



Ruffed Grouse



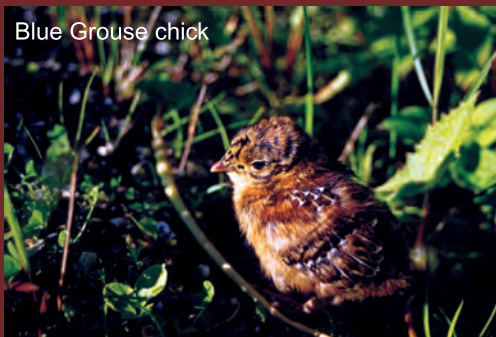
James M. McCann

Not simply another field guide, *The Grouse and Ptarmigan of Alaska* offers an amazing amount of information about these incredible birds.

How many species do we have? Where do they live? What do they eat? How do they survive the severe conditions in Alaska?

Learn the answers to these questions and much more about their identification and behavior.

Blue Grouse chick

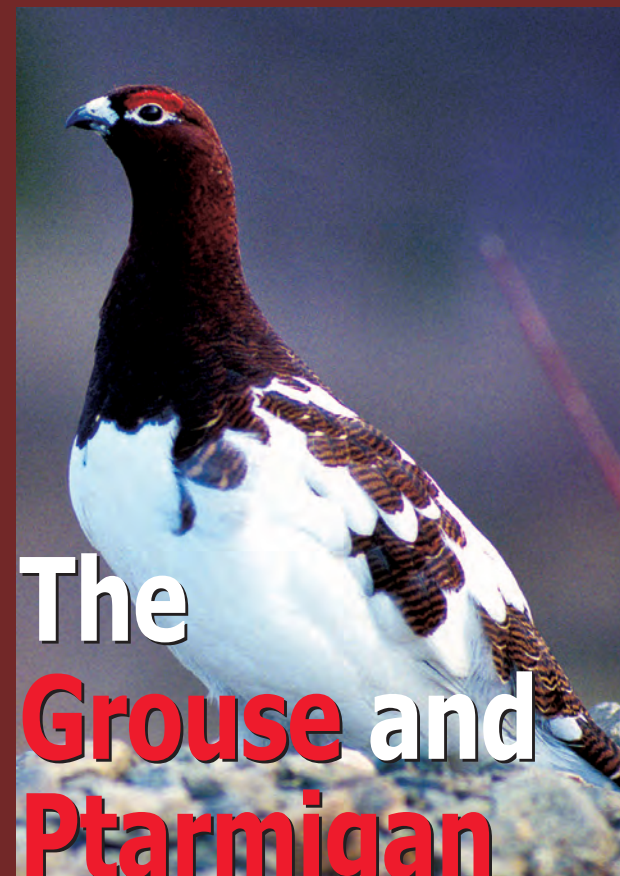


Mike Taras

Spruce Grouse



Mike Taras



# The Grouse and Ptarmigan of Alaska

A guide to their identification, habits and habitat.

## For more information about wildlife:

Alaska Department of Fish and Game  
[www.wildlife.alaska.gov](http://www.wildlife.alaska.gov)

Ruffed Grouse Society  
[www.ruffedgrousesociety.org](http://www.ruffedgrousesociety.org)



# The Grouse and Ptarmigan of Alaska

2005

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Cover photo of Willow Ptarmigan by Mike Taras



Steve Dubois



Ruffed Grouse

# Table of Contents

Foreword	
Introduction .....	1
Willow Ptarmigan .....	3
Rock Ptarmigan .....	7
White-Tailed Ptarmigan .....	11
Ptarmigan in flight .....	15
Molting .....	16
Feet .....	16
Blue Grouse. ....	17
Spruce Grouse .....	21
Ruffed Grouse .....	25
Sharp-Tailed Grouse .....	29
Digestive system .....	33
Droppings .....	34
Snow-roosting .....	34
Important plant food .....	35



# Foreword

*Upland Game Birds of Forest and Tundra* was first printed in 1968 by the Alaska Department of Fish and Game (ADF&G).

This book, popular among upland game bird hunters and bird watchers alike, was so coveted, that in the 1990s rare, tattered and coffee-stained copies were very hard to come by and even harder to borrow from possessive owners. For years, Bill Taylor (wildlife veterinarian, retired) and Nick Steen (wildlife biologist, retired) hoped to breathe new life into this old friend.

In 2004, when ADF&G's wildlife education program became fully staffed, and with financial help from the Ruffed Grouse Society, their hope became a reality. In an effort to maintain the charm and feel of the original manuscript, we kept most of the language and original artwork, adding new range maps, plant and anatomy illustrations, and updated information.

We hope you will enjoy *The Grouse and Ptarmigan of Alaska* as much as we enjoy these birds. The Division of Wildlife Conservation is committed to sound conservation, understanding that education is a key component to maintaining sustainable wildlife populations. Our thanks to the original writers and artists, the Ruffed Grouse Society, and to Bill and Nick for their lifelong commitment to wildlife conservation.

Robin Dublin  
Wildlife Education Coordinator  
Division of Wildlife Conservation



Caterpillars, flies, beetles, ants, and other insects are important to every young grouse during their first spurt of growth.

# Introduction

Few people realize the abundance of grouse and ptarmigan in Alaska, and fewer are familiar with the lives of these fascinating creatures. We hope this booklet gives you a chance to get acquainted with grouse and ptarmigan, to learn to tell one kind from another, and to appreciate the individual way each species survives.

Grouse and ptarmigan form one division (Tetraoninae) of the large family of pheasant-like birds, being distinguished from other divisions by the presence of feathers on the nostrils and lower legs. Scientists think tetraonids originated in Asia, although fossils over 40 million years old have been found in North America. Today there are 15 species of grouse: 8 in North America and seven in Eurasia. No species of grouse spans both continents. Three species of ptarmigan are recognized. One ptarmigan, the white-tailed ptarmigan, is unique to North America, the two other species are almost circumpolar.

Ptarmigan and grouse play an important role in Alaskan ecosystems. They are among the most successful of all terrestrial birds as full-time colonizers of arctic and subarctic regions. Biologists, photographers, and hunters appreciate these birds. Intriguing and valuable studies have taught us much about their role in Alaska.

Grouse and ptarmigan are fun to hunt with a dog because they fly rapidly when flushed, and are fine table fare. These characteristics have made them favorites of hunters all over the northern hemisphere. Ptarmigan and grouse are sought eagerly by hunters in Alaska, and are an important food for some living in remote areas.



We have no record of the effect of people on ptarmigan or grouse through the centuries before Europeans came to Alaska. When Europeans explored the land, they found ptarmigan widely distributed but variable in abundance. Today we know grouse and ptarmigan populations in most of Alaska fluctuate in an eight- to ten-year natural cycle, which can be influenced by human activity, and locally by natural phenomena.

Change is occurring swiftly in Alaska; increasing pressure by hunters, winter recreational activities, fire suppression, logging, livestock grazing, and agriculture all affect the living conditions for wildlife. Whether we can maintain healthy grouse and ptarmigan populations as part of our natural legacy depends on our foresight, our recognition of wildlife's values, and our ability to execute well planned management programs.

# Willow Ptarmigan (*Lagopus lagopus*)



Spring was just beginning in early June as this male willow ptarmigan watched his world, unafraid, from a thin willow thicket. Still padding across the thawing snowdrifts in his winter snowshoes, he raised his red combs and cackled gutterally, leaving no doubt who controlled this tiny corner of subalpine habitat.

## Habitat

Like the other ptarmigan species, the willow ptarmigan nests in sparsely timbered or treeless areas. It favors willow-lined waterways, either on the coastal plains of western and northern Alaska or in subalpine areas throughout the rest of the state. Tall bushes are an important feature for willow ptarmigan. These birds choose wetter places and more luxuriant vegetation for breeding than the other two species of ptarmigan. In winter, willow ptarmigan remain close to shrubby slopes and valleys, but they seek out areas at lower altitudes than what they use during the breeding season.

