

# LOUISIANA FOREST STEWARDSHIP NEWSLETTER

Spring/Summer 2010

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## Louisiana Black Bear: Closer to Success

Story by Maria Davidson

The Louisiana black bear (*Ursus americanus luteolus*) once occurred throughout Louisiana, southern Mississippi and eastern Texas. Land clearing for agriculture in the Mississippi Alluvial Valley created a highly fragmented habitat, with greater than 80 percent of the bottomland hardwood habitat having been lost. As a result of that loss and fragmentation, the three remaining subpopulations (coastal, Tensas and Atchafalaya) of the Louisiana black bear are more or less isolated with little opportunity for genetic interchange. The U.S. Fish and Wildlife Service (USFWS) listed the Louisiana black bear as threatened in 1992, under the Endangered Species Act. Habitat loss, fragmentation and human induced mortality (poaching and road kills) were identified as the primary threats. Since 1992, great strides have been made toward addressing habitat loss and fragmentation.

Habitat protection and restoration activities have been focused on increasing contiguous forested habitat and providing forested corridors between habitat blocks. The Natural Resource Conservation Service (NRCS), with input from the Louisiana Department of Wildlife and Fisheries (LDWF), USFWS and the Black Bear Conservation Coalition, produced the "Louisiana Black Bear Habitat Restoration and Planning Maps." These maps detail priority areas of large forest blocks for expansion and identify areas for the creation of forested corridors to link those blocks together. The corridor outlined in the planning maps stretches from the Arkansas/Louisiana border to the coast, including 3.5 million acres throughout the Mississippi delta portions of Louisiana.

These maps give private landowners in areas important for black bears an edge when enrolling in competitive forest restoration incentive programs. The more important an area is for black bear conservation, the more "points" the landowner's application receives for programs such as the Wetland Reserve Program (WRP). WRP is one of the voluntary easement programs that compensate private landowners for restoring unproductive croplands to forested wetlands. The restored wetlands provide numerous benefits, including flood protection, improved water quality and wildlife habitat for hundreds of species.

Habitat restoration efforts of private landowners and state and federal governments have been very successful. To date, 603,696 acres of bear habitat have been restored or acquired on both public and private lands. The bear population has responded well to the protection it is afforded and the additional forested habitat. The Louisiana black bear population throughout the state is growing and the range is expanding. Now, the challenge becomes documenting this recovery in order to remove the Louisiana black bear from the threatened list (also referred to as "delisting").

The LDWF Bear Program is on the fast track towards doing just that. We have a clear set of goals based on the delisting criteria



Don Anderson



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outlined in the 1995 USFWS Black Bear Recovery Plan, and are working aggressively to meet those goals. The criteria specified in the USFWS Black Bear Recovery Plan must be met in order to delist the Louisiana black bear delisting goals are:

1. At least two viable subpopulations, one each in the Tensas and Atchafalaya River Basins.
2. Immigration and emigration corridors between the two viable subpopulations.
3. Long-term protection of the habitat and interconnecting corridors that support each of the two viable subpopulations used as justification for delisting.

The Black Bear Recovery Plan defines a viable subpopulation as one which has a 95 percent or better chance of persistence over 100 years. Long-term protection is defined as having sufficient voluntary conservation agreements with private landowners and public land managers in the Tensas and Atchafalaya river basins so that habitat degradation is unlikely to occur over 100 years.

LDWF is currently conducting several research projects in order to address all three delisting criteria. One project involves the use of DNA collected from bear hair to study bear population dynamics. Researchers throughout North America have used DNA techniques to estimate black bear population sizes, gene flow and taxonomy. With the DNA method, individual bears can be identified from hair samples which are collected at bait sites. The bait sites are surrounded by

barbed wire which snags the hair as the bear attempts to reach the bait. Statistical tools are then used to analyze the data and provide reliable estimates of population size and growth. A project to estimate bear population size and growth in the Tensas River Basin is in its fifth year, and a similar study to estimate population parameters in the Upper Atchafalaya Basin is in its fourth year. A similar project will begin in the coastal parishes of St. Mary and Iberia in 2010. Once population size and growth is estimated, it is necessary to determine if this population is viable over the long-term. This is now underway for bears in the Tensas River Basin and for the reintroduced Three Rivers population. Thus, our goal is to utilize these methods to evaluate the viability of all three subpopulations to address criterion 1.



