THE QUAIL IN EARLY WISCONSIN

A. W. SCHORGER

The quail (Colinus v. virginianus) has always been the most popular of American gamebirds. On autumn days, its rapid flight, preceded by an explosive rise, invokes the skill of the sportsman. The quail's gentle, confiding habits appeal to the layman, and the flavor of its flesh to the epicure. The name, bob-white, used by scientists has not gained headway with the masses who are the final arbiters in terminology.

The quail within a period of ten years, 1845-1854, became extraordinarily abundant in Wisconsin. It then declined in numbers so rapidly that during the past 75 years the most that can be said for the species is that it has maintained its existence. There is a fascination in the study of wildlife populations when inquiry is directed to final causes. Taking into consideration all the known influential factors, a decade of favorable winter weather seems to have been of the most importance in producing the peak in the population. Unless we assume that weather has continued to be the important factor, the question of why the quail refuses to undergo more than a sporadic increase remains unanswered. The one certainty is that the factors controlling the quail population are more subtle than was suspected formerly.

ORIGINAL RANGE

Among the bones recovered from the Indian village site at Aztalan, Jefferson County, Somers (1) reported those of the quail. The identification should be checked by a competent osteologist. Theodore Rodolf (2) and Charles Rodolf (3) came to Lafayette County in 1834, when it was in a primitive condition, and both have stated that quail were abundant at that time. Three years later Gen. Smith (4) travelled in southwestern Wisconsin and wrote: "... the partridge or quail is not often met with. I saw three or four near some farms and as this bird always follows and attends cultivation, the flocks will certainly increase with the opening of farms and the raising of grain."
The quail at times must have been distributed widely throughout the open areas of the state. (Fig. 1.) Featherstonhaugh (5) ascended the Fox River in 1835 and found the "plaintive quail" in the southwestern corner of what is now Winnebago County. Hank Tourtolatt, an Indian trader, in the spring of 1849, made a claim at Weyauwega, the first for the Waupaca River. He spent the summer "catching fish and shooting quails." (5a) The Menominee Indians, in October, 1847, received their payment at Pauwaygan [Poygon] Lake, twenty-five miles northwest of Oshkosh and ten miles from the habitation of any white men. They furnished for the occasion large quantities of game.
including quail (5b). In June, 1829, Mrs. Mary Bristol (6) attended a wedding at Grand Kaukaulin (Kankauna, Outagamie County). She mentions quail as part of the wild meat served for supper. H. Pratten (6a) listed the quail for northern Wisconsin and Minnesota but this is of no assistance in determining the range since he is indefinite on localities. The last survey was made in 1849.

The quail is not a conspicuous bird and would be overlooked easily by the casual observer, particularly during the summer. It is therefore not surprising that conflicting statements are encountered. Keyes (7) came to Jefferson County in 1837 and stated that at that time there were no quail or rabbits, due presumably to the presence of wolves and foxes. Cravath, (8) writing of the winter of 1839-40 at Whitewater, states also that quail were unknown then; however, Mrs. Freeman L. Pratt, (8a) who came to Whitewater in 1837, mentions that they were then plentiful and that quail-pies were served at the raising of the frame of a flour mill in June, 1839. It is also stated that in the spring of 1840 "much sport was to be found in the pursuit of the smaller species of game, such as quails, grouse, ..." (9) A British traveller (10) shot some quail near Aztalan in the fall of 1841.

The quail, as a Wisconsin bird, was mentioned by Lapham (11) in 1844. Major Tenney (12) came to Madison in 1845 when it was common practice to hunt quail and prairie chickens on the square of the capitol. Quail were present in the town of Taycheedah, Fond du Lac County, in 1838, when the first settlers arrived (13). Within a few years they became numerous. In the fall of 1851, Capt. Mackinnon (14) drove from Sheboygan to Fond du Lac. Quail were among the birds "constantly exposing themselves." The Titus family settled about 1853 in the wooded section east of Fond du Lac, when quail were numerous "but so easily approached by the hunter that they soon grew fewer in number (15)." Ficker (15a) came to the town of Mequon, Ozaukee County, in the fall of 1848. He wrote that the "partridges are not much bigger than the German quail. . . ."

The presence of quail was certainly not dependent on agriculture. Quarles (16), in his letters from Southport (Kenosha) in 1837-1843, does not mention the quail but only the kinds of game killed with his rifle. He wrote in 1838 that it is about
three years since the first settler arrived. Mrs. L. T. Fowler (17) came to the town of Bristol, Kenosha County, in 1837, when "quail and prairie chicken were abundant." Another immigrant (18) wrote from Southport on December 19, 1842, that game, including quail, was plentiful. It was said of the town of East Troy, Kenosha County, in 1845: "Small tracts of land were under cultivation but the autumnal fires still swept through the woods. . . . Then the sweet wild plums grew in the thickets where covies of quail were hidden (19)."

Quail were found at Waukesha by Chapman (19a) when he arrived in the spring of 1841. Breck (20) flushed several covies of quail near Nashotah in November, 1846, and mentions that in 1841 there were few settlers inland from Lake Michigan.

Beginning with 1846, quail are mentioned as abundant in several localities. Near Milwaukee the species was "never so abundant," and it is added: "The increase of Quails in particular seems to keep pace with the rapid growth of our population and the spread of the settlements." In October they were shot in the center of the town (21). It was now common in Walworth County (22). Quail were abundant in August, 1847, at Madison (23) and Watertown (24), and they were hunted at Prairie du Chien (25). Their abundance in the Milwaukee (26) market "would excite an enthusiasm among eastern epicures." In a letter dated December 19, 1848, Bühler (27) mentions the rapid increase in the number of quail at Prairie du Sac, many being shot and netted in the cornfields. There were only six resident families at this place in 1840.

