

ALABAMA'S

TREASURED

FORESTS

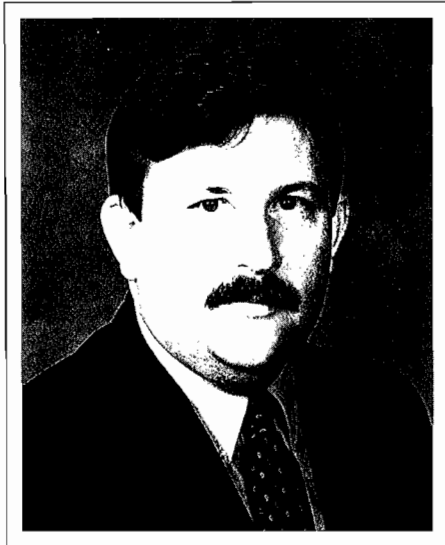
SPRING 1999



SPECIAL WILDLIFE ISSUE

STATE FORESTER'S MESSAGE

By TIMOTHY C. BOYCE, State Forester

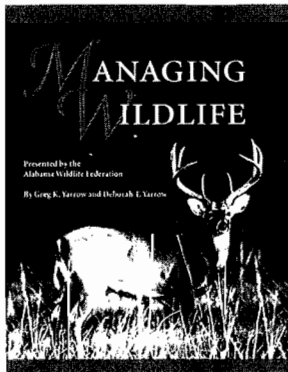


The person who said, "Getting something done is an accomplishment; getting something done right is an achievement," must have been thinking about the Alabama Wildlife Federation's new book, **Managing Wildlife**.

If you are a landowner interested in managing wildlife on your property, this book is a "must" for your library. Even the avid hunter, fisherman, or outdoor enthusiast should possess this publication. It surpasses anything on the shelves today.

Although the book is not written for the professional wildlife biologist, they too would be proud to own a copy. The book is easy to read with colorful illustrations and photos. Topics range from bluebirds to fish ponds with everything else in between.

I know that former AWF Executive Director Dan Dumont must be proud to know that through his able leadership such a masterpiece is now available to land managers. Dan, Rhett Johnson, Mickey Easley, Stan Stewart, Tim Gothard (new AWF executive director), Dr. Jim Huntley, Ted DeVos, Joe McGlincy, and Dr. Jeff McCollum worked diligently over the past four years to ensure that **Managing Wildlife** was all it could and should be. Once you see the book, I'm sure you will agree that their efforts were successful.



If you would like to review the book before you make a purchase, a copy is available at every Alabama Forestry Commission office. You can purchase **Managing Wildlife** from Books-A-Million or from the Alabama Wildlife Federation in Montgomery by calling 1-800-822-WILD.

Sincerely,

A handwritten signature in cursive script that reads 'Timothy C. Boyce'.

Timothy C. Boyce
State Forester

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The Alabama Forestry Commission supports the Alabama Forestry Planning Committee's TREASURE Forest program. This magazine is intended to further encourage participation in and acceptance of this program by landowners in the state. Any of the agencies listed above may be contacted for further information about the TREASURE Forest program.

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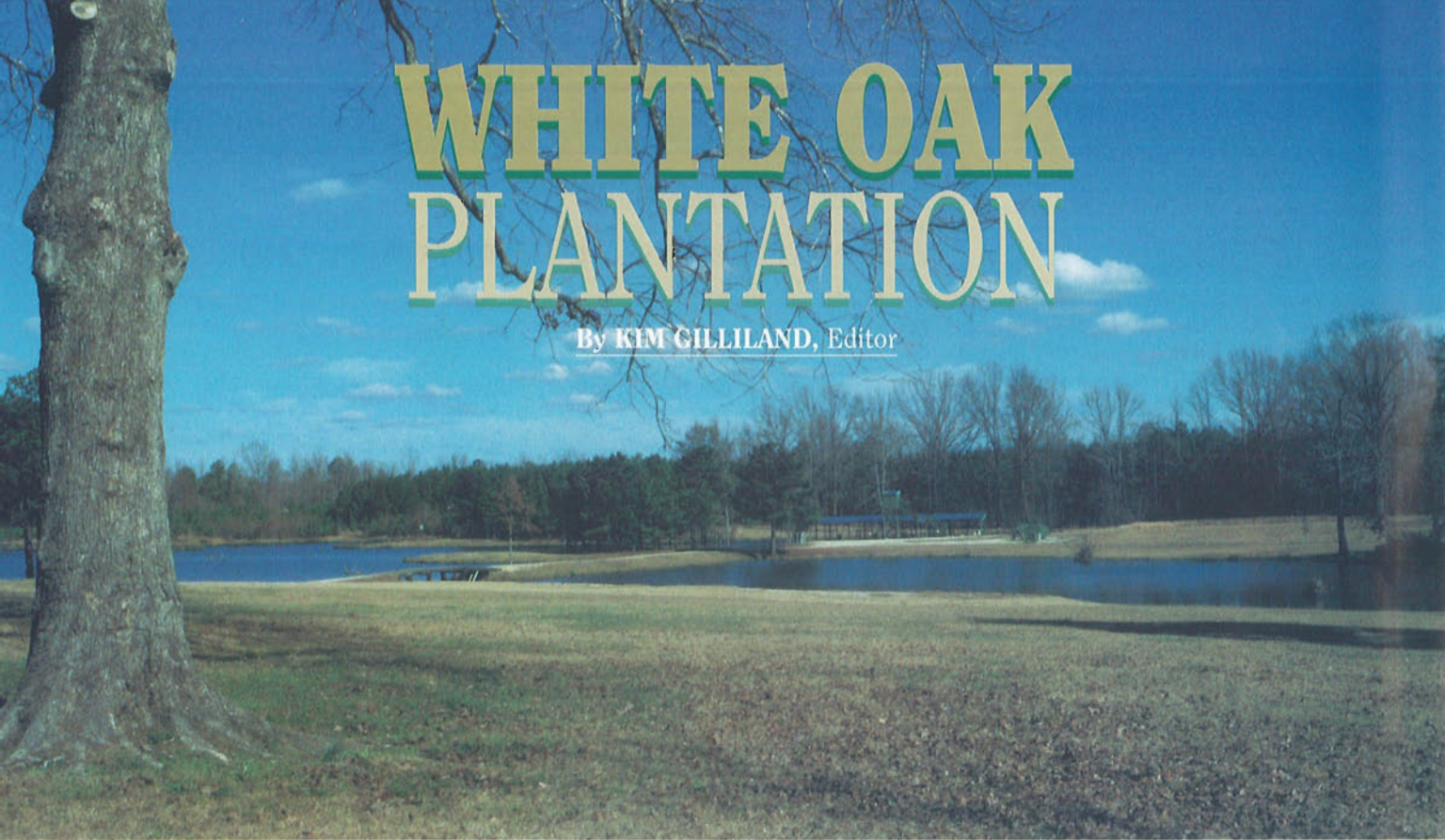
COVER: Photo by Paul. T. Brown. The white-tailed deer is one of many animals featured in Brown's new wildlife photography book called **Paul Brown's Wild Visions**. To obtain a copy call 1-800-323-3398 or write to P.O. Box 5066, Brandon, MS 39047.

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WHITE OAK PLANTATION

By KIM GILLILAND, Editor



Outdoor recreation, particularly hunting and fishing, means big business to the state of Alabama.

Revenues from hunting leases, sales of equipment, licenses, and travel-related expenditures are just a few of the ways the state benefits. That money doesn't just come from people within the Heart of Dixie, either. The woods of Alabama are filled with hunters from other parts of the United States and the world. A look around the parking area at White Oak Plantation in Macon County gives some indication: Georgia, Maryland, Wisconsin, and Pennsylvania—tags on pickup trucks and cars that have found their way to this sportsman's paradise.

For people who want to experience some of Alabama's most well-managed land for hunting, fishing or just watching wildlife, White Oak Plantation has the best to offer. The staff is personable, the food is good, but even more impressive, the land is cared for in a responsible way. Robert Pitman and his family make sure of that.

White Oak is a unique TREASURE Forest because it is a business—a commercial hunting operation, corporate retreat and meeting place—but the philosophy of multiple-use management comes first. The actual TREASURE Forest currently consists of 2,600 acres, but much more land is leased for hunting. Around 15,000 contiguous acres are leased from six different families. Robert explains that the owners allow him to manage the wildlife aspect of their property, but their timber management isn't compromised. "We don't do anything to interfere with their timber management," he said. In addition to White Oak, the Pitman family also manages Red Oak Plantation. Land leased for Red Oak includes areas in several counties, including Macon and Bullock.

Deer Herd Challenges

In looking for a location to operate a hunting lodge, the Pitmans sought a place that had the potential for great hunting. "The deer population was beginning to expand when we got here," says Robert. "If you start off with too many, it's hard to manage the numbers." An ongoing challenge for this TREASURE Forest and the additional leased acreage is the ever increasing deer herd. According to Robert, about 450 deer are harvested each year, with several in the 225-250 pound range. As a part of the Deer Management Assistance Program, records are kept on every one. Biologists from the Alabama Department of Conservation and Natural Resources examine these records, age jawbones, and make recommendations as to how many does and bucks need to be harvested each year.

To keep a balanced herd, hunters are encouraged to kill does if they're hunting for the meat. For the 1998-99 season, hunters



The sporting clays course is recognized as one of the best in the nation.

were allowed to take one mature buck during their stay and two does per day. White Oak requires that a buck must be eight points or have a 16-inch spread. A stiff penalty of \$500 awaits hunters who kill one that's not in that range.

One sign that a herd is increasing is that the body weights of the deer decrease. Providing quality food sources year round is an important task for the Pitmans. Hardwoods, especially oaks and beeches, are prized at White Oak. Robert says one of his goals is to hand spray undesirable hardwoods like sweetgums with herbicides to allow the more desirable species to flourish and provide mast for deer. Plots with clovers, ryegrass and other planted wildlife foods are maintained annually. Hundreds of planted sawtooth oaks line roads and surround pine plantations.

Micro-management

The Pitmans have a strategy that they call "micro-management." This means that they manage for maximum diversity by doing things in small increments. Whether it's a food plot, harvest or herbicide application, the attention paid to these small areas pays off big in the long run. From the beginning, they have managed their timber as an integral part of their wildlife management. Originally there were 250 acres of open land. This has been reduced to less than 100 acres with the planting of pines, which was completed a little at the time. "We didn't want everything the same age," says Robert. "For wildlife, you want it as diverse as possible." As a result, several different age classes of pine plantations provide cover for deer, turkey, and other animals. The more diversified the levels of forest, the more habitat types available for wildlife.

While the Pitmans do plant many wildlife foods, they also believe in using to the fullest what Mother Nature has provided. "I feel like you can do more by manipulating what you already have," Robert said. This includes not cutting trees that provide hard and soft mast and using prescribed burning. Blackberry and honeysuckle are also important wildlife foods that don't have to be planted.

An integral part of managing for wildlife at White Oak is prescribed burning. Robert's son Bo does most of the burning on a three-year rotation. They believe this is the best way to open up the forest, reduce competition, and provide the deer with tender browse. "No one has shown us there's a better way to do it," said Robert. He also agrees that prescribed burning reduces the threat of wildfires. When they first came to Macon County, wildfires were a big problem. Their numbers have been reduced through education and prescribed burning programs like those at White Oak. As a way of cooperating with local fire departments and the



Mature hardwoods, particularly oaks, are prized at White Oak for their mast production.



There are 500 shooting stands available for hunters.



Clients enjoy lunch after a morning hunt.

Alabama Forestry Commission, the Pitmans allowed a dry hydrant to be installed in one of their ponds. A fire hose attached to the pipe of the dry hydrant lets water from the pond be used to suppress a wildfire.

A good road system is essential to White Oak. "You can't manage without it," says Robert. Roads allow easy access to the more than 500 covered and ladder stands available. Some shooting stands are easily spotted from roads, while blue flagging leads from the roads to stands deeper in the woods. Roads also serve as firebreaks and are good points of access for prescribed burning. Since they must accommodate hunters in any kind of weather, being able to get around is essential.

Small clearcuts and food plots are created with as much "edge" as possible. These boundaries where two vegetation types meet offer a habitat area used by many species, including quail and rabbits.

More than Deer Hunting

Although deer hunting is by far the most popular recreation at White Oak, there are plenty of other activities available. During spring gobbler season, turkey hunters abound. Quail, squirrel and rabbit hunts are also big draws. Special hunts throughout the year feature opportunities for those with different skills. Bow hunting is popular, and a handgun only hunt is gaining notoriety. Thanksgiving, Christmas and New Year's hunts are special times for families who come to White Oak. But hunting is not just a male sport here. A great number of wives have learned to hunt as a result of accompanying their husbands on trips to White Oak.

A special ladies' bow hunt, called "Does and Bows," attracts many and is nationally sponsored.

Fishing is available at any time for those staying at White Oak. Auburn University fisheries experts give the Pitmans advice on how to manage the ponds, which are stocked with bass, bluegill, shellcracker and catfish. Fly fishing schools are held each summer for interested guests.

Local and national competitions are held on the sporting clays course. Sixteen stations make up the course, which offers a challenge for those at all levels. The clays, which imitate the flight patterns of different birds, are released from automatic throwers by remote control devices. The course involves several stations in the woods, while some, including the "five stand," are near the pond. Shooting memberships are available for sporting clays, and shooting clinics are held each year.

White Oak also hosts company picnics, family reunions and private parties. A pavilion near the pond offers seating for 400.

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Editor's Understory

By KIM GILLILAND, Editor

In the early 1980s, central Florida was a boomtown. Theme parks were being built, expanding and drawing millions of tourists. The population grew, but there was still a competition for good workers. It was around this time that Robert Pitman says he went "middle age crazy." That means he was tired of the rat race of running an integrated horticulture business that included citrus farming, greenhouses and hardware. He just wanted to get away.

