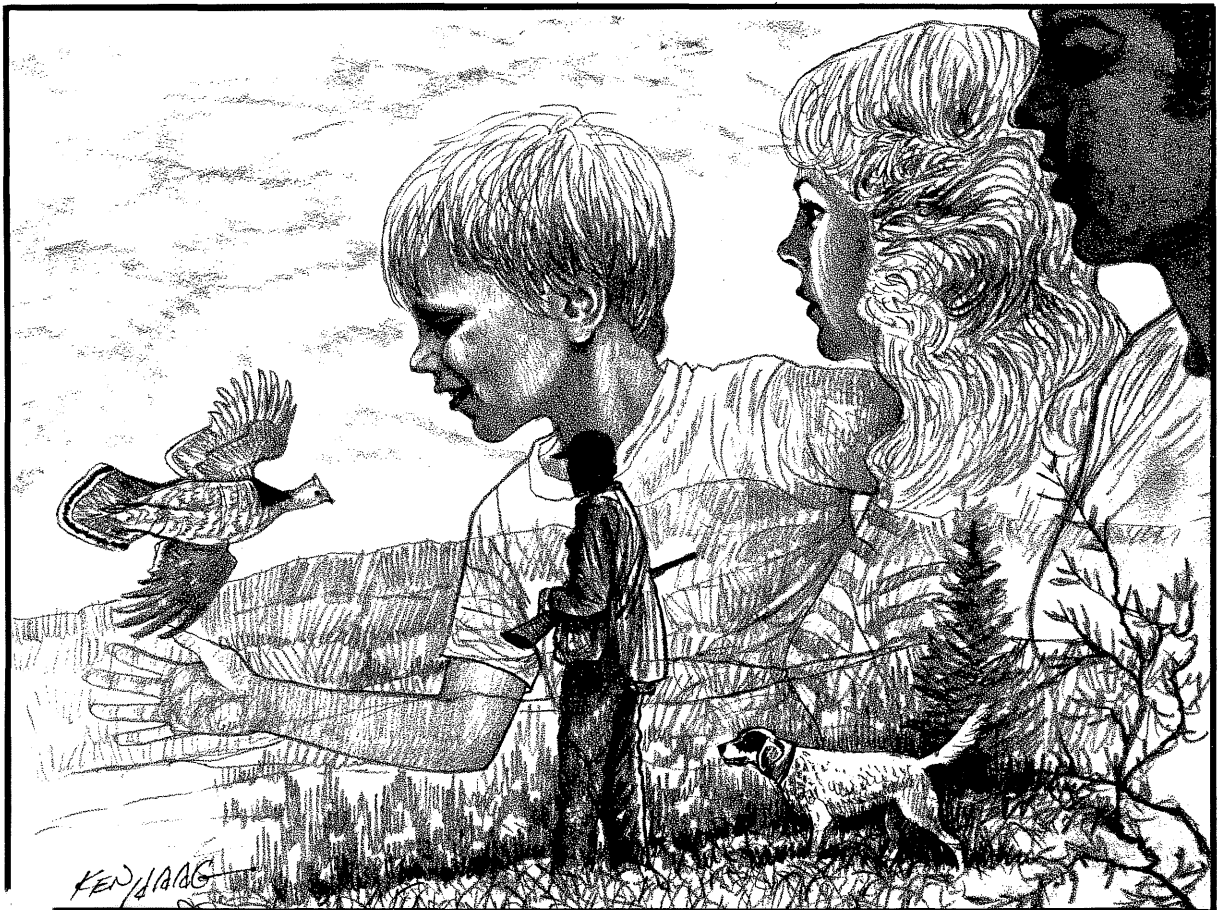




SMALL GAME

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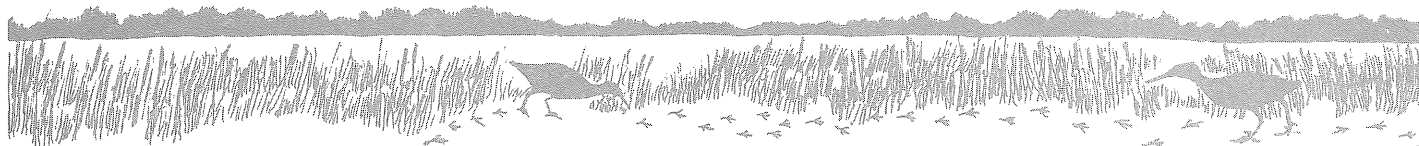
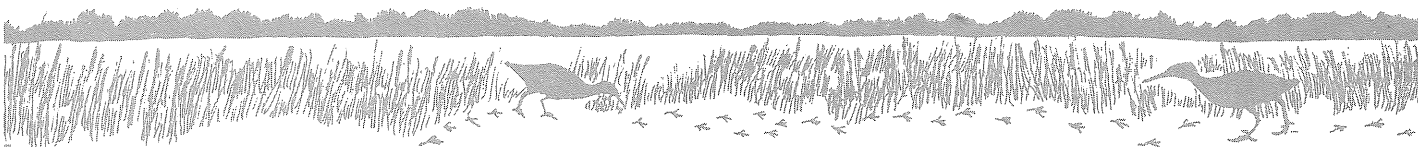


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FOREWORD

Small game encompasses not only all the huntable upland game birds of Minnesota, but furbearers, rabbits and squirrels as well. Each group will be discussed separately as there are similarities within each category, but little common ground to discuss all three areas together.

UPLAND GAME BIRDS

Minnesota upland game birds include grouse, pheasant, turkey, woodcock and Hungarian partridge. The original distribution of these game birds in Minnesota includes the ruffed grouse in the eastern woodlands, the sharp-tailed grouse and the original prairie chicken in the open grasslands in summer and the brushy country and open woodlots in winter, spruce grouse in the northern conifer forests, and bobwhite quail in southeastern Minnesota.

Only the prairie chicken and bobwhite quail are no longer hunted; there are, however, remnant populations of both species. The Hungarian partridge and the pheasant were both introduced, and the turkey has been reintroduced in recent years.

GROUSE AND WOODCOCK

"If I could shoot a game bird and still not hurt it, the way I can take a trout on a fly and release it, I doubt I would kill another one. For me there is almost no moment more sublime than when I pull the trigger and see a grouse fall. Yet, as the bird is retrieved I feel a sense of remorse for taking a courageous life." — George Bird Evans

Of the three types of grouse hunted in Minnesota the ruffed is obviously the most coveted.

The ruffed grouse gets its name from the ruffs on the sides of its neck. Ruffs are present in both species but are more prevalent in the cock than the hen.

There are actually five color phases, with the brown and gray being the most easily recognized.

Up to 55 percent of the fall population would be taken by normal over-wintering losses. Under normal conditions hunters will take a portion of this 55 percent.

Of 1,000 chicks born in a year —

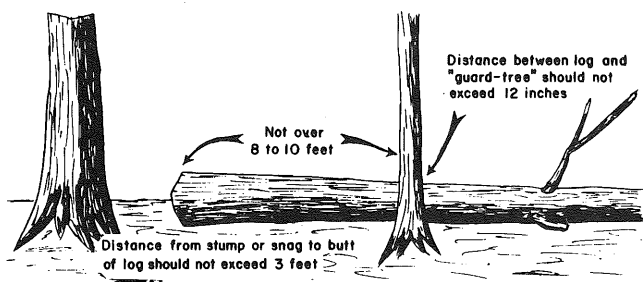
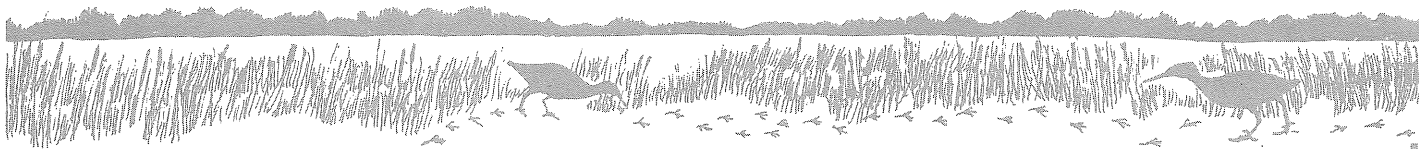
- 450 will make it to one year
- 185 will make it to two years
- 78 will make it to three years
- 41 will make it to four years
- 13 will make it to five years

Minnesota now has a grouse population in its southeastern corner which has become reliant on agricultural crops as its major food source instead of aspen. The grouse of southeastern Minnesota seek out cover on the wooded ridges and feed primarily on corn, alfalfa and mast.

Grouse Management

Since ruffed grouse are largely dependent on the aspen, management for a varied age aspen forest is also beneficial to the grouse population. Until the last three quarters of this century, the birds were dependent on natural ecological agents such as fire and windstorms to maintain forest disturbances which would cause early successional stages dominated by trees such as aspen.





One should also be reminded the male aspen also serves as primary winter food and the young aspen trees serve as important cover for broods.

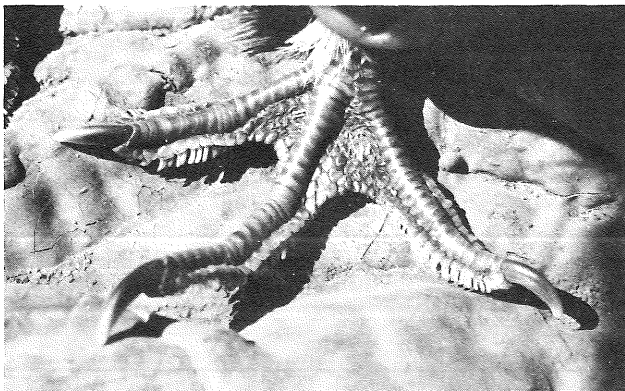
It is important therefore to manage for an aspen forest of three ages. The young dense sucker stands of less than 10 years for brood cover, the sapling and pole stage of 10-25 years for adult wintering and breeding cover and the older aspen for food, wintering, and nesting cover.

Under optimum conditions aspen forests can produce two pair per 10-12 acres. Grouse this numerous should produce one bird per four or five acres for hunters. Reasonable management will yield one grouse per four acres and one pair per 10 acres shows a deficiency in habitat.

Initially the aspen stand should average one sucker for every 2-square feet — in 10 years when the stand thins to the density acceptable to wintering and breeding adults, there should be one 25-30 foot tree every 5-square feet.

Drumming logs can also be provided as part of the management plan. The illustration above shows how a tree could be felled to make a drumming log. It should be 10 to 12 inches in diameter at the butt end, and felled into heavy brush cover. The surrounding terrain should be free of other logs, brush piles, or other concealment for foxes or four-legged predators for a radius of at least 60 feet, and there should be flower-producing male aspens in the forest canopy overhead. Large conifer trees should also be cut out as these can harbor raptors.

The ruffed grouse is about half the size of a pheasant, weighing between one, and one and one-half pounds. The grouse is noted for its fan-shaped tail marked by a broad, dark band. It also has a concealed neck ruff which the male puffs out during display and courtship.



The grouse is well-equipped to survive in snowy woodlands. Each toe is lined with tiny outgrowths called pectinations. These small growths measure about one-tenth of an inch, thus making each toe about twice as wide as normal. These natural "snowshoes" enable the grouse to travel over snow without sinking in.

An interesting characteristic of ruffed grouse is the variation in tail colors. Some have chestnut-colored tails — the red-phased birds — while others have gray or slate-colored tails — the gray phase. Curiously, red-phased birds become more prevalent in the population as grouse numbers increase periodically, and are lost more rapidly than grays during periods of population decrease.

Habitat

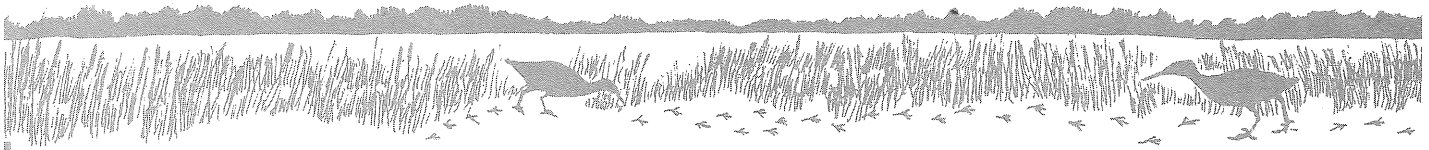
Typical grouse habitat in Minnesota is the young hardwood forest where aspen or "popple" is an important component of the forest stand. Often small stands of pines, firs and spruce may be interspersed through these stands, but they are not necessary. Alder lowlands and patches of gray dogwood are especially attractive to grouse in summer and fall. Grouse do not spend much time, nor live very long, in mature hardwood forests or in extensive stands of pines, fir, or spruce. Mature male aspens are usually within sight of occupied drumming logs.

During fall, ruffed grouse frequent the edges of alder lowlands, around patches of gray dogwood, thornapple, sumac or other berry bushes, along the margins of pastures, or in lightly grazed woodlots having an abundance of clover. In stormy weather they seek patches of conifers.

Life History

Ruffed grouse are solitary birds. Unlike the coveying or flocking behavior of quail, partridges, and pheasants, grouse spend most of their time alone as adults. It is rare for grouse to fly more than five miles from where it was hatched, less than one-half live out their life less than a mile from the nest where they were hatched. The male grouse normally occupies a drumming activity center or territory by October of his first fall. He will spend the





remainder of his life in that area which may encompass no more than six to 10 acres. Hens also move into their wintering areas in mid-October. Usually each hen will range over the territory of two or three males occupying adjacent territories.

Within each activity center, the male grouse will select one to four logs, boulders, tree roots, dirt mounds, or other elevated objects to use as display sites. Collectively, these are called "drumming logs," though obviously not all are logs.

The male drums by beating his wings in the air, starting slowly as a series of distinct thumps. As the wings gain speed, the drumming sounds like a rapid beating of a distant drum.

In mid-April, drumming becomes more feverish. Males advertise their locations to interested hens, in addition to their territorial proclamations. Drumming activity reaches a peak about the last week in April at the height of the breeding season, then tapers off markedly in early May. But a good deal of drumming activity resumes in mid-May, and extends into early June.

Brood

Once mated, hens disperse to find a nesting site, which may be one-half mile from the logs at which they were mated. Nests are most likely to be in an open, park-like forest near some big, old, male aspen. There the hen will lay 10 to 14 eggs at a rate of about two every three days. The eggs hatch after about 23 days of incubation. The hen then takes the brood away from the nest toward a suitable brood range which may be a mile or more distant. The male plays no role in nesting or caring for the brood.

For the first couple of weeks the chicks feed almost entirely upon insects, but soon turn to plant material such as the green seeds of grasses, woodland sedges, and various fruits and berries. It takes nearly 16 weeks for a young grouse to become fully grown.

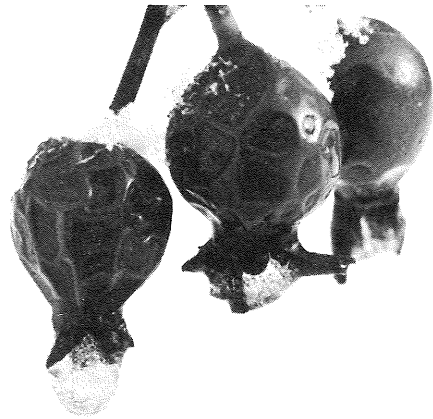
Toward the end of September, broods usually break up and the young birds disperse. Six young grouse from one brood may go six different directions. Young males may disperse only a few hundred or thousand feet from where they grew up, but young hens may go several miles.

Dispersal movements peak shortly after leaf fall in early October when most young birds have reached the coverts where they will spend the remainder of their lives. This is truly a fall "shuffle."

Adults

In the fall adult hens usually return to the winter range they occupied the previous year. Meanwhile adult males vigorously defend their territories against intrusion by young males, both by drumming on their chosen logs and by the beautiful feather display seen so often in the fall. In this display the male grouse looks like a small turkey, with his tail full-fanned, erect ruff nearly hiding his head, and his bright red eyebrow glowing.

During fall ruffed grouse feed on a variety of foods. Most fruits and berries are eaten readily. Especially favored, however, are the fruits of dogwoods, cherries,



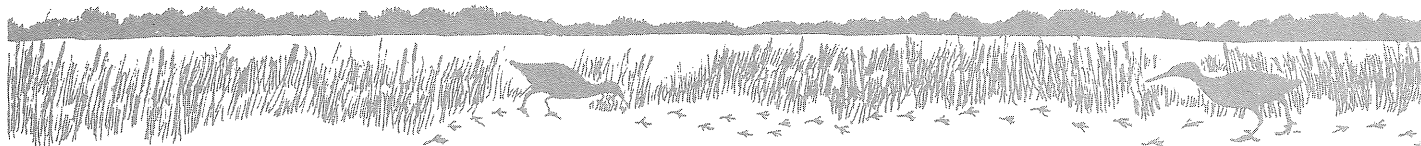
mountain ash, thornapple, and rose hips. Ruffs also feed on many green leaves including those of clover, strawberries, bunchberry, aspen, and some ferns. Mushrooms are frequently eaten, as are acorns, when available. Occasionally, they eat snakes, salamanders, and frogs. The catkins of hazel, ironwood, birch and alder and the flower buds of the aspens become increasingly important as food sources as winter approaches.

Once snow covers the ground all food is obtained from shrubs and trees. This consists primarily of the male catkins or flower buds of several trees, the aspens being most important. For nearly eight months, grouse subsist upon the buds, twigs, and flower-producing parts of several forest trees and shrubs.

Ruffed grouse have to contend with a host of predators throughout their life. Most eventually die as prey for one or another of the wild predators, if not humans. Goshawks and horned owls are probably their most important predators. But the impact of these predators upon the population is a function of habitat security. Where the predators have the advantage — as in mature, open hardwood forests and in stands of conifers — ruffed grouse are short-lived and usually scarce during the breeding season. But in good cover, especially 10- to 25-year-old stands of sapling or pole stage aspen, grouse have the advantage and thus are longer lived and abundant each spring. Thus, whether hunted or not, the grouse population usually drops about 55 percent from mid-September to early May.

One of the more puzzling and curious characteristics of ruffed grouse is their so-called "cyclic" population trend. About every 10 years they reach a high level of abundance, and then decline sharply over a period of two or three years, only to increase again a few years later. Over the past half-century, peak populations have usually occurred in years ending in 1, 2, or 3, and the bottom of the depression usually in years ending in 5, 6, or 7. Recent peaks were in 1951, 1961, 1971, and 1980.