**Extension Northward**

The statement of Barry (28), made in 1854, that the quail was "distributed in immense numbers over the entire state" is much too broad. It is not certain that the original range in the Mississippi Valley extended above La Crosse. The following interesting note was printed at Hudson, St. Croix County, in July, 1855: "In riding across the prairies, a few days since, in a westward direction from this place, we frequently started up a bevy of quails from the road-side. Judging from the numbers we saw, we conclude that next fall sportsmen will find quails here in great plenty, a desirable recent addition to the game of this section of the country." In August, they were listed among the birds ob-
tainable in “unlimited numbers” (29). If quail were so plentiful there in the summer of 1855, it is beyond belief that they did not occur some years earlier.

Quail were mentioned as quite plentiful at Wausau (30) in 1868. They arrived at Ashland (31) in 1874, and at Superior (32) in 1882. An Ohio hunter, familiar with the species, reported seeing a flock of thirteen on November 14, 1891, near Florence, Florence County (33).

**Period of Abundance**

Quail became plentiful by 1846. In 1852 they were brought into Madison (34) “by the bushel”; and at Prairie du Chien (35) they were never so plentiful. Emery (35a), who came to the town of Rutland, Dane County, in 1852, said: “I have seen thousands of quails (Bobwhite) come into my father’s yard to get the seeds from his millet hay.” During this year Hoy (36) wrote that the quail, within a few years, had become remarkably numerous. They were so abundant by 1853 as to invade Madison (37) in force, flying against buildings and breaking windows. All the old muskets were brought into action. Some of the citizens were so intolerant as to object to being shot in the back. Quail were so plentiful in central Wisconsin that it had “ceased to be sport to shoot them” (38). In Milwaukee they usurped the place of wild pigeons, and were used for trap shooting (39). Waukesha (40) had “huge quantities” of quail and prairie chickens.

The peak in population was reached in 1854. Quail were as abundant as ever at Janesville (41) in spite of the number trapped the year previous; and more numerous than usual at Watertown (42) and Jefferson (43). At Madison (44), “quail are now found in every grove, and a good shot can readily bag 50 to 75 in a day.” They were plentiful even as far north as Green Bay (45).

Despite the shipment of enormous numbers of quail during the fall and winter of 1854-55, they were still abundant in 1855. In January it was said: “Quails have never been in greater abundance in Wisconsin. . . .” (46) They were plentiful in the fall at Milwaukee (47), and were shot in the heart of the city. They were plentiful also at Elkhorn (48), Waukesha (49), Watertown (50), and Hudson (29). Quail could be shot “almost
anywhere” at Madison (51), while the following forceful statement appeared at Jefferson: “We saw about a million—say nine hundred thousand—in a short trip the other day. We found one quail-trap full, and let the poor things out.” At Portage there were brought in “rabbits, quails, etc. beyond enumeration” (53).

It is difficult to conceive of the former abundance of quail. They were so numerous at times at Milwaukee that there were “on an average, three bevies to every ten acre lot” (54). It was said that at Madison “a ten-minutes walk enables you to put up your first bevvy of quails while every succeeding five minutes furnishes a fresh covey” (55). The narrow strip of land between the lakes at Madison was a funnel through which passed great numbers of birds during the irruptions. The following facetious account is not as exaggerated as it seems: “Yes, in early days, if you wanted a meal of quails—all you had to do was to take a club and let fly once or twice among the tall grass in the park, then go about with a wheelbarrow and gather up the slaughtered ones. . . . At the time Col. A. A. Bird kept the United States hotel . . . quails were known to enter the kitchen through open windows, in their flight. One afternoon it is said the cook captured nearly a thousand. . . .” (56).

COMMERCE

Quail were caught at Janesville during the winter of 1842-43, showing that trapping began very early in the agricultural history of the State (57). Roberts (58) came to Lafayette County in 1846. He has described the use of the tunnel trap, a favorite means of taking quail in the Mississippi Valley. This trap, popular in Europe during mediaeval times, was doubtlessly introduced by the French colonists. When snow covered the ground, baited traps of various types were very effective. Poor transportation facilities for a time limited the sale of quail in large numbers for export without the commonwealth, except from the lake ports. The accompanying map (Fig. 2) shows that railroads tapped but a small portion of the state prior to 1855. The arrival of a railroad was followed immediately by a great increase in the traffic in quail and other game.

The first mention of a large shipment of quail is by Hoy (59). In the fall and winter of 1849-50, C. A. Orvis of Racine shipped two tons of quail to the city of New York. One morning in
Figure 2. Dates of railroad construction in Wisconsin and northern Illinois.
November, 1852, 1,500 quail, some of them alive, were brought to Milwaukee where they were sold at 25 cents a dozen (60). In January of this year, 39 cents a dozen was offered at Janesville (61). Joseph Clason, of Beaver Dam, in February, 1853, hauled to Milwaukee a load of game in which were 100 dozen quail that had been trapped by his son (62). The traffic had become sufficiently large that in 1852 a state law was passed prohibiting the capture and sale of quail except from the first Tuesday in October to February first.

The railroad from Milwaukee to Janesville was completed in 1853. The number of quail trapped and sent east from Janesville, the winter of 1853-54, was "fearful" (63). It was anticipated that fewer would be trapped during the fall and winter of 1854 as the transactions had become unprofitable. Most of the birds were taken illegally. The sellers were at the mercy of the large buyers in the cities and were forced to take the prices offered. Nevertheless large numbers were shipped from Janesville and Beloit. The prices, 87.5 cents to one dollar a dozen, offered the trappers during the legal season, show a great increase. One dealer shipped 500 dozen from Beloit (64).

A Mr. Lee of Milwaukee started for New York on January 20, 1854, with 500 dozen quail. The total number shipped from this port during the season was over 2,860 dozen (65). There was a strong protest against trapping that was said to be done by the "idle and vagrant." This is not a fair statement as the prices paid during the legal season were highly attractive to farmers and professional trappers alike.