*This map illustrates the Conservation Priority Area for the Louisiana Black Bear.*

Recovery criteria 2 and 3 relate to linkages and interchange of bears between subpopulations. In order for subpopulations to be viable in the long-term, there needs to be genetic interchange among them. This means that bears from one subpopulation must be able to move and interact with another. Corridors of habitat that link populations are necessary for this interchange to occur. Standard radio-telemetry and observation of tagged bears has shown that movement between subpopulations occurs. However, the frequency of such movement and the characteristics of an effective corridor are not known. Global Positioning System (GPS) technology is now being deployed to improve understanding of bear movements and corridor use. Radio collars that utilize GPS technology enable the collection of frequent, highly accurate locations throughout the 24-hour period. Young male black bears are most likely to disperse, therefore, we focus efforts to capture and fit that population segment with GPS collars. These young male bears are outfitted with GPS collars programmed to obtain one location every three hours for about one year. With this data, we should be able to predict movements based on characteristics of the landscape and create a model for corridor usage.

The corridor information together with the genetic analyses of historic gene flow, will allow us to develop a profile of what constitutes usable corridors for Louisiana black bears. We will then be able to determine whether interchange among the subpopulations is occurring and how it compares to historic rates of interchange, and identify corridors that facilitate such exchange. Once likely corridors are identified, their state of long-term protection can be assessed.

Data collection and analysis is a long, costly and difficult step in the road to delisting. LDWF is committed to taking the steps to accomplish this in a timely fashion. In order to facilitate this process, LDWF has added additional bear program personnel. Biologist Mike Hooker has been hired to assist with research data collection and nuisance bear response. Mike brings to the program over 14 years of bear experience from several states and is a valuable addition to the program. A state plan for the future management of the Louisiana black bear population will be completed and reviewed by USFWS prior to delisting. The process of writing and reviewing this plan will include public meetings and input. The management plan will include a limited hunting season based on continuous population monitoring and assessment.

LDWF has made delisting the Louisiana black bear one of its highest priorities. Transforming a perceived nuisance animal to a trophy game animal will be one of the greatest endangered species success stories to occur in Louisiana. Louisiana black bears are capable of reaching Boone and Crocket size class that any landowner would be proud to have on his property.

## INTERACTING WITH BEARS

LDWF is working with landowners and hunting clubs to educate them about hunting and living around bears. Increasing bear numbers means that bears are showing up in record numbers on trail cameras set to capture activity at deer feeders. Bears are foraging more actively during the hunting season in order to put on the weight necessary to survive the food shortages of winter. Corn is a bear favorite and when placed in areas inhabited by bears, is sure to draw them to the area. The best way to avoid attracting bears to a deer stand is to plant food plots instead of baiting. For those hunters that prefer to use bait; it is advisable to switch to soybeans. For the majority of bears, the switch from corn to soybeans may be enough to drastically decrease the number of returns to the site. However, there is the occasional bear that develops a taste for soybeans and continues to return for more.



Chris Wynn

*It can be easy to confuse curiosity with aggression. This bear is simply curious and should be easily scared away from the stand.*

Another option is hanging the feeder out of reach of the bears. Feeders should be at least 8 feet off of the ground and 4 feet away from the tree or pole. Bears are less likely to forage for one grain at a time dispensed from a timed feeder; rather than belly up to the bar at a trough or overturned feeder.

Bears are extremely inquisitive and will sometimes follow a hunter's track to the stand. It is not uncommon for a bear to place his front feet on the ladder and peer up into the stand in an attempt to discover what is up there. This situation can usually be resolved by standing and moving about on the stand and speaking to the bear to allow him to see and hear you. Once their curiosity is satisfied, they usually go on their way.

Another encounter that sometimes occurs is a hunter moving through thick brush running across a bear nest. Females readily nest

on the ground and produce cubs. This occurs during the den season (late-December through April). Ground nests are most often located in slash piles, felled tree tops, blackberry thickets and thick palmetto. This type of encounter is likely to cause the female to run away from her nest. The cubs will bawl loudly in protest at being abandoned. This vocalization will bring the female back quickly as soon as you leave the area.

Even those hunters that follow all of the proper precautions can occasionally encounter a bear while hunting. Although bears are generally shy and for the most part try to avoid humans, hunting places humans in close proximity to bears. When a surprise encounter occurs, the best course of action is to detour around where the bear is feeding or resting. Go back the way you came and access your intended destination from another direction. If you unintentionally encounter a bear at close range, raise your hands above your head to appear larger than you are. Speak in a normal voice to allow the bear to identify you as human. Back away until it is safe to turn and WALK (DO NOT RUN) away. Bears have poor vision, but have a keen sense of smell. They will sometimes stand on their hind legs when faced with something they can't identify. They are trying to catch your scent to determine what they are encountering. If an attack occurs, DO NOT PLAY DEAD. That is a technique used for grizzly bears. Fight back with anything available. Black bear attacks have often times been stopped when the person fought back violently.