Hunting by humans during normal fall seasons does not appear to be a factor contributing to periodic changes in grouse abundance. But how people affect grouse habitat through forest land management is more important than any and all of the other factors combined — either to the benefit or detriment of these birds.



Grouse Food Chart

Type	Description	Fall	Winter	Primary Locations
Blueberries	Light blue to indigo, $\frac{1}{4}$ "- $\frac{3}{8}$ ", round with dark bloom at tip, soft, smooth early fall, wrinkled late, very small seeds.	AF	C	Moist, sunny openings (old burns sparse lowlands).
Raspberries	Orange to bright red, $\frac{1}{2}$ "- $\frac{3}{4}$ ", looks like a ball of fish eggs, may have stems, soft.	B	—	Dry, sunny exposures (edges of openings, trails, roadsides, clearcuts).
Blackberries	Red to deep-purple or black, same as raspberries.	B	—	Same as for raspberries.
Roseapples	Orange-red, $\frac{1}{2}$ ", oval with light-brown bloom at tip, firm early, soft after freezing, yellow inside with large seeds.	B	B	Dry, sunny exposures (edges of openings, trails, roadsides, clearcuts, rocky outcroppings).
Strawberries	Light green to red, $\frac{1}{4}$ ", soft, conical, may have stems.	C	—	Sunny openings with short grass or clover (trails, roadsides, clearcuts).
Leaves	Dark green, $\frac{1}{2}$ "- $\frac{3}{4}$ ", small, oval with pointed tip, moderately notched along edges.	A	AD	Same as above.
Chokecherries	Orange-red, $\frac{1}{2}$ ", round, firm, large pit, brown and wrinkled late in season.	A	BD	Dry, sunny exposures (edges of openings and watercourses, trails, roadsides, sparse woods).
Pincherries	Deep red, $\frac{1}{4}$ ", round, firm, large pit	A	BD	Moist, shaded edges (adjacent to moist lowlands).
Bunchberries	Scarlet, $\frac{3}{8}$ ", oval, firm, shiny, smooth, medium sized yellow seeds. Plant is 4-7", single stem, 4-6 oval, pointed leaves, cluster of berries.	A	A	Mature evergreens and rich deciduous lowlands.
Snowberries	White, $\frac{1}{4}$ ", round, soft, small seeds.	B	BD	Cool coniferous forests, bogs, and edges. Creeping evergreen mats grow in shaded, mossy, secluded openings.
Partridge berries	Red, $\frac{1}{4}$ ", round, soft, small seeds, bi-lobed, two eyes on end opposite stem.	B	BD	Same as above.
Wintergreen	Red, $\frac{1}{4}$ ", round, soft, small seeds, evergreen odor when crushed.	B	BD	Same as above.
Viburnum	Black, $\frac{3}{8}$ ", round, bi-lobed, firm, shiny, medium sized seeds.	A	BD	Mixed forests of aspen and balsam fir (rich soil).
Bearberries	Scarlet, $\frac{3}{8}$ ", bi-lobed, firm, shiny.	B	—	Dry, sunny exposures (clearings, sandy soil).
Osier berries	Bluish-white, $\frac{1}{4}$ ", round, firm, smooth, dark spot at tip.	B	—	Alder swamps and edges of moist lowland forests, watercourses, marshes.
Buds	Deep-red, $\frac{1}{4}$ "- $\frac{1}{2}$ " long, slender, firm, sharp-pointed, smooth.	B	B	Same as above.
Cranberries	Red, $\frac{1}{4}$ "- $\frac{1}{2}$ ", round, firm, small seeds, after freezing they are soft and juicy and may be wrinkled.	AF	AF	Sphagnum mat bogs (sparse tamarack, cedar spruce).
Clover leaves	Green, three $\frac{1}{4}$ " round on soft stem, may appear as single round leaves and be considerably wrinkled in the crop.	A	A	Cool, shaded openings (trails, roadsides, short grassy clearings).
Blossoms	White, pink or brown if dried, $\frac{1}{2}$ "	B	C	Same as above.
Flower buds	Reddish-brown, $\frac{1}{2}$ ", conical, fat, pointed, soft, shiny, sticky, furry inside.	—	A	Mature popal stands adjacent to good winter cover (vital winter food).

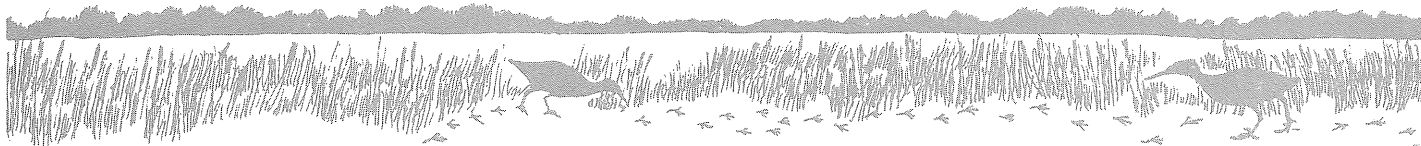
A — Often eaten by ruffed grouse
B — Occasionally eaten

C — Rarely eaten
D — If available (lingering fruit)

E — Often, if preferred food is scarce
F — Annual abundance unreliable, but highly preferred

Grouse Food Chart, continued

Type	Description	Fall	Winter	Primary Locations
Buds	Reddish-brown, 1/2", oat-shaped firm, pointed, shiny scales, twigs with attached bud may be included.	—	A	Same as both of above.
Catkins	Reddish-brown, 1.4-2.5" long and 1/4" diameter, shaped like a slender hot dog, scaly.	—	A	Same as above.
Birch leaves	Bright-green, 1-2", rounded with sharp point, deeply veined, notched edges, rough texture.	A	—	Mixed birch and popple stands.
Buds	Grey-brown, 1/4", slender, sharp points, dull, large scales. Twigs may be included.	—	B	Same as above.
Catkins	Male: tan, 1-1.5", 1/4" diameter, fuzzy, soft. Female: cinnamon beneath, tan above, 1 1/4" long, slender, firm, scaly.	—	B	Same as above.
American Iron-wood leaves	Bright-green, 2", birch-like but longer, more slender and more tapering, double toothed edges.	B	—	Shady hardwoods, river bottoms, alder swamps, moist edges.
Buds	Gray-brown, 1/4", cone-like, square in cross section, short in appearance, wide base. Twigs may be included.	—	AB	Same as above.
Catkins	Light-brown, 1/2-1-1/2", usually short, compact, smooth and finely scaled. This tree is 20 to 40' tall, has slender, muscular appearing trunk and branches and has smooth, dark-gray bark.	—	AB	Same as above.
Hazel nuts (bush)	Light green or yellow early, brown with light oval stem area later, 5/8", slightly flattened, lined on larger tip end.	BF	BF	Edges of grassy openings, trails, roadsides, sparse deciduous forests.
Buds	Brown with whitish tip, 1/4", short and fat. Twigs may be included.	—	B	Same as above.
Alder buds	Reddish, 1/4", claw-shaped, firm, smooth. Twigs may be included.	—	B	Wet lowlands (swamps, watercourses, edges of evergreen swamps, tamaracks).
Catkins	Reddish-brown, 1", straight, smooth, slender, scaly.	—	B	Same as above.
Maple buds	Cinnamon, 1/2" long, 1/4" diameter, soft, moist, shiny scales.	—	CB	Mature, hardwood forests, isolated ridges.
Flower buds	Cinnamon, 1/2", look like woody raspberries, twigs usually attached.	—	CB	Same as above.
Seeds	Tan, with wing 1 1/2" long, oat-shaped seed with thin, papery wing 3/8" wide.	CB	CB	Same as above.
Acorns	Light-green early, brown late, 5/8-3/4", oval, smooth, sharp tip, lighter shaded at base.	AF	AF	Mature hardwood forests, isolated ridges.
Sedge seeds	Yellow to brown, 1/8", oval with spike.	B	B	Marshes, shorelines, beaver ponds, watercourses.
Flower seeds	Tan to black, very small, various shapes, some round, some long, some flat and some with barbed spikes. Daisies, hawkweed, groundsel, touch-me-nots, etc.	A	B	Sunny exposures (grassy openings, edges, trails, roadsides).



Grouse Food Chart, continued

Type	Description	Fall	Winter	Primary Locations
Grass seeds	Tan, long and slender. Some hairy or feathered. Various kinds.	B	B	Sunny exposures (openings, trails, roadsides).
Aspen leaves (popple)	Light green, 1-2", round with sharp point, firm, smooth, shiny, may be found rolled up or in pieces in the crop.	A	—	Young popple stands (up to thirty feet in height, edges, ridges).
Blades	Green, various sizes.	B	B	Same as above.
Ground pine (club moss)	Light green to dark green tips. $\frac{3}{4}$ -1 $\frac{1}{2}$ ", spruce-like in appearance, soft needles.	CE	CE	Mature evergreens and shady, mature, deciduous stands with rich soil.
Balsam Fir buds	Brown, $\frac{1}{4}$ ", look like miniature cones.	CE	CE	Balsam stands (thicker is better).
Seeds	Light-brown, 0.2-0.3", wedge-shaped, wing — light shiny brown, $\frac{1}{4}$ " long.	BE	BE	Same as above.
Spruce buds	Light tan, $\frac{1}{4}$ ", look like miniature cones.	CE	CE	Edges of spruce stands.
Seeds	Tan, seed darkest portion, 0.1-0.2", almond-shaped seed, wing — $\frac{1}{4}$ ", light, shiny tan, rounded at end.	CE	CE	Same as above.



SHARP-TAILED GROUSE (*Pedioecetes phasianellus*)

In appearance the sharp-tail is a greyish-brown bird with V-shaped markings on the breast and a short pointed tail. The tail is edged with white and has two long feathers in its center. Sharp-tailed grouse are often referred to as prairie chicken. A main point of difference between the two is the square tail of the prairie chicken and the sharp tail of the sharp-tailed grouse. This species of grouse has feathered legs, is 18-inches long and weighs about 2 pounds at full growth.

Reproduction

In the early spring, sometimes before the snow is gone, the males leave the winter feeding areas and

converge on the dancing ground — an open knoll trod bare. They begin dances in which the males stamp their feet, leap into the air and rustle their tails. The dances will continue, morning and evening, until mid-June, by which time most of the hens have nested and the mating urge has deserted the remainder. Sharp-tails are promiscuous in their mating habits, and the male takes no part in the hatching or raising of the brood.

Habits

An interesting habit of the sharp-tailed grouse is that in September the males that had stopped dancing in mid-June gather at the dancing ground once more, and as the chicks come to maturity these older males are joined by some of the current crop of juvenile males. The fall dance goes on without benefit of the females who are elsewhere with the rest of the young.

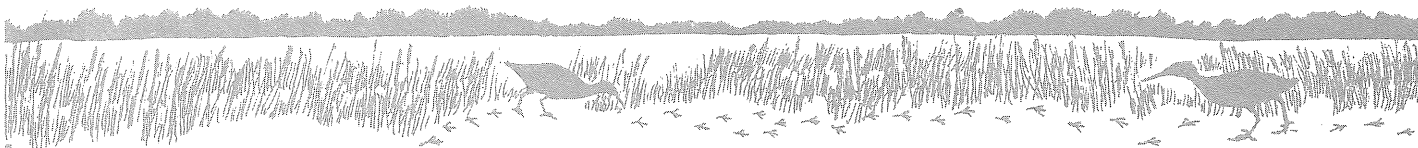
Sharp-tails sometimes move about in large flocks in the late fall. This may be related to local food and weather conditions. They are subject to periods of scarcity and plenty, regardless of predators or the hunters toll. The gradual disappearance of their habitat is probably the most serious factor affecting the grouse population.

Habitat

Sharp-tailed grouse like an excellent parklands habitat, with grassy areas for dancing and nesting grounds, plenty of bush for shelter and ample protective cover. During the winter they tend to seek denser bush if available as natural shelter against the cold weather.

Food

This grouse feeds principally on plant materials in the summer and grain in the fall, depending largely on berries and tree buds during periods of deep snow. Occasionally insects make up part of their diet.



SPRUCE GROUSE (*Canachites canadensis*)

Characteristics

The spruce grouse is commonly called the "fool hen" and it inhabits the northern forests of Minnesota. In appearance it is a handsome bird with mottled plumage and a square tail. Its plumage is darker than other grouse, with a metallic sheen, well suited to the dark forests in which it lives. It is the only grouse where the sexes differ significantly in appearance. The male is black and grey above, and splotted black and white below. He has a rusty tail band and in the spring sports a red comb. The female is a small, reddish-brown grouse thickly barred with black. Both the male and female average 15 to 17 inches in length.

Reproduction

The mating display of spruce grouse is very rarely seen. In the spring, they congregate in small groups on big spruce trees, where, on the branches the cocks strut and cackle. They perform short display flights and thus produce a fluttering of wings. Besides the flutter flight, the male walks in a turkey-like fashion, displaying the striking pattern and contrast of his markings. The tail stands almost erect, the wings are slightly raised from the body and a little drooped. He tries to attract attention in every possible way, by flying from the ground up on a perch, and back to the ground, making all the noise he can in doing so. He then thumps some hard substance with his bill. He also becomes very bold toward the female.

After mating, the hen lines a mossy hollow with leaves and grass for her 10 to 12 brown-splotted eggs. The hollow is on the ground, well concealed in spruce thickets or bush. The female alone sits on the eggs.

Habits

Spruce grouse remain solitary or in small family groups for most of the year, staying well up in thick evergreens and dining on needles, which give the flesh a strong, resinous flavor.

In its native habitat the "fool hen" exhibits a deep confidence in mankind — thus endangering itself. It sometimes flies up to a limb to watch an intruder and then is attacked, unaware of what is going on. Because of its open confidence it is one of the first birds to disappear when the land is settled and it is rapidly vanishing from all but the most uninhabited localities. It rarely comes into settlements, but prefers the dense forests.

This bird cannot be considered good eating when it indulges in its habit of eating spruce needles. Its meat is very palatable though when it dines on berries and other vegetable matter.

Habitat

The spruce grouse lives in the heavy forest lands, frequenting dense, matted growths of cedar, black spruce and tamarack — overspreading low-lying, flat and more or less swampy lands bordering on sluggish streams or muskeg. During the winter it flies into the densest clump of spruce or fir trees in the neighborhood, and under their thick branches finds shelter from the weather, and food in abundance.

Food

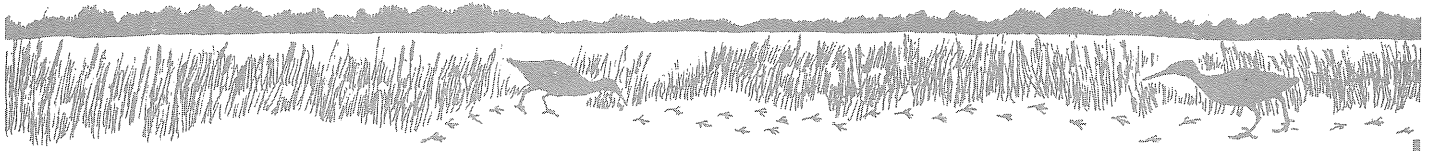
In the summer it feeds, more or less, on insects, leaves and berries. In the winter its diet consists of the buds and needles of spruce, jack pine and white pine.

WOODCOCK

Characteristics

Woodcock or timberdoodle are one of Minnesota's migratory birds. They are a stocky brown bird with short rounded wings. Their dark colored camo pattern blends well against the forest floor. They weigh 3 to 4 ounces with the female being slightly larger than the male and prefer to live in forested areas of alder, aspen or birch.





Food Habits

The woodcocks main diet is earthworms. It has nostrils in front of its eyes close to the base of the beak to help in worm probing. The worms and grubs must be in the top 3 inches of soil for the birds to be present. They will also eat insects and seeds, and consume about twice their own weight daily.

Breeding

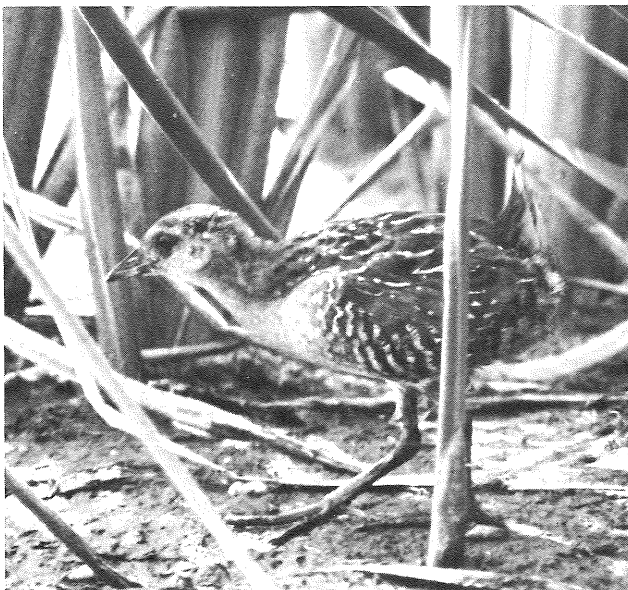
The woodcock is known for its spectacular breeding display. Birders and hunters alike go to open low areas in the spring to watch the courting woodcock. The courtship display usually starts at sunset with the male making a loud frequent buzzing noise, at close range you can also hear a soft guttural noise which resembles the croaking of a frog. The bird then flies into the air sometimes as high as 300 feet, diving and spiraling to the ground. On their way down they make singing noises to attract the female.

Hunting

Hunters enjoy pursuing the woodcock during its migration as it concentrates in larger numbers, in Minnesota migration peaks about October 15, plus or minus five days. Often grouse hunters will locate and harvest woodcock as well. Those who are avid hunters usually use pointing dogs and work the low areas along swamps and marshes. In addition to these low alder areas, hunters should key in on areas of small mixed conifers and recently cut over aspen. Heavy overstory in these areas gives the birds good cover from predation.

If a hunter is just starting out in woodcock hunting, open choke guns are best and fine shot 7¹/₂-9 is usually used.

RAIL



Characteristics

The two species of rail which are legal to take in Minnesota are the Virginia and the Sora. The Virginia rail is 8 to 11 inches in length and well-camouflaged with barred plumage of chestnut, gray, brown, and black. They like sedge areas. Sora rails are about the same size with gray barred plumage and a chicken-like yellow bill. They are more fond of cattails. Both species can also be found in the rice paddies as they are primarily grain feeders.