The exportation reached a peak in the season 1854-55. Quail continued to arrive in Milwaukee by rail in January, and even long after the legal season had passed. The number shipped east was "enormous" and fears were expressed that this gamebird would become extinct (66). In fact, it was deplored that the traffic persisted the year round. The shipments from Beloit amounted to 12 tons. This is equivalent to 55,000 birds as the average weight was stated to be 7 ounces (68). A shipment of 20,000 quail from Janesville was received in Philadelphia in January, 1856 (68a).

THE DECLINE

The reduction in the number of quail was due to a combination of trapping and adverse weather. The winter of 1854-55 was
severe and this was followed by the exceptionally hard winter of 1855-56. The decline was not sudden. During the winter of 1855-56, tons of quail and other game were hanging in the yard of the Capital House at Madison (69). However, while quail sold for 40 cents a dozen at Lancaster, they were neither plentiful nor cheap in Milwaukee (70). In January, 1857, there was a protest against the tons of quail that reached Milwaukee. The market was glutted (71). A Chicago dealer, in December, 1856, received a consignment of 214 dozen from Fond du Lac, Wisconsin. The high price of $2.25 a dozen, wholesale, prevailed (72).

In the fall of 1857, compared with former years, quail were reduced greatly in number at Janesville. (73) The sight of a flock in the Capital Park at Madison elicited the comment that the species was becoming quite rare in the vicinity of large towns (74). They were unusually scarce this season in the Milwaukee markets (75).

The winter of 1857-58 was mild. In the fall of 1858, quail were very numerous at Prairie du Chien (76). In December, the Milwaukee market was again glutted with them. The weather at the end of this month was so unfavorable for keeping game that quail could be purchased as low as 50 cents a dozen (77).

There were few quail at Madison (78) in the fall of 1860 in spite of the mildness of the preceding winter. They were, however, reported abundant at Horicon, (79) Oxford, (80) and Burlington (81). Quail increased gradually, and were numerous locally, until the winter of 1865-66; but their numbers did not begin to compare with those for the years 1845-54. In 1861, they were not nearly as numerous as formerly at Shullsburg. (82) Ruffed grouse were stated to be more plentiful than quail in 1866 in Wisconsin, though “ten years ago the quail whistled from every fence-corner” (83).

Madison is chosen to show the rapidity of the decline. Quail had recovered sufficiently by the fall of 1863 as to be seen almost daily in the Capital Park (84). In 1870 it was said: “These delicious birds, once so plentiful here, are very rarely found in this vicinity now. We have seen none in the market this fall until today, when Oppell had a lot of them brought from abroad. . . .” (85). A year later the presence of a covey was an item of note (86). For 1879, we read: “A Sun Prairie farmer tells us,
a few days ago, he stirred up a flock of quails, thirteen in number, and shot eight. We had thought that there was not one quail in Dane County” (87).

During this time the quail disappeared almost completely from the border of Lake Michigan. In the fall of 1879, a hunter shot a quail near Milwaukee. It was the only one seen during the season (88). They were very scarce this year also at Waukesha (89). The quail was considered a bird of the past at Milwaukee in 1882, though a few years previously they could be found quite plentifully two to four miles south or west of the city (90). Willard (91), writing in 1883, had never found a quail in Brown County; also, it was not found at this time at Shiocton by Grundtvig (92) though he was assured by others of its presence. Hoy (59) mentioned in 1885 that it had been two years since he had seen a quail at Racine.

A few quail were reported present in Manitowoc County, and also in Sheboygan County, in the fall of 1898, for the first time in many years (93). Prior to 1868, there were hundreds of quail in the town of Scott, Sheboygan County. None were seen during the following 30 years. They were thought to have disappeared because a “wild bean”* upon which they fed became scarce with settlement of the country.

The close of the century found a temporary increase in the population, particularly in the Mississippi Valley. In 1895 there were more quail at Eau Claire than for many years (94). They were “abundant” in 1896 at Prairie du Chien (95), and more numerous than usual at Trempealeau (96), Black River Falls (97), and Stevens Point (98). Though quail had been scarce at the latter place for years, several flocks invaded the town October 9 to 12. The increase continued through 1900. They were to be found everywhere in the country districts at Prairie du Chien for the first time in many years (99). This year Hough (100) found only a few quail at Waupaca but remarked that for several years they had been moving steadily northward from that place. In 1902, Schoenebeck (101) stated that the species had become common in Oconto County within the past ten years.

The general statement may be made that from one decade to another, since 1870, the quail population has remained relatively stationary.

---

* Prof. N. C. Fassett suggested *Lathyrus palustris*. 
EMIGRATION

The former periodic irruption or emigration of quail on an extensive scale was a very interesting phenomenon. During the movement, that took place usually in September and October, quail entered towns, flew against houses, and crossed wide rivers. The habit was developed to the highest degree in the North Central states. Van Dyke (102), as late as 1891, wrote of the quail in Minnesota: “In the early part of the fall, ... the quail generally have a crazy spell, during which they gather into large flocks, travel quite a distance and even go into town and butt their brains out against houses.”

It is not known if quail irruptions occurred under primitive conditions. They may have taken place and yet not have been recognized. Audubon, as is well known, observed quail cross the Ohio River periodically during his residence in Kentucky. One writer (103) mentions a congestion of quail, in the autumn of 1840, on the bank of the Mississippi at Quincy, Illinois. Here the river was approximately a mile wide. He states that the autumnal migration, or change of quarters, was well known. Another observer (104) mentions that at Louisville, Kentucky, “quails migrate here from Indiana and elsewhere every three or four years, and wherever you can find an elbow of the river, they are very plenty, as they go to these projections to cross the river, and many a one meets a watery grave in the attempt.” In the fall of 1839, “some 500 or 1,000” were encountered at the junction of the Ohio and Mississippi (105).

