



## Wild Turkey

The wild turkey is a shy, permanent resident of Pennsylvania's woods and mountains. Infiltrating a flock of these big birds is no easy feat, and when the hunter or naturalist is finally discovered, he's treated to a spectacle as the flock breaks up. Turkeys flap upward on loud wings, some run full tilt, heads extended on serpentine necks. Others sneak along through the understory. Eventually, quiet returns to the woods. And, with time the first tentative calls of regrouping birds break the silence.

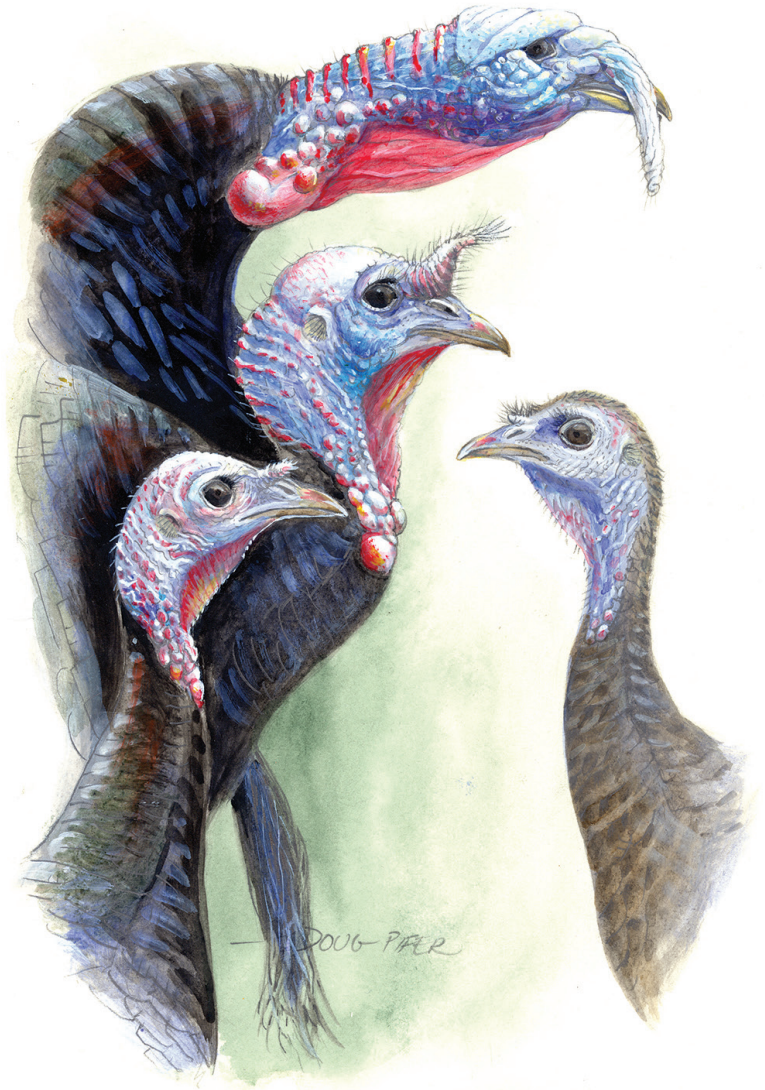
Turkeys have long been important to humans in North America. Native Americans hunted them for food, and some natives even domesticated the big birds. Later, the wild turkey became a steady food source for settlers. It earned a symbolic role as the main course of the Thanksgiving meal, which epitomized the successful harvest. Benjamin Franklin so admired the big bronze bird that he wanted it for our national emblem. Comparing it to the bald eagle, he said: "The turkey is a much more respectable bird, and withal a true original Native of America."

Several theories explain how the bird got its name. Early naturalists might have confused it with a species of Old World guinea fowl found in Turkey. Or the word might describe one of the bird's calls, which sounds a bit like *turk*, *turk*, *turk*. Still a third explanation is that the word sprang from a Native American name for the bird, "firkee."

Whatever the source of its name, the fact remains that this big bird was nearly exterminated by the ax, the plow and the gun.

