix.com>)

Some Perspectives and Concerns (Cont.)

The U.S. Fish and Wildlife Service calculates the minimum value of wild ginseng to Kentucky's economy at \$4,535,000. This amount, based on the amount of ginseng harvested, is the highest in the nation and twice that of any other state.



C. S. RAFINESQUE, in his 1828 *Medical Flora* of eastern North America, describes goldenseal growing "in rich shady woods, on the banks of streams, sides of hills, deep valleys: very common in West Kentucky, Indiana, Ohio, &c., rare in limestone plains."

Although he recognized two varieties of American ginseng, Rafinesque says "they have been nearly extirpated from several places by collectors, and the annual supply is now much lessened, coming chiefly from the remote western regions. It may soon be needful to cultivate them...."

is taken from the word for panacea meaning "cure-all."

American ginseng occurs throughout the eastern U.S. and as far west as North Dakota. Appalachian regions have the strongest traditions in ginseng harvest or "sang" gathering. Responsible sang harvesters did not collect until the seed was mature, usually around September, and distributed the fruit on the forest floor. Patches would only be visited on a rotation, and only certain size plants were taken. With the rising price and demand for the root, these techniques that prevented depletion of these plants seem to have been forgotten.

The use of goldenseal has also grown. One request for approval to sell harvested root from Kentucky (counties in-

clude Floyd, Knott, Letcher, Logan, Martin, Pike and Trimble) was for a total of 89,000 plants. All parts of the plants are used but, as with ginseng, the roots are thought to have the highest medicinal value. Pulverized roots were traditionally prepared as a tonic for the treatment of mouth sores, eye conditions, blood pressure, and used as a diuretic.

Kentucky State Nature Preserve Commission botanists have noticed during field work that ginseng and goldenseal are seen less frequently and both have been on the KSNPC's rare plant list at one time. We need to review the status of these species and determine whether the alarming rates of herb collection should be more closely monitored.



Subject: GOLDENSEAL (An E-mail Inquiry from the USFWS)

Date: 2 Mar 1999, updated 1 August 2000

From: Julie Lyke, U.S. Fish and Wildlife Service,
Office of Scientific Authority

Dear Dr. Eakin,

My office is responsible for regulating international trade in certain species that are listed under the Convention on International Trade in Endangered Species (CITES). Goldenseal (*Hydrastis canadensis*) is a species that was fairly recently listed under CITES and we are now receiving applications from would-be exporters.

We are required to find that the harvest of the species was not detrimental to its status before we issue an export permit. The export applications we receive specify the amount of roots harvested (in lbs. dry weight) and which counties they come from. To make our finding, we multiply the weight given per county by an average of 250 roots per pound to estimate the number of individual plants affected

in each county. We then attempt to match this information with information we receive from experts in the field—such as yourself—on the status of the species in the particular counties concerned.

In the table and map below, you will find data for the more than 700,000 goldenseal plants that were harvested from nine Kentucky counties and reported to our office for export between August 1, 1998 and August 1, 1999.

My question is: *Is this amount of harvest pressure sustainable in each of these Kentucky counties?* I realize that you probably have no quantitative data to offer, but as we are required to make a finding one way or another, I am looking for evidence of any sort— anecdotal or otherwise.

Obviously, the answer to this question depends on many factors, including the abundance and distribution of the species and its ability to regenerate following harvest. Dr. Jones states that the average patch size that he runs across

(Continued on page 6)

..... COLLECTING WILD MEDICINAL PLANTS IN KENTUCKY:

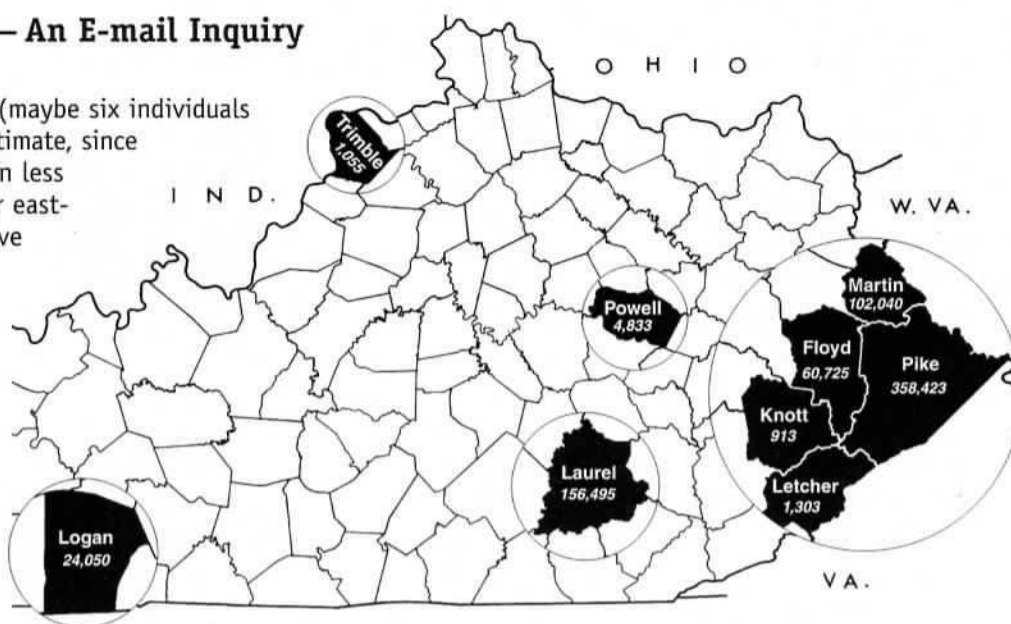
Subject: GOLDENSEAL — An E-mail Inquiry

(Continued)

in his field work is very small (maybe six individuals or so). This may be an underestimate, since his work is farther west (and in less favorable habitat) than the far eastern counties of Kentucky. I have also heard estimates of an average size of a goldenseal population in that area to range from 10–20 individuals. This suggests that unless goldenseal populations are quite densely distributed in that part of the country (which doesn't seem to be the case since some estimates suggest an average of one population per square mile), these numbers represent significant harvest pressure.

