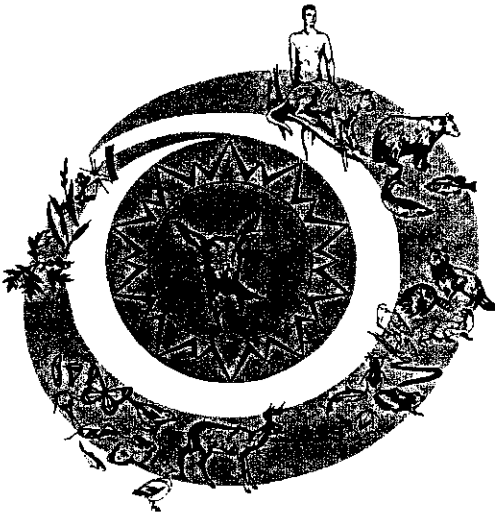


# NEW YORK'S WILDLIFE RESOURCES

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## American Woodcock (*Philohela minor*)

### Description

The woodcock (sometimes called "timberdoodle") is a peculiar-looking bird but has the perfect complement of characteristics for its type of existence. The bird's most striking feature is its 6.4- to 7.1-cm (2.5- to 2.8-in) long beak, which seems too long for its fist-sized body. The slender beak, used to probe the soil for earthworms, is flexible at the tip of the upper bill allowing the woodcock to grasp worms even when the beak is completely buried in the soil. The bird's relatively short legs, tail, and neck give it an overall squat body contour. The size of the bird is 13 cm (5 in) high and 30 cm (12 in) long. The bird's large black eyes are placed high and far back on its relatively large head. This positioning permits good peripheral vision even when the bird is probing for food. The woodcock's wide and rounded wings, spanning 51 cm (20 in) contribute to the maneuverability needed to fly in the thickets it inhabits.

The woodcock's mottled russet upper plumage, flecked with beige and black, provides superb camouflage for the bird as it feeds along the leaf-strewn forest floor. Other characteristic color patterns include: alternating transverse bars of black and beige across the crown of the head, an almost solidly rufous-colored underside from the neck to the rump, and a buff-colored undertail fringed with a band of black feathers, tipped with white.

Males (cocks) and females (hens) generally can be distinguished by the primary wing feathers and bill length. The first primary of the cock has a somewhat "pinched" appearance 2 cm (0.8 in) from the tip, so that with some experience you can distinguish between the sexes by examining this feather.

