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NATURAL AREAS PRESERVATION IN ARKANSAS

Scientists have a special interest in the preservation of natural areas. Everyone who teaches field courses in the natural sciences has been affected as favorite study sites were cut over, plowed under, or rearranged by bulldozers. Each year one travels farther and searches harder for good demonstration sites, and it becomes ever more difficult to find certain rare or threatened species.

This paper will attempt to share some thoughts on how the resources of the Arkansas Natural Heritage Commission should be focused to maximize achievement in preserving our remaining natural areas. In turn, because the scientific community is its most dependable source of informational, conceptional, and moral support, the Natural Heritage Commission solicits input from that quarter as it makes long-range plans for the preservation program in Arkansas.

In 1973 the Arkansas General Assembly laid the cornerstone for natural area preservation in the State. The legislative session of 1975 created the new Department of Natural and Cultural Heritage and approved funds for the Natural Heritage Commission as one of the five agencies within that Department. Since the Commission began operating with funds and a staff in July of 1975, almost incredible progress has been made. The Singer Corporation's donation of Singer Forest in Poinsett County in June of 1973 provided an encouraging start. Since that time legal protection has been extended to twelve additional natural areas in all parts of Arkansas. At present 2,266 acres are protected in the System of Natural Areas, and negotiations are underway to protect twelve additional sites which include approximately 3,000 acres.

The first purchase, Roth Prairie, was completed April 5, 1976. A 40-acre tall-grass prairie located south of Stuttgart, Roth Prairie is now managed by Arkansas State University and is used for demonstration by the Arkansas County Agricultural Museum.

Smoke Hole, 437 acres of bottomland hardwood on Bayou Two Prairie, is on the Lonoke County/Prairie County line thirteen miles south-east of Carlisle. The swamp supports an almost exclusive stand of tupelo bordered by a community on the northwest where specimens from nine species of oak have been collected. Negotiations have been initiated with the University of Arkansas at Little Rock for accepting custody of this area.

Sweden Creek Falls is a 75-foot waterfall descending into a shaded cove described by Maxine Clark as a typical relict of Appalachian flora. The falls and a half-mile stretch of Sweden Creek, purchased by the Commission in January of 1977, are located in Madison County south of Kingston.

Dardanelle Rock, overlooking the Arkansas River in Yell County, is an outcrop of sandstone and shale. This 10-acre site was purchased by the Commission in August of 1976.

Devil's Knob-Devil's Backbone is a 520-acre site located in Izard County. Probably the most undisturbed site in the System of Natural Areas, Devil's Knob has been recommended by Dr. E. E. Dale (University of Arkansas at Fayetteville) for recognition as a national natural landmark. Good upland hardwood, an Ashe juniper glade, and limestone-dolomite outcrops are characteristic features of this remote site.

A stretch of Cove Creek in Faulkner County with 222 acres of land surrounding the creek was purchased by the Commission in December of 1976. Upland pine-hardwood, streambottom hardwood, a cedar glade, and the Carolina spring beauty, listed as endangered by Dr. Gary Tucker in the *Arkansas Natural Area Plan*, are all found on this site.

Chalk Bluff, 55 acres overlooking the St. Francis River in Clay County, was described by Dr. George Thomas Clark in the *Natural Area Plan* and contains upland hardwood typical of Crowley's Ridge. This site is at the northernmost point of Crowley's Ridge in Arkansas.

The most recent purchase was 38.5 acres surrounding the Louisiana Purchase Historical Monument Marker in Phillips, Lee and Monroe Counties. The center of the site is at the intersection of the 5th Principal Meridian and the Baseline, the principal coordinates of the land survey system of Arkansas and other states included in the Louisiana Purchase. The high-ground swamp maintains an unusually constant level of shallow water and shows vegetation patterns which distinctly reflect slight variations in elevation and drainage. The Louisiana Purchase Swamp was acquired in February of 1977. Title was transferred directly to Arkansas State Parks, and a conservation easement from Parks to the Commission provides legal protection and establishes management policy.