An avid sportsman who had hunted all around the United States, Robert decided to purchase some land and operate a hunting resort. He knew it would be in the Southeast, but where? He picked out land in Georgia and South Carolina, but Dr. Hilburn Hillestad, a wildlife biologist and a friend, said he wouldn't work with the Pitmans unless they came to Alabama. Hillestad convinced Robert to take a look at some property in Macon County, and that was all it took. The Pitman family relocated and started building what is now called White Oak Plantation.

The only structure on the original property was an old hay barn. Today buildings include a dining hall, gathering hall, 10 bedrooms, a business office and pro shop, equipment buildings, and homes for family members. The buildings have a rustic look and are comfortably furnished. Double-occupancy rooms have names like Fox, Goose, Quail and Raccoon. Three meals a day are served in the dining room. A goal for the future is to connect several of the buildings. The entire complex sits just above a large pond. Relaxing on the porches offers a soothing view and observation point for those who don't wish to venture into the woods. Automatic feeders nearby distribute corn so wildlife watchers can see the deer. A view of some of the sporting clays shooting stations is also visible across the pond.

Every visitor is taken care of at White Oak. A staff of around 20 works during the peak season, not including family members who have different responsibilities. For deer hunters, there is one guide for every four to six hunters. During the spring gobbler season, there are one-on-one guides. Ramps leading to the buildings



Robert Pitman

provide wheelchair access. Disabled hunters are welcome and every effort is made to accommodate those with special needs. Depending on the time of year, deer hunts at White Oak range in price from \$1,275 to \$1,500 for three-day hunts and \$1,700 to \$2,000 for four-day hunts, with lower prices for deer archery season. Turkey hunts range from \$1,500 for three-day and \$2,000 for four-day hunts. About 75 percent of their business each year is repeat business, according to Robert. Many will leave a deposit for next year as they leave. "We're real pleased that they think enough of us to do that." Hunters who don't need all the meat from the deer they kill can leave knowing it's going to

someone who needs it. The Pitmans make donations to local families and also work with Buckmasters on the "Feed the Hungry" program. "I feel that it's real important that none of it goes to waste," Robert said.

During the early 1990s, Robert was approached by Dr. Peter Mount of Tuskegee Extension about becoming part of the TREASURE Forest program. The Pitmans were already managing their property accordingly and White Oak Plantation was certified as number 835 in 1991. In 1992 White Oak was honored as a Helene Mosley Memorial TREASURE Forest District Award Winner. The award plaque and environmental print are proudly displayed in the dining hall for everyone to admire.

Several members of the Pitman family live at White Oak, including Robert and wife Hilda; son Bo and wife Tooie; and son Matthew and wife Merri. Robert and Hilda's son Joe is a student at Auburn University; daughter Kathleen resides in Waverly; and daughter Deanna and son Scott reside in Florida. There are also six grandchildren in the Pitman family.

Robert says the two main reasons his family moved to Macon County are quality land and friendly people. Those are still the reasons that keep them there. "Locally, we've been blessed with real good folks. That's one of the main reasons we're here—good people." Macon County and the TREASURE Forest program are lucky to have such good stewards and neighbors. ♣

White Oak Plantation

Continued from page 5

Softball, volleyball and horseshoes are also offered for groups. A newspaper called "The Oak Post" is published several times a year. Current rates, hunt dates and information on activities at Red and White Oak are featured, as well as photos of clients.

Setting an Example

In addition to hunters who enjoy White Oak Plantation, major manufacturers of sporting equipment are present at events and competitions. Regional and national publications have featured the Pitmans and their hunting operation. Although they have a productive recreational business, Robert and his family haven't lost sight of the TREASURE Forest concept of multi-

ple-use. Since they have so many visitors to their property, the Pitmans feel they are setting an example for others to follow—that of good stewardship and fair game hunting. "It's a super program," Robert says of TREASURE Forest. "We'd just like everybody who owns land to do something with it and the TREASURE Forest program will grow." ♣

Timber Management Applications to Enhance Wildlife Habitat

By David K. Nelson, Supervising Wildlife Biologist,

Alabama Department of Conservation and Natural Resources, Game & Fish Division

Most timberlands in Alabama are privately owned by non-industrial individuals. Through their timber management activities, those individuals directly influence the wildlife and wildlife habitat on their lands.

Unfortunately, some landowners give little consideration to wildlife and view it as a byproduct of the land, regardless of the timber management. In recent years, an increasing number of landowners have realized the economic importance of timber management as a way to enhance wildlife habitat. The price paid for hunting leases in many areas of the state has increased to a level that provides a substantial annual cash flow to landowners. Other landowners find the management of wildlife rewarding for personal recreation with family and friends, or for the aesthetic value of viewing wildlife.

Landowners should always consider timber management and wildlife management together, as they are inseparable. It is a common misconception that timber management with considerations for wildlife is not cost effective. In reality, managed forestlands can not only be more productive, but can provide excellent habitat for many of our most valuable wildlife species.

The first step in a management program for timber and wildlife is to decide what you want and have it put in writing. This written document is called a management plan. Each management practice to be initiated should be included in the plan and should be based on three things:

1. Is the action ecologically sound?
2. Is the action economically sound?
3. Does this action accomplish or support the desired goals?

Every landowner has the capability to make a timber management decision that will in some way benefit some species of wildlife. The expertise and assistance in making those decisions are available through state agencies, such as the Alabama Forestry Commission and the

Wildlife Section of the Alabama Game and Fish Division. Other government agencies, such as the Natural Resources Conservation Service (NRCS) and County Extension System, are good sources of information. Publications such as the recently published **Managing Wildlife** by the Alabama Wildlife Federation are excellent sources of information to help make informed decisions. Just as desires and objectives of each landowner differ, so it is with the land, as no two areas are the same. Over time, timber and wildlife habitat will change and adjustments to the plan may be necessary to attain the desired objectives.

Diversity Most Important Objective

The single most important objective of timber management practices used to enhance wildlife habitat is to provide a diversity of habitat types. Diversity is a term used to describe variety or differences. As timber types mature, they lose diversity. When the diversity of the forest is reduced, so is its ability to support various and abundant wildlife species. Each wildlife species has a unique set of habitat requirements: food, cover, water and space. Enhancing and maintaining diversity within a forest stand enhances and maintains habitat available to wildlife. Any time two different habitat types meet, it creates a unique ecotone, with both habitats contributing plants to this edge. This is called an edge effect and is more valuable to wildlife than either single habitat.

Soil type should be the determining factor in any forest or wildlife management plan. The physical characteristics of the soil dictate what kind of plants will grow and how well they will survive. Soil pH and fertility are important soil properties to consider in any type of planting, such as reforestation or wildlife food plots. County NRCS offices are good sources for obtaining information on soil types and recommended plantings.

Harvesting and Site Preparation

One of the most noticeable and dynamic forest management practices is cutting or removing timber. Clearcutting, the removal of all standing timber on a given area, has come under criticism as an unfavorable forest management practice for wildlife. Granted, clearcutting on a large area does little to provide the necessary diversity for wildlife, but if properly conducted, clearcutting can benefit many wildlife species. Small clearcuts are similar in effect to natural forest regeneration processes caused by high winds, tornadoes, and hurricanes. Clearcuts will reduce habitat for some wildlife species, but is favorable to others, such as quail, rabbits and deer. For optimum wildlife use, clearcuts should be limited to 40 acres or less. Cuts should be linear or elongated to allow greater use by wildlife. Long, narrow clearcuts will transect more home ranges or territories of the wildlife in the area. To maintain diversity in the future, adjacent clearcuts should be no less than five years apart. Where it is possible, snags and trees with cavities should be left standing to meet the needs of many birds and animals. Usually, clearcuts to be planted in pine are treated with several methods to prepare the site for optimum tree growth. Mechanical site preparation, such as shearing, chopping, windrowing, and bedding are the more common practices. Mechanical site preparation is more favorable to wildlife than the use of some herbicide treatments.

Intensive site preparation, such as burning and the heavy use of several herbicides to kill a wide variety of plants, will significantly diminish wildlife habitat. Landowners need to be aware of the effects intensive site preparation and herbicides can have on wildlife habitat. Less intensive site preparation practices favor a greater variety and abundance of wildlife plants and habitats. Herbicides are sometimes used after pine regenera-

(Continued on page 15)

Threatened and Endangered Fish of Alabama

By **JIM GODWIN**, Aquatic Zoologist, Alabama Natural Heritage ProgramSM

Alabama has an incredible freshwater resource. Unnamed springs, seeps, and headwater tributaries come together across the state to form creeks and streams. Creeks and streams merge into large rivers, like the Tombigbee River and the Choctawhatchee River. Crystal clear springs flow down mountainsides in north Alabama. Slow, brown waters drain the rolling terrain found below the Fall Line, while sinkhole ponds and tea-colored blackwater streams occur across the Gulf coastal plain. Aquifers lie close beneath the surface, giving us a glimpse into these underground waters as they emanate from springs or flow through the hundreds of caves found in north Alabama. An excellent map of the rivers and streams of Alabama is available from the Geological Survey of Alabama. Ordering information is found at the end of this article.

From the mountains near Tennessee and Georgia all the way to the Gulf, the waters of the state flow across and through a variety of landforms. The coupling of the waters and landforms yields a multitude of habitats, and it is this backdrop that supports the great fish diversity of Alabama. Within the borders of the state are about 300 species of freshwater fish, second in the nation only to Tennessee; the exact number is hard to pinpoint since new ones are being named nearly every year. Although we can boast of very high fish diversity, only 12 species are listed as Threatened or Endangered by the U.S. Fish and Wildlife Service.

Threatened and Endangered Fish Species

Gulf sturgeon, *Acipenser oxyrinchus desotoi*, (Threatened) inhabit rivers that drain into the Gulf of Mexico, and only below the Fall Line. Adult fish live in salt water but breed in fresh water. In February Gulf sturgeons begin entering the rivers after spending the fall and early winter in bays and estuaries. Spawning takes place in the spring and afterwards the adult fish remain in deeper river waters until late summer when they return to the marine environment.



Cahaba shiner

Patrick E. O'Neil



Pygmy sculpin

Patrick E. O'Neil



Watercress darter

Patrick E. O'Neil

Blue shiner, *Cyprinella caerulea*, (Threatened) is a minnow of the Coosa River drainage and formerly of the Cahaba River. It was last reported from the Cahaba River in 1971, but good populations remain in the Little River and Choccolocco Creek. The blue shiner is dependent upon clear waters of medium to large streams.

Spotfin chub, *Cyprinella monacha*, (Threatened) once occurred in Alabama but has not been found in the state since 1937. It's a fish of the Tennessee River drainage, and in other states occupies clear, medium-sized streams with boulders and swift current.

Palezone shiner, *Notropis albizonatus*, (Endangered) in Alabama, is found only in the Paint Rock River of the Tennessee

River drainage. This is a minnow of upper headwater streams that have clear water that flows over gravel or cobble.

Cahaba shiner, *Notropis cahabae*, (Endangered) is a minnow that is found only in Alabama, and its name reflects the river in which it was originally found. Recently this fish was discovered in the Black Warrior River drainage by biologists with the Geological Survey of Alabama. The habitat of the shiner is riffles with clean sand and gravel.

Alabama cavefish, *Speoplatyrhinus poulsoni*, (Endangered) is found in only one place in the world, Key Cave in northwest Alabama. A blind, pale fish, its entire life is spent swimming in total darkness. Because of the rarity of this fish and the difficulty in studying it, very little is known about its biology.

Pygmy sculpin, *Cottus pygmaeus*, (Threatened) is a second small fish that is strictly an Alabama fish. Coldwater Spring near Anniston is the sole home of this mottled and banded bottom-dwelling species. Its colors allow it to blend perfectly with the gravel on the bottom of the spring.

Slackwater darter, *Etheostoma boschungii*, (Threatened) is a fish of small streams in the Tennessee River drainage of northwest Alabama. This fish has an interesting method of breeding in that eggs are laid in very shallow spring-fed wetlands during the winter.

Watercress darter, *Etheostoma nuchale*, (Endangered) lives in only a handful of springs in central Alabama near Birmingham. The darter occupies watercress and other aquatic vegetation where its food of small invertebrates occurs.

Boulder darter, *Etheostoma wapiti*, (Endangered) is found in the Elk River of the Tennessee River drainage in northwest Alabama. This darter is found in swift water where the bottom has cobble and gravel.

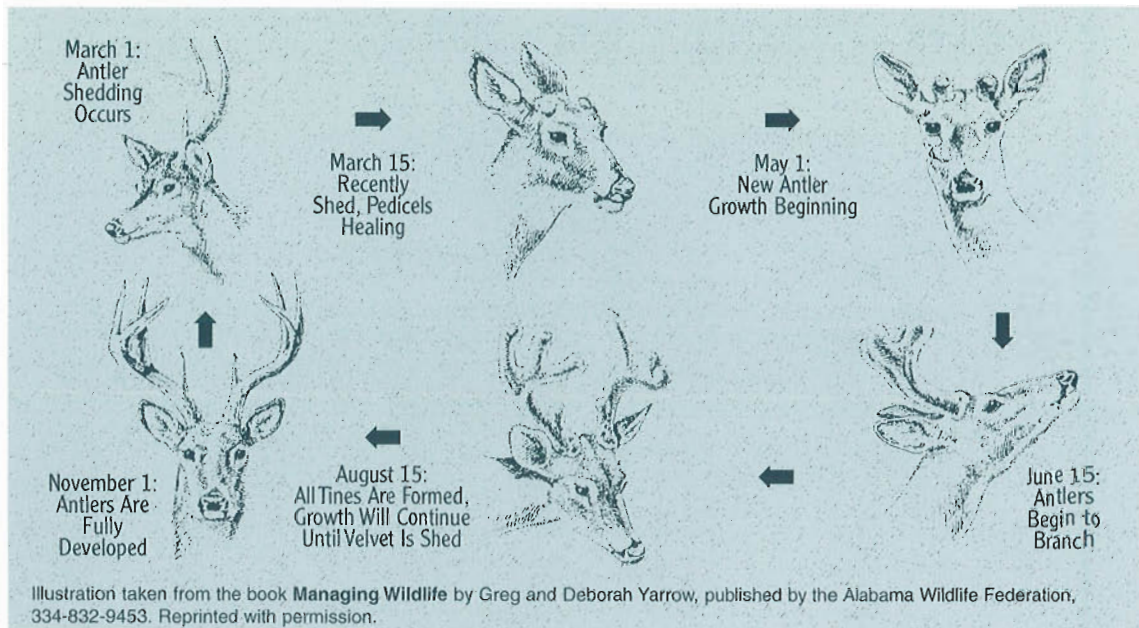
Goldline darter, *Percina aurolineata*, (Threatened) in Alabama is found only in the Cahaba River, generally above the Fall Line at Centreville. The habitat of the fish is swift water over cobble and small boulders with patches of water willow.