## Identification

The thick, wide bill is a trademark of all willow ptarmigan, the largest of our three ptarmigan species. Another distinction is the white patch behind the male's bill, lasting only two or three weeks in spring, before the chestnut

plumage of early summer comes in. Only another ptarmigan can distinguish cocks from hens when willow ptarmigan are in winter plumage. Then, both sexes are white with black tail feathers. Beginning early in May the cocks develop a beautiful cape of chestnut-red feathers. They court the hens in this plumage, not completing the change to the brown summer plumage until the hens are nearly finished incubating the clutch of eggs.

No sooner does the male get this first set of dark chestnut feathers, however, than a new generation of lighter brown feathers grows on its neck and breast. This new set is never completed, because by early August the cock is beginning to grow white feathers for the coming winter plumage. In mid-August male ptarmigan are a patchwork of four sets of feathers; a few old winter feathers on the wings, new white feathers on toes and belly, and parts of the light spring and darker summer feathers.



The upper cock was just beginning to seriously defend his territory on April 30th. The other male (the same one as depicted in the last drawing) had lost all but one or two winter feathers on its head by June 5th.

## Behavior

Driven by their reproductive urge, cocks become less and less tolerant of each other throughout March and April. In early spring, males stake claims to parcels of ground that they defend in good weather, but spring snowstorms will send these males back into flocks. By late April or early May, males establish permanent territories that they defend in fair weather or foul. Hens arrive on the breeding grounds a bit later than males and then select their mates and nesting areas (often the same ones used the previous year). By late May the first eggs are laid under a shrub at the edge of an opening. The cocks stay on their territories throughout June, although the intense strutting, tail-fanning and aerial chasing typical of the courtship period wanes after the hens begin to incubate their clutch, which averages between six to ten eggs. Most Alaskan ptarmigan chicks hatch in late June and early July.

Unlike other North American grouse or ptarmigan, male willow ptarmigan usually help to care for their chicks. Sometimes, in fact, cocks will take over all family responsibilities if the hen is killed. Both adult willow ptarmigan are vigorous in their defense of the brood. One of the thrills in store for the Alaskan traveler is the chance to watch the excited actions of a female ptarmigan as she tries to distract attention from her chicks by simulating injury or to duck the flailing wings of the cock as he dives at the two-legged intruder, cackling gutterally as he flies.

Despite all of this care, young ptarmigan encounter many things that can kill them unless they are vigorous and lucky. Poor weather too soon after hatching, the quick pounce of the fox or the swift swoop of the hawk, chance separation from the family, and diseases like coccidiosis, all can be fatal. In most years, 65 to 80 percent of all chicks die before they are 11 months old. A ptarmigan's life expectancy brightens a little once it reaches maturity since adults die at the rate of about 50 to 60 percent per year. At that rate, a 4-year-old ptarmigan is a fortunate bird. The abundance of ptarmigan at any time is the result of the reproductive success minus the deaths during the previous two years. Ptarmigan numbers can build up with astonishing speed given favorable conditions, but often decline just as rapidly.

Families of willow ptarmigan join to form flocks in September. The ptarmigan then begin to move around more than in the nesting season. Females and males tend to separate in late September and October; the females, usually in small groups, seek food and shelter at lower elevations. In most parts of Alaska these movements to and from summer ranges encompass only a few miles. In other parts of the state good wintering places are far from the breeding grounds. For example, hens that nest or were reared on the north slope of the Brooks Range move up to 100 miles southward in late fall, wintering on the south side of the Brooks Range in the low hills and wooded valleys north of the Yukon River in the east, or in the valleys of the Noatak and Kobuk Rivers to the west. Males of these same populations also largely abandon summer ranges, but do not go as far south as the females. The south-tending migrations take place in October and November. The northward movements begin in February, reach a peak in April, and are finished by mid-May.

The willow ptarmigan has an appropriate name. Not only are willows important nesting habitat, they are also the bird's most important food source. The leaves of willow shrubs often outrank any other item eaten in summer. In winter the buds, twigs, and catkins of willows provide four-fifths or more of their food. Because moose and snowshoe hare also rely on willows for sustenance, it is fortunate that these shrubs are so widespread in Alaska, and are able to rapidly recover from severe browsing.

As with the other ptarmigan species, willow ptarmigan feed on berries in the fall and also eat overwintered berries in the spring.

## Where to find them

In Southeast Alaska, several trails lead to ptarmigan country from roads close to Juneau. Willow ptarmigan are common along a 20-mile section of the Haines Highway through Chilkat Pass beginning 65 miles north of Haines.

A few miles north of Valdez, the Richardson Highway snakes its way to the crest of Thompson Pass in the Chugach Mountains and winds through good ptarmigan country for nearly 10 miles.

In the Alaska Range these birds can be found in willow thickets and shrub areas above treeline across the Denali Highway, along the Richardson Highway from Paxson to Black Rapids, and along the Parks Highway for several miles either side of Cantwell. Visitors to Denali National Park are likely to see families of willow ptarmigan at streams along the length of the park road. Further north, willow ptarmigan are occasionally seen at various places along higher parts of the Steese and Taylor Highways, both of which span mountains between the Tanana and Yukon Rivers.

On the Seward Peninsula, willow ptarmigan can be seen anywhere along the isolated road system fanning out from Nome.

Willow ptarmigan also live in many areas far from the highway system in Alaska. Some “hot spots” to find willow ptarmigan are the mountains at the east end of the Skilak and Tustumena Lakes on the Kenai Peninsula, the northwest side of the Alaska Peninsula, the Kotzebue Sound region, and various places in the Brooks Range, notably Anaktuvuk Pass.

### Range of the Willow Ptarmigan in Alaska

Willow ptarmigan have the widest range in Alaska of any upland game bird, although rock ptarmigan are a close second. The only big areas without willow ptarmigan are in the broad, forested valleys of the Interior (even there you can sometimes find willow ptarmigan in winter), the thick woods of Southeast Alaska, and the Aleutian Islands west of Unimak Island. Willow ptarmigan also live in Canada, Scotland, Scandinavia, and Russia.



# Rock Ptarmigan (*Lagopus mutus*)



In June a hen goes back to her egg-warming duties, after a quarter-hour or so of feeding. Her mate often goes with her, but only part way. By some mysterious signal, the female warns him off before he and his conspicuous pinto coat get too close to the nest.

## Habitat

Rock ptarmigan breed on hilly or mountainous tundra throughout Alaska. They prefer slopes and high valleys where shin-high shrubs form a patchy pattern with low herbs and grasses. The summer range of rock ptarmigan often abuts willow ptarmigan range, with rock ptarmigan breeding on higher, drier, rockier ground. In winter most male rock ptarmigan are at the lower edge of their breeding range. The hens move to the hills fringing large valleys, where they spend the winter in shrubby, open habitat.

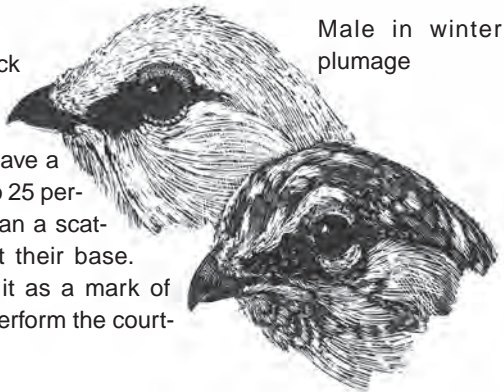
Several subspecies of rock ptarmigan live throughout the entire Aleutian Islands. On all except for Unimak Island, only one subspecies occurs on each island. These birds live in much different habitat than mainland birds. Aleutian rock ptarmigan range down to sea level, and are found on coastal grassy areas and on gentle to moderate slopes consisting predominantly of low forbes.

