SOME OBSERVATIONS ON THE RUFFED GROUSE IN WISCONSIN

BY WALLACE GRANGE

While I was living on the family homestead in the cut-over, forested region twelve miles northwest of Ladysmith, in Rusk County, Wisconsin, I had an unusual opportunity to observe the Ruffed Grouse (*Bonasa umbellus togata*, Linnaeus). The species was almost a dooryard bird with us. Grouse could frequently be seen budding in the trees about the buildings.

THE GROUSE POPULATION. For my own satisfaction rather than from any effort to accomplish a piece of research, I kept a written record of all species seen each day, with either an actual count or an estimate of the number of individuals of each. A compilation of these records for the Ruffed Grouse is of interest, in connection with the numerical fluctuation of the grouse population now known as the cycle.

The table summarizes the compiled records. The chart shows the last four (lettered) columns of the table in graphic form. Curves A, B, and C all indicate a population peak about 1922 and a low about 1927, which corroborates the generalized Wisconsin Ruffed Grouse curve compiled by Leopold from reports of game observers (see Game Survey of the North Central States, p. 144). The parallelism with Leopold's curve is even closer when allowance is made for the interpretive comments to be made later.

TABLE 1. Indicators of Ruffed Grouse Abundance near Ladysmith, Wisconsin, Northern Thornapple and Southern Hubbard Townships, 1919-1930.

Year	No. days on which grouse were seen	A Number grouse seen	B Av. No. grouse seen per day	C Most grouse seen in one month	D Highest daily average in one month
1920	150	687	4.5	106 (Nov.) (13 days)	9.3 (Dec.) (11 days)
1921	141	812	5.7	120 (Apr.) (20 days)	27.5 (Nov.) (2 days)
1922	120	1050	8.7	240 (Apr.) (17 days)	14.1 (Apr.) (17 days)
1923	51	384	7 5	70 (Apr.) (10 days)	25.0 (July) (1 day)
1924	21	120	5.7	47 (Apr.) (3 days)	15.6 (Apr.) (3 days)
1925	6	28	4.7	28 (Dec.) (6 days)	4.8 (Dec.) (6 days)
1926	17	54	3.2	24 (Feb.) (5 days)	4.9 (Feb.) (5 days)
1928	1	3	3.0	3 (Oct.) (1 day)	3.0 (Oct.) (1 day)

The figures in the table should be considered as qualified by the following notes:

1920-24. The daily averages (B) do not reflect the actual abundance, since grouse were often seen in and from the yard, and such figures are averaged along with others on which ten or more miles were covered on foot through good country. If the averages pertained only to days of active field work, I believe the daily average would be above ten.

1925-26. The daily averages do not accurately reflect the *scarcity of grouse at* that time. I traveled 600 miles by team and by foot (all within the limited area under discussion), yet I recorded grouse only 82 times. The days on which no grouse were seen are *not* averaged with the others. Had this been possible, I believe the daily average would be less than one grouse.

1919. No written records. Drummers numerous, as many as six heard from one point by my father, in May. Several large broods seen in summer.

1920. Written records for entire year.

1921. Written records for every month except August.

1922. Written records for entire year. This season represents my most consistent field work for the period.

1923. Written records for every month except December. Field work much reduced.

1924. Written records to July 1. No field work last half of year, and field work first half reduced. Grouse were reported abundant that fall. Bags of five taken in a few hours in the open season.

1925. No field work except for December.

1926. Written records up to March 15. No field work during remainder of year.

1927. No written records. Field work confined to a few days in December. My father, and all other residents with whom I talked, reported grouse extremely scarce, or virtually extinct.

1928. Field work confined to one day in October. I covered twenty-four miles of good clover-sodded forest roads and saw three birds, two of which were drumming. Inquiry indicated that there were a few more grouse this year than last, but still scarce. (It is also of interest that in covering several thousand miles of Wisconsin roads off this area, by auto, during the summer and fall, I noted less than a dozen grouse. In 1922, I should have seen as many in two miles of good road).

