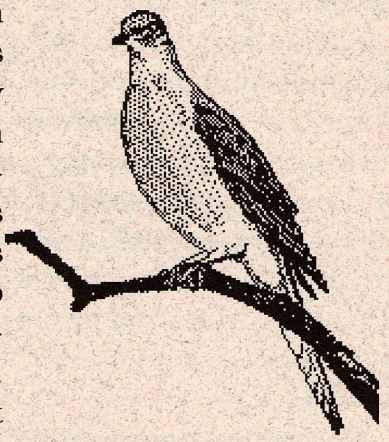
Wildlife Management Notes

No. 9 Mourning Doves

Stewardship FOREST

Steve Ditchkoff,
Associate Wildlife Specialist

Dr. Ron Masters,
Wildlife Specialist



The mourning dove (*Zenaida macroura*) is a passerine in the family Columbidae, of which both doves and pigeons are members. It is the most widespread and common member of its family in North America, with the exception of the rock dove or common pigeon (*Columba livia*) found in urban settings. Males are indistinguishable from females based upon plumage, which is normally beige with gray wings and pink and yellow shading near the neck. A clutch normally consists of two eggs, and parents share incubation duties and feeding of the young. Doves and pigeons share a unique characteristic for feeding nestlings. Adults produce a protein and fat (lipid) laden fluid called **crop milk** that is regurgitated into the nestlings' bills. Production of crop milk tapers when nestlings are 6 to 9 days old, and by 10 days the diet of nestlings does not differ from that of adults. Nesting cycles are short (30-32 days), and single pairs commonly nest five to six times during a single season in southern climates. This high rate of reproduction is necessary because of high annual rates of mortality, which can be up to 70 percent for immature doves (less than 1 year old) and 60 percent for mature birds. The average lifespan for a mourning dove is about 2 to 4 years, but some individuals may live as long as 10-15 years.

Mourning doves can be found within Oklahoma borders throughout the year. However, like other migratory species, the number present during any season can fluctuate dramatically. Doves prefer warm temperatures and are well-suited to climatic conditions found south of Oklahoma. They choose to breed in more temperate regions because of favorable conditions during the breeding season. During winter, most mourning doves can be found throughout Texas and Mexico, with wintering birds ranging as far north as Oklahoma and Kansas and as far south as Central America.

Breeding occurs within all 48 contiguous states and southern Canadian provinces, so timing of migration can vary by region. The spring migration in Oklahoma occurs primarily during March when birds can be found arriving in Oklahoma to begin breeding or passing through to more northerly breeding areas. The autumn migration usually begins around mid-August and can continue throughout September. This

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annual trek can be dramatic depending on climatic factors. Doves fare poorly during cold weather, and early winter storms in the north-central United States can cause all birds to begin migration at once. This can result in huge flights of migratory doves passing through and staying in Oklahoma, and it usually leads to high dove harvests by hunters. The mourning dove is the leading species of gamebird in North America, with numbers harvested exceeding all other migratory species combined. This popularity accounts for substantial sums of money being spent annually in pursuit of doves, with estimates in 1985 exceeding $500 million.

HABITAT REQUIREMENTS

The major habitat requirement of mourning doves is the presence of early successional plant communities in open or semi-open lands. Doves prefer to feed and loaf where visibility is good and tend to avoid ungrazed perennial grasslands, thick brushy shrublands, and densely-wooded habitats. Habitats commonly frequented by doves are rangelands (prairies and shrublands), croplands, residential areas, or any other habitat that has bare ground or sparse vegetation. Because of their small stature and preference for areas with high visibility, doves prefer to feed in areas with little ground cover and avoid areas with thick vegetation. They also do not feed in areas with heavy ground litter (mulch) because of their limited ability to scratch for food. Doves are highly mobile birds so local habitat conditions are generally not limiting. They prefer to feed close to nesting and roosting areas but at times will travel over 20 miles to feeding sites.

FOOD

Mourning doves primarily eat seeds from bare ground. Research has suggested that more than 99 percent of their diet is seeds. Table 1 lists food plants of doves in Oklahoma. In addition to wild plants, doves consume substantial amounts of agricultural crops, particularly cereal grains (corn, wheat, sorghum, rye, barley, milo, and oats). Agricultural crops, when available, commonly account for more than 50 percent of the diet of mourning doves. Doves will usually begin feeding immediately following sunrise and continue until their crop is filled. Another feeding period usually occurs during late afternoon and continues until the crop is filled or dusk approaches.

Grit (sand and gravel) is an essential component of the diet. Their diets consist primarily of hard seeds, and, thus, grit is used in the gizzard as a surface for grinding. It is estimated that doves require 60-100 pieces of grit daily to replace grit that is worn down in the gizzard. Doves obtain grit almost anywhere that bare soil or sand is present. Salt is also thought to be an important component of the dove diet and is theorized to be necessary for proper egg viability. However, very little is known about salt requirements.