The best tip for insuring hunter safety and peace of mind is to carry bear spray. It is readily available online, affordable, easy to use and will send the most curious of bears running. There are several brands available; just be sure to buy a product labeled "bear spray." Most come with a convenient belt holster.

The majority of questions hunters have concern safety around bears. It is important for hunters to educate themselves about bears and bear behavior. They should take the proper precautions and be aware while in the woods. Younger hunters should be coached on how to respond to bear presence and be provided with bear spray and taught how to use it.

*Maria Davidson is the Large Carnivore Program Manager at LDWF.*



LDWF File Photo

*Bear with Deer caught on game camera: It is possible for bears and other wildlife to utilize the same feeder.*



Dave Telesco

*Mike Hooker joined LDWF in October 2009 as a Large Carnivore Biologist.*



Christine Harrison

*Maria Davidson is the Large Carnivore Program Manager for LDWF.*



Chris Davis

*Hens and poults foraging in a small opening in July 2009. Photo captured by game camera.*

## That Time of Year

Story by Jimmy Stafford

It's "that time of year" when wild turkeys produce more wild turkeys. A cycle repeated by nature each year that to most may go completely unseen. By this time of year, turkey guns, calls and camo have long since been put away. Baseball, fishing and summer vacations rule the season. But turkey biologists know that this is the most important time of the year as it relates to the ecology of wild turkeys. Habitat conditions during this time of year will determine your turkey hunting success of two or three years from now. This critical time of year usually starts in late March and April with the establishment of nests. There is nothing fancy about a turkey nest as it is simply a shallow depression on the ground often near some type of overhanging vegetative structure. Nesting on the ground puts both turkey hens and their eggs at great risk. Studies have shown that over 50 percent of nests are lost to predation and adverse environmental conditions. Young turkey broods suffer another 50 percent loss after hatching. In some areas of Louisiana, flooding during the nesting period can destroy even higher percentages of nests as well as very small young. Land managers can do little to mitigate the affects of large scale flooding events; however, much can be done to improve nesting and brood rearing habitat throughout the state so that when favorable environmental conditions do occur, turkeys will thrive.

### WHAT IS QUALITY NESTING AND BROOD HABITAT?

Most experienced hunters can easily recognize good adult turkey habitat. These areas are often composed of mature hardwood trees, open park-like ground cover, interspersed with low grass fields or other openings where adult turkeys prefer to hang out. Nonetheless, turkey hens usually leave these seemingly beautiful habitats each spring for areas that might be more attractive to deer, quail or rabbits. There are specific vegetative structural components that hens instinctively seek out for nesting. Desired elements usually include nest concealment that maintains some extended visibility for the hen while on the nest, multiple ingress and egress points, nearby access (usually less than 100 yards) to an opening, and often close proximity to sapling or brush areas that can later be used by poults (young turkeys) for avian predator escape. Good nesting habitat is often characterized by patchy ground cover composed of native grasses and forbs interspersed with tree tops, honeysuckle, blackberry, gallberry, poison ivy or other low growing plants. This vegetative clumping provides not only food but a multi-layered vertical barrier against avian predation.

Typically, brood rearing habitat provides slightly less concealment cover than nesting habitat but still appears relatively thick. Quality brood habitat is often characterized by more bare ground to

provide ease of poult access to food and cover sources. Openings in the forest such as roadsides, rights-of-way, logging sets, food plots or small clearcuts offer areas for hens to bring their broods to forage. Full sunlight at ground level stimulates native grasses and forbs essential to poults. This ground vegetation combined with adequate rainfall produces large numbers of high protein grasshoppers and other insects that poults must have to grow. These native plants later produce seeds that are also used by poults. Providing quality nesting and brood habitat is by far the most meaningful turkey management activity that a land manager can do to improve poult survival and thus improve overall turkey numbers.