## Identification

Larger than whitetails and smaller than willows, rock ptarmigan develop their winter plumage early in October in central and northern Alaska, and are still predominantly white until early May. Cocks have a black mask from bill to ear in winter, effectively contrasting with their bright red, fleshy eyebrow and white body plumage. Most hens have no mask, but about one female in five has a partial black stripe fore and aft of the eye. As is the case in willow ptarmigan, both sexes have black tail feathers tipped with white. However, the rock ptarmigan's much narrower bill clearly distinguishes it from the willow ptarmigan.

By early May, female rock ptarmigan begin to show their new, brown summer feathers on the crown and neck. When the hens begin incubating their clutch early in June, they are almost completely brown except for their white wings. Males keep the winter plumage until early June, then molt quickly to the finely-barred, dark brown summer plumage. However, the subspecies of rock ptarmigan found in the Aleutian Islands are an exception. There, the males actually begin getting brown feathers (almost black feathers in the near islands) in late March before the female plumage change.

Rock ptarmigan grow black feathers in the fall that form a neat stripe or mask from bill to eye. Males always have a full eye stripe, but only 20 to 25 percent of hens have more than a scattering of feathers black at their base. Cock ptarmigan may use it as a mark of sexual distinction as they perform the courtship displays of spring.



Male in winter plumage

Male in summer plumage

## Behavior

Nests of rock ptarmigan consist of a scratched-out depression that may be lined with moss, lichen, grass, and the female's breast feathers. They are usually located under low shrubs, although some hens nest where there is no vegetation sheltering them. Eggs are laid at intervals of 24 to 30 hours with



full clutches usually containing six to eleven eggs; the number in a clutch varies not only with the individual but from year to year as well. Incubation lasts from 20 to 22 days. Nests are used only once. Re-nesting (second attempts to nest made when the first nest is destroyed) seems to be rare among Alaska ptarmigan.

Chicks hatch late in June in most of the state. In warm weather the hen leads the chicks from the nest about 12 hours after they hatch. The young live off nutrients stored in their bodies for a day or two after hatching, while learning to peck at bits of food shown to them by their mothers. The phenomenal growth and development of young ptarmigan during the first month of life is proof that the chicks learn the lessons of food-gathering very well. They double or triple their weight in ten days, and develop a working set of flight feathers during that time.

Hens erratically lead their broods from one good location to another, usually staying within one-half mile of the nest. Chicks normally stay with their parent until late August, but in crowded brood-rearing areas some exchanges of chicks may take place. Throughout September flocks of rock ptarmigan numbering from 20 to over 250 birds gather and move from place to place. At the end of this period, in which various local populations mix, flocks of mostly females move to their low-elevation wintering areas.

Winter flocks appear to be nomadic, wandering from place to place according to weather, snow conditions, food supply, and perhaps other impulses. Eating, avoiding predators, and waiting out storms are daily winter activities. Feeding takes up most of the daylight hours because rock ptarmigan must eat the equivalent in food of one-tenth to one-fifth of their body weight each day.

From October through March, Alaskan rock ptarmigan eat mostly buds and catkins of dwarf birch; or, in the case of Aleutian birds, tips of crowberry plants. In April, rock ptarmigan (as well as the other ptarmigan species) begin to eat overwintered berries along with buds and catkins.

When the warming sun of May brings life to the buds of bearberry, mountain avens, and lousewort, and sends the first spiders scuttling out across the wet snow, ptarmigan are quick to change their diet. By late June they eat plants and insects exclusively. Northern summers are brief; by mid-August the ptarmigan turn to berries and seeds and by late October ptarmigan crops are again bulging with dwarf-birch buds and catkins.

## **Where to find them**

Rock ptarmigan can be seen in the same areas along the road system as willow ptarmigan, but are more common at higher elevations. Steep slopes



above treeline along the Denali Highway and through Isabel and Thompson passes along the Richardson Highway support good populations of rock ptarmigan. Twelvemile and Eagle Summits on the Steese Highway, and Mount Fairplay on the Taylor Highway also are places where hunters, bird watchers, and photographers can expect to find rock ptarmigan.

### Range of the Rock Ptarmigan in Alaska

Rock ptarmigan are found in nearly all treeless areas of Alaska except wet, coastal tundra. Recognizable differences in color and size have developed in places where ptarmigan live in isolated island situations. The classic example is on Alaska's Aleutian Island chain, where seven subspecies of rock ptarmigan have been described; however, ongoing morphological and molecular research indicate that there are more likely only four subspecies.



# White-Tailed Ptarmigan

*(Lagopus leucurus)*



Like unfrozen lumps of snow on the brown hillside, two white-tailed ptarmigan sit still after a falcon arrows across their steep valley. Adapted to the hazards of their environment, ptarmigan sit absolutely still when a falcon hunts; in the air, their gleaming bodies draw the hawk like a magnet. Ptarmigan are afraid of eagles, too, but their own prowess in the air gives them the ability to escape this less agile predator through flight.

## Habitat

White-tailed ptarmigan are true birds of the mountains. They live above timberline almost all year in the young mountain ranges of southcentral and southeastern Alaska, and many whitetails stay on the high slopes even in winter. In the breeding season they live in rugged country full of boulder fields, snowfields, glaciers, cliffs, and rockslides at higher altitudes than any other grouse or ptarmigan. This is the ptarmigan that Dall sheep hunters flush off high mountain peaks while stalking rams.

Plants on the summer range of white-tailed ptarmigan are low, prostrate, and often separated by patches of frost-heaved soil or rock. The birds usually move lower in late fall, spending the winter on slopes or in high valleys where alders, willows, birches, and occasional spruces project above the snow.

## Identification

Unlike the other two species of ptarmigan, the whitetail's eight pairs of tail feathers are pure white. These feathers are a year-round trademark of the species, since whitetails molt only once each year, in midsummer. Whitetails are almost pure white in winter; even the shafts of the wing feathers are pale instead of black as in the other ptarmigan. The summer plumages of both male and female are quite different from the other species, the back feathers are much more finely barred ("vermiculated") and the overall color tone is grayish instead of brown. Whitetails are the smallest of all the tetraonids, weighing only three-fourths of a pound when mature.

White-tailed ptarmigan may have evolved from a group of rock ptarmigan, isolated by glaciers in the alpine of the western states. In the process of adapting to new conditions, they developed stronger, wider bills than their ancestors.

Now, when the three kinds of ptarmigan forage on common winter range, whitetails eat the widest variety of buds and twigs. Rock and willow ptarmigan concentrate on dwarf birch and willow, whereas whitetails eat both of those and alder catkins as well. The upper drawing is from a hen seen at mile 58 Haines Road in June. The other is a male from Thompson Pass, near Valdez, on November 24th.



## Behavior

Late in April the challenge calls of white-tailed ptarmigan echo across the rock-strewn slopes and cliffs of the high country, signaling the annual round of sparring between males, and the mating of male and female. According to a biologist who studied whitetails in Montana, the female does not always nest within the area defended by the male. Nests, containing four to eight eggs, often are on narrow, mossy ledges or against big boulders where the sun's warmth is radiated from the rock face. White-tailed ptarmigan in Southcentral Alaska lay eggs in late May, earlier than whitetails at the southern end of the species' range in Colorado. The reason may be that snow melts sooner from the habitat of the Alaska whitetail.

Broods of young white-tailed ptarmigan, under the care of the hen, stay high on the breeding grounds all summer. They like moist areas, especially around the edges of melting snowpatches and below glaciers. Plant growth is delayed in these places, so that when the broods feed there they are taking advantage of the youngest, most nutritious vegetation on the summer range. The water itself may be important to the ptarmigan as well, and insects are probably more abundant in moist places. Rockslides and boulder fields also are important features of good summer habitat for whitetails, because the chicks hide from predators in crevices between large rocks.

White-tailed ptarmigan eat large quantities of tender leaves in summer, with lesser amounts of flowers, buds, and insects. Seeds and berries are taken commonly in August and early September. The birds change to a diet of buds and twigs in late fall. White-tailed ptarmigan apparently are not as specialized regarding winter foods as rock and willow ptarmigan in Alaska, because they eat alder catkins, willow buds, and dwarf-birch buds with seemingly equal gusto.

