Louisiana Wildlife Insider

Photo by Whitney Cranshaw, Colorado State University (*forestryimages.org*)

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THE MONARCH BUTTERFLY

Photo by Kip Kiphart

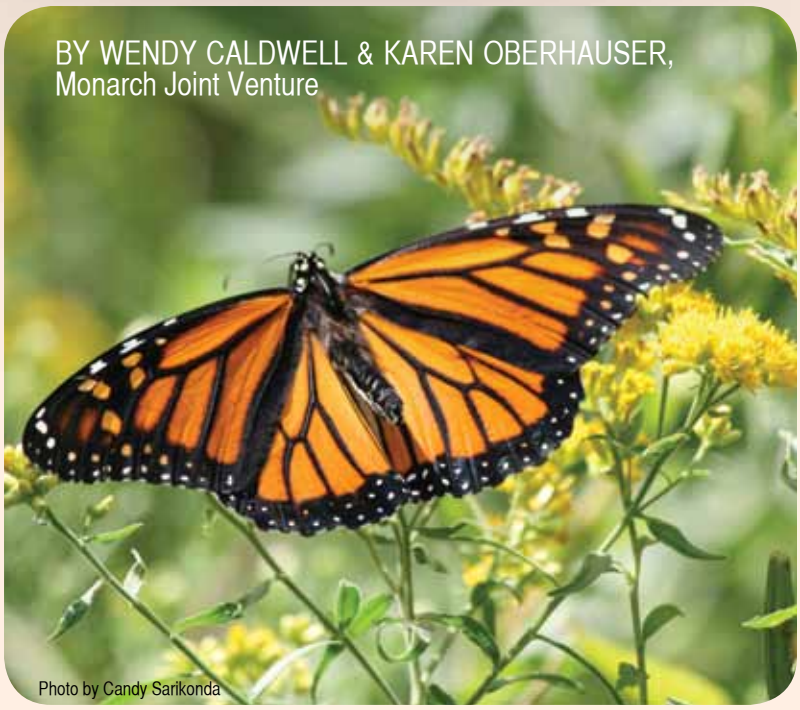


Photo by Candy Sarikonda

BY WENDY CALDWELL & KAREN OBERHAUSER,
Monarch Joint Venture

Traveling through Louisiana on an Epic Journey

Monarch butterflies, as light as a paperclip, make a miraculous journey each year, often as far as 3,000 miles round-trip, as they migrate across North America to their overwintering and breeding destinations. Why do monarchs put themselves through this challenge? It's not just for the thrill. Monarch caterpillars need to feed on milkweed, and monarch butterflies need very specific conditions to survive the winter. Because no life stage of monarchs can survive sustained freezing temperatures, they have to move dramatic distances to find what they need to keep their life cycle going. Monarch butterflies have flight and navigation abilities that allow them to make these incredible journeys.

MONARCHS TRAVELING THROUGH LOUISIANA

THE FALL MIGRATION

North American monarchs make up two fairly distinct populations (with some genetic interchange between the two) separated roughly by the Rocky Mountains. In the fall (primarily in late October), you are likely to see monarchs from the eastern population migrating west along the Louisiana coastline. This coastal migration route is made up of monarchs traveling along the Gulf Coast and then cutting inland from the southern tip of Texas to reach high-elevation oyamel fir forests in central Mexico. A central migratory route involves monarchs from locations in the Upper Midwestern U.S. and southern Canada, while still other monarchs start along the Atlantic Coast and fly southwest toward Texas. A few monarchs on each of these routes don't fly all the way to Mexico, instead staying to winter along the Gulf Coast. Monarch adults, eggs and caterpillars have all been observed during the winter months in Louisiana.

Butterflies often use thermals (updrafts of warm air) during their fall migratory flight to save energy, and fly at a pace of about 25-30 miles per day. These well-traveled butterflies spend the winter clustered together on the trunks and branches of oyamel fir trees, in a low-energy, non-reproductive state that biologists refer to as "diapause." They survive using stored fats produced from the milkweed they consume as caterpillars and the nectar they drink from fall-blooming plants during their flight to Mexico, and keep warm by clustering together so densely that tree branches bend from their weight.

THE SPRING MIGRATION AND SUMMER BREEDING SEASON

These same monarch butterflies begin their return trek northward in March. Now, their focus is finding milkweed on which to lay their eggs. As early as the second and third weeks of March, some butterflies have made their way through northern Mexico and into the southern U.S. on their search for milkweed. Some use Louisiana milkweeds, which blossom around the same time the monarchs arrive. At this point, monarchs are not restricted to the coastline, and may be seen throughout the state. By late April and early May, eggs and caterpillars are rare in Louisiana, but you can find, fresh, bright orange monarch butterflies that have recently emerged from their beautiful green and gold-speckled chrysalises.

Green antelopehorn (*Asclepias viridis*) and spider or antelopehorns (*Asclepias asperula*) milkweeds are the first monarch host plants to come up in Louisiana, and are the best plants for early-season monarchs in search of habitat. Though less abundant, monarchs can also use clasping milkweed, longleaf milkweed, and other milkweed species native to the region (visit our *plantmilkweed.org* website for more information).

From Louisiana, monarchs continue to the Florida panhandle and northward to the northeastern U.S. and southern Canada (a smaller number of monarchs remain in the state throughout the summer, continuing to feed on the occasional Louisiana milkweed). These summer monarchs will produce two to three more generations, using milkweed species that grow in the northern parts of their breeding range. In the fall, instead of laying eggs, the final generation of the year will fly back to find the same oyamel fir trees, new to them, but visited by their ancestors a few generations ago.

There are many unsolved scientific mysteries about this incredible migration, and these mysteries give us cause to pause in wonder. For example, we still don't know exactly how they find the same wintering spots year after year, nor what makes some of them stay in the U.S. throughout the winter instead of joining the millions that fly to Mexico. At the same time, what we do know about the migration of this insect is astounding, and what we witness, beautiful and inspirational.

MONARCHS IN DECLINE

Both friendly and familiar, monarchs introduced many of us to the world of biology as we watched them grow from tiny eggs to beautiful adult butterflies in elementary school classrooms. Now, this iconic insect is at risk of population decline. Monarch migration was listed by the International Union for Conservation of Nature as an endangered phenomenon in 1983. The World Wildlife Fund included the monarch on the list of the "Top 10 to Watch in 2010": species that are thought to be highly threatened, and in need of closer monitoring and protection. During the winter of 2012-2013, monarch numbers in Mexico reached an all-time low, with the area occupied by monarchs only 60 percent of the previous low. Because almost the entire eastern migratory population is in Mexico, scientists assume that this means that the whole population was at an all-time low.

While the plight of monarchs in overwintering groves in Mexico has received much attention, the monarchs' problems are not in Mexico alone. A decline in the number of western monarchs, most of which spend their entire life cycle in the U.S., has been well-documented over the past decade. The number of monarchs overwintering in both Mexico and California is dependent upon habitat quality, not only in these overwintering sites but throughout their breeding and migratory ranges in the U.S. as well.