Continued on page 14

Deer Antler Development

By **JOEL D. GLOVER**, Wildlife Biologist,

Alabama Department of Conservation and Natural Resources, Game & Fish Division



The development of antlers is one of the most researched aspects of white-tailed deer. Antlers are outgrowths of the skeletal system and are composed primarily of calcium, phosphorus and other minerals. Deer antlers grow from an area on top of the skull known as the pedicel, which is attached to the burr, or base, of the antler.

Bucks develop and shed new antlers each year. Antler growth may begin as early as mid March. Increasing daylight in spring stimulates production of hormones such as prolactin and antlers quickly emerge. The growing antler, which is the fastest growing form of true bone, is covered with a soft, hair-covered membrane known as "velvet." The velvet is interlaced with numerous blood vessels that transport and deposit minerals that build the antler. During this time, antlers are vulnerable to injury, which may result in deformation. Antler growth usually continues into September, when the bone hardens and the velvet dries and is removed.

Antler coloration is determined by the amount of stain received from hemoglobin of the blood in the velvet, and from juices of tree bark on which antlers are rubbed. Some bucks begin to strip the velvet from

their antlers while there is still an active blood supply, while others wait until the velvet has dried completely. Antlers exposed to more blood will normally have a darker stain. Antlers exposed to moisture and sunlight will bleach out over time. Once shed, antlers begin to deteriorate from the effects of moisture and sun. In addition, rats, squirrels and even deer themselves will chew on antlers.

So, what makes deer antlers? The answer is very complex. Antler development is affected by nutrition and genetics, with nutrition being the greater role. Nutritional intake is used for the growth of antlers only after the body growth requirements are met. To achieve optimum antler development, deer must have nutritious food available in large quantities.

Sportsmen are always eager to learn how to increase the size of antlers for deer on their property. They often ask, "What should we plant to give deer better antlers?" Unfortunately, the increased use and commercialization of wildlife plantings have caused many sportsmen to mistakenly view such plantings as a cure-all for deer management. However, deer management is complex with many variables to consider. Supplemental plantings are of

some benefit, but deer need nutritious forage year round to produce good body condition and antlers. It is important to remember that antlers are growing during spring and summer when many annual plantings are long forgotten. Naturally occurring spring and summer foods can be enhanced by prescribed burning before spring green-up and by fertilization, mowing and disking.

Producing better antlers goes beyond good habitat management. Proper harvest management is also a necessity. To ensure an abundance of high quality food, herd size must be kept within carrying capacity of the land. This often requires harvest of antlerless deer. Another prerequisite for large antlers is age. Body requirements use most of the nutrients taken in during the first couple of years of a deer's life and antler growth is restricted. Allowing young bucks to make it to the older age classes will greatly enhance their chances of growing a large rack.

As you can see, many factors including diet, genetics, age and herd management affect development of the white-tail's crowning glory—antlers. The next time you observe a deer's antlers, remember this amazing cycle of nature.

Partnership for Restoration of Wetlands in Alabama

By Tom Counts, Wildlife Biologist, USDA-Natural Resources Conservation Service



Just after dawn, a crew of men emerge from the warmth of their truck and spread out into the cold across the large, wet field. With tree seedlings and a dibble bar in their hands, they line up to begin work. They will plant over 70,000 hardwood trees in this 250-acre tract.

This is the first step in the restoration of a wetland that was converted for agricultural production. These men are part of a unique partnership that involves a government agency, a private organization, and private landowners working together for wetlands and wildlife across Alabama.

A Natural Partnership

The partnership of Ducks Unlimited with the USDA, Natural Resources Conservation Service (NRCS) is a natural one. The mission of Ducks Unlimited is to conserve wetland habitat. The goal of the Wetland Reserve Program (WRP), which is administered by NRCS (formerly the Soil Conservation Service), is to restore converted wetlands. Landowners with eligible lands that were converted prior to 1985 have an opportunity to benefit from this partnership by participating in the program and conducting habitat restoration work. This is not a limited

The Wetland Reserve Program offers landowners the opportunity to protect, restore, and enhance wetlands on their property by providing technical and financial support.

partnership. Additional professional assistance is also received from the Alabama Department of Conservation and Natural Resources, the U.S. Fish and Wildlife Service, and the Alabama Soil and Water Conservation Committee. In two years this partnership cooperated on 10 projects in Alabama, resulting in the restoration of over 1,000 acres of wetland habitat.

For years there has been a growing awareness of the many functions and values of wetlands. It has been estimated that up to 50 percent of the natural wetland areas within Alabama have been converted due to draining or filling for agriculture, urban development, and other uses. In some regions, this loss rate may have exceeded 80 percent. Although wetland loss due to agriculture has drastically slowed since 1985, the damage has already been done to many acres of critical wetland habitat. Many of these areas converted for agriculture remained wet late in the season, delaying planting and often flooded after the crop was planted. The economics of farming such marginal land must be considered by the farm manager.

"I have only made one crop from this tract in five years; it's just too wet," said cotton farmer Mark Yeager concerning the tract in Colbert County that he enrolled into the Wetland Reserve Program. There is no question that wetlands are vital for the continued existence of waterfowl, wading birds, and other wetland dependent wildlife. This is why wetland restoration is becoming a recognized need in Alabama.

The Wetland Reserve Program is a voluntary program administered by NRCS. It offers landowners the opportunity to protect, restore, and enhance wetlands on their property by providing technical and financial support. Ducks Unlimited, through their Southern Regional Office, is able to provide the expertise to put the habitat restoration practices on the land.

Ducks Unlimited conducts the actual restoration work on the land by planting trees, constructing dikes, and installing water control structures. Their team of specialists includes wildlife biologists and engineers. A landowner whose property is eligible for participation in WRP may choose one of three options: a permanent easement, a 30-year easement or a 10-year restoration agreement with no easement.

Easement Options

What is an easement? A conservation easement is a legal agreement between a landowner and a land trust or government agency that limits the use of property to protect certain conservation values. Several nonprofit organizations such as The Nature Conservancy, Ducks Unlimited and the Alabama Forest Resources Center assist landowners with conservation easements. There may also be advantages for a landowner regarding easements relating to property tax, as well as federal income and estate tax.

An easement with the Wetland Reserve Program is a legal agreement between the landowner and the NRCS that limits property use in order to restore and protect the wetland. These rights are "sold" to the NRCS for a specified period of time. It is legally binding and goes with the property, even if it is sold. The two easement options of the program can be for a 30-year period or permanently. The easement applies only to the portion of property that is enrolled into the program.

If an easement option is selected, the landowner receives payment for the easement as an incentive. This amount is 75 to 100 percent of the appraised agricultural land value. In addition, they also receive 75 percent of the cost for restoring the wetland. If the 10-year restoration agreement is chosen, no easement is involved; thus, no incentive payment is



Reviewing a wetland restoration plan in the field are (l-r) Billy Frost, NRCS district conservationist for the Moulton field office, Jim Emfinger, Ducks Unlimited regional biologist, Billy Wimberley, private landowner from Mt. Hope, and Chad Manlove, Ducks Unlimited wildlife biologist.

provided. In this case the landowner only receives the 75 percent cost-share for approved restoration and enhancement practices. Wetlands and wildlife benefit regardless of the option that a landowner chooses.

Vegetation and Hydrology Restoration

All of the tracts planted through this wetland restoration program have been previously used as either pasture or crop land. This means that they were initially cleared, then ditched and drained for agricultural production. The practical side of restoring converted wetlands involves a two-fold approach. First, native vegetation is re-established; the next step is hydrology (water) restoration. The initial step consists of re-establishing the dominant vegetation by planting native hardwood trees. A mixture of at least three species of native oaks is utilized. Native species of mast-producing oaks such as water oak, wil-

low oak, Nuttall oak, and overcup oak are used. Site preparation methods are used to reduce herbaceous competition, thus increasing survival of hardwood seedlings. After the trees are established, the hydrology is then restored and enhanced. This is accomplished by constructing earthen dikes and installing water control structures to hold water on

the site. Once the soil is saturated, natural succession will revegetate the site with a wide variety of trees, shrubs, and herbaceous plants.

Four restoration projects totaling 560 acres were begun last year in the central region of the state in Dallas, Marengo, Hale, and Wilcox counties.

Additional work will be completed to restore and enhance hydrology on these sites over the next year. All restoration projects currently underway are located in the Tennessee Valley counties of Colbert, Lawrence, and Morgan and cover a total of 660 acres. The wetlands of

the Tennessee Valley are of great importance to waterfowl and wading birds. Migratory waterfowl use these wetlands as wintering areas and stopovers during spring migration to northern breeding grounds. Other species use these areas for feeding, resting and nesting habitat.

Conclusion

The Wetland Reserve Program offers landowners the opportunity to restore wetland habitat and receive substantial payment for lands that are difficult to farm. The partnership of the Natural Resources Conservation Service with Ducks Unlimited provides an efficient method to provide technical expertise and assistance directly to the landowner. The work of this partnership will add many acres of wetlands habitat in Alabama.

For more information on wetlands restoration contact Tom Counts at 334-887-4510; tom.counts@al.usda.gov.

What Is a Wildlife Opening?

By Joel D. Glover, Wildlife Biologist, Alabama Game & Fish Division

Here's a typical scenario: the TREASURE Forest inspection team assembles in an idle field on a nominated landowner's property. After introductions, the landowners are asked to identify their objectives for the management of their property. They indicate that their primary objective is wildlife habitat enhancement with timber management being a close second. They then begin to relate their accomplishments to the group. The inspecting wildlife biologist asks one landowner how much of his property is in wildlife openings. He quickly replies that he planted two plots about one acre in size. The biologist then refers to the grown up field in which they stand and asks, "What about this field?" The landowner's reply, "We mow it every two or three years but we don't plant it," reveals a widely held idea that the only area considered a wildlife opening is an annually maintained opening or food plot.

Although annual plantings are considered wildlife openings, the name "wildlife openings" infer that there's more involved than just food. Wildlife openings provide not only natural and supplemented food, but also nesting, brood rearing, and resting cover.

In the near future, the TREASURE Forest nomination form will instruct inspectors to include the following in the wildlife openings acreage:

- Annual food plots
- Openings maintained in natural herbaceous or brushy cover
- Native grasslands
- Grass fields other than Bermuda or fescue and fields annually planted and retained in grain crops (millet, corn etc.) for the primary purpose of providing wildlife food. When only a portion of a field planted to grain crops is retained for wildlife benefit, the entire field acreage should be reported under the cropland category.

As you can see, many areas that occur in woodlands can, when properly maintained, provide benefits for wildlife.

Openings Provide Diversity

Wildlife openings are an important component of wildlife habitat in that they

provide diversity in the forest. Although many plantings and various techniques are lauded as "the" thing for the management of wildlife, the real key to wildlife management is diversity of habitat. All species require areas for feeding, nesting, escape, resting, breeding and raising young. A single habitat type may meet one or two of those needs but usually not all. One of the most important attributes of multiple habitats in close juxtaposition to each other are the transitional areas where two or more habitats come together. It is along these edges that plant quantity and diversity are greatest. These areas provide wildlife a variety of foods and covers close together and easily available. This

recognized as a wildlife opening is the annual planting or food plot. The practice of planting plots continues to grow in popularity. Hunters and landowners spend hundreds and thousands of dollars each year on preparation and maintenance of these areas. Unfortunately, these plots are often prepared with the assumption that they will provide all that is necessary to maintain a population of white-tailed deer, wild turkey or other wildlife species throughout the year. This is not the case. Although a well-prepared plot (limed, fertilized and properly seeded) can provide nutritional benefits, a primary role probably lies in attracting desired wildlife to a certain area for easy observation. It is



Roads and firebreaks, when properly managed, can double as wildlife openings.

"edge effect" is extremely important for wildlife species: with small home ranges such as quail, rabbits and songbirds. Larger animals such as deer and turkey can move greater distances to find habitats necessary to meet their needs; however, they still use the edge areas. Increasing edge should be a priority for landowners with an objective of wildlife habitat enhancement.

The area that is probably most easily

important to remember that wildlife's need for food is not seasonal. Plots normally provide a benefit for a short period of time. Combining management of all available habitat types with development and maintenance of strategically placed wildlife openings can improve wildlife populations.

Openings maintained in natural herbaceous or brushy cover are another habitat type included in the wildlife opening cate-

gory. These openings often look like an old field that has been allowed to grow up in natural vegetation. They look this way for good reason—that's what they are. Plant communities that develop during early stages of old field succession produce an abundance and variety of food and cover that meet the requirements of many wild animals. Natural seed producers including partridge peas, beggar weeds, ragweed and various grasses and lespedezas will often flourish in old field areas. Later successional stages will include blackberries and other perennials and woody shrubs. In addition to the available forage, nesting sites for ground-nesting birds are also abundant in these areas. However, these ideal habitat situations will not last forever. Normal succession will result in woody vegetation and certain perennial grasses that will soon begin to eliminate many of the more valuable species. It is therefore imperative that natural herbaceous openings be maintained. In order for these areas to continue to produce new growth, which is the most nutritious and palatable, you must periodically remove the older growth and encroaching woody vegetation. These areas may be maintained by mowing after nesting season, disking in late winter, prescribed burning in winter or a combination of these techniques.

