

THE STATUS OF THE HUNGARIAN PARTRIDGE IN NEW YORK*

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The Hungarian or European Gray Partridge, an important game bird throughout central southeastern Europe and the British Isles, is one of the many exotics introduced into the United States to supplement supplies of native game birds whose numbers have been materially affected by wholesale environmental change. Introduction of the Hungarian partridge in the United States was first recorded in 1870 and occurred annually from 1900 to the present, and probably importations reached a peak about 1914 when 36,760 were imported. It is paradoxical that much of this interest in the Hungarian partridge was due in part to previous unsatisfactory results from attempts to stock other exotic game birds, a success of bad seasons for Ruffed Grouse and Bobwhites, and restrictions by many southern states on exports of Bobwhites to stock northern ranges. These introductions have, in a few instances, been successful — notably in the north central states and Canadian prairies, but in numerous regions complete failure has resulted. It is unfortunate that no specific information is available concerning the fate of thousands of planting, totaling more than 260,000 Hungarian Partridge in the United States and Canada. Presumably the establishment and spread of these birds was dependent upon the satisfactory combination of various factors, such as food, climate, weather cover, soil drainage, competition and diseases. In studies, to determine the characteristics that are common to all areas on which birds have been successful, several broad generalities are apparent. The Hungarian partridge does best in temperate grain growing regions; preferring crop residue in lieu of natural vegetative covers and seemingly nominal precipitation in the reproductive period.

The restrictive range of the "Hun" in New York and its relative unimportance as a game bird has resulted in the lack of any concerted biological study of these species since its introduction in the mid-twenties. The present Hungarian partridge populations in New York stem from imports from Czechoslovakia released by the Conservation Department during the period from 1927 to 1932. Earlier releases between 1916-1921, apparently failed or resulted in small residual populations in several western New York counties. Although there is little specific information on the initial liberations in New York, it appears they were widespread with little consideration given to environment requirements of the birds.

Presently, the Hungarian partridge populations are well established along the eastern shore of Lake Ontario and the St. Lawrence valley, including the counties of Jefferson, St. Lawrence, Franklin and Clinton. Elsewhere in the State, there are recent records of residual in portions of Cortland, Onondaga, Allegany and Wyoming Counties. These residual colonies have persisted in small numbers but have failed to extend their range.

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The establishment of the Hungarian partridge in Ontario - St. Lawrence complex poses the question as to what specific physical or environmental factors account for its success in this limited area. In attempting to analyze and correlate the information relative to climate, land use, soils and other associated factors, no apparent reasons are found which explain fully the success of the Hungarian partridge in the present range as contrasted to other areas of the State, where these factors are apparently comparable. Until more critical biological work can be done, it is only possible to assume that certain conditions may be of prime importance to the success of the Hun within the limits of its existing range. Those conditions that best satisfy this hypotheses are the dry weather that normally prevails during the hatching and brood season. There may be a very definite relationship between "June precipitation and fall population." This has been well substantiated in European partridge management, the comparatively large acreage in grain crop and permanent pasture, the existence of ample cover for nesting and shelter and lack of competition from pheasant populations.

In order to have a clearer understanding of the population dynamics of the Hun population, a localized field study was undertaken during the winter of 1952. A seventy-five square mile area was randomly selected as a census unit, located in the east central portion of Jefferson County. During the months of December through to the end of February, when covey breakup and pairing occurs, roadside counts are made weekly when conditions, such as snow cover, visibility, wind and temperature facilitated maximum opportunity for census. With continuity of personnel, it is felt that over 95% of the covey groups are contacted. The general limited range of the birds throughout this period made it apparent that winter attrition could be calculated by this census method. Further refinements of this census technique and continuity of data has given us some insight into the winter behavior pattern of the Hungarian. It should be pointed out that the reliability of such a census method is open to serious error if marked shifts in populations periodically resulting from adverse weather conditions are not recognized.

To discuss in a general way some of the findings of the present study, it is possible to summarize as follows:

Range:

The Hungarian partridge range in New York, in the St. Lawrence River Valley and Eastern Lake Ontario basin, is restricted in large to the Vergennes clay and Ontario silt loam soil derived mostly from limestone origins. This area extends from southern Jefferson County northward, in a strip approximately 20 miles wide north to Chateaugay in Clinton County; a distance of approximately 150 miles. The total range of the Hungarian in New York then approximates 3,000 square miles. The land use pattern is predominantly dairy agriculture with large acreages devoted to pasture and hay. Tillable cropland is primarily small grain; predominantly oats and mixed grains. It is interesting to note here that similar agricultural practices and soil types predominate in the Hungarian range north of the St. Lawrence River in the Province of Ontario.