I would appreciate any insights you may have regarding the distribution and abundance of goldenseal and any assessment you can offer regarding the trend in its status over time in these counties in particular. Can you say from your experience that goldenseal is declining, that you see it less frequently, that you see it in smaller patches, etc.?

There are other facts concerning the total U.S. harvest of wild goldenseal that are worth noting. Our information suggests that during the same period mentioned above, Aug. 1, 1998 through Aug. 1, 1999, a total of at least 1.34 million goldenseal plants were collected from the wild and reported for export from four main states: Kentucky, Ohio, Virginia, and West Virginia. Our information also indicates that approximately 98 percent of the goldenseal collected from the



This map shows the quantity and distribution of individual goldenseal roots that were collected from the wild in nine Kentucky counties and reported for export approval to the U.S. Fish and Wildlife Service, Office of Scientific Authority, between Aug. 1, 1998 and Aug. 1, 1999.

wild in the U.S. is consumed domestically. If that is the case, then the 1.34 million plants reported for export represent only two percent of a total 67 million plants harvested from the wild during this one-year period.

I would certainly appreciate any information you and other KNPS members can offer about the status of goldenseal in Kentucky or elsewhere. I would also warmly welcome the participation of any or all of your members in the Plant Conservation Alliance Medicinal Plant Working Group which is open to all [see article on p. 11].

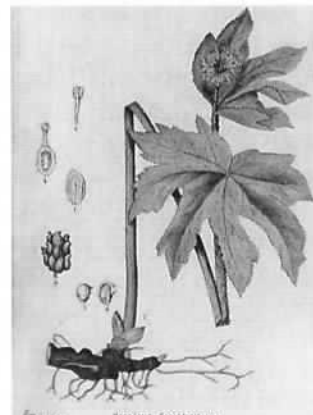
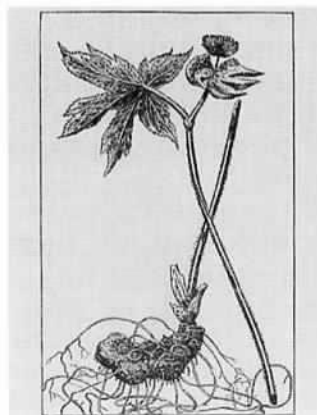
Thank you very much for your help.

Julie Lyke, Plant Conservation Biologist
U.S. Fish & Wildlife Service, Office of Scientific Authority
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e-mail: Julie_Lyke@fws.gov

Amount of wild goldenseal collected in Kentucky and reported to USFWS/OSA for export (8/1/98–8/1/99).

KY County	Area (sq. miles)	Dry Weight --- (lbs.) ---	No. of Roots (250 roots/lb. dry weight)
Floyd	394	243.90	60,725
Knott	352	4.65	913
Laurel	436	626.98	156,495
Letcher	339	5.21	1,303
Logan	555	96.20	24,050
Martin	230	408.16	102,040
Pike	787	1,434.69	358,423
Powell	180	19.33	4,833
Trimble	148	4.22	1,055
TOTAL (KY)		2,839.34	709,837

Source: US Fish & Wildlife Service, Office of Scientific Authority



Some Perspectives and Concerns (Cont.)

May 9-11, 2000, Louisville, Kentucky

THE GINSENG & GOLDENSEAL CONFERENCE: Three Reports

The following article is reprinted with permission from the July 2000 issue of Kentucky Agricultural News.

Outlook is Gloomy for Kentucky Ginseng Industry

Ginseng harvesters concerned about the recent decrease in exports abroad found no comfort during a three-day conference revolving around the product May 9-11.

Representatives of the U.S. Department of Fish and Wildlife Services discussed 1999 changes made in export rules and regulations that allow only ginseng with three prongs, or five-year-old root, to be sent abroad. The regulations were designed to save the species, Fish and Wildlife officials said.

"For a 15-year period ending in 1997, over 25,000 pounds per year of ginseng were exported from Kentucky," said Chris Kring, ginseng program coordinator for the Kentucky Department of Agriculture's Market Research Division. "But in 1998, a 40 percent decrease in harvest resulted in only 16,000 pounds being exported. The decline in harvest resulted from drought, the Asian economy and increased digging in the wild."

Add to that stricter regulation of a crop federal officials say is endangered, and the news is not good for harvesters, either nationwide or in Kentucky, Kring said.

"Ginseng harvesters are not receiving federal monies now to help with either harvest or export, and the dealers are all asking for a break," said Sherrie Dawson, division administrative specialist who coordinated the three-day event. "It all stems from greed."

Dawson said by law ginseng must remain in the ground for five years, having its famed three prongs extending from the earth before it is harvested. But others seeing money in the small treasure have harvested early, endangering not only plant supply but now the industry as well, she said.

"People are digging ginseng prematurely; some don't know it's against the law, and some don't want to know,"

Dawson said. "Digging has increased in the wild, and that is hurting the plant population and overall product quality."

Kring doesn't see the ginseng industry progressing beyond its current state, and that may diminish because harvesters may feel the increased federal scrutiny is not worth their efforts. This will have its greatest impact in the eastern part of the state, where most of the industry is based, Kring said.

More than 125 people attended the public workshop portion of the conference May 9, where subjects ranged from producing and marketing wild simulated ginseng to the trade of medicinal plants and other woodland botanicals. In addition to speakers, several exhibits were on display at the Radisson Hotel in Louisville. On May 10-11, the conference involved planning discussions among state coordinators and officials.

The conference was sponsored by the U.S. Dept. of Fish and Wildlife Services, Univ. of Kentucky Cooperative Extension Services and the Ky. Dept. of Agriculture. 

Conference Touts Ginseng and Goldenseal as Potential Moneymakers

by Aimee D. Heald,
Univ. of Kentucky Extension Communications Specialist

LOUISVILLE, KY (May 17, 2000) People came from as far away as Alaska to learn about ginseng and goldenseal production. From May 9-11, in Louisville, Ky., the University of Kentucky College of Agriculture and the Kentucky Department of Agriculture sponsored a conference to raise awareness of the two herbs' potential in Kentucky and the U.S.

UK Extension Horticulture Specialist, Terry Jones was encouraged by the diverse turnout for the conference, and especially glad to see the Kentucky producers there.