As our nation grew, settlers cleared wooded habitat for farms. And they shot turkeys for food. By 1800, market hunters were selling the birds for as little as 6 cents each. By the early 1900s — when eastern forests had been lumbered and periodic fires hampered their regeneration — the turkey was in trouble.

Fortunately, here in Pennsylvania, the newly formed Game Commission stepped in. Through seasons and bag limits, the agency succeeded in safeguarding what remained of



the state's once-thriving population, which by that time could be found only in the rugged mountains of the state's southcentral counties. Over time, the agency experimented with ways to return turkeys to the rest of Penn's Woods. Turkey farms were tried. So was placing hen turkeys in holding pens for wild gobblers to breed. But neither enterprise fared well. What turkeys needed was habitat improvements. In the 1950s, as the state's forests began to mature, turkeys began to naturally expand their range. Expansion was furthered through a Game Commission wild turkey trap-and-transfer program that would become a model for every state interested in turkey restoration. Today, after thousands of wild turkeys were transferred

throughout the state, and provided to other states, turkeys are found in every county, and this wily bird has developed quite a following among hunters and naturalists.

## Biology

The wild turkey, native only to the North American continent, belongs to the single and highly variable species *Meleagris gallopavo*. Taxonomists recognize at least five subspecies; the variety found in Pennsylvania is known as the eastern wild turkey. Turkeys are gallinaceous — “chicken-like” — birds (order Galliformes), related to grouse, quail, pheasants and chickens.

Adult males, also called gobblers or toms, stand 2½ to 3 feet tall and are 3 to 4 feet long. Females, or hens, are about one-third shorter and weigh about half as much. Gobblers weigh up to 25 pounds, averaging 16. Adult hens weigh 9 to 10 pounds, and 6-month-old birds, 6 to 13 pounds.

The wild turkey looks much like the domesticated subspecies, except the wild bird is slimmer, has a smaller head, a longer neck, longer, rangier legs, and smaller fleshy head and neck adornments. Tail feathers and tail coverts are tipped chestnut brown on wild birds, white on domesticated ones.

Plumage is an overall rich brown. In shadows, turkeys appear black; in bright sunlight, their feathers gleam with copper, blue, green and mahogany highlights. A hen’s plumage is duller and not quite as iridescent, and her breast feathers end in a brown or buff band, while those of a gobbler are tipped with black.

Gobblers have spurs — sharp, bony spikes on the backs of their legs that are used in fighting — and rough, black “beards,” growths of rudimentary, hair-like feathers called mesofiloplumes, which protrude from their breasts. These

beards grow quickly for their first few years, then more slowly, until they’re about 12 inches long. The ends may break off, though, so beard length isn’t a reliable indicator of age. Usually, hens have neither spurs nor beards.

A gobbler’s head is practically bare, while the hen has fine feathers on the back of its neck and head. A fleshy, pencil-like appendage called a caruncle, or snood, dangles from between the gobbler’s eyes. The heads of hens are bluish-gray, and their necks may appear somewhat pinkish, whereas gobblers’ heads are pink to red. During mating season, a gobbler’s head and neck are more red; during courtship display, his snood may become long and swollen, and the color of his head and neck changes quickly from red to blue, purple and white.