In December of 1976, conservation easements were acquired on two sites in Prairie County, almost 29 acres of Konecny Praire and the 18-acre Konecny Grove. The prairie is a part of the largest block of Grand Prairie grassland left in the state; and the grove is a prairie slash of persimmon, green ash, honey locust, and hawthorn with a four-acre marsh dominated by cattail and bordered by black willow. The grove supports Arkansas' only known breeding population of willow flycatchers.

Two hundred acres in Logoly State Park are expected to be dedicated into the System of Natural Areas through a conservation easement. The best features of this site in Columbia County are the beech-dominated ravines and the aquatic communities supported by numerous mineral springs.

Taylor Woods, 138 acres near Pine Bluff, will be added to the System through a conservation easement donated to the Commission by Mr. and Mrs. Bates Phillips.

In addition to the protected System, the Commission also maintains a Registry of Arkansas Natural Areas. The Registry recognizes sites that have been evaluated by the staff and have outstanding scientific, educational, and recreational significance. The Registry now lists and describes forty-one sites.

Various government agencies own substantial acreage which meets the standards that have been established for listing in the Registry. These agencies are encouraged to establish preserved areas, and thirteen of the sites on the Registry reflect this Commission activity. Magazine

Mountain, Barkshed Recreation Area, and the Upper Buffalo Wilderness Area are in the Ozark National Forest. Also listed on the Registry are Turkey Ridge in the St. Francis National Forest and Roaring Branch and Crystal Mountain in the Ouachita National Forest. Sugarberry Research Natural Area in the White River National Wildlife Refuge, Burdette Herony held by the Arkansas Game and Fish Commission, Southern Bluff held by Bradley County, Perritt Ravine held by the Arkadelphia Public School District, and two Arkansas Highway Department roadcuts, one on U.S. Highway 65 south of Marshall and one at Interstate-430 and Cantrell Road in Little Rock, are listed on the Registry. Crater of Diamonds State Park is recognized in the Registry for its unique geological features.

Among the areas in private ownership which have been registered by the Commission are Alexander Cave; Brushy Creek; Rice Prairie; Stump Prairie; Hendrix Bog; International Paper Company's Grant County Redcockaded Woodpecker Sanctuary; Georgia-Pacific's Levi-Wilcoxon Forest; Warren Prairie (owned by Potlatch and Georgia-Pacific); and the Auersperg, Downs, Kocourek, Halijan, Webber, Fairmount and Beem Prairies - all in the Grand Prairie region.

But the Commission's potential is far from fulfilled. The Commission has approved a Master Operations Plan to supplement the *Arkansas Natural Area Plan*. The master plan projects a single goal which guides all Commission activity, and that goal is to include in the System at least one example of each distinctive natural community and natural feature and thus to provide a living record of the State's natural history. The Master Operations Plan defines vegetation types, special species, critical habitat, and hydrological, geological, archaeological, and scenic features of each natural division and subdivision of the State.

Though only small, isolated portions of the Delta and of the Coastal Plain have survived logging, farming, road construction, and other intrusions, Arkansas is in the fortunate position of still having available many significant examples of our richly diverse natural heritage, and it is the purpose of the Commission to locate the best of these areas and to include them in the Natural Areas System.

Natural area preservation is a citizen movement that is growing in Arkansas at a remarkable rate. The success of the movement depends on the efforts of many more people than the small Natural Heritage Commission staff. The Commission offers focus and provides a channel for promoting the cause. Its staff can even carry out a great deal of the field work. But there are only six staff members running an all-or-nothing race against time over a track that covers the entire State. There are specific ways in which the scientific community of Arkansas can help:

1. The new Geologic Map of Arkansas recently completed by the Arkansas Geological Commission and the U.S. Geological Survey is one of the natural area program's most useful tools. A similar map showing vegetation patterns in Arkansas that can be used in conjunction with the geologic map is needed desperately.