1929. Field work confined to two mornings a few miles east of the original territory. At that time (September), I had little difficulty in collecting four grouse. Residents reported grouse very definitely increasing.

1930. No field work in the vicinity. It was common knowledge among residents that grouse were again fairly numerous, and apparently increasing rapidly.

I should summarize the above chart by saying that Ruffed Grouse were numerous and probably increasing in 1919; that they were abundant in 1920, 1921, 1922, and 1923; that they were possibly less numerous in 1924, and very positively were scarce in late 1925 and early 1926; that they were extremely scarce, almost to local extinction, in 1927; that they were increasing in 1928, 1929, and 1930 and by the fall of the last year had made substantial recovery.

As to the numerical abundance of grouse, I am able to make a fairly satisfactory estimate for our particular quarter section (160 acres). This tract was almost ideal grouse range. It contained a considerable acreage of 20-30-year-old aspen, birch, and balsam; an-

other higher woods of sugar maple, birch, ironwood, basswood, and balsam, with large elms along a wet weather "run"; a fine little black spruce swamp much used by grouse in winter; a typical hardwood "burn", grown up to raspberry and hazel, with the old birch, maple, and balsam stubs still standing; a long, irregular marsh with many arms extending into the woods and fringed by black alder thickets. The balance of the tract was cut-over pasture, cultivated crops, and open grass marsh.

There were approximately 100 acres of occupied grouse range in 1922, the year in which I did the most intensive field work. This is not necessarily the year of maximum abundance of grouse. In fact, I cannot say which of the four years, 1920 to 1923 inclusive, or possibly 1924, was the point of maximum abundance, but only that there were many grouse in each one of these years. I can mentally account for forty-five "grouse spots" where I could be fairly certain of finding birds in the spring and summer season, and I believe that in 1922 there were forty-five grouse in the 100 acres just prior to nesting. This is a density of 2.2 acres per grouse.

In winter I think there were, at times, in excess of fifty birds in the 100 acres. I think there was an influx of outside birds coming in to the bardwood for budding and to the spruce swamp for roosting.

I have made no attempt to estimate the fall grouse population, because at this season grouse roam, combine in groups, and shift position locally. In the spring the grouse are sedentary, drummers and hens alike being almost anchored to their breeding territories. But the fall population did not ever reach the total that one might have expected on the basis of the spring population.

It is my opinion that in the spring of 1927 there were not more than five grouse on the quarter-section, although this estimate is arrived at with less assurance than the figure of forty-five for the spring of 1922. To what extent, if any, local fires in the preceding years may account for this drop, I am uncertain. At the time I thought fires had some part in the reduction, but I now believe that they were a minor factor.

Number of Predators and Rodents. It is sometimes stated that predators, deprived of their normal rodent food supply, turn to game. Grouse scarcity in the past has even been mentioned as *an effect* of rodent scarcity. Also, in the discussions of population cycles, it is often considered that rabbits die first, that is, before Ruffed Grouse.

However, at Ladysmith, I noticed a very marked and very general scarcity of Ruffed Grouse in the winter of 1925-1926, but during

the same period I had no difficulty in trapping Snowshoe Hares (*Lepus americanus phaeonotus*) for study purposes, and I was amazed at the prodigious numbers of Red-backed Voles (*Evotomys gapperi* subsp.) in the spruce swamp, trapping dozens of them, several in a night. Deer mice (*Peromyscus* sp.) were also common in the woods, and Cottontail Rabbits (*Sylvilagus floridanus mearnsi*) and Meadow Mice (*Microtus p. pennsylvanicus*) were present in numbers. In short, grouse but not rodents had become scarce during the winter of 1925-

