Alabama Natural Heritage Program

Annual Report

Fiscal Year 2006

Staff Directory & Resources

2006 Staff Directory

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Affiliated Websites

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www.auei.auburn.edu

The mission of the Alabama Natural Heritage Program (ALNHP) is to provide the best available scientific information on the biological diversity of Alabama to guide conservation action and promote sound stewardship practices. ALNHP is administered by the Environmental Institute at Auburn University. Established by The Nature Conservancy in 1989, it is one of a network of such programs across the United States, Canada, and Latin America, collectively known as the Natural Heritage Network (NHN). As a member of the NHN, ALNHP is represented by its membership organization NatureServe. NatureServe works to aggregate data from individual Network Programs and is dedicated to the furtherance of the Network and the application of Heritage data to biodiversity conservation.

Natural Heritage Programs have three broad functions:

- to collect information on the status and distribution of species and natural communities,
- to manage this information in a standardized way, and
- to disseminate this information to a wide array of users.

Natural Heritage Programs use a standardized information management system to track biodiversity data including taxonomy, distribution, population trends, habitat requirements, relative abundance, quality, condition, and viability. Programs also track non-biological information including land ownership type, land-use and management, distribution of protected areas, and threats to species or their habitat.

Partners

The mission of the Auburn University Environmental Institute is to serve the state, nation, and global community by providing leadership and coherence in all university areas of environmental instruction, research, and extension/ outreach. The goal of the Environmental Institute is to promote, coordinate, and implement multi-disciplinary programs and activities to meet the environmental needs of the University, state, and nation. There are several ways in which the Institute works to meet these goals.

By supporting and coordinating interdisciplinary teams, programs, or specialized centers, the Institute creates a new forum for environmental research and education. The associated faculty program promotes the work and research across many disciplines which may not ordinarily coordinate investigative efforts. The Institute also serves the faculty by increasing information and access to extramural funding, and developing proposals and other means for improving the quality of environmental education and research at Auburn University. The Institute serves as a source of information concerning funding, through public and private monies, of new and innovative research opportunities. It is additionally important to increase the effectiveness of Auburn University educational programs, curriculum, and professional opportunities for all students in all academic fields related to the environment, such as through lecture series and sponsored annual conferences.

NatureServe is a non-profit conservation organization that provides the scientific information and tools needed to help guide effective conservation action. NatureServe and its network of natural heritage programs are the leading source for information about rare and endangered species and threatened ecosystems.

NatureServe represents an international network of biological inventories - known as natural heritage programs or conservation data centers - operating in all 50 U.S. states, Canada, Latin America and the Caribbean. Together we not only collect and manage detailed local information on plants, animals, and ecosystems, but develop information products, data management tools, and conservation services to help meet local, national, and global conservation needs. The objective scientific information about species and ecosystems developed by NatureServe is used by all sectors of society - conservation groups, government agencies, corporations, academia, and the public - to make informed decisions about managing our natural resources.

Introduction

ALNHP has had a challenging year due to the uncertainty regarding the permanent administrative home of the program prior to the transfer to Auburn. The program staff continued to conduct in-depth surveys for imperiled species in Alabama and to produce quality reports and publications on the state's diverse flora and fauna. ALNHP was administered through the Florida Natural Areas Inventory at Florida State University in Fiscal Year 2006. We are pleased to announce that ALNHP transferred to the Environmental Institute at Auburn University effective November 1, 2006.

Inventory

Botany & Community Ecology

The botany/community ecology component has been actively involved attending conferences, presenting lectures, conducting field surveys, and preparing reports for several projects in 2006. A large proportion of time was devoted to preparing status surveys and natural community assessments on behalf of the U.S. Fish and Wildlife Service (USFWS), with special emphasis placed on the Coastal Plain and the Cumberland Plateau. ALNHP has also partnered with the Poarch Band of Creek Indians to conduct wildlife surveys and characterize plant associations on their Magnolia Branch Preserve in south Alabama. In addition, MeadWestvaco has contracted with the Program to implement inventories for G1 and G2 species in eastern Alabama and adjacent counties of Georgia as part of their Sustainable Forestry Initiative. Several projects also were executed on behalf of NatureServe, most notably a month-long effort to establish vegetation plots along the Natchez Trace Parkway in Alabama and Mississippi.

Alabama Canebrake Pitcher-plant Surveys

Two separate projects, one on behalf of the U.S. Forest Service (USFS) and the other for the USFWS, were completed and submitted, illuminating survey efforts for the Alabama canebrake pitcher-plant (*Sarracenia rubra* ssp. *alabamensis*). The USFS project entailed surveys within the Oakmulgee District of Talladega National Forest, whereas inventories for USFWS were broader in scope focusing on a rangewide assessment of the species. While no new occurrences of pitcher-plants were located, several other taxa monitored as rare species by ALNHP were documented during the course of these two projects.

Alabama canebrake pitcher-plant (*Sarracenia rubra* ssp. *alabamensis*)

Bankhead National Forest Glade Survey

An inventory for glades in Bankhead National Forest was completed and submitted to the Forest Service in September 2006. Nine limestone and sandstone glades were identified, several of which contain rare plants currently tracked by ALNHP. The final report provided qualitative accounts of vegetation, maps depicting topographic features, and general management guidelines for all glades known from the Forest.

Ecological Assessment of Alabama's Black Belt Prairies

The Black Belt prairies are a unique habitat complex in the state. However, Black Belt prairies have been devastated by land use alterations. By the end of the twentieth century, only remnants (<1 %) of the native Black Belt prairie remained as the grasslands were converted to agriculture or pasture. The remaining prairies tend to be relatively small and highly fragmented, and prairie habitat continues to be lost through human activities and the encroachment of woody vegetation, especially eastern red cedar (*Juniperus virginiana*). Despite the high degree of imperilment for prairie habitats, the Black Belt prairies have received little conservation attention. There is a clear need to assess current conditions of prairies and begin prairie restoration work in Alabama.

ALNHP has begun an ecological assessment of Alabama's Black Belt prairies. Identification of potential prairie locations using aerial imagery and GIS data layers such as soils and the 2001 National Land Cover data has begun and is ongoing. Initial visits have been made to some prairie sites in Sumter County, including the University of West Alabama's prairie restoration site, and discussions have been initiated with several landowners regarding access to prairie sites on their property and potential management of these prairie areas.