Hunting

Rails can be hunted by walking along the edge of a marsh or poling through with a canoe. They are weak flyers so they will fly low and quickly drop back into the vegetation. Both snipe and rail are migratory birds so recommendations on their seasons and bag limits are made by the U.S. Fish and Wildlife Service.

SNIPE

Characteristics

The average adult snipe weighs 2.5 to 5.5 ounces. They have a blackish color which is sometimes flecked, a striped crown, a dark strip through the eyes, and a dark patch on the lower cheeks. They look similar to a woodcock with a long bill. This bill is used for probing for insects, earthworms, crustacea, mollusks, and arachnids. They sometimes supplement this diet with seed, fibers, and grit.

Habitat

Snipe are found along creek flood plains, low wet pastoral areas and lowlands with shallow standing water and mud flats.

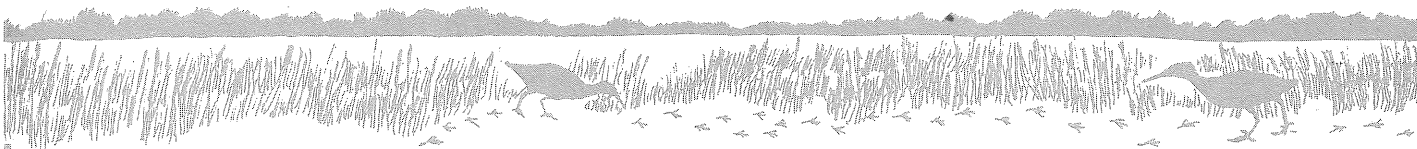
Courtship

The snipe has an impressive courtship display. Taking flight in mornings and evenings, the snipe may rise to a height of 150 feet or more above a marsh or meadow, circling around on an ever-widening orbit. At intervals, it swoops downward and produces a "winnowing" sound. The winnowing is produced by air rushing through the two outer tail feathers on each side of the outspread tail.

Hunting

The snipe is a very challenging game bird which has humored many hunters with its elusive and erratic flight. Some sources say people used to hunt snipe with decoys. They flush easily and only fly a short distance so you can have repeated flushes of the same bird. When hunting snipe, you need determination and a good pair of waterproof boots. You can either hunt by yourself or with a group of friends and work the low areas by posting people on one side and driving the birds to them.

One should be careful to identify the birds before you shoot as sandpipers and yellowlegs inhabit the same areas and they can be mistaken for snipe.



RING-NECKED PHEASANT

Originally imported from Asia, the ring-necked pheasant is today as all-American as football and the flag. Long pursued by game bird hunters, the colorful ring-neck is popular with Minnesotans in cities and rural communities throughout the southern one-third of the state. But despite its popularity, the pheasant is steadily disappearing on the very farmlands where it was first introduced.

Fat and Fit Birds

Pheasants were first brought to the U.S. in George Washington's time, but their successful introduction did not occur until the early 1880s.

It all started when Judge Owen W. Denny, U.S. Consulate General in Shanghai, began raising pheasants until they were "fat and fit for my table." Denny decided to experiment with raising the bird in America. He shipped several dozen to his brother in Oregon, who released the birds in the Willamette Valley. Spectacular increases in the bird's numbers followed and soon many other states were raising and releasing the Chinese import.

In 1905, conservationists brought 70 pairs to Minnesota from nearby Wisconsin and Illinois, but these birds produced less than 100 young. Ten years later, the Minnesota Division of Game and Fish established a game farm for raising pheasants. By 1922, the rugged ring-neck became established and was flourishing in Minnesota just as it had in Oregon.

During Minnesota's first pheasant season in 1924, hunters took 300 birds. Six years later, 184,000 hunters harvested 531,000 ring-necks. The following year, over a million birds were taken.

A Dashing Oriental

Known scientifically as *Phasianus colchicus*, this Oriental member of the Order Galliformes (which includes other chicken-like birds — turkey, grouse, quail, etc.) is primarily a mixture of Chinese, Korean, and Mongolian subspecies, though it is predominantly Chinese.

The typical rooster pheasant weighs just under 3 pounds and is a beautiful blend of russet and copper with flecks of green, white, and black. Crimson patches frame his eyes and violets and greens gleam in his black headfeathers. Usually, but not always, he has a white neck ring.

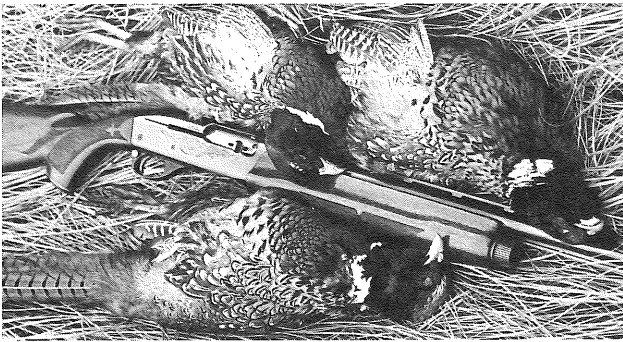
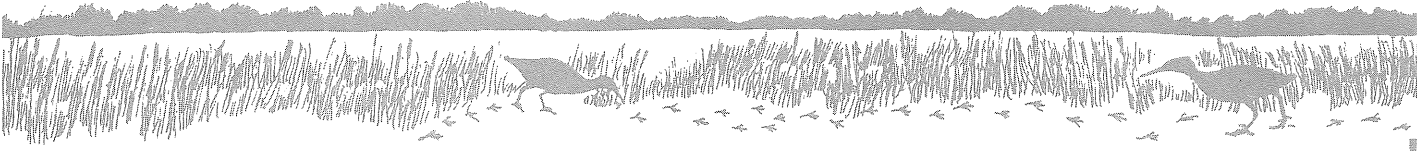
In contrast, the somewhat smaller hen has a short tail and is well camouflaged. The soft-toned brown and black markings fade into light buff and cream color on her underparts. A faint violet sheen colors her upper sides and neck.

When chased, a rooster often breaks into the air with a hoarse "Ca-ak! Ca-ak!". Once airborne, the pheasant beats its small wings more than three times per second. One rooster pheasant was radar-timed at 38 miles per hour entering a glide, and 48 m.p.h. top speed. Pheasants may fly a mile or more and, though normally leveling off at 25 feet, have been known to fly at 100 feet for two miles.

A Rugged Game Bird

The pheasant is well equipped to withstand Minnesota's weather extremes if the keys to its survival — adequate cover and food — are available. However, the state-wide habitat picture is variable and changing.

Found in both rural and suburban areas, pheasants are usually most abundant in farm country which contains a "mix" of row crops (corn, soybeans), small grains (oats, wheat), hay, and pasture. Unfortunately, modern intensive farming has greatly altered this ideal



mixture. Today, vast expanses of corn and soybeans cover the land during growing season. Come winter, the land becomes a barren sea of plowed soil.

The ring-neck is able to resist shortages in its staple diet — corn, wheat, oats, soybeans, and wild plant seeds — and can survive a week without food, even in severe weather. In addition, the pheasant is probably the least susceptible of all game birds to disease and parasites.

Despite their basic ruggedness and resistance to disease, most pheasants survive less than one year. Winter storms, especially sleet followed by high winds and plunging temperatures have in some years slashed the pheasant population in half during a two-day period.

Pheasants are more accident prone than most birds. High-speed haymowers take a deadly toll of pheasants in alfalfa fields and other nesting places. Some birds die in collisions with cars, especially in early morning or late afternoon. Predation by owls, foxes, and skunks are not a major threat to established pheasant populations.

Pheasant Numbers

Though plain in appearance compared to the rooster, the hen pheasant is the key to a stable or expanding population of ring-necks. A continuing supply of young is assured only when a plentiful supply of hens survives the winter in safe nesting cover. The number of roosters that survive winter is much less important. One rooster for every 15 hens is ample for reproduction.

To insure a supply of hens, Minnesota has maintained a closed season on hens for many years. Even so, the pheasant population has declined over 90 percent because of a comparable 90 percent loss of safe nesting cover.

Pheasants usually establish their nests during late April or early May. From two to 18 eggs (average 12) are laid over a period of days. A clutch of eggs requires 22-24 days incubation (warming by body heat). If the hen is forced to abandon the nest, or if the nest is destroyed, she will re-nest (lay another clutch) up to three times. Renesting can sometimes produce 50 percent of the year's chicks. The young chicks feed almost entirely on insects for the first month, then switch to grasses and weed seeds.

With favorable weather and abundant nesting cover, about 40 to 70 percent of the hens eventually raise a brood. The remaining hens are killed by haymowers, accidents, or predators, or may just be unsuccessful nesters.

Necessary Cover

Pheasant cover requirements differ throughout the year. Most important are safe nesting cover and winter cover.

Dense nesting cover is rapidly disappearing. This poses a serious threat to the future of the pheasant and to other ground-nesting wildlife such as rabbits, Hungarian partridge, and numerous songbirds.

Legumes or grasses provide cover for nesting, brooding, loafing, and escaping enemies. Early nesting pheasants usually establish nests in dry grass and sedges carried over from the previous fall. Later in spring, as soon as new plant growth is 6 to 8 inches high, most hens begin nesting in alfalfa fields, grain fields, pastures, roadsides, and other grassy-type cover.

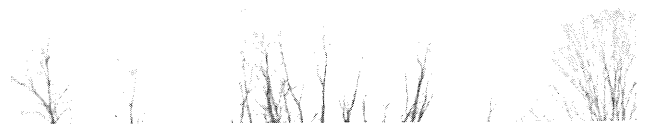
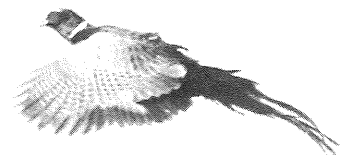
Today, because so much land has been converted to crops, the most important source of safe pheasant nesting cover in many areas of Minnesota is the unmowed roadside. Studies show that unmowed roadsides contain more than twice as many nests per acre as other kinds of nesting cover. It is important that nesting cover remain undisturbed for 35 to 40 days and not be mowed until after July 31st, if at all.

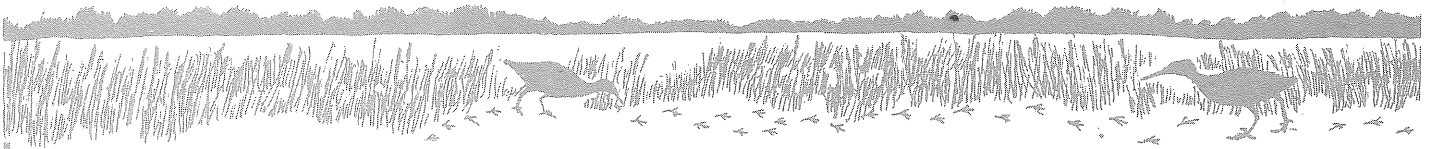
Without good cover, pheasants seldom survive a severe winter storm. During most winters, cattail marshes provide good cover. Other cover sources in order of importance, include brushy bottomlands, coniferous farm shelterbelts, small deciduous woodlots, and other areas of dense cover.

Many large cattail marshes have been drained or filled. So, pheasants and other farmland wildlife have been forced to depend more on farmstead windbreaks — rows of trees and shrubs — and other woody cover for winter protection.

Well-designed windbreaks consist of 10 or more rows of trees and shrubs of which at least four inside rows are conifers. These plantings, when 10 to 15 years or older, are large enough to provide shelter from wind-blown snow. During severe storms, narrower shelterbelts can become a death trap for wildlife seeking shelter from blowing snow.

Lack of winter food can be a factor which limits pheasant populations during severe winters, especially where fall plowing is extensive. Row crops such as corn and soybeans provide a sure source of winter food when left standing next to good winter cover until April 1st of the year following planting.





Pheasant Food



Oats and wheat



Ragweed



Wild Rose



Corn



Beetle



Cricket



Foxtail



Chokecherry



Milkweed



Sumac

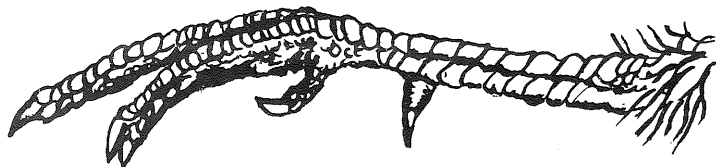
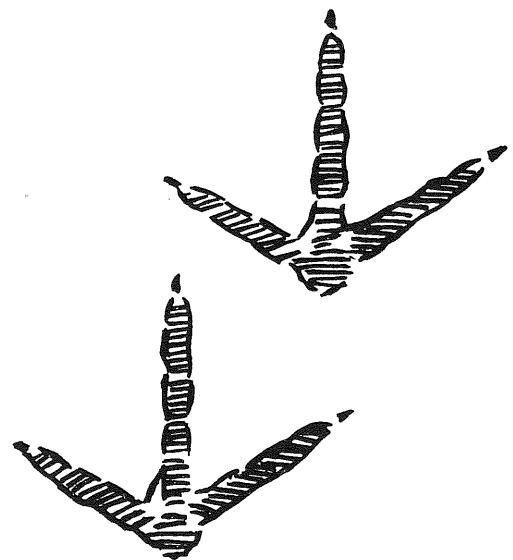
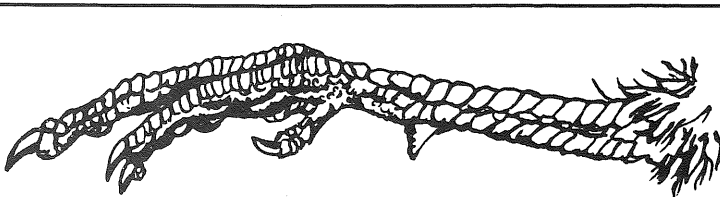


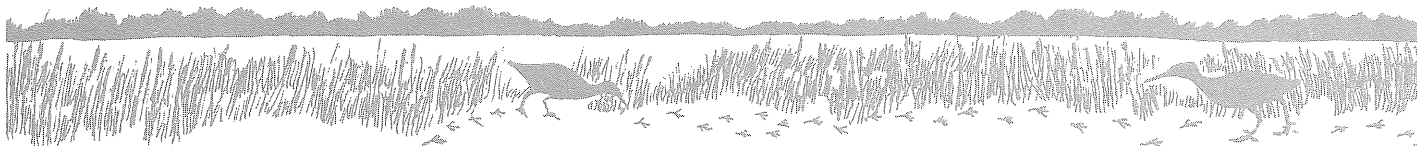
Soybean



Grasshopper

Young cocks are equipped with dull-colored, blunt spurs less than $\frac{3}{4}$ " in length. Adult spurs are shiny black, pointed, and over $\frac{3}{4}$ " long. Right: Male ring-neck pheasant track in mud. Each print is about $2\frac{3}{8}$ " long.





Minnesota Pheasant Stamp

With the 1983 hunting season, Minnesota's pheasant hunters were required to purchase a pheasant stamp. Of the estimated \$500,000 in revenue from the stamp about \$48,000 would go to administration with the remaining \$452,000 for habitat improvement.

The habitat improvement program would be spread out over the areas of roadside management, private landowner cost share programs for nesting cover, food plots and woody cover shelterbelts, and the currently existing WHIP program (Wildlife Habitat Improvement Program).

It is believed Minnesota currently has about 45,000 square miles of pheasant habitat. It may take a decade or longer before results in the major land management programs are detectable and the amount of success will depend on a number of things. It is important that landowners and sportsmen alike be aware of the needs of pheasants and work together toward a common goal of better habitat.

It is also of utmost importance that new national agriculture set aside programs be able to incorporate wildlife habitat needs into their planning. Soil bank programs of the 50's and 60's tripled pheasant numbers in the Midwest but since then, set aside programs have helped reduce the population by one-third.

Wildlife land retirement programs should provide options for multi-year retirement contracts with permanent vegetation cover. To aid pheasants more specifically there should be undisturbed vegetation between May 15 and August 1. Pheasants need permanent safe nesting cover.

A delayed mowing roadside management program will increase pheasant numbers. This program would include delaying mowing until after August 1st as well as a reseeding program. Now only one-half of the total roadside acreage supply the nesting cover needed to produce pheasants. With necessary roadside management changes, many more pheasants could be produced at little or no expense in dollars or acreage to our farmers and private landowners.

The WHIP program would work with private landowners to increase wildlife potential. It would include planting of winter cover (10-16 row woody shelterbelts), providing food plots next to good winter



cover, and working toward small wetland restoration and permanent vegetative nesting cover.

Pheasant stamp revenues have been divided up on a per county basis. Each county in the pheasant range has been given a priority and the priority rating will determine the amount of funding they receive.

