

Ecology and Management of the Rio Grande Wild Turkey in Oklahoma



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Cover photo: Drake Hardman.

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restoration program when 21 Rio Grande wild turkeys were trapped in Texas and released in Harper County. Approximately 18,000 Rio Grande wild turkeys have been transplanted to Oklahoma between 1948 and 2005. This program was a tremendous success, and an estimated 120,000 Rio Grande wild turkeys currently occur in at least 55 counties in Oklahoma. Rio Grande/Eastern hybrids likely occur in several other counties and Rio Grande/Merriam's hybrids occur in Cimarron County. Density of Rio Grande wild turkeys varies dramatically depending on habitat quality, with some areas having less than 10 birds per square mile and others exceeding 30 birds per square mile.

Physical Characteristics

Both male and female Rio Grande wild turkeys may be identified by the tip of the tail feathers, which are buff, cream or tan rather than white or brown as in other subspecies. Rio Grande wild turkey (hereafter wild turkey) is one of the smaller subspecies of wild turkey. Adult male wild turkeys or gobblers weigh 17 to 21 pounds on average and stand about 40 inches tall. The weight of adult male wild turkeys can fluctuate dramatically throughout the year depending on food resources and breeding activity and is not a reliable indication of age.

Wild turkeys less than one year old are known as jakes and weigh 9 to 13 pounds. A jake can be identified by its tail fan. The tail feathers of an adult wild turkey are longer than the juvenile feathers. Since tail feather replacement starts in the center of the tail and progresses outward, the center tail feathers of a jake are typically longer than the outer tail feathers. Tail feather replacement is typically complete 15 months after hatching. Male wild turkeys have dark feathers, giving them a metallic black appearance. Many of these dark

feathers exhibit iridescent green, red, gold, copper or bronze depending on the angle of light. Males have a mostly bare head and upper neck that is covered in variously sized bumps called caruncles. Male wild turkeys also have a snood, which is a fleshy appendage located just above the beak. When the male is in a relaxed state, the snood is about an inch long. When the male is displaying, the snood engorges with blood, becomes redder in color and hangs down below the beak. Males have long pink or reddish hued legs that are featherless and covered in scales. Spurs grow on the lower back third of the leg. The spur develops from a small rounded bump and grows to a sharp projection and can be used to approximate age in male turkeys. A small, rounded spur less than half an inch indicates a young male. Sharp, pointed spurs indicate a mature gobbler, although spurs can wear down or break with age. Average spur length for jakes is 1/4 inch; 2-year-olds, 7/8 inch; and 3-year-olds, 1 inch. Occasionally, male wild turkeys will lack one or both spurs, and in very rare instances multiple spurs can be present on each leg. Beards are typically present as well. The beard is a black or gray tuft of bristles of modified feathers. Beards continuously grow from the neck/upper chest of a gobbler. Occasionally, males will have multiple beards. Beards are visible in most males when they reach six months of age. The beard typically



A male turkey (middle) and two hens (left and right). The male has dark feathers with green and bronze iridescence, pronounced caruncles, a beard and spurs. Females are smaller in size, have duller feathers, a more brown appearance, no spurs and more feathers on their neck than males. (Photo by Drake Hardman)

will grow about 3 to 5 inches each year, but will begin to wear down if it is long enough to reach the ground. Beards can be brittle, and often break off at various points, therefore are not a reliable indication of age.

Adult female wild turkeys or hens weigh eight to 11 pounds and stand about 30 inches tall. A juvenile hen, known as a jenny, typically weighs five to seven pounds in late fall. A hen's plumage is more brown, duller and lighter in appearance than the male, though they still exhibit metallic or iridescent feathers. Note that occasionally both male and female wild turkeys can exhibit abnormal plumage colorations such as smoke, black or red. These conditions are rare. Female turkeys have a bare head and upper neck and caruncles are not as pronounced as they are in males. Females generally do not have beards, though it is not uncommon to see females with beards. If present, female beards are typically shorter and sparser than males.

Reproduction

Mating

Breeding behavior and courtship in wild turkeys begins in early spring, as days become warmer and longer. This typically begins in March for most of Oklahoma, although it can vary depending on weather conditions. Male turkeys produce a loud vocalization known as a gobble, used to attract hens from a distance. This call is produced when roosting as well as when on the ground. Gobblers also use an elaborate courtship display known as strutting. This consists of spreading the tail fan upright, puffing out body feathers to appear larger, dragging wings along the ground and emitting a quick sharp subtle noise called a spit, followed by a low-pitched humming sound known as drumming. This display is usually produced when a female wild turkey is close by. While gobbling and displaying may take place at any time, they are much more likely during the spring mating period. Male wild turkeys produce other calls such as clucks and yelps to communicate with each other throughout the year. Hen wild turkeys also produce vocalizations such as yelps,



An adult gobbler strutting.

clucks, purrs and putts to get attention, communicate with the flock and warn each other of danger.

When a female has chosen a mate, she will crouch close to him to allow for copulation. Wild turkeys are polygamous, meaning that a male will mate with multiple females each breeding season, although not all males participate in mating each year. Female wild turkeys may breed daily, though they do not necessarily have to. A single breeding or copulation can fertilize all the eggs in a clutch and may even be capable of fertilizing a re-nesting attempt. Since sperm cells can remain in a hen's oviduct for up to 56 days, a clutch of eggs can have multiple paternal (male) sources.