COVER

Many passerines are habitat specialists with highly specific cover requirements for nesting. However, the mourning dove is a habitat generalist. Areas containing habitat edges and clearings are preferred nesting areas of doves, but continuous forests devoid of understory and low midstory are also used. Although tree nesting is most common,

doves will also nest on the ground even in the presence of trees and shrubs. Agricultural areas containing fencerows, small woodlots, shelterbelts, and other woodland habitats provide the most suitable nesting areas and usually contain the greatest densities of nesting pairs because both food and nesting sites are prevalent. However, the broad range of the dove demonstrates that it is a highly adaptable habitat generalist that will use almost any substrate for nesting if the area has suitable food and water.

Doves use a number of different cover types for roosting. Most doves roost in trees, but they may roost on the ground if a more suitable area is not available. Most roosts are small woodlots located near a major source of food or water. These areas are commonly used nightly outside of the nesting season if birds are in the area. High quality roosts may be used on an annual basis. In Oklahoma, doves have been documented roosting in fields of haygrazer and cotton. Mourning doves do not have any specific cover requirements during the day. When they are not feeding, they spend most of their time loafing on perches that offer high visibility. Good loafing sites are trees with bare limbs, powerlines, or barbed-wire fences.

Table 1. Common foods of mourning doves in Oklahoma.

Three-seeded mercury	*Acalypha virginica*
Pigweed	*Amaranthus* spp.
Lanceleaf ragweed	*Ambrosia bidentata*
Western ragweed	*Ambrosia psilostachya*
Pricklypoppy	*Argemone platyceras*
Oats	*Avena* spp.
Goosefoot	*Chenopodium hybridum*
Bullnettle	*Cnidoscolus texanus*
Crotons	*Croton* spp.
Beggars lice	*Desmodium sessilifolium*
Hairy crabgrass	*Digitaria sanguinalis*
Spurge	*Euphorbia* spp.
Sunflowers	*Helianthus* spp.
Barley	*Hordeum* spp.
Lespedezas (native)	*Lespedeza* spp.
Evening primrose	*Oenethera* spp.
Violet wood sorrel	*Oxalis violacea*
Panicums	*Panicum* spp.
Florida paspalum	*Paspalum floridanum*
Pokeweed	*Phytolacca americana*
Knotweed	*Polygonum aviculare*
Rye	*Secale* spp.
Bristlegrass	*Setaria* spp.
Milo	*Sorghum bicolor*
Johnsongrass	*Sorghum halepense*
Sorghum	*Sorghum* spp.
Sand dropseed	*Sporobolus cryptandrus*
Queen's delight	*Stillingia sylvatica*
Wheat	*Triticum* spp.
Corn	*Zea mays*

WATER

Mourning doves require water for drinking on a regular basis. They normally fly to water both in the morning and evening after feeding. Puddles, ponds, stream edges, sandbars, and mud flats offer suitable locations for doves to drink. Preferred drinking

locations are usually devoid of vegetation where doves can easily alight and walk to the edge of the water. These areas provide good visibility and usually do not have much nearby vegetation where predators can hide. For this reason, it is undesirable to exclude livestock from water sources. Doves can function without water for four to five days when temperatures are near 70°-75° F, but they require water daily when temperatures approach 100° F.

SPACE

Spatial requirements for doves vary considerably with the season. Nesting pairs usually have territories ranging from one to three acres, but these territorial boundaries tend to dissolve later in the nesting cycle. A source of nesting material is an important aspect in the establishment of a nesting territory. Unmated males also have what are called "moving display territories" where the defended area is the location of cooing perches. Doves do not have permanent territories or home ranges outside of the breeding season, but they tend to be nomadic and travel in flocks to areas with adequate food resources. However, large populations of doves may stay in a certain area for several weeks if food, roost space, and water are available.

STANDARD MANAGEMENT PRACTICES

Doves prefer areas with an interspersion of early successional habitats, open woodlands or croplands that provide open areas with high visibility for feeding, and trees or other structures in close proximity for nesting, loafing, and roosting. Traditional agricultural settings with grain crops separated by woodlots, fencerows, and roadsides are ideal, and suburban areas also meet the requirements of doves. Native prairies and shrublands on sandy soils provide excellent habitat. In contiguous forested areas, seed tree, shelterwood, and clearcuts are appropriate timber removal strategies for mourning doves. Most timber harvest strategies create early stages of succession where doves can forage for seeds and loaf during the day. Rotation length, patch size, and patch shape are not critical.

Prescribed fire, depending on season and intensity, is an excellent tool to promote suitable habitat for mourning doves by maintaining early seral stages in forests and keeping areas open. An obvious benefit is control of eastern red cedar encroachment. Typically, burns should be conducted in less than five-year intervals; two- to four-year intervals are suggested. However, frequency depends on productivity on shortgrass and mixedgrass sites in far western Oklahoma. On tallgrass sites, if burns are conducted immediately before warm-season tallgrass regrowth (early to mid-spring), forb production may be increased at the expense of tallgrasses, particularly little bluestem. One of the major goals of prescribed fire across Oklahoma is control of woody vegetation. For this reason, a grazing management plan will be necessary to allow fuel accumulation. Caution should be used when burning habitat with sandy soils. Many of these sites may need little or no fire depending on the grazing management system and stage of plant succession.

