THE RING-NECKED PHEASANT IN IOWA

Maynard Reece Painting
Courtesy Mill Pond Press

by
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"'There is a fallacious impression in many parts of this region that while native game needs generous coverts, the pheasant 'has adapted himself to civilization through thousands of years in China' and can get along on bare fields.

It is important that this fallacy be refuted. It tends to prevent sportsmen from squarely facing the covert-restoration problem."

Aldo Leopold
1931

Foreword

If a bird's nest chance to be before thee in the way in any tree, or on the ground, whether they be young ones, or eggs, and the dam sitting upon the young, or upon the eggs, thou shalt not take the dam with the young:

But thou shalt in any wise let the dam go, and take the young to thee; that it may be well with thee, and that thou mayest prolong thy days.

DEUTERONOMY 22:6-7

Since the dawn of time man has always been keenly interested in his surroundings and acutely aware of the animals with which he has been closely associated. This curiosity and interest extends to both native species and those that, through some manipulation, have been introduced into new environs to add traditional diversity and pleasure. The Chinese ring-necked pheasant came to our nation in the earliest times and pre- ceding that was transplanted over much of the Old World. Iowans as well as visitors to our state have shown a great interest in our pheasant population and all aspects relating to its management and use. In a more formal sense, many employees of the Conservation Commission have spent a major portion of their lives in the study for greater understanding of the bird's presence and its adaption to our state. The factual information in the form in which it is presented here will hopefully add to the reader's enjoyment. There has been a need over the years to record and publish the information acquired so that we can all improve our knowledge and thereby increase our interest in this important bird. We are indeed fortunate and proud that Iowa has been leading the nation in pheasant re- search and this book attests to its importance and acceptance as a viable species in this state. So that everyone who enjoys the pheasant can be- come better acquainted and more knowledgeable of this bird's total impact, this book is written.

Fred A. Priewert, Director
Iowa Conservation Commission

Preface

Every biologist dreams of someday having the opportunity to write a book and share his knowledge with others. There have been many times since this writing project started that I wished that dream had remained only a dream. However, the dream was not mine alone and did not start with me. The Iowa pheasant book began with Gene Klonglan and Dick Nomsen. They were initially given the task of writing the history and ecology of the ringneck in Iowa. Both men spent the greater part of their careers with the Iowa Conservation Commission in pursuit of knowledge about pheasants. After Gene left the employ of the Commission, I was given the task of finishing the book. To both of these men I owe a debt of gratitude for their accomplishments in the collection of field data and written contributions to the manuscript.

This book should not be viewed as the end point in pheasant knowledge in Iowa but rather a long overdue compilation of current knowledge. As long as pheasants exist in Iowa, there will be voids in our knowledge about this species and problems to solve in the management of pheasants.

In a book of this nature there is always the problem of whether to write for the sportsman or for the wildlife professional. Hopefully this book is a middle of the road product with enough data and detail to interest the professional without boring the sportsman. If the writing of this book can bring the sportsman and professional to a closer understanding of management of the pheasant resource, then the time and energy spent on this task will have been well spent.

Allen L. Farris
Russell and Indianola, Iowa

Acknowledgements

In a project of this size there are always those individuals who have contributed greatly to its accomplishment, and their efforts are hereby acknowledged.

The Conservation Officers, both past and present, collected the majority of the pheasant population survey data presented in this book. Personnel from the Wildlife and Fisheries Sections have also contributed by collection of survey data. Ron George, Dale Humburg, and Jim Mayhew provided valuable services by reading rough drafts of the manuscript and providing valuable suggestions. Gene Hlavka assisted in the compilation of survey data. Larry Pool made the maps and graphs. Ken Formanek, Ron George, Dick Nomsen, and other unknown photographers contributed photographs. Kathy Schlutz, Effie Humburg, and Betty Knight typed early drafts of the manuscript. Sandy Fuller typed the entire manuscript three or four times. Roger Sparks assisted with photograph selection, copy layout, and arrangements with the publisher. Fred Priewert, Harry Harrison, and Bob Barratt provided release time from regular duties to complete the writing. Katherine Farris undertook the job of editing.

The licensed hunters of Iowa deserve recognition because it has been their license money that has supported the research and management con- ducted on the ring-necked pheasant in Iowa.

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Chapter 1
What Is A Pheasant?

The term **pheasant** will no doubt conjure up in the mind of the average Iowan an image of a large brownish and copper-colored bird with a green-black iridescent head, large red wattles, a white ring around the neck, and a long tail barred with brown and black - the typical ringneck rooster. Yet the same word might create a wholly different picture in the minds of people in man y other parts of the world. This is true because the group of birds referred to by scientists as pheasants includes a large number of related birds of many sizes, shapes, and colors. In fact, there have always been questions among men specializing in classifying birds into scientifically based groups about how many different kinds of pheasants there really are and how they are related.

COUSIN TO THE CHICKEN

The ring -necked pheasant is a member of that portion of the avian world referred to as gallinaceous birds. These birds are classified together in the order Galliformes - a word that means chicken-like. This large order is further broken down into families. Each family includes those particular birds that are most closely related to each other, as shown by the many external and internal characteristics and habits they exhibit. The family that embraces the pheasant-type birds is known as Phasianidae. Further sub-divisions below the family level lead to that group commonly called pheasants.

The Phasianni tribe, by no means a small assortment of relatives, is a conglomeration of 16 different genera, 49 different species, and 122 recognizable subspecies[1]**.** The species is the basic unit of biological classification. It consists of a group of individuals with similar characteristics that differ from all other forms of life in one or more ways; individuals of a species when bred with each other produce like offspring. Separate species generally do not interbreed, though hybrids, usually sterile, occasionally occur. Two or more species with several characteristics in common form a genus, with further upward grouping into families, orders, etc. A sub-species is a group of individuals within a species that can be recognized as exhibiting certain differences. Subspecies are usually geographic in origin. The resemblance between a pheasant and a domestic chicken is obvious.

The ancestor of the chicken, the jungle fowl, is a member of the pheasant family. The jungle fowl comprise the genus **Gallus,** while the true pheasants, of which the ringneck is a member, make up the genus **Phasianus.** The other 14 genera consist of an assortment with tongue-twisting names. In more common language, these include the long-tailed

pheasants (includes the Reeves' and copper pheasants), cheer pheasants, eared pheasants, gallo-pheasants (includes silver, fireback, blue Kalij, and wattled pheasants), ruffed pheasants (includes golden and Lady Amherst's pheasants), peacock pheasants, and blood pheasants. Other genera include the peafowl (commonly seen in aviaries because of the beautiful tail of the male peacock), congo peacock (the only pheasant found in Africa), crested argus, great argus, monals, koklass, and tragopans[1]. Most of these are unfamiliar to the average American because they are almost exclusively native to parts of Asia and Malaysia. A few species, brought into the United States by game breeders and bird fanciers, are seen in aviaries and parks where they are displayed for their ornamental beauty.

The true pheasants, sometimes called game pheasants, are the best known of all. Not only do they consist of a great number of subspecies (34), but their geographical distribution is wider than that of any of the other 15 genera[1]. Various members of the group can be found all across south- ern Asia, from the Black Sea to Japan. Though the many subspecies are separated in their native ranges, they can interbreed freely given the chance. Though many of these strains have been kept pure in captivity, there has been indiscriminate crossing. In the wild where no control over reproductive activities can be exerted, a mixed bird of uncertain lineage is the result of releases of many different subspecies. Though generally called the Chinese ringneck, the Iowa pheasant is the result of a melting pot of Chinese, Manchurian, Korean, Formosan, Caucasian, Mongolian, Japanese, and perhaps other varieties.

WILD IOWA KINFOLD, TOO

The pheasant's family tree has a few other branches in Iowa besides the ringneck and the domestic chicken. Two of these are such close relatives that they are part of the same family, Phasianidae. One of these is the native bobwhite quail which is most common in the southern part of the state. The other is a foreigner, the gray (Hungarian) partridge which was introduced from Europe about the same time as the pheasant. Gray partridge are found right along with pheasants in north central and northwest Iowa. Actually, all pheasants, partridges, and quails, including Old World species, are members of the same family.

Two other gallinaceous relatives of the pheasant are also found in Iowa. Wild turkey and ruffed grouse (sometimes called timber pheasants) are both members of other families in the order Galliformes. Turkeys are in the family Meleagrididae while the grouse are in the family Tetraonidae. Since both turkeys and ruffed grouse prefer forested habitat, they are usually not found in close proximity to pheasants. However, the pheasant filled a spot vacated by another grouse, the prairie chicken. Because of habitat changes prairie chickens were rapidly disappearing from Iowa when pheasants were introduced.

GAUDY MALES AND DRAB FEMALES

The whole pheasant tribe is distinguished by its brilliantly feathered males and dull, nondescript females. A verbal description can hardly do justice to the cocks, particularly of the ringneck group. It is even difficult to find a painter expert enough to capture their magnificent beauty. A typical male ring-necked pheasant is best described as a composite of copper breast merging into russet brown sides; rich brown, flecked with bars of black and white, covers most of the rest of the body. The lower back and rump are a bluish gray with greenish tinge. There is usually a white ring around the neck, occasionally absent in areas where black-necked pheasant blood predominates. Above the ring, the neck and head are an iridescent black with olives, violets, and greens flashing through. There is often a gray patch on the crown of the head. A sizeable crimson red patch covers an area around the eyes and the wattles. This area turns a vivid scarlet in the spring during the breeding season. At this time, two tufts of feathers resembling ears noticeably protrude erect from the head. At the other end of the bird is a splendid tail. It can be up to two feet long and is basically brown barred with black. The legs possess spurs. There are short, stubby, grayish ones on the young cocks and long, pointed, hard, blackish ones on old roosters.

The drab hens are a fairly uniform brown color with buff and black markings on the feathers. The under parts are light buff or cream colored with some faint mottlings. The tail, shorter by half than that of the cock, is the basic dull brown with irregular black bars. The hen's entire plumage is wen-suited for its purpose, camouflage during the nesting season.


Young chicks resemble the hen in color for the first two months of life. At about 9-10 weeks, changes become evident in the young cocks as they begin to acquire their masculine attire. This whole process takes another couple of months. By the time they are full-grown at 4 to 5 months of age, they look like the adult cocks in most respects.

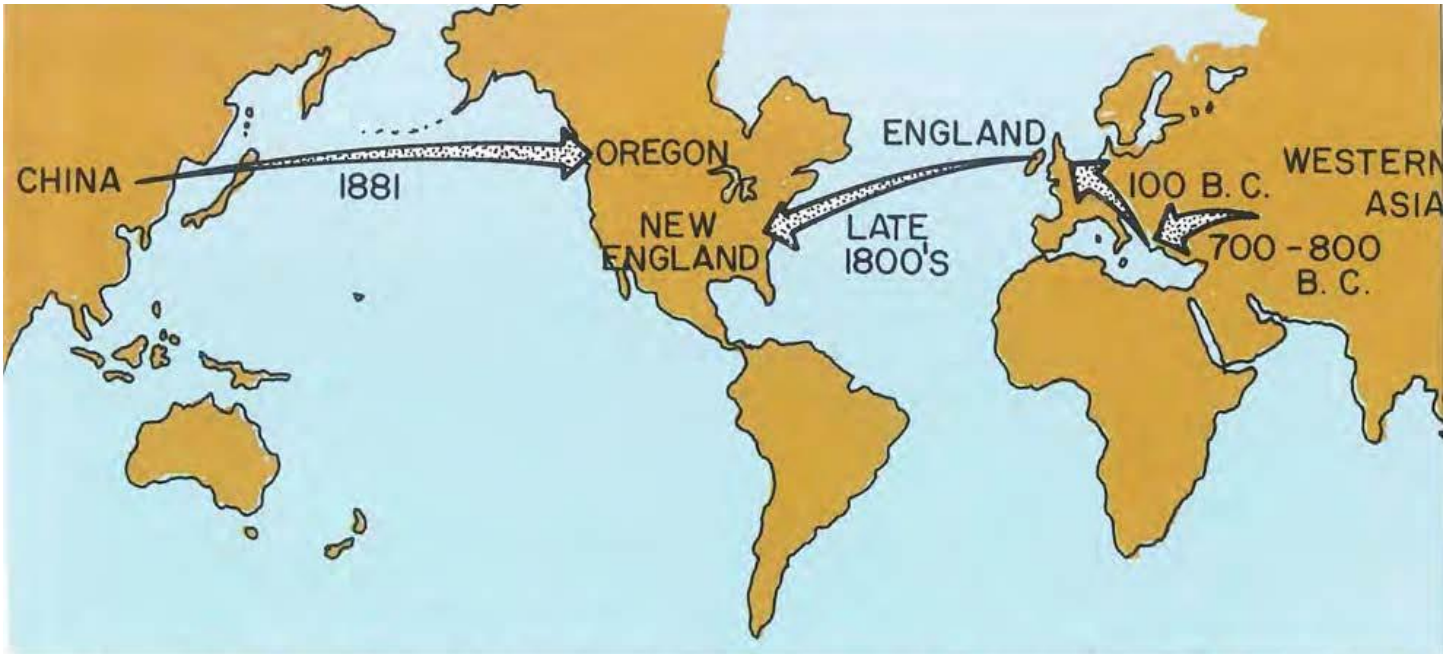
Cock pheasants appear larger than the hens not only because of their longer tails and legs, but because they weigh more as well. The average full-grown Iowa pheasant rooster will weigh just under 3 pounds, while the average hen will weigh a bit over 2 pounds. An occasional long-lived cock may make it to 4 pounds, or even slightly more, while a fat old hen will push the 3-pound mark. Young roosters in the fall do not often exceed 2% pounds.

The melting pot ancestry of Iowa's pheasants accounts for a lot of color variation in its birds. Many of these differences show up as varied shades and patterns that may not be noticed by a casual glance but are readily evident to anyone willing to sit down and studiously compare birds. A few pheasants may show really marked variations from the normal plumage color. These variations run from solid black, decidedly reddish, to the all-white albino. Most of these unusual birds fall somewhere between these extremes; true albinos or pure black mutants are extremely rare.

Birds with a considerable amount of white, giving them a mottled appearance, show up frequently. They tend to be more common in some locations than others, perhaps traceable to a greater than usual mixing of pheasant subspecies in the original stockings in those localities. One such region is that between Creston and Greenfield in southwest Iowa. In one year in an area of half a dozen square miles, an all white adult cock, which was not an albino, was found run over by a car. Two chicks in separate broods over two miles apart were all white except for brown wings and tails, and other chicks in the vicinity showed lesser amounts of white, and a few tended toward the darker phases. That fall about a dozen birds out of nearly 300 captured for research had white feathers in their plumage. A couple had quite dark plumage. Offspring from these birds continued these color traits, with even an all-black cock showing up.

A "PEOPLE BIRD" IN MANY WAYS

When men from outside the Orient chose the pheasant as a prize bird to bring to other lands, they surely did not pick blindly. Though we cannot know what thoughts those early transporters of pheasants had, they certainly picked the right bird from the thousands of choices available. The ringneck-type bird of Iowa has a background steeped in human association for his native range in Asia is centered in heavily populated agricultural areas, particularly the grainfields of China. His ability to eke out a living around the rice paddies foretold his skill to do the same in the cornfields and sloughs of the Midwest. When the prairie chicken, wild turkey, and ruffed grouse faded before the onrushing pioneer settlers, the pheasant stepped in and made the most of the opportunity.



Introduction of the Ring-Necked Pheasant into the United States

Chapter 2
Pheasants Come to Iowa

There were no pheasants in the territory that was to become the state of Iowa when the first settlers arrived, nor were there any here for many years after statehood was achieved. However, the game bird we now commonly known as the ringneck originated in parts of Asia where many different species of pheasants are found. Long before their arrival in **Iowa,** pheasants had been transplanted by man from their native range to other parts of the world. These transplanted pheasants included the ringneck as well as other subspecies.

FROM ASIA TO EUROPE

Caucasian Pheasants

According to legend pheasants were first brought to Europe about 1000 BC by the Argonauts, who sailed to Colchis on the eastern shore of the Black Sea in quest of the Golden Fleece[2]. In the Caucasus of south-western Asia near the Phasis River, the Greeks encountered these long-tailed, brilliantly-colored birds[3]. It is easy to see how the word **pheasant** was derived from **Phasis,** the name of the river in the area where pheasants were first known to the Europeans**.** The scientific name of the pheasant, **Phasianus colchicus,** comes from the river Phasis and the province Colchis through which it flows.

The Romans are credited with spreading the pheasant through Western Europe when they were expanding their empire[1]. It was during this period that pheasants likely reached England for the first time, possibly with the invasion by Julius Caesar in the first century BC. However, definite British references to the pheasant are not found until about the 10th century AD[1].

The pheasants involved in these European introductions were primarily the black-necked type. There are many varieties of the blackneck that live in that area of western Asia between the Black Sea and Caspian Sea known as the Caucasus. The blackneck type still forms the base of wild European pheasant populations, though in recent years it has been diluted considerably with other strains.

Chinese Pheasants

Compared to the Caucasian blackneck, the Chinese ringneck was a late arrival on the European scene. It was introduced on St. Helena around 1500 AD and reached England in the 18th century[1]. There it quickly became established. With

subsequent importation, it became common in other parts of Europe. Several types of ringnecks have been involved in these introductions, especially the Chinese, Formosan. Manchurian, and Mongolian. However, since they all interbreed freely in the wild, birds of this ringneck type are commonly lumped together and called Chinese ringnecks. They also cross freely with the blackneck type, and in many areas it is difficult to be sure which prevails. The best approach is to simply call them pheasants and forget the regional designations.

JOURNEY TO NORTH AMERICA

All three major types of pheasants, the black-necked, ring-necked, and green (or Japanese), have been introduced into the United States at one time or another. Only the first two succeeded, however, and they came by two different routes.

Eastern Seaboard

The first known introduction of pheasants int o the United States was as early as 1733 when Governor Montgomerie libera ted about half a dozen pairs of English black-necked pheasants on Governor's Island, New York[4]**.** English pheasants were released in 1790 by Richard Bache, a son-in-law of Benjamin Franklin, on his New Jersey estate on the Delaware River[4]. A similar effort at about the same time was made by Governor Wentworth on his New Hampshire estate[4]. None of these early attempts to establish pheasants in the eastern United States were successful[4].

From 1880 to 1900 there apparently were many similar introductions, and some of these were successful. Establishment was finally achieved in New Jersey by Pierre Lorillard and Rutherford Stuyvesant[5]. Pheasants in New England evidently trace their origin to an introduction in Massachusetts in 1897-98, from which they spread to Maine, Vermont, and New Hampshire. After 1900 the earlier eastern plantings of the typical English black-necked strain began to be diluted with other types, particularly the ringneck, which was beginning to enjoy success farther west. Today the wild birds in the eastern part of the United States are a mixture which tends to be dominated by the black-necked type.

Willamette Valley, Oregon

The first really outstanding successful introduction of pheasants into the United States took place in 1881 in Oregon[6]. Judge ON Denny, Consul General at Shanghai, sent 38 Chinese ring-necked pheasants to his brother's farm in the Willamette Valley[7]. These birds multiplied and dispersed rapidly. Ten years after the initial release, hunters killed 50,000 birds on the opening day of the first pheasant hunting season in this country[2]. During that first season an estimated quarter to half-million pheasants were bagged. Stock from this planting were transplanted to other parts of the country which helped establish pheasants in other areas.

The Midwest

As word of the success of pheasants in Oregon spread across the country, sportsmen in the Midwest and other parts of the country became interested in this foreigner. As a result, pheasants were brought in from wherever they could be obtained. The majority of these birds, particularly from the eastern half of the country, were from stock brought over from Europe, especially England. These English birds, which by this time were a combination of the black-necked and the Chinese ring-necked pheasant formed the base from which much of the Midwestern, including Iowa, pheasant populations developed. It is impossible to determine the Iowa pheasant's true blood line today. Pheasants have been imported to many parts of the world, many crosses of related varieties have been made, and different subspecies have been released to the wild in the same area. The lack or sketchiness of early records of introductions further complicates any attempts to draw an exact picture.

By the early 1900s only a few thousand pheasants had been introduced into the Midwest region of the country. Yet in the 10-year period of 1940-1950, only about 40 years later, over 82 million birds were harvested in the two Dakotas, Minnesota, Iowa, and Nebraska[8].

Despite Midwestern successes most of the early introductions of pheasants into the country failed. Dispersion of small groups, poaching, poor habitat, and unfavorable weather have variously been blamed. However, good populations can now be found in many places where these early releases did not succeed. Perhaps other factors that are not understood were involved. The high pheasant populations of the Midwest were the result of introducing a few pheasants into favorable habitat where they increased rapidly. Continued artificial stocking was not necessary for this success.

ARRIVAL ON THE IOWA SCENE

Since no accurate records were kept of early pheasant plantings by private individuals or groups, no one knows for sure just when the first pheasant arrived in Iowa. It is generally believed that the pheasant got its start as a wild bird in Iowa when a wind storm blew down fences on William Benton's game farm at Cedar Falls, thus accidentally liberating the 2,000 or so confined pheasants[9]. A rumor was that the wind was helped a bit by a few neighbors who wished to see some birds released into the wild. This accidental stocking occurred in either 1900 or 1901.

Successful plantings of pheasants were made in Kossuth County in 1907 and in O'Brien County in 1908[9]. An earlier effort in 1904 in Keokuk County failed[9]. These early plantings were made by private parties, and no doubt there were other similar attempts. Unfortunately, there are no records available to substantiate this.

State Gets into Act

Pheasants are first mentioned in the **19th Biennial Report of the State Fish and Game Warden** which covered the period from July 1, 1908, to June 30, 1910. The State Warden, Mr. George A. Lincoln, recounted that he held correspondence with all states and attended a Convention of Fish and Game Wardens in New Orleans in February of 1910 in an endeavor to find the most successful way of introducing game birds into the state. He concluded that the distribution of eggs among farmers and others in different localities for hatching, rearing, and liberating was the most successful way to introduce the ring-necked pheasant.

Mr. Lincoln then purchased 6,265 pheasant eggs and distributed them to 178 different applicants in 82 counties with instructions for hatching and raising the young chicks. Reports to him from those who received eggs showed that a large number of birds had hatched and would be liberated the next fall. Some would be retained as breeders for the next season. The total cost of the eggs, seven pheasants for breeding purposes, and delivery charges was $1,651.15.

Elsewhere in the same biennial report, Mr. Lincoln commented that the new hunter's license law, effective July 1, 1909, had produced a revenue far beyond expectations. This placed his department in a financial position to carry out the work of game propagation. During the first six months of this law, it was not known how large a fund would be derived; therefore, no arrangements were made for the introduction of game birds. But as soon as it was realized funds would be sufficient, the work of stocking the state was immediately commenced. From these statements, it is evident that the first efforts by the state in 1910 to introduce ring-necked pheasants could be attributed in large part to the charging of hunting license fees for the first time.

At the 1910 State Fair a sizable game bird exhibit was on display which included 2,000 of the new ring-necked pheasants[10]. Since few persons in the state had ever seen these birds, this method was used to acquaint large numbers of people with the new stocking program. A similar but smaller exhibit was shown at the 1911 State Fair, and no doubt pheasants have been displayed at all succeeding fairs down through the years. In 1911 the second year of the pheasant introduction program, 4,738 pheasants were purchased from eighteen different private breeders. Many of these breeders were residents of Iowa, who were attempting to raise and stock this new game bird. Also purchased were 6,000 pheasant eggs. Both birds and eggs were distributed to applicants around the state. By this time, the demand for them was tremendous, far more than what could be furnished. However, an attempt was made to see that every part of the state received an equal share. The cost of pheasants purchased was $14,587.76, just over $3.00 per bird. The eggs cost $1,561.01, a little over a quarter each.

The winters of 1911 and 1912 were quite severe, and considerable efforts were put forth, both by private individuals and wardens, to help provide the newly released birds with shelter and food. At the time it was believed this helped keep losses smaller than would otherwise have been the case. One method used was spreading straw, which was intended to provide both roosting cover and food in the form of waste grain found in the straw.

During the 1913-14 biennium, another 1,088 birds were distributed. According to an early record, Butler County received 500 of these birds. These were placed principally on land leased by the state as game reserves, where no hunting was allowed. By this time, reports indicated pheasants were doing well in some localities while in others the stockings were failures. The practice of distributing birds in small numbers was being discontinued. The Fish and Game Commission believed that a faster rate of increase would be realized by placing birds in large numbers on game

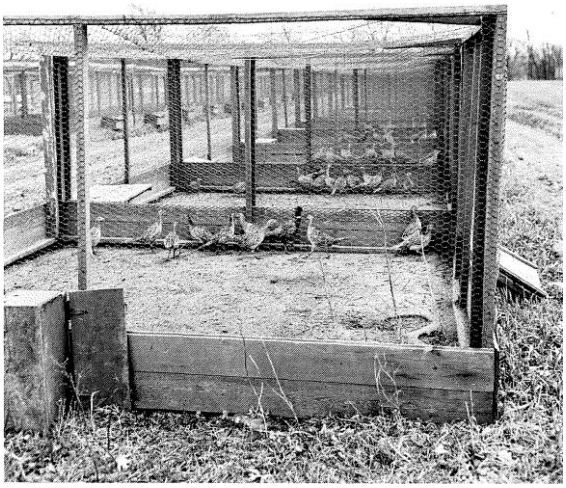
preserves.

The biennial report for 1915-16 states that the approximately 12,000 pheasants released over the previous four years had increased five-fold to at least 60,000 birds. Even though this sounded like an enormous number of birds, it was only one pair of birds to each two sections of land in the state. People were cautioned not to get discouraged if they did not see birds very often or to say that the experiment was a failure. Prospects for Iowa's soon having many thousands of ringnecks and even an open season on male birds were thought to be good. By 1918 this prophecy appeared to be correct, for there were more reports of birds that year than in the four previous years.

First State Game Farm

The first state game farm was established in April, 1913, on a 27-acre tract at the State Fair Grounds in Des Moines. As many as 200 bantam hens plus a small lamp-heated incubator were used to hatch pheasant eggs purchased from commercial game breeders. After two years' operation, the game farm was moved to a 150-acre tract at the state farm near Clive in Polk County. In 1916 the game farm buildings, fences, and equipment were valued at $8,000, with breeding birds on hand worth $3,408. By 1918 the total game farm inventory equaled about $30,000. Operational costs wen around $15,000 that year.

Information on the capacity and production of the state game farm in its early years is lacking. It is known that between 1915 and 1918 plantings of 200-800 birds were made in all northwestern counties, with one large stocking of 2,500 birds in Winnebago County. According to the 1921-22 biennial report, 261 birds and 4,986 eggs were distributed during that 2-year period. No mention is made of the number of eggs or birds distributed during the next four years. The only record available states that heavy plantings of pheasants were made in 1924 and 1925.



By 1929-30 a second state game farm was in operation at Lansing. By 1932, however, the farm at Clive was discontinued and operations at Lansing were curtailed. Based on information from the extensive game survey completed for the state by Aldo Leopold, the Fish and Game Commission believed that better results could be obtained by purchasing birds and eggs from commercial game breeders. The 1931-32 biennial report stated: "More definite knowledge regarding the nature of the problem of game distribution should be available before expense of maintaining a game farm would be justified. To maintain game farms for production of a shootable surplus of game would be expensive and impracticable. All indications are that a seed stock of game birds now exists in the wild in large portions of the state, that a surplus for shooting should come from natural increase, and that funds and efforts should be devoted to maintaining conditions suitable for such natural production of surplus. Planting of birds and distribution of eggs should be for the purpose of starting such seed stock!" The Lansing Game Farm was also abandoned during the next biennium.

Wild Northern Stock to Southern Iowa

Since the success of pheasant stockings in southern Iowa had not equaled that experienced in the northern part of the state, a new method for the establishment of pheasants in southern habitats was initiated in 1925. A program of trapping wild birds and gathering eggs in the wild was begun in Winnebago and Butler Counties. A summary of this work stated: "There are discrepancies between official records and local reports as to the magnitude of this work. Local

residents say that 20,000 wild eggs were taken out of Winnebago County alone. Farmers who gathered these received $1.00 a dozen. One Iowan claimed that 10,000 dozen were gathered in 1925, but this seems unreasonably high. He adds that it did not seem to reduce the birds in any way. The official records show that in 1925, from Butler and Winnebago Counties, there were 60,000 wild eggs gathered and 7,000 wild birds trapped[9]." This early record indicates that birds must have been extremely numerous in some of the northern counties. However, after 15 years of stocking in southern Iowa, pheasants were still not established there. Also, the observation that taking a large number of eggs and birds from the wild did not seem to reduce the population of birds was, in effect, stating one of the modern principles used in game management. Surpluses can be removed without affecting population levels.

Emphasis on Southern Iowa Continues Until Early Thirties

There was no doubt that the ring-necked pheasant had become firmly established in Iowa by the mid-1920s, particularly in northern Iowa. In some counties birds had become so numerous that farmers complained pheasants were depredating crops. A limited season was considered during the 1923-24 legislative session, but it was not until the next session that a season was approved. However, the success enjoyed in northern Iowa was not being achieved in the southern part of the state in spite of the fact that apportionment of birds and eggs had been made on a fairly equitable basis over the state. Therefore, in the late 1920s emphasis on stocking was concentrated in southern Iowa in an attempt to duplicate the expanding population in northern portions.

During 1927-28, 3,011 pheasants and 11,320 eggs were distributed, most to the southern part of the state. The birds were sent with the understanding that they were to be liberated in cover suited to them. The eggs were sent to interested persons with the understanding that the young birds were to be retained until able to care for themselves; then they, too, were to be liberated in suitable places. However, it is not known how many of these eggs resulted in chicks stocked into the wild or how well the release sites were chosen.

During the next two years, another 7,231 pheasants and 19,052 eggs were sent out. Again, most went to southern Iowa. The number of birds sent to individual counties ranged from 5 to 232, with an average of 167. When it is realized that these were usually not all stocked in one place in a county, what sounds like a large number of birds actually boiled down to many very small releases. No records are available of how many additional birds were raised from the eggs sent, but it is likely that most southern counties received around 500 birds during 1929-30.

About 1931 emphasis began shifting from the rather indiscriminate stocking of birds to the problems of favorable habitat and research into the needs of the pheasant. The 1931-32 biennial report states: "Game farms and distribution of game birds, or eggs of game birds, can never restore game to Iowa unless favorable conditions are provided for game. The Fish and Game Commission, therefore, feels justified in giving first attention to the restoration of food and cover conditions, rather than to extension of its game farms." The Department did during that period, however, carry on projects of raising young pheasants with several 4-H Clubs and provided a limited number of eggs to other groups. Around 16,000 eggs were distributed, most still to southern Iowa. Only 29 percent of these eggs produced birds of size that could be confidently released to the wild (4,660 birds). In view of the poor success shown with these eggs, one wonders how much success was had with the thousands of eggs sent earlier for which there are no records. In 1933, 5,185 eggs were sent to 4-H Clubs in 25 counties. Only 391 birds, less than 8 percent, were raised to maturity. This was the last attempt to send out eggs in quantity.

