

The Department of

### Arkansas Heritage

Mike Beebe Governor

Cathie Matthews Director

Arkansas Arts Council

Arkansas Historic Preservation Program

Delta Cultural Center

Historic Arkansas Museum

Mosaic Templars Cultural Center

Old State House Museum



Arkansas Natural Heritage Commission

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October 19, 2010

David Ferguson, Director Arkansas Bureau of Legislative Research State Capitol Room 315 Little Rock, Arkansas 72201

Dear Mr. Ferguson:

Arkansas Statute Annotated §15-20-308 requires the Arkansas Natural Heritage Commission to submit an annual report to the Governor and to the General Assembly on or before December 1 of each year.

The large, coil-bound document is a detailed status report for both the System of Natural Areas and the Registry of Natural Areas. It is an important reference tool for citizens, land resource managers, and local decision makers. The status reports (green pages) for each site within the System include ownership information, driving directions, and stewardship activities. The county-by-county listings of rare species, which make up the Registry, are contained in the blue pages. An Executive Summary, containing additional information on the commission and the year in review, can be found inside the back cover pocket.

Thank you for your continued support of the commission and our state's natural heritage. Please contact me if I can provide additional information.

Sincerely.

Karen Smith, Director

Arkansas Natural Heritage Commission

enclosure

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Images this page, from top: Southern highbush blueberry (Vaccinium virgatum); purple coneflower (Echinacea purpurea). Cover image: gray-head coneflower (Ratibida pinnata) at Stone Road Glade Natural Area.



### STATE OF ARKANSAS MIKE BEEBE GOVERNOR

Aptly named "The Natural State", Arkansas is a special place endowed with an abundance of diverse flora and fauna and a remarkable variety in landscape and geography. From rocky bluffs to cypress swamps, from towering forests to tallgrass prairies, our State is home to an exceptional spectrum of plants, animals, and natural places. Our people have a long tradition of appreciation and attachment to the beauty of Arkansas and of working to conserve and safeguard our natural bounty.

While countries around the world are celebrating 2010 as the "International Year of Biodiversity", we need look no further for biodiversity than right here in our own backyards, where conservation has become a local activity. The Arkansas Natural Heritage Commission plays an important role as steward of Arkansas's natural diversity, even as the pace of change in our State moves forward. Using sound science in support of effective conservation, the Commission has sparked a renewed commitment to protect our remaining natural lands and waters. During my time as Governor of Arkansas, the total acreage of critical ecosystems protected by the Commission's System of Natural Areas has doubled, from 25,000 to 50,000 acres. Our understanding of those ecosystems has grown as well, with new discoveries being made by a new generation of scientists and researchers.

We are all an integral part of nature. Early Arkansans understood this. Yet we must continually renew our connections to the natural world and focus our actions in preparation for the future. As we look forward, we can use the work of the Commission and the Department of Arkansas Heritage to develop a new level of understanding that will sustain the health of our natural world and preserve our precious heritage. In the decades to come, our children will think us foresighted for having done so.

Sincerely.

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MB:jb

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Image above: Palmer's saxifrage (Micranthes palmeri) in an Ozark glade.

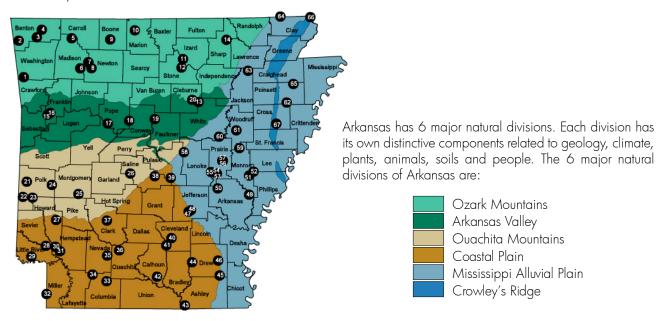
The land we now call Arkansas was once an expansive mosaic of more than 40 different types of natural communities, groups of native plants and animals that interact with each other and their environment in ways not greatly altered by modern human activity. Over the last two centuries, however, many of these areas were reduced or lost to land use changes, fire suppression and the spread of invasive plant species. The Arkansas Natural Heritage Commission (ANHC) is charged with the responsibility of protecting the best of the last remaining vestiges of the state's natural communities. The ANHC does this through the state System of Natural Areas and by maintaining a registry for the rarest biological resources, detailing the location and status in a biodiversity database. Natural areas are lands specifically managed to preserve, and sometimes restore, natural communities that have become rare. Today, the lands that make up the System of Natural Areas provide blueprints for understanding how Arkansas's diverse ecosystems originally functioned. Such information will be especially vital as Arkansas continues to develop and address important environmental issues in the future.

### STATUS OF SYSTEM & REGISTRY

Status of System & Registry

As of June 30, 2010, the System of Natural Areas consisted of 67 sites, totaling approximately 51,159 acres in 44 counties across the state. These numbers reflect the additions to the System this year, including a total of 3,350 acres and one new natural area. Acquisitions doubled the size of two natural areas: Kingsland Prairie and Warren Prairie. Warren Prairie Natural Area, now the largest single area in the System at approximately 4,236 acres, grew by 2,107 acres with major funding from a federal Forest Legacy Grant. Kingsland Prairie grew from approximately 200 to 400 acres. Both sites protect rare saline soil ecosystems in the Coastal Plain of southern Arkansas.

St. Francis Sunken Lands Natural Area, the latest addition to the System, is an 80-acre conservation easement on the east side of the St. Francis River. This site, a successful example of cooperative conservation on private lands, protects a portion of the largest known population of the federally endangered shrub pondberry (*Lindera melissifolia*) in Arkansas.



Natural areas are managed according to an established conservation vision aimed at protecting, enhancing, interpreting and sometimes even restoring the significant ecological values present at the site. To do this, management plans for areas within the System are prepared and updated regularly, to incorporate the results of the field assessments, receive additional input from commissioners and colleagues in the conservation field, and to set the frameworks for future activities. The plans for 29 natural areas were updated this year.

A component of natural area management is managing varying levels of public use. When compatible with the overall conservation vision of the area, efforts are made to provide safe opportunities for moderate, low-impact activities such as bird watching, hiking, or photography, as well as scientific research and education. Access to natural areas is detailed on the agency website and on printed publications and maps. In some cases, public access to a natural area may be restricted due to management activities or contractual agreements made in conservation easements.

ANHC rules and regulations prohibit the collection and/or removal of plants (including fruits, nuts, or edible plant parts), animals, fungi, rocks, minerals, fossils, archaeological artifacts, soil, downed wood, or any other natural material, alive or dead. Exceptions to this include the collecting for scientific research, which requires a permit issued by the ANHC, and specific forms of hunting established in cooperation with the Arkansas Game and Fish Commission (AGFC). Details for those natural areas incorporated in the AGFC's Wildlife Management Area (WMA) System are published yearly in the AGFC's Arkansas Hunting Guidebook.

The Arkansas Heritage Program biodiversity database houses data collected through research and inventory work focused on determining which species of native plants and animals most need habitat protection and where the quality habitats for these species are located. This data is the central component of the Registry of Natural Areas.

