RUFFED GROUSE - BONASA UMBELLUS

Taxonomy: Kingdom: Animalia Phylum: Chordata Class: Aves Order: Galliformes Family: Phasianidae Genus: Bonasa Species: B. umbellus

Habitat:

Biomes: Mixed-age groves of aspen, spruce, and birch make ideal habitat for Ruffed Grouse in the northern part of their range. Farther south, grouse inhabit deciduous forests of oaks, hickories, and pines, while in the Pacific Northwest you can find them in riparian habitats. Because young stands of trees are important for both cover and food, grouse populations are higher in areas where logging, burning, and other disturbance create early-successional forests. Populations of Ruffed Grouse are lower in mature forests and in small patches of woods surrounded by agricultural lands.

Flight Ceiling: Flight is used as a last ditched effort to hide from predators.

Distribution:

In US: Populations in Newfoundland, Nevada, and other areas were introduced; those in Arkansas, Kansas, Illinois, and Missouri were restored.

In Other Countries: NONE

Holistic Description: The dappled, grayish or reddish Ruffed Grouse is hard to see, but its “drumming on air” display is a fixture of many spring forests. It can come as a surprise to learn this distant sound, like an engine trying to start, comes from a bird at all. This plump grouse has a cocky crest and a tail marked by a broad, dark band near the tip. Displaying males expose a rich black ruff of neck feathers, giving them their name.

Species Richness: 15 subspecies

Evolution and Systematics:

Evolution: Fossils from Pleistocene found in caves in Pennsylvania, Maryland, Tennessee, California, and possibly Arkansas

Systematics: About 15 subspecies recognized (Aldrich and Friedmann 1943, American Ornithologists' Union 1957, Hubbard and Banks 1970, Godfrey 1986, Ouellet 1990). Distinction of subspecies based on somewhat subjective assessment of overall coloration, prominence and color of barring on underparts, and extent of tarsal feathering. One or the other morph (gray or brown) often predominates within a subspecies, and sometimes only 1 morph found in a particular race. Individual variation as well as broad areas of intergradation between named forms makes precise boundaries difficult to define. Introduction of races from different regions in some areas may have obscured past differences.

Number of Species: CHECK SPECIES RICHNESS AND SYSTEMATICS

Number of Genera: CHECK SPECIES RICHNESS AND SYSTEMATICS

Physical Characteristics:

Size and Length: Length: 15.8-19.7 in (40-50 cm) Weight: 15.9-26.5 oz (450-750 g)

Wingspan: 19.7-25.2 in (50-64 cm)

Coloration: Ruffed Grouse are intricately patterned with dark bars and spots on either a reddish-brown or grayish background. Dark bars down the side of the neck continue and widen on the belly. The tail is finely barred, with one wide, black band near the tip.

General Body Features: Medium-sized game bird with short crest. A well-camouflaged bird with intricately barred and spotted plumage. Individuals can be grayish brown overall, reddish brown, or an intermediate tawny brown.

Special Features of the Body: The coloring of the grey morph ruffed grouse blends in extremely well with its habitat, especially in the winter when their surroundings are covered in snow. The coloring of the red morph also tends to blend in to its surroundings well, as it tends to reside in hardwood forests which tend to have a variety of red leaves. This adaptation is useful for protection from predators.

Special Features of the Head and Sensory Organs: A grouse, in cold weather, develops special feathers that extend down its beak, covering its nostrils, allowing the bird to breathe in warmer air. Ruffed grouse also have feathers partially covering and insulating their legs.

Dentition: Beak and Gizzard, check DIET

Special Features of the Limbs and Digits: The toes of the ruffed grouse gain little projection-like extensions on their toes in the winter, and researchers believe that this helps them walk in the snow, like snowshoes. They also have feather-covered legs, unlike most birds, to protect them from harsh winters.