There is little definite information on the extensiveness of the emigrations or the distances travelled. In the fall of 1846, quail emigrated in “myriads” from Iowa to Illinois, while four years previously the movement was in the opposite direction. Large numbers were encountered the entire distance of 30 miles between Bloomington, Iowa, and Davenport. The observer wrote: “We saw every hundred yards, flocks numbering from twenty to two hundred. They seemed half deranged; they run into town, fill the streets, and even the barns, for they break numberless windows in their flight.” In attempting to cross the Mississippi, a weary flock dropped upon a steamboat but “countless numbers must perish” (106).

A movement of quail in 1866 across the Ohio from Indiana to the vicinity of Louisville, Kentucky, began September 15 and
was still in progress on October 26. It extended as far down the river as Owensboro, so that the front of the advance was approximately 80 miles (107). A mile seems to be about the limit of a sustained flight. Yorke (108), on three occasions, observed quail in flight across the Mississippi where it was at least a mile wide. In one instance only five or six of a flock of fifteen reached the bank.

The behaviour of quail during the fall movement has been graphically described by a Milwaukee sportsman:

"Another western peculiarity of this bird is its annual visit to large cities and villages in the fall. During the fine weather of Autumn while food is in the greatest abundance on stubble, in stack and in the high road, the quail seeks our closely inhabited places, and may be heard and seen all day. In the morning, he is not so often seen, but just after noon he begins to show himself and make himself heard. He gets on top of houses and stores, and pipes most lustily. He drops into the smallest back yards and gardens, piping, and rambling about as if he wished to call your attention to him. He even parades the crowded streets in large bevis, and actually spends the whole afternoon loafing about the principal streets and all the yards and gardens. . . .

"Towards sunset he becomes excited, crazy as a speculator . . . he often makes pounce at a house, hits it and knocks himself down. . . . Even after dark he continues this game, and you may sometimes hear him take a house late in the evening, and you can pick him up at its base in the morning, as dead as a herring.

"Why he does all this, we cannot say, but every boy knows he does it, and nine-tenths of the juveniles in the eager chase after him in the Autumn, run over your grounds and often demolish half your garden and shrubbery. Nor is this chase so unsuccessful as you might suppose. When pursued by the boys he often runs under boards, bushes, woodpiles or rubbish, and is taken by the hand, and often when driven by them from this covert rushes madly against house or fence, and is taken up dead. These vagaries are of annual occurrence, some years the fit of insanity only lasts a few days, and sometimes it lasts for weeks.

"Yet, while he thus visits our villages, he seems to remain as abundant in the country. We have left a village filled with piping quails, and yet found one or more coves in every stubble field, and have seen them in the road picking up the wheat dropped by the wagons."
“These habits he may have elsewhere, but we have never noticed them except at the West, and know he is not so ineretely addicted to them in the Atlantic States, if he is at all.” (109)

About 1840, quail abounded in fall in the streets and gardens of Chicago. Owing to their small size, they were “not much molested by gunners” (110). In 1854 and 1855 large numbers of quail were killed in the streets of Watertown and Madison by boys using only sticks and stones (111). There were protests at this time at Madison, Kenosha, and Racine against the common practise of shooting quail in the streets (112). Sportsmen were shooting quail on West Water Street, Milwaukee, on November 4, 1854, “something novel for a city with a population between 30 and 35,000.” (113) Nevertheless, they subsequently invaded this city each fall from 1859 to 1862 (114). In the fall of 1863, hundreds of quail and prairie chickens flew over or entered the city of La Crosse (115). Quail came into the Capital Park in the center of Madison as late as 1865 (116).

There is little doubt that the habit of quail to emigrate or irrupt, when a certain density of population was attained, was a powerful factor in producing the huge numbers that existed in Wisconsin in the decade prior to 1854. A sportsman wrote from Racine, July 18, 1849: “The winter—a real polar one—thinned out the Quails a good deal, but still there will be abundance according to your ideas, and if, as I expect will be the case, they should come in the fall from the South, abundance even according to ours” (117). The fall movement was clearly defined. It is surprising to find that a spring movement took place also, supposedly: “The quail is a permanent resident of this state, though after the stock has been thinned off by a very severe winter, we have known vacancies filled by emigration from the South, both in the succeeding spring and the fall after it.” The spring influx generally occurred, the fall always, so that it was unnecessary to import birds after a severe winter (118).

There is little information on how far north the large irruptions of quail extended. In the fall of 1850, hundreds of quail arrived at Sheboygan Falls during a sleet storm, to the mystification of the inhabitants. They remained about the town for months (119). The most puzzling of quail records is given by Kneeland (120). His observations were made from August, 1856, to June, 1857, at Portage Lake, Upper Peninsula of Michi-
gan. A few years previously quail were unknown there but at this time they were not uncommon on Keweenaw Point. The quail travels largely on the ground during irruptions and it is wholly improbable that birds from Wisconsin would cross the wooded wilderness of the Upper Peninsula. Any quail on Keweenaw Point must have been imported. Due to the heavy snowfall characteristic of the region, the chance of their survival for a single winter is remote.

The mass movement of quail has never had a satisfactory explanation. The theory that the species was once migratory, and that a vestige of the old instinct remains (121), is inadequate. Wild turkeys and other animals performed similarly without being in the strict sense migratory. It is unknown whether a flock of quail travelled ten, a hundred, or more miles. Recent banding studies made in Oklahoma have shown that it is not uncommon for quail to wander in fall and winter distances of three to 26 miles from the summer range (121a). Without doubt the distances covered during irruptions were considerably greater. It seems that a certain density of population stimulates an innate solicitude for adequate winter quarters and sets the birds in motion.

