

## 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 P1 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.



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## Sex Determination

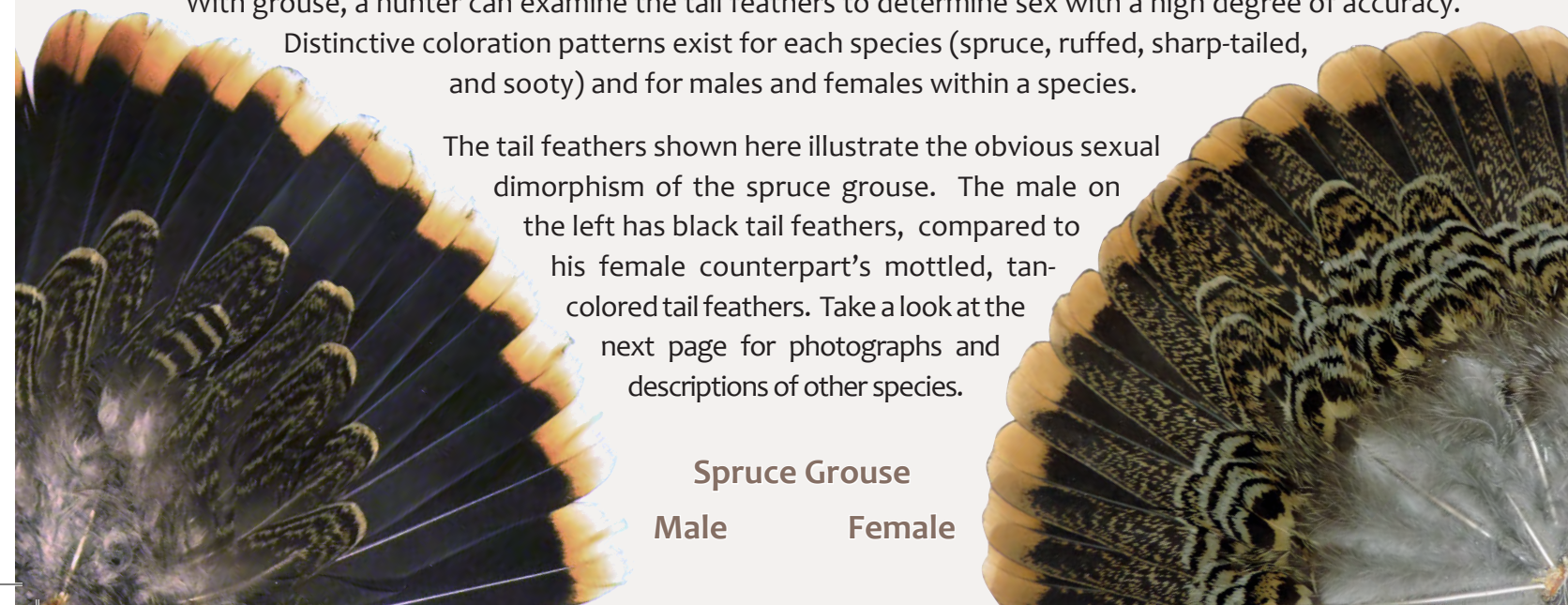
For most Alaska game birds, the most accurate way to identify sex is to look for the ovary or testes inside the bird. This is particularly true for all three species of ptarmigan. A hands-on dissection with an experienced bird hunter or biologist is the best way to gain this experience. During the early 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 the exception of male rock ptarmigan).

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.

**Spruce Grouse**  
Male      Female



See back for details.

You can help ADF&G small game biologists by participating in the wing collection program.

This guide will show you how to determine age and sex of your harvested grouse or ptarmigan by using feather traits and plumage characteristics. Specifically, this guide illustrates three techniques to determine age, including (1) growth patterns of primary feathers, (2) pigmentation of the outer primaries (ptarmigan only), and (3) width of feather shaft (spruce grouse only). This guide also illustrates two techniques to determine sex, including (1) tail feather coloration (grouse only) and (2) plumage characteristics of the head (ptarmigan only).

The Division of Wildlife Conservation created the Small Game Program to promote the conservation of Alaska's small game resources for future generations. One of the program's objectives has been to create and maintain a straightforward way for grouse and ptarmigan hunters to voluntarily contribute wings, tails and heads in order to help biologists estimate population productivity and harvest composition. See the back page for ways you can contribute to this effort.

