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Iowa State Conservation Commission

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The Effect of Farm Crops on the Production of The Ring-Necked Pheasant in Iowa

LESTER F. FABER

A great number of factors have been brought out and used as reasons for the recent decline in populations of the ring-necked pheasant. (*Phasianus colchicus torquatus*).

Research workers are inclined to look for some remote factors that might effect all game populations. Factors that operate over a period of many years perhaps. Are cyclic influences in operation, and do they cause changes in pheasant populations? Are pheasants subject to the fate of many other exotics in that they reach high numbers in areas where they become established only to be followed by a regression in numbers that are never replaced? These are long-range views to the problem.

We also blame the weather during the nesting season but we know the pheasant hen is persistent in her efforts to bring off a brood of chicks. We give the fox more than his due amount of credit, but we have evidence that where good habitat is available for pheasants, fox depredation is negligible.

This paper is intended as a more basic approach by bringing out the effects of farming operations and cropping systems on pheasant habitat and, more particularly, nesting habitat.

To the farmer, crop production is first, with pheasant production incidental. Since certain farm crops provide good habitat for ground nesting birds and other farm crops are of little value, an increase of crops not suitable for nesting would effect pheasant production.

The availability of safe or suitable nesting sites is one of the controlling factors in reproductive potential of pheasants. With this in mind, a comparison of crop records and pheasant population levels over a ten-year period reveals certain interesting points.

For the purpose of this paper the word crop is intended to mean land use. All crop records were taken from the "Iowa Yearbooks of Agriculture" and such classifications as "buildings roads and waste" or "cropland not harvested or pastured" are land uses comparable to corn or tame hay.

In order to make comparisons all crops are divided into three groups, classified according to their value in providing suitable nesting sites. GOOD CROPS, for nesting, include all the small grains, all cropland not harvested or pastured, and tame and wild hay. MEDIUM CROPS include pasture, buildings, roads and waste, and incidental crops. POOR CROPS or those that provide little or no nesting habitat, are corn and soybeans.

To be able to make a comparison between the changes in acreage of these groups of crops, the percentage of good, medium, and poor crops making up the average farm have been computed for six northern and central Iowa Districts. (See map, Fig. 1). These percentages are plotted over a ten-year period from 1937 through 1946.

Pheasant population data has been obtained from the regular roadside count covering the same ten-year period. (Bennett and Hendrickson, 1938). The census, while not entirely accurate, is of sufficient value to show ups and downs and the level of general pheasant populations. Crop data and populations data have been plotted in graph form. (See Figure 2).

From a study of these graphs certain points are evident:

1. The population curve is, roughly, directly proportional to the "good" crop line and, roughly, inversely proportional to the "poor" crop line.
2. The percentage of "medium" crops changes but slightly and apparently has little effect on pheasant production.
3. In districts where the difference between acreage of good and poor crops is greatest, the decline in pheasant populations was most pronounced.
4. In areas where crop acreages did not change to a very great extent over the ten-year period, the change in pheasant populations was not great.

Further examination of crop records, topography, and soils brings out another point: In areas where cropping systems could be and

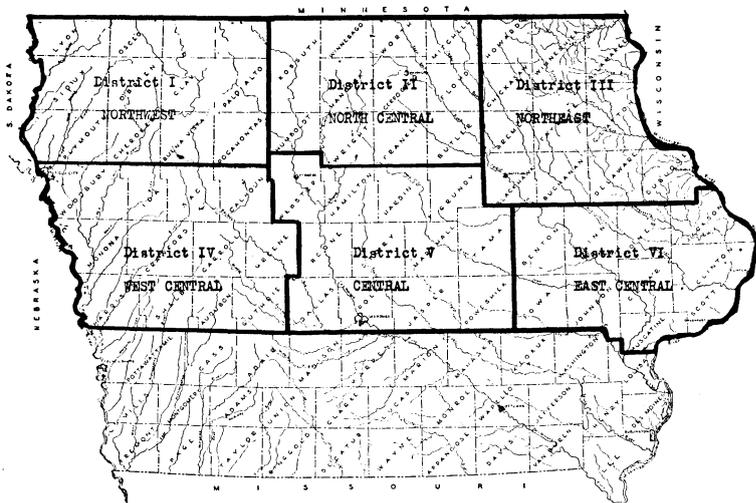


Figure 1. Map showing division of northern two-thirds of state into Districts.

were changed radically, (North Central, West Central, and Central Districts) changes in pheasant populations were also erratic and pronounced. In areas where major changes in cropping systems could not be made (Northeast and East Central Districts) the pheasant population curve is also more regular with the decrease taking place at an even pace.

In all districts, except east central, a population increase took

place from 1937 to 1941. Whether this is coincident with the pheasant cycle or not, the fact remains that during this same period the acreage of poor crops was on the decrease while the acreage of good crops was increasing. This situation reversed itself by 1942. When the price of corn and soybeans began to rise so did the acreage of these two crops. Small grains and hay were replaced by corn and beans. In all districts, except Northeast, the acreage of poor and good crops made up about the same percentage of the average farm in 1941. By 1945, the acreage of poor crops had risen to a point higher than any previous point in the ten-year period. It is believed that the difference between the amount of good and poor crops in any year is the important point. If it were possible for good crops to rise along with the poor, there is some doubt as to whether or not the effects would have been so serious.

Another factor not brought out by the graphs is that during periods of high prices, most farmers take advantage of every possible piece of land. Corners that had not been used were cleared and put into crops. Corn was planted closer to fence lines than ever before, and in many cases, even roadsides were put into crops by either removing fences or by plowing strips along the outside of fences.

