



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 30, 2009

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 Executive Summary (smaller booklet) contains information about our work over the past year and a status report for the System of Natural Areas and the Registry of Natural Areas as required by the statute.

The larger, bound document includes detailed information for both the System and the Registry and is often used by citizens throughout Arkansas. The status reports (green pages) for each site within the System of Natural Areas include ownership information, driving directions, and stewardship activities performed at every natural area this year. The county-by-county listings of rare species, which make up our Registry of Natural Areas, are provided as blue pages.

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



In 2000, we began an era transforming the annual report from merely a requirement of the state statutes to a valuable outreach tool.

Always putting conservation of natural resources first, we only order 150 print copies – printed on recycled paper using soy ink— to meet state record-keeping requirements, to offer as field guides to those who regularly visit natural areas, and to provide to organizations such as libraries as reference tools.

The past ten years have seen various reporting formats and an ever-increasing appeal of the document, as evidenced by the fact that, during the first seven months of its release, the average monthly download of the 2008 Annual Report was more than the total number of documents printed.

The 2009 Annual Report marks our latest transition to a reporting period that coincides with the State Fiscal Year. The report complies with the statute’s deadline of “on or before December 1st each year” and allows the commission more opportunities to use the document to accompany grant activity reports and in state budget reports for example.

For this transition, the 2009 Annual Report highlights significant accomplishments since the last reporting period. However, activity reports cover the full 12-month period so there are repeated items from the 2008 report for the quarter ended September 30, 2008.

Sincerely,

Handwritten signature of Karen Smith in blue ink.

Karen Smith
Director

Handwritten signature of Mark Karnes in blue ink.

Mark Karnes
Commission Chairman

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*...Arkansas has a history of nurturing
our natural resources upon which much
of our economy and culture are based.
Each successive generation of Arkansans
inherits an obligation to preserve and
protect these gifts.*

*Governor Mike Beebe
Weekly radio address and column
April 24, 2009*

Administration



The Department of
**Arkansas
Heritage**



The entire staff have been doing the state of Arkansas a great service as overseers of the Natural Areas throughout this wonderful state. Their enthusiasm and ability when it comes to ANHC's mission have resulted in a significant increase in protecting the Natural Areas and the education of citizens' awareness of this state's natural areas.

ANHC Commissioner Curtis Adams

Led by Director Cathie Matthews, the Department of Arkansas Heritage (DAH) is made up of seven divisions, each with its own special contributions: 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. The Arkansas Natural Heritage Commission (ANHC), created by Act 112 of 1973, became a part of the department when it was created in 1975.

Fifteen commissioners provide general direction to the ANHC professional staff, regularly approving cooperative agreements and management plans, as well as acting on

staff proposals for acquiring land for the System of Natural Areas. Again this year, commissioners took our message throughout Arkansas, participating in special events sponsored by the Department of Arkansas Heritage and functions hosted by our conservation partners.

The commission amplified its efforts to “live green” in the work environment too, by making every attempt to reduce paper usage and recycle as much as possible. This year, we began communicating agendas, minutes, and related materials electronically. One meeting was conducted by conference call to reduce the impact of travel on natural and financial resources.

By monitoring document requests and usage, we saw that more people were accessing our publications on-line. We reduced the number of printed copies of the 2008 Annual Report to 150 and encouraged people to view it on our website. Our public outreach activities took on an eco-ethic focus, with participation at the First Annual Market Place Green to Go Festival in Little Rock, the Little Rock Zoo's



Earth Day event and the Cossatot River State Park-Natural Area's Conservation Day.

Of particular note this year was the meeting in May at Arkadelphia, when the commission welcomed five new members. A tour of Terre Noire Natural Area nearby gave staff members the opportunity to deliver reports about site conservation planning, unique species found at this location, stewardship strategies and land acquisition processes. The commissioners and staff were joined by DAH leaders, Director Cathie Matthews and Deputy Director for Heritage Resources Marynell Branch, Kathy Holt Special Assistant for Agency and Legislative Affairs to Governor Beebe, Assistant Attorney General Amy Ford and members of Arkansas Field Office of The Nature Conservancy.

Among the responsibilities of the commission, the Registry of Natural Areas began as a way for Arkansans to nominate sites to a list of special places. Over time, ANHC scientists investigated these nominations and the Registry evolved to county lists of the documented and verified locations of rare, threatened and endangered

species in Arkansas. The Arkansas Heritage Program biodiversity database serves as the recognized source of comprehensive information regarding Arkansas's rare plant and animal species and its remaining high-quality natural communities. In Fiscal Year 2009, this data continued to be used by the State's most respected biologists, researchers and project planners in a variety of disciplines for conservation and stewardship planning as well as in the environmental review and information sharing process. With over 13,500 records for Arkansas maintained in the Arkansas Heritage Program biodiversity database, the Registry is the basis for all of our conservation work.

The System of Natural Areas was established to take this process one step further. Where the records are clustered together, the commission works to secure formal conservation protection on the landscape of Arkansas. We actively pursue funding opportunities and work with partners to acquire lands for the System. We work with individuals and corporations, whose holdings are large or small, who care deeply for these special places and want them to be protected forever. These Arkansans often offer donated lands or bargain sales to help us in our efforts.

We continue to reach out to all Arkansans to increase the awareness of and appreciation for the beauty of Arkansas's natural landscape. On April 19th, Governor Mike Beebe and DAH Director Cathie Matthews invited Arkansans to join them in celebrating the 2009 Arkansas Heritage Month theme of "Only in Arkansas: Exploring Our Natural Heritage." Arkansas Heritage Month was a time to join with others around the state in preserving, protecting and promoting our natural history by hosting a special Heritage Month event. By launching a new and improved website in April with more interactive features, the visitation increased in terms of the number of visitors and "hits" to the site, as well as the length of stay for most visits.

Staff

Cathie Matthews, Director, DAH

Marynell Branch, Deputy Director for
Heritage Resources, DAH

Administration

Karen Smith, Director

Chris Colclasure, Deputy Director
Specialty: Land Acquisition

Toni Snow, Administrative Assistant

Bob Spraggins, Business Manager

Stewardship

Douglas Fletcher, Chief of Stewardship
Specialty: Herpetology/Mammalogy

John O'Dell, Stewardship Field Ecologist
Specialty: Public use specialist/Prescribed
fire crew leader

Bryan Rupar, Stewardship Field Ecologist
Specialty: Invasive species

Arkansas Heritage Program

Bill Holimon, Chief of Research
Specialty: Zoology

Cindy Osborne, Data Manager/
Environmental Review Coordinator
Specialty: Biology

Jennifer Akin, Conservation Biologist/
Grants Coordinator
Specialty: Plant ecology

Tom Foti, Part-time Advisor/Natural Area
Chief Planner
Specialty: Plant community ecology

Scotty Winningham, Assistant Data
Manager
Specialty: Wildlife biology

Theo Witsell, Botanist
Specialty: Botany

Katie Shannon Assistant Data Manager/
Environmental Review Specialist
Specialty: Biology

Education and Information

Jane Jones-Schulz, Education and
Information Coordinator
Specialty: Scenic rivers and watersheds

Vacant, Information Officer



Commission

Governor Appointees

Mark Karnes, Chairman
Arkadelphia

Curtis Adams Jr., Secretary
Fort Smith

Manuel Barnes
Bentonville

Robert Bevis
Scott

Lucien Gillham
Sherwood

Sally McLarty
Newport

Neill Sloan
Lake Village

Doug Swann
Little Rock

Wade Williams
Fayetteville

President Pro Tempore of the Senate Appointees

Gerry Soltz
Morrilton

Ann Cornwell, Vice Chairman
Little Rock

Robin Lockhart
Little Rock

Speaker of the House of Representatives Appointees

Warren Jennings, Sr.
DeWitt

Vacant

Vacant



Financial Summary

Arkansas is known for its history of fiscal restraint, as our Constitution prohibits deficit spending and requires the state budget to be balanced. A responsible balanced budget has both the most pressing needs and the future progress of Arkansas at heart.

Governor Mike Beebe
Weekly Radio Address and Column
November 14, 2008

The commission staff makes every effort to maximize its financial resources as evidenced throughout this annual report. The commission's budget consists of five funding categories including: general revenue, Arkansas Natural and Resources Council grants, federal grants, one-eighth cent conservation tax funds, and cash receipts.

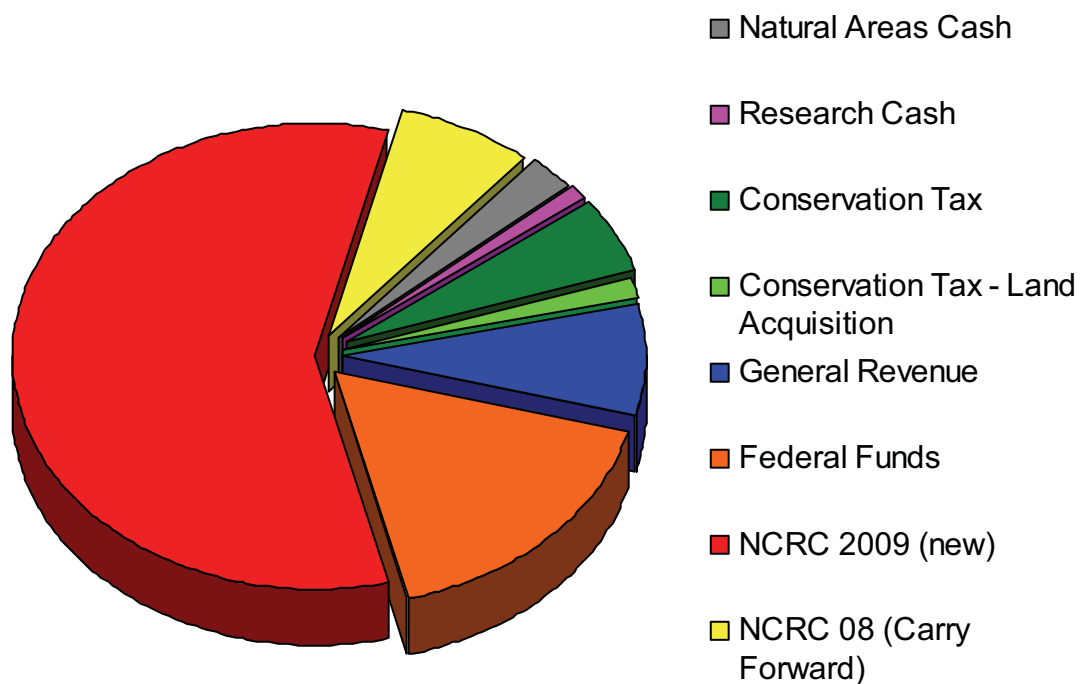
The budget for FY2009 totaled \$6.8 million. Expenditures totaled \$6,190,597. Of the \$711,767 remaining balance in all accounts, the commission will carry-forward \$706,879 for FY2010.

