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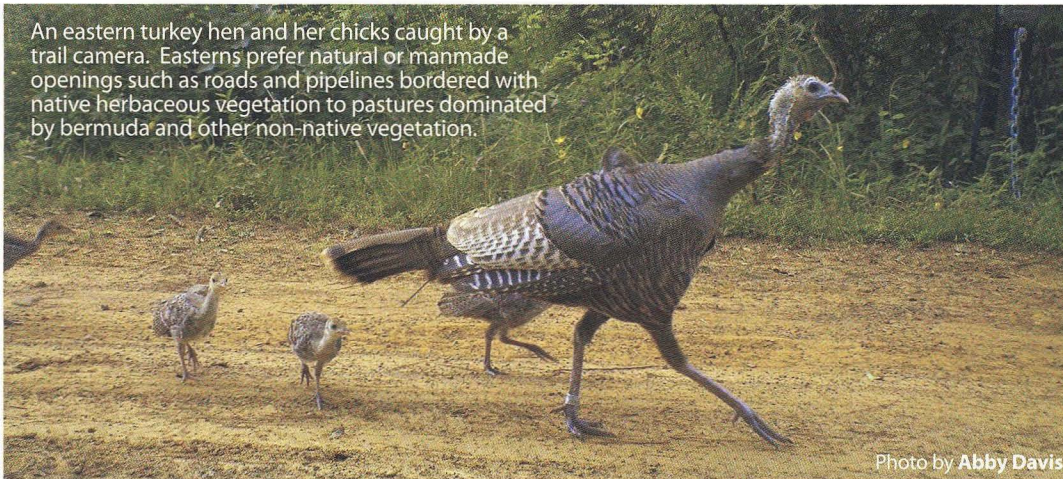
Conway, Warren C.; Comer, Christopher E.; Calkins, Gary; Hardin, Jason; and Isabelle, Jason, "Restoring Wild Turkey to East Texas: Past and Present" (2010). *Faculty Publications*. 376.

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Restoring Wild Turkeys to East Texas: Past and Present

article by **Jason L. Isabelle, Warren C. Conway** and **Christopher E. Comer**, Stephen F. Austin State University, Arthur Temple College of Forestry and Agriculture, Nacogdoches, Texas; **Gary E. Calkins**, Texas Parks and Wildlife Department, Jasper, Texas; **Jason B. Hardin**, Texas Parks and Wildlife Department, Palestine, Texas.



An eastern turkey hen and her chicks caught by a trail camera. Easterns prefer natural or manmade openings such as roads and pipelines bordered with native herbaceous vegetation to pastures dominated by bermuda and other non-native vegetation.

Photo by Abby Davis

The restoration of wild turkeys throughout much of the United States is one of wildlife management's greatest success stories. The national wild turkey population has grown from an estimated 300,000 birds in the 1950s to nearly 5.5 million at the turn of the twenty-first century.

In East Texas, wild turkey restoration efforts began as early as the 1920s. They continued through the early 1970s and involved the translocation of Rio Grande wild turkeys and pen-reared eastern turkeys. Despite more than 50 years of translocations, these early efforts were unsuccessful. Since the Rio Grande turkey thrives under different environmental conditions than the eastern subspecies, these birds did not adapt well to the East Texas Pineywoods. Moreover, pen-reared turkeys lack the instinct and experience necessary to survive and reproduce in the wild.

The next phase of the restoration attempt involved wild-trapped eastern turkeys captured in other states and translocated to East Texas. Since the late 1970s, this ambitious effort by the Texas Parks and Wildlife Department (TPWD) and the National Wild Turkey Federation (NWF) moved more than 7,000 wild-trapped eastern turkeys to East Texas.

Most of these translocations involved the same "block-stocking" approach used successfully in turkey restoration efforts throughout the country. Using this approach, TPWD biologists released approximately 15 to 20 turkeys (three males/12 females or five males/15 females) at more than 300 sites throughout the region in hopes that, over time, these small populations would meld into a larger population. Despite the large number of turkeys translocated to East Texas, substantial population growth and expansion has not been observed universally within the region.

Considering that more than 7,000 wild-trapped eastern turkeys have been translocated to East Texas with only limited success in certain portions of the region, the unanswered question remains: is it possible for the East Texas turkey population to be successfully restored? The answer may lie in a new approach to turkey restoration within the region: "super-stocking."