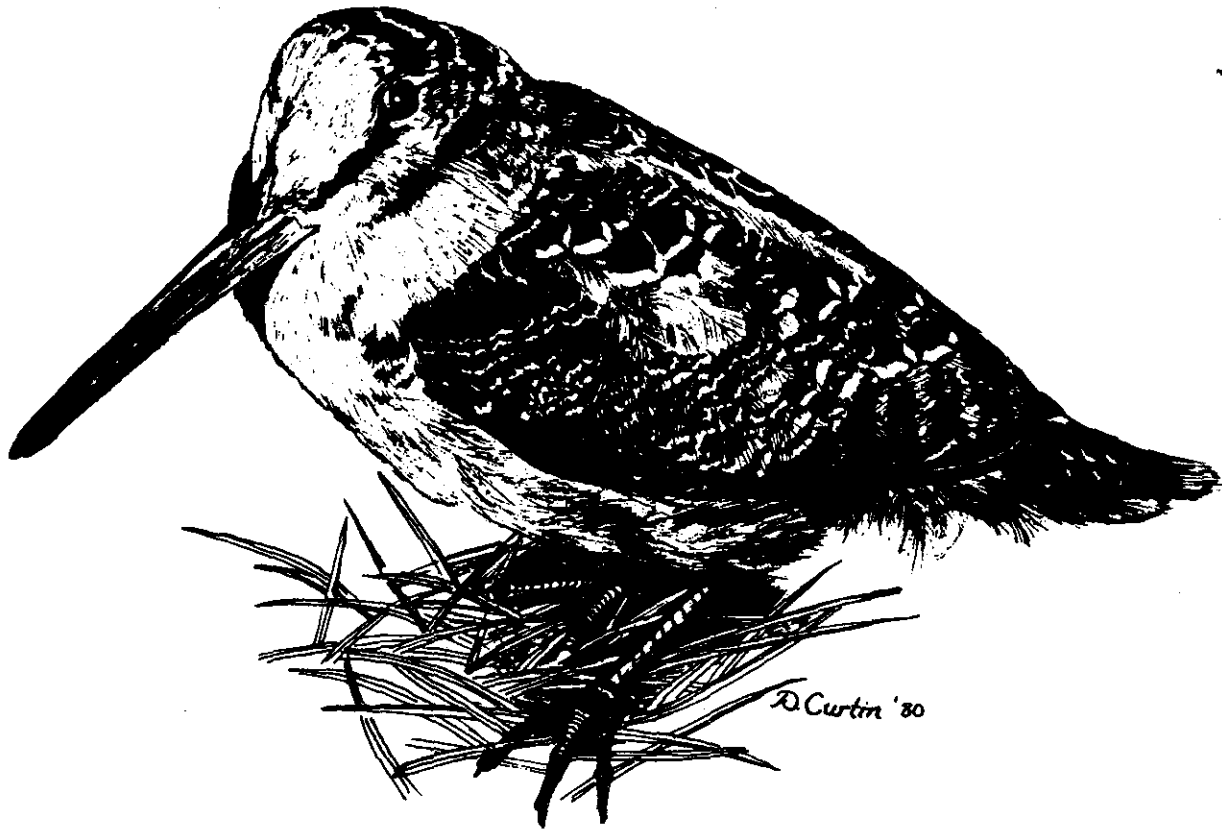
The majority of cocks have bills shorter than 6.7 cm (2.7 in) whereas hens' bills average greater than 6.9 cm (2.8 in) long. Both these criteria should be used when trying to determine the sex of a bird. Also, hens are generally larger than cocks, ranging from 160 to 240 g (5.6 to 8.4 oz) and 125 to 190 g (4.4 to 6.7 oz), respectively. Differences in the size, body configuration, coloration, etc. of the sexes of the same species is called "sexual dimorphism". In woodcock these differences are subtle, but frequently the difference is quite striking in other bird species, such as the ring-necked pheasant.

Young-of-the-year woodcock examined in the fall can be distinguished from adults by the tattered appearance of the tips of the outer three primary wing feathers of young birds. The tips often have a deep "V"-shaped notch at the ends in young birds whereas the tips of adult feathers are square-shaped. Also, the tips of the middle secondary wing feathers of subadults are light-colored, bordered by a dark band. The secondaries of adults are gray tipped, bordered by a light band.

Although the woodcock is found most frequently in forested and cleared upland habitat, it is taxonomically classified within the shore bird family Scolopacidae. Members of this family include the snipe, sandpiper, yellow-legs, willets, godwits, and curlews. Only the common or Wilson's snipe (Capella gallinago), with its long, straight bill and similar-sized body, closely resembles the woodcock. Unlike the woodcock, however, the slimmer snipe has a crown longitudinally striped in white and black, a white belly, distinctive white bands along the back extending from the neck to the tail, and narrow, pointed wings.

## **Distribution and Abundance**

The woodcock is distributed throughout eastern North America. Boundaries of its range extend approximately from eastern Texas north to eastern North Dakota and Manitoba, east across Canada (just south of James Bay), to southern Labrador. Along the eastern seaboard, only the southern half of Florida is not included in the woodcock's range. The northern two-thirds of this migratory bird's range is strictly breeding range. Some broods are raised in the South Atlantic and Gulf States, but the heaviest concentrations of breeding birds occur throughout Minnesota, Michigan, New York, northern New England, Nova Scotia and southern Ontario and Quebec.