Unfortunately, many landowners do not find grown up fields to be aesthetically pleasing and much prefer the look of a neatly manicured field. This may please the landowner, but it provides very little for the wildlife on the property. I once read where someone asked, "What makes the best turkey stuffing?" If you ask the turkey, the answer is worms, seeds and acorns! This illustrates an important point. When managing property for wildlife we must consider the needs of the wildlife when making land use decisions. Although this is very basic, it is often forgotten. Many landowners, with the best of intentions, often destroy valuable habitat so they can replace it with habitat of lesser value to wildlife but which is more pleasing to the eye. Although we may find a weedy fence row or brushy area unsightly, wildlife may call it home. With diversity as your overall objective for wildlife habitat, there is normally plenty of room for some well-manicured areas. In fact some areas, such as those along a public road or property line, should not be enhanced to

attract wildlife. However, the year round needs of your target species should be kept in mind whenever you make land use decisions.

Using Roads, Firebreaks and Utility Line ROW

Not all forested areas contain field type openings. However, a well managed forest should possess a good road and/or firebreak network. These two features, when properly managed, can double as wildlife openings. Woods roads should always be well designed and maintained to provide access and prevent erosion. Woods roads and firebreaks are often excellent choices for wildlife food plots due to their linear shape, which provides valuable edge habitat. However, many roads and firebreaks will not provide sufficient forage due to the heavy shade of encroaching trees. Removing these trees allows sunlight to

old field succession. These areas can provide valuable edges for wildlife in forested areas. Determining the amount of acreage in a firebreak or forest road is often difficult. A general rule of thumb is that 1/4-mile of opening 35 feet wide is equal to approximately one acre.

Once again, landowners must be mindful not to apply these enhancements in areas that can be viewed from a public road or adjoining property. This eliminates the use of many firebreaks. Forest roads and/or firebreaks that are not being intensively managed for wildlife should be reported under the forested acres category on the TREASURE Forest nomination form.

Utility line right-of-ways (ROW) cover thousands of acres across the state. ROW through forested land increases edge effect and habitat diversity. Where easement holders and the terrain will permit it,



Wildlife openings provide not only natural and supplemented food, but also nesting, brood rearing and resting cover.

reach the ground resulting in increased production and diversity of natural and planted food plants. This technique, which is known as "daylighting," can transform a road or firebreak into a wildlife opening. In areas of suitable terrain, daylighted roads and firebreaks can be planted in annual winter forage or perennial grasses or may be disked and allowed to produce native plants and habitats very similar to

this acreage can be enhanced for wildlife. ROW usually range in width from 30 to 200 feet; 450 feet of 100-foot-wide ROW equals approximately one acre. Annual and perennial plantings in these areas provide excellent linear openings for wildlife. ROW can also be maintained in early successional stages of native vegetation. Since these lands must be kept free of

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What Is a Wildlife Opening?

Continued from page 13

brushy cover for proper function and monitoring, they definitely should be taken advantage of where available. When properly managed, these areas can be reported in the wildlife openings category.

Grasses and Grain Crops

Native grasslands, which are found in some parts of the state, provide valuable habitat for many species. The grasses normally found in these areas are of the bunch grass variety. Commonly found species are switch grass, Indian grass and big and little bluestem grasses. In addition to providing forage, these grasses also offer nesting opportunities for ground-nesting birds. The growth pattern of these grasses, open around the base and wide at the top, provide small species the opportunity to move through the opening without being detected by predators. Native grasslands do require management. Controlled burning of these areas will decrease weedy competition, stimulate growth and improve seed production and forage quality. Areas of native grasslands should be retained and will be included in the wildlife openings category.

Grass fields with introduced grasses other than Bermuda or fescue are another habitat that can benefit wildlife when properly managed. Fields of beneficial grasses such as bahia, provide excellent feeding opportunities for wild turkeys. These fields can also provide insects, which are an essential part of the diet of wild turkey poults.

Although heralded as a forage and erosion control grass, fescue is a very poor choice as wildlife food or cover. Fescue is poor in terms of total digestible nutrients, crude protein, phosphorus and calcium. In addition its dense growth eliminates forbs and legumes that are much more beneficial for wildlife. Bermuda grass, although highly touted for hay, offers little if any value for wildlife. Fields made up of fescue or Bermuda would be listed in the pasture land use category on the TREASURE Forest nomination form.

Fields annually planted and retained in grain crops for the primary purpose of

providing wildlife food, although expensive, can provide tremendous benefits for wildlife. Grain crops such as corn, millet and wheat provide both forage for deer and seed for birds. In order for these fields to be included in the wildlife openings category, the entire field must be retained for wildlife. If only a few rows of the crop are left unharvested for wildlife, which is a valuable and highly recommended practice, then the entire acreage should be reported in the cropland category. The difficulty of trying to ascertain an acreage amount of a few rows left in a field, when the rest has been harvested as a crop, prompted the decision to report this acreage in this way. The fact that this is reported in the cropland category is not at all detrimental. As a matter of fact, many more landowners leave only a few rows than those who leave the entire field. Either way this is a beneficial practice, which should be pointed out to your TREASURE Forest nominator and/or inspection team, so they can note it with your other accomplishments.

Conclusion

A good rule of thumb for someone with a wildlife objective is to have at least 5 to 10 percent of your property in managed openings for wildlife. Depending on your targeted species, you may want much more open area.

Remember that openings should be well distributed across your property. As you can see, there are actually many answers to the question, what is a wildlife opening? Whether or not an area should be included as a wildlife opening is sometimes debatable. A good test for whether or not an opening will fit this category is whether or not it is *actively being managed for and producing a benefit for your targeted species*. Properly creating and managing wildlife openings can provide wildlife food and cover throughout the year, as well as additional hunting and viewing opportunities.

Whether you own a TREASURE Forest, are working toward that certification or simply want to improve the wildlife habitat on your property, properly managed openings for wildlife should be a part of your multiple-use program. ♣

Threatened and Endangered Fish of Alabama

Continued from page 8

Snail darter, *Percina tanasi*, (Threatened) may no longer live in Alabama. It was initially reported from the lower Paint Rock River but recent searches have failed to find any. Gravel and sand shoals over moderate current is the habitat where this darter is found.

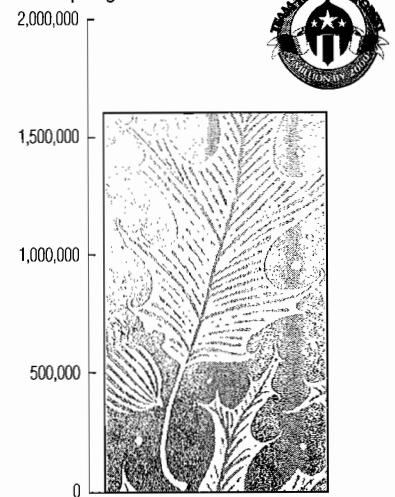
Clean Water a Key to Survival

A common thread tying these Threatened and Endangered fish together is that they require clean water to live, and many have suffered from habitat loss and degradation which led to their listing. The two species that are found strictly in Alabama, the pygmy sculpin and Alabama cavefish, have such a limited range and such a specific habitat, that listing was needed for the protection of these fragile populations.

For a copy of Special Map 241, Rivers and Streams in Alabama, contact the Geological Survey of Alabama Publications Office, P.O. Box O, 420 Hackberry Ln., Tuscaloosa, AL 35486-9780; 205-349-2852. The cost is \$2 per map plus shipping. ♣

UPDATE

The TREASURE Forest Program has set a goal of having 2 million acres in the program by the year 2000. The chart below shows the number of acres currently enrolled in the program.



Timber Management Applications

Continued from page 7

tion to reduce vegetative competition. The effect on wildlife habitat is generally unfavorable, as many plants valuable to wildlife are reduced and are not able to recover before the increased growth of the pines begins to shade them out.

An alternative method of timber stand regeneration is thinning. Thinning is the removal of only part of the standing timber. Improvement cuts remove poor quality trees with less potential. The removal of part of the trees allows light to penetrate the canopy, stimulating native plant growth valuable to wildlife. A shelterwood cut is where the stand is heavily thinned, leaving quality trees for regeneration by seed. This maintains the integrity of the stand and creates openings. These openings provide areas of natural plant succession and good diversity for wildlife use.

Another timber harvest practice for natural reforestation is a seed tree cut. This is similar to a shelterwood cut except that it leaves fewer trees for natural seeding of the area. The disadvantage of this method is that it leaves a small

volume of timber that may be difficult to sell and the trees are more vulnerable to damage by wind and lightning. Seed tree cuts provide essentially the same wildlife habitat as clearcuts.

Using Prescribed Burning

Prescribed burning is a valuable technique for forest and wildlife management. Fire should be used correctly and at the proper time of year to obtain the desired results. Pine trees 20 feet tall and taller will tolerate cool winter fire that will top-kill small hardwoods, vines, and shrubs. These plants sprout back in the spring to provide tender browse and cover for wildlife. Fire also enhances the germination of legumes and forbs. In addition to the succulent spring growth following a winter burn, these areas produce an abundance of insects. Insects are high in protein and are important food items for young turkeys, quail, and other birds. A burning schedule of one- to two-year intervals creates habitat favorable for quail and turkey. A burning schedule of three to five years is more favorable for browse and cover for deer. If prescribed burned, thinned pine stands have the greatest potential for increasing the bene-

fits to wildlife, as the thinning opens the canopy and allows sunlight to reach the forest floor. Caution should be used when burning. It is advisable to obtain the services of an individual competent in prescribed burning and capable of preparing a burning plan to ensure specific land management goals are met.

Conclusion

In reality, man does not own land, but merely uses it for a short period of time. While he has exclusive rights or title he has the opportunity to make decisions or enact forest management practices that affect the wildlife and wildlife habitat on the property. Any time you manage for multiple use, it always involves some tradeoffs. How these tradeoffs are weighted should be based on sound information, so intelligent decisions can be made. Generally, management decisions that favor optimum timber production will be less favorable for a variety of wildlife species. For optimum wildlife habitat, forest management plans should incorporate practices that create as much plant diversity as possible. All birds and animals owe their existence to plants; the more plant diversity that exists on an area, the greater the value to wildlife. ♣

MEMORIAL

Frank Sego, 74, passed away February 15, 1999. Mr. Sego may be best known to readers of this magazine for the legislative column he wrote since the magazine's inception in 1982. He actively championed the benefits of forestry in the halls of the Alabama Statehouse and was well respected. Mr. Sego was also well-known in the community for his years of public service to many volunteer organizations. The Exchange Club of Montgomery, Alabama PALS and the Consumer Credit Counseling Service of Alabama are just a few of the organizations in which he was active.

A native of Tuskegee, he was a 1950



Sego

graduate of Auburn University. To the Forestry Commission, he was a valued co-worker for more than 25 years. His enthusiasm and energy could be matched by few, and he will be greatly missed by all who knew him.

Sharon Clark-Grigsby died December 24, 1998, at the age of 39.

She was an employee of the Alabama Forestry Commission for 16 years. Mrs. Clark-Grigsby was coordinator of the TREASURE Forest program from 1990 to 1992 and was involved with the Alabama TREASURE Forest Association in the early years of its formation. Many landowners will remem-



Clark-Grigsby

ber her dedication and commitment to the TREASURE Forest program.

Most recently Mrs. Clark-Grigsby worked as an urban forester for the Forestry Commission. She was a 1982 graduate of Auburn University and a registered forester. Her contribution to the forestry profession will be remembered by her co-workers and friends for many years to come.

Mack Vines, a Baldwin County TREASURE Forest landowner, died October 30, 1998. He was 80 years old. Mr. Vines had a 206-acre TREASURE Forest that was dear to his heart. His ashes were scattered over the forest that he loved so much and tended on a daily basis. Mr. Vines' family will now manage the TREASURE Forest. He was a retired state employee and a member of the Baldwin County Forestry Planning Committee.

LAND OWNERS



LEGISLATIVE • ALERT

NATIONAL

by **JAY JENSEN**, Washington Office,
National Association of State Foresters



As the wheels of Congress resume their churning for the

106th Congress, legislators are already drafting a considerable list of new legislation. One of the first items out of the blocks garnering attention in Congressional natural resource circles is a bill that focuses on funding game and non-game wildlife conservation, recreation and education programs for the states.

Wildlife Conservation and Restoration

The bill, a continuation of an effort that began at the end of the last Congress, proposes a new funding source for the "Teaming with Wildlife" initiative. Under the Conservation and Reinvestment Act of 1998 (S. 25), legislators have proposed to redirect a percentage of money from federal outer continental shelf (OCS) oil and gas royalty revenue to states for wildlife programs of which the teaming initiative would be one of the primary beneficiaries.

Originally, the Teaming with Wildlife proposal was a "user pays" approach, funded through an excise on tax outdoor equipment and clothing. This is a similar approach to excise taxes on fishing tackle and hunting gear that have proven very successful.

Over 3,000 groups and businesses across the country had pledged support for the Teaming with Wildlife initiative under the old funding plan, including the National Association of State Foresters. The initiative is a cooperative effort between state fish and wildlife agencies, state parks and the customers and businesses of the outdoors to provide much needed funding for every state to implement important wildlife conservation,

recreation and education programs. These will impact millions of Americans in every state by providing greater recreational and educational wildlife opportunities.

The bill proposes funding for three purposes: Title I is for coastal impact assistance, Title II is for land based recreation, and Title III is for wildlife conservation. Under Title III, the new legislation directs funds to states to help conserve wildlife populations and their habitats and to provide more opportunities for wildlife education and recreation, the primary goals of the Teaming With Wildlife initiative.

According to the International Association of Fish and Wildlife Agencies, one of the primary conservation organizations spearheading for the initiative, the total oil and gas revenue collected in the coming years is expected to reach \$4-5 billion, a sizeable sum. The Senate Energy and Natural Resources Committee reported that \$4.1 billion in revenue was taken in during fiscal year 1997 alone.

The Senate bill does not restrict funding to nongame species or require a primary emphasis on nongame species in the funding allocations at the state level. In other words, although the bills recognize the needs for funding for a wide array of species, it allows state discretion as to how much money will be spent for what species as well as how much will be spent for conservation, education and wildlife associated recreation.