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### Image above: A patch of rare southern rein orchids (*Platanthera flava*) at Stateline Sandponds Natural Area.

Status ot System&Registry

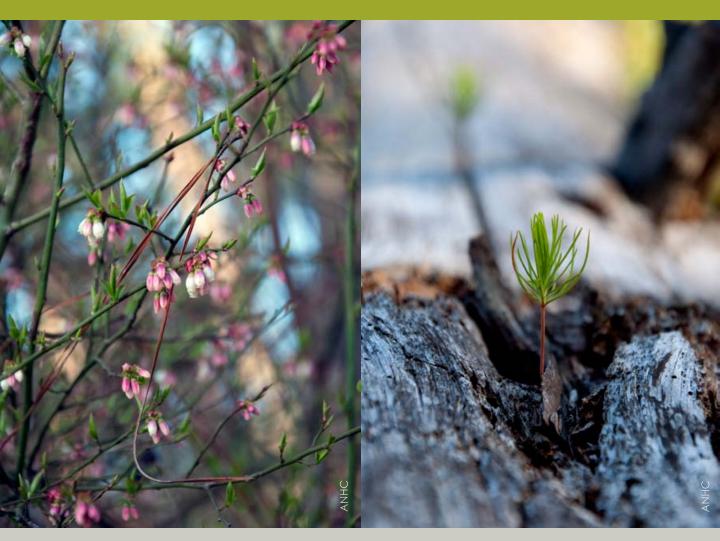
The database includes thousands of element occurrence records (EORs) – each one related to a particular occurrence of a species or natural community of concern. Currently, the database tracks 891 rare animal and plant species; however, that number changes throughout the year, based on surveys of scientific literature, review of museum and herbaria collections, and on-the-ground field surveys. Updates over the last year included:

- 97 new species added to the list of species of special concern (91 plants 6 animals)
- 35 plant species delisted, based on field surveys, taxonomic changes or other research
- state ranks revised/assigned for 20 species
- 733 new locations recorded

As a member of NatureServe, an international network of State Natural Heritage Programs and Conservation Data Centers, the commission's data becomes a powerful conservation tool, useful in guiding natural resource decisions. Utilizing uniform methodologies enables standardized information regarding biological diversity to be shared across state and international boundaries.

Details for the System of Natural Areas (green pages) and the Registry of Natural Areas (blue pages) are listed in the bound reference document for this report. Downloadable maps, a searchable species database and other information can be found on our website at www.naturalheritage.com.

Field inventories and monitoring work are conducted regularly on areas within the System to assess the status of rare elements on the site and to document the results of stewardship work. This year, 45 new occurrences (new locations for a rare species, not previously known) were found at 23 different natural areas.



Images above, left to right: Southern highbush blueberry (*Vaccinium virgatum*); a new pine tree sprouts from an old log; both at Warren Prairie Natural Area.

The commission marked a number of significant accomplishments in FY2010. More than 3,000 acres were added to the System of Natural Areas. Approximately 1,000 specimens were added to the ANHC herbarium, bringing the total to just over 6,000 and making it eligible for listing in the official database of worldwide herbaria. Subscribers to the monthly e-newsletter increased by 26 percent. A new cell phone audio tour program for natural area visitors was launched. Management plans for 29 natural areas were reviewed and updated. ANHC staff were on-site at all 67 natural areas working with ecological thinning, removing invasive species, conducting prescribed burns, and installing fencing, gates and signage.

### YEAR IN REVIEW

Research & Inventory

Education & Information

**Solution** 

**5** Stewardship

The Research and Inventory Section is responsible for building, maintaining, and refining the Arkansas Heritage Program biodiversity database, the only comprehensive source for information regarding Arkansas's rare plant and animal species and remaining high-quality natural communities. This data is the foundation for all ANHC decisions, including where the agency's conservation action can be most effective. The aim of staff research is to find high-quality examples of each type of natural community in the state, determine which species of native plants and animals most need habitat protection, and where the best habitats for these species are located.

This year, the addition of new staff members with new expertise helps to expand this critical information resource. One new position is a research specialist who is conducting aquatics inventory, representing the agency on aquatic issues, and finding new opportunities for collaboration in inventory and protection work.

The other new staff person, our second botanist, helps us fulfill our responsibilities as the lead agency in the state for plant research and inventory. As a result, we have reached new milestones for long-term protection of Arkansas's botanical biodiversity. Field inventory work found new locations for two of Arkansas's five documented federally endangered plants. Approximately 1,000 specimens were added to the ANHC herbarium this year, bringing the total to just over 6,000, and making it eligible for listing in the Index Herbariorum (IH), the official database of worldwide herbaria maintained by the New York Botanical Garden.

The goals of the ANHC herbarium are 1) to provide a reference collection for work performed by ANHC staff and their conservation partners, 2) to house voucher specimens for rare plant records in the database of the Arkansas Heritage Program, and 3) to voucher plants of ecologically sensitive or otherwise significant lands, including those contained within the state's System of Natural Areas. While most specimens are from Arkansas, special care is being made to assemble a collection of plants from surrounding states that are not presently known in Arkansas but are likely to be found here. Our herbarium now joins approximately 3,990 other herbaria in the world today. Together they house an estimated 350,000,000 specimens that document the earth's vegetation for the past 400 years. Herbarium specimens are the key to understanding plant relationships, geographic distributions, economic usefulness, even their molecular makeup. As we lose natural habitats, herbaria increasingly serve as a record of the recent history of plant life and as a repository of precious genetic information. Herbaria hold the tools for our understanding of the plant world.









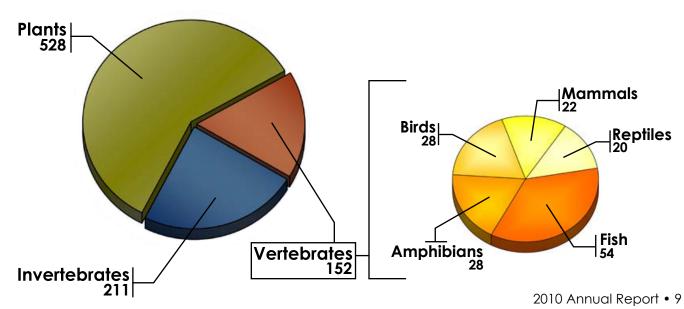
# Research

Image above: ANHC's Bill Holimon banding a Red-cockaded Woodpecker nestling at Pine City Natural Area. Previous page, left to right: ANHC botanists Theo Witsell and Brent Baker taking plant inventory at Stone Road Glade Natural Area; Kentucky lady's slipper (*Cypripedium kentuckiense*) from the ANHC herbarium; ANHC botanist Theo Witsell collecting plants at Byrd Lake Natural Area.

Research work includes surveys of scientific literature, and museum and herbaria collections, combined with examination of maps, aerial photographs, and satellite imagery. Research and Inventory staff also actively conduct on-the-ground field surveys to locate and assess the condition of rare species and high-quality natural communities across the state.