Due to the invasion of towns and frequent self-destruction against buildings, it was popularly believed that in autumn quail became crazy and partially blind (122). Quail assemble usually by running, less often by flying. When they were dispersed over the streets, gardens, and buildings of a town, the structures kept them in bewilderment. On the morning of September 7, 1855, six members of a flock of quail flying through the village of Whitewater failed to avoid a store and were killed (123). Muir (124) saw quail killed by flying against his home near Kingston, Green Lake County, when suddenly startled. Several additional examples could be cited. Quail flush with explosive violence and with little regard for direction. Once launched, their short wings render them incapable of turning with sufficient rapidity to avoid an object of unnatural dimensions.

**EFFECT OF AGRICULTURE**

There was a deep-seated tradition in the middle west that quail were unknown to the Indians and that they were added to the fauna by immigration or introduction. Imlay (125), for example, wrote that quail were unknown in Kentucky when the
first settlers arrived. He makes the fantastic statement that the birds came over the Appalachian mountains "by following the trail of grain which is necessarily scattered through the wilderness."

Regarding the quail in Illinois in 1854, Kennicott (126) makes this puzzling comment: "Very abundant throughout the state. Introduced within twenty years." It is difficult to believe that he meant that the quail was not native to the state. Hubbard (127) spent the winter of 1818-19 at an Indian trading post near modern Hennepin, Putnam County, Illinois. Quail and prairie chickens were abundant but were not considered respectable food. By 1837, quail were being trapped by the "hundreds in a day" and sold in the city markets (128). This year they were plentiful at Bloomington, and in 1841 sold at 25 cents a dozen (129).

The quail was indigenous to Cook County. The following note appeared in the Chicago Journal, September 11, 1848: "But speaking of quails—a number of years ago, and before half the present population of Chicago ever dreamed there was such a place there were none of them in this region, a severe previous winter having completely exterminated them. In view of this... Gordon S. Hubbard, who was then wintering at the South, brought up with him in the Spring a cage or box full of these birds for breeding, and hence springs the present profusion..." Capt. Levinge (130) shot quail near Chicago in 1838. A severe winter like that of 1842-43 could have reduced the population to a point where the quail would appear to be extinct. It is hardly possible that a few imported birds could have produced the number present by 1848.

There were no quail at Rockford, Illinois, according to Thurston (131), when he arrived in 1837. They appeared shortly after the first settlers. On the other hand, in 1838, when the adjoining county of Stephenson was first settled, game, including quail, was in abundance (132).

There is ample evidence that quail increased greatly simultaneously with a certain stage in the development of agriculture. Cabot (133) was told that they had increased eight-fold within the recollection of the informer. He states: "I myself saw numbers of quails in the main street [Chicago] and on the houses, and was assured that they sometimes entered the shops. The
cause is simply the increase of food." The following quotation is in a similar vein: "For twenty years after the settlement of Northern Illinois, the deer, the grouse, and the quails increased in numbers every year. . . . The quails were constantly on the increase from 1840 to 1850" (134). Thurston (131) has written that at Rockford quail were present in "countless numbers from 1844 to 1854." Boys traded dressed quail for ammunition at a maximum value of 18 cents a dozen. During the winter of 1852-53, the time when the railroad reached Rockford, barrels of quail were brought from Stephenson County for shipment east. As will be shown later, the peak in the quail population was reached during a series of favorable winters and it is probable that this factor was far more important that the food supply.

When quail began to decline, the cause was attributed to over-shooting or trapping, the state of agriculture being left out of consideration, usually. Baldwin (135) stated that quail have "largely decreased" since the settlement of La Salle County, Illinois. Quail were past their peak near Fond du Lac prior to the Civil War; yet, according to Titus (15), it was not until this war opened that the settlers had sufficient land under cultivation to make a "frugal but fairly comfortable living."

Southwestern Wisconsin developed slowly in spite of early occupation. Evans (135a) wrote: "My first impression of Platteville (1846) was that of a village located in a dense forest. . . . At this early date most of the land was uncultivated; both prairie and timber were in primitive condition. . . . There were few farms then; just a vast prairie between here and Shullsburg." In 1854 it was said of Dane County: " . . . perhaps one-eighth is under cultivation embracing about 1,600 farms. . . ." (136) The three southwestern counties, Grant, Lafayette, and Iowa, had improved only 20 per cent of their areas by 1860. It is difficult to believe that so slight an extent of agricultural development could have affected greatly either an increase or decline of the quail. The ratio of wild to cultivated land would appear ideal. All stages of land improvement could be found at this time in the southern portion of the state, yet the quail never recovered.

It should be mentioned that the most pronounced increase in quail took place in the prairie regions of the Upper Mississippi Valley. Many thousands of these birds were sent to eastern mar-
kets from Wisconsin, Illinois, and Iowa (137). Under primitive conditions quail had great difficulty surviving a winter on the open prairie unless the weather was exceptionally mild. It was not, however, absent from the prairie in summer. Levinge (130), in September, 1838, found quail in the tall grass a few miles west of Chicago. In Wisconsin, Goss (138) found quail nesting on the prairie miles from a tree or bush.

The quail is essentially a border bird, and as King (139) has said occupied the “borders of groves, hazel patches and open fields.” Even in the absence of snow the customary autumnal burning of the prairies by the Indians deprived the birds of food and cover over large areas. Marsh (140) mentions that in De Kalb County, Illinois, in 1849, the quail wintered in the hazel thickets at the edge of the woods as there was no cover beyond.

Prior to agriculture, the quail was restricted mainly to the borders of streams and woods. A strip of hazel separated the prairie from the timber, and whenever the latter encroached upon the prairie, the hazel led the advance. It is evident therefore that both habitat and quail population were strictly limited. The advent of agriculture was soon followed by an apparently optimum ratio of wild to cultivated land. Reduction of burning permitted a rapid advance of hazel and other types of brush, while the building of fences and the planting of hedges increased greatly the protective cover. Cultivation produced grain and weed seeds, which in combination with cover, permitted the quail to take over lands that were formerly uninhabitable the year round.