The white-tailed ptarmigan is a fascinating creature to naturalists who roam the western mountains. Not only does it still have the aura of mystery surrounding birds whose lives are poorly understood, but what little is known about the species suggests that it is very different from rock and willow ptarmigan; its voice and size also set it apart. Whitetails may live much longer, on the average, than other ptarmigan. They are not semi-migratory or nomadic to the extent willow and rock ptarmigan are, and may not fluctuate as widely in numbers from year to year. Even in some small details of anatomy, such as the relatively small size of the heart, the white-tailed ptarmigan is unique in the ptarmigan group.

## **Where to find them**

There are not many places in Alaska where people can see white-tailed ptarmigan in less than a few hours' hiking. Some of the more accessible populations are on Mt. Juneau, Mt. Roberts, and at the heads of other valleys near Juneau, in Chilkat Pass (especially at miles 56–62 and at mile 90 Haines Road), at Rainbow Mountain (mile 209 Richardson Highway), in Thompson Pass north of Valdez, in Denali National Park, and near Independence Mine in Hatcher Pass north of Palmer.

### Range of the White-Tailed Ptarmigan in Alaska

White-tailed ptarmigan are found only in western North America. They are the product of millions of years of evolution in rugged mountains, but do not compete successfully with other ptarmigan anywhere except in the rocky alpine. The five subspecies of whitetails range from the peaks of the Rocky Mountains in extreme northern New Mexico and Colorado (where

they live at 12,000 – 14,000 feet), to Mount Rainer and Vancouver Island in the coastal mountains, to Southcentral Alaska and central Yukon.



## Ptarmigan in Flight



At every season, all mature ptarmigan have white wings. Only chicks between 10 and 40 days of age have brown flight quills. Identification of different species, unless the bird is in hand, is hard even with experience. The whitetail easily identifies the smallest species; this is a dependable character all year long. Winter-plumage ptarmigan with black masks are rock ptarmigan, but not all rock ptarmigan have this marking.

- a. Winter-plumage Willow
- b. Winter Whitetail
- c. Winter Rock
- d. Summer Rock
- e. Fall Rock
- f. Rock chick
- g. Spring Willow

## Molting

The molts of ptarmigan are closely attuned to reproductive activities. This is most obvious when cold and cloudy spring weather delays nesting. In such years, the entire molting schedule of both the male and the female is delayed by the same number of days as reproductive activities. This delay may even persist into the fall.

Adult ptarmigan get a new set of wing feathers once each year in summer. Males begin to molt their primaries, or flight quills, in mid-June, while the hens are still nesting. The molt begins with the inner primaries, and progresses slowly outward along the wing. Cocks usually have completed the new set of wing feathers by early September. Unlike ducks and geese, which drop their quills in such rapid succession that they are flightless for a time in mid-summer, ptarmigan never lose the ability to fly. Hens that nest successfully do not begin to get their new flight feathers until just after the chicks hatch. When a hen's nest is destroyed, however, she begins molting within a few day's time.

All four of our grouse species also molt only once each year, once they have gone through their first postjuvenile molt, which is in their first summer/fall.

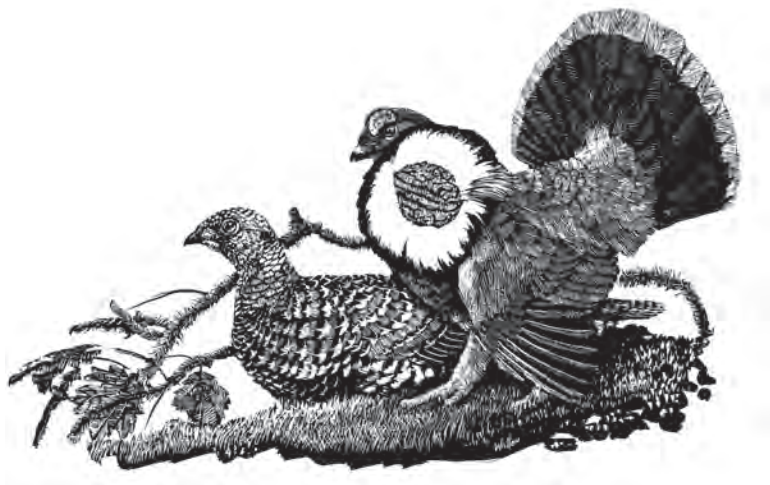
## Feet



Fine, bristly feathers, almost without barbs, grow from the toes of ptarmigan, forming unique snowshoes for easy flotation on soft snow. For hard, crusted snow, ptarmigan have sharp claws, shed and regrown each summer, to help them cling on steep slopes and dig their roosting burrows.

Grouse don't have feathers on their toes, although sharptails have very long, bristly feathers low on the foot that almost completely cover the toes. Instead, grouse have rows of little finger-like projections of hardened skin fringing each toe. These effectively widen the bearing surface when the bird strides across snow.

# Blue Grouse (*Dendragapus obscurus*)



With tail held high like a Spanish dancer's fan, and with neck feathers flared out to show the yellowish air-sac surrounded by its bright halo of white plumes, this cock blue grouse is convinced of his irresistibility. The brownish hen is so sure of her allure she doesn't even bother to show off. If the time is right, mating will occur with casual rapidity, and the male will fly back to his broken-topped Sitka spruce to intimidate other males.

## Habitat

The wet, evergreen forests of Southeast Alaska from Haines to Ketchikan are the home of Alaska's biggest grouse, the blue grouse or "hooter." Practically every island and cape has a population of these fine birds, although, oddly enough, there are no authentic records from Prince of Wales Island. Big timber is important to blue grouse, as it provides food and shelter in the winter months. Muskegs and alpine meadows are equally essential for the superior summer and fall feeding areas they offer. Hens with their chicks seem particularly fond of sunlit forest edges.

## Identification

The male blue grouse, tipping the scales at 3 pounds, is a handsome bird, with its yellow comb standing out against the slaty blue of the head, and with its



long black tail tipped with pale gray. The females are browner than the males, and are slightly more than two-thirds their size.

## Behavior

Many people have heard the “boy-with-the-empty-cider-jug” hooting of blue grouse that begins soon after mid-March, when the males are concentrated in the upper half of the timbered zone of the mountains.

Nests are almost always outside male territories. Hens usually lay five to nine eggs in a shallow depression scratched out in the forest floor. Most nests have overhead cover of small conifers, shrubs, rock overhangs, or logs, but in old-growth forest may be at the base of a large tree. Males do not assist females and remain alone within their territories through the summer. In late June, blue grouse hens with their downy chicks frequent the edges of muskegs, logged areas, and roads. In August and September, deer and goat

Many kinds of birds use their tails as recognition and display signals, and grouse and ptarmigan are no exception. It isn't surprising, therefore, to find that most species, and particularly cocks, have distinctively colored tails. The blue grouse male's slatey-blue tail, with the grayish tip, is unique to this species.



hunters begin to see families of blue grouse, with the chicks well grown, in the alpine meadows near timberline, almost in ptarmigan country. Birds move onto winter range of mature conifer forest by November. Males may remain alone or form into small groups of three to six birds. Females with their broods often form into small flocks of up to 10 (occasionally to 20) birds.

Extensive clear-cut logging of old-growth forest in Southeast Alaska has resulted in lower blue grouse densities in those areas. The introduction of marten onto Baranof Island has also had a negative effect on blue grouse numbers there.

Blue grouse have considerable potential as game birds, especially in late winter and early spring. Stalking the cocks while they are calling from the treetops can offer quite a challenge since it entails climbing up to timberline, often through deep snow, trying to spot the birds 75–100 feet up in trees, and pinpointing their location given the ventriloquist effect of their calling. The Department of Fish and Game has recognized the recreational benefits from this unique type of hunting, and has extended the open season to include at least a month of the hooting period of male blue grouse.