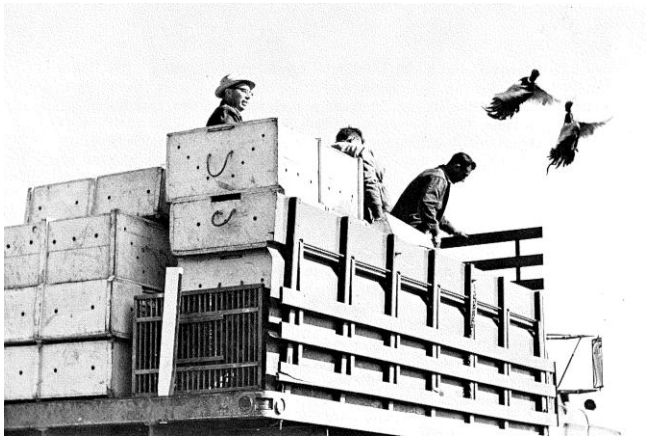
In accordance with the revised game policy outlined in the biennial report, efforts were shifted to mass plantings of birds to determine whether concentrated plantings could be more successful than the former scattered plantings. In 1933, 603 pheasants were released in one area in Cass County and 449 in an area in Page County. In 1936, 2,718 birds were stocked on a sizable area in southern Pottawattamie and northern Mills County. In addition, 114 birds were released on a special game management area in Mahaska County on the Des Moines River bottoms, southwest of Oskaloosa. These birds were all purchased from licensed game breeders in the state since there were no state game farms in operation at the time.

New Stocking Policy and New Game Farm

By the end of 1936, the policy of the Commission for stocking birds had evolved to the point where it was stated, "No stocking is done unless careful investigation shows that all factors affecting the plantings made are as favorable as

possible. The old policy of stocking birds or animals without paying attention to the environment has been discontinued[11]." It was apparent that during the previous 20 or 25 years there had been thousands of pheasants released in southern Iowa with little attention paid to whether the release areas were suitable. As a result, most of these stockings were total failures and had not produced any hunting. Realization was reached that continuing such a method was a waste of the sportsmen's money.

For several years the Commission had been without a game farm and had purchased birds and eggs from private breeders. By 1938, however, the Commission decided for various reasons that a new state game farm was needed. The pheasant population had declined considerably in the mid-1930s, primarily because of unfavorable weather conditions, dry hatching seasons, and severe winters. The Commission felt there were areas in the state where additional breeding stock was needed. Difficulty had been encountered in securing sufficient suitable birds for stocking purposes from private breeders. It was believed that good, healthy, disease-free birds could best be provided by a state game bird hatchery. There was also thought to be a need for a place to hold birds trapped in winter from heavy concentrations around state game areas where crop damage could occur in spring. These birds could then be released in areas where breeding stock was needed. In addition, quail populations were at a very low level, and it was decided a place was needed to raise quail for stocking.



However, there was an additional reason for opening a new game farm that was more important than all of the above. The Commission believed that it should set up programs that would actively interest farmers and sportsmen in their own game problems. One of the best ways to bring this about was to give the sportsman and farmer an active part in the program. The rearing of pheasants and quail would be part of this. This would hopefully lead farmers and sportsmen to provide better winter cover, nesting cover, and food at critical times. The Commission felt that if the game farm and stocking program accomplished this, they would be worth the cost, even without taking into consideration the practice of supplying parent stock where needed. A new idea, public relations, was thus introduced into the bird stocking program.

Therefore, 96 acres were purchased at the south edge of Ledges State Park near Boone, and construction of the game bird hatchery was completed in 1938. Trapping of wild birds in northern Iowa areas of large populations produced 1,016 pheasants for brood stock at the game farm. This original breeding stock did not produce enough eggs the first year, so additional eggs were purchased. Afterwards, breeding stock was retained from birds raised at the farm. The producing capacity of this new game farm was set at 40,000 pheasants and 7,500 quail.

Plans called for raising enough birds to maturity to handle the mass releases programmed by the Commission. The balance of the pheasants were to be delivered at about 15 days of age to conservation groups. Plans further called for the organization of a Conservation Committee in each county. These sponsoring groups would provide the facilities, rear the birds, and release them. They would also contact the farmers and get their interest and cooperation in providing suitable living conditions for the birds on their farms. Pheasants were to be stocked only in pheasant habitat or where previous plantings indicated pheasants could succeed. Emphasis was apparently no longer being placed as heavily on southern Iowa.

Birds held for mass planting were reared by open range methods so they would be better able to survive when released

in the wild. Growing pens were located on state areas near where birds were to be released. Holding pens on the site had been used in the earlier mass releases in Pottawattamie and Mills Counties. Such facilities were built in 1938 on Allen Green Refuge in Des Moines County.

By the end of the 1938 hatching season, 11,462 two-week old pheasant chicks had been distributed to 37 cooperating counties. Of these, 2,228 were lost and 9,234 actually released to the wild. In 1939, 28,801 two-week old chicks were sent to the 48 cooperating counties. Of these, 4,391 were lost and 23,877 liberated. In addition to this chick program, the adult pheasant brood stock from the game farm plus surplus cocks on hand prior to the breeding season were released each year. During the 1939-40 biennium, 58,062 pheasants were distributed within the state, of which 40,789 were two-week old chicks. In the next biennium, 70,725 birds were distributed, most of those at the start of the period.

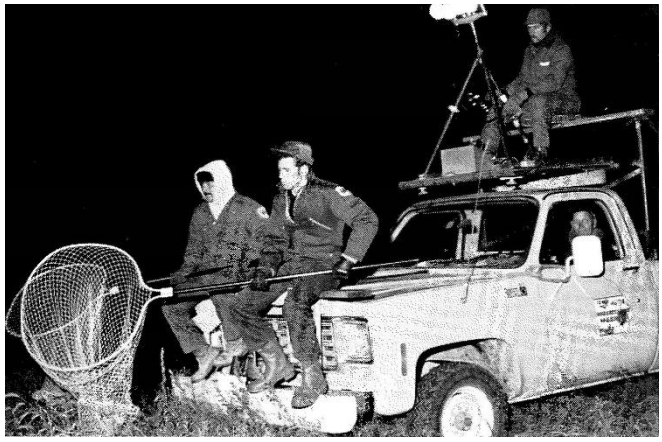
Because of the high pheasant population in the state in the early 1940s, the stocking program was greatly reduced. In 1943, only 3,831 chicks were sent to cooperators, and 1,234 adult pheasants were released as surplus breeding stock. Essentially the same program was carried on at the game farm until 1961 with yearly fluctuations in the number of birds reared for stocking.

Recent Developments

As the above described pheasant stocking program continued through the 1940s and 1950s, it became increasingly evident the releases were not contributing significantly to the wild pheasant population. No new populations were developed anywhere in the state, and pheasant population levels were not increased in stocked as opposed to unstocked areas in established pheasant range. In spite of many birds going to southern Iowa, this area still did not have numbers of birds comparable to those in northern Iowa. Thus, it was decided to concentrate more on southern Iowa again to see if huntable populations could be produced in that part of the state.

In 1955, a five-year experimental pheasant trapping and transplanting project was begun to see if stock from the large population that had recently developed in Union and Adair Counties in southwest Iowa could be used to establish new populations elsewhere in southern Iowa. During the five years, 1,357 birds were winter-trapped and transplanted to selected sites in Ringgold, Decatur, Wayne, Washington, and Appanoose Counties.

An additional 325 birds were taken to the State Game Farm at Boone to introduce some wild blood into the pen-reared stock that was by now many generations removed from the original 1,000 plus birds brought from northern Iowa in 1938.



In 1961 all brood stock at the State Game Farm, now rechristened the Wildlife Research and Exhibit Station, was mass-released at one site in Jefferson County. The task of bringing in all wild parent stock began. The chick distribution program was scrapped after 1961. Full emphasis was placed on raising wilder and older chicks for release on sites in southeast Iowa selected by the Commission's technical staff. This program was completed in 1973 and will be discussed more fully in Chapter 8.

Chapter 3
Diary of an Iowa Pheasant Flock

STARTING OUT THE YEAR

It was New Year's Day. The 45 pheasants scattered around the Iowa farm could be thankful that attention was being focused on football bowl games rather than pheasants. They were not yet aware that the pheasant hunting season would close in a few days. What with rabbit, fox, and quail hunters still afield, it would be a few days later before they realized they were no longer fair game. By this time the birds had learned that the sight of two or three men approaching their shelter foreshadowed no good, so they rapidly took to the wing at the slightest hint of human encroachment.

With the closing of the hunting season, the 10 roosters and 35 hens that called this farm home could settle down to the uncertain task of surviving whatever winter chose to throw in their direction. Had they any inkling of what pheasant researchers had been finding over several winters of study, they would not have felt so snug in their roost. At least one third of them would not be around for the beginning of the nesting season.

The flock of 45 that had chosen the farm windbreak for their winter activity center found themselves in typical straits. The windbreak had a few cedar and pine trees, a scattering of box elder, maple, some dead elms, and a few odds and ends of other trees and bushes. While this might be adequate for most winters, if a blizzard came along, a couple of rows of spruce with snug branches tight to the ground and a row or two of honeysuckle around the outside to cut the sharp winds would be better. There was a grove like that on a farm about three miles away, but that was too far for these birds to move as long as there was something halfway suitable at hand. Two other farmsteads on the section had barely a dozen trees scattered around the buildings. They were of no use at all to a cold, shivering pheasant. The survival odds for the half-dozen birds that decided to stay around them were extremely low.

The forebearers of the 45 that used this windbreak had gotten along fairly well. That was before the farmer cleaned up the place and allowed a few sheep to run among the trees to nibble away the good ground roosting cover. Back in those days there had always been a cornfield right along one, if not two, sides of the grove. The corn stubble not only caught

most of the snow that would otherwise have blown into the grove and drifted over the pheasants' roost but also provided the main source of food. If the weather were bad, a hungry bird did not have to go far for a meal. However, the present generation of pheasants found things rougher. Now most cornfields were likely to be fall plowed. There might not be a single stalk field along the grove; the nearest could be 40 or 80 rods away or even farther.

OLD MAN WINTER

A heavy snow in January covered most of the available roosting cover in the grove so some of the birds roosted in the cedar trees. A great-horned owl, cruising the territory, discovered these birds. He eventually took two hens who had unfortunately roosted on exposed limbs. One night the roaming farm dog stumbled onto a hen roosting on the ground; scratch another one. As the snow got older, it became crustier and harder to scratch through for food. One small group of birds found a spot where the snow plow had dug into the road ditch shoulder, exposing a good place to scratch for weed seeds and bits of leaves. Over the hill came a car, and one rooster made the mistake of trying to fly across the road instead of into the field.

Then in February a big blizzard swept across the land. It struck at mid-day when most of the birds were still out feeding in the cornfield a quarter-mile from the grove. Some birds tried to burrow into weedy clumps among the stalks. A few found a narrow fencerow with sparse cover that broke the early blasts. Others had the good sense, or luck, to make it back to shelter even though they had to buck the wind to do it. As the storm got worse, the four hens and one rooster that had chosen to sit it out in the cornfield finally moved downwind looking for a better place. The blowing snow got into their nostrils, and gradually their beaks began icing over. As they had more difficulty breathing and became weaker, each squatted behind a pile of stalks or a clump of weeds. Here they finally suffocated. Two more hens picked the fencerow as a haven and stuck tight, but the blowing snow sifted up under their feathers. Body heat melted the snow, more sifted in, and ice formed. Soon each had a cake of ice sitting astride its back atop the lungs. Its beak and eyes began caking over as well. A couple of days after the storm, crows cruising the area made a feast of the two frozen hens. Another hen managed to make it into a small clump of slough grass in a low place in the road ditch. Though weakened by the exposure to the biting cold, she made it through the storm. However, just before dawn a fox scouted the ditch for a mouse, rabbit, or whatever. Although the hen heard him at the last second, she was too weak and stiff to escape. By the time the storm had subsided and the survivors had gotten together, the flock numbered 8 roosters and 25 hens.

As March dragged along, these pheasants had to range farther afield to fill their crops each day. A hawk spotted a hen crossing an open plowed field one morning. He had a late breakfast. One old rooster that had been carrying a few pellets as a reminder of the earlier hunting season had gotten badly iced up and cold during the blizzard. Finally, the debilitated old bird succumbed to pneumonia. The final blow to the winter flock came the last week of March when farmers began hauling corn to the elevator as the roads became more passable. Many of the truck boxes dribbled out a few grains along the way, and some grain bounced out at a bump in the road. One hen got so wrapped up in picking up kernels that she did not hear the truck coming on its return trip. A moment's panic and a belated attempt to fly, and the flock of 45 pheasants (10 cocks and 35 hens) had been reduced to 30 (7 cocks and 23 hens).

Of the 15 birds lost, seven had been killed by the blizzard. Five others were picked off by predators, most as a result of exposure because of poor cover. Road kills accounted for two, while one old rooster's death was due to a combination of circumstances.

SPRING AND NESTING

The hardships of winter were forgotten as sunshine and warm temperatures spread greenery across the spring landscape. The seven roosters began looking at each other with a wary eye. The urge to crow overtook them, and they began scouting for territories to claim and defend. It was a common sight to see two of them putting on a great show of fighting as they sought to establish who was dominant and to reach a decision on where territorial boundaries lay. Either these borders were indefinite or the roosters had poor memories, for the act was repeated throughout the spring. However, by the middle of April the seven cocks had divided the farm into seven territories. Each territory included areas of suitable nesting cover as well as future row crop fields.

Every morning during the spring each rooster with an established territory put on a crowing display. Some roosters began crowing as early as March and continued throughout the nesting season. This activity was concentrated in the

early morning just before and after sunrise, but calls could be heard at any time of the day especially in response to any loud noise. There was a slight upsurge in crowing activity in the evening. This crowing informed other cocks in the area of a cock's presence and warned them to stay away from his bailiwick. This crowing challenged other cocks to a fight if they wanted to argue. It also attracted the attention of hens in the area and enticed them to become members of his harem. Each rooster tried to assemble as large a harem as he could.

The average number of hens in the harems was determined by the sex ratio of the birds present, about three hens per rooster. One old, aggressive cock managed to attract seven hens to his harem. The others had harems of 2 to 5 hens except for one cock that went unmated. During the last cold, frosty night of spring this cock's tail feathers had frozen to the ground. His struggle to get loose in the morning had pulled the long tail feathers out and left him unattractive to the hens in the spring.

While the male segment of the population was busy displaying and crowing, the hens seemed bored by the whole business. However, as temperatures warmed and the vegetation began to grow, the hens became more agreeable to the cocks' advances. The cock displayed to the hen by positioning himself sideways in front of the hen, dropping and spreading the wing closest to the hen, and tilting his tail and upper part of the body towards the hen. The tail was raised and spread. Then with head lowered, wattles swollen and crimson, tail and wing positioned, the cock walked slowly and stately around the hen. Copulation, with the cock mounting from the back, occurred after this early morning display.

About mid-April hens began depositing an egg here and there, much at random at first. These early "dropped" eggs were usually picked up by crows or other egg-eating animals. One hen found an egg left by one of her counterparts and dropped hers at the same place. Other hens did the same. This dump nest had eight new eggs appear in it in one day, with a total of 47 reached before a skunk found and destroyed the nest.

By the end of April or early May, each hen began sneaking off to her own selected nest site to lay her eggs. Hayfields, especially alfalfa, were a preferred early location, and several hens were in these. A new oats crop, which had gotten off to an early start, road ditches, fencerows, and other areas with a fair amount of dead vegetation left from the previous fall were picked by other hens. One chose to incubate one of the dump nests. This was in a weedy corner of the farm grove where several hens stayed. Her nest had 25 eggs in various stages of incubation from a couple freshly laid to nine just about ready to hatch. The farmer's dog found that nest.

One hen took a little over two weeks to lay the 12 eggs that made up the clutch. This occurred at the rate of one egg per day with about every third or fourth day skipped. The first egg was laid in a hastily scratched depression in the ground, right on the bare dirt. The hen spent only a few minutes at the nest for the first few eggs. As the number in the nest increased, she spent time shaping the nest and lining it with grass and other debris available at the site. By the time the last two or three eggs were deposited, she spent 3 or 4 hours on the nest at the time each was laid. With her clutch completed, she began incubation. One other egg was added later. This accounted for the one unhatched egg left in the nest at hatching time. The incubation process took 23 days. The hen stuck close to her nest, leaving only for short periods to feed.

As the time for hatching approached, some hens even skipped or shortened some of their daily feeding periods. They got no help from their colorful mates when it came to incubating the eggs. The cocks were too busy looking after their territories and the other hens in the harems who were not incubating at the same time.

For the seven cocks it was an easy life. They were King of the Mountain and nothing fazed them. This attitude proved to be the undoing of one of them, however. He never should have tried to stand his ground on the road when that car bore down on him. Thus, there were six roosters left to enter the summer.

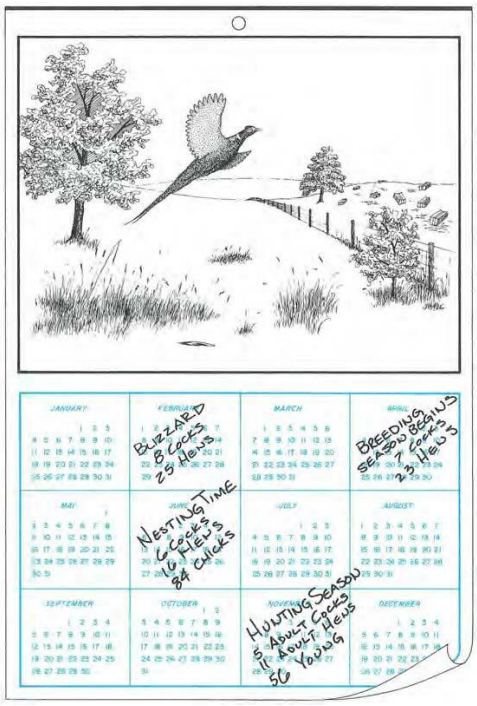
Many nests on the farm were destroyed by forces beyond the hens' control: farming operations, predators, human disturbance, weather, and a host of miscellaneous reasons. One hen was flushed from her nest by a prowling skunk during this laying-incubating cycle. She abandoned the whole effort and started anew elsewhere. Some hens were really fickle in this respect, while others were quite tolerant. Two nests were abandoned for what appeared to be no reason whatsoever. The most frustrated hen was probably the one that was about half way through incubation when a gopher began building a mound in a hayfield about a foot away. As the mound grew, dirt began spilling into the nest. The hen squirmed around and shuffled her eggs for most of a day, but finally left. Within a few hours, the eggs were entirely covered. Another hen had just finished her clutch and started to incubate when a single egg disappeared from her nest each night. This went on until about a third of the clutch had vanished, at which point the hen either learned how to count and figured out what was going on or got tired of being booted off the nest in the dark. She abandoned her nest. The culprit in this case was a Franklin ground squirrel that had a den about 50 feet away.

Hens were fairly safe when off the nest, but they were quite vulnerable when on it. One hen chose a nesting site in a clump of wetland grasses in a pasture along a meandering creek. A raccoon nosing along the bank looking for a morsel got a whiff of her scent. A stealthy stalk and both the hen and eggs rewarded his effort. Another hen on a nest in a road ditch was more fortunate. She escaped the grasp of the skunk that came ambling along in search of mice, but lost her nest because of his inquisitive nose. A more unfortunate hen decided to nest in a grassy fringe along a field driveway. The farm dog, sniffing along the wheel track on his rounds, caught a familiar odor. Remembering what he had caught in the grove last winter, he cautiously sneaked up and made a second hen his victim.

In early June the farmer pulled into his hayfield with tractor and mower and began the relentless rounds of the field that would eventually lead to a neat stack of bales in the barn. There were nine hens nesting in the field, three laying and six incubating. Two of the laying hens were not at their nests, but the third was. She stayed a moment too long, and the sickle fa tally slashed her. This was the same hen that abandoned her nest in the roadside earlier in the spring. One of the incubating hens also happened to be off her nest feeding. She flew into the adjacent oats field. Two others were disturbed enough by all the commotion of tractor and mower that they slipped from their nests and ran into the next field. Th e other three held tight, a fatal mistake. One tried to crouch tight to the ground, and the mower bar bounced over her, slicing off her head. Another rose to fly at the last split second, but too late; two neatly severed legs remained atop the eggs as mute testimony. The other, hoping that somehow this terrible thing would miss her, froze at the approach of the mower. Instant death was the result.

In the hayfield was still another hen. Just the day before she had successfully hatched her brood of chicks in the bordering road ditch. Soon she had moved them into the security of the hay canopy. It was a good place for little chicks to catch the insects that made up the bulk of their early diet. At the sound of threatening danger, she called her ten young ones to her and covered them with her protective body. Not only did she perish under the mower bar, but so did seven of the chicks. The forlorn peeping of the three orphans only attracted the alert ears of the vixen denning on the pasture hillside.

By spring's end there were 6 cocks and only 16 hens remaining. The nesting period was just entering its final stages with the brood rearing period just getting under way.



SUMMER AND FAMILY CHORES

By early summer, most of the hatched broods were off the nest. Two broods made it out of the smaller second hayfield. This field was red clover which had not been mowed as soon as the earlier alfalfa. However, another hen was killed by the mower in this field, to run the final hayfield tally to six, more than one fourth of the hens that began the nesting season. One of the hens that had already lost two earlier nests, one in a fencerow to a ground squirrel and another in the alfalfa field, ran afoul of a soaring red- tailed hawk after she had been flushed from her third nest in the pasture during thistle-spraying operations.

An average of 9 or 10 chicks resulted from a successful nest. The largest brood was 19. This must have been the dean of all mothers, for when the chicks were 4-5 weeks old, she still had all 19. Identity of the brood then became confused because of intermixing with other broods on the farm. This high rate of survival was the exception, not the rule. At least one third of the chicks were lost to one cause or another between day of hatch and the age of 10-11 weeks when the broods began breaking up and the young pheasants struck out on their own. Thus, the average brood size at the point when they were no longer called chicks was six birds.

There was some variation by month of hatch in the brood size. The earlier nests averaged more eggs and thus produced more chicks. The number of eggs laid decreased with each nesting attempt until broods hatched in mid to late July were only half as large as those of May or early June.

The cock pheasants were occasionally together with a brood of young, but they played no role in rearing them. It was, the hen's job to care for them. She took them to good insect hunting areas. If she sensed danger, she warned the chicks to hide and freeze. One July day the farm boy happened into the midst of a very young pheasant brood. The hen called

to her chicks and tried to lead the boy away by feigning an injured wing and tempting him (a predator, to her) to try to catch her. When the boy followed her far enough that she believed her brood was out of danger, she suddenly recovered and flew off. Then after the boy had moved a short distance away and quietly hidden, he heard the hen calling her chicks back together so she could lead them to safety.

Concern for her chicks cost one of the remaining hens her life. While crossing the road with them, she suddenly became aware of a car bearing down on her brood. In the moment's confusion, most of the chicks made it to the ditch. But the hen and one chick were run down. Since the remaining seven were nearly 8 weeks old, they survived on their own. Meanwhile, the last toll of the nesting season was exacted in the farm's oatfield. In mid-July the one large field was windrowed. Even though the cutter bar was several inches off the ground, in contrast to the mower bar, one hen flushed off the nest at just the wrong instant and was killed.

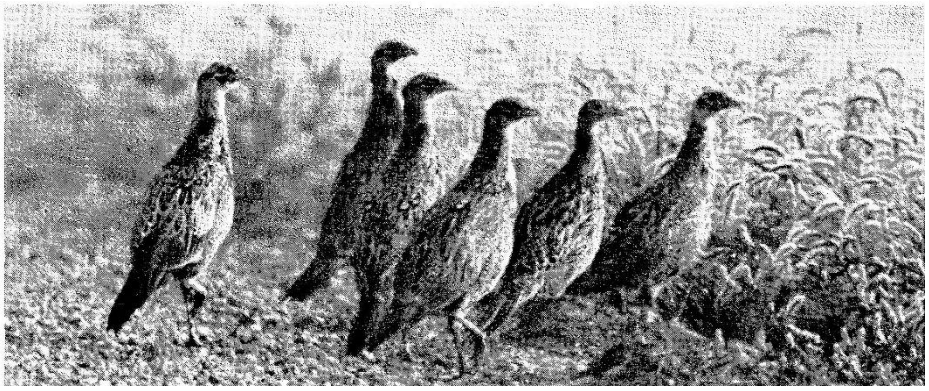
Thus, by summer's end, only 12 of the 35 hens starting the year, about one third of them, were still alive. Again, the males had had easy sailing, but one of them sailed a bit too high and broke his neck when he struck a telephone wire while flying across the road. This reduced the number of cocks to five from the original 10. The inexorable pressures continued to chip away at the population, just as is true of all wild creatures.

Though 23 hens started the breeding season on the farm, the loss of 11 to various causes cut the number of potential brood-raisers by nearly half. Of the dozen hens remaining, only two thirds successfully brought off a brood. Eight hens with broods plus the one brood that lost its hen under a car were reared out of the 35 hens that started the year, only one fourth. The day-old brood that was wiped out by the mower does not count since the result was the same as destroying the nest. Only about one of every four or five nests that were started resulted in a brood of chicks. If it were not for the persistence of the hens, as evidenced by repeated nesting attempts, there would have been fewer young pheasants raised.

There were many hazards to both nest and hen in the course of the nesting season. Various predators from farm dogs and cats to skunks, raccoons, opossums, crows, ground squirrels, and other mammals ate pheasant eggs and hens. The biggest danger to the hens themselves, however, had been the mower at haying time, and to a lesser extent, the windrower or combine at oat harvest. The nesting season had been the hens' hunting season with the sickle bar and predator replacing the gun.

FALL, READYING FOR THE GUN

The year's production of young pheasants was now past history. Fall was a good time for the pheasants. Nothing to do but loaf, eat, get fat, and stay out of trouble. Cover was at a maximum, as the growth of both crops and native vegetation neared its peak. Food was abundant, plenty of insects, waste grain in oatfields, greens everywhere, and soon the first corn and soybeans within reach. Oceans of cornfields provided excellent escape cover from any predators that were around and also furnished ideal dusting baths. The birds dusted often to rid themselves of lice and mites.



By early fall, the young birds began showing their color differences. Even the casual eye could tell the young cocks from the hens by the time they were 10 weeks old. By the time another month had passed, the young males really began resembling the adult males and even let out a few trembling grown-up squawks. At about three months of age, the

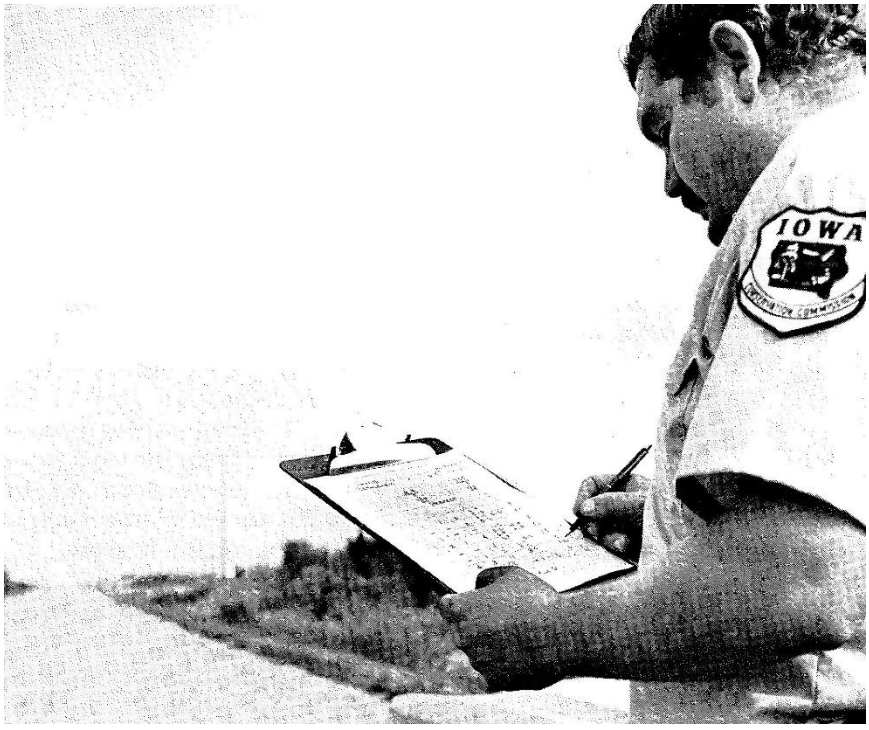
young hens were no longer distinguishable from the adult hens. At this 10-12-week stage, the young birds began intermixing, and sizable flocks of pheasants with various ages and sizes lumped together were seen in one choice habitat area.

Until the hunting season began in early November, the loss of pheasants was at a low level. One of the 12 adult hens was rather worn down by all the stresses of laying three clutches of eggs and finally bringing off a brood to rear. Therefore, when the big tomcat that roamed the neighbor- hood came across her roosting place, her reaction time was too slow. Since her late hatched brood was not as fully grown as the others, her chicks were not quite as versed in survival tactics as they would have been in another month. A marsh hawk, whose favorite hunting site encompassed the oat stubble field where the chicks spent most of their time, took ad- vantage of this and added two of them to his diet.

By the time November rolled around, the nine broods on the farm were down to only 56 birds, or the expected average of around six birds apiece. With half of each sex, there were 28 young hens to add to the 11 remaining old ones and 28 young cocks to go with the five old battlers. The 30 pheasants that had started out in spring to increase their kind were now 72 birds.

Better than 70 percent of the young roosters wound up at the end of a charge of shot during the hunting season. Therefore, 20 of the 28 were no longer around to welcome in the new year. The five veterans of previous hunting seasons were better able to elude dogs and hunters early in the season; but as crops were harvested and heavy frost knocked the leaves off much of their hiding cover, they became more vulnerable. Eventually three of the five wound up in the game bag. Hens were not legal game, but some were shot by accident. Three of the 28 young hens and one of the 11 adult females were eliminated in this way during the two-month open season, about 10 percent of their segment of the population.

At the end of the year, 2 old roosters and 8 young ones plus 10 adult hens and 25 juvenile females were left which brought the farm’s population back to 10 roosters and 35 hens. The flock’s number had not changed although only 12 of the original 45 had made it through the year. If the winter had been extra mild and everything had been favorable during the nesting season, the flock might have increased. If the winter had been unusually severe and a cold, wet nesting season had hurt the hatch, the pheasant population might have been down. Generally though, as long as farming practices remained constant, there would not be much variation from year to year.



Chapter 4
Where Are They & How Many?

The distribution and abundance of pheasants in Iowa have not been static. There have been many changes in both the locations where pheasants occur and the numbers of pheasants at a location. Changes in the distribution of pheasants in Iowa have generally occurred slowly. The number of pheasants at any given locality has also changed, sometimes slowly, sometimes rapidly and dramatically. Much time and effort have been devoted to the collection of information on the distribution and abundance of pheasants in Iowa through a series of pheasant surveys. Data from these surveys provide a factual basis for management decisions and show the renewable ringneck resource can be utilized without endangering future pheasant numbers.

Hundreds of people have participated in pheasant surveys over the years. Since Iowa's pheasant range now includes the majority of its 56,000 square miles, extensive surveys are conducted to keep track of the population. These surveys have been cooperative efforts. First, researchers tested and refined the various census techniques to determine how and when they should be conducted. At the proper time, nearly 100 employees of the Fish and Wildlife Division conducted the census along designated routes. Biologists analyzed the results and reported the findings to Com- mission administrators. In past years, farmers and rural mail carriers volunteered their help to collect data concerning pheasant populations and reproductive success. Now, as in the past, a sample of hunting license holders are contacted each year to request their cooperation in providing information on hunting success.

YEAR-ROUND SURVEILLANCE

Several pheasant counts are made each year to collect specific information about Iowa's ringnecks. A winter survey provides information on the post-hunting season sex ratio. Spring surveys measure the breeding population and its distribution. The summer count determines reproductive success and population trends. An annual hunter survey provides an estimate of hunter activity and total pheasant harvest.