INTRODUCTIONS

It was thought unnecessary, in 1856, to introduce quail since winter losses were repaired by immigration from the south. (109) It is said that quail were introduced into Minnesota in 1845 (141), but no early plantings seem to have been made in Wisconsin. There were occasional attempts to care for the birds during the winter (142).

Some Tennessee quail released at Ripon froze to death during the winter of 1884-85 (143). In 1886, birds imported from Texas were liberated at Oskosh (144). Their subsequent history is unknown. About 20 pairs were freed at Whitewater in the spring of 1890 (145).
The almost complete disappearance of the species along Lake Michigan led to numerous attempts at reestablishment. Some quail imported from New Orleans were released at Racine in the spring of 1887 (146). A few birds were introduced at Plymouth about 1892 (147). Seven dozen Kansas quail were liberated at Sheboygan in 1892, but the expected increase did not take place (148). Two Rivers was quite persistent in its efforts. A private attempt was made in 1894 to raise birds from Texas stock. The local gun club liberated 120 birds from Kansas in the spring of 1895, and several hundred were released in 1897. (149)

Sportsmen at Sturgeon Bay, in 1899, set free 140 quail received from Kansas. Since further stocking was discussed the following year, there is doubt that the birds survived (150); however, in 1908, the quail were said to have multiplied rapidly. (151) Great optimism was shown by the release of quail at Washington Island in the spring of 1902. Their existence was in doubt by the spring of 1904 (152).

Quail were introduced at Palmyra, Jefferson County, in 1897 (153), while hundreds were liberated at Prairie du Chien by Col. J. T. Barnum in the years prior to 1898 (154). It is stated that at this time Gustav Pabst released large numbers of quail in various parts of the state (155). Southern quail, liberated near Lake Koshkonong, survived the winter contrary to expectations (156). It is very doubtful if any of the importations have had a perceptible influence, racially or numerically, on the native stock.

**WEATHER**

It has been recognized for a long time that the most lethal enemy of the quail is severe weather. Crèvecoeur (157), in 1782, mentioned a severe winter in the east that reduced the species to near extinction. Hoy (59) wrote of a winter at Racine during which hundreds of quail froze to death in groups of ten to fifteen while roosting. The mortality caused by cold and deep snow is stressed by Muir (124a). One of his neighbors was watching some quail when “they actually fell down and died.” Mrs. S. Littlefield (157a) mentions a severe winter that killed quail in Sheboygan County and that she actually saw them drop dead.

The first Wisconsin winter mentioned in connection with quail mortality is that of 1842-43. It was long known for its low
temperatures and deep snows. There was sleighing from the 10th of November to about the same date in April. A thaw in January followed by rain produced a crust on the snow, making the worst possible conditions for game birds. Quail were nearly exterminated. A gentleman at Janesville purchased from trappers 100 quail that were liberated the following spring (57). There followed a succession of mild winters until that of 1848-49, giving the quail a chance to become plentiful. During the latter winter, snow and sleet killed “thousands” in Iowa (158) and reduced considerably the number in Wisconsin (117).

Quail had increased so rapidly in Wisconsin along the Mississippi River by the spring of 1854 that they were expected to “swarm” should the following winter be mild (159). This hope was not realized as the winter was severe. A storm in December drove large numbers into the settlements around Jefferson (160) where they were trapped easily.

The winter of 1855-56 was very severe throughout the northern and eastern states. The deep snow by December had driven the quail into the farmyards. They were numerous at Kilbourn (Wisconsin Dells) until the cold weather of January, 1856, when they disappeared (161). A letter from Belvidere, Boone County, Illinois, states that few quail lived through the winter. There was a better survival, supposedly, in Wisconsin “on account of having woods for shelter” but that even there quail were few in comparison with other winters (162). They were said to have been nearly exterminated in Grant County and that it was many years before they were numerous again (163).

The belief persisted that a warm winter would restore the population. One writer states that though the winters of 1854-55 and 1855-56 “have thinned his numbers deplorably, but a single warm winter will bring him to us in abundance, and a couple of them in extra abundance...” (109). Unfortunately the winter of 1856-57 was also severe on quail (164), so that there were three successive killing winters. The winter of 1857-58 was mild and to it was attributed the presence of numerous quail at Prairie du Chien in the fall of 1858 (165). It was not considered good sportsmanship to shoot quail until the autumn of 1859 since until that time they had not become sufficiently plentiful. (166)

The nature of the southern Wisconsin winters from 1840 to
1900 is described in general terms in Table I. A detailed analysis of each winter would extend this paper to unjustifiable length. The statement, "quail killed," has been used only when it is supported by literature references for the particular winter. The factors governing winter survival are varied and complex. Quail that are well fed have an excellent chance of living through the winter (167), but during rigorous weather birds in seemingly good condition may perish (168). When the body weight drops below 70 per cent of normal, through cold or lack of food, quail are particularly vulnerable to subzero temperatures. February and March are usually the critical months. A convey that survives in weakened condition until March may be exterminated by a single snowstorm, while a drifting snow that becomes crusted may be fatal at any time.

It is easy to understand why some of the earliest settlers reported quail absent or scarce when it is realized that potentially 1833-34, 1834-35, and 1837-38 were killing winters. Each of these winters had one month during which the mean temperature was 9 or 10 degrees. There was an insufficiently long run of favorable weather to permit a large increase in the population. Beginning with the winter of 1843-44 and extending through that of 1853-54, a period of 11 years, there was a remarkable succession of mild winters, the only interruption being that of 1848-49. This series of mild winters has never been duplicated. It is evident why the peak in population was possible in 1854.