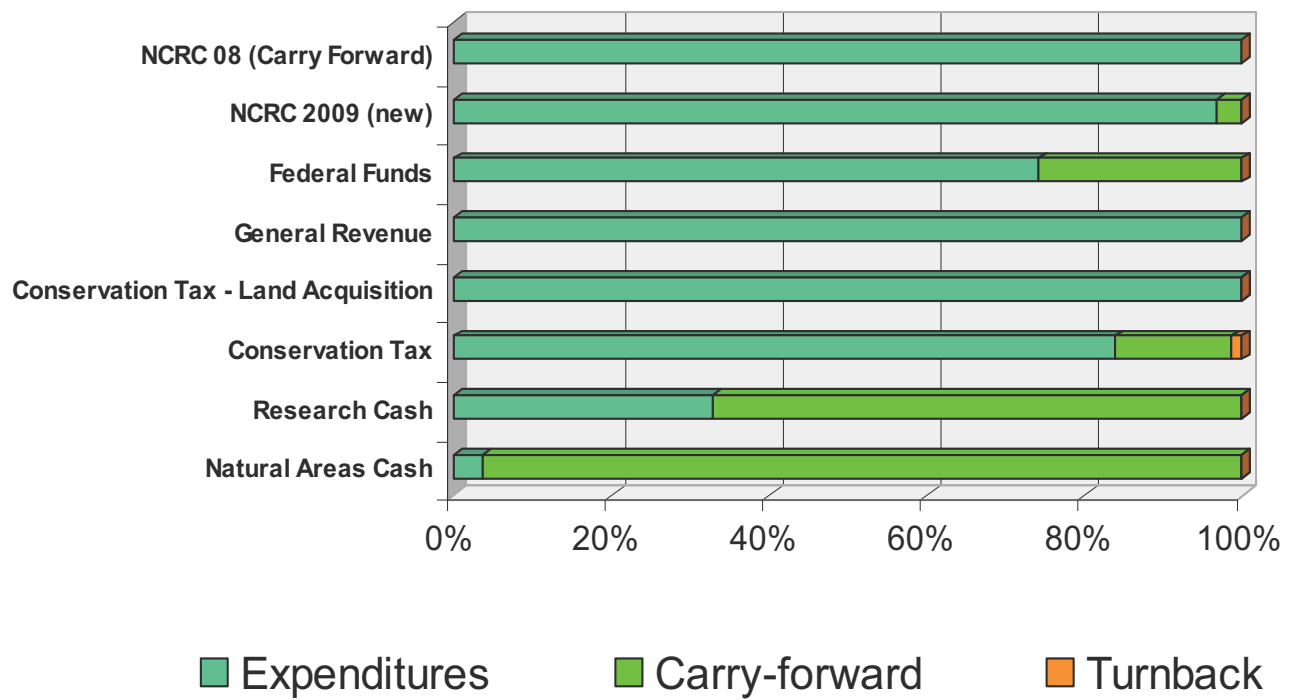
This year, the commission's staff worked with the Department of Finance and Administration - Office of State Procurement and the

Department's Purchasing Office to learn more about the bidding process for state government contracts. Together we found new ways to stretch dollars across the landscape which increased the effectiveness of stewardship beyond our in-house staff capabilities.

Through a Request for Proposals, we secured two contractors to enhance our presence at eleven natural areas by eradicating invasive plant species, installing 2.1 miles of fencing at six locations and initiating a volunteer land steward program for the System of Natural Areas. A competitive bidding process resulted in two contracts for mechanical thinning of underbrush as a component of habitat restoration work at Pine City and Warren Prairie Natural Areas.

Our fiscal position appears even brighter for FY2010, as Governor Beebe increased our staffing by four positions and the land acquisition appropriation to \$800,000, with funding to come from the one-eighth cent conservation tax. These additions greatly enhance the commission's ability to survey biodiversity throughout Arkansas, learn more about Arkansas's ecosystems and conserve lands in the System of Natural Areas.





Grants



Grants from this fund are for projects that protect and maintain state-owned natural areas, historic sites, and outdoor recreation.

Arkansas Natural and Cultural
Resources Council
2010 Revised Guide to Grants

State funded grants from the Arkansas Natural and Cultural Resources Council (ANCRC) provide the most significant funding for the System of Natural Areas. At its funding meeting for FY 2009, the council recognized the urgency of potential transfers of ownership of ecologically significant lands throughout Arkansas. With the support of Department of Arkansas Heritage Director Cathie Matthews and Arkansas Natural Heritage Commission (ANHC) Chairman Mark Karnes, who also serve on the Council, the commission received a \$4.0 million grant award for the conservation of strategically targeted tracts to add to the System of Natural Areas.

Because we have no on-going source of federal funding, the commission's grant administration serves as fund-raising efforts, seeking one-time dollars to pay for special

projects. Grant funding supports a variety of conservation initiatives such as adding and restoring habitat to the System of Natural Areas and conducting rare species research. Our success at achieving grant opportunities strengthens our partnerships. This year, our grants coordinator attended a Federal Assistance Project Leaders workshop to enhance our ability to secure U.S. Fish and Wildlife Service grants in the future.

In April, the U.S. Department of Agriculture (USDA) Forest Service announced that Congress approved a \$2.06 million Forest Legacy Grant to the State of Arkansas for the purchase of approximately 2,400 acres of land at Warren Prairie Natural Area. This requires a state matching component of approximately \$800,000, pledged from ANCRC grant funds. With these planned additions, Warren Prairie Natural Area, which contained 845 acres in 2000, will conserve about 4,500 acres in the near future. Warren Prairie Natural Area competes successfully for federal grant funds because of the concentration of rare species found there, such as geocarpus and the habitat it provides for Red-cockaded Woodpeckers



(RCWs) and other birds of conservation concern such as the Henslow's Sparrow and Bachman's Sparrow. The natural area, managed in partnership with the Arkansas Forestry Commission (AFC), Arkansas Game and Fish Commission (AGFC) and The Nature Conservancy (TNC) offers traditional outdoor recreation opportunities including hunting.

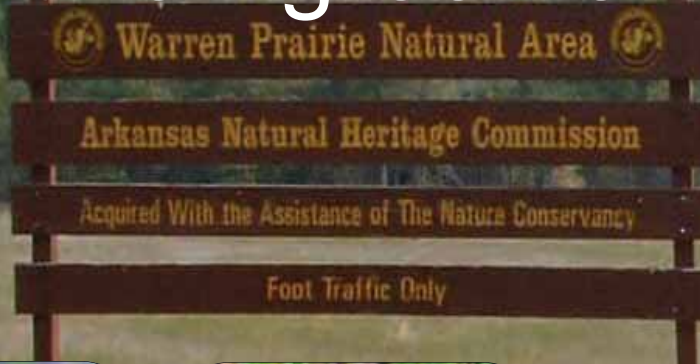
In an innovative grant amendment, the commission transferred a portion of its grant funds that were set to expire in December 2008 to TNC to purchase property in northwest Arkansas. Donated lands and other cost containment measures expanded the impact of the federal grant funds to conserve habitat for rare bats.

Recent federal rule changes disqualified state-owned property from participation in the Wetland Reserve Program (WRP). This loss of \$80,000 in projected federal income eliminated a planned ecosystem restoration project for an 80-acre tract at Benson Creek Natural Area.

Funding for new grant awards in Fiscal Year 2009, included:

- \$4 million from the ANCRC for land acquisitions (Project period: July 1, 2008 to June 30, 2009, with a carry forward option for one year)
- \$2,060,000 from the USDA Forest Service – Forest Legacy Program through AFC for the acquisition of 2,400 acres of land to Warren Prairie Natural Area (Project period: October 1, 2008 through September 30, 2010)
- \$41,802 from the Land and Water Conservation Fund through the Arkansas Department of Parks and Tourism's (ADPT) Outdoor Recreation Grants Program for the acquisition of additional land to Terre Noire Natural Area (Project period: April 1, 2009 through December 31, 2010)
- \$18,320 from the USFWS, Section 6 Endangered Species Grants program for surveys and research on five plant species of conservation concern in Arkansas (Project period: November 1, 2008 through December 31, 2009)
- \$3,200 as an amendment to Phase II grant for invasive plant species control at six exemplary natural areas from the USDA Forest Service Invasive Plants Program through the AFC (Project period: September 1, 2006 through September 30, 2008)
- \$23,500 from the USFWS, State Wildlife Grants program subcontracted through TNC for habitat restoration at Warren Prairie Natural Area (Project period: August 15, 2008 through July 15, 2010)
- \$10,000 from the USFWS, State Wildlife Grants program subcontracted through TNC to restore glade and woodland habitat at Middle Fork Barrens Natural Area (Project period: August 15, 2008 through July 15, 2010)
- \$2,000 from the USFWS, State Wildlife Grants program subcontracted through TNC to restore blackland prairie and woodland habitat at Nacatoch Ravines Natural Area (Project period: August 15, 2008 through July 15, 2010)

Cooperative Agreements



I have enjoyed working with you and all your crew. Having worked on Post-oak savanna's and Pine bluestem systems I have a great appreciation for the unique plants found on these areas. Keep doing what you are doing!

Eddie Linebarger, Region 9 Supervisor
Wildlife Management Division
Calico Rock Regional Office
Upon his retirement after 37 years with the
Arkansas Game & Fish Commission

Our greatest chance for success often comes from collaboration with state and federal government agencies, non-profit organizations, private industry and non-industrial landowners. According to our Rules and Regulations, these projects are formalized as cooperative agreements. This has resulted in land acquisition projects adding to the System of Natural Areas, major improvements in natural area land management, commission staff providing technical expertise as members of committees and forums, outreach to educate

the citizens of Arkansas, and the sharing of rare species data to guide project planning.

Some cooperative agreements have a conservation impact beyond the System, opening the commission's influence to roundtables, technical working groups and to other collaborations. In FY2009, as a member of the Natural Resources Committee, the commission used its rare species data and expertise to guide decisions regarding the sale of minerals, timber, sand, gravel or other interests in land owned by the State of Arkansas.

Outreach and education cooperatives are a continued focus of the commission's work. For example, ANHC education and information coordinator Jane Jones-Schulz prepared panels and exhibits for the Arkansas Environmental Education Association's Earth Day activities as part of her responsibilities as a board member. Through this cooperative agreement, the commission increases



awareness and knowledge of the environment while at the same time building relationships and sharing information with other environmental educators across the state.

Cooperative agreements often result as part of a land acquisition, focusing on the management of a particular site within the System of Natural Areas. In FY2009, commission staff participated in the annual cooperative management meetings for Moro Big Pine and Warren Prairie Natural Areas. The participating partners included Potlatch Forest Holdings, Inc., the Arkansas Game and Fish Commission (AGFC) and The Nature Conservancy (TNC). Through this partnership, joint management decisions were discussed and planned. For example, ANHC discussed areas to be inventoried. AGFC provided the results of managed game hunts that included the number of permitted hunters

and animals harvested, as well as public use modifications. Potlatch presented planned areas to be thinned and burned, and provided a status update of the resident Red Cockaded Woodpecker (RCW) population.

Our cooperative agreements often have a regional focus, as targeted rare species habitats span across state lines. ANHC Chief of Research Bill Holimon met with state and federal biologists to develop a plan for a Non-federal Lands RCW Cooperative for Arkansas, Louisiana, Oklahoma and Texas. This effort has the chance to develop another potential source of RCWs for relocation to Warren Prairie, Moro Big Pine, and Pine City Natural Areas. This cooperative would identify and work with owners of non-federal lands (private, state and other) for translocation, on a volunteer basis, of juvenile RCWs to other non-federal lands to increase population numbers at those locations. This cooperative is in the beginning stages and currently is focusing on donor and recipient criteria and how the permitting process would work.

Fourteen states regularly participate in the Natural Areas Association's State Natural Areas Program Roundtable. Commission director Karen Smith worked with the Association and the Performance Institute, Inc., located in Washington, D.C., to provide professional development opportunities to state natural area leaders. Interest is building within the group to learn more about incorporating measurements into planning documents and quantifying results over time. Each organization hopes to learn how to better track progress toward its mission, execute components of a strategic plan and set priorities for day-to-day operations, staff time and resources.

