

ALABAMA'S

TREASURED

FORESTS

SPRING 2003

A Publication of the Alabama Forestry Commission

- Alabama's Forests Through Time
- Crop Tree Release in Hardwood Stands
- Using GPS in Beetle Detection
- Water Quality in Alabama

A MESSAGE FROM . . .



BOB RILEY
Governor, State of Alabama



TIMOTHY C. BOYCE
State Forester

Since September 11, 2001 we have watched numerous units of our state's National Guard and Reserves being called to active duty. First they answered the call for homeland security and then to wars in far away Afghanistan and Iraq. We have all seen the tearful farewells on television or passed the long green National Guard convoys on our roads and interstates and felt that lump rise in our throats.

Currently Alabama has around 7,000 National Guard and Reserve troops deployed in "Operation Noble Eagle," "Operation Enduring Freedom," and "Operation Iraqi Freedom." Historically, Alabama and her sister southern states have supplied more soldiers than any other area of the country. Clay County in Alabama has the distinction of having more troops currently deployed than any other county in the nation.

These men and women represent the finest Alabama has to offer. Before donning their camouflage and combat gear they were little league coaches, Sunday school teachers, mayors, tradesmen, Girl Scout leaders, firefighters, policemen, and store clerks. But more importantly they are also mothers and fathers, sisters and brothers, and sons and daughters.

It is now time for the rest of us to act in supporting our soldiers. Although we can't replace them and the jobs or roles they filled, we can pick up and carry on where they left off until their return. For many, it means finding a little more time in the day, staying a little longer, arriving a little earlier, taking on another position or tackling a new task. It is also important that we show our support and respect for these hometown heroes by lending our time and support to the family members left behind. Sometimes war can be the toughest on those waiting at home.

In any trial or hardship our state has ever experienced, Alabamians have joined together in support and love for not only our family and friends, but for the neighbors in our community and even the unknown man or woman on the other side of town. As Alabamians, we are not only known for our hospitality, but for our compassionate hearts as well. I know that we will get through this time of trial and we will be better for it. 🙏

A historical and monumental event took place recently in north Alabama. This event will change forestry in Alabama in the years to come. The Center for Forestry and Ecology program at Alabama A&M University in Normal, Alabama, received accreditation by the Society of American Foresters. They became the first Historically Black College or University (HBCU) to be accredited by a professional forestry association.

In the past few years, the Alabama Forestry Commission has worked closely with administrators, faculty, and students to help make this happen. Our informal relationship began in the 1976 school year. The relationship was formalized eight years ago when one of our foresters was asked to serve on the program's curriculum committee. Four years ago, we became a full partner in the forestry program's Center of Excellence. The Forestry and Ecology program has only three partners, the U.S.D.A. Forest Service, the Alabama Forestry Commission, and International Paper.

A few years ago the Alabama Forestry Commission began a very active minority outreach program and students at Alabama A&M are a very important part of that program. The Commission has hired seven students from Alabama A&M as summer interns and we currently have five foresters working for us who were graduates of the forestry program.

In the past five years, Alabama A&M has graduated more African-American foresters than all other universities combined. With accreditation, many doors will be opened to African-American foresters that were before closed. They will be able to apply to be registered foresters in Alabama and other states that require registration as a requirement to practice forestry. They will also have better opportunities to compete for places in graduate programs at other colleges and universities as well as have better opportunities with forestry industry and federal and state land management agencies.

Congratulations to Alabama A&M University on your accreditation. I continue to pledge the Alabama Forestry Commission's support in this new chapter of our partnership. 🙏

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CONTENTS

- 4** “Legacy Among the Live Oaks” by *Madeline Hildreth*
- 7** Alabama’s TREASURE Forest Certifications by County
- 8** Alabama’s Forests Through Time by *Jim Lacefield*
- 13** Crop Tree Release in Pre-Commercial Hardwood Stands
 by *David Mercker*
- 15** Hardwood Surpasses Pine as Tree of Choice in Southern
 Timber Markets by *Betsy Bates*
- 16** Finding Those Bugs: Using Global Positioning Systems in
 Southern Pine Beetle Detection by *Jim Hyland*
- 18** Water Quality in Alabama: The Role of the Alabama
 Forestry Commission by *Tim Albritton and Jim Hyland*
- 22** Intersection and Resection by *Douglas A. Smith*
- 24** “Red Skies and Sun Dogs - Mares’ Tails and August Fogs”
 Predicting Weather the Old-Fashioned Way by *Coleen Vansant*
- 27** Crops Planted in Spring and Early Summer Attract Doves
 in the Fall by *Tim Cosby and Keith Guyse*
- 28** West Nile Virus in Alabama by *Coleen Vansant*
- 30** The Outreach Advisory Council: Another Step Towards
 Outreach Success by *Dana McReynolds*

DEPARTMENTS

- 2** Message from the Governor and the State Forester
- 12** Hidden Treasure: Cane Creek Canyon Wildlife Preserve
 by *Tilda Mims*
- 20** Threatened and Endangered Species: The Red Wolf (*Canus rufus*):
 Extinct in Alabama by *John Dickson*
- 32** Trees of Alabama: Cedar of Lebanon by *Tilda Mims*

COVER: A sure sign of Springtime in the Deep South - Acres of Mountain Laurel
 grace the TREASURE Forest of Robert and Carol Pittman in Mobile County.

Photo by Elishia Johnson

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Legacy Among the Live Oaks

By *Madeline Hildreth*
 Management Specialist, Alabama Forestry Commission

Good stewardship is a way of life for Tim String. His father, a Mobile surgeon, instilled love of the land in his son at an early age. They spent many weekends and holidays on their Mississippi farm. When Dr. String became ill, they sold the Mississippi property and purchased land in Baldwin County in 1995. The proximity to home allowed them to spend many hours improving the property. Though Dr. String enjoyed the property only a few years, Tim cherishes the quality time they were able to spend together. They spent at least every Sunday together, and this allowed them to become especially close before his death. Tim is committed to spending quality time with his family and teaching the same values to his children that his dad passed to him.

Tim's love and appreciation for nature are apparent in many aspects of his life. Not only does he spend time managing the 378-acre tract, his chosen vocation is serving as a hunting and fishing guide. He guides hunts in Western states during

late fall and winter; spring and summer are spent fishing in Alabama.

Tim's friend from high school, Danny Dunwell, was a frequent companion on visits to the Mississippi farm and later to Baldwin County. Danny loved working on the land so much that he became a forester, and he now assists with the management of the String's property. Tim and Danny's combined knowledge of wildlife and forestry has been put to good use on the land which had very little previous management. Although longleaf pines occurred naturally, the former owner added slash pines to the longleaf stands. Nothing else was done to manage the timber. The resulting timber, thirty years later, was overcrowded and stagnant. After purchasing the land, the timber was thinned over a five-year period, removing most of the loblolly and slash. The resulting stand was healthier and much more vigorous. An additional thinning is planned in the near future. Whenever possible, natural regeneration is intended after the final harvest.

Pockets of oaks occur naturally on the property. Though there are a variety of red oaks, live oak is the most prominent. Once the stands were opened up, the oaks really took off. Instead of fighting nature, Tim decided to favor the oaks because of their contribution to wildlife and aesthetics. After removing most of the pines from these areas, the oaks have taken over. The oaks are fertilized annually, and their growth is phenomenal. According to Tim, the live oak acorn production rivals any sawtooth oak. The large, graceful live oaks that surround the camp houses offer an idea of how beautiful these oak groves will be in the future.

Wildlife management is especially important to these winners of the 2001 Helene Mosley for the Southwest Region. The String family and their friends enjoy hunting and fishing, as well as observing different animals on the property. It is important to have wildlife on the property all year long, not just during hunting season. To ensure



The scenic and unspoiled Styx River runs through the String's TREASURE Forest. Its sandy bank, dotted with Atlantic white cedar, is a favorite gathering place for family and friends.

this, year-round food and cover needs are considered in all management. Along with the oak trees, native vegetation is encouraged through fertilization. Blueberries, honeysuckle, persimmons, chinquapins, muscadines, and greenbrier are fertilized to increase browse for wildlife. Additionally, thirteen food plots are scattered over the property. Rape, chicory, clover, and vetch are planted. Rye is planted in the winter. Supplemental feeding from February through September

provides additional food for the constantly improving deer herd. When conditions are good, the deer eat very little supplemental feed, but during a recent drought period, they ate almost five times as much feed. Cover is also important, and leaving unburned spots in the pine stands encourages thick areas that provide excellent bedding.

Since Tim serves as a duck-hunting guide,

it seemed appropriate for his property to have ducks. Three years ago a duck pond was built. This winter, over 160 wood ducks were on the pond. Watching the ducks was entertaining and educational, but it came at a cost. The ducks ate over 800 pounds of corn!

A larger pond provides excellent fishing for friends and family. The pond, along with a pier and sitting area, creates a scenic backdrop for the camp houses. The pond was on the property at the time it was purchased, but it had to be rebuilt after Hurricane Danny caused extensive damage. Situated above the pond are two camp houses. This area is surrounded by huge, gnarled live oaks. It is here that Paige String, Tim's wife, is reminded of the reason that all the work on the property is worthwhile. According to Paige, "When you watch the sun come up through the trees, you're just overpowered with the glory."

(Continued on page 6)



The woods and open areas provide a great place for the String children to play.

Spring 2003

Photos by Madeline Hildreth



Having wildlife on the property year-round is important to the String family. Browse vegetation such as honeysuckle is fertilized (top), and this planted field of clover is one of thirteen food plots scattered over the property (bottom).

An intensive prescribed burning program not only benefits the timber and wildlife programs, but also gives the area a park-like appearance. Since the woods are often full of children, the open areas provide a great place to play.

This unique property offers an opportunity for the owners to get close to nature. Because of its close proximity to their Fairhope home, the Strings are able to visit on late weekday afternoons. Plus, the size is workable. Tim enjoys being able to do the work himself, along with help from his friend Danny. Tim, Paige, and their three children also enjoy sharing the property, and another benefit of its nearness to home allows them to frequently invite guests. They have hosted large groups, including last year's Landowner Conference and the Baldwin County Teachers' Workshop. They have also entertained school groups from Fairhope Elementary and a pre-school class. But the family especially takes pleasure in having their friends and children visit. "The kids just love to walk through the woods. It's great to watch four or five little boys run around shoot-

ing at squirrels in the open woods," Tim remarked. (Though Landon, a third grader, refuses to eat the tree rats!)

The scenic Styx River runs through the property and its sandy bank is dotted with Atlantic white cedar. The unspoiled river is another gathering place for visitors. According to Tim, "It's a lot less crowded than the beaches and more fun!" The river and its sloughs, which have been left in their natural state, provide additional fishing spots.

Tim String loves the land and is committed to improving the forest and its resources. The growth of the oak trees, the improving deer herd, the nesting wood ducks, and the towering longleaf pines are all important. More important, though, are watching his children, Landon, McKenzie, and Sam, enjoy the land. Paige thinks it is especially good for her children's toys to be a little bit of God's creation. Picking flowers, catching butterflies, walking along the edge of the sandy riverbank, finding a rare four-leafed clover—these are the simple things that will instill the same values in Tim and Paige String's children that his



Tim says live oak acorn production rivals that of sawtooth oak.

father passed to him. These memories and the values they teach are the true TREASURES of the String property. 🌲



Photos by Madeline Hildreth

A pier on the large pond creates a scenic sitting area as well as provides excellent fishing for friends and family.



TREASURE Forest Certifications



Total TREASURE Forests: 1,830
as of January 31, 2003

Alabama's Forests Through Time

by Jim Lacefield

an Early Devonian forest

the Coal Age

the Age of Dinosaurs

the Ice Age to Today

If you are like many Alabamians you probably love to get out into the woods and watch the forests as they change through the seasons. As you walk along you may wonder how these forests might have looked before European settlers first came to this land. What must they have been like when the first Native Americans arrived on their long, frigid trek from Asia ten thousand years ago? You might even pause to wonder what types of forests would have greened this land much farther back in time during the days when the dinosaurs ruled the Earth.

It happens that answers to questions such as these may be closer than you might think. Our best source of clues to the long-term history of Alabama's forests may be right under your feet, literally! This information is contained in a natural database much more ancient and lasting than any library or computer disk. It is recorded in the layers of sedimentary rock such as sandstone, shale, and limestone that lie spread beneath most of the state. Alabama's rocks preserve the fascinating history of change that has occurred in the state's landscape and life through the nearly unimaginable span of half a billion years. These rocks and the fossils they hold tell the epic tale of this land as it first arose from the sea and was inhabited through time by an ever-changing succession of plant and animal species.

Forests, like all other living communities on Earth, are shaped by the environments in which they occur. Alabama's rocks record a remarkable diversity of physical environments that have existed here — from warm oceans that covered the land for many millions of years — to ancient tropical forests and deserts — to cold, windswept grasslands during the Ice Age. Our forests of today are, in a very real sense, the product of all of the past forests, climates, and landscapes that have preceded them here through the ages.