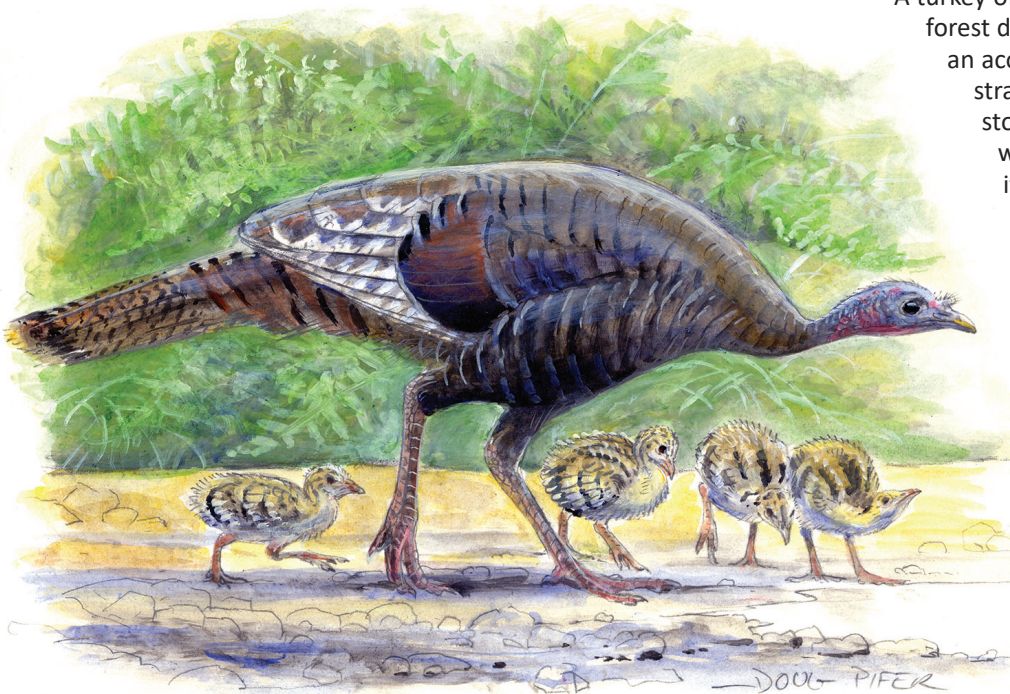
## Food

In spring, turkeys eat tender greens, shoots, tubers, leftover nuts and early insects. As the weather warms up, they eat more insects, including grasshoppers, walking-sticks, beetles, weevils, dragonflies, ants and larvae. They also consume spiders, harvestmen, ticks, millipedes, centipedes, snails and slugs. But even in summer, a majority of the diet (perhaps 90 percent) is vegetable. A wide variety of plant species are eaten, as well as a number of plant parts, including fruits, seeds, seedheads, tubers, roots, bulbs, stems, leaves, flowers and buds.

In fall, turkeys eat mast (beechnuts, acorns); fruits (dogwood, grape, cherry, gum, thornapple); and seeds (grasses and sedges, ash, corn, oats, weeds). During winter, they rely on seeds, nuts and fruits left over from autumn, and on green plants, crustaceans and insect larvae found in and around spring seeps where groundwater emerges along a hillside or in a flat. Temperature of this water is above freezing, so the seeps remain open all winter, providing food for turkeys and other wildlife.

A turkey often scratches for its food, kicking forest duff and leaves behind. If the bird finds an acorn, it picks up the nut in its beak, straightens its neck, and swallows. The nut is stored in the bird’s crop, a flexible “bag” in which juices and body heat work to soften it. Then the nut passes into the gizzard, an enlarged, thick-walled section of the food canal that contains small stones and gravel called grit. Strong muscles use the grit to grind down the acorn.

Turkeys can range up to several miles a day in search of food and water, sometimes establishing regular feeding areas if left undisturbed. In autumn, hunters “read” the turkeys’ scratchings to determine when a flock passed by, what size the flock was, and which way the birds were headed.





## Physical Properties, Behavior

Like most birds, turkeys have keen eyesight and hearing. They hide cleverly, fly an estimated 40 to 55 mph, cover more than a mile while airborne and swim with ease. But turkeys usually rely on their feet to escape danger. The strides of chased gobblers have been measured at 4 feet and their top running speeds are estimated at 18 mph. Tracks vary somewhat by the age of the bird (a young tom, for example, might have a shorter print than an adult hen) but any track larger than 4¼ inches, from the back of the heel pad to the tip of middle toe, was probably made by a male.

Each evening, turkeys fly into trees to spend the night. A flock of six to 40 birds might roost in the same tree or in adjacent trees. They prefer the shelter of conifers during inclement weather. In early morning, the birds glide to the ground, call, and regroup for feeding.

Turkeys make a wide range of sounds. The best known is the male's gobble (described *ill-obble-obble-obble*), used in spring to attract females and proclaim territory. Other calls include yelps (*keouk, keouk, keouk*), made by both sexes; the cluck (*kut*), an assembly note; the whistle, or "kee-kee run" of a young bird (*kee, kee, kee*); and the alarm note (*putt*). Gregarious birds, turkeys call when separated from the flock. By imitating such calls, hunters attract birds.