(Continued on page 8)



IN THE MID 1880S, goldenseal turned up in J. U. and C. G. Lloyd's *Drugs and Medicines of North America* (left) and C. F. Millsbaugh's *American Medicinal Plants* (center). It also appeared in H. A. Köhler's *Medizinal-Pflanzen* (right) in Germany, but almost all of the annual 140,000-lb. U.S. harvest was used domestically.

As owners of a large pharmaceutical concern in Cincinnati, the Lloyds knew goldenseal had "nearly vanished from the

rich hillsides bordering the Ohio river." It "is so sensitive," they said, "that even a partial destruction of the timber causes it to shrink away, and one turn of the soil by the plow blots it from existence."

Still, "unless some unusual demand springs up," the main source, "the country bordering on the Big Sandy river, and the adjacent mountainous portions of eastern Kentucky and West Virginia" could never vanish. This country, they said,

"can never be cultivated, and...the nearly inaccessible mountain sides are covered with the virgin forests, and excepting ginseng, with the original luxuriant vegetation and undergrowth."

With all this, and with only inhabitants who were "happy and contented" meeting their "few expenses" by occasional herb gathering and asking "only to be left to themselves and their mountains," goldenseal's survival was assured!

..... COLLECTING WILD MEDICINAL PLANTS IN KENTUCKY:

..... THE GINSENG & GOLDENSEAL CONFERENCE: Three Reports (Continued)

Since ginseng is a threatened species, the plant populations have to be researched and monitored to make sure the population remains healthy. The conference offered workshops and presentations by experts from all over the U.S., and this year, Canada. The workshops for growers and dealers were on the first day and then there were two days of programs for the state coordinators.

Ginseng and goldenseal are native to Kentucky and hold great potential for landowners who learn to grow, cultivate and market them the right ways.

"Part of what the workshops do is teach growers to produce a wild simulated ginseng or organic ginseng and goldenseal, which have a higher cash value," Jones said. "Those products have big demand not only in America and Europe, but Asian markets as well. It's something lots of our growers could be producing. They should take advantage of it."

Jones also noted the historical significance of ginseng in the Commonwealth. He said to look back into history and study how Daniel Boone was able to pay for Boonesborough and keep Kentucky a colony. He did that by digging and shipping wild ginseng root up the river to Philadelphia. It was then carried by tea clipper ships to China. It helped early pioneers make a living and now today's Kentuckians have the opportunity to preserve that heritage.

"We have research trials at UK's Robinson Forest Research Station. We have some ginseng plants under artificial shade cloth," Jones said. "There are several grower groups that are working together to produce and market these products for specialty markets that will demand premiums. Several of the medicinal plants make beautiful landscape plants, so there's a market for that too."

Jones thinks the demand for natural, organic products is increasing. Ginseng is being used by some to increase energy and reduce stress, while goldenseal has antibacterial properties and has been used in mouthwashes, and in topical treatments for sores and cuts.

Leslie County is a good example of the increased awareness of ginseng and other woodland botanical crops. Extension Agent for Agriculture and Natural Resources, Angie Begosh has been helping producers in her county test their soil to determine where they can best grow these products.

"Leslie county is largely wooded and has very few areas with flat land to use for things like corn," Begosh said. "These plants are found there naturally and so naturally it's the best place for them to grow. A lot of times people look at their forested land and think the only thing they can do is log it and harvest timber, but there are a lot of people who don't want to do that. So ginseng and goldenseal are a good way for them to use their land; this gives them more of a choice."

For more information on ginseng and goldenseal, contact Terry Jones (606) 666-2215, ext. 234 or your local county Extension office.



The following report is reprinted with permission from the June 2000 issue of HortIdeas: The Gardening News You Can Use.

Report on the Kentucky Ginseng Workshop, May 9-11, 2000

by Greg Williams

Practically all of the wild American ginseng (*Panax quinquefolius*) roots harvested in the eastern U.S. are exported to Asia, bringing up to hundreds of dollars per pound (dried).

Kentucky currently exports more roots each year than any other state, so it made sense to hold a "workshop on concerns in the ginseng industry" in Kentucky. But what "concerns"? It turns out there are plenty of them! The primary worry of root diggers and dealers is that American ginseng could be determined to be endangered and banned in international commerce. The same folks are also concerned that, short of a total ban, restrictive regulations might greatly reduce exports (and hence, their profits).

Since 1977, American ginseng has been listed on Appendix II of the Convention on International Trade in Endangered Species (CITES), which regulates trade so as to ensure the survival of wild species; an Appendix II listing requires export permits to be issued by the country of origin, stating that a particular shipment is not harmful to the survival of that species in the wild. In the U.S., the Fish and Wildlife Service is responsible for CITES enforcement.

A primary purpose of the Kentucky Ginseng Workshop was to gather government officials (especially the ginseng regulatory coordinators from states actively exporting roots) and dealers to develop a program (according to the Workshop program) "with goals, methods and expected (measurable) results to ensure the long term survival of both wild ginseng and the medicinal herb industry associated with this plant."

Based on our observations at the Workshop and additional information gathered from the Internet, it appears that, to date, ginseng export regulation has not been guided by scientifically collected data. There are various general anecdotal indications that wild ginseng populations in the U.S. are declining precipitously. Last year, the Fish and Wildlife Service began to limit wild ginseng exports to five-year and older roots (based on counting budscars); at the Workshop, a representative of the Service justified this restriction on the basis of reports of ginseng depletion in eastern National Forests and poaching in the Great Smoky Mountains National Park (suggesting diminishing ginseng populations on lands surrounding the Forests and Park), and on the basis of declining ginseng exports over the past several years.

Unfortunately, the linkage between the depletion/poaching reports and the five-year and older export restriction is very weak: we see no scientific basis for claiming that the restriction (which more or less requires harvest to be post-

Some Perspectives and Concerns (Cont.)