Many of our cooperative agreements involve work with other organizations that have strong constituencies in Arkansas. Commission Deputy Director Chris Colclasure developed proposed hunting regulations for the new Palmetto Flats Natural Area to be promoted as a wildlife

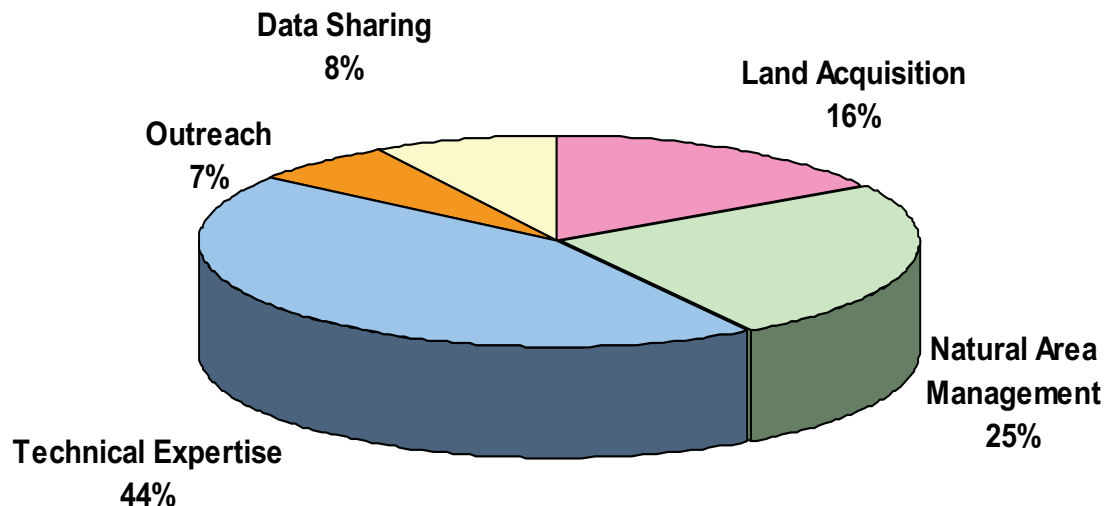
management area and included them in the AGFC 2009- 2010 general hunting guidebook and regulations. The ability to include natural areas in the Wildlife Management System was made possible through a cooperative agreement established in 2001.

In FY 2009, the staff presented 65 cooperative agreements to the commission for approval, indicating that approximately 19 percent of the collective staff time was devoted to working with conservation partners. Many of these agreements were being renewed for another year while others were new. The agreements fall into five main categories: land acquisition, natural area management, technical expertise, outreach and data sharing. The chart below illustrates the amount of commission staff time devoted to each of the categories.

In FY2009, six new cooperative agreements were established. Examples of these six new agreements include:

- AGFC is coordinating a statewide recovery effort to increase Northern Bobwhite populations in Arkansas. As a result, the Arkansas Quail Committee (AQC) was formed to guide this initiative. Commission staff will serve on the committee and provide professional expertise. The AQC includes representatives from the AGFC, ANHC, Natural Resources Conservation Service (NRCS), U.S. Fish and Wildlife Service (USFWS), U.S. Forest Service (USFS), University of Arkansas Cooperative Extension Service, Quail Unlimited, Farm Services Agency, timber companies, private consultants, and academia.

**Cooperative Agreements by Category
and Percent of Staff Time
FY 2009**



- \$13,587 in funding provided through a partnership with the USFWS and AGFC will be used to delineate the recharge area of the Hell Creek Cave system. Hell Creek Natural Area supports the only known viable population of the Ozark Cave crayfish, an endangered species. This information will be used to update the federal Recovery Plan for this very rare endemic crayfish.
- As part of the agency's continuing commitment to excellence in secondary science education, we sponsored four general "natural heritage" awards at the annual state science fair and provided support for the Arkansas students to compete at the national level.
- The commission is a cooperating partner in the Arkansas Conservation Reserve Enhancement Program which is a partnership between the U.S. Department of Agriculture (USDA) and the State of Arkansas. The program seeks to enroll 6,250 acres of eligible cropland or marginal pastureland in 14 to 15 year contracts within the Cache River / Bayou DeView watersheds. The project will establish or restore wetlands and riparian forest buffers by planting hardwood trees to enhance wildlife habitat and improve water quality by filtering agricultural runoff. Partners for this multi-agency project includes ANHC, AGFC, ANRC, the Arkansas Forestry Commission (AFC), TNC, UA Cooperative Extension Service, the Arkansas Wildlife Federation, the Farm Service Agency, NRCS, Arkansas Stream Teams, the Central Delta Historical Society, Inc./Central Delta Depot Museum, the Clarendon Tourist Welcome Center, Ducks Unlimited, Cornell Lab of Ornithology and the Brinkley Chamber of Commerce.



Research and Inventory



As we learn more about our world, we also learn that maintaining an up-to-date list of state endemic species is not easy. But this is the very nature of nature. The labels we place on the world around us help us to better grasp its vast complexity.

Karen Smith, ANHC Director
Letter to the editor, in support of columnist
Tom Dillard's series on heritage month
Arkansas Democrat-Gazette

As our website explains, the Arkansas Natural Heritage Commission (ANHC) focuses on science-based conservation to protect our state's biodiversity. Our scientific research methods involve a wide variety of data collection methods beyond on-the-ground field inventories across the landscape of Arkansas. Sometimes the commission's biologists can learn by flying in a helicopter over the Ouachita National Forest in search of rare habitats such as glades and channel scar ponds. Our researchers also gather data on

special species and natural communities from colleagues, scientific literature, museums and herbaria.

An herbarium (plural: herbaria) is a collection of preserved plants that have been gathered and classified essentially as a "library" of plant specimens. The commission's herbarium includes more than 5,000 mounted and preserved plant specimens that were collected in the course of the staff's visits to natural areas and other field work throughout Arkansas. This collection represents most of the plants known to be found in the state and includes many of the rarest species of conservation concern.

Many of these specimens were mounted by volunteers in the Master Naturalist Program. Additions to our collection this year gave the commission staff an opportunity to share 600 duplicate plant specimens with several nationally recognized herbaria including the University of Arkansas Herbarium, the



Missouri Botanical Garden Herbarium, the New York Botanical Garden Herbarium and the Herbarium of the Botanical Research Institute of Texas.

Commission botanist Theo Witsell continues to discover elements of Arkansas's biodiversity across our state. This year, in Perry and Saline Counties, he found new populations of Ozark hedge-nettle, a recently discovered, globally rare species, that was newly described to science in 2008. Our herbarium collection now includes three specimens of this new species which is endemic to the Interior Highlands of Arkansas and Oklahoma.

Witsell also documented the first site in Arkansas for bashful bulrush, a rare sedge, from a hillside chert forest in Boone County. This species has long been known from dry acidic woods in the Missouri Ozarks but had not previously been found in Arkansas. This represents the first site

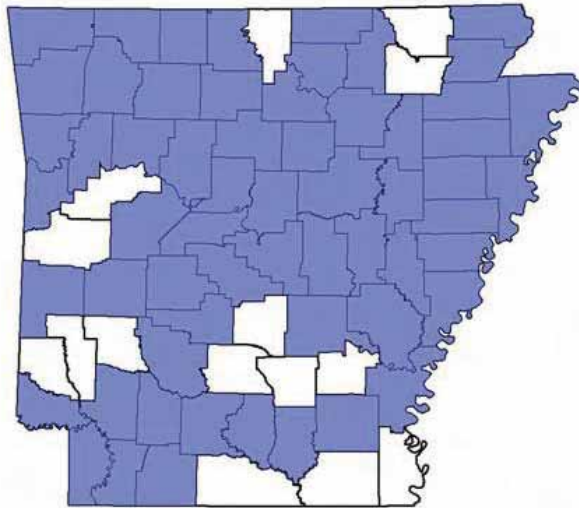
in the state, not only for the species, but for the genus as well. The commission will track this species as an element of special concern.

As these new discoveries occur in the natural world and as more in-depth studies take place, the resulting scientific data is collected, compiled and geo-referenced in the Arkansas Heritage Program biodiversity database. Using the Biotics System for customized data management, the Arkansas information becomes a component of an international network of such heritage programs which are managed through a non-profit conservation organization called NatureServe. These arrangements allow a standardized forum for sharing very technical information about the data collected in Arkansas. Working across state lines and spanning even greater political boundaries increases the objective evaluation of the status of rare, threatened and endangered species. These evaluations are ongoing, given that their focus is on living things. The dynamic process updates the "rarity" of elements of biodiversity as new data and technologies become available.

Significant projects that enhanced the Arkansas Heritage Program biodiversity database information in FY2009 include:

- Grand Prairie Field Survey - updated 16 existing records and added 13 new records.
- Rare orchid data - More than 100 new records of rare orchid species were added from information provided by Dr. George Johnson, an Associate Professor of Biology and Curator of Herbarium at Arkansas Tech University.
- Herbarium review - Research conducted at the state's leading herbaria resulted in the removal of 79 miss-identified records.
- Karst Data Update - Records from the cave region of northwest Arkansas were reviewed and updated with new information.
- Grassland bird surveys – Seven new records for wintering Henslow's Sparrows were added.

ANHC 2009 Inventory Work



Animal Inventory



Natural Community Inventory



Plant Inventory



The commission currently tracks 928 species of plants and animals and natural communities (collectively known as elements of concern) considered to be rare or uncommon in the state. ANHC staff entered 875 new locations for elements of concern in the database in FY2009. These records were derived from biological field inventory work conducted by commission staff and contract biologists, as well as reports and data files received from outside sources. As of June 30, 2009, the database contained 13,500 occurrence records.

Besides offering state, regional and global perspectives to the scientific data, the commission's participation in the NatureServe network opens a platform to showcase our triumphs and to learn how better to do our jobs here at home. ANHC deputy director Chris Colclasure and chief of research Bill Holimon attended the NatureServe Conservation Conference in Gettysburg, Pennsylvania. They gave a special presentation about Arkansas's Heritage Program and participated in a discussion group for states that are developing natural area programs. The discussions focused on using Heritage Program biodiversity data to prioritize sites.

Commission staff also attended a three day U.S. National Vegetation Classification Workshop hosted by NatureServe in Durham, North Carolina, where they assisted in the revision of the national/international classification system for the vegetation of eastern North America, which is a method of assessing the diversity of vegetation. This classification, and by extension our new state classification, has been adopted by the federal government and major scientific organizations.

Reports of our data, our research and our findings are based on sound science. The commission's staff shares the data as technical information and offers their analysis in the environmental review process and many other venues. Our participation combines NatureServe technology, the records compiled in the Heritage Program biodiversity database and staff expertise. Some examples of the commission staff's work include:

- previewing the on-line Fayetteville Shale Infrastructure Placement Analysis System developed under a grant to the University of Arkansas at Fayetteville Low Impact Natural Gas and Oil (LINGO) project. The agency provided a preliminary dataset to assist in the

development of the system and is in negotiations to include ANHC information in the finished product.