Staff inventory work often results in the discovery of animal and plant species not previously known to occur in Arkansas. These finds represent new state records and expand the known ranges of those species. Once inventory work identifies rare elements, they must be monitored to verify continued persistence. Each year, staff revisit known sites of occurrence for rare plants, animals, and natural communities to assess their status.

Currently, the Arkansas Heritage Program biodiversity database maintains information on 891 rare animal and plant species. The U.S. Fish and Wildlife Service lists some of these species as endangered or threatened, while others are simply considered rare in Arkansas. For most of these rare species or those of conservation concern, the Arkansas Heritage Program works to document the known locations in the biodiversity database. To date, the program tracks 152 vertebrates, 211 invertebrates, and 528 plants:







The Arkansas Heritage Program is a member of NatureServe, an international network of state natural heritage programs and conservation data centers. NatureServe members utilize the same data management methodology, enabling information regarding biological diversity to be exchanged across state and international boundaries.

The biodiversity database guides our field inventory and land acquisition work. The data reveals gaps in our knowledge and protection of Arkansas's ecology. This year, our field work advanced our understanding of blackland prairie habitat, Crowley's Ridge plant communities, pine flatwoods and saline soil barrens, and tallgrass prairie remnants in the Arkansas Valley.

ANHC staff also provided inventory assistance and scientific input as part of several collaborative protection efforts: tallgrass prairie restoration and protection at the Stuttgart Airport conservation site, planning efforts to restore several large glade areas on public land in northwest Arkansas, and restoration of blackland prairie ecosystem habitat on privately-owned lands. The biodiversity database also served as the basis of our input for the draft of the Arkansas Forestry Commission (AFC) 2010 Arkansas Statewide Forest Resource Assessment.

The Arkansas Heritage Program biodiversity database is useful to a wide range of groups. Government and non-government entities request the data for use in protection and stewardship planning, and ANHC uses the data in creating and updating natural area management plans. The data is also helpful to development project coordinators, to maintain compliance with environmental regulations, and to determine potential impacts to species and natural communities of concern.

### **ARKANSAS VALLEY PRAIRIES**

The last real stronghold for tallgrass prairie in our state is the Arkansas Valley. The largest tracts of unplowed prairie left in Arkansas occur here. The ANHC owns sizeable remnants in the form of Cherokee and H.E. Flanagan Prairie Natural Areas. The Nature Conservancy (TNC) protects another large remnant at its Presson-Ogelsby Preserve. All three areas are in Franklin County, just north of Charleston, and can be visited by the public. The largest contiguous tract of tallgrass prairie in the Arkansas Valley is within the confines of Fort Chaffee. However, these prairies are not accessible to the general public due to ongoing military training activities. A patchwork of privately-owned tallgrass prairie remnants occurs around these publicly-held sites. Opportunities for prairie conservation are great here given that much of the surrounding landscape is managed for cattle grazing and hay production.



## Research & Inventory

Image above: Spring flowers at Cherokee Prairie Natural Area. Previous page, left to right: ANHC and TNC staff meet at Benson Creek Natural Area to discuss a joint cane restoration project there; barrens at Warren Prairie Natural Area.

Over the past year, ANHC provided input, in the form of sensitive species data or environmental review, for over 900 projects through its Environmental Review and Information Sharing Program that combines NatureServe technology, the records compiled in the Heritage Program biodiversity database, and ANHC staff expertise. Notable actions included:



Providing data to four timber companies and one paper producer attempting to acquire or maintain certification under the Sustainable Forestry Initiative.



Providing data to the Federal Emergency Management Agency (FEMA) for inclusion in a computerized "Decision Support System" that will alert them to sensitive habitats and help them better respond to disasters in the state.



Evaluating nine sites in seven counties as part of the U.S. Army Corps of Engineers Interagency Review Team for stream and wetland mitigation banks. This marked increase in mitigation lands provides a way to compensate for the loss of stream and wetland functions associated with development.



Serving on the White Oak Bayou Technical Advisory Committee, along with the City of Maumelle, in cooperation with Pulaski County and the city of North Little Rock, to develop a wetland management plan for the White Oak Bayou watershed, which will help guide development and protection of wetlands in this rapidly growing area of central Arkansas.



Reviewing a higher number of water and sewer system improvement projects, road construction and repair proposals, and other infrastructure improvement plans, resulting from new federal funding available through the American Recovery and Reinvestment Act.

ANHC staff publish and present findings on the results of their research projects. Presentations are given at a variety of state, regional, and national forums. Specific staff presentations and publications for fiscal year 2010 were as follows (ANHC staff underlined):

### TECHNICAL PRESENTATIONS

### Arkansas Chapter of The Wildlife Society, El Dorado, Arkansas

Holimon, W.C. Red-cockaded Woodpecker Ecology and Habitat Management Efforts in Arkansas.

### Center for Excellence in Field Biology, Austin Peay State University, Clarksville, Tennessee

C. T. Witsell. The Flora and Ecology of Shale Barrens in the Ouachita Mountains.

### Natural Areas Association, Vancouver, Washington

Akin, J.A., W.C. Holimon, M.D. Warriner, C.T. Witsell, and W.H. Baltosser. The Search for Tallgrass Prairie, Remnants, Grassland Birds, Ornate Box Turtle, and Arogos Skipper in the Arkansas Valley of Arkansas.

<u>Colclasure</u>, <u>W.C.</u> Moro Big Pine: using working forest conservation easements for landscape-scale protection of natural communities and rare species in Arkansas.

<u>Rupar, B.A.</u> Proactive vegetation management and restoration efforts of the Arkansas Natural Heritage Commission.

### Arkansas-Louisiana Red-cockaded Woodpecker Stakeholders Meeting, Monticello, Arkansas

<u>Holimon, W.C.</u> Update on the status of Red-cockaded Woodpeckers at Pine City Natural Area and habitat management of Warren Prairie Natural Area.

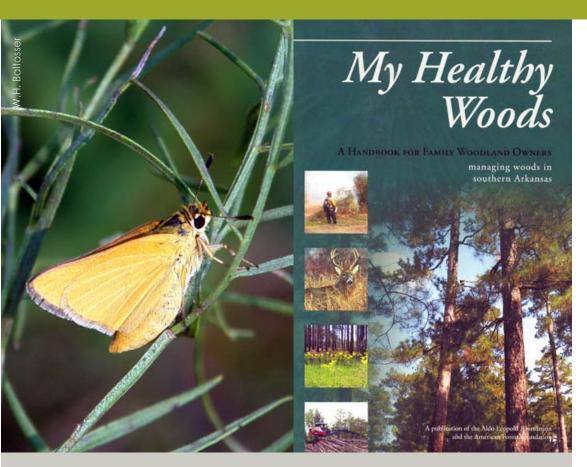
### **PUBLICATIONS**

Johnson, G. P., <u>C. T. Witsell</u>, M. Clark, and D. Zollner. 2009. Noteworthy Collections: Arkansas: *Spiranthes magnicamporum* (Orchidaceae). Castanea 74(5):437-438.

McKenzie, P., <u>C. T. Witsell</u>, L. R. Phillippe, C. S. Reid, M. A. Homoya, S. B. Rolfsmeier, & C. A. Morse. 2009. Status Assessment of *Eleocharis wolfii* (Cyperaceae) in the United States. Journal of the Botanical Research Institute of Texas 3(2):831-854.