Clues to the Earliest Forests

The first evidence of ocean life in Alabama comes from rocks of the Cambrian Period of Earth history more than 500 million years old, but it is not until layers deposited a hundred million years later during the Devonian Period that the first signs of terrestrial (land-dwelling) life begin to show up. Fossils of early land plants first appear in a set of shallow ocean rocks geologists call the Frog Mountain Sandstone. These rock strata from the northeastern part of the state contain fragmentary traces of primitive land plants that grew here about 380 million years ago. Thin layers of carbon that discolor the rock in spots are the remains of stems and primitive leaves swept out to sea and deposited in offshore sand bars that today are preserved as the Frog Mountain Sandstone.

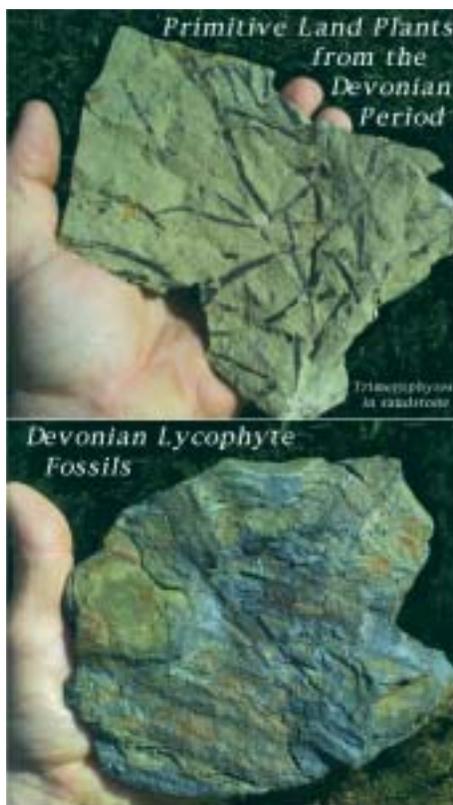
Fossils from other parts of the world indicate that the Earth's continents had first

been invaded by land plants during the previous phase of geologic time, the Silurian Period, at about the same time that Birmingham's Red Mountain iron ores were being deposited. These earliest land plants were spore-formers that had only primitive structures for moving water and food within their tissues. This inefficient arrangement of conducting tissue restricted them to small body size and to life in permanently wet habitats. By the Devonian Period, beginning slightly more than 400 million years ago, knee-high forests of these primitive plants had become well established on most of the Earth's continents. Near the end of the Devonian Period, sedimentary rock layers from the Alabama Piedmont called the Erin Shale contain the state's first primitive fossil plants that had attained tree-sized proportions.

The Hartselle Sandstone, a set of rocks from the next phase of geologic time — the Mississippian Period — contains the preserved remains of tree-sized lycopods and other primitive plant types that had gained a foothold on a shifting set of barrier islands that lay spread across what is now northern Alabama. Oddly enough, a variety of geologic clues suggest this land newly rising above the sea lay well south of the Earth's equator at the time. It might be hard for us to imagine a time so long ago when these earliest forests struggled to colonize this new land, but their story is written in stone in these ancient Alabama rock layers.

Alabama's Swamp Forests During the Age of Coal

Surprisingly, the ancient Alabama forests we probably know the most about grew here far back in time — over 300 million years ago — during the phase of the Earth's history geologists call the Pennsylvanian Period, or the "Coal Age." Our knowledge of these early forests is based on an extensive fossil record they left behind that continues to be uncovered



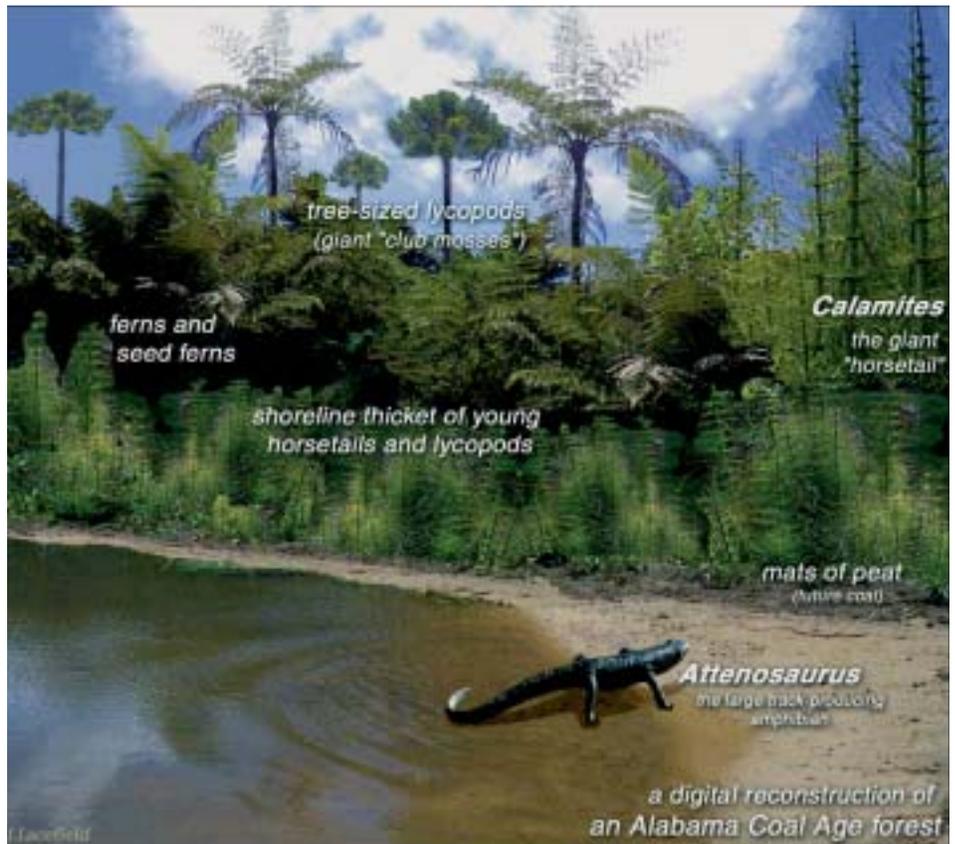
each day as their remains are mined in the form of coal. These abundant Coal Age fossils and the sedimentary rocks in which they are found provide clues to a fascinating “lost world” unlike any that has existed here in Alabama before or since.

It would be difficult to picture a more exotic landscape than the one found here during this part of the Earth’s history. Geological evidence shows that the continents were all in different positions from the present day, and the future land of Alabama lay in the sweltering tropics several degrees south of the equator at the time. Vast forests of lycopods — the primitive spore-forming trees related to today’s club mosses — towered above a broad coastal plain laced with many winding, sediment-filled rivers. Dragonflies with two-foot wingspreads darted beneath the sparse forest canopy and through a steamy under-story densely thicketed with giant horsetails and fern-like plants. Amphibians resembling an oversized version of today’s salamanders (such as the six-foot long *Attenosaurus* depicted in the Coal Age scene at the top of the page) left their human hand-sized footprints in mud flats near the water’s edge. These are found today alongside the wandering traces left by scavenging invertebrate creatures such as horseshoe crabs and millipedes.

Coal Age forests were unlike any on the Earth today in that all members of these prehistoric swamp communities have now been extinct for many millions of years. Many of the dominant “trees” of the time were gigantic members of primitive plant families whose only relatives today are tiny by comparison. The once-huge lycopods and horsetails whose remains make up most of Alabama’s coal grow only a foot or so tall in the present world. All members of another plant group known as seed ferns that dominated the coal forest under-story became extinct long before the age of the dinosaurs.



Attophlox, a long-extinct seed fern preserved in sandstone



The harsh tropical sun beats down upon an Alabama coal forest of 310 million years ago.

These strange Coal Age forest ecosystems resulted from special climatic, geographic, and biological conditions that were unique to that phase of the Earth’s history, but their reign was not to last. Profound changes were just beginning that would alter Alabama’s landscape even into our present day. The geologic forces of plate tectonics were in the process of shifting all of the Earth’s continents together into the ancient supercontinent geologists have named “Pangaea.” As part of this process, a landmass containing modern-day Africa and South America was being shoved northward into North America’s southern margin that included the future land of Alabama. As this southern supercontinent called “Gondwana” slowly crushed up against North America, the collision folded and uplifted the Earth’s crust to form the Appalachian Mountains. When this collision was finally complete by about 250 million years ago, all the Earth’s major landmasses were bound together in this single giant continent of Pangaea.

The future land of Alabama became locked within Pangaea’s dry interior, far from any moisture-producing ocean for more than a hundred million years. During this time the state was part of a

vast desert geologists believe was as dry and barren as modern-day Saudi Arabia. The lush tropical forests that had flourished here for so long vanished, leaving behind only their fossilized remains in the form of coal seams.

Alabama’s Forests During the Age of Dinosaurs

Following the trail of geologic clues to the development of Alabama’s forests onward in time, our next clear glimpse of the state’s prehistoric forests comes from rocks of the Cretaceous Period — the last

(Continued on page 10)



A college geology student examines a fossilized trunk section of a huge Coal Age lycopod tree.

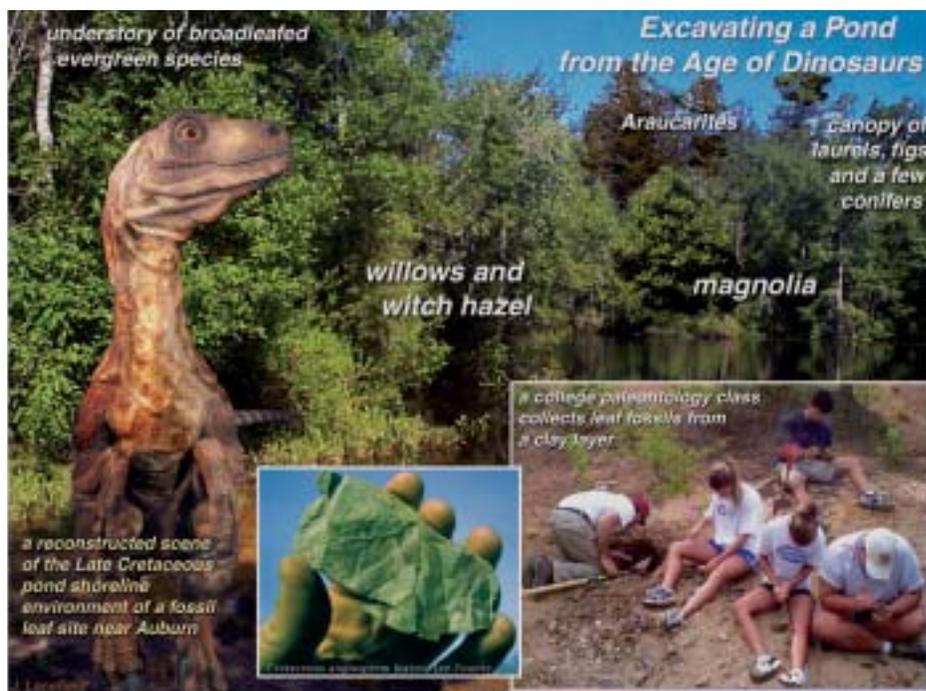
Alabama's Forests Through Time

(Continued from page 9)

part of the Age of Dinosaurs. Before this, however, there is a huge gap in Alabama's surface rocks, known to geologists as an unconformity that spans more than 200 million years. This gap separates the layers formed during the Coal Age from those that lie above them derived from this much later part of the Earth's history. These tell-tale "missing pages" of the geologic record are believed to represent roughly the length of time Alabama was uplifted and locked within the dry, mountainous terrain of Pangaea. Little new rock was deposited, and much of the land's surface was undoubtedly removed by erosion during this time. It was long thought that there might be no rocks left anywhere in the state that might provide information about this once-hidden part of the state's history.

Recently, tantalizing clues to these lost years of Alabama's past have been uncovered, but they come from rock layers now buried nearly five miles down beneath the southern part of the state. Deep drilling used to probe for natural gas resources has discovered unique sedimentary layers deposited in desert-like rift valleys that existed here as Pangaea first began to break apart during the Triassic Period, around 220 million years ago. As the continents rifted apart and the Gulf of Mexico first began to form, the land subsided and thick layers of sediment washed in from the north to bury these arid rift basins that date to the early days of the dinosaurs. On rare occasions fossilized bits of primitive plants called "cycads" that resembled small palm trees are brought to the surface in drilling cores extracted from these deep holes. Both these dry-adapted fossil plants and the unique sediments in which they are found suggest that even into the next part of dinosaur times known as the Jurassic Period, Alabama's climate was dry and the landscape probably only thinly vegetated. Again, it may be hard for us today to imagine a time when Alabama's environment and life were so different from the present day. These rocks buried so deep beneath South Alabama now supply a few of the key missing pieces to the strange puzzle that is the history of this land.

As the Gulf of Mexico basin first began to fill with ocean waters during the Jurassic Period around 190 million years ago, lush, tropical forests probably rede-



(Inset:) A college paleontology class collects fossilized leaves preserved in a dinosaur-age clay layer near Auburn. These leaves probably fell into a shallow, oxygen-poor coastal pond such as the one depicted in the reconstructed scene above.

veloped in Alabama in response to the new source of moisture. We don't have much information about these Jurassic forests or of the dinosaurs that must have walked them, because Alabama's rocks dating to this period lie deep underground and were deposited in ocean, not land, environments. Alabama's richest oil reservoir, the Smackover Formation, was formed on the floor of the young, expanding Gulf of Mexico during this time.

