

# Advanced Ecology, Ltd.

# Advancements

December 2008

## East Texas Bottomlands

Our bottomland hardwood forests are among East Texas' special places. In pre-settlement times, these forests were part of the vast ecological system of southern timberlands. They were part of the high-quality wildlife habitat that supported now-extinct species such as the ivory-billed woodpecker, Carolina parakeet, red wolf, and the original genetic populations of black bears and mountain lions. Today, "the bottoms" still are the destination for many outdoor recreationists because of this natural diversity, even after a couple centuries of substantial alteration of quality and acreage loss. Modern society now has increased appreciation for the wild places of the Sabine, Neches, Sulphur, Cypress, San Jacinto, Trinity and their many tributaries. We now understand that bottomland forests reduce flood peaks by slowing the downstream rush of collected rainfall runoff, improve water quality through deposition of sediments, prevent soil erosion, provide renewable timber resources, and serve as habitats for a multitude of fish and wildlife species we value for recreational or commercial purposes. And there is an often-overlooked connection between these bottomlands and the welfare of finfish and shellfish in downstream coastal bays and estuaries. The winter ecology of mallards is a good example of the many complex relationships of wildlife species with these special environments.

Mallard reproduction is a complex web of year-around events, the story of the union of biology and ecology. Many mallards establish pair-bonds in our bottomland hardwood forests. Winter sex ratio data of mallards in the Central Flyway suggest these birds come here for that function. Survey data from the 1980s indicate that the proportion of males to females is about 1:1 in Texas, while flocks wintering farther north may be as much as 7:1 in favor of males. Certainly, high-quality habitat in bottomland hardwood forests provides what's necessary for successful pair-bonding and subsequent events. In late winter, pre-breeding adults begin to molt their body feathers. Drakes develop striking color, while hens change into feather patterns better suited to camouflage on the nesting grounds. To produce these new feathers, mallards must eat high-protein diets of invertebrates abundant in flooded bottomland hardwood forests. The leaf detritus decaying on the wet forest floor provides the food base for these invertebrates. Winter floods spreading across the bottomlands are essential to these processes. In addition to the appearance of feather patterns, these dietary changes can be seen in the vivid colors on legs, feet, and bills. The consumption of inverte-

brates results in bright orange colors in soft tissues. The "red-legged mallards from Kansas" simply are winter-resident birds preparing for the breeding season by feeding heavily on invertebrates. These plumage changes are vital to production. Without abundant invertebrate foods, hens cannot promptly undergo the late-winter molt. Unless hens complete these molts, they will not mate: no eggs, no ducklings and the fall flight is reduced. The overbanking of rivers and streams and direct rainfall during winter months is critical for shallow flooding of forested wetlands. Without sufficient water, the habitat functions vital for supporting invertebrates will not develop. The circle linking mallards with this process would not close. In this way, the conditions in winter habitats are connected to the success of production on the breeding grounds. With successful completion of this body molt, mallards are fully paired and depart northward. Upon immediate arrival on the nesting grounds, they rapidly progress into egg-laying, incubation, and brood-rearing. Less-than-ideal habitat on Texas wintering grounds can result in reduced reproduction on the breeding grounds. Attention to habitat quality and quantity must be viewed with the "big picture" in mind. All habitats used by mallards are important and worthy of conservation.

### Hardwood Conservation and Silviculture

Conservation of forests calls for management methods useful to producing timber revenues while retaining wildlife habitat. An assortment of practices can be devised to benefit squirrels, ducks, and other wildlife species common to bottomland hardwood forests. Landowners in general have diverse goals for their hardwood forests, usually in the form of wildlife, recreation and timber plans. It's a good idea to write out a plan that considers these and any other pertinent aspects of land management. A management plan helps the landowner achieve goals, check progress, and schedule tasks to meet these goals and objectives. Management plans are also inventories, summarizing the current land conditions and its resources that may be of interest to the landowner. Often the plan includes information on more than just trees, such as understory plants, soil types, and water resources. Land management of any form is a changing condition and a good plan will serve as a reference point to measure success. To optimally manage a forest habitat and include wildlife, there are three main approaches to follow. One approach is to maintain and protect any or all natural communities. The inventory should include the features and