Nesting

After mating, female wild turkeys will become secretive and are less likely to stay in groups while seeking out a suitable nest site and beginning the egg laying process. Hens choose tall dense grass, shrubs or fallen trees for nest concealment. Taller vegetation not only provides screening cover from predation but also can reduce sunlight and keep the hen cooler during hot days. Wild turkey nests are simple, comprised of nothing more than a shallow scratched depression in the ground.

Clutch size can range from eight to 16, but averages 10 to 11. Eggs are 2 to 2.5 inches, cream to tan in color, and can have brown speckles providing some concealment when the hen is not incubating. Hens will typically lay one egg each day. During egg laying, hens may return each day to join larger flocks. After the last egg is laid, incubation will begin and hens are more likely to remain isolated from other wild turkeys during this period. Incubation typically starts in April or May and lasts approximately 28 days. During incubation, hens usually leave the nest each day for food and water, although they may stay on the nest multiple days without feeding. The total hatching process takes about 24 hours once the first egg starts to hatch. While wild turkeys can re-nest if a nest is lost, clutch size is usually reduced. Not all hens will attempt to re-nest. For this reason, the initial nesting period is important to annual production, so activities that destroy nests or cause hens to abandon nests should be minimized. Loss of nests may occur due to nest or hen predation or weather events such as large amounts of rain or hail.



A typical wild turkey nest comprised of a small depression in the vegetation. Wild turkey eggs are cream in color and generally have tan or brown markings.

The most common nest predators are raccoons, skunks and foxes though snakes, coyotes, bobcats, opossums, armadillo, rodents and feral pigs prey on nests as well. Hens are likely to abandon a nest if flushed from it, particularly if flushed early in the incubation period. Therefore, care should be taken in areas known to have nesting hens during April and May. Wild turkey nest success generally ranges from 25 to 40 percent.

Brooding

Poults, or young turkeys, are able to leave the nest 12 to 24 hours after hatching. Newly hatched poults weigh approximately 2 ounces and are a yellowish color with brown markings. Feathers grow rapidly, allowing poults to fly to low-hanging branches eight to 12 days after hatching. During the first two weeks before flight is possible, poult survival is low. For the first three months, immature wild turkeys will gain about a pound of weight per month. Between three and seven months, weight gain increases to about half a pound per week. After seven months, immature hens weigh about 8 pounds and males weigh about 12.5 pounds. Poults rely heavily on insects during the first week after hatching. After each successive week, the ratio of insect-to-plant material consumed decreases. By the third week after hatching, poults will consume more plant matter than insects, although insects are important food sources at any time of the year they are available.

Survival and Causes of Mortality

Predation

Wild turkeys have different predators throughout their life cycle. Adult wild turkeys, especially gobblers, are least prone to predation. In Oklahoma, bobcat, coyote and fox are the main predators of adults. Annual wild turkey survival ranges from 40 to 65 percent. Typically, wild turkeys live for two to three years, but several have been known to live up to seven or eight years. Hens are most vulnerable

during the nesting season and the first two weeks after their poults hatch. Adult predation generally has little effect on populations. Poults and nests are the most vulnerable. Many poults are lost to predation within the first two weeks of hatching because they are small and flightless. After the first two weeks, poult mortality decreases, as poults begin to fly and roost in trees. Smaller predators such as raccoons, opossums, skunks, hawks and snakes prey on both eggs and poults. These smaller predators may affect wild turkey populations especially when the population is already low or there is poor nesting cover. The risk of predation can be lowered by maintaining quality habitat and nesting cover.

Disease and Parasites

Wild turkeys are hosts to a wide range of parasites including louse, ticks and sarcocystosis (rice breast), but parasites do not usually lead to mortality. Avian pox is a common contagious viral disease found in wild and domestic turkeys. Avian pox is transmitted most often through blood-feeding insects in wild turkey populations. The virus can be identified by external lesions on the head, neck and legs. Though it can be fatal, wild turkeys usually are able to survive with the infection. Avian pox is most often found in populations in the southeastern U.S. but is not widely seen in Oklahoma. Wild turkeys are undoubtedly susceptible to other diseases that affect domestic turkeys such as mycoplasma and salmonellosis, however these cases rarely have been reported.

Histomoniasis or blackhead disease can cause mortality in wild turkeys. Histomoniasis can be fairly common in gallinaceous birds and has a wide range of susceptibility in different species. Affected wild turkeys are likely to develop an infection that causes lesions and mortality. Chickens on the other hand, do not develop severe symptoms and often survive. To reduce the introduction of histomoniasis to wild turkeys, do not introduce infected domestic birds or use contaminated chicken litter as fertilizer on field and pastures frequented by wild turkeys.

Another disease consideration is aflatoxin, which is produced by *Aspergillus* bacteria. Most grains can contain aflatoxin, especially with warm and moist conditions. Birds, including wild turkeys, are particularly vulnerable to aflatoxin and it can cause a host of both chronic and acute health issues depending on the amount consumed. While wild turkeys can ingest aflatoxin by feeding on native seeds and cultivated crops; supplemental feeding poses the highest risk. Grain such as corn is often highly contaminated with aflatoxin. When made available to wild turkeys, they may ingest large amounts of contaminated grain. While supplemental feeding is not recommended by wildlife professionals, but if managers choose to do so, it is strongly advised to avoid supplemental feeding for any wildlife during periods of warm moist weather (especially March through October). If using supplemental wildlife feed, a few simple steps can reduce the potential for aflatoxin. First, use milo rather than corn because it tends to build up aflatoxin at a slower rate. Make sure to only purchase grain that is USDA inspected (i.e. grain sold for livestock consumption). Additionally, keep the grain dry during storage, minimize the amount placed on the ground at any time, and spread the grain rather than pile it (see NREM 9021, "Aflatoxins in Wildlife Feed" for more information).

