

NATURALLY KENTUCKY

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Freshwater mussels of the Licking River drainage

By Ellis L. Laudermilk

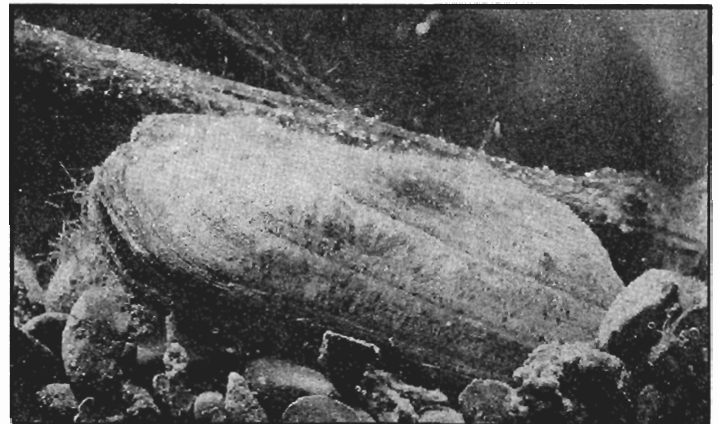
Kentucky's rich freshwater mussel fauna is exceeded in number of species by only Alabama and Tennessee. This diversity may be attributed to the presence of at least three distinct mussel assemblages in different river systems, a diverse fish fauna (mussels are dependent on fishes to complete their life cycle), geological heterogeneity, and the numerous major rivers found within or along the state's border.

During 1991, I conducted a survey for mussels in the Licking River mainstream and selected tributaries downstream from Cave Run Lake as part of my thesis requirements at Eastern Kentucky University. The Licking was chosen

because comprehensive distributional information was lacking, and several rare species were known from its waters. Originating in Magoffin County, the Licking River flows northwesterly approximately 496 km (308 miles) to its confluence with the Ohio River near Covington. The river drains all or a portion of 21 counties, and encompasses 9,601 km² or about 10% of the Commonwealth. Cave Run Lake, located near Morehead and impounded in 1974, is the only main-stream reservoir. Downstream from Cave Run, the Licking remains free-flowing to near Visalia (Kenton-Campbell counties), a distance of approximately 154.7 miles, before backwaters of the Ohio River begin to influence its velocity.

Of the 103 native mussel species known from Kentucky, 53 (51%) were found during this study or historically occurred in the Licking River drainage. Six (fanshell, catspaw, northern riffleshell,

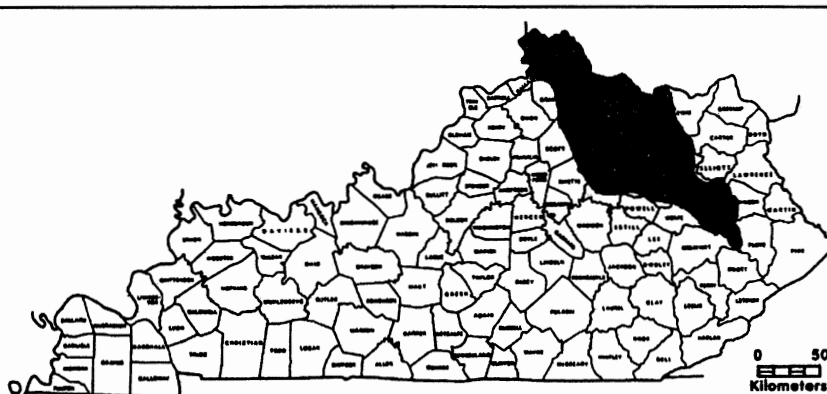
Photo by Wendell Haag



Rabbitsfoot (*Quadrula cylindrica*), a KSNPC Threatened species known from the Licking River

tubercled blossom, clubshell, and rough pigtoe) are currently listed as endangered by the United States Fish and Wildlife Service (USFWS). Nine others (elktoe, snuffbox, long-solid, sheepsnose, pyramid pigtoe, rabbitsfoot, salamander mussel, rayed bean, and little spectaclecase) are currently being evaluated for listing as threatened or endangered by the USFWS, or are considered rare in Kentucky by the Commission.