Blue grouse eat many berries in August and September, as well as other vegetation, but soon afterward change to a diet of conifer needles. Sitka spruce and both western and mountain hemlock provide most of the food of these grouse until May, when fresh growth again is available. The adaptability of the digestive tract of these grouse is amazing, considering the rapid change in fall from a succulent diet of berries to the dry, fibrous fare of evergreen needles. There is a tremendous seasonal turnover in the kinds of bacteria in the intestines that do most of the conversion of incoming food to usable nutrients.

## **Where to find them**

Blue grouse can be found in spring within easy walking distance of Juneau, Petersburg, and Ketchikan or along the road systems near those towns. Many trails maintained by the U.S. Forest Service turn the formidable task of hiking into their habitat in Southeast Alaska into a real pleasure.

**Range of the Blue Grouse in Alaska**

Alaskans know blue grouse as birds of the dense coastal forests of the panhandle where, in the summer, they range into alpine meadows and lowland muskegs. Throughout its range, the blue grouse spends winters in habitat dominated by conifers.



# Spruce Grouse

(*Falcipennis canadensis*)



The mottled olives, browns, and blacks, accentuated by patches of white on the head and underparts, make the spruce grouse cock a sleek, handsome bird. This young male was found nipping the tips of white spruce needles early in April in Interior Alaska. It probably spent the past winter in the same few acres of mixed evergreen—hardwood forest. In a month it will feel the first stirrings of the mating urge and begin vigorously to attract a hen.

## Habitat

Spruce grouse, popularly known as “spruce hens or chickens” or “fool hens,” inhabit white spruce and paper birch woodlands, black spruce bogs, and, in Southeast Alaska, Sitka spruce and hemlock forests.

## Identification

The male spruce grouse has a black throat and red comb over the eye and a rusty-orange band at the tip of the tail. The female lacks the red comb and

the black throat. She is generally a mottled rusty brown to gray color with dark heavy barring on her whitish-colored belly.

The spruce grouse of Southeast Alaska lacks the rusty band on the tail, which characterizes other Alaskan spruce grouse, but has white-tipped feathers overlying the tail.

## Behavior

On the first warm April days that promise winter is abating, the male begins his courtship displays by pompously strutting on the ground or in a tree. Occasionally he flicks his raised tail, emitting a sharp rustling sound. In May he also begins to perform characteristic aerial displays, signifying that he “owns” the immediate acre or so of forest and that no other displaying cock is to trespass in this domain. The display begins with the bird strutting in a tree, followed by a steep downward flight. A few feet above the ground the bird checks his flight and flutters to a landing. The fluttering wings create a soft sound and this, as well as other sounds made by wing or tail movements while strutting on the ground, attracts the hen to the cock’s territory.

In May, four to nine eggs are laid in a shallow nest located at the base of a spruce tree or beneath a log. Hatching occurs in mid-June, about the same time the cock stops displaying. The cock neither participates in incubating the eggs, nor assists in rearing the chicks, but often joins the hen and brood in late August. By early September it is not unusual to see an adult male with large flocks composed of several hens and broods. These family flocks disband by October and smaller groups settle on wintering areas, often in dense stands of spruce.

In winter, spruce grouse spend most of the daylight hours in spruce trees loafing or feeding on needles. At night the birds roost either in a spruce tree, on the snow near its trunk, or sometimes in a “snow-roost” beneath the snow surface.

As snow melts in spring, the birds spend more time on the ground, and supplement their spruce needle diet with highbush cranberries that persisted through the winter. Principal summer and fall foods include highbush and lowbush cranberries, blueberries, crowberries, green leaves, fungi, and assorted flowers and seeds.

Chicks eat a lot of insects in the first few weeks after hatching. Broods seem to like areas with a dense ground cover of blueberry, perhaps because the plants are tall enough to hide the chicks but low enough to let the hen watch for predators. Spruce grouse need a large amount of grit (small stones or pebbles used to grind food in the birds gizzard) to make the change from a fall diet of berries and leaves to a winter diet of fibrous needles. During September and October, adults and young pick up grit in early morning along

roads, streams, and lakes. Some of the birds travel several miles to get grit. These autumn movements are the longest in the bird's whole life, as spruce grouse stay in the same few acres of ground the rest of the year.

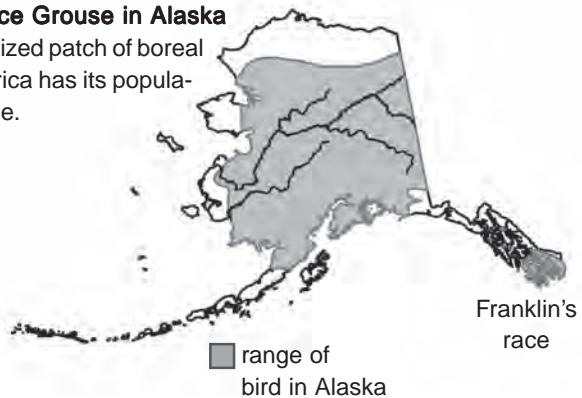
No one knows yet why there are a lot of grouse in an area one year, and very few the next year or two. These ups and downs occur among grouse even in places far from roads and towns. There doesn't seem to be much to worry about concerning the periodic crashes of grouse populations; long experience has shown that the birds will soon be abundant again if their habitat remains unchanged. The birds are in real trouble, however, if nesting cover, brood-rearing areas, feeding places, or roosting sites are lost because of changes wrought by man or nature. Recently, spruce bark beetles have killed the majority of mature white spruce trees in much of Southcentral Alaska. Wildfires have been the most important cause of loss of spruce grouse habitat in Interior Alaska. However, these same fires may increase habitat for ruffed grouse and sharp-tailed grouse.

## Where to find them

In the fall, spruce grouse are often seen along roadsides throughout their Alaskan range. Favorite places for hunters and bird-watchers are on the Parks Highway from Trapper Creek through Denali State Park and from Nenana to Ester, on the Steese Highway between miles 120 and 148, along the Elliot Highway, along white spruce-dominated sections of the Alaska and Taylor Highways, near Glennallen on the Glenn Highway, on many secondary roads on the Kenai Peninsula, and in the Matanuska and Susitna valleys.

### Range of the Spruce Grouse in Alaska

Nearly every good-sized patch of boreal forest in North America has its population of spruce grouse.



The rusty-orange band at the tip of the dark tail is the spruce grouse's trademark throughout most of its range in mainland Alaska and all but the far western portion of Canada. However, the Franklin's race of spruce grouse, which ranges from Southeast Alaska into Washington, has blackish tail feathers with unmarked tips.



# Ruffed Grouse (*Bonasa umbellus*)



Crouched amid the dry ferns on a windblown cutbank, this ruffed grouse turned its body to catch the waning rays of a mid-November sun. The first sign of its awareness of my approach was a compression of the body as the ruffled feathers were pulled flat. Then the ragged crest slowly rose, the bird shuffled its feet closer under its body, and with the explosive force for which this grouse is famous, it hurtled away through the aspen stand.

## Habitat

The throbbing drum of the ruffed grouse pulses in spring through the woodlands of Interior Alaska wherever stands of aspen and birch break the uniformity of the northern spruce forest. But ruffed grouse are most abundant where dense stands of young aspen or birch have become established after a fire or timber harvest. In such situations it finds the variety of plants it needs for food and shelter, and a host of small, flowering plants in sunlit glades for the chicks to eat and to hunt among for insects.

## Identification

Ruffed grouse come in two color tones: red (actually rufous or reddish brown) and gray phases. Red-phase individuals in Alaska are not as richly colored as those from the eastern United States, but the back, and particularly the tail, are definitely reddish brown. Gray-phase birds have distinctly gray



tail and rump feathers, paler bodies, and only a hint of light brown feathers along their sides. Both color types can occur in one family group. Scientists in Minnesota now believe that the gray birds have the advantage over the red ones whenever snow is on the ground for long periods every winter, since gray birds appear to be least susceptible to predation. This may explain why the gray-phase ruffed grouse dominate in Alaska.