Black Belt prairie in Sumter County, Alabama.

Flyr's Brickell-bush Status Survey

A three-year status survey for the USFWS on the Flyr's Brickell-bush (*Brickellia cordifolia*) in Alabama is nearly completed, with a final submission date of December 2006. Rangewide, this relative of the daisy and dandelion assumes a sporadic distribution occurring in north central Florida, southwest Georgia, and seven counties in southeast Alabama. The project has resulted in the confirmation of 10 occurrences in the state, only two of which are in good condition.

Flyr's Brickell-bush (*Brickellia cordifolia*)

Georgia False-foxglove Status Survey

USFWS has contracted with ALNHP to conduct additional surveys in the East Gulf Coastal Plain for the Georgia false-foxglove (*Agalinis georgiana*), a species currently recognized as federal concern by USFWS. Never very abundant, the taxon is represented by nine occurrences worldwide, all confined to high quality examples of the Longleaf Ecosystem. One new occurrence was found in 2006, in Okaloosa County, Florida. A final report will be submitted in January 2007.

Harper's Umbrella Plant Monitoring

Harper's umbrella plant (*Eriogonum longifolium* var. *harperi*) is a member of the Buckwheat family that is often referred to as a biennial though it does not typically adhere to a two-year reproduction cycle. Apart from baseline

data, little is known about the plant; preliminary studies conducted at Redstone Arsenal in Alabama suggest that it may persist in a vegetative rosette phase up to five years before producing seed. The species is currently known from eleven occurrences in north Alabama and from five sites in middle Tennessee.

ALNHP has partnered with the Tennessee Natural Heritage Program to implement a five-year demographic monitoring effort of three occurrences in Alabama and one in Tennessee to acquire a greater understanding of its life history. The 2007 season will represent the final year of the project.

Harper's umbrella plant (*Eriogonum longifolium* var. *harperi*)

MeadWestvaco Inventory

The first of a two-year inventory effort on MeadWestvaco landholdings has been completed. During the summer of 2005, ALNHP was contracted by MeadWestvaco to conduct a detailed systematic inventory for G1- and G2-ranked vascular plant and terrestrial animal species on their landbase in southeast Alabama and southwest Georgia. The area inventoried encompasses approximately 290,000 acres, with levels of survey intensity dictated by forest cover types. Surveys were prioritized by conducting inventories on parcels having the greatest potential (e.g., naturally occurring cover types) to contain G1- and G2-ranked species. To date, three plant and four natural community occurrences have been documented, including four granite outcrops, and one occurrence each of pool sprite (*Amphianthus pusillus*), Apalachicola wild indigo (*Baptisia megacarpa*), and relict trillium (*Trillium reliquum*). Additional surveys are planned for 2007.

Small-flowered Meadowbeauty Status Survey

Conducted on behalf of the USFWS, a status survey on the small-flowered meadowbeauty (*Rhexia parviflora*) which entailed a qualitative rangewide assessment of the species that includes Alabama, Florida, and one historical site in Georgia is nearly complete. Field surveys resulted in the discovery of 21 new occurrences, more than doubling the previous number of occurrences known for the species. *Rhexia parviflora* is a fire-maintained species, which has now become globally imperiled due to fire exclusion, hydrologic alterations, and other modifications of its habitat.

small-flowered meadowbeauty (*Rhexia parviflora*)

Significant Botanical Discoveries

- Blue scorpion-weed (*Phacelia ranunculacea*) was discovered at one location in Monroe County, representing a new state record for Alabama. This spring wildflower is an inhabitant of rich forests, occurring in scattered locations throughout the mid-Atlantic and southeastern states.

The newly discovered occurrence in Alabama constitutes the southern-most record for the species, situated no more than 80 miles north of the Gulf Coast.

- Blue-eyed Mary (*Collinsia verna*) was brought to the attention of the ALNHP by an amateur botanist who discovered the species near Florence in April 2006. This find represents the first known record of the attractive spring wildflower from Alabama, and serves as a southward range extension from its previous southern-most location just north of Nashville, Tennessee. The species assumes its greatest abundance in the mid-West, growing in rich mesic forests.

blue-eyed Mary (*Collinsia verna*)
photo from Missouriplants.com

- Cream-flowered tick-trefoil (*Desmodium ochroleucum*), a globally imperiled species, was discovered during a series of field surveys in the Black Belt region of Montgomery County, in September. Prior to this discovery, only 13 extant populations were known worldwide.

- Godfrey's sandwort (*Minuartia godfreyi*) was observed in Monroe County along a series of limestone bluffs overlooking the Alabama River. This critically imperiled plant was last reported in the state in 1973 by Robert Kral, from Pickens County.

- Pool sprite (*Amphianthus pusillus*), a federally listed species, was found during surveys conducted for MeadWestvaco in Tallapoosa County in March 2006. The discovery represents a new county record, as well as the fifth known occurrence for this diminutive plant in Alabama. Pool sprite is a granite outcrop endemic restricted to the Piedmont in Alabama, Georgia, and South Carolina.

- Poke milkweed (*Asclepias exaltata*) is a northern species that reaches its southern range limits in northwest Alabama. A small occurrence was observed along the Sipsey Fork in Bankhead National Forest, in Winston County. The species has been reported only once before from the state by Robert Kral, also from Winston County.

- Seneca snakeroot (*Polygala senega* var. *latifolia*) was found in May 2006 while conducting surveys along Little Coon Creek in Jackson County. Previously known from only Franklin County, this discovery serves as the second known occurrence in the state for this more northern forb.

- Svenson's wildrye (*Elymus svensonii*) is a state record for Alabama, having been discovered along the limestone bluffs overlooking the Tennessee River in the northern part of the state. This rare grass was known previously only from Kentucky and Tennessee, where it inhabits similar habitat.

pool sprite (*Amphianthus pusillus*)

Terrestrial & Aquatic Zoology

Biological Inventory of the Sharp-Bingham Mountain Cave and Karst Systems

In Alabama the Cumberland Plateau is a region of karst topography, with an extraordinary density of caves, sinkholes, and springs. The area of the inventory is comprised of an extensive sink region, which includes Calloway, Keel, and Cox Sinks. Sharp Mountain, along the Jackson-Madison county line, is the western boundary while Bingham Mountain forms the eastern boundary. Approximately 60 caves, 30 karst features, and several springs are known from the Sharp-Bingham Mountain area. This area is an important one for karst and cave systems in Alabama because of the number of caves and the extensive connected systems.