Woodcock may have been considerably less abundant in New York before colonial times. Breeding populations need suitable brush habitat and, except for areas affected by natural disturbances (fires, floods, beaver activities, etc.), much of the state before the colonists arrived was probably covered by mature forests. Pioneer farming, including livestock husbandry, contributed greatly to the total habitat available. Some tremendous populations must have been present during the early 1800s in New York; one hunter during that period wrote of typically bagging 70 to 100 birds in an easy day's hunting in Orange County.

Market hunting, subsistence hunting, and nearly unregulated sport hunting had taken their toll on woodcock by the turn of the century to the point where populations were severely reduced. Recognizing the impending fate of the bird, several states enacted stricter laws in the early 1900s and backed them with improved enforcement. The Federal government effectively

ended market hunting with the passage of the Migratory Bird Treaty Act of 1918. The Depression of the 1930s caused the abandonment of thousands of marginal farms throughout the woodcock's breeding range. Much of the farmland was located on poorly drained soils, so when it reverted back to brushland it became ideal nesting habitat. Increased protection and expanding areas of habitat allowed the woodcock population to increase. Today relatively stable, harvestable populations exist throughout this bird's natural range.

Every county in New York State, outside New York City boroughs, supports nesting populations of woodcock. Population densities, however, are greatly influenced by the quantity and quality of habitat. Recently-logged woodland or abandoned farmland frequently are suitable habitats if the soils support earthworms or other invertebrates. Consequently, many areas within the Adirondacks, Catskills, Tug Hill Plateau and the Southern Tier have sizeable breeding populations. Conversely, land that is well drained and actively farmed seldom provides adequate habitat. Little suitable brushland exists along the intensively farmed Lake Plains and Long Island Regions, resulting in relatively low breeding populations.

As migrating woodcock from north of us push southward into the state in the fall, areas that held few woodcock through the nesting season may have rather high densities temporarily. If fall weather remains mild and the migration progresses normally, migrant birds will concentrate in habitat having a sparse understory and a good supply of earthworms. When sudden cold weather systems force the birds southward, woodcock become less choosy and may be found in almost any habitat that provides protective resting cover.

## **Life History**

Depending on spring weather conditions, woodcock may begin their northern migration from wintering areas in mid-February. They arrive in southern and central New York in late March through early April, and in the northern portions of the state by mid-April.

Cocks immediately establish their "singing grounds" where they perform courtship displays, attempting to attract receptive hens. These sites vary in size from about 0.1 ha (0.3 A) to over 0.5 ha (1.3 A). Sites are usually located in fields with scattered pioneer shrub and tree species or in open fields adjacent to woody cover. A requirement of all sites is an open "take-off" strip at least 14 m (45 ft) long that the male needs to initiate his low climb at the beginning of the aerial display.

Courtship displays occur at dawn and dusk on calm, mild days from the time cocks arrive until June. While on the ground the cock struts in tight circles, with feathers fluffed, wings held close to the ground and tail feathers fanned. Approximately every 20-30 seconds he utters a single penetrating nasal "peent" note, immediately preceded by a much softer warblelike sound. After several "peents" and about 5 minutes later the cock flushes into the air, flies low along the take-off strip and then gradually ascends in wide circles. His rapidly beating wings make a high-pitched, almost musical, twittering sound. Finally, when 60 to 90 m (200-300 ft) high, he hovers; then, while emitting a series of liquid, gurgling chirps, he descends in irregular, diving loops to land at or very near his original position.

Hens attracted to the displaying cock are bred at the singing ground. After mating, the cock resumes the displays and the hen leaves the site. The display flights continue for roughly half an hour until the twilight has ended. The cocks are promiscuous and do not assist in any manner with nesting or brood raising.