Winter Sex Ratio Count

Sex ratio counts are made by counting cocks and hens .and determining the number of cocks per 100 hens. This information is collected during the winter from the close of the hunting season to mid-March. In order to see the well-camouflaged hens as well as the gaudy cocks, there must be complete snow cover. Seeing as large a number of

ringnecks as possible from all across the state provides accurate information about the post-hunting season pheasant sex ratio. All pheasants observed are counted because the cocks are not always found associated with winter hen flocks.

The percent of the fall cock population harvested during the hunting season is calculated by comparing the winter sex ratio with the preseason sex ratio. To illustrate: fall sex ratios are normally about 90 cocks per 100 hens. If the winter count indicates a sex ratio of 30 cocks per 100 hens, biologists assume that hunters shot two thirds of the available roosters. This harvest rate is about average for Iowa pheasant range. Areas containing high pheasant populations experience greater hunting pressure. Sex ratios from such areas often indicate a harvest of 80 percent with an adequate supply of roosters remaining for the breeding season. Range containing fewer pheasants is hunted less which results in a lower percentage harvest. The law of diminishing returns also influences pheasant hunting. When the pheasant population is high, hunters will make more trips and hunt longer, and a greater percentage of the cocks will be utilized. Conversely, as the season progresses and fewer cocks are available, the hunter effort declines. Hunting pressure is regulated by the number of available roosters.

Spring Crowing Cock and Roadside Count

Ring-necked cocks crow to attract hens and to establish given pieces of land as their own. Cock pheasants begin crowing in earnest in March, and crowing activity reaches a maximum in late April and early May. Crowing activity starts well before sunrise, increases in intensity to a peak before sunrise, and then diminishes. Cocks will occasionally crow any time of the day but are usually quiet during mid-day. In late afternoon or early evening there is another flurry of crowing activity; however, this evening activity is not nearly as intense as in the morning.

The annual spring count measures the relative density and distribution of Iowa's ringneck breeding population. Cock crowing counts are audio- surveys based on the fact that roosters crow fairly consistently each morning about once every 2 ½ minutes. Crowing counts have been standardized in many ways to provide comparable data between areas of the state and between different years. The first spring crowing cock counts were conducted in Iowa in 1950. During the 1950-1961 period, these counts were started 45 minutes before sunrise (except 1950 when it was 50 minutes) on clear, calm mornings in late April through mid-May. Wind speed had to be 8 miles per hour or less, and all two-syllable cock calls heard in the 2-minute interval were counted at each station. There were 20 listening stations on each survey route and two survey routes per county. In 1962 these survey routes were shortened to 10 listening stations. A 10-mile road-side pheasant count was added to immediately follow the crowing count. Since 1962 all of the routes to be followed by the individuals conducting the survey have been drawn on county road maps with the 10 listening stops also marked. The listening stops average 1 to 1 ½ miles apart. The weather should be clear and calm with no rainfall in the 24 hours preceding the count. Wind speed is the most important factor to be considered for the crowing counts. When the wind velocity is over 8 miles per hour, the number of cocks heard crowing is sharply reduced; therefore, the survey should not be conducted when the wind velocity is over 8 miles per hour.

During late April through early May on mornings when weather conditions are favorable, Conservation Commission employees take to the field to conduct the survey over 150-200 survey routes. Since this survey starts 45 minutes before sunrise, it calls for some dependable alarm clocks. In early May, 45 minutes before sunrise is early in the day, but affords one a unique opportunity to see wildlife and rural Iowa awaken. There is nothing quite as exhilarating as being part of a sunrise over Iowa on a beautiful spring morning. At the first listening stop the observer shuts off the engine and slips quietly from the vehicle. If he slams the door, the cocks within hearing distance will crow; then those further away will respond and so forth, producing an effect very much like the ripples that spread from a rock thrown in a quiet pond. Once quietly outside the car the observer walks 20 to 30 feet away from the vehicle, stands quietly, listens intently, and counts all the two-syllable "squawk-squawk" cock pheasant calls heard in a 2-minute period. He then returns to the car, records the data, and proceeds rapidly to the next listening stop where the procedure is repeated until data have been collected at all 10 listening stops.

Of course, there are things that can interfere with this listening survey. One of these is the variation in hearing ability of the individuals doing the listening. That is why there is a large number of survey routes conducted with at least one route in each Iowa county. Other interruptions such as red-winged blackbirds, tractors, and singing frogs can at times make it impossible to hear the ring-necked cocks at a listening stop. It is surprising how far one' can hear the bang of a hog feeder over the Iowa countryside on a still spring morning. More than once the cattle markets or country music

coming from a tractor radio has obscured the coarse strains of the crowing cock. However, despite some interference the crowing count is completed around the time the sun has cleared the eastern horizon. The observer then turns the vehicle around and retraces his course for 10 miles. Driving slowly (15-20 mph) over this route, the observer counts all cocks and hens seen. Other wildlife observed along the route are also recorded. At the end of this return trip the data are recorded, and the observer heads for the closest available cup of coffee and breakfast.

Late Summer Roadside Counts

The fall roadside count has been used to census Iowa's pheasant population since 1936. Several changes have been made during this period to improve the accuracy and dependability of the results. As the pheasant range increased in Iowa, so has the area censused. Because the methods used and time of year have been changed, the information from 1936 through 1975 is not directly comparable.

1936-1953

The first attempt to census Iowa's ringnecks on any major scale was undertaken in the autumn of 1936. At this time each Conservation Officer was assigned three census routes in each of his assigned counties. All started their surveys at 6 :30 a.m. from a preselected point in their respective counties. Each drove for 45 minutes at a speed of 20 miles per hour on dirt or gravel roads. He then turned around and traveled back over the same route to the starting point, recording the number of pheasants seen on each portion of the trip. He usually took an interested sportsman with him as an additional observer. As nearly as possible, the same roads were traveled each year when the census was conducted in late September to mid-October.

1954-1961

In 1954 the fall ringneck roadside survey underwent a major revision. This change makes the data collected from 1936-1953 not directly comparable to the 1954-1961 data. All survey routes (still three to a county) were now started at 15 minutes after sunrise between August 1-15 each year. The observers were to use the same routes from year to year. They were to drive 15 miles per hour for 1 hour and then turn around and drive back (at 15 mph) to the starting point. Also, there was to be only one observer per vehicle. Changing the survey period from the late September- mid-October time to August 1-15 was the critical change in methodology.

1962-1975

Minor changes were again made in the fall survey in 1962. The survey was still conducted in the first half of August, but the starting time was advanced by 15 minutes to sunrise. Instead of 15 miles out and 15 miles back over the same route, the survey routes were changed to one continuous 30-mile route. Each Conservation Officer had one survey route per

county, and additional routes were assigned to Fisheries and Wildlife personnel.

Each year counts were made on 150-200 routes that were 30 miles in length. Research conducted in Iowa showed that calm, clear August mornings with heavy dewfall were the best[12]. The routes remained the same from year to year with at least one in each county. Heavy dewfall was a must, so many Commission employees started getting up well before sun-rise in early August to check the weather and dew conditions. On suitable mornings, the counts were started at sunrise. All cocks, hens without broods, hens with broods, chicks, and approximate age of the chicks were recorded as the observer drove slowly (15-20 mph) over his assigned survey route. Numbers of quail, gray (Hungarian) partridge, cottontails, and jack rabbits observed during the survey were also recorded.

Results of this survey provided the answer to the very significant questions - how was the pheasant hatch this year, and how many birds will be available this fall? This is really just two forms of the same question because the hatch determines how many cocks will be available for the hunter since juveniles make up about three quarters of the fall population.

Analysis of the number of pheasants seen each year on the 1962-1975 summer roadside counts and the number of cocks taken by hunters each of those years revealed that the two variables were closely linked. When larger numbers of birds were seen on the August roadside counts, more cocks were harvested. In fact, it is possible to predict, within limits, the number of cocks that will be taken by hunters by knowing the number of birds seen on the summer survey.

Comparing Results

During the early years of the crowing counts (1950-1961), each route was 20 listening stations; later (1962-1975) each route was shortened to 10 stations. To make the results from these surveys comparable, only the data obtained from the first 10 stations of each route were used for 1950-1961. This was done because cock crowing activity declines throughout the morning after sunrise; therefore, the last 10 stations of a 20-station route had fewer calls recorded than did the first 10 stations. Since all routes (1950-1975) were started 45 minutes before sunrise, the only valid comparison would be the first 10 stations.

Results of the 1962-1975 spring roadside counts are directly comparable. These routes have all been censused at the same time of year for each year of data collection.

It should be remembered that the fall data collected from 1936-1953 are from the late September-mid-October time period and are not comparable to later results. The 1936-1953 data, however, are useful for comparing changes between years and between parts of the state for that 18-year period. Data collected between 1954-1961 and 1962-1975 were obtained under slightly different conditions but are probably comparable. However, data from 1954-1975 cannot be compared to the 1936-1953 years.

Pheasant Harvest

The success or failure of any season, to the sportsman, is determined by his individual hunting success as compared to previous seasons. Each year after the close of the season a random sample of hunting license holders are sent questionnaires and asked to cooperate in providing information about their hunting success for a variety of wildlife species. From the responses of these individuals, it is possible to estimate the total pheasant harvest, number of hunters, and other information. Today in the computer age the harvest data are handled by computer which is a relief from the long hours of hand computation in the past. Information derived from the hunter harvest survey is presented in Chapter 10.

DISTRIBUTION AND RELATIVE ABUNDANCE

Change - that is the key word for Iowa's ringnecks the past 75 years. There have been changes in numbers of pheasants in almost all parts of the state and expansion into unoccupied areas of Iowa. These changes have not been uniform across the state but have been regional in nature. Therefore, data presented from pheasant surveys are given by regions (Figure 1). These survey regions are based upon soil types, topography, and agricultural practices.

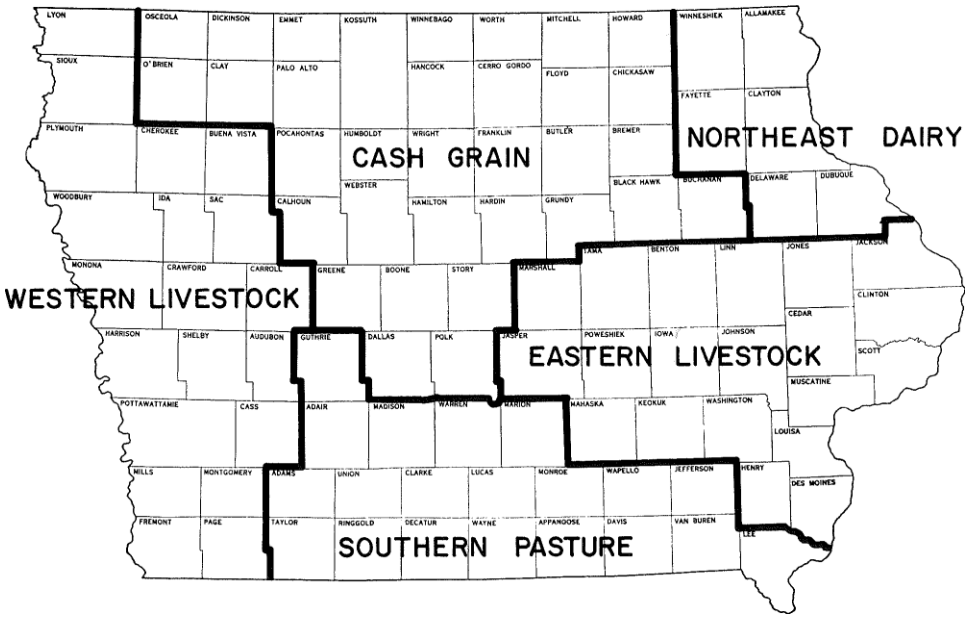


Figure 1. Pheasant survey regions.

Before 1936

During the early years of pheasant residency in Iowa there were no standardized measures of pheasant numbers. A map prepared by Aldo Leopold showed the pheasant to be established only in the northern one third of Iowa in 1928-1929 (Figure 2)[13]. By 1935 the season was open in all or parts of 38 northern counties; this fact indicates pheasants were still uncommon or unknown in the southern two thirds of Iowa. Of course, since there were no pheasant surveys, there is no way of telling how numerous pheasants were in these early years.

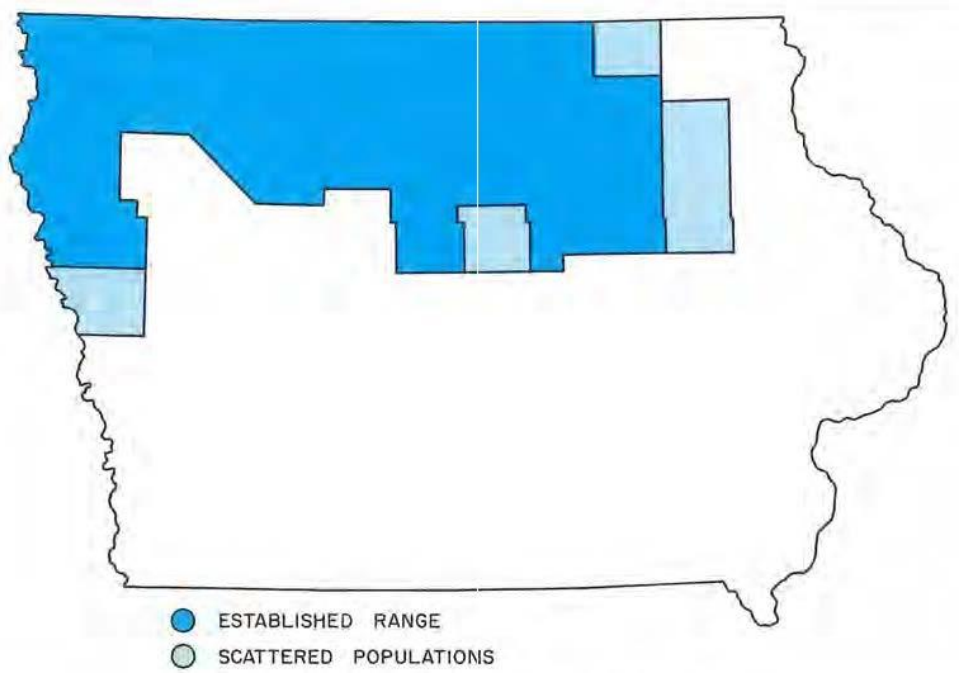


Figure 2. Pheasant distribution in Iowa in 1928-1929 as given by Aldo Leopold.

Surveys - 1936 to 1975

Northern 33

The longest continued unbroken survey data co1lected on ringnecks in Iowa are the fall roadside counts taken in 33 northern counties shown in Figure 3 from 1936 to 1975 (Table 1). Even though different methods were used in 1936-1953 and 1954-1975, it can be seen that pheasant numbers have changed dramatically over the years. In 1939 through 1945, pheasant populations in these 33 counties were high, with the zenith occurring in 1940-1942. Populations were relatively low from 1946 through 1953, with the lowest in 1947. The pheasant populations increased in the mid-1950s and were very good from 1955 through 1964. In these high pheasant population years for northern Iowa, the years of 1958, 1963, and 1964 had exceptionally high pheasant numbers. Ringneck numbers took a tumble in 1965 and have remained at this lower population level until the present. These remarkable ups and downs of northern Iowa ringnecks are related to habitat and weather. In Chapters 5 and 6 the causes of these population changes will be dealt with in detail.

Regional and Statewide

During the 1920s and 1930s, pheasants were found almost exclusively in northern Iowa-usually the top three or four tiers of counties. The earliest statewide fall survey data from 1940 pointed out the high pheasant populations in the northern parts of the state (Figure 4). In 1940 the pheasant in Iowa was definitely a bird to be found north of High way 30. Ringneck populations in all regions declined during the mid-1940s to a low in 1947 (Table 2) with the decline being most striking in the cash grain region (Figure 5). Populations recovered somewhat but stayed relatively low through the early 1950s (Figure 6). From the mid-1950s to the mid-1960s pheasant populations increased in all regions, and higher popu1ations than ever before built up in southwest and eastern Iowa (Figure 7 and Figure 8).

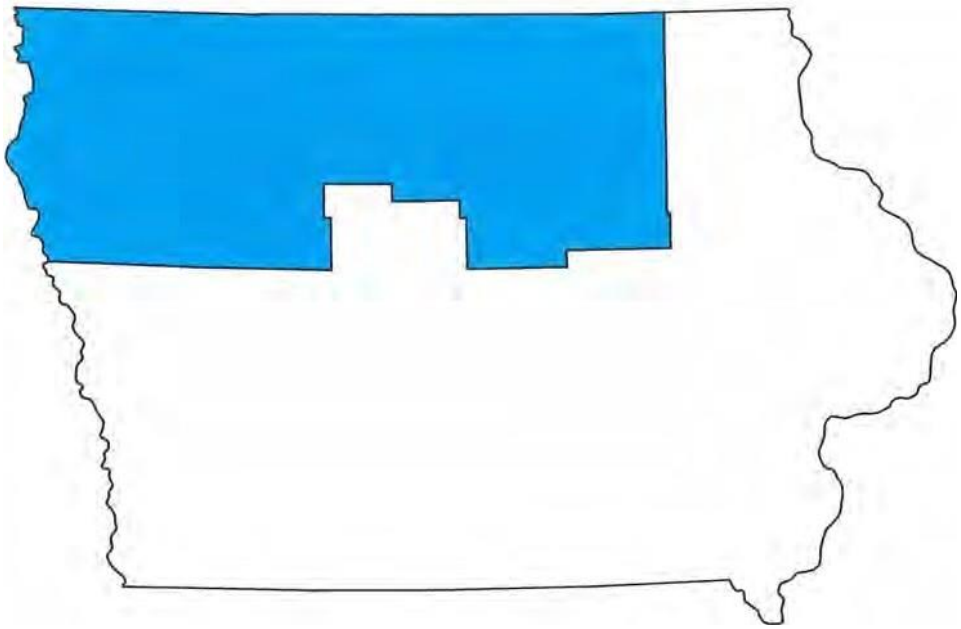


Figure 3. Northern 33 counties in Iowa included in 1936-1975 fall pheasant population survey.

By 1965 the combination of loss of nesting habitat and a winter blizzard dropped the booming northern Iowa populations to levels similar to the early 1950s. However, good pheasant numbers remained in southwestern, southern, and eastern Iowa (Figure 9). Statewide, pheasant numbers remained fairly stable through the remainder of the 1960s. Populations increased in 1970 and remained high through 1973 with the highest densities now occurring south of Highway 30 (Figure 10). Poor reproduction in 1974 and winter blizzard losses in 1975 brought about a statewide decline in the 1974 and 1975 fall pheasant populations (Figure 11).

Table 1. Pheasants per 10 miles - fall survey in 33 northern Iowa counties.

Year	Pheasants
1936	6.9
1937	4.9
1938	11.7
1939	27.8
1940	37.6
1941	34.4
1942	39.1
1943	24.4
1944	28.6
1945	23.7
1946	18.2
1947	4.4
1948	11.7
1949	15.1
1950	13.7
1951	10.5
1952	14.5
1953	9.4
1954	22.6
1955	37.7

Year	Pheasants
1956	32.2
1957	33.4
1958	48.8
1959	30.2
1960	34.2
1961	31.5
1962	34.7
1963	41.3
1964	43.3
1965	18.2
1966	20.3
1967	15.4
1968	19.6
1969	12.1
1970	16.4
1971	14.6
1972	15.8
1973	18.8
1974	17.8
1975	8.6

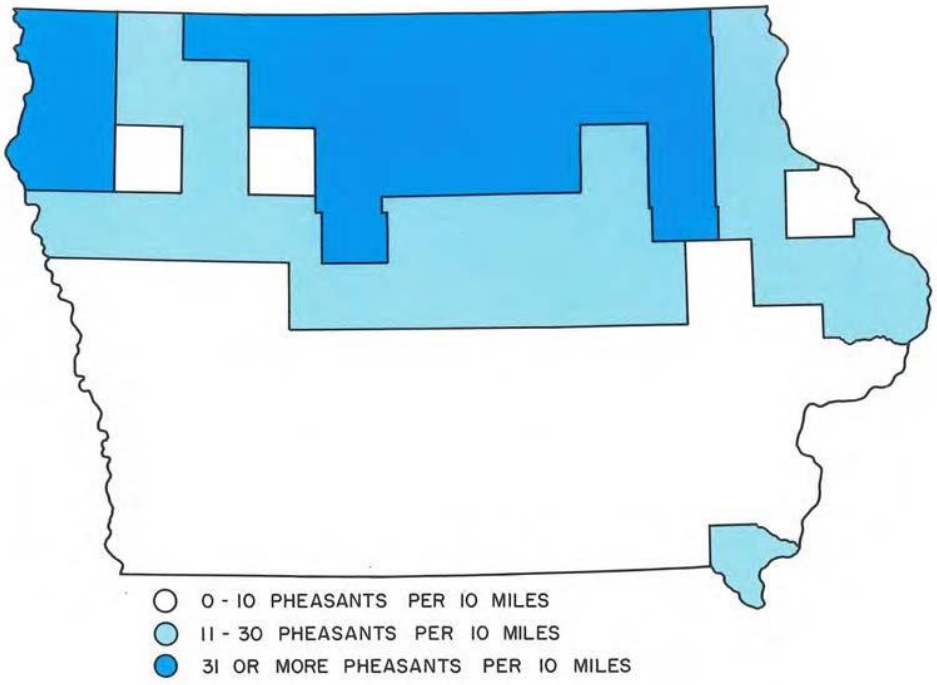


Figure 4. Pheasant density in Iowa, fall 1940.

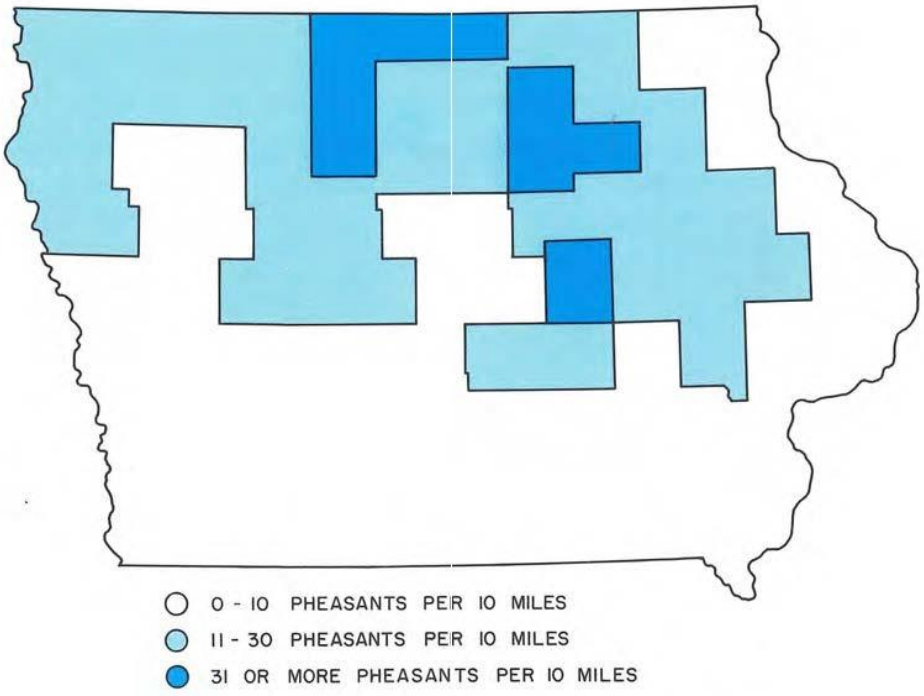


Figure 5. Pheasant density in Iowa, fall 1945.

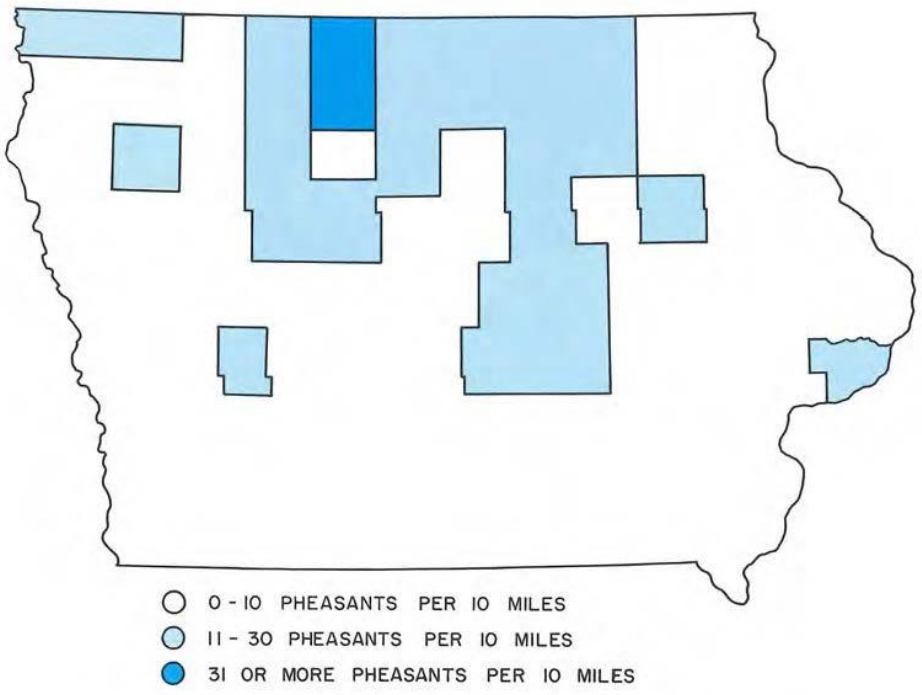


Figure 6. Pheasant density in Iowa, fall 1950.

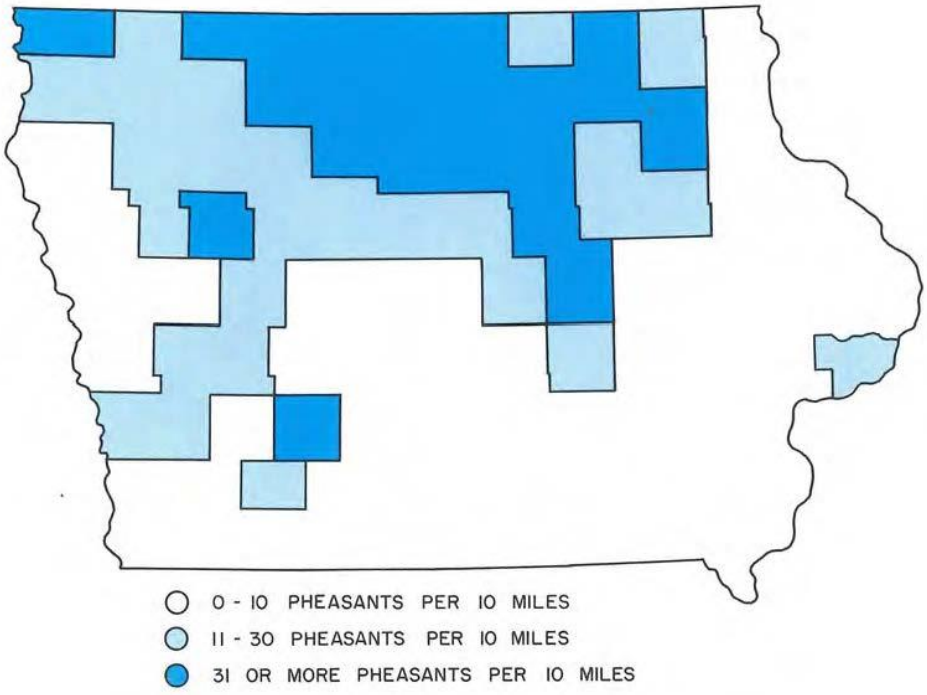


Figure 7. Pheasant density in Iowa, fall 1955.

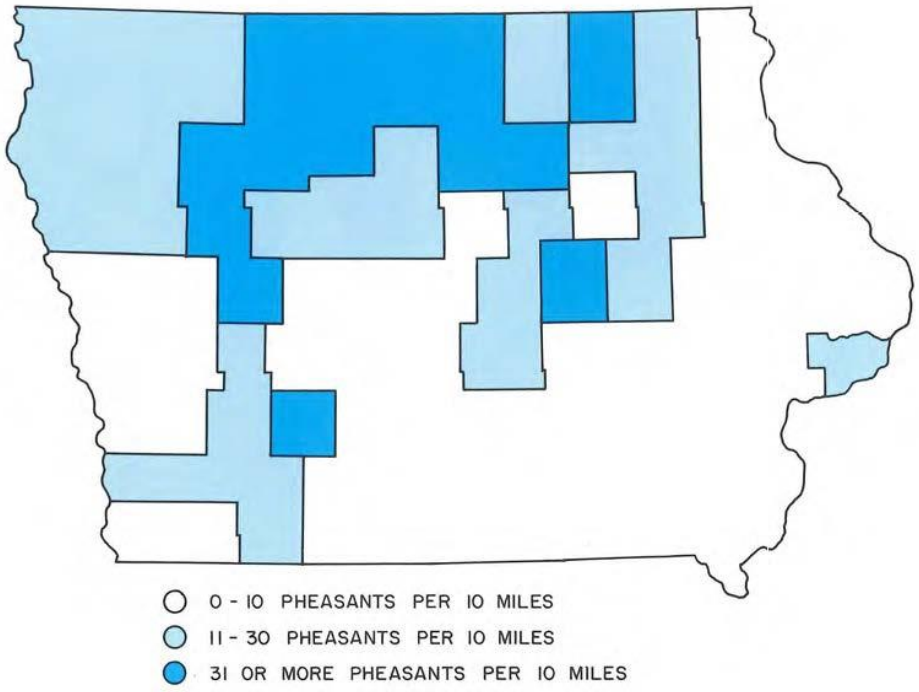


Figure 8. Pheasant density in Iowa, fall 1960.

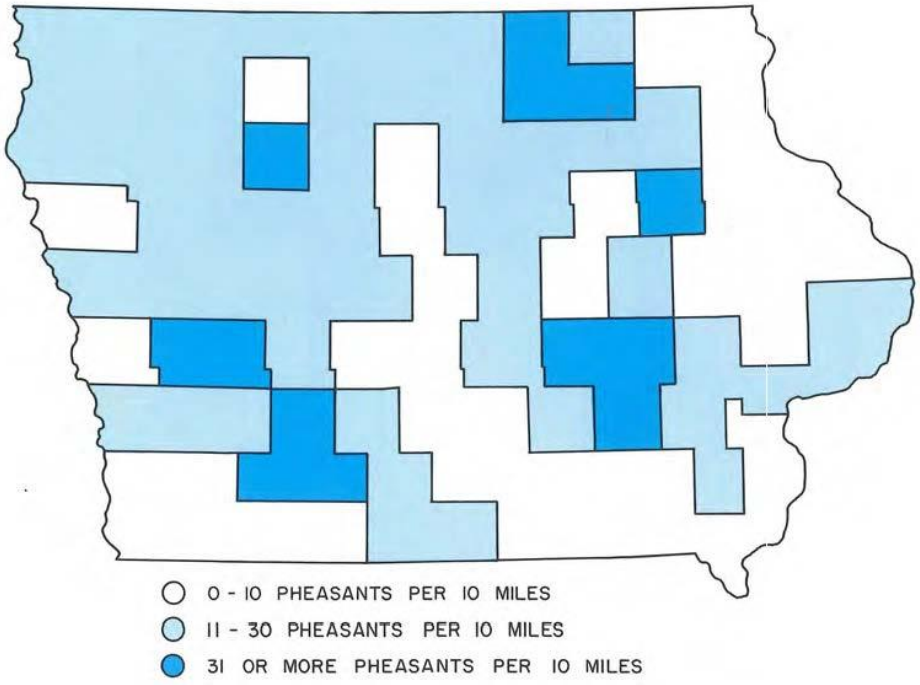


Figure 9. Pheasant density in Iowa, fall 1965.