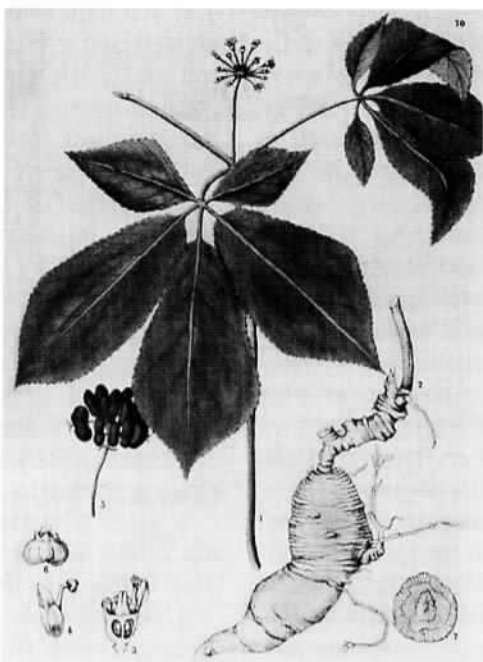
poned until after fruiting has begun, thus promoting seeding) will be sufficient to "ensure the survival" of American ginseng in the wild, as required by CITES.

In (political) reality, it appears to us that the Fish and Wildlife Service has done what little it is able to do to slow exports without raising the wrath of those profiting from wild ginseng sales. The five-year and older restriction actually only (approximately) emulates already-existing regulations of some ginseng-exporting states to the effect that harvest must be limited to fruiting plants. To have proposed more stringent export regulations—in the absence of adequate data to make scientifically justified regulatory decisions—would have meant facing the question "How do you know these regulations will ensure the survival of ginseng in the wild?" And that question could only have been answered by "We don't." "Then what basis do you have to impose additional restrictions on the wild ginseng industry?" You get the idea, especially if you realize that this dialogue could be between the Fish and Wildlife Service and a congressperson who represents ginseng businesspersons!

To the credit of the Fish and Wildlife Service, the Kentucky Ginseng Workshop was meant to validate a truly scientific program of monitoring wild ginseng populations, eventually backing up regulatory decisions with systematic data. However, the program could very well be too little, too late, given what is already known nonscientifically. After all, it will take at least a few years to project trends for population dynamics in various states, and during that time local populations could be declining irretrievably.

Political pressures notwithstanding, we believe a case could (and should) be made for placing a moratorium on wild ginseng exports until monitoring data showing wild population stability become available.

So, WHAT DOES THE ABOVE MEAN for gardeners and small-scale farmers? The extinction of American ginseng in the wild would be a huge tragedy (and a testimony to greed!) for all ecologically concerned folks, of course. And regulations designed to prevent that tragedy directly affect the "new wave" of growers who are planting ginseng at a low density and with minimal tillage in forested areas, as opposed to "old style" intensively cultivated ginseng under artificial shade.



C. F. MILLSPAUGH, working in New York state in 1887, observed in *American Medicinal Plants* that American ginseng "is becoming rare in this country, and in fact wherever it is found, on account of the value it brings in the markets."

The latter is in decline, with a surplus of smooth, regular roots on the market. But the former holds great financial promise, since the resulting roots share many characteristics of wild-harvested roots and are highly valued in Asia.

In fact, if a moratorium were imposed on exporting wild-harvested American ginseng, "wild-simulated" or "virtually wild" cultivated ginseng could be the heir to a multi-million-dollar annual business, assuming that proper safeguards were established so that no wildharvested ginseng reached the market.

Whatever the prospects for woods-cultivated ginseng, there is burgeoning interest in it, and the first day of the Kentucky Ginseng Workshop included informative presentations by experienced growers of wild-simulated ginseng.

We present some of the main points made by Workshop speakers below.

PRODUCING AND MARKETING WILD-SIMULATED GINSENG IN FOREST AND AGROFORESTRY SYSTEMS, Andy Hankins, Extension Specialist, Virginia State University.

Andy has worked with ginseng for about 20 years. He sees ginseng as a "complex opportunity" because it can be grown and marketed in many different ways. He cautions that his own method of growing wild-simulated ginseng is not the only way to do it. In his opinion, "the best way to preserve ginseng is to quit harvesting from the wild." Site choice is extremely important, particularly to avoid drought problems during the first year following planting. In his area, he looks for poplars or oaks or black walnuts; 75–80% shade; north- or east-facing slopes; understory perennial herbaceous plants (it is too dry if there are only fallen tree leaves). Black cohosh and poison ivy are indicator plants for good ginseng sites, but don't plant near ferns, which are too competitive. Moist but well-drained soil is desirable; pH between 4.8 and 5.0 is advisable to avoid diseases; Andy uses no fungicides. Slugs can cause significant damage to first-year plants; voles can also harm plants; plant hoppers cause only minor injuries.

Seeds work better than rootlets. "Cheap seed is rarely a good deal." Soak seeds in one part household bleach and nine parts water, followed by a rinse in pure water, to sterilize the surfaces. Andy rakes the topsoil layer away in

(Continued on page 10)

..... COLLECTING WILD MEDICINAL PLANTS IN KENTUCKY:

..... THE GINSENG & GOLDENSEAL CONFERENCE: Three Reports (Continued)

five-foot-wide beds, then scratches one-inch-deep furrows. There is no tillage; he covers the seeds with a little soil, sprinkles gypsum (to provide calcium) over the seeds, and then rakes approximately an inch of leaves over the beds. Because of the risk of drought, it is best to plant small amounts of seed over a period of several years; irrigation can be a big problem. "Wild ginseng plants always have weeds around them," so Andy leaves the weeds.

Root harvest is seven years after planting. It is difficult to make much money selling seeds from woods-grown ginseng, because of losses to birds, etc. With careful harvesting, self-seeding could produce long-lasting beds. Harvest of wild-simulated roots (as well as wild) roots is slow, because the roots become intertwined with those of other plants; the difficult digging can slow down thieves considerably (relative to the speed of digging artificial-shade-grown roots). Still, there can be a "tremendous amount of theft pressure." Andy tries to get the wild ginseng price for his wild-simulated roots. He has been selling his roots locally in small amounts to health food enthusiasts, and he thinks that there is a rising new market here in the U.S. (with the possibility of premium prices for certified organically grown roots). Growers should look for "niche" markets locally.

In summary, ginseng is "a high-risk, high-return crop," and "the research needs for ginseng are tremendous."