Habitat Requirements

Food

Wild turkeys have an enlarged pouch in their esophagus known as a crop, which holds food items until they can be crushed by a muscle called the gizzard before passing through the remaining digestive system. Wild turkeys are opportunistic feeders, meaning they eat a wide variety of food. Grasses, forbs (broadleaf herbaceous plants), seeds, hard and soft mast and insects are all important components of a wild turkeys diet. Snails also are consumed and provide a calcium source to egg-laying hens. Wild turkeys use these different food sources based on seasonal availability. Proximity to food sources is important to flocks during winter months.

During this period, wild turkeys rely on cool season grasses, remnant seeds (including hard mast and crop seed) and forbs. Cool season crops such as wheat, rye and oats are particularly attractive to winter flocks. Clover is also used if available. During spring and summer, wild turkeys begin feeding heavily on insects, especially grasshoppers. When available, insects are always selected as food. Forbs and grass vegetation are heavily consumed during this season as well. Soft mast such as plum, blackberry and grape are also important in the summer months when available. In the fall, wild turkeys feed on forbs (particularly prior to frost), acorns, hackberry seeds, persimmon fruit and insects. Hard mast such as acorns from oaks can be especially important and are highly preferred during the fall. However, they are not reliable because mast crops often fail, typically are depleted by mid-winter and are not abundant in many areas.

Water

Surface water availability can be important for wild turkeys, especially in semiarid conditions. Rivers, streams and ponds can be sources of water, though overflow from windmills, troughs and livestock watering tanks are used by wild turkeys as well. Wild turkeys will readily drink from standing water, though



Wild turkeys use troughs and livestock watering tanks when they are available. However, it is unlikely that lack of water limits wild turkey abundance in Oklahoma.

they may receive enough water from succulent plants, fruits and insects. There is some anecdotal evidence that the lack of surface water can limit wild turkey distribution, although this has not been verified. Regardless, few places in Oklahoma are limited by surface water.

Cover

Loafing: During midday, wild turkeys often loaf under the canopy of tree cover, especially in warm weather. These areas often have an open understory, allowing wild turkeys to see potential predators from a distance. The overstory trees provide shade to moderate temperatures. Wild turkeys may alternate between resting, dusting, preening, feeding, displaying and mating throughout the midday period. Loafing areas are important to wild turkeys, as they constitute a large portion of the day's activity. For example, on a hot sum-



Wild turkeys using a small group of trees to loaf and seek refuge from the heat during the afternoon.

mer day, wild turkeys may be found loafing in shade from around 10:00 a.m. until about 5:00 p.m. Often, areas used for roosting will be used for midday loafing as well. Therefore, the presence of isolated tree cover is critical for wild turkeys and can limit their distribution when adequate tree cover is not present. It is important to maintain these areas free of dense understory cover so wild turkey use will continue. If the understory becomes dense, use

will typically decline. Eastern redcedar often encroaches in the understory of trees when fire is absent. This can lead to otherwise suitable loafing cover being of little use to wild turkeys. Having adequate feeding areas nearby loafing cover will increase use.

Roosting: Wild turkeys usually have separate summer and winter roosting locations, though some gobblers use the same roost site throughout the year. Both summer and winter roost locations are generally large trees with open crowns and horizontal limbs. Cottonwood trees often provide premium roosting structure in western Oklahoma. Other species such as oak, hackberry and elm also are used often, depending on availability. Wild turkeys will abandon a roost location that is frequently disturbed by humans. A lack of suitable roost trees free from disturbance or the removal of large roost trees may limit wild turkey distribution. Identifying roost locations and minimizing activities (e.g. oil/gas drilling, hunting, etc.) that can disturb roosting birds is important, particularly where roost cover is limited. Roost cover is generally not limiting in central Oklahoma, but there are areas in western Oklahoma where wild turkey distribution is limited due to lack of suitable roost trees. Additionally, wild turkeys prefer to roost

where understory is open, presumably to see potential predators when flying up to or down from the roost. Therefore, encroaching shrubs and midstory trees should be minimized in these roost areas. Eastern redcedar and tamarisk (saltcedar) are particularly problematic for roost sites. These plants also can serve as ladder fuels, which can lead to the loss of overstory roost trees during wild fires.

Nesting: Good nesting cover is particularly important to wild turkey hens, since they are most vulnerable to predators during this time. Hens will nest in many different vegetation types such as grass, shrubs or downed trees. Vegetation height is an important feature because it provides visual protection from predators and reduces the amount of sunlight,



Ideal roosting trees have large crowns with many horizontal limbs to perch on. Additionally, the understory should be fairly open to enable wild turkey to fly into and out of the trees without obstruction and predation risk.



Tall vegetation such as grass provides this nest (located in the center of the frame and pictured in the inset) with good concealing cover from predators and keeps the hen cool during the hottest time of the day.

which helps to reduce temperature extremes. Vegetation taller than 20 inches with some concealing overhead cover typically is selected by wild turkeys. Turkeys may avoid heavily grazed or mowed areas during nesting season due to the short vegetation structure and lack of concealing cover.