In the U.S., monarchs face a decline in breeding habitat quality and availability, as we've lost a lot of milkweed from the landscape through habitat conversion and changes in land management practices. Without milkweed, monarchs cannot reproduce and continue their life cycle. Pesticides used to control other insects, especially crop pests and mosquitoes, can have fatal, unintended impacts on monarchs. Additionally, climate change may impact milkweed availability, quality and distributions; summer and fall droughts, such as what we saw in Texas and throughout the central U.S. in 2012, can dramatically reduce the availability of flowers from which monarchs can gather the nectar they will need to fuel their flight to Mexico and survive the long winter.

MONARCH CONSERVATION AND THE *'MONARCH JOINT VENTURE'*

In the fall of 2008, recognizing a need for a coordinated conservation effort, the U.S. Forest Service International Programs gathered a group of monarch conservationists to evaluate the feasibility of a 'joint venture' effort. With enough interested and dedicated parties and a bold vision for monarch conservation, the Monarch Joint Venture (MJV) was formed. Current members of this coalition include several federal and state agencies, conservation-focused nongovernmental organizations, and academic organizations. These members include: the U.S. Forest Service International Programs; U.S. Fish and Wildlife Service; USDA Natural Resources Conservation Service; the Iowa Department of Natural Resourc-

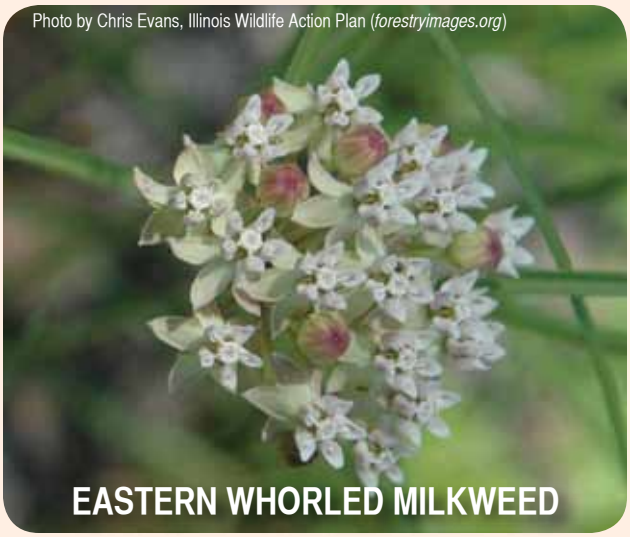

Photo by Jay Forehand, Wikimedia Commons

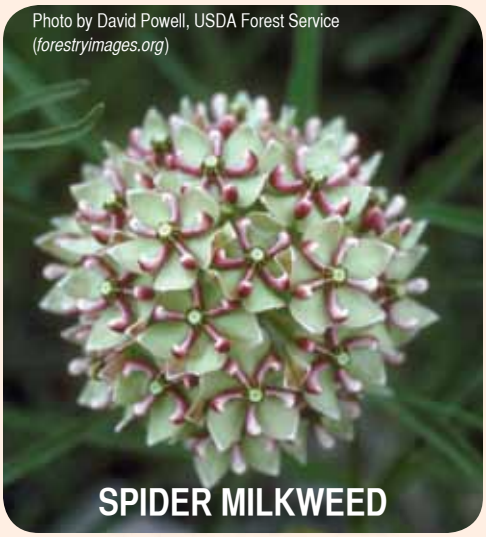

Photo by David Cappaert, Michigan State University (*forestryimages.org*)


Photo by Eliya Selhub


Photo by David Cappaert, Michigan State University (*forestryimages.org*)

Life stages of a monarch butterfly: From egg, to caterpillar, to chrysalis, to butterfly.





Milkweeds are important plants for monarch butterflies. Pictured are different types of milkweed found in Louisiana. Visit *plantmilkweed.org* for more information.

es; Cibolo Nature Center; Monarch Alert; Monarch Butterfly Fund; the University of Minnesota Monarch Lab; Monarch Watch; the North American Butterfly Association; the North American Pollinator Protection Campaign; Wild Ones: Native Plants, Natural Landscapes; and the Xerces Society for Invertebrate Conservation. MJV partners have agreed to work together on a common goal of monarch conservation throughout the lower 48 United States.

This joint venture concept is not a new one. Since the mid-1980s, this model has proven successful in building collaborative, coordinated conservation efforts for migratory birds. In Louisiana, you may be familiar with the work of the Lower Mississippi Valley Joint Venture or the Gulf Coast Joint Venture.

To protect North American monarch populations and their incredible migrations, the MJV is using a science-based approach to conserve, maintain and improve monarch habitat. Additionally, the MJV will work to promote education to enhance awareness of monarch conservation issues and opportunities, as well as to encourage scientific research and monitoring to inform monarch conservation efforts. It promotes monarchs as a flagship species whose conservation will sustain habitats for a variety of important species, including many plants, pollinators and other animals.

We look forward to forming many more partnerships with groups interested in working toward monarch conservation and pollinator-friendly habitat management. Please join us in our effort to conserve monarch butterflies, their phenomenal migration, and habitat for monarchs and other pollinators alike.

HOW YOU CAN HELP

If you would like to help monarchs, there are many things you can do. Plant milkweed and other flowers that are rich in nectar. Work with land managers to get these plants included in as large a swath of the landscape as possible. Help us to understand, and thus conserve, monarch biology by volunteering for monarch citizen science programs; you can find a list of potential programs to which you can contribute data on monarch egg and caterpillar abundance, migration and disease dynamics on our website. Finally, consider supporting monarch conservation through the Monarch Joint Venture (for work in the U.S.) or the Monarch Butterfly Fund (for work in Mexico). To learn how to do any and all of these things, please come visit us at our website: *www.monarchjointventure.org*. You'll join a continent-wide partnership of people doing what they can to assure that our children and grandchildren will continue to observe monarchs in their backyards and favorite natural areas.

Photos by Didier Descouens, Wikimedia Commons

Conservation Partnership

Why it Matters: *Wildlife Need Large Landscapes; It Takes a Lot of People to Manage Ecosystems*

BY GREGG ELLIOTT, GCPO LCC Communications and Outreach Specialist (K. Gregg Consulting - Memphis, TN)
DUCK LOCASCIO, LDWF WMA Forestry Program Manager

Editor's Note: *The following is the first in a series of articles that will address efforts to enhance conservation on a large-scale, commonly referred to as "landscape level conservation."*

The high tech community likes to talk about the "business ecosystem," but they can't hold a candle to the real thing - the kind made of blood, rock, sinew and chlorophyll - where people and organizations work in symbiotic partnerships playing important roles in the living systems of which we are all a part.

WHEN TIMBER HARVEST IS WILDLIFE'S BEST FRIEND

In recent years, wildlife biologists working in Mississippi Alluvial Valley bottomland hardwood habitat have collaborated with land managers and foresters to develop forest management recommendations that will sustain habitat beneficial to wildlife dependent on these bottomland forests. Broadly termed "Desired Forest Conditions" or DFCs, these recommendations are based on the combined needs of hundreds of species, from black bears and deer to Swainson's warblers and downy woodpeckers.

Duck Locascio is one of eight biologist foresters at the Louisiana Department of Wildlife and Fisheries (LDWF) whose primary job is to manage the state's wildlife management areas (WMAs) to produce optimum wildlife habitat and healthy forests. "We use the cheapest most effective way to make changes on the landscape, and that is through commercial harvest of timber. A portion of the receipts from timber sales helps offset the direct costs of forest management, and any remainder goes to LDWF for purchasing or managing additional land for the WMA system," explains Locascio.