Hens usually nest within approximately 135 m (450 ft) of the singing ground where she mated. Species composition and age of plant communities surrounding nest sites vary considerably, but most nests are constructed in fairly wooded habitat. Some are situated in open fields or brushland. No



attempt is made to conceal the simple bowl-like structure of twigs and grass stems, commonly located at the base of a tree or shrub. Both the hen and her eggs are ideally camouflaged by their protective coloration.

The clutch usually consists of 4 relatively large eggs averaging 3.8 by 2.9 cm (1.5 by 1.2 in). They are a pinkish-buff to cinnamon color, speckled with shades of brown. Hens are extremely reluctant to leave their nests once they have begun incubating the eggs, and will renest if forced to abandon the first nest. Incubation takes about 21 days with the majority of broods hatching from late April through early May in New York. Hatching success (including renesting) may average 70-75%.

Chicks are very hardy individuals, capable of traveling with the hen and feeding themselves within 2-3 days of hatching. Young woodcock are precocial in that they develop quickly and are only minimally dependent upon parental care. The hen frequently broods the chicks should there be inclement weather for the first few days after hatching. Upon being discovered by a potential predator, the chicks usually will freeze, while the hen feigns injury (commonly a broken wing) and attempts to lead the intruder away from the brood. By the age of 2 weeks the young can escape by flying short distances and at 4 weeks they are nearly full grown. The family disbands 6 to 8 weeks after hatching. Young-of-the-year will breed the following spring.

Through the summer, woodcock are primarily diurnal (active during daylight). They spend daylight hours in pole-sized hardwood, hardwood-conifer, or alder stands. These coverts generally have a dense overstory affording protection from avian (bird) predators, a fairly open ground cover permitting good visibility, and moist, fertile soil supporting earthworms and allowing easy probing by the woodcock. These birds alternately feed and rest during the day, then at dusk they either walk or fly to open fields or forest clearings where they roost on the ground. Once in the opening, the birds remain relatively still until dawn when they return to suitable daytime habitat.

Roosting areas frequently are the same fields used as singing grounds. Adult birds, on the average, move 170 m (560 ft) between diurnal coverts and roosting areas. Immature birds fly from feeding areas more frequently and tend to roost farther out in fields than do adults, averaging 330 m (1090 ft) between day- and night-use areas.

Each woodcock seems to have preferred feeding and roosting sites, but due to seasonal changes in soil moisture and density of ground cover at specific sites, they may frequent several areas during the course of a summer. Preliminary research indicates that adult woodcock occupy a summer range only half the size of ranges occupied by immatures. Mature birds tracked via radio telemetry in a Maine study typically moved 600 m (1980 ft) or less from their capture point, whereas corresponding distances for juveniles averaged about 1400 m (4620 ft).

With the exception of family members, which remain together through early summer, no strong social bonds exist among woodcock, yet they are completely tolerant of others on feeding and roosting grounds. Only displaying cocks exhibit territoriality; they will chase intruding males from singing grounds. Unlike waterfowl which form unified migratory flocks, woodcock usually migrate singly or in loosely banded flocks of only a few birds.

Fall migrations are spurred by the occurrence of freezing weather and snowfall in the northern breeding range and usually coincide with winds from the North. Migrating birds may pass through an area before resident birds are forced into their southward flight. Peak fall migrations commonly extend through late October in New York. Flights take place at night and migrant birds frequently "lay over" for a few days in good habitat, as long as the weather stays mild. By early November the birds generally have passed through New York. Woodcock that nest in New York, along with others that nest east of the Appalachians, winter mainly in the South Atlantic States, whereas woodcock from west of the Appalachians migrate to the Gulf States.

Earthworms are the primary food item of the woodcock (accounting for 68% of its diet), but woodcock will take advantage of other foods as well. Altogether about 90% of this bird's diet is animal matter, including earthworms, insect larvae, slugs, ants, beetles, moths and grubs. Plant items commonly consumed include seeds of sedges, violet, alder, raspberries, blackberries, and ragweed. When food is plentiful, the birds eat about the equivalent of their own weight in food each day.