Geologic evidence of Alabama's forest history resumes again in rock layers deposited late in the Cretaceous Period, about 90 million years ago. Sea levels were very high, and a set of soft rocks geologists call the Tuscaloosa Group indicates that the state's coastline was far inland from the present one. The Gulf shoreline of the time ran from near Auburn in the east, to just north of the present-day cities of Montgomery and Tuscaloosa, then curved northward to slightly west of the Muscle Shoals area. Sediments of the Tuscaloosa Group are important in that they hold the first fossil leaves and petrified wood from a new plant group that would change the face of Alabama's forests forever. These new plants were the angiosperms, or flowering plants. During this part of Earth history flowering plants were spreading to be-

come the dominant plant group throughout the world. Today they include over 90 per cent of all living plant species.

As always, our knowledge of these Cretaceous Period forests comes from the types of plant fossils we find in rocks from the time. Fossils collected from the sedimentary layers of the Tuscaloosa Group include at least 187 species of fossil plants with 23 species of the cone-bearing gymnosperms, such as the cypress, and 152 species of flowering plants. Fossil leaves include ones from magnolias, laurels, figs, and *Araucarites*, a relative of today's Norfolk Island Pine.

Plant fossils also provide important clues to Alabama's climate during this period. A special type of fossil angiosperm wood known as *Paraphyllanthoxylon*, with living relatives found only in the Brazilian rain forest, helps biologists to conclude that the Late Cretaceous climate in Alabama was still tropical in nature, with adequate rainfall for thick forest development. This particular type of fossilized wood has almost no annual ring structure, suggesting very little seasonal differences in the climate. Another line of evidence to Alabama's Cretaceous Period climate has been derived from study of the percentage of this fossil flora that have entire (smooth) leaf margins.

Geologists studying past climates have been able to use this key characteristic of leaf structure to reconstruct the climate-related ecology of past forests with good success.

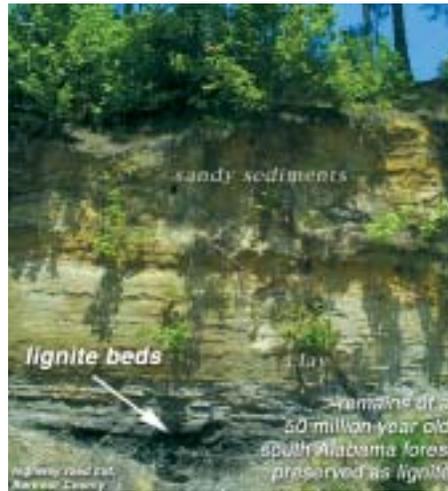
The Development of Alabama's Modern Forest Communities

Even after the days of the dinosaurs ended 65 million years ago in a sudden, catastrophic change in climate probably brought on by a large asteroid's impact with the Earth, evidence shows Alabama's forests continued to have tropical characteristics for millions of years. Dominant tree species as well as clues to the state's climate during this time frame that geologists call the Tertiary Period can be determined from fossils found in the rock layers from the time.

One special type of sedimentary deposit has been especially useful in providing clues to this portion of the state's history. These are the layers of lignite, or brown coal, found in east-west bands running parallel to the Tertiary Period coastline across south Alabama. Soft lignite coal is produced under similar environmental conditions to the much older coals formed during the Pennsylvanian Period, but they come from different plant species and result from different degrees of chemical change in the original plant material, called peat. These layers were never as deeply buried and therefore did not undergo as much chemical alteration.

Though these lignites will probably never have great economic value they contain important clues to the Alabama environment of about 50 million years ago. Plant fragments and fossilized pollen found in these lignites help to show the climate of coastal Alabama during this time. Oaks, hickories and walnuts, palms, tupelos, swamp cyrilla, water elms, and hollies are some of the broadleaf tree species preserved in the lignites. Conifer pollen includes that of cypress, dawn redwood, and a very few pine species that were just starting to make their appearance in Alabama forests. The presence of several tropical tree species suggests that the climate during this time was still warmer than that of the present, moist and with milder wintertime temperatures.

Alabama's forests had gained most of the tree families we find here today by the Miocene Epoch, about 20 million years ago. These forest communities would appear familiar to us even though the



individual species of these trees would continue to change. A global shift toward cooler climate that had begun about 35 million years ago had driven all of the tropical species southward, and deciduous trees such as oaks and hickories had become the dominant forest types.

A dramatic change in the world's climate beginning about two million years ago wrought far-reaching effects on Alabama's forest communities. The results of this climate change can still be seen in the composition of Alabama forests even today. This infamous natural event was the "Ice Age," also referred to as the Pleistocene Epoch of geologic history. Even though Alabama's landscape had largely reached its present form by this time the state's climate and life during the period were quite unlike today.

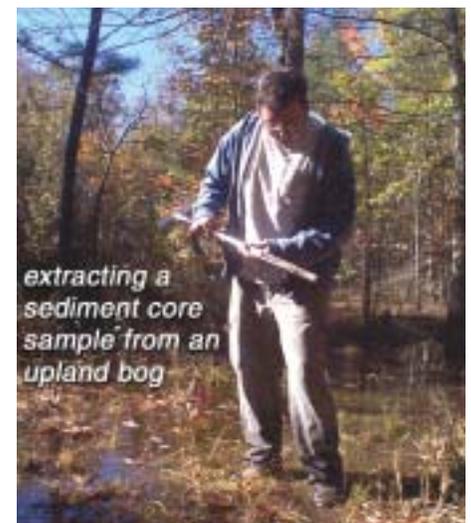
The Earth's Ice Age climate was much colder than average and glaciers up to two miles thick covered large areas of the northern continents. Massive ice sheets spread and then retreated many times over the last two million years. Glacial ice in North America advanced only as far south as the Ohio River Valley, and therefore, never came closer than several hundred miles to Alabama. Even this distance, though, was near enough to severely alter the state's biological communities. Huge Ice Age beasts such as mammoths, mastodons, giant bison, camels and ground sloths roamed the forests and grasslands of Ice Age Alabama. At times sea levels were so low due to the volume of the Earth's water locked up in the ice-caps that these animals could have grazed 60 miles south of Alabama's present coastline out onto the continental shelf.

Information on Alabama's Ice Age forests has come from several unusual sources. Among the most informative of

these has been the study of fossil pollen grains contained in core samples from special, undisturbed environments such as upland bogs and sinkholes. These pollen samples along with others from the eastern United States show that as glaciers advanced southward, vegetation zones shifted south with them. North Alabama then lay in a transition zone of northern hardwoods and evergreens such as hemlock and spruce similar to that found in southern Canada today. To the south were open forests of drought-tolerant trees interspersed with prairie-like grasslands. These studies suggest that this climatic disruption lasted until so recently that Alabama forests may still be in the process of recovering from the Ice Age, with many tree species slowly migrating back northward through the forests even into the present day.

Each glacial period was separated by brief, warm interglacial periods. Many scientists believe we may still be in the Ice Age and that glaciers will one day return. Our current interglacial period, called the Holocene Epoch, has lasted approximately 10,000 years. All of human civilization, written language, agriculture, and technology above the level of stone tools has come about in this geologically brief span of time.

From this thumbnail sketch of the history of Alabama forests it is easy to see that many factors have molded this land and its life through the ages. However, one new force today shapes our forests more than all others. Since humans first arrived here, man has been the most important force in forest change. The care we exercise in managing our forests will determine in large part our future quality of life and success in this land. ♣



HIDDEN



TREASURES

Cane Creek Canyon Wildlife Preserve

By *Tilda Mims*

Information Specialist, Alabama Forestry Commission

In the Little Mountains region of Colbert County, Jim and Faye Lacefield's family developed Cane Creek Canyon Nature Preserve, a 323-acre scenic natural area. For them it was a commitment to provide sanctuary for native plants and animals.

They purchased the first 40 acres with an unexpected inheritance. Over time, adjoining tracts containing Cane Creek and Devil's Hollow were added for a total of 413 acres certified under the TREASURE Forest program. Recreation and environmental education are the management objectives for the family.

Dr. James Lacefield teaches biology and earth science at the University of North Alabama, and has a special interest in paleobiology and paleoecology. He and his wife, Faye, also an educator, quickly recognized the area's unique natural history. They decided to preserve it and, perhaps more importantly, share it with schools, scouts, families, clubs, and others at no charge.

The rugged and varied topography provides a wide range of habitats and diverse natural communities. Canyons, waterfalls, rock shelters, and giant boulders create many special microhabitats and microclimates that allow a number of rare plant species to live here. A variety of soil types and environments are ideal to support an unusually diverse forest community.

Opportunities for visitors to this wildlife preserve rival any park or recreation area in the southeast.

Nearly ten miles of hiking trails provide routes to many scenic sites and overlooks. A four-wheel drive road permits access for elderly or handicapped visitors to many areas. Concrete bridges using rock and natural pigments blend into the environment, allowing hikers to cross streams.

Several well-maintained camping sites and picnicking spots are available.

Self-guided tree identification lists include common and scientific names of more than a hundred species of native trees and a few rare types.

Many rare and endangered plant species occur on the preserve. These include: Allegheny spurge, wild ginseng, several orchids, the giant columbo, two rare filmy ferns, and the little flood plain plant, Jamesianthus.

Thousands of native azaleas, including many natural hybrid forms are found here. Mountain laurel, yellow lady's slipper, showy orchids, trout lily, trailing arbutus, and a variety of other Appalachian species also appear that thrive in rich forest habitats and coves. One unusual type of wildflower community is found growing on giant boulders far above the forest floor. Many species in these special environments bloom weeks before their relatives growing below on the ground.

The first reported identification of French's Shooting Star, one of Alabama's rarest and most unusual wildflowers, was discovered here in 1988. The closest other colonies are located more than 300 miles away in the Boston Mountains of Arkansas. Small colonies are also found in Illinois, Pennsylvania, Minnesota, and Wisconsin, always growing in sandy soil weathered from sandstone

overhang above, in a protected strip where few other plants compete with it.

Each year many families, friends, and individuals enjoy camping, hiking, and picnicking on the preserve, taking full advantage of the Lacefield's gracious gift to the community. Garden and wildflower clubs, scout troops, and local schools and colleges are also frequent visitors. Since opening the not-for-profit Cane Creek Canyon Nature Preserve in 1986, they have averaged 700 visits per year!

Forest ownership is an excellent investment, but its dividends can be more than the type you put in the bank. For the Lacefields, seeing Cane Creek Preserve enjoyed by so many is reward enough. "It is both a personal and political statement that places such as this need to be preserved," says Dr. Lacefield. "The government can't do it all, so private landowners must take an active part."

Cane Creek Preserve is open year-round and the welcome mat is always out. 🌲





Crop Tree Release in Pre-Commercial Hardwood Stands

(Part I of a two-part article)

By *David Mercker*

Forestry, Wildlife, and Fisheries; University of Tennessee Agricultural Extension Service

The length of time necessary to grow quality hardwood trees is perhaps the greatest deterrent preventing private landowners from practicing hardwood management. Valuable trees such as white and red oaks, cherry, ash, yellow poplar, and black walnut require decades to reach financial maturity. This article describes how to accelerate growth rates in your young hardwood forest, which is vital to keeping your interest alive during the critical and dynamic time between seedling establishment and final harvest.

Timber Stand Improvement (TSI) is a forest management tool used to enhance growth rates of timber and shorten the time required for hardwood crops to mature. TSI provides an opportunity for

you to become actively involved in managing your timber, while increasing the possibility of a more favorable financial return.

Defining TSI and Crop Tree Release

TSI is controlling, manipulating, and improving the growth, quality, and species composition of a timber stand. One method of TSI is Crop Tree Release (CTR), the practice of deadening selected trees in younger, overstocked forests for the benefit of releasing desirable crop trees. Overstocked indicates a forest stand having more trees than is desired, causing the growth rate on individual trees to decline. CTR can be used to alter species composition within the forest,

and to concentrate diameter growth on desirable, potentially valuable crop trees. When applied properly, CTR results in a faster-growing, healthier woodland composed of a greater percentage of more acceptable trees. Similar to the principles applied to gardening, CTR allows you to guide your forest, leaving it with well-spaced crop trees whose crowns are capable of rapidly responding to increased growing space. CTR can be first applied to younger, pre-commercial stands (trees that are too small for market), with diameters ranging from 4 to 8 inches (measured at 4.5 feet above the ground).

(Continued on page 14)

Crop Tree Release in Pre-Commercial Hardwood Stands

(Continued from page 13)

For clarification, CTR is not the practice of beautifying a forest. For example, clearing undergrowth to improve the appearance or visibility of a forest or cleaning up tree tops left after a timber harvest are cosmetic practices having little effect on the growth of your forest investment.

Other practices of TSI not addressed here include: improvement harvesting, fertilizing, deadening culls, controlling wild vines, pruning and, to some extent, prescribed burning and site preparation.

Apply CTR on the Best Sites

Most hardwood forests could benefit from CTR to some degree, but the greatest benefit will be realized on more productive sites. This is where measurable growth response will occur and where returns on your investment will be realized more quickly. Sites with deep, fertile and moist soils, sites protected from hot and dry southwest winds, and sites where hardwood trees typically can

reach a height of at least 70 to 75 feet tall in 50 years are the best choices. These sites are typically found along rivers, creeks and drainages, on north- and east-facing slopes and in coves and ravines. Ridgetops and slopes with a southern or western exposure are drier and usually support less desirable species, such as blackjack and post oaks, blackgum, red maple, sourwood, elms and hickories.