Within the United States, northeastern Alabama (Jackson, Madison, Marshall counties) hosts the highest degree of subterranean biological diversity. While, overall, the subterranean diversity of troglobites, troglophiles, and trogloxenes for this area of the Cumberland Plateau is known, what lies within the caves of the Sharp-Bingham Mountain area is not well known. Biological information is available on only a small percentage of these caves, and at best the information is sketchy.

Ashley Chan, Geoff Sorrell, and Jim Godwin explore a cave system in Jackson County, Alabama. (Photo by Alan Cressler)

Prior to the initiation of this inventory project approximately 43 caves were known from the study area and immediate vicinity. A first step with inventory is to locate the caves and confirm or correct the latitude and longitude coordinates. Twenty-five of the 43 caves have been found and latitude and longitudinal coordinates confirmed or corrected. In addition 19 new caves have been discovered, which brings the total to 62. Along with cave inventory 34 karst features and four springs have been added to the database of landscape-significant geological features.

Out of the total of 62 known caves, biological observations and collections have been made in approximately 20 of the caves, plus a few of the karst features. Representative groups from the caves include terrestrial snails, aquatic amphipods and isopods, crayfish, pseudoscorpions, spiders, harvestmen, mites, millipedes, springtails, silverfish, crickets, beetles, frogs, salamanders, bats, and woodrats.

Inventories for G1- and G2-Ranked Terrestrial Animal Species on MeadWestvaco Landholdings in Southeast Alabama and Southwest Georgia

An inventory is underway on MeadWestvaco lands in Alabama and Georgia for G1 and G2 ranked terrestrial animal species, or those with state or federal protection. The current list of animal targets is flatwoods salamander (*Ambystoma cingulatum*), striped newt (*Notophthalmus perstriatus*), gopher frog (*Rana capito*), eastern indigo snake (*Drymarchon couperi*), gopher tortoise (*Gopherus polyphemus*), southern hognose snake (*Heterodon simus*), red-cockaded woodpecker (*Picoides borealis*), and Mitchell's satyr (*Neonympha mitchellii*).

In Alabama, 33 sites have been inventoried and 12 in Georgia. To date the only animal species from the list which has been documented has been the gopher tortoise. None of the sites on

which field inspections have been made are within the range of the flatwoods salamander, indigo snake, or southern hognose snake. Mitchell's satyr inhabits wetlands which support a heterogeneous matrix of shrubs, sedges, and other herbaceous vegetation. The creation of these wetlands is often due to beaver impounding stretches of streams. Eleven ponds have been identified and examined; at this time no Mitchell's satyrs have been observed on any of the sites

Paint Rock River Mussel Surveys

During 2006 mussel surveys on the Paint Rock River were conducted at 6 sites which had been selected for restoration. These surveys have been made to support the restoration actions being conducted through the Paint Rock River office of The Nature Conservancy. A series of surveys is typically done prior to the streamside restoration which involves actual construction activities to document the mussel fauna prior to restoration.

A total of 544 individuals of 21 species of mussels have been found alive from these 6 sites. Included within this total are one endangered species, one candidate species, and four G1-G2 species.

Red Hills Salamander Habitat Delineation, Breeding Bird Surveys, and Habitat Restoration Recommendations on Commercial Timberlands

Two of the three years of this State Wildlife Grant funded project have been completed. The focus of the work has been on properties owned by International Paper (IP) which encompass habitat of the Red Hills salamander (*Phaeognathus hubrichti*). The federally threatened Red Hills salamander inhabits steep, mesic, hardwood dominated slopes of the Tallahatta and Hatchetigbee geological formations. IP, through their habitat conservation plan with the U.S. Fish and Wildlife Service, has designated the slope habitat occupied by the salamanders as streamside management zones (SMZ). Normal timbering operations are not being conducted within the SMZ's in order to limit disturbance to the habitat and protect the salamanders.

Line transect field studies to collect additional data from the sites has been completed on approximately half of the 30 identified Red Hills salamander sites. Data gathered include counts to estimate burrow density, vertical distribution of burrows on the slopes, woody plant species associated with burrows, dominant canopy cover, an overall slope angle and slope angle at each burrow, soil density, and slope aspect. Additionally, general tree and shrub information is being taken at each site which will be used to characterize the dominant tree and shrub cover of Red Hills salamander habitat.

Steep slopes harboring Red Hills salamanders are being delineated by experienced biologists. By walking around the slope habitat with a GPS and recording data points, then transferring those

Photo by Beth Young

points into a computer with mapping software, an accurate portrayal of the slope habitat can be drawn. GIS analyses may then be made. Discrepancies between the actual delineation and contour lines on topographical maps have been noted in which the GPS delineation does not match topographical features. With the observations made to date regarding this discrepancy, the error appears to lie with the cartography of the topographical map. Overlay of the GPS-delineated habitat onto an aerial photograph provides a better match than to the topographical map. Along with topographical map and aerial photographic layers, soils and geological layers are being examined.

Bird surveys to document neotropical migrants and resident birds breeding in the forests of the slopes and adjacent floodplains, and in the nearby pine plantations began this past spring. Additional bird surveys will be made this coming year.

Several sites have small populations of the gopher tortoise (*Gopherus polyphemus*). Where tortoise burrows are encountered a GPS reading is taken for mapping. Tortoises tend to prefer sandy soils and this has been noted through an examination of the soil types associated with the burrows.

International Paper and National Geographic Explorer staff in the Red Hills (Photo by Beth Young).

International Paper provides financial support to National Geographic Explorer, an educational magazine only available in schools with a circulation of 70,000. This past March staff from National Geographic Explorer and International Paper spent most of a week in the field with ALNHP while staff from ALNHP were conducting field work. An article on the Red Hills salamander ran in the September 2006 issue of the magazine.

