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**Fluctuating Game Populations and the Sportsman**

**By Ralph S. Palmer**

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## FLUCTUATING GAME POPULATIONS AND THE SPORTSMAN

PAPER READ BY RALPH S. PALMER

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As a New Englander, and having some acquaintance with the conservation problems of this part of the country, I wish to say a few words regarding game populations and the sportsman.

First, there is one fact which we know to be generally true of most animal populations, and that is that animals tend to reach an optimum density in a given area. If and when they do reach this density, they do not maintain it for any length of time in the face of a changing environment. Or, to use a popular expression, nothing is constant but change.

We are all aware of this fact and generally refer to these population changes as cycles. By definition, a cycle is "an interval of space or time in which is completed one round of events or phenomena that recur regularly and in the same sequence." So when we refer to a species as cyclic and mean that the population, in due time, will increase after a low point and decrease after a high point, we are within our rightful terminological limits, so to speak. The term does not seem appropriate, however, when referring to a species whose population may level off at a given point in one period, and not in another --- as happens sometimes in grouse population changes --- that is, the changes do not recur in the same sequence. Other popular misconceptions, I think, have to do with the fact that to some people the term cycle means that the same or similar numbers are involved, and that the time element is fairly regular, and being regular, can be reasonably predicted. To say that a species is cyclic when all the evidence points to a picture of gradual decrease over a long period of years --- when each peak in the population involves less numbers than previous ones --- then I think the term is misleading. To the public mind it gives the erroneous picture that such a species will come back again in former numbers. To my way of thinking, the word fluctuation would cover population changes in most species more accurately. To fluctuate means "to be constantly changing, as between two points, or states of being," and use of the term cannot possibly be interpreted to mean that numbers involved are the same or that the time element is so regular as to be predictable. I think if we are a little more careful in our use of the term cyclic, we can avoid painting a false picture for the sportsman --- at least so far as some species are concerned.

Understanding, as well as we do, many game population changes, it remains to take the proper steps to insure some sort of supply. For instance, some bag limits in effect today appear to be based on a period when there were fewer gunners and game was more numerous.

To show what has happened, or is happening, to certain fluctuating game species, I would like to review several cases that apply to New England.

*Caribou.* Once this animal was an important game species in northern New England and adjacent areas. It was locally migratory and there were years when New Brunswick had a good supply and Maine practically none. Several known periods of scarcity in Maine were followed by periods of considerable numbers there, which gave rise to the belief that, although they might be scarce or absent at times, one could always count on their return. However, shortly after northern New Brunswick was popularized for big game hunting, the absence in Maine became permanent. The animal was given legal protection in Maine, then in New Brunswick. It was the old story of locking the door after the horse had been stolen, and neither place has caribou today.

If we date the extirpation of caribou from Maine at about 1912 (authors vary in this point a few years one way or another), it is interesting to recall that at least until the late 1930's, there was considerable talk of restocking this species.

*Snowshoe Hare.* The fluctuations of this species are complicated in parts of New England because of the fact that alteration of habitat has rendered an area from southern Maine westward across New England relatively unsuitable for this valuable species. In this 'submarginal' part of the hare's range, the population fluctuations can be likened somewhat to the tides of the sea. During a period of decrease in southern Maine and New Hampshire and elsewhere, fewer hares are found each year in those remaining areas at all suitable for them. They vanish entirely from some localities and the range is thus decreased. The southern limit of this hare's range in eastern North America is known to have been changing for at least a hundred years. After the tide has turned in the 'submarginal' area, numbers increase and part of the former range may be reoccupied. Gunners become optimistic about the future supply, but when the tide has turned again, the shooting fraternity petitions the state game department to do something about the lack of hares.

At Isle au Haut, off eastern Penobscot Bay, Maine, for example, it is believed that a combination of too many hounds and guns at a low point in this animal's population caused its complete disappearance from the island some 25 years ago. The species has been restocked from the mainland. In January, 1947, I was told that New Brunswick trappers were getting 50 cents apiece for live snowshoe hares, and that 40 crates per day, containing 12 hares each, were being shipped out from Harvey Station in York County, New Brunswick. These were being shipped to addresses in Auburn, Ashburnham, Concord, Framingham, Northampton, and Stow, Massachusetts.

In part of New England, at the border of the range, when the hare population is broken up into what might be called islands of population, they do not always restock themselves naturally after being shot out. Considerable effort and expense have been expended in liberating hares, the demand for this procedure coming, as one would expect, at a time when the population was particularly low over a widespread area. Due to land-use practices, destruction of food and cover, too many stray cats, and too many guns and hounds, much of the 'submarginal' area no longer is suitable for the hare and no amount of restocking will result in any permanent benefit.

Since restocking is only a temporary alleviation of the problem of scarcity, we need a long-range solution to the problem. I can see several possibilities: 1) if expense is no object, we can continue 'temporary alleviation' by annual restocking indefinitely; 2) reconvert a good part of the altered habitat to suitable habitat for the animal; 3) give up the idea of having hares in part of their former range and educate the sportsman to the fact that this is inevitable, so far as certain areas are concerned, unless much time and effort is spent in restocking indefinitely---when New Brunswick's population <sup>low point</sup> ~~that~~ coincides with one in Massachusetts, it may be necessary to import from Minnesota or elsewhere---but in this system money is no object whatever. As for reconverting altered areas and making them suitable for hares, this may be impractical and probably impossible in many sections. The third suggestion---resigning ourselves to the situation and making the sportsman see it in the same light---requires a lot of doing. For example, if hares increase for a number of years in an area after restocking, then the restocking is given credit whereas in all probability the population would have taken an upswing anyway. Although restocking might make the numbers high for a year or two longer (which I doubt), it would take just that much longer to convince gunners that, without annual restocking, the population naturally goes down. Another thing, it may be that imported stock might not survive and multiply---granting that they were not shot---over any length of time. And further, if the imported animals interbreed with native stock, there is the possibility that hybrids drop out of the picture sooner than if the few native animals are left alone.