- reviewing and providing input to the Arkansas Department of Environmental Quality (ADEQ) on two GIS data layers under development for their “Regulation establishing water quality standards for surface waters of the state of Arkansas (Regulation No. 2)”. These layers included the “Natural and Scenic Waterways” layer and the “Ecologically Sensitive Waterbodies” layer.
- providing several reviews related to proposed “run of the river” power generation projects on the Mississippi River. Two projects are currently being evaluated along the Arkansas border as lead projects. A total of nine projects are proposed for the Mississippi River along the Arkansas border.
- participating in preliminary meetings to update the White River National Wildlife Refuge (WRNWR) Comprehensive Conservation Plan.
- providing information supporting the designation of the North Fork of the Illinois Bayou as a National Wild and Scenic River.
- attending a meeting of the Ozark Chinquapin Foundation, a group of state and federal agencies, academics, individuals, and conservation organizations dedicated to documenting potentially blight-resistant Ozark Chinquapin trees and breeding these to (hopefully) produce even more blight-resistant stock.

Commission staff often publish and present findings on the results of their research projects. Research efforts are sometimes completed by a single investigator and at other times are collaborative efforts among ANHC staff and partners such as federal, state, non-government and academic scientists. Presentations are given at a variety of state, regional and national forums. Specific staff presentations and publications for FY2009 were as follows (ANHC staff underlined).

Technical Presentations

Natural Areas Association Nashville, Tennessee

Akin, J. Innovations in Arkansas.

Holimon, W.C., C.T. Witsell, C.W. Rideout, W.H. Baltosser, and J.A. Akin. Smith’s Longspur winter landing at Arkansas airports.

Smith, K. (Host). State Natural Areas Workshop.

Witsell, C.T. Floristic Inventory in the Grand Prairie of Eastern Arkansas.

Warriner, M.D. Selling and building a natural area program.

Warriner, M.D., C.T. Witsell, and D. Emerson. Red-imported fire ants (*Solenopsis invicta*) as an agent of pedoturbation in saline barrens of southern Arkansas.

Arkansas Chapter of the Wildlife Society

Holimon, W.C. Saline soil barrens of south Arkansas support rare grassland bird.

Arkansas Wildlife Action Plan Conference Mount Magazine State Park, Arkansas

Holimon, W.C. Status surveys for grassland birds in Arkansas.

Association of Southeastern Biologists Birmingham, Alabama

Witsell, C.T. Floristic Inventory and Classification of Isolated Upland Depression Wetlands in the Interior Highlands of Arkansas.

Publications

Holimon, W.C., C.T. Witsell, W.H. Baltosser, and C.W. Rideout. 2008. Density and habitat associations of Henslow’s Sparrows wintering in saline soil barrens in southern Arkansas. *Journal of Field Ornithology* 79:364–370.

Warriner, M.D. 2008. Distribution and taxonomic status of tarantulas in Arkansas (Theraphosidae: *Aphonopelma*). *Journal of the Arkansas Academy of Science* 62:107-114.

Registry of Natural Areas

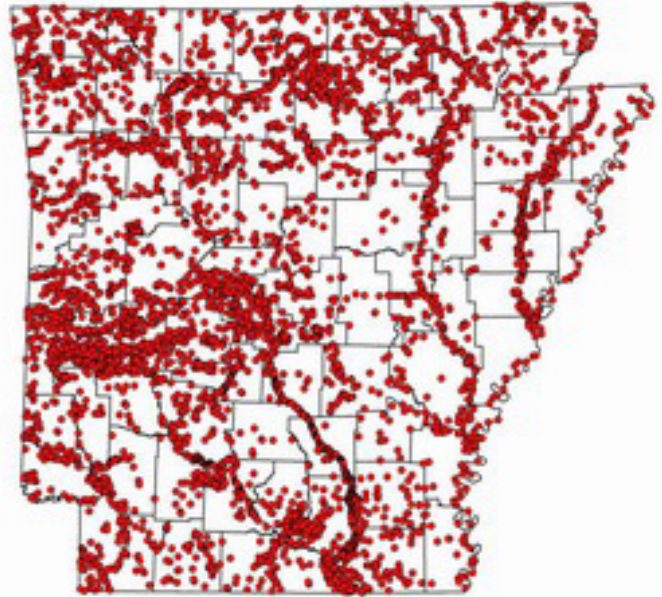
Arkansas Code Annotated §15-20-308 directs the commission to maintain a registry or inventory of lands and waters in the state that are of significant scientific, educational, and/or recreational interest.

Comprehensive information about Arkansas's natural environment is the foundation for all of the Arkansas Natural Heritage Commission's decisions. The commission's research and inventory efforts maintain information about Arkansas's rare plant and animal species and remaining high-quality natural communities. This information is housed and managed in the "Arkansas Heritage Program" biodiversity database. A recognized source of comprehensive information regarding Arkansas's rare plant and animal species and remaining high-quality natural communities, the database is a component of an international network called NatureServe

Standardized methods utilized by the network provide a consistent process for evaluating the relative imperilment of native species and ecological communities. The evaluations are ongoing given that their focus is on living things. This dynamic process updates the "rarity" of elements of biodiversity as new data and technologies become available. The Arkansas Heritage Program biodiversity database is continuously changing as biologists throughout the state conduct research, make new discoveries, and learn more about the state's natural heritage.

Each year, the Registry of Natural Areas reports the county-level distribution and status of rare species in Arkansas. The information for each county is compiled and reported annually and is available on-line through the "Publications" section of our website at: <http://naturalheritage.com/publications/report.aspx>

Element Occurrence Records (EORs)



Each of the red dots on the map represents an Element Occurrence Record (EOR) that is a site-specific record of a rare plant, animal or high quality natural community. Additional information on the EORS currently tracked for each county is available as an active, searchable database on our website at: <http://naturalheritage.com/rare-species/rarespecies-search.aspx>

Requests for county lists contained in the Registry of Natural Areas and other information can be made by contacting the ANHC using the contact information provided below.

Arkansas Natural Heritage Commission
1500 Tower Building
323 Center Street
Little Rock, AR 72201
Phone: 501-324-9619 Fax: 501-324-9618
Email: arkansas@naturalheritage.org

Status of the Registry of Natural Areas

The Registry of Natural Areas began as a way for Arkansans to nominate sites to a list of special places. Over time, commission staff investigated these nominations and the Registry evolved to county lists of rare, threatened and endangered species in Arkansas. As of June 30, 2009, we have over 13,500 records for Arkansas. The Registry is the basis for all of our conservation work.

Today, the Arkansas Heritage Program data guides protection efforts of Arkansas's rare plants, animals and natural communities. Data analysis steers the location of field inventory work to help fill the gaps of knowledge. Maps are generated to depict ecologically important areas. Further analysis contributes to setting the acquisition priorities of the commission as well as protection efforts of our conservation partners. The data is vital in compiling our Natural Area Management Plans.

Cooperative agreements at the federal level with the U.S. Fish and Wildlife Service (USFWS) and at the state level with the Arkansas Game and Fish Commission (AGFC) address the agency's authority relative to plant protection. The federal agreement is a limited authority agreement for the conservation of threatened and endangered plant species, and is renewed each year. Since 2001, a Memorandum of Agreement with the AGFC maintains "...to recognize the ANHC as the agency primarily responsible for monitoring the status of rare, threatened and endangered plant species ...".

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. A legend explains

federal and state status codes and global and state ranks. Federal status codes represent designations by the USFWS under the Endangered Species Act. Global ranks address the rarity of a species throughout its entire range of habitat. State status and ranks for species and natural communities are not static and require regular evaluation by ANHC staff and other natural resource professionals.

The Registry of Natural Areas incorporates results of the commission's research and efforts of a variety of conservation partners to collect information and data from existing research resources and to conduct new biological field investigations. The following examples occurred over the past year:

- 29 new species were added to the list of species of "special concern." This included 17 plants, and 12 animals.
- 41 species were delisted based on field survey, taxonomic changes, or other research (39 Plants, and 2 animals).
- State ranks were revised or assigned for 22 species.
- 875 new locations were recorded in the database.
- Database work was done towards meeting the rigorous quality standards set by NatureServe. Part of this process involves converting the agency's data from a "point" representation to a "polygon" representation in its Geographic Information System (GIS). Efforts towards polygon conversion this year focused on federally endangered and threatened plants. Once converted, these records can be represented on a map showing the actual known boundaries of the occurrence instead of as a point in the center of the occurrence.

Acquisitions



Arkansas has been abundantly blessed with vast natural resources and innate beauty; therefore, our charge as Arkansans is not only to recognize and enjoy these natural gifts, but to preserve them for future generations.

Governor Mike Beebe
weekly radio address and column
April 24, 2009

The commission's staff conducts biological field inventories throughout Arkansas to search for and record the locations of rare plants, animals and high-quality natural communities. As these scientists continue to discover new aspects of Arkansas's biodiversity, their findings form the origin of all of the commission's conservation actions.

Locations of exceptional importance to preserving Arkansas's natural diversity are considered for additions to the System of Natural Areas. Sound scientific site conservation methodologies serve to prioritize areas of primary concern and identify those that can be successfully managed.

Act 112 of 1973 (Arkansas Code Annotated § 15-20-303) established the state's System of Natural Areas. The commission acquires lands for the System representing some of the best, and last, remaining features of the mosaic of Arkansas's natural landscape. Most additions secure habitat for rare species or offer a chance for restoration measures. Some tracts may buffer and protect natural areas from surrounding land use practices that could ultimately impact the survival and/or quality of protected ecosystems. Working with conservation partners broadens the scope of conservation and maximizes land acquisition dollars.

The commission must hold a perpetual interest in the property to become part of the System of Natural Areas. The interest varies by site and might range from a donated conservation easement to fee-title ownership. The recorded document (easement, deed, etc) specifies the terms of the agreement. Depending on the terms of the agreement and on the logistics for public access or rare species conservation



efforts, almost all natural areas are open to the public and many are open to hunters. Restrictions, such as bow hunting for deer or prohibiting cave access, are in place to protect the resource.

For FY2009, the commission added almost 14,300 acres to the System of Natural Areas in 18 transactions at 13 locations across the state. The most notable funding came from the 2009 Arkansas Natural and Cultural Resources Council (ANCRC) grant in the amount of \$4 million targeted to conservation and the System of Natural Areas. The commission used \$3.9 million of the grant to meet immediate needs and provide habitat for Arkansas's rare species and outdoor recreation opportunities for Arkansans, which exhausted 97 percent of the grant funds in the first year of the grant.

Federal grant dollars during FY2009 were strategically spent to protect rare species and habitats. A Recovery Land

Acquisition (RLA) grant was fulfilled that added lands to Garrett Hollow Natural Area in Washington County for the protection of the Ozark big-eared bat. In addition, a three party agreement between the commission, The Nature Conservancy (TNC) and the Arkansas Game and Fish Commission (AGFC) was executed that protects additional crucial habitat for the Ozark big-eared bat near Slippery Hollow Natural Area in Marion County. Under the agreement, federal grant dollars were transferred to TNC to purchase the Blue Heaven Cave property because the landowner was insistent on retaining lifetime hunting rights. In the event that TNC obtains the hunting rights, the property will be transferred to the commission.

The following list summarizes land acquisition transactions for the System of Natural Areas that were completed during FY2009:

Benson Creek Natural Area (437 acres)

The natural area protects a high quality swamp and bottomland hardwood forest in the Big Woods of eastern Arkansas's delta region. Acquired in two transactions, this property will be restored to bottomland hardwood forest benefiting wildlife and improving the natural integrity of the area. A combination of federal grants and state funds were used to acquire this property.

