Age Determination

To age grouse and ptarmigan, it is helpful to first understand a bit about their life histories. Both grouse and ptarmigan molt their primary and secondary wing feathers once a year. In midsummer, the primary feathers (P) start to molt beginning with P1 and progressing sequentially outward toward P8, 9, and finally 10.

From the start of Alaska’s hunting season for grouse and ptarmigan in mid-August through the end of September when primary feathers have completely grown in, it’s relatively easy for hunters to examine the outer primary feathers, particularly P8 and P9, to distinguish juveniles from adults.

With bird in hand, examine the growth pattern of the primary feathers to distinguish a juvenile from an adult. The key difference is that juvenile grouse and ptarmigan only molt Pt1 through P8 while adults replace all 10 primary feathers.

Observe the wing sample photographed here. This adult bird’s P9 and P10 feathers are continuing to grow in after a molt.

ADFG Solicits Small Game Wings

The Alaska Department of Fish and Game is asking for your help in the collection of wings, tails and heads from hunter-harvested grouse and ptarmigan. These samples allow biologists to better understand sex and age structure of the harvest which is important for managing these valuable resources.

If you are interested in helping, please:

1. Remove from each bird:
   a. One clean and intact wing (grouse and ptarmigan)
   b. Tail (ONLY grouse), head (ONLY ptarmigan)

2. Place the wing and tail/head in a wing bag (available at your local ADFG & Game office) or other paper bag. Postage-paid return envelopes available at ADFG offices.

3. Record approximate location and date of harvest on the bag. Also include contact information if you would like the results of your samples returned. Results will be returned to you quickly along with a final report summarizing the status of small game.

4. Wings can be taken to your nearest ADFG & Game office for your convenience OR mailed directly to:

   Alaska Department of Fish and Game
   Attn: Small Game Program
   1800 Glenn Hwy, Suite 2 Palmer, AK 99645
   (OR) 1300 College Road Fairbanks, AK 99701

Sex Determination

For most Alaska game birds, the most accurate way to identify sex is to look for the ovary or testes inside the bird. This is particularly true for all three species of ptarmigan. A hands-on dissection with an experienced bird hunter or biologist is the best way to gain this experience. During early portion of the hunting season (August and September), plumage characteristics of a ptarmigan’s head can be used to determine sex. However, as ptarmigan molt into their famous white winter plumage by mid-October, those defining characteristics disappear.

With grouse, a hunter can examine the tail feathers to determine sex with a high degree of accuracy. Distinctive coloration patterns exist for each species (spruce, ruffed, sharp-tailed, and sooty) and for males and females within a species.

The tail feathers shown here illustrate the obvious sexual dimorphism of the spruce grouse. The male on the left has black tail feathers, compared to his female counterpart’s mottled, tan-colored tail feathers. Take a look at the next page for photographs and descriptions of other species.

Alaska Department of Fish and Game

A Guide to Aging & Sexing Grouse and Ptarmigan

Grouse and Ptarmigan Hunters:

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If P8 is not fully grown, it is classified as a juvenile.

Juvenile < 2.4 mm

Adult ≥ 2.4 mm

Another way to determine age in spruce grouse is to pluck the first primary (P1) feather. Measure the width of the base of the feather shaft, known as the calamus. In juveniles, the calamus measures less than 2.4 mm across.

Examine Primaries

In first-year birds, P9 and P10 are more frayed or pointed.

Adult birds have smoother, more rounded primaries.

If P9 or P10 is not fully grown, it is classified as an adult. This applies to both grouse and ptarmigan as illustrated in the photographs to the right.

Ptarmigan

Male Rock Ptarmigan: Black eye stripe (year round). Head plumage is mottled black and brown.

Male Willow Ptarmigan: Head plumage is chocolate colored.

Female Willow Ptarmigan: Head plumage is mottled light tan and black.

Female Rock Ptarmigan: No eye stripe (year round). Head plumage is mottled light tan and black.

Sooty Grouse

Tail feathers of male sooty grouse are black with a gray tip. Often, feathers are squared-off at the tip.

Female sooty grouse have black tail feathers with mottled rump feathers.

Pluck the central 2-3 tail feathers of the male sharp-tailed grouse. The feather pattern has long vertical white bars.

Pluck the central 2-3 tail feathers. The feathers of the female sharp-tailed grouse appear mottled with horizontal barring.

Ruffed Grouse

The male ruffed grouse usually has an unbroken, dark brown or black band at the trailing edge of its tail. Tail feathers measure about 6 inches.

In female ruffed grouse, the dark brown or black band can be washed out in the center of the tail. Tail feathers measure less than 6 inches long.

Sharp-tailed Grouse


Female Northern Grouse: No eye stripe. P10 may be more brownish-gray.

Male Ruffed Grouse: Head and neck are often white.

In female ruffed grouse, the dark brown or black band can be washed out in the center of the tail. Tail feathers measure less than 6 inches long.

All Grouse

Pigmentation

In ptarmigan, the amount of pigment varies on the primaries. First-year birds have more black pigmentation on P9 than P8.

Adult ptarmigan have an equal amount of less black pigmentation on P9, as compared to P8.

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Spruce Grouse