SOIL CHARACTERISTICS OF WILD GINSENG POPULATIONS IN THE NORTHEAST, Bob Beyfuss, New York State Ginseng Specialist.

Artificial-shade-grown ginseng gets sprayed more than any other crop except cotton. [What a marketing boost for organic growers of wild-simulated ginseng!—Eds.] In general, ginseng diseases are highly affected by both cultivation and fertilization.

"If you can afford to grow an acre of ginseng, you can afford to protect it," given recent breakthroughs in security, especially highly sophisticated yet reasonably priced alarm systems. In particular, Bob mentioned a "Critter Getter" that can detect motion and emit a piercing sound.

Commercially available seed quality can be problematic with regard to germination and diseases. Always purchase seed from dealers with good reputations. An audience member recounted experiences with certified organically grown ginseng seed resulting in fewer seedling disease problems than did conventionally grown seed; Bob agreed that it sounded possible, and he said that he encourages all ginseng growers to "be as organic as possible."

Bob worked with ginseng diggers and dealers to obtain more than 100 soil samples at sites with healthy-looking wild ginseng populations in the Northeast. He did a statistical analysis on nutrients in 44 of the samples, and found that levels of the major nutrients varied widely, in general, and were quite low in some cases. But he also found consistently high levels of calcium (despite an average pH of

4.8) and high levels of organic matter. Bob suggests that growers add gypsum to provide calcium without boosting soil pH (which might lead to increased disease incidence); because gypsum leaches easily, it might be a good idea to make frequent applications. He also discovered a fairly consistent ratio of calcium to magnesium of about 10:1 in the soil samples. Bob recommends 10% or more soil organic matter for ginseng cultivation sites; he had originally thought that very high amounts of organic matter in several soil samples associated with healthy ginseng populations were due to contamination by duff, but he later found very high amounts in his own samples, taken carefully to avoid contamination.

For the Northeast, Bob has developed visual site assessment criteria for potentially good wild-simulated ginseng production:

1. Trees present (especially white ash and sugar maple; not willow or aspen).
2. Herbaceous understory plants present.
3. Mid- or low-slope: 5-20%.
4. Soil needs to be workable (not too many rocks).
5. Security close by (for example, a house occupied full-time and/or a noisy tied-up dog).

Currently there is (at least in New York) a market for fresh ginseng roots (\$35-40 per ounce). Right now it is easy to market wild-simulated roots; of course, there is a possibility that there could be a surplus, eventually, as there now is a surplus of artificial-shade-grown roots.

VARIOUS MEMBERS OF A MEDICINAL PLANT DEALER PANEL made the following statements, some of which are not about ginseng but, nevertheless, should be of interest to all concerned with the herb industry: This business is in decline; the industry needs help (especially trade promotion) to survive. Currently, there is an overproduction of most medicinal plants grown in the U.S.; producers need to "be careful about what you grow," because of the limited market for various medicinal plants. For example, there is a four-year supply of black cohosh in the marketplace. Also, St. John's wort is currently being overproduced. And a surplus of Echinacea has led to plowing-under of some fields.

Greg Williams has also written an Appalachia-Science in the Public Interest "Technical Paper" advocating a moratorium on wild ginseng exports. For more information, contact—

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Some Perspectives and Concerns (Cont.)

The Plant Conservation Alliance—Medicinal Plant Working Group

by Julie Lyke

The market for medicinal herbs in the U.S. is worth over \$3 billion and is growing about 20 percent per year(1). At least 175 species of plants native to North America are sold in the non-prescription medicinal market in the U.S., and more than 140 medicinal herbs native to North America have been documented in herbal products and phytomedicines abroad(2). Dozens, possibly hundreds, of these are collected in large quantities from the wild in the U.S. (2).

Recognizing that commercial demands may cause over-harvesting of native plants in the U.S., representatives from industry, government, academia, Tribes, and environmental groups joined together to form the Medicinal Plant Working

Group (PCA-MPWG) under the umbrella of the Plant Conservation Alliance (PCA). The PCA is a consortium of ten U.S. federal government Member agencies and over 145 non-federal Cooperators who represent many disciplines of plant conservation and work collectively to solve the problems of native plant extinction, native habitat restoration, and preservation of our ecosystems. The PCA also serves as the North American Plant Specialist Group of the IUCN (the World Conservation Union) Species Survival Commission.

The Medicinal Plant Working Group focuses on facilitating action on behalf of native U.S. medicinal plants that are of particular conservation concern, to balance biological and commercial needs and, in the long term, minimize regulatory intervention. To this end, the group's objectives include:

- generating and sharing information regarding species of medicinal and economic importance and conservation concern;
- promoting appropriate conservation measures for native medicinal plants;
- promoting sustainable production of native medicinal plants;
- increasing participation in native medicinal plant conservation;
- encouraging active participation by Tribes and other holders of traditional ecological knowledge about native medicinals; and
- generating financial support for native medicinal plant projects.

The PCA-MPWG's strategic plan is on the Internet at

<http://www.nps.gov/plants/medicinal/strategy.htm>

Since its inception in June 1999, over 180 individuals from at least 36 states and Tribes and eight other countries have joined the PCA-MPWG. They have established Committees to address each of the six areas identified above and selected representatives from Paracelsian, the USDA Forest Service, the Dept. of Defense, Botanical Liaisons, the Univ. of Maryland, Wilcox Natural Products, Ticonderoga Farms, Inc., the U.S. Botanic Gardens, and TRAFFIC North America as Chairs.

A "Core Group," including the Committee Chairs and other members, meets regularly by conference call. Currently, the PCA-MPWG is finalizing its Strategic Plan and Committees are beginning to achieve objectives. For example, Conservation is selecting "species of concern" for each region of the U.S. Participation is developing suggestions for how the public can help conserve medicinals. The entire PCA-MPWG shares information and keeps in touch via a listserver.

The PCA-MPWG is facilitated by the U.S. Fish & Wildlife Service. It is open to all. For more information, please visit the PCA-MPWG web site above or contact:

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THE LATE 20TH-CENTURY CHRONOLOGY OF GINSENG & GOLDENSEAL SURVIVAL OR DECLINE IN WORLD TRADE (AND IN KENTUCKY) INCLUDES—

1977: CITES, an international treaty signed and participated in by the U.S., lists ginseng as a species whose trade must be monitored.