After the first month of legislative activity, the Conservation and Reinvestment Act of 1999, introduced by Sen. Mary Landrieu (D-LA), has nine co-sponsors. These include the likes of Senate Majority Leader Trent Lott (R-MS), and Sen. Frank Murkowski (R-ID),

chairman of the influential Senate Energy and Natural Resources Committee. With powerful proponents such as these, and the backing of a large number of independent groups, the proposed funding bill has a decent chance at passage.

NASF, a supporter of the old user pays initiative, has not yet taken a position on the potential funding changes. For the latest information check the Teaming with Wildlife web site at <http://www.teaming.com>.

Administration Budget Proposal

The administration's budget proposal is one of the strongest we've seen in years for State and Private Forestry. All told, an increase of more than \$80 million is being proposed for State and Private Programs, with most of the increase going to Forest Legacy and Urban Forestry. The NASF is supporting a similar size increase for State and Private Forestry; however, our recommendations are more balanced towards providing protection of private forest resources from fire, insects, and disease, and to providing incentives through the Forestry Incentives Program and the Forest Stewardship program to help more landowners improve their forest management.

We're also proposing a major increase in assistance to small, rural volunteer fire departments, who are often the first line of defense when wildfire strikes. This is particularly true in Southern states like Alabama. This emphasis on resource protection includes increases in programs designed to monitor the health of the nation's forests so that response to pest outbreaks is swift.

At the federal level, our proposals focus on a voluntary, non-regulatory approach to helping landowners, which has been the focus of the TREASURE Forest Program in Alabama and the Forest Stewardship Program nationally. For more information on our budget proposal, see our Web site at www.stateforesters.org, and look for our position statement on the National Research Council's study on non-federal forests.

(Continued on page 17)

Order Seedlings Now for Winter Planting

Orders are now being taken at the E.A. Hauss Nursery for the 1999-2000 planting season. Seedlings will be available for pickup after December 1, 1999. Orders are taken on a first-come, first-served basis, but seedlings will not be sold to customers outside the state of Alabama prior to July 15.

To place an order, call the E.A. Hauss Nursery at (334) 368-4854.

PINE & HARDWOOD SEEDLING PRICE LIST

PINES		\$ Per 500	\$ Per 1,000	HARDWOODS	
Loblolly-Improved				Species: Cherrybark Oak, Green Ash, Nuttall Oak, Water Oak, White Oak, and Yellow Poplar	
<i>Coastal Seed Source</i>		\$23	\$35	Hardwood Prices	
<i>Piedmont Seed Source</i>		\$23	\$35	\$21 Per 100	\$185 per 1,000
1.5 Generation Loblolly				Total hardwood together to determine the price to use.	
<i>Coastal Seed Source</i>		\$25	\$39	Minimum order of hardwoods seedlings is 100 per species.	
2nd Generation Loblolly				Discounts for orders that are picked up at Hauss Nursery in Atmore, Alabama	
<i>Piedmont Seed Source</i>		\$28	\$44	Pines:	
Slash	SOLD OUT	\$23	\$35	500	1,000 +
1.5 Generation Slash	SOLD OUT	\$25	\$39	\$1	\$2 per thousand
Longleaf	SOLD OUT	\$39	\$60	Hardwood orders totaling 2,000 or more: \$2 per thousand	
Longleaf-Improved	SOLD OUT	\$45	\$70		

WILDLIFE SPECIES PRICE LIST

LESPEDEZA		OTHER WILDLIFE SPECIES			
	\$ Per 500	Autumn Olive, Chinese Chestnut, Crab Apple, Dogwood, Native Pecan, Persimmon, Native Plum, Redbud, Sawtooth Oak, and "Gobbler" Sawtooth Oak.			
Thunbergii	\$26	Wildlife Species Prices			
Bicolor	\$26	25 trees	100 trees	500 trees	1,000 + trees
	\$ Per 1,000	\$12	\$40	\$150	\$250/M
Thunbergii	\$42	<i>Species may be mixed.</i>		<i>Species may be mixed.</i>	
Bicolor	\$42	Minimum 5 per species.		Minimum 100 per species.	

The Alabama Forestry Commission encourages planting for wildlife in our TREASURE Forest plans and also in the state's cost-share program plans. A one-time planting of tree seedlings that will bear fruit for wildlife to eat can be more cost-efficient for landowners than planting different grasses annually. **Refer to the brochure in the center of this issue for specific information on wildlife species available.**

Landowner's Legislative Alert

Continued from page 16

Other Issues

Federal taxation issues remain a concern to forest landowners and the forestry community overall. The Republicans hold only a very slim majority in both Houses. In fact, in the House it is the smallest majority held by either party this century. However, the GOP leadership has focused on tax cuts as a

major issue, and one which they hope to be able to capitalize on in the next election cycle.

The forestry community's particular needs, such as expensing of reforestation costs and estate taxes, have not been the center of the debate so far. Instead, the Congressional leadership has been discussing broad across-the-board rate cuts to income taxes. Of course, the Clinton administration has said it does not want to discuss any major tax code changes until they have a satisfactory solution to keep Social Security solvent.

With the slim majority held by the Republicans, major action on natural resources laws like the Clean Water Act or the Endangered Species Act seems unlikely. Private property rights should prove a sticking point that might easily stymie passage of any reform, or provoke an unwinnable veto fight, if such provisions were included in a bill. The same holds true for any legislation dealing with the reform of federal land management, although hearings on bills are likely to be held throughout the year.

Become a TREASURE Forest Landowner 6 Steps to Success

Anyone owning 10 or more acres of forestland can be considered for the certified TREASURE Forest award. To be eligible, a landowner must do the following with respect to all their forestland in Alabama:

1. Identify one primary and at least one secondary management objective for the property based on the following list of choices: Timber Production; Wildlife; Recreation; Aesthetics; Environmental Education.
2. Possess or acquire a written multiple-use management plan for the property. Your local Alabama Forestry Commission office can help you identify options for obtaining a written management plan if one does not exist.
3. Actively practice multiple-use management on the property. Your local office of the Alabama Forestry Commission can supply you with information on the level of management activity necessary.

Once these items are in place, the following must occur to earn the award:

4. The property must be nominated by someone associated with one of the member agencies or groups of the Alabama Forestry Planning Committee. You may contact them and suggest a nomination if you feel your property or that of someone you know qualifies for the award.
5. The property must be inspected by a registered forester and wildlife biologist. Your local Alabama Forestry Commission office will arrange the inspection.
6. The nomination and inspection report must be submitted to the TREASURE Forest Subcommittee of the Alabama Forestry Planning Committee for review and approval.

If you would like to be considered for the certified TREASURE Forest award, or know of someone else who may qualify, contact your local office of the Alabama Forestry Commission or other member agency/group of the Alabama Forestry Planning Committee. These organizations are listed on page 2 of this magazine. They will be happy to assist you with the certification process.

Watermelons and White-tails

By Derrick V. Heckman, Certified Wildlife Biologist

For many years farmers have complained about the destruction white-tailed deer have on their annual watermelon patch. Many sportsmen and land managers have yet to realize the relationship between that annual watermelon patch and deer herds. That's right, HERDS of deer. Often times, fields or patches greater than 50 acres in size will contain herds of deer that will utilize the crop the entire summer and into the fall depending on the amount of available cover.

Each and every fall I watch as the barrage of sportsmen flock to the fields with their tons of seed and tractors preparing for the upcoming hunting season. I am disturbed to know that thousands and thousands of dollars are being spent to see deer, not to help them or benefit their health. When I question landowners about the management that they provide for wildlife, most often their response is that they plant food plots, usually beginning around Labor Day. That's fine, but remember, wildlife management is a year-round job. If you have to choose one time to plant, make it in the early spring. Let me repeat . . . plant in the EARLY SPRING!

Adult white-tailed deer consume around 8 to 10 pounds of fresh food per day. Food plots in the fall are useless for antler and fawn development; bucks have already hardened off their antlers and most of the fawns have already been born. A high birth weight increases the chances that each fawn will survive those first few days that it is left defenseless after birth.

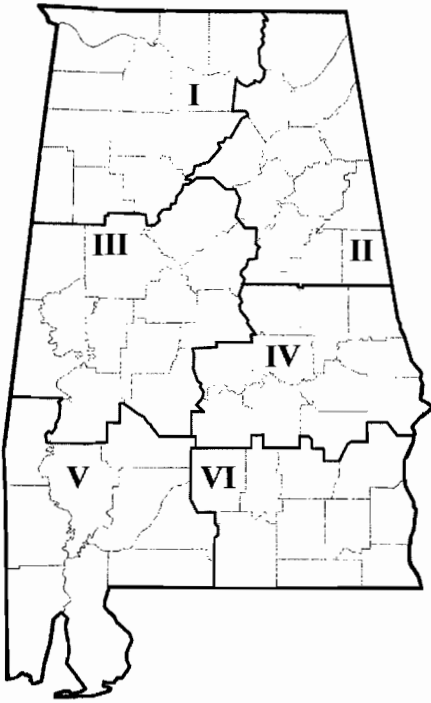
In late winter, white-tailed deer are exhausted from the rut and available food is nonexistent just after hunting season every year. At this time two very important things are taking place: the does are beginning a new fawn life cycle and they need protein and carbohydrates; second, and most important to some sportsmen, the bucks are starting their new antler development cycle. Easily available food is very important and cool season food plots can provide that needed resource, followed by a summertime abundance of food, including watermelons.

Wildlife openings and food plots less than five acres in size and used by many hunters, land managers, and photographers make suitable areas for planting watermelon patches. Besides a food supply, watermelon patches provide another benefit. Unattended patches become overgrown with grasses, legumes, and clovers from the proceeding year's food plot. This provides excellent forage for white-tailed fawns and plenty of sight for wary does protecting their young from oncoming threats that exist around the food plots.

To maximize protein potential, combine two or more summer species. Some of my personal favorites are cowpeas and soybeans. The easiest and most effective way that I have found to combine the plantings is to medium disk the food plot and form a raised seedbed (3 to 4 inches high, 12 inches wide) the length of the food plot and every 5 to 6 feet apart. Alternate each row with cowpeas, watermelons and soybeans. Plant the seeds about 1 inch underneath the surface of the mound. Often farmers will put two seeds in each hole to ensure survival and increase competition between plants. Recommendations on planting rates are 20 lbs./acre of cowpeas and 1 lb./acre of watermelons (any variety) and about 10 lbs./acre of soybeans. A soil test will determine fertilization rates, but if one hasn't been done, go ahead and fertilize at a rate of 300 lbs./acre of 13-13-13 and lime the fields at about 1/2 ton/acre.

Remember that you will have watermelons available for your Labor Day picnic or fall scheduled work day if you plant in the spring. Please, if you want the deer to grow bigger and better, plant in the spring, not the fall. Try this little bit of wildlife management advice and see what the results will be over the next couple of years. If you are keeping records, I guarantee that you will find an increase in diameter growth and overall body weights in your early season deer harvests. For those of you that just enjoy viewing and photographing white-tails, the watermelons will bring 'em on out! 🍷

Wildlife Management Assistance



Alabama Game & Fish Division

Wildlife Section
64 N. Union St.
Montgomery, AL 36130
334-242-3469

*For wildlife management assistance,
contact the appropriate Game and Fish district office.*

District I

21438 Harris Stn. Rd.
Tanner, AL 35671
256-353-2637

District II

4101 Hwy 21 N.
Jacksonville, AL 36265
256-435-5422

District III

8211 Hwy 82 W.
Northport, AL 35475
205-339-5716

District IV

64 N. Union St.
Montgomery, AL 36130
334-242-3924

District V

305 Bolentown Rd.
Jackson, AL 36545
334-246-2165

District VI

1100 S. 3 Notch St.
Andalusia, AL 36420
334-222-5415

Nominations Being Accepted for Wildlife Stewardship Awards

Four leaders in the outdoors industry have teamed with *Progressive Farmer/Rural Sportsman* magazine to recognize the contributions of private landowners to the future of hunting and fishing.

Simmons Outdoor Corp., Advantage Camouflage, Inc., Stren Fishing Lines and Remington Arms Co. are the 1999 category sponsors of the Wildlife Stewardship Farm™ Awards Program. The awards were established to identify farms where lands and lakes/streams are managed to benefit wildlife and made available for public use.

A "Farm of the Year" will be honored for exemplary wildlife and habitat management in each of four categories: Big Game, sponsored by Simmons; Waterfowl, sponsored by Advantage; Farm Pond/Stream, sponsored by Stren; and Upland Game, sponsored by Remington. Any farm or ranch in the United States that allows hunting and fishing by the public on some basis,

either commercially or otherwise, may be entered.

Eligible entrants will be the actual stewards of the lands, those responsible for planning and implementing management practices whether or not they own the land. A farm or ranch may be entered into one or more categories.

To enter, the steward must complete an entry form provided by Rural Sportsman and submit photographs that illustrate the management practices. Entries must be received by Rural Sportsman no later than May 30, 1999. Winners in each category will receive products from the sponsoring company, a plaque, a farm sign, and an expenses-paid trip for two to Birmingham, Alabama, for an awards presentation.

To request further information and entry forms, contact Becky Granzow at 205-877-6255, or write her at Rural Sportsman, P.O. Box 2581, Birmingham, AL 35202.

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Forest Conference**

OCTOBER 7-8, 1999

Paul Bryant
Conference Center
Tuscaloosa, AL

*More Information and
Registration Form in the
Summer Issue of
Alabama's
TREASURED Forests*

Conservation Education: Instilling a Land Ethic

By **Jerry A. de Bin**, Conservation Education Coordinator,
Game and Fish Division, Alabama Department of Conservation and Natural Resources

Aldo Leopold, the father of modern conservation, wrote, "There are two dangers in not owning a farm. One is the danger of supposing that breakfast comes from the grocery, and the other, that heat comes from the furnace." Two elements of society play key roles in shaping future environments: resource managers and educators. Both are concerned with the future. The goal of education is the highest and best use, or conservation, of natural resources. These goals are interdependent.