It is not known exactly how or if woodcock can detect the presence of an earthworm beneath the soil surface. They may smell the worms or perhaps they are able to feel or hear their movement in the soil. The usual feeding pattern consists of scattered probing until a concentration of worms is found, after which the birds are quite successful in "coming-up" with worms.

The relatively low reproductive rate of the woodcock, in view of its apparently stable population, suggests that the survival rates of young and adults must be fairly high. Many bird species lay egg clutches 3 to 4 times the size of the woodcock's or have 2 broods per year as an adaptation to low survival. The average life span of woodcock is about 10.6 months. If the young survive their first summer their life expectancy increases to 1.8 years. Few birds make it to their fourth year.

Normally, no specific mortality factor seriously affects woodcock populations. Adult woodcocks are taken by a few predators such as great horned owls, sharp-shinned hawks, Cooper's hawks, weasels, minks, feral house cats and foxes. Adults are especially vulnerable to predators when roosting, and cocks particularly so during their conspicuous courtship displays. Eggs and chicks are also occasionally preyed upon by raccoons, opossums, skunks, and crows, as well as the other mammalian predators listed above.

Woodcocks commonly harbor a variety of parasites, but even seemingly heavy infestations seldom reduce the vigor of these birds. Internal parasites include tapeworms (cestodes), roundworms (nematodes), and flukes (trematodes). Lice, snails (at wintering grounds) and blood-sucking flies are external parasites. Little is known of the diseases of woodcock, but apparently they are of little consequence to populations.

Adverse weather conditions may be the greatest threat to woodcock survival. Sustained periods of wet and cold weather at hatching time can be hazardous to young chicks. Prolonged freezes on wintering grounds prevent nocturnal feeding activity, causing birds to become emaciated and to die of exposure. Droughts create crowded conditions at remaining feeding sites, often leading to increased predation and the spread of diseases and parasites.

Because woodcock feed on earthworms which tend to concentrate toxic chemicals, the birds may accumulate high concentrations of these residues. Through the 1960s New Brunswick used DDT extensively to help control spruce budworm. Also, the highly toxic pesticides Dieldrin and Mirex have been used for years throughout the birds' wintering range in an attempt to control fire ants. Hunting restrictions were imposed from 1970-1972 in New Brunswick because DDT concentration in woodcock averaged above levels deemed safe for human consumption. Environmental regulations have drastically reduced the use of several pesticides in the past decade in North America. Fortunately woodcock populations do not appear to have been severely affected by pesticide contamination.



Woodcock populations are monitored yearly by the U.S. Fish and Wildlife Service through the use of spring singing-ground surveys (which indicate breeding populations) and fall wing-collection surveys (which indicate harvests). Using this information hunting regulations are adjusted to keep harvest in line with woodcock population trends. Consequently, recreational hunting is not a limiting factor of woodcock populations.

## **Habitat**

Singing-ground habitat typically consists of forest clearings, abandoned logging roads or headers, old fields or gas, oil, or electrical utility right-of-ways. Ideally, grass and perennial ground cover in these areas are of only moderate density. Scattered shrubs, pole-sized trees or even mature trees (if associated with open areas close to 0.4 ha [1 A]) contribute to the desirability of areas for use as singing grounds. These same areas frequently are used as nocturnal roosts. Soil characteristics of the singing grounds are not critical because the birds do not feed there.

Nesting habitat is composed of second-growth, primarily deciduous trees 15 to 30 years old and less than 8 m (26 ft) high. Hedgerows and open fields are used occasionally. Nesting areas should contain adequate numbers of earthworms for hens and broods through the early summer.