1978: The U.S. Fish & Wildlife Service notifies states of CITES export requirements. To provide for temporary compliance, Gov. Carroll issues an Executive Order to allow voluntary Dealer registration and Buyer record-keeping. The UK College of Agriculture Dept. of Horticulture is to do initial ginseng population studies.

1982: KRS 246.660 takes effect requiring the Ky. Dept. of Agriculture (KDAR) to promulgate and administer regulations for wild ginseng "no more restrictive than minimum federal requirements."

1988: KDAR promulgates regs requiring Dealer registration, records, and reports; establishing an Aug. 15–Dec. 1 Harvest Season; and requiring Diggers to plant "any seeds adhering to a plant...within 50 feet of the location of the plant with no tool used other than the finger." Maturity level of harvested plants is not specified.

1994: KRS 246.990 is amended to impose a \$100–500 fine for violations of the 1988 KDAR regs.

1997: CITES participants list goldenseal as a species whose trade must be approved. USFWS begins monitoring U.S. exports.

1999: USFWS announces first-ever export restrictions for ginseng. Permits for the 1999 harvest will be issued only for roots from plants five years old or older. Later in 1999, the restriction is renewed for the 2000 harvest.

2000: U.S. Forest Service restricts permits for ginseng digging in Daniel Boone National Forest to one pound of green root and postpones availability until two weeks into the harvest season to allow extra time for seeds to mature.



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

Kentucky's Wild Ones

by Connie May

Although I grew up in Kentucky, it wasn't until fairly recently that I began to realize how blessed I am to live in such a beautiful and diverse state. The more I fell in love with the flora of Kentucky, the more I wanted to know. Going on KNPS hikes and taking KNPS classes helped me better understand our native communities and opened my eyes to the wealth of beauty and diversity of our state.

Eventually, my infatuation with our stunning flora led to the desire to plant some of these same plants in my yard. Unfortunately, although I had been gardening for years, like most gardeners, I was much more familiar with European and Asian plants than I was with those in Kentucky. I was happy to find the KNPS when I wanted to learn more about Kentucky's flora, and I was happy again to find an organization to help with my natural landscaping needs.

Wild Ones Natural Landscapers, Ltd. was formed in 1977 in Wisconsin to promote the use of native plants in residential landscapes. I joined the national group and learned lots from their bi-monthly journal, but I'm happy to report that Kentucky now has two local chapters—in Frankfort and Louisville. We hope to soon have a Lexington chapter as well!

If you want to enjoy native wildflowers in your home landscape and use them to attract butterflies, hummingbirds and other wonderful wildlife, you will probably want to join Wild Ones. Local chapter projects and programs are diverse and offer something for everyone from novice to expert.

The Louisville chapter is doing a great job tackling invasive alien plants in a local city park—having fun and learning about ecosystem disturbances first hand. The Frankfort chapter planted a native wildflower garden at a local park and worked on a similar project last spring. Both chapters have sponsored well-attended workshops and lectures with topics such as planning and planting native landscapes, seed collecting and propagation, and building birdfeeders and nestboxes. Last summer, Wild Ones co-sponsored a wildflower conference with KNPS and the Salato Native Plant Program and did so again this year.

Both local groups meet monthly and heartily welcome new members. If neither chapter is near you, you can still join Wild Ones. Membership entitles you to an informative 20-page handbook, an excellent bi-monthly newsletter, and the newsletter of the chapter nearest you. You may even be inspired to start your own local chapter!

To join Wild Ones: Send \$20.00 to Wild Ones, P.O. Box 1274, Appleton, WI 54912-1274.

For more info about the Frankfort group, contact Katie Clark, (502) 226-4766, or e-mail her at herbs@kih.net. For more about the Louisville chapter, call Portia Brown (502) 454-4007, or e-mail her at oneskylight@earthlink.net.

Wild Ones is on the internet at

<http://www.for-wild.org>



This article is reprinted with permission from the July 2000 issue of the Wild Ones—Louisville chapter newsletter.

EARTH DAY 2000— In the Field with the Louisville Wild Ones

by Portia Brown, photos by Tom Barnes

The Louisville Wild Ones took their first all day field trip on Earth Day 2000. Under the wing of the ever inspiring Dr. Thomas G. Barnes, nine of us broke away from our personal routines to visit three Ky. State Nature Preserves and a relatively new University of Kentucky prairie restoration site.

You had to be there to grasp the significance of these truly unique areas, so I can only share some general educational information that doesn't even come close to the actual experience. For days I walked around with a sense of awe as I realized just how intensely aware of the plant community I had been the whole day. I can still sense the intensity of Prickly Pear cactus, Hoary Puccoon, and Shooting Stars flourishing on limestone outcroppings, with strong sunlight radiating back from the rocks as heat waves.

There have been very few times and places in my life where the plant community had such an extended and commanding presence...no doubt this is in part a reflection of the insights and guidance of Tom Barnes and the joy of sharing the experience of awe with fellow Wild Ones. Still, it was as if the eyes of the plants were focused on us, I could almost feel their eyes watching as I turned from one to another and continued on down the path. They may not be as animated as birds and butterflies, but they are very much a community and are just as surely full of life and beauty.

AT FLAT ROCK GLADE, a Kentucky State Nature Preserve restoration site, Dr. Barnes explained that as we traveled south of Elizabethtown we entered the Mississippian

Plateau region which makes a big "U" shape around the Western Coal Field. Flat Rock Glade is an extension of the Nashville Basin area and is a very unique topographic area. This is the only "True Cedar Glade" in Kentucky. This woodland community is notable for its fire tolerant species, such as Blackjack Oak and Post Oak. Carolina

*Native wetland plants
In broken glass mosaic
Cutting edge past*

Buckthorns, Persimmon, Elms, and Cedar are common here and this is also home for a rare native Privet.

After a short walk we came into a stunning opening where the soil gave way to limestone outcroppings with plants growing right on the rock. Perhaps the most startling sight is the Prickly Pear Cactus that thrives on the limestone. The rock surface was a mosaic dotted with





Can you find the armored denizen of the Prickly Pear and Hairy Lip Fern plain?