Table I. Character of Southern Wisconsin Winters, 1840-1900

<table>
<thead>
<tr>
<th>Year</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1840-41</td>
<td>Mild</td>
</tr>
<tr>
<td>1841-42</td>
<td>Very mild</td>
</tr>
<tr>
<td>1843-44</td>
<td>Mild</td>
</tr>
<tr>
<td>1844-45</td>
<td>Very mild</td>
</tr>
<tr>
<td>1845-46</td>
<td>Mild</td>
</tr>
<tr>
<td>1847-48</td>
<td>Exceptionally mild. Little snow.</td>
</tr>
<tr>
<td>1849-50</td>
<td>Mild. Little snow.</td>
</tr>
<tr>
<td>1850-51</td>
<td>Mild. &quot;Moderate open winter.&quot;</td>
</tr>
<tr>
<td>1851-52</td>
<td>Comparatively mild. Heavy snow in March melted rapidly.</td>
</tr>
<tr>
<td>1853-54</td>
<td>Comparatively severe. Cold with deep snow the end of January. February mild.</td>
</tr>
<tr>
<td>1854-55</td>
<td>Severe. Quail killed.</td>
</tr>
<tr>
<td>1855-56</td>
<td>Very severe. Quail killed.</td>
</tr>
<tr>
<td>1856-57</td>
<td>Severe. Quail killed.</td>
</tr>
<tr>
<td>1857-58</td>
<td>Mild</td>
</tr>
</tbody>
</table>
1858-59 Mild.
1859-60 Mild. "Open."
1861-62 Severe. Exceptionally heavy snow fall.
1862-63 Very mild.
1863-64 Severe. Heavy snow.
1864-65 Severe.
1865-66 Severe. Rain, cold, drifted snow.
1866-67 Mild.
1867-68 Severe, "Steady cold."
1869-70 Exceptionally mild.
1870-71 Mild.
1871-72 Comparatively severe. Numerous snowstorms.
1873-74 Comparatively severe. Deep snows.
1874-75 Very severe. Quail killed.
1875-76 Very mild.
1876-77 Comparatively severe. Cold with deep, drifted snow in January.
1877-78 Very mild. "Open winter."
1878-79 Comparatively mild. Low temperatures in January.
1879-80 Very mild. "Exceptionally fine."
1881-82 Very mild.
1882-83 Severe. Extreme cold and deep, crusted snow. Quail killed.
1883-84 Severe. Quail killed.
1885-86 Severe.
1886-87 Very severe. Blizzards.
1887-88 Severe. Drifted and crusted snow.
1888-89 Mild. "One of the mildest on record."
1889-90 Very mild.
1890-91 Mild.
1891-92 Comparatively mild.
1892-93 Very severe.
1893-94 Mild.
1894-95 Severe.
1895-96 Mild.
1896-97 Mild.
1897-98 Mild.
1898-99 Comparatively severe. Quail killed.
1899-00 Mild.

The question may be raised whether food or weather was the more important factor in producing the peak in population in 1854 and the subsequent decline. The commerce in quail that became extensive about 1852, and was pursued vigorously for many years, was contributory to the decline, especially since quail could be trapped so easily in severe weather. It is reasonably clear, however, that weather played the important role. The birds, after the series of three severe winters beginning with 1854-55, never again approached their former numbers. Food must have been as ample as formerly during the three mild winters starting with 1857-58, but the population was so depleted that there was only a limited recovery. Similar series of
three favorable winters occurred only three additional times before the end of the century. When there was a succession of six hard winters such as that between 1882-83 and 1887-88, it is surprising that the species survived.

It is stated by Gerstell (170) that the quail stands near the bottom of the list of gamebirds in its ability to withstand lack of food; and that even under favorable food conditions there is a high mortality due to environmental extremes. Artificially propagated quail, confined individually without food, showed the following survival time: 1.9 days at 0°F. with an air movement of 5.8 miles per hour; and 2.5 days at the same temperature with no movement of the air. Due to conservation of heat, the chances of survival in a bevy are increased greatly. A group of 10 birds, owing to the opportunity to huddle closely while roosting, showed an average survival of 4.1 days at 0°F. and no air movement.

Quail roost usually upon the ground in a compact circle. There are exceptions. The following note was made at Madison, March 23, 1930: "About 6 inches of snow fell last night. . . . At 2:45 found 5 quail (there might have been more) roosting in a clump of spruce trees near the old sand pit. They were about 15 feet from the ground. About 200 yards up the same road, found 8 quail roosting in a grapevine tangle about 12 feet from the ground. This roost was quite open but offered good protection against large owls." I have never, however, found an elevated roost during severe weather.

The argument that quail, after attaining a certain abundance, may as well be shot, since they are sure to approach extermination during the next cold winter, is an old one in Wisconsin (168). While there is some truth in this assertion, it produces a dilemma. The normal bevy of 15 to 20 birds has the best chance of survival. If it is reduced to 4 or 5 birds prior to a hard winter, the chance of the remnant surviving is much more remote. It is improbable that many of the reduced coveys would combine for the winter since in most regions the coveys are too widely separated.

There is no prospect that quail will become numerous in Wisconsin in the near future. The effects of weather are largely beyond management. Cover continues to deteriorate. Where it is not removed deliberately, its effectiveness is reduced greatly
by grazing. Dairying and the raising of stock are injurious to both cover and the food supply. It is evident, therefore, that the improvement of present conditions for quail are for the most part not subject to control.

ADDENDA

Editor D. J. Powers (Wisconsin Farmer 9, 1857, p.231) states that approximately 25,000 quail were sent from Madison to Chicago the winter of 1855-56. He thinks that an estimate of 500,000 quail sent to eastern cities from Milwaukee and Chicago would be low.

Howard Bosworth (Forest and Stream 56, April 13, 1901, p.287) knew of one or two places in the valley of the Wisconsin River where he could have killed 75 quail a day in the fall of 1901.

Quail were first observed at Schilling Station, Clark County, in the fall of 1901 (Greenwood Gleaner Oct. 18, 1901).