2. There is an equally serious need for a complete catalog of the State's biota. Publications that treat comprehensively the mammals, birds, reptiles, amphibians, and flora of Arkansas will provide a much needed supplement to the Commission's information, and it is hoped that a popular wildflower guide for Arkansas similar to those available for Missouri, Oklahoma, and Louisiana will be produced. Daily requests for source material are received; at present the best that can be done is to refer inquirers to those who are expert in the pertinent fields.

3. The geologic map leads one to expect certain features in specific areas, but there is little information on the exact location of the most outstanding geological features of the State. Especially needed are the locations of outstanding fossil beds and a comprehensive cave survey.

4. Also needed are leads to aquatic habitats of special quality and locations of the nesting sites of colonial birds.

If the Commission is provided with the locations of favorite research and demonstration areas, and if these areas meet System criteria and can be purchased at fair market value, an effort will be made to acquire them and to offer title and custody to the most appropriate state university.

The Natural Heritage Commission has no stronger link with any group than that with the academic community. The Commission depends on this community almost totally for identifications and for verification of element priorities. It recognizes that this is the most dependable source of leads to high-quality natural areas.

There are also other areas of possible cooperation between the professional academic community and the Commission.

1. In the next few months the Commission may have additional Comprehensive Employment Training Act (CETA) funds assigned to it for staff support, and chances are good that the CETA program will continue to function for at least two years. The Commission will be looking to the academic community for recommendations on candidates for the new staff positions.

2. Gradually the Commission will function more efficiently as a clearing house for information about the natural areas of the State and about special species. It can identify and suggest research problems and offer endorsement to applications for research grants.

The Department of Natural and Cultural Heritage is working to build a large, informed, enthusiastic and effective cadre of citizens to defend our heritage. Active participation by Arkansas' scientists is essential to the effort's success.

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#### A CHECKLIST OF THE SPHINX MOTHS OF ARKANSAS

This checklist of the sphinx moths of Arkansas brings together information contained in two major reports on the state's sphingids as well as the author's records gleaned from over twenty years of collecting in Washington County. The first report was by Avery Freeman (1938) who collected over the whole state, and the second was by Selman and Barton (1971) who reported their findings for northeast Arkansas, mainly Craighead County. The present list contains several additions to the aforementioned reports and makes note of the species taken in Washington County. The state total now stands at forty-three species. Of those on the list, all but three species are among the author's records for Washington County. These three are *Isoparce cupressi*, *Sphinx gordius*, and *Aellopos titan*. Selman and Barton (1971) recorded that *A. titan* was collected in Washington County by Richard Heitzman. Thus, only two species on the list have not been taken in Washington County. Except for the daytime fliers, collections in Washington County were almost exclusively made at street lights, lighted buildings, and some by light traps. The state list is expected to swell as more stray species, such as *Eumorphia labruscae* (Linnaeus), are likely to fly into the state, mainly from the south. Concerted collecting in the southern part of the state should also be productive of new species for the list.

The names on the list and the order of presentation are according to Hodges (1971).

I am greatly indebted for many collections made by the late Otis Hite and Dr. Maxine Hite Manley. I am also indebted for the help and interest shown by Richard Brown, Ed Gage, J. R. Heitzman, Bryant Mather, E. Phil Rouse, to my children who accompanied me on nightly collecting trips, and to my wife for her patience and forbearance.

#### CHECKLIST OF THE SPHINX MOTHS OF ARKANSAS

##### SPHINGINAE

##### SPHINGINI

<i>Agrilus obliquilata</i> (Fabricius)	Pink Spotted Hawkmoth
<i>Manduca sexta</i> (Linnaeus)	Tobacco Hornworm
<i>Manduca quinquemaculata</i> (Haworth)	Tomato Hornworm

<i>Manduca rustica</i> (Fabricius)	Rustic Sphinx
<i>Manduca jamaicensis</i> (Guerin)	Ash Sphinx
<i>Dolba hyltonia</i> (Drury)	Pawpaw Sphinx
<i>Ceratomia amyntor</i> (Geyer)	Four-horned Sphinx
<i>Ceratomia undulosa</i> (Walker)	Waved Sphinx
<i>Ceratomia catalpae</i> (Boisduval)	Catalpa Sphinx