Grazing management is a necessary tool for mourning dove management. A continuous grazing system at moderate stocking rates is preferred over many short duration

systems or intensive early stocking (IES). The latter two systems promote homogenous vegetation structure, and often many forbs that are important to doves may be consumed by livestock. Trampling by livestock around watering and feeding facilities promotes bare ground which is beneficial to doves.

Reducing tillage of grain crops following harvest makes waste grain available for doves. In addition to providing food for resident doves, this practice can be beneficial to migratory birds who must frequently rest during migration to replenish energy stores. Because agricultural grains are a preferred food source for migrating birds, the timing of grain harvest, if possible, can determine whether fields are used by migrating birds. Grain harvest should occur just prior to or during fall migration (mid-August to September) to maximize use by migratory birds.

DIRECT HABITAT IMPROVEMENTS

- In areas where suitable watering holes are not available, the establishment of a pond or other water source will benefit doves substantially. The water level of most ponds in Oklahoma will recede during July and August—when temperatures are greatest and doves rely on water the most—providing a bare shoreline where doves can land and approach the water.
- In western Oklahoma, windmills can be excellent sources of water for doves. The overflow from windmill tanks usually creates a small pool with sparse vegetation that doves readily use.
- Doves will not use water sources surrounded by thick vegetation. For this reason, always leave *a portion* of ponds unfenced to allow access to livestock. These areas can also be mowed to provide a landing and approach area.
- Planting small patches of cereal grain crops or sunflowers in close proximity to suitable loafing areas will attract doves. These crops should be knocked down or harvested without tilling during midsummer to late summer to benefit both resident and migratory birds. Crops planted in the vicinity of water holes and roosting or loafing cover are preferred.
- In areas dominated by agricultural crops and grassland, the addition of trees can benefit doves. Small wooded areas provide both nesting and roosting sites. These stands will hold a breeding population in the summer and attract migratory birds in the fall. However, planting trees in prairie habitat will have negative impacts on native grassland birds and other habitat specialists.
- Maintain fencerows with native vegetation. Native vegetation contains many seed-producing species, and seeds can be gleaned from the bare soil at the edge of an agricultural field. Trees and shrubs along fencerows provide nesting and loafing sites.
- In forested areas, clearcuts and seed tree regeneration areas provide essential early succession habitats with abundant bare ground and seed-producing annual forbs. The use of prescribed fire for site preparation will reduce residual litter and set the stage for early successional plant communities.
- Thinning mixed pine-hardwood stands or pine stands to a basal area of 50-60 square feet per acre followed by prescribed fire in the late dormant season (March-early April)

will tend to promote forbs. In this situation, forb growth following dormant season fire increased 25 percent more than that following growing season burns.

- In western Oklahoma, maintaining and protecting cottonwoods along riparian zones and in flood plains for roosting, nesting, and loafing sites benefits doves. These areas are important components of mourning dove habitat. Maintenance includes using periodic prescribed fire to control cedar encroachment and maintain low vegetation cover. Periodic grazing can also be beneficial in these areas.

MANAGEMENT OPTIONS/SIP COST-SHARE OPPORTUNITIES

(See your Forest Stewardship Planner for Details)

Low Intensity

Mowing and discing (SIP-2,4,8; MW4, SD3, PL3)
Planting food and cover (SIP-8, DH3, FP3, NG3, SL3, WA3)

Medium Intensity

Mowing and discing (SIP-2,4,8; MW4, SD3, PL3)
Planting food and cover (SIP-8, DH3, FP3, NG3, SL3, WA3)
Create forest openings (SIP-8, SO3)

High Intensity

Mowing and discing (SIP-2,4,8; MW4, SD3, PL3)
Planting food and cover (SIP-8, DH3, FP3, NG3, SL3, WA3)
Create forest openings (SIP-8, SO3)
Wildlife thinning (SIP-8, HT3)
Prescribed burning (SIP-8, PB3, PB4)
Shallow water impoundment dams (SIP-6,8; SW3)

ACKNOWLEDGMENTS

Ecology and Management of the Mourning Dove, by Thomas S. Baskett, Mark W. Sayre, Roy E. Tomlinson, and Ralph E. Mirarchi; *Migratory Shore and Upland Game Bird Management in North America*, edited by Thomas C. Tacha and Clait E. Braun; *Stewardship Wildlife Notes* from North Carolina Extension Service; *Ecology of Overwintering Mourning Dove in Oklahoma*, final report of the Oklahoma Department of Wildlife Conservation and Oklahoma Cooperative Wildlife Research Unit, by John A. Morrison; and *Habitat Management for Mourning Dove in Kansas*, USDA, Soil Conservation Service Publication, were used as a basis for some of the material contained in this publication. When available or different, Oklahoma-based research information was used.

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