## Behavior

Like most Alaskan grouse, the ruffed grouse establishes and advertises its ownership of a plot of ground in spring. Males drum from particular places in their territory, usually from a log, stump, or rise of ground. Careful study of ruffed grouse in northern states has revealed that the territories are actually established by older cocks in autumn. These dominant cocks are the first to begin drumming in spring. The first-year males, most of them unable to establish themselves on good territorial ground, “wait in the wings” until an older male is killed or until the sexual urge wanes among the early breeders.

Many people have heard ruffed grouse drumming in the fall. This common activity is most often associated with adult males who are advertising their presence to dispersing juvenile males, although juvenile males who have established territories may also drum. These males are essentially communicating to other males that there is “no vacancy” in the area.

Hens like to nest beside a stump, under a fallen tree, or beneath an overhanging shrub, especially along the edges of forest openings. The nests usually are not close to the male’s drumming site. Hens lay eight to fourteen eggs. Males do not help incubate or rear the young. The young hatch in about three weeks and quickly leave the nest with the hen. Family groups of hens and their chicks like dense shrub and moist places at the woodland fringe. The broods stay together until mid-September, when young birds disperse in what is known as the “fall shuffle.” Ruffed grouse do not form large flocks in fall and winter, as ptarmigan and sharp-tailed grouse usually do, but sometimes groups of six to ten birds stay together for weeks at a time.

People who hunt ruffed grouse often hang up their guns in late October because the birds seem to vanish from the woods at that time. Certainly ruffed grouse are hard to find on bright winter days, even when the birds are quite common. The experienced outdoors person looks for these grouse as the sun goes down, because it is then that they leave their daytime roosts to fly into the tops of trees to feed. One of the most enjoyable winter experiences in Alaska is the sight of three or four of these handsome birds outlined against the glow of a late evening sky, busily harvesting their daily crop of aspen buds. The skier who accepts the invitation of a bright, crisp March day will, if

he traverses good grouse habitat, be doubly rewarded by the sight of a ruffed grouse bursting through the roof of its night-time roost in the snow.

Of the seven species of tetraonids in Alaska, the ruffed grouse population densities oscillate the greatest in a nine- to ten-year cycle. In the last 40 years of the twentieth century, peaks have come in the latter part of each decade. This trend appears to be continuing. ADF&G biologists used this information to time live trapping and translocation of ruffed grouse from the Interior to the Matanuska-Susitna Valley in the late 1980s and the northern Kenai Peninsula in the late 1990s. Locally, snow depth can be critical to grouse survival in areas of extreme cold as they roost in the relative warmth under a blanket of snow. In the early 90s there was a local population crash in the Fairbanks area owing to lack of snow and extreme cold.

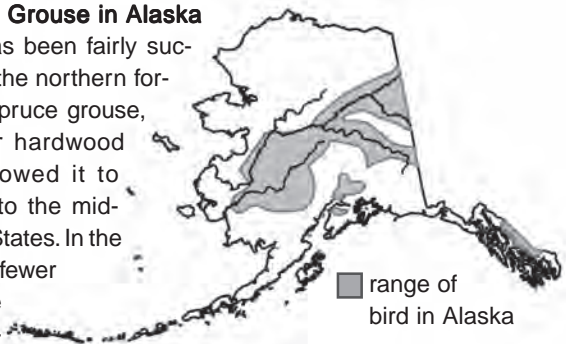
## Where to find them

Ruffed grouse occur naturally throughout most of Interior Alaska in aspen forests in the Yukon, Tanana and Kuskokwim River valleys. Ruffed grouse also occur in Southeast Alaska, where they range out of British Columbia along the lower Stikine and Taku Rivers. The population transplanted by ADF&G to Matanuska-Susitna Valley has expanded down the Susitna River to Beluga Lake. The status of the transplanted population on the northern Kenai Peninsula is unknown at this time.

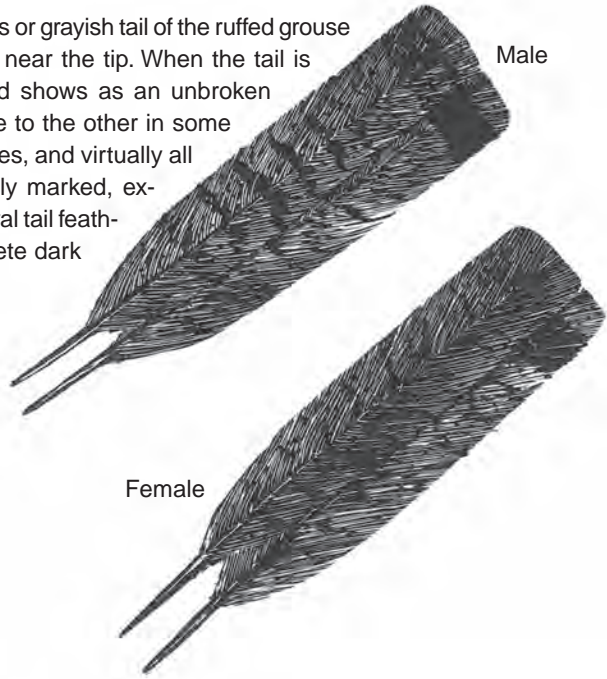
Birds are most readily found by focusing on forested areas where dense young stands of aspen predominate as a result of wildfire or forest management activities. In the fall, birds frequent the edges of forest and shrub where wild rose, highbush and lowbush cranberry, and blueberry are available. By late October these birds switch to their winter diet of aspen and willow buds.

### Range of the Ruffed Grouse in Alaska

The ruffed grouse has been fairly successful at colonizing the northern forests, but unlike the spruce grouse, it has an affinity for hardwood stands that has allowed it to spread southward into the mid-section of the United States. In the north, it occupies far fewer square miles than the spruce grouse, because its habitat is less widespread.

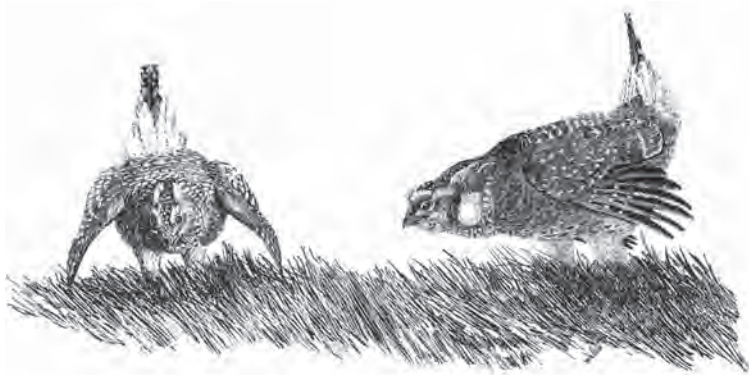


The mottled rufous or grayish tail of the ruffed grouse has a dark band near the tip. When the tail is spread, this band shows as an unbroken arc from one side to the other in some males. Other males, and virtually all hens, are similarly marked, except the two central tail feathers lack a complete dark band.



# Sharp-Tailed Grouse

(*Tympanuchus phasianellus*)



The springtime dance of the sharptail is one of the most fantastic sights in the north. Cocks gather at dawn on a dancing ground, or “lek,” with the dominant males in the center and subordinate males on the edges. For several hours the birds will go through their choreographed routines, feet drumming, bodies circling, tails rasping and airsacs bulging and popping. The hens come singly or in small groups, and they, too, have their hierarchy of dominance.

## Habitat

Sharp-tailed grouse often perch high in an Alaska spruce tree, or emerge from dense brush along a back road. This grouse occupies a vast area of primarily forest habitat from Ontario to Alaska, far north of the prairie border with which people usually associate it. In these subarctic regions the sharptail prefers recent burn areas, open grass-shrub habitat, agricultural lands, sparse shrub-spruce at timberline, and wet, sedgy, almost treeless areas known as muskegs. Sunny, grassy knobs are important features of breeding grounds. Dwarf birch bushes on which they feed are an important component of their winter range. Sharptails will also feed in unharvested grain fields in central Alaska, as long as the grain shows above the snow.