Swenson, S. and <u>B. Holimon</u> (contributing author). My Healthy Woods: A Handbook for Family Woodland Owners. Publishers: Aldo Leopold Foundation and American Forest Foundation.





### Research &Inventory

Images above, left to right: Rare butterfly the arogos skipper (*Atrytone arogos*); My Healthy Woods handbook. Previous page, left to right: ANHC staff giving a presentation to Domtar foresters; Redcockaded Woodpecker bringing food to nestlings at Pine City Natural Area.

### MY HEALTHY WOODS: A HANDBOOK FOR FAMILY WOODLAND OWNERS

The production of this handbook was a collaboration between the Aldo Leopold Foundation (ALF) and the American Forest Foundation (AFF), with ANHC staff members Bill Holimon listed as a contributing author, and Tom Foti and Theo Witsell acknowledged for their contributions of expertise. The handbook is designed to empower and encourage private landowners to be proactive with the future of their land.

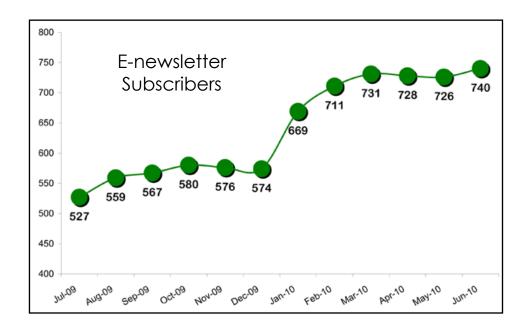
Steve Swenson, a Field Biologist and Ecologist at ALF and chief author of the Arkansas handbook, explains:

We focused on southern Arkansas because of the large amount of forests cared for by private landowners and the opportunity to serve an area of the country with tremendous natural beauty and diversity. Also, Arkansas has a wonderful network of public agency staff in forestry, wildlife and financial assistance programs that are at-the-ready to serve private landowners. We wanted to excite people about their land and get them in touch with real people that can help them accomplish their goals.

The foundation direct mailed 2,500 copies to landowners in Union and Ouachita counties, and another 3,000 copies will be sent to landowners in Clark and Nevada counties, with the goal of reaching over 1.5 million acres of private land ownership.

The Education and Information section provides a critical link between the public and the comprehensive data on rare plants, animals, and natural communities the agency maintains. The goal is to make the technical data interesting, easy to access and easy to understand. The section operated the first half of this fiscal year with only one of its two regular staff members, after the resignation of the public information officer who also served as the agency's invertebrate zoologist and chief citizen science coordinator.

After getting a new staff person on board, with a new emphasis in websites and social media, we have greatly expanded our outreach on the World Wide Web. During the first six months of 2010, the number of subscribers to our monthly e-newsletter *Natural News* increased 26 percent, from 588 to 740.



Each e-newsletter has numerous links to sections on the ANHC website, which has seen a corresponding jump in usage. The website brings together many of the new outreach features on the new multi media page, where visitors can connect with nature pictures, videos, and sounds.

Our Facebook site completes the circle of internet outreach, with postings that send readers to both our website and the e-newsletter. Nature trivia questions are posted on Facebook and then answered in an e-newsletter article. The faces of students on a fieldtrip light up when our staff person tells them to check our Facebook page for pictures of the day's visit. Our Facebook "fans" or people who "like" ANHC have more than doubled since the beginning of 2010. Our latest "green" outreach items, including can koozies made from recycled scuba foam, refrigerator magnets made from recycled cardboard, and biodegradable plastic bags, promote the ANHC website as "your nature connection."



Image above: Guide By Cell signage at H.E. Flanagan Prairie Natural Area. Previous page: Header from the ANHC e-newsletter, *Natural News*.

Education %Information

This spring, we began work on a new project to reach out directly to natural area visitors with a program called "Guide By Cell." This new service allows visitors to listen to an "audio tour" on their own cell phone (equipment they are comfortable using) and eliminates the potential problem of brochures becoming litter. Small outdoor signage explaining the program and the toll-free telephone number has been installed at eight natural areas, representing a variety of unique habitats in all four corners of the state.

### FY2010 NATURAL AREAS WITH CELL PHONE AUDIO GUIDES

- 1. Baker Prairie Natural Area
- 2. Big Creek Natural Area
- 3. Chalk Bluff Natural Area
- 4. Louisiana Purchase Natural Area
- 5. Downs Prairie Natural Area
- 6. Mills Park Natural Area
- 7. H.E. Flanagan Prairie Natural Area
- 8. White Cliffs Natural Area



The initial guides for these areas highlight aspects of Arkansas's cultural history as well as ecology, and staff are now adding updates and additional special effects such as animal sounds, interviews with experts in the field and music. The phone tour subscription service includes access to a website to view reports detailing how many people listen to each item, in what order, at what time, and for how long. This information is providing useful data that can help guide our natural area management planning. In addition, visitors have the ability to leave audio messages for us, including any problems or exciting nature finds.



### Expanding conservation through cooperation at Warren Prairie Natural Area



Arkansas Natural Heritage Commission

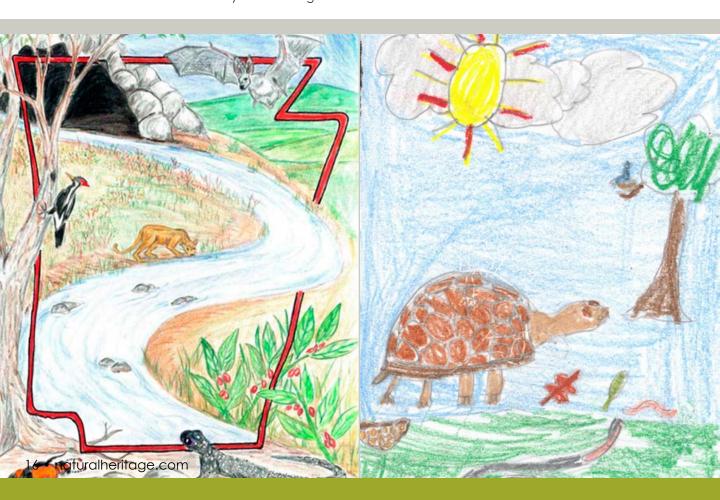
Learn more at www.naturalheritage.com



An ad featuring the new audio tours was one of six different ads our staff designed for *Active Years* magazine this year. However, the artwork for our television ads for Heritage Month 2010, was done by students participating in ANHC educational programming. The unique, colorful drawings by young children carried a powerful conservation message.

The links between art and nature were also on display as part of the first Arkansas Endangered Species Art Contest, held in celebration of Endangered Species Day on May 21. We helped to judge the 1,679 entries received from grades K-12 by the Arkansas Ecological Services Field Office of the US Fish and Wildlife Service.

This spring, we worked with a producer at UALR Public Radio, KUAR 89.1, the local National Public Radio affiliate, to record a series of informational spots on Arkansas nature topics, such as the Grand Prairie, invasive plants, and nature deficit disorder. A different topic ran three times a week for 13 weeks, during shows such as "Talk of the Nation: Science Friday" and "Living on Earth."