Status Survey for the Alligator Snapping Turtle (*Macrochelys temminckii*) at Selected Sites in the Mobile Basin Drainage of Alabama

The alligator snapping turtle is the largest freshwater turtle in North America, and is almost wholly aquatic, seldom leaving the water except to lay eggs. Although the alligator snapping turtle is no longer subjected to commercial harvest in Alabama, such has not always been the case and the degree to which the turtle has recovered since coming under state protection is not known. The objective of this study was to obtain information on the current status of alligator snapping turtles at three sites in the Mobile Bay Basin of Alabama. The selected sites were Clearwater Lake in the upper Mobile-Tensaw Delta, Jim Burr and Hals Lake along the lower Tombigbee River, and the lower Tallpoosa River. Turtles were trapped in 2004 and 2005 from the three sites, but tropical storms in 2005 hampered trapping in the two southern sites.

alligator snapping turtle (*Macrochelys temminckii*)

Overall a total of 37 alligator snapping turtles were captured, 29 from the Tallapoosa River, 5 from Clearwater Lake, and 3 from Hals Lake. A wide size range of turtles were captured ranging from 1.1 to 48 kg, but most were in the 10 to 20 kg category.

In addition to the alligator snapping turtle nine additional species were captured, which included sliders, spiny and smooth softshells (*Apalone* spp.), black-knobbed sawback (*Graptemys nigrinoda nigrinoda*), Alabama map turtle (*G. pulchra*), river cooter (*Pseudemys concinna*), Florida cooter (*P. concinna floridana*), common snapping turtle (*Chelydra serpentina serpentine*), and stripe-necked musk turtle (*Sternotherus minor peltifer*).

Significant Zoological Discoveries

- Three snail species formerly thought to be extinct were rediscovered in Alabama during the summer of 2004. The Cahaba pebblesnail (*Clappia cahabensis*) was found in the Cahaba River in Bibb County, Alabama, by Dr. Stephanie Clark, a postdoctoral researcher at the University of Alabama. Prior to this discovery, the entire Clappia genus was considered to be extinct. The teardrop elimia (*Elimia lachryma*) and cobble elimia (*Elimia vanuxemiana*) were found in the Coosa River below Logan Martin Dam by Jeff Garner, State Malacologist with Alabama's Department of Conservation and Natural Resources.

- In 2005, Fred Thompson, Curator of Malacology at the Florida Museum of Natural History, described a new snail species, *Marstonia angulobasis* – angled marstonia, discovered during surveys of the Paint Rock River. This snail is restricted to the Paint Rock River in Jackson, Madison and Marshall counties.

- During surveys conducted between 1999 and 2002 in Coosa River tributaries, Michael Gangloff, a doctoral student at Auburn University, discovered a new undescribed mussel species in Big Canoe Creek in St. Clair County. Gangloff, Williams, and Feminella described this species as *Pleurobema athearni*, Canoe Creek pigtoe, in 2006.

Applied Conservation

Red-cockaded Woodpecker Safe Harbor Agreement

The red-cockaded woodpecker (*Picoides borealis*) is endemic to the open, mature and old growth pine ecosystems of the southeastern United States. Due to loss of suitable habitat the red-cockaded woodpecker (RCW) has experienced a precipitous decline, which prompted the species' listing as endangered in 1970, and entitles it to federal protection under the Endangered Species Act (ESA) of 1973.

In order to encourage landowners with existing or potential RCW habitat to manage their lands in order to conserve RCW populations, the U.S. Fish and Wildlife Service (USFWS) has implemented "Safe Harbor" plans in many southeastern states. A Safe Harbor Agreement (SHA) assures the landowner that if he (or she) restores or enhances habitat for an endangered species, he (or she) will not incur any new restrictions if these actions result in an increase in the occurrence of endangered species on

red-cockaded woodpecker (*Picoides borealis*)
(Photo by Jim Hanula)

the land. The landowner agrees to carry out activities expected to benefit an endangered species, but no added federal restrictions will be imposed should the numbers (or occurrences) of the species expand beyond a "baseline" level when the agreement is entered into.

In 2002, ALNHP entered into an agreement with USFWS to draft and finalize a Safe Harbor Plan for the RCW in Alabama. The resulting "Proposed Programmatic Statewide Red-cockaded Woodpecker Safe Harbor Agreement for Alabama" was published in the Federal Register on June 13, 2006 (Vol. 71, Number 113), with a 30-day comment period for public comment (ending date July 13, 2006). The intent of the RCW SHA is for the USFWS, the Alabama Department of Conservation and Natural Resources – Division of Wildlife and Freshwater Fisheries, and non-federal landowners to collaborate on implementation of conservation measures for RCWs. Final approval of the agreement by USFWS has not yet been received but should be forthcoming soon.

A brochure describing the Safe Harbor agreement has been prepared and 5,000 copies printed. Some of these have already been distributed to interested individuals (and a large number has been provided to ADCNR). Several organizations representing forest landowners have been contacted and offers made to make oral presentations to their members, submit articles for publication in their magazines, or exhibit at their meetings or conferences. A poster exhibit and a PowerPoint presentation have been prepared for such purposes. A draft article has been submitted to Treasured Forests magazine for possible publication. The poster exhibit was displayed (and brochures distributed) at the Alabama Forestry Association meeting in Orange Beach, Alabama, September 10-11, and the Alabama Treasure Forest Conference in Montgomery October 5-6. Additional brochures were distributed at the National Tree Farmer Convention in Mobile October 20 (by invited speaker Al Schotz of ALNHP). We have also begun compiling the names and contact information of interested property owners for future contact.

Information Systems & Technology

All PCs have continued to be fine tuned in-house to suit our needs, with both hardware and software upgrades implemented on all computers. The upgrades included the purchase of 3 new computers (Dell Optiplex GX520), upgrades for most software products used on a regular basis to the current version, and the purchase of Adobe Creative Suite 2 for desktop publishing.

Biological and Conservation Database

ALNHP maintains the Biological and Conservation Database (BCD), the most comprehensive database on the biodiversity of Alabama. BCD is supported by funding through our inventory and conservation planning projects. Although building the database has always been the primary goal of the program, securing funding to support increasing both the quanity and quality of tis important program area remains a challenge. ALNHP is currently tracking 1,460 rare plants and animals (Fig. 1). There are 9,038 individual occurrences of these species and natural communities documented in BCD, with the majority of the Element Occurrence Records (EOR) being for vascular plants or mussels (Fig. 2). In addition to the EORs, there are currently 454 Managed Area Basic Records and 454 Site Basic Records in BCD.

