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## Land Use Changes and the Ring-Necked Pheasant in Iowa

RICHARD C. NOMSEN<sup>1</sup>

*Abstract.* Pheasants are farm game birds and continue to thrive in diversified farming areas. Drastic land use changes in recent years have greatly altered the pheasant's environment. The acreage of safe nesting cover has decreased to only a fraction of its former abundance. Iowa's primary pheasant production cover, oats, dropped from 23% of all cropland in 1948 to only 5% in 1967. Production is poor in alfalfa and many hens are lost during the early cutting of this cover type. Herbicides decreased the value of potential nesting cover along roadsides and ditches. The bare field in winter offers little resistance to blowing snow, which decreases the effectiveness of available winter cover.

The ring-necked pheasant has prospered in Iowa because Iowa is a rich agricultural state. It continues to thrive in areas where diversified farming exists but many of the fertile and productive fields are now too intensively farmed to provide the basic needs of this popular game bird.

Pheasants are farm game birds. They winter in the farmstead windbreak, nest in fields of small grain and hay, and glean the fields for insects and waste grain. When we speak of wildlife habitat in general, we usually think of rough, brushy thickets or dense, grassy uncultivated strips surrounding the cropland. When we talk of pheasant habitat, we must first discuss the cultivated fields which supply the necessary essentials for the pheasant's welfare.

Many people in Iowa depend directly or indirectly upon the productivity of our soil. Farming is big business—modern agriculture demands intensive use of the land and modern machinery makes it possible. Drastic land use changes occurring in recent years have completely transformed the country side and have greatly altered the pheasant's environment. The trend toward more row crops (corn and soybeans) has accelerated during the past 5 years. In 1967, row crops were planted on 64% of the available crop land compared with 46% in 1948 (Table 1). The acreage of safe nesting cover has shrunk to only a fraction of its former abundance. There has occurred a definite trend toward larger farms and fields and a considerable increase in farm practices such as fall plowing, use of herbicides, and earlier harvest of alfalfa. These changes have been more pronounced on the level fertile farmland included in agricultural districts 1, 2, 4 and 5—the area which lies north of interstate 80 and west of highway 63. This paper will be confined to this region and will discuss the relationship between changing farm practices and the welfare of pheasants.

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DISCUSSION

The annual production of pheasants determines the population trend (Nomsen, 1964). Studies have shown that nests established in oat fields have in the past produced over half of the chicks hatched in Iowa. Oats acreage, however, has dropped from 3.61 million acres in 1948 to only 0.86 million in 1967, which means that only 5% of the cropland was used for oats in 1967 compared with 23% in 1948 (Table 1). Intensive studies on the Winnebago Research Area revealed that oats acreage decreased from 26% in 1954 to 4% in 1967.

The drastic reduction of primary production cover has been partially offset by Federal Land Retirement programs. Long-term land retirement, such as the Conservation Reserve and the Cropland Adjustment Program, provided a limited amount of excellent nesting cover during this period. Regulations did not require mowing so that the fields remained undisturbed during the nesting season. Annual land retirement programs were the most extensive but production was poor in this type of cover. Normally, these fields were seeded lightly with oats and land owners were required to clip the oats early in July. Beginning in 1968, regulations were changed

Table 1

Percentage of Total Cropland in Row Crops and Oats for Northern Iowa Agricultural Districts 1, 2, 4 and 5, 1948-67

| Year | Per cent<br>in Row Crops | Per cent<br>in Oats |
|------|--------------------------|---------------------|
| 1948 | 46%                      | 23%                 |
| 1949 | 48                       | 23                  |
| 1950 | 44                       | 24                  |
| 1951 | 45                       | 21                  |
| 1952 | 45                       | 23                  |
| 1953 | 48                       | 21                  |
| 1954 | 45                       | 22                  |
| 1955 | 48                       | 21                  |
| 1956 | 45                       | 18                  |
| 1957 | 48                       | 18                  |
| 1958 | 50                       | 17                  |
| 1959 | 56                       | 16                  |
| 1960 | 57                       | 16                  |
| 1961 | 51                       | 11                  |
| 1962 | 51                       | 10                  |
| 1963 | 55                       | 9                   |
| 1964 | 55                       | 7                   |
| 1965 | 57                       | 6                   |
| 1966 | 59                       | 6                   |
| 1967 | 64                       | 5                   |

to permit the land owner to delay clipping until late summer if noxious weeds are controlled.

Major changes in hay crops during this period affected pheasant production. Basket (1947) found that nests established in hayfields produced 47% of chicks in 1941. A nesting study on the same area by Klonglan (1955) indicated fair production in hayfields. Results of both studies showed that production in alfalfa fields was much poorer than in red clover, sweet clover or wild hay. Alfalfa has now replaced other types of hay, and the total hay acreage has decreased by one-third. Although nest density is high in alfalfa, production is very low due to the early cutting date preferred by modern farmers. There is also critical loss of hens during the first cutting of alfalfa.

The use of herbicides has increased in recent years and this practice has tended to reduce the quality of potential nesting cover. Strips of cover, such as roadsides and ditch banks, are important production areas. Weed sprays remove much of the cover needed for nest concealment. However, spot spraying of noxious weeds can eliminate the need for mowing and therefore help preserve the nesting site.

Drifts of wind blown soil have in recent years decreased the value of strip cover as nesting sites in much of the primary pheasant range. The trend toward larger fields, increase in soybean acreage, and more fall plowing have developed conditions conducive to soil erosion during wind storms. Strips of this valuable early nesting cover are soon filled with drifting soil during a dust storm.

These same field conditions impose extra strain on available winter cover. Blowing snow is whipped across the bleak and barren landscape and often piled into the windbreak. Drifts soon fill the marginal roosts and decrease the efficiency of the good quality windbreaks. The trend toward larger farms has eliminated about 25% of the farmsteads during this period, further reducing the available winter cover.

Changes in agriculture have resulted in a persistent decline in pheasant habitat. In our efforts to manage this species, we must recognize these changes so that proper recommendations can be made to fully utilize the remaining habitat.

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