Based on all mussel observations and collections made after 1979, the fanshell may be the only endangered mussel still living in the river. And several species are in danger of being extirpated, especially with the likely invasion of the non-native zebra mussel which is already threatening mussels elsewhere. In fact, the



Location of the Licking River drainage

Continued on page 5

KSNPC Staff updates

This staff photo, promised in our last newsletter, was taken on December 5, 1994, following the fourth-quarter Commission meeting. In the forward row are Deborah White (Botanist), Martina Hines (Data Specialist), Kristin Snyder (Assistant Preserve Manager), Gary Libby (Botanist), and Melissa Richey (Data Specialist). From the left in the center row are Brainard Palmer-Ball (Terrestrial Biologist), Cindy Campbell (Stewardship Assistant), Dot Marek (Secretary), Judith McCandless (Commission Chair), Edwin Sutton (Commissioner), Martha Brent (Executive Asst.), and Ronald Cicerello (Aquatic Biologist). In the back row are Mary Jean Eddins (Fiscal Officer), Joyce Bender (Stewardship Coordinator), Kenneth Jackson (Commissioner), Robert McCance, Jr. (Director), O.D. Hawkins (Commissioner), Hugh Archer (Commissioner), and Ellis Laudermilk (Aquatic Biologist).

Notably absent are Tom Bloom (Information Systems Manager), Landon McKinney (Land Protection Specialist), and Marc Evans (Botanist/Ecologist).

Also, Laurel McNeil was unable to attend this photo opportunity having given birth to her first child three days earlier. She and her son Jared Christopher are so enjoying family life at home that Laurel does not plan to return to the Commission. We acknowledge her five years of exemplary service as a Data Specialist and wish her the best in her exciting new life.

Other changes in staff include the mid-January resignation of Fiscal Officer Mary Jean Eddins. Mary Jean has taken a part-time job with the cabinet's Finance Branch in order to have more time for her family. Although Mary Jean was with us for only four months, her hard work will benefit the Commission for some time to come.

Due to the brevity of Mary Jean's service, we were able to fill the



KSNPC Staff and Commissioners

Fiscal Officer position with a candidate from our September '94 interviews. Dan Russell began work with the Commission effective January 16, transferring from the cabinet's Budget Office.

Dan has a degree in accounting from Western Kentucky University and brings 16 years of state experience to us in the areas of accounting, budget, and administration. We are fortunate to have someone with Dan's credentials join the well trained staff of KSNPC. ☼

An Invitation to Exhibit

Environmental Expo '95

20th Governor's Conference on the Environment

To be held:

October 26-28, 1995
Heritage Hall, Rupp Arena
Lexington, KY

Sponsored by:

KY's Natural Resources and Environmental Protection Cabinet

To receive an application for exhibit or further information:

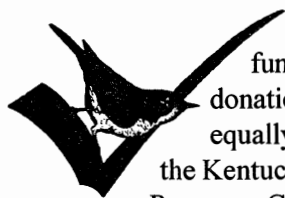
Send a request which includes your company name, address, phone, fax, and contact name to the attention of Roger McGann, Natural Resources and Environmental Protection Cabinet, 5th Floor, Capital Plaza Tower, Frankfort, KY 40601. Fax requests to (502)564-6131. ☼

Invest \$2 of your tax re- fund into a natural return

Four checkoff programs will be available on the state's next income tax form to those Kentuckians receiving refunds. However, the Nature and Wildlife Fund option, now entering its 15th year, was the first Kentucky checkoff program.

The fund, created by the 1980 Legislature was named the Nongame Wildlife/Natural Areas Fund. This was changed by the 1994 Legislature to the Nature and Wildlife Fund. As both names imply, the fund is used to support the protection and proper management of the state's wildlife, endangered species, and natural areas.