Species found within the white and red oaks groups have traditionally commanded the highest price and should take top priority.

The condition of trees growing on a site can further indicate site quality. Trees found on better sites will have

smooth, thin and tight bark. Their tree tops are expanding (rather than stunted or flat-topped) and they will often have long, merchantable log length.

Select Stands with Desirable Species

Once the best sites have been located, desirable trees must be present. Not all of the best sites are composed of tree species worthy of CTR. Through past treatment (or mistreatment) of the forest, often the more acceptable and valuable trees have already been harvested. Many times, the residual trees were left because they were undesirable species with low market value

or poor form. When this is the case, CTR is not recommended. Instead, regenerating the stand is the priority.

Species found within the white and red oaks groups have traditionally commanded the highest price and should take top priority. They are the mainstay of the Southern forest products industry and are likely to remain so. Speculating on the trends of future markets also can help you decide which species to favor. For example, market cycles periodically cause sharp increases in price for alternative species such as yellow poplar, black cherry, black walnut, maple, and ash. Managing for a diversity of tree species can help you benefit from uncertain future timber markets. A mixture of tree species also offers diversity in wildlife food sources, particularly for smaller non-game species.

Likewise, markets fluctuate according to location. A study of the historical demand for wood products in your region, as well as seeking input from professional foresters, is essential before implementing CTR.

Use Correct Materials

A variety of tools such as hatchets, axes, hypo-hatchets, and tree stump injectors have been used to conduct CTR, usually in combination with a systemic herbicide applied to the cut surface. Some herbicides can be applied directly to the base of thin-barked trees for their deadening, while others require for the bark and cambium to be severed and herbicide applied to the open cut. Following the label instructions is crucial. Contact your local cooperative extension service or Forestry Commission office for recommended herbicides.

Another reliable method, with regard to both effectiveness and efficiency, is the chainsaw. A light-weight but powerful saw complete with safety features and a 14- to 16-inch bar length is sufficient. Using a double-girdle method with the chainsaw will eliminate the need for herbicide (see procedure section). Other safety equipment, such as ear and eye protection, leg chaps, gloves, and steel-toe boots are recommended. 

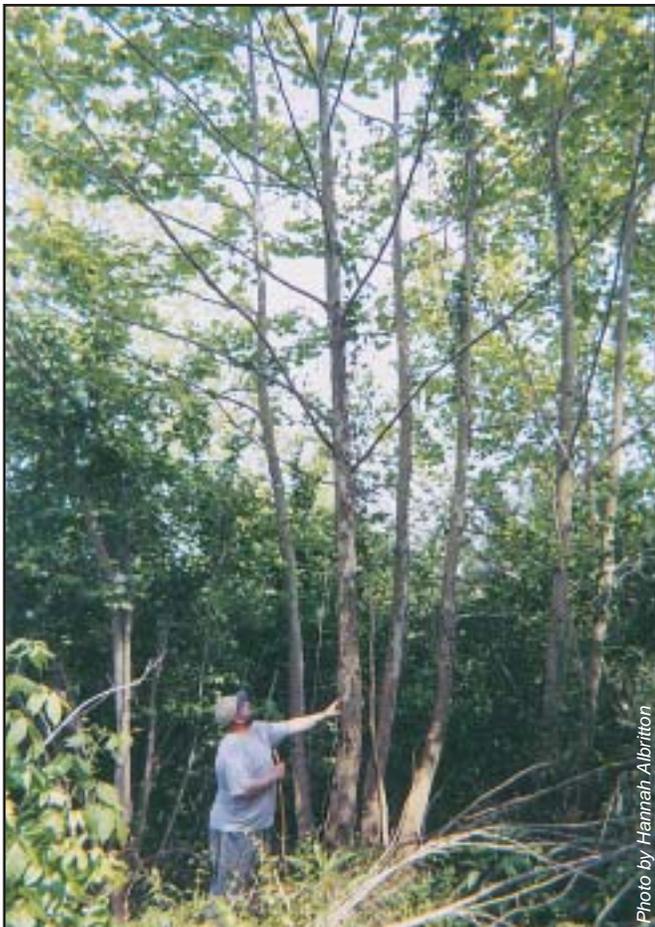


Photo by Hannah Albritton

HARDWOOD SURPASSES PINE AS TREE OF CHOICE IN SOUTHERN TIMBER MARKETS

By *Betsy Bates*

Bates Associates, Albany, Georgia

Strong demand and record prices for hardwood tree species dominated Southern timber markets during the final quarter of 2002, a trend likely to continue going forward into 2003, a leading forestry management and consulting firm reports.

A laggard for a long time in many timber markets outside Appalachia, hardwoods ranging from oak to gums to poplar and many other species have surpassed pine varieties as the trees of choice of timber buyers throughout the South. They are being aggressively sought by pulp and paper mills and for manufacture of hardwood lumber and other solid wood products.

“Hardwood and pine stumpage (standing tree) prices achieved something of an historic role reversal during the final quarter of 2002,” said Marshall Thomas, president of Albany, Georgia-based F&W Forestry Services, Inc., which provides forestry management and marketing services to private timberland owners in ten Southern states.

Thomas said timber sales data compiled by his company show that prices paid landowners for hardwood pulpwood reached a five-year high during the fourth quarter of 2002 while prices for pine pulpwood plunged to its lowest point in five years – 60 percent below its high for the five-year period.

“One of the most startling things about today’s pulpwood prices is that a lot of us never believed we would see hardwood prices as high as pine,” Thomas wrote in his company’s quarterly forestry newsletter. “Now they are almost double.”

Thomas said the swing in hardwood versus pine prices for large, lumber-class trees (saw timber) over the past five



years was less dramatic than for pulpwood, but the trend was still evident. He said prices for large hardwood saw timber in the fourth quarter of 2002 was just shy of its high for the past five years, while pine saw timber was only 16 percent above its five-year low.

“These five-year comparisons reflect both the topsy-turvy nature and the turmoil that have overtaken our timber markets in the recent past,” Thomas said, “and these conditions show little sign of abating as we move into 2003.”

During the fourth quarter of 2002, Thomas reported that average prices paid landowners for all classes of pine timber declined 3 to 5 percent in its Southeast Price Index Area (AL, FL, GA, SC), while prices for all hardwood timber were up strongly, averaging 36 to 74 percent.

Thomas said Southern tree prices continue to be depressed by the “destructive dumping” of Canadian lumber into this country despite stiff import tariffs. The

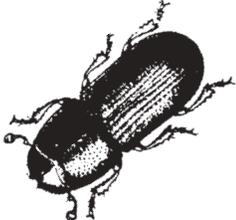
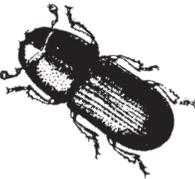
U.S. contends that Canadian lumber producers are effectively subsidized through below-market fees for trees harvested from Canada’s government-owned forests.

F&W handles timber sales and provides comprehensive forest management and consulting services to private landowners throughout the South through its offices in Phenix City and LaFayette, Alabama; El Dorado, Arkansas; Gainesville and Marianna, Florida; Albany, Atlanta, Macon, and Statesboro, Georgia; Jackson, Mississippi; Bethel, North Carolina; Abbeville, South Carolina; Huntsville, Texas; and Charlottesville, Virginia. 🇺🇸

The use of company names in this article does not constitute an endorsement by Alabama’s TREASURED Forests magazine or the Alabama Forestry Commission.



Finding Those Bugs: **Using** **Global Positioning Systems** **in** **Southern Pine Beetle** **Detection**



By *Jim Hyland*

Forest Health Specialist, Alabama Forestry Commission



Southern Pine Beetles kill on the average \$10 million worth of timber each year in Alabama. This economical impact far exceeds any other damaging agent in the state, including wildfire. The control of any Southern Pine Beetle infestation starts with detection. You have to find them before you can control them. The Alabama Forestry Commission (AFC) is charged by law to detect insect and disease infestations, determine the landowner, and contact the landowner with recommended control measures. Since 1997, the Alabama Forestry Commission has used a type of Global Positioning System (GPS) to record the location of the SPB infestations.

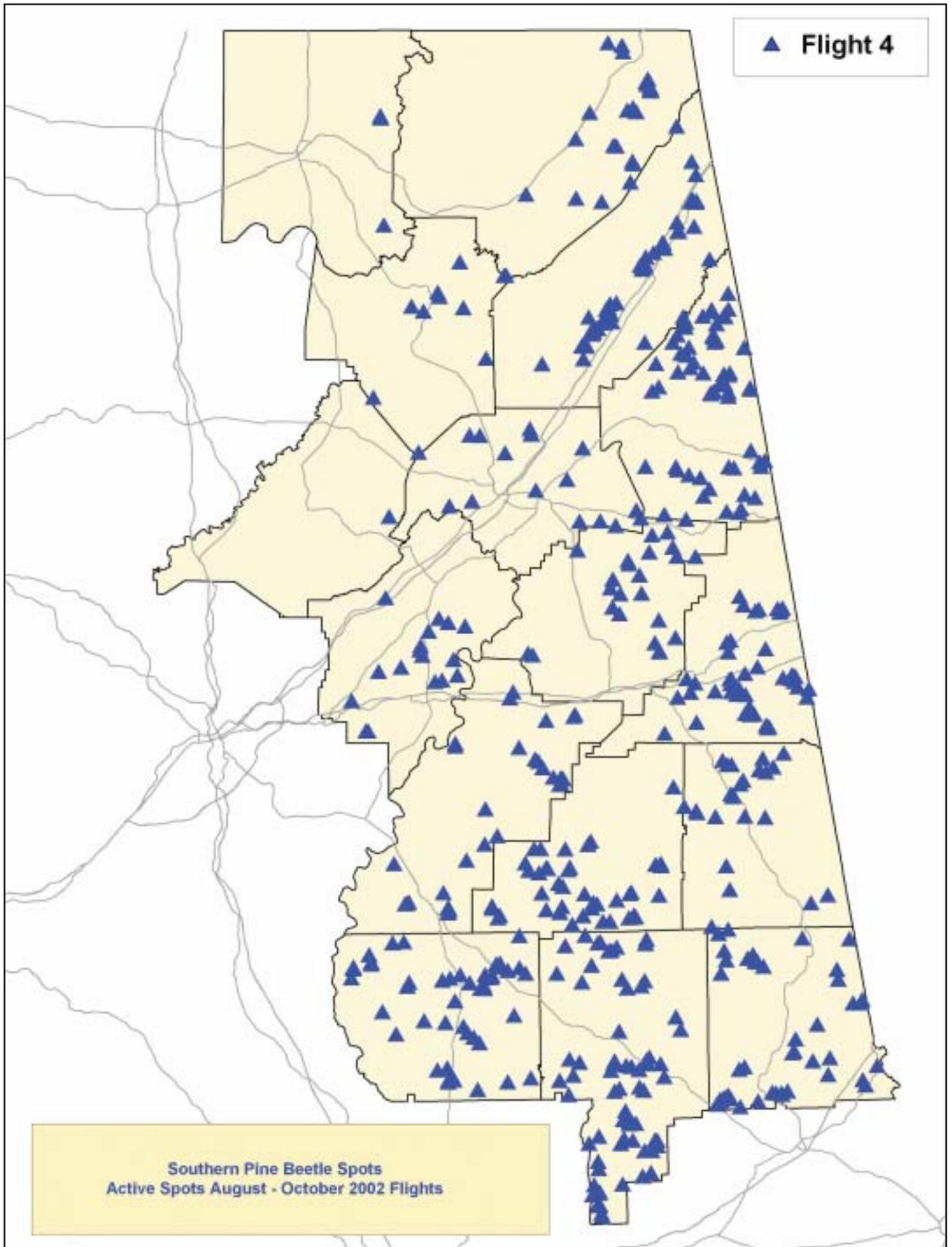
The GPS unit installed in the AFC aircraft communicates with satellites orbiting the earth. By “locking on” to several satellites at one time the latitude and longitude of the location can be determined and this information is stored in the GPS unit. The pilot and/or observers scan the forest through windows of the aircraft for SPB infestations and the pilot flies directly over the spot and records the location. Each county in Alabama is flown over (by region) four

times during a year. After a county flight has been completed, the SPB infestation data on the GPS is “downloaded” into a computer. This data is then transferred to a contractor who has a Geographic Information System (GIS) and the data from the GPS is displayed on a topographic map. Any information from the airplane can be overlaid on a map and printed out in any size. The Forestry Commission is presently using the Southern Company GIS, based in Birmingham as its contractor. Hopefully in the near future the Forestry Commission will have the GIS capabilities to print these maps without contracting this service.