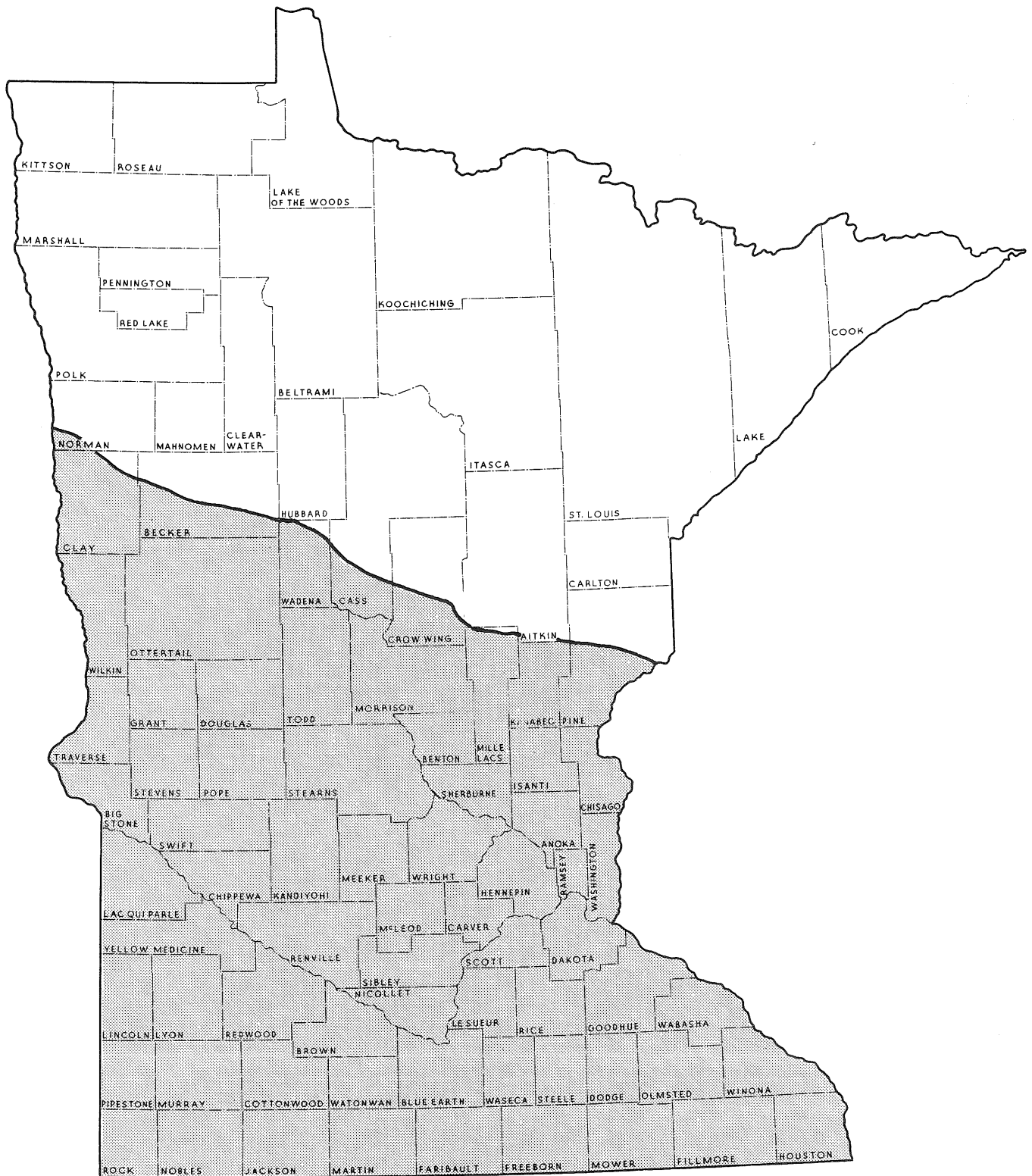
The priority ratings of counties is based on six factors:

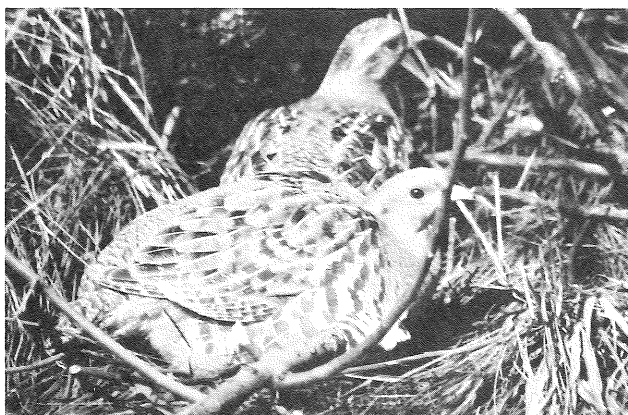
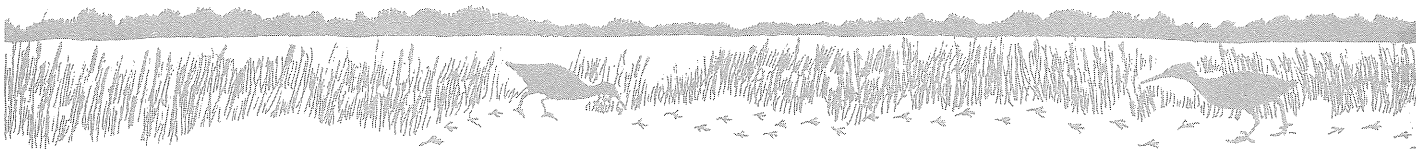
- 1) Land ownership patterns — delineating distribution and the amount of public lands.
- 2) Amount and distribution of key pheasant habitat that persists on private lands and the potential longevity of these areas.
- 3) Current pheasant populations.
- 4) Land rental rates of agricultural land.
- 5) Private land use practices.
- 6) Attitudes of local government and citizens toward wildlife populations.

Minnesota sportsmen and landowners need to realize the results will not be immediate. Although habitat is the most important factor in increasing wildlife populations, there are also other factors, such as weather over which there is no control. Severe winters such as the winter of 1983-84 can seriously set back a population recovery. We should be looking 10-20 years down the line before a marked recovery will be noted.



1980 PHEASANT RANGE





HUNGARIAN PARTRIDGE

Few hunters specialize in the wary "Hun." A frequenter of open spaces, they are difficult to locate.

The gray or Hungarian partridge averages about a foot in length and weighs slightly more than one pound. Its back is predominantly brown marked with buff and gray. Its throat, cheeks, and sides are clearly gray.

Range

The "Hun" was first introduced to Minnesota in 1920. The first hunting season was held in 1939 and they are still on the increase. It is found in many areas of Minnesota, but primarily in southwestern and west-central counties. Despite their wide distribution in Minnesota, gray partridge numbers have usually been quite low. From 1956 to 1970, statewide roadside counts in August averaged only five Huns per 100 miles compared to a mean of 204 pheasants per 100 miles for the same period. Since 1970, however, Huns have averaged 15, while pheasants have declined to an average of 55 per 100 miles.

Gray partridge generally require an open agricultural landscape in an area of low to moderate rainfall (15 to 25 inches per year) and a gently rolling topography with a preponderance of small grains, row crops, and grasslands. Little woody cover is needed, though Huns occasionally seek protection from severe cold and blowing snow on the edges of dense woodlots. In fact, open situations such as plowed fields are common roosting areas. Strip covers such as hedgerows, roadside, cover, and grass waterways are preferred nesting areas.

Nesting

Gray partridge have no courtship display comparable to that of our native grouse. Pairing, which is done within a covey, begins in mid-winter and is completed by mid-March. Nests are typically found in grassy-type vegetation. Clutches average about 15 eggs and hatch after 24 days of incubation. Re-nesting is common, though not as often as with the pheasant. Although only the hen incubates the eggs, both parents help care for the young.

Coveys usually average 12 to 16 birds and are commonly composed of one or two broods and one or more unattached adults. The range of normal activity for a partridge covey seldom exceeds 1-square mile. Plowed ground, open grain stubble, or short grassland is preferred roosting cover, even during severe winter cold. Coveys typically roost in a small circular group and sometimes snow-burrow during periods of deep snow.

As with other gallinaceous birds, insects provide an important high-protein food source during a chick's first few weeks of life. Later, cereal grains make up more than half the diet with miscellaneous seeds and greens comprising most of the remainder.

Status as a Game Bird

Because Huns are difficult targets and tend to frequent open areas which makes them more difficult to locate, few hunters specialize in hunting partridge. Therefore, most Huns are taken incidental to pheasant hunting.

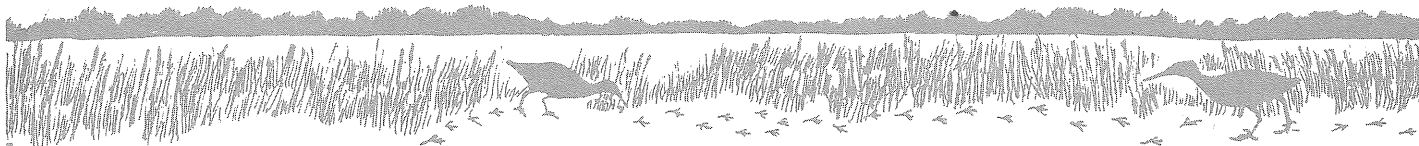
Management Techniques and Problems

No habitat management programs have been developed specifically for gray partridge. However, the DNR's program to improve roadside cover by delaying or eliminating annual mowing should be helpful in improving nesting conditions. State-owned wildlife management areas containing grassy vegetation of moderate density and food plots benefit Huns.

UPLAND BIRD HUNTING




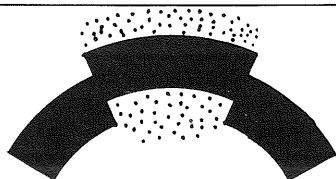


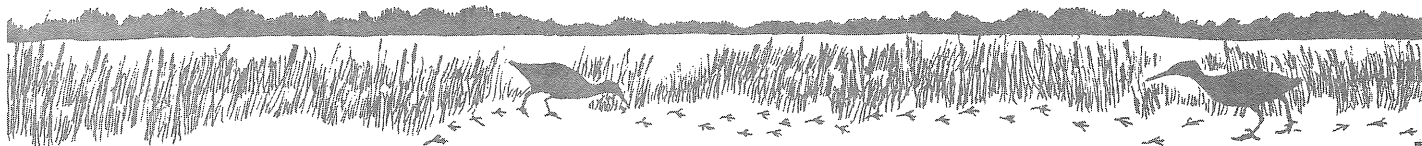
To the upland bird hunter, man's best friend may truly be his dog. It is the hunter's responsibility to retrieve any game he may down, and a dog will not only cut down the amount of time it takes to retrieve the birds but also aid



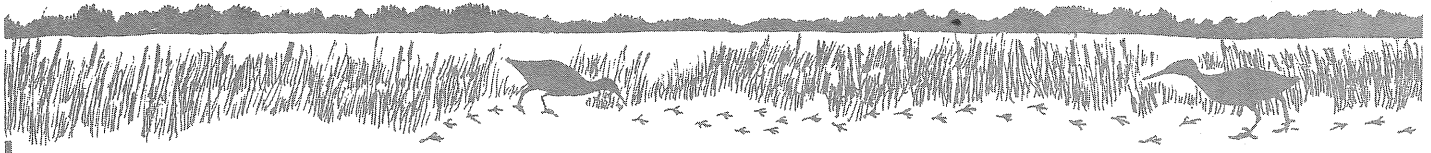
Tally Sheet — GROUSE TALES

1. Each member of your team can “shoot” a limit by selecting any of the tails in the box. But don’t shoot more than your limit.
2. Use the tally sheet below to find out what you have in your bag for the day.
3. If you have questions, ask your resource person for help.

TAIL BAND PATTERN	FEMALE					
			One white spot on rump feather			
	Red Tail		Gray Tail		Brown Tail	
	Black Band	Choc. Band	Black Band	Choc. Band	Black Band	Choc. Band
 CLEAR						
 BROKEN						
 BLOTCHED						
 FUZZY						
TOTALS:						



MALE						Two white spots on rump feather
Red Tail		Gray Tail		Brown Tail		
Black Band	Choc. Band	Black Band	Choc. Band	Black Band	Choc. Band	TOTALS



in locating birds which would otherwise probably be lost. Just a dog is not enough, however. It needs to be one which is well trained, and training takes time and patience or money, but the returns of working and seeing your dog perform are great.

A hunter without a dog should realize his limitations and look for smaller areas which will allow him to work these areas with some measure of success. Also if you are not using a dog, remember one of the most effective ways of hunting is with a start-stop motion. Going to an area and moving directly through it will cause you to pass over birds which are holding tight, the other reason the start-stop method is effective is it most closely imitates the natural predators and will make the birds nervous.

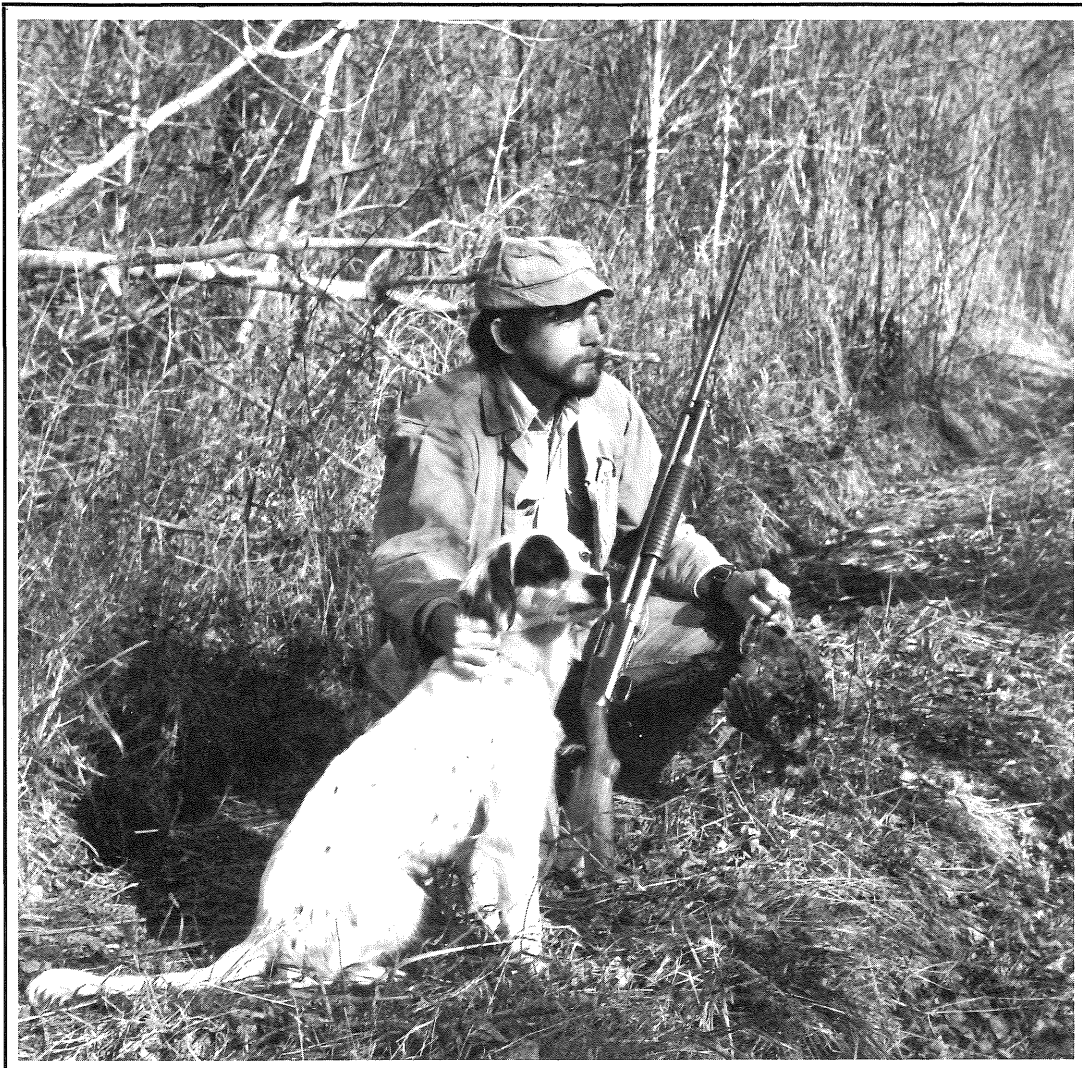
Hunters can determine some factors about not only the birds but the overall population trends by examining their bag at the end of the day. First of all, if the population is healthy the majority of the birds you take should be young of the year. You can determine age by spur length in pheasants.

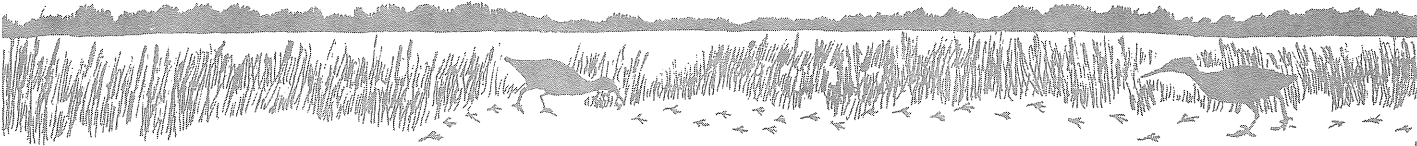
It may also be interesting in grouse to examine the percent of males and females in your bag.

Other assessments you may want to make are: checking the crop and noting what the birds have been feeding on, making notes on weather conditions and habitat, time of day you encountered the most birds. All this could go into a hunting log to assist you in future years of hunting. Remember most populations move from one habitat type to another depending on time of year, food, cover availability and weather. If you know there are birds in the area keep looking until you find them.

No matter what type of hunting you are doing, always be mindful of Minnesota trespass laws. Honor the landowners wishes if he wants you to stay out of a particular area, and leave things as you found them.

It is always nice to hunt with friends, but keeping your group size down can sometimes be a benefit in getting on private land.





WILD TURKEY

History of Wild Turkeys in Minnesota

Minnesota's first turkey hunt (1978) and those following would not have been possible without modern wildlife management techniques.

Historically, Minnesota was at the northern edge of wild turkey range and it is not known if turkeys were ever native to the state. However, they did occur south of LaCrosse, Wisconsin, and in the timberlands of northern Iowa. This suggests that the birds probably occurred in limited numbers in the extreme southeast corner of Minnesota.

First attempts to establish (or re-establish) wild turkey populations in Minnesota began in 1926 when 250 game-farm birds were released in Winona and Houston Counties and, of all places, in the Minneapolis-St. Paul metropolitan area. These initial releases failed — as did later attempts involving several hundred more pen-raised birds.

From 1964 to 1968, the Conservation Department (as DNR was then called) tried a different approach. A swap of ruffed grouse, bear, and walleyes brought to Minnesota 39 turkeys trapped in Nebraska, Arkansas, and South Dakota. These wild transplants were released in the Whitewater Wildlife Management Area (WMA). Between 1971 and 1973, an additional 30 wild-trapped birds from Missouri were transplanted to the Crooked Creek area of Houston County.

To date, Minnesota turkeys have demonstrated that the population can maintain itself despite predation, disease, and harsh winters. From the original 69

transplants, the fall turkey population was probably about 4,000 birds by 1977. With continued natural expansion and further trapping and transplanting of wild Minnesota birds, it should be only a few years before all 1,700-square miles of turkey habitat in southeastern Minnesota will contain wild turkey populations.

A large tom (male) Eastern turkey can weigh more than 27 pounds, stand 3-feet tall, and have a 5-foot wingspan. Eastern birds are found in the southern-most part of Minnesota. The average size for Merriam's turkeys, a variety found in most western states (originally transplanted to the Whitewater WMA), is about 18-20 pounds for adult toms and 10 pounds for adult hens. Minnesota's turkeys are descendants of Merriam's and the larger Eastern variety.

Wing primaries have distinct white bars with a light gray background. Tail coverts or rump feathers are edged in light tan or white. The tail feathers are almost black with rusty markings and buff-colored tips (white tips in Merriam's). The tom's head is bald and greenish-blue — except during courtship. Then the skin becomes engorged with blood and turns red about the neck and reddish blue in the cheeks. The legs are pinkish. A hen's head is covered with short, velvety-black feathers.

