

Naturally Kentucky

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It is the mission of the Kentucky State Nature Preserves Commission to protect Kentucky's natural heritage by: (1) identifying, acquiring and managing natural areas that represent the best known occurrences of rare native species, natural communities and significant natural features in a statewide nature preserves system; (2) working with others to protect biological diversity; and (3) educating Kentuckians as to the value and purpose of nature preserves and biodiversity.

Kentucky's Stream Dragons

By Ellis L. Laudermilk

It is no secret that dragonflies inhabiting rivers and streams are among my favorites, and clubtail dragonflies love flowing water. In fact, if I were a dragonfly, I would surely be a clubtail. Okay, you can stop laughing now. Dragonflies belonging to the family Gomphidae (gomphids) are called "clubtails" because most species have an enlarged abdominal tip (usually the last three or four segments), that is especially noticeable in males. There are a large number of clubtail species in Kentucky, in part because of an abundance of streams and rivers. This past spring while searching for a Southern pygmy clubtail (*Lanthus vernalis*), I found a freshly emerged female, but it wasn't a Southern pygmy. It was a Northern pygmy clubtail (*Lanthus parvulus*), a species I thought might be in Kentucky, but one that had not been documented here. This discovery brought Kentucky's known gomphid fauna to approximately 40 species. Worldwide, the gomphid fauna is at least 1,000 species.

Gomphids generally exhibit a black or brown and yellow or green combination of colors, and have cool common names like Handsome clubtail, Rusty snaketail, Flag-tailed spinyleg, Cobra clubtail, and my favorite name of all, Dragonhunter. Most species require flowing water to complete their life cycle, but a few species breed in ponds, lakes and wetlands, and are commonly known as pond clubtails. Like all other dragonflies, gomphids are efficient predators and have three life stages: egg, larvae and adult. Generally, the female lays eggs by flying across the water and dipping her abdomen on the water's surface. Several eggs are released, and they drift to the bottom of the stream or lake where they hatch into larvae a few days later. Larvae feed on small aquatic organisms, especially other insects. Many species remain in the larval stage for at least two years and they grow by molting several times. In the spring or early summer larvae leave the aquatic environment by crawling up a tree, a plant, onto a rock, or just simply up the bank where they transform into adults. After a brief period of maturation, usually a week or two, the adults seek out mates to continue the life cycle. Most adult gomphids fly during May and June, but a few species, such as the Dragonhunter, fly throughout the summer.

The Commission currently monitors four gomphid species that are believed to be rare in Kentucky. The Pygmy snaketail (*Ophiogomphus howei*) is listed as a special concern species. This small gomphid prefers medium to large rivers

with sand and gravel substrates, and has been found in the Rockcastle and Kentucky river drainages. Adult pygmy snaketails are most active in late morning and early afternoon, however, they are notoriously difficult to find because they are very secretive. Females generally are observed over the stream only when they are laying eggs, and both genders spend much of the day in trees along the river.

The Maine snaketail (*Ophiogomphus mainensis*) is considered an endangered species in Kentucky. Adults and larvae have been found at one location each in the Rockcastle and Green rivers' drainage, respectively, but adults have not been seen since 1970. Maine snaketails prefer clear, moderately swift, rocky rivers and streams in forested areas, commonly where they drain lakes or swamps. Adult activity peaks in the late evening hours before dark.

The Brook snaketail (*Ophiogomphus aspersus*) is listed as historic in Kentucky because no individuals have been found here since 1940. The Little Barren River is the only location in the state to yield specimens. This species prefers clear, open-canopied streams with brushy banks and sandy, gravelly or rocky riffles. Males are active in the morning and again late in evening, about the same time as the Maine snaketail.

The appropriately named Elusive clubtail (*Stylurus notatus*) is currently listed as endangered because adults have not been found since the 1950s and larvae have been taken recently at fewer than five sites. The Elusive clubtail was a common member of our gomphid fauna in the Cumberland, Green and Licking rivers during the 1940s and 1950s, but it has nearly disappeared from Kentucky and has declined range-wide. Reasons for the decline are unclear and more research needs to be conducted to determine the factors affecting this and other species. Elusive clubtails prefer large rivers and lakes, usually with sandy bottoms, but silt and gravel may also be utilized. Males most often patrol for females from 12 to 3 p.m.