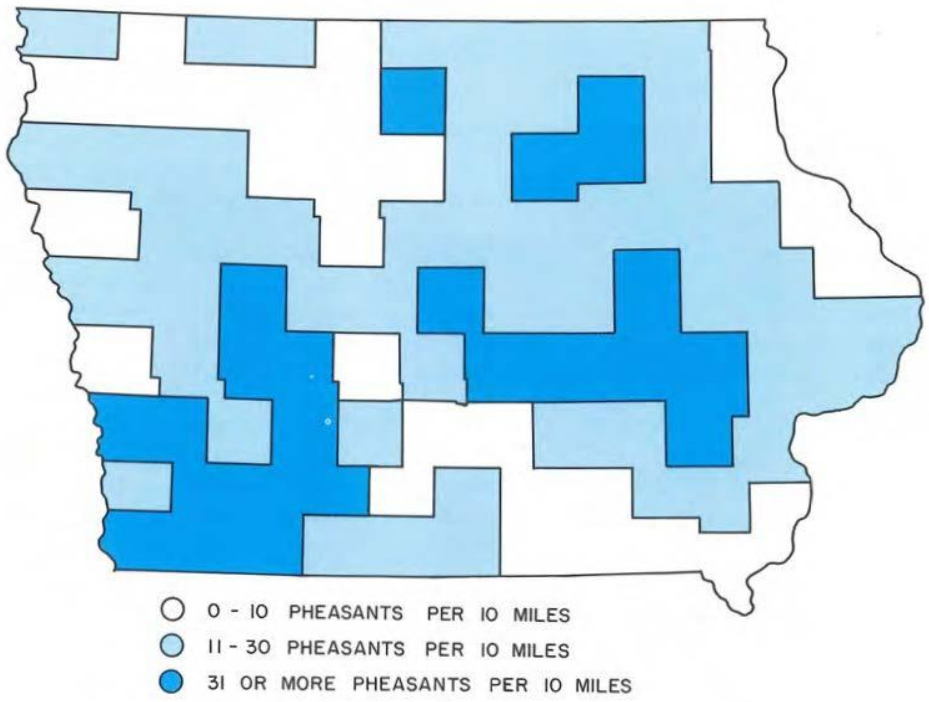


Figure 10. Pheasant density in Iowa, fall 1970.

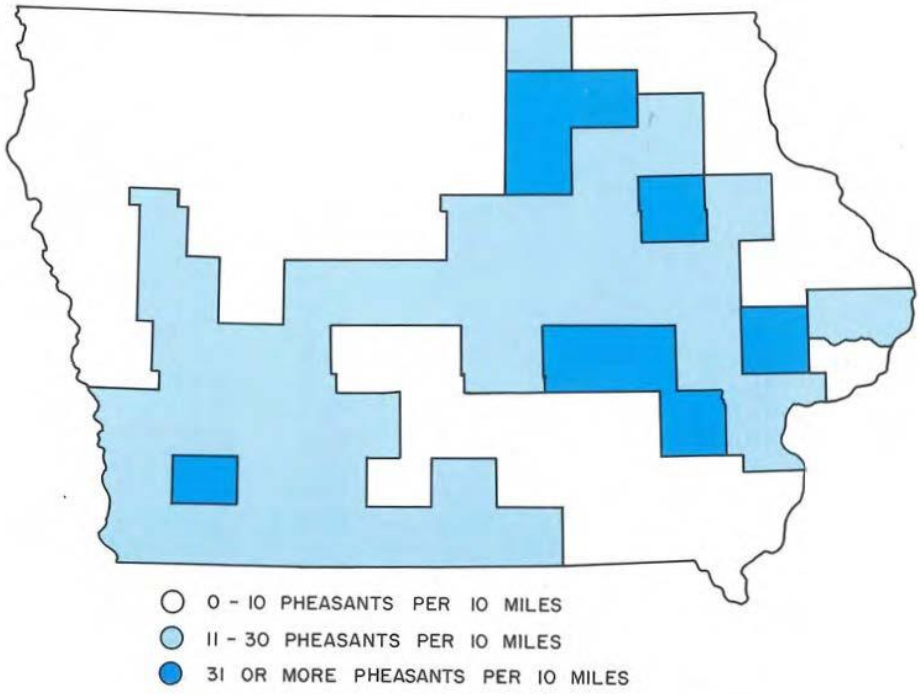


Figure 11. Pheasant density in Iowa, fall 1975.

Table 2. Pheasants per 10 miles - fall roadside surveys[1].

Year	Cash Grain	Western Livestock	Eastern Livestock	Southern Pasture	Northeast Diary	Statewide[2]
1940	34.	13.2	8.3	1.8	23.3	16.4
1941	35.6	18.2	15.7	3.6	15.7	19.7
1942	42.9	15.0	11.5	2.3	19.7	20.4
1943	24.5	9.9	9.8	1.5	9.1	13.0
1944	29.1	10.7	8.9	0.9	25.7	15.2
1945	23.4	8.5	10.4	1.4	11.7	12.4
1946	15.1	9.9	10.5	0.3	9.2	9.8
1947	3.9	3.7	5.3	0.5	2.8	3.4
1948	10.8	5.8	9.7	0.9	8.9	7.4
1949	13.6	8.6	7.5	1.3	9.9	8.6
1950	13.1	5.8	5.3	1.4	4.1	7.2
1951	9.1	4.5	5.8	2.5	6.0	6.1
1952	12.4	7.7	4.4	4.0	9.1	7.8
1953	9.4	3.6	3.8	4.3	11.6	6.2
1954	20.6	12.0	7.2	4.1	11.5	12.5
1955	34.2	13.5	8.0	5.4	15.8	17.8
1956	30.6	12.4	9.4	4.2	21.9	16.5
1957	32.4	12.1	9.1	6.2	14.1	17.4
1958	41.1	28.3	12.8	4.4	9.3	24.6
1959	24.8	22.9	16.2	8.5	9.8	18.8
1960	34.2	16.5	9.8	9.3	13.0	20.9
1961	29.3	24.3	9.5	6.0	11.9	19.5
1962	32.2	23.0	14.3	6.2	17.0	20.2
1963	33.1	36.1	19.4	21.8	13.5	27.5
1964	36.8	26.9	16.3	18.6	6.7	25.6
1965	17.3	20.2	14.3	18.8	8.2	16.8
1966	18.6	19.1	18.9	18.4	14.7	18.4
1967	16.4	13.0	17.6	18.1	14.1	16.4
1968	16.3	21.5	18.0	18.3	16.0	17.8
1969	12.4	12.4	19.0	17.4	16.2	15.1
1970	19.0	21.4	27.6	26.4	13.8	22.5
1971	17.0	22.6	30.2	20.0	10.9	20.9
1972	17.3	22.6	24.2	18.7	14.2	19.9
1973	21.1	21.5	28.4	15.6	13.8	21.6
1974	16.2	22.7	14.8	14.7	12.8	16.5
1975	10.1	11.5	18.9	13.9	13.3	13.1

[1]Surveys in 1940-1953 were conducted in late September-mid-October. In 1954-1975 the surveys were conducted in August.

[2]Mean utilizing all surveys in the state.

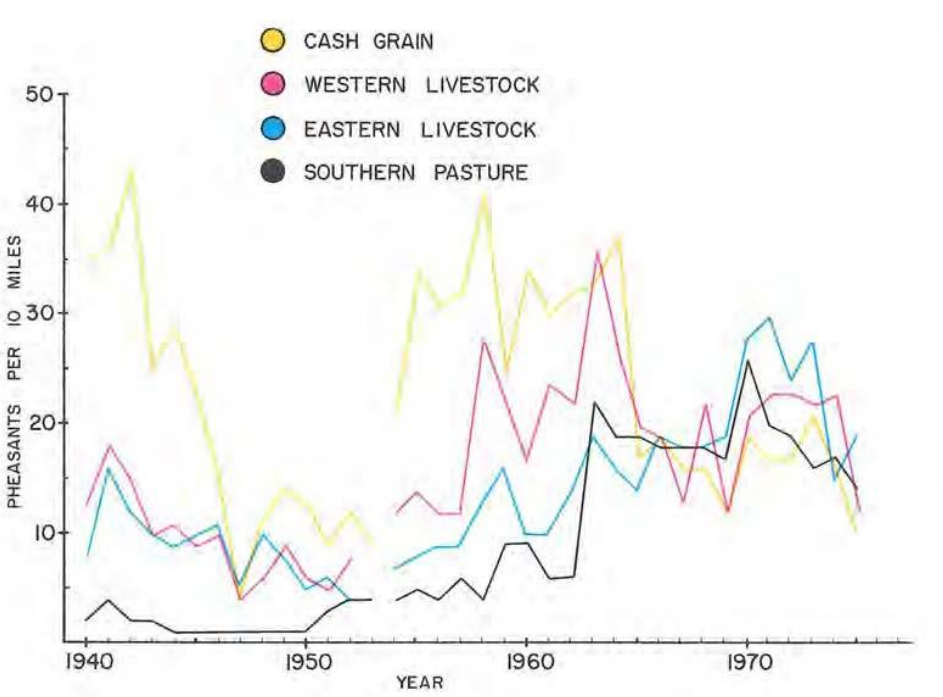


Figure 12. Pheasants per 10 miles from fall surveys, by survey regions.

It is interesting to note the highest pheasant populations in the cash grain region occurred in the early 1940s and mid-1950s to mid-1960s (Figure 12). In the western livestock region, peak populations came in the late1950s to mid-1960s followed by a decline in the later 1960s and higher pheasant numbers in the early 1970s. Pheasant populations reached their highest levels in the eastern livestock and southern pasture regions in the early 1970s. Pheasant numbers in the northeast dairy region have fluctuated, but since at least 1954 they have shown no upward or downward trend.

LEARNING FROM FACTS AND FIGURES

Surveys provide the figures, but the data have little or no value until the results are properly analyzed. It is the job of the wildlife biologist to compile, analyze, and interpret the data and report the findings to Conservation Commission administrators. The biologist must also make recommendations concerning specific application *of* the data to wildlife management.

Season Regulations and Surveys

There have been pheasant hunting seasons in Iowa since 1925. Apparently, it was recognized at that time that pheasants were polygamous because cock-only seasons were set. Administrators apparently realized that surplus roosters could be harvested without endangering future pheasant numbers. Population surveys were unknown until the mid-1930s when a fall roadside count was established in northern Iowa to obtain information on population trends. Once the trends were known, it became common practice to adjust the season each year accordingly. If the trend were up, the season was more liberal; and if the population were down, it was more restrictive.

Other information about the pheasant also became known. One of the most important was that one cock pheasant could adequately fertilize the eggs of 10 hens. This meant that 90 percent of the cocks present in the fall could be harvested without impairing future reproduction. In fact, one fall more than 90 percent of the cocks were harvested in the Creston and Greenfield vicinity. There were about 13 hens for every cock after the hunting season. The following summer pheasant eggs were located in harvested hayfields in the vicinity to check egg fertility. The fertility rate was as high in this area as in areas where the post-hunting season sex ratio had been three or four hens per cock.

Results of these continuing inventories have provided key information about pheasant management in Iowa. Hunters have never shot too many roosters. There are always enough left to insure successful reproduction the next spring. There are surplus roosters each year whether the population is up or down. The idea of closing the season on surplus cocks to help the population is a fallacy. While closing the season would result in more total pheasants in Iowa that fall

(because no cocks would be harvested), it would not result in any gain during the following reproductive season. With this knowledge available, administrators could lengthen the season to provide additional sport and recreation knowing the next year's population would not be harmed.

Other Uses

Extensive surveys are still needed to help explain pheasant management to the people of Iowa and aid the biologist in understanding the causes of the ups and downs in pheasant numbers. Extensive pheasant surveys help relate pheasant population changes and distribution to weather, habitat, winter mortality, reproductive success, and a host of other factors. A good example of this can be seen by comparing spring pheasant survey data (Table 3 and Table 4) with fall pheasant survey data (Table 2) in graphic form (Figure 13). Crowing cock counts in themselves tell very little about the spring pheasant population other than distribution within the state. However, crowing count data coupled with winter sex ratio information provide an index to the relative abundance of hens. This spring hen index and the numbers of hens observed on the spring roadside counts are of major interest because they reflect changes in relative abundance of the productive segment of the population. Hunters are concerned with the cock, but biologists are concerned with hens because they hold the key to future pheasant numbers. Data presented in Figure 13 illustrate several interesting points. First of all, it can be seen that there is not always a relationship between spring hen numbers and fall pheasant numbers as the years 1966-1968 show. After certain years of high fall populations (1958, 1963, and 1970) the spring hen populations of the following year reflected these increased numbers. It is also obvious that in 1965, 1969, and 1975 dramatic declines in spring hen numbers were associated with reduced fall populations. The next two chapters will deal in more detail with pheasant population changes and their causes.

Table 3. Calls per stop, winter sex ratio, and spring hen index from Iowa pheasant surveys.

Year	Cash Grain	Western Livestock	Eastern Livestock	Southern Pasture	Northeast Diary	Statewide[1]	Statewide Winter[2] Sex Ratio	Statewide Spring Hen Index
1950	14.9	9.0	6.9	2.3	2.5	8.7	2.8	24
1951	15.6	9.4	5.4	2.8	3.8	8.9	2.9	26
1952	17.7	9.7	6.9	4.1	4.4	10.4	2.8	29
1953	18.9	10.4	5.5	3.4	4.7	10.6	2.2	23
1954	17.3	8.8	4.6	2.2	7.1	9.5	2.8	27
1955	17.1	11.1	4.2	2.2	6.5	10.0	3.6	36
1956	17.8	9.9	4.5	2.4	6.3	9.4	3.3	31
1957	18.0	6.5	6.6	2.1	3.9	9.6	3.3	32
1958	27.3	8.7	7.7	3.9	8.8	13.9	2.3	32
1959	23.3	13.6	6.2	2.7	4.8	12.8	3.1	40
1960	21.4	13.0	3.7	2.9	4.6	11.3	3.0	34
1961	21.5	12.1	4.4	3.0	2.6	10.6	2.8	30
1962	16.7	16.3	9.9	3.1	4.7	11.4	3.2	36
1963	19.3	12.8	9.3	4.5	3.3	12.2	3.0	39
1964	16.7	13.0	9.9	6.0	3.3	11.8	2.9	43
1965	10.8	10.4	7.6	9.2	3.2	9.3	4.3	33
1966	14.9	11.4	10.7	13.5	6.7	12.7	3.2	42
1967	14.1	13.3	9.2	13.5	7.4	12.8	3.1	41
1968	13.3	12.5	12.0	11.3	5.8	12.0	4.2	48
1969	10.8	10.8	10.4	10.0	5.1	10.3	3.6	37
1970	12.1	14.9	13.2	12.5	4.7	12.4	3.5	43
1971	11.0	18.9	16.9	13.7	4.2	13.7	3.5	48
1972	10.3	15.6	15.4	11.0	4.8	12.2	3.6	43
1973	12.1	18.3	18.8	13.4	4.4	14.5	2.0	29

Year	Cash Grain	Western Livestock	Eastern Livestock	Southern Pasture	Northeast Diary	Statewide[1]	Statewide Winter[2] Sex Ratio	Statewide Spring Hen Index
1974	9.2	16.4	12.6	11.6	5.0	11.5	3.7	43
1975	4.5	7.2	10.0	9.7	3.5	7.1	4.5	32

[1]Mean utilizing all surveys in the state.

[2]Winter sex ratio is given as hens per cock, statewide

Table 4. Number of cocks and hens observed per 10 miles on Iowa's spring roadside survey routes.

Year	Cash Grain		Western Livestock		Eastern Livestock		Southern Pasture		Northeast Diary		Statewide[1]	
	Cocks	Hens	Cocks	Hens	Cocks	Hens	Cocks	Hens	Cocks	Hens	Cocks	Hens
1962	11.2	17.2	9.8	9.5	4.7	8.2	2.1	2.3	6.0	6.2	7.2	9.7
1963	13.4	20.7	11.8	16.1	6.9	9.2	2.9	6.1	5.4	7.7	9.3	13.9
1964	11.1	27.4	11.6	22.8	5.0	10.1	3.4	14.6	3.1	7.7	7.9	19.4
1965	6.9	14.7	7.1	14.0	5.8	9.1	4.2	14.2	3.8	10.4	6.0	13.0
1966	7.9	14.0	6.7	20.1	8.8	14.3	9.1	29.5	7.3	12.8	8.1	18.0
1967	8.8	17.1	8.6	16.6	7.8	11.2	9.0	28.8	8.4	22.3	8.6	18.3
1968	9.0	17.7	7.2	16.2	8.2	16.9	7.8	26.9	5.2	17.7	8.1	19.2
1969	4.8	6.8	4.8	5.6	5.3	6.5	5.5	11.6	4.5	7.6	5.0	7.5
1970	5.3	7.3	6.2	8.1	5.5	10.8	6.4	14.4	5.1	8.0	5.7	9.6
1971	4.8	8.1	7.8	13.4	7.6	14.2	7.2	18.0	3.4	5.2	6.3	12.0
1972	5.0	8.7	9.1	14.1	9.6	16.7	4.8	11.6	5.0	6.9	6.7	11.9
1973	5.6	7.8	11.4	15.4	10.7	19.3	5.5	8.6	5.4	9.6	7.7	11.9
1974	4.7	8.7	8.4	13.3	8.2	19.0	5.1	8.3	7.7	22.7	6.3	12.3
1975	2.2	4.4	3.2	6.1	5.0	11.6	3.1	7.0	2.1	2.5	3.1	6.7

[1]Mean utilizing all surveys in the state.

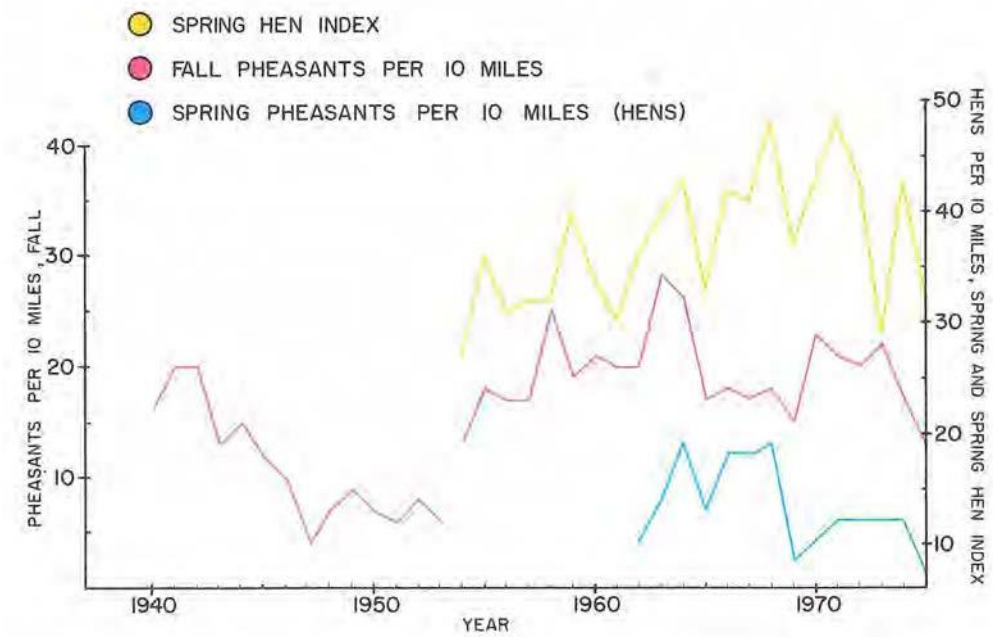


Figure 13. Comparison of fall and spring pheasant survey results.

Chapter 5
What Limits Their Numbers?

Pheasants are farm game birds and reach their greatest numbers in the most fertile soils in the world-the Midwest. However, as do all animals, the pheasant has a limited range of living conditions which are necessary for survival. These conditions are found in both the weather the birds must endure and the habitat they require. In addition, there are certain biological attributes of the pheasant that must be recognized. Most North American pheasant country lies between 35° and 50° north latitude. Iowa falls almost exactly in the middle of this region, and the weather is generally favorable. However, unfavorable periods can have drastic detrimental effects that cause dramatic short-term drops in pheasant numbers.

WEATHER

Winter and Survival

Winter weather is an obvious factor in many people's minds when they think of pheasants. The howling blizzard that can chill, choke, and suffocate pheasants has demonstrated its effects on northern Iowa ring-necks many times. Spectacular blizzards and long, arduous unspectacular winters have often struck the Iowa pheasant a killing blow.

1936

The winter of 1935-1936 was about normal until mid-January when heavy, frequent snows fell almost continually through the end of February. Accumulations reached 30-36 inches over the northwest half of the state with a 50-inch total that winter. Persistent cold settled in on January 18, and subzero temperatures prevailed until February 22. Cold, strong winds that drifted the snow and filled available winter cover areas compounded the problems for ringnecks. Two severe blizzards also struck on February 8 and 26 that winter. An Iowa State University study in Winnebago County recorded the effects of that winter. Of the 400 birds on the research area at the beginning of winter, only 150 survived[14]. Three fourths of all the losses could be directly attributed to severe weather effects. The death of only a single bird was attributed to starvation[14].

Armistice Day-1940

Storm conditions on November 11, 1940, were not so unusual when compared to other major blizzards. The remarkable aspects of this storm were that it came early in the season, was preceded by mild weather, struck suddenly, and lasted but a single day. Heavy intermittent rainfall on the 10th of November changed to snow in the early hours of the 11th.

Temperatures dropped rapidly (as much as 30 degrees in two hours), and the winds increased to 35-40 miles per hour with stronger gusts. Temperatures dropped into the 6-10-degree range as the blizzard peaked by mid-afternoon. On the Winnebago County Research Area about 10 percent of the pheasant population perished in that single day[15]. To the west in northwest Iowa, snowfall was heavier and pheasant losses greater[15].

Southern Iowa's Turn in 1959-1960 and 1961-1962

Snowfall was unusually heavy in these years particularly in the southern part of the state. The 59-inch total of 1961-1962 has never been exceeded (32.4 inches is average), and the 51.2 inches of 1959-1960 is third behind the winter of 1911-1912. Record snowfall occurred in November of 1959 and continued almost unabated through March. Extreme cold, with February the coldest since 1936 and March setting a new low record for that month, added to the severity of the winter. Observations on the Winnebago County area revealed no unusual losses of pheasants that winter, but several severe storms did strike south of that area. Pheasant losses in southern Iowa were slightly higher than usual but were no doubt moderated because some crops were still in the fields when the November snows came. Some of these crops remained unharvested all winter. However, the winter of 1959-1960 was disastrous for bobwhite quail populations. The long, cold winter and snow cover caused a great deal of winter quail mortality.

Winter of 1961-1962 was in some ways a repeat of 1959-1960 with southern Iowa again being hit hard, but this time there were considerably more unharvested grain fields. Record snowfalls occurred in December in the southeast half of the state; then southeast Iowa received heavy snow in January. Three major February storms hit the state with a record total monthly snowfall of 39 inches recorded at Spencer. A major blizzard hit northwest Iowa in March, and the temperatures were well below normal for the fourth consecutive month. Pheasants in southern Iowa fared well through the long winter in many fields of unharvested grain. Some losses were recorded elsewhere, but overall, the spring population was actually higher than the preceding year. This was due mainly to the excellent reproductive success in the summer of 1961.

St. Patrick's Day Blizzard-1965

The winter of 1964-1965 was in some respects one of the oddest on record. Snowfall totaled 43.6 inches, and it was the coldest winter since 1935-1936. However, intermittent warm spells caused much melting, and the temperature reached 73 degrees in southwest Iowa in late December. A blizzard on February 11 dumped 19 inches of snow on northwest Iowa, but a sudden warm spell at the end of the month brought flooded rivers and muddy roads. But the real problems came in March with ice and sleet changing to snow. The snow continued from March 1 through March 4; northwest Iowa was cut off from the world. This blizzard caused considerable pheasant losses, but it was followed on the 17th and 18th by the St. Patrick's Day blizzard. Up to a foot of snow was whipped into huge drifts by 60 mile per hour winds. Some drifts of 20-25 feet in height were found in farm groves. In the primary storm area bounded by Decorah, Waterloo, Ames, and Sioux City, pheasant losses were estimated at 50-75 percent. On the Winnebago County Research Area, in the heart of the blizzard zone, winter losses were 50 percent. A routine survey in February, 1965, found 388 pheasants, and a repeat survey on March 24, 19,65, found 194 - a loss of 50 percent in 5 weeks. A comparable area out of the storm region in Union and Adair Counties had a loss in that 5-week period of only 3 percent. Spring census data indicated that the decline in pheasant numbers from the previous year was about 50 percent in the storm region.

Unspectacular 1968-1969

The winter of 1968-1969 was cold, snowy, cloudy, icy, windy, and long. Heavy snow in the northern counties and icing in southern areas were common during January and February. Schools were closed more days during January than they were open.

December, 1968 was the coldest since 1963 and the snowiest since 1961. There was no period of outstandingly low temperatures, but over the state, temperatures were 2 to 6 degrees below normal. Snowfall and precipitation were the heaviest for any December since 1931. Snow cover was continuous over much of the state from December 18 through the end of the month, with amounts exceeding 15 inches over the northern half of the state. Largest accumulations occurred in northwest Iowa where Lake Park reported 40 inches of snow on the ground on December 31. A total of 43.7 inches of snow fell at Lake Park in December, 1968. Blizzard or near blizzard conditions and/or icing were reported on several days in the latter third of the month. On December 21, 22, and 23, northwest Iowa was hit with snowfalls up to 15 inches, sharply falling temperatures, and winds up to 60 miles per hour.

January temperatures averaged 4 to 9 degrees below normal over the state. Icing and glazing were the greatest of any January since 1951 when records were started and probably since the winter of 1935-1936. Precipitation was about twice the normal amount in eastern and northern Iowa. At almost all weather reporting stations there was a complete snow cover during January. Snow depth on the ground ranged from 8 to 42 inches in the northern half of the state. At Lake Park accumulation was between 31 and 42 inches for January, 1969. Snow and ice occurred frequently with the worst conditions on January 6, 7, and 16. The month was one of the cloudiest on record with little sunshine to melt the snow.

February temperatures were near normal, but snowfall was heavy over the northwest, west central, and central parts of Iowa. Snow accumulation on the ground was 8-52 inches over the northern portion of the state. There was a continuous snow cover over the northern parts of the state. By February the winter season was the coldest and snowiest in four years, the iciest in at least 16 years, and one of the cloudiest on record. At Lake Park snow accumulation was between 36- and 52-inches during February.

Temperatures in March were 4-9 degrees below normal; only three Marches in the 20th Century were colder than March of 1969. Although snowfall was below normal, the accumulated snow cover persisted into mid-March over much of the state. In the northwest quarter of the state the snow cover lasted through March and into early April.

Spring surveys revealed declines in pheasant numbers over most of the state. Populations declined the most in northwest and north central Iowa. The long, cold, snowy, cloudy, icy, and windy winter had affected Iowa's pheasant population.

January, 1975

The most recent of the killer blizzards to hit Iowa's pheasants came in January, 1975. Starting on January 10 and continuing through January 11, this storm covered an area roughly north and west of a line from Council Bluffs to Mason City. Again, the northwest quarter of the state took the full force of the storm. As the storm approached, the barometric pressure sank to the lowest level in 50 years. Temperatures dropped from 38 degrees to 13 degrees in Des Moines, south of the storm region. Wind speeds were recorded at 50 miles per hour with gusts to 90 miles per hour pushing the wind chill factor to 40-50 degrees below zero. By noon on January 10, Highway 20 near Sac City was closed. Spencer, Estherville, and Sioux City all received 11 or more inches of snow. Snow and 20-30 mile per hour winds continued on January 11. Temperatures dropped to zero or below on the night of the 11, and bitter cold continued through January 12. Snow was piled in 6 to 7-foot drifts on level ground. Farm groves and winter cover areas had much larger drifts. Wind-blown snow filled the available winter cover. Commission officers and biologists reported heavy storm-related losses of pheasants. Agricultural officials estimated domestic livestock losses at 7 million dollars. The blizzard lasted but a few hours yet left in its wake an impact on the pheasant population that was clearly noticeable the next fall.

Population surveys the spring of 1975 showed that within the blizzard region pheasant numbers were reduced about 80 percent below the previous spring numbers (Table 5). Outside the blizzard zone spring pheasant numbers were 40 percent below those of spring, 1974. Fall pheasant populations were 72 percent below the previous fall populations in the blizzard region while in the remainder of the state the populations were essentially unchanged (Table 5).

Table 5. Survey data comparing pheasant populations after January, 1975 blizzard.

	Spring									Fall		
	Calls/Stop		Percent Change	Cocks/10 mile		Percent Change	Hens/10 mile		Percent Change	Pheasants/30 mile		Percent Change
	1974	1975		1974	1975		1974	1975		1974	1975	
Cash Grain Region												
In-storm zone	6.5	1.8	-72	2.5	0.6	-76	4.3	1.2	-72	38.5	11.9	-69
Out-storm zone	12.0	7.1	-41	7.2	3.6	-50	14.0	7.4	-47	58.7	47.1	-20
Western Livestock Region												
In-storm zone	12.4	3.4	-73	7.1	1.4	-80	10.6	0.9	-92	57.5	13.8	-76
Out-storm zone	21.5	12.4	-42	10.1	5.6	-45	16.8	13.1	-22	82.7	60.8	-23
Statewide												
In-storm zone			-			-			-	45.1	12.6	-72
Out-storm zone			-			-			-	51.1	50.3	-2

Blizzard Effects on Pheasants

Pheasants are killed by blizzards primarily by freezing and/or suffocation resulting from over-exposure to the fury of the storm. Almost without exception the dead birds are in good physical condition. Many birds are found with ice over the nostrils, the bill open and completely choked with ice. Some birds are also found encased in a shell of ice and snow. These birds turned tail to the wind, and the snow blew under the feathers where it was packed. Body heat melted the first snow while more wind-driven snow was packed under the feathers; persistent cold temperatures froze the entire mixture.

Strong winds, snowfall, and low temperatures are the three deadly ingredients when mixed together. Strong winds and low temperatures with- out falling or blowing snow cause no problems. Likewise, low temperatures and snowfall without the wind to whip the snow are no threat to the rugged ringneck. It takes the combination of all three to be deadly, and then death can be swift indeed.

Time of day the blizzard strikes can make a great difference in pheasant losses. Those storms that strike suddenly during the daytime have a more devastating effect than those that start at night when the birds are already settled in heavy cover. During the daytime, the pheasants are more likely to be feeding or loafing in areas where the cover does not afford sufficient protection from a blizzard. The pheasants tend not to move to protective cover when the snow begins to fall. As the storm increases in intensity, the birds hunker down and are ultimately trapped in a blizzard with little or no protective cover.

Winter weather can have a deadly effect on pheasants, greatly reducing the number of birds available in the following spring's breeding population. Likewise, a mild winter can help by allowing more birds to live to the reproductive period. However, the effects of weather (mild or harsh) do not just affect the pheasant in winter. Weather conditions during the spring and summer reproductive period can have effects of even greater, but less visible, consequence.