Since the program's inception valuable wetlands, natural areas, and endangered species habitat have all been acquired or protected. Bald eagles, ospreys, peregrine falcons, river otters, and many other nongame animals have benefited from the management and protection made possible by checkoff dollars.



During the fund's entire history, donations have been equally divided between the Kentucky State Nature Preserves Commission and the Kentucky Department of Fish and Wildlife Resources. These receipts have assisted under-funded nongame wildlife, nature preserves, and endangered species programs.

As the Nature and Wildlife Fund posters say, "Save Something On Your Taxes." No amount is too

small. If only 5 percent of Kentuckians receiving refunds would donate \$2, total contributions in the fund's 15th year would double. An improvement in donations would increase the quantity and quality of the care given to the exceptional beauty and bounty of Kentucky's natural heritage. ☼



Nature license plate available

Effective March 1, 1995, the new nature license plate will be available at your county clerk's office. The plate costs \$35 over normal licensing fees, is good for two years, and proceeds go to the Heritage Land Conservation Fund Board.

The Board appropriates the funds to state agencies for eligible land acquisition projects. Land purchased from willing sellers will be used for nature preserves, wildlife management areas, state parks, recreation and environmental education areas, state forests, wild river corridors, and wetlands. Funds are also provided for these purposes to local governments, colleges, and universities.

To buy a plate, take your old plate to your county clerk's office and ask for the nature license plate. The clerk will refund any remaining months of fees left on your old plate, so you can buy at any time. For more information contact your county clerk, KSNPC, or write the Heritage Land Conservation Fund Board at 107 Mero St., Frankfort, KY 40601. ☼

Public Meetings

If you are interested in plants, wildlife, and their Kentucky habitats, plan to attend one of the following meetings. There you will meet with members of the Biodiversity Task Force as they seek input from the public on the best ways to manage and conserve the biological diversity in Kentucky.

Feb.13, 1995, 7:00 p.m. local time
Mayfield--Purchase ADD*

Feb.13, 1995, 7:00 p.m. local time
Pineville--Pine Mountain State Pk.

Feb.20, 1995, 7:00 p.m. local time
Prestonsburg--Big Sandy ADD*

Feb.27, 1995, 7:00 p.m. local time
Owensboro--Green River ADD*

Feb.27, 1995, 7:00 p.m. local time
Morehead--Perkins Center

Mar. 6, 1995, 7:00 p.m. local time
Florence--Northern KY ADD*

Mar.13, 1995,7:00 p.m. local time
Somerset--Lake Cumberland ADD*

Mar.13, 1995,7:00 p.m. local time
Louisville--KY Farm Bureau
(9201 Bunsen Parkway)

Mar.20, 1995,7:00 p.m. local time
Lexington--Natural Resources
Conservation Service, 771 Corporate Dr.)

* denotes Area Development District Offices

Written comments may be mailed to the Dept. for Natural Resources, 107 Mero Street, Frankfort, KY 40601. For more information or special assistance call 502/564-2184. ☼

KSNPC makes strides to- ward seven goals



by Robert McCance, Jr.

In the May 1993 newsletter I outlined what I thought were the strengths and weaknesses of this agency based upon my assessment after 10 weeks on the job. I also identified seven goals for us. Below are the goals identified in early April 1993 and our progress toward them as of December 1994.

GOALS outlined in Naturally Kentucky #7:

"In my review of our overall effort, I have set several goals for us. Some of these are new and some have been around for a long time. The activities that I believe will help us most in the next few years include the following:

(1) Develop, implement, and monitor a good strategic plan for the program;

(2) seek a stable source of land acquisition funds;

(3) seek additional general funds from the Kentucky General Assembly so that we can truly implement the mission that they set out for us;

(4) continue to provide for the needs of a dedicated and hard-working staff;

(5) provide better information about our mission to Kentucky's general population, opinion leaders, and KSNPC supporters;

(6) make better use of the data we acquire to meet the needs of other organizations, government agencies, and businesses in Kentucky; and

(7) continue to build a state nature preserves system that represents the finest examples of Kentucky's natural heritage for all Kentuckians. We can do it!"