## Reproduction

Toward the end of March, a male turkey changes physically. His fleshy crown swells and turns pale, his wattles redden and hang from his head, and he develops a thick, spongy breast layer containing oils and fats to help sustain him over breeding season. Toms gobble loudly in early morning and sometimes in late evening. Blowing a car horn, beating a tin pan, or making almost any loud noises might provoke lusty gobblers.

If hens are present, a gobbler will display by fanning his tail, erecting his feathers, and tucking his head back against his body. He will strut back and forth, hissing and dragging his wing tips on the ground. Rival males fight: each grasps the other's head or neck in his bill and tries to shove or pull his foe off balance. The first bird to let go or lose balance gets thrashed with wing and spur.

Year-old birds are sexually mature; hens often mate during their first spring, but young males usually can't compete with mature gobblers. A dominant male may collect a harem of eight to 12, or even more hens. Males are polygamous: a gobbler mates with several hens and plays no part in nest site choice, brooding eggs or rearing young.

In late April, mated females slip away from the flock. They choose nesting spots in wooded or brushy areas, near water sources and usually close to forest clearings or old fields. The nests are leaf-lined depressions in the ground and might be located under the curves of fallen logs, concealed by vegetation or fallen branches or built at the bases of trees.

The gobbler's sperm is stored in the hen's oviduct, so that fertilized eggs can be laid up to four weeks after mating. One mating is usually sufficient to fertilize an entire clutch as well as a re-nesting attempt, if needed. A hen lays an egg nearly every day until her nest contains eight to 15 eggs. Clutches average 12 eggs, but are smaller for younger birds. Hens begin incubating constantly after all eggs are laid.

Eggs are oval and pointed markedly at one end. The smooth, dull shells are colored pale buff and are evenly marked with reddish-brown spots or fine dots. Foxes, bobcats and great horned owls prey on nesting hens; eggs are eaten by the aforementioned predators plus minks, raccoons, opossums, black snakes, skunks, crows, red squirrels and even house cats.

Incubation takes about 28 days. After young hatch, the hen broods them until they're dry and then, if the weather is mild, leads them away from the nest.

## Poults

Young turkeys are called poults. They're covered with a fine, brownish fuzz and even at hatching have a wild turkey's distinctive long neck and legs. Easy game for predators, their main defense is to hide. They scatter and freeze at the hen's warning call, remaining motionless until she sounds the all-clear. A hen might feign injury to lure intruders away from her young.

Poults need high-protein food to grow quickly, and the hen soon leads them to open areas where insects abound. Poults eat beetles, leafhoppers, crickets, other insects and larvae, tender greens and fruits. The hen broods them nightly for at least two weeks, until their wings develop and they can roost in trees. When poults are about 3 weeks old, several family groups might merge to form a flock of hens and poults.

Six-week-old juveniles are fairly strong fliers, and by autumn they're practically self-sufficient. Birds of the year can be identified by their middle tail feathers, which are longer than the others, as these adult feathers have already molted in. In adults, the edge of the fanned tail forms an unbroken curved line.

In autumn, flocks often contain several old hens and their young, and occasionally hens that have not raised broods, for a total of 40 or more birds. Old toms usually remain apart, in pairs or trios. During early winter, family groups disperse and form new flocks by sex and age: hens, young toms and old toms.

Although susceptible to diseases, turkeys are hardy animals. Periodically, a harsh winter might lead to starvation, especially if there is deep, powdery snow, which makes it difficult for birds to become airborne. Disease outbreaks have been verified in the past, but none has had a substantial population impact over large areas. The most common disease to wild turkeys is a virus called avian pox, which is caused by bites from mosquitoes or other blood-feeding arthropods. Another

disease, lymphoproliferative disease virus, or LPDV, first was identified in wild turkeys in North America in 2009. Previously, LPDV was known to affect domestic turkeys in the United Kingdom and the Middle East. LPDV signs include some similar to avian pox, such as brown, crusty lesions on the head. But with LPDV, lesions also are common on the legs and feet.