The turkey has a range of voices — the whistle of the young bird, the alarm putt, the soft clucks of the hen's tree call, the hen's "Here I am" yelp, the "cackle" or desire-call of the hen, and the mature male's gobble.

In addition, there are several aging characteristics. Immature gobblers (jakes) have beards less than 4-inches long and spurs less than 1 inch, their middle tail feathers are longer than the others, and they have sharp, pointed, primary wing feathers with indistinct, alternating, light and dark bars. Mature gobblers may have a beard more than 1 foot long, spurs between 1 and 2 inches, and have tail feathers of equal length.

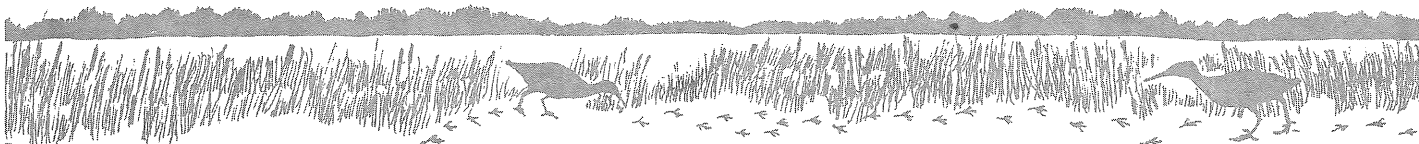
Turkey Sex and Age Characteristics

Behavior

Courtship and mating begins early in April and continues until late May; this probably constitutes the most dramatic aspect of turkey behavior.

Toms gobble to attract hens, and engage in "necking" contests — twinning their necks together in a show of strength. The winner becomes the flock's dominant male.

Males also develop a "breast sponge" during the breeding season. This is a padding of tissue, filled with oil and fat, which apparently sustains the male during breeding season when he loses interest in eating. The sponge also serves as a display device — a protruding chest to attract hens. The snood, a fleshy, conical projection located just above the beak, elongates and swells. Head, back, chest feathers puffed out, tail spread fan-like, the tom paces back and forth, sometimes taking several quick steps toward the female with his wings dragging the ground. Hens may leave the tom soon after being bred.



Nesting

After a successful mating, the hen becomes secretive, slipping away to find a suitable nesting spot. Most hens engage in nesting by mid- to late April. It is during this period (when the number of receptive hens decrease) that males become most susceptible to hunters imitating the call of a hen.

The nest is a slight depression scratched in the ground by the hen, usually in an area that is not well concealed. Clutch size average 10-12, and the egg laying is complete in about 14 days. Hens normally cover the eggs with feathers and leaves when they leave the nest to forage. During the first days, the hen may abandon the nest if disturbed, especially if the intruder is human. Predators also may cause the hen to abandon the nest.

After 28 days of incubation, all of the fertile eggs in the clutch will hatch within a 24-hour period. Shortly after hatching the hen leads her new poults to a nearby field where they feed on insects and other animal matter, a protein-rich source of food. For four weeks, the poults are brooded on the ground until their primary (flight) feathers have developed.

Wild turkeys are voracious feeders. Young birds usually gain 10 to 15 pounds between June and December. Although more than a hundred items make up the wild turkey's diet, acorns and other native mast are preferred for its fall diet. Unfortunately, acorn crops in Minnesota are not dependable. Other staples include corn, grain, and alfalfa.

Turkey Management

Turkeys have adapted successfully to southeastern Minnesota's mixture of farmland and hardwood forest. Primary habitat, however, is the hardwood forest. Thus, an important consideration for any turkey management plan is proper management of the forest. Luckily, tree cover on steep slopes is important for erosion control as well as turkeys. In addition, forest land has been purchased for use as state forests, wildlife management areas, and state parks. It is important to remember that big changes in land use will affect the wild turkey population.

Minnesota's biggest challenge to wild turkey survival is severe winter weather. Through starvation and predation related to starvation, more turkeys are lost

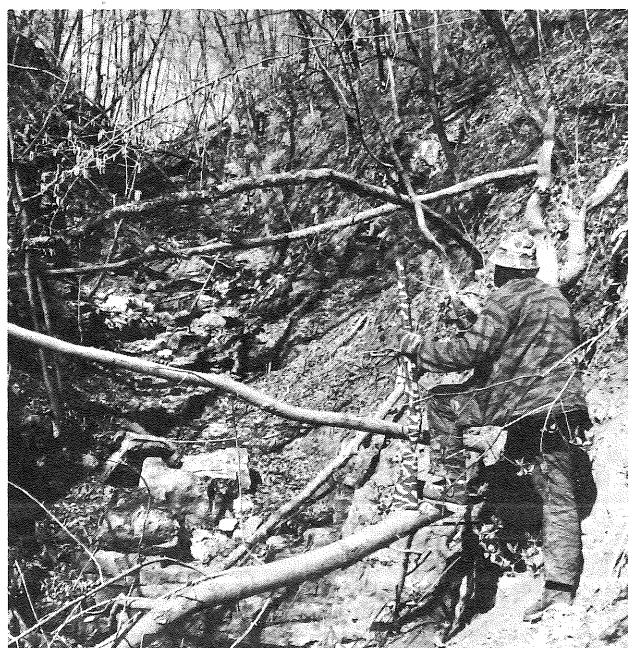
during a severe winter than any other time with nesting season running second. Another very important consideration is a dependable winter food source. Mast (acorns) crops available during the fall and early winter months may become scarce during late winter or be covered by deep snow. Severe food shortages occur when snow cover exceeds 10 inches for 20 days. In some years with greater than average snow depths, the sun is out enough to burn off the snow on southeast-facing slopes and expose valuable food. During severe winters, standing corn food plots are among the few sources of food not covered by snow. The DNR and the Minnesota Chapter of the Wild Turkey Federation are establishing hundreds of acres of corn food plots in areas of turkey range.

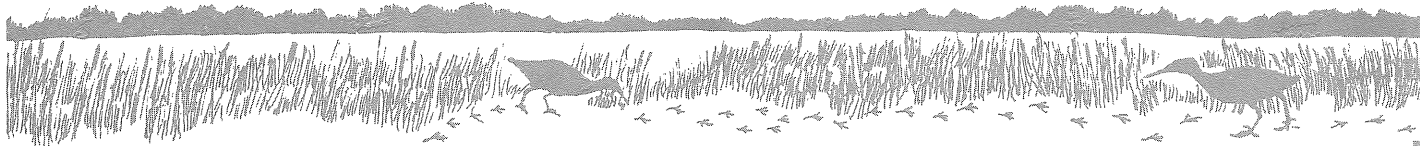
Turkey Hunting

Since Minnesota's wild turkey program began, the ultimate goal has been to provide sufficient numbers of birds for a hunting season. Since turkey populations have expanded tremendously since the original transplants in 1964, the state legislature granted the DNR authority to establish a turkey season in 1977.

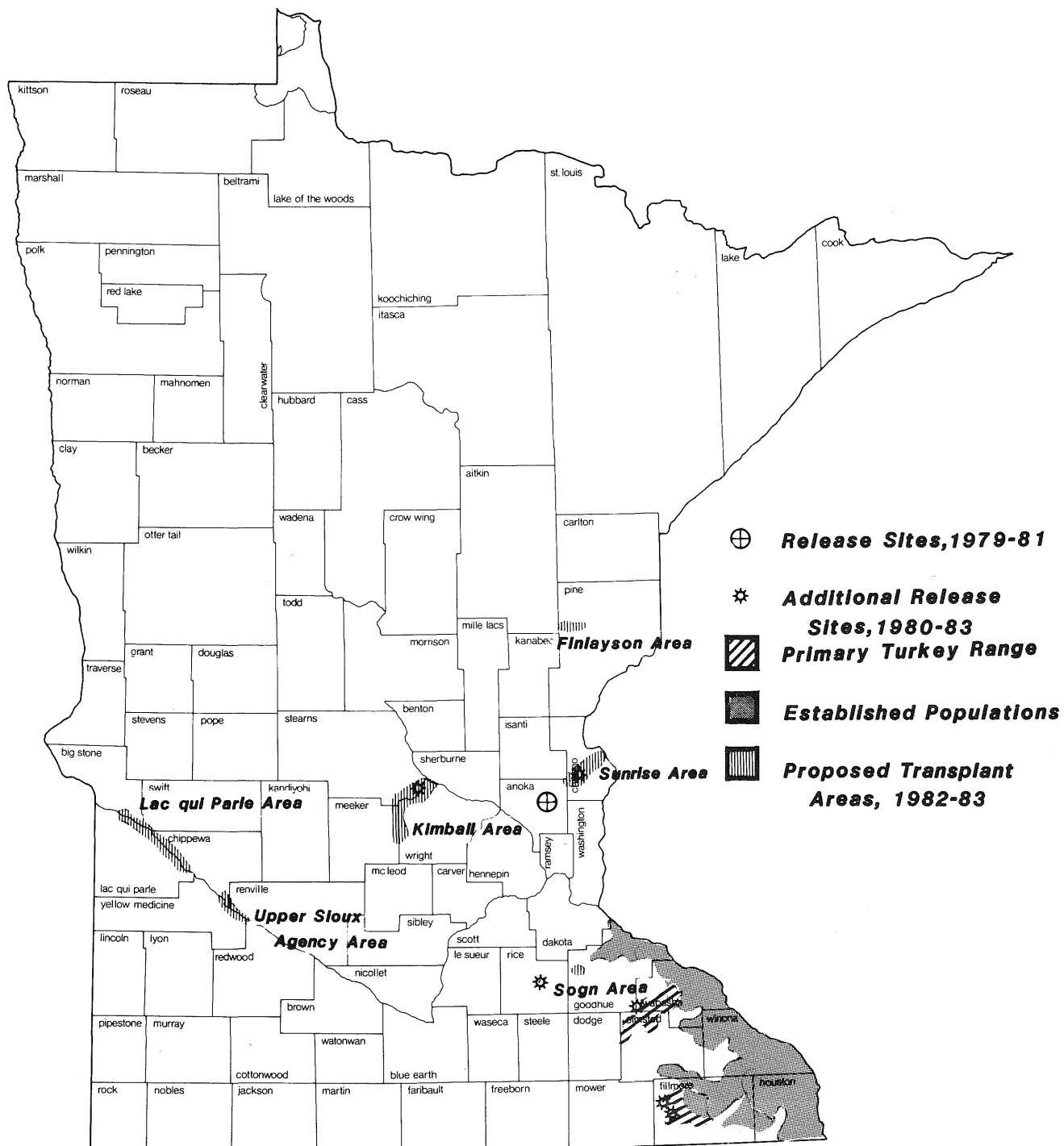
During the spring mating season the toms can be selectively hunted. Using calls that sound like a seductive hen, hunters lure toms within range of a shotgun or bow and arrow.

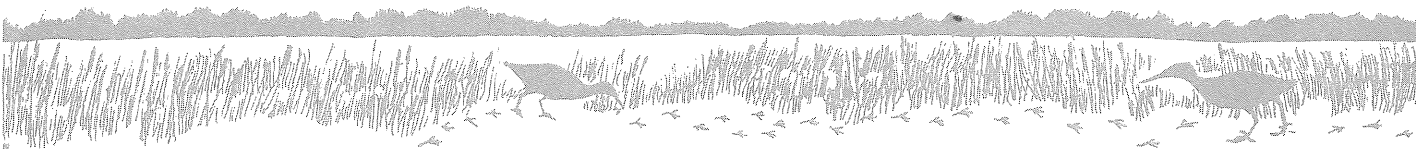
In states with large turkey populations, hunting seasons are often held in fall and spring. Fall hunts allow hunters to take birds of either sex and any age, similar to our ruffed grouse season. States like Minnesota with limited and/or expanding populations, however, usually conduct spring gobbler-only hunts to protect hens. This limitation ensures a large breeding nucleus. After Minnesota turkeys have saturated all available range, fall hunts will be considered.





Turkey Range Map





Hunting Regulations

Turkey hunters may wonder about the reasons for some regulations.

The turkey hunting season is set for the period when toms are gobbling. Gobbling normally begins several weeks prior to the first day of hunting and toms have been called in as late as June. Gobbling activity is greatly affected by weather conditions. Heaviest gobbling activity occurs on clear, calm mornings.

Hunting is allowed only between one-half hour before sunrise and noon to minimize disturbance to nesting hens. Most gobbling occurs early in the day when hunters tend to stay put. As gobbling activity subsides hunters are more likely to move around in search of birds. This increases the chances of disturbing hens, which if pushed from a nest may abandon their eggs.

Shotguns must be 20 gauge or larger, except muzzle-loading shotguns must be 12 gauge or larger. Bows must be 40-pound pull or greater using arrows with legal broadheads.

Shot size is restricted to number 4, 5 or 6 shot.

A successful turkey hunter must attach the license tag to the leg of his turkey immediately after it is killed. This identifies the hunter as the valid license holder while transporting the bird. The bird must be taken to the nearest check station and registered. There a biologist carefully records the bird's weight, age, location of the kill, and other information important to future management of wild turkeys in Minnesota.

For more information on hunting regulations review the Commissioner's Order establishing the turkey season.

Types of Callers

Perhaps most important in preparing for a turkey hunt is development of calling skills. The best call to use is the one with which a hunter is most proficient. Many types are good. Turkey callers have been made out of

every imaginable substance and in a great variety of styles. Each style has its own combination of advantages.

The hinged box caller is generally considered the easiest to use. It is probably the best choice for most first-time turkey hunters. The sound is produced by merely scraping the hinged lid across the edge of the box. Disadvantages are that it requires the use of both hands and does not work if it gets wet. Placing the box caller in a loose plastic bag allows hunters to keep the caller dry while operating it under wet conditions. There are many good models on the market.

The friction striker consists of a flat surface over which a striker is pushed or pulled. The flat surface of slate or aluminum is placed over a resonating chamber. Most strikers are wooden dowels with one slightly pointed end. Some newer models with plastic strikers work even when wet. These callers also require the use of both hands.

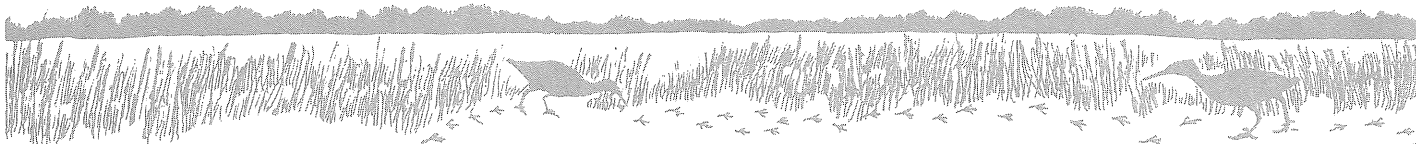
The diaphragm mouth callers are usually preferred by veteran hunters. They are the most versatile callers, but also the most difficult to master. They are unaffected by wet weather, allow the hunter to have both hands free to handle the gun and can be used without making any discernable movement.

Calling Technique

Beginners should keep several points in mind. It is better to call too softly than too loudly, to call too rarely than too frequently, and to perfect one or two calls rather than attempt some sound not yet mastered. Rhythm, or timing, can be more important than the actual quality of sound. Finally, remember that turkeys make all sorts of sounds, many of which don't sound like anything on an instructional recording. Absolute perfection of tone is less important than the skill of reading the gobbler's response and adjusting the calling technique accordingly.

Two calls are of supreme importance. The "cluck" call is a contented, sleepy, early morning sound. This call, which sounds just like it is spelled, is made by the hens





at first light, when gobblers are still on the roost. It will also bring some gobblers already on the ground. Be sure to know the difference between the “cluck” and the very similar but shorter “put,” which is the alarm call.

The “yelp” is the primary call of the spring turkey hunter. It imitates the “Come hither, I’m ready” call of the hen. It is a simple high and low note slurred together usually emitted in a series of three to five calls. These yelps can be muted or loud, slow and plaintive, or stridently insistent. This call has many variations, including that of the young and mature hen.

Scouting

Successful turkey hunting begins with careful scouting. Any hunter going into a turkey hunt “cold,” without having spent at least a day or two scouting, has put himself at a great disadvantage.

While scouting, look for signs of turkey activity. Scratching, dusting spots, droppings, and tracks — all indicate the presence of turkeys. Gobblers can be located by enticing them to answer a gobble produced on a caller. This technique is most useful after the birds have roosted for the night.

The scouting trip is the best time to talk to landowners and obtain permission to hunt on private land. You are more likely to get a warm reception when your request comes well in advance of the season. Also, it is a waste of precious hunting time to be seeking a hunting spot once hunting has started.

Your Hunt

“Putting a gobbler to bed” is a technique that can greatly increase a turkey hunter’s chances. Here’s how it is done. During late afternoon or early evening on the day before you are going to hunt, position yourself on a prominent ridge or in the middle of a valley. Gobble on your caller. If a gobbler answers, try to pinpoint its location. Note prominent features where the answering



gobble seems to be coming from. Before first light the next morning, sit down within a hundred yards of the gobbler’s roost and wait for the legal shooting hour to begin. Then, call softly like a lovesick hen and get ready for action. “Putting a gobbler to bed” should be repeated each evening during your hunt. The technique doesn’t always work, but is well worth the effort when it does.

On nice days during the mating season, it doesn’t take much to make gobblers sound off. Barking dogs, hooting owls, slamming car doors, and other sounds may trigger gobbling activity. If no gobblers sound off on their own, a light yelp on the caller might get them going.

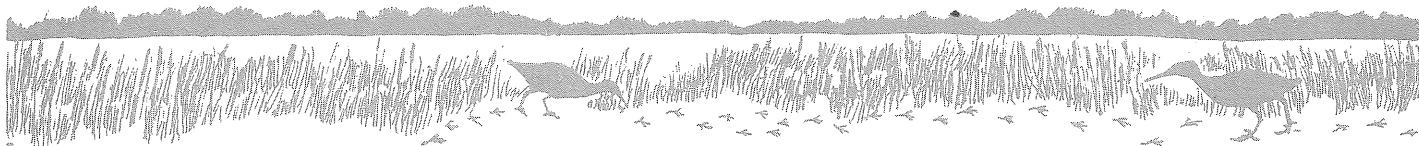
Next comes the critical step. The hunter needs to listen to a couple of calls in order to locate a bird, then move as quickly and quietly as possible to a place where the bird can be called. The selection of this site can make or break the hunt.

How close can a hunter get? Probably no closer than 100 yards — and 200 yards would be safer. If the bird hears or sees the hunter’s approach, it will slip away unseen. It is possible to approach closer in hilly terrain than in flatter areas.