Brooding: During the first eight weeks after hatching, poults require an area that provides enough food, protection from predators and cover from the sun. Vegetation height and lack of dense litter are important features. Vegetation that ranges from 12 to 28 inches allows hens to detect approaching predators and is tall enough to conceal poults. Tall overhead shrubs or forbs with an open understory that allows for poult movement provide good brood cover. Dense herbaceous vegetation may provide adequate insect abundance, but poults have difficulty moving through it, therefore it is not generally used.



Wild turkey brood cover is tall and has an open understory that allows poults to easily move and forage while staying hidden.

Seasonal Habitat Use

Fall and Winter

During fall, wild turkeys of all ages and sexes begin to form large flocks, sometimes several hundred birds. Wild turkeys gradually move towards winter roost locations. Gobblers generally return to winter roosts earlier than

the hens or hen-poult flocks. These winter flocks often move to riparian (stream or river) areas or other areas with suitable roost cover. The height and location of roost trees are particularly important to wild turkeys. Roost trees tend to be 40 to 50 feet tall and have many horizontal branches. During this time, wild turkeys are relatively sedentary, rarely traveling more than one to two miles from the roost location. Wild turkeys hold fidelity to their winter roost locations and often return to the same site year after year. These areas should be maintained and not disturbed during the winter period. While winter flocks are usually segregated by sex, it is not uncommon to see mixed flocks during winter in prime feeding areas. Roost sites need to have adequate winter food resources nearby. Cool season crops such as wheat, clover or alfalfa food plots and oak forests provide concentrated food patches and wild turkeys often will select roost areas near these food resources. Wild turkeys may travel several miles from their summer distribution to find adequate winter food and roost resources.

Spring

Wild turkeys will continue to use winter roosting sites through early March, though their attachment to the winter roost sites will begin to lessen. In March, wild turkeys start to disperse from their winter roost locations. Females generally disperse great distances, sometimes more than 10 miles. After dispersal, wild turkeys use more open areas for mating activities, such as strutting. These open areas may be pipeline margins, roads, mowed or grazed pastures, fallow crop fields, disturbed sites, recent burns or areas with naturally short vegetation such as shallow soil ridges. These large clearings and low vegetation areas are used more in the spring than any other season. Due to lack of litter and subsequent higher spring soil temperature, open areas provide good visibility for displaying and breeding activity. Open areas also quickly green up in the spring, which provides food resources. Recent prescribed burns are particularly attractive to wild turkeys during the early spring. Not only does this management activity increase food

resources, it can be used to attract wild turkeys for hunting. Similarly, food plots planted with cool season crops such as wheat, oat, various clovers and alfalfa can be very attractive.

Summer

Gobblers will occasionally continue to strut into the early summer, but activity is much reduced because few hens are available for breeding. Gobblers form male-only groups and spend most of the morning hours feeding. During midday, gobblers loaf in the shade of trees. Breeding and non-breeding hens will separate from one another. Non-breeding hens will group together and form small flocks. This will become more evident as summer progresses due to hens losing nests and broods. Hens with poults will spend most of their time in areas with abundant food sources. In the late summer and as poults grow larger, several broods will come together to form brood flocks. As poults become larger and less vulnerable to predation, the brood flocks will use less dense vegetation and will continue to feed on insects and move to more open feeding areas. During the heat of summer, loafing cover is critically important during midday to prevent overheating. Wild turkeys will seek out tree cover with an open understory for shade. They will often alternate between feeding and loafing throughout the day, but will seldom venture far from shade.

Management

Roosting and Loafing Cover

Large, open-crowned trees such as cottonwood are very important to wild turkeys throughout the year. Roost sites should have an open understory to increase use. Periodic prescribed fire, mechanical thinning or herbicide can be used to keep the understory free of shrubs and midstory trees. If visibility is limited within the understory, thinning the midstory or understory will increase use of roosting and loafing by wild turkeys. *Note: If also managing for white-tailed deer, removing the understory woody cover will reduce winter*

food resources. Therefore, strategic thinning of the understory may be desired if managing for both species.

When using prescribed fire, care should be taken to not damage roost trees, particularly when they are limited on the property. In cases where large amounts of coarse fuels are present (e.g. eastern red cedar, saltcedar, woody debris), the understory trees and woody debris should be removed before fire is used. Cottonwoods are particularly vulnerable to damage from fire. Therefore, before conducting a prescribed fire, pull coarse woody fuel (anything larger than 4 inches in diameter) away from the base of the trees. This may be unnecessary where adequate roost trees exist, but it is very important in much of western Oklahoma.



Wild turkeys will abandon or avoid roost trees that have thick understory growth like these encroaching eastern redcedars.

Where adequate roost or loafing cover does not exist, it can be established. Establishing roost cover is often difficult and takes many years for the trees to reach an adequate size. Therefore, roost tree management should be planned well in advance. Landowners managing for wild turkeys should have a long-term outlook to ensure that roost cover will be available in future decades. A few old declining trees with no younger age classes of

roost trees establishing is a serious problem on many properties. Carefully evaluate roost cover and determine if regeneration is present in or near the roost site, so replacement trees will be available as older trees decline and die. If not, allow for some regeneration. Prescribed fire, wildfire and large flood events often will



Two years post wildfire and there is already evidence of cottonwood regeneration. Periodic regeneration is critical to provide for future roost and loafing sites.