Spring and Summer Production

There is a complex relationship between the environment and avian reproduction. In general, increasing day length in the spring is responsible for initiating gonadal development and stimulating birds into a physiologically ready reproductive state[16]. Other environmental factors exert their influences considerably later and sometimes just prior to ovulation[16]. Some of these environmental factors of most importance to the pheasant are food quality and quantity, nesting cover quality, environmental temperature, and perhaps availability of sufficient calcium in the diet. It has been found that north temperate birds breed later in a cold, late spring than in a warm and early one and that a sudden cold spell may temporarily inhibit ovulation[16]. The ring-necked pheasant seems to fit this pattern. Studies from Iowa and other midwestern states show that pheasants are ready to nest about the same time each year[17]. This is related to the year to year constancy of increasing day lengths in the spring. However, what seems to vary is the length of time between when the hens are ready to nest and the time they settle down to the serious business of laying and incubating a clutch of eggs. Since earlier clutches are larger, earlier nesting hens should produce larger numbers of chicks.

Examination of temperatures during the last half of April and the first half of May and the number of chicks observed per hen on the August road- side counts reveals that the largest numbers of chicks per hen are observed when May temperatures are above normal. Lower numbers of chicks per hen are seen when temperatures the first half of May are below normal. Temperatures during the last half of April do not fit into any pattern when compared to pheasant reproductive success. Further investigation reveals a close relationship between May temperature variation and reproductive success (Figure 14). The years with cool Mays are associated with a reduced number of chicks produced per hen. Warm, mild May weather is associated with larger numbers of chicks per hen.

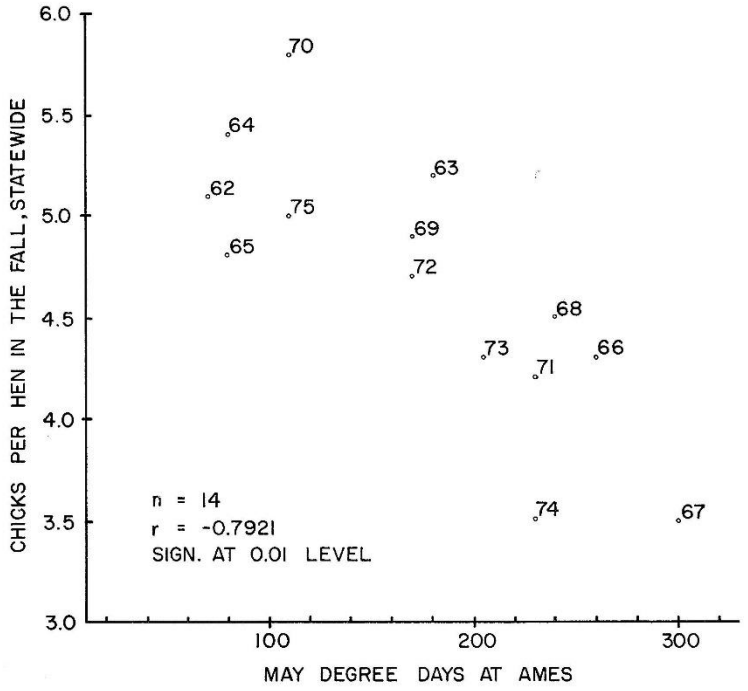


Figure 14. Correlation of May degree days* with statewide numbers of chicks per hen in the fall.
***May degree days are the sum of all the negative deviations of average daily temperature fr.om 65 degrees Fahrenheit.**

Other weather influences on pheasant populations during the reproductive period are usually not as pronounced or as noticeable. However, one exception to this was May and June of 1974. Heavy rains fell over a broad area of central and eastern Iowa in May. In the east central part of the state it was the wettest May since at least 1890. Record precipitation totals for May were received at Gilman in Marshall County, Williamsburg in Iowa County, Clarence in Cedar County, and Belle Plaine in Benton County. In general, a broad area of central, east central, and southeast Iowa had May rainfall 4 to 8 inches above normal. This was followed by two rainy periods in June. For example, at Williamsburg 4.81 inches of rain fell during May 16-18, followed by 3.67 inches May 26-29, with 2.09 inches June 7-9, and 3.8 inches June 19-22. The pheasant population over the broad rain-plagued area was down about 50 percent in August, 1974, from the preceding year. The number of chicks observed per hen (3.1) on the August surveys was the lowest on record in the eastern livestock region. Heavy prolonged rains cause the flooding of nests, physically move the eggs out of the nest bowl, cause hens to abandon the nest, drown chicks, and can lead to pneumonia among the wet, chilled chicks. But weather is only part of the story. Habitat is also part of the pheasant's environment.

HABITAT

Proper habitat is the key to abundant pheasant populations. That simple statement involves a complex of components in the pheasant's world. Basically, this means Iowa pheasants need a place to escape from enemies; travel lanes to get from one place to another safely; areas in which to nest, brood, rear the young, roost, dust, and loaf; and shelter from the winter elements. Of course, food, water, and grit are necessary to sustain life. In Iowa these basic habitat requirements are best provided by diversified farming practices. The presence of areas such as marshes, potholes, non-agricultural areas, railroad rights-of-way, unmowed roadsides, drainage ditches, grass waterways, weedy brushy draws and ravines, and other idle lands with plant growth increase the value of the land as pheasant habitat. While a diversified landscape with many different cover types is best, a simple landscape of only corn and alfalfa can produce large numbers of pheasants, **when managed correctly.**

Cover is a term used to describe the vegetation that provides shelter for necessary life requirements of a wild animal. The different types of cover required by the pheasant are generally referred to by the activity the pheasant carries on in that specific cover, for example, brooding cover, winter cover, nesting cover, etc. The term proper cover includes both qualitative and quantitative connotations; that is, the cover must be of sufficient quality and quantity before it can support a desired number of pheasants.

Carrying Capacity

Every Iowa farmer will recognize the concept of carrying capacity. This concept is that each unit of land has the ability to support a given number of individuals of a species at one time. That number of individuals depends on the quality and quantity of the habitat available at that time. *A* pasture can support only so many cattle depending on the quality and quantity of the forage available. It is the same with pheasants or any other wild animal.

The carrying capacity of the habitat is not static year after year or from one season to another. Eliminating all the nesting cover in an area radically reduces the carrying capacity of that area because there is no place left for the hens to nest and produce young. Likewise, crop harvesting and plowing in the fall reduce the carrying capacity of the habitat. Harvesting the corn knocks down the cornstalks and eliminates protective cover and potential winter cover as well as removing the bulk of the food. Fall plowing further lowers the carrying capacity by removing all cover from the field and by burying the food supply. A reduced food supply means reduced carrying capacity.

The carrying capacity of an area is determined by whatever critical factor(s) is/are in shortest supply. If an area has plenty of winter cover and abundant food resources but very little nesting cover, the way to increase the carrying capacity of that area is to increase the quantity and/or quality of nesting cover.

Secure Winter Cover

Pheasants require winter cover for protection from the elements of winter weather and natural enemies. The birds start to use winter cover areas during and after the crops are harvested and continue to depend on these areas until they disperse for the reproductive season. December, January, February, and the first half of March are times when pheasants stick close to this protective cover. Most of their limited movements are centered around a winter cover patch. The howling blizzard, freezing temperatures, and hunting fox all pose different threats to pheasants, but with a common result, death. Winter cover areas should be of sufficient size and number to screen the birds from wintery blasts, freezing cold, blizzards of blowing snow, and predation. This means winter cover should provide pheasants security.

Security can be provided by many types of vegetation depending on the weather and location in Iowa. In most years, pheasants in the southern half of Iowa find security in ragweed patches, brushy-grassy draws and ravines, osage orange hedgerows, plum thickets, cattail sloughs, and other combinations of woody and herbaceous cover. Generally, these winter cover areas are adequate because pheasants in southern Iowa are not exposed to severe winter weather. However, in the northern half of the state secure winter cover means vegetation that will protect at least most of the birds when severe weather strikes. Generally, this winter cover is a large block of woody plants that can protect the birds from the wind, cold, and blowing snow of a major blizzard. Ideally the winter cover patch should be big enough to catch the snow on the north and west sides with plenty of area left free of snow. Combinations of shrubs and conifers are very effective winter cover areas particularly where two or three rows of shrubs are planted on the outside to catch the snow. Farm groves that contain both trees and shrubs provide vital winter cover to northern Iowa ringnecks.

These farmstead groves of northern Iowa also have another important advantageous feature as winter cover areas. They are well distributed over the countryside which means pheasants need to move only short distances in the fall to these wintering areas. Winter cover should be well dispersed over the landscape for maximum benefits.

Pheasants are gregarious creatures in the winter and tolerate large numbers in the same winter cover area. In fact, this gregarious behavior may be a great advantage to winter survival. More eyes are watching for enemies, and more individuals are scratching for food. This flocking is important when considering the amount of winter cover required to satisfy the birds' needs. Only two to three percent of the land (10-20 acres per section) need be occupied by top quality winter cover to satisfy the pheasants' needs.

Even though the pheasant requires little winter cover, there are aspects other than size and distribution of the winter cover to consider. Plant species composition is relatively unimportant as long as the cover provides security. Dense stands of ragweed, young green ash, multiflora rose, willow bats, cattails, young cottonwoods, conifers, plum thickets, and many others are satisfactory winter cover if they provide security from weather and predators. One consideration that is taking on increased importance in northern Iowa is the relationship of winter cover to a winter food supply. Any movement out of the winter cover area can be dangerous; the greater the movement distance required the greater the danger. Food should be available immediately adjacent to the winter cover area. In fact, standing food supplies such as corn not only provide food but also protective cover.

Nesting Cover

Studies conducted in Iowa on the nesting requirements of the pheasant show that pheasants will establish nests in a wide variety of vegetation. This variety includes oats, alfalfa, brome grass, cornstalks, soybeans, weeds, bluegrass, and many others. However, these studies have also shown that even though pheasants will nest in a variety of plant species, all plants are not as equally desirable to a nesting hen pheasant.

Why a hen pheasant selects one kind of vegetation over another is somewhat of a mystery, but certain factors seem to be common among the most frequently utilized plant species. Dense, leafy-stemmed, tall, erect, herbaceous vegetation offering an overhead canopy is preferred. Species with early spring growth are most often utilized, but this can be offset by standing residual cover of later growing species. Fields of grasses, legumes, or grass-legume combinations are preferred. However, even among the grasses and legumes some are not as good as others. Alfalfa and red clover are the only two hay producing legumes planted to any significant extent in Iowa today. Pheasant nesting densities are relatively high in both of these legumes, but alfalfa is preferred by pheasant hens. Sweet clover is not commonly grown anymore, but is a desirable nesting cover particularly if it is grown in combination with alfalfa, red clover, or brome grass.

Wildlife biologists generally divide the grasses into cool season and warm season categories. The cool season grasses - brome grass, orchard grass, timothy, bluegrass, fescue, and Reed's canary grass - start their growth relatively early in the

spring when the weather is still cool; these grasses become dormant in the hot, dry part of the summer. Among these grasses brome grass is preferred by pheasants for nesting. Canary grass when grown on a well-drained upland site where the grass does not lodge is also heavily used by nesting hens. Timothy and orchard grass are best described as mediocre nesting cover. Because of its tolerance to moist soil conditions, timothy is perhaps the best cool season nesting cover for planting in wet soil sites. Fescue and bluegrass are poor nesting cover and not generally preferred by pheasants.

The warm season grasses - switchgrass, Indian grass, and big blue-stem - do not begin growth until late spring; they continue to grow and are green in the hot, dry part of the summer. Because of the deep extensive root system of these native grasses, they are extremely drought resistant. Although only preliminary data are currently available, it appears that switchgrass is the best of these warm season grasses for pheasant nesting cover.

Oats and winter wheat among the cereal grains are also used for nesting cover by pheasants. Both of these crops support relatively low nesting densities, but the success rate of nests in these crops is usually high. In the past, oat fields were the major producer of pheasants in Iowa. This was basically because of three things: (1) large acreages of oats were available; (2) success rate of nests was high in oats; and (3) oats were acceptable but not preferred nesting cover. Today oats are not an important part of Iowa agriculture. The loss of this reliable nesting cover has hurt the state's pheasant population.

Combinations of preferred plant species sometimes result in nesting cover that is superior to single species stands. These combination types utilize the best attributes of each of the plant species involved. The best combination for nesting cover is alfalfa and brome grass. Sweet clover in combination with red clover, alfalfa, or brome grass is also highly desirable. A three-way combination of alfalfa, brome grass, and switchgrass provides the attributes of a desirable nesting cover. Timothy and red clover in combination result in higher nesting densities than either one alone. There are other possible combinations, but these are the most highly preferred.

In addition to the influence of cover type preference, there are other factors which influence pheasant nesting density and success. One of the most important factors affecting nesting cover suitability is the amount of vegetation remaining standing from the previous growing season. For example, a field of timothy and red clover that was not harvested the previous summer will be more attractive to nesting hens in the spring than a brome-alfalfa field from which three cuttings of hay were taken the previous year. Oats, a potential nesting cover that must be replanted every spring, presents special management needs. Fields should be seeded with at least 2.5 bushels per acre, and seeding should be

completed by at least April 21. By following this minimum seeding rate and date, the oats will offer a cover that is tall and dense enough to attract nesting hens in the spring.

Once a suitable nesting cover is established, the most critical factor affecting pheasant nesting success in that field is the amount, extent, and time of disturbance of that nesting cover. For example, a highly preferred nesting area such as alfalfa will produce few if any pheasant chicks if the field was mowed late the previous summer and then mowed for hay before June 15 the following year. If the field must be cut, the mowing should be delayed until after July 15.

Nesting cover use and hatching success depend on several factors; the most important are the kinds of plants available to the nesting hen and the way the nesting cover is managed. The combination of brome grass and alfalfa is especially preferred by nesting hens. Residual cover, 12 inches or more in height, in the field from the previous growing season attracts hens. Fields left undisturbed by mowing or grazing throughout the nesting season produce many times more chicks than disturbed fields.

How much nesting cover is needed? That is a question that the questioner must answer himself by deciding how many pheasants are wanted. Unlike the winter time when they flock together, hens during the reproductive season do not nest in close proximity. Exceptions are found, but generally the nests are separated by quite a distance. Top quality undisturbed nesting cover will contain an average of one successful nest every four or five acres. This means about six chicks will be added to the fall population for every four or five acres of top-quality undisturbed nesting cover available. Sixty acres of top-quality undisturbed nesting cover per section (10 percent of the land) should result in 100 to 120 pheasants per section in the fall.

Other Cover

In addition to the winter and nesting cover needed by pheasants, there are other types of cover recognized by biologists. These include escape cover, travel lanes, brood cover, roosting cover, and dusting and loafing areas. There are many overlapping uses of these various types. What was used by a hen as nesting cover last week might well provide brood cover for the hen and her brood next week and serve as a roost area at the same time. By the time most chicks are hatched, field crops such as corn, oats, and soybeans are tall enough to hide the hen and her brood. Once soybeans are tall enough to form an overhead canopy, they are extensively used until the leaves fall in autumn. Likewise, these same crop fields provide vast amounts of escape cover, as well as dusting and loafing areas and travel routes during the summer and fall.

Most roost areas are in herbaceous cover, such as hayfields, oatfields, and weedy areas, during mild weather. During the winter pheasants roost in winter cover areas with rank vegetation. Fence rows, field edges, grass waterways, and draws make excellent travel lanes for the ringneck.

FOOD, WATER, AND GRIT

Ring-necked pheasants are granivores, or seed eaters. Of course, they eat other food both animal and vegetable, but the bulk of the diet is composed of seeds. In Iowa one of the most abundant seeds is corn, and it is not surprising that corn is a major component of the diet. However, other seeds such as soybeans, oats, and a host of weed seeds are also very important. Most important among the weed seeds are foxtail, ragweed, smartweed, and sunflower[18]. Fruits of various wild plants such as dogwood and multiflora rose are also taken and provide pheasants nutritious food.

During the spring, summer, and fall months insects are taken by adult as well as young pheasants. Insects, such as beetles, grasshoppers, leaf-hoppers, and caterpillars, make up the bulk of the diet for chicks the first few weeks of life. This animal matter provides the high protein diet needed by rapidly growing young birds. As the chicks get older, their diets gradually change, and by the time they are 12-14 weeks old, their diet is very much like that of the adults.

Foods taken by cocks and hens show little difference except during the reproductive period. Protein rich animal foods are taken in greater amounts by females during April, May, and June[18]. This is no doubt related to the increased energy needs for egg production.

Greens are another important food group in the pheasant's diet. A wide range of green material is eaten. Some of the most important are alfalfa, clover, dandelion, grasses, and wild mustard. Green plant material can be found in pheasant crops almost any time of the year.

The diet of the pheasant is not determined solely by the availability of food items. Other factors such as nutritional composition of the food and the pheasant's physiological needs play an important role. Foods that are high in fat content, such as soybeans, giant ragweed seeds, sunflower seeds, and gray dogwood berries, are generally more numerous in fall and winter diets than those of spring and summer[18]. Fats are important energy sources and help maintain body temperatures during cold weather.

Grit - small rocks and stones - is consumed by pheasants and used in the gizzard to grind food and aid in physical digestion. However, grit also provides some elements necessary for body maintenance, growth, and reproduction. The amount of grit consumed by cocks and hens is similar. However, during the reproductive season hens consume grit bearing much greater amounts of calcium for eggshell formation. Limestone used as road rock and in agricultural activities provides much of the required calcium. Also, hen pheasants eat snails during the spring and summer. The shells of these snails along with the increased intake of calcium rich plants, insects, eggshells, and grit during the reproductive season help meet the hen's increased physiological demands for calcium.

Standing water is not needed by pheasants. Their water requirements can be met by dewfall, insects, and succulent green vegetation.

REPRODUCTIVE POTENTIAL

Pheasants have a great ability to increase their numbers. That is, they have a high reproductive potential. Each hen can produce an average of 10-12 chicks for each successful nest. For example: one cock and four hens with each hen rearing 12 chicks could in four reproductive seasons become 10,368 pheasants even if all the adults died at the end of each reproductive season. This fantastic potential for the pheasant to reproduce its own kind is necessary because of the various forces that work against such an increase. A more realistic example of pheasant population change must take into account the fact that only 6 to 6.5 chicks are successfully reared per brood and only about two thirds of the hens surviving through the nesting season rear a brood. Also, only about 60 percent of the hens alive in the fall live to the spring instead of the 100 percent assumed in this simple model. Hen mortality during the reproductive season also works to dampen the potential population increase.

MORTALITY FACTORS

Pheasants are short-lived birds, and it takes a good reproductive effort each year to maintain a stable population. Of 100 birds alive in the fall, only about 20-30 will still be there the following year, and possibly two or three will still be flying the third fall. We already know what happens to 65-75 percent of the roosters each fall. However, more than half the fall population consists of hens. The season on hens has been closed for 30 years. Obviously, if they Jived very long, the State of Iowa would be overrun by hen pheasants. What happens to these hens and the remaining cocks?

Hunting-Related Hen Mortality

Pheasant hunting in Iowa has been legally restricted to the shooting of cocks since 1944, but some hens are shot each year. There is no doubt that some individuals deliberately kill the bird that produces the future generation. However, even the most reputable hunter can make a mistake and shoot a hen. Many of the hens killed during the hunting season are shot accidentally. These accidentally shot hens are either mistaken for a cock and fired upon from longer angle or

else are on the periphery of the pattern aimed at a cock. No matter how the hen is shot, either intentionally or accidentally, the important considerations are the extent of hunting-related hen mortality and its effect on future pheasant populations.

X-ray of three pheasants with one lead shot in each bird.

Examination of pheasants killed by non-hunting (vehicles and blizzards) means after the close of the season showed that about 24 percent of the cocks and 3 percent of the hens carried lead shot[19]. Using these data, it was calculated that 9 percent of the fall hen population was killed during the hunting season[19]. In states where legal hunting of hens has been tried, it was found that henkills at or exceeding 20-25 percent of the fall hen population lowered future pheasant numbers[17]. Harvest rates below this had no apparent effects. It appears that the 9 percent hunting-related hen kill in Iowa would not depress the pheasant population. However, it should be the goal of each sportsman to take every precaution possible to lower this hen kill in the future.

Agricultural Operations

During late spring and early summer, the greatest hazard for hens occurs during the first cutting of hay where up to one fourth of the hen population meets its unproductive end. Hayfields are attractive nesting areas, and many nests are established in this cover. The persistent hen sits tight and continues to incubate her clutch until it is too late and the cutter bar kills her. Flushing bars worked when tractors traveled at slower speeds, but today's high-speed cutting operation has eliminated their effectiveness. Night harvesting of hayfields is also extremely deadly for pheasant hens because of their reluctance to fly at night.

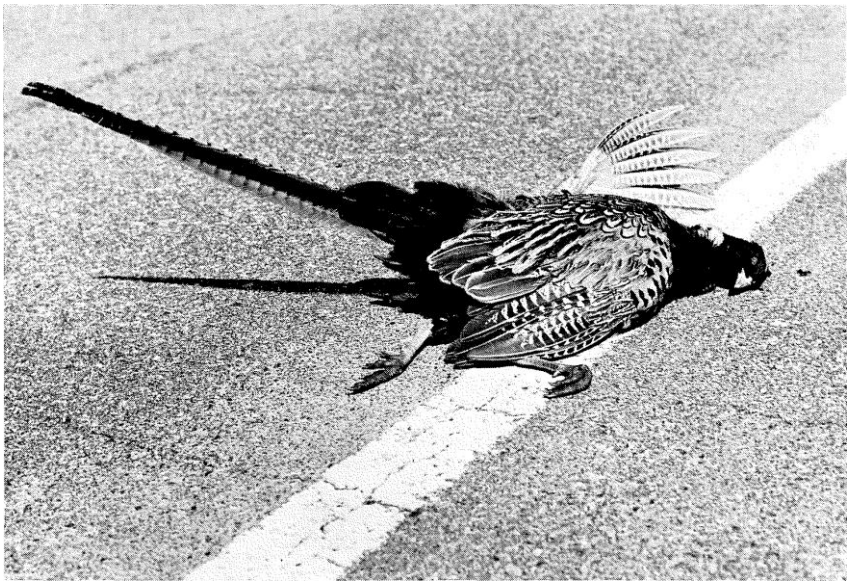
Normally some nests are hatching or have recently hatched when the hay is being cut. These chicks are too small to escape. This tragic loss of hens and chicks occurs each spring, much to the concern of the farmer. The only sure way to have pheasants and avoid these mowing losses is to not cut the hay. A more practical approach to reduce these losses is to delay the first hay cutting until after the first of July. Some hens and chicks will still be killed, but the losses will be significantly reduced.

Each year oat harvest operations, late spring plowing of hay lands, and plowing or discing of corns talks result in the death of some pheasant hens. The magnitude of the losses from these and other agricultural operations are small in comparison to hen mortality caused by hay harvest. However, all of the mortality caused by farm operations added together result in the Joss of an alarming number of hens, chicks, and eggs. Very few adult cock pheasants are killed by agricultural operations.

Accidents

Traffic on Iowa's network of primary and secondary roads consistently takes its toll of pheasants. The loss on roads is not constant throughout the year. During winters with heavy snowfall, ringnecks find road shoulders a good source of food and grit. The roadsides are usually scraped clear which exposes grain spilled by trucks and wagons, wild plant seeds and greens, and grit for the gizzard.

Springtime and the mating season bring the greatest vehicle toll to pheasants. The apparently fearless roosters often become victims of speeding vehicles. Their brave disregard for all comers is no match for cars and trucks. All too often the hen that is looking for a suitable nesting place disregards the speeding vehicles and dies on the windshield of a car without producing the next generation of pheasants.



Motorists traveling through pheasant country are urged to drive alertly. Pheasants are most active during early morning and late afternoon. A little extra caution at these times will save pheasants and many times a broken windshield.

However, pheasants do not always need a vehicle to have an accident. They collide in flight with tree branches, utility wires, guy lines, and fences. Although aerial collisions account for a fairly small number of pheasant fatalities, they are but one more of the many mortality causes that continually take a toll on pheasant numbers.

Winter Weather

The effects of winter weather on pheasant survival have been discussed at the beginning of this chapter. However, to be complete, any discussion of pheasant mortality in Iowa must touch on this subject. Loss of pheasants in a normal year is about one third of the fall population. Severe blizzards or abnormally cold, snowy winters can push that mortality much higher. A single blizzard of one- or two-days' duration has been known to kill 50 percent of the birds. Add to this a couple of more months of cold and snowy conditions, and winter losses may well approach 75 percent. Complete small flocks of pheasants in $_{1)001'}$ cover have been wiped out in the severe blizzards. The only solution to the problem of winter losses is adequate winter cover. Existing farmstead groves should be improved by adding two or three rows of shrubs around the outside to catch the choking, suffocating snow. New farmstead windbreaks and winter cover areas should be planted utilizing a combination of shrubs and hardwood and coniferous trees.

Starvation and Disease
Huge grain crops are produced in Iowa which provide the main source of food for pheasants. Waste grain in fields, up to five or six bushels per acre; plus weed seeds usually furnish a sufficient supply of nourishment to maintain pheasants throughout the year. This subject is covered in more detail in Chapter 7, but losses due to starvation have been minimal to date.

Iowa pheasants have been found to be healthy birds. Blood samples of wild pheasants have been collected and examined for evidence of various poultry diseases, but rarely has the evidence indicated a diseased bird. There are pheasants that die of disease and parasitism in Iowa, but to date, there is no evidence to indicate diseases are a major pheasant mortality factor. However, even minor disease losses when tallied with other major and minor mortality causes depress pheasant numbers.

Predation
There are several species of wild creatures that kill and devour other species of wildlife in order to live. Some predators are praised while others are condemned, depending upon the relative value of the species preyed upon, and the predator. A predator may be cheered by one group and hated by another.

The ring-necked pheasant is not the primary prey of any predator species in Iowa. However, red fox are sometimes falsely accused of being the villain when pheasant populations decline. Foxes live mainly on mice and rabbits but do take some pheasants. Fox dens in pheasant country will usually have some evidence of pheasant remains about, but even then, this does not prove the bird was killed by a fox. Like most other predators, the red fox is not above carrying off a hen killed by a mower in a hayfield or a cock killed by a car.

Other predators such as cats, dogs, raccoons, skunks, coyotes, and great horned owls will all prey on pheasants if the pheasants are easily available. However, a healthy adult pheasant is not the easiest prey species for a predator to obtain.

The most detrimental influence exerted by predators is not the killing of a few adults, but rather the destruction of eggs during the reproductive season. The nest predators include skunks, raccoons, dogs, cats, ground squirrels, snakes, crows, foxes, and coyotes. Skunks and raccoons are the most important of the nest predators.

Juvenile Mortality
Although the hen provides constant care for her brood, the loss of young chicks is high. An average of 10 eggs will be hatched in each successful nest, but by the time three months have passed, the average brood size is down to six or seven chicks, a loss of 30 to 40 percent. This loss of chicks can be attributed to many causes. Predators, accidents, and disease all take their toll. No doubt a number of chicks become separated from the hen when they are too small to fend for themselves. The hen's brooding is essential for the first few weeks of life.

Cold, wet weather can cause above-normal losses of young chicks. Hail storms and heavy rains can be as decimating to

chicks as winter blizzards are to adults. Fewer chicks per brood can be detected in local areas hit hard by extremely severe spring and summer storms.

SUMMING UP

Pheasant populations are influenced by the weather, habitat, predators, food, accidents, hunting seasons, diseases, biological characteristics inherent in the pheasant, and other factors (Figure 15). While each of these factors exerts its own influence on pheasant numbers, rarely is only one influence at a time felt by pheasant populations.

The number of pheasants present in any given area of Iowa at a specific time is usually the result of the complex interaction of a multitude of influences.

One question is: What determines how many pheasants there will be in the fall? Simple enough. Some people will say the hunters took quite a few coyotes, fox, and raccoons last year so there should be a lot of pheasants this year. Others will relate the fact that the winter was mild and a lot of birds should have survived, so there should be a lot of pheasants this fall. Another might relate the early hay mowing to the destruction of hens and predict a poor hunting season. There is no simple answer. Of prime importance is the number of hens in the spring breeding population. This, of course, depends on how many pheasants were alive the previous fall and how many were lost to various mortality causes between fall and the breeding season. (Figure 15).

Winter weather severity, food availability, predator populations, habitat quality and quantity, hunter ability and integrity, and others all influence the number of hens lost during the winter. In addition to the number of hens in the spring breeding population, many other factors influence the number of pheasants in the fall population. Photoperiod, grit availability, temperature, and nesting cover quality influence the time of nest initiation. Earlier established nests have larger clutches than later established nests. But nest establishment is only part of the picture. Normality or abnormality of the weather, nest predator populations, accidents, agricultural activities, and the amount and condition of nesting cover all exert influences on the success of the reproductive effort. Many of these same factors act to influence survival of the breeding adults from spring to fall. It is the influences of all these factors, and others acting through time, that provide the answer to the original question.

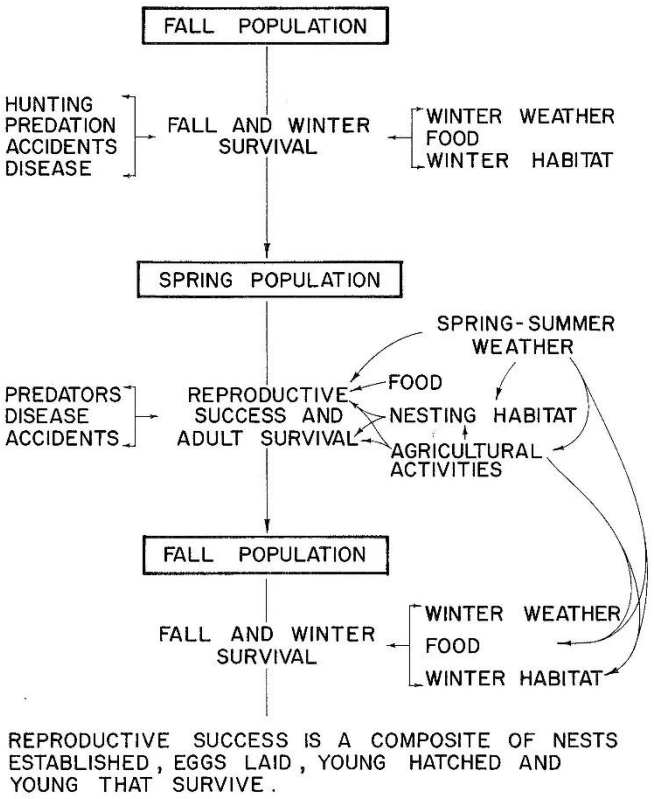


Figure 15. Simple model illustrating factors that influence pheasant populations.

Unfortunately, it is not possible to measure with sufficient precision all the various factors and their influence on pheasant populations. Our ability is currently limited to measuring changes caused by relatively extreme variations in the influencing factors that can be identified.

At times certain components of the pheasant's environment appear to exert a controlling influence on the population (Figure 16). In the winters of 1964-1965 and 1974-1975, major severe blizzards greatly reduced the number of hens available in the spring breeding population. Even though 1965 and 1975 were good reproductive years (Figure 14), fall pheasant populations were lower in 1965 than in 1964 and in 1975 than in 1974.