Diurnal habitat and nesting habitat during fall migrations generally have a partially closed canopy, providing cool shade and protection from avian predators; fairly sparse ground cover, allowing easy ground travel and probing for worms; and moist, fertile soils, having dense populations of earthworms. Common trees or shrubs found on these sites include: alder, willow, crab apple, aspen, dogwood, birch, and various conifers. Habitats with a mixture of several tree species are preferred over those having little species diversity. Woody vegetation may range from a few centimeters to 10 m (33 ft) high. These areas commonly occur along streams where periodic floods set back natural succession, on old farms reverting to brushland, in old burns, in heavily disturbed or logged sites, and along the edges of swamps or swales.

Once on their winter range, woodcock utilize fertile flood plains covered with brush species such as switch cane, swamp privet, honeysuckle and dogwood. Fallow fields and croplands with much of the vegetation removed are also important feeding areas. Pastures are used for nocturnal roosting.

## Ecological Role

Woodcock are not a major prey of any predator, yet because of their wide distribution through New York, they may be of importance to the general predator population as an alternate prey species. Their probe holes help aerate moist soils that often receive inadequate aeration for optimum plant growth. Woodcock are fairly unique in that they are capable of using a decomposer (earthworms decompose dead vegetation) as a food source.

## Management

Management practices to promote abundant woodcock populations should center around creating and maintaining favorable habitat in both breeding and wintering ranges. Excellent singing-ground habitat consisting of old fields with patches of shrubs and pole-sized trees, such as alder and aspen, is eventually dominated by larger tree species, such as pine and maple. This succession from pioneer species (the first trees to become established in open areas) to climax species (those that eventually dominate a site unless disturbed) is a natural process. The duration of ideal woodcock habitat commonly is 10 to 20 years, depending upon site characteristics. As plant succession reduces the quality and quantity of suitable woodcock habitat at specific sites, the local woodcock population declines.

Plant succession can be slowed or reversed by bulldozing, thinning, mowing, clearcutting, burning, or light livestock grazing. (Heavy livestock grazing could result in a soil compaction problem which would not be beneficial.) The most practical method or combination of methods varies from site to site. Where soil conditions are suitable, scattered stands of alder, dogwood or evergreens may be established by planting seeds or seedlings in large fields or clearings.

The draining of wetlands, channelization of streams, and development of agriculture in bottomlands through the southern states has caused concern because of the resulting decline of prime wintering range. Large-scale softwood production in the south has rendered thousands of hectares of once ideal brushland habitat nearly useless for woodcock and other species of wildlife. Habitat destruction apparently has not yet progressed to the point where woodcock populations are severely affected, but if left unchecked this may someday become a significant problem.

## **Economic and Social Values**

The arrival of woodcock to their nesting range in March is a harbinger of spring and is anxiously awaited by many wildlife enthusiasts. The cock's energetic courtship flights accompanied by his easily recognized "peents" on early spring evenings bring a breath of life to the woodlands after the rigors of winter. Upon locating a singing ground, a careful observer can approach quite close to the strutting site while the cock performs his flight. Witnessing this natural phenomenon is an interesting and enjoyable experience.

Nests or hens with broods are more difficult to observe because they are fairly well dispersed through suitable habitat and are well camouflaged. Congregations of migrating fall birds can usually be found in stands of young alder or aspen, as the birds "leap frog" their way south. Woodcock have a habit of flushing noisily into the air only 2 or 3 meters in front of an approaching person. Evidence of the bird's presence includes droppings (white splashings about the size of a quarter) and a profusion of pencil-sized holes in bare, moist soil where the birds have been probing for worms. Population levels can vary dramatically within feeding coverts on a day-to-day basis.

Woodcock hunting has gained in popularity over the past decade. Well over 0.5 million hunters spend a total of about 3.0 million days afield in pursuit of woodcock each year in the U.S. Hunting pressure is highest in the northern states. Most woodcock are taken incidently as hunters seek ruffed grouse, but the number of woodcock "purists" is growing. These birds hold tight for pointing dogs, yet they present a small, fast-flying target when flushed. Their dark breast meat is superb.

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