*New England Cottontail.* This small rabbit has spread northward and now occupies areas where the hare is entirely absent and, in other places, the ranges of the two overlap. This species appears to be subject to fairly regular fluctuations, although the matter has not received much attention. The cottontail will survive in cover unsuited to the hare. Its spread northward has not been as rapid lately as it once was, and probably it will not spread into areas of coniferous trees, or where the snowfall is much greater than in its present range. The New England Cottontail is nowhere available in numbers for restocking when the local supply is low, nor can it be raised economically in captivity. In parts of New England where gunners are now limited,

or soon will be, to this species as their game animal in the rabbit tribe, they may be forced to accept the fact that some years there will be a natural supply of cottontails and in others very few of these animals.

*Ruffed Grouse.* A great deal is known about this bird at the present time. We know its habitat requirements fairly well. We know that it cannot be reared in captivity except at prohibitive prices. In Maine we even have a fairly good idea of the years of maximum and of minimum populations for over 70 years. While these figures may be altered or amended a little with further study we know that peaks have occurred in 1874, 1880-81, 1888, 1893, 1905, 1915, 1923, about 1928, about 1939, and about 1942. The intervals between the peaks as here stated varies from five to eleven years. There was widespread scarcity in 1876, 1882, 1896, 1907, 1917, 1926, 1934, about 1940, and in 1945. We also know that: 1) the years of maxima are alleged to have coincided fairly well over a large part of the species' range from the Maritime Provinces to western Ontario; 2) that the peaks have varied in their relative heights and the low points in their relative depths; and 3) that there have been areas in Maine where the population trend has not coincided continually with the general trend over either an adjacent area or over a much larger area. I might add that a competent statistician, who worked on the extensive grouse project in New York, applied the word cycle to grouse populations only guardedly and with reservations. The changes in numbers do not follow regularly and in the same sequence.

I sometimes wonder if the bag limit on grouse is not outdated. Over most of the species' range in New England, it seems to me that the limit is adjusted to a higher population level than would be obtained by averaging the harvestable surplus' on any given area through a series of fluctuations from high to low. Of course the kill should be adjusted to the yearly surplus and not the average. Incidentally, I wonder if the pheasant population takes enough of the pressure off the grouse population to be worth the cost of stocking and restocking the former, in say Maine, southern New Hampshire, southern Vermont, and at least some parts of Massachusetts---that is, if maintaining a grouse population is one of the purposes in introducing the pheasant. Will the present severe winter (1947-48) so reduce the pheasant population as to cause a little reconsideration about the problems of maintaining pheasants? And what are the possibilities of applying a fraction of the cost of rearing pheasants to educating the sportsman not to expect---and why---a good supply of grouse within its range year in and year out?

The environment has been so altered in many places that, omitting any gunning factor, it is safe to say that the peaks in grouse populations are not as high as they used to be in much of New England. We had better educate the sportsman to expect less, and the younger generation too, as a means of eventually bringing down the demand so that it is more in proportion to a diminished and ever-fluctuating supply.

*Bob-white.* Once this was an important game bird in much of southern New England. In a good year the species would extend its range, a few occurring in extreme southwestern Maine. This would raise the hopes of gunners there, and they attempted to prime the pump by releasing birds as far east as Penobscot County. Of course, as one would expect, the first snow of any depth left few of these birds alive, even semi-domesticated ones, and now this species has faded out of the picture like the caribou mentioned earlier. Here was a clear-cut case where the sportsman had to resign himself to the situation.

*Waterfowl.* I wish to mention this category of game briefly, mainly to point out that statements to the effect that waterfowl are cyclic in population changes are open to question; there appears to be no proof that such is the case. To go back to the definition of the word cycle, to state that ducks are cyclic implies that a downward trend in numbers will be followed by an upswing. And, on the basis of present knowledge and current treatment of our waterfowl, we have no proof whatever for predicting that the population ever will increase appreciably. Under present conditions and regulations, there are too many guns for too few birds.

Even legalizing the killing of one Wood Duck per day---which can be termed rather aptly a 'one mistake a day policy'---has added few ducks to the bag and has not helped the rather vulnerable population of this species any. The fact that the population did not immediately slump to near the vanishing point when shooting the species was legalized, is no assurance of a continuing adequate supply.

Let us suppose it became necessary to give complete legal protection to the Ring-necked Duck in New England to give this species, which has extended its breeding range recently in the northeast, a better chance to establish itself. When one considers how many Wood Duck 'mistakes' were made when the bird could not be shot legally, and that probably 95 out of 100 gunners do not recognize a Ring-necked Duck when they see it, quite obviously there is an educational problem connected with the waterfowl situation. If regulations now in force, or made in the future, involve any selectivity in the species to be shot, education has to begin at least as far back as the stage of pointing out to gunners how to distinguish one duck from another.

In summary, I would like to make the following points: 1) more than one daily and seasonal bag limit at the present time is adjusted to fewer guns and more game than we now have in most years; 2) the public at large, and the shooting public in particular, needs to be better informed regarding the nature of game fluctuations, to the point where they will not insist on unsound practices in an attempt to maintain the game supply at a fairly even level; and 3) education of the sportsman is an essential step in any attempt to adjust the demand to the fluctuating supply of shootable game.