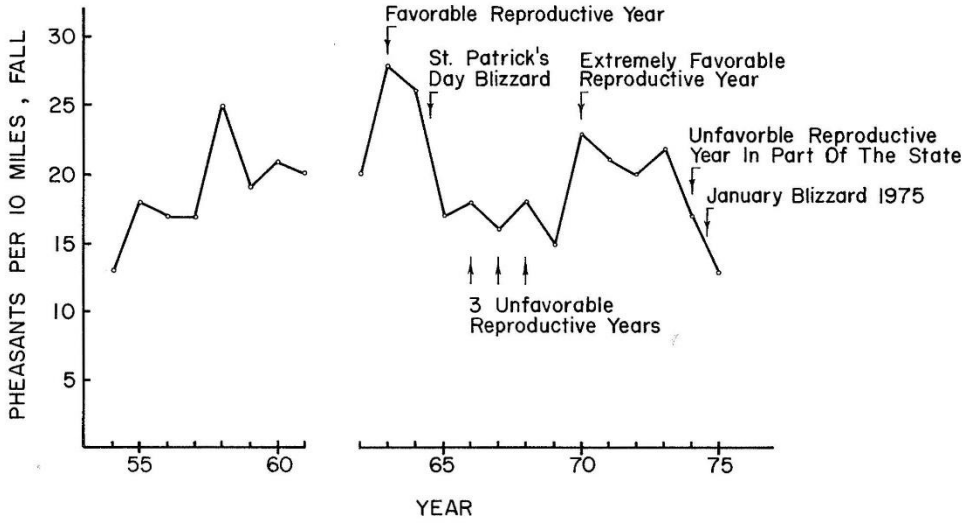


Figure 16. Pheasants per 10 miles on Iowa's August roadside survey, 1954-1975.

The winters of 1965-1966, 1966-1967, and 1967-1968 were mild with pheasant survival higher than normal. However, fall pheasant numbers in 1966, 1967, and 1968 were less than expected (Figure 16). These three years were characterized by cold, late spring weather (Figure 14) with temperatures far cooler than normal and relatively poor chick production. In sharp contrast was 1970 with a decidedly smaller spring population (Table 4), but with very good reproductive effort (Figure 14), resulting in a higher fall population (Figure 16).

There is a complex relationship between pheasants, their environment (weather, habitat, predators), and pheasant populations. The pheasant population in any given location at a specific time must be viewed as the result of the complex interaction of the biological character of the pheasant and the environment in which it lives.

This chapter has provided some analysis of weather influences, agricultural activities, mortality factors, and habitat in determining pheasant numbers. However, habitat is not static, and the next chapter will deal with the changes that have taken place in Iowa pheasant habitat and how these have influenced pheasant numbers.

Chapter 6
Land Use Changes Tell A Story

Normally the term small game habitat brings to mind rough country with brushy thickets, idle lands, and dense grassy-weedy uncultivated areas mixed with cropland. However, pheasant habitat is basically cultivated farmland managed to supply the necessary essentials for the pheasant's welfare. It is **vital to understand that agricultural land use has controlling influence on the long-term trend of the pheasant population.** The agricultural practices in an area determine the habitat available to pheasants. Pheasants are farm game birds, and few other game birds are as intimately associated with agriculture. They winter in the farmstead windbreak, nest in fields of small grains and hay, and glean the fields for insects and waste grain. The ringneck has prospered in Iowa because Iowa is a rich agricultural state.

Iowa's pheasant range was created during the period 1850-1900. Historically this was the time of the prairie chicken, and it is doubtful that the pheasant could have survived in the prairie environment. The vast region of tall prairie grasses was undergoing a major transformation during this era. Early settlers with their plows discovered the fertile soils beneath the heavy sod. For a while, at least, prairie chicken populations flourished as agricultural crops provided increased food supplies. However, encroachment on the remaining prairie areas continued through the turn of the century. By 1900, 90 percent of the state was in farmland. The enormous expanse of waving grass was now replaced by a patchwork of small diversified farms.

As the prairie vanished and the undisturbed grasslands required for nesting cover were lost, the population of native

prairie chickens declined. Land use changes had destroyed prairie chicken habitat, but created favor- able conditions for an exotic game bird that would soon reach the Iowa countryside.

This drastic decline of prairie chicken populations left a void in the upland game shooter's fall schedule. Rumors of an exciting new species on the West Coast were loud enough to be heard in the Midwest. Rumors changed to fact as interested individuals purchased breeding flocks of pheasants for private game farms. At least some of these found their freedom and escaped into the Iowa countryside. Soon thousands of eggs and chicks were being transported to all corners of the state with the hope that the pheasants would take hold. And take hold they did, the ring-necked pheasants had found a home in the farm fields of Iowa. At first, they seemed to prefer the north central area which contained small diversified farms dotted with numerous marshes and potholes. Gradually, however, pheasants became established over all of the state.

THE LAND AND ITS USE

The landscape was changed, not only by plowing, planting, and grazing, but by another major change which began during the early years of the 20th Century. At first those who worked the north central and northwest Iowa land had to farm around the numerous potholes and marshes that provided secure roosting, loafing, nesting, and winter cover for the pheasant. Later drainage ditches were dug, and soon wetlands were being tiled to drain away the excess water so more land could be farmed. This process was slow but steady and has continued even to the present time.

The Dismal Thirties and the First Land Retirement Program

The depression years of the Thirties caused hardship to Iowa farmers. Production of grain crops was poor during the drought years, and grain prices were so low that corn was sometimes used for fuel to heat homes. Crops in fields that produced poorly were often left standing, and the ringneck pheasant prospered (except for one rough winter in 1935-36) even in this period of unfavorable weather conditions. What was extremely painful for people seemed to be just right for this newcomer. Pheasant numbers increased to the nuisance level in many sections.

Ringnecks in Iowa received another bonus in the late thirties. A Federal Land Retirement Program to bolster farm income provided extra fields of lush cover for nesting and production of chicks. Idle fields were usually seeded down with sweet clover and left undisturbed. The pheasants responded. Ringneck populations began an upward spiral that reached an all-time high in the early 1940s.

World War II

A demand for greatly increased food production during World War II challenged the farmers of Iowa, and they responded promptly with a great effort to provide the grain and meat desperately needed by the Allies. Pheasant habitat had to go when idle acres were put to work producing crops. As a result, the pheasant population began to slide.

It was during the Forties that modern farming developed. The great war effort to supply food required more intensive

use of Iowa's rich soils. Tractors replaced horse power; combines took the place of awesome threshing machines; mechanical corn pickers rattled through the stalks instead of handpickers and wagon and bangboard. Two-row equipment was set aside for the new four-row machines.

A New Era

Changes were quite gradual at first but gathered momentum from the late 1950s to the present time. Farming has become big business, and modern agriculture demands intensive use of the land; modern machinery makes it possible. Drastic land use changes brought about by modern agriculture have occurred in recent years. These changes have completely transformed the countryside and have greatly altered the pheasant's environment. Pheasants continue to thrive in areas where diversified farming exists, but many of the fertile and productive areas of Iowa are now too intensively farmed to provide the basic needs of this popular game bird. Collectively, these agricultural changes have resulted in a persistent decline in pheasant habitat. How these changes have occurred and their relationship to the pheasant can best be described individually.

Corn

Corn is king in Iowa, no doubt about it. About 10-12 million acres of farmland are planted to corn each year. This acreage has varied only slightly during the past thirty-five years (Figure 17). Total production has doubled due to the increased use of fertilizers, herbicides, heavier seeding rates per acre, and development of better hybrid varieties. Huge corn combines and picker-shellers now harvest Iowa's number one crop. Although waste grain in harvested cornfields still provides the bulk of the pheasant's diet, the practice of fall plowing has increased considerably the past few years and could pose a winter food problem in local areas. Standing corn is also used by pheasants as escape. cover, brood cover, and travel lanes.

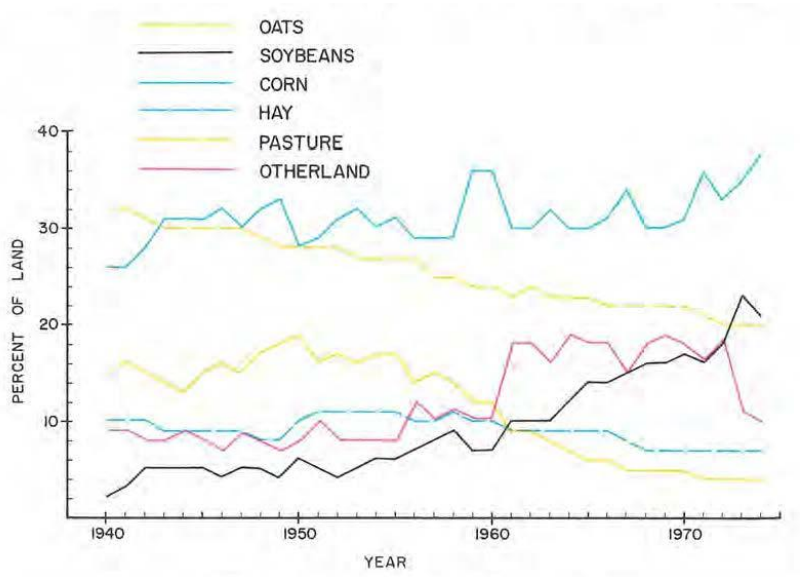


Figure 17. Percent of Iowa farm, land in each major crop category.

The acreage of soybeans has increased over 9-fold in the past 35 years; it now totals nearly 7 million acres. Soybeans add another excellent food source for the pheasant to the already abundant supply. Unfortunately, the acreage of this major row crop has replaced the very critical supply of nesting cover, especially oats.

Soybean production has also created another problem in parts of Iowa. Fall plowing of large soybean fields has developed conditions favorable for soil erosion in much of the former prime pheasant range. Drifts of wind-blown soil have filled the ditches and covered the vegetation. Therefore, the value of strip cover, such as roadsides, has decreased in recent years.

Each year Commission personnel receive reports of pheasant nests in soybean fields. Most of these nests are found by people walking the fields to chop weeds and corn out of the beans after the beans are too large for machine cultivation. There is no doubt that pheasant hens nest and produce young in soybean fields. All available evidence indicates these

are late established nests, probably renesting attempts, and the total number of pheasants produced in soybeans is quite low.

There may be a potential for greater pheasant production in soybeans. Presently there are four problems fo1 pheasants nesting in soybeans. The first is the fact that soybeans are not planted until late May or June because of their sensitivity to cold. Therefore, they do not provide suitable protection for a hen until late June or July. Second, pheasant hens establish most of their nests in late April or the month of May. Statewide, May is the most important month for pheasant nest establishment which does not correspond to the time when cover is available from soybeans. Third, most soybeans are planted in wide rows which means they do not provide concealment like oats or alfalfa. Fourth, soybeans are machine cultivated two or three times before they are left undisturbed. This cultivation disturbs the ground and could destroy pheasant nests or cause hens to abandon the nests.

New developments in agriculture could, however, improve soybean fields as pheasant nesting cover. Experiment at ion with new soybean varieties, planting in narrow rows, and improved herbicides could help. Soybeans planted in 10 to 15-inch rows would provide better and earlier concealment for nesting pheasant hens even if the beans were not planted earlier. The closer the rows, the sooner the plants would provide a complete overhead canopy to conceal the nest. Also, narrow rows and more effective herbicides would eliminate the need for mechanical cultivation, thus leaving the field undisturbed.

Narrow-row soybeans are relatively new but appear to warrant further study. Agriculturalists are experimenting with this concept to increase soybean yield. Commission wildlife research biologists are just beginning to investigate narrow-row soybeans to determine the potential of this row crop for pheasant production.

Oats

One of the most significant changes in Iowa's agricultural land use as it relates to pheasants has been the decrease in oats acreage (Figure 17). Farmland seeded to oats as a crop has decreased from a high of 6.5 million acres in 1950 to 1.5 million acres in 1974. The decline in the percent of land seeded to oats has been even greater in some areas of traditionally primary pheasant range. In the north central region of Iowa, oats occupied about 23 percent of the cropland in 1940. This percentage decreased to about four percent by 1974 with the greatest changes occurring in the last 15-20 years.

Studies show that nests established in oatfields have in the past produced about one third of the pheasant chicks hatched in Iowa. Oats is the only major field crop that remains undisturbed long enough to allow the hen time to establish the nest, lay the eggs, and incubate them successfully. Nest density is not as great as in hayfields, but hatching success is much better.

Pheasant production in oatfields is usually best following an early spring. Oats sown in April followed by favorable weather provide the concealment needed by nesting hens. Late, wet springs sometimes delay oats seeding, and

consequently cover is too sparse to attract the nesting hens. Cool, wet periods in late April and May are also detrimental because this type of weather retards the growth of the oats and reduces their value as nesting cover.

Hayfields

Hayfield is a heterogeneous classification of fields of grasses, legumes, and grass-legume combinations. Pheasant production in hayfields varies depending upon the species of grass and/or legume in the field, weather conditions, and mowing dates. Hayfields have produced from 20 to 60 percent of the pheasants in Iowa; they average over a third of the young each year. There have been major changes in hay crops during the last 35 years. Alfalfa has now largely replaced other types of hay crops, and the total hay acreage has decreased by one third. Although nest densities are high in alfalfa, production is lowered by the early cutting date preferred in modern farming. This early cutting not only causes nest destruction but also a critical loss of hens. Studies show that while nesting densities are lower, pheasant production from other types of hay such as red clover, native grasses, sweet clover, and others is higher than in alfalfa because of later mowing dates for these other hay crops. Iowa studies found only 6 to 13 percent nest success in alfalfa compared to 23 to 27 percent nest success in other hay types[2021].

Pastures

While not one of the major cover types producing pheasants, pastures make a contribution to overall pheasant production. Various studies in Iowa show that pastures produce from 5 to 20 percent of the young pheasants. Of course, pheasant production in pastures is dependent upon the time and intensity of grazing of the pastures. Like other potential pheasant nesting cover, pasture acreage in Iowa has declined over the past 35 years. The decline in pasture acreage has been the greatest in the cash grain region of northern Iowa. The greatest percentage of land remaining in pasture is in the southern and eastern parts of the state.

Improved pasture management methods and the use of a wider variety of pasture plants have allowed greater numbers of cattle to be raised on less land. In areas where cattle are rotated from pasture to pasture throughout the year pheasants can be produced in pasture land. Continuously grazed pastures hold little promise for producing young pheasants. Most pasture land in Iowa is seeded to a grass and legume mixture.

The grasses used in pastures are mostly cool season grasses that produce maximum forage in May and June and produce poor forage in the hot part of the summer (July and August). Commission wildlife research biologists, in cooperation with the Soil Conservation Service, are currently investigating the potential of warm season native prairie grasses as pheasant nesting cover. The warm season grasses have deep extensive root systems and produce maximum forage in July and August. In order to maintain a healthy, vigorous grass stand, 10-12 inches of stubble must be left when the cattle are taken out of the pasture. Therefore, there is some residual cover left in these pastures for the next spring. Ideally, these warm season grasses should be seeded in single species stands and utilized in a pasture rotation system that involves sepa1 ate pastures of cool and warm season grasses. Cattle should be turned into the cool season grass pastures in the spring and allowed to graze these grasses through June. The cattle should then be moved into the warm season grasses during July and August and then back to a cool season grass pasture in the fall. In this way high quality pasture can be provided during the entire grazing season.

Cattle in switchgrass in July.

If warm season grass pastures are not disturbed until July, they can provide nesting places for pheasants. Preliminary results of an investigation in southern Iowa indicate that pheasants will nest in the warm season grass pastures. Nest density in switchgrass is equal to or slightly better than pheasant nesting density in alfalfa-orchard grass hayfields. Pheasant production has been much higher in the native grass pastures than in the hayfields because of mowing-related nest destruction in the hayfields. These warm season grasses can also be cut for a hay crop. However, they should not be harvested until early to mid-July and then should be cut no lower than 6 to 8 inches.

Other Land

This is a large mixed category of lands that holds a potential for pheasant use. Included in this category are roads, farm lots, building sites, woods, roadsides, fallow, crop failures, waste, and idle land. Included in waste would be marshes and sloughs, drainage ditches, and small patches in crop fields that cannot be cultivated. In general, this waste category is valuable pheasant habitat. Idle lands include those lands taken out of production by Federal Land Retirement Programs which can have great benefits for pheasants. There is a component of this other lands category that has been fairly stable at around 2.3 to 2.5 million acres. This fairly stable category includes roads, lanes, farm lots, building sites, woods, and waste. The remainder of the other lands category is land retired under federal agricultural programs. The acreage of retired land has fluctuated. This acreage was greatest during the 1961-1972 period (Table 6). However, there was a great deal of difference in the quality of this land as pheasant cover.

Table 6. Acreages taken out of production by federal programs in Iowa.

Year	Conservation Reserve	Set-Aside
1956	?[1]	0
1957	50,715	0
1958	73,369	0
1959	494,256	0
1960	663,087	0
1961	About same[1]	2,916,376
1962	585,805	3,454,705
1963	549,063	2,469,054
1964	202,071	3,628,225
1965	51,787	3,555,194
1966	49,846	3,422,532
1967	43,698	2,03’5,112
1968	40,000	3,834,452
1969	11,246	3,981,354
1970	158	3,589,909
1971	0	2,492,979
1972	0	4,117,889
1973	0	944,726
1974	0	0
1975	0	0

[1]Exact acreages could not be determined.

The Conservation Reserve Program was established by the Soil Bank Act of 1956. This program retired land for three, five, or ten years with permanent vegetative cover established on the land. Most of this land was seeded to a grass or grass-legume cover and left undisturbed for the duration of the contract. Land retirement in Iowa was greatest under this program from 1959 through 1964. Many contracts for this program expired in 1963 and 1964. By 1965 the acreage retired in this program was less than one tenth of the amount enrolled five years before. Even though this

Conservation Reserve land did not involve a large amount of land, it produced a great number of pheasants. The land retired under this program provided ideal nesting cover for pheasants. It is estimated that one-half million acres of this retired land produced between 600,000 and 750,000 juvenile pheasants into the fall pheasant population in Iowa each year.

In 1961 a program of annual, rather than long-term, land retirement was also initiated (Table 6). During 1961 through 1964 both annual and long-term retired lands were present in Iowa. From 1965 through 1973 the annually retired land accounted for over 95 percent of the land retired. Even though the 1961-1973 Set-Aside Program was based on annual renewal of contracts, the land diverted from crop production could have an annual cover crop, such as oats or sudax, or an established cover, such as grasses and legumes. A special survey of these set aside fields in 1972 found that 36 percent of the fields had established cover crops while 60 percent had annual cover crops. Most (75 percent) of the diverted fields with established cover crops were located in the southern two thirds of the state. Forty-eight percent of all the fields checked, both annual and established seedings, were destroyed before July 15.

While the annual land retirement program of 1961 through 1973 took a large amount of land out of agricultural production, it did not benefit pheasant populations as much, on a per acre basis, as the Conservation Reserve Program. However, the annual Set-Aside Program did have a significant beneficial effect on Iowa's pheasant resource. The Conservation Reserve Program terminated in 1970, and the Set-Aside Program ended in 1973. With the termination of these programs the amount of land retired from crop production in Iowa essentially declined to zero.

FARM PRACTICES

Larger Farms and Fields

Modern machinery makes it possible for one man to cover and uncover much more cropland. The trend toward larger farms and fields has accelerated in the past decade. The patchwork appearance of small diversified fields has been replaced with long unbroken rows, much more efficient to farm with present day equipment, much less desirable for pheasants.

Larger farms logically mean fewer farms; fewer farmsteads mean less winter cover available for pheasants. The farmstead usually begins to deteriorate soon after it is incorporated into a larger farm operation. Chain saws and bulldozers reduce the windbreak to a giant size bonfire, and buildings are moved or razed. The result is one less safe wintering area for ringnecks. This procedure has been repeated hundreds of times in a few short years.

Cleaner Farming

It is now feasible to accomplish more field work in the fall. It is not uncommon to observe a standing field of corn one week and see the same field plowed the following week. Combines, stalk choppers, and eight-bottom plows can do the trick. Beanfields are stripped bare at harvest time, and the final cutting of alfalfa removes the existing cover in those fields. The denuded field conditions impose extra strain on available winter cover. Blowing snow is whipped across the bleak, barren landscape into the winter cover. Drafts soon fill the marginal roosts and decrease the desirability of otherwise good quality windbreaks.

The practice of cleaner farming has also reduced the quality and quantity of early nesting cover. Residual cover along fence rows, ditch banks, roadsides, and odd corners can provide excellent sites for early nesting attempts. However, herbicides reduce the value of this potential nesting cover, and blowing dirt covers the vegetation. Too often, burning eliminates it completely.

NORTH CENTRAL IOWA AND THE WINNEBAGO STUDY AREA: A CASE STUDY

Pheasant studies of one kind or another have been conducted in north- ern Iowa for almost 40 years. They have provided great insight into the life requirements of this game bird and inadvertently provided a case study of pheasant populations in relation to changing agricultural land use. The earliest studies were undertaken in the 1930s, and the latest was completed in 1973. While studies have not been detailed every year, enough information has been gathered to present the picture of what has happened to pheasants and pheasant habitat in northern Iowa.

In the north central portion of Iowa, the percent of land in corn and soybeans has increased from about 30 percent in 1940 to about 80 percent in 1974. In this same period hay and oats acreage decreased from about 30 percent to about 9 percent (Table 7). The amount of land that had vegetation that was considered good nesting cover for pheasants did not change much from 1939 to the late 1950s. Good nesting cover was found on about 30 percent of the land in 1939, 31 percent in 1953, 25 percent in 1958, 13 percent in 1965, and 7 percent in 1972[22]. During this same time period there has been a downward trend in pheasant numbers (Figure 18). As less and less of the land provided safe nesting and wintering areas for pheasants, the pheasant population declined.

Table 7. Percent of land in each agricultural category in north central Iowa.

Year	Corn	Soybeans	Oats	Hay	Pasture	Other Land
1940	25.5	3.2	22.5	7.8	21.8	8.5
1945	35.1	11.6	18.5	7.3	18.9	7.6
1950	33.2	10.4	23.3	8.3	16.7	7.3
1955	36.8	10.8	19.3	9.9	15.5	7.3
1960	45.1	12.3	13.8	8.6	11.3	8.1
1965	36.5	21.0	6.1	6.6	9.8	19.4
1970	35.2	26.0	4.4	3.9	9.3	20.8
1974	45.0	34.0	4.3	3.4	8.0*	5.3*

*Estimated

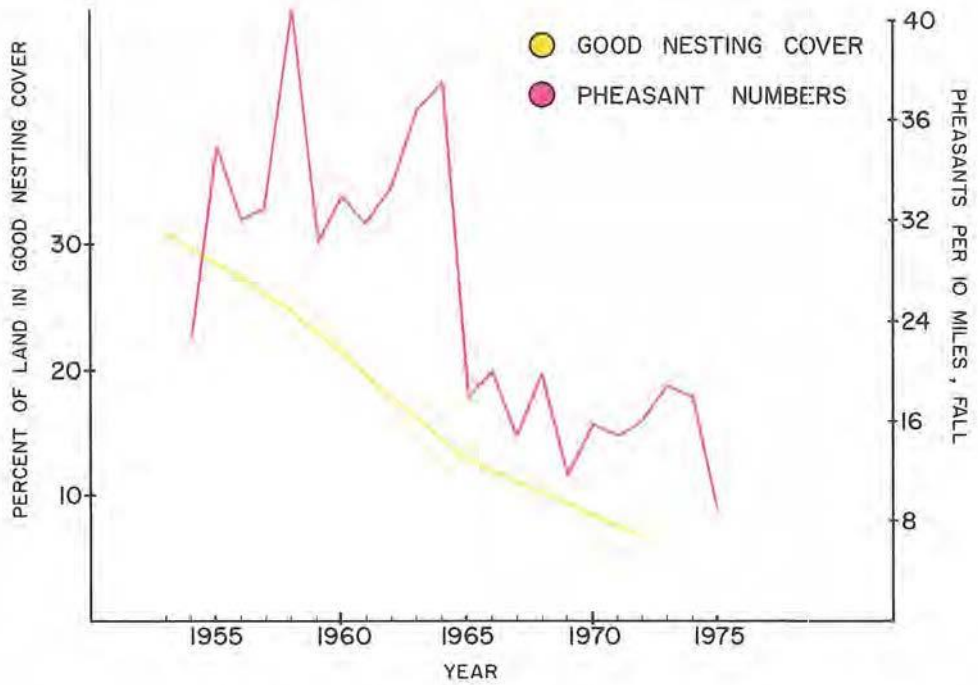


Figure 18. Comparison of the percent of land in good nesting cover and fall pheasant numbers in north central Iowa.

Changes on the Winnebago County Pheasant Study Area have been even more dramatic (Figure 19 through Figure 23). The percent of land in potential pheasant nesting cover has declined from about 59 percent in 1939-1941 to 14 percent in 1973. This has been accompanied by an increase in row crops, mainly soybeans (Table 8). Even the 14 percent potential nesting cover figure in 1973 is deceiving because almost 45 percent (96.5 acres of 217 acres) was in the annual set-aside program[23]. These acres were either left fallow (bare dirt), seeded with a light stand of oats, or seeded with sudax and plowed under. No nests were found in these set-aside oats in 1973[23]. The pheasant population on this area has responded to these changes in land use (Figure 24). With the Joss of nesting cover the pheasant population has

declined to extremely low levels.

Table 8. Land use on the Winnebago County pheasant study area expressed in percent.

	1939-1941[4]	1949-1950[5]	1954[6]	1967[7]	1973[7]
Row Crops[1]	31.2	45.1	46.8	72.8	81.5
Potential Nesting Cover[2]	58.7	45.6	47.6	22.5	14.3
Other[3]	10.1	9.3	5.6	4.7	4.2

[1]Includes corn and soybeans
[2]Includes hay, oats, pasture, fencerow, roadside, slough, and diverted land.
[3]Includes roads, lanes, farm groves and lots, gardens, cane, flax, barley, and straw stacks.
[4]Average of three years[20]
[5]Average of two years[2425]
[6]Endnote[26]
[7]Endnote[23]

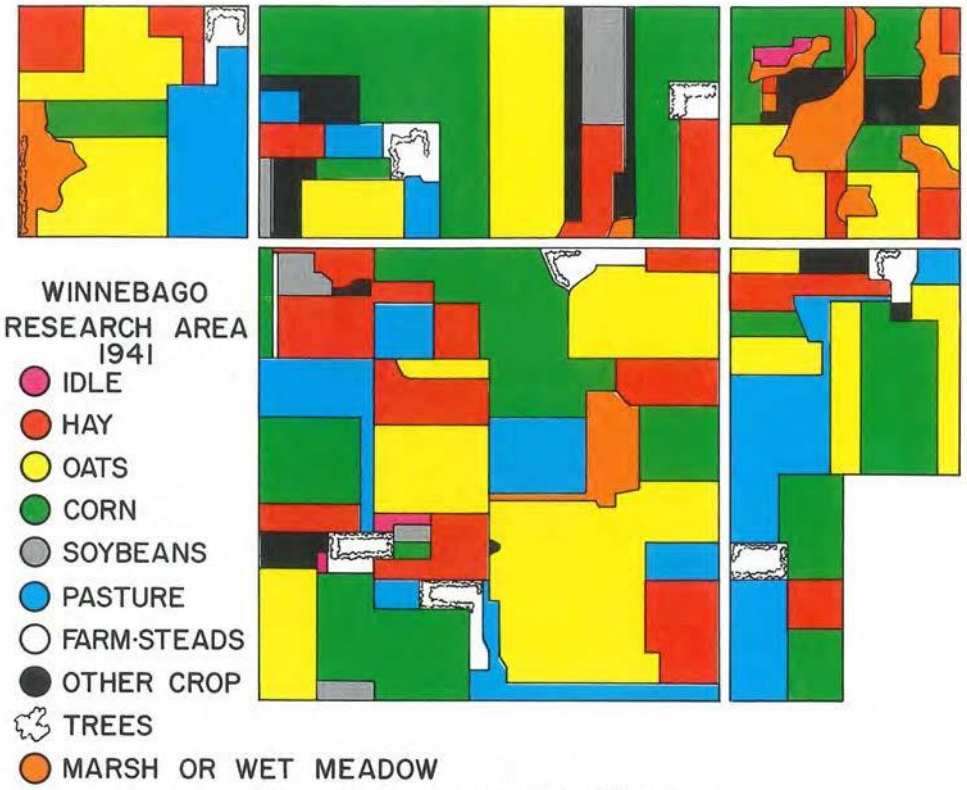


Figure 19. Cover map of the Winnebago pheasant study area, 1941.

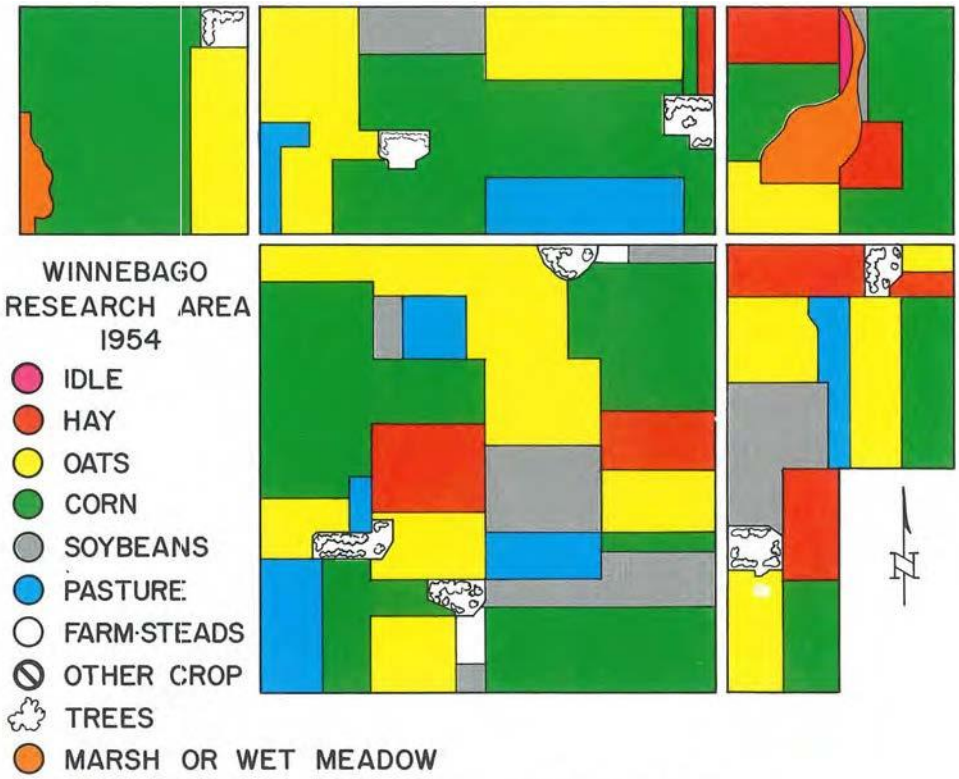


Figure 20. Cover map of the Winnebago pheasant study area, 1954.

Figure 21. Cover map of the Winnebago pheasant study area, 1967.