Nacatoch Ravines Natural Area (380 acres)

This transaction completes the acquisition initiated last year that was postponed because of limited funding. A combination of fee-title ownership and easements establishes a conservation focus for management of one of the largest and most intact examples of dry and mesic forests remaining in the northern part of the West Gulf Coastal Plain in Arkansas. TNC holds fee-title interest on 1,018 acres, with the commission holding a conservation easement, and the site is managed cooperatively.

**Palmetto Flats Natural Area
(1,698 acres)**

This natural area was once owned by International Paper (IP) and was a part of the Unique Areas Program, a cooperative established by TNC, ANHC and IP to identify IP lands of ecological importance. The opportunity to acquire the property came to fruition in 2008 and was the 64th natural area added to the System. Palmetto Flats supports a large wetland ecosystem situated on the upper terraces of the Red River.

**Pine City Natural Area
(167 acres)**

Pine City is recognized as the best surviving remnant of pine/mixed oak woodland/savanna ecosystems in the Mississippi Alluvial Plain and supports a genetically distinct population of loblolly pine referred to as the “Lost Pines of Arkansas.” In addition, it also supports the only population of the federally endangered Red Cockaded Woodpecker (RCW) known to occur in the Mississippi Alluvial Plain. Acquired in three transactions and utilizing various federal

and state fund sources, these additions will increase protection to more of this unique ecosystem.

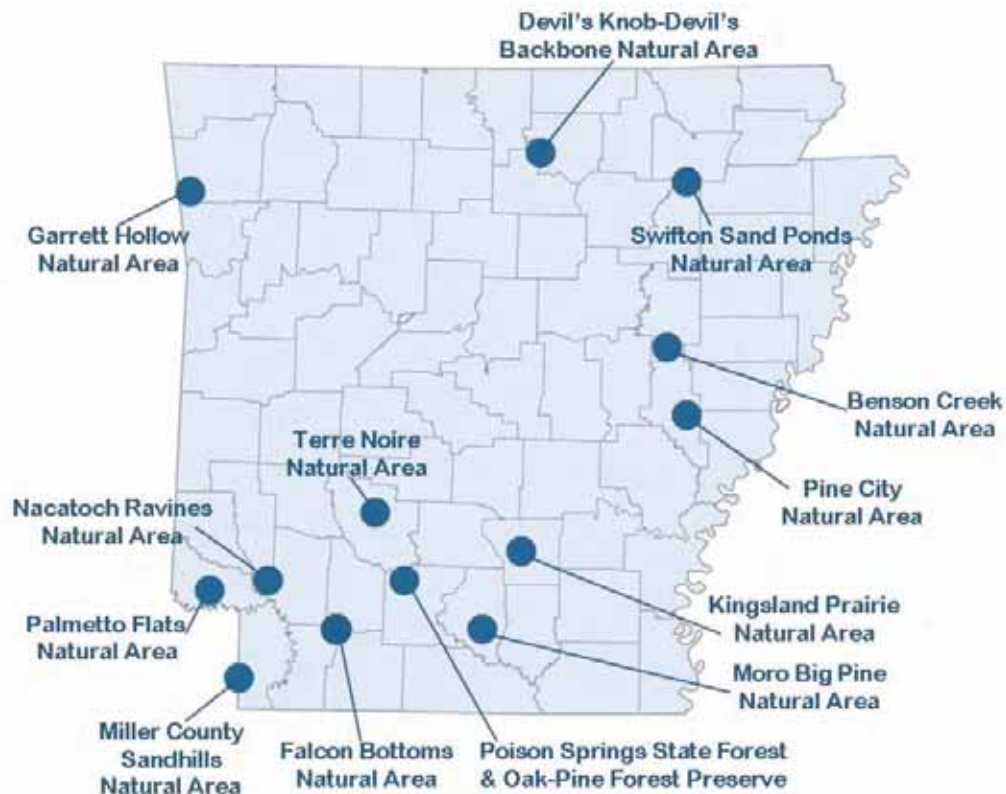
**Swifton Sand Ponds Natural Area
(60 acres)**

This new natural area, acquired through a conservation easement, protects a significant population of the federally endangered shrub pondberry and contains natural sand ponds, a unique natural feature of the Mississippi Alluvial Plain. Federal funding provided the means to acquire the easement and the natural area will be managed in cooperation with a private landowner.

**Terre Noire Natural Area
(78 acres)**

Southwest Arkansas contains some of the largest and most important portions of the blackland prairie ecosystem in the United States. Terre Noire Natural Area anchors the eastern range of this ecosystem in Arkansas and supports eleven rare plants and animals. This recent acquisition adds a significant inholding that will consolidate current holdings and protect additional blackland prairie.

Land Acquisitions for FY2009





**Garrett Hollow Natural Area
(82 acres)**

This natural area contains small caves and quality foraging areas that support the federally endangered Ozark big-eared bat. This addition, purchased with federal funds, is an integral component of an ecosystem approach to better protecting habitat in the Ozark Mountains to aid recovery efforts of this bat species. The Ozark big-eared bat is known only to occur in the Ozarks of Arkansas and Oklahoma.

**Miller County Sandhills Natural Area
(79 acres)**

This natural area is considered the best Arkansas example of the sandhill ecosystem. Globally rare natural communities such as sandhill woodlands, barrens and seeps can be found here as well as 29 rare plant species, four of which are found nowhere else in Arkansas. This recent acquisition adds land that can be properly managed to encourage the rich diversity of this area.

**Moro Big Pine Natural Area WMA
(9,879 acres)**

This acquisition completes the cooperative conservation easement purchase with AGFC. Federal funding was used to acquire the remaining easement acres from TNC. Potlatch Forest Holdings, Inc. will continue to hold fee title. This unique conservation initiative protects high quality loblolly pine flatwoods that harbor eleven rare plants and two rare animals including the federally endangered Red Cockaded Woodpecker (RCW).

**Devil's Knob-Devil's Backbone Natural Area
(254 acres)**

Located in the Ozark Mountains, this natural area protects a limestone-dolomite-sandstone glade complex. Two uncommon plant species occur here: Ashe's Juniper and silky aster. This newest addition protects glades that, through restoration, will serve as high quality examples of this Ozark ecosystem.

**Kingsland Prairie Natural Area
(200 acres)**

At number 66, Kingsland Prairie is the most recent addition to the System of Natural Areas. It contains a mosaic of natural communities, including saline soil barrens, post oak savannas and pine-oak woodlands. The saline soil barrens support the federally endangered plant geocarpon as well as a small population of wintering Henslow's Sparrows, one of the fastest declining songbirds in eastern North America.

**Poison Springs State Forest Sand Barren and Oak-Pine Preserve
(647 acres)**

This natural area, first established through conservation easements on Arkansas Forestry Commission (AFC) property, protects high quality sandhill woodlands containing 18 rare plants. As a result of this most recent easement acquisition, the natural area has grown by more than ten times its original size and added TNC as a partner. TNC holds fee title to the 647 acres and will cooperatively manage the land.

**Falcon Bottoms Natural Area
(263 acres)**

During a systematic inventory of the Arkansas Coastal Plain, Bayou Dorcheat bottomlands (Falcon Bottoms) emerged as one of the most intact and, therefore, most important, small to medium sized streams west of the Ouachita River. The relatively unaltered landscape of the bottomlands and the associated rare species and plant communities found along Bayou Dorcheat made it a high protection priority. Acquired in three transactions, these new lands will be protected and managed to be enjoyed by this and succeeding generations.



Other Land Protection Efforts

Aside from the System of Natural Areas, the commission holds an interest in other lands of ecological importance. 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 (COE). 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. The goals of such easements are to reduce erosion and maintain these lands in a natural condition.

As successor to the Arkansas Natural and Scenic Rivers Commission, the agency has oversight responsibility 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 (29 miles)
- Lower Saline River (157 miles)

The commission's staff seeks opportunities to extend conservation of Arkansas's natural landscape to reach beyond its own land holdings by working with conservation partners. Recognized for the collective technical expertise of its staff, the commission is invited to contribute to the development of new and innovative conservation programs, often on private lands.

Commission staff participated in an August 2008 forum on conservation easements as a watershed management tool sponsored by the Arkansas Farm Bureau, UA Cooperative Extension Service and others. In March 2009, we were invited to attend the ceremony at the state capitol when Governor Mike Beebe

signed the Arkansas Wetland and Riparian Conservation Easement Tax Credit bill. Act 351 of 2009 was developed with the help of the League of Women Voters, sponsored by Representative Uvalde Lindsey and supported by the conservation community. The act establishes a new state income tax credit which can be granted under certain conditions to Arkansas landowners who voluntarily set aside land for the protection and enhancement of the water quality of our streams, rivers and lakes.

The commission provides essential input to the Bayou Meto Basin Environmental Review Team, which is a broad group of stakeholders that includes the U.S. Army COE and local sponsors. The COE is required to identify over 4,000 acres for acquisition and restoration to mitigate environmental impacts associated with the Bayou Meto Project. Finding acceptable tracts has proven difficult and, as a result, the COE turned to the Bayou Meto Basin Environmental Review Team for guidance. The team identified potential alternative tracts that would likely meet mitigation criteria for this project. The COE is in the process of evaluating these new tracts to ensure they meet mitigation criteria and are contacting landowners of qualifying tracts to assess their interest in participating in the project.

Sometimes our on-the-ground work to conserve rare species spans even further, reaching beyond Arkansas's borders. Over the past year, the commission worked with representatives from Louisiana, Oklahoma and Texas to form a non-federal lands RCW cooperative. This cooperative will identify and work with owners of non-federal lands (private, state, other) for translocation, on a volunteer basis, of "excess" juvenile RCWs to other non-federal lands to increase population numbers at those locations. This planning effort is the first step toward identifying a system of habitats that will support the transfer of juvenile birds needed to stabilize and grow RCW populations at

suitable locations within the four-state area. For example, this cooperative will work in coordination with the Arkansas-Louisiana RCW Stakeholder group, which the commission also works with, to identify the most strategic locations to move birds. Collectively, their objectives are to stabilize and grow key RCW populations and to create connective corridors to facilitate the growth and persistence of the southern Arkansas-northern Louisiana population of the endangered woodpecker.



Stewardship



*"... it is nice to see more sand ponds/
pondberry habitat being conserved...Great
choice for a conservation effort."*

George Johnson, Arkansas State University,
on reviewing the management plan for
Swifton Sand Ponds Natural Area

Acquiring land for the System of Natural Areas is one step toward conservation of the biodiversity of Arkansas. Given that natural areas encompass living species and natural communities, the stewardship staff works to maintain functioning ecosystems and enhance the natural values of each site. Natural areas encompass a wide range of environments and a rich diversity of plant and animal species. These scattered remnants of Arkansas's original landscape generally exist as islands within otherwise altered settings.

As required by our Rules and Regulations, stewardship actions are guided by the conservation vision stipulated in a management plan for each natural area. Management plans follow a uniform format.

They are updated at least every three years to incorporate the insight of research findings with the results of pro-active land management techniques and to set the framework of future activities. Working with colleagues in the conservation community and based on input from our commissioners, natural area management plans were updated to check our progress and set the next three-year stewardship goals for 21 locations in the System of Natural Areas this year. Proactive land management techniques involve prescribed burning, invasive species removal, ecological restoration and plant community monitoring to mark our progress toward the conservation vision of each natural area.