One of the important tasks each heritage program performs is the regular compilation of a Rare Species Inventory List for the state that ranks each element tracked by the program based on the number and quality of occurrences. Updates to the Alabama Inventory List were completed June 2006, with the list published and distributed

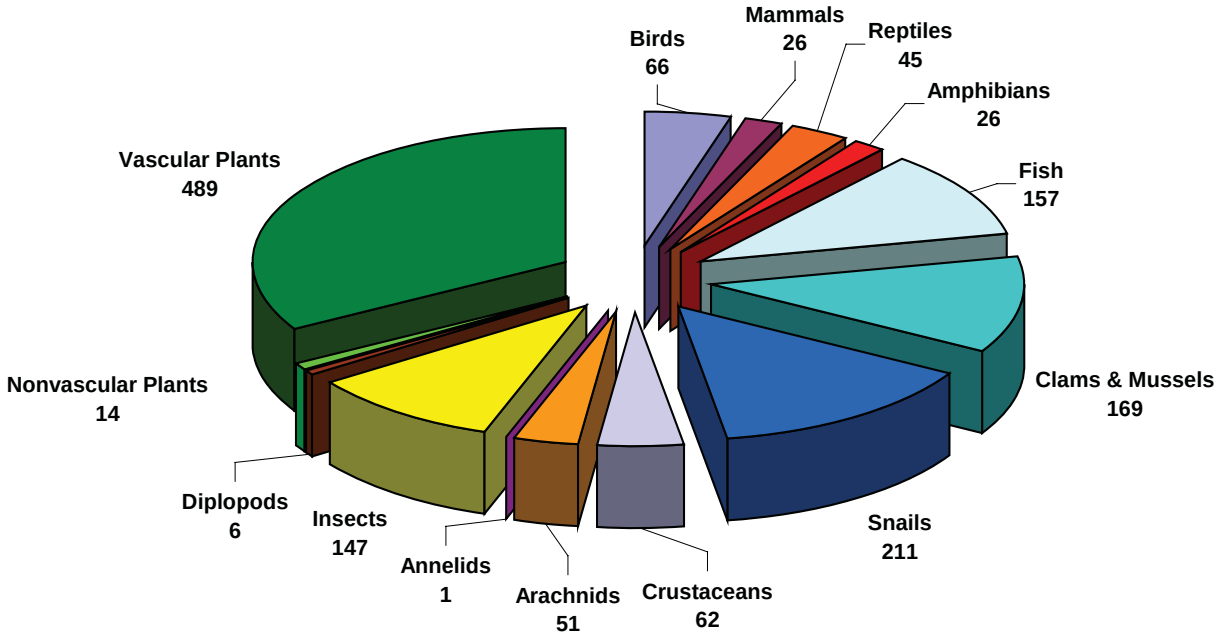

Figure 1. Number of rare plant and animal species tracked by ALNHP (total 1,470)

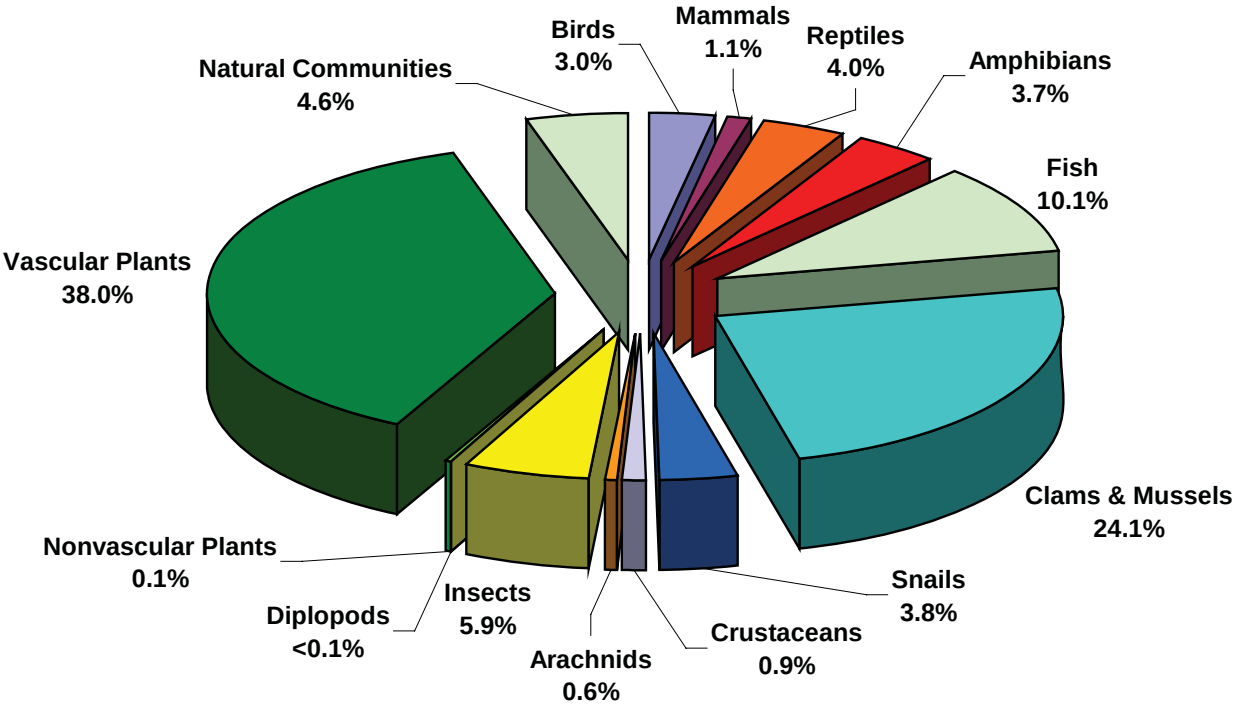

Figure 2. Percentage of 9,037 Element Occurrence Records in BCD by major taxonomic group.

to cooperators and other interested parties and posted to the ALNHP website.

Data Requests

Over the past two years, ALNHP responded to 28 paid data requests; 41 requests from academia, conservation non-profits, government agencies, or cooperating partners; 27 requests from NatureServe or other Heritage Network members; and 20 requests for an environmental review. The number of requests were similar to the past years.