### HOW DO I IMPROVE NESTING AND BROOD HABITAT?

Be actively engaged in the stewardship of your forest. Avoid the temptation to simply sit back and watch your forest slowly grow year after year. The fact is that an actively managed forest produces more wildlife and more turkeys. Identify areas where habitat conditions are optimal as well as those areas in need of corrective management. The best management practice for those areas already in an optimal turkey habitat state may well be to do nothing. But for those habitat areas not in an optimal condition, formulate a plan of action and execute it. Turkeys need about 10 percent to 25 percent of their habitat to be openings. Traditional openings such as food plots, utility rights-of-way, road shoulders and fields are good, but if in limited supply can increase predation rates. However, an actively managed forest may provide a better distribution of openings as long as timber harvest operations occur at regular intervals. Well distributed clearcuts, group selection cuts, or thinnings help sunlight reach the ground, stimulate preferred native plant growth and provide excellent nest and brood habitat. Whether managing for turkey, quail, rabbit or deer, all management activities have a useful lifespan, that once exceeded must be readdressed. This time line varies depending on type of management technique used and the degree of plant succession change actually occurring. Habitats must be regularly assessed in order to keep conditions optimal. Such an assessment should pay special attention to ground-level vegetation conditions. When preferred vegetation conditions in this ground-level zone become undesirable, habitat manipulation should again be performed. In pine habitats, prescribed fire is often the best tool used to return the site to preferred nesting and brood habitat conditions. Fire and timber management operations are by far the most effective but not the only tools used to improve habitat. Disking, planting food plots, mowing and herbicides can also be used but often must be done on a lesser scale due to expense. The larger distribution affect created by prescribed fire and timber management will most often prove to be the most effective use of time and resources. This larger scale management can also mitigate predation losses by greatly enlarging the area predators must search to encounter prey. The same management techniques can be used to improve turkey habitat improve habitat for any number of birds, reptiles and small mammals also sought after by predators.



Jimmy Stafford

*Nesting habitat provides cover yet is often open enough to allow for predator avoidance.*



Jimmy Stafford

Recently thinned pine forests make for diverse vertical vegetation structure resulting in quality nesting and open feeding areas for broods. This type of habitat can be maintained by prescribed burning on a 2-3 year rotation. Otherwise, understory conditions may become too thick due to increased sunlight.



Cody Cefotal



Jimmy Stafford

Left: Roadsides and other “edges” can offer quality brood habitat if vegetation is allowed to develop. Right: Bare ground interspersed with vegetation allows for ease of movement by young poults.

Louisiana Habitat Regions	2009 PPH	Rating	1994-2008 Average
Northwest Loblolly/Shortleaf/Hardwood	1.6	Poor	3.1
Southeast Loblolly/Hardwood	2.5	Fair	2.4
Western Longleaf	2.8	Good	3.5
North Mississippi Delta	1.7	Poor	3.3
Atchafalaya/South Mississippi Delta	2.3	Fair	2.5

**PPH values: 4 or greater = Excellent; 3.3 - 3.9 = Very Good; 2.6 - 3.2 = Good; 2.0 - 2.5 = Fair; less than 2 = Poor**

### HOW CAN SUCCESS BE MEASURED?

Each year, LDWF and selected observers conduct a wild turkey production survey throughout the state. This is done later in the brood rearing season (June 15 – Aug. 31) to better assess recruitment into the fall population. Recruitment is defined as those young of the year that actually survive the many perils of summer and make it to adulthood. Though many of the turkeys recorded in this survey have not yet reached recruitment status, they do have greatly increased odds of survival. Two parameters measured by this survey are total number of hens and poults. The count includes hens both with and without young. This produces a poult per hen ratio (PPH) used to compare years. PPH is used by many states to predict spring turkey hunting success in subsequent years. Louisiana is divided into five habitat regions which sometimes have different seasonal and environmental conditions resulting in differing PPH rates. The chart above illustrates recent results.

Private land managers can conduct their own brood success monitoring. This can be done by keeping a journal of turkeys seen during June 15 - Aug. 31. Over several years this will help develop an index by which local population trends might be identified. However, if you are in an area with low turkey numbers and observations are rare, this method may not be applicable. To determine if any turkey reproduction has occurred on your property, game cameras may be a better option. For several years biologists have conducted camera studies in remote areas to document turkey reproduction where traditional vehicle based poult surveys seldom reach. The method calls for placing cameras at sites of suspected poult use such as trails, food plots, utility rights-of-way and other forest openings. In using such a survey, cameras should be placed far enough apart to avoid duplicate sightings. Late-June and early-July are the best survey times when poults are still distinguishable from adults. Cameras should be set for day light hours only and placed low enough to be triggered by movement occurring 6 to 18 inches above the ground. Photo intervals should be one to five minutes apart. "Baiting" or "feeding" turkeys during any season of the year is generally discouraged by biologists because doing so can lead to harm for turkeys. However if done short-term, using aflatoxin-free bird seed or chicken scratch placed 6 to 12 feet in front of the camera,

poult observation opportunities may be further enhanced. Camera sites should be pre-baited one week before starting and again as needed. The entire pre-baiting and photography period should not exceed two weeks or turkeys may become more susceptible to predation, disease and other baiting related harm.