Hoary Puccoon

plants and broken glass. The site had been used as a local dump before the Nature Preserves Commission (KSNPC) took it over. They have hauled out tons of junk and the broken glass and a few small items are about all that remain.

In this area Limestone has risen to the surface, creating habitat for lots of plants that can only be found here, including some rare and endangered species. Flower-of-the-Hour is unique here, as well as Widow's Cross (Pink Stonecrop), Butler's Quillwort, Stemless Evening Primrose, and a rare Glade Cress. In the summer all of these plants will have died back and by fall they will all be gone; what is evident now are actually wetland plants. When the moisture of spring is gone they will go dormant and the native grasses will come in. A small annual dropseed is the dominant grass.

AT LOGAN COUNTY GLADE, a 42-acre preserve by the main road in Russellville, we walked to an area that was burned in March. Many plants were already back and thriving. Many Hoary Puccoon were in bloom; the flower reminds me of a print that my grandmother used for quilting. Prickly Pear was doing fine and there were lots of Shooting Stars. Tom noted that in full sun the Shooting Stars take on a

*Hoary Puccoon blooms on the Limestone outcroppings
Old quilts come alive*

pinkish hue. Three forms of Birdsfoot Violet (purple, white, and bi-color) are generally found here.

Nicky and John noticed some geodes; Penelope and Rosemary were intrigued by the crinoids—plant fossils. The rock outcroppings in this glade were both Sandstone and Limestone. By mid-May the Carolina Larkspur will return on the wooded trails. Before this region was settled and converted to cropland, Indian Grass, Big Bluestem, and Little Bluestem were prevalent. Isolated patches remain in areas like this glade—where it was too rocky to plow. The burn will encourage the native prairie grass and other native plants. Dr. Barnes said Pale Purple Coneflower comes in great after a burn. When we return in August we'll see the grasses and wildflowers—it will be very different in the summer.

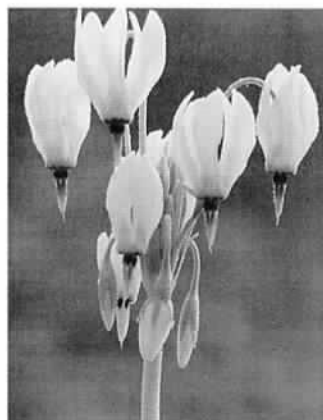
It is believed that the term "barrens" was used by settlers because the ecological community was barren of trees; instead, native prairie species (Big Bluestem, Little Bluestem, Indian Grass, Tall Dropseed, and Broomsedge) were the dominant plants. Athey Barrens is one of the best examples of what the barrens were like; the site we saw has short grass and tall, Indian Grass, elements but does not still have Big Blue Stem or Blazing Star...because the area had been tilled at one time. About five miles away there is a remnant prairie site that still has these species.

What the KSNPC is doing here is an experiment to determine the best methods and herbicide concentrations to release the native prairie grasses and suppress the fescue. There are numerous plots where Plateau has been applied at different rates, some have been burned and some have not...Plateau doesn't hurt Goldenrod and Evening Primrose.

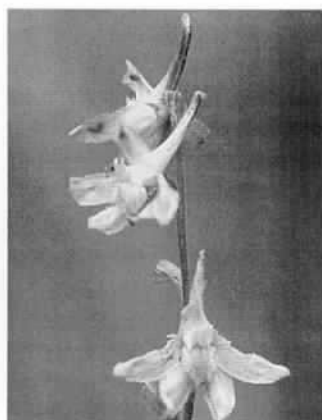
In the first field, they are simply removing trees for now; when there is enough grass fuel they will probably burn it. Another native grass, *Andropogon Elliottii* is coming in here by natural succession. There is also a control plot of fescue. The second plot was not burned; instead they applied straight Plateau herbicide at 4 oz. per acre and native

*Natural prairie
Restoration in progress
Andropogon smiles
(Gerardii, Virginicus, Elliottii)*

(Continued on page 14)



Shooting Star



Carolina Larkspur



IN THE FIELD WITH THE WILD ONES (Continued)

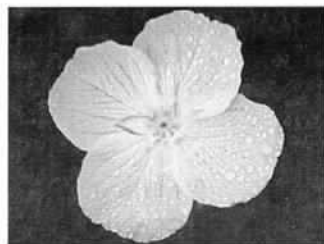
grasses are coming back in. The third plot was burned first and then Plateau was applied at 10 oz. per acre; the native grasses coming in here are very impressive. The fourth plot received the same treatment as the third one, but there was less fescue in this plot to begin with. Plot five was burned and received a higher dosage of herbicide. The native regeneration rate is very good here—Little Bluestem and Tall Dropseed coming in especially well. There was also less fescue in this field to begin with.

In some dry open areas we were surprised to find huge patches of Adders Tongue Ferns, Mountain Mint, and Glade Cress (a different species from Flat Rock Glade). Showy Pink Evening Primrose was plentiful and actually coming in right by the roadside. We also saw Wild Quinine and the wild native Prairie Rose. Showy Primrose and Prairie Phlox (a magenta bloom) will be the next ones to bloom—we were a bit early for them. Also close to the road we saw Pussy Toes, Bluets (not Blue Eyed Grass), a lone Fire Pink in bloom, and Virgin's Bower (the white form of Blue Eyed Grass). The Big Barrens region of Kentucky is also the center of distribution for Cut-leaf Prairie Dock.

Tom had spoken of the Stemless Evening Primrose but we never really saw one in bloom on any of the sites we visited...however, on the road as we were leaving—in a farm field with horses munching the turf, behold! Elusive all day, the Stemless Evening Primrose bloomed a farewell!