Like other species living in rivers and streams, many gomphids need free flowing, unpolluted habitats for survival. However, we still have much to learn about the life history and habitats of these wonderful creatures. Dragonflies have been around in their basic form for approximately 300 million years. They have survived some catastrophic events that eliminated many life forms on our planet, including the dinosaurs. During their existence, they have developed an unparalleled ability to thrive as larvae in their aquatic environment, and then take to the air as adults where they exhibit an aerial superiority among the insects. Their continued survival is promising as long as we ensure that water quality and their preferred habitats are protected.

Cumberland Falls State Park Nature Preserve

by Kyle Napier
Regional Preserve Manager

The Cumberland Plateau stretches from northeast to southwest, encompassing parts of Kentucky, Tennessee, Alabama and Georgia. It is Kentucky's second largest physiographic province, comprising nearly a quarter of the state's landmass. Located near the southern edge of Kentucky's portion of the Cumberland Plateau is Cumberland Falls State Resort Park, which is best known for its spectacular waterfall. In a joint protection effort, the Department of Parks and the Commission dedicated 1,294 acres of the park as a state nature preserve in 1983. It is currently the largest acreage protected within a Kentucky State Park.

Located along the Whitley/McCreary county border, Cumberland Falls State Park Nature Preserve is surrounded by the Daniel Boone National Forest and offers some of the most scenic and rugged terrain in the Commonwealth. The Cumberland River in this region is bordered by large sandstone cliffs, sandstone boulders and gravel bars. The combination of these features contributes to the scenic aspect and provides habitat for many rare plants and animals. This section of the river has been officially designated as a Kentucky Wild River.

Each year more than a million tourists come to see Cumberland Falls, one of the largest waterfalls in the southeast. At 125 feet wide with a drop of nearly 60 feet, and a flow that has been recorded at several hundred thousand gallons per second, it's definitely a sight worth seeing. Commonly referred to as the "Niagra of the South," on clear nights under a full moon, the mist from the falls creates a rainbow-like phenomenon called a "moonbow." This phenomenon only occurs at a few other locations in the world.

Cumberland Falls State Park Nature Preserve not only protects significant scenic features, but also harbors a high concentration of plants and animals considered rare in our state. Some of the rare plants found here are Lucy Braun's white

snakeroot (*Ageratina luciae-brauniae*), brook saxifrage (*Boykinia aconitifolia*), star tickseed (*Coreopsis pubescens*), vetchling peavine (*Lathyrus palustris*), rock skullcap (*Scutellaria saxatilis*), Rand's goldenrod (*Solidago simplex* ssp. *randii*) and spiked hoary-pea (*Tephrosia spicata*). Rare animals include the federally threatened blackside dace (*Phoxinus cumberlandensis*), as well as the johnny darter (*Etheostoma nigrum susanae*) and a caddisfly (*Manophylax butleri*). There have also been records for some very rare organisms along this section of the Cumberland River that are now classified as either "historic" or "extirpated" at this location. These include the following federally endangered mussels: Cumberland elktoe (*Alasmidonta atropurpurea*), oyster mussel (*Epioblasma capsaeformis*), and Cumberland bean (*Villosa trabalis*). These species were eliminated from much of their range due to poor landuse practices that have contributed to a deterioration of water quality. Impoundments, siltation and water pollution have also played a role in degrading their habitat.

Not far downstream from Cumberland Falls lies Eagle Creek, a small tributary that empties into the Cumberland River on the west bank. This mountain stream forms Eagle Falls that tumbles 40 feet into the river below. Eagle Falls can be accessed on the west side of the river from a trailhead along KY 90. A 1.25-mile linear trail (#10) leads to the falls. The Parks Department is refurbishing the portion of Trail #10 that leads to the base of Eagle Falls. New stairs will be added to improve the descent to the river bank. The trail will be ready for use well before next spring. Plan a trip to try out the remodeled section in 2003. Upstream from Cumberland Falls lies a large bend in the river known as the "Blue Bend." This area contains a 4.5-mile loop trail that also can be accessed on the west side of the river from KY 90. The area also contains a portion of the Sheltoewe Trace, a 270-mile multiple-use trail that traverses the length of the Daniel Boone National Forest. These trails along with others offer a superb mix of riverside strolls and cliff line excursions.

Kentucky State Fair Exhibit

The Commission teamed up with the Kentucky Heritage Land Conservation Fund Board (KHLCF) to put together a combined exhibit featuring live viceroy butterflies for the Kentucky State Fair in August.