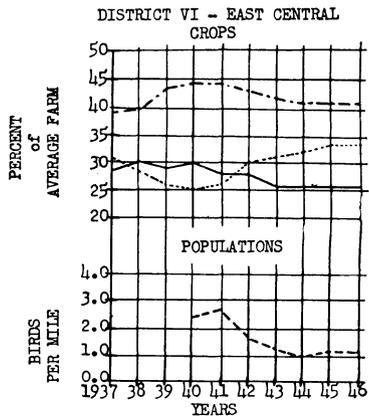
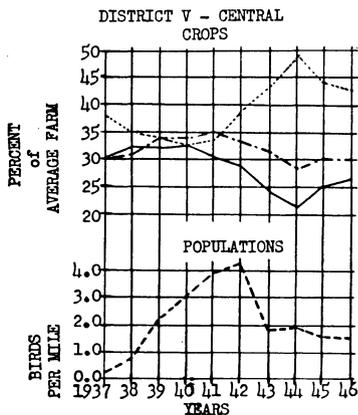
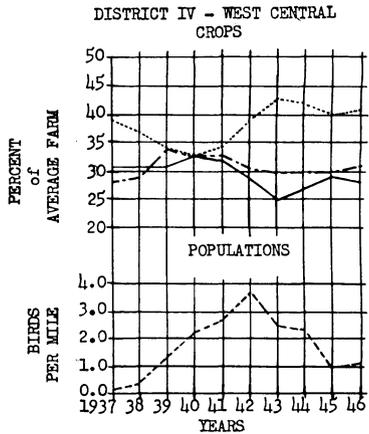
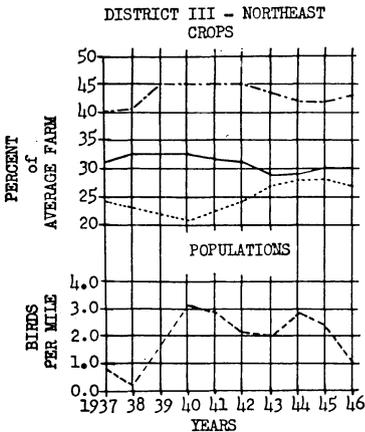
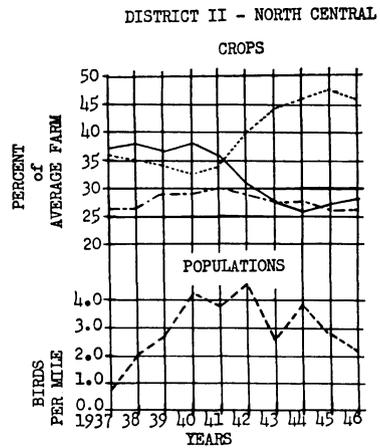
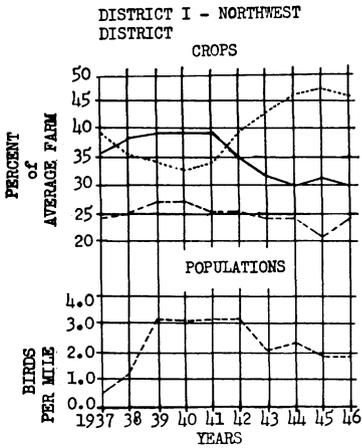
Perhaps farming operations the last five years have not been entirely responsible for the decrease in pheasant populations but these operations have reduced the habitat needed to produce pheasants. As of 1946 and since 1941, there were 2,600,000 more acres in row crops (corn and soybeans). There were 120,000 acres less in woodlands, 132,000 acres less in waste land and 387,000 acres less in croplands not harvested or pastured. These are only a few of the changes that occurred. The wild hay acreage, for example, shows a steady downward trend.

It should be brought out here that in order for gallinaceous birds to maintain a high population level, good annual reproduction is necessary. Adult birds are short-lived. If for some reason reproduction in any one year is not normal, the general population level will be lowered. If reproduction is held down two or three consecutive years, populations will be lowered to a point compatible with production type habitat. We have experienced intensified farming operations every year since 1941 so that evidence indicates our present low populations are all that the present habitat will provide.

SUMMARY

This paper is not intended to question the fact that pheasants may be effected by cyclic or other influences, but to show that our present farming methods do have a controlling influence on pheasant production, other factors being normal.

By comparing the acreage of good, medium, and poor crops for pheasant nesting over a ten-year period from 1937 through 1946 with pheasant population data for the same period certain points are evident. The rise and fall of populations corresponds with the



rise and fall of the acreage in good crops and also corresponds inversely with the rise and fall of the acreage of poor crops. Crops classified as medium apparently change little and seem to have little effect on pheasant production.

In districts where farming systems have changed the most, the decline in populations is most pronounced, while in districts where farming systems could not be changed to a great extent, the change in populations was gradual.

Since pheasants must be produced on farm land in Iowa, and since the crops that provide suitable nesting sites were reduced over the ten-year period, it is evident that cropping systems have an effect on production and, therefore, general populations.

STATE CONSERVATION COMMISSION,
DES MOINES, IOWA.

Bennett, Logan J., and Hendrickson, Geo. O., 1938.
Censusing the Ringneck Pheasant in Iowa.
Transactions of the Third North American Waterfowl Conference,
pp. 719-732.

Figure 2. Graph showing crop and population curves to accompany report on farm crops and pheasants for Iowa Academy of Science paper.

GRAPH—Showing percent of the average farm in GOOD, MEDIUM, and POOR crops for good nesting sites in relation to pheasant populations shown as birds-per-mile.

GOOD CROPS ——— Cropland not harvested or pastured; Small grains Tame and Wild Hay.

MEDIUM CROPS - - - Pasture; Buildings roads and waste; Other Crops.

POOR CROPS Corn and Soybeans.