## Education \*Information

Image above: Crowd of friends and supporters at Warren Prairie Natural Area dedication. Previous page, clockwise from top left: ANHC advertising and promotional materials; ad for *Active Years* magazine featuring Warren Prairie Natural Area; art from students participating in ANHC educational programming; student art from the first Arkansas Endangered Species Art Contest.

On May 3, ANHC joined forces with TNC in Arkansas to dedicate a new 2,107-acre acquisition at Warren Prairie Natural Area, doubling the size of the area and making it the single largest agency-owned component in the ANHC System of Natural Areas. The ceremony also recognized the conservation work of late Arkansas legislator Jodie Mahony. The event drew a big crowd of friends and supporters.

With the new acquisition we are celebrating today, we not only double the size of this special site but we also ensure that future generations will see that we worked to balance the protection of sensitive habitat with the lives of the people who love this land.

Because of the work we are doing now, 20 rare plants and animals that depend on this area will continue to thrive; public lands will be open to our citizens for hiking and hunting; and local forestry jobs will continue to provide stability for families who have worked these woods for generations.

One man, who loved not only this land but our state and its people, was the late Jodie Mahony. As a long-time state legislator, he looked to securing the future of Arkansas's natural resources, and this site, the largest and highest quality public protection of a saline soil ecosystem in the entire West Gulf Coastal Plain, is a testament to his foresight and his hard work.

Cathie Matthews, Director, Department of Arkansas Heritage Warren Prairie Natural Area Dedication, May 3, 2010 ANHC outreach programs go throughout the state to engage, educate and enrich Arkansans of all ages, abilities and backgrounds. Staff conduct both formal and informal programs for conservation organizations, libraries, home school students, garden clubs, Master Naturalists, scout groups and other education and environmental-related venues.

### YOUTH PROGRAMMING

Total Presentations: 38 Total Participants: 1,156

A full range of learning opportunities are available to students at all levels, from pre-K to college, and at a variety of sites, including classrooms, libraries, hospitals, wildlife camps, and scout groups. Students are engaged in active learning with multi-sensory experiences using pictures, audio, mounted specimens, skulls, taxidermy, and even puppets. Topics included: Arkansas endangered species, endemic species, bats, natural divisions (ecoregions), rare plants, and Arkansas animal ABCs.

### INSTRUCTIONAL PROGRAMMING & WORKSHOPS

Total Presentations: 14 Total Participants: 369

A variety of in-depth programs, from two to six hours, are developed to meet specific goals, such as continuing education credits. Workshops are conducted that focus on awareness, knowledge and appreciation of the natural world. Participants are given Arkansas-specific tools for creating environmentally literate citizens outside the classroom setting. Participants included: Master Naturalists, Master Gardeners, Domtar foresters, Arkansas State Parks interpreters, Ozark Natural Science Center staff, and classroom teachers.

### FIELD TRIPS & PLANT WALKS

Total Presentations: 19 Total Participants: 379

Information is presented on-site, outdoors at a specific natural area or location, and interprets the landscape and ecological components. The programs are designed to assist participants in identifying and understanding observable natural features and their relationship to biodiversity in Arkansas. Participants included: Native Plant Society, The Nature Conservancy, Audubon Society chapters, UALR Wildlife Management Techniques class, and middle school classes from Russellville and Kingsland.





# Education %Information

Images above, clockwise from top left: ANHC bat programming at Russellville Middle School; teachers collect ANHC educational materials at DAH summer workshop; students from a UALR Wildlife Management Techniques class at Pine City Natural Area. Previous page: Botany students from Russellville High School at Lorance Creek Natural Area.

### OTHER PROGRAMMING FOR ADULT AUDIENCES

Total Presentations: 13 Total Participants: 598

Presentations and handouts illustrate general information about the agency, including the work and services provided to the public, and how that work relates to Arkansas's biodiversity. Programs are geared to specific locations and/or organization requests. Participants included garden clubs, Audubon Society chapters, the Sierra Club, the Wildlife Society, and the Arkansas Division of the Ouachita Society of American Foresters. Topics included: rare plants, tallgrass prairies, native gardening, fire ecology, and Red-cockaded Woodpecker habitat management.

### SPECIAL EVENTS & RESOURCE FAIRS

Total Presentations: 11 Total Participants: 7,434

Materials are designed to present the agency's conservation message to large audiences in concentrated settings. Staff set up information displays and greeted visitors at sites such as Earth Day at the Little Rock Zoo, Ecology Day at Crowley's Ridge State Park, Teacher's Resource Fair for Phillips County Schools, Trails Day at Pinnacle Mountain State Park, Wildlife Habitat Restoration on Private Lands Conference, the Arkansas Curriculum Conference, and the Middle School Teachers Resource Fair at the Mosaic Templars Cultural Center.



The commission utilizes a number of tools for the protection of biodiversity, including the acquisition of lands that are dedicated into the System of Natural Areas. This unique network of Arkansas's natural places grew by 3,350 acres during FY2010, including one new natural area, bringing the total number of areas in the System to 67 and the total acreage to 51,159.

locations, such as St. Francis Sunken Lands Natural Area, that hold exceptional importance for the state's natural diversity are identified through a systematic analysis of natural heritage data. Most acquisition targets secure habitat for rare species or offer a chance for restoration measures. Some tracts may buffer and protect natural areas from surrounding land use or provide additional connectivity between tracts of restored land.

The major acquisition of the year was a 2,107-acre addition to Warren Prairie Natural Area, nearly doubling the overall size of the area and making it the largest, single component of the System. A \$2 million federal Forest Legacy Grant and state grant funds provided protection for the state's largest population of the federally endangered plant geocarpon (*Geocarpon minimum*) as well as the state's largest wintering population of Henslow's Sparrow (*Ammodramus henslowii*), one of the fastest declining songbirds in eastern North America.

Additional additions this fiscal year included:



The newest natural area, St. Francis Sunken Lands Natural Area, is an 80-acre conservation easement on the east side of the St. Francis River that includes a portion of the largest known population of the federally endangered shrub pondberry (*Lindera melissifolia*) in Arkansas. The site is managed in cooperation with the landowner and is a successful example of protecting endangered species on private lands.



Three separate acquisitions totaling 263 acres at Kings River Falls Natural Area protect an additional mile of this clear Ozark Mountain stream and provide increased public recreation opportunities.



The 469 acres added to Nacatoch Ravines Natural Area is an example of how a variety of acquisition methods that secure ANHC's perpetual interest in the land can support conservation. A combination of fee title purchases and easements secures unique blackland prairie habitat in the Coastal Plain of southern Arkansas.



A 160-acre addition at Falcon Bottoms Natural Area protects the headwaters of Bayou Dorcheat, identified through research and inventory as one of the most intact small to medium sized streams west of the Ouachita River in Arkansas.



The 29-acre acquisition at Devil's Knob-Devil's Backbone Natural Area is slated for restoration work, through the reintroduction of fire, to increase critical Ozark glade habitat.