The contractor is sent the GPS data and it is converted into maps. They furnish a large county map and smaller individual 8 X 11 maps of each infestation. After the state has completed each of the four flights, the contractor furnishes a large state map of all counties with SPB infestations and web-based maps of the AFC regions. The county maps and topographic maps with the SPB spot prominently centered on the page are sent to the County Forester. The County Forester enters the SPB spot information

into a computer data management program where the spot can be tracked until the infestation is controlled. This system allows the Forester to determine the number of active infestations in his county and to work with landowners who are having a problem getting their spots controlled. After entering the SPB spot data a letter is generated to all landowners who have active spots encouraging them to control the infestation as soon as possible. They are also sent an information packet containing the color map, control measures, and potential timber buyers who do SPB control work.

This GPS/computer mapping-based system has not only increased detection accuracy and efficiency, increased the percent of the spots controlled, and reduced man-hours expended, but it also gives a professional product and has set the standard for other states to follow in SPB detection efforts. If you as a landowner want to know more about SPB detection in your county, contact your local county Alabama Forestry Commission office. 🐞



▲ Flight 4

Southern Pine Beetle Spots
Active Spots August - October 2002 Flights

Water Quality in Alabama: The Role of the Alabama Forestry Commission

By **Tim Albritton**
Cost Share Administrator,
Alabama Forestry Commission

and

Jim Hyland
Forest Health Specialist,
Alabama Forestry Commission

The role of the Alabama Forestry Commission (AFC) is to educate all participants in forestry operations about the need to use Best Management Practices (BMPs) for Forestry to protect water quality. The use of BMPs is voluntary. However, we encourage their use to prevent the potential for violating federal and state water quality laws. BMPs have proven effective in this effort. We also offer our technical assistance to help prevent water quality complaints involving forestry.

Enforcement of the Alabama Water Pollution Control Act is by monitoring and responding to complaints. In forestry, the monitoring is done on a formal, statistically sound basis by the AFC. When a problem is discovered, the Commission works with the operator and landowner, following the same procedures as for a citizen complaint. When a citizen complaint about improper harvesting is filed, the Alabama Department of Environmental Management (ADEM) refers the complaint to the AFC for investigation.

Commission personnel will visit the site and look for lack of compliance with the BMPs and other obvious problems. If problems are found, the AFC discusses them with the logger, the supervising forester, and the landowner, suggesting ways to clean up the site and prevent future problems. Recommendations might include removal of tops and other debris from the stream, stabilization of roads, disturbed stream banks, stream crossings, skid trails and/or landings, and proper disposal of trash. Usually a 30-day clean up period is granted, after which the site is reinspected. In nearly all cases the site is

acceptable after clean up and the case is closed.

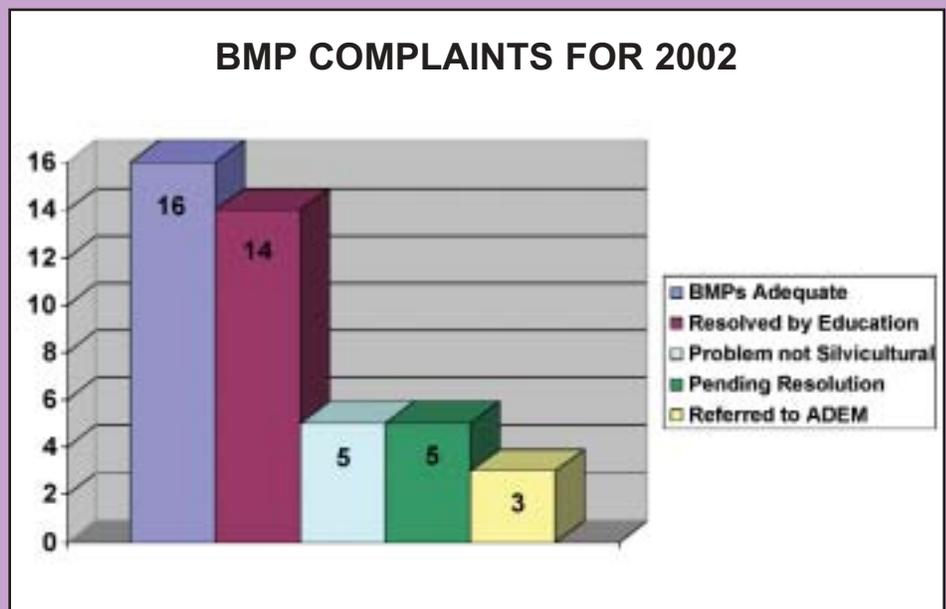
If the harvester and/or landowner refuses to clean up the damage, the case is referred to the State Forester's office and then to ADEM. ADEM has the legal authority and responsibility to protect water quality from either point or non-point sources of pollution. Violators may be subject to civil penalties of up to \$25,000 per day per violation unless effective actions are taken *immediately* to correct water quality impairment. These fines can be filed against all involved persons. Less than ten percent of BMP investigations statewide end up being referred to ADEM.

Description of Specific AFC Tasks Related To Water Quality

The following tasks have been identified by the Alabama Forestry Commission and are essential elements of the management plan to achieve Non-Point Source (NPS) pollution control from silvicultural activities.

1. Complaint Investigation

County AFC personnel will investigate any BMP complaints filed by the public or referred by ADEM or the Sustainable Forestry Initiative "hot-line." (A summary of the activities for Fiscal Year 2002 is found in the accompanying table.)



The 43 BMP complaints that the Alabama Forestry Commission responded to this year represents the highest number of complaints received during any previous year.

2. Basic Monitoring

Each year the Commission performs random aerial monitoring of logging operations over half of the state. (In Fiscal Year 2002, a total of 213 randomly selected harvest sites in the Southwest and Southeast Regions were aerially inspected. The northern regions will be monitored in Fiscal Year 2003.)

Additionally, each county monitors six harvesting operations each year, also selected at random, using the BMP monitoring form.

3. Intensive Monitoring

BMP monitoring activity will be increased in the ten highest severance tax counties to the level of eight harvest inspections per year, in addition to complaint investigations.

4. Cost Share Programs

There are several cost-sharing programs that assist landowners in developing their forest. These include the Forestry Incentives Program (FIP), the Alabama Agricultural & Conservation

Development Commission Program (AA&CDC), the Conservation Reserve Program (CRP), and the Stewardship Incentives Program (SIP). These programs refund the cost of forestry operations that meet certain specifications. The Commission provides technical assistance for these programs and includes BMP specifications in all operations on the landowner's property.

5. On-the-Ground, One-on-One Training

Commission personnel conduct this training in response to complaints and also during inspections. If an operator is misusing BMPs, it is easy to show him his mistakes on the property and show him how to improve future operations. This practice has proven effective in the past.

6. TREASURE Forest

The *TREASURE Forest* program encourages landowners, through public recognition, to manage their land in a balanced, ecologically-based manner

under a multiple-use system. Landowners target two specific land uses, while they work to enhance the entire forest ecosystem. One mandatory requirement is the use of BMPs in all forestry operations.

7. Publications & Booklets

Magazine articles, booklets, pamphlets, and presentations about Alabama's BMPs are used in outreach and education.

Summary

Overall, the Commission data for 2002 indicated a BMP compliance rate of about 95 percent. This signifies that loggers across Alabama are following Best Management Practices for Forestry. ♣

EPA Withdraws TMDL Rules – Finally!

The Environmental Protection Agency (EPA), on March 19, published the withdrawal of the Total Maximum Daily Load (TMDL) regulations issued by the Clinton administration in August 2000. The Clinton regulations were controversial from the time they were proposed in 1999. Almost simultaneous with their issuance in 2000, Congress passed a law preventing the regulations from going into effect and ordering various studies of their effectiveness. The TMDL program is a backstop measure by which states target waters that remain polluted after technological remedies have been applied to known sources. Various lawsuits were filed challenging the 2000 regulations, including one by the American Forest & Paper Association. The EPA obtained a suspension of the litigation through April 2003 to allow time to further review the TMDL program, the 2000 regulations, and the studies ordered by Congress. The EPA has not decided whether to continue with the pre-2000, reinstated regulations or to propose a new set of revisions. The agency had floated several ideas last year under the heading of a "watershed rule," but has now made clear that it has no schedule for proposing a new rule. ♣

Reprinted from *Forest Resources* (3/21/03), a publication of the **American Forest & Paper Association, Inc.**



The Red Wolf (*Canis rufus*): Extinct in Alabama

By *John Dickson*

Wildlife Biologist, Alabama Forestry Commission

Over the years I have had the privilege of talking to landowners, hunters, and casual wildlife observers about their observations of nature and the conclusions drawn from these experiences. People often tell me that they saw a wolf, and this assumption is usually based on the size of the animal observed. Almost inevitably these are coyotes, which frequently appear much larger than they actually are, due to their winter pelt.

History

Historical accounts suggest that red wolves (*Canis rufus*) were present across

the Southeast in the 1800's and that populations declined rapidly in the early 1900's due to an increasing human population and large-scale habitat manipulation, particularly clearing of forests. Bounties were instituted due to fears and misconceptions concerning wolves. Only a few studies relating to red wolves were done in Texas and Louisiana during the 1960's and 1970's; therefore little is known about them. In 1967, the red wolf was declared an endangered species, and it was declared biologically extinct in the wild in 1980.

Conversely, before 1970, there weren't any coyotes east of the

Mississippi River. As the red wolf population declined in the Southeast, coyote populations increased rapidly, and they now occur in all of the southeastern states. The release of coyotes into high fenced areas for hunting helped to expand their range as individuals escaped from these pens and established breeding populations. The success of coyotes may be attributed to their high rate of reproduction, diverse diet and habitat use, ability to live in close proximity to humans and lack of other large canids to compete with for available resources.

Restoration Attempts

Restoring large carnivores such as bears, mountain lions, or wolves is a difficult undertaking at best. These type species have home ranges that may cover thousands of acres, which usually limits restoration efforts to military bases, national forests, or national wildlife refuges. Areas such as these are among the only remaining large habitats with

minimal disturbance from humans and few bisecting roads. Public opposition to restoration attempts can be fierce due to concerns about livestock predation or misconceptions regarding interactions with humans.

Due to coyote encroachment from the west and the resulting hybridization with wolves, the decision was made to capture the remaining wolves and start cap-

tive breeding “pure” wolves to preserve the species. From 1973 until 1980, the U.S. Fish and Wildlife Service captured 400 individuals from southeast Texas and southwest Louisiana. They were compared to the established morphological standards to restore a true breeding population of wolves in North Carolina. Forty-three out of four hundred met the criteria and after cross breeding, only 14 offspring met the criteria. The existing population of wolves in North Carolina has descended from 12 of these 14 offspring. There are currently between 100-200 wolves mostly in North Carolina with a few small isolated populations on islands off the coast of South Carolina and Florida.

Taxonomy

The taxonomic integrity of red wolves has been debated for many years as to whether they are entirely distinct from coyotes as a species. There have not been any diagnosable mitochondrial markers identifying the red wolf as a separate species, although gray wolves and Mexican gray wolves show distinct characteristics.

Once a population gets low enough that only a few surviving individuals exist, the population may go through what is called a genetic bottleneck. Healthy wildlife populations thrive on the exchange of genetic material between populations, and reducing the number of breeding individuals can lead to reduced genetic diversity and an increase in abnormalities through the expression of recessive alleles.

Future Outlook

I believe that the population of “red wolves” that currently exist in North Carolina and other areas are a hybridized cross with coyotes. For this reason, I believe the species is genetically extinct. The factors that drove this species to extinction (habitat destruction, urban encroachment and negative public perceptions) are still present today; therefore reintroduction of “red wolves” on a large scale is highly unlikely. As the human population grows, wildlife species that can’t coexist with humans are in decline and species such as white-tailed deer and coyotes that can coexist with humans are thriving. If habitat fragmentation continues at the same rate, this same trend will continue in the future. ♣



George Gentry/U.S. Fish & Wildlife Service

U.S. Fish and Wildlife employee holds two red wolf pups that were bred in captivity. The red wolf is an endangered species that is currently found in the wild only as experimental populations in the Carolinas and Florida.

Intersection & Resection

By: *Douglas A. Smith*

Fire Operations Officer, Alabama Forestry Commission

In the distance, Ranger Jones sees the smoke from a fire. He believes it to be an uncontrolled forest fire and wants to locate it for further investigation. All that is needed is a compass and map. (There is no need to make a linear measurement.) How are these instruments used to locate the fire? The explanation may be clearer if you understand the information from a previous article, “Measuring Direction: Azimuth & Bearing” found in the Winter 2003 issue of *Alabama’s TREASURED Forests*.)