This approach involves the translocation of 70 to 80 turkeys (approximately 20 males/50 females) per site as opposed to the 15 to 20 turkeys per site in block-stocking. The concept of super-stocking is fairly intuitive: if you translocate more birds to one location, there should

be enough turkeys surviving and reproducing during the first few years after release for a population to become established. Rather than assuming that small, widely dispersed block-stocked groups will eventually coalesce and meld into a large population, super-stocked turkeys are released together in core-areas and are assumed to eventually disperse into and colonize vacant habitat.

Would super-stocking work in the Pineywoods of East Texas? Could this technique be the answer to past turkey restoration difficulties? In 2007, researchers at Stephen F. Austin State University (SFASU) and TPWD initiated a research project to find the answers to these questions.

Through cooperative efforts between TPWD and private landowners, land cooperatives were established in four East Texas counties where each cooperative member received habitat management recommendations from TPWD for their respective property. These private landowner cooperatives were developed with the idea that large areas of quality habitat would be created and maintained for wild turkeys eventually translocated to these areas.

During the winters of 2007 and 2008, after years of planning and

land cooperative development, more than 300 wild turkeys from South Carolina and Tennessee were translocated to the four cooperatives. Prior to their release at each cooperative, nearly half were fitted with radio-transmitters to allow SFASU researchers to monitor their survival and movements.

Using radio-telemetry, researchers tracked the turkeys for two years after release in hopes of answering some basic questions. What is the survival of the translocated turkeys? How successful are translocated female turkeys at making nests, laying and hatching eggs, and rearing poults (turkeys less than one month old)? What types of habitat are important to turkeys in East Texas throughout spring nesting and summer brood-rearing periods? And the big question: does super-stocking hold promise as an effective wild turkey restoration approach in East Texas?

After two years of collecting and analyzing data, we are now starting to unravel the answers to these questions.

When we step back and look at the super-stocking research as a whole, the results are encouraging. Overall, the translocated turkeys fared well; survival rates were generally high and comparable to turkey survival in well-established populations throughout the eastern wild turkey's range. Most female turkeys attempted to nest and a considerable proportion was successful at hatching and rearing young.

However, super stocking was not successful at each cooperative. Although both male and female survival was similar among sites, reproductive effort and success differed considerably, driven largely by habitat composition and availability at each cooperative.

What was the habitat composition and availability of the most successful cooperatives? How,

and in what ways, did turkeys successfully use these habitats? The answers to these questions will help us to better understand the factors that affect wild turkey populations in East Texas.

Our results suggest that East Texas pine forests can provide quality turkey habitat, if managed properly. The adult turkeys we radio-tracked, as well as the female turkeys with broods, readily used pine forests; but only those that had been thinned and/or prescribed burned. Moreover, most nests located during our study were found in pine forests that had received one or both of these treatments.

In contrast, pine forests that had not been thinned and/or burned were generally avoided by adult turkeys, nesting hens, and female turkeys with broods. The reason is simple: thinning and burning promote the growth of grasses and forbs (weeds) in the understory, which provide both food and cover for wild turkeys. Thinning allows sunlight to reach the forest floor, thus stimulating vegetative growth.

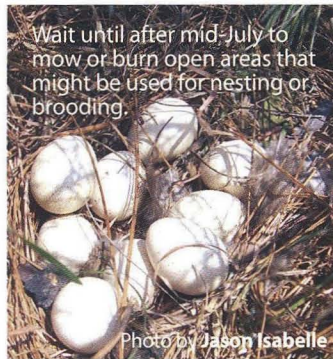
Similar to the effects of thinning, fire promotes the growth of vegetation in the understory, while ensuring that woody vegetation does not encroach into the midstory. Without these practices, pine forests are not attractive to wild turkeys. Therefore, thinning and burning are two extremely important tools that improve the suitability of pine forests as wild turkey habitat.

Landowners who want to improve their pine forests for wild turkeys should thin them to maintain a basal area of 55 to 85 square feet per acre. Following the initial thinning, these areas can often be thinned every five years to promote continued growth of understory vegetation.



Properly managed pine forests can provide quality turkey habitat. Thinning and prescribed burns promote forbs and grasses, which provide food and cover.

Photo by Dan Jones



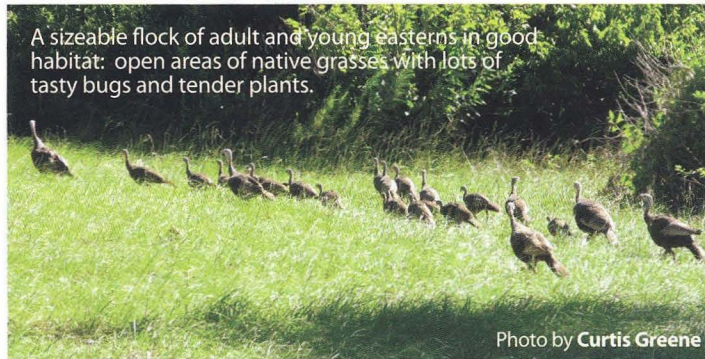
Wait until after mid-July to mow or burn open areas that might be used for nesting or brooding.

