

# Forest Grouse in the Fall

## Improving Your Forest Grouse Hunting Skills

EXTENSION   
UtahStateUniversity

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**Figure 2.** Female dusky grouse with a rump-mounted GPS-radio, which collects up to 6 locations per day and transfers data remotely through a satellite system. Notice the mottling in the feathers that differs from males.

hunting regulations. Currently, the hunting season is September 1st through December 31st, with an aggregate daily bag limit of four birds.

Both species have a typical chicken-like body shape, are drab brown and gray camouflage in coloring, with fanned tails. However, when looking more closely at their appearance the differences are noticeable. Even more distinctive are their life histories, the habitat they use, and their movement patterns.

### SPECIES DIFFERENCES

**Appearance:** Dusky grouse ('duskies') are named for their dark dusky gray coloring (Figure 1). Dusky are chicken-sized birds weighing up to three pounds and measuring up to 20 inches in length. Male and females are distinctive from each other with males being considerably larger than females, and have comparatively more slate gray coloring (Figures 1, 2). Dusky

Utah has two types of forest grouse that inhabit our mountain forests and rangelands; namely ruffed grouse (*Bonasa umbellus*) and dusky grouse (*Dendragapus obscurus*), also referred to in combination as forest grouse. Ruffed grouse are more closely related to other forest grouse species, such as spruce grouse (*Falci pennis canadensis*), while dusky grouse, previously known as blue grouse or in more layman terms - pine hens, are more closely related to sharp-tailed grouse (*Tympanuchus phasianellus*) and sage-grouse (*Centrocercus spp.*).

In Utah, forest grouse are managed by the Utah Division of Wildlife Resources (UDWR) and have an annual hunting season with combined



**Figure 1.** Male dusky grouse in Utah in full breeding display. Notice the distinct wide lighter gray tail band, the ruby red airsacs and the brightly colored eye combs, typical of a dusky grouse. Photo credit: Skyler Farnsworth

grouse tail feathers are black except for the tips, which have a lighter gray color, appearing as a wide band when the tail is fanned (Figure 1).

Ruffed grouse get their name from a group of black feathers on the sides of their neck (Figure 3). Ruffed grouse weigh about 1.5 lbs. and males and females are very similar in appearance with negligible size differences. Ruffed grouse have overall color-phases of gray, red, or brown. In Utah, the most common color phases for ruffed grouse tend to be gray and red (Figure 3). Ruffed grouse tail feathers are the same color as their body, but have a dark black band near the end (Figure 3).

**Breeding:** Ruffed grouse male breeding display behavior consists of standing in place on a log or raised feature and moving their wings through the air creating a progressively more rapid thumping noise termed "drumming" (Figure 3). During this time ruffed grouse males seek out and defend territories a few acres in size.

In contrast, dusky grouse male breeding displays consist of hooting sounds amplified by air sacs on the sides of their neck while fanning their tail and showing colorful eye combs (Figure 1). Dusky males also defend a display territory, but only a few square feet in size. In some areas dusky grouse have loose associations (e.g., within 30 to > 100 yards) with other males resembling an expanded lek (i.e., a display area where multiple males gather in close proximity).



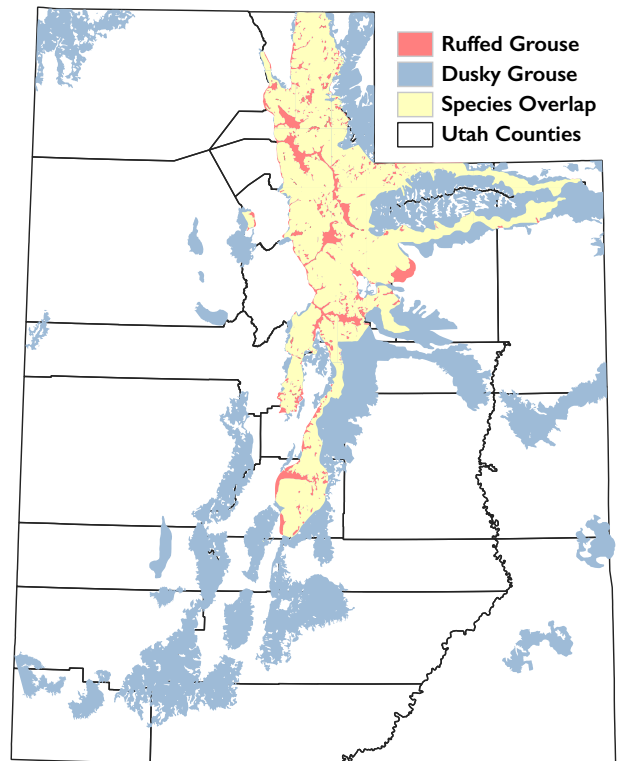
**Figure 3.** Male ruffed grouse in breeding display (top) and drumming (bottom). Notice the ruffs on the side of the neck (top) and the dark tail band (top and bottom). The color phase of each individual is evident with red (top) and gray (bottom) phases. The color phase is seen in the dominant color of the tail feathers below the band. Photos courtesy of the Michigan Department of Natural Resources.