Geographic Information Systems

ALNHP has continued working to build the program's GIS capacity by acquiring software and data layers. Our ArcGIS license was upgraded to version 9.0 through Florida State University's site license in 2005, and several metadata management programs were acquired during the past two years, including Intergraph's Spatial Metadata Management System (SMMS) and Metavist 2005 from the U.S Forest Service. These programs are particularly helpful with including the National Biological Information Infrastructure's (NBII) Biological Data Profile for the Federal Geographic Data Committee standard in our metadata.

The largest proportion of GIS work conducted was map production to support work conducted for our partners and clients. Almost all inventory work included the production of maps depicting survey results to be included in the final report, and several of the data requests we received included map production. GIS analysis also was used on several projects to prioritize areas prior to field surveys.

Metadata Creation and Implementation Assistance

ALNHP received funding under the 2004 National Spatial Data Infrastructure (NSDI) Cooperative Agreement Program Category 1: Metadata Creation and Implementation Assistance to create detailed metadata for the data types in our database. Metadata files were created for EOR data, Managed Area Basic Records (MABR), and Site Basic Records (SBR). These metadata files have been posted to our organization website (www.alnhp.org), the Geospatial One-Stop Portal (www.GeoData.gov), and the NBII Metadata Clearinghouse (http://mercury.ornl.gov/nbii/). To facilitate the creation of future metadata, several templates were created to make the process easier and more efficient.

Middle Coosa River, Upper Coosa River, Eightmile Creek, and Cotaco Creek Watersheds Nonpoint Source Prioritization Project

Work was completed on the Middle Coosa River, Upper Coosa River, Eightmile Creek, and Cotaco Creek Watersheds Nonpoint Source Prioritization Project with final reports submitted to the Alabama Department of Environmental Management (ADEM). This project involved the identification of "Threatened" and "Endangered" species and other sensitive areas with the watershed, and an evaluation of the threats to maintaining these species and biodiversity within these watersheds. In addition to analyzing EOR locations to identify those in proximity to potential hazards, large format maps depicting the important ecological information resulting from the analysis were produced to be used for local community based environmental protection and public outreach training and education.

Operations

The past year has been one of administrative change for ALNHP. The program was transferred administratively to the Florida Natural Areas Inventory (FNAI) at Florida State University on July 1, 2005. Effective November 1, 2006, the program transferred to the Environmental Institute at Auburn University. We thank

FNAI for providing a temporary administrative home while negotiations continued for an administrative home in Alabama, and look forward to the opportunities presented by the affiliation with Auburn University.

Virtually all of the work done by ALNHP is funded by contracts, primarily through state and federal agencies. During Fiscal Year 2006, funding support was provided by the Alabama Department of Conservation and Natural Resources, U.S. Fish and Wildlife Service, U.S Forest Service, U.S. National Park Service, MeadWestvaco, NatureServe, and miscellaneous private sources. In addition, Huntingdon College provides office space and utilities at no cost to the program.

Personnel Changes

- Bonnie Jones, our Administrative Coordinator, left the program January 2005 for a position with the Montgomery Chamber of Commerce.
- Jan Garrett, our Applied Conservation Ecologist, remained with TNC when the program underwent an administrative transfer to the Florida Natural Areas Inventory July 2005.

Current ALNHP Employees and Job Descriptions

Barbour, Michael S. - Science Information Program Manager/GIS Specialist

MS in Wildlife Ecology, University of New Hampshire (1993)

The Science Information Program manager is responsible for the maintenance of the ALNHP Biological and Conservation Database (BCD), and is the point of flow of information between ALNHP staff and outside users. This position is also responsible for the Geographic Information Systems component of the program and for graphic layout and design of program publications. Primary focus is to graphically represent ALNHP data and to create all map products for the program. Responsibilities include the creation and maintenance of a geospatial database including the creation of new data, collection and quality control of spatial and database data, assisting in the development of conservation plans, and integrating GIS into ALNHP projects.

Godwin, James C. - Aquatic Zoologist

MS in Zoology, Auburn University (1985)

The Aquatic Zoologist is responsible for the development and oversight of the aquatic component of the program's database on the biological diversity of Alabama. The Aquatic Zoologist contributes to the management and maintenance of the database on Alabama's endangered, threatened, and rare species and communities, as well as analyzing and disseminating that information to agencies, organizations, and individuals responsible for protecting and managing those species and their habitats. He/she also oversees the design and management of selected survey and conservation planning projects.

Schotz, Alfred R. - Community Ecologist/Botanist

MS in Plant Ecology, Buffalo State College, NY (1993)

The Community Ecologist/Botanist is responsible for the development and oversight of the botanical and natural community component of the program's database on the biological diversity of Alabama. The Botanist/Community Ecologist maintains and manages the database on Alabama's endangered, threatened, and rare species and communities, as well as analyzing and disseminating that information to agencies, organizations, and individuals responsible for protecting and managing those species and their habitats. He/she is also responsible for overseeing the design and management of selected survey and conservation planning projects.

Communications

Major Meetings Attended or Presentations Made

Al Schotz

November 13, 2004 - Presentation on the "Natural Heritage Network" for Auburn University, Bob Boyd's Special Projects class, at ALNHP office. (Montgomery, Alabama)

February 11, 2005 – Participated in Comprehensive Wildlife Conservation Strategy Habitat Meeting. (Montgomery, Alabama)

April 22, 2005 - Presentation on "Alabama's Botanical Diversity" to the Birmingham Chapter of the Alabama Orchid Society. (Birmingham, Alabama)

September 11, 2005 - Presentation on "Native Orchids of Alabama" to Alabama Orchid Society. (Anniston, Alabama)

November 12, 2005 - Presentation on the "Natural Heritage Network" for Auburn University, Bob Boyd's Special Projects class, at ALNHP office. (Montgomery, Alabama)

October 13, 2006 - Presentation on "Habitat Conservation" at the National Tree Farmers Convention. (Mobile, Alabama)

Jim Godwin

January 24-25, 2005 – Attended the Alabama Fisheries Association Annual Meeting. (Auburn, Alabama)

February 2-3, 2005 – Attended Alabama Crayfish and Mollusk Meeting (Decatur, Alabama)

Michael Barbour

September 28-29, 2004 – Participated in National Spatial Data Infrastructure 2004 Cooperative Agreements Program Project Kick-off Workshop. (Denver, Colorado)