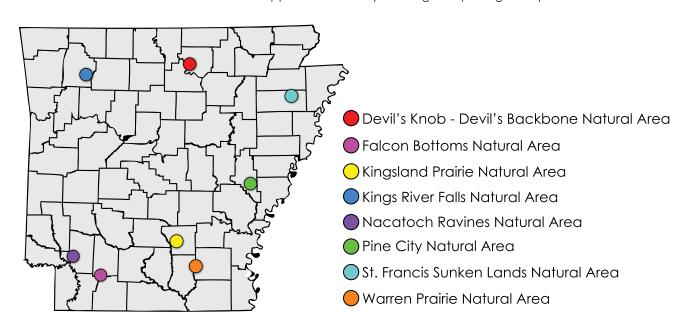
Image above: The declining songbird Henslow's Sparrow. Previous page, left to right: Federally endangered plants geocarpon and pondberry.



A 40-acre addition to Pine City Natural Area links habitat within the best surviving remnant of the Delta pine/mixed oak woodland/savanna ecosystem in the Mississippi Alluvial Plain. It supports a genetically distinct population of loblolly pine (*Pinus taeda*) referred to as the "Lost Pines of Arkansas." This distinct population of pine in turn supports the only known population in the Mississippi Alluvial Plain of the federally endangered Red-cockaded Woodpecker (*Picoides borealis*).



Kingsland Prairie Natural Area doubled in size with the addition of another 200 acres that protects a mosaic of natural communities, including saline soil barrens, post oak savanna, and pine-oak woodlands. The saline soil barrens support the federally endangered plant geocarpon.





Images above, left to right: ANHC burn crew at Chesney Prairie Natural Area; ANHC's Bryan Rupar installs boundary sign at Roth Prairie Natural Area. Next page: ANHC staff install a new sign at Mills Park Natural Area.

The Stewardship staff oversees protection efforts on lands within the System of Natural Areas. Many natural areas represent isolated fragments of once more common natural ecological communities and must be actively managed and continuously monitored to ensure that influences from surrounding land uses and inappropriate public uses do not adversely impact them. ANHC staff, volunteers, contract land stewards, and cooperative land managers regularly visit natural areas across the state to assess their condition.

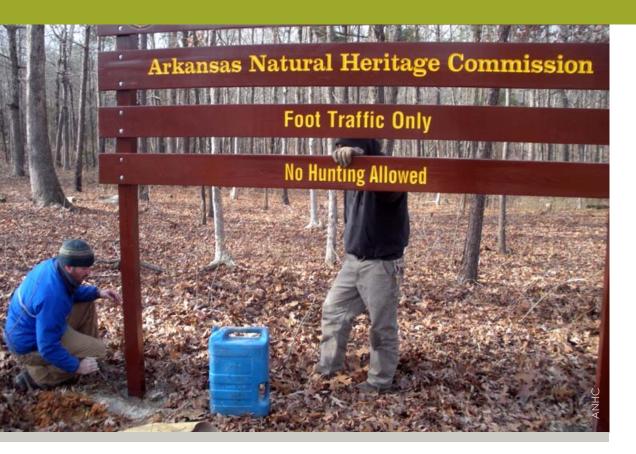
We contracted for installation of 15 gates and over 11/4 miles of additional fence to reduce unauthorized vehicular access and soil compaction, which can adversely affect the hydrology and plant communities on natural areas.

Our species monitoring efforts document the persistence of the targeted plants, animals, and plant communities found within the System of Natural Areas. Results of these monitoring efforts are reflected in the individual natural area pages (green) of the bound reference document for this report.

Stewardship work includes installing interpretative signs and other signage to properly identify state-owned land and partnership agreements. We also continued to mark and maintain boundaries, often across the difficult terrain and challenging topography of remote locations throughout the System.

The invasion and rapid spread of non-native and/or invasive plant species is an on-going threat to species diversity at some natural areas. We contracted for over 2,000 hours of invasive species control efforts in FY2010 at six natural areas (Byrd Lake, Konecny Grove, Mills Park, Middlefork Barrens, Stone Road Glade and Terre Noire natural areas). These activities included cutting, girdling, shearing, as well as hand and aerial application of selective use herbicides.

Management planning continues to be an integral component of stewardship work and follows a prescribed three-year revision process for the comprehensive review and updating of all management plans. We administered a peer review process that incorporated input from ANHC commissioners, academic researchers, and public and private land managers. In all, we reviewed and updated 29 management plans this past year.



# Stewardship

Other management plans are being implemented for newly acquired areas (such as St. Francis Sunken Lands), and data collection continues, in anticipation of the next revision cycle as prescribed by the commission's rules and regulations.

Prescribed fire was utilized at a number of natural areas. Under contract, firelines were installed by a hand crew to minimize soil disturbance, and a total of 20 burns consisting of 1,670 acres were conducted at 13 natural areas. ANHC staff also conducted prescribed burns on 272 acres at five natural aeras. Post burn monitoring was conducted along transects within all fuel models several days after the burns. The amounts of duff/litter removal, scorch height/intensity and char degree were measured at each point along transects to characterize fire intensity, coverage, corresponding vegetation effects, and to determine if fire management and ecological objectives were met.

Ecological restoration projects were conducted at several natural areas. Highlights include:



Invasive eastern red cedar removal was conducted at Middlefork Barrens and Terre Noire Natural Areas.



A contractor conducted aerial application of a specific-use herbicide to control the invasive plant kudzu at Nacatoch Ravines Natural Area.



Ecological forest thinnings were conducted at Warren Prairie, Middle Fork Barrens and Pine City Natural Areas by contracting for very specifically designed timber harvests, which opened the canopy allowing more sunlight to reach the ground to benefit the herbaceous plant communities.



A contractor completed an update to the recharge delineation for the cave system at Hell Creek Natural Area. This project also identified many of the point source threats to the aquatic species that make this natural area home.



Native genotype grass and forb species (collected locally) were planted at Downs Prairie Natural Area as part of a prairie restoration project.



For this reporting period, 99 percent of all natural areas were visited at least twice. Six natural areas were visited more than 25 times due to intensive restoration efforts and monitoring at areas that receive significant public use. St. Francis Sunken Lands Natural Area was newly added and has been visited once since acquisition. ANHC staff were on site at 100 percent of all natural areas.

In addition to the System of Natural Areas, the commission holds an interest in other lands of ecological importance, and staff regularly monitor these sites. Since 1987, the commission has participated in the management of Saratoga Landing Blackland Prairie that lies adjacent to the Saratoga Blackland Prairie Natural Area in Hempstead County through an agreement with the U.S. Army Corps of Engineers. A 40-year agreement with Potlatch Forest Holdings Inc. cooperatively manages the company's Lost 40 property in southern Calhoun County. The commission holds wetland conservation easements on 1,741.3 acres of forested land in Woodruff County and a conservation easement on 96.75 acres of forested bottomland along the Petit Jean River in Yell County.