It is best to call a gobbler from as near as possible to its own level. Birds seem reluctant to move up or down, and usually won’t cross natural obstructions like streams or ravines. A gobbler might go to great lengths to reach a hen, but good hunters make it as easy for the gobbler as possible.

Turkeys are hard to call across extremely open country, but very heavy cover makes for difficult shooting. Moderately thick cover with little understory is best.

The preceding is a discussion of how a hunt often works best, but variations are too numerous to write about. If turkeys were predictable, they would be much easier to hunt.



FIELD DRESSING AND TAXIDERM PREPARATIONS TIPS FOR UPLAND BIRDS

Birds are fragile and should be handled with care to avoid breaking feathers.

Before going bird hunting put a paper bag and some cotton balls in your jacket.

Crippled Birds

NEVER wring the neck of a bird that is to be mounted. You can kill a bird quickly and humanely by grasping it under the wings and squeezing its rib cage to suffocate it.

Basic Bird Care

- Plug mouth with cotton
 - Wipe off any excess blood with damp cotton ball
 - Smooth all feathers down against body
 - Put in a paper bag until all body heat is gone (several hours)
 - After all body heat is gone, seal tightly in plastic bag (tail feathers may stick out if necessary)
 - Fold a piece of cardboard long enough to protect tail feathers and wrap around bird
 - Freeze solid
- If the bird cannot be frozen right away, keep it as cool as you can. Get it to the taxidermist as soon as possible.

Things to Avoid

NEVER wring a bird's neck. Keep the bird as dry as possible. If it gets wet, dry it before putting in a bag. NEVER gut a bird.

SMALL GAME

Rabbits and squirrels rank as the most hunted and popular game animals across the United States. Most people are broken in as hunters while stalking squirrel woods or chasing rabbits. The other part of making rabbit and squirrel hunting fun is their abundance — you may come home from the hunt skunked, but rarely will you come home without having seen your quarry.

RABBITS AND HARES

Characteristics

Many people confuse rabbits and hares. A true rabbit is born blind, hairless, unable to run, and in a fur-lined nest. In contrast, a hare is born fully-furred and can run in a matter of hours. The hare has long legs — it bounds, not runs. The rabbit has shorter legs. A hare has longer ears.

COTTONTAILS

Cottontails are small animals, measuring only 12 to 16 inches including their fluffy 2-inch tail. The female is slightly larger than the male. Both weigh 2 to 3 pounds.

The cottontail's fur is grayish-brown with light-tipped guard hairs. The belly, chin, and insides of the legs are white or buff. Some cottontails have a white forehead blaze. Although cottontail rabbits shed fur throughout the year, they do not turn white in the winter as snowshoe hares do.

Habitat

Brush piles, high-tangled grass, thickets, or any obstacle to the cottontail's enemies is a likely home for this rabbit. The best homesites provide cover close to open grassy areas where the rabbit feeds. The current trend toward clean farming has severely limited rabbit habitat in many areas.

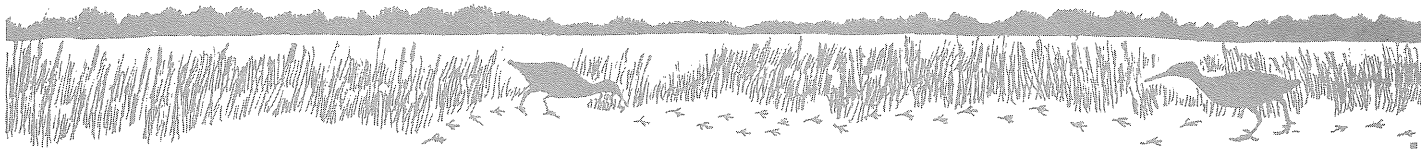
Cottontails scout their small territory — seldom over five acres — until they know every inch of ground. They use the same routes over and over until the area is criss-crossed with trails. This gives them an advantage when pursued by a predator.

Behavior

The cottontail is most active in night and early morning. During the day, it often loafs in a "form," an arch of loosely-matted grasses or twigs. When no predators are around, it may take a sun bath or stretch out in the shade. Often it will feed for a few hours in the late afternoon, until about an hour after sunset.

The cottontail does not hibernate, but if the temperature drops much below zero, it may stay in its burrow for long periods.

The rabbit's two main defenses are to remain motionless, sometimes for 15 minutes or longer, and its sudden bursts of speed. A cottontail will "freeze" if it sees a predator. But if the predator gets too close for comfort, the cottontail will bounce off on a zig-zag



course, dashing through the cover it knows so well.

Normally, when feeding and moving around its territory, the cottontail takes short hops, stopping frequently to sit up on its haunches and survey the surroundings. With its large, protruding eyes, a cottontail has an almost 360-degree range of vision.

Cottontails are high-strung animals and may die of shock if they are handled or caged. They are almost impossible to tame.

As vegetarians, cottontails choose from a variety of foods. They eat almost any green plant — whatever is available in their home range. In winter, cottontails have a more limited diet. They eat the bark of trees and fulfill their requirements for water by eating snow. Cottontails also eat their own droppings to obtain recycled protein or intestinal bacteria. They actually select only those pellets which are necessary for their nutrition. These are different from ordinary rabbit pellets. This phenomenon is called coprophagy and is common to hares also.

Life History

In the spring, cottontails become irritable and fights are common. Males compete for access to does. The rest of the year, they tolerate closer contact without aggression.

Rabbits are extremely active during mating from early spring through August. Males chase females leaping as high as they can. Sometimes one cottontail will jump straight into the air and another will dash underneath.

Gestation is from 26 to 28 days. While pregnant, the female can nurse a previous litter. Larger litters are born sooner than smaller ones.

The female or doe cottontail digs a nest in preparation for her young. This saucer-like depression is about 3- or 4-inches deep, 6- or 7-inches long, and 5-inches wide.

Then the doe plucks fur from her belly and mixes it with dead grass to line the nest and make a "blanket" that she brushes over the babies when she leaves the nest.

A newborn cottontail weighs about 1 ounce and is the size of a man's thumb. An average litter is five or six babies. They are usually born blind and naked. In smaller litters, the young are further developed at birth and are covered with fine, soft, gray fur.

By the end of the third week, the young leave the nest for good. The female breeds shortly after the birth of her



litter. She may have as many as five litters in a nesting season.

Predation

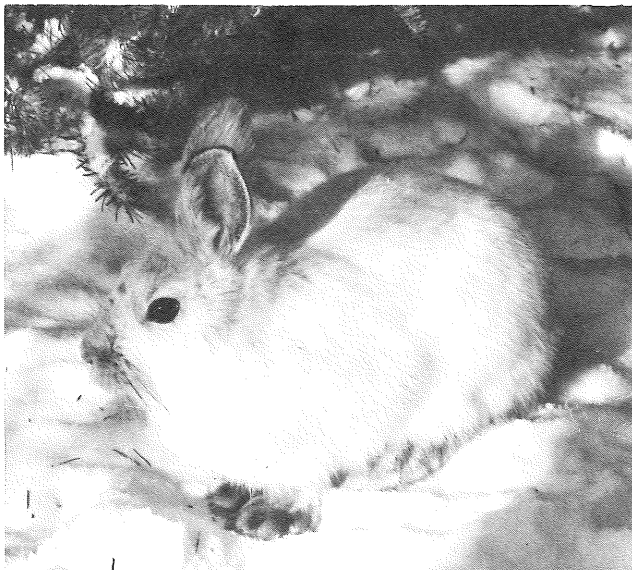
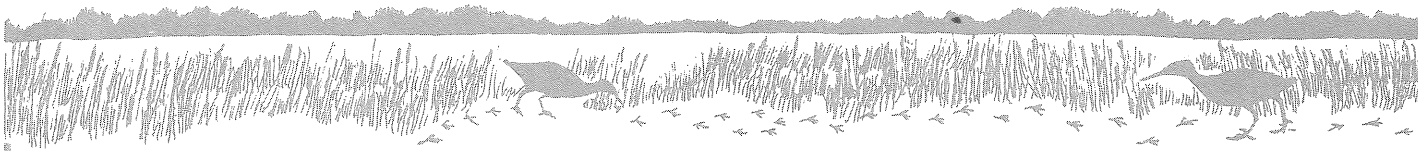
Cottontails are an important part of the food chain because practically every predator that walks, crawls, or flies eats them. Snakes, especially constrictors and rattlesnakes, snare rabbits. Owls hunt them by night, hawks by day. Minks, foxes, bobcats, fishers, weasels, coyotes, dogs, cats, skunks, raccoons, and wolves — all prey on cottontails.

The rabbit survives in the face of all this predation by producing a great surplus of young. Studies show that, each year, about 80 percent of rabbits will perish in one way or another. The remaining 20 percent set about repopulating the countryside. A single doe and her female offspring can produce 40 rabbits a season.

Disease

Many hunters are concerned about a disease called tularemia. This disease is transmitted from one animal to another by fleas, ticks, or other insects. It is present in a large number of animals besides rabbits. A diseased rabbit is sluggish and sometimes unable to run when disturbed. Its liver is covered with tiny white spots.

Symptoms of the disease in people include chills, headache, fever, and pain throughout the body. It is rarely fatal today and can be cured with mycin-type drugs. To avoid contacting the disease, hunters should wear rubber gloves when cleaning a rabbit.



HARES

Minnesota has two kinds of hares, the whitetail jackrabbit and the varying hare or snowshoe hare. The varying hare got its first name because it grows two coats of fur, white in winter and brown in summer. Come winter, the snowshoe also grows thick, coarse hair on the side of its hind feet that double its foot surface and makes it easier for the snowshoe to travel through deep snow.

Description

The snowshoe hare is larger than the cottontail. It measures about 18 inches, and weighs 4 or 5 pounds. Females usually weigh more than the males.

Temperature does not cause the varying hare's coat to change color. Take one into the house and the hare will go right on turning white as winter approaches — if the house has windows. This is because the hare has an eye mechanism that works like a photo-electric cell. As the days get shorter, the eye picks up less light, causing the hare's pituitary gland to become inactive. The pituitary gland is responsible for pigment production. When it is inactive, hair turns white. This same process is reversed in the spring. As the days get longer, the pituitary gland begins to function again and pigment is produced. The black tips of the hare's ears are the only part that remain dark throughout the year.

The whitetail jackrabbit is the largest hare species. A mature adult weighs from 5 to 8 pounds and measures 22 to 26 inches.

The jackrabbit is usually light brownish-gray on the back and sides, lighter on the belly, and has the same black-tipped ears as the snowshoe. Like the varying hare, the jackrabbit's coat changes color in winter, though it becomes more grayish-white than true white.

In their natural habitats snowshoes and jackrabbits are well camouflaged. They sit perfectly still and often a predator passes by at close range without noticing them.

Habitat and Range

The snowshoe hare lives in the north and central forest and in brushy areas of Minnesota. It spends its life in an area less than 100 acres.

It does not burrow, but seeks out a sheltered spot beneath the branches of a snow-laden spruce, in the bushes of a thicket, or even crouches down in the open.

The jackrabbit lives on the open prairie, in areas of low cover. When it is not feeding, it sits motionless in a shallow burrow in a plowed field or short grass meadow, or it sprints through tall grasses, wheat, or alfalfa.

Its home range varies according to food availability. In areas of sparse grasses and little agriculture, its home range may be 1- or 2-square miles. Where there is mixed agriculture and grassland, sites which provide both food and nesting close together, the home range may be only a couple acres.

Behavior

The jackrabbit has an easy, bounding gait. At a leisurely pace, it covers about 5 to 10 feet with each jump. Every four or five jumps the jackrabbit leaps a slightly higher leap, above the grass, so it can check for predators. When pressed, jackrabbits can leap 15 to 20 feet and run 45 miles per hour, easily outdistancing a coyote.

Even so, coyotes are its major predator. Coyotes hunt in pairs. One chases while the other waits to intercept the hare.

The snowshoe is not far behind the jackrabbit for speed. It can dash through the well-known paths of its home range at 35 mph.

Jackrabbits usually feed at night. They eat almost any type of vegetation; including wild grasses, seeds, and shrubs, and also domestic plants. They are especially fond of alfalfa. In times of food shortage, they may turn to tree bark and crops.

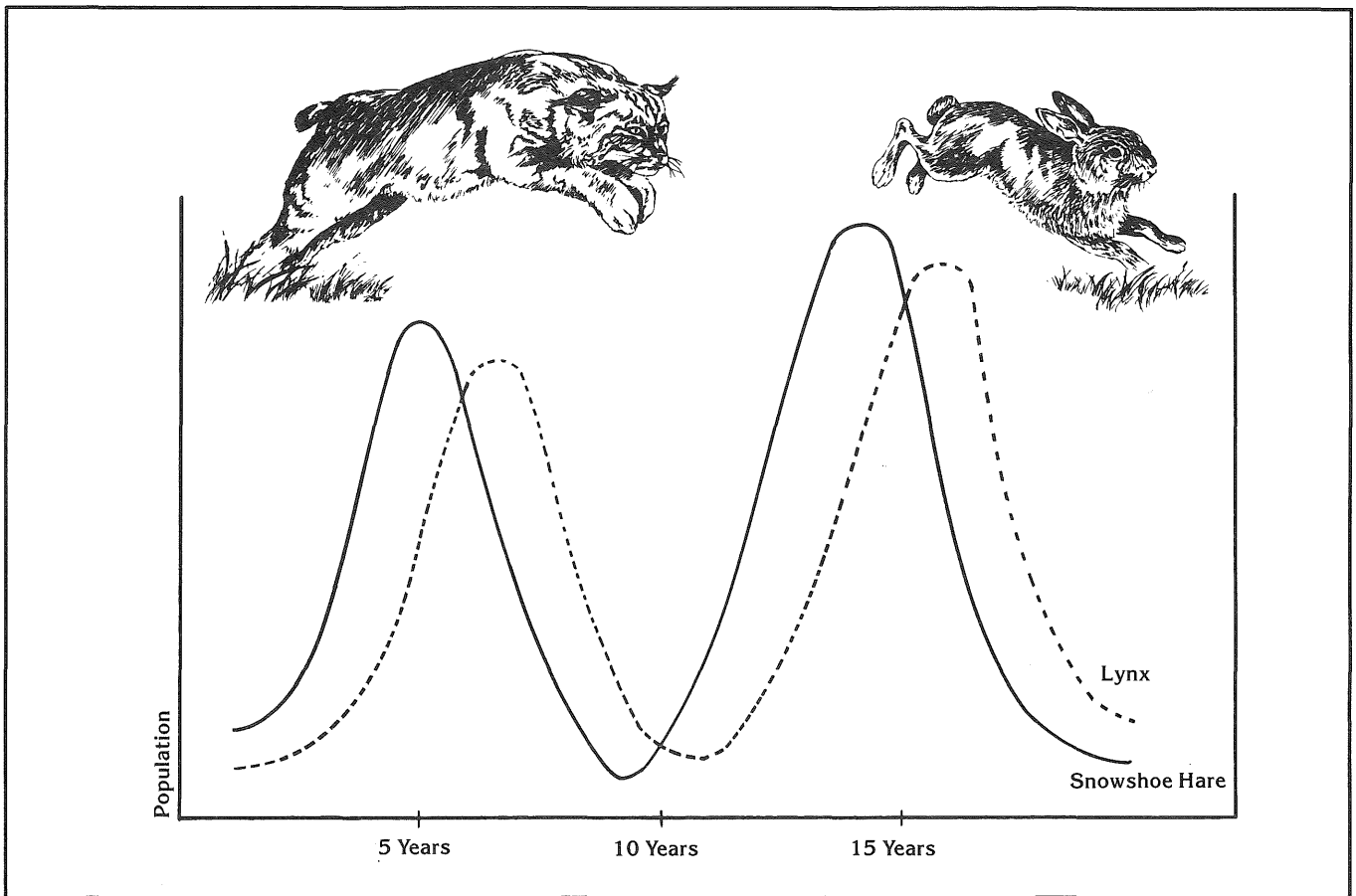
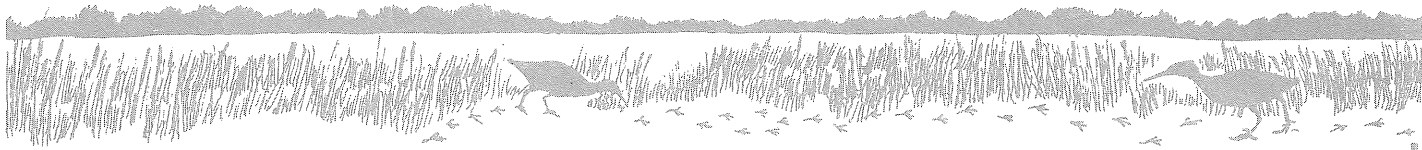
Jackrabbits seldom drink water. They get enough moisture from plants and from occasionally licking dew.

The varying hare eats grasses, herbs, and other tender plants growing in forest openings. During the winter, it strips the bark of aspen, young pine, spruce birch, and willow.

Both jackrabbits and hares practice natural recycling. They normally have two kinds of droppings, dry fibrous ones, and soft mucous-coated ones. The hare deposits the first kind as it moves around, and eats the second kind as soon as they are passed. They are formed several hours after the hare has eaten vegetation. Soft droppings are high in protein and B vitamins which are formed by bacteria in the intestine. These substances are used when the food is passed through the body a second time. The mother feeds her droppings to her young and inoculates them with essential bacteria.

The courtship antics of a hare deserve the expression "mad as a March hare." Males pursue females through the woods or across the fields at top speed. Then they stop, leap straight into the air, and go careening off again.

Like rabbits, hares twist and turn when they run, making it difficult for a predator to follow.



Population

Hare populations fluctuate by cycles which follow a 10-year schedule. At peak times, researchers have recorded as many as 3,400 hares per square mile. Then suddenly, they mysteriously die-off, almost entirely.

This cycle decline is to the advantage of both the hare and the environment. With the die-off, the vegetation grows up again and provides the smaller population with adequate food. The die-off also weeds out all but the strongest animals and continually upgrades the species.

Life History

Both the whitetail jackrabbit and the snowshoe hare mate in the spring, usually in March or April. Gestation is 30 to 38 days for the snowshoe and 41 to 47 days for the jackrabbit.

Both species usually have one to three litters per year with two to four young per litter. Depending on the mother's health, young hares weigh from 2 to 6 ounces at birth. They are furry, able to see, and have already cut their incision teeth. They are tiny replicas of the adult, unlike young rabbits.