The Conservation Education Program of the Alabama Game and Fish Division has become a multifaceted series of programs promoting a land ethic among all citizens. Through Project Wild, Aquatic Wild, and Project Wet workshops, teachers learn to incorporate natural resource concepts into their academic curricula. Delta Discovery, Wild Alabama and Becoming an Outdoors Woman immerse participants in outdoor experiences. To date, about 20,000 educators have been trained in more than 600 workshops.

Teaching Curriculums

Project Wild is an interdisciplinary, supplementary conservation education program emphasizing wildlife. It is designed for teachers of kindergarten through high school students, but its usefulness is not limited to formal educational settings. Volunteers working with young people in preschool and after-school programs; representatives of private conservation, industry and other community groups interested in providing instructional programs for young people or their teachers; and personnel involved in preparation of future teachers are all among those who effectively use the instructional resources of this program.

Project Wild is based on the premise that young people and their teachers have a vital interest in learning about the earth as home for people and wildlife. The program emphasizes wildlife because of its intrinsic, ecological and other values, as well as its importance as a basis for understanding the fragile grounds upon which all life rests. Project Wild prepares young people for

decisions affecting people, wildlife and their shared home, Earth. In the face of pressures affecting the quality and sustenance of life on earth, Project Wild addresses the need for humans to develop responsibility as members of our joint ecosystem.

As with Project Wild, Aquatic Wild's primary audience are K-12 teachers. The goal of Aquatic Wild is to assist learners of any age in developing awareness, knowledge, skills and commitment to guide them to informed decisions, responsible behavior and constructive actions concerning wildlife and the environment upon which all life depends.

Water in all its forms is one of the most dramatic of today's arenas in which informed, responsible and constructive actions are needed. Water—essential to all life—is one of the basic components of habitat for people and for wildlife. Aquatic species and aquatic ecosystems give humans early and clear warning about the quality of the water environment upon which we all depend.

Project Wet focuses on all aspects of water, with the objective of facilitating and promoting awareness, appreciation, knowledge, and stewardship of Alabama's water resources through the development and dissemination of classroom-ready teaching aids.

The Project Wet Curriculum and Activity Guide for grades K-12 is a collection of innovative, water-related activities that are hands-on, easy to use, and fun! Project Wet activities incorporate a variety of formats, such as large and small group learning, whole-body activities, laboratory investigations, dis-

ussion of local and global topics, and involvement in community service projects. Developed, field-tested and reviewed by hundreds of educators and resource managers around the country, the Project Wet Curriculum and Activity Guide addresses the goals of Project Wet.

Project Wet activities promote critical thinking and problem-solving skills and help young people with the knowledge and experience they will need to make prudent decisions regarding water resource use. The Project Wet Curriculum and Activity



Guide is available to all formal and non-formal educators through workshops provided by the Conservation Education Program in Alabama's Game & Fish Division.

Individuals might say that Project Wild, Aquatic Wild, and Project Wet are excellent sets of teaching materials bound in an attractive format. Professional educators could describe these materials as a supplementary, educational program directed at providing learning experiences for students in kindergarten through grade 12.

Additional Workshops

Delta Discovery is designed to acquaint teachers with the natural resources of the Mobile-Tensaw Delta and to examine the social and cultural constructs associated with wetlands. This five-day workshop features activities, field trips and presentations covering Delta wildlife, wildlife habitat, geography and history, as well as economic, recreational and aesthetic values of the Delta system.

Wild Alabama is a workshop for educators who view the outdoors as another classroom. Want to improve your effectiveness as an environmental educator? Interested in teaching conservation? Need to increase your knowledge of the environment? Looking for fresh ideas?



Dan Brothers/ADCNR

Want to receive the highest quality classroom resources and proven strategies for teaching them? If you answered "yes" to any of these, Wild Alabama is the workshop for you! No prior training or background experience is necessary. Teachers K-12, naturalists, and other youth educators will enjoy the many benefits.

Becoming an Outdoors Woman is a three-day adventurous workshop for women who want to learn new outdoor skills. The workshop offers information, encouragement, and hands-on instruction in numerous sessions dealing with outdoor skills. Participants may select from 30 sessions such as Reading the Woods, Map and Compass, Motor Boat Trailering and Handling, Nature Photography, Turkey Hunting, Shooting Sports, Archery, Rock Climbing, and more. The workshop is designed for beginners who never tried these activities but have hoped for an opportunity to learn.

For more information about any of the Conservation Education Program offerings, please contact: Jerry A. de Bin, Conservation Education Coordinator, Alabama Game and Fish Division, 64 N. Union Street, Montgomery, Alabama 36104; phone: 1-800-262-3151. Visit the Game & Fish Division's Conservation Education Web site at <http://www.dcnr.state.al.us/agfd/cep.html>.



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- Proceeds will be used for educational projects that promote healthy and productive forests, clean water, and abundant wildlife.

Promote and Support the TREASURE Forest Program Join the Alabama TREASURE Forest Association

The Alabama TREASURE Forest Association is composed of people who practice TREASURE Forest management, people who encourage others to practice it, and people who believe that management of Alabama's forestlands according to the TREASURE Forest concept is good for both present and future generations.

Membership in the Alabama TREASURE Forest Association is open to certified TREASURE Forest owners (Full Members), any forest landowner who is not certified (Growing Member), and persons, companies, corporations, or organizations that do not own forestland (Associate Member), but want to support and promote the sustainable and wise use of our forest resource for present and future generations.

Yes, I would like to join the Alabama TREASURE Forest Association Date: _____

Name: _____

Address: _____

City: _____ County: _____

State: _____ Zip: _____ Telephone: (____) _____

Check each category and fill in the blanks as appropriate.

Associate Member Enclosed is \$15 annual membership fee

Growing Member Enclosed is \$20 annual membership fee

Full Member Enclosed is \$25 annual membership fee

primary objective _____

secondary objective _____

Mail to: Alabama TREASURE Forest Association, P.O. Box 145, Chunchula, AL 36521

For more information about the Alabama TREASURE Forest Association contact James Maitre, Executive Director, at (334) 679-6087.



Attracting Waterfowl to Beaver Ponds

By H. Lee Stribling, Extension Wildlife Scientist

Beaver ponds provide an attractive habitat for a host of wildlife species including waterfowl. Some of the South's finest wood duck hunting occurs over beaver ponds. Managed properly, beaver ponds produce excellent hunting opportunities at relatively little expense.

Beaver ponds are easily converted into green tree reservoirs or moist soil management units, or they can be planted in Japanese millet and other grains to attract ducks. Beaver ponds can provide an ideal nesting and brood-rearing habitat for wood ducks. Landowners with several beaver ponds will benefit by managing each pond differently.

Green Tree Reservoirs

Green tree reservoirs are seasonally flooded, bottomland hardwood impoundments. Waterfowl concentrate there during fall and winter to feed mostly on acorns. Water is drained from reservoirs usually during late winter or early spring, immediately before trees bud or break winter dormancy. They are re-flooded during late fall following tree growth and acorn production.

Recently formed beaver ponds built in hardwood bottoms may be managed similarly. Install a draining device near beaver dams and allow water to drain during late winter. Remove the device during fall and permit beavers to re-flood the pond.

This technique not only effectively attracts ducks to beaver ponds, it also enhances tree growth. Continual flooding of timber eventually kills most trees. However, by draining ponds during the growing season, trees may be maintained indefinitely.

Agricultural Crops

Many different agricultural crops are suited to production in drained beaver ponds and are eaten readily by waterfowl. Exposed mudflats may be planted in millets, corn, buckwheat, grain sorghums, or soybeans. Generally, ducks prefer grains over soybeans and other legumes.

Corn and soybeans must be planted in rows and cultivated. Other crops may be simply broadcast over exposed areas. One such plant, Japanese millet, is ideally suited to moist mudflats and matures rapidly. Japanese millet may be broadcast over unprepared ground immediately after drainage if coverage of shrubs and emergent vegetation is minimal.

Lower beaver ponds during spring or early summer to allow ample time for drainage and crops to mature once planted. Some beaver ponds are naturally fertile enough to produce good grain crops without the aid of additional fertilizer. Others require fertilization. Collect soil samples from exposed areas and have them tested for nutrient levels. Fertilize according to soil test recommendations.

As crops approach maturity, remove the draining device and allow beavers to re-flood the pond. Some moist soil crops, particularly Japanese millet, tolerate partial flooding once established. After reaching 1 foot in height, millet will tolerate water depths up to one-half of plant height. The drain device can be raised gradually to increase water levels and reduce competition from flood-intolerant plants, until ultimately the beavers are allowed to flood the pond to its original depth.

Moist Soil Management Units

For years, many landowners have been draining beaver ponds during spring and seeding exposed mudflats in grain crops to attract ducks. While this practice is usually effective, few landowners are aware of the attractiveness, abundance and importance of native plants to waterfowl. You can encourage many native plants to volunteer naturally by simply manipulating water levels in wetlands; these plants are important food items when available to ducks. Waterfowl concentrate on ponds and other wetlands where natural foods are abundant and frequently prefer such areas to flooded grain crops.


Although rich in energy, seeds of most cereal grains are nutritionally incomplete. Generally, seeds of naturally occurring plants offer essential nutrients deficient or missing entirely in cultivated grains, and they may provide as much or more energy than grain crops.

Seeds of native plants usually persist for extended periods, but those of grain crops spoil and deteriorate rapidly once flooded. Unless cultivated intensively, at considerable management cost, grain crops rarely provide as much food as native plants. Yields of cultivated crops are too dependent on uncontrollable conditions, particularly weather, and seldom produce as reliably as native plants adapted to variable moisture conditions. Most grain crops provide inadequate protective cover for waterfowl, but native plants may be managed to yield both food and cover.

Native plants also tend to support high densities and greater diversity of invertebrate animal matter, an important dietary component for most ducks. Cultivated crops attract few invertebrates, forcing ducks to forage elsewhere to satisfy protein requirements.

Fertile, exposed mudflats regularly produce food for waterfowl when surface water is drained from ponds during spring and summer. Waterfowl biologists term this practice "moist soil management." The particular food plants that volunteer following draw-down will vary from year to year depending upon the timing of drainage and subsequent moisture conditions. Rapid

Continued on page 31



*If we are to have
more quail in the landscape,
we must provide more
suitable reproductive habitats.*

THE KEYS TO QUAIL RESTORATION

Game & Fish Division/ADCNR

A faint glow on the eastern horizon signals the new dawn. The twitter of a waking bird community is already underway. In the distance a quail covey call sounds, tentative at first, as if the caller is reluctant to reveal its location. It is a rising note, posed as a question, "Anyone there?" Another caller asks the same. Presently, from other locations, answers come. And more voices join in a dawn chorus of whistling coveys pronouncing their selected ranges.

As light increases, the chorus suddenly ends, for the callers must be about the day's business. It is autumn. The mornings are chilly, but the days are mild, even warm. And, the coveys are off to feed early. They only have to move and feed for a short time because weed seeds are abundant, and even some grasshoppers and bugs are still around. The insects were a staple during the summer, particularly for chicks, although they have been feeding on seeds for some time now.

Many of those chicks are no longer around. More than a third died within 10 days after hatching. And after three weeks, when they grew enough to take short flights, less than half are still alive. Mortality is high when you are as delectable as a quail. This has been a good production year. The population, highest now in the fall, has an average of six young birds per adult hen. During excessively hot and dry summers, production may be only three young per hen. By the same time next year less than 20 percent of these birds will be living. But that reality does not bother these birds. For now, living is easy.

By Stanley D. Stewart,
Wildlife Biologist, Alabama
Department of Conservation
and Natural Resources,
Game and Fish Division

The story is different in February and March when most seeds are gone, food reserves are low and the birds may have to wander far afield to feed up. Cover will be much thinner following winter rains and cold temperatures. The birds that survive to this point will be savvy and likely to run or flush at a distance when disturbed or threatened.

Covey sizes at the end of winter will be about the same as in fall, on average 14 birds, but there will be fewer coveys. That's because it takes a certain number of birds to form an adequate roosting disk, and the need to conserve heat through this behavior in part dictates covey size. When the number of birds in a covey becomes too small they will join another covey or be vulnerable during cold nights.

By late April when coveys break up, less than half of the birds present in November will be alive to enter breeding season. Survival could be much less than this in areas of poor habitat or heavy hunting. By the time coveys break up, pair bonds are already formed. Pairs begin building nests in late April. Nests are often placed near a clump of broomsedge and constructed of dead broomsedge leaves or pine needles. The hen lays one egg each day, with an average clutch size of 14. Incubation requires 23 days. From beginning of nest building to hatching requires about 50 days, with first nests hatching in late May. A peak in nest hatching occurs in mid-June. Depending on weather and re-nesting, additional peaks may occur in July or August. Only one-third to one-half of incubated nests result in a brood, although

most hens will eventually produce a brood due to re-nesting.

The male's musical "ah-bob-white" call of spring and summer is often an unmated cock advertising for a mate since about 15 percent more males than females survive the winter. The cocks' lyrics become most numerous at the height of nesting season when hens are near the end of incubation and their mates are left alone; males never stay in the immediate vicinity of the hen on a nest.

Not all of the males are busy calling, however. Some of them are sitting on nests. Up to one-fourth of nests may be incubated solely by males. The female may lay and incubate another clutch alone or mate with another male. Bobwhites are indeterminate nesters and hens will continue to nest as long as weather is favorable. This breeding behavior helps overcome a very high natural mortality. During the course of a breeding season that involves continuous mortality and varied mating systems to produce young, most of the breeding birds will be associated with more than one mate.



Annual disking between October and March creates high quality brood habitat. Ideally, at least 20 percent of the quail range should be in 3- to 5-acre well distributed fields managed for brood habitat.

Reproductive Cover Requirements

The breeding season is the most critical period of the year for quail populations. Yet, it generally receives little attention from quail hunters or even from quail managers. Most of the thoughts and preparations are focused toward the hunting season. Breeding birds are assumed to be capable of nesting and raising young in whatever environment exists. The fact is quail need very specialized environments for successful reproduction. With such high annual mortality, a failed reproductive season or a series of poor reproductive years results in dramatic declines in quail numbers. Because quail mortality is so high, primary management emphasis should be directed toward the reproductive season and the development of reproductive habitat.