Photo by Jason Isabelle

Pine forests should also be burned on a two- to three-year rotation to prevent woody vegetation such as yaupon and sweet gum from encroaching into the midstory. Although prescribed fire is the most cost-effective method of controlling the encroachment of woody vegetation, both mechanical and chemical controls can also achieve the same goal. These alternative methods are especially useful in areas that are not as conducive to the use of prescribed burning, such as forests adjacent to developed areas.

Another cover type consistently preferred by wild turkeys in our study was open habitat dominated by native herbaceous vegetation. This habitat type came in many forms, including pipeline rights-of-way, natural openings, and fallow fields and consisted of native vegetation that was not maintained intensively for agricultural purposes. Hay pastures dominated by tame grasses (i.e. bahiagrass and bermudagrass) do not provide the degree of quality turkey habitat that openings containing native vegetation provide.

A diverse plant community results in a diverse invertebrate community; therefore, properly managed open areas dominated by native grasses and forbs result in an increased abundance and diversity of invertebrates, valuable food for wild turkey poults. While adult turkeys readily used the open herbaceous cover in our study, these areas were most important during the brood-rearing period. Since brood success directly regulates increases (or decreases) in wild turkey populations, the creation and maintenance of high quality brood-rearing habitat is critical. Although thinned and prescribed burned pine forests can and do provide brood habitat, our results suggest that open areas containing native herbaceous vegetation provide superior brood habitat. The reason is



A sizeable flock of adult and young easterns in good habitat: open areas of native grasses with lots of tasty bugs and tender plants.

Photo by Curtis Greene

simple: herbaceous openings containing native vegetation, if managed properly, contain more food (invertebrates) and provide greater protective cover for poults than even properly managed pine forests. As a result, poult survival in our study tended to be greater on cooperatives that had an abundance of herbaceous openings.

However, not all habitat openings are created equally. For an open area to serve as brood habitat, vegetation must be tall enough to provide food and protective cover for poults, while allowing for an unobstructed view by the brood hen; in this case, approximately 12 to 20 inches tall. In addition, openings created for brood habitat should be a minimum of five acres in size.

Landowners can create and maintain open brood habitat for wild turkeys in a number of ways. Openings in the form of electric and gas rights-of-way can be planted and maintained, although these areas should not be relied on entirely to provide open habitat; the creation of additional openings will be beneficial to wild turkeys. In agricultural areas, land managers should utilize grazing systems that allow vegetation to reach the ideal height conducive to brood use – approximately 12 to 20 inches tall. Native grasses and forbs provide better wild turkey habitat than tame grass pastures. Open habitat can also be created in forested settings where this cover type is lacking. The establishment of native grasses and forbs in these areas will create quality wild turkey habitat. Open areas should be mowed, burned, or grazed annually but not until mid-July, after nesting and early brood rearing. These practices prevent vegetation from becoming too thick and impeding the movement of poults, while maintaining adequate vegetative height during nesting and brood-rearing periods. Open areas should be

well distributed throughout a property to reduce the distance that turkeys (especially hens and poults) need to travel to utilize these areas. As a general rule for wild turkey management, 10 to 25 percent of a property should consist of properly managed and well-distributed open herbaceous habitat.

Results from our super-stocking research are encouraging. Reproduction of turkeys in our study was among the highest reported for wild turkeys in the region; overall, the birds fared well. The differences in reproduction among cooperatives provided valuable information regarding turkey habitat preference and utilization. Given the proper habitat, it appears that turkeys have the potential to do well in East Texas. Like many of the issues affecting wildlife, the answers are habitat-driven: The future of wild turkeys in East Texas depends on the establishment and maintenance of quality habitat.

Currently, portions of East Texas boast reasonable wild turkey numbers, although turkey populations are not uniformly distributed across the landscape. The central Pineywoods region (Angelina, Jasper, and Tyler counties in general) and the northern portion of East Texas (Bowie, Cass, and Red River counties in general) contain fairly sizeable and stable turkey populations. Pockets scattered throughout the remainder of East Texas may also hold small but somewhat robust populations.

Overall, however, the turkey population in East Texas has not reached the desired population level or distribution. Through the collaboration of SFASU, TPWD, NWTF, and the positive attitude and efforts of area landowners, the status of the wild turkey in East Texas may change in years to come. 🍁