Stewardship work begins with the proper delineation of our boundaries and routine grounds maintenance activities. With adequate signage, regular trash removal, fences and gates to control access, regular trail maintenance and parking installations, the commission enhances the protection of natural



areas and promotes better visitor understanding of our conservation efforts. Some examples of this work include:

- Several members of the commission staff and one volunteer removed over one ton of trash and debris from Downs Prairie Natural Area as part of the restoration effort there.
- Sara Johnson, a contract land steward, reported removing 150 feral hogs from Falcon Bottoms Natural Area within the last 18 months.
- Commission staffers cut, piled and burned invasive eastern red cedars at Middlefork Barrens Natural Area as part of a State Wildlife Grant.

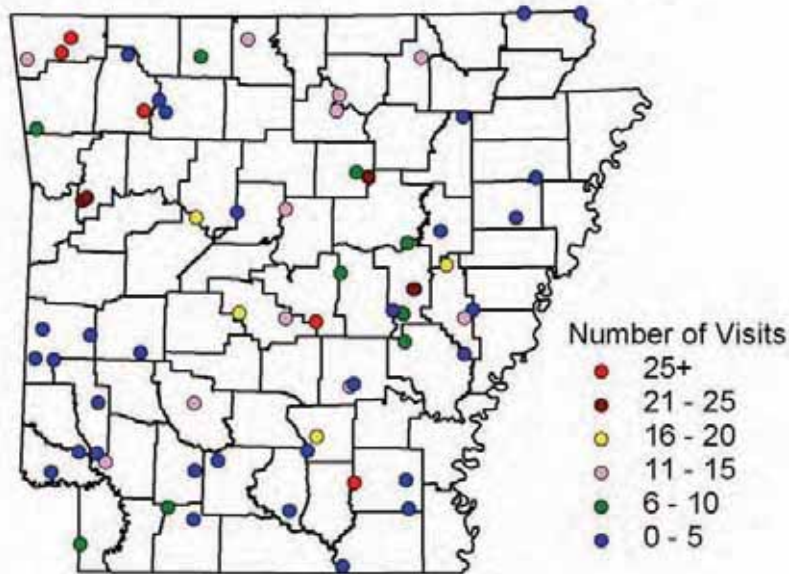
In FY2009, each natural area was visited at least twice. All site work and inspections are documented in site assessments and trip reports. Commission staff, our contractors and conservation partners averaged visiting 29 (44 percent) natural areas each month.

Sometimes the best protection comes from maintaining a regular on-site presence. Chief of stewardship Doug Fletcher worked with the Department of Arkansas Heritage (DAH) procurement staff and the Department of Finance and Administration Office of State Purchasing to issue a Request for Qualifications for ecological management and stewardship services for the System of Natural Areas. As a result, agreements with Audubon Arkansas and The Environmental Conservation Organization brought contracted staff and volunteers to install and mend fences, clear underbrush and invasive species, and perform other basic grounds maintenance tasks at eleven natural areas in only three months.

Of 66 natural areas in the System, nine percent were visited six times or more. Some sites require extra attention, such as Lorange Creek Natural Area, because of enhanced public use of the trail and boardwalk. Rare species monitoring protocols at sites such as Pine City Natural Area also involve more frequent visits.

- Chief of Stewardship Doug Fletcher and staff members from The Nature Conservancy (TNC) and the Arkansas Game and Fish Commission (AGFC) conducted a cave species inventory of Hell Creek Cave and noted the continued presence of endangered Hell Creek crayfish and gray bats.
- Over the spring and summer, Chief of Research Bill Holimon conducted weekly site visits to Pine City Natural Area to monitor the breeding activities of the two groups of RCWs. He banded three nestlings (two males and one female) in the west group and two nestlings (both female) in the east group. Last year, he banded three juvenile females (total). Bill continues to monitor the RCWs at Pine City and reported that both groups were incubating eggs as of the end of April. He also cleaned eight RCW cavities, relocated 13 flying squirrels, and removed about 100 red wasps from a cavity.

Frequency of Natural Area Visitation FY2009



Ecological restoration work by outside contractors compels the commission's staff to check progress of the work and ensure compliance with the parameters of working in ecologically sensitive areas.

- Stewardship staff worked with a contractor who successfully conducted an aerial application of a specific-use herbicide to combat the invasive plant kudzu at Nacatoch Ravines Natural Area.
- Research staff met with two "grinder" contractors to coordinate restoration work at Pine City and Warren Prairie Natural Areas.

Often natural areas and the Arkansans who love them are impacted by activities outside our boundaries. This year, as ownership of property near Kings River Natural Area changed, work on adjacent land disrupted parking and eliminated the old trail head and parking area.

Stewardship staff completed a new stretch of trail starting at the county road on recently purchased commission property. Our November e-newsletter informed readers of the new driving directions to an interim parking area until permanent parking, appropriate trail signage and a new footbridge could be installed in May.



Detailed reports of stewardship activities can be obtained for each site in the System of Natural Areas by visiting our website at: <http://naturalheritage.com/publications/report.aspx>

Highlights include:

- Bryan Rupar marked approximately 25 miles of boundary at the recent acquisitions at **Nacatoch Ravines, Benson Creek, Pine City, Palmetto Flats, Swifton Sand Ponds and Miller County Sandhill Natural Areas.**
- Theo Witsell conducted inventory work at eleven Natural Areas: **Cherokee Prairie, Flanagan Prairie, Dardanelle Rock, Rock Creek, Middle Fork Barrens, Railroad Prairie, Downs Prairie, Terre Noire, Holland Bottoms, Miller County Sandhills and Mills Park Natural Areas.**
- Chris Colclasure and Doug Fletcher inspected seismic research being conducted at **Cove Creek and Big Creek Natural Areas.**
- Bryan Rupar, Jennifer Akin and Scotty Winningham cut, piled and burned invasive eastern red cedars at **Middlefork Barrens Natural Area** as part of a State Wildlife Grant
- Jennifer Akin and Bryan Rupar completed a pine seedling planting inspection of the Files tract at **Pine City Natural Area.**
- John O'Dell installed an informal running path at **Cave Springs Cave Natural Area** and enlarged the parking area at **Pine City Natural Area.**
- Commission staff conducted prescribed burns at **Downs Prairie, Lorance Creek, Railroad Prairie and Searles Prairie Natural Areas** covering over 68 acres.



Arkansas Natural Heritage Commission

System of Natural Areas

Map Location Listing

Map
Location #

- 1 Garrett Hollow Natural Area
- 2 Chesney Prairie Natural Area
- 3 Cave Springs Cave Natural Area
- 4 Searles Prairie Natural Area
- 5 Bear Hollow Natural Area
- 6 Kings River Falls Natural Area
- 7 Sweden Creek Falls Natural Area
- 8 Pine Hollow Natural Area
- 9 Baker Prairie Natural Area
- 10 Slippery Hollow Natural Area
- 11 Devil's Knob-Devil's Backbone Natural Area
- 12 Hell Creek Natural Area
- 13 Big Creek Natural Area
- 14 Rock Creek Natural Area
- 15 Cherokee Prairie Natural Area
- 16 H. E. Flanagan Prairie Natural Area
- 17 Dardanelle Rock Natural Area
- 18 Goose Pond Natural Area
- 19 Cove Creek Natural Area
- 20 Cow Shoals Riverfront Forest Natural Area
- 21 Iron Mountain Natural Area
- 22 Fernwood Seep Natural Area
- 23 Cossatot River State Park-Natural Area
- 24 Big Fork Creek Natural Area
- 25 Gap Creek Natural Area
- 26 Middle Fork Barrens Natural Area
- 27 Stone Road Glade Natural Area
- 28 White Cliffs Natural Area
- 29 Palmetto Flats Natural Area
- 30 Saratoga Blackland Prairie Natural Area
- 31 Nacatoch Ravines Natural Area
- 32 Miller County Sandhills Natural Area
- 33 Logoly Natural Area

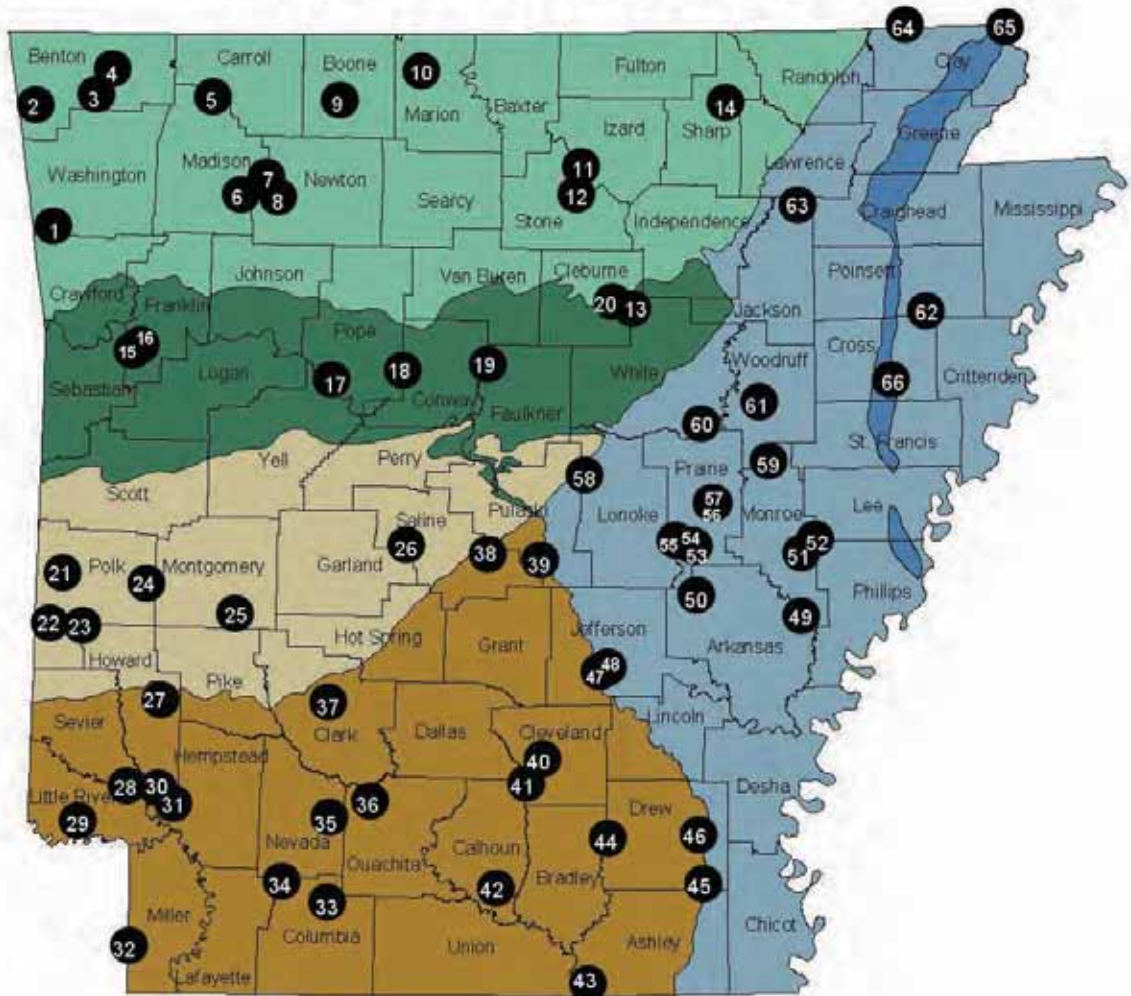
Map
Location #

- 34 Falcon Bottoms Natural Area
- 35 Arkansas Oak Natural Area
- 36 Poison Springs State Forest Sand Barren & Oak-Pine Forest Preserve
- 37 Terre Noire Natural Area
- 38 Mills Park Natural Area
- 39 Lorange Creek Natural Area
- 40 Kingsland Prairie Natural Area
- 41 Moro Creek Bottoms Natural Area
- 42 Moro Big Pine Natural Area-Wildlife Management Area
- 43 Coffee Prairie Natural Area
- 44 Warren Prairie Natural Area
- 45 Cut-off Creek Ravines Natural Area
- 46 Seven Devils Swamp Natural Area
- 47 Byrd Lake Natural Area
- 48 Taylor Woodlands Natural Area
- 49 Striplin Woods Natural Area
- 50 Roth Prairie Natural Area
- 51 Pine City Natural Area
- 52 Louisiana Purchase Natural Area
- 53 Konecny Prairie Natural Area
- 54 Konecny Grove Natural Area
- 55 Smoke Hole Natural Area
- 56 Railroad Prairie Natural Area
- 57 Downs Prairie Natural Area
- 58 Holland Bottoms Willow Oak Forest Preserve
- 59 Benson Creek Natural Area
- 60 Holloway Memorial Natural Area
- 61 Cache River Natural Area
- 62 Singer Forest Natural Area
- 63 Swifton Sand Ponds Natural Area
- 64 Stateline Sand Ponds Natural Area
- 65 Chalk Bluff Natural Area
- 66 Wittsburg Natural Area