Turkey management techniques are relatively simple yet their specific application requires a good understanding of seasonal turkey habitat requirements. It may sound a bit ridiculous, but habitat managers should think like a turkey or better yet a poult. From hatchling to adulthood, turkeys have very different needs and obstacles to overcome. If one views habitat from the perspective of a 4-inch tall flightless poult, it is easy to see the habitat conditions that might increase its odds of survival. The proper distribution of bare ground intermingled with grasses and forbs are critical at this stage of a turkey's life. To create optimal conditions, ground cover vegetation must grow in similar height as the poult grows. Optimal conditions can be easily obtained using techniques mentioned earlier but should be executed in such a manner as to create the time specific cover and food needs of poults. In many cases, optimal habitat can be created by simply implementing some restraint. Quality nesting and brood habitat can be created by delaying bush-hogging along roadsides, rights-of-way, in food plots and other openings until fall months. Although this practice may not win other homeowners association awards if implemented in your yard, it will create habitat that is beneficial to turkeys on your property and save time and money in terms of maintenance cost.

If you would like to have an assessment of your property to determine what activities are needed to improve turkey habitat, trained wildlife biologists are available in your area through the LDWF Landowners For Wildlife program to help. This service is provided at no charge and intended to give site specific recommendations based on your wildlife management goals to improve habitat for turkey and other wildlife throughout Louisiana. For more information contact Jimmy Stafford at [jstafford@wlf.la.gov](mailto:jstafford@wlf.la.gov) or call 225-765-2361.

*Jimmy Stafford is the Wild Turkey and Small Game Program Leader at LDWF.*

## Boundary Line Maintenance: Money Well Spent

Story and Photo by Cody Cedotal

No matter your investment, it is a good idea to protect it and encourage growth by minimizing risks. There are several things that can be done with forestland. Maintaining forest health with frequent thinnings improves tree growth and can reduce the risk of insect damage and storm damage. Permanent fire lanes and low fuel loads can reduce losses should wildfire occur. Liability insurance can provide security for property owners. Boundary line maintenance is another activity that serves to minimize risk and decrease maintenance cost.

The 2003 revision to the criminal trespass law (LA RS 14:63) has served to strengthen the rights of property owners in Louisiana. Prior to this legislation, the burden was on landowners to legally post their property in order to prosecute individuals for trespassing. Posting regulations varied by parish. With the revision of this law, individuals can now be prosecuted for trespassing if he or she did not receive permission from the landowner(s) to be on the property beforehand. Landowners are no longer required legally post their property with signs to be protected by law with some exceptions. For more information, visit the following link: <http://law.justia.com/louisiana/codes/146/78584.html>

Although these actions are clearly positive for all private landowners, they may also be responsible for some complacency on the part of many. Boundary line maintenance remains an important activity for landowners. Well-marked boundary lines can deter intentional trespass as well as prevent accidental trespass due to confusion over property line location. For these reasons LDWF programs such as Deer Management Assistance Program (DMAP) and the Landowner Antlerless Deer Tag Program (LADT) still require posting of boundary lines. Accidental timber theft can also be avoided if boundary lines are marked clearly. In some cases, logging contractors are unable to differentiate between properties, especially if stand characteristics are similar and no lines are marked beforehand. Whether contractors are working on your property or your neighbor's, an awkward situation, complication and a significant expenses can be avoided with a little planning and proper maintenance. Timber management activities such as inventory, timber marking and prescribed burning can be made easier with clearly marked boundary lines in place. Louisiana Department of Agriculture and Forestry firefighters can more effectively protect your property from wildfire if they know exactly where your property is on the ground. Well-marked boundary lines are a requirement of many cost-share programs and other assistance programs including the Forest Stewardship Program.