Population Density:

There is a great disparity in population densities throughout the prime Hungarian partridge of the region. Current wintering populations in central Jefferson County average approximately one bird per 50 acres and reaches one bird per 5 acres in periods of peak production. Elsewhere in the Hungarian range, the density may be as low as one bird per 100 acres; however, covey concentrations of 100 birds per mile of road are not unusual during periods of winter concentration. Adverse weather conditions related to temperature and precipitation have a definite effect on winter densities. High winds concentrate birds on lee slopes and in hedgerows; heavy snows and crusting invariably draw birds to roadside turfs exposed by plowing.

Food Habits:

Since no concerted food habit study has been carried out we can only reflect information based on random seasonal collections of crop content. It would appear that the juvenile birds depend on insects for a major portion of their food source in the early stages of development. Insect material is also eaten readily by adults in season. During the fall and early winter, weed seeds and small grains (wheat, oats) are items of food preference. During the winter months, green plant material is the dominant food items utilized. Ground feeding on seedlings by actual tunneling into snow cover is commonly observed. Much of this green plant food as well as grit, however, is obtained in wind-blown pastures and on roadsides, as the result of frequent plowing of road shoulders.

Mortality:

Little information, unfortunately, is now available to us with regard to mortality during the reproductive period, from covey breakup in late winter until fall. This reproductive period, in all probability, is the time when potential population levels are most limited. The need for information on the reproductive phase of the Hungarian partridge life cycle is greatly needed to better understand biology of this species. Information, however, relative to winter mortality is more complete.

Winter mortality, which has averaged about 12% on our census area over a 5-year period, appears generally not to limit Hungarian partridge populations. Approximately 60% of this winter attrition can be attributed to roadside kills by automobiles when birds concentrate on roadsides for the purpose of feeding. Winged and ground predators do not appear to result in significant losses during this period. Sleet and the resulting crusting of snow cover does have a most damaging effect. European workers report reductions up to 70-80% of wintering populations as a result of these conditions, as recent as 1940-1941. Hence, the trapping and holding of birds throughout the winter used to be practiced commonly in Central Europe as a management technique.

It is fortunate that such storms of long duration are infrequent in this region and have not been evident over the past five years. The winter of 1942-1943 resulted in local widespread losses in the St. Lawrence Valley as a result of a severe ice storm during December 1942. This was followed by

a gradual buildup in numbers until the winter of 1946-1947 when large scale losses were again apparent. Accurate loss figures were not obtained during these periods but it is safe to assume that populations were reduced by 50%. Gradual recovery has occurred and populations with annual variant have again reached levels comparable with the early forties. The effect of such conditions is not always direct as the birds are often forced into marginal range, which frequently results in further attrition.

Hunting Pressure:

The first hunting season was held in New York in the fall of 1952 and annual seasons have been held since that time. Gunning pressure is nominally light as Hungarian partridge hunting is somewhat specialized. Canadian biologists feel that fall populations could safely be reduced by 70% and not materially affect breeding populations. A reduction of the fall population of 150 birds by approximately 50% on a 5,000 acre area here in Jefferson County, had no discernable effect on the population densities the following fall. It is doubtful, however, if hunting under present diversified conditions in this region will ever bring about a harvest that approximates this figure. It appears that currently less than 10% of the total fall populations are harvested during the hunting season.

Stocking:

The demand for stocking of game birds is always present but not always with justification. The original stock in the present range has perpetuated itself for a period of thirty years surviving, no doubt, through rigorous selection and a biotype or an acclimatized strain has resulted. The case for introducing stock that would in any manner change the characteristics of the present strains does not seem desirable at this time.

SUMMARY

Much work is yet to be done before the life cycle of the Hungarian partridge in the region is fully understood. Little study has been conducted with reference to the reproductive or post-natal periods, as previously mentioned; this being the most critical, in terms of population dynamics. I think here is a place where the local ornithologist may well make an outstanding contribution. We, of course, expect to continue field studies in an effort to better understand many of the problems that these initial investigations stimulated. These might be enumerated as follows:

1. What is the extent of dispersal of paired birds at the time of covey breakup?
2. How important is intra-covey exchange to breeding success?
3. What is the extent of re-nesting attempt?
4. What is the most important singular nest loss factor?
5. The importance of non-productive males in the breeding population.
6. Methods of readily obtaining data in annual production:
i. e., age ratios by wing collection.

Here we have enumerated only a few of the questions that need serious study and consideration before we can fully understand the limited success of the Hungarian partridge in New York.

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