With coordination by Ellis Laudermilk, an invertebrate biologist, viceroy butterflies were captured with the assistance of members of the Kentucky Lepidopterist Society. All butterflies were caught in Kentucky and those that fared well for the duration of the state fair, were subsequently released back into the wild.

One goal of the exhibit was to promote the work of the Kentucky State Nature Preserves Commission, which is charged with inventory and research of Kentucky's plant and animal species. Dr. Charles Covell, lepidopterist with the University of Louisville, provided invaluable assistance with the exhibit. Covell spent part of one Saturday at the state fair booth answering questions about butterflies from fair attendees. Additionally, the Segebarth family from Paducah assisted in the butterfly capture and also attended the exhibit one day and helped greet and speak with the other attendees.

The fine folks at the East Kentucky Power Cooperative located in Winchester provided several hundred butterfly posters that were so popular, volunteers at the display couldn't keep enough on hand to distribute to the throngs who wanted them. Also, handouts provided by the University of Kentucky's Cooperative Extension Service on butterfly gardening were distributed.

The idea for this combined display and many hours work came from Mary Jean Eddins with the Department of Natural Resources who works with the KHLCF program. Mary Jean's thought was that both KHLCF and KSNPC would benefit by using the state fair to launch the newest nature plate to be issued in January 2003 that will feature the viceroy butterfly (see additional article). The display was staffed daily by volunteers from our staff and KHLCF, and many were told it was the best exhibit at the entire fair.

Information on butterfly lifespan, habitat, feeding needs and identification were provided at the display. Additionally, handouts were available on parts of butterflies, coloring pages and small stickers encouraging people to buy nature plates.

If you would like more information about butterflies, contact Ellis Laudermilk by e-mail to ellis.laudermilk@mail.state.ky.us. For information about the Kentucky State Nature Preserves Commission, visit our Web page at www.kynaturepreserves.org or call (502)573-2886.

Director's Notes

by Don Dott,
Executive Director

Having been out of the office on vacation to Guatemala (a very beautiful and fascinating country), I still feel a little off the pulse of things. But the pulse of this agency is quite strong whether I am here or away, which is very reassuring. While I was watching spider monkeys cavort among the treetops in the Mayan ruins of Tikal, a quarterly Commission meeting took place and the results were impressive. We had two "firsts!" The Commission dedicated not one, but the two "first" privately owned state nature preserves. Unlike our other preserves, these sites will remain in private ownership, but they are given the same perpetual protection as any other state nature preserve (SNP) and are assured of being kept in a natural condition. One is the Julian Savanna SNP, a bluegrass savanna, and the other is River Cliffs SNP, where a population of the federally endangered Braun's rockcress is protected. The Commission also dedicated an additional 247 acres that significantly increases the size of the Tom Dorman SNP on the Kentucky River in Jessamine and Garrard counties. The purchase and dedication of the White Oak Creek addition would not have been possible without the assistance of The Kentucky Chapter of The Nature Conservancy. Our thanks to Director Jim Aldrich and Mike Hatter for their persistence with a very complicated land transaction, and to Kentucky River Authority Chairman Neal Cassity and Director Stephen Reeder for funding the purchase. This winter after the leaves fall is a good time to visit this preserve, as the palisades limestone cliffs are much more visible.

I cannot write this article without observing the untimely passing of James E. Bickford, secretary of the Natural Resources and Environmental Protection Cabinet. It was with deep sadness that I learned Secretary Bickford had passed from us on Oct. 25. As a former Brigadier General in the Army, he fought his bout with cancer with determination and courage, and never a thought of surrender. He was a dedicated leader for the Natural Resources and Environmental Protection Cabinet and will be remembered for his many efforts to improve Kentucky's natural environment through innovative programs like PRIDE and his decision to protect the Pine Mountain Settlement School lands from incompatible surface mining development. He was also a strong supporter of the Commission and was our featured speaker at the dedication of Blanton Forest State Nature Preserve in Harlan County. He never forgot his roots in his native Harlan County and had recently visited there with his family despite his failing health. He had spoken to me numerous times of his desire not only to protect the natural beauty of the mountains, but to also help the people of southeastern Kentucky build better lives for themselves. His role as secretary of the NREPC was a very difficult one, with the many political pressures attendant on that position. But I know he always sought to do "what was right," as he liked to put it. We can ask no more of any man. Secretary James Bickford will be greatly missed, and the citizens of Kentucky are forever indebted to him for doing "What was right!"