**Survival and Reproduction:** On average, duskies have higher survival (40% to 75% annually) and longer life-spans, while ruffed grouse have lower survival (averaging 34% annually) and shorter life spans. Similar to ruffed grouse, female duskies nest in late spring and early summer, however, duskies have relatively small clutch sizes averaging only 6 to 7 eggs, while ruffed grouse average 11 or more per nest.

Broods (i.e., a female and chicks) of both species stay together until September or so, when they begin to mix with the rest of the population. In the fall and early winter, duskies tend to congregate into larger groups of birds similar to other prairie grouse, while ruffed grouse tend to disperse singly and spread out into available habitat.

**Other Differences:** As with all grouse species, chick diets begin with a high proportion of insects, but they shift to more plant matter, although invertebrates can be important food sources for adults during the summer and early fall. As fall approaches, berries become important for both forest grouse species. However, once winter hits both species turn to a singular dietary focus, with dusky grouse eating chiefly pine and fir needles and ruffed grouse in Utah primarily consuming aspen buds.

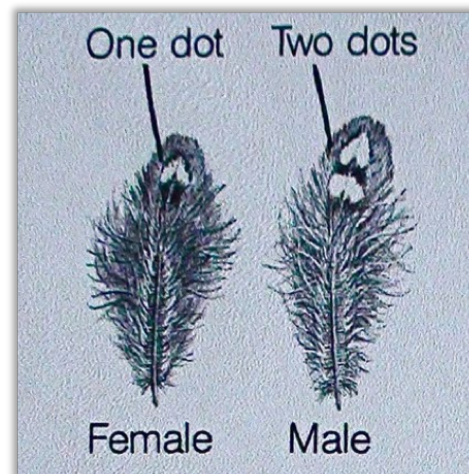
Both forest grouse species are year-round residents, inhabiting most of the mountain landscapes in Utah (Figure 4). However,



**Figure 4.** Distribution of ruffed and dusky grouse in Utah. Data downloaded from Utah Division of Wildlife Resources GIS database (<https://dwrcdc.nr.utah.gov/ucdcl/DownloadGIS/disclaim.htm>).

ruffed grouse tend to have relatively small home ranges (< 100 ac) and seek out specific habitat structure with high stem densities, usually in aspen or some mix of aspen, maple, mountain shrubs, and conifers.

Dusky grouse have much larger home ranges than ruffed grouse on the order of square miles, similar to other prairie grouse, where they engage in seasonal migrations between breeding, brooding, and wintering areas. In essence, dusky grouse may be thought of as the prairie grouse of the mountains.



**Figure 5.** Ruffed grouse upper tail coverts. One dot means female and two dots mean the bird is a male. This is the most reliable method for determining gender for ruffed grouse. Photo taken from Craven and Destafano (2014).



**Figure 7. Habitat types within the Bear River Mountains, Utah.**

**Bird in Hand** – So, you have a forest grouse in hand, now what? Hopefully the above information has helped you determine the species you are holding. But what about the gender and age?

**Ruffed Grouse Gender:** The easiest way to tell the difference between male and female ruffed grouse is to look at feathers on the lower back just above the base of the tail - called the upper tail coverts. If the upper tail coverts have one white dot, you have a female and if the feathers have two white dots, it is a male (Figure 5). Do not rely on the common misconception that females have an incomplete tail band and males have a complete tail band; this is incorrect more than 25% of the time.

**Dusky Grouse Gender:** For dusky grouse, adult males are much larger and appear almost completely slate gray with little camouflage coloring; while females appear more camouflaged with browns, light tans, and dark grays (Figures 1, 2). One of the best ways to tell gender for dusky grouse, even for very young chicks, is to run your finger up the side of the neck going against the “grain” of the feathers. If you see a white “flash” you are holding a male and if the flash is gray, a female (Figure 6).

**Age:** For all grouse species the annual replacement, or molting, of flight feathers happens during the early fall each year. Flight feathers are the longest and stiffest feathers on the wing and can be grouped as primaries and secondaries. Grouse have ten primary feathers, which are the flight feathers located farthest from the body. The secondaries are the slightly shorter set of flight feathers located closest to the body. The replacement of primaries occurs in a specific order, starting at primary 1 (P1), the closest to the body and moves progressively to the outermost primary 10 (P10) (Figure 6).