## Population

In 1900, few turkeys were left in the eastern United States, largely because widespread logging had destroyed their woodland habitat. An estimated 3,500 to 5,000 birds remained in Pennsylvania — a far cry from the large, healthy population that had existed here a century earlier, mainly in southcentral Pennsylvania's oak and American chestnut forests.

Restoration of the species involved several steps. First, refuges were established and new game laws strictly enforced to protect remaining local populations. Half-wild turkeys were bred on the Game Commission's wild turkey farm, beginning in 1930. These birds proved to be nearly useless. As cut-over forests began to regrow, existing wild flocks began to move into new areas on their own. In addition, wild birds were trapped in areas where they were abundant and transferred to suitable, but unoccupied, habitat to speed up the dispersal that was naturally occurring. The superiority of this approach over game-farm turkey releases has been obvious. Today, turkeys are found throughout the state and are abundant in areas where, in the past, continual releases of game-farm turkeys failed to establish even limited self-sustaining populations.

The Game Commission also works to improve turkey habitat, especially brood and winter-range habitat, which tend to be limiting factors for populations. Wild turkeys can be found in every county within Pennsylvania.

What are a turkey's chances of survival, from egg to adult? The following statistics are from *The Wild Turkey — Biology and Management*, edited by James G. Dickson and published in 1992 by Stackpole Books: (a) nesting success of the turkey is 31 to 45 percent, about normal for a ground-nesting species; (b) 53 to 76 percent of poults perish, mostly within two weeks of hatching; (c) life expectancy of a turkey surviving its first two weeks of life is still less than 1½ years, although a few have been known to survive more than 10 years in the wild; (d) annual turkey survival generally ranges from 54 to 62 percent; (e) predation is generally the most common cause of wild turkey mortality; and (f) hunting-related turkey mortality is highly variable, depending largely on varying hunting season regulations, but can range from less than 5 percent to more than 50 percent of all losses.

## Habitat

Turkeys have shown more tolerance for fragmented habitat (woodlots) and human disturbance than previously believed, but they still depend on forested habitats and do best with limited human activity. Habitat diversity — varying habitat types and differing ages — is the key to good turkey habitat.

Turkeys seem to do best with a mix of forested, actively farmed and reverting-farmland habitat types.

A turkey flock uses an extensive area — several thousand acres — during a year to meet its needs, so a small landowner shouldn't expect to maintain a resident flock. However, anyone with forested land can do something to benefit turkeys, especially if neighboring landowners will cooperate.

Trees such as oaks, beech and cherries are most beneficial to turkeys when producing the maximum mast; this occurs when trees are 50 to 100 years old. Landowners can manage their woodlands for saw-timber by conventional even- or uneven-age silvicultural approaches and by "pushing" young hardwood stands to maturity by culling out less-vigorous and non-mast-producing trees. Some woodland cuttings — which aren't economical in terms of timber management — can be made to allow more sunlight to reach grape, dogwood, greenbrier, hawthorn, viburnum and other food-producing understory species. Planting shrubs such as crabapple, serviceberries, high-bush cranberry and Washington hawthorn, or allowing clumps of brush such as blackberries and raspberries to grow will provide abundant and persistent winter foods. Discourage exotics such as Russian olive, autumn olive, and multiflora rose, which tend to overtake native shrubs.

Forest clearings are especially used by hens and poults. Here, sunlight penetrates the tree canopy and allows grasses and forbs to spring up. Increased plant life gives rise to increased insect life, and insects form a key part of a young turkey's diet. Thus, forest openings resulting from cleared timberlands, old logging roads and log landings, power line rights of way and old beaver meadows should be preserved, or planted with a grass-legume mixture if needed. Spring seeps also are important, as they provide insect and vegetable food over winter.

Free water (streams, lakes, ponds, springs, seeps and rainwater in shallow depressions) has never been demonstrated to be lacking for wild turkeys in the eastern United States. Artificial feeding? Turkeys don't generally need it, especially if they live in good habitat. Such feeding might actually pose a hazard by unnaturally concentrating a local population, thus increasing the danger of poaching and disease transmission, and giving predators an unnatural advantage.

Pennsylvanians can be proud of the wild turkey's restoration to this state. With enough concern for meeting all the birds' needs, we can enjoy them well into the future.