The female scratches out a form, up to 8-inches deep, well concealed in thick grass. She may have several nests and keep one or two babies in each. She visits each nest a number of times throughout the day. The whitetail

takes care of its young for about a month. Researchers know little about the snowshoe's nesting habits, but believe that it may take care of its young for only three or four days.

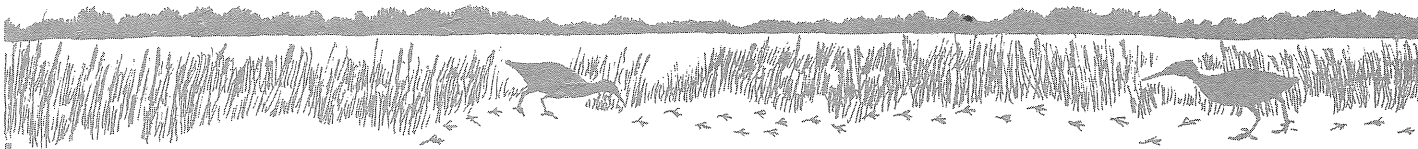
Predation

Coyotes are the number one predator of hares, but a multitude of enemies stalk the jackrabbit and varying hare. Bobcats, foxes, lynx, dogs, domestic cats, birds of prey — especially the great horned owl — fishers, and snakes, all try for a meal of hare. The only ones that are consistently successful, however, are birds of prey and the wily coyote.

Hunting

Rabbit hunting is often done with dogs, usually beagles or basset hounds. Even with dogs it is estimated about one-third of the rabbits get away. If chased by dogs, rabbits will run in a circle — they also are not speedy and have a low endurance level.

If one does not have dogs to hunt with they should seek out the type of cover rabbits like. Brush pastures, briar patches at the edge of fields and brushpiles are likely areas for rabbits to frequent. When working for rabbits it is a matter of being able to pick out parts, eyes and ears as you gaze at the bushes.



PREDATOR HUNTING

When predator hunting a couple skills one should try to master are calling the quarry and being able to spot it. Hunters must be able to locate a good spot to call from. Try to pick an area where you can spot the quarry first. Elevated stands work well as the hunter is off the ground and has less chance of being spotted.

How effective calling is may depend on age and experience of the predators. Range boundaries may also affect how it comes to a call.

FOXES

Two species of foxes are commonly found in Minnesota, the red and gray. Both are members of the dog family (Canidae) and relatives of the coyote, wolf, and domestic dog. Foxes are primarily carnivorous, but also eat some plant material. The males of both species are generally larger than females. They are efficient predators because of their acute senses of hearing, smell, and sight. Like most canids, they have one litter of young per year.

RED FOX

Description

The red fox is the largest of Minnesota's two fox species. Adults weigh 8 to 15 pounds and measure 36 to 44 inches, including a 14- to 16-inch tail.

Ordinarily, red fox have a thick pelage that is sunset red to sandy gold, with a lighter belly and black feet. The

backside of the ears are black. The animal has a white throat and chin, and usually a white-tipped tail. Variations in color include black (all black except for a white-tipped tail), silver (black with white-tipped guard hairs, giving the overall appearance of silver), and cross (red with a dark patch running along the back and across the shoulders). All variations may appear in the same litter.

The red fox does not normally use a den except when raising its young. In the winter, a red fox will curl up on the snow and use its tail to cover its nose and feet.

The red fox is primarily nocturnal, though it is most active at dawn and dusk (crepuscular activity). Unlike other members of the dog family, the red fox's pupils become elliptical when they contract, like those of a cat. This elliptical pupil compensates for the extremes of light and also provides for a greater depth of field.

Range and Habitat

The red fox is extremely adaptable and thrives under a variety of conditions, including proximity to humans. It is common throughout Minnesota, but most abundant in the mixed forest and farmland of the transition zone.

The average home range of a red fox is about 1- or 2-square miles, though range varies according to the availability of food and cover.

Food

The red fox, like most predators, is an opportunist who is quick to take advantage of any food it can get. A hungry fox can consume up to one-fifth of its own body weight in food. This is important because many predators live in a feast or famine situation and must take advantage of a good food source when available.

Small mammals such as mice, rabbits, and ground squirrels comprise the bulk of the red fox's diet. Foxes also eat birds and their eggs, snakes, frogs, fish, and carrion. It is also not unusual for them to eat a vegetarian meal, such as corn, berries, grape seeds, and nuts.

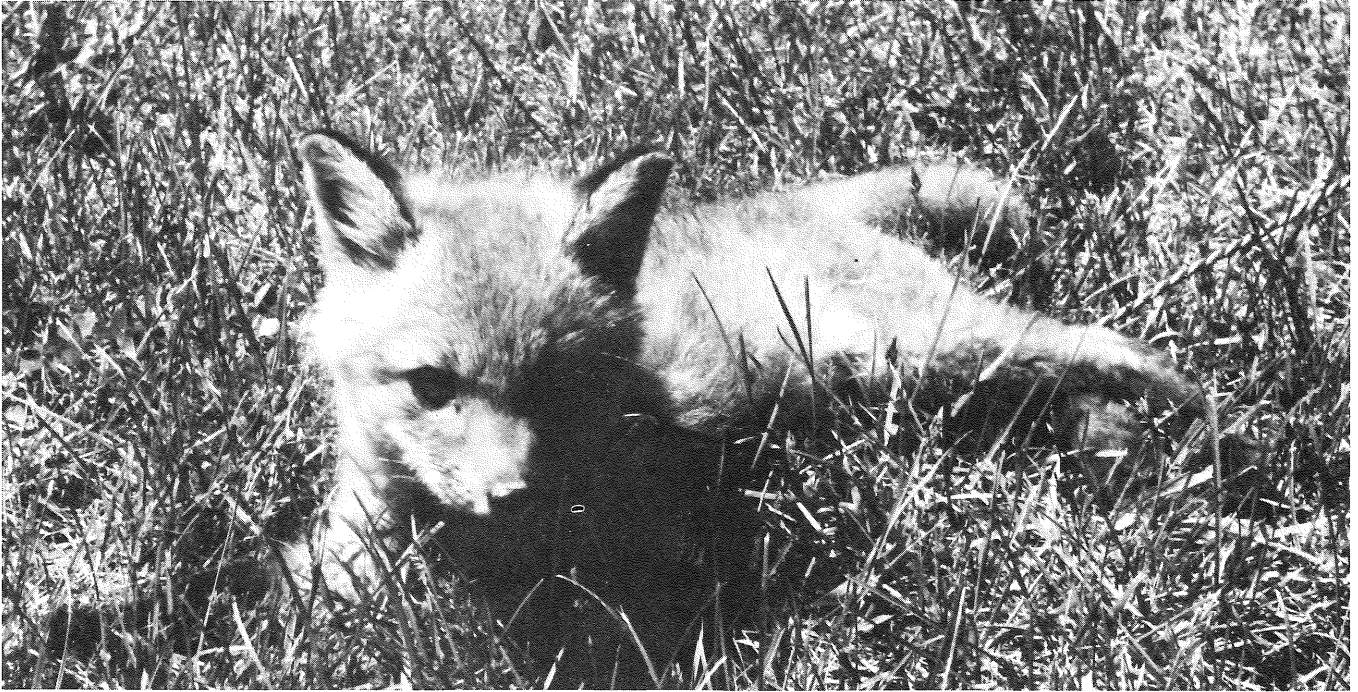
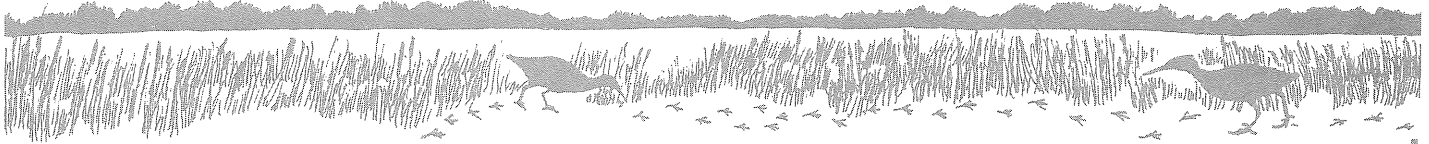
Life History

In Minnesota, foxes mate in mid-winter, from late January to early February. After mating the pair seeks out a den. Often it is a renovated den of another animal such as a woodchuck or badger. It may be located anywhere, in the woods or a field, in dense forest, or under a farm building. Red foxes seem to prefer a den site which is well drained and elevated. The entrance is usually on the southerly side of a slope.

Gestation lasts about 51 days and the young are born (whelped) in late March or early April. An average litter contains five pups. Litter size may increase if food becomes more available or fox numbers become less dense.

When born, red fox pups are grayish brown and weigh about 3½ ounces. Eyes open between the eighth and tenth day. When pups are newborn, the male (dog fox) brings food to the den for the female (vixen).

If disturbed or if food is no longer available, the vixen may move the pups to a new den location.



Pups do not venture outside the den until they become four or five weeks old. For several days, they spend most of their time playing near the den. Adults bring live prey home so the pups can learn how to hunt and kill in the safety of the den area.

The young are weaned at eight to 10 weeks, about the time the parents take them on their first hunting foray.

In late summer or early fall, the young disperse or move to new areas. Young males often travel 35 miles or more; young females travel 15 miles or more. Several foxes are known to have wandered over a hundred miles. This is nature's way of re-populating an area to assure that animals do not crowd a given area (predators need space to hunt in), and to mix different strains (gene pool) to assure a strong species.

GRAY FOX

Description

The gray fox is sometimes mistaken for a red fox because its coat also has reddish hair. The overall salt-and-pepper pelage of the gray fox might also be confused with the silver phase of the red fox. However, the two foxes are distinctly different species and do not interbreed.

The coat of the gray fox is colored by alternate bands of black and white on the guard hairs. There is reddish brown fur on the sides of the neck, in the throat area, on the flanks, back of the ears, inside the legs, the chest and the undersurface of the tail. The bushy tail is gray with a ridge of coarse, black hair along the top, and with a black tip. The cheeks, throat, insides of the ears, and

the belly are whitish. Its fur is coarser than that of the red fox and is not as highly prized.

The gray fox's body is generally more compact than the red fox and its legs are shorter. It weighs 6 to 13 pounds, and measures 32 to 40 inches, including the 11- to 16-inch tail.

Habits

Unlike any other member of the dog family, the gray fox readily climbs trees. It usually hunts and is most active at night. During the day it rests in dense thickets.

Food

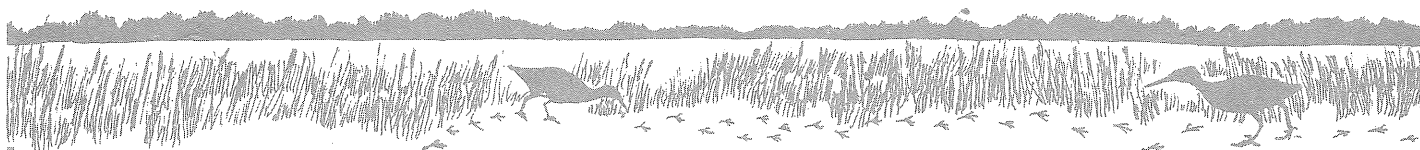
Although the gray fox has a diet similar to that of the red fox, it does eat more plant material. It avoids open areas, preferring thick, brushy cover. The home range of the gray is smaller than the red's. The gray fox occurs in the lower two-thirds of the state.

Status of Minnesota Foxes

Foxes were unprotected in Minnesota until 1977 when they were placed on the protected list. The DNR now regulates the taking of foxes by establishing annual hunting and trapping seasons.

The red and gray foxes are sought after for their pelts, though fur of the red is worth considerably more. In 1979, a prime red fox pelt brought \$80 or more on the market and a prime gray fox pelt up to \$50.

Both red and gray foxes are resilient species, able to rebound from low population levels. Their high reproductive potential and strong dispersal tendencies enable them to readily re-populate vacant areas. They will be part of Minnesota's wildlife heritage for the enjoyment and benefit of future generations.



COYOTE

Call it coyote, brush wolf, or yoddle dog, this controversial animal is Minnesota's most abundant large predator.

Minnesota and Alaska are the only states where both timber wolves and coyotes are common. There are basic differences between the two animals, but most people are unaware of them.

Most timber wolves in Minnesota reside in the northernmost counties, though a few occur across the northern two-thirds of the state. Generally, coyotes occur in the central and northern parts of the state.

Like the timber wolf, the coyote is a creature of controversy because it often preys upon game and livestock. However, a study of coyote food habits and behavior, conducted by the Department of Natural Resources Wildlife Research Group in Grand Rapids, has disproved many popular misconceptions about the coyote.

Description

The coyote resembles a small, lean, German shepherd. Its gray fur is long, coarse, and heavy. Typically, its underparts are light gray to white with the remaining hairs broadly banded with black. Its tail is bushy and disproportionately large. The coyote's ears are long and erect and it carries its tail low when running.

Adult timber wolves weigh between 60 and 120

pounds. Adult coyotes average 25 pounds for females and 30 for males.

Food Habits

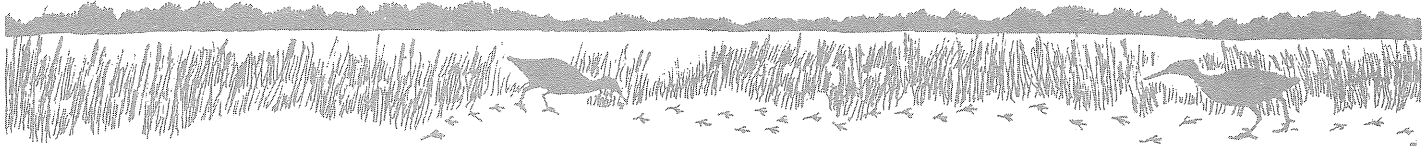
After 10 years of study, the DNR has learned much about the coyote's diet. Researchers examined more than 1,800 coyote stomachs (carcasses were obtained during the winter from fur buyers, trappers, and hunters) and 1,500 coyote scats (droppings). In winter, the researchers followed coyotes from the air — the animals wore radio collars — and investigated every suspected coyote-killed deer.

About 50 percent of coyote stomachs contained deer remains during the winter, but this percentage may be misleading. From tracking coyotes, biologists found that most deer eaten by coyotes are already dead or carrion. These animals probably died as a result of poaching, automobile accidents, disease, winter malnutrition, or were shot by hunters but not retrieved.

While trailing coyotes in snow, 21 definite instances were found where coyotes had killed deer. Of 21 additional possible deer kills by coyotes, 14 were fawns. Most deer were killed in March and April when they are normally in their poorest physical condition and snow is crusted enough to support a coyote, but not a deer.

The study also showed that coyote predation was not a serious cause of overall deer mortality, even though the impact of coyotes on each new crop of fawns may be considerable. Fawn hair was found in about one-half of all coyote scats collected during May, June, and July. We may never know what proportion of fawns are killed or eaten as carrion.

Snowshoe hare and mice are the second and third



most important coyote food, depending on their abundance.

Coyotes also eat other small mammals such as voles, red squirrels, skunks, raccoons, muskrats, and they savor ruffed grouse and other birds.

Life History

The breeding season begins in January and lasts through February. There is evidence that coyotes may pair for life. After breeding, the female seeks a den site, either digging a den in loose soil or enlarging the den of another animal.

Gestation, as in most members of the dog family, lasts from 58 to 63 days. An average of five to seven pups are born in April. At birth, the young are blind and helpless and covered with brownish-gray, woolly fur. Pups venture from the den for the first time at three weeks, but do not stay out for long periods until they are six or seven weeks old.

Often both parents care for the young. When the pups are new-born, the male assists by bringing food to the female. Later, he may bring food which the female tears into pieces to feed the pups. At eight weeks of age, when the pups are weaned, the female disgorges (from her stomach) partly digested food in front of the den. The den is usually clean and free of bone fragments. Coyotes may move their litters three or more times to new den sites.

Range and Habitat

Coyotes usually live in transitional lands, a combination of farm land and forest. But they can survive well in open prairie or dense coniferous forest. They often live close to people.

The size of a coyote's home range varies with the animal's age and sex and with food availability. Adult

females consistently have ranges of about 6-square miles. Females show strong "home" tendencies with no overlapping territories, but males may share their area with two or more females, and may overlap with the ranges of other males.

Behavior

Unlike timber wolves which are pack animals, coyotes tend to be either solitary or live in small family groups. Aerial observations reveal that about 90 percent of coyote sightings are of lone animals. Only on a few occasions have biologists observed three to five coyotes "packed" after mid-winter.

Furbearer

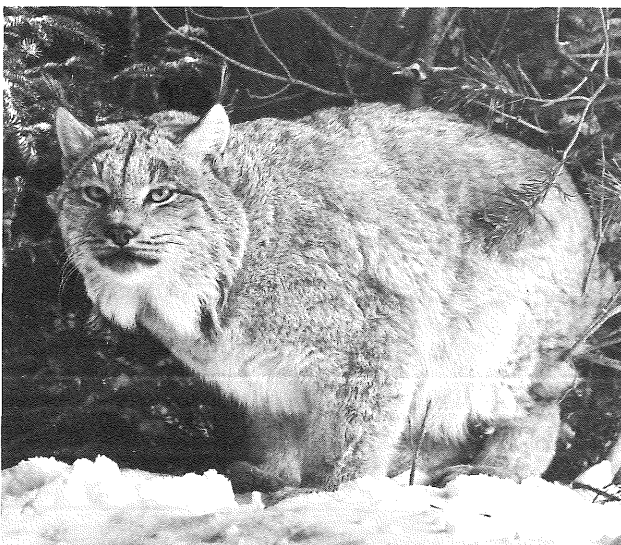
Bountied until 1965, coyotes are not protected in Minnesota and may be taken by any legal method, such as hunting or trapping. Three to four thousand are taken each fall and winter. Their numbers have remained stable. Coyote pelts range from \$25 to \$60, with top hides worth about \$90. Their fur is commonly used as trim for parkas.

Population Trends

The Minnesota coyote has a omnivorous diet and can readily adapt to changing habitat conditions.

Their densities vary from one per three miles in years of high abundance to one per five to six miles during low years. The coyote, like most wild carnivores, is difficult to census. Biologists now estimate population trends by scent-post census — coyote visits to a scented bait station are counted and compared to other areas. Coyote numbers are generally stable in northern Minnesota, and exist in much lower but increasing densities in southern Minnesota.