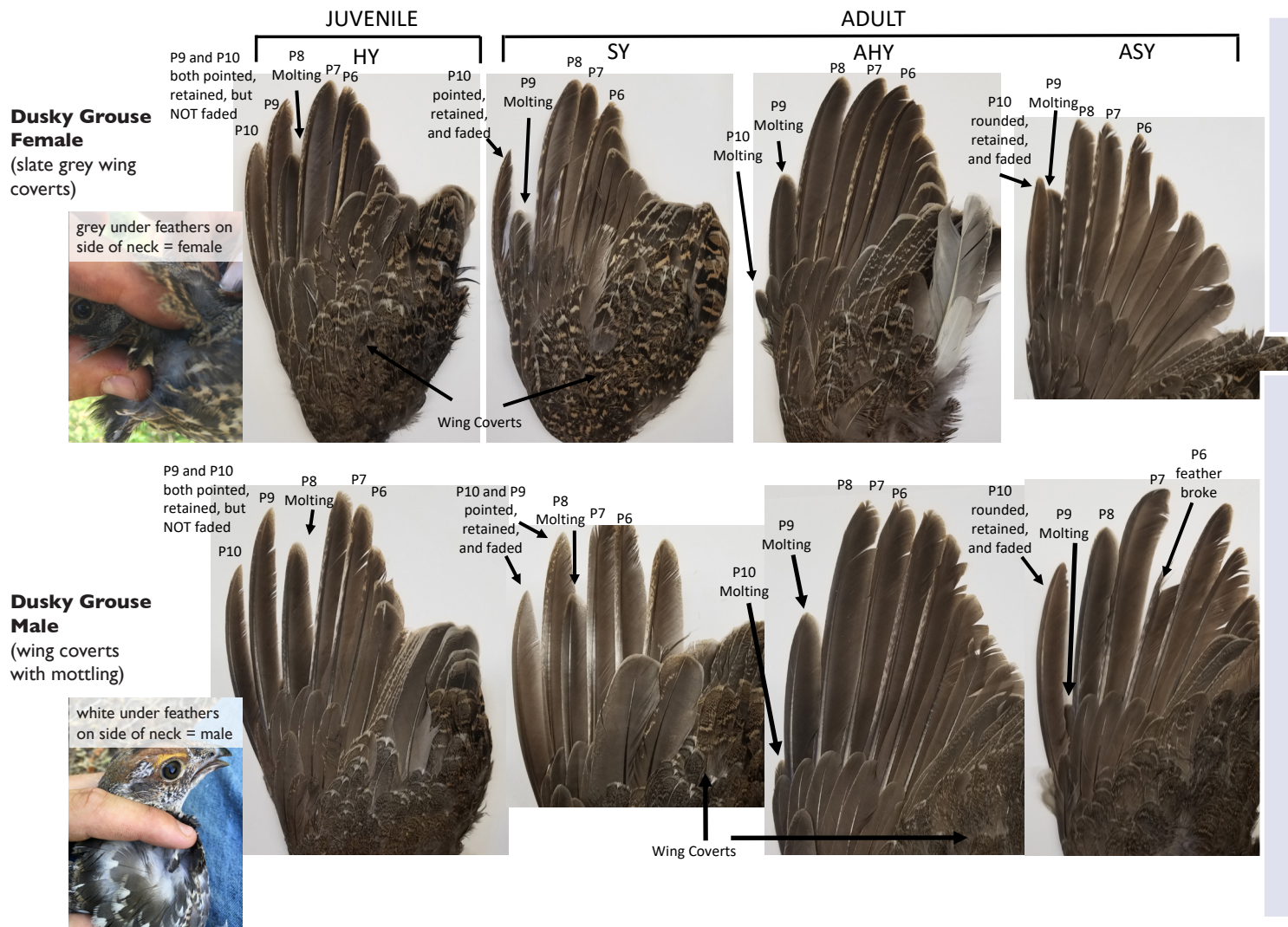
Age classes consist of juveniles (i.e., grouse that hatched just a few months before hunting season) and adults (i.e., grouse that hatched  $\geq 1$  year prior to the current hunting season and can

reproduce). Juvenile primaries are pointed and then become rounded after their first replacement. Grouse tend to not replace their outer two primaries (i.e., P9 and P10) during their first fall molt as juveniles, but replace them during their second molt; i.e., the second fall after hatch. This molting pattern allows us to determine the age of the bird (Figure 6).