Any Special Internal Anatomy: NONE

Sexual Dimorphisms: While the males have a tail band that is unbroken with each of the rump feathers containing multiple white dots, the females mostly have a broken tail band with a single dot on the rump feathers. Also, the black tuft of feathers

on their neck is distinctively larger in the males. The male of the species has eye comb that is typically a red or orange color patch above the eye, whereas the females have either a very faint eye comb, or it is not present at all.
Differences Between Juvenile Stage and Adult: Juveniles similar to female, but lack dark subterminal band on tail, and head plainer and less distinctly marked

Behavior:

Diurnal, Nocturnal, or Crepuscular: Diurnal
Activity: Most active near sunrise and sunset. Females seldom active at night. During incubation, hens usually leave nest only 2 or 3 times/d, for an average of only 4% of day. Males in spring especially active around sunrise but often drum on moonlit nights. In winter in Minnesota, Ruffed Grouse foraged for 2 brief periods at dawn and dusk, each averaging <15 min, and roosted much of the remaining day in deep snow. In winter in Virginia, Ruffed Grouse were active 40-60% of the day (>5 h) and did not demonstrate strong crepuscular activity.
AND
Thanks to their cryptic coloration and slow, deliberate movements, Ruffed Grouse can be difficult to spot as they forage on the forest floor or walk along the low branches of trees and shrubs to pluck berries and buds. The grouse's habit of burying itself in soft snow to roost can lead to surprising encounters for snowshoers or skiers when the birds erupt from beneath the surface. When displaying for females or defending territory, the male grouse stands atop a log, rock, or low dirt mound with crest, ruff and tail erect, puffing up to nearly double its normal size and beating its wings to create a rapid-fire drumming sound. A drumming male will often trigger a response in a nearby male defending its own territory. Following the elaborate display, mating lasts only a few seconds—females then go on their way to build a nest at the base of a tree or rock and raise the young on their own. Although Ruffed Grouse are normally solitary, small groups of unrelated birds may form in fall or winter to take advantage of productive feeding spots.
Locomotion: Generally walks on ground, especially when feeding in spring and summer. Walks on branches of shrubs and trees to forage for berries and buds, especially aspen buds in winter and spring. Capable of rapid acceleration in early flight, but seldom flies >200 m. Maximum flight distance measured at <600 m (n = 12) over water. Speed measured at 14-30 km/h.
Communication and Perception: Ruffed Grouse are mostly quiet, but they do make sounds. Female calls include a nasal squeal or hiss-like alarm call, and a pete-pete-peta-peta call made before flushing. They quiet chicks with a scolding call and emit a low, cooing hum to gather their brood. Male calls include a hiss note, a queet call prior to flushing, and a whining call triggered by females or other males near the drumming site.
Home Range: NO INFORMATION
Degree of Sociality: Mainly solitary but may form loose aggregations in fall and winter. Broods begin to disperse in early Sep. Aggregations after Sep usually not broods. Aggregation size increases through Dec, decreases until Mar or Apr. Solitary in breeding season. Aggregations usually small (2-10) but larger groups observed. USUALLY MOSTLY ONE GENDER.
Level of Aggression: Agonistic displays among males common in spring, sometimes in late summer-early fall; spreading of ruff and tail accompanied by strutting, hissing, and rotary shakes of head; sometimes followed by chasing on ground. Fights rarely observed in wild, but common in captivity. Fighting Ruffed Grouse holds feathers close to body, tail folded and dropped, head and neck lowered and outstretched. May attempt to peck opponent. Sometimes both individuals stand erect, peck, and claw opponent; may beat each other with wings. Males often challenge other males on adjacent territories by drumming immediately (<30 s) after sounds produced by neighbor. May imitate drumming sequence of neighbor. Sometimes neighboring males will move to alternate drumming sites within their territories to be closer to a challenger.
Migration: Permanent resident throughout range. No migration, but seasonal differences in movements, home range, and habitat use occur.