Progress Report:

Twenty months later, here is my assessment of our progress:

(1) Strategic Plan--Staff have worked on this for well over one year. We have completed the primary portions of a strategic plan--mission statement, goals and sub-goals--and a rough draft was released to the Commissioners and discussed at the quarterly commission meeting held December 5, 1994.

Revisions are currently underway, as well as an outside peer review by former directors and KSNPC advisors. It is hoped that a final copy will be presented for approval at the March 3, 1995, commission meeting.

Staff have held regular meetings through this year on the one to two-year objectives necessary to attain the goals in the strategic plan. The process has helped staff better understand each others' work and has given us opportunities to discuss KSNPC's programs and priorities. Staff are now writing action steps outlining how they will achieve their one and two-year objectives.

(2) Stable Sources of Land Acquisition Money--Thanks to the efforts of NREPC Secretary Phillip Shepherd, who developed the ideas for funding sources for the Heritage Land Conservation Fund, and to the many citizens, government officials, and legislators who supported this idea including Governor Brereton Jones, House Bill 368 passed and was signed into law on April 8, 1994.

KSNPC should receive about \$450,000 in acquisition money, \$50,000 in land management money each year, and be able to compete for additional funds for high priority projects. Passage of this law was probably the single most significant event of the year for KSNPC.

(3) Obtain Additional General Fund Support from the General Assembly--The General Assembly approved a budget that provides a 66% increase in general fund operating money for Fiscal Year '94 to Fiscal Year '95 (beginning July 1, 1994). This includes four additional general fund positions for KSNPC. As large as that percentage of growth is, KSNPC will continue to struggle to accomplish its mission because of the magnitude of the work before us.

Special thanks go to NREPC Secretary Phillip Shepherd for placing our growth as a high Cabinet

priority and to the Governor's Office of Policy and Management for concurring with our requests.

(4) Provide for the Needs of Staff--Our move to a new office was probably the single greatest benefit provided to staff, but there were many other smaller gains this past year including the purchase of new desk top terminals for office staff and lap top computers for most field staff. By early spring the Commission's data network which now links KSNPC staff to each other will also allow the Commission access to cabinet and Internet systems. Many cooperative projects have suffered because the Commission lacked the communications system it had grown to need.

(5) Provide Better Information about KSNPC to Leaders and Supporters--Not enough progress was made on this goal this past year, but strong support from the NREPC Cabinet, conservation groups, and our volunteers helped offset a generally status quo operation by staff. Increased checkoff promotion also helped somewhat. We will work harder in this goal over the next year.

(6) Make Better Use of Data--A new data services brochure that reflects a somewhat changed data services policy was adopted this spring. It will allow KSNPC to more actively promote data use and help us recover associated costs.

Special thanks go to Tom Bloom and previous Commission Chairman Hugh Archer for their efforts on this goal. KSNPC data are recognized as the best source of rare species data in the Commonwealth. The time and cost savings received by government agencies and the private

sector justify the cost of collecting and distributing this information.

(7) Continue to Build the State Nature Preserve System--Preserve management staff members Joyce Bender, Kris Snyder, and Cindy Campbell, with support from seasonal employees and volunteers, managed to provide adequate care to our existing landbase with totally inadequate financial support.

A few small tracts were added to the preserve system, including purchases at Flat Rock Glade, Terrapin Creek, and Raymond Athey Barrens. On April 12, 1994, KSNPC signed an option to purchase about one-half of Blanton Forest in Harlan County. If we are successful at privately raising \$500,000 to match an equal amount appropriated in the budget bill, we will be able to accomplish the single most important purchase in KSNPC history.

Insufficient progress was made in our efforts to inventory the Commonwealth for high-quality natural areas because so much of our resources are put into grant and contract work that basically meets the needs of other entities.