## Identification

Sharp-tailed grouse are distinguished from other grouse species by their silver-gray “frosty” appearance and white-spotted wings, but the most distinctive field mark is the short, pointed tail.

Male sharptails, which weigh about 2 pounds when mature, are slightly bigger than females. The two sexes look very much alike, except that the central pair of tail feathers of the male is usually striped longitudinally rather than cross-barred as in females, and the cock's crown feathers are dark without bars.

## Behavior

The close kinship of sharp-tailed grouse and prairie chickens is obvious when courting time rolls around. Both species court in communal dancing grounds, called "leks," where dominant males strut with fanned tails and drooping wings, "dance" on stiffened legs, hoot, and make a rattling sound by rapidly moving their tail feathers, all in an effort to get the attention of the hens. No other Alaskan grouse has such a courtship pattern. Late April through early May is the best time to look for sharp-tailed grouse on their dancing grounds in Interior Alaska. Activity is at its peak within an hour of sunrise. Sharptails in the Tok area of eastern Alaska habitually court along roadsides, making observation and photography possible.

Male sharptails mate with several females on the dancing ground, and a hen may mate with more than one cock. Hens take on the task of incubating eggs, usually eight to twelve, and rearing the young. It is doubtful that males even know where the nests are, as hens often choose a place far from the courting area.

When several inches of snow covers the ground, the flocks, which formed early in the fall, begin to move about. Adult males often stay closer to lek sites in winter, while females and young wander more widely. Radio-tagged sharptails summering in the agricultural areas near Delta Junction migrated up to 50 miles to wintering areas. Like other grouse and ptarmigan, this species takes advantage of the insulation and concealment provided by the fluffy snows of Interior Alaska by roosting at night in snow burrows or hollows.

During Alaska winters sharp-tailed grouse rely heavily on dwarf-birch catkins for food, varying their diet when they can with grass seeds, waste barley, and overwintering berries. In the spring they are often observed 'budding' in young aspen trees. At this time they also feed on overwintering berries (especially kinnikinnick) and emerging green leafy vegetation. In summer, green leafy vegetation and insects are important food sources. In years when grasshoppers are abundant, sharptails often feed exclusively on them while they are available. The crops of sharp-tailed grouse taken in September usually hold kinnikinnick berries, lowbush cranberries, blueberries, grains, and various leaves and leaf fragments.

Although good records are rare, Interior Alaska apparently had good

populations of sharp-tailed grouse in the 1920s and 1930s. Perhaps this period of abundance was related to the widespread wildfires that swept repeatedly over huge sections of the Tanana and Yukon valleys after the turn of the century. Sharptails thrive in the early years after an area burns (when grasses and shrubs dominate), only to decline again when trees close in and the ground cover changes. In the 1950s and 1960s numbers were much lower. Since then, large agricultural projects and numerous wildfires in Interior Alaska have resulted in improved habitat and increased numbers of these birds.

## Where to find them

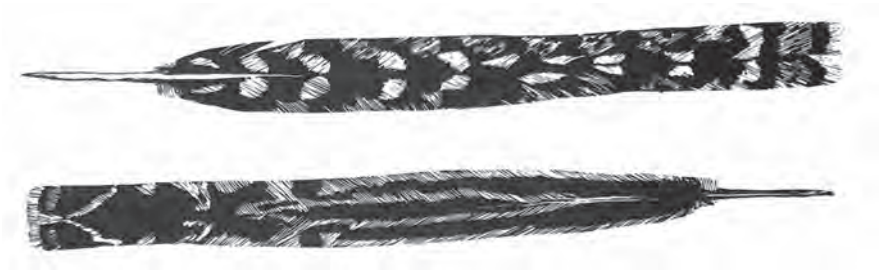
Although the sharp-tailed grouse is not widespread in Alaska, some places are locally known for their consistent production of coveys of this bird. The area around Tanacross, Tok, and Northway and the agricultural area east of Delta Junction are two such hot spots. The brushlands from Shaw Creek to Delta Junction and from Delta Junction to Donnelly Dome support smaller populations. The open marshy ground near Fort Wainwright and North Pole is an area where these birds are often seen. Sharptails are also scattered along high, fairly open ridges west of Livengood, the road to Manley Hot Springs, on the Johnson Road south of Eielson Air Force Base, on other summits or “domes” in the vicinity of Fairbanks, and along the Lake Louise Road west of Glennallen.

### Range of the Sharp-Tailed Grouse in Alaska

The Interior valleys and their foothills harbor practically all of Alaska's sharp-tailed grouse, although small populations occur in the western Copper River Basin. The subspecies found in Alaska also lives in the Canadian provinces of Yukon and extreme northern Alberta. Six other subspecies occupy lands extending east across central Canada to the

Great Lakes region, and south to Nebraska, New Mexico, Nevada, and Oregon. The sharptail is very much like the more southerly prairie chicken; in fact, the two birds occasionally hybridize.





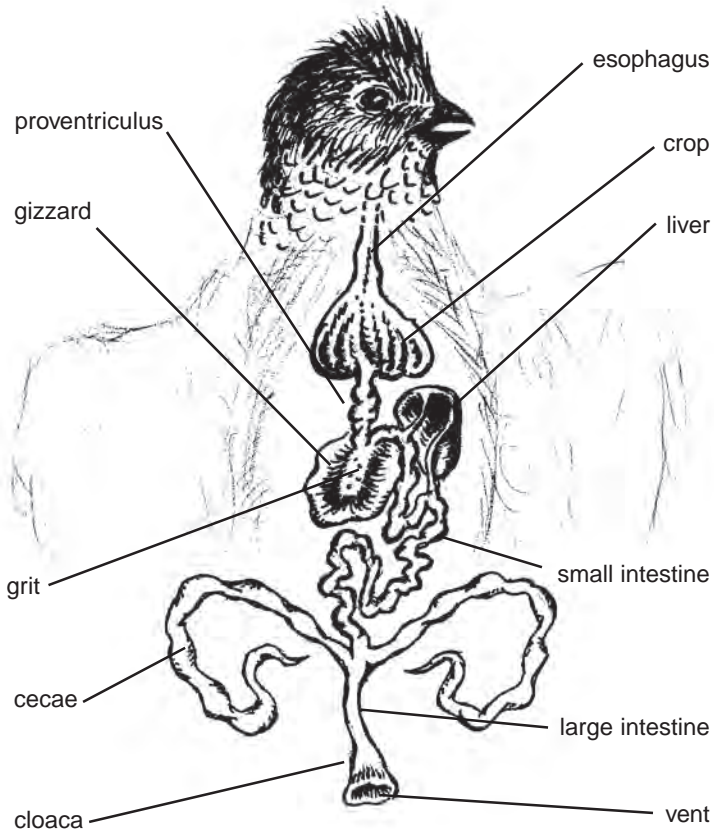
The short, stiff, brownish-gray tails of sharp-tailed grouse are totally unlike those of any other Alaskan upland game bird. The sharptail can open and close its tail so fast that it produces a dry, rustling, castanet sound. When fanned and erect, the two central feathers point to the sky like fingers. It is these feathers, drawn here, that give a clue to the sex of the bird. Typical hens have a cross-barred or mottled pattern the full length of these central tail feathers, whereas males usually have longitudinal stripes extending at least halfway along the feather. An individual attempting to determine the sex of sharptails on this basis would be right 90 to 95 percent of the time.