If few adequate roosting trees exist and regeneration is limited, trees such as these cottonwood poles can be planted.

stimulate cottonwood regeneration. Trees also can be planted where regeneration is limited due to lack of seed source or lack of disturbance, such as flood events, which prepare the seed bed. If planting trees, it may take several years of planting because drought conditions in some years will reduce survival or entirely eliminate young trees. Planting in areas where the water table is close to the surface such as riparian areas will increase the likelihood of establishment, particularly of cottonwood plantings. Survival is typically higher when trees are planted during the dormant season. However, the dormant season is often very dry in Oklahoma, which may limit survival in some years, emphasizing the need for repeated plantings to ensure success. Once established, young cottonwood trees will be vulnerable from fire. Care should be used during prescribed fires to prevent loss of young trees. Contact your local Oklahoma Cooperative Extension Service educator, the Natural Resource Conservation Service or the Oklahoma Forestry Services for technical assistance and best management practices for tree planting.

If regenerating oaks, remember that they require sunlight for regeneration. Therefore, forest thinning can help with oak stand replacement. Plan a forest thinning during a year with a large mast crop of acorns to increase oak regeneration. Oak seedlings will often resprout following fire once they have an adequate root system established, but this will increase the time it takes for the trees to reach an adequate size for use by roosting wild turkeys. However, with low- to moderate-intensity fires, some oak seedlings will survive and continue to increase in size. Elm and hackberry regeneration typically is not limited as these plants produce abundant seed that is either wind deposited (elm) or carried by wildlife and rain events (hackberry) to sites with adequate sunlight for germination and growth. Once established, both elm and hackberry will resprout following fire, but young seedlings are susceptible to being killed by fire.

Artificial roost structures can be implemented when sufficient roost trees do not exist. If used, these structures should be viewed as a temporary management practice until

adequate tree cover can be established. The emphasis should be on managing forest cover with a long-term perspective. If creating artificial roosts, ensure they are sturdy and have adequate horizontal perches. Larger structures (those with a larger horizontal surface area) appear to attract roosting use more than smaller structures. Structures should be placed in areas clear of understory trees and shrubs. If the surrounding landscape is otherwise unsuitable for wild turkeys, then adding roost structures will not attract them. Therefore, only place structures where all other habitat elements are met. Artificial roost structures have not been rigorously evaluated to see how they influence wild turkey distribution and survival. However, in areas completely lacking roost trees, they may be a temporary alternative to tree establishment and some landowners have had success.

One final consideration regarding managing roost cover is that some other species of wildlife avoid trees. For example, prairie-chickens strongly avoid tree cover. Establishing trees in open prairies where prairie-chickens occur is not recommended. A landowner can simultaneously manage for wild turkeys and sensitive species such

as prairie-chickens by strategically limiting where tree cover occurs. Prairie-chickens typically do not use rugged topography such as steep canyons and riparian areas. These are excellent places to manage for wild turkey roosting cover. The flatter uplands could be managed for the open conditions that prairie-chickens require. Additionally, wild turkeys will forage into the adjacent open prairies near established roosting and loafing cover.

Prescribed Fire

Prescribed fire is an important practice for wild turkey management. As mentioned previously, it can be used to maintain open understory for roosting and loafing cover. When using prescribed fire for roosting/loafing cover management, make sure fire intensity is low to moderate to minimize overstory tree damage. This can be accomplished by using back fires and burning when relative humidity is high.

Prescribed fire keeps open prairie from becoming dense eastern redcedar woodland, which wild turkeys will avoid. Eastern redcedars provides little value to wild turkeys. Isolated small redcedar may be used for nest

cover, and larger trees with an open understory are used for shade. However, as redcedar cover increases and sites become a dense woodland, wild turkey use will rapidly decline. Prescribed fire can remove smaller trees (less than 3 to 6 feet). Eastern redcedar of this size will be killed by fire as it does not resprout. However, redberry juniper, which occurs in southwestern Oklahoma, is a resprouting juniper. If managing this plant, fire will need to be continually applied to keep the structure small so that it does not preclude wild turkey use. For eastern redcedar or redberry juniper larger than 6 inches, consider mechanical methods for removal



Artificial roost structures have been used with limited success by some landowners in areas lacking suitable tree cover. However, managing native forest stands should be the emphasis for wild turkey management.

and then use prescribed fire for maintenance. A prescribed fire interval of once every three to five years will be adequate to prevent eastern redcedar encroachment in much of central Oklahoma. In western Oklahoma, the fire frequency can often be reduced to once every five to 10 years to prevent juniper encroachment.

While shrub cover is used for nesting, feeding and loafing, it can become too dense for wild turkeys in some cases. This is sometimes seen in areas dominated by various species of sumac. In areas of extensive dense shrub cover that lacks forb and grass cover, prescribed fire can create mosaics that increase food resources. This is especially important during the spring and summer period when insects and herbaceous plants are heavily fed upon.

Beyond using prescribed fire to manage woody plant structure, this practice can be used to increase food resources and wild turkey use during spring and summer. Wild turkeys are especially attracted to recently burned areas in the spring due to an early green up of plants and the associated insects feeding on those plants. The blackened soil heats up more quickly than unburned areas, leading to the early green up. These burned areas will

see high use during summer as well due to the increase in forbs, which provide ideal brood cover. A fire frequency of three to seven years, depending on the site is appropriate for most of Oklahoma. However, it is important to have some portion of the property burned each year for wild turkeys to maximize food resources and to provide open areas for displaying and breeding activities. Therefore, consider dividing the property into multiple burn units so at least one unit is burned each year. Avoid spring and early summer burns (mid-March through early July) if possible to minimize nest and early poult (prior to flight) loss.