In July and August KSNPC analyzed our data base and selected over sixty sites for immediate study. After preliminary research and investigation staff have reduced this number to 35. Staff will develop preserve designs and determine whether these sites should be proposed to the Commissioners as prospective nature preserves. This data analysis helped all staff refocus on our mission of protecting the Commonwealth's best natural areas.

I believe that the past year has largely been a success for

KSNPC, and I hope that you will agree. We have a very long way to go if we are to accomplish our mission, and time is not on our side, but we are making good progress. ☼

Freshwater Mussels

Continued from page 1

cat paw, clubshell, ebonyshell, lilliput, northern riffleshell, pink papershell, pyramid pigtoe, rabbitsfoot, rayed bean, rough pigtoe, and tubercled blossom are precariously holding on, or have already been extirpated from the drainage.

Along with personnel from EKV, we have worked with the Kentucky Division of Water to designate the river between miles 18.9 and 65.0 as an Outstanding Resource Water (defined as waterbodies supporting federally threatened and endangered species or supporting diverse and unique aquatic flora and fauna). Although extremely important, these patchwork protection measures are probably inadequate to preserve the big river water quality and habitat required by many of the Licking's species. A watershed protection approach is needed to educate private landowners and communities about the Licking River's significant aquatic fauna and to encourage them to contribute to its preservation through best management practices. Perhaps the most crucial aspect of all is the preservation of remaining free-flowing conditions--in not only the Licking but in all of Kentucky's large rivers--if their unique aquatic faunas are to survive. Without such protection in the near future, many of the species that comprise Kentucky's big river faunas may be doomed for extirpation or extinction. ☼

Blanton Forest update

by Marc Evans & Martha Brent

KSNPC is very pleased to announce that a partnership has been formed with the Mountain Association of Community Economic Development (MACED) to raise the funds needed to acquire, protect, and manage Blanton Forest. MACED is a private, nonprofit organization created in 1976 to provide opportunities and resources to help citizens build sustainable, healthy, equitable, democratic, and prosperous communities in Kentucky and Central Appalachia.

Thanks to a \$20,000 donation from Blanton Forest Steering Committee Member Burt Lyons, MACED was able to hire Amanda Hiley as Director of Development. Amanda has done fund raising for several organizations, and she will be working exclusively on the Blanton Forest Project.

KSNPC's alliance with MACED carries the serendipity of involving the first director of KSNPC in the Commission's current efforts. Donald F. Harker, president of MACED, was director of KSNPC from 1978 to 1982, and his foundational planning, methodologies, and goals still shape the Commission today. Mr. Harker has continued to be a supporter of KSNPC, and his experience as former director makes MACED an ideal partner in this effort.

KSNPC and MACED plan to encourage the involvement of other groups such as the Harlan Revitalization Association, the Camp Blanton board, and the other cooperative

organizations that have expressed interest in this project.

Much more remains to be done as KSNPC and MACED work to increase public awareness of the Blanton Forest Project and seek support from foundations, businesses, organizations, and citizens. Matching

preserving the quality of Kentucky's environment. The report states that, "Recent research has identified a strong correlation between environmental integrity and income growth in states, challenging long-held assumptions and suggesting the need for a new paradigm for development" (99).



Photo by Marc Evans

Past and present coexist in Blanton Forest where young saplings compete for breaks in the canopy formed by trees predating settlement in Kentucky. Scale is lent here by Department for Natural Resources Commissioner William Martin seen in the mid-ground of the photo.

funds of \$500,000 must be raised quickly in order to accept the allotment offered by the 1994 Kentucky Legislature. The option to purchase the first old-growth tract must be exercised by July of 1995.

If Blanton Forest is to be saved for the future, much more support is needed than the generous offerings received up to now. The recently released report of The Kentucky Long-Term Policy Research Center titled The Context of Change recognizes the validity of

Since 1976 KSNPC has advocated progress through preservation. The Blanton Forest project is another attempt to keep Kentucky ahead of its time by protecting the past. We need your help.