October 29, 2004 – Participated in AlabamaView Consortium organizational meeting. (Jacksonville State University, Jacksonville, Alabama)

November 13, 2004 - Presentation on "GIS use by ALNHP" for Auburn University, Bob Boyd's Special Projects class, at ALNHP office. (Montgomery, Alabama)

December 3, 2004 – Presentation on "GIS Use in Natural Resource Conservation and Management" for Tuskegee University Environmental Biology class. (Tuskegee, Alabama)

December 9, 2004 – Presentation on "Alabama Natural Heritage Program and the SFI Biodiversity Objective" for the Sustainable Forestry Initiative State Implementation Committee. (Montgomery, Alabama)

January 26, 2005 – Attended the Sixteenth Annual Nonpoint Source Conference. (Montgomery, Alabama)

February 3, 2005 – Presentation on "Alabama Natural Heritage Program: Inventorying and Mapping Alabama's Biodiversity" for the Alabama Forestry Association Environmental Committee. (Montgomery, Alabama)

February 17, 2005 – Participated in the Lower Coosa River Basin Sub-Committee Meeting. (Clanton, Alabama)

March 8, 2005 – Presented "Middle and Upper Coosa River Nonpoint Prioritization Project: Identification of Threatened & Endangered Species and Sensitive Areas" for the Montgomery Chapter Sierra Club. (Montgomery, Alabama)

March 17-18, 2005 – Participated in Montgomery Groundwater Festival. (Montgomery, Alabama)

April 13-15, 2005 – Participated in The Association of Southeastern Biologists 66th Annual Meeting. (Florence, Alabama)

April 19, 2005 – Attended the Alabama Chapter of The Wildlife Society Annual Meeting. (Montgomery, Alabama)

May 11-12, 2005 – Presented posters "Identification Of Potential Mississippi Gopher Frog Ponds In Mobile & Washington County, Alabama, From Landsat Data: An Evaluation of the Feature Analyst Extension for ArcGIS to Support Biodiversity Inventory" and "Alabama Natural Heritage Program℠: Inventorying and Mapping Alabama's Biodiversity" at The 2nd Geographic Information System Symposium at Troy University. (Troy, Alabama)

June 7, 2005 – Participated in AlabamaView Consortium organizational meeting. (Jacksonville State University, Jacksonville, Alabama)

October 17-21, 2005. Attended the Organization of Fish and Wildlife Managers 2005 Annual Conference & Meeting. (Tallahassee, Florida)

November 12, 2005 - Presentation on "GIS use by ALNHP" for Auburn University, Bob Boyd's Special Projects class, at ALNHP office. (Montgomery, Alabama)

January 19, 2006 – Co-leader for "Threatened and Endangered Species and Critical Habitat Update in the Black Warrior River Watershed" workshop. (Birmingham, Alabama)

January 25, 2006 – Attended the Seventeenth Annual Nonpoint Source Conference. (Montgomery, Alabama)

February 13, 2006 – Participated in Alabama Forestry Association Sustainable Forestry Initiative Landowner Education Committee meeting. (Montgomery, Alabama)

April 16, 2006 – Participated in the Conecuh-Sepulga Clean Water Partnership Steering Committee meeting. (Anadalusia, Alabama)

May 4, 2006 – Attended the Alabama Invasive Plant Council Annual Conference. (Clanton, Alabama)

May 16, 2006 – Participated in the Alabama Forestry Association Sustainable Forestry Initiative Landowner Education Committee meeting. (Montgomery, Alabama)

May 17-18, 2006 – Attended the Alabama Chapter of The Wildlife Society Annual Meeting. (Livingston, Alabama)

June 8-9, 2006. Participated in AlabamaView Consortium organizational meeting. (Alabama A&M Univeristy, Huntsville, Alabama)

September 30, 2006. Presented display "Alabama Natural Heritage Program℠ – Inventorying and Mapping Alabama's Biodiversity" at Turtle Point Environmental Science Center's Celebrate the Environment Day. (Flomaton, Alabama)

October 16-19, 2006. Attended the Organization of Fish and Wildlife Managers 2006 Annual Conference & Meeting. (Minneapolis, Minnesota)

October 31-November 1, 2006. Attended the 3rd Annual Alabama GIS Symposium. (Auburn, Alabama).

Robert Hastings

January 25, 2005 – Attended the Alabama Fisheries Association Annual Meeting. (Auburn, Alabama)

March 16-17, 2006 – Participated in Montgomery Groundwater Festival. (Montgomery, Alabama)

September 10-11, 2006. Presented poster "Landowners and Endangered Species: "Safe Harbor" for Both!" at the Alabama Forest Association meeting. (Orange Beach, Alabama)

October 5-6, 2006. Presented poster "Landowners and Endangered Species: "Safe Harbor" for Both!" at the Alabama Treasure Forest Conference. (Montgomery, Alabama)

Publications

Peer-Reviewed and Published Articles:

Alabama Natural Heritage Program. 2005. Alabama Inventory List: The rare, threatened, & endangered plants & animals of Alabama. Privately printed by the Alabama Natural Heritage Program, Montgomery, Alabama. 56 pp.

Alabama Natural Heritage Program. 2006. Alabama Inventory List: The rare, threatened, & endangered plants & animals of Alabama. Privately printed by the Alabama Natural Heritage Program, Montgomery, Alabama. 56 pp.

Godwin, J. C. 2005. Paint Rock River Watershed. Pages 82-90. 2005 National Speleolgical Society Convention Guidebook. National Speleological Society, Huntsville, AL.

Godwin, J. C. in press. Long-tailed salamander, *Eurycea longicauda*. Amphibians and reptiles of Georgia. University of Georgia Press.

Godwin, J. C. in press. Cave salamander, *Eurycea lucifuga*. Amphibians and reptiles of Georgia. University of Georgia Press.

Godwin, J. C. in press. Pickerel frog, *Rana palustris*. Amphibians and reptiles of Georgia. University of Georgia Press.

Hastings, Robert W. 2006. Alabama's venomous snakes: Be aware! Alabama Wildlife 70(1):28-30

Schotz, A. 2005. Noteworthy collections: Alabama - *Lindera melissifolia*. Castanea 70:317.