Land Protection Report

by Ron Scott
Land Protection Specialist

At the October 2002, Commission meeting in Frankfort, two Franklin County landowners generously donated conservation easements preserving the natural quality of their land by permanently prohibiting development of the properties. Donald Gates donated a conservation easement covering 112 acres of forested land along the Kentucky River in order to help preserve Braun's rockcress – listed as an endangered species by the U.S. Fish and Wildlife Service since 1995. Braun's rockcress is found only in Franklin, Owen and Henry counties in Kentucky and one county in Tennessee. Although there are several private landowners whose property contains populations of this exceptionally rare plant who have enrolled in our voluntary Natural Areas Registry program, the Gates property is now the first permanently protected site for it. "We are extremely pleased to have these protection measures in place for the benefit of this species and its habitat," said Deborah White, senior botanist for the Commission. "We greatly appreciate Mr. Gates' strong conservation ethic and are grateful for his willingness to work with us to help preserve this important part of our natural heritage."

The Commission also received a donated conservation easement on an ecologically significant tract of land owned by the Julian family of Frankfort. Jennie Julian, along with her daughter, Jane and son, William, conveyed an easement covering 42.5 acres of land containing one of the few remaining examples of a Bluegrass savanna ecosystem. This type of ecosystem once covered large portions of central Kentucky and is characterized by grasslands interspersed with large,

open grown trees such as Blue ash, Chinquapin oak, Bur oak and Kentucky coffee trees. This property was also dedicated at the Commission's October meeting, making the Julian Savanna State Nature Preserve the Commonwealth's 44th state nature preserve. "The Commission has had a close and congenial working relationship with the Julian family for many years," according to Joyce Bender, the Commission's Branch Manager for Nature Preserves and Natural Areas. "We are thrilled that this valuable natural area will be permanently protected and added to the state nature preserve system, thanks entirely to the generosity and vision of the Julian family."

The Commission will enforce the terms of these easements and manage both sites as state nature preserves, but because the landowners retain ownership of their respective property, neither location will be open to the general public.

Along with establishing these two new state nature preserves, the Commission also approved the dedication of a 247-acre addition to the Tom Dorman State Nature Preserve. Acquired with the assistance of the Kentucky Chapter of The Nature Conservancy, this addition not only contains significant habitat along White Oak Creek and the Kentucky River, but also connects two previously disjunct portions of the preserve. Located in the ecologically rich Kentucky River Palisades, the Tom Dorman State Nature Preserve now protects 803 total acres in Garrard and Jessamine counties.

For more information about conservation easements and other land protection options available to private landowners, please contact Ron Scott, Land Protection Specialist, at (502) 573-2886 or by e-mail at Ron.Scott@mail.state.ky.us.

New Nature Plate Coming

The newest Kentucky nature license plate to be available after January 2003, features a viceroy butterfly, the state butterfly of Kentucky. On the new plates, the viceroy butterfly is depicted headed toward a goldenrod plant, the state plant of Kentucky.

While the viceroy butterfly closely resembles the monarch butterfly, this resemblance is a product of evolution. The monarch butterfly is poisonous to other animals, so the viceroy's similarity to a monarch butterfly provides it with protection from predators.

The new viceroy butterfly plate joins two other current nature plates - the bobcat and the cardinal. The original nature plate, the Kentucky warbler, will be retired to allow production of the new viceroy design.

Nature plates cost an additional \$10 more than the standard \$15 registration fee. The additional funds are used by the Kentucky Heritage Land Conservation Fund Board to award grants to state agencies, local governments, and state colleges and universities for the purchase and protection of natural areas and wildlife habitat. Since 1995, sales of nature plates have garnered \$3.1 million. Approximately 18,000 acres have been purchased by the Kentucky Heritage Land Conservation Board utilizing nature plate funds.

If you would like more information about the nature license plates, contact Mary Jean Eddins by phone at (502) 564-2184 or by e-mail at mary.eddins@mail.state.ky.us. Or visit their Web page at www.kynatureplate.org.

Kentucky's Last Great Places Book Available

Thomas G. Barnes, Ph.D., extension wildlife specialist and associate professor of forestry in the College of Agriculture at the University of Kentucky, has published a book featuring the work and preserves of the Commission. Please visit our Web site at www.kynaturepreserves.org for more information on the book and how you can order.

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