Left to right from top left: Bluets, Widow's Cross, Fire Pink, Cut-Leaf Prairie Dock, Prairie Rose, Flower-of-the-Hour, Showy Pink Evening Primrose, Cardinal Flower, Great Blue Lobelia, *Liatris squarrosa*, Blue Flag Iris



HALL'S PRAIRIE is part of a large family farm that was bequeathed to the University of Kentucky...with specific instructions to restore native prairie. Dr. Barnes showed us an area of prairie that had been seeded about a year ago; the fescue was regenerating and the thistle was coming in strong. Tom would be coming back with helpers during the next week to spot treat these invasives. Tom had a truck full of sun loving plant plugs—Tall Dropseed grass, Rattlesnake Master, Wild Quinine, *Liatris squarrosa*—for this area, and the Wild Ones crew chose to help plant them. Then we moved just a short way to a ditch that is being converted to a native wetland. Here we plugged in wet foot plants such as Prairie Cordgrass, Blue Flag Iris, Cardinal Flower and Great Blue Lobelia.

It was a long but very rewarding Earth Day, spent as guests in a unique plant community and topped off with hands-on helping with a native restoration in an area of Kentucky that was prairie prior to the influx of settlers from the east. We are again very grateful to Dr. Thomas Barnes—he is a beam of light for Kentuckians on a path of reconnecting with native plant and animal wildlife.



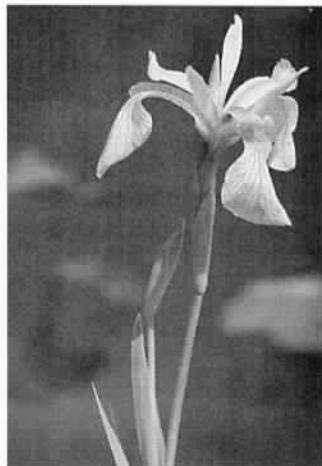
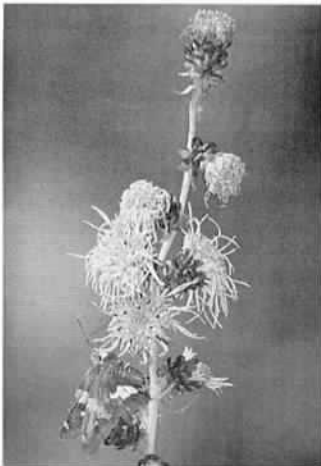
*Wild Ones planting plugs
Amidst the nesting Crawdads
Poking holes in mud*

*Mother Crawdad bites back:
"Please plant your plugs
someplace else"*

Rosemary cries out "Ouch!"

It was a long but very rewarding Earth Day, spent as guests in a unique plant community and topped off with hands-on helping with a native restoration in an area of Kentucky that was prairie prior to the influx of settlers from the east. We are again very grateful to Dr. Thomas Barnes—he is a beam of light for Kentuckians on a path of reconnecting with native plant and animal wildlife.





CALENDAR: KNPS Fall Get-Together / Salato Sale / Volunteer Opportunities...

Salato Native Plant Program's ANNUAL FALL NATIVE PLANT SALE

Frankfort, KY, September 9—Just in time for fall planting! The Kentucky Department of Fish and Wildlife Resources' Native Plant Program will hold its fourth annual native plant fall sale on Saturday, September 9 from 9:00 am–4:00 pm EST. This sale will be held at the KDFWR's Salato Wildlife Education Center at the native plant greenhouse area.

Stock up on beautiful, wildlife friendly native plants for your yard and garden. There will be over 100 native perennial species available including black-eyed Susans; purple, yellow, and orange coneflowers; wild columbine; cardinal flower; asters; goldenrods and many other native favorites.

In addition to the sale, there will be ongoing walks in the native habitat gardens so you can learn what the plants will do after they're planted—how big they get, when they bloom and what color they will be.

For more information, call 502-564-7863 or 800-858-1549. The Ky. Dept. of Fish & Wildlife Resources is just west of Frankfort (1.7 mi. west of US 127 on US 60).

(Continued on back page)

Kentucky Native Plant Society MEMBERSHIP FORM

Memberships are for the calendar year (Jan.–Dec.). Our dues are modest, please keep your membership current. *Membership expiration date is listed at the top of your mailing label.*

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, c/o Dept. of Biological Sciences, Eastern Kentucky University, Richmond, KY 40475

...CALENDAR: KNPS Fall Get-Together / Salato Sale / Volunteer Opportunities (Cont.)

Native Plant VOLUNTEER OPPORTUNITIES

October 14 (Saturday)—

Flora Cliff Nature Preserve, Fayette County, KY.

Come join in the fight against Invasive Exotics!!! This will be a bush honeysuckle extravaganza. Bring gloves, loppers, and bow saws to help eradicate this exotic from one of the most unique nature preserves in the State. The service trip will also give you a change to hike around this beautiful preserve donated by Mary Wharton. Registration required. Please call Mary Carol Cooper 859-277-0656.

October 27 and November 11 (2 Saturdays)—

Bernheim Arboretum and Research Forest, Clermont, KY.

Bernheim has several small native grasslands within its natural areas. There are also plans to restore several old fields to native grasslands using seeds from nearby sources. Gethsemani Monastery is allowing Bernheim to collect seed from its 10-acre hillside prairie for use in the restoration efforts. Learn to identify some of the grasses and flowering plants of the prairie as you help collect their seeds. Bring a lunch and something to drink. Up to 25 participants will meet at Bernheim and

carpool to Gethsemani. Call 502-955-8512 during business hours to register.

KNPS ANNUAL FALL GATHERING – Y'all Come!

November 4 (Saturday)—

Salato Wildlife Education Center, Frankfort, KY.

All KNPS members are welcomed and urged to attend a KNPS board meeting at 10:00 am EST and then stay for an afternoon program. Bring a sack lunch. Drinks will be provided.

At 1 pm the Annual Fall Gathering will take place. The program is to be announced. Refreshments will be served. After the program, Mary Carol Cooper, Salato Native Plant Program Coordinator will lead a tour of the center. This is a fun way to spend a November afternoon, and a great way to visit with fellow Plant Society members and meet others interested in native plants. See you there!

Directions: from I-64 at Frankfort, take exit 53B to US 127 north and travel 1.5 miles to left turn on US 60. Drive 1.7 miles west on US 60 to the entrance of Ky. Dept. of Fish & Wildlife Resources Game Farm. Turn right and go 0.5 miles to parking area for Salato Center.

Kentucky Native Plant Society

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

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