Unpublished Project Reports:

Barbour, Michael S. 2004. Middle Coosa River, Upper Coosa River, Eight Mile Creek, and Cotaco Creek watersheds, nonpoint source prioritization project, CWAP Cooperative Agreement C20596062. Volume 3: Cotaco Creek. A project final report prepared for Alabama Department of Environmental Management, Montgomery, Alabama, December, 2004. 133 pages.

Barbour, Michael S. 2005. Middle Coosa River, Upper Coosa River, Eight Mile Creek, and Cotaco Creek watersheds, nonpoint source prioritization project, CWAP Cooperative Agreement C20596062. Volume 4: Eightmile Creek Watershed. A project final report prepared for Alabama Department of Environmental Management, Montgomery, Alabama, March, 2005. 70 pages.

Barbour, Michael S. 2005. Alabama Natural Heritage Program[SM] metadata, 2004 NSDI Cooperative Agreement Program, Category 1: Metadata Creation and Implementation, Assistance Award Number 04HQAG0147. An interim progress report prepared for the Federal Geographic Data Committee, Denver, Colorado. 2 pages.

Barbour, Michael S. 2005. Alabama Natural Heritage Program[SM] metadata creation, 2004 NSDI Cooperative Agreement Program, Category 1: Metadata Creation and Implementation, Assistance Award Number 04HQAG0147. A project final report prepared for the Federal Geographic Data Committee, Denver, Colorado. 3 pages.

Garrett, Jan. 2004. Report for Georgia rockcress, (*Arabis georgiana*) monitoring and restoration, Agreement No.1448-40181-02-G-113. Unpublished contract report submitted to U. S. Fish and Wildlife Service, Jackson, Mississippi. 4 pages.

Garrett, Jan. 2005. *Clematis socialis*, land use history, final report. Unpublished contract report submitted to U. S. Fish and Wildlife Service, Jackson, Mississippi. 7 pages.

Garrett, Jan. 2005. Green pitcher plant (*Sarracenia oreophila*) monitoring and restoration final report for 2004. Unpublished contract report submitted to U. S. Fish and Wildlife Service, Jackson, Mississippi. 11 pp.

Garrett, Jan. 2005. Interim monitoring report for *Clematis socialis*, Alabama leather flower 2004-2005. Unpublished report submitted to U. S. Fish and Wildlife Service, Jackson, Mississippi. 17 pages.

Garrett, Jan. 2005. Monitoring and restoration report for the canebrake pitcher plant (*Sarracenia rubra* ssp. *alabamensis*) 2004 – 2005. Unpublished contract report submitted to U. S. Fish and Wildlife Service, Jackson, Mississippi. 6 pages.

Garrett, Jan, and Al Schotz. 2004. Status survey and demographic monitoring for *Eriogonum longifolium* var. *harperi*, Harper's umbrella-plant, in Alabama. Unpublished report submitted to Tennessee Department of Environment and Conservation. 7 pages + 4 appendices (25 pages).

Garrett, Jan, and Al Schotz. 2005. *Eriogonum longifolium* var. *harperi* (Goodman) Reveal, Harper's umbrella plant demographic monitoring year 3 – 2005. Unpublished project final report submitted to Tennessee Department of Environment and Conservation by The Nature Conservancy, Birmingham, Alabama, and Alabama Natural Heritage Program[SM], Montgomery, Alabama. 5 pages.

Garrett, Jan, and Al Schotz. 2005. Monitoring report for *Clematis socialis*, Alabama leather flower 2004-2005. Unpublished report submitted to U. S. Fish and Wildlife Service, Jackson, Mississippi by The Nature Conservancy, Birmingham, Alabama, and Alabama Natural Heritage Program[SM], Montgomery, Alabama. 20 pages.

Godwin, James C. 2004. Status survey for the alligator snapping turtle (*Macrochelys temminckii*) at selected sites in the Mobile Basin drainage of Alabama: Year 1. Unpublished report submitted to the Alabama Department of Conservation and Natural Resources, Division of Wildlife and Freshwater Fisheries, Montgomery, Alabama. 16 pages.

Godwin, James C. 2005. Status survey for the alligator snapping turtle (*Macrochelys temminckii*) at selected sites in the Mobile Basin drainage of Alabama: Year 1. Unpublished report submitted to the Alabama Department of Conservation and Natural Resources, Division of Wildlife and Freshwater Fisheries, Montgomery, Alabama. 23 pages.

Hart, Barry D. 2004. A survey for the endangered Mississippi gopher frog (*Rana sevosa*) in Alabama. Unpublished report submitted to Alabama Department of Conservation and Natural Resources, Division of Wildlife and Freshwater Fisheries. 10 pages.

Hart, Barry D. 2004. A bait-station survey to assess black bear (*Ursus americanus*) presence in the Cahaba River watershed, Bibb County, Alabama. Unpublished report submitted to Alabama Wildlife Federation. 7 pages.

Schotz, Alfred R. 2004. Status survey on the night-flowering wild petunia, *Ruellia noctiflora*, in Alabama and Mississippi. Unpublished report submitted to U. S. Fish and Wildlife Service. 5 pages + 3 Appendices (40 pages).

Schotz, Alfred R. 2004. Natural community assessment and rare plant survey of the Buttahatchee River Bluffs, Lamar County, Alabama. Unpublished report submitted to the Weyerhaeuser Company, Columbus, MS. 10 pages + 3 Appendices (34 pages).

Schotz, Alfred R. 2006. An account of sandstone and limestone glades in William Bankhead National Forest. Alabama Natural Heritage Program, Montgomery, Alabama. Unpublished report submitted to United States Department of Agriculture, National Forests in Alabama, Montgomery, Alabama. 18 pages + 3 Appendices (26 pages).

Schotz, Alfred R. 2006. Inventory for *Sarracenia rubra* ssp. *alabamensis*, Alabama Canebrake Pitcher-Plant, on the Oakmulgee District, Talladega National Forest. Unpublished report submitted to United States Department of Agriculture, National Forests in Alabama, Montgomery, Alabama. 5 pages + 3 Appendices (35 pages).

Schotz, Alfred R. 2006. Supplemental surveys for the Alabama canebrake pitcher-plant *Sarracenia rubra* ssp. *alabamensis*, in Alabama. Unpublished report submitted to the United States Fish and Wildlife Service, Jackson, Mississippi. 4 pages + Appendix (7 pages).