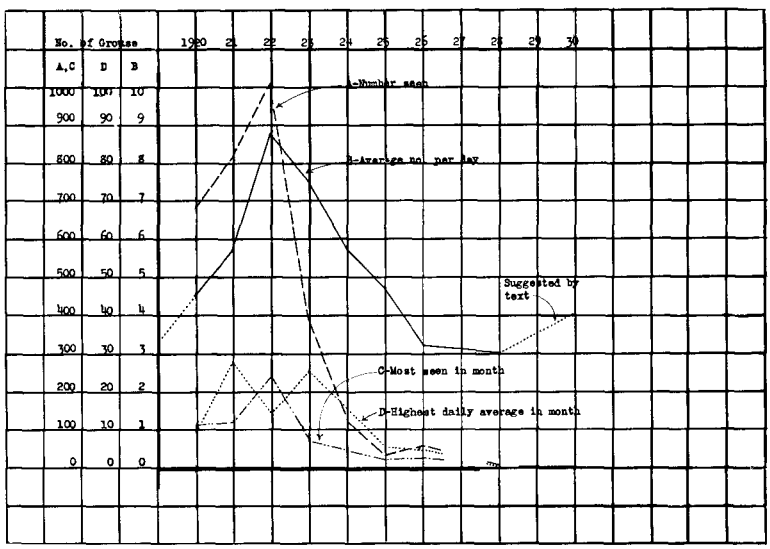

FIG. 19. Graph of Ruffed Grouse population levels near Ladysmith, Wisconsin, 1919-1930. See columns A, B, C, D of Table 1.

1926. In fact, under date of December 20, 1925, I recorded that Snowshoe Hares were "just as numerous . . . as I ever knew anywhere".

I believe that Snowshoe Hares were the most abundant on our land in 1919 and 1920, at which time we often hunted them successfully during the lunch hour. They were abundant, however, during the entire period recorded in the table. When I returned for a short visit in December, 1927, there were many runways in the spruce swamp, and I saw several of the animals. Even though a general scarcity of Snowshoe Hares was thought to exist at that time, high school boys at Ladysmith trapped several hares for me in 1927 and 1928, which is further evidence that hares were still present in some numbers. But, relatively reduced or not, they were much more abundant than the Ruffed Grouse, so the theory that predators turn to grouse through

necessity would certainly not apply to the Ladysmith region during the period here under discussion.

I did not see any evidence of abnormal predation on grouse. The predators in the locality included coyotes, skunks, and house cats (fairly numerous); timber wolves, bobcats (rare); weasels and mink (in varying numbers); Cooper's Hawks (common); Red-tailed and Red-Shouldered Hawks (fairly numerous); Goshawks and Snowy Owls very rare). One Goshawk was seen on January 12, and one each on February 13 and 14, 1926. Cooper's Hawk kills of young grouse were quite commonly noted in July, August, and September, and were, apparently, of perfectly normal occurrence.

I am certain that hunting did not cause the scarcity of grouse because in Rusk County there are many sections so remote from roads, and so rarely visited by hunters, that the effect of such hunting as does occur is negligible. Yet grouse became scarce in the unhunted as well as in the hunted areas.

General Observations

Drumming Records. Dates when drumming was first noted are: For 1920, March 26; for 1921, March 28; for 1922, April 9; for 1923, April 19; for 1924, April 13. The later dates for 1922-1924 do not indicate actual lateness, but rather lateness of the field work, or unfavorable weather conditions on the days when I was in the field.

I have Rusk County drumming records for each of nine months of the year, the exceptions being January, February, and July. Drumming reaches its peak during the last few days of April and the first ten of May. I have numerous records of grouse drumming in the moonlight, a common thing in spring and summer, I think particularly in late August.

Interesting drumming records include: August 24, 1921; August 25, 1920; September 5, 1923; September 18, 1921; October 14, 1923; November 13 and 25, 1922; December 1, 1921 (ten to twelve inches of snow on the ground); December 1, 1922; June 27, 1922; June 28, 1921. The period from June 28 to August 24 is certainly partly occupied by the molt so that no drumming would be expected, but the winter period, December to March, may eventually produce drumming records.