With a schedule that evaluates between 15,000 to 25,000 acres per year, it takes Locascio's team, along with WMA biologists and technicians, about 20 years for the management rotation to reach all 450,000 acres they are responsible for in the WMA system. Of the 15,000 to 25,000 acres evaluated annually, about 6,000 to 8,000 acres are treated with some type of commercial timber harvest to improve wildlife habitat.

The DFC recommendations provide a vision for improving forest health, stand quality and stand structure to benefit wildlife for the short and long term. The vision can be achieved using a variety of timber harvest and habitat management techniques. "We strive to create highly complex forests that are diverse in tree species, tree

Commercial timber harvest is often the most effective way to enhance wildlife habitat.

diameter, stem age, stem density, forest structure, and canopy density," explains Locascio. "Managing for quality forest products allows for greater wildlife management flexibility."

Locascio continues, "For example, when I walk transects and cruise timber, I'm constantly jotting down notes about wildlife habitat within the stand. Deer requirements are pretty straightforward, but other species have nuances. For example, Louisiana black bears require den sites sufficiently high to provide refuge from spring flooding, so a typical timber prescription in black bear country might specify keeping large cavity trees. If such trees are limited, the prescription might specify girdling a large oak on every 20 acres, focusing on an oak that is not saw timber quality. Managing for healthy timber helps draw in the loggers we need, and the income pays for extra services like tree-girdling or treating invasive plants with herbicides."

"The sky is the limit," Locascio promises. "There are no rigid requirements. Most treatments are on the light side, but we're always trying to open the tree canopy to get light penetration to encourage growth of midstory and understory vegetation. We also like to maintain about 200 cubic feet of coarse woody debris (tree tops, limbs and other logging debris) per acre because everything starts on the forest floor: bugs, salamanders, many small mammals, etc., all providing nourishment for others up the food chain."

The development of DFCs was a project of the Lower Mississippi Valley Joint Venture, Forest Resource Conservation Working Group. DFCs are simply recommendations, they are not regulatory or mandatory in any way. It took five years of give and take among the 56 participants on that working group to hammer out a concurrence defining "Desired Forest Conditions." Briefly, the DFCs recommend a canopy that provides 60-70 percent coverage, midstory coverage of 25-40 percent, and understory coverage of 25-40 percent. However, "you can't take care of every species on the same acre," Locascio explains. "Plus, trees grow and trees die." That's why a key DFC recommendation is to manage in thirds, with about 30 percent of the landscape in the ideal conditions, 30 percent growing into it, and about 30 percent with a more closed canopy - on its way to thinning and harvest. The DFC recommendations suggest leaving approximately 10 percent of the acreage untouched, "to take care of any other species not covered in the recommendations, to act as scientific controls, or simply to keep a landowner's favorite spot uncut."

Seven years of growth following a group selection harvest on Big Lake WMA. Group selection harvests provide nesting cover for wild turkey and many species of non-game birds.

Top: When light is restricted by the overstory, the resulting sparse understory provides little browse and cover for wildlife.
Bottom: A diverse midstory and understory results from a silvicultural treatment designed to promote "Desired Forest Conditions."

WHY DO FORESTS NEED MANAGEMENT?

"Historically," says Locascio, "Native Americans used fire even in bottomland hardwood forests to open up the forest and improve conditions for game. We're trying to mimic precolonial habitat management, whether by Mother Nature or people. For example, before the widespread development and agriculture of today, one large tornado might have created hundreds of square miles of forest disturbance, whereas now it's often hit-or-miss whether that same storm would even touch any of the scattered remaining forest patches. Because natural disturbances can no longer be relied upon to provide the diversity of habitat needed, forest management, including timber harvests, serves as the disturbance, and it more easily fits the scope of disturbance to the needs of today's habitats."

Southern forests were extensively cut around the turn of the 20th century, continuing into the 1940s. Since then, most bottomland forests in the Mississippi Alluvial Valley have been "sitting there without active forest management," explains Locascio. For decades both federal and state agencies had preservation attitudes, which led to low management and a predominately closed canopy, resulting in an open, park-like understory with little to no mid- or understory vegetation. This condition does not provide good habitat for the many types of wildlife, particularly birds, which are dependent on diverse hardwood forest structure.

DEER ON MY PROPERTY MEANS DEER ON YOURS TOO

Traditionally, wildlife managers and landowners have thought and planned in terms of a single tract or a single landowner. However, in order to sustain wildlife populations we need to maintain

and develop quality habitat across large landscapes. To meet the needs of most species of wildlife, managers need to consider large expanses of habitat. Seldom, if ever, can the needs of most species of wildlife be met on the acreage owned by a single landowner. This is obvious for migratory birds, but other animals such as deer and bears need large acreages to sustain their populations over the long-term. We have areas that big in Louisiana, but even so, many places border expansive agricultural lands or industrial pine forests. The task is to find commonality between the needs of wildlife and desires of landowners so both will ultimately benefit.

All it took to initiate real change was for one influential landowner to read about DFCs. This particular individual owned hardwood properties operated as recreational hunt clubs since the 1940s. "He had been trying to manage for deer with patch clear cuts, which worked great for a few years, but when the canopy closed, he was left where he started but with trees only 15 feet tall and a shaded understory with little browse available," says Locascio. Tired of the boom/bust cycle, the landowner was introduced to Locascio, who helped the landowner understand the DFC management philosophy.

Now several hunt clubs in the region have formed a coalition to plan their timber sales at the same time. This provides a greater incentive for loggers to cut and haul the timber to distant mills, since the DFC management actually covers more acreage but yields less harvested timber per acre. The landowners now have lower overhead costs and instead of treating 50-100 acres at a time, they are treating hundreds of acres and managing on a landscape level.

NEW PARTNERSHIPS FOR DESIRED FOREST CONDITIONS

Currently, LDWF is participating in a West Gulf Coastal Plain working group to define DFCs for pine forests, which will ultimately combine their recommendations with those of another group concentrating on the East Gulf Coastal Plain.

The south's pine forests are very diverse, with loblolly, slash, longleaf and shortleaf pine dominating the forests. These forests harbor so many specialized plant communities, such as wet grasslands and pitcher plant bogs, that the region is widely known for its plant diversity. "DFC guidelines for pine will also have to address controlled burning and ideal fire intervals," says Locascio.