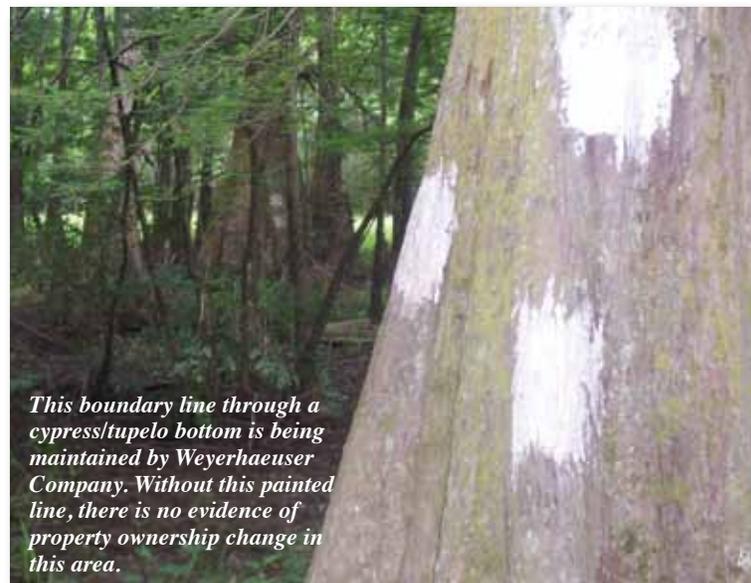
In many instances boundary lines have already been marked in some way on most properties. This should only be done by licensed surveyors when establishing a line. Sometimes these marks have not been maintained over the years by prior landowners, or the lines have been lost due to storm damage or other such changes. If this is the case on your property and there is absolutely no evidence of a marked property line, then another survey will be necessary to correctly establish the line. Surveying can be quite expensive depending on conditions. This is another good reason to maintain boundary lines that are already present in order to reduce these management cost. It is quite common for boundary lines to be designated with old fences that were operational many years ago when then land use may have been different on the property. It is important to remember that old fences are just that, "old," and they deteriorate over time.

The best way to maintain boundary lines is to designate trees to be painted and/or use signs. Ideally a right-of-way on or very near the boundary line is a good idea. This can provide access to maintain

the line as well as serve as a permanent fire break for wildfire protection. This may not be feasible depending on stand characteristics and ground conditions. In such cases, a painted line may be the only option. It is good to select trees that are within 5 to 10 feet of the actual line. Hardwood species, especially oaks make better long term marker trees than pines. Over time, as stands are harvested, boundary line marker trees can be isolated between tracts. Tall pines are more susceptible to wind damage and lightning strikes when left exposed. However, in some instances it is necessary to use whatever species is available. Trees should be marked or blazed using a thick, oil-based paint of a visible color for long term designation. Paints specifically for boundary line maintenance are available from many suppliers. It is best to scrape all loose bark from the area to be painted with some type of blade to make paint application easier and ensure the paint is applied to a secure surface so it will last longer. On larger trees, it is common to use three to five marks on each tree. There are usually one to two marks on opposite sides of the tree to indicate line direction. When facing in the direction of the line, there is usually an additional mark placed on the left or right side of the tree to indicate which side the actual property line is on. On smaller trees (8 inches in diameter or less), one mark may be used to simply indicate the line is nearby. Stand characteristics such as understory density will dictate the effective distance between each marked tree. In open stands, a 200 to 300-foot interval may only be necessary. This interval may be reduced to 75 to 100 feet in areas with thick vegetation. As a rule of thumb, it is best to have lines marked frequent enough so that a marker tree is visible no matter where someone may cross the property line. Painted trees can be supplemented with signs to increase visibility and effectiveness.

Boundary line maintenance is an activity that can be carried out as time permits by landowners themselves or other individuals involved with the property. Some landowners allow/require hunting clubs or other lessees to maintain boundaries as part of the lease agreement. Many consultants and other contractors offer boundary line maintenance services to property owners. Rates vary depending on site conditions, marking requirements and the size of the job. However, an average price may fall somewhere between \$150 to \$250 per mile of boundary including labor and paint. This cost estimate is relatively small considering properly marked boundary lines should only need remarking once every six to eight years. Factor in all of the prior mentioned benefits of boundary line maintenance, and in my opinion it is money well spent.

*Cody Cedotal is the Forest Stewardship Biologist at LDWF.*



*This boundary line through a cypress/tupelo bottom is being maintained by Weyerhaeuser Company. Without this painted line, there is no evidence of property ownership change in this area.*

## Chemical Herbicide Control: Chinese Privet & Chinese Tallowtree

Story by Brian R. Chandler

Photos by Cody Cedotal

Chinese privet (*Ligustrum sinense*) is one of the many non-native, invasive plant species in Louisiana. It is one of the two most common invasive species, the other being Chinese tallowtree (*Sapium sebiferum*). Although it has masses of sweet smelling flowers in the spring, which some may consider a pretty sight and can be an important deer browse, it also can become a major problem for landowners. If left unattended, privet can dominate stands shading out understory browse and soft mast plants thus impacting wildlife habitat. It can also hinder both natural regeneration and planting, causing management costs to increase. Control of intense problems is difficult and should be considered an on-going process rather than a one-time treatment. There are three methods of chemical control: hack-and-squirt; basal spray; and foliar applications. Many of these same methods can be applied to control Chinese tallowtree with some minor variations in timing. This species can present many of the same management challenges.