Reproductive habitat for quail includes nesting covers and brood rearing habitat, each distinctly different in composition. These are the keys to quail population restoration. Quail nesting and brood rearing habitats are composed of specific grasses and weeds that are typically short-lived in nature. Productive quail habitat does not remain so for long without periodic disturbance and management that keeps those required plant structures in the environment.

Ideal nesting cover is composed of moderately dense broomsedge, such that the grass clumps are scattered, bare ground is present and herbaceous plants other than broomsedge can also grow. The other plants may include a variety of legumes, blackberry, dewberry, panic grasses, ragweed, goldenrod and dog fennel. The cover is a mixture of these things, not a solid stand of any one. The structure forms a canopy above the quail, but has lots of bare ground underneath so that birds can scuttle through easily. The cover must be intact at the onset of nesting season in May, which means it must escape disturbance such as burning, plowing or mowing at least one year. Too frequent cover disturbance is detrimental to quail nesting success. Ideal nesting cover for quail contains broomsedge clumps from the previous summer. Birds locate nests near the standing clumps and construct

nests of dead broomsedge leaves. Left alone, however, this cover quickly becomes too heavy for quail use. Ground cover becomes dense, plant litter builds and food-bearing plants are crowded out. Birds can no longer negotiate the cover or find the things they need. After only three or four years of plant growth, bare ground disappears and the cover loses value for quail production. Eventually heavy brush and young trees take over. By this point the chances for quail reproduction are severely reduced and the population becomes chronically low. Too frequent as well as infrequent cover disturbances rob quail of nesting areas.

Annual weeds, primarily ragweed, provide ideal brood habitat. Ragweed grows in thick stands following dormant season soil disturbance. The plants form an overhead canopy that conceals quail chicks from predators, shields them from rain, shades them from summer sun and attracts an abundance of insects that young quail must have for growth. The ragweed canopy shades out other plant growth beneath so that chicks have plenty of bare ground to move easily. Ragweed patches are well developed by mid summer when broods are hatching. The patches continue to hold quail into the fall as birds feed on maturing ragweed seed and remain secure in the protective cover.

Quail must have plant types that afford an overhead canopy for concealment and bare ground for unhampered movement. For this reason, sod-forming grasses and solid ground covers are death on quail. Landscapes dominated by Bermuda grass, bahia grass or fescue will produce few quail until these grasses are eliminated. Old fields of dense broomsedge or heavy goldenrod are poor habitat for quail production and require periodic disturbance.

Reproductive Habitat Management

The general structure of productive quail habitat in the Southeast consists of open pine woodland with a distribution of small fields and includes a good dispersion of thicket cover throughout the habitat. The open woodland can be managed for nesting habitat and winter range. The small fields can be managed for brood habitat.

Most forestland is not good quail habitat, but pine forests can be excellent habitat when managed with periodic thinnings and prescribed burning. To support quail the forest must have an open canopy. The tree canopy should be open enough so that it covers only about half of the ground area. This will allow the growth of grasses and weeds that quail must have for reproduction and food. In terms of tree stocking, the stand should be managed at a basal area of 40 to 60 square feet per acre. A stand of 14-inch diameter trees, for example, would have about 40 to 55 trees per acre compared to a fully stocked stand of 75 to 80 trees per acre.

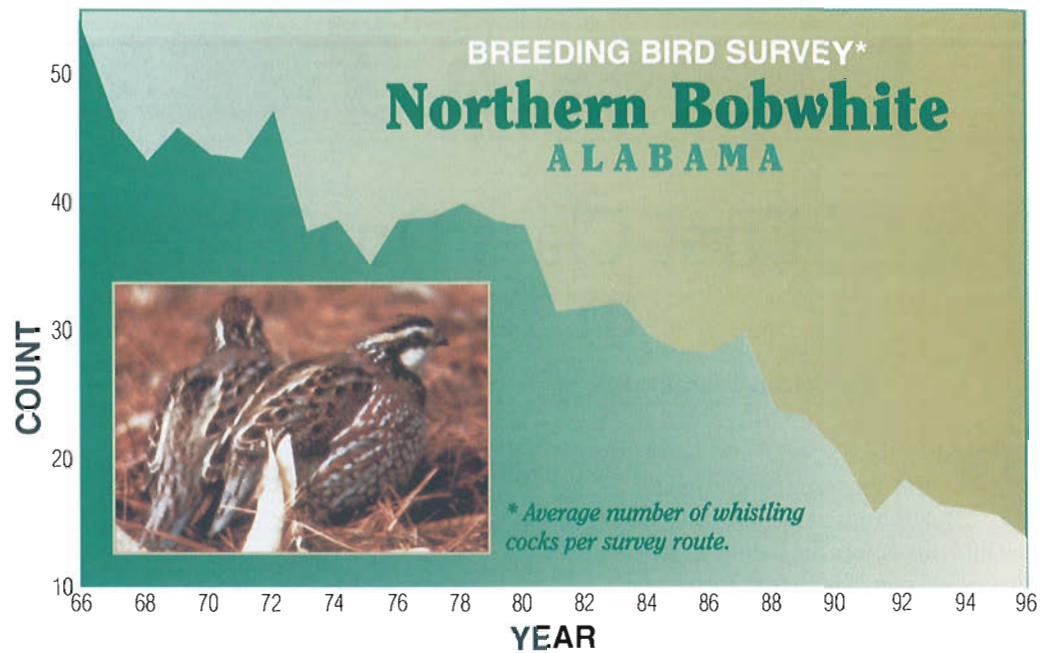
Most forest landowners may not want to give up this much timber production. An alternative is to open up stands in selected locations. Thinning a forest zone as narrow as 100 feet wide along field borders can create useable quail habitat. Thinning along forest road systems can extend habitat further. This effec-

tively develops corridors of quail habitat in woodland. If a distribution of forest openings is created in association with the open woodland corridors, the forest can be managed to provide a year-round habitat of nesting cover, brood rearing areas, feeding areas and winter covey ranges.

Ideally, at least 20 percent of the quail range should be in three- to five-acre well distributed fields that are managed primarily for brood habitat. A field 100 yards wide and 200 yards long is adequate. This will occupy about four and one-eighth acres. Brood habitat is developed and maintained by annual dormant season (October to March) disking. This practice promotes a dominant summer ground cover of annual weeds such as ragweed and partridge pea that offers protective cover and attracts insects for hens with broods.

A 150-foot wide band of open timber around the field will create about eight and one-fourth acres of habitat that can be managed as nesting cover (a 2:1 ratio of open woodland to small field). This pattern can be duplicated across the forest to whatever extent a landowner desires. For example, an open woodland-small field unit of the described dimensions established on 80 acres would devote 15 percent of the land to quail reproductive habitat. If installed on every 40 acres, 30 percent of the landscape would be in quail habitat with 10 percent of the land in small fields. If this pattern was duplicated on every 20 acres, small fields would occupy 20 percent of the land, about half of the forest would be open woodland, and most of the land area would be suitable quail range.

With this regime, nesting cover is supplied in the open canopy forest. Prescribed burning is the best tool for managing nesting habitat. Burning controls dense ground cover and hardwood brush and promotes growth of grasses, weeds and scattered shrubs that quail use for nesting, food and protection. There are some important considerations to achieve a burn that benefits quail. First, the tree canopy must remain open so that ground covers can grow following the burn. Also, burning should be repeated often, with burning done each year to control hardwood brush and favor grasses and weeds. Most successful quail nests are located in one-year-old broomsedge cover because it has the desired characteristics for nest construction and concealment. So care must be taken to leave some of this cover unburned on well-drained upland sites for spring nesting.



Much of the quail population decline in the past 30 years can be attributed to loss of reproductive habitat.

These sites should be about two or three acres in size. To maintain proper cover characteristics, they should escape fire only one year. Ideally, 25-50 percent of the quail range should be in unburned upland spring nesting cover. The prescribed burning pattern for quail nesting cover development is annual burning that leaves substantial unburned areas for early nesting activity.

Conclusion

A bird dog that does not produce covey finds does not remain in the string for long, no matter how good he looks coursing the fields, for the goal is to produce birds. Similarly, everything else a quail manager may do is of no consequence if he does not produce birds. It is the first step. Anything else (feed patches, etc.) must take a lower priority. Quail production requires an emphasis on reproductive covers. If we are to have more quail in the landscape, we must provide more suitable reproductive habitats. Any management effort that neglects these basic requirements cannot achieve the desired result.

Quail are very specific in the plant stages needed for reproduction. Most of the land uses today just do not allow much of these covers to form. The actions on the landscape are of larger scale and either too frequent or infrequent, unlike the farming and open range burning regimes of the past that resulted in lots of fallow ground, open forest and natural grass land that was ideal for quail reproduction. Only by returning more reproductive habitat to the landscape can we experience a rising dawn chorus of quail.



Prescribed burning is the best tool for managing nesting cover. Care must be taken to leave 25 to 50 percent of the quail range in unburned upland spring nesting cover.

First Class Quail Management in Talladega County

By Coleen Vansant, Information Specialist, Alabama Forestry Commission, Northeast Region

Putting the cart before the horse may be true for many people, but for Bob Burton of Birmingham, putting the bird dog before the farm is a more fitting expression. Mr. Burton laughingly says that he had to buy a farm to go with the bird dog he had already purchased.

Mr. Burton acquired his land about 11 years ago. He had become interested in quail hunting and wanted a tract of land to manage for quail as well as to provide a recreation area for his family. The tract consists of about 700 acres of old tenant farmland in Talladega County. His primary objective is recreation (mostly in the form of quail hunting) with a secondary objective of aesthetics. Most of the land management practices are conducted to promote quail populations for hunting.

Historically, according to Mr. Burton, "quail used to be everywhere." Habitat created by tenant farmers through small acreage plantings provided excellent habitat for the birds. The decline of the tenant and family farms and the increase of large acreage farming did away with the cover and edge depended on by quail. Because of good management practices quail have returned to the area. "We tried to recreate that atmosphere of edge, cover and food," said Mr. Burton. "When we did this, they naturally regenerated."

Since Mr. Burton acquired the farm, old fields have been taken out of production and planted in both annual and perennial plants that provide seed and cover for quail. Plants include Egyptian wheat, sunflowers, partridge peas, corn, and grain sorghum along with autumn olive and plum.

In a 30-acre field, referred to by the family as "double pecan field" because of two giant pecan trees located on the property, 14 bicolor lespedeza patches have been planted. Disking is also done in the middles of these patches to promote the



Bob Burton, left, with Talladega County Rangers Mike Highfield and Philip Horne.

natural generation of sage grass. Where on many farms the growth of sage grass is discouraged, the natural grass provides cover and nesting habitat for the birds. In the last 10 years around 200,000 bicolor plants have been planted on the farm. Many of the lespedeza patches are being fertilized and periodically mowed to promote healthy growth.

In many of the old bean fields, four to six rows of loblolly pines have been planted on 15-foot centers to provide cover for quail. Mr. Burton is on a November annual



Prescribed burning and thinning creates quail habitat.

schedule for disking instead of bush-hogging to promote the growth of sage grass. In addition to the sage, other natural vegetation is encouraged in applicable areas including privet hedge and honeysuckle. This vegetation helps to provide wildlife corridors as well as cover and nesting habitat.

Around 90 acres of pine have been thinned and burned with assistance from the Alabama Forestry Commission. The thinning has helped release much of the natural vegetation and in some areas open wildlife patches have been left. Burning has discouraged the growth of hardwoods, although quality mast-producing trees and patches of trees are protected by raking or plowing around the trees. Sage grass is thriving under the thinned pines and the natural regeneration of longleaf pine is on the increase because of the burning program. This year around 200 acres of prescribed burning will be conducted on the property. The proper layout of logging decks and their later conversion to covey holders enhance quail populations in adjacent areas.

According to Mr. Burton, his goal to get the birds through the winter and into the spring mating season. He and his son (who is in a partnership with him) have recently acquired an option on 150 acres adjacent to their farm. This, too, will be managed for quail and other wildlife.

Aside from quail, the Burtons also manage some areas for turkey and deer. Although resident populations do not exist, management practices do attract deer and turkey from adjacent areas. Wood duck and bluebird boxes have also been erected on the property.

Mr. Burton was introduced to the TREASURE Forest program by Bill Browning of the USDA-Farm Service Agency. In 1993 the Burton property became the state's 956th TREASURE.

From Bats to Bucks, the Baker Family Is Devoted to Wildlife

By Tilda Mims, Forest Education Specialist, Alabama Forestry Commission, Northwest Region

Jerry Baker's family is enjoying fourth generation ownership of portions of the beautiful river-front property comprising TREASURE Forest #1253 in the Colbert County community of Ford City. With half-mile frontage on the Tennessee River halfway between Wilson and Wheeler dams, this 700-acre tract is a potential haven for both game and non-game species.

Unfortunately, poachers virtually eliminated the deer population in the area and the number of quail coveys has declined, also. The Baker family has committed time and resources to a forest management plan to enhance wildlife habitat and, hopefully, return many species to the area.

The Stewardship Incentives Program provided cost-share assistance to establish four wildlife food plots totaling six acres. Big Buck Blend, turnip seeds, ladino clover and Austrian winter peas have been planted. An edge effect around leased pasture, tree planting and prescribed burning are part of an integration of wildlife and timber management objectives designed to create a broad variety of food, shelter and habitat.

One little creature making its home there will require more than a wildlife food plot to preserve its habitat. Baker's Cave is one of several bat caves in Alabama sheltering the endangered gray bat.

The "Gray Bat Recovery Plan" of the Alabama Department of Conservation and Natural Resources requires that each cave be inventoried annually. Keith Hudson, a non-game biologist for the department is involved with the plan. "In 1969, the estimated size of the bat colony at Baker Cave was 30,000," Hudson said. "That was before the gray bat was declared endangered. In 1986, our inventory estimated the count to be 6,900. In the last five years the



Tim, Diana and Clint Baker

inventory has declined dramatically, perhaps to the hundreds."