As successor to the Arkansas Natural and Scenic Rivers Commission, the ANHC has oversight responsitiblity for portions of four streams legislatively designated as the Arkansas Natural and Scenic Rivers System for protection through Act 689 of 1985, including:

- Upper Cossatot River 26 miles
- Upper Strawberry River 43 miles
- Upper Little Missouri River 29 miles
- Lower Saline River 157 miles



Images above, clockwise from top left: ANHC's Scotty Winningham burning at Downs Prairie Natural Area; cedar removal at Middle Fork Barrens Natural Area; grinder work at Warren Prairie Natural Area; restoration work at Cave Springs Cave Natural Area; work on bat gate at Slippery Hollow Natural Area; ecological thin at Warren Prairie Natural Area. Image previous page: New fence at Swifton Sandponds Natural Area.

### STUDENT VOLUNTEERS AT NATURAL AREAS

A total of 85 students from three different EAST (Environmental and Spatial Technology) classes performed service learning projects on natural areas this year.

- The Lonoke Middle School EAST class completed a documentary film on Railroad Prairie Natural Area that won awards at the EAST national conference. The film featured historical photos from nearby businesses and documented students' visits to the prairie, their removal of invasive plants, and their photography of native plants.
- Watson Chapel student volunteers installed a picnic table, cleaned and cleared trails, and cleaned roadside debris at Byrd Lake Natural Area. Student leader William Blair coordinated partnerships with Wal-Mart volunteers, students at Watson Chapel, and donation of materials from Wal-Mart and other local stores.
- Bryant High School students worked at Mills Park Natural Area to document the native plants and remove invasive species. They used pressed samples of local ferns to teach the environmental science class about the diversity of the acid seep. Alarmed by the amount of trash strewn in Mills Park, students organized an after-school cleanup, urged their school to stop using Styrofoam, and filmed "trashless" lunches at local elementary schools.



Image above: ANHC commissioners, staff and guests on a field trip to Lorance Creek Natural Area after February 2010 meeting.

The professional staff and appointed commission members of the ANHC carry on a legacy of conservation work that began nearly 40 years ago with Act 297 of 1971 that created the first inventory and protection process for natural areas in the state: the *Arkansas Natural Area Plan*. By formally establishing the ANHC within the Department of Arkansas Heritage (DAH) in 1975, the Legislature brought natural and cultural heritage together.

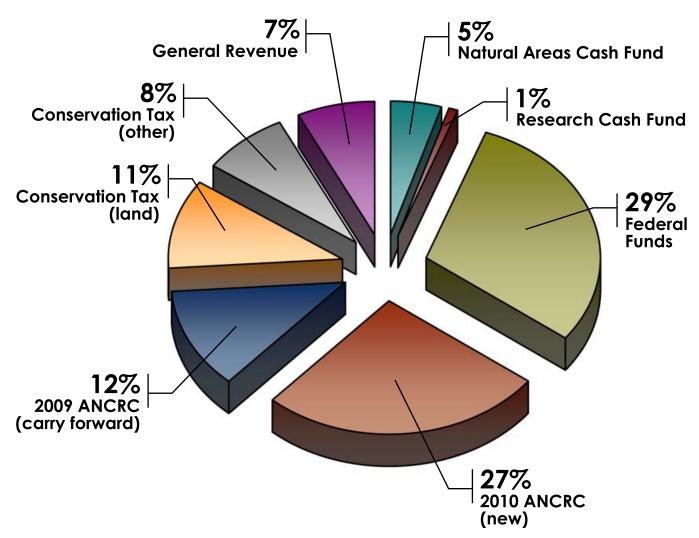
Led by Director Cathie Matthews, the seven DAH agencies: the Arkansas Arts Council, Arkansas Historic Preservation Program, Arkansas Natural Heritage Commission, Historic Arkansas Museum, Delta Cultural Center, Old State House Museum, and Mosaic Templars Cultural Center, work to secure a sustainable future for our society, environment and economy by protecting, restoring and enhancing Arkansas's natural and cultural resources.

### **ADMINISTRATION**

Finances
Cooperative Agreements
Commission
Staff

The commission receives funding from five key sources: General Revenue, the 1/8th-Cent Conservation Sales Tax, Arkansas Natural and Cultural Resources Council (ANCRC) grants, federal grants and two cash accounts. The total budget for FY2010 was \$7.4 million, slightly higher than the previous year's budget of \$6.9 million. The expenditures for the year totaled \$4,279,248 and, as a result of fiscal planning and follow-through, we turned back less than one percent (0.24%) of our total budget.

FY2010 was an historically significant year for the commission's 1/8th-Cent Conservation Sales Tax funding. Governor Beebe increased ANHC staffing by four positions and increased the land acquisition appropriation to \$800,000. These additions greatly enhanced the commission's ability to survey biodiversity throughout Arkansas, learn more about Arkansas's ecosystems, and conserve lands in the System of Natural Areas.



ANCRC grants support the acquisition of new lands for inclusion in the System of Natural Areas. In addition, five part-time field ecologists, located around the state, are funded through these grants to conduct critical stewardship activities on natural areas. Grant funds also support ecological research and inventory work, and educational programming throughout the state. Grant funds can be carried forward into a second fiscal year; however, ANHC work projects expended 73 percent of this year's \$2,750,000 grant award during the first year. The remaining 27 percent of funds will be carried forward to FY2011.

Federal grants fund essential research, survey and restoration work for endangered species and unique habitats within the state. They also fund the salaries and associated matching expenses for five full-time staff. Each grant is specific in nature, with no ongoing federal grant sources to fund fixed administrative costs. The commission staff, which includes a grants coordinator, must continually work to secure grants that collectively generate funding to support expenses from the federal account. The timing of grant projects must also be coordinated with ecological timeframes such as breeding season or winter dormancy.



Images above, top to bottom: During glade restoration in 2009; after glade restoration in 2010; both images at Middle Fork Barrens Natural Area.

General revenues fund eight positions and a portion of commission operating expenses. A series of budget cuts were made over the course of this year that resulted in an approximate 10 percent reduction in available funds. These cuts required a shifting of operating expenses, such as rent and commission expenses, to the 1/8th-Cent Conservation Sales Tax and cash funds.

Cash funds are generated from research services fees, donations, timber revenues and other income from non-federal sources. These funds augment other commission funds to conduct research, advance natural area stewardship, purchase vital equipment and pay for one part-time employee.





The chief source of federal grants for FY2010 was the U.S. Fish and Wildlife Service, with a total of \$626,549. An additional \$50,000 was awarded from the U.S. Forest Service. These competitive grant awards illustrate both the national significance of the work being done here in Arkansas and also the capabilities of the ANHC staff responsible for the tasks associated with each grant.



Images above, left to right: ANHC's Jane Jones-Schulz speaks to an Arkansas Master Naturalist class about ecoregions; a large patch of barbed rattlesnake root (*Prenanthes barbata*) was found growing in restored open woodlands at Lorance Creek Natural Area this year. Next page, clockwise from top: Blackland prairie restoration project at Terre Noire Natural Area; ANHC staff and volunteers prepare for prairie mole cricket surveys at Downs Prairie Natural Area; ANHC's Bill Holimon surveys private land near Cherokee Prairie Natural Area for Le Conte's Sparrows (*Ammodramus leconteii*).