Forest Thinning

As previously discussed, limiting mid-story and understory cover can increase wild turkey use of forested areas for roosting and loafing. However, forest thinning may also be needed in areas with extensive closed canopy forest cover to increase food resources. This is particularly an issue in the central and eastern portions of Oklahoma. Large areas of closed canopy forest offer little forb and grass cover due to limited sunlight. Closed canopy forests can significantly limit food abundance for both



Closed canopy forests such as this post oak forest (left image), lack a suitable herbaceous understory. By thinning the overstory and allowing sunlight to reach the forest floor (right image), wild turkey habitat can be greatly improved.

adult wild turkeys and poults. Further, available nest sites may be limited in closed canopy forests. Prescribed fire is often not a viable option to open up the overstory, particularly in oak forests because they are very difficult to top-kill except under extreme fire conditions, which a landowner can rarely safely conduct. Therefore, mechanical or herbicide methods may be needed to open the overstory and allow sunlight to reach the forest floor. In areas lacking suitable nesting cover or forbs and grasses for food resources, this can be an important practice. Opening the canopy so at least 50 percent of the forest floor is illuminated during the midday will greatly increase forb, grass and shrub cover. These open woodland areas will be used extensively during the nesting and brooding periods. Periodic prescribed fire can then be used to maintain the open forest long-term. A fire frequency of once every three to five years will be adequate for most conditions once the overstory is thinned.



This food plot contains crimson clover, arrowleaf clover and oats. This mixture is very attractive to wild turkeys during much of the year, and it can help attract birds for harvest during the spring turkey season.

Food Plots

Food plots can be used to attract wild turkeys during the spring hunting season, provide brood cover and food and to provide winter food resources. Cool season crops such as wheat, oat, rye, various clovers and alfalfa are used during winter and early spring. These crops are planted during the fall, typically September and October, and may be planted as monocultures or mixtures. Cool season plots are typically most used during late winter and spring. While wheat is typically planted for wild turkeys in Oklahoma, either a clover monoculture or a clover/small grain mixture is generally more attractive. Consider planting crimson clover and arrowleaf clover mix. Wheat (or oats in southern Oklahoma) can be added to this mix. If mowed closely to the ground during late summer (July) after the clover has seeded, this plot can effectively reseed itself for multiple years, providing a low cost plot. Herbicide may be used after the clover seeds (July to August) if weed issues are a problem. Make sure to use the herbicide prior to germination of clover seedlings in late summer. Using both crimson and arrowleaf clover allows the plot to be used longer, since

they have different maturity dates (crimson is earlier than arrowleaf). This plot is attractive to wild turkeys during late winter, the spring breeding period and to brooding hens. While this plot can increase food resources, it is particularly useful to concentrate birds for spring hunting. In areas of western Oklahoma that are more arid, clover may do poorly except where the water table is close to the surface. In cases where clover is not suited, consider using alfalfa as a substitute. Alfalfa provides outstanding brood cover for wild turkeys as insect abundance is very high in alfalfa fields.

Soybean, corn and grain sorghum (e.g. milo) are good choices for fall and winter food plots for wild turkeys. If planting milo, use lower tannin varieties to increase consumption of seeds by wild turkeys. Ask a seed sales person about specific varieties with lower tannins. These crops are typically planted in May or June in Oklahoma. Wild turkeys will use soybean fields some during the summer, but the most use will be in the fall to feed on ripened beans. Both milo and corn are used in fall and winter or until grain is depleted. If the field is planted primarily for crop production, consider leaving an outer row standing through the winter for wild turkey use. Placing soybean,



Grain sorghum (e.g. milo) is a carbohydrate-rich food attractive to wild turkeys during the fall and winter. Not only does it provide a high energy food source, but it provides cover if left standing.

corn, or grain sorghum food plots near adequate winter roosts will greatly increase their use.

Strip Discing

Discing the soil surface 1 to 3 inches can create favorable conditions for forb germination. Forbs such as annual sunflower, common ragweed, western ragweed, showy partridge pea and various crotons (dove weed) often are stimulated. Discing can increase food and brood cover for wild turkeys. This practice works particularly well in loose, sandy soils. While prescribed fire is a preferred management practice, strip discing may have limited application, particularly when prescribed fire is not an option for a landowner. Additionally, strip-discing areas used as firebreaks often are



Shallow discing conducted during the winter often promotes desirable plants for wild turkeys and other game birds. However, discing during the summer often promotes weedy, undesirable species. This area was discing during February and contains ragweed, annual sunflower and croton (dove weed).

dominated by desirable forbs wild turkeys will use. If using this practice, concentrate its use in areas with previous cultivation to minimize potential changes in the structure of unplowed soils. Also, limit discing to flat areas to minimize erosion potential. Finally, conduct discing during the dormant season (October through March) because discing conducted during the growing season often results in nondesirable plant response such as crabgrass, goosegrass, buffalo burr and sandbur.

Conversion of Tame Pastures and Crop Fields

While crop fields can provide food and cover resources for wild turkeys, they often are limited to select seasons. For example, a harvested corn field may be used for a few months post-harvest, but during most of the year it is a virtual desert for wild turkeys. Similarly, a wheat field may only be attractive during the winter and spring months, and completely avoided during summer and early fall. Crops such as cotton may see little use any season of the year. If the goal of a land manager is to maximize wild turkey numbers, conversion of crop fields to native plant communities should be considered. This is a costly practice, both in terms of money and time. Conversion may take several years to see satisfactory results. However, if wild turkey nesting and brood cover are limited, the results can be dramatic. Alternatively, after ceasing cropping a field, consider allowing the site to remain fallow for two to three years before planting anything. Often, a desirable plant response will develop from the seedbank at no cost to you.