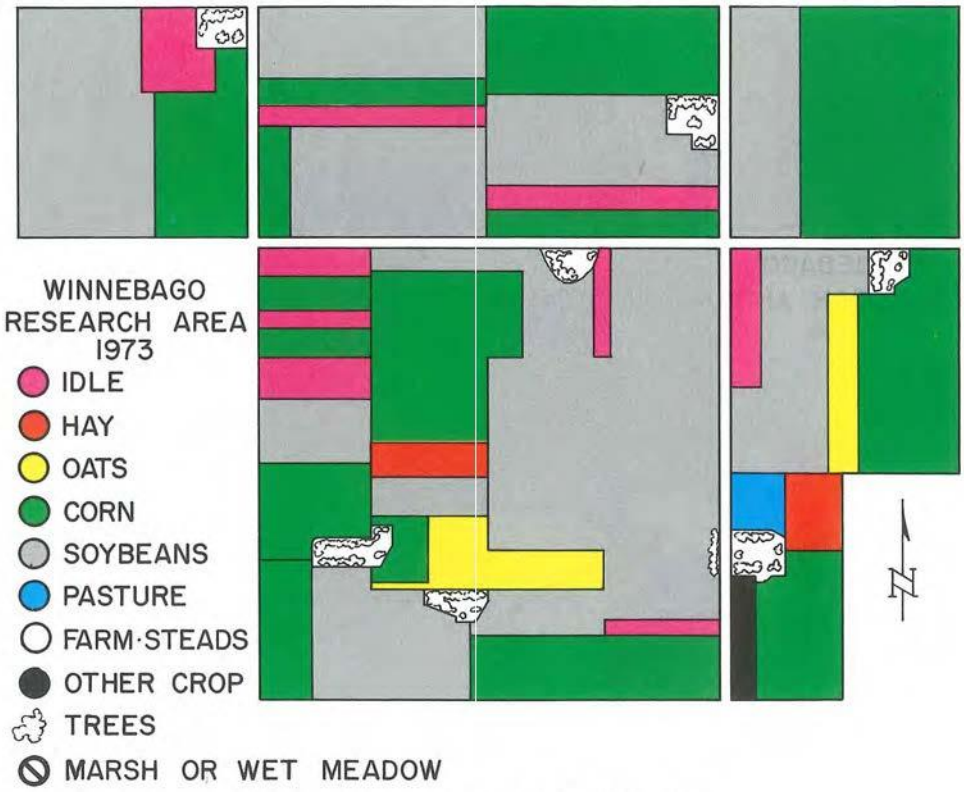


Figure 22. Cover map of the Winnebago pheasant study area, 1973.

Figure 23. Cover map of the Winnebago pheasant study area, 1976.

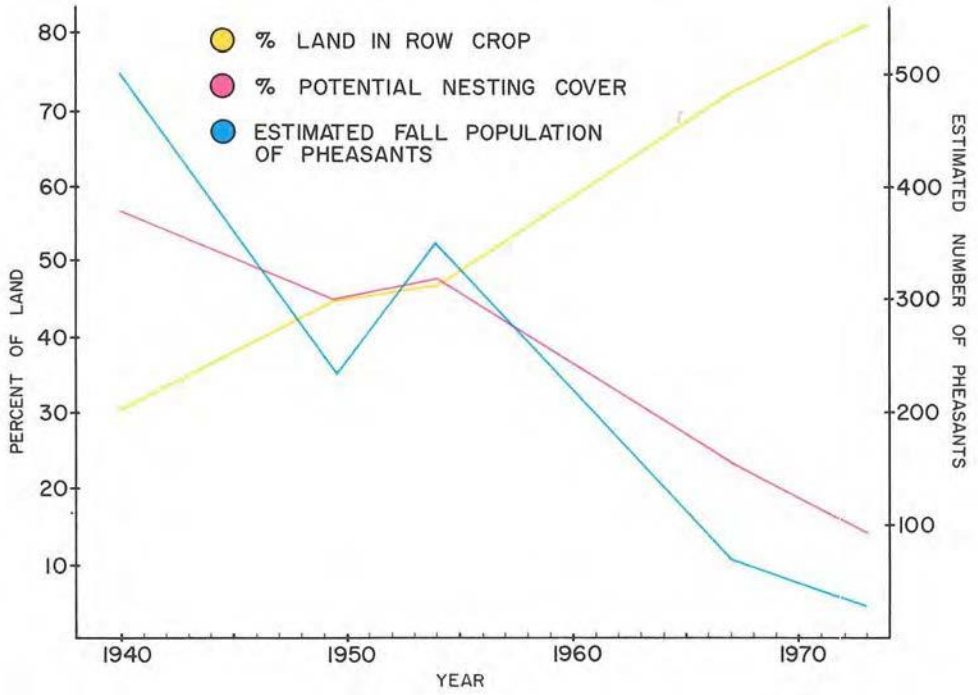


Figure 24. Comparison of the percent of land in rowcrops, potential nesting cover, and estimated fall pheasant populations on the Winnebago study area.

SUMMING UP

The ring-necked pheasant is a product of agricultural lands. However, there are certain crops, such as row crops, that do not currently provide suitable nesting habitat. Land use determines the habitat available to pheasants and controls the number of birds a given area is capable of supporting. Profound changes have occurred in the use of farm land in Iowa. Some, such as marsh and slough drainage, have been subtle while others have been very dramatic. However, all of these changes have affected pheasant numbers. Although marshes and sloughs occupied a small portion of the land, they provided necessary habitat for reproduction, brood rearing, escape, and winter cover. The losses of these and other waste areas have been detrimental to pheasant populations, particularly in northwest and north central Iowa.

The dramatic shift from rotation farming with hay, oats, and row crops to an almost strictly row crop agriculture has seriously reduced the available nesting areas. Land retirement provided high quality nesting cover when these programs utilized long-term land retirement. Recent programs of annual land retirement were beneficial to pheasants, but not as beneficial as land retired and left undisturbed for long periods.

Chapter 7
Winter Feeding-Does It Pay?

THE URGE TO HELP

When the first blizzards of winter howl down out of the north country, the pheasant's struggle for survival evokes a great deal of sympathy from those who only a few short weeks before were bent on putting him on the platter for Sunday dinner. A considerable number of people other than hunters share this concern for the ringneck's welfare in such adverse conditions. The most common outward expression of this concern is a call to feed the starving pheasants. If only the answer were so simple as this. Unfortunately, a deeper examination of the situation reveals that the pheasant's winter survival problems cannot be solved by winter feeding.

Actually, a starving pheasant is a rarity in Iowa; during most winters there are few, if any, birds in poor condition from lack of food. Pheasants, like all other creatures, do not live forever. Most small game, including pheasants, come to a violent end. They do not sit around and die of old age.

Occasionally a dead, emaciated pheasant that has somehow escaped other more sudden fates will be found. In most cases death was due to disease or some malfunctioning, either acute or chronic, of the bird's system. The pheasant is a very hardy bird and can scratch a living out of places where lesser birds might fail.

No doubt there is an instinctive desire in many people to do something, usually translated as feeding, for the poor animals who must suffer out in the cruel cold while the lucky humans sit cozily in their automatically heated homes. This

urge to help waxes and wanes quickly in most people according to the severity of the winter weather. Unfortunately, it is forgotten that the wild creatures living out in the snow and wind are the end product of ages of evolution through countless severe winters. If their particular species could not survive such winters, they would not be out there. Through the process of natural selection, survival of the fittest, or whatever term one chooses to call it, they have developed the ability to withstand the vagaries of weather to a sufficient extent to perpetuate their kind. It is true that some years the struggle for existence will be more difficult than in other years. But unless there are drastic changes in the overall environment, one can expect to see more of the species around when the weather improves in spring and summer.

MORTALITY AND STARVATION - NOT THE SAME

It is unfortunate, from the wildlife management standpoint, that so many people hold the belief that if pheasants are not fed through the winter, there will not be enough birds for a hunting season the next fall. This is not true. Never has there been poor pheasant hunting because birds starved the previous winter. There have been noticeable declines because of winter losses, yes, but winter losses and winter starvation are not the same. Many people do not recognize the difference between winter losses and winter starvation. The big winter losses result from severe blizzards that cause pheasants to die from freezing, suffocating, choking, or other aspects of exposure to blizzard conditions. These heavy losses take place in a short time, often a matter of hours. Starvation does not have time to begin to enter the picture. Thus, it follows that feeding the birds will not guarantee that they will be better able to survive winter.

Again, people must distinguish between winter mortality and starvation. Many things cause winter mortality, and in Iowa starvation plays a very minor part in it. Even in open winters with little or no snow or severe weather, there will be a sizable decrease in the number of pheasants by the time spring arrives. Figures from intensive research show that even in open winters at least a third of the birds present after the hunting season will not be around for the next spring's nesting efforts. In more typical winters this may approach a decline of one half. In the really rough winters the loss may reach two thirds or more. In 1965, for example, the well-remembered St. Patrick's Day blizzard killed half of the pheasants in northern Iowa within a span of a couple of days. The birds were in fine shape right up to the time of that storm, and winter feeding, either before or after, could not have saved those pheasants.

SOME LOSSES ARE NORMAL

A distinction between normal losses and abnormal losses must be made. The fact that around 75 percent of the hunting take each fall is young birds illustrates that there is a rapid turnover of individual birds in the population. This is the normal situation, and there is not much that can be done to change it. This has been true whether the population is hunted or not (assuming typical hunting seasons as now held). It is also true in widely different habitats in all parts of the country. Such facts of pheasant life must be accepted. One may be able to influence these normal losses to a slight extent through various management practices, but the basic pattern will remain the same.

There is a better chance to try to reduce abnormal losses, In Iowa, these losses are usually associated with severe blizzards. Therefore, better winter cover is the answer to minimizing this mortality. The problem lies in trying to provide this cover for the birds. It takes a long time to grow shrubs and trees to the size needed to protect pheasants from the winter elements. Most people are too impatient to embark on such a program. They want quick results, and to them winter feeding sounds like the panacea sought. Winter cover and winter food must go together. Neither can sup- port birds alone.

This then brings up the question of what to do if the usual situation of food being present but cover lacking is reversed. To date the situation of plenty of cover and no food has been unheard of in Iowa. However, the trend toward earlier harvesting of corn and extensive fall plowing of cornfields, heretofore the staple winter-feeding area of pheasants, may cause such a case. It is no longer unusual to see a farm windbreak capable of providing good pheasant winter cover surrounded by vast expanses of barren plowed ground.

If the farmer has a livestock feeding operation, those same birds that were so wild and hard to approach during the hunting season will shed their caution and come into the feedlot after grain. A pile of ear corn, a temporary crib full of corn, or even a regular crib if it is not too tight will provide food for the winter. Most winters have some reasonably open periods when the birds can forage through the fields to supplement what they can find around the farmstead. Birds can be seen out scratching in the plowed fields, and close examination will often reveal a considerable amount of

uncovered food in these fields. The more crop residue the farmer leaves on top when he plows, the better for the birds and the less wind and water erosion, too. Even soil experts do not recommend totally clean plowing.

ONE PLACE WINTER FEEDING MIGHT HELP

But what about the pheasant that selects the windbreak where the farmer has no livestock, harvests his corn with a picker-sheller, has the grain stored in tight steel bins, and plows every acre in the fall? If a long severe winter sets in with deep snow for months on end, this bird might well be a candidate for that rarity in Iowa pheasants - a starving bird. Unfortunately, these practices are more and more the trend in modern farming and will likely place an increasing number of birds in such plight with each passing year.

The question of the moment then becomes whether or not winter feeding of these birds will result in more birds next fall. If there is plenty of good safe nesting cover available in that vicinity in the spring, the answer may be a qualified yes, qualified because any winter feeding undertaken would have to be done according to rather strict rules or the entire effort may well be futile. What are some of the rules?

First of all, any effective winter-feeding program must be started early in the season. Pheasants are creatures of habit. To hold birds in an isolated windbreak with good winter cover, food must be available from the beginning of winter. Once the birds are used to having a food source available, they will continue to use that area. Some food should be available before the first severe winter storms hit. Otherwise the birds may not be able to find the food under the first snow. Such a program should be started soon after mid-December.

Second, feeding must be kept up constantly throughout the winter season. It is often the first of April before the snow from a bad winter melts. Such a winter would cover a period of about 100 days. When winter starts, there is no way of knowing whether it will be mild with little hardship on the birds or if it will be severe. Yet once the pheasant becomes dependent on artificial feeding, it must be continued.

Third, feeding locations must be properly chosen or designed. They should be in spots protected from prevailing winds so drifting snow will be at a minimum. Otherwise, drifting snow will soon cover any food provided and make it inaccessible. Overhead protection from avian predators should be provided, yet the site should be open enough that birds can readily take to the air to escape mammalian predators. It does not take predators long to learn where a concentration of potential prey is located; this is one of the bad features of winter feeding.

FEEDING PRINCIPLES APPLIED STATEWIDE

If feeding pheasants can be of help under the specific situation outlined above, could this practice be applied over the entire state if the need arose? Let’s take a look at just what such an undertaking would involve.

The winter-feeding period would extend from December 20 to the end of March, a period of about 100 days. A single pheasant would need to have about one-fourth pound of grain per day provided artificially if no significant amount of natural food were available. One assumes some food would be available from the wild at least at times during winter. Otherwise one-third pound per day would have to be provided. This means each pheasant would require 25 pounds of grain for the entire winter. If a particular farm windbreak harbored 40 pheasants, these birds would need 1,000 pounds, or approximately 18 bushels of shelled corn or ear corn equivalent which is the most logical food to provide. At a market price of $2.50 a bushel this would be $45 or $1.15 per bird.

There is one serious fallacy in these figures. The above computations assume that the birds get every bit of grain provided. Obviously, this is not true. Repeated snows and drifting would bury a lot of the grain and make it inaccessible at critical times. Squirrels, rabbits, mice, and other birds might actually consume more of the food than the pheasants would. To be safe, the amounts specified earlier should be doubled, putting the cost at $2.30 per bird, a conservative estimate.

In an average year there are about three million pheasants in Iowa immediately following the hunting season. At $2.30 per bird to feed them all, it would take about $7 million per year. Trying to feed the half of the birds that live in the northern part of the state would take more money than is currently received from hunting and combination licenses in

an average year. In order to add an extensive winter-feeding program on top of the current Conservation Commission wildlife program, it would be necessary to double the cost of hunting and combination licenses just to pay for the food.

The important fact is that the grain used is only a part of the cost story. The cost of manpower, vehicles, feeders, etc. needed to maintain such a program each year would be enormous. Some voluntary help would certainly be available from interested sportsmen and farmers, but a sizable crew of full-time employees would be needed to make sure everything was kept on schedule. Think of the number of different areas scattered over many counties that would have to be reached. Most pheasants would be in small flocks staying close to chosen winter cover. The food would have to be brought right to them; they would not fly to a feeder a mile away. These distribution costs would certainly be equal, and probably exceed, the cost of the grain. This would mean tripling current hunting license fees to make such a program pay its own way. Would hunters stand for a $15 a year hunting license knowing that two thirds of this was solely for winter feeding of pheasants? It seems doubtful, particularly in face of the fact that such a program would not result in a similar tripling of the pheasant population. What might be feasible for someone to carry out on one or a few small local wintering areas quickly becomes an impossibility if applied statewide. Think of it in these terms - three million pheasants requiring 25 pounds of grain each equals 1.3 million bushels of shelled corn.

MORE PERTINENT COMMENTS

Sentiment Again

Is there anything wrong with feeling sorry for the poor pheasants trying to scrounge a living from the bleak winter landscape? Why not give vent to the instinctive urge to throw a few crumbs to the birds? Actually, there is no objection to anyone engaging in winter feeding if they will understand and accept its limitations. Winter feeding activities can be a source of considerable pleasure to some people. The birds and animals that show up at feeding stations will provide interesting observations. They will add life and color to the landscape and enhance the opportunity to appreciate and enjoy wildlife.

The paramount fact to keep in mind is that in spite of this enjoyment, very seldom will these feeding activities have any influence on the number of pheasants found in the next spring's breeding population. In fact, if not carefully done, the end result can even be detrimental. Many well-meaning people spread their contribution along a roadside. To get to it, the birds must leave their protective cover and become subject to death by autos and predators. Too frequently persons who start feeding do not stay with it. When they quit, the birds are used to being fed and may be too far away from a good natural food source. If the birds stay where they are, they will be in danger of becoming weak and even of starving. If they leave to look for a new wintering area, they are subject to all sorts of perils - predators, cars, being caught in a sudden blizzard, or not being able to find a suitable area at all.

Do They Really Need This Help?

Why then, people sometimes ask, do the pheasants come to spots where food has been put out if they really do not need any? Pheasants are like people in some ways; they will take what is easiest to get. If a pile of corn is placed in front of them, why should they scratch all day in the field for a kernel or weed seed? Reports are frequently received in bad winters of starving birds being forced to the roadway to find a meal. Again, why should the birds dig through perhaps several inches of snow in the cornfield when the snowplow has bladed right down into the road shoulder and un-covered weed seeds and grain spilled from farmers' hauling activities? Body checks made of many birds killed while feeding along roadways almost invariably show they are in good condition.

Experiments in exposed pens show that pheasants can survive up to two weeks without any food even under rather severe conditions[27]. Birds held up to a month without food under not quite so bad weather still survive. The ability to survive long periods with minimum sustenance is a big advantage the pheasant possesses over smaller birds.

Occasionally individuals request that grit be distributed to the birds so that they will not die in the midst of plenty because they cannot digest the food they can find. Actually, there is no need for concern. The gizzard can retain grit for six weeks or more when no fresh grit is ingested. Experiments show that enforced abstinence from grit had no serious effects for ten or more weeks.

Since pheasants lose weight more gradually than smaller birds, they can stave off starvation for a while by subsisting on

low quality foods normally passed up[28]. If pheasants suffer a significant weight loss because of food shortages, they can quickly recover the lost weight as soon as the opportunity permits. The pheasant has a superior ability to withstand cold even when in poor flesh. Compared to smaller birds, it is less likely to become emaciated from hunger. Because of size and strength, the pheasant also has a distinct advantage when the food supply is covered by snow or ice.

Mortality of pheasants during severe winters is related to the distance of the food supply from good protective cover. Birds that roost in dense cover with available food that requires little ranging have the highest survival rate. Survival will be less in flocks that roost in dense cover but must range over long distances to find food. Losses will be greatest in flocks that roost in open, poor cover and have to range for some distance to locate a food supply. A pheasant's choice of winter cover in relation to a food source may well determine his chance of being around in the spring.

SUMMING UP

It is easy to see that winter feeding has many ramifications. In a few instances it might be worthwhile, in most it will not. If it is not done correctly, it will be futile. What may be feasible on a single small area becomes totally impossible, unwieldy, and expensive on a broad scale. If public interest could be channeled into wildlife habitat plantings rather than winter feeding, Iowa's pheasant population would gain long-term benefits.

Chapter 8
Stocking Pheasants - Should We Do It?

CONSTANT CONTROVERSY

Whenever the pheasant population suffers severe losses because of a blizzard, there is always a call to stock pheasants so there will be more next year. There are those who think the Commission ought to stock a large number of birds every year to increase pheasant population levels. Some people even think stocking for hunting is the answer to all of Iowa's pheasant problems. Wildlife biologists and game managers say that stocking is not the answer and that large-scale game farm operations are a waste of money. What is the true situation with regard to this stocking controversy? As with any question there are many sides and angles to consider; answers may vary on different aspects.

Invariably in the course of any argument the stocking advocate will bring up the point that pheasants originally became established in Iowa because of stocking. If stocking is the reason pheasants are here, then how can anyone say that stocking is a waste of time? Unfortunately, he recognizes no distinction between stocking for introductory purposes in unoccupied habitat and stocking for purposes of maintaining or increasing an existing population.

If there are areas remaining that have good pheasant habitat and the potential to support a population, but have no or extremely few pheasants, the idea of making introductory stockings may well be valid. In Iowa, this principle is being tested in the extreme southeast corner of the state. Here there are a few somewhat isolated upland areas that appear to have what pheasants need but do not support a population. However, most areas in Iowa within the limits of what is believed to be pheasant range already have sufficient numbers of birds to maintain the region's population at its pheasant-carrying capacity without supplemental stocking.

Most of the clamor for stocking, though, comes from localities that once had a high pheasant population, but which have experienced a noticeable decline in pheasant numbers. The obvious answer to many people seems to be to apply simple mathematics to the problem. If there are 50 pheasants per square mile in the fall where there used to be 200, just stock 150 birds. This assumption does not take into account the forces that caused the drop in numbers in the first place. Pheasant population levels are not just deter- mined by random chance. The concepts of carrying capacity, habitat needs, and reproductive potential have been covered in Chapter 5. These principles must be reckoned with

when considering any type of stocking program.

If numbers have declined because changes in land use have so altered the habitat that the section can support only this many, it will be futile to try to build the population by stocking more birds onto the area. If the reduction occurred because a severe winter wiped out half the birds and a cold wet spring cut the hatch in half, there is still no reason to stock as long as 50 birds remain. If quality habitat remains and weather is favorable, those 50 can rebuild the number to the original level in a short time.

If an area of good pheasant range has been entirely depopulated by an unusually severe blizzard, or more likely a series of blizzards, perhaps in conjunction with exceptionally unfavorable nesting seasons, there would be justification for restocking. However, in Iowa such a calamity has never occurred. Certainly, there have been some tremendous losses on a few occasions. For example, the winter of 1936, the Armistice Day storm of 1940, the St. Patrick's Day blizzard of 1965, and the blizzard of January, 1975, were all hard on local pheasant populations. However, even in these instances sufficient brood stock remained to rebuild the population to a level compatible with the carrying capacity of the habitat. The St. Patrick's Day blizzard of 1965 killed half of the pheasants in the heart of northern Iowa's primary pheasant range. Loss rates were even higher in some small isolated areas such as individual farm windbreaks where 90 percent or more perished. Unfortunately, this came in the midst of a declining population trend in this part of the state primarily due to the loss of much of the nesting cover. This sudden drop on the heels of the gradual decrease already at work brought the depressing picture into abrupt focus for people in that region.

The cry then erupted to do something for the pheasants in this area, first to shorten or close the hunting season, then to stock. The wildlife professional had foretold what was bound to happen in this increasingly more intensively farmed region. To him the eventual drop was inevitable. Just as evident was what was needed to reverse that trend, building the habitat back to its former carrying capacity. Unfortunately, that is not feasible or possible under the current trends in farming as discussed in Chapter 6. Again, stocking can play no useful role in trying to rebuild the pheasant population where adequate habitat does not exist.

QUALITY BIRDS?

When the wildlife novice talks about stocking pheasants, the implied assumption is that the simple act of putting a bird into the wild is a guarantee that the stocked bird will do as well as a wild bird. In actuality, this is one of the biggest loopholes in the whole stocking concept. Pheasants reared in captivity by private breeders and game farms are many generations removed from the wild. They are typically raised by modern mass production methods. Birds from this source may be fine looking specimens, but their ability to survive in the wild has suffered drastically. Experiments by wildlife agencies the country over and experiences of sportsmen's clubs have borne this out over and over again. The pheasant researcher has often heard the plaintive wail, "We raised 500 pheasant chicks, and turned them out, and they just vanished." Sometimes this is followed by a comment to the effect that they must have migrated or maybe they have

turned so wild they are staying well-hidden. Some of the released birds will move away from the stocked area. Some will find what meets their requirements within a short distance of the release point. A few will have such a case of wanderlust that they may turn up miles away. However, the refusal to face the fact that the birds simply did not survive only makes the task of switching to a constructive program more difficult.

The best indication of how well pen-reared birds survive after release has been obtained from band returns of marked birds. Each liberated bird has a numbered band with a return address affixed to its leg. When such a bird is bagged by a hunter or picked up by anyone, the band is returned and information compiled on time and place of release, where taken, how far moved, how long survived, etc. Most artificially reared birds are released in late summer or early fall when they are 8 to 12 weeks old, or about 2 months before the hunting season starts. There are instances where not a single band has been returned from a release of several hundred birds. It is not uncommon to find return rates of only 1 or 2 percent, and 10 percent is about the maximum to be expected under the best conditions. Of course, not every band that comes into someone's possession is returned to the original source, but even if these extremely low return rates are doubled or tripled, very low survival rates are still evident.

SOMETHING BETTER

After many years of poor results, State Conservation Commission wildlife officials decided in 1960 to abandon the program of hatching thousands of eggs from pen-reared brood stock at the State Game Farm and furnishing young chicks to private cooperators over the state for rearing and eventual release. Pheasants had been well established over most of the state's suitable range long before, and pouring additional birds into these areas proved a waste of time and money. There were no more birds present for the next spring's breeding season than there would have been without the stocking efforts. There were still some areas in southern Iowa that appeared to have potentially good pheasant habitat but very few or no pheasants in them. Pen-reared birds had been unsuccessfully stocked by local groups in some of these localities. Obviously, something better was needed if pheasants were to be established in good numbers in these southern regions.

Thus in 1961, most of the pheasant breeding stock of pen-reared lineage at the Boone Wildlife Research Station (name changed from State Game Farm to reflect the new approach) were released near Packwood in Jefferson County. They were replaced by wild-trapped stock from the booming southwest Iowa pheasant population in Union and Adair Counties between Creston and Greenfield. A few of the pen-reared birds were kept for experimental purposes, and others were kept to provide stock for the Wildlife Exhibit portion of the station. The contrast in behavior of these pen-reared birds and newly caught wild birds was striking. More interesting and of greater significance were the marked differences in the behavior of the chicks from the two sources. The young birds raised from the wild parents were far more wary than those of the pen-reared stock.

The rates of egg laying, hatching, and survival of birds under wire were less with the wild birds. On paper their reproductive performance was poorer than that of the pen-reared birds. However, biologists were interested in quality birds best able to survive in the wild, not ones that could give impressive production records in captivity. The type of bird that shows the most resistance to captivity will be best able to survive outside the confining pens. The tame, contented ones that will give the breeder a lot of eggs and chicks and no trouble might best be aimed for meat production or some purpose other than restocking wild environs.

THE SOUTHEAST IOWA EXPERIENCE

When the pen-reared birds from the State Game Farm were eliminated in 1961, an experiment was set up to compare their survival ability with the wilder stock soon to replace them. An area in northwest Jefferson County near Packwood was selected, and 680 birds (277 cocks and 403 hens) were released within a limited area. These were beautiful birds. They were put out under perfect conditions in late March just at the start of the breeding season. With everything in their favor, they produced several broods that first summer. But long-term survival of both adults and young was very poor, and by midwinter a check of 7 square miles encompassing the release area turned up less than 100 birds. By the end of the second year, there was no remaining significant effect of this stocking effort.

Releases of young pheasants from wild parents were begun the following year on a similar area near Winfield in Henry County (Figure 25). These birds were referred to as F_1's because they were the first generation from wild stock. Over a

period of 5 years (1962-1966) nearly 7,000 F_1 birds were liberated in this region centering around Winfield (Table 9). Survival rates were good, production of young was very encouraging, surveys made at all times of the year turned up sizable numbers of birds, and the results to date have been much different from results from the pen-reared stock. This southeast Iowa pheasant range extension program was continued from 1967-1969 in the four-county area composed of northwest Jefferson, northeast Wapello, southwest Keokuk, and southeast Mahaska Counties. During this three-year period, 1,955 cocks and 6,895 hens were released at 23 different places in the four counties (Figure 25).

In 1970-1973, the range extension program emphasis was shifted to stocking suitable upland areas that were rather isolated. Stockings were made in Lee, Appanoose, Davis, and Van Buren Counties in 1970, 1971, 1972, and 1973, respectively (Figure 25 and Table 9). In all of these areas a large number of birds was stocked at one time in a very limited area.

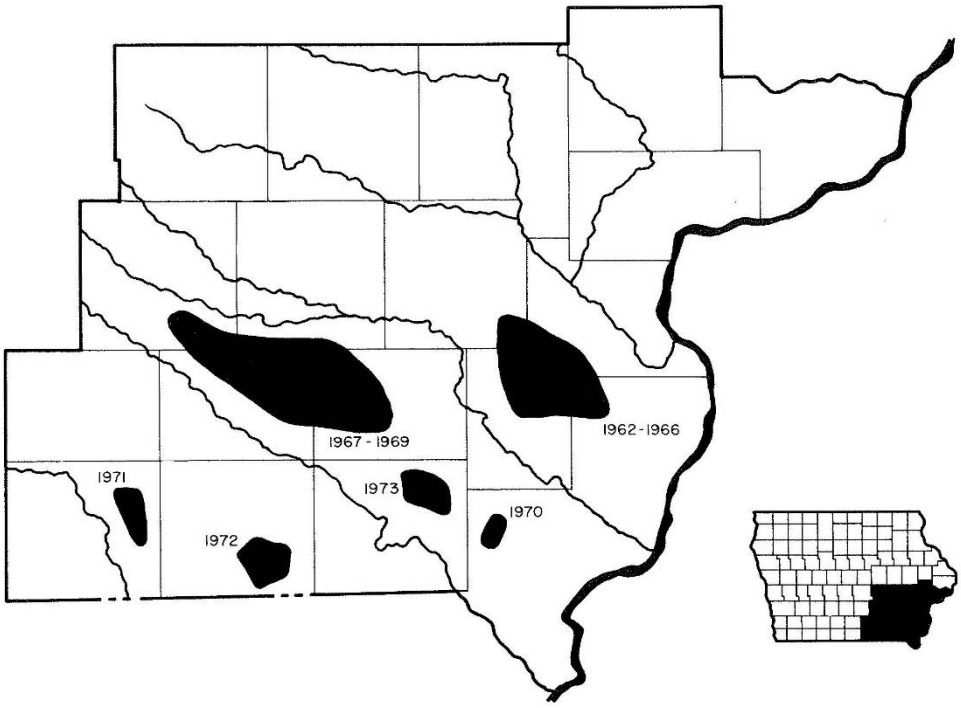


Figure 25. Areas stocked with F_1 pheasants in southeast Iowa.

More time will have to pass before a final judgment can be rendered on these first-generation-from-the-wild releases. There may yet be some unknown factor in the southern Iowa environment that will prevent pheasant populations from getting a permanent foothold in some portions of this range, but the experiment has at least proven that birds reared and stocked under this type of a program are of far higher quality than the typical game farm bird. While the F_1 birds are not as desirable as wild-caught birds transplanted directly from their native area to the one to be stocked, wild-trapping on the scale required to duplicate this F_1 stocking has thus far proved both impractical and unpopular.

Through the efforts of this program the pheasant hunting area has been expanded in southeast Iowa. In 1967 the Winfield area was opened to hunting, and the four-county area stocked in 1967-1969 was included in the open zone in 1971. Offspring from the successful release around Udell were first hunted in 1974. The remainder of this southeast corner was open to pheasant hunting during the 1976 season.

Table 9. Number of pheasants stocked in southeast Iowa, 1962-1973.

Area	Year	Season	Cocks	Hens	
	1962	Late April	19	-	(Excess adults)
		Mid-July	18	165	(Old brood stock)
		Early October	325	400	(Young)
		Mid-December	225	-	(Excess young)
			661	**565**	
	1963	Mid-March	77	-	(Excess adults)
		Mid-June	17	195	(Old brood stock)
		Late October	535	462	(Young)
			629	**657**	
Winfield	1964	Mid-June	22	10	(Old brood stock)
		Late December	422	403	(Young)
			444	**413**	
	1965	Spring	37	10	(Old brood stock)
		Early October	720	500	(Young)
		Early November	135	119	(Young)
			892	**629**	
	1966	June	26	137	(Old brood stock)
		Fall	537	1,528	(Young)
			563	**1,665**	
		Total	**3,189**	**3,929**	
4-County	1967	Fall	847	2,119	(Young)
Jefferson	1968	Early Fall	506	2,558	(Young)
Wapello Keokuk Mahaska	1969	Late September & Early October	602	2,218	(Young)
		Total	**1,955**	**6,895**	
Mt. Hamill Lee County	1970	September 30- October 14	466	1,954	(Young)
Udell Appanoose County	1971	October & November	498	2,353	(Young)
Bloomfield-Pulaski Davis County	1972	Late September	140	580	(Young)
		Mid-October	285	532	
		Total	**425**	**1,112**	
Stockport VanBuren County	1973	Early October	593	1,142	(Young)

LIMITED VS. MASS STOCKING

One thing to keep in mind when stocking birds is that all of them cannot be expected to survive, or even many for very long, no matter what the circumstances. After all, the rate of turnover in a wild population is quite high; about three quarters of the wild birds will not live past their first year. It would be foolhardy to think that artificially reared birds turned loose into strange, hostile surroundings would do better.