If you have support, suggestions, or comments to offer please send them to the KSNPC office, or contact Amanda Hiley at the MACED office at (606)986-2373. MACED's mailing address is 433 Chestnut Street, Berea, KY 40403. ☼

Boone County Cliffs State Nature Preserve

by Kristin Snyder and Joyce Bender

In the cold depths of winter we often think longingly of spring. Instead of looking out your window onto a bleak and dreary landscape, conjure up the damp, earthy scents of the soil warming to the sun's touch on a south-facing hillside. Imagine a narrow trail winding along a little stream in a valley with delicate spring wildflowers scattered across the slopes. Stand at the crest of the ridge and look down into the budding treetops tinged with varying shades of green.

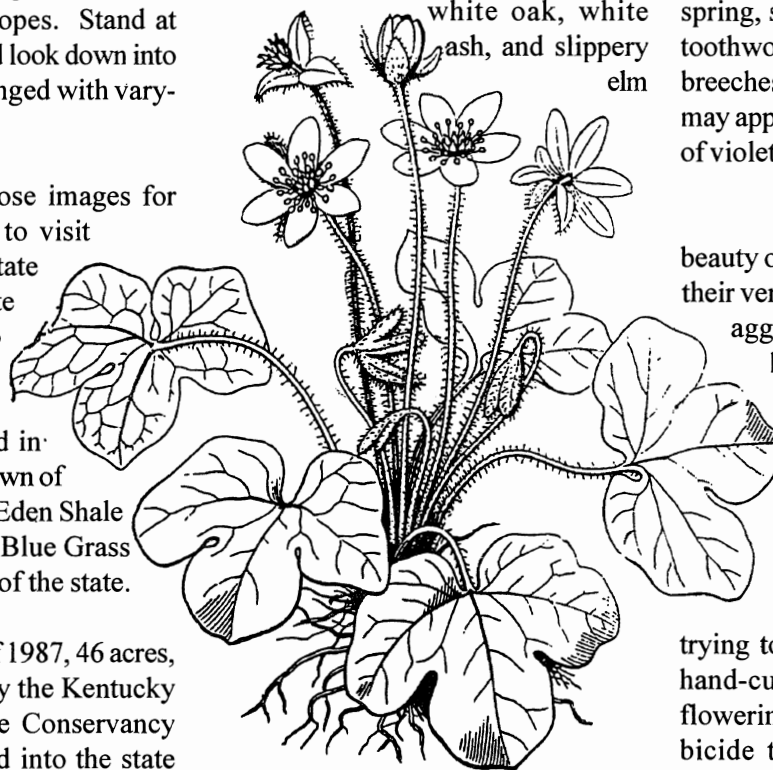
Hold on to those images for now, and make plans to visit Boone County Cliffs State Nature Preserve in late March-early April to gather your own springtime thoughts. The preserve is located in northern KY near the town of Burlington, within the Eden Shale Belt Subsection of the Blue Grass Physiographic Region of the state.

In the winter of 1987, 46 acres, owned and managed by the Kentucky Chapter of The Nature Conservancy (TNC) were dedicated into the state nature preserve system, creating Kentucky's 18th state nature preserve. In the spring of 1990 an additional 28 acres were added to the preserve and further protected through dedication. KSNPC stewardship staff share management responsibilities with TNC's stewardship staff.

The geological and biological diversity of the preserve reflect its unique origin. The conglomerate cliffs which outcrop in the valley that bisects the preserve (and for which the preserve is named) are composed of outwash materials from the Kansan glaciation

which occurred some 700,000 years ago. Large boulders can be seen in the valley while other geological features include a small cave-like overhang below the western rim.

A mature mixed mesophytic forest composed of sugar maple, basswood, beech, red and white oak, white ash, and slippery elm



Hepatica (*Hepatica americana*)

surrounds the cliffs except for the ridge above the south-facing slope where logging occurred about 60 years ago. Characteristic shrubs in the understory include pawpaw, bladdernut, and spicebush. Ferns and wildflowers cover many of the huge boulders giving them the appearance of "living rocks." A spring-fed stream meanders through the middle of the valley and is populated by northern dusky, two lined, and red-backed salamanders (a rare species in Kentucky). Bird populations are high,

with warblers being especially abundant in the spring.