Additional information about each of these natural areas, including virtual tours, downloadable brochures and maps, is available on the "Natural Areas" section of our website at:

www.naturalheritage.com/areas/

Arkansas Natural Heritage Commission System of Natural Areas



Arkansas has six (6) major natural divisions. Each division has its own distinctive components related to geology, climate, plants, animals, soils and people.

The six major natural divisions of Arkansas are:

- Ozark Mountains
- Arkansas Valley
- Ouachita Mountains
- Coastal Plain
- Mississippi Alluvial Plain
- Crowley's Ridge

Note: natural area dots are arranged and numbered by natural division



Status of the System of Natural Areas

Arkansas Code Annotated § 15-20-303 establishes a state System of Natural Areas. The commission is required each year to describe and account for the status and condition of each portion of the system by A.C.A. § 15-20-308 (11). As of June 30, 2009, the System of Natural Areas consists of 66 sites, totaling approximately 48,000 acres which is spread across 43 counties in Arkansas.

The Arkansas Heritage Program data guides protection efforts of Arkansas's rare plants, animals and natural communities. Data analysis steers the location of field inventory work to help fill the gaps of knowledge, identify ecologically important areas and ultimately prioritize the commission's protection efforts. The data also serves as the vital component in compiling our natural area management plans.

The commission must hold a perpetual interest in the property to become part of the System of Natural Areas. The interest varies by site, and might range from a donated conservation easement to fee-title ownership. The recorded document (easement, deed, etc) specifies the terms of the agreement. Depending on the terms of the agreement and on the logistics for public access, or rare species conservation efforts, many natural areas are open to hunting. Restrictions, such as bow hunting for deer, are in place to protect the resource.

In 18 transactions at 13 locations across the state, the commission added almost 14,300 acres to the System of Natural Areas. The most notable funding came from the 2009 Arkansas Natural and Cultural Resources Council (ANCRC) grant in the amount of \$4 million targeted to conservation and the

System of Natural Areas. The commission spent \$3.9 million to provide habitat for Arkansas's rare species and outdoor recreation opportunities for Arkansans, exhausting 97 percent of the grant funds in the first year. Each natural area represents a significant achievement resulting from the commission's efforts to search out, plan, prioritize and partner to protect and conserve Arkansas's native biodiversity.

Routine stewardship of the System of Natural Areas includes grounds maintenance such as marking boundaries, clearing parking areas, erecting fences and gates to control access, removing trash, etc. Proactive land management techniques involve prescribed burning, invasive species removal, ecological restoration and plant community monitoring to mark our progress toward the conservation vision of each natural area.

Working with colleagues in the conservation community and based on input from our commissioners, natural area management plans were updated to check our progress and set the next three-year stewardship goals for 21 locations in the System of Natural Areas.

- We began a new relationship with Audubon Arkansas. A new cooperative volunteer program expands our stewardship capacity on the ground, and we have observed a heightened appreciation of Arkansas's outdoors and the System of Natural Areas in those who participated.
- ANHC staff participated in a public meeting to discuss the new Palmetto Flats Natural Area. The meeting took place near Ashdown, serving as an opportunity to meet the adjacent landowners and local officials, to discuss the proposed access and hunting

regulations for the natural area with representatives of the Arkansas Game and Fish Commission (AGFC).

- We evaluated the results of thinning at Mills Park Natural Area and found that seep vegetation has dramatically increased in the area in the last three years. This is likely the result of a prescribed burn conducted by The Nature Conservancy (TNC) and the thinning of shrubs and small diameter trees (which would have sucked a lot of the water from the seep). Theo also located a small population of Devil's bit which was tracked by ANHC until recently and was known from the natural area historically but not seen there since the 1980s.
- Stewardship staff worked with a neighboring landowner and contractors to improve the Kings River trail. This involved creating a new parking area and trail head. Part of the trail was rerouted which required the installation of a foot bridge and the placement of large native rock at select locations along the trail.
- We learned that our Section 6 grant with AGFC to delineate the recharge area for Hell Creek Cave and identify potential threats to the endangered cave crayfish population was approved. The effective award dates are August 13, 2008 – September 30, 2010.
- Commission staff worked with Conway County to improve the access at Cove Creek Natural Area. Access improvements at the natural area included the construction of a new access road along a recently acquired access easement and the installation of a new parking area.
- Commission staff identified a specimen collected by TNC staff during the plant community monitoring at Miller County Sandhills Natural Area as a rare species of greenthread. This species was previously considered to be restricted to Texas and was only recently discovered to also occur in northwest Louisiana and southwest Arkansas. This is the first and only protected site known from Arkansas.

- The commission and TNC partnered through a conservation easement to cooperatively manage approximately 1,118 acres at Nacatoch Ravines Natural Area. Under the easement, the hardwood acres will be managed for natural area preservation. TNC will demonstrate conservation forestry over those portions of the natural area that are pine dominated. Conservation forestry involves the merging of good economic returns and a healthy ecosystem that provides habitat for native plants and animals. The entire area will also provide public recreation opportunities such as regulated public hunting and hiking.
- Stewardship staff observed the spread of White-nosed syndrome in bats, and examined options for Cave Springs, Slippery Hollow, etc.

The System belongs to all Arkansans; however, when visiting a natural area please remember to leave nothing but footprints and take nothing but photographs. Depending on the terms of our ownership and partnership agreements, the commission determines the logistics for public access and rare species conservation efforts. Many natural areas are open to hunting, with restrictions, such as bow hunting for deer, to protect the resource.

Scientific research is often a useful and acceptable activity on natural areas. Researchers are required to have a scientific research permit issued by the commission.

Requests for maps, scientific permits and other information can be made by contacting the commission using the contact information below. Maps are also available for download from our website at:

<http://www.naturalheritage.com/natural-area/map.aspx>

or by contacting :

Arkansas Natural Heritage Commission
1500 Tower Building
323 Center Street
Little Rock, AR 72201
Phone: 501-324-9619 Fax: 501-324-9618
Email: arkansas@naturalheritage.org

Education and Information



Thank you for having great teachers and scientists that are available to teach volunteer organizations like Arkansas Master Naturalists.

Ann Goodman Massey, President
Central Arkansas Master Naturalists
April 21, 2009

The commission's outreach activities have considerable potential to generate support for conservation and shape attitudes toward the environment. Our programs, exhibits and informational materials work to enlighten, engage and enrich people of all ages, abilities and backgrounds. We take strategic steps to make scientific information interesting, easy to find and easy to understand. Our work with partners broadens our message in unique venues and ultimately brings in new constituencies as supporters of the commission's endeavors and conservation in general.

Each May, our staff participates with all the agencies in the Department of Arkansas Heritage (DAH) to celebrate Arkansas

Heritage Month. The theme for 2009 was "Only in Arkansas: Exploring Our Natural Heritage." For the commission, "only in Arkansas" means "endemic" (species of plants and animals found only in Arkansas and nowhere else in the world). This year's theme gave us a chance to introduce Arkansans to some unique species. We assisted in the development of the Heritage Month poster by providing images and scientific expertise on four endemic plants and four endemic animals.

DAH director Cathie Matthews and Governor Mike Beebe unveiled the poster at a special kick-off event in April that also launched the KATV Channel 7 Heritage Road Trip, visiting natural and cultural heritage sites in communities around the state. The commission's scientists became on-air talent for television ads promoting the department and the commission. They also appeared on the local television programs in Jonesboro and Fort Smith as well as the on KATV "Good Morning Arkansas" program.



We carried the Heritage Month theme to our e-newsletter, "Natural News," featuring a different endemic species each month. Our February article on the Mean's giant earthworm was forwarded to the discoverer, Dr. Bruce Means in Florida by one of our subscribers. Dr. Means and Education and Information Coordinator Jane Jones-Schulz exchanged several emails, which included his permission to quote him in an article about the worm's discovery. Reported to be the second largest earthworm in the eastern United States, at nearly two feet in length, this "super-worm" was first discovered by Dr. Means on Rich Mountain (Polk County) in 1973 as he searched for salamanders. Along with its exceptionally large size, this earthworm, when disturbed in the wild, is said to secrete a distasteful fluid that glows brightly in the dark.

A large, glow-in-the-dark earthworm and the other endemic species excited young people and adult audiences alike in the

special programming we developed to detail facts about the illustrations on the Heritage Month poster. Endemic information was presented in teacher workshops, library summer reading programs and library family night programs, and was the focus of nine special programs given to the 600 students in the Little Rock School District's Summer Reading Initiative Program.

With our rising visibility through Heritage Month activities, the staff connected Arkansans with the commission through activities related to Earth Day and the environmental movement. ANHC staff set up displays and greeted visitors at the First Annual Market Place Green to Go Festival (attendance- 200, the Little Rock Zoo's Earth Day event (attendance – 600), and the Cossatot River State Park-Natural Area's Conservation Day (attendance 100).

Special events and resource fairs give us a chance to present our conservation message to a large audience in a concentrated setting. We also designed displays and materials for the following events:

- DAH Heritage Month Kick-off – Little Rock – attendance – 75
- Historic Arkansas Museum Territorial Fair – Little Rock – attendance - 653
- University of Arkansas Insect Festival – Fayetteville – attendance – 2,000
- National Trails Symposium – Little Rock – attendance – 500
- Grand Opening of Mosaic Templars Cultural Center – attendance – 3,068
- Arkansas Curriculum Conference – Little Rock – attendance – 1,800
- Arkansas Gifted and Talented Educators Conference – Little Rock – attendance – 170
- Catholic Schools of Arkansas Teachers Conference – Little Rock – attendance – 100
- Arkansas Hospitality Association Convention and Trade Show – Little Rock – attendance – 2,000



In addition to putting us in touch with other scientists, the monthly e-newsletter provides feedback from readers and other conservation writers in the state. Seven of our articles have appeared in newsletters by the Arkansas Game and Fish Commission (AGFC), the Arkansas Forestry Association (AFA), Arkansas State Parks (ASP) and the Arkansas Environmental Education Association (AEEA).