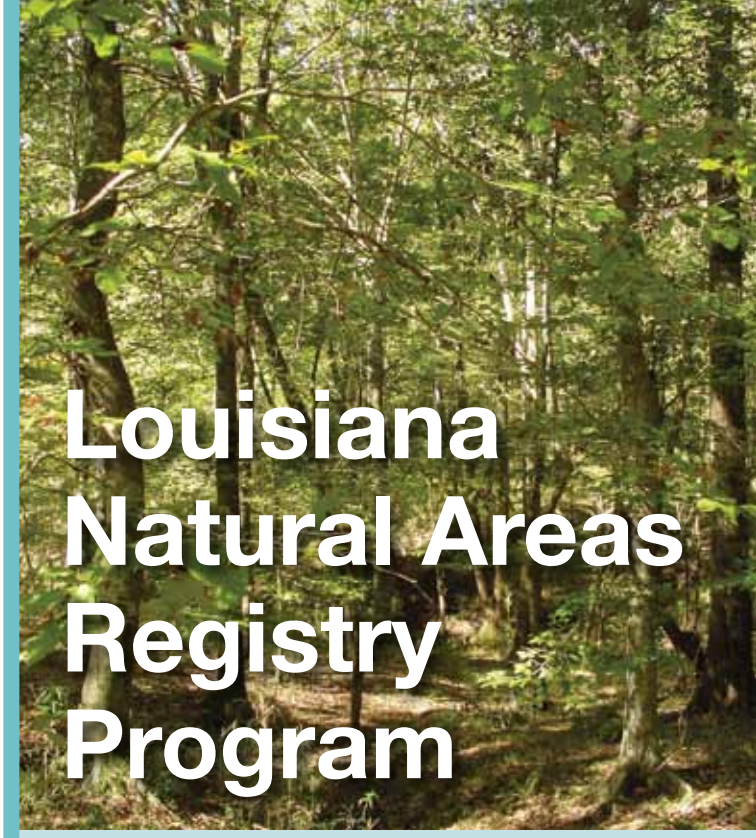
"This is all ground-breaking stuff," stresses Locascio. "It was Kenny Ribbeck's (Chief of the LDWF Wildlife Division) vision 20 years ago that the LDWF should have an expanded forestry section dedicated to the long-term management of the forest resources on WMAs. It takes habitat manipulation to make good wildlife habitat, and he saw the value of in-house foresters to apply wildlife-driven forestry."

Now LDWF's eight biologist foresters have joined with the Mississippi Department of Wildlife, Fisheries and Parks (MDWFP) to share their experience and expertise. They have been working with and training MDWFP staff picked specifically to learn the forestry side of wildlife management.

According to Locascio, "the Mississippi guys know the habitat they need, they just didn't have the experience using timber sales in bottomlands to produce that habitat. Through short courses and by trading visits where we mark timber together and view sites with varying management histories, both states are facilitating landscape scale management beyond state boundaries."

The landowner's version of the technical DFC report emphasizes managing for game wildlife, since that is a primary interest to most landowners. But every thicket managed for turkey nesting habitat is a thicket that will also benefit Swainson's warblers and many other species.

"We recognize that this is not the only way to manage bottomland hardwoods," Locascio cautions, "but if a landowner's priority is wildlife, then this guide is for them. Furthermore, if you are a private landowner managing with good uneven-aged cuts, you are probably closer to the ideal habitat management for wildlife than you might think."



Louisiana Natural Areas Registry Program

BY JUDY JONES

The Natural Areas Registry is a voluntary program of the Louisiana Department of Wildlife and Fisheries (LDWF) which allows the state to recognize property owners for their commitment to the protection of Louisiana's habitats and rare species. The registry was created by an act of the Louisiana Legislature in 1987 to assist with wildlife habitat conservation efforts on private and publicly owned lands. This program is an important tool for outreach to private landowners, since greater than 80 percent of wildlife habitat in Louisiana occurs on privately owned property. Outreach to landowners is achieved through Louisiana Natural Heritage Program (LNHP) staff who contact landowners of potentially important habitat after locating these sites using topographic maps, aerial photos, and information in the rare, threatened and endangered species and natural habitat database. By informing owners of the importance of these sites, the program reduces the chance that significant natural areas might unknowingly be destroyed.

One of the first Natural Areas Registry sites is Oak Hill, which entered the program in May 1988. This property is owned by Murrell Butler in West Feliciana Parish. Butler permanently protected his 351 acre southern mesophytic forest in 2011 with a conservation servitude. To date, approximately 22,000 acres on 42 of the 117 Natural Areas Registries are in servitudes. The option of permanent protection through a LDWF conservation servitude is available. Conservation servitudes are legal agreements that identify the conservation values on a property, place restrictions on use and development that would threaten those conservation values, and defines permissible uses that are consistent with their protection. Properties nominated for the Natural Areas Registry must go through an evaluation and review process to determine if the area qualifies for a LDWF conservation servitude. For information on the Natural Areas Registry Program, contact Amity Bass or Chris Reid with the Natural Heritage Program (abass@wlf.la.gov; creid@wfl.la.gov).

Gopher Tortoise Conservation Efforts in Louisiana

Adult female gopher tortoise at Sandy Hollow Wildlife Management Area in Tangipahoa parish.

BY KERI LANDRY, LDWF Endangered Species Biologist

Gopher tortoises (*Gopherus polyphemus*) are one of only four species of land tortoises found in North America. The species ranges across portions of the Gulf coastal plain of the southeastern U.S. from southern Georgia to southeast Louisiana. In Louisiana, gopher tortoises are found in Tangipahoa, St. Tammany, and Washington parishes (*Figure 1*).

Gopher tortoises are large terrestrial turtles with a dark-brown to grayish-black carapace (upper shell) and yellowish plastron (lower shell). The carapace and plastron of hatchlings are bright yellow-orange. Unlike a box turtle, the plastron of a gopher tortoise averages about 28 cm (11 inches) in length in adults and is unhinged so they cannot close themselves completely into their shell. These creatures have distinct elephant-like hind feet and shovel-like forefeet used for digging impressive burrows in the ground. No other Louisiana turtle depends on burrows to the extent of the gopher tortoise. Burrows, which may be nearly 50 feet long and 7 feet deep, provide protection from winter cold and summer heat.

The entrance to a tortoise burrow is a distinctive "half-moon" shape. Over 360 other species use these burrows making the gopher tortoise a keystone species.

Gopher tortoises require sandy, well drained soils for digging burrows and can be found in a variety of habitat types but prefer well-managed upland longleaf pine and mixed pine-hardwood forest. An important characteristic of the well-managed forest stands preferred by gopher tortoises is that they have an open canopy that allows ample sunlight to reach the ground to promote the growth of herbaceous food plants and provide sunny areas for nesting and basking. In the absence of preferred habitat, these tortoises will set up camp in marginal habitats such as roadsides, ditch banks, utility and pipeline rights-of-way, and pastures.

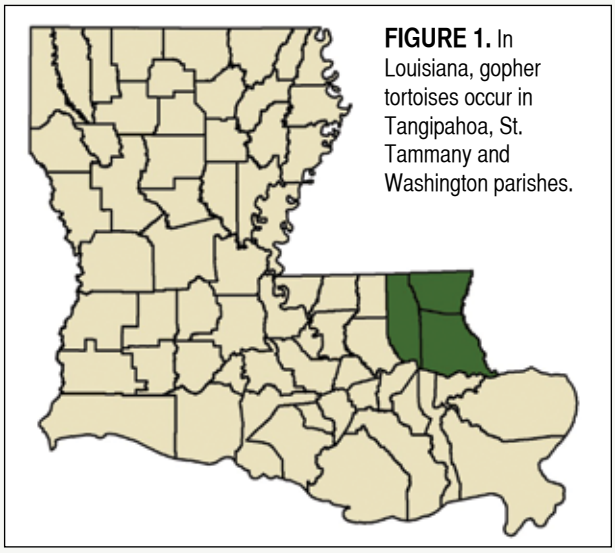


FIGURE 1. In Louisiana, gopher tortoises occur in Tangipahoa, St. Tammany and Washington parishes.