- \$2,750,000 from the ANCRC for land acquisitions; stewardship funding for land management activities; research and inventory work; and educational and outreach opportunities. (Project period July 1, 2009, to June 30, 2010, with a carry forward option for one year)
- \$511,650 from U.S. Fish and Wildlife Service, Recovery Land Acquisition program for land acquisition to aid in the recovery of geocarpon (*Geocarpon minimum*). (Project period April 12, 2010, through June 30, 2013)
- \$18,861 from the U.S. Fish and Wildlife Service, Section 6 Endangered Species Grants program for surveys and research on five plant species of conservation concern in Arkansas. (Project period November 1, 2009, through December 31, 2010)
- \$36,038 from the U.S. Fish and Wildlife Service, Section 6 Endangered Species Grants program through the AGFC to restore the pine flatwoods community and thereby provide the open, pine habitat preferred by Red-cockaded Woodpecker (*Picoides borealis*) at Pine City and Warren Prairie Natural Areas. (Project period August 7, 2009, through August 6, 2011)





\$31,500 from the U.S. Fish and Wildlife Service, State Wildlife Grants program through the AGFC to restore dolomite glades and an Ozark fen at Rock Creek Natural Area to benefit animal species of greatest conservation need. (Project period August 12, 2009, through October 13, 2012)



\$28,500 from the U.S. Fish and Wildlife Service, State Wildlife Grants program through the AGFC to restore blackland prairie and woodland habitat structure and species composition to benefit animal species of conservation concern at Terre Noire Natural Area. (Project period August 12, 2009, through October 13, 2012)



\$50,000 from the U.S. Forest Service, Invasive Plants Program through the AFC to conduct management activities to control non-native invasive plant species and assess treatment success at five exemplary natural areas. (Project period June 24, 2010, through August 11, 2011)





Forging partnerships is a key ingredient of the commission's conservation work. Collaboration with federal and state agencies, colleges, private non-profits and private landowners allows us to pool resources, expand our knowledge base and ultimately increase our overall conservation impact across the state. Such collaborative efforts are formalized and presented to the commission as cooperative agreements detailing the project scope, commitment of agency resources and any expected receivables.

Cooperative agreements can take a number of forms and can involve both staff time and a commitment of funds. In FY2010, the ANHC presented 67 cooperative agreements for commission approval totaling approximately 15 percent of the collective staff time for the year. Seven of the agreements presented were new opportunities for collaboration while the remaining 60 represented the continuation of successful on-going projects.

### co•op•er•ate (koh-op-uh-reyt) To work or act together toward a common end or purpose.



A new cooperative agreement with the Arkansas Academy of Science (AAS) is directly addressing the commission's current strategic planning goal to increase the ecoliteracy of Arkansans. ANHC will provide \$1,000 in support to AAS each year to fund assistance to students in the form of grants and awards to conduct research and attend college. These funds also help support the annual meeting of the AAS which promotes science in the state

and in the region and provides a venue for scientific discussion in areas such as medicine, microbiology, biochemistry, genetics, astronomy, botany, zoology, plant science, chemistry, physics, earth science, engineering, geology and environmental science.



Through an agreement with the Arkansas Department of Environmental Quality, our research staff will bring their expertise to the evaluation of streams that have been nominated for designation as Extraordinary Resource Waters and/or Ecologically Sensitive Waterbodies under Regulation No. 2 of the Clean Water Act, which

establishes water quality standards for surface waters in the state. Under this regulation, designated streams are protected through various means such as water quality controls, maintenance of natural flow regimes, protection of instream habitat, and encouragement of land management practices that protect the watershed.





# Cooperative Agreements

Image above: AGFC's Kirsten Bartlow and ANHC's Nate Priesendorfer and Jason Throneberry install an interpretive sign at Big Creek Natural Area. Previous page, left to right: Sign at Goose Pond Natural Area, located inside AGFC's Ed Gordon Point Remove WMA; sign at Stone Road Glade Natural Area.





The commission's largest land acquisition this year, which resulted in the largest single component of the System of Natural Areas, was made possible through a partnership with the AFC and USFS that provided \$2,060,000 in land acquisition grant funds from the federal Forest Legacy Grant Program. These funds were used to purchase 2,107 acres at the Warren Prairie Natural Area in Drew and Bradley

counties that will protect a mosaic of salt slicks, saline soil barrens, Delta post oak flatwoods, prairie mound woodlands, pine woodlands, and bottomland hardwood forest communities. This area currently supports the state's largest population of an endangered plant and has the potential to support an endangered bird.



Under a new agreement with the Little Rock Zoo, ANHC staff and zoo horticulturists will work to propagate several rare plant species from natural areas in the Grand Prairie and the Coastal Plain. These plants will be used in restoration projects on ANHC lands and in educational exhibits (plantings) at the zoo. Specifically,

several rare plant species from Railroad Prairie Natural Area and Konecny Prairie Natural Area will be grown from cuttings and/or seed for restoration projects at Downs Prairie Natural Area. Pondberry, a federally endangered shrub, will be propagated from cuttings taken from Coffee Prairie Natural Area and introduced to other sites at this natural area. In addition, some individuals of each species will be incorporated into exhibits at the Little Rock Zoo.

The commission is made up of fifteen members. Nine members are appointed by the governor for staggered terms of nine years each.

### **GOVERNOR APPOINTEES**

Curtis Adams, Jr. - Secretary - Fort Smith, AR

Mark Karnes - Chairman - Arkadelphia, AR

Manuel Barnes - Bentonville, AR

Sally McLarty - Newport, AR

Robert Bevis, Jr. - Scott, AR

Neill Sloan - Lake Village, AR

Lucien Gillham - Sherwood, AR

Doug Swann - Little Rock, AR

Wade Williams - Fayetteville, AR





Image above: ANHC commissioners install a new sign at Kings River Falls Natural Area. Previous page, clockwise from top: Commissioners and staff in front of Kings River Falls; commission chairman Mark Karnes addresses the crowd at Warren Prairie dedication; ANHC botanist Theo Witsell leads commissioners and staff on a botanical hike at Cove Creek Natural Area.

In addition, the president pro tempore of the Arkansas Senate appoints three members, and the speaker of the Arkansas House of Representatives appoints three members. These six commissioners are not term limited and may change as the makeup of the Arkansas General Assembly changes.

### PRESIDENT PRO TEMPORE OF THE SENATE APPOINTEES

Ann Cornwell - Vice-Chairman - Little Rock, AR

Robin Lockhart - Little Rock, AR

Gerry Soltz - Morrilton, AR

### SPEAKER OF THE HOUSE OF REPRESENTATIVES APPOINTEES

Warren Jennings, Sr. - DeWitt, AR

Vacant

Vacant





Images above, top to bottom: ANHC staff survey a barrens at Warren Prairie Natural Area for Henslow's Sparrows in March 2010; ANHC's Theo Witsell leads other ANHC staff on a botanical hike at Middle Fork Barrens Natural Area in April 2010.

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Director
Department of Arkansas Heritage

Marynell Branch
Deputy Director for Heritage Resources
Department of Arkansas Heritage

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