Intersection

Ranger Jones will use the method of “intersection.” While at fire tower A, Jones can see the smoke. He takes a compass reading and determines the smoke is at an azimuth (Az) of 287° or a bearing of $N73^{\circ}W$. (see figure 1)

Jones calls fire tower B on the radio and asks them to do the same process. Tower B reports seeing the same smoke and takes a compass reading. That reading is an azimuth of 47° or bearing of $N47^{\circ}E$. (see figure 1)

Both towers report their information to the dispatcher. Neither ranger knows how far away the smoke is from their tower. The dispatcher takes a map, locates tower A and from that point draws a line at $Az\ 287^{\circ} / N73^{\circ}W$. The same process is done for tower B and he determines that direction to be $Az\ 47^{\circ} / N47^{\circ}E$. He knows the smoke is located somewhere along each of the straight lines reported by the rangers. The only possible place is where the two lines intersect. (see figure 1) This intersection

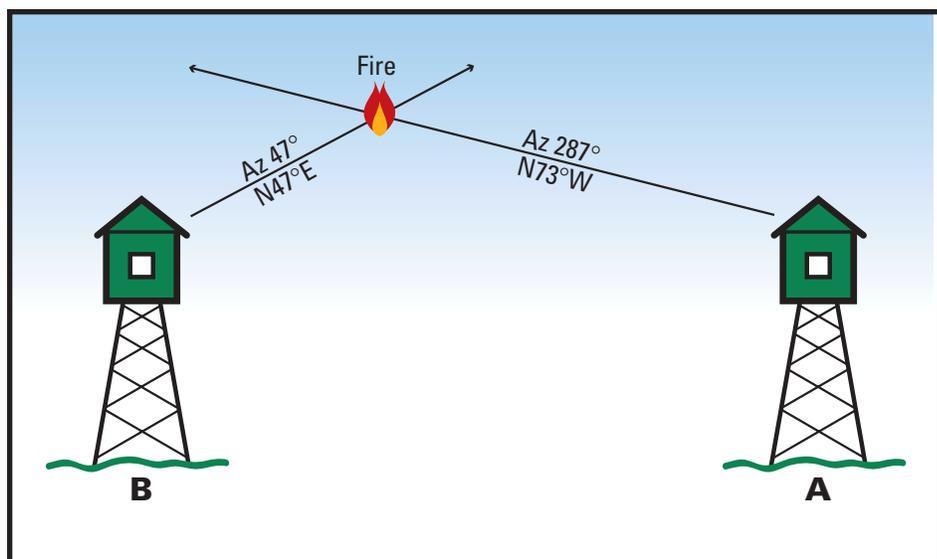


Figure 1 Example of Intersection method.

method determined one location from two known locations and two directions.

Of course, Ranger Jones could have done the same thing by being at any known location, measuring the direction, moving to another known location and measuring the direction, then plotting the lines on a map.

Resection

For this scenario, Ranger Jones is in the woods with a map and compass. He is at the fire described above and wants to plot it on a map so that it can be reported accurately. How will he accomplish the task? Jones will apply the technique of “resection.” While at the fire location, he can see the two fire towers (A & B). He takes his compass and gets a compass reading from his location to fire tower A of $Az\ 107^{\circ} / S73^{\circ}E$. He

does the same for fire tower B with a reading of $Az\ 227^{\circ} / S47^{\circ}W$. He gets his map and locates both fire towers.

The next step involves computation. [Mentally draw a straight line. Assume you are walking along that line, then turn and walk in the opposite direction. You have made a directional turn of 180 degrees. Either end of a line is 180 degrees opposite the other end.] Knowing this fact, Ranger Jones goes through a similar process, mentally drawing a straight line from the tower to himself. He therefore adds 180 degrees to 107 degrees and gets a reading of $Az\ 287^{\circ} / N73^{\circ}W$ from tower A to his location. (Does that direction look familiar from our intersection problem above?) He uses the same process for the other reading and computes [$227 - 180 = 47$] or $Az\ 47^{\circ} / N47^{\circ}E$. (Also sound familiar?)

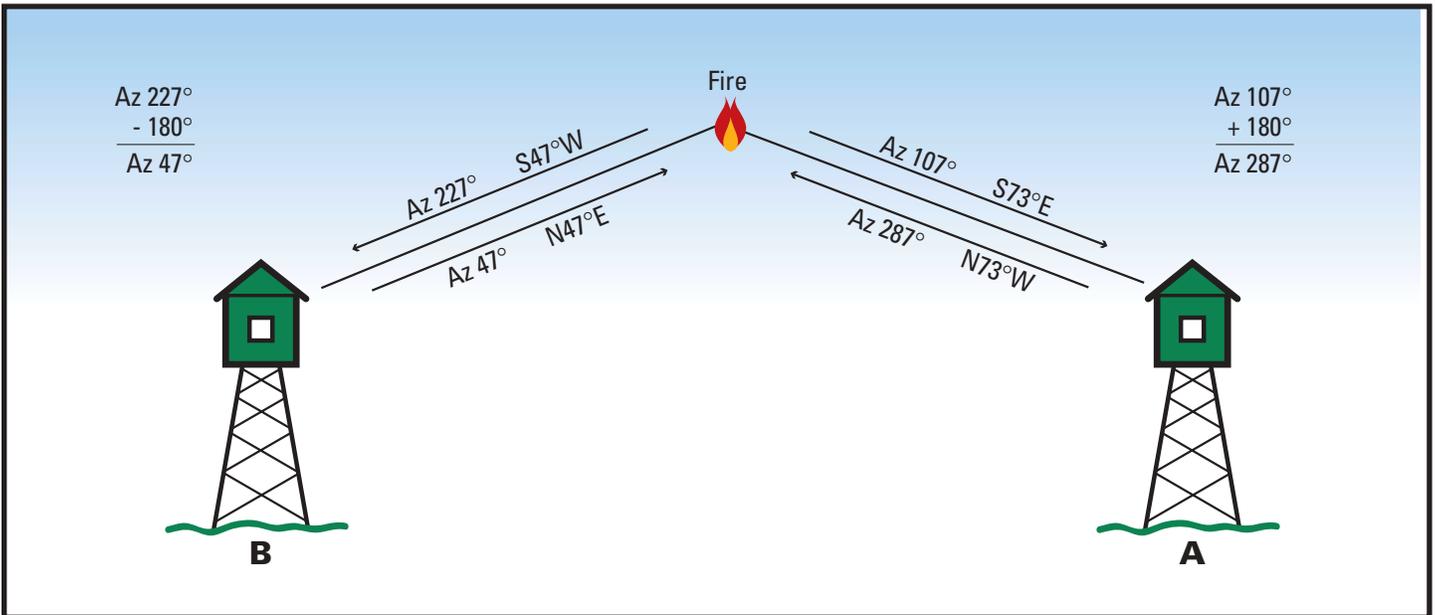


Figure 2 Example of Resection method.

Using these computations, he draws two lines (one from each tower) until they intersect at the location of the fire. The process has now changed from resection to intersection by applying the 180-degree line principle. (See figure 2)

Practice using Section and Resection. Both techniques require some map reading ability, a vantage point to see other places on the map, and knowledge of measuring direction. When you feel comfortable with both of these methods, you may proceed to the next method.

Modified Resection

A “modified resection” occurs when you try to locate your position when you have a general idea of where you are and can see only **one** known point. An example would be when you are on Highway 99, but you don’t know exactly where. You see fire tower A and get a compass reading of Az 235° / S55°W. You look on your map and find Highway 99 and tower A. You change your reading by 180 degrees. [235 - 180 = Az 55° / N55°E.] Take your map and draw a line from tower A in the direction of your

back azimuth or back bearing. The directional line of Az 55° / N55°E will cross Highway 99 at your exact location. (see figure 3)

Both topographic and county highway maps provide good material for the exercise described above. County highway maps are available from the Alabama

Department of Transportation in three scales. Topographic maps are available from a variety of vendors including the federal government.

Take your compass and map, and have some fun. Share your knowledge with a youngster. It will be exciting. 🗺️

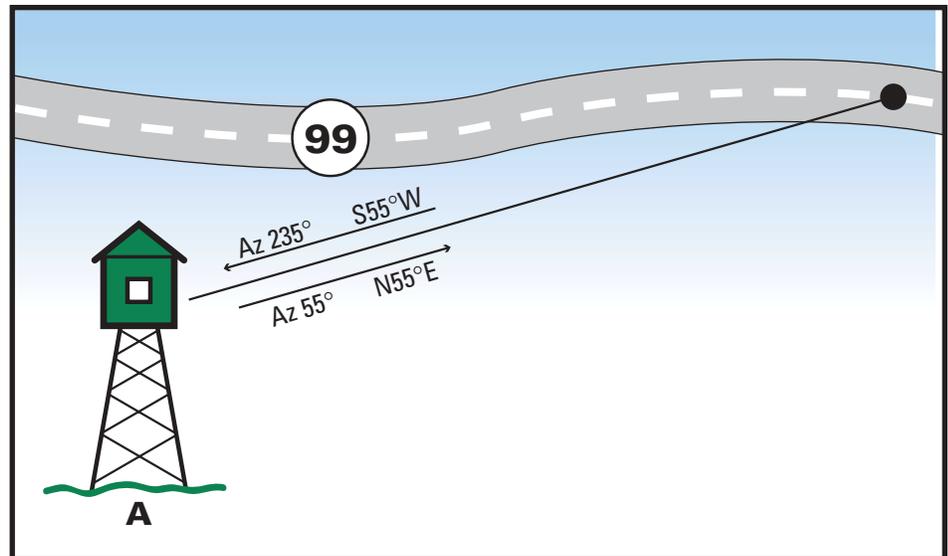


Figure 3 Example of Modified Resection.

Visit the AFC web site:
www.forestry.state.al.us

Weather Lore – Part 1:

“Red Skies and Sun Dogs – Mares’ Tails and August Fogs” *Predicting Weather the Old-Fashioned Way*

By *Coleen Vansant*

Information Manager, Alabama Forestry Commission

For most of us we only monitor the weather to see if it is going to be too hot, too cold, too rainy, or too windy for us to carry on our daily routines or weekend hobbies. We turn on the television to any number of network newscasts or monitor the Weather Channel to get the latest forecast.

A certified meteorologist presents us with charts, graphs, and maps of Doppler radar, Nexrad, air streams, temperatures, wind chills, heat indexes, and wind patterns all carefully plotted and predicted by computers aimed at satellites thousands of miles in space.

Today we know the exact tracking of a hurricane the moment it forms off the coast of Africa, and with sophisticated radar we can actually see a tornado form in the colorful mass on our television screens, while emergency sirens and weather radios give us warnings of impending life threatening weather. With the flip of a switch, turn of a button, or click of a mouse, we can find out quickly what the weather will do tomorrow or next week.

A thousand, one hundred, or even fifty years ago, the average person had no inkling of El Nino or La Nina, much less knowledge of how it would affect him and his family a year from now. All he knew of weather was what the things

around him told him: the sun, moon, animals, plants, and insects. These were his weather predictors and he watched them faithfully and carefully.

Man’s use of the sky to predict the weather is documented as far back as biblical days.

Matthew 16:2-3 reads, “He (Jesus) answered and said unto them, ‘When it is evening, ye say, It will be fair weather: for the sky is red. And in the morning, it will be foul weather today: for the sky is red and lowring.’” (KJV)

Go back even to the days of primitive man and you will see him depending on mother nature to tell him both the short and long range changes in weather. Our forefathers were farmers and hunters, shepherds and sailors, woodsmen and builders. The present and future existence of his family depended on his knowledge

of nature and being able to read the “predictors” that would tell him of coming changes in the weather and what he needed to do to prepare.

Farmers carefully watched for signs to know when to plant or harvest; sailors took notice of the sky, wind, and waves for signs of change in the weather. Shepherds and hunters learned that animals and insects would warn them of impending changes. Because so many were uneducated and the written word was rare, many of these observations were committed to poems and rhyme for easy recollection. For this reason, these simple proverbs were passed down from generation to generation. Over the centuries they have been altered some to accommodate the times, but they still provide a keen insight into how our ancestors looked to the heavens and nature for their weather forecast. Listed here are some of the more reliable and comical weather rhymes and ditties:

Rain before seven, fine before eleven.

*Cold is the night
when the stars shine bright.*

*Chimney smoke descends,
our nice weather ends.*

*When the ditch and pond offend the nose,
look out for rain and stormy blows.*

*When clouds look like black smoke,
a wise man will put on his cloak.*

*A rainbow in the morning
is the shepherd's warning.
A rainbow at night
is the shepherd's delight.*

*Catchy drawer and sticky door,
Coming rain will pour and pour.*

*When the wind blows from the west,
fish bite best.
When it blows from the east,
fish bite the least.*

*Red sky at night, sailors' delight;
Red sky in morning, sailors take warning.*

Rain then the wind, pick up and go in.

*If salt pork turns sour,
then be ready for a shower.*

*When a cow bellows three times without
stopping, rain will come a hopping.*

*If a cold August follows a hot July,
It foretells a winter hard and dry.*

*If there's thunder during Christmas week,
the winter will be anything but meek.*

*If it thunders on All Fool's Day,
It brings good crops of corn and hay.*

*The moon and the weather may change
together, but a change of the moon
will not change the weather.*

*Sea gull, sea gull, sit on the sand, It's never
good weather while you're on the land.*

Because it was so vast and obvious, one of the main weather indicators was the heavens and all of its bodies. The sun, moon, stars, sky, clouds and even rainbows were all depended on to give signs of what was to come. For instance, for sailors a blue sky in the northwest foretells fair weather and a good breeze. A Zuni Indian saying is, "If the moon's face is red, of water she speaks." One old proverb is that a rainbow in the morning indicates approaching rain; a rainbow at sunset tells that rain is leaving and fair weather is on the way. More weather lores pertaining to the sky and celestial bodies are listed below.