Gopher tortoise populations have declined across their range, but the most severe decline has been in the western portion of their range. Currently, gopher tortoises in Louisiana, Mississippi and western Alabama are listed as "threatened" and subject to protection under the Endangered Species Act. The most important reason for the gopher tortoise decline is habitat loss and degradation. The upland habitats gopher tortoises require are the high and dry sites that are favored for human developments. Additionally, changes in forest management and reduced occurrence of natural and prescribed fire have greatly reduced the amount of open canopy forest that these tortoises prefer.

The Louisiana Natural Heritage Program (LNHP), housed within LDWF's Coastal and Nongame Resources Division is responsible for conservation of the state's rare, threatened and endangered species and habitats. The LNHP has been working to develop an estimate of the number of gopher tortoises in the state and to implement gopher tortoise habitat conservation measures. In addition, the LNHP strives to identify sites that provide important habitat and add gopher tortoise occurrence records to the LNHP database.

One of the efforts to enhance gopher tortoise habitat is the East Gulf Coastal Plain Prescribed Burning Initiative. This project, which has enrolled over 6,000 acres, facilitates prescribed burning on private land through financial and technical support. A focus of this initiative is on longleaf pine forests and other open canopy forests that provide habitat for gopher tortoises. LDWF is also working with colleagues throughout

the southeastern U.S. on a multi-state project to prioritize and assist private landowners with habitat management needs, including prescribed burning, and mechanical and herbicide treatment on up to 16,741 acres in Louisiana. This multi-state project will also evaluate bird, gopher tortoise and vegetative response among levels of habitat improvement.

In order to estimate the state's gopher tortoise population, surveys were conducted within four known gopher tortoise concentrations: Sandy Hollow WMA; the old Ben's Creek WMA; Lee Memorial State Forest; and major rights-of-way. Burrow surveys were conducted during April through August in 2008-2012, along transects containing likely habitat. Aerial surveys were conducted during July 2009 of all major pipeline and power line rights-of-way to assess habitat conditions, prioritize survey areas, and assess the feasibility of identifying tortoise burrows using a helicopter.

When a burrow was found, the following data were collected:

- Date
- Activity status
- Adult or juvenile burrow size
- GPS coordinates
- Tortoise presence/absence - tracks, scat, etc.
- Confirm tortoise presence/absence with burrow scope & camera

Gopher tortoise burrows have an entrance that is "half moon" shaped, distinguishing a gopher tortoise burrow from those of other burrowing animals such as armadillos. For survey purposes, gopher tortoise burrows are classified as active, inactive or abandoned. Active burrows exhibit evidence of recent use through the presence of footprints, fresh feces, recently disturbed soil, impressions left by the bottom shell of the tortoise, obvious feeding trails radiating out from the burrow, or direct observation of a tortoise. Inactive burrows have none of the signs of recent activity and vegetation may be growing at the entrance. Burrows classified as abandoned are either completely collapsed or the entrance is entirely filled with debris. All active and inactive burrows are scoped with a burrow camera to obtain a burrow occupancy rate. The end of the burrow must be identified with the camera to accurately report the absence of a tortoise.

Prescribed burning conducted on private land in Tangipahoa Parish.

"Waif" tortoise being released in suitable habitat with fellow "waif" tortoises.

Adult female tortoise resting a few feet from the entrance of an active burrow.

The surveys yielded 269 burrows (*Table 1*) within the four priority survey sites with all sites having active burrows. Two significant populations were observed along approximately 6 miles of two major rights-of-way. There was evidence of reproduction and recruitment along one right-of-way in 2010, with two non-viable eggs and broken egg shells at the mouth of one burrow and three of the nearby active burrows created by juvenile tortoises. Additional juvenile burrows have been noted on Sandy Hollow WMA, and eggs and nest remnants were found in two burrows on a major right-of-way in August 2012. Approximately 45 percent of burrows on the four survey sites were located along the major rights-of-way. These four survey sites represent only a portion of the burrows located in Louisiana.

In addition to the burrows located during the surveys, approximately 50 new burrows have been located within the tortoise's range in Louisiana. A burrow camera is used to view the burrow and determine the burrow occupancy rate. LNHP staff intend to scope all known burrows in Louisiana. So far, 58 burrows have been scoped with 25 of these occupied with tortoises.

Gopher tortoises are sometimes picked up by people traveling in other states ("waif" tortoises) and brought back to Louisiana. These tortoises have been kept as pets by people unaware of their protected status. More than 30 of these gopher tortoises have been tagged and released at Sandy Hollow WMA in Tangipahoa Parish, well within their historic range, but isolated from the native population of tortoises.

The open upland forest habitat required by gopher tortoises is one of the most diverse habitats found in Louisiana and among the most quickly disappearing. In addition to gopher tortoises, this type of habitat supports a wide variety of birds, including game birds such as bobwhites and wild turkeys. Landowners interested in managing their property for gopher tortoises or the open forest they require, can contact LNHP biologist Keri Landry or the appropriate Technical Services Biologist listed in the back pages of this issue of the *Wildlife Insider*.

Survey Site	Burrows Scoped	Tortoises	Total Burrows	Active	Inactive	Abandoned
Major Rights-of-Way	53	22	120	63	50	7
Sandy Hollow	n/a	n/a	41	25	12	4
Ben's Creek	n/a	n/a	99	54	45	0
Lee Mem.	6	3	9	7	1	1
Total	**59**	**25**	**149**	**149**	**108**	**12**

TABLE 1. Number of individual tortoises, scoping events and burrows with activity status per survey site during 2009-2012.

If you find a gopher tortoise or locate a half-moon shaped burrow on your property, please contact LDWF biologist Keri Landry at 225-765-2809.


Photo courtesy of USFWS


Photo courtesy of UDFWS


Photo by Jonnny N. Dell (*forestryimages.org*)

Tracking Raccoon Movements in the Atchafalaya Basin

BY MICHAEL BYRNE
MICHAEL CHAMBERLAIN

Raccoons are often implicated as important nest predators for a wide variety of ground nesting animals, including various species of birds and reptiles. The bottomland hardwood forests of the Atchafalaya River Basin are ideal raccoon habitat, and support large raccoon populations. Within the Basin, wild turkeys have been studied by LSU researchers on Sherburne WMA since 2002, and LDWF personnel have been conducting summer brood surveys on the area since 1994. An important finding of these studies is that wild turkey production is very low in this area, with relatively high levels of nest loss and predation compared to turkey populations in other habitat types. While Sherburne hosts a wide variety of potential turkey nest predators, from coyotes to rat snakes, raccoons were suspected as the number one destroyer of turkey nests, due to their abundance and known penchant for predating nests. A nest of turkey eggs is an energy-rich meal for a raccoon, and there was some speculation that raccoons had even developed a "search image" for turkey nests and specifically hunt for them.

With this in mind, research was conducted on Sherburne WMA by LSU researchers from 2008-2010 aimed at studying the nightly foraging movements on raccoons during the turkey nesting season. The goals of this work were to determine how raccoons moved through the landscape, what habitats raccoons concentrated their foraging in, and relate this information to known aspects of turkey nesting ecology to determine the threat that raccoons pose to turkey nesting success. Raccoons were captured during winter and fitted with radio-collars, allowing them to be tracked by researchers. From March through early May of each year, an individual raccoon would be selected and tracked from dusk till dawn, with the raccoon's location estimated every 20 minutes. These tracking sessions were termed "focal runs," and a focal run was conducted on a different raccoon each night. These focal runs provided a path of the focal raccoon's movements over the course of the night, and helped identify areas where raccoons intensively searched for prey.