A. H. Pape liberated quail in 1899 in Waupaca County (New London Republican Sept. 22, 1903), and in the spring of 1903 a few were set free in Burnett County (Grantsburg Sentinel Nov. 12, 1903).

LITERATURE CITED

1. A. N. Somers, Pop. Science Monthly 42 (1892) 203.
5b. Watertown Chronicle Nov. 3, 1847.
6. Mrs. Mary Bristol, Wis. Hist. Coll. 8 (1879) 303; 15 (1900) 236.
8a. Ibid., p. 178.
9. Whitewater Register Nov. 13, 1858.
16. J. V. Quarles, ibid., 16 (1933) 297–320.
19a. Silas Chapman. Early Waukesha days. Waukesha Freeman July 10, 1890 [1].
24. Watertown Chronicle Aug. 18, 1847.
27. Jacob Bühler, Wis. Mag. Hist. 16 (1923) 325.
29. Hudson North Star July 4 and Aug. 8, 1855.
32. Superior Times July 29, 1882.
33. Florence Mining News Nov. 21, 1891.
34. Madison (w) Argus and Democrat Dec. 7, 1852.
41. Janesville Democratic Standard Aug. 9, 1854; Madison Argus and Democrat Dec. 29, 1854.
44. “Badger,” Porter's Spirit of the Times 24 (Nov. 18, 1854) 476.
45. Green Bay Advocate March 23; Nov. 16, 1854.
47. Ibid., Aug. 25, 1855; Milwaukee American Oct. 17, 1855.
49. Waukesha Plain Dealer Oct. 16, 1855.
50. Watertown Democrat Jan. 4; Aug. 30, 1855.
51. Madison (d) Argus and Democrat Oct. 29, 1855.
53. Portage Badger State Jan. 4, 1856.
54. Milwaukee (d) News Sept. 7, 1856.
55. Ibid., Sept. 14, 1856.
58. S. E. Roberts, Darlington Democrat March 7, 1819.
60. Milwaukee Sentinel Nov. 26, 1852.
63. Janesville Democratic Standard Feb. 1; Aug. 9, 1854.
64. Madison Argus and Democrat Dec. 29, 1854.
66. Ibid., Jan. 20, 1855.
69. Milwaukee (d) News June 10, 1856.
70. Milwaukee Sentinel Jan. 10; Feb. 7, 1856.
74. Madison (d) Patriot Sept. 29, 1857.
75. Milwaukee Sentinel Jan. 4, 1858.
76. Prairie du Chien Courier Sept. 16, 1858.
78. Madison (d) Argus and Democrat Oct. 12, 1860.
79. Horicon Argus Sept. 21; Oct. 19; Nov. 18, 1860.
82. Shullsburg Local Sept. 6, 1861.
85. Ibid., Dec. 8, 1870.
86. Madison Democrat Nov. 1, 1871.
87. Ibid., Dec. 30, 1879.
88. L'Eclair, Forest and Stream 13 (1879) 714.
89. H. W. Merrill, ibid 13 (1879) 827.
90. "Blue Jay," Am. Field 17 (June 24, 1882) 440.
91. S. W. Willard, Wis. Acad. Sci. 6 (1885) 189.
92. F. L. Grundtvig. ibid., 10 (1895) 105.
93. Manitowoc Pilot Aug. 25, 1898; Plymouth Review March 6; May 22; Dec. 25, 1901.
94. Eau Claire Telegram Aug. 4, 1895, 1.
95. Prairie du Chien Courier Nov. 10, 1896.
100. E. Hough, Forest and Stream 55 (Oct. 6, 1900) 288.
103. H. M., Porter’s Spirit of the Times 11, No. 8 (April 24, 1841) 90.
104. G. ibid., 11 (March 13, 1841) 19.
105. N. ibid., p. 25.
109. Milwaukee (d) News Nov. 16, 1856.
110. S. C. C., Wildwood’s Magazine 2 (1889) 98.
111. Madison Argus and Democrat Oct. 19, 1854 and (d) Patriot Oct. 12, 1855.
113. Milwaukee (w) Wisconsin Nov. 8, 1854.
115. La Crosse (w) Democrat Oct. 10, 1863.
118. Milwaukee (d) News Nov. 9 and 16, 1856.
119. Anon. Quail or bob-white. Sheboygan Falls News April 6, 1892.
121a. L. G. Duck, J. Wildlife Management 7 (1943) 367.
123. Milwaukee (d) Democrat Sept. 19, 1855.
124a. Ibid. pp. 134 and 152.
134. C. Game in the west. Wilkes’ Spirit of the Times 17 (Dec. 28, 1867) 334.
137. T. F. DeVoe. The market assistant. N. Y. (167) p. 164; Milwaukee (d) Wisconsin Nov. 23, 1855, [2].
141. Milwaukee Sentinel March 18, 1869, [2].
144. Ibid., Nov. 1, 1886.
145. Whitewater Register April 24; Sept. 4, 1890.
146. Racine Times March 11, 1887.
147. Plymouth Review July 1, 1903.
149. Two Rivers Chronicle Feb. 27, 1894; Feb. 2 and 29, 1897; Kewaunee Enterprise Jan. 22, 1897.
151. Sturgeon Bay Advocate Jan. 18, 1902; Feb. 7, 1903; Democrat Oct. 31, 1903.
152. Sturgeon Bay Democrat Aug. 23, 1902; Advocate March 12, 1904.
154. Prairie du Chien Courier Sept. 6, 1898.
158. “Short Pete,” Porter’s Spirit of the Times 19 (April 14, 1849) 90.
159. “H. of Wis.” ibid., 24 (May 27, 1854) 176.
165. Prairie du Chien Courier Sept. 16, 1858.
166. Milwaukee News Sept. 16, 1859. [2].
171. Milwaukee Sentinel Feb. 18, 1903.