Predators:

Predators: Eggs: Weasels, mink, skunks, fishers, red foxes, raccoons, american crows, common ravens, black racer, and black rat snakes. Chicks and Adults: Taken by previously mentioned predators, gray foxes, coyotes, lynx, bobcats, broad-winged hawks, northern harriers, northern goshawks, great horned owls, barred owls, red-tailed hawks, cooper's hawks, and sharp-shinned hawks.
Anti-Predator Defenses: Adult without chick responds to predators by remaining motionless or by running or flying to thick shrubs or sapling cover. Hen in late incubation sometimes feigns broken wing when mammalian predators approach nest. Hen defends flightless chicks by fanning tail and ruff, hissing, squealing, and sometimes rushing predators. Hen with brood may also use broken-wing display. Chicks >5-7 d of age run or fly with hen; may fly and perch in trees or shrubs to avoid mammalian predators. Chicks <10 d of age often hide under leaves, sticks, exposed tree roots, or other cover until predator departs.

Diet and Nutrition:

Adult Diet: Ruffed Grouse feed almost exclusively on vegetation, including leaves, buds, and fruits of ferns, shrubs, and woody plants. In fall, soft fruits and acorns become an important part of the diet. Ruffed Grouse's ability to digest foods high in cellulose make it possible for them to survive harsh winter conditions in the northern part of their range, where they feed on buds and twigs of aspen, birch, and willow. In winter, birds in the south forage on leaves and fruit of greenbrier, mountain laurel, Christmas fern, and other green plants. Although insects and other invertebrates make up only a small part of the adult grouse's diet, chicks 2 to 4 weeks old depend on this protein-rich prey.
Juvenile Diet: Insects and other invertebrates important to growing chicks; also eaten by adults.
Special Adaptations for Getting Prey: Exceptionally long cecum may enhance total crude fiber digestion by accepting voluminous quantities of food.

Reproduction:

Mode of Reproduction: Monogamous
Mating System: Males restricted to small, dispersed territories; visited by females during breeding season. Males may fertilize >1 female, and females may visit >1 male. Variable percent of males (0-38%, mostly juveniles; DHR) do not drum. Sex ratio near 1:1 in spring. Apparently all hens begin nesting as yearlings.
Mating Season: Early-April to Late-May
Courtship: NONE
Territoriality: NONE
Mating: NONE
Nesting: After mating, female Ruffed Grouse choose a nest site at the base of a tree, stump, or rock in areas with sparse ground cover that give a clear view of predators. Nests may also be built in brush piles, or in the bases of partially open, hollowed-out stumps. The Ruffed Grouse's nest is a simple, hollowed-out depression in leaves on the forest floor, reaching up to 6 inches across and 3 inches deep. Females build the bowl-shaped nest and typically line the bowl with vegetation that they pluck from the edge of the nest site.
Egg-Laying: Clutch Size: 9-14 eggs Egg Length: 1.5-1.6 in (3.78-4.14 cm) Egg Width: 1.1-1.2 in (2.9-3 cm) Incubation Period: 23-24 days Egg Description: Eggs are milky to cinnamon buff sometimes spotted with reddish or brown.
Hatching and Incubation/Gestation: Precocial; chicks hatch covered in sandy to brown down with a triangular patch of black feathers around the ears. Chicks can walk and feed themselves within 24 hours of hatching.
Development: NONE
Parental Care: Hen escorts brood for first 12 wk posthatch until brood break-up and dispersal occur in September. Hen broods chicks at night and during periods of cold or wet weather for first 3 wk post hatch until chicks can thermoregulate. In first 2–3 wk after hatching, hen protects brood from predators by rushing at intruder with crest and ruffs erected and wings spread or by feigning a broken wing to lead predators away from the concealed brood. Males not involved in care of brood, but rare sightings of adult males with broods have occurred..
Lifespan: Although it is thought that individual birds may live for as long as 11 years, the average life span for Ruffed Grouse is far less, and few birds make it beyond 7 or 8 years of age.