Tame pastures containing species such as tall fescue, bermudagrass, Old-World bluestem and weeping lovegrass will be used at times by wild turkeys. However, they are generally very limited in food resources most of the year. Tall fescue and bermudagrass are rarely used for nesting. Tame pastures should be converted to native grass and forbs when possible. To convert from tame pasture, multiple

herbicide applications over the course of two years will be required to completely eliminate the exotic perennial grasses. This cannot be stressed enough. Planting native grass and forbs without eliminating the exotic grasses is destined to fail. Alternatively, consider cultivating and cropping the site for two to three years. This will effectively eliminate the exotic perennial grasses and provide income during the transition phase. At that point, the site could be planted in a native grass and forb mix.

Whether converting a crop field or a tame pasture, seeding native grasses at a low density with abundant forbs in the mix is recommended. As wild turkeys rely heavily on forbs, a dense native grass stand may be too thick for wild turkeys and especially poult to use, and offers little more than the tame grasses replaced. Consult with your local Natural Resource Conservation Service county office for technical guidance on conversion as well as to inquire about potential cost-share support.

Cattle Grazing

Cattle grazing can improve or limit structure for wild turkeys depending on the stocking rate and season of use. Grazing in roosting and loafing cover can help keep the area open, increasing wild turkey use. Also, wild turkeys often use heavily grazed areas in the spring due to the early green up, similar to recently burned areas. While moderate to heavy cattle use can increase wild turkey use, it can also diminish nesting cover and reduce food resources. For example, stocking rates and/or rotations should be such that adequate nesting cover exists on a large portion of the property during April through June. If the primary nesting cover on a property is herbaceous (as opposed to shrub and fallen trees) low stocking rates or long rotations will be necessary to maintain adequate nesting cover. In addition to the direct loss of nest cover, grazing cattle will occasionally flush wild turkeys off nests, causing nest abandonment. However, in most situations, nest abandonment from livestock is a very minor issue.

Mowing and Haying

Each year, countless wild turkey nests are destroyed by mowing and haying. This is primarily an issue in native hay fields and alfalfa, but it can occur in some tame pastures such as Old World bluestem or weeping lovegrass where wild turkeys may be nesting. To minimize nest loss, delay cutting hay until after the primary wild turkey nesting season (April through June). Additionally, if cutting native grass for hay, it is recommended to delay harvest until early July to optimize forage quantity and quality. This time period will avoid most wild turkey nests, and most poults will be capable of escape.

Negative impacts to nesting wild turkeys from mowing (cutting grass for aesthetics, brush control or other non-forage reasons) is almost completely avoidable. Before deciding to “clean-up” a field, carefully consider land management objectives. Wild turkeys nest in grass cover and feed on forbs. A closely cropped field might be used during certain times of the year, but likely more harm than

good is accomplished by mowing in spring and summer.

Harvest Considerations

Most landowners that are managing for wild turkeys are doing so to increase hunting opportunities. This is understandable because wild turkeys provide challenging hunting and excellent table fare. However, hunters often give little thought to sustainable harvest on their property. With most situations, harvest on a property is likely insignificant to a wild turkey population. There are some methods landowners may want to consider to increase the likelihood of a relatively stable hunting experience from year to year.

If the goal is to maximize reproduction of wild turkeys, do not shoot hens. In Oklahoma, hens can be legally harvested in some counties during the fall season. The counties where this is allowed have relatively high wild turkey numbers, and it is thought that current levels of hen harvest will not affect the population in a significant way. While this may be true at large scales, at the individual property level, hen harvest may impact recruitment in some years. Of course, not all hens survive the winter, and not all of them successfully produce young. But, if trying to maximize reproduction, any hen shot is reducing the reproductive potential. Therefore, concentrate harvest on male wild turkeys. If not trying to maximize reproduction of wild turkeys, and harvesting hen wild turkeys is legal in the county, then shooting an occasional hen is not cause for worry.

Wild turkeys are polygamous, meaning that males mate with multiple females and females often mate with multiple males in a given year. Additionally, not all males breed because the dominant males typically have most of the mating opportunity. In most populations, there are males waiting on the fringe of the flocks for any mating opportunity. Therefore, limited male harvest does not typically reduce recruitment and the population in the following year. Yet it is possible, especially over large areas, to harvest enough males to cause females to not be bred. This can



This field was providing excellent nesting and brood cover before the landowner ‘cleaned it up.’ Now, it will offer little to wild turkeys until the following year. Carefully consider objectives before starting the mower!



Hunting for wild turkey provides enjoyment for many people in Oklahoma. Not only are wild turkey challenging to hunt, but they are excellent to eat.

be especially true on later re-nesting hens after wild turkey season has started and males have been shot. Also, isolated populations that are not connected to other flocks are at higher risk for overharvest. Multiple years of poor reproduction also can reduce population size and isolate flocks making them more vulnerable to potential overharvest.