Nest Records. Nesting dates include: May 7, 1922, two nests, one with thirteen and one with eleven eggs; May 10, 1922, twelve eggs; May 18, 1920; and May 19, 1920. I have two hatching dates, namely June 1 and 4, 1922. In one case eleven of thirteen eggs hatched and

in the other, eight of eleven. On this date one dead young was found at the nest, and a second bird had died without emerging from the shell, although it had successfully pipped it.

BUDDING. It is well known that the Ruffed Grouse is a great eater of buds. It does not seem to be so well known that buds are consumed at seasons when the birds are not driven to it by necessity. The budding of aspen, for example, is common in September when there is still much other, and seemingly more desirable, food. I have three notes of Ruffed Grouse budding ironwood (*Ostrya virginiana*) in October, 1921 (on the 9th, 10th, and 29th), and a note on August 19, 1921, indicating that a grouse had eaten aspen leaves.

Ruffed Grouse breakfast almost before dawn on the very cold, sharp mornings of mid-winter, and perhaps at other times. On January 23, 1922, I observed five Ruffed Grouse busily at work budding in the tree tops where they could be seen silhouetted against the horizon while a few stars and the new moon were still bright. The mercury stood at 31° below zero. On January 1, 1924, another grouse was budding in an aspen tree at dawn; the temperature was 30° below zero. During the same cold snap, on January 7, the same habit was observed, and it has been frequently noted at other times. It would almost seem that the colder the morning, the earlier the breakfast of the Ruffed Grouse.

ROOSTING. The winter roosting habits vary greatly with the weather. When the snow is ten or more inches deep and is loose and fluffy, the grouse, as is well known, plunge into and under it. There, at the end of a short burrow (from ten inches to five feet long) they sit quietly for long periods. They may remain beneath the snow for as many as eighteen hours, as can be determined when one finds grouse still in burrows late in the morning although a fresh snow fell the evening previous.

The burrow is sometimes straight and sometimes curved or fish-hooked. If disturbed, the grouse leaves the burrow with a whir of wings and a burst of snow, but if unmolested, I believe they ordinarily emerge on foot. Sometimes a grouse pokes its head up above the level without emerging, and occasionally openings thus made along one of their long burrows show that the bird several times took a look around.

In plunging to roost under the snow, grouse often barely miss striking rocks, limbs, and logs which are covered up. I have often

wondered why they do not more frequently strike such objects, with fatal results.

On sunny winter days the grouse sit in little groups and preen in the shelter of fallen tree tops, especially if these still retain their leaves. They often sit up in the balsam trees where, no doubt, the dark background tends to increase warmth.

When the snow is moist, thawing, or crusted, the grouse at Ladysmith were invariably to be found roosting either in the spruce swamp (in which I think some birds roosted habitually irrespective of weather conditions), or in a dense grove of balsams in the hardwood tract. On January 21, 1921, following several warm days with freezing nights which crusted the snow, I watched a group of Ruffed Grouse go to roost in these balsam trees.

Just before sundown I approached the grove and placed myself, back against a tree, under the thickest part of the grove. The trees were from fifteen to fifty feet in height. Under them the droppings had accumulated as if the spot were a chicken coop.

Very shortly I heard the wings of a grouse as it flew in, and soon saw the bird budding in a large-toother aspen. It was some time before others appeared, but they finally came, one by one, flying short distances from tree to tree, budding on each for a few moments.

One grouse flew to the ground, others following almost immediately. The sun was now down and the twilight advancing. Two of the birds walked toward me, their heads bobbing like pigeons. They seemed to inspect me and each, after taking several mouthfuls of snow, flew on noisy wings into the balsams, settling down not more than ten feet from me. I heard many soft and beautiful cooing notes for the first time, having never before appreciated the conversational vocabulary of these birds. The grouse squatted down on branches about eight feet above the ground and about two feet out from the trunks of the trees. I watched several of them go to roost in this manner and noted that each one ate snow before flying into the trees.

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