Hack-and-squirt involves using a hatchet and a one-quart squirt bottle. A frill is hacked into the stem with the hatchet and the herbicide squirted into the frill. This treatment can be used on stems larger than 4 inches in diameter. Usually there is one hack per 3 inches of stem diameter. One squirt of the herbicide is injected into each frill. The chemicals that can be used with this treatment are triclopyr (3 lbs active ingredient), commercially known as Garlon 3A and Tahoe 3A, or a mixture of picloram and 2, 4-D known as Pathway. This treatment can be applied any time except mid-March through mid-May.

The basal spray method involves spraying the lower 1-foot portion of the stem with a mixture of a herbicide and diesel. This treatment is ideal for stems 1 to 3 inches in diameter. The mixture is usually 20 percent herbicide and 80 percent diesel. The chemical used is triclopyr (4 lbs active ingredient), commercially known as Garlon 4, Tahoe 4E and Remedy. A ready to use herbicide that contains triclopyr and an oil carrier is Pathfinder II.

Foliar spray treatments may be the most cost-effective way to control privet and tallowtree that has not gotten too large. A 3 percent

solution of glyphosate in water (12 ounces per three-gallon mix) with a surfactant used from September through January has been found to be most effective. This application should be carried out from early-August through October for Chinese tallowtree, while trees still have leaves. Chinese privet holds leaves throughout the year, thus fall and winter months are ideal for treatment to minimize damage to desirable species. Roundup is the most commonly known brand of glyphosate, but there are several generic brands available.

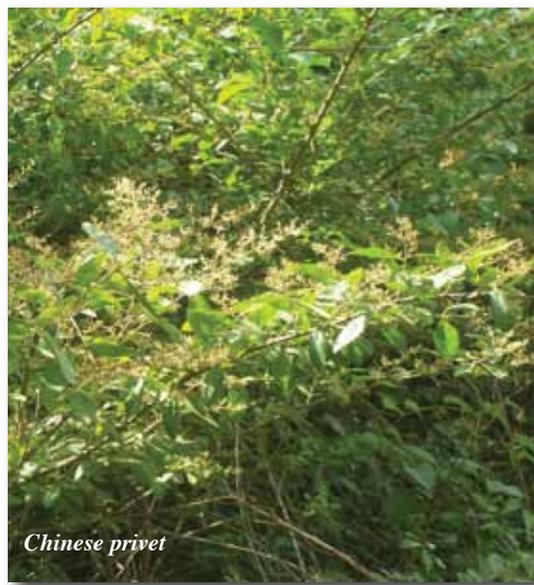
Follow-up treatments will probably be necessary for complete control because of some re-sprouting or germination of seeds.

Always read and follow the herbicide label instructions for use and disposal. **Use of trade names is for readers' information and does not constitute official endorsement.** The following outline details many of the chemicals that can be used for control by each of the three treatment types listed above.

Brian R. Chandler is an Area Extension Forester, Southeast Region.

CHEMICALS FOR CONTROL OF UNWANTED VEGETATION	
Foliar	
Imazapyr (1%)*	(Arsenal AC, Polaris AC, Others)
Triclopyr (2%)*	(Remedy, Garlon 4, Tahoe 4E)
Glyphosate (3%)*	(Roundup, Credit Extra, Foresters, Others) *Works on woody plants only in the fall. Works on privet November through January as well.
Basal Spray (1 to 3 inches DBH)	
Triclopyr (10-20%)*	(Remedy, Garlon 4, Tahoe 4E) *Mix with diesel or crop oil
Pathfinder II	(Ready to use, Triclopyr and oil)
Hack and Squirt (4 inches and up)	
* Do not use from mid-March to mid-May. Use according to the label. Effectiveness varies by species (check the label).	
Imazapyr	(Arsenal AC, Polaris AC)
Triclopyr	(Remedy, Garlon 4, Tahoe 3A)
Glyphosate	(Roundup, Credit Extra, Foresters, Others)
Pathway	(Ready to use, Picloram & 2, 4-D)

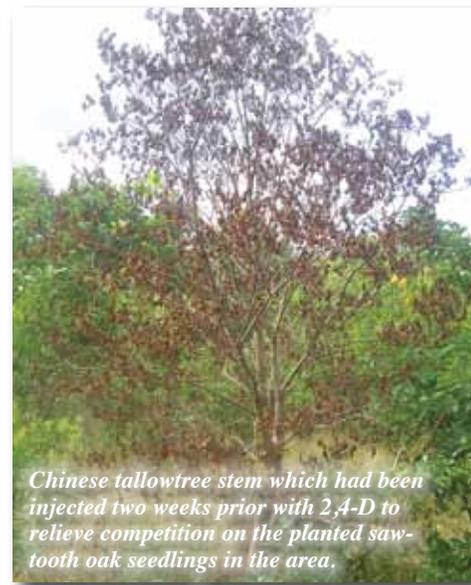
\*Denotes percent solution recommended.