What is going on in the cave is unclear, although trespassers are certainly part of the problem. Hudson says that cave habitat is fragile and easy to disturb. Each human entry into a winter hibernating cave causes bats to rouse and begin flying around, wasting valuable stored fat reserve and making it difficult for them to survive until

summer. Also, flightless young may be dropped or abandoned when human beings disturb nursery roosts.

A cave surveying group from The National Speleological Society based in Huntsville has estimated the cave to be 3,505 feet long. Tim Baker says that many larger chambers are so close to the surface that there are tree roots in the ceiling. The chamber where the bats roost is 5 to 12 feet high with pools of water and calcite deposits on the ceiling.

The Baker family is working closely with regulatory agencies and law enforcement officers to control unwanted foot traffic and vehicular trespassers in an effort to protect and promote the gray bat.

Jerry Baker started buying land in the 1940s and has worked steadily to improve it. His son, Tim, said, "Our parents made great sacrifices to make this land ours. Frankly, I feel unworthy to be a part of it. I just hope to be a good steward of the land in the future."

Jerry's other children are Melanie Stinson of Madison, Mack Baker of Sheffield and Scott Baker of Muscle Shoals.



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What's So **BAD** About **BATS?**

By Tilda Mims, Forest Education Specialist,
Alabama Forestry Commission, Northwest Region



The endangered gray bat is found in cave regions of Alabama, Arkansas, Kentucky, Missouri and Tennessee, with occasional colonies found in adjacent states.

Merlin D. Tuttle, Bat Conservation International

Bats in the belfry.

Blind as a bat.

Going batty.

Like a bat out of Hades.

Bats carry rabies.

Bats will get tangled up in your hair.

Bats will suck your blood.

Bats have been given a bad rap in literature and folklore for generations. They are depicted in films alongside witches and vampires, carrying deadly diseases and striking fear into the hearts of their victims.

Most Endangered Land Mammal

Fear and misinformation have caused the destruction of habitat and the death of many of these gentle creatures, making the bat the most endangered land mammal in the United States.

Popular untrue notions about bats include the fear of rabies. Bats do not carry rabies more frequently than any other species. In 40 years of record keeping, only 10 people in Canada and the United States have gotten rabies from bats.

Bats have excellent vision although they use their sense of



The Indiana bat is also endangered.

Merlin D. Tuttle, Bat Conservation International

hearing to navigate in flight. Bats use a form of acoustic radar called echolocation to navigate. They send out ultrasonic squeaks, too high pitched for humans to hear, and use the echoing return to determine the location, size and distance of objects. Bats have extraordinary hearing that enables them to locate and seize insects and other food. If the echo indicates a bug, they zoom in to catch it. If it indicates a larger object, like a tree, a human or a building, they can avoid it.

Their seemingly erratic flight is due to the way they catch insects. Most birds that catch insects "on the wing" use their mouths or beak. Bats usually capture by scooping them into their tail or wing membranes. Then they reach down and take the insects into their mouths.

Bats do not attack humans. There are bats that eat insects, bats that eat fruit, nectar and flowers, and bats that eat small animals like frogs and rodents. Only three species, called vampires, eat blood and they are found only in South and Central America. They make a small bite in cattle and other animals, and then lick the trickle of blood that flows out. A powerful anticoagulant in their saliva keeps the blood flowing while they are feeding. This substance has become important to medical scientists researching ways to aid heart disease patients.



The silver-haired bat has a large range, from southern Alaska across southern Canada and south to northeastern Mexico, but is not often seen in the southeastern United States. Photo: R.W. Van Devender, Mammal Images Library, American Society of Mammalogists

Bats, like human beings, are mammals. They are of the order Chiroptera, from the Greek meaning “hand-winged.” The wings of a bat are similar to human hands with extended fingers that form the structure of the wings. Bats are found all over the world, with the exception of Antarctica.

Bats hold the distinction of being the world’s only flying mammal. Nearly 1,000 kinds of bats account for almost one-fourth of all mammal species, second only to rodents. They are the slowest reproducing mammals on earth for their size, most producing only one offspring annually. Female bats nurse their young until they are almost adult in size. The average life span of a bat is 15 years.

Behavior and Biology

Bat behavior and biology make them unique creatures. Bats are nocturnal or crepuscular, meaning they are active at night or during dusk. They sleep during the day upside down, hanging from a roost by their well-developed feet. Bats’ feet have a mechanism which “locks” with the weight of the body pulling down without any further muscle effort, similar to birds sitting on small twigs. This enables them to hang indefinitely and even sleep. The actual design of their heart is thought to be different compared to other mammals in order to keep blood pressure comfortable in their heads. Bats’ hind legs are turned around with the knee pointing backwards, so when landing they only have to turn sideways to get their toe claws up and toward the ceiling or wall.

Alabama is home to 16 species of bats including the endangered gray bat and Indiana



The Eastern pipstrelle weighs only 5-7 grams and may be mistaken for a large moth. Photo: R.W. Van Devender, Mammal Images Library, American Society of Mammalogists

bat. Alabama bats are insectivorous—eating many times more than their own weight each night. A single bat can eat up to 3,000 insects, including the pesky mosquito, nightly! As primary predators of night-flying insects, bats play a key role in the balance of nature, consuming vast quantities of insects, many of which are costly agricultural and yard pests.

You can help bats simply by not harming them. Never shoot or poison bats. Avoid maternity colonies and hibernating bats. Disturbances, no matter how slight, can be harmful.

Cave habitats are fragile and easy to disturb. Each human entry into a winter hibernating cave causes bats to rouse and waste 10 to 30 days of stored fat reserve. In the summer, flightless young may be dropped or abandoned when human beings disturb nursery roosts.

Encourage bats on your property by furnishing foraging and roosting habitats in close proximity.

- Maintain and manage snags and live cavity trees for natural roosts.
- Preserve rock crevices, old stone chimneys and caves on your property.
- Protect natural water supplies such as ponds and streams.
- Put up a bat house. Although the endangered gray and Indiana bat typically do not use a bat house, they are used successfully for many species.
- Although Alabama is rich in night-flying insects, there are plants recommended for attracting them. *Salvia*, phlox, cornflower and spearmint are good choices, as are night-blooming

flowers such as four o’clocks and moonflowers.

Conclusion

So, what’s so bad about bats? Not much, it seems. Alabama bats are gentle, furry creatures that quietly consume pesky insects. They do not spread deadly diseases, attack humans or transform you into Dracula.

In some cultures, the bat is a good omen. In China, bats symbolize good luck, long life and happiness. For forest landowners, they can bring good luck simply by snacking on up to 500 insects an hour. Preserving existing roosting and foraging areas can



Usually hibernating in caves and mines, the little brown bat often inhabits buildings in summer. Photo: T. Simmons, Mammal Images Library, American Society of Mammalogists


be easily incorporated year-round into your management plan. For best results with a bat house, it should be in place before April.

By welcoming bats to your TREASURE Forest, you can help prevent a drastic decline in species diversity and overall population of these incredible flying mammals.

References

Bat Conservation International, P.O. Box 162603, Austin, TX 78716; Web site: www.batcon.org.

“Bat Management in Alabama,” Circular ANR-622, Alabama Cooperative Extension System.

“Bats and Bat Houses,” Circular ANR-757, Alabama Cooperative Extension System. 



Red bats spend daylight hours hanging in foliage of trees. P.V. August, Mammal Images Library, American Society of Mammalogists

Bat Conservation International

Bat Conservation International (BCI) is recognized as the leader in conservation and educational initiatives that protect bats and their habitats. Efforts by BCI have resulted in protective legislation for bats and cooperative projects with federal and state agencies to secure some of the most significant bat populations. In addition, BCI's educational endeavors have reached millions worldwide.

Bats play key roles in maintaining the balance of nature and the health of human economies. Worldwide, they are primary predators of vast numbers of insect pests that fly at night, and others pollinate flowers and disperse seeds from rain forests to deserts. Some are so essential that without them, many other animal and plant species may die out, threatening entire systems of life. Yet despite their importance, bats are among the world's least appreciated and most endangered animals.

If you would like to learn more about these amazing animals and how you can help save them, consider joining Bat Conservation International. Members of BCI will learn of the vast diversity of bat species through BATS magazine, have opportunities to participate in eco-tours and workshops, receive discounts on catalog items, and gain the satisfaction of seeing how their contributions are making a difference. For membership information, contact BCI at the address below. For a donation in any amount, BCI will send you a copy of the “Bat House Builder's Handbook.”

Bat Conservation International
P.O. Box 162603
Austin, TX 78716-2603
512-327-9721
<http://www.batcon.org>

FREE POSTER

For more information about the 16 species of bats found in Alabama, a free poster is available from the State Lands Division of the Alabama Department of Conservation and Natural Resources.

Write to them at 64 N. Union St., Montgomery, AL 36130; or call 334-242-3484.

Attracting Waterfowl to Beaver Ponds

Continued from page 22

drainage tends to favor extensive stands of similar vegetation. Draw-down over a longer period or slow drainage usually provides somewhat greater diversity of vegetation. Install a draining device along stream channels near beaver dams during spring or early summer, and drain all standing water from shallow mudflats. Remove the device during fall after plant growth is complete and allow beavers to re-flood the pond.

After several years without disturbance to the soil, perennial plants tend to dominate and woody shrubs often invade. Once such vegetation covers more than one-half of the surface area, disking or burning may be necessary when moisture conditions allow. Generally, disking favors annual plants over perennials and increases the production of seeds eaten by waterfowl.

Wood Duck Nesting and Brooding

Good reproduction by wood ducks requires suitable nesting cavities located near adequate duckling habitat. Lack of potential nest sites often limits wood duck population. Landowners with beaver ponds on their property can substantially increase wood duck numbers and improve hunting by erecting and properly managing nest boxes.

Beaver ponds with plentiful shrubs and other emergent vegetation provide excellent brood habitat for wood ducks and are ideal sites for nest boxes. County Extension agents can provide construction plans and details for building and managing wood duck nest boxes.

Draining Devices

Draw-down of beaver ponds is facilitated by any device that will allow water to continue to drain and that cannot be easily patched or clogged by beavers. One such device, a three-log drain, is used commonly in the Southeast. Perforated, 4-inch diameter drainage pipe, made of corrugated plastic, is equally effective. Beavers will quickly dam the large open ends, but they usually fail to patch the perforations.

When draining beaver ponds, break the dam along the existing stream channel. The break should form a deep, nar-



Landowners can increase wood duck numbers by erecting and properly managing nest boxes.

row cut in the dam. Once water flow slows, install a draining device in the break. Check the device periodically to ensure that it is draining properly. When re-flooding is desired, remove the device and allow beavers to patch the dam. ♣

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FREE PUBLICATION

“Erosion Control and Wildlife Plantings for Forestry Operations” offers recommendations for landowners in Alabama and Georgia. For a free copy contact: Kim Gilliland, Alabama Forestry Commission
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TREES OF ALABAMA

Crab Apple

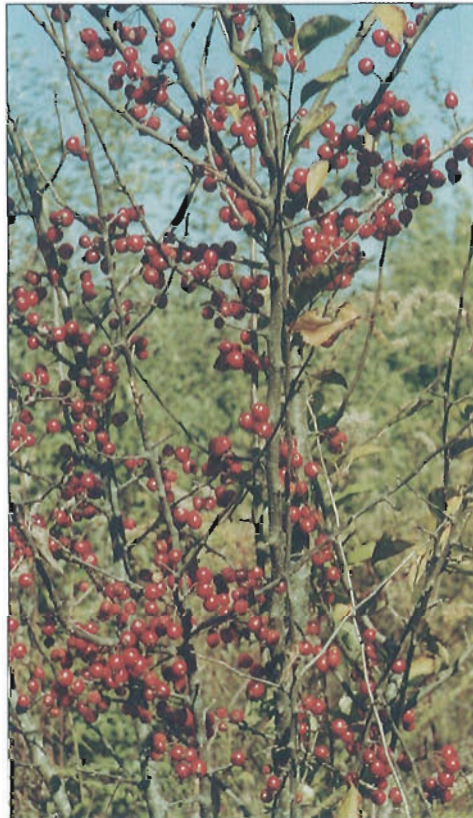
By Coleen Vansant, Information Specialist, Alabama Forestry Commission, Northeast Region

The Southern crab apple (*Malus angustifolia*), or narrow leaf crab apple, is native to the South. It is a shrub or small tree growing to 20 to 30 feet in height, with light brown, smooth branchlets, hardening into thorns. It has rigid, spreading branches forming a broad, rounded crown.

The leaves are elliptic to lanceolate, narrow, coarsely scallop-toothed (may be entire, or slightly lobed), thick, smooth, dark green and lustrous above and pale green below. They are 1-2 inches long and can be blunt or pointed.

The crab apple flowers are fragrant, rose colored and 1-2 inches in diameter. They are borne on slender stalks 1 inch in length, in three to five flowered clusters. The trees bear annually at 3-5 years of age. The fruit is a nearly globular, green or yellowish-green pome about 1 inch in diameter that matures to red in late summer. It, too, is very fragrant. The bark is thin, red-brown, and divided by deep, longitudinal fissures into flat, scaly ridges.

It grows from western Florida to Ontario and to Louisiana and Illinois to



the west. The Southern crab apple is common in central and north Alabama. It grows in moist soils of valleys, lower slopes and stream banks as well as margins of woodlands and fence rows of old fields. In the wild it will develop into thickets. Crab apple should not be planted within 500 feet of trees in the Juniper family, as crab apples are susceptible to apple-cedar rust. Some Asiatic varieties are resistant to this disease. The tree is also susceptible to fire blight.

Although typically considered a weed tree, historically the hard heavy wood was used to make tool handles. The fruit is occasionally used locally for preserves.

Southern crab apple is an excellent wildlife food. Species favoring the fruit include quail, turkey, deer, pheasants, rabbits, squirrels, opossums, raccoons, skunks, and foxes. When planted close together they provide excellent thickets for wildlife cover.

Crab apple seedlings are available from the Alabama Forestry Commission's E.A. Hauss Nursery, 334-368-4854. 



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