**Dusky Grouse Fall Habitat Analysis** – We conducted research on forest grouse in the Bear River Range near Logan, UT, from 2015 to 2017. One of our objectives was to use the information we gathered from radio-marked grouse (Figure 2) to better inform hunters and increase their probability of success when pursuing forest grouse.

To accomplish this, we looked at all of the locations we recorded (i.e., 1,790 locations from 12 individual grouse) from radio-marked dusky grouse during concurrent hunting seasons. We then recorded the habitat type at each location, and categorized broad habitat types into the following: mountain shrub, open, conifer, aspen, and other (Figure 7). Mountain shrubs included serviceberry, mountain ash, chokecherry, and other berry producing shrubs. Open areas generally consisted of sagebrush and/or grassland without trees. Conifer and aspen types were dominated by conifer or aspen cover, respectively, but in reality there was often a mix of various understories that could have overlapped with other habitat types.

In September dusky grouse used all habitat types and every aspect (i.e., the direction a slope is facing), which may explain why it is difficult at times to determine a pattern for locating dusky grouse during the early season (Figure 8). Aspen habitat was obviously important in October, but by November mountain shrubs and conifers on north-facing slopes were key. It is important to note that habitat types often overlapped within our study area. Mountain shrubs can be in the understory of aspen and/or conifer, or conifer and aspen were mixed together.



**Key to Aging Grouse Wings**

- 1) P10, or P10 & P9 pointed >> go to 2; if rounded >> go to 3
- 2) P10 and P9 are not faded in comparison to other primaries then HY – if P10 and/or P9 are faded then SY
- 3) Molting has progressed through P10 and/or P10 & P9 rounded and not faded then AHY – if P10, or P10 & P9 retained, rounded, and faded then ASY

**Grouse Age Classes**

*Hatch Year (HY)* – refers to birds that hatched during the most recent breeding season; i.e., only a few months old; Juvenile

*Second Year (SY)* – refers to birds that hatched in the breeding season of the previous year and are 1 year and a few months old; Adult

*After Hatch Year (AHY)* – because the wing molted through to P10, this refers to birds that we cannot distinguish between SY or ASY, but because they are not retaining juvenile P10 and P9 we know they are not HY; Adult

*After Second Year (ASY)* – refers to birds that hatched at least two breeding seasons prior and are two years old or older; this age class could have birds that are 3, 4, or more years old, but there is no difference in molt patterns to separate age classes past the second year; Adult

Figure 6. Age and sex determination for dusky grouse based on wing and other feather characteristics. The age of other grouse, including ruffed grouse, can be determined using the same age criteria; however, gender may or may not be determined with wings.