Once the intensively searched areas along each path were identified, habitat characteristics were measured within these areas, as well as along portions of each path in which the raccoon was traveling the fastest. This allowed for comparison of habitats that raccoons used for foraging to those in which raccoons moved through rapidly. One would expect the habitats in these two areas to be different, as there should be something special about the intensively searched areas that would explain why raccoons would concentrate activities there. If raccoons happened to exhibit intensive searching behavior in the same

habitats in which turkeys nest, evidence would suggest that raccoons are a serious threat to turkey reproduction, and that they may be specifically searching for nests.

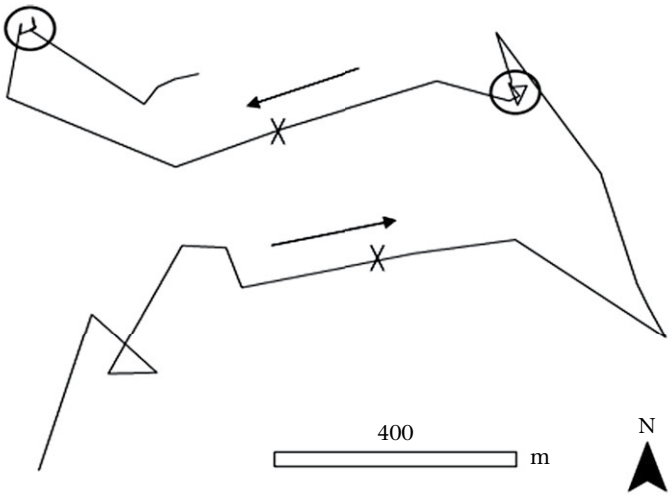
The results were interesting, to say the least. Habitat analysis showed that a key feature influencing raccoon behavior was the presence of shallow water. Raccoons concentrated their intensive searching behavior in low-lying shallow flooded areas. Conversely, raccoons moved quickly through higher and drier areas with sparse understory vegetation and through forest openings.

Why do raccoons concentrate in shallow flooded areas in the spring months? Crawfish. Crawfish were abundant and concentrated in these areas, and this allowed raccoons to take in a large amount of food while expending very little energy. It was common to find an abundance of raccoon sign and evidence that raccoons had been foraging on crawfish when visiting these areas.

Why would raccoons move quickly through the dry, sparse habitats? These areas probably offered little in the way of food or cover for a raccoon during spring.

There was no evidence that raccoons were specifically targeting turkey nests, or even foraging in habitats that were in any way similar to what turkeys use for nesting. Turkeys tended to place their nests in the driest areas of Sherburne (presumably to avoid flood-related nest destruction), near forests edges, and within relatively dense ground-level cover. So it seems that raccoons are focused on crawfish more than turkey eggs during spring. That being said, it seems hard to imagine that any raccoon that happens along a nest is going to pass the nutritious meal up. So even if raccoons are not looking for nests they may still be a big threat if their travels often take them through areas where they are likely to stumble on nests incidentally. To examine this possibility, a map was made of Sherburne in which the areas of the WMA most suitable as turkey nesting habitat were highlighted based on known aspects of nest site selection on this study area. By overlaying the paths of raccoons on this map it was possible to calculate what portion of each path crossed through these likely nesting areas. On average only about 8 percent of a raccoon's nightly movements ever crossed these nesting areas, thus it is actually not all that common for raccoons to spend much time in the areas that wild turkeys are using for nesting.

What conclusions can we draw from this? We can safely say that raccoons are not specifically hunting down wild turkey nests on Sherburne. On the contrary, raccoons are concentrating their foraging on the abundant crawfish available during spring, and spending little time in turkey nesting areas. Raccoons obviously eat turkey nests, but it appears they're only occasionally stumbling upon and devouring turkey nests, rather than searching for them deliberately.



Movement path of raccoon 1633 on April 21, 2008. Circles represent areas where first-passage time analysis indicated concentrated searching behavior.

Predated turkey nest: It appears raccoons only occasionally stumble upon and devour turkey nests, rather than searching for them deliberately.

Above and Below: Typical examples of an area where a raccoon would concentrate its searching activities, note the abundant raccoon sign and crawfish.

SPECIAL THANKS TO GOOD NEIGHBOR HUNTING CLUB MEMBERS:

Wayne Ardoin	Mike George
Kevin Comeaux	David Vincent
Johnny Dubard	Dustin Bellon
Joey White	Ricky Bellon
Nick White	Frank Burns, Jr.
Chris Jackson	Darren Burns
Austin Chisolm	Cheryl Burns

Southwest Louisiana DMAP Club Hosts Wounded Warriors Hunt

BY KORI LEGLEU, LDWF Technical Service Biologist
CHERYL BURNS, Good Neighbor Hunting Club Member

Mr. Wayne Ardoin and the members of Good Neighbor Hunting Club in Southwest Louisiana are always looking for a way to give back to their community. In the past, they have hosted youth hunts and hunts for wheelchair bound hunters. This year they chose to host a Wounded Warrior hunt as a way to show their appreciation for the sacrifices these servicemen have made for our country. Members of Good Neighbor collaborated with the landowner, Goldsmith Farms and their manager, Derrick Cooper, and the local chapter of the National Wild Turkey Federation to organize the hunt. Donations for the event and for the hunters were provided from several area businesses, organizations and individuals. Four Wounded Warriors were invited to participate, and club members donated their DMAP tags and the use of their personal stands.

On Nov. 3, 2012, Warriors Cpl. Kelly Broussard (U.S. Marine Corps), Staff Sgt. Seth Eaves (LA Army National Guard), and Retired Staff Sgt. Wendell Horton (U.S. Army) arrived well before sunrise at Good Neighbor Hunting Club and were welcomed with snacks by their guides. The fourth Warrior was unable to attend because of a work schedule conflict, but was invited to hunt at a later date.

Each Warrior was taken to a stand where several deer, including some nice bucks, had been seen. Unfortunately, the morning was very foggy and the deer were uncooperative. After a peaceful but uneventful morning, the hunters and their guides returned to the club house where they were greeted by their families and club members. Everyone was treated to a home cooked lunch provided by Gene and Donna Thibodeaux of Wheelin' Sportsmen of Acadiana. They feasted on rice dressing, pork steaks, sausage and beans, as well as pies and desserts.

Each Warrior was presented with thank-you gifts for their service. Items included hats, folding ice chests, knives, gift cards, flashlights, and cash. Donations came from a variety of stores and businesses including: Wal-Mart, Nichols, First Federal Bank of Louisiana, Specialty Oilfield Outfitters, Academy Sports and Outdoors, Whitliejo Specialty Co (Mike Rajewski), Team Realtree Outdoor Energy Drinks, as well as personal donations from individuals.