Have you ever been curious whether you've harvested a male or female grouse or ptarmigan? Perhaps you're wondering whether the bird hatched that summer (juvenile) or matured to the ripe old age of four? Want something fun and interesting to teach a new or young hunter? This guide will help you determine the age and sex of your harvested Alaska grouse or ptarmigan. Knowing the age and sex proportions of harvested grouse and ptarmigan populations allows biologists to estimate the overall production of the population as well as interpret the composition of the harvest. Over time, this information can be compiled to illustrate population trends which help inform management decisions and harvest recommendations.

## Take this guide with you in the field

### Grouse and Ptarmigan Hunters:

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 ADF&G office) or other paper bag. Postage-paid return envelopes available at ADF&G 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 ADF&G office at 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

## A Guide to Aging & Sexing Grouse and Ptarmigan





Grouse & Ptarmigan

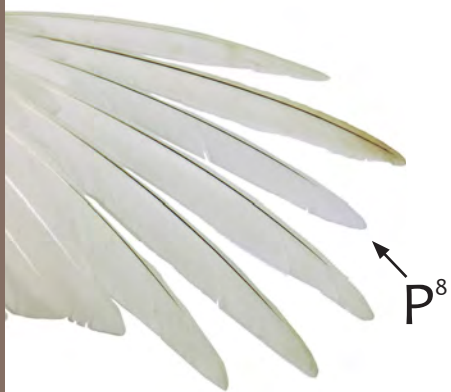
All Grouse

All Ptarmigan

Spruce Grouse

Juvenile

Examine Primaries



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

Feather shape



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

Pigmentation

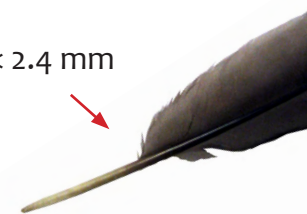
In ptarmigan, the amount of pigment varies on the primaries. First-year birds have more black pigmentation on P9 than P8.



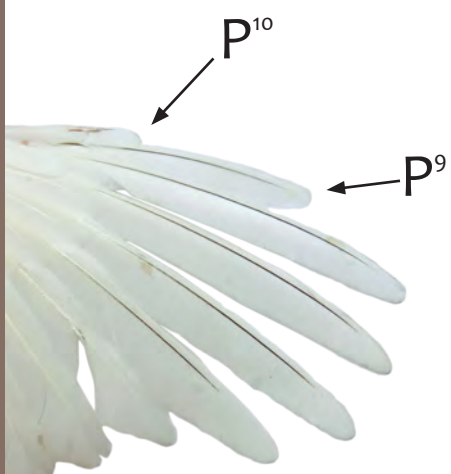
Measure Feather Shaft

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.

Juvenile < 2.4 mm



Adult



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.



Adult birds have smoother, more rounded primaries.

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



The calamus of an adult spruce grouse measures 2.4mm or greater.

Adult ≥ 2.4 mm



Sooty Grouse

Sharp-tailed Grouse

Ruffed Grouse

Ptarmigan

Male

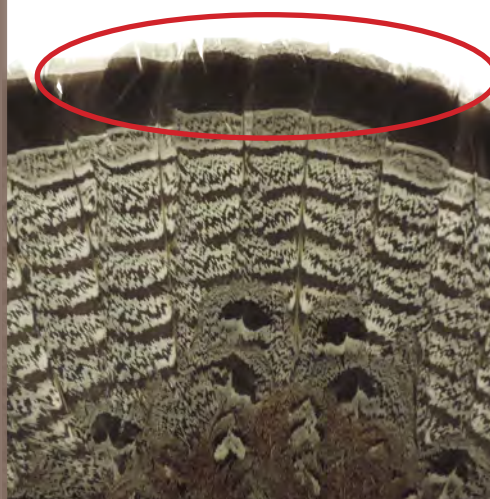
Tail feathers of male sooty grouse are black with a gray tip. Often, feathers are squared-off at the tip.



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



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.



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

**Male Willow Ptarmigan:** Head plumage is chocolate colored.



Female

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



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



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.



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

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