Conservation:

Official Federal Status: Least Concern
Special Statuses in Individual States: NONE
Threats: Ruffed Grouse are fairly common and widespread. Their populations may have declined between 1966 and 2014, according to the North American Breeding Bird Survey. Partners in Flight estimates the global breeding population at 18 million, with 14% living in the U.S. and 86% in Canada. The species rates a 10 on the Continental Concern Score. Ruffed Grouse is listed as a Common Bird in Steep Decline by Partners in Flight, but is not on the 2014 State of the Birds Watch List. The grouse's immense popularity as a game bird has led to controls on season length, bag limits, and area closures, as well as to extensive efforts to improve habitat through management practices that encourage early successional forest. The Ruffed Grouse Society partners with government agencies in programs to expand grouse habitat through land purchases and targeted management. Habitat for Ruffed Grouse has declined where forests have matured due to fire control and limits on logging. Pesticide use can affect insect populations that chicks rely on.
Conservation Efforts: ^^^^^^

Extra Facts:

1. The early conservationist Aldo Leopold wrote of the Ruffed Grouse, "The autumn landscape in the north woods is the land, plus a red maple, plus a Ruffed Grouse. In terms of conventional physics, the grouse represents only a millionth of either the mass or the energy of an acre yet subtract the grouse and the whole thing is dead."

2. Ruffed Grouse can digest bitter, often toxic plants that many birds can't handle. Levels of defensive plant compounds in buds of quaking aspen, a major winter-time food source for Ruffed Grouse, reflect the cyclic rise and fall of grouse populations: they're lowest when grouse densities are increasing, and highest when grouse densities decline.
3. Ruffed Grouse can consume and digest large volumes of fibrous vegetation thanks to extra-long, paired pouches at the junction of the small and large intestines. In the northern part of their range, Ruffed Grouse depend on snow as a wintertime roost, burying themselves at night in soft drifts that provide insulating cover. Birds in the south seek out dense stands of conifers that offer protection from chilling winds.
4. Ruffed Grouse's popularity as a game bird led to some of North America's earliest game management efforts: New York had a closed season (no hunting in part of the year) on Ruffed Grouse starting in 1708.
5. The toes of Ruffed Grouse grow projections off their sides in winter, making them look like combs. The projections are believed to act as snowshoes to help the grouse walk across snow.
6. In much of their range, Ruffed Grouse populations go through 8-to-11-year cycles of increasing and decreasing numbers. Their cycles can be attributed to the snowshoe hare cycle. When hare populations are high, predator populations increase too. When the hare numbers go down, the predators must find alternate prey and turn to grouse, decreasing their numbers.
7. Ruffed Grouse nests are occasionally parasitized by Ring-necked Pheasants or Wild Turkeys that lay eggs in the nests.
8. The male Ruffed Grouse's signature drumming display doesn't involve drumming on anything but air. As the bird quickly rotates its wings forward and backward, air rushes in beneath the wings creating a miniature vacuum that generates a deep, thumping sound wave that carries up to a quarter of a mile.

Notable Species:

1. B. u. yukonensis Grinnell, 1916
2. B. u. umbelloides (Douglas, 1829)
3. B. u. labradorensis Ouellet, 1991
4. B. u. castanea Aldrich & Friedmann, 1943
5. B. u. affinis Aldrich & Friedmann, 1943
6. B. u. obscura Todd, 1947
7. B. u. sabini (Douglas, 1829)
8. B. u. brunnescens Conover, 1935
9. B. u. togata (Linnaeus, 1766)
10. B. u. mediana Todd, 1940
11. B. u. phaios Aldrich & Friedmann, 1943
12. B. u. incana Aldrich & Friedmann, 1943
13. B. u. monticola Todd, 1940
14. B. u. umbellus (Linnaeus, 1766)