*A ring around the sun or moon,
means rain or snow coming soon.*

*If you look at the sun in the middle of the
day and there is a white halo (a Sun Dog)
around it, there will be a drastic change
in the weather within 12-24 hours.*

*A red sun at dusk (not a red sky)
tells of dry weather.*

*Mares' tails (cirrus clouds) and
mackerel scales (altocumulus clouds)
make tall ships carry low sails.*

*Evening red and morning gray,
sends the traveler on his way.
Evening gray and morning red,
brings the rain down on his head.*

*When small clouds join and thicken,
expect rain.*

*The sky turns green in a storm
when there is hail.*

*A veering wind will clear the sky,
A backing wind says storms are nigh.*

*A round-topped cloud and flattened base,
carries rainfall in its face.*

*When the wind is from the south
the rain is in its mouth.*

Clear moon, frost soon.

The east wind brings aches and pains.

A falling meteor predicts fair weather.

*If rain falls while the sun shines,
then the shower will last half an hour.*

Of all the seasons, earlier man appears to have been more worried about what winter would bring. Making preparations for himself, his family, and animals to survive what could be a long harsh winter was of vital importance. He was dependent on signs of nature to tell him what to expect during the winter months. There are far more proverbs and lores dealing with Old Man Winter than any other season. For instance, for every fog in August, there will be a snowfall in winter. When you hear the first cicada of the summer, expect the first frost of the year in exactly 90 days. Listed below are more sayings dealing with predicting the oncoming winter.

*Two frosts and lots of rain mean cold
weather is near.*

A late frost means a bad winter.

*At least three severe fogs in June or July
mean early snow.*

*Lots of low rolling thunder in the late fall
means a bad winter.*

*A long hot summer means a long cold
winter.*

*It will be a hard winter if smoke from the
chimney flows toward or settles on the
ground.*

If it's cloudy and smoke rises, expect snow.

*The number of days old the moon is
at the first snow, tells how many snows
there will be that winter.*

Burning wood pops before rain or snow.

*The closer the new moon to Christmas
Day, the harder the winter.*

*A warm November is the sign of a bad
winter.*

Thunder in the fall foretells a cold winter.

(Continued on page 26)



Photo by Coleen Versant

Predicting Weather the Old-Fashioned Way

(Continued from page 25)

After winter, rain was the next thing our forefathers worried about and there are many proverbs dealing with this subject. Next to a cold hard winter, rain affected them more than anything else. It is said that if it begins raining on the day the moon becomes full, it will continue raining until the moon quarters. Also, if it rains on Easter Sunday, it will rain every Sunday for seven weeks. It is believed it will rain if the following situations occur:

... *If the horns of the crescent moon point down.*

... *If the sun sets with clouds.*

... *If an ant covers the holes to his hill.*

... *If earthworms come to the surface of the ground.*

If there is a ring around the moon, count the stars in the ring and it will rain within that many days.

It will rain within three days if you see a black snake in a tree.

Campfires smoke more before a rain.

Look for foam on the river before a rain.

Water rising in springs and wells indicates rain.

When dew is on the grass, rain will never come to pass.

Sometimes weather was even predicted by the weather. Many believed the first frost of autumn would occur exactly six

months after the first thunderstorm in the spring. Here are a few more:

If autumn is windy, expect a mild winter.

If spring is windy, expect a cool summer.

It will be a wet summer if spring is dry.

A mild winter preceeds a cool spring.

A warm Christmas, a cold Easter.

Full moon in October without a frost,

No frost until November's full moon.

There was far too much information to include in one story. A second segment will follow in the Summer issue of this magazine dealing with predicting weather by animals, plants, and insects with more do-it-yourself weather experiments. ☼

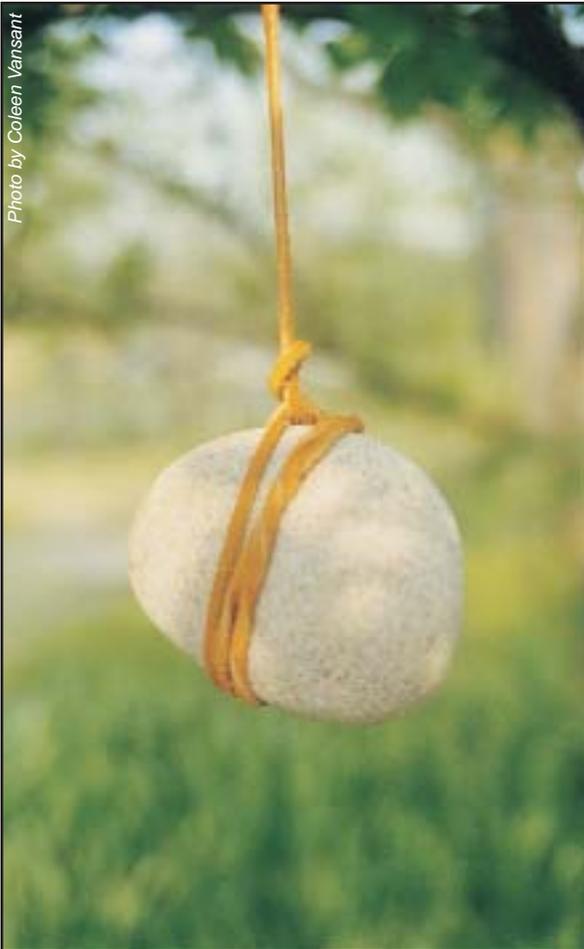


Photo by Coleen Varsant

Make Your Own "Weather Rock"

Tie a strip of leather or heavy twine around a smooth rock. Hang it in a tree or from a post, then watch for the following weather indicators.

If it's dry - the weather is clear.

If it's wet - it's raining.

If it's swaying back and forth - it's windy.

If it's casting a shadow - it's sunny.

If it's white - it's snowing.

If it's hard to see - it's foggy.

If it's cold - it's cold out.

If it's warm - it's warm out.

If it's gone - tornado.

Resources:

<http://www.reearthing.com/newpage2.htm>

http://www.essortment.com/weatherfolklore_ruao.htm

http://members.aol.com/Accustiver/wxworld_folk.html

<http://www.meds-sdmm.dfo-mpo.gc.ca/cmso/weatherlore.html>

<http://www.wrgb.com/wx/research/research.asp?Selection=folklore>

http://ashevillelist.com/weather_folk_sayings.htm

http://www.carolina.com/earth/weather_folklore.asp?print=yes

<http://www.stormfax.com/wxfolk.htm>

<http://ncnatural.com/wildflwr/fall/folklore.html>

<http://www.chestnut-sw.com/lore.htm>

<http://www.stalkingthewild.com/weather.htm>

The Foxfire Book, Anchor Books, 1972, New York

Crops Planted in Spring and Early Summer Attract Doves in the Fall

by **Tim Cosby**, Retired Law Enforcement Section Chief and **Keith Guyse**, Wildlife Section Assistant Chief
Department Of Conservation and Natural Resources,
Wildlife and Freshwater Fisheries

Mourning dove hunting is a popular sport in Alabama. It's a tradition passed down through generations. In fact, more hunters take part in dove season than in any other Alabama game bird season. Since doves are speedy aerial acrobats, considerable skill is needed to bag them consistently. Alabama hunters and landowners should know that, with a little prior planning and attention to the rules, dove fields can be planted that still provide an enjoyable and productive hunt and be completely legal.

Doves feed almost entirely on seeds of various types, either cultivated or grown naturally. Doves can be hunted near spots they go to for water and around openings of various kinds. However, most dove hunting occurs on fields managed for an ample supply of seeds under conditions the birds prefer.

Some areas that attract doves develop as a result of other activities such as row crop Carmine and livestock operations. However, most dove fields are the result of someone planning ahead to produce crops of seeds that will appeal to doves

during the fall and winter, and manipulating that crop to attract the birds at the particular time hunting will take place. The challenge is to choose good crops and plant them at the proper time in spring and early summer to produce seeds that mature at just the right time in fall. The mature crops can then be



James C. Leupold/U.S. Fish & Wildlife Service

manipulated to draw doves to the field for hunting. Such fields are totally legal under current state and federal law.

Milletts such as browntop, proso, and dove proso are favorites for doves and are relatively easy and inexpensive to produce. Corn and grain sorghum require more time to mature but have been used

for dove hunting for generations. Sunflowers are attractive for doves but do well only if grown in areas where the young plants won't be damaged by deer. Plan ahead so these crops can be planted at the right time to allow them to mature just prior to dove season.

Specific recommendations for planting and fertilizing crops vary for different regions of the state. County Extension Service offices are able to provide appropriate information for the areas they serve. (See table below.)

After a summer crop is grown it can be manipulated in the field to ensure the seeds are available to doves. The crop can be mowed, burned, grazed, etc. in the whole or in segments if necessary to extend its effectiveness for attracting doves. A crop grown for doves must remain on the field. Seed from an outside source cannot be added to the seed grown on the field. It is not legal to remove grain from the field and then redistribute it on the field. It is also not legal to store grain on the field where it is grown and then redistribute it on the field or move the grain from one location on the field to another location and redistribute it. Normally harvested fields of grain may be hunted over.

If your goal is to hunt doves in the fall, you must start early. Make plans for the crops you will grow. Plant at the proper times in spring and early summer.

Manipulate the crop (mow, burn, hay, disc or graze) prior to the dove hunting season to attract more birds. Buy plenty of shotgun shells, find a good recipe for cooking doves, invite your friends, and enjoy the experience. 🦋

Crop	How to Plant	When to Plant	Seed Rate
Corn	Rows	Recommended dates of Extension Service for variety	As recommended for soil type
Dove Proso Millet	Broadcast	July - early August	20 lbs. per acre
Brown Top Millet	Broadcast	At 2 week intervals in July	20 lbs. per acre
Grain Sorghum	Broadcast or rows	June – July	20-25 lbs. per acre
Sunflower	Rows	April 1 – July 15	10 lbs. per acre

West Nile Virus In Alabama

By *Coleen Vansant*

Information Manager, Alabama Forestry Commission

Last year, very few counties in Alabama escaped confirmed cases of the West Nile Virus (WNV) in humans or animals. According to health officials, the chances of a person contracting and becoming seriously ill from the disease is very slim.

According to the Center for Disease Control (CDC) in Atlanta, West Nile Virus is a flavivirus commonly found in Africa, West Asia, and the Middle East. It is not known from where the U.S. virus originated but CDC scientists believe the virus has probably been in the eastern U.S. since the early summer of 1999, or longer. The virus we have in the United States is most closely related genetically to strains found in the Middle East.

West Nile Virus has several degrees of severity. West Nile fever is a case of mild disease in people, characterized by flu-like symptoms. It typically lasts only a few days and does not appear to cause any long-term health effects.

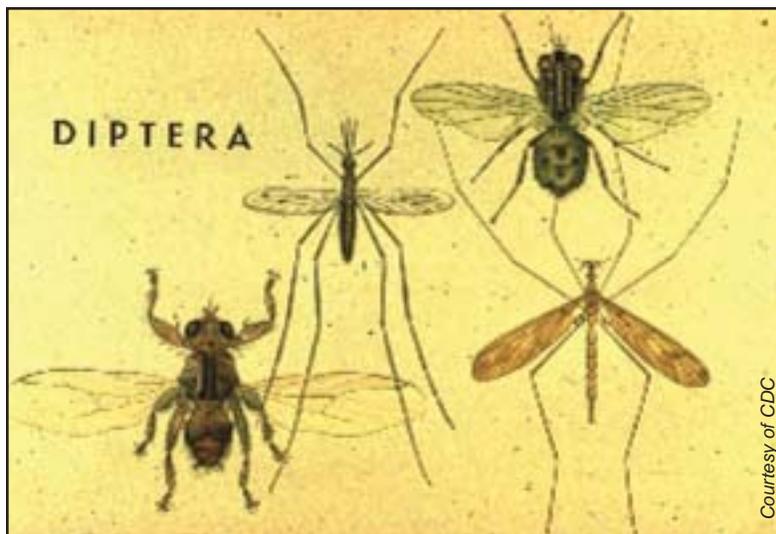
More severe cases of the disease can be West Nile encephalitis which refers to an inflammation of the brain, West Nile meningitis which affects the membrane around the brain and spinal cord, and West Nile meningoencephalitis which refers to inflammation of the brain and the membrane surrounding it.

How is It Spread?

West Nile Virus is principally spread through the bite of an infected mosquito. Around 30 different species of mosquitoes are suspected of carrying the disease. Mosquitoes become infected when they feed on infected birds. The virus finds its way into the mosquito's salivary glands, and during blood meals the virus may be injected into humans

*Mosquitoes . . .
"Two could whip a dog
and four could hold
down a man."*

- Mark Twain



and animals, where it can multiply and possibly cause illness.

You cannot contract WNV from other humans, for instance by touching or kissing. There is confirmation that the virus can be transmitted through transplanted organs and an investigation is still being conducted to determine whether it can be transmitted through blood or blood products. One confirmed case involved a transplacental (mother to child) infection. All of these cases are very small in proportion to transmission by mosquitoes.

The Symptoms in Humans

Only one out of five people bitten and infected by mosquitoes carrying the virus will develop West Nile fever. These symptoms include fever, headache and body aches, and occasionally a skin rash on the trunk of the body and swollen lymph glands.

One out of 150 people bitten and infected with the virus will experience the

more severe symptoms associated with West Nile encephalitis or meningitis. These symptoms are headache, high fever, neck stiffness, muscle weakness, disorientation, coma, tremors, convulsions, muscle weakness, and paralysis.