After lunch, Cpl. Broussard decided to stay and help club member Darren Burns put out corn and check cameras. After looking at the pictures, he chose a stand to hunt that evening and shot at a buck. He said he wasn't sure how big the buck was, but that he definitely saw antlers. Cpl. Broussard said he was so nervous and shaking so badly when he fired, that he wasn't sure if he made the shot. After searching for sign, it was determined that the buck was not hit. Cpl. Broussard said that it was still "very exciting" and he was glad to know that he still had "adrenaline in his system!" After all of the excitement, Darren and his wife Cheryl decided that it was only right to send him home with some deer sausage.

The event was covered by local NBC affiliate KPLC. Reporter Olivia Vidal conducted interviews with the Warriors and club members, and the story aired twice that evening.

Everyone who participated declared what a fun and rewarding experience it was. The Warriors were able to spend the day in Good Neighbor's beautiful woods with friends and family, and the hosts and donors got to show their appreciation for the service that the Warriors had selflessly provided. Above all, new friends were made in the process! Good Neighbor Hunting Club members want to encourage all hunting clubs to consider service projects to benefit their own communities.

The Unicorn Deer

All photos courtesy of Paul Redd

Mr. Paul Redd proudly shows off with his Unicorn buck.

BY SCOTT DURHAM, LDWF Deer Program Study Leader

Mr. Paul Redd is a longtime bow hunter. He retired in 2003 from the City/Parish of East Baton Rouge where he worked in finance the last 18 years of his career. He will be 69 years young this year. Paul, like other baby boomers, remembers when there were few deer to speak of and so did not really begin deer hunting until he was 30. Traditional archers will be proud to know that he started with a Damon Howatt recurve he purchased from Ken Roubique (now deceased) who had an archery shop on North Foster. Being a long time compound hunter, I have a special respect for the primitive and traditional guys. It is an entirely different level of shooting and hunting. Many older hunters go to cross-bows and Paul has joined those ranks these days.

Several members of the Redd family, including his brother Glen, hunt Mt. Pleasant Hunting Club in northeast EBR parish. This club and this part of our state enjoy some of the finest deer hunting there is. High harvest rates and fine deer are the rule and not the exception. The Mt. Pleasant club is a long-time DMAP participant.

On opening weekend Paul had to attend his 50th high school reunion and could not hunt. Glen's son had pictures of a fine deer under Paul's stand with a very unusual short third antler seemingly growing from between the buck's eyes. The next day Paul was able to hunt was Oct. 8, 2011. Paul arrived at Mt. Pleasant and his brother Glen told him to get cleaned up ASAP and go hunt that stand, or he would! They had the deer "patterned" and did not feel they should procrastinate and let him get away.

It was a nice cool afternoon. "Just cool enough not to sweat," Paul recalls. Paul got into his box stand and began to scout the tree line looking for the form of a deer. Almost like a shadow several young bucks stepped into the clearing, but something had them nervous. Alerted, with ears erect, they nervously ran off a little. They were spooked; what was out there? Suddenly there he was, the reason Paul Redd was in his box stand this particular afternoon and the reason those young bucks were spooked, it was the Unicorn buck. The big deer got in close range but a 4-pointer was in the way. There were those nervous few seconds when everything could go south in a hurry. The seconds seemed like hours, a mosquito buzzed, now was not the time to swat, the 4-point took a step, then another, at last the shot Paul was looking for, a nice broad side shot at 12 yards. Paul took aim and fired; the shot was deadly, but the buck still ran 100 yards and fell off into a 10 foot ditch. Help arrived and the deer was retrieved.

Upon examination of the skull beneath the cape, bony antler growth material was indeed growing directly from the skull between the eyes. Whether this bony growth would have shed or not as antler material will remain a mystery. Perhaps some odd pedicel cells developed through a genetic mutation in this region of the skull. The deer gross scored 130 6/8 B&C points, not counting the unusual growth between the eyes which was about 3 inches long.

As another graying hunter with brothers that hunt, I know how special the moments were when the Redd family and other Mt. Pleasant hunters stood around the Unicorn buck taking pictures and reliving the story. What a great day and great unique deer!

How to Hook a Child on Fishing

BY MITCH SAMAHA, LDWF Wildlife Educator

Some of the fondest memories in my collection of thoughts are going fishing with my mom and dad. From a very early age I was exposed to the outdoors. Back then, it was simply fun for me; every weekend I looked forward to the boat ride, the camp, and the anticipation of hooking into whatever would bite on my line. Years later as an adult I hear an old song on the radio from that time in my life and it floods my memories with smells, sights, sounds, and emotions from those fishing trips with my parents, and all of them are positive. It's amazing what a little fishing can do for a parent-child relationship. Studies have shown that children who spend time fishing and hunting with their parents have less behavioral problems, are scholastically more advanced, and are far more likely to become positive members of society.

The memory between a child and a parent is permanently fixed when their first fish comes out the water; the smile on your child's face is irreplaceable. For some reason everyone remembers their first fish; who they were with, what the weather was like, how many fish they caught, and a host of other details.

Fortunately, we live in the heart of the Sportsman's Paradise, so this should be an easy fix, right? It would seem so; however, today's society places a great deal of pressure on both parents and children. School is far more advanced, schedules conflict between soccer practice, work, and other responsibilities. The good news is that fishing is a relatively inexpensive, accessible, and relaxing activity. There is something about focusing on a cork in the water that is very peaceful. Troubles disappear for both child and parent as the daily focus on society's problems melt into the water as your cork goes under.

Louisiana has a host of places to bring your kids fishing. From the Gulf Coast to the Black Bayou Lake in Caddo Parish, from the Toledo Bend Reservoir in the west to the Pearl River in the east, from the bayous to the marshes, Louisiana has great fishing! Opportunities for quality time with your child are everywhere, and bank fishing is cheap entertainment.

In my experience of teaching thousands of children to fish, there are three main goals that must be met for your child to have a positive experience; comfort, action and success. Comfort includes drinks, snacks and bug spray. Dress them appropriately so that they are neither hot nor cold. A miserable child is just a disaster waiting to happen. Comfort is number ONE! Action means that they are engaged in the process. They are a contributor, not a spectator. The process can start at home prior to the trip. Teach them, this is your bonding time. How should they cast? Where should they put their line in the water? How should they tie their hook? How do they bait the hook? Hint: Worms aren't necessary…. whole kernel corn works great for bream (perch), and it's not as messy.

The last requirement is success. Bream (perch) fishing is fast and dependable, they almost always bite. Choose the right day to fish. Windy days are not recommended because the wind will grab the line and nibbles are hard to see due to wave action. The goal here is to have your child catch a fish - or even better, a bunch of fish. Target your fishing area in fresh water bayous with structure underwater; near a fallen tree, under an overhanging branch, or near a dock or bulkhead. Fish with small tackle: a small hook, small cork, and a small rod or cane pole. Smaller tackle will catch more fish, and that's the point. As they become experienced tackle will change, but for now, success is the key. Oh, and bring a camera; you'll want to capture that moment in time. Summer is here, and the fishing is great freshwater species, so the time is now! Get out there and make some great new memories.

Mike Perot,
Technical Service Biologist

You could say that Mike's professional career began at LSU where he earned B.S. degrees in both Wildlife (2001) and Forestry (2002). This great combination of wildlife and forestry makes Mike well qualified for his current position, Technical Service Biologist. Currently, Mike supervises two TSBs (that's short for Technical Service Biologists, not tablespoons) in the 17-parish East Gulf Coast Plain, or southeast Louisiana.