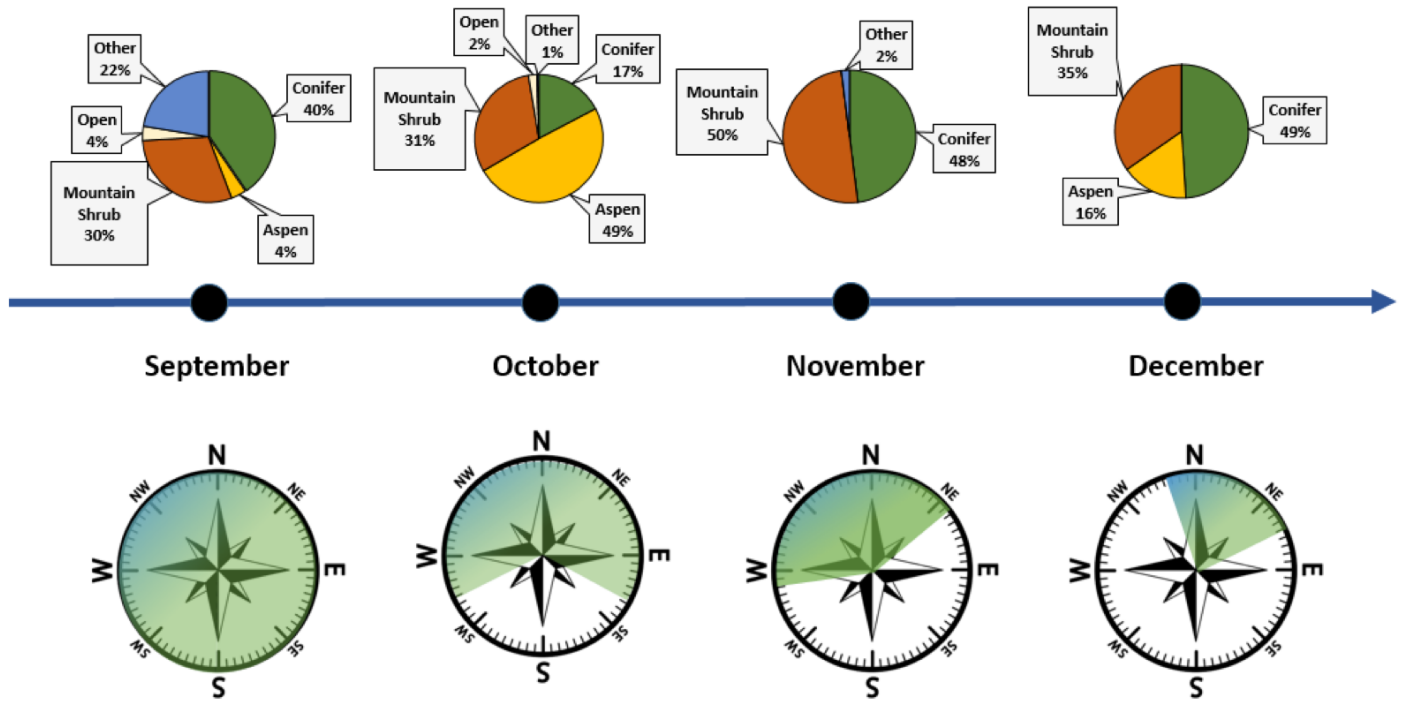


Figure 8. The types and proportion of habitat dusky grouse use as the hunting season progressed in Utah. The pie charts at the top of the figure represent the percentage of locations in each of those habitat types by month. The shading in the bottom compasses (360°) represents the aspect (i.e., the direction a slope is facing) for grouse locations within each month.

**Tips for Forest Grouse Hunters** – Typically, ruffed grouse use aspen, but most importantly wherever tree and shrub cover is the thickest. If you are not weaving and clawing your way through cover that reaches over your head or higher you are likely not in highly productive ruffed grouse habitat. By comparison, dusky grouse use more varied cover types, especially in the early hunting season. Often, areas of habitat transition (e.g., aspen to sagebrush), especially areas with berry-producing shrubs like serviceberry, mountain ash, and chokecherry, are attractive to dusky grouse. As the season progresses, dusky hunters should generally move up in elevation and seek mountain shrubs and conifers on more north-facing aspects. As a side note, based on our personal experience, during and just after precipitation events dusky grouse tend to seek more open areas.

Some of our radio-marked dusky grouse moved up to 40 miles round trip between breeding and wintering areas. Just because you saw dusky in one area at the start of the season does not mean that they will stay put. However, our radio-marked dusky grouse have generally returned to the same seasonal areas year after year. If you found them one year in an area during the early season, you can expect them to be in that same area about the same time in subsequent years.

Ruffed grouse seasonal movements are limited and usually within just a small home range. In Utah, ruffed grouse home ranges are likely dispersed in pockets across a landscape rather than having large areas with contiguous home ranges. However, young ruffed grouse do disperse during the fall from the areas they were raised in and seek their own home range resulting in

some larger movements and often a more dispersed population. This may be the reason you encounter ruffed grouse in non-typical habitat at times during the fall.

**Summary** – There is nothing quite like the heart-stopping flush of a ruffed grouse in a thick covert of changing leaf colors or the thunderous wings of a dusky grouse leaving a conifer stand. Pursuing forest grouse can be an incredible way to kick off your bird hunting season each fall and there is ample opportunity to continue to hunt them as the season progresses. Moreover, this resource provides a great opportunity to get youth into the field pursuing small game, and if you are lucky a forest grouse might just sit still on a limb just long enough to make an easier target for your beginner hunter or huntress.

While the harvest of these two species is managed in combination, there are important differences, both in appearance and ecology. With the above information you will be able to not only tell the difference between species, but also determine the gender and age of each bird bagged. We hope you will use the information provided to increase your knowledge of forest grouse and how they use their habitats during the fall, which may increase your success in pursuing these incredible species.

To help aid in forest grouse conservation, we encourage hunters to enroll in UDWR's slam program and complete the "forest grouse slam" (<https://wildlife.utah.gov/upland-game-slam.html>).

## REFERENCES:

- Kelly, J. F., Bridge E.S. and Hamas M.J. 2009. Dusky Grouse (*Dendragapus obscurus*). version 2.0. In *The Birds of North America* (P. G. Rodewald, editor). Cornell Lab of Ornithology, Ithaca, New York, USA.
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- Craven, S.R., Destafano, R.L. 2014. *A Grouse in the Hand, Tips for Examining, Aging & Sexing Ruffed Grouse*. The Ruffed Grouse Society, Coraopolis, PA, USA.