Our citizen science projects allow us to partner with amateur naturalists to establish baseline ecological measures and fill gaps in our knowledge. The second year of our box turtle survey continued to generate interest and media coverage, including articles in the *Arkansas Democrat-Gazette*, the *Northwest Arkansas Times* and *USA Today*.

After cataloging information on our state's tarantulas, bumblebees and box turtles, the work for 2009 focused on plants. For the first time, we are linking the data collected here in Arkansas with national data by participating in the nationwide citizen-science initiative "Project BudBurst." Just as the name implies, Project BudBurst is designed to collect data on the first appearances of buds, leaves, seeds and fruits in everything from trees to weeds.

Arkansas data is connected with the national Project Budburst database to give a broad picture of phenological events in North America. "Phenology," is the study of cyclical biological events, such as flowering, in relation to climatic conditions. Events such as the beginning of the growing season can vary by three weeks or more from year to year. Such

variations have important environmental and socio-economic implications for health (allergens and infectious diseases), recreation (fall colors and wildflower displays), agriculture (planting and harvest times, pest control) and management of natural resources (water and timber). With recent evidence of global warming, phenological data has assumed a special role as an independent measure of the impacts of climate change.

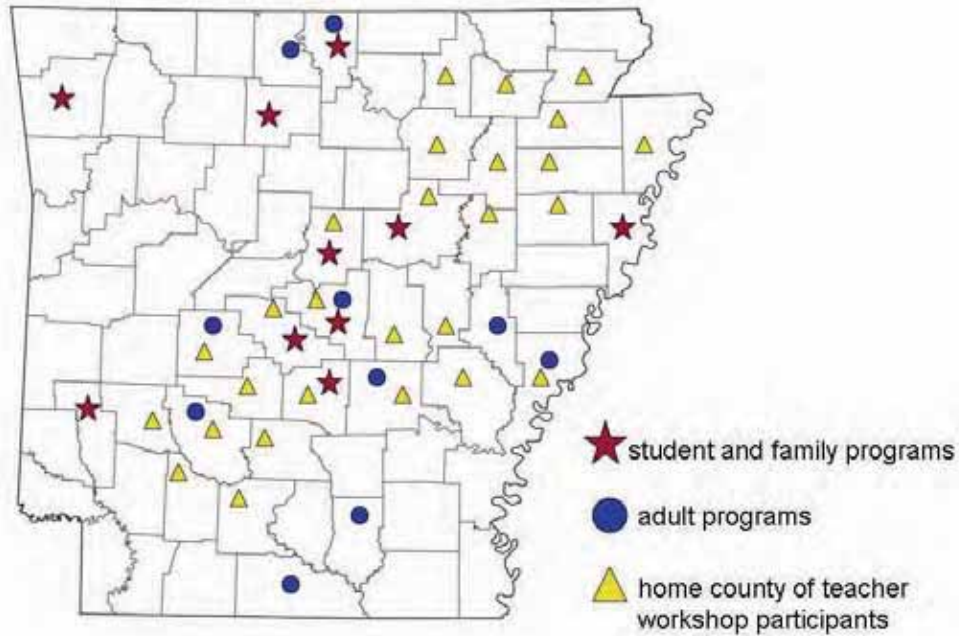
The citizen science section of our website includes a list of the national Project Budburst database plants that occur in Arkansas and printable identification guides. Participants submit their data directly to the national database through the link on the ANHC website and can also see data reported by other citizen scientists across the country.

The Internet continues to be a powerful outreach tool and we expanded our presence this year. We launched a new, updated website in April 2009. More detailed categories were added to the rare species search feature on the site to provide more public access to our data. More publications were also added, including additional staff articles published in scientific journals and the Executive Summary of our new Strategic Plan.

The commission also now has a Facebook page and a "channel" on Vimeo, a social network site similar to YouTube but with a higher bitrate and resolution. These venues



Educational and Outreach Programming for FY 2009



allow us to post quick, informal information about ANHC activities, share video from work in the field and receive comments back from “fans” and viewers.

With the increasing emphasis on student performance, data from national studies show that schools using environmental education as an integrating context for learning improve in all academic areas. The commission’s educational materials for students and teachers provide a real-world context for learning with Arkansas-specific information. While the majority of the 63 programs for school-age students were conducted in classrooms this year, our staff also worked with educators to adapt special outreach for venues such as 4-H summer camps, scout groups and home-schooled students. Educational programming reached a new total of 2,839 students.

Public libraries are an important partner for our public outreach. In addition to presentations for summer reading programs, ANHC staff also developed programs for after-school classes and “family night” activities. A total of 22 programs for children and adults were conducted in libraries this year.

Commission staff participated in the summer workshops for teachers coordinated through the DAH. In a session at Lake Frierson State Park, we focused on the natural features of Crowley’s Ridge and at Camp Ouachita in Perry County, we examined why many of Arkansas’s endemic species occur in the Ouachita Mountains.

We also work with the Arkansas Department of Education’s Mathematics and Science centers around the state. This year, we presented sessions at the Northeast Arkansas Rural Mathematics and Science Institute in Newport and the South Arkansas Mathematics and Science Center in Arkadelphia. Hands-on workshops were also conducted for Phillips County Community College in DeWitt and Central Arkansas Christian schools in North Little Rock. All ANHC teacher workshops include continuing education credits for professional development. In total, 10 workshops were conducted for 139 teachers from 27 counties around the state.

Another way we continue to support students and teachers is by having staff participate as judges in school science fairs. In January, Jane Jones-Schulz was recognized by

Parkview High School in Little Rock for five years of service judging their Senior Science Symposium. She also judged the science fair at the Arkansas School for Mathematics, Sciences and the Arts in Hot Springs. We continued our sponsorship of four natural heritage awards at the Arkansas State Science Fair. ANHC staff reviewed projects from around the state to determine four winners that best reflected the investigation of elements of Arkansas's natural heritage.

Our outreach message is extended when the commission staff contribute their scientific expertise and research knowledge. Bill Holimon worked with the American Forestry Foundation and the Aldo Leopold Foundation to develop a Forest Conservation Handbook for private landowners in the Arkansas Coastal Plain.

We worked with the AGFC's Watchable Wildlife Coordinator to develop eight interpretive panels and fifteen individual plant tags to be placed along the trails at Big Creek Natural Area. We also conducted three training sessions for the Arkansas Master Naturalist program and, afterwards, Theo Witsell recruited

volunteers for additional training as plant "mounters" who produced 160 mounted plant specimens for the commission's herbarium.

We "show off" Arkansas's natural heritage to visitors from out-of-state. Bill Holimon led a field trip to Warren Prairie for group from a Connecticut Audubon Society. They had excellent close-up looks at several Henslow's Sparrows as well as one Le Conte's Sparrow, both species of concern. Through the Department's outreach endeavors, Jane Jones-Schulz gave a program and demonstrated some of our teaching materials and methods to a delegation of visitors from China who were touring cities in the U.S. to learn more about natural and cultural heritage outreach.

Theo Witsell presented "Native Plants and Rare Habitats of Arkansas: What Gardeners Should Know", a program tailored to gardeners, to three groups: Garland County Master Gardeners, Shadowlawn Garden Club (Little Rock) and Wildflower Garden Club (Little Rock). For this reporting period, ANHC staff gave 23 programs to adult audiences totaling 677 people from El Dorado to Mountain Home.



Guide to Report Images

Cover: Yellow wild indigo on a prairie remnant in the Arkansas River Valley

Inset images (l to r): ANHC commission meeting fieldtrip to Terre Noire NA; ornate box turtle; Browne's waterleaf plant and artwork from 2009 Heritage Month poster

Director's letter: Prairie gayfeather

Table of contents: Rosinweed with Giant Swallowtail butterfly

Pages 2 and 3: Wittsburg NA

Inset images (l to r): DAH director Cathie Matthews and Governor Mike Beebe unveil the 2009 Heritage Month poster; DAH logo; ANHC logo, ANHC commission meeting

Page 4: Byrd Lake NA

Page 5: ANHC commissioners and staff at Terre Noire NA

Page 7: Ecological thinning at Warren Prairie NA

Pages 8 and 9: Unicorn root on prairie remnant in Arkansas River Valley

Inset images (l to r): Henslow's Sparrow; common prickly-pear; geocarpon; box turtle survey at Cherokee Prairie NA

Pages 10 and 11: Warren Prairie NA

Inset images (l to r): Northern Bobwhite pair; Diana Fritillary; Natural Areas Association logo; Audubon Arkansas student NA stewardship volunteers

Page 13: Hell Creek NA

Pages 14 and 15: Arkansas River Valley

Inset images (l to r): ANHC botanist T. Witsell looking for geocarpon at Kingsland Prairie NA; ANHC herbarium specimen of Browne's waterleaf; Ozark hedgenettle; ANHC chief of research B. Holimon weighing RCW chicks at Pine City NA

Page 18: Pale Purple Coneflower on prairie remnant in the Arkansas River Valley

Page 19: Dark-sided salamander

Pages 20 and 21: Pondberry at Swifton Sand Ponds NA

Inset images (l to r): Kingsland Prairie NA; bloodroot; RCW at Pine City NA, as seen through "tree-top peeper"; installing sign at Swifton Sand Ponds NA in the snow

Page 23: two Diana Fritillary butterflies on butterfly weed

Page 24: Sweden Creek Falls NA

Page 25: ANHC chief of research B. Holimon conducting RCW cavity maintenance at Pine City NA

Pages 26 and 27: Dardanelle Rock Natural Area

Inset images (l to r): stewardship work at Hell Creek NA; ANHC staff on the "gator" at Middlefork Barrens NA; ANHC stewardship field ecologist B. Ruper recording data ; QC day at Downs Prairie NA removing tons of trash.

Page 28: Prescribed burn at Railroad Prairie NA

Page 29: ANHC stewardship field ecologist J. O'Dell clearing ice storm damage at Hell Creek NA

Page 32: Arkansas River Valley prairie remnant

Pages 34 and 35: Spider web at Lorraine Creek NA

Inset image (l to r): ANHC display at the first annual Market Place Go-to-Green Festival in Little Rock; ANHC 2009 new website home page; Mean's giant earthworm artwork from 2009 Heritage Month poster; ANHC staff taping promotional video at Lorraine Creek NA.

Page 36: (upper left) Project Budburst information; (lower right) ANHC Facebook page

Page 38: slender mountain mint with two common wood-nymph butterflies

Guide to Abbreviations

ADEQ: Arkansas Department of Environmental Quality

AFC: Arkansas Forestry Commission

AGFC: Arkansas Game and Fish Commission

ANCRC: Arkansas Natural and Cultural Resources Council

ANHC: Arkansas Natural Heritage Commission

AQC: Arkansas Quail Committee

ASP: Arkansas State Parks

ATV: All-terrain Vehicle

CAST: Center for Advanced Spatial Technologies

COE: Corps of Engineers, United States Army

DAH: Department of Arkansas Heritage

EAST: Environmental and Spatial Technology

EPA: Environmental Protection Agency

NA: Natural Area

NAA: Natural Areas Association

NRCS: Natural Resources Conservation Service

ONSC: Ozark Natural Science Center

RCW: Red-cockaded Woodpecker

TNC: The Nature Conservancy

UA: University of Arkansas

USDA: United States Department of Agriculture

USFWS: United States Fish and Wildlife Service

USGS: United States Geological Survey

WRNWR: White River National Wildlife Refuge