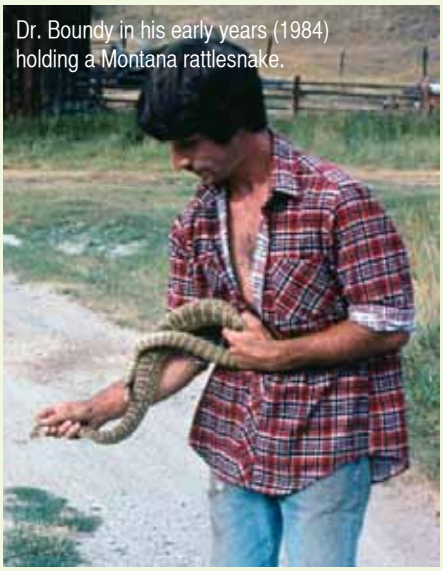
Mike and his biologists provide technical assistance to landowners and land managers on land use practices, particularly those related to wildlife and their habitats. TSBs also assist program biologists on a myriad of wildlife related projects, including activities such as deer herd health checks, waterfowl, turkey and mourning dove banding, mourning dove, turkey and quail surveys, black bear conflict and relocation, and disease sampling. Coming to the forefront of requests for assistance are matters dealing with feral hogs. Feral hogs are non-native to Louisiana and all of North America, they compete with native wildlife, cause extensive ecological and agricultural damage, and can potentially spread disease to native wildlife, domestic livestock, and even humans. Much of Mike and his crew's time is spent providing landowners technical assistance on how to control hogs and mitigate damage caused by this non-native species.

Mike says that the most interesting aspects of his job are the people that he gets to work with in his area and around the state. Mike enjoys meeting different people and seeing and learning the different approaches to land management in the state. Mike has found that people in Louisiana do some amazing things. A land manager that Mike works with showed him a sketch of a 100 foot long boat on a napkin that he planned to build. Mike wasn't so sure about this until the next time he visited him, at which point the hull of the boat was already built in his barn. Mike was able to watch the progress over the next two years and was amazed each time he visited. Mike says that the amount of detail would have been impressive had it been built in a shipyard, much less being built in a barn. According to Mike, Louisiana is fortunate to have ample natural resources and people willing to manage them to the fullest extent. Louisiana is also fortunate to have dedicated and talented biologists such as Mike Perot to assist in the wise management of its natural resources.

Jeff Boundy, Ph.D.,
Natural Heritage Program

It would not be an overstatement to say that Dr. Jeff Boundy is an expert on Louisiana herpetology, if anything it would be an understatement. Dr. Boundy's career path is an interesting one. Jeff earned a BA degree in Zoology in 1983 from San Jose State University (SJSU) after six years of, as he says, "fidgeting between academics and work." Jeff says he announced this achievement to his boss at the time, who announced that he needed to drive a load of concrete to some construction site. Jeff briefly worked as a ranch hand in Montana before returning to SJSU for a Master's degree in Biology. According to Jeff, he was having a tough time finding employment outside of the "trash-truck guy" industry after receiving his Masters. He decided to submit his MS Thesis for publication. The manuscript was reviewed by Dr. Douglas Rossman of the LSU Museum of Natural Science, who gave him a call to offer him employment at the Museum while earning a Ph.D. Thus, Jeff and his wife packed up in 1992 for a supposed four-year layover in Louisiana. On the way in they stopped at a swamp in Calcasieu Parish and found the environment to be very different from the West. It was flat and wet. There were spiders the size of Jeff's hand strung between every tree. A big cottonmouth taught him that snakes in the South come at you, not away. He also discovered mud, that it stays on your boots until you get home, and its presence on the carpet displeases the wife.

While working on his Ph.D. at LSU he decided to "stick my nose in the business of Wildlife and Fisheries." He ended up going afield with Steve Shively on various occasions, and one day Steve casually remarked that LDWF was looking for a herpetologist. Jeff applied, was offered the job, and told to report the next day as a herpetologist for the State of Louisiana, this was in 1995. Jeff was given an office, a truck and a boat, a fuel card, and orders to go out and find snakes. The general purpose of his job was (and is) to conduct research to ensure that amphibian and reptile populations in Louisiana can be sustainably used and enjoyed by its citizens. Jeff has found that the term "enjoy" is usually not used in the same sentence as "snake and lizard," so he has put a lot of effort into educating the public about our poikilothermic pals (this includes a book he authored, *Snakes of Louisiana*). One of Jeff's first projects on the job was to investigate the feasibility of head-starting Ridley sea turtles in Louisiana (not feasible), which was followed by the task of determining whether or not commercial harvest impacted box turtle populations. The box turtle study was typical of projects that Jeff manages: get funding, design the study (four sites protected from harvest vs. four sites that were harvested), hire a field biologist to record data, review the data, make conclusions, write a management plan, and discuss alternatives with industry and agency representatives. When not working on a specific project, Jeff heads to the field to learn and record as much as he can about Louisiana's herpetofauna. Jeff has seen 4,643 snakes so far in Louisiana; ask him about any one of them!



Dr. Boundy in his early years (1984) holding a Montana rattlesnake.

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HABITAT IS THE POINT

There are seven species of croton in the South East. Crotons are invaders of disturbed soils or overgrazed pastures. Commonly known as woolly croton, goat weed or dove weed, crotons are important foods of mourning doves, northern bobwhite and various songbirds. Crotons are preferred larval food plants of goatweed and gray hairstreak butterflies.

LOUISIANA WILDLIFE INSIDER
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SUPPORT LOUISIANA BLACK BEAR RECOVERY

Each year several Louisiana black bears are illegally killed during the hunting season. Since 1992, the Louisiana black bear has been protected because of its threatened status under the Endangered Species Act.

Recovery efforts of the Louisiana Department of Wildlife and Fisheries (LDWF), U.S. Fish and Wildlife Service and many private landowners have led to increasing numbers of black bears.

Currently, Louisiana supports three core bear populations; the Tensas River Basin population in the northeast, the upper Atchafalaya River Basin population in central LA, and the coastal population in the southern Atchafalaya River Basin. However, black bear range is expanding throughout the Mississippi Alluvial Valley and dispersing young males can be found throughout LA.

It is the goal of LDWF to recover the Louisiana black bear and then remove it from the Endangered Species List. Illegal killing of black bears hinders this effort and could delay the day when the Louisiana black bear becomes a legal trophy game animal once again. Individuals are urged to support bear recovery efforts and report any illegal activity.

THE LOUISIANA BLACK BEAR IS A STATE AND FEDERALLY PROTECTED SPECIES. HARMING A BLACK BEAR IS A VIOLATION OF STATE AND FEDERAL LAWS AND CARRIES SEVERE PENALTIES, BOTH CIVIL AND CRIMINAL.

FEDERAL PENALTIES:
UP TO $25,000 AND/OR 6 MONTHS IN JAIL.
STATE PENALTIES:
UP TO $10,000 AND/OR 1 YEAR IN JAIL.

CASH REWARDS

FOR INFORMATION LEADING TO THE ARREST OF PERSONS HARMING A

LOUISIANA BLACK BEAR

CONTACT IMMEDIATELY

1-800-442-2511

YOU WILL REMAIN ANONYMOUS

for more information call:

LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES

337-948-0255

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