vegetation types currently on a tract, and study ways to protect or maintain any outstanding communities. For example, bays, fens, or forested wetlands may be kept as is, with minimal interference or harvesting. A second approach is to incorporate and encourage diversity. This may include favoring uncommon species or creating irregular boundaries (edge effect) within the landscape. Nothing in nature is straight, or a perfect geometric shape. Use this approach when incorporating harvest areas or stand access into your management plan. A third item to keep in mind for forest habitat management is to manage featured species. Let nature show you what species to manage for and stick with it. Don't try to force species to thrive where they are out of their natural range or lack the proper nutrients or elements to survive. This is important for both flora as well as fauna on a particular piece of property. When a harvest operation is part of the plan, there are several options to maximize and enhance a piece of property to meet objectives and goals that can work in unison. Harvest operations can benefit timber quality, water quality, as well as wildlife values in any system. In a hardwood ecosystem, there are many pieces and parts to consider that can seemingly complicate the whole process. The important thing is to consider all potential wildlife values and incorporate them into existing timber yields. Nature has ways to heal ecosystems over time; however, they may not always be the most aesthetically pleasing nor match our timely goals and wildlife objectives. We as land managers can use timing to coincide with nutritional needs of wildlife, as well as improve the quality of the timber component and the overall aesthetics of the forest.

- Carl Frentress, AEL Senior Biologist, and Kevin Coffman, AEL Hardwood Silviculturalist; For a more complete version of this article, please see the October 2008 issue of Texas Wildlife, Magazine of the Texas Wildlife Association (Vol 24-Num 6).



Merry Christmas and Happy New Year

**Project Profile:  
Spellbottom Mitigation Bank**



The Spellbottom Mitigation Bank is being developed to enhance and restore approximately 747 acres of bottomland habitat in the floodplain of the West Fork of the San Jacinto River. The project site is located southwest of Huntsville, Texas, in Walker County. The primary emphasis of the Bank is to return maintained bottomland pasture to a bottomland hardwood forest. A minor component of the Bank will be enhancing existing forest communities through Forest Stand Improvement practices. Credits are expected to be released in 2009.

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**Black-tailed Prairie Dog: Status?**

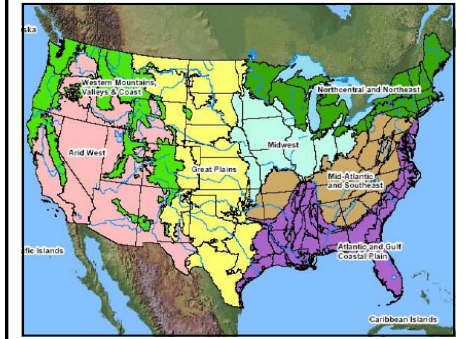
On December 2, 2008, the US Fish and Wildlife Service (USFWS) released a 90-day finding on a petition to list the Black-tailed Prairie Dog as threatened or endangered. The prairie dog, who was removed from the candidate species list in 2004, only occurs in North America with the Black-tailed Prairie Dog occurring in 11 states, Canada and Mexico. Most estimates of prairie dogs are not based on numbers of individual animals, rather they are based on densities of populations. Populations fluctuate based



on season, climate and region. Numbers can also vary based on poisoning, plague and hunting. The petition finding does not mean the USFWS has decided to list the species; however, it is the first step in a long process to review the biological aspects of the prairie dog. The public is invited to provide comments and information about the species and its habitat during the comment period. This comment period will close on January 30, 2009. For more information about this listing, please see <http://www.fws.gov/mountain-prairie/species/mammals/btprairiedog/>.  
*Image via Texas Parks and Wildlife Department*

**New USACE Regional Supplement Released for the Atlantic and Gulf Coastal Plain**

In a Public Notice released on December 4, 2008, the US Army Corps of Engineers (USACE) announced the one year trial period of the Atlantic and Gulf Coastal Plain Interim Regional Supplement to the 1987 Wetland Delineation Manual. The one year period is effective 30 days from the Public Notice (January 4, 2009). Any data collection following the effective date must be submitted to the USACE utilizing the Supplement data forms and indicators. In an effort to analyze the effectiveness of the new Supplement, all submittals to the USACE must include data recorded in the 1992 data forms, as well as the Supplement forms, and a completed field evaluation questionnaire. This supplement is applicable to the Atlantic and Gulf Coastal Plain Region, which consists of all or portions of the District of Columbia and 19 states: Alabama, Arkansas, Delaware, Florida, Georgia, Illinois, Kentucky, Louisiana, Maryland, Mississippi, Missouri, New Jersey, North Carolina, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, and Virginia.



**For More Information**

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**Upcoming AEL Events**

AEL has had a wonderful 2008. We have been involved in many great projects, and met some wonderful people in the past year. AEL has several more challenging projects online for 2009. We are looking forward to the new adventures, and new people in the coming year. Thank you to everyone who has made 2008 great!

From everyone here at AEL,

**Merry Christmas and Happy New Year!**



**Advanced Ecology, Ltd.**

Economic Development with Environmental Conscience