For most properties in Oklahoma, and in most years, overharvest is not a concern for the overall population. However, high male harvest can certainly affect the quality of hunting on a property from year to year. If most males on a property are shot each year (even if shot after most hens were breed), the landowner becomes dependent on recruitment

of new males from successful broods and/or immigration of dispersing males from surrounding areas to provide additional males for hunting. This may work in years of good production and in cases of high population connectivity. But in poor reproduction periods, landowners may find themselves in a gobbler deficit. To minimize this, first be conservative with the population estimate on the property. Wild turkeys are not easy to accurately census, especially once the winter flocks break up. The same gobbler may be seen in multiple areas of the property, but assumed to be multiple gobblers. Additionally, to provide some cushion for over harvest, consider limiting harvest to adult gobblers and passing on jakes. Assum-

ing there is good cover and food resources, many jakes should survive and be available as adult gobblers the following season. Preserving jakes can help ensure some adult males will be available each year, providing for a more stable hunting experience.

Finally, consider hunting pressure. Wild turkeys can be sensitive to human disturbances. Heavy, continued hunting pressure can cause flocks to shift use to adjacent properties (assuming it provides habitat) where hunting pressure may be less. This can be reduced by limiting time spent in certain areas of the property (especially roosting areas), staying in cover as much as possible to avoid being seen, calling sparingly when hunting and avoiding shooting gobblers that are with large groups when possible. If managing wild turkeys to increase hunting success and satisfaction, the restraints listed here should not become so restrictive that they detract from the overall goals. Above all, abide by hunting laws and regulations.

Predator Control

Controlling predators is sometimes considered when managing for wild turkeys. Landowners often target potential predators of adult wild turkeys, and occasionally control potential nest and poult predators. While this may seem a legitimate practice, positive results are not guaranteed for multiple reasons. Controlling predators at scales large enough to affect wild turkey survival can be difficult and costly. Additionally, controlling some predators can have unintended consequences. For example, while coyote and bobcat are both predators of adult wild turkeys, they both feed on raccoons, opossums and armadillos, which are all nest predators. Therefore, by controlling large carnivores, you may inadvertently decrease nest success. Of course, those nest predators could be controlled, but constant immigration from adjacent properties make this a constant management practice. Also, some predators either cannot be realistically or legally controlled. Rodents can be predator of wild turkey nests and their numbers fluctuate wildly from year to year. Controlling them is

simply unrealistic over large areas. Additionally, some large raptors such as great-horned owls occasionally kill wild turkeys. But, they are a protected species that cannot be legally controlled.

While it is possible that, in some circumstances, predator control could be a beneficial practice, it is difficult to know what species to target and most landowners are not likely to invest the resources long-term to manage predators at a scale large enough to have potentially positive results. Unless indications are strong that a wild turkey population is limited by predation, predator control is not a recommended practice for wild turkeys. At a minimum, consult with a biologist about a specific situation before investing resources into a potentially neutral practice.

Supplemental Water

As previously mentioned, it is unclear if a lack of standing water limits wild turkey distribution. Wild turkeys will use ponds, stock tanks, troughs and livestock drinkers when available. It is not recommended to build new man-made sources of water because many already exist across Oklahoma for grazing livestock. However, it may be beneficial to ensure troughs and livestock watering tanks are full during the summer months, especially during drought periods. This practice would be a much lower priority because currently, there are no strong indications that it is beneficial. If water sources are available, each should be evaluated for the potential of drowning loss. Wildlife often fall into water tanks and are unable to climb out. For aboveground tanks and troughs, it is recommended to install wildlife escape ramps. These simple and cheap devices not only can prevent loss of wild turkeys but many other wildlife as well. There are many designs that will work. A cheap and easy one is wrapping a steel fence post with chicken wire and inserting it into the water tank at a roughly 45-degree angle. Wiring the post in place can prevent it from falling into the water tank. Also, position the post so it will enter the water surface at the tank edge. This enables animals swimming around the perimeter of



Escape ramps should always be used in water tanks. They are simple, inexpensive and help prevent needless drowning of wildlife.

the tank to easily find the ramp and climb out. Escape ramps are not a concern for water tanks that have sloped surfaces to the water level, such as most ponds and guzzlers.

Supplemental Feeding

Supplemental feeding is NOT a recommended practice for wild turkeys, but it is used by many landowners. Additionally, supplemental feeding is often done for white-tailed deer, with wild turkeys using it incidentally. Supplemental feeding can certainly affect wild turkey space use and can concentrate them in certain areas, particularly during the winter. However, this can easily be accomplished with habitat management practices such as prescribed fire and food plots without the need to supplementally feed. Further, supplemental feeding has not been demonstrated to increase wild turkey abundance. It can concentrate wild turkeys in high numbers, making them more susceptible to disease transmission and predation. Finally,

grain (including corn and grain sorghum) can become contaminated with aflatoxin, which wild turkeys are highly susceptible. If supplementation is chosen, avoid it during the warm periods of the year (March through October) and take steps to reduce disease risk (see NREM 9021, “Aflatoxins in Wildlife Feed” for more information).

Summary

The Rio Grande wild turkey is the most widely distributed wild turkey in Oklahoma and is an incredible wildlife success story in the southern Great Plains. Each spring and fall, it provides thousands of hunters with a challenging hunt and food. While many landowners enjoy wild turkeys on their property as a byproduct of other land objectives, wild turkey habitat can be effectively managed. By understanding wild turkey habitat requirements and making land management decisions that will benefit the wild turkey, the number of birds can be dramatically increased in many cases. Consider the management practices listed in this document if you wish to improve wild turkey populations and/or hunting opportunities on your land. For questions about wild turkey management, contact the local Oklahoma Cooperative Extension Service educator or your local Oklahoma Department of Wildlife Conservation biologist.

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