



## Ruffed Grouse

The ruffed grouse has been Pennsylvania's official state bird since 1931, and its beauty is admired by hunter and non-hunter alike. Grouse are gallinaceous birds and are related to quail, turkeys, pheasants and ptarmigan. The ruffed grouse is found throughout much of the northern part of North America in areas of suitable habitat. Wherever brushy conditions can be found in a wooded landscape, there is a good possibility the 'king of the gamebirds' can be found.

### Biology

The weight of a grouse is about 1 ½ pounds, their body length is 15 ½ to 19 inches, and their wingspread is 22 to 25 inches. The bird's plumage is rich brown sprinkled with white and black above, and white with horizontal dark brown bars on the breast and undersides. The tail is brown and has a wide, black band between two narrower grayish bands. The name "ruffed" comes from a ruff of iridescent black feathers that almost completely encircles the neck. Two interesting color phases occur. Gray phase or "silver tailed" birds have gray in place of brown in the tail; "red ruffs" have rust-colored feathers with a chocolate brown— rather than black—tail band.

Males (cocks) differ from females (hens) in several ways. Males weigh a little more than females, and they have more prominent ruffs which are erected during courtship display. The hen has a shorter tail, and her black tail band is generally broken in the center, while the cock's band is usually continuous. Adult grouse molt once each year from July into September. During this time, grouse may be hard to find as they seek thick protective cover. Flight feathers are replaced gradually in order to maintain flight, though the long tail feathers may be dropped all at once.



Grouse are found throughout Pennsylvania in suitable habitat and are year-round residents. Adults in good habitat rarely range more than a few hundred yards a day unless pressed by predators or hunters; in fact, the same bird may be flushed from the same area in the woods several days in a row. Poor habitat forces grouse to range further afield in search of food, which increases their predation risk.

Grouse eat many types of food. In the summer, they consume insects (which are rich in protein), blackberries, blueberries and other wild fruits. In fall, when insects are scarce, they feed almost exclusively on acorns, beechnuts, cherries, wild grapes, crabapples, hawthorn and dogwood fruits, and various buds and leaves. Buds form the basis of the grouse's winter diet: aspen, birch, beech, maple, cherry and apple buds are favored. Throughout winter and early spring, ferns, green leaves and other evergreen food are eaten until other foods become plentiful. Grouse do well in areas without visible water sources, obtaining moisture from their diet.

Like most birds, grouse have keen eyesight and hearing. At one time, they were not nearly as wary as they are today; early settlers killed them with sticks and stones. Today you may surprise a grouse bathing in the dust on a back road, in a sandy spot of earth, or in the debris around a rotting stump. Dust bathing may stimulate feather growth in young grouse, maintain adult plumage or rid birds of external parasites.

Grouse shelter beneath conifers during stormy weather and roost in conifers and hardwoods. They may spend winter nights in a 'snow roost' hidden beneath the surface, sometimes flying directly into a soft snowbank at dusk. Grouse are usually loners, although groups of birds are sometimes found together in the fall and winter. In winter, grouse feet develop a comb-like fringe along the edge of each toe that give them snowshoe-like properties.

Grouse walk more than they fly. Although a grouse flush is thunderous and powerful, they cannot fly long distances. Top flight speed is 20-35 mph. After this rapid take-off, it then locks its wings and glides to safer territory, usually traveling less than 100 yards. During mating season--March and April--male grouse attract females by drumming. With tail fanned, the male stands on a large, prominent log or rock and beats the air sharply with his wings. The rush of air created by his wingbeats sounds much like drumming. The drumming starts slowly and increases in speed, until the individual thudding

beats merge into a fast, steady whirl. Males also fight and display for females; displaying males fan their tails, erect their ruffs to encircle their heads, then hiss and drag their wingtips along the ground.

A mated hen picks a secluded nesting site, usually at the base of a tree or under a bush, and lays 6-16 white or buff eggs in a leaf-lined depression in the ground. The hen may re-nest if nest destruction occurs. The incubation period is approximately 24 days. The male does not help the female incubate eggs or brood young.

Chicks are precocial and the hen will usually lead them away from the nest within 24 hours of hatching. Chicks develop rapidly. Within their first week, chicks are capable of low buzzy flight. At three weeks, they can fly well. By autumn they look and act like adults. In early fall, birds of the year may exhibit a strange period of restlessness known as the "fall shuffle" or "crazy flight." During this time, young grouse take off in undirected flight and may be killed when they crash into trees, fences, windows and walls. The fall shuffle may serve to scatter broods and disperse the population. Juvenile mortality is high. Studies indicate more than three quarters of all chicks die within 35 days of hatching – the majority die from predation or exposure within the first week. Among adults, annual survival is roughly 50 percent, and relatively few live to be two years of age.



## Population

Many factors affect the size of the ruffed grouse population, including winter food supply and spring weather conditions. A cold, wet spring following a winter with limited hard mast supplies can result in lower numbers of successful hatches. Female grouse body condition in the spring may suffer during years with limited hard mast, and chick survival is low during periods of cold, drenching rains. Grouse can contract a variety of diseases and parasites which may kill or weaken them. Predation is the most significant mortality factor for adult ruffed grouse. Grouse are vulnerable to both avian and mammal predators. Providing high-quality habitat is one way that managers strive to limit the effects of grouse mortality factors.

Hunters harvest only what biologists term “surplus” grouse, birds that would die of other causes before the next breeding season. Recent studies indicate that hunters can safely harvest 20-30 percent of birds present at the beginning of hunting season without endangering the next year’s breeding stock. Season and bag limits are managed to ensure that over-harvest does not occur.

## Habitat

Habitat is the most important factor affecting the size of Pennsylvania’s grouse population. In the early 1900s, much of Pennsylvania provided excellent grouse habitat in brushy, recently-logged forest areas. Since then, our rapidly maturing forests and large deer herd have combined to reduce forest undergrowth, or grouse cover. High deer numbers can influence grouse habitat when heavy browsing reduces low growth and prevents shrubs and trees from developing on the forest floor. Managing deer numbers in balance with forest habitat benefits grouse and many other species by allowing a thick and diverse understory to develop.

Grouse are shy birds that do not adapt well to civilization. Their range in Pennsylvania shrunk as forests were converted to other uses, and large forest parcels have been broken into smaller pieces. Populations are highest in regions that remain largely forested. Private forestlands are extremely important to future efforts to recover grouse populations, since more than 75 percent of Pennsylvania is privately owned. Much of the timber on these lands is 100 years old or greater and is now economically valuable. The sale of timber can create young forest habitats, which are critical habitats largely missing from Pennsylvania’s landscape. At the same time, the sale of timber can finance further improvements in wildlife habitat such as native shrub planting, deer fencing, liming and fertilizing.