The incubation for WNV is usually 3-14 days. The symptoms of mild disease will last a few days. With the more severe disease they may last several weeks and neurological effects can be permanent.

Can You Die from WNV?

Death can occur from West Nile infection, but it is rare. Death rates from severe infections are highest among the elderly and those with weak immune systems. Death occurs in 3 to 15% of the cases of severe infection from encephalitis. In 2002, Alabama had 49 reported human infections, with only three deaths occurring.

Does West Nile Affect Animals?

West Nile virus has been found in horses, cats, bats, chipmunks, skunks, squirrels, domestic rabbits, and wild and domestic birds. It has not been found in dogs. In 2001 approximately 33% of horses that contracted the disease died from it or had to be euthanized because of it.

Last year, 577 dead birds across Alabama tested positive for the disease. Every county in Alabama except Lawrence, Greene, Bibb, Lowndes, and Crenshaw had positive birds. There were 88 positive cases for WNV in horses.

Animals with West Nile are not contagious to each other or to humans, and do not need to be destroyed. No food produced by an animal – milk, eggs, meat, etc., - has been shown to cause West Nile. There is no evidence that consuming infected birds or animals can transmit the disease.

How Do You Treat West Nile Virus?

For persons with West Nile fever, the symptoms are treated while their body fights off the infection, usually for three to six days. More severe cases require hospitalization and intensive treatment.

How Can WNV be Prevented?

You can reduce your chances of contracting West Nile by protecting yourself from mosquito bites. Below are a few tips:

- ✳️ When going outside, apply insect repellent containing DEET (N, N-diethyl-meta-toluamide) to exposed skin.
- ✳️ Wear long-sleeves, long pants, and socks when going outdoors. Treating clothes with repellents containing permethrin or DEET will give additional protection. Do not apply repellents containing permethrin directly to skin. Do not spray repellent containing DEET on the skin under your clothing, only on exposed skin.
- ✳️ Place mosquito netting over infant carriers when you are outdoors with infants.
- ✳️ Install or repair window and door screens so that mosquitoes cannot get inside your home.
- ✳️ The hours from dusk to dawn are peak mosquito biting times. You should consider avoiding being outdoors at these times, or take extra care to use repellent and protective clothing during evening and early morning.
- ✳️ You can reduce the risk of being bitten by a mosquito by eliminating any standing water around your home. Mosquitoes lay their eggs in standing water. Flowerpots, bird-baths, pet food and water dishes, buckets, barrels, and cans should be emptied and cleaned at least once a week. You should also check for clogged rain gutters.
- ✳️ Insecticide pellets can be purchased to kill mosquito eggs in standing ponds or watering holes utilized by

livestock. This will help eliminate the threat not only to you, but to your livestock as well.

- ✳️ Check to see if there is an organized mosquito control program in your area. The American Mosquito Control Assoc. (www.mosquito.org) offers a book that may be useful, *Organization for Mosquito Control*. The National Pesticide Information Center (www.npic.orst.edu) also has tips about pesticides and repellents. The toll-free number for their information line is 1-800-858-7378.
- ✳️ A vaccination is available to prevent the WNV disease in horses. Contact your veterinarian for more information on boosters. There is no vaccination for other animals or for humans. 🏠

Sources

Center for Disease Control:
www.cdc.gov/ncidod/dvbid/westnile/
Alabama Department of Public Health:
www.adph.org/westnilevirus



Photo by Coleen Vansant

Standing ponds such as this one are prime mosquito breeding areas. Although West Nile Virus is not usually fatal with humans, it is very dangerous for horses. Around 33 percent of horses that contract the disease either die or must be euthanized because of it. You can check with your veterinarian or local Farmers Co-op for livestock-safe insecticides.

The Outreach Advisory Council: Another Step Towards Outreach Success

By *Dana McReynolds*

Outreach Forester, Alabama Forestry Commission

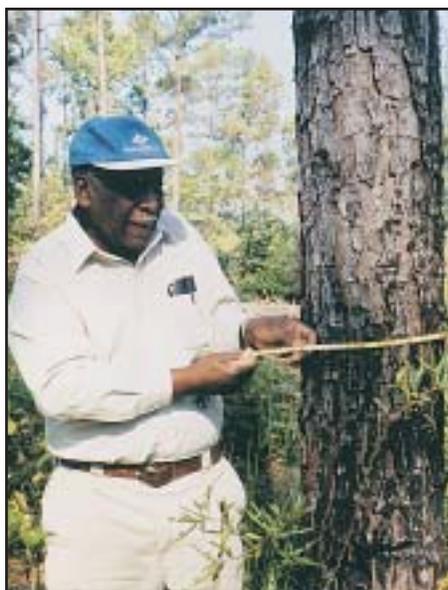
In a previous issue of *Alabama's TREASURED Forests* magazine, the commitment of the Alabama Forestry Commission (AFC) to the underserved forest landowners of Alabama was explained, and the necessity and basis for an Outreach program was established. At that time, four Outreach Foresters had been hired - one for each of the agency's regions - to work with the underserved forest landowners of the state. However, to enhance the efforts of these Outreach Foresters and to succeed exponentially, other "key players" needed to be involved in the program.

In the early part of 2001, State Forester Timothy C. Boyce established an Outreach Advisory Council to assist with the Commission's outreach efforts. The council consists of two underserved forest landowners from each region and two others at large that have demonstrated a commitment to sustainable forestry and an interest in community involvement. In addition there are also representatives from Tuskegee University, Alabama A&M University, Auburn University, the USDA Forest Service, the US Corps of Engineers, the Federation of Southern Cooperatives, and the Alabama Forestry Commission. The collaboration of such a diverse group can better achieve the common goal of outreach efforts.

To prioritize all of the ideas and activities, the Outreach Advisory Council identified three objectives. The first is to create an atmosphere of trust between the AFC and the underserved forest landowners. To accomplish this particular goal, the council will establish opportunities for the landowners and the Commission to communicate in a comfortable, timely, and consistent manner. Second, the council will assist the AFC in reaching out to these landowners by providing feedback to the Commission about the true effectiveness and priority areas of the program. The third objective is that the council will stimulate interest

and encourage participation of the underserved forest landowners in sustainable forest management practices by conveying to them the AFC's interest, understanding, and commitment to their land management needs.

At the council's initial meeting at Tuskegee University, it was decided that there would be at least four meetings a year - one in each region of Alabama, at a location identified by the council mem-



Landowner Gwinn R. Ezell of Hale County measures diameter of pine tree.

bers from that region. These meetings will be structured, but informal, with two sessions. Once the location has been chosen, the council will develop guidelines for its organization and activities. The council will encourage landowners to talk about the Alabama Forestry Commission's outreach efforts in their regions by identifying successes and areas in need of improvement. The council will also obtain information on the Commission's state and regional activities and strategic plan. The council will encourage feedback and advice about such activities from the underserved forest landowners. Finally, the council will

consider issues of recruitment and retention of minority employees in the AFC.

The meetings are well planned and usually coordinated around a forestry-related event such as the Tuskegee Farmer's Conference or the Federation of Southern Cooperatives' Annual Meeting. One particularly successful meeting was held at Auburn University's Hotel and Conference Center. It was strategically scheduled right before the Annual TREASURE Forest Landowner's Conference to encourage the council members to also attend the conference. At this Advisory Council Meeting, several invited guests gave presentations about their outreach efforts in the underserved communities of Alabama. The AFC's Assistant State Forester explained the Forestry Commission's strategic plan and each AFC Regional Forester explained the status of outreach accomplishments in his region. Additionally, the AFC Assistant Regional Foresters of Programs explained future plans for Outreach.

Another meeting was held at the Solon Dixon Center near Andalusia, Alabama. Important issues were discussed such as the progress of Alabama A&M University's Silvopasture Project, the stage of the Alabama Forestry Commission's Outreach Report, the development of an accurate minority landowners list, and the establishment of the new Forest Landowners Enhancement Program (FLEP).

Now, two years after the establishment of the Outreach Advisory Council, there is a general feeling that the meetings have been very successful. Many of the council members attend regularly and give positive feedback about the Commission's outreach efforts. The members are enthusiastically interested in participating and accomplishing the objectives of the Outreach program. ☪

Outdoor Alabama Photo Contest

Outdoor Alabama is pleased to announce its premier photo contest, with winning entries to be published in the February 2004 issue. The contest is open to any photographer except employees of the Alabama Department of Conservation and Natural Resources (ADCNR) and members of their immediate families. Previously published images are not eligible.

All photos must be taken in Alabama and species must be native to the state. The contest is limited to 35mm slides or larger format transparencies, or 5x7-inch or larger color prints. Unaltered high quality (300 dpi) digital images are also acceptable. No black and white photos, please. No more than 20 entries will be accepted from any one photographer.

Slides should be submitted in clear plastic storage sheets for ease of handling by judging staff. Each entry must be labeled on the transparency mount or reverse side of print with name and address of photographer and photo number to correspond with data sheet entry description.

All photos can be described on a single data sheet. Data sheet information must contain: name of photographer, mailing address, telephone number including area code, contest category and subject. Other information such as photo site location, month taken, equipment used, film speed and type, and lens/aperture settings are not required, but would be useful.

Categories:

- Birds
- Mammals
- Reptiles, Amphibians, or Fish
- Other Wildlife (butterflies, insects, etc.)
- Flora – wildflowers, foliage, fruiting bodies, other parts of plants or trees
- Recreational Activities – people enjoying the outdoors; outdoor people in action
- Scenic/Pictorial – photos in which landmarks, scenery, or inanimate objects are prominent (site location required for this category)

Judging staff will make selections based on quality, composition, content, originality, uniqueness, creativity, and general appeal. In addition to having their winning entries printed in *Outdoor Alabama* magazine, first place winners in each category will receive five rolls of slide film. Second place winners in each category will receive three rolls of slide film.

The judges reserve the right to decide whether a category contains work that merits awards.

All photos become the property of ADCNR. By submitting an entry, photographers grant permission to ADCNR to publish winning photos in any publication or on its web site. Appropriate credit will be given where such photos are used.

Deadline for entering the contest is October 31, 2003, at 5 p.m. Entries received after this time will be automatically disqualified and returned to the entrant immediately. To obtain an entry form call 800-262-3151, or write to Photo Contest, *Outdoor Alabama*, 64 N. Union Street, Suite 449, Montgomery, AL 36130. ☪

Errata: In the Fall 2002 issue of *Alabama's TREASURED Forests*, page 13 of "Are My Pines Ready to Thin," the correct DBH should have been "4 1/2 feet." We apologize for the error and any confusion it may have caused.
- the Editor

For current information on the Southern Pine Beetle situation in Alabama, visit the Alabama Forestry Commission web page at: www.forestry.state.al.us

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Cedar of Lebanon

Cedrus libani

By *Tilda Mims*

Information Specialist, Alabama Forestry Commission

Cedar of Lebanon, *Cedrus libani*, the most famous conifer of western Asiatic origin, is a member of the pine family (*Pinaceae*).

A native of Asia Minor and Syria, it is well known for scriptural and historical origins and is undoubtedly one of the earliest trees planted by man. The Bible tells us that King Solomon transplanted cedars from Lebanon into the plains of Palestine.

The fragrance, beauty, and remarkable durability of this tree made it a favorite for construction of ancient civilizations. The Tower of David and the temple in Jerusalem initiated by King David and completed by his son, King Solomon, was built of "wood of cedar without number" cut from the mountains of what is now Lebanon. The Bible makes more than 50 references to Cedars of Lebanon.

The tree was the basis of numerous economies for ancient civilizations where it was used for construction of temples, palaces, and boats. Export of cedar wood to Egypt was an important factor in the growth of Phoenician prosperity and provided capital to launch enterprises in international trading, navigation, and arts and crafts.

Egyptians used cedar sawdust for mummification. Cedar resin, which makes



wood decay-resistant, was used in embalming and to coat coffins and

papyrus to preserve them for the afterlife. The pitch of cedar was used to ease the pain of toothaches and its sawdust was thought to repel snakes, making shade of a cedar a relatively safe place to sleep.

Phoenicians and Egyptians were not alone in using cedar. The Assyrians, Nebuchadrezzar, the Romans, the King of Babylon, Herod the Great, and the Turks in the Ottoman Empire all exploited cedars. During World War I (1914-1918), most remaining stands were used for railroad fuel. Consequently, the Cedar of Lebanon has dramatically declined in its native range to only 12 stands, a total of slightly more than 4,000 acres.

A grand tree that requires lots of space to spread fully, it may reach 80-140 feet in height and a trunk 4-8 feet in diameter. The shape is pyramidal when young, but trees develop huge horizontal branches and a flattened top with age. The attractive dark green foliage persists for two to three years. Fruiting cones, which take two or three years to mature, are oval to oblong. On average, trees do not bear cones until they are 40 or 50 years old.

The Alabama Champion Cedar of Lebanon is in Lamar County. It is 125 inches in circumference and 61 feet tall, with a 61.75 feet crown spread. 🌲



Alabama's **TREASURED** Forests
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CHANGE SERVICE REQUESTED

PRESORTED
STANDARD
U.S. POSTAGE
PAID
MONTGOMERY AL
PERMIT NO 109