Chinese privet



Chinese tallowtree. Ideal size for basal spray treatment.



Chinese tallowtree stem which had been injected two weeks prior with 2,4-D to relieve competition on the planted saw-tooth oak seedlings in the area.

**Louisiana Department of Agriculture & Forestry**  
**Mike Strain DVM, Commissioner**

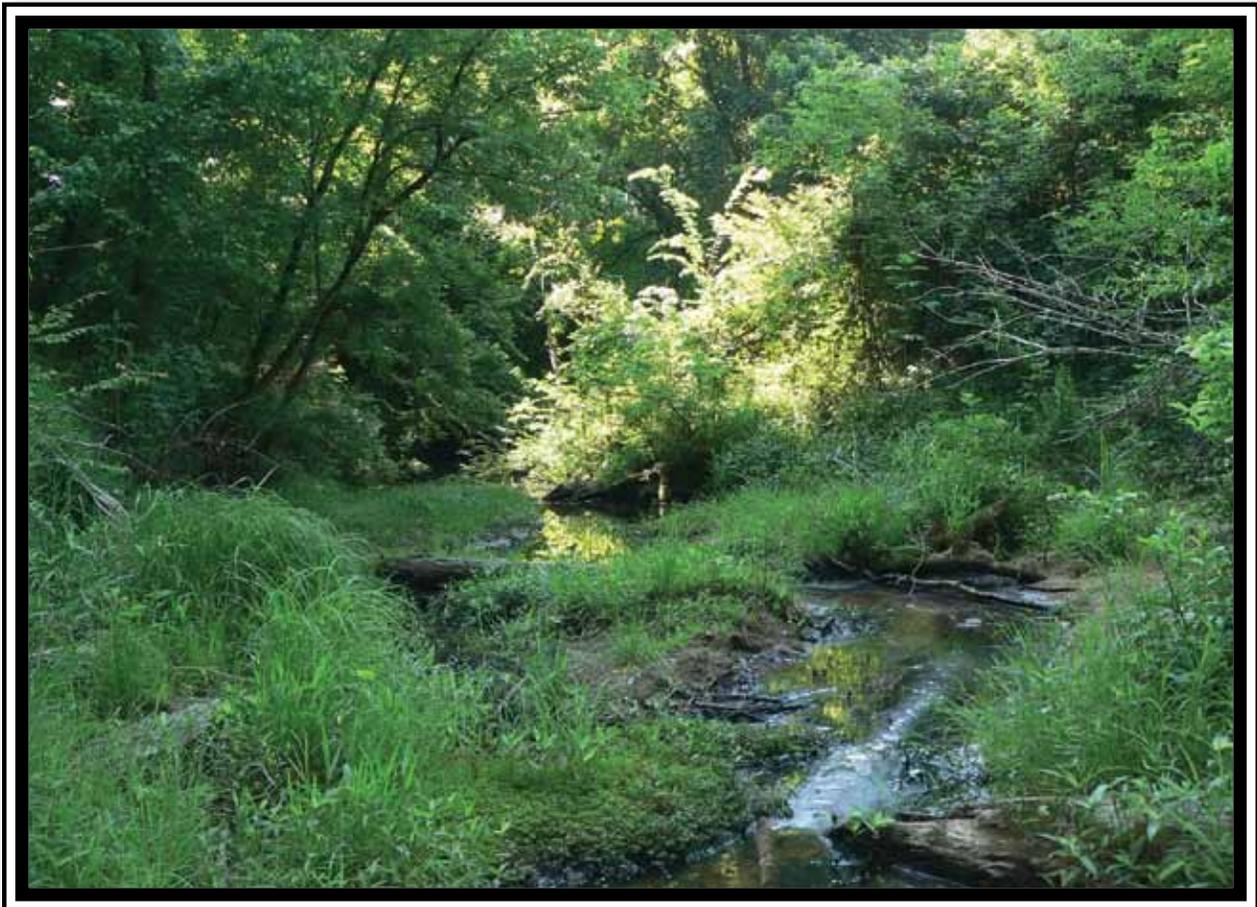
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Mike Buchar