Over 300 species of flowering plants give the area a different appearance with each season. This spring one need only walk a short distance along the trail to observe these first signs of new life in the forest: harbinger of spring, spring beauty, dwarf larkspur, toothwort, squirrel corn, dutchman's breeches, trout lily, hepatica, twin leaf, may apple, trillium, and several species of violets.

One cannot help but admire the beauty of these spring ephemerals, yet their very existence is threatened by an aggressively spreading nonnative herbaceous plant. Garlic mustard (*Alliaria petiolata*) threatens to shade out and eventually exclude many of the native herbaceous plants by dominating the ground layer. For several years The Nature Conservancy has been trying to eradicate garlic mustard by hand-cutting or weed-whacking the flowering stems and by applying herbicide to the first and second-year plants. Another control method is to burn the areas containing the plants several years in a row to deplete the seed bank.

If you just can't wait for spring or need a cure for cabin fever, the preserve is still a great place to go for a winter hike. The conglomerate cliffs and steep terrain are sharply outlined in the absence of leafy vegetation. The stark beauty is worthy of a photograph or sketch, if you are so inclined. The trails are considered to be of moderate difficulty so you won't have any trouble keeping warm. Please call KSNPC for more information. ☼

Stewardship News and Views

by Cindy Campbell

Another successful year has concluded for the Commission's Stewardship program. We want to thank our five month seasonals, E. J. Bunzendahl and Travis Livieri, as well as our volunteers and preserve partners for helping us to move forward with many of our field-oriented stewardship management objectives. Here is a sampling of the projects they assisted with on state nature preserves this summer and fall.

E. J., Travis, and Dean Henson (Park Naturalist) continued the yearly battle with kudzu at Pine Mountain State Resort Park Nature Preserve in Bell County. Positive results are being noted from prior cutting and herbicide application efforts, but a new site was documented this year. No rest for stewards!

The seasonal crew also began year two of our kudzu control efforts at Vernon-Douglas State Nature Preserve in Hardin County. The infestation of this exotic vine covers 30 acres and counting. In an effort to curb the unauthorized activity of riding off-road vehicles (ORVs) into the Jesse Stuart State Nature Preserve in Greenup County, E. J., Travis, Sonya Fields (volunteer), Chuck Wilburn (Boyd County Forest Ranger) and Ricky Nichols (Greenup County Forest Ranger) installed several fences with farm and cable gates. Similar work was completed at Cumberland Falls State Resort Park Nature Preserve in McCreary County with assistance from the U.S. Forest Service. The crew completed firebreaks around several new burn units at Raymond Athey Barrens State Nature Preserve in Logan County and started constructing perimeter breaks around the preserve. Many trails on the nature preserves benefited from work done by the crew, most notably Brigadoon State Nature Preserve in Barren County where an entire week was spent removing winter

storm damaged trees off the trail.

Volunteers continue to be an integral part of the stewardship program. Approximately 1,560 hours were contributed to the Commission this year. The majority of the hours were donated by preserve monitors (Lucia Beeler, Chuck Donaldson, Sonya Fields, Ed Craft, Jerry McDonald, Joey Roberts, and Tony Newman), members of the Pine Mountain Survey team, and Troop 303 of Logan County. Preserve monitors are still needed at Metropolis Lake and Raymond Athey Barrens State Nature Preserves. Please contact me if you are interested in these positions.

Although 1994 was a very productive year, we look forward to 1995 being the best ever. As I write, the stewardship program is growing. Both an eastern and a western regional preserve manager will soon complement existing stewardship staffing. With the addition of these important positions to the stewardship program, we expect great things to happen on the preserves in this year. ☼

An Equal Opportunity Employer M/F/H

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The Kentucky State Nature Preserves Commission is mandated to identify and preserve the best remaining examples of Kentucky's natural heritage in a statewide system of nature preserves.

Commonwealth of Kentucky
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