# Digestive System

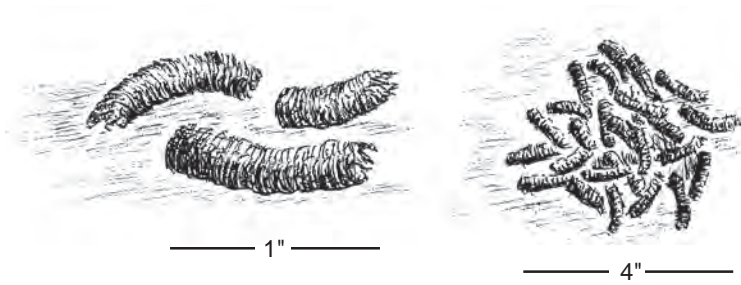
## Birds don't have teeth. How can grouse and ptarmigan digest dry, hard twigs?

All grouse and ptarmigan have big, muscular gizzards containing a thick-walled sac full of small pebbles. As the muscles contract the stones roll around, grinding and chipping the fibers of leaves, buds, and twigs, preparing the food for chemical digestion. The stones are selected for hardness; usually quartz or chert predominate. Chicks begin picking up pebbles a few days after hatching, and renew their supply periodically throughout life. In the North, where snow covers most of the ground for months, grouse and ptarmigan retain grit particles for a long time. By late winter even the hardest pebbles are ground and polished like gems.



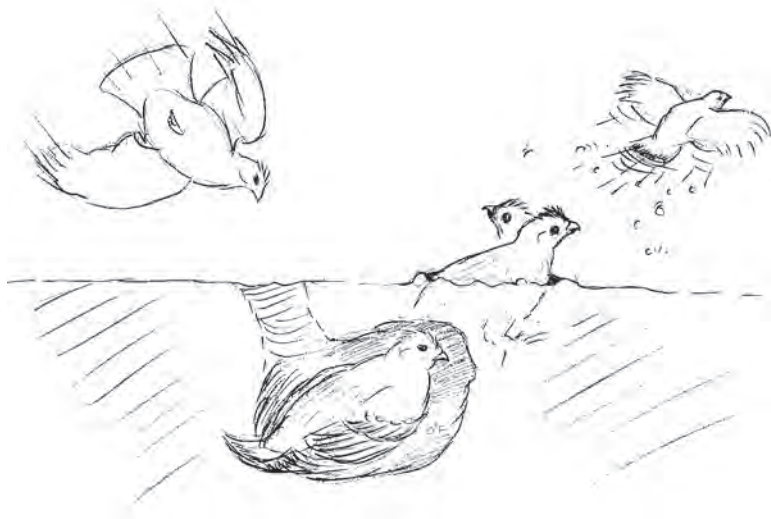


# Droppings



# Snow-Roosting

Snow-roosting is a common behavior of grouse and ptarmigan. Snow is used for shelter, warmth, and protection from predators. Temperatures under the snow can be 40 degrees warmer than at the surface.



# Important Plant Foods



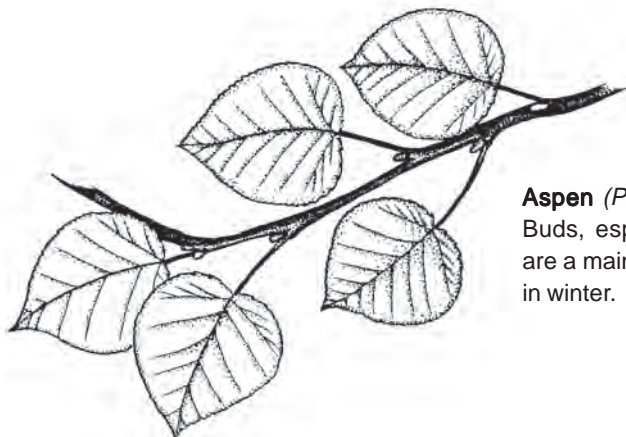
## **Kinnikinnick or bear berry**

*(Arctostaphylos uva-ursi)*

Berries preferred by sharp-tailed grouse in the fall.

## **Blueberry (*Vaccinium spp.*)**

Berries eaten especially by ptarmigan in the fall. Overwintered berries are eaten in the spring (or any other time they are exposed from their blanket of snow).



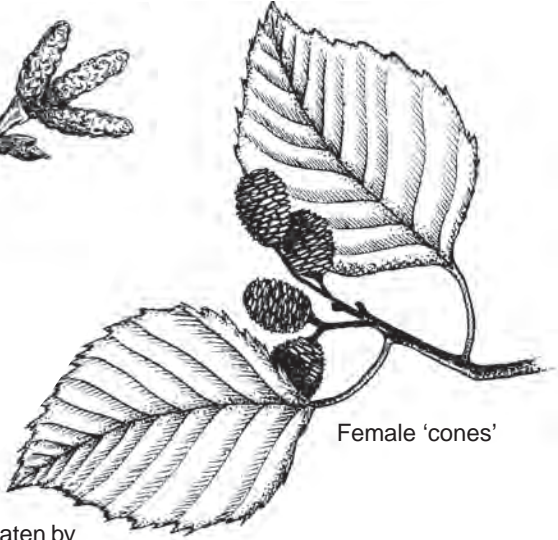
## **Aspen (*Populus tremuloides*)**

Buds, especially flower buds, are a mainstay of ruffed grouse in winter.

Male catkins



Female 'cones'



**Alder** (*Alnus crispa*)

Buds and male catkins are eaten by white-tailed ptarmigan in winter.

**Dwarf birch**

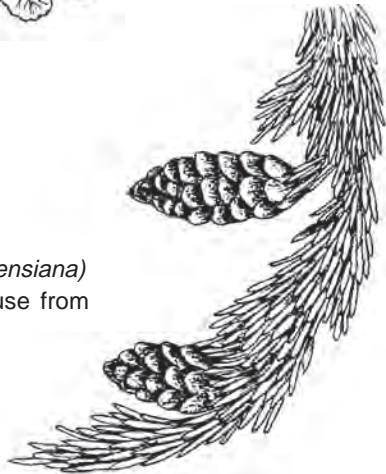
(*Betula nana* and *B. glandulosa*)

Rock ptarmigan and sharp-tailed grouse are heavily dependent on this shrub for winter food; also used by white-tailed ptarmigan in winter.



**Mountain hemlock** (*Tsuga mertensiana*)

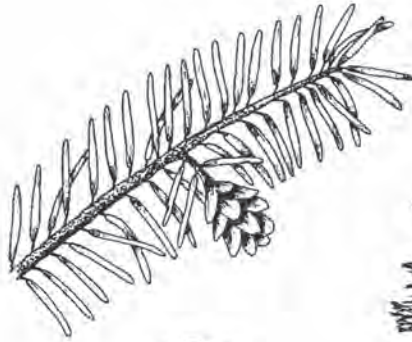
Needles are eaten by blue grouse from October to May.



**Western hemlock**

*(Tsuga heterophylla)*

Blue grouse also eat the needles of this hemlock in winter.



**White spruce** (*Picea glauca*)

Needles of white spruce and black spruce (*Picea mariana*) are almost always the sole winter food of Interior and north coastal spruce grouse populations.





**Sitka spruce** (*Picea sitchensis*)

The sharp needles of this tree are an important winter food of Alaskan blue grouse.



**Highbush cranberry** (*Viburnum edule*)

Red, pungent berries eaten by spruce and ruffed grouse in fall.



**Willow** (*Salix spp.*)

Several species of willow are important foods of willow ptarmigan all year and of white-tailed ptarmigan and ruffed grouse in winter.







Willow Ptarmigan



Rock Ptarmigan



White-Tailed Ptarmigan

Blue Grouse



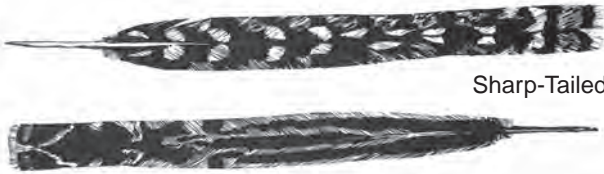
Spruce Grouse



Ruffed Grouse



Sharp-Tailed Grouse





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