BOBCAT AND LYNX



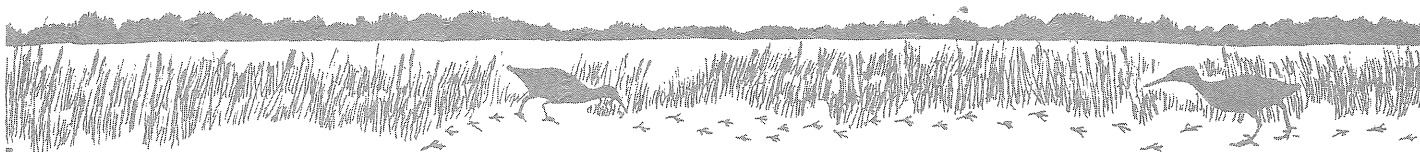
Only a handful of the contiguous 48 states can lay claim to having three species of wildcats. Minnesota's northernmost tier of counties is considered the southern boundary of the lynx and the northernmost range of the bobcat. But the mountain lion, or cougar, only rarely leaves its saucer-size prints on Minnesota soil.

These predators are valuable because they fill a significant niche in nature's chain of life. The efficient hunting of predators helps shape the character of their prey, just as prey influence the characteristics of their predators. Therefore, we should appreciate these wild creatures not only for their beauty and unique evolution, but because they are essential to the balance of nature.

Characteristics

Most of our bobcats live in the vast, cedar-black spruce bogs in the northern third of the state. They prefer heavy brush areas typical of these densely-timbered swamps.

The Canada lynx haunts a somewhat different habitat, the mature forests of northern Minnesota, habitat of its primary prey, the snowshoe hare.



An adult bobcat stands about 20 to 30 inches at the shoulder and weighs 15 to 40 pounds (the Minnesota record is 50 pounds). The bobcat's body is longer than that of a domestic cat and its paws are more massive, with distinct five-sided heel pads.

Short black tufts, up to an inch long, decorate the bobcat's pointed ears. Extending from the ears to the chin is a white, black, and gray ruff. Its pelage (coat) is light fawn to rust brown, boldly streaked, and spotted with black. Its common name is derived from its 6-inch "bobtail," which is barred in black three or four times across the top and white underneath. The main distinction between a bobcat and a lynx is that the tip of a bobcat's tail is black above and white below. The tip of a lynx's tail is black all the way around.

The Canada lynx looks oriental. Its golden eyes have a slanted, oval appearance unlike the bobcat's wide, round eyes. Longer legs and a lankier body make the lynx appear larger than the bobcat, though it stands only 2 feet at the shoulder, and averages 15 to 30 pounds.

The lynx also has an ear-to-chin ruff, but it is not distinctly marked. Its most identifiable feature is its long, feather-like ear tufts. Its fur, more tawny than the bobcat's coat, is long, fine, and colored pale gray or buff with indistinct streaks of brown.

Rather than having naked heel and toe pads, the lynx has thick coarse hairs over its pads. These act as natural snowshoes, enabling the wildcat to move easily through deep snow.

Behavior

Bobcats and lynx frequent large territories or home ranges, often covering 8- to 10-square miles. They normally hunt alone, crossing and re-crossing portions of their territories, investigating small animal tracks and scents while keeping ears and eyes open for any sign of life. Although primarily nocturnal, bobcats and lynx will hunt during daytime in remote areas. Long whiskers act as feelers in the brush during nighttime hunts.

During gestation, which may last from 50 to 70 days, a female wildcat seeks out an appropriate den — an abandoned den of another animal, a windfall with tangled branches or roots, a rock crevice, or even the foundation of a vacated building.

Kittens are born blind but furry measuring about 10 inches and weighing about 12 ounces. Litters average from two to four young. Claws are functional at birth. In about nine to 11 days the kittens' eyes open and they begin to venture out of the den.

Play for young cats is a learning activity. It serves to hone their hunting skills. They jump at anything that moves — butterflies and small animals their mother brings back alive. While young are nursing, the male may bring food for the female. She keeps her mate away from the kittens, however, for he may kill them.

Food Habits

Studies have shown that lynx prey almost exclusively on snowshoe hare. Levels of lynx populations are regulated by kitten survival (low during years when snowshoe populations are low) and by an apparent lack of breeding during low periods of the hare cycle.

The bobcat is also affected by the snowshoe hare cycle, but not to such a great extent. An ongoing study by the DNR Wildlife Research Station in Grand Rapids, headed by wildlife biologist Bill Berg, found that the highest percentage of the northern bobcat's diet is hare, closely followed by deer.

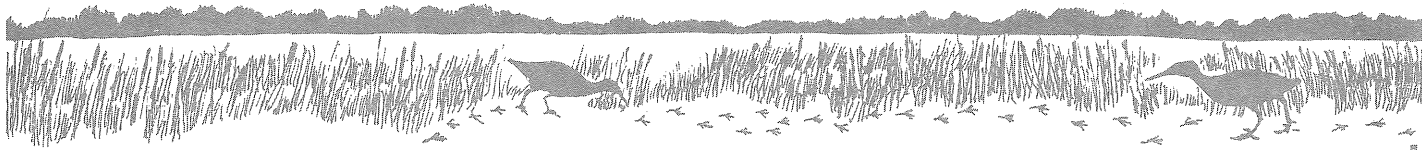
Bobcats are opportunists — they eat whatever is available. For example, in 1975-76 bobcats preyed heavily on porcupine. But during 1976-77, they seldom dined on "porkies." This could mean a decline in the porcupine population or an increase in other prey species. When food is plentiful, bobcats may gorge themselves and then not feed again for days. Occasionally they return to a kill for a second meal, especially if it is a large animal such as a deer, but rarely more than once. Generally, wildcats do not eat carrion.

Future

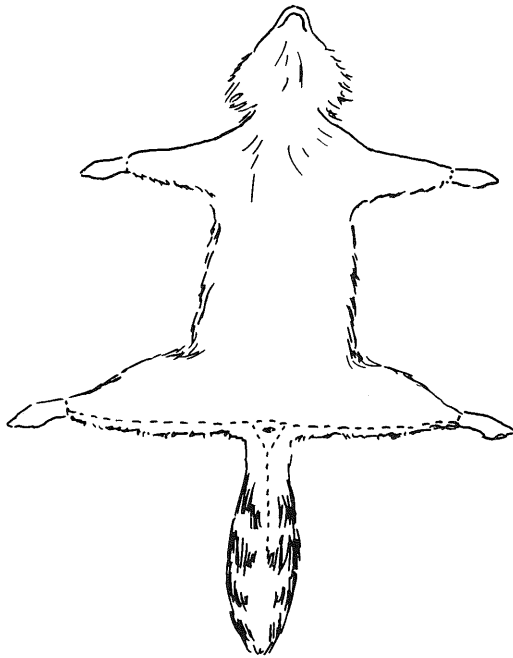
Minnesota's population of bobcats is estimated to be from 1,000 to 3,000 animals. The number of lynx is more difficult to pin down because their populations fluctuate. Researchers use scent posts to determine bobcat and other wildlife populations. A scent post is a circle of dirt — about 3 feet in diameter — with a pellet infused with egg and coyote urine placed in the center. Biologists check footprints in the dirt each day to identify species that have visited the posts. Scent posts are placed every one-third mile over a 15-mile transect.

In 1977, the legislature granted the bobcat and Canada lynx furbearer and game status. This enables the DNR to regulate the harvest of bobcats according to population variations. Meanwhile, the predictability of lynx population cycles will help wildlife managers set reasonable trapping laws to insure that enough breeding animals survive.

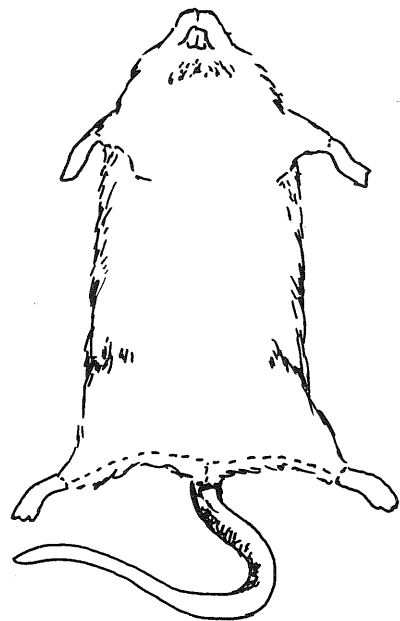
These controls, combined with more research into wildcat population dynamics and inaccessibility of their habitat, is assurance that our native wildcats will be with us for many years to come.



SKINNING FURBEARERS



Raccoon Cased Skin — Cuts to make for animals with furred tails.



Muskrat Cased Skin — Cuts to make for animals with naked tails.

Basic Skinning

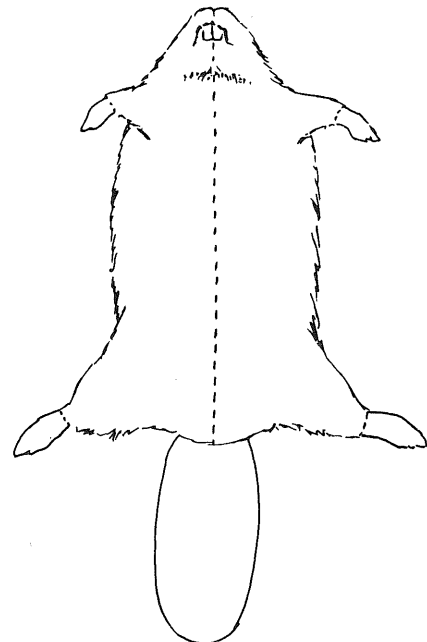
Skin an animal as soon as possible. When in doubt leave more skin than you think necessary. Keep skin as cool as you can, and freeze if possible.

Things to Avoid

- **Never** make any cuts in the throat
- **Never** put a rope around the neck
- **Never** drag the animal over any sharp objects that may cut the hair
- **Never** allow the skin to be exposed to direct sunlight

Freezing Procedure

- Fold hide in half one time with fur in and skin out
- Seal entire hide in plastic bag
- Freeze skin flat. **NEVER** roll skin up in a ball and freeze it.



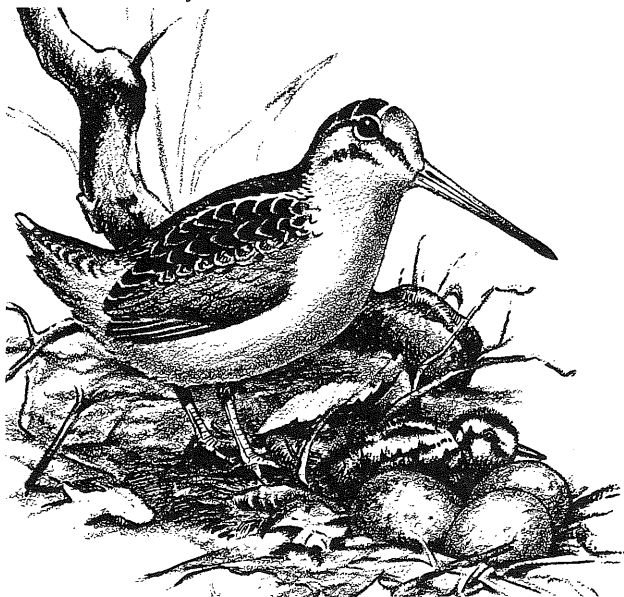
Beaver and Badger Open Skin — Cuts to make on Beaver and Badger only.



SMALL GAME TESTS

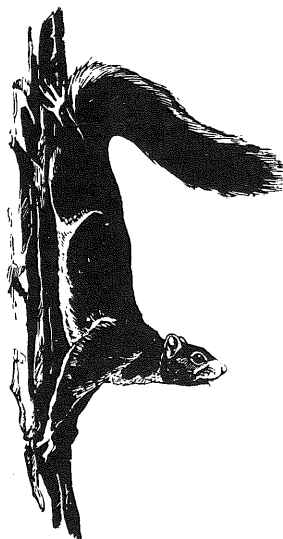
SQUIRRELS

- T F 1. The gray squirrel is the most popular of the hunted squirrels.
- T F 2. Squirrels are nut-lovers. Knowing this alone can help hunters choose their hunting areas.
- T F 3. Head shots are the only kind many hunters will take on squirrels, to insure edibility.
- T F 4. The squirrel is a sharp-eyed, wary animal. Although many times the animal will contradict this by a loud chattering the moment it sees a hunter.
- T F 5. One of the best methods to hunt squirrels is to set at the base of a tree and watch all the trees around you.



RABBITS

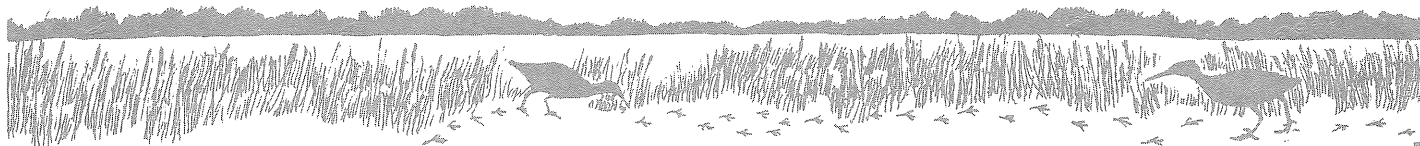
- T F 1. The cottontail may have several litters per year.
- T F 2. The snowshoe rabbit is not a true rabbit.
- T F 3. Snowshoes are cyclic, with population peaks coming about every seven years.
- T F 4. The best method for young hunters or those without a dog to hunt rabbits would be to go into likely country and "scare them up."
- T F 5. Rabbits never use burrows or holes for safety.



WOODCOCK

- T F 1. Woodcock hunting is generally best after freeze-up.
- T F 2. The mating flight of the woodcock is called peenting.
- T F 3. The outer primaries create the woodcock's twittering flight sound.
- T F 4. Worms are the woodcock's primary food.
- T F 5. Biologists have found that there is a definite correlation between light intensity in a cover patch and flush rate.
- T F 6. A good place to find woodcock is an alder bottom because earth worms thrive in such areas.
- T F 7. Woodcock normally lay six to eight eggs.



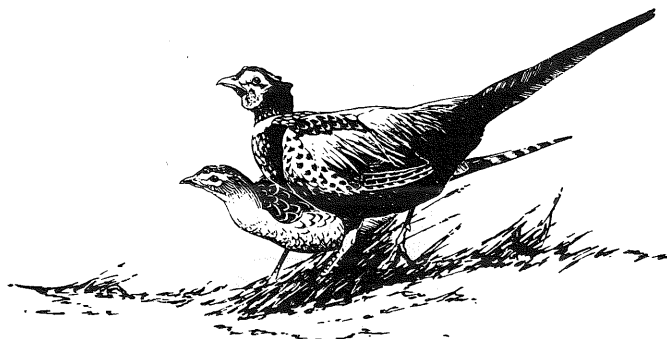


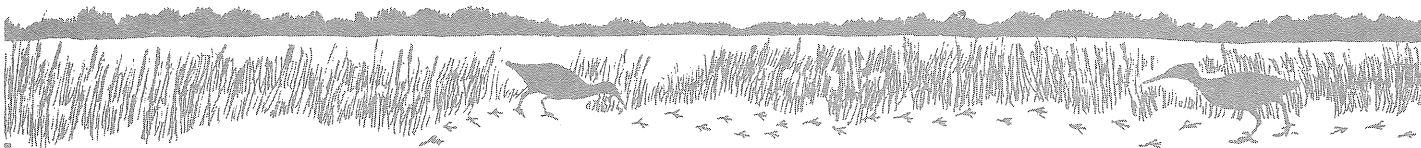
GROUSE

1. As part of their daily behavior, grouse will generally grit:
 - A) at dawn
 - B) at dusk
 - C) at dawn and dusk
 - D) in the late morning
2. T F The red and gray color phases are found in grouse irrespective of age or sex.
3. T F Grouse cover is constantly changing as one habitat grows into the next more advanced stage.
4. Average flight speed of flushed grouse is:
 - A) 25 mph
 - B) 40 mph
 - C) 60 mph
 - D) 80 mph
5. The fall grouse behavioral phenomenon which disperses birds into new territories is termed:
 - A) "the big migration"
 - B) "the annual push"
 - C) "crazy flight"
 - D) "trickle stocking"
6. T F Some of the most productive grouse habitat are found where woodlots meet abandoned farm clearings.
7. Spring broods generally break up in:
 - A) late spring
 - B) early summer
 - C) early fall
 - D) late fall
8. T F During cold periods, grouse frequently dive or burrow into the snow for protection and insulation.
9. T F During early to mid-fall grouse are usually found in older aspen (25 feet or higher) and mixed conifer-hardwood stands. From mid-fall to winter the birds are concentrated in young aspen and alder lowlands.
10. When a hunter suspects he has shot a bird but cannot find it he should:
 - A) assume he missed the bird
 - B) continue on the birds last direction of flight to flush
 - C) return to the place from which he shot and make sure of his estimate of where the wounded bird went down before searching
11. Heavily hunted grouse tend to be:
 - A) "wild flushers"
 - B) "tight sitters"
 - C) reflashes
 - D) tree roosters
12. T F The right name for ruffed grouse is partridge.
13. T F In the fall male grouse vigorously defend their territories against intrusion by young males.
14. T F Ruffed grouse are solitary birds — unlike the coveying or flocking behavior of quail and partridge.

PHEASANTS

1. T F The ring-neck pheasant came from Asia, and it was the "first" bird to be successfully transplanted into America.
2. T F There is no known way to restock ring-necks where they do not now exist without altering climate.
3. T F A winged pheasant can outrun the average hunter unless he's a good sprinter.
4. T F Ring-necks may react very much like the whitetail when hunted — may run ahead, double-back, or remain motionless.
5. T F Most pheasants that are missed — the shot string is either low or behind the bird.
6. T F When hunting swamp land for pheasants, it's important to watch for patches of willow and phragmites.
7. T F The biggest mistake made by pheasant hunters is moving too fast — not working out field corners and edges.





KEY TO SMALL GAME TEST

Grouse

1. C
2. T
3. T
4. B
5. C
6. T
7. C
8. T
9. F
10. C
11. A
12. F
13. T
14. T

Pheasant

1. T
2. T
3. T
4. T
5. T
6. T
7. T

Squirrels

1. T
2. T
3. T
4. T
5. T

Rabbits

1. T
2. T
3. T
4. T
5. F

Woodcock

1. F
2. T
3. T
4. T
5. T
6. T
7. T

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