Mathematics can quickly show the futility of making releases of small numbers of pen-reared stock. For example, suppose 500 chicks are obtained from a state game farm or private breeder. With some luck, 400 of these will be raised to 10 weeks of age. At this point it is decided to stock these birds on eight farms scattered over a township. This makes 50 young birds for each farm which sounds like a good number. What happens to these birds?

First, the young chicks do not know they are supposed to stay inside a certain set of fences. A few may strike out at random and turn up miles away, but for sake of argument, let's say none of them moves more than 2 miles away from the release point. Therefore, there are 50 birds within a circle 2 miles in radius, an area of approximately 12 square miles. The 50 are liberated in late summer or early fall in a ratio of 25 cocks and 25 hens just as they came from the incubator. This is an effective initial stocking rate of 2 cocks and 2 hens per section.

They will be subjected to the same pressures between then and next spring's nesting season as the wild population. However, they will be far more vulnerable than their wild counterparts. To give them a chance, assume that hunting pressure is minimal. The farmer posts his land and talks some of the neighbors into doing the same for a year to help give the birds a good start. However, road hunters and those hunting on other farms in the area manage to pick off half of the young cocks and also get one of the hens by mistake. This leaves 12 young roosters and 24 hens to face the rigors of winter. The wild population typically suffers about a one-third decline over the winter months. It is safe to assume that the pen-reared stock would experience more than this. A conservative estimate would be that half of them are lost by spring. Only 6 cocks and 12 hens remain. This is for 12 square miles of habitat, one hen for each section and a rooster for every other one.

If they were wild birds, these 12 hens would produce about five broods considering losses to hay mowers, nest predators, and other interfering factors. With the average brood size at six chicks, this means only 30 chicks would be produced on these 12 sections. Fifteen of them would be hens, or barely more than one hen chick for each square mile. Follow this same reasoning for a couple more cycles, and it can soon be seen that there is no hope of building a sizable self-sustaining population from such an effort. This is in spite of the fact these birds were given the benefit of several assumptions that from actual experience were far too liberal. First, all birds lived from release time to the start of the hunting season while band returns and actual surveys show that most of them do not. Second, half of these survived through the winter; field evidence shows most do not make it. Last, predators are not even mentioned. They usually have a field day with these unwary birds and can account for a major reduction in their numbers. Consider all these obvious factors, and the pheasant researcher can come up with less obvious ones, and one can see why the indiscriminate, random stocking programs of the past have contributed little.

Then, how did pheasants establish here in the first place? For one thing, many of the birds stocked back in the early 1900s were not as far removed from wild stock as those stocked today. They were usually reared in more primitive set-ups than those of the larger scale modern game farm of today. Thus, they were, on the average, probably better quality birds for the wild than their pen-reared counterparts of today. The habitat into which they were liberated was far more favorable than that present today. There were still countless sloughs and wild meadows over much of the state. Farming was done with horses. Hay was mowed later in the season with horses, not with high-speed tractors. Corn was picked by hand, and winter food and cover were available in thousands of acres of such fields. Herbicides were unheard of, so weed seeds were more plentiful. Weed patches furnished good cover. Fields were smaller and fencerows greater in number and width. The pheasant came onto the scene at an opportune moment and made the most of it. If some calamity were to wipe out every last pheasant in the limited habitat of the northern Iowa range, it might be very difficult to re-establish the species with anything less than massive transplants of wild birds.

Speaking of massive transplants brings up another facet of the Commission's southeastern Iowa stocking experiment. Recognizing that the rate of loss of stocked birds, even the first-generation-from-the-wild chicks, would be high, biologists used mass stockings. Hundreds, even thousands, of birds were released on the same area. The average effective initial stocking rate in southeast Iowa was about 8 cocks and 28 hens per section, instead of the 2 cocks and 2 hens per section of the earlier example. Since these birds were of better quality and more closely resembled wild birds, they were able to sustain their numbers long enough to reach the carrying capacity of the area for pheasants. At that point the usual forces control- ling ups and downs in wild populations controlled future numbers. So far this. has worked well in practice.

PUT AND TAKE

Suppose the pheasant buff finally concedes that he is not going to help increase the local population by stocking, but he still would like to have more birds to shoot in the fall. Can stocking do anything worthwhile in this regard? From the

standpoint of putting birds in the bag, the answer is yes.

As mentioned earlier, studies show that the rate of return on birds around 10 weeks of age released 3 months or so ahead of the hunting season usually runs well below 10 percent. This percentage increases as the release date approaches the opening day of hunting. The best return naturally is achieved on birds stocked the morning the season opens. If there is a lot of hunting pressure, as on a state wildlife area, over 90 percent of the released birds might reach the hunter's bag. However, most of Iowa's public hunting areas are not big enough to keep these birds within their boundaries, and these areas do not get heavy enough hunting pressure to bring about this high a return. According to results in other states, a rate in the 50-75 percent range would be more realistic from this type of under-the-gun release. This would be only on the opening weekend or two in Iowa's case.

Those rates of return sound good enough to justify such a program. However, somebody has to pay for such programs. First, it costs money just to raise the birds to release age. Just to get them up to 10 weeks of age will run over $1.00 per bird. The cost will more than double if the birds are held up to the opening day of the hunting season. However, the true cost must be figured on the basis of the birds bagged, not those raised. In 1963 the State of Colorado queried other states on their game farm costs. The average cost per bird bagged was $8.63, with a range of $2.51 to $25.00. With today's ever increasing costs, the figures would be higher, no doubt averaging perhaps $15.00 to $20.00.

This cost is a lot when the cost of today's hunting license is considered. There are over a quarter million pheasant hunters in Iowa. To add one bird to each season bag would require hatching over one million pheasants because half would be hens and only half of the roosters would be bagged if released opening day. If 250,000 released pheasants were bagged at a cost of $5.00 each, it would take 250,000 pheasant hunters each paying $5.00 for a hunting license to pay for this program. Currently, a hunting license costs $5.00. This means it would take every penny of license money collected from pheasant hunters to raise and bag one pheasant for each of these hunters. However, the average cost in 1963 was $8.63 no doubt today approaching $15.00 to $20.00. That means each pheasant hunter would pay three or four times his current license fee just for pheasant rearing and stocking. This would leave no money for other wildlife management activities. Since many hunters would not be in a position to take advantage of such a program, a small portion of the hunters would reap the benefits.

The average kill of wild birds in Iowa runs between one and one-half million cocks, sometimes more. Thus, this expensive program could at most add 15 to 20 percent to the total bag. Furthermore, these birds would be a less sporty bird, a matter of concern to those who like quality in their hunt. Some will say that the figures are prejudiced because there is no allowance for carry over of the 50 percent of the birds not bagged. Suffice

it to say that a band return from a cock the second season after his release is such a rarity as to warrant a celebration.

However, several steps could be taken to make a "put and take" pheasant program more cost effective. First of all, the program would be limited to three or four state-owned and operated put and take shooting areas rather than indiscriminate releases statewide. Second, both cocks and hens could be reared, released and harvested on these areas. This would reduce the amount of breeding stock required from the number needed if cocks only were to be hunted. Third, the birds would be released periodically over the season with notice given to the public before each release. Fourth, the users of such areas would be required to pay a fee adequate to cover the expenses of the program.

FINAL ANALYSIS

The stocking question when examined from all angles is not a simple matter. Under certain very restricted, well-defined, and controlled conditions it may be a useful tool in pheasant management. These situations will be the rarity, however. The decision as to when such justifiable occasions arise should be left to the professional wildlife biologists who spend full time studying such matters in depth. The indiscriminate "raise some birds and turn them loose" philosophy should be recognized for what it is, an emotional appeal. The concern for wildlife is a good one; it should not be wasted on panaceas that are doomed to fail.

Chapter 9
Managing the Land for Ringnecks

Past history shows that the fertile Iowa lands have the capability to produce pheasants, pheasants galore. However, the actual number of birds present on the land is determined by how that farm land is used. The long-term population trend is determined by the amount of habitat available, and in Iowa that means privately-owned farm land. Detrimental or favorable weather conditions either in the winter or during the reproductive season can bring about dramatic short-term population changes; however, over the long run the quality and quantity of habitat available will deter- mine the population trend. More intensive land use in the cash grain part of Iowa has resulted in a dramatic reduction in pheasant habitat and pheasant numbers. Other regions with more diversified farming practices contain more and better habitat and good to excellent ringneck populations. But the gradual and continuous erosion of favorable pheasant habitat can have only one result, fewer pheasants.

To have more pheasants, land use changes must be made to provide more and better habitat instead of less and poorer habitat. Closing the cocks only season, eradicating predators, stocking more birds are not generally the answer. Farm land and its use are the keys to the Iowa pheasant's future.

It is much easier to talk of managing the land than actually doing it because only about two percent of Iowa's land is in public ownership. Most of the remaining 98 percent is kept busy providing a livelihood for the owner. This points out a basic dichotomy in pheasant management, that is public land and private land. What can and is used as a standard pheasant management practice on public land is totally impractical for use on private land. Pheasants are a farm byproduct; therefore, management of pheasants on private land must either benefit the farmer or at least not conflict with his farming operations.

NESTING COVER

Pheasants require an abundant and well-distributed supply of safe nesting cover. On the average, one successful nest will be produced for every four or five acres of top-quality nesting cover. As mentioned in more detail before, the ringneck has a high annual population turnover that requires successful reproduction each year to replace lost birds.

On state managed wildlife areas, safe, secure nesting cover is provided by hay, oats, and semi-permanent grasslands. Hayfields on these areas are not to be cut for hay until mid-July, if at all. Semi-permanent or long-term rotational grasslands are left undisturbed for three or more years. All of these practices provide abundant undisturbed nesting cover on state-owned lands.

Management of privately-owned lands is quite another matter. The greatest boon to pheasant numbers has been land taken out of agricultural product ion. These "idle acres" have been the result of drought in the 1930s, low prices in the early 1940s, and government programs in the late 1950s, 1960s, and early 1970s. Probably the highest pheasant numbers that ever occurred in north central Iowa were in 1940-1942 with very good populations in 1939 through 1945, before the tractor brought intensified agriculture. The contribution that government retirement of land for more than a single year can make to pheasant production was dramatically shown during the Soil Bank days of the late 1950s and early 1960s. Iowa's best pheasant populations in recent years in the intensively farmed areas occurred during the period of 1958 through 1964 when there was a large acreage of Conservation Reserve fields under long-term contracts. After initial establishment of the cover crop, most of these fields were essentially undisturbed. This lesser amount of high-quality undisturbed nesting cover more than offset the loss of oat, hay, and pasture acreage.

The most recent government programs, which ended in 1973, were built around annual rather than long-term land retirement. While these annual programs were of some benefit to pheasants, they did not measure up to the Soil Bank. A special survey conducted in Iowa in 1972 found that 60 percent of the set aside fields were new seedings and 50 percent of these were mowed prior to July 15. These new seedings of oats were seeded later and at a lighter rate than oats used for a crop. These set aside fields were not high-quality nesting cover. Old established seedings made up 36 percent of the fields surveyed, but 43 percent of these were mowed prior to July 15.

Federal land and retirement programs that reimburse the farmer for taking land out of row crop production can be of great benefit to pheasants. These idle lands with established undisturbed nesting cover produce 1.2 to 1.5 young pheasants per acre into the fall pheasant population. If 2 million acres were to be established, about 2.4 to 3 million young pheasants would be produced on these acres each year. In newly seeded set as ide oats that are mowed, only 1 young per 6.3 acres is produced into the fall population. It would take about 19 million of these acres to produce 3 million young pheasants for the fall population.

Oats seeded for a crop (left vs. oats seeded on annual set-aside land (right.

Government agricultural programs have a significant effect on Iowa's pheasant population and provide the only mechanism for management of large acreages of nesting cover on private land. State agencies and individuals simply do not have funds for programs of this magnitude. When government programs exist, every interested individual and worker in the conservation field should help promote and encourage long-term land retirement so that the extra wildlife benefits of the programs may be realized to the fullest extent.

Roadsides

Iowa's network of primary and secondary roads is bordered by a large supply of potential nesting cover. This well-distributed production habitat consistently supplies from 15-25 percent of the total hatch each year. Although the total acreage is small, nest density in roadsides is usually quite high. The quality of roadside cover has a great deal to do with the number of pheasants produced in that cover. A recent study in east-central Iowa on Interstate 80 roadsides found that along 74 miles (37 miles on each side) of roadside about 1,000 juvenile pheasants were produced into the fall population[29]. This amounted to a production of about 3.2 juvenile pheasants per acre of right-of-way that was searched for pheasant nests[29].

Management recommendations to improve hatching success in roadsides are very simple - leave the roadside vegetation undisturbed (no mowing) until initial nesting attempts have time to hatch. The Highway Division of the Iowa Department of Transportation has long recognized the value of nesting cover along primary roads and consequently has cooperated with the Conservation Commission by not mowing the cover until after July 1. All County Boards of Supervisors should agree to delay mowing or spraying to help increase the value of this nesting cover. Interested citizens should encourage the supervisors to take this action. However, the individual farmer is the one who can do the most for pheasants nesting in roadsides by not mowing. The appearance of ragged edges along the roadside can be taken care of without disturbing or injuring nesting hens by clipping the immediate shoulder with the sickle bar parallel to the road bed. This practice will also prevent the plant growth on the shoulder from catching snow and causing drifting across the road in winter.

Blanket spraying for weed and brush control on all roadsides is ex- pensive and unnecessary. Spot spraying of troublesome weed areas would cause less disturbance of the much needed nesting cover along roadsides. Burning of residual cover in late fall or early spring further reduces an already limited supply of early nesting cover.

Excellent brome-alfalfa nesting cover along a county road.

SAFE WINTER COVER

A good quality windbreak represents the difference between life and death for many ringnecks in northern Iowa. Following the first snowstorm each year, concern is voiced about the pheasants' welfare; however, once the storms begin, it is too late for action. Birds without adequate cover are lost while those in safe cover survive. Pheasants are hardy game birds and can easily withstand the rugged winters if proper cover is available.

By far the most important shelters for wintering pheasants are the numerous farm windbreaks in the northern half of Iowa's pheasant range. These windbreaks are designed to protect the farmstead from the frigid winter winds that sweep across the plains. There are several Agricultural Conservation Program (ACP) practices designed to improve farm windbreaks. This program, administered by the Agricultural Stabilization and Conservation Service (ASCS), provides cost-sharing for the landowner. With fewer farmsteads and cleaner fields, the value of farm windbreaks as wildlife shelter will increase. Habitat improvement is a long-term investment; results will not be apparent for several years. But the need is evident, and these programs provide the opportunity for all interested persons to share in the responsibility to provide a safe winter home for pheasants.

These ACP practices usually have minimum requirements as to the number of rows of shrubs that maybe planted around existing windbreaks. Federal cost-sharing varies. It may provide 80 percent of the cost of shrubs and preparation of the seed bed. Planting will be paid by the county ASCS committee. There is usually a maximum limit on how much money can be spent on each project farm.

Other programs provide cost-sharing to plant new windbreaks around the farm buildings. Many farm windbreaks are beyond the stage of potential improvement and need to be replaced. Again, a minimum number of rows must be planted under this practice, and there is a maximum amount of cost that will be shared per project. It is usually recommended that the outside rows be planted to shrubs while the interior rows are planted with trees. If a new windbreak is planted, there are several factors which are important to pheasants. First of all, cover must be close to the ground. Evergreens surrounded by two or more rows of shrubs would provide the optimum cover for pheasants during winter storms. At least two rows of shrubs should be planted around a new windbreak if deciduous trees are used in the

windbreak.

Farm Game Habitat Program
A number of farm game habitat areas are planted each year by the Iowa Conservation Commission. Pittman-Robertson funds are used to finance this program on privately-owned land. These areas, planned by the Wildlife Section, are designed to provide both winter cover and safe nesting cover. The landowner provides the land; the rest is furnished by the state. Many farms contain small wet areas or odd shaped plots not easily worked that can be developed into excellent wildlife areas. District conservationists for the Soil Conservation Service or biologists for the Iowa Conservation Commission can provide helpful advice about how to plan such a wildlife area.

YES, BUT WHAT CAN I DO?

Remember the Basics
Pheasants must have top quality habitat in sufficient quantity to maintain high populations. Given the choice between abundant top-quality nesting cover and little winter cover or abundant top-quality winter cover and little nesting cover, wildlife biologists would choose the nesting cover. Safe, undisturbed nesting cover is needed in most of Iowa's pheasant range. Federal land retirement programs provide the greatest potential for increasing pheasant populations on private land. Everyone interested in pheasants should pro- mote and encourage the adoption of a long-term (3-5 years) land retirement program if agricultural production must be limited.

Everyone concerned with the welfare of pheasants should encourage county supervisors and local landowners not to mow secondary roadsides and limit spraying to spot treatment. Interested parties should commend the Highway Division of the Iowa Department of Transportation for leaving highway roadsides undisturbed for nesting pheasants.

Odd or hard to farm areas could be devoted to pheasant nesting cover through several government conservation practices. Local citizens could encourage landowners to devote such lands to wildlife.

The improvement of existing farm windbreaks and establishment of new ones have been very popular ACP programs. They not only help pheasants but keep blowing snow out of yards and improve the appearance of farmsteads. Every farm needs a good windbreak. This project usually requires clean-up work before planting and care after the trees and shrubs are set in place. Proper care of a new planting will result in much better growth and survival.

Food Patches
Another ACP program provides cost-sharing for the establishment of wildlife food plots. By careful planning, this project would also provide winter cover for pheasants. A one-acre patch of standing corn next to a windbreak would make an excellent winter cover area. A patch of standing corn on the south slope of a hill would be adequate during most Iowa winters and could be developed in only one year.

By this time, every reader should have a pretty good idea of what pheasants need for a favorable environment. Every pheasant hunter should also realize that habitat conditions vary a great deal between regions of Iowa's pheasant range. Suitable habitat can be present on one section and absent on the next.

Twenty years ago, each one of Iowa's 200,000 farms was a diversified farm and provided adequate living conditions for ringnecks. Today, there are 130,000 farms, and many of these are classed as cash grain farms which lack the necessary nesting cover. To improve habitat for pheasants, one must be aware of existing conditions in relation to the basic requirements of pheasants. Pheasant cover, which was provided incidentally by agriculture 20 years ago, must now be planned and developed for a specific purpose.

Begin with a careful evaluation of the farmland in an area. Check the quality of winter cover during the worst part of winter to see if it is adequate. Nesting cover can only be checked during the peak of nest establishment, usually in May. Always keep in mind that the home range of pheasants is a relatively small area.

Meet with Conservation Employees
It would now be helpful to discuss your findings and ideas with a qualified conservationist in your area. Contact the

Wildlife Management Biologist, Conservation Officer, or representative of the Soil Conservation Service; their experience and knowledge will help guide you in the right direction.

Access to Land

Landowners, quite naturally, have the best opportunity to improve pheasant habitat on their farms. Many farmers like to hunt or have pheasants around for their relatives and friends to hunt. Some just like to have the birds around; pheasants have been a part of the Iowa farm community for over 50 years.

There are many others who would welcome some help with the extra work and expense of developing cover for pheasants. Individuals or interested groups should have little difficulty finding a cooperative landowner if he knows you are willing to work and share the cost. The cost is not great; ACP projects are cost-shared up to 80 percent.

Chapter 10
Ringneck Hunting That Ranks with the Best

The status of Iowa's native game birds has changed a great deal in the 20th Century. Prairie chicken hunting in Iowa was terminated in 1916, and the season has remained closed. In retrospect, adequate breeding populations of prairie chickens remained in many areas at the end of World War I, and hunting could have been allowed. However, the required stands of undisturbed grasslands disappeared at a rapid rate, and the last authenticated booming ground was recorded in Appanoose County in 1955 when one cock was present where 10 had been the year before[30]. The bobwhite quail season was also closed in 1916 and remained that way for 17 years until 1933. Ruffed grouse were not placed back on the hunting rolls until 1968, after a closure of 45 years[31]. Iowa turkeys were apparently exterminated by logging and overhunting in the late 1800s and early 1900s. The last authenticated record of a native wild turkey was from Lucas County in 1910[32]. However, a successful reintroduction program has brought the wild turkey back to the Hawkeye State with the first modern season held in the spring of 1974. Despite the ups and downs of the native game birds, the ring-necked import with the brassy disposition provided excellent hunting for Iowa upland game hunters.

THE ORIGINAL (1925)

In the fall of 1925 Iowans first took to the fields in pursuit of the bird that has become the most popular game animal in the state, the cock pheasant. That first year thirteen counties in north central Iowa were opened to pheasant hunting 24 or 25 years after the first known release of this beautiful exotic (Figure 26). Hunting was permitted for 3 days from October 20-22, starting one-half hour before sunrise with a daily bag limit of three cocks.

While records do not clearly show how the original 13 counties were chosen, the records indicate a definite difference

of opinion about whether the season should be open or not. One thing was certain, however; pheasants were indeed plentiful in many areas. Official records show that 60,000 eggs were gathered and 7,000 wild pheasants trapped in Winnebago and Butler Counties for plantings in other parts of the state in 1925. The State Game Warden received a petition signed by 150 Hancock County farmers requesting that Hancock County be opened to pheasant hunting because of crop damage. One farmer near Garner invited people to come to his place and shoot pheasants according to a local news item in the **Garner Signal.** He stated that his farm was overrun with pheasants and they were a nuisance.

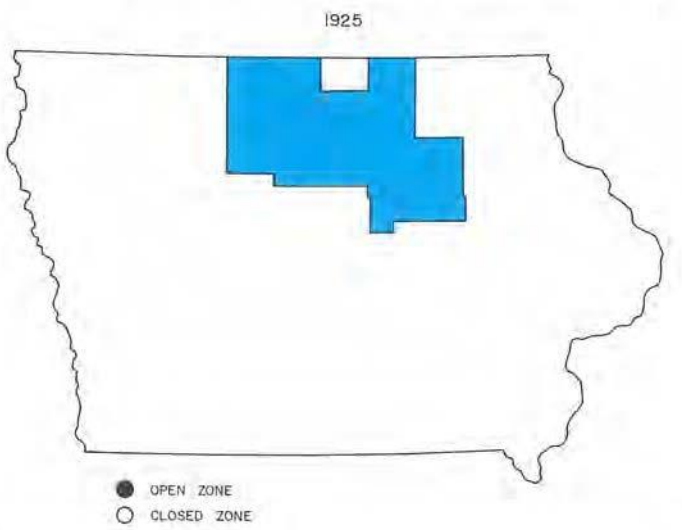


Figure 26. Original 13 counties opened to pheasant hunting in 1925.

On the other hand, the State Game Warden also received a resolution from the Kossuth County Farm Bureau opposing the open season on pheasants. Farmers placed several ads in the **Clear Lake Reporter** that informed readers that hunting would not be allowed on their farms. A strong demand for no hunting signs was indicated.

Very little was recorded concerning the success of the first season except that it aroused a great deal of interest. One short notice indicated that nearly all of the 75,000 licensed hunters bagged some pheasants.

THE EARLY YEARS (1926-1941)

Records of those early years of ringneck chasing are sketchy, but generally during these years the season was limited to 2-7 days of hunting (Table 10). From 1927 to at least 1933 a pheasant season could be set only in those counties from which the State Game Warden received a petition signed by at least 150 farmers and landowners in that county who had suffered crop damage from pheasants. The Legislature often set the maximum daily bag limits and season length. During this 16-year period of short seasons the number of counties open to pheasant hunting was increased from 18 to 53 (Figure 27). Generally, the bag limit was set at three cocks, but in these early years hens were legal targets five times. Apparently, many complaints of crop damage were received from farmers which prompted the new regulation allowing three birds of any sex in 1929, 1930, and 1931. The bag limits for 1932 and 1935 were set at two cocks and one hen. Hens were no doubt included to help control the extremely high pheasant populations, but the very short seasons (2 days in 1931) appear to conflict with this plan.

During this era the pheasant season was closed three different years. The closed season of 1928 remains a mystery. No explanation can be found for this action. No pheasant hunting was allowed in 1936 and 1937, and for a while at least, general feelings toward the pheasant were sympathetic. Two blizzards and three drift storms during the winter of 1936 killed about half of the pheasants in the northern Iowa pheasant range. Temperatures averaged 10-15 degrees below normal, and record snowfall in both January and February made this winter period one of the most severe in history. Appeals to provide shelter and food for the birds aroused interest and concern for the pheasants' welfare. A season was set for 1937, but was later closed following reports of extremely poor production. The population started an upward swing in 1938 that peaked in 1942. Information in the Commission Biennial Report of the day stated that 1938 was one of the best. nesting seasons in recent years with pheasant numbers increasing greatly. Also, in 1938 the first open

season on another import, the Hungarian partridge, was held in 11 northern Iowa counties. A steady increase in pheasant numbers was noted until the summer of 1942 when the population was thought to be at an all-time high.

LONG ZONE - SHORT ZONE (1942-1962)

Ringneck hunting in Iowa the next 21 years was generally divided into the long zone (northern) and short zone counties (Figure 28 and Figure 29). The season was from 10 to 42 days in length in the long zone while hunters in the short zone had a 7 to 16-day season. New counties were gradually added to the ringneck hunting area, and by 1951, 92 counties had some kind of a pheasant season. In the fall of 1960 the short season zone was discontinued, and all counties were allowed a 24-day season except Davis, Des Moines, Henry, Jefferson, Lee, Van Buren, and Wapello Counties which were closed.

Table 10. Iowa's pheasant seasons, 1925-1976.

Year	Number Counties Open	Season	Daily Bag Limit	Possession Limit
1925	13	3 days, Oct 20-22 ½ hr. before sunrise to?	3 cocks	?
1926	18	3 days, Oct 14-16 ½ hr. before sunrise to ½ hr. after sunset	3 cocks	9
1927	17	5 days, Oct 14, 15, 21, 22, & 29 in counties	3 cocks	?
		3 days, Oct 21, 22, & 29 in 14 counties, ½ hr. before sunrise to sunset in both zones	3 cocks	?
1928		CLOSED SEASON		
1929	24	3 days, Oct 30, Nov 1 & 2, ½ hr. before sunrise to sunset	3 any sex	?
1930	31	5 days, Nov 1, 5, 6, 14 & 15, ½ hr. before sunrise to sunset	3 any sex	?
1931	23	2 days, Nov 6 & 7, ½ hr. before sunrise to sunset	3 any sex	?
1932	21	3 days, Nov 16, 18, & 19, Noon to sundown	3 (maximum of 1 hen)	6 (maximum of 2 hens)
1933	30	6 days, Nov 10, 11, 17, 18, 25 & 28 in all or parts of 11 counties	3 cocks	6
		4 days, Nov 10, 11, 17 & 18 in all or parts of 25 counties (6 counties were in both zones), Noon to 5pm in both zones	3 cocks	6
1934	27	3 days, Nov 24, 27 & 28, Noon to 5pm	3 cocks	6
1935	38	7 days, Nov 20-26, Noon to 5pm	3 (maximum of 1 hen)	6 (maximum of 2 hens)
1936		CLOSED SEASON		
1937		CLOSED SEASON		
1938	42	3 days, Nov 12-14, Noon to 5pm	3 cocks	6
1939	42	3 days, Nov 12-14, Noon to 5pm	3 cocks	6
1940	46	7 days, Nov 12-18, Noon to 5pm	3 cocks	6
1941	53	7 days, Nov 12-18, Noon to 5pm	3 cocks	6
1942	59	21 days, Nov 12-Dec 2 in 39 counties	3 cocks	6
		7 days, Nov 12-18 in 20 counties, Noon to 5pm in both zones	3 cocks	6
1943 (Spring)	11	8 days, Mar 15-22, 9am to 5pm	5 (maximum of 2 hens)	10 (maximum of 4 hens)
1943 (Fall)	65	37 days, Oct 28-Dec 3 in 38 counties	6 (maximum of 1 hen)	12 (maximum of 2 hens)
		11 days, Oct 28-Nov 7 in 27 counties, 9am to 5pm in both zones	3 cocks	12
1944	64	42 days, Oct 28-Dec 8 in 37 counties	6 cocks	18
		10 days, Oct 28-Nov 6 in 27 counties, 9am to 5pm in both zones	3 cocks	18
1945	66	34 days, Oct 28-Nov 30 in 36 counties	4 cocks	8
		10 days, Oct 28-Nov 6 in 30 counties, 9am to 5pm in both zones	4 cocks	8
1946	59	21 days, Oct 28-Nov 17, 10am to 4pm	3 cocks	6
1947	64	21 days, Nov 11-20, Noon to 4pm	2 cocks	2
1948	68	20 days, Nov 11-30, Noon to 4pm	2 cocks	4

Year	Number Counties Open	Season	Daily Bag Limit	Possession Limit
1949	79	25 days, Nov 11-Dec 5 in 68 counties	2 cocks	4
		7 days, Nov 11-17 in 11 counties, Noon to 4:30pm in both zones	2 cocks	4
1950	83	25 days, Nov 11-Dec 5 in 70 counties	3 cocks	3
		10 days, Nov 11-20 in 13 counties, Noon to 4:30pm in both zones	3 cocks	3
1951	92[a]	25 days, Nov 11-Dec 5 in 65 counties	3 cocks	3
		12 days, Nov 11-22 in 27 counties, Noon to 4:30pm in both zones	3 cocks	3
1952	92[a]	25 days, Nov 18-Dec 12 in 65 counties	3 cocks	3
		12 days, Nov 18-29 in 27 counties, Noon to 4:30pm in both zones	3 cocks	3
1953	92[a]	25 days, Nov 11-Dec 5 in 69 counties	3 cocks	3
		12 days, Nov 11-22 in 23 counties, Noon to 4:30pm in both zones	3 cocks	3
1954	92[a]	25 days, Nov 11-Dec 5 in 70 counties	3 cocks	3
		12 days, Nov 11-22 in 22 counties, Noon to 4:30pm in both zones	3 cocks	3
1955	92[a]	24 days, Nov 12-Dec 5 in 70 counties	3 cocks	3
		13 days, Nov 12-24 in 22 counties, Noon to 4:30pm in both zones	3 cocks	3
1956	92[a]	24 days, Nov 10-Dec 3 in 70 counties	3 cocks	3
		13 days, Nov 10-22 in 22 counties, Noon to 4:30pm in both zones	3 cocks	3
1957	92[a]	24 days, Nov 9-Dec 2 in 70 counties	3 cocks	3
		13 days, Nov 9-21 in 22 counties, Noon to 4:30pm in both zones	3 cocks	3
1958	92[a]	24 days, Nov 8-Dec 1 in 70 counties	3 cocks	6
		16 days, Nov 8-23 in 22 counties, 10am to 4:30pm in both zones	3 cocks	6
1959	92[a]	24 days, Nov 14-Dec 7 in 70 counties	3 cocks	6
		16 days, Nov 14-29 in 22 counties, 9am to 4:30pm in both zones	3 cocks	6
1960	92[a]	24 days, Nov 5-28, 9am to 4:30pm	3 cocks	6
1961	92[a]	35 days, Nov 11-Dec 15, 9am to 4:30pm	3 cocks	6
1962	92[a]	35 days, Nov 10-Dec 14, 9am to 4:30pm	3 cocks	6
1963	92[a]	54 days, Nov 9-Jan 1, 8:30am to 5pm	3 cocks	9
1964	92[b]	58 days, Nov 7-Jan 3, 8:30am to 5pm	3 cocks	9
1965	92[b]	51 days, Nov 13-Jan 2, 8:30am to 4pm	2 cocks	6
1966	92[b]	52 days, Nov 12-Jan 2, 8am to 4:30pm	3 cocks	6
1967	94[c]	52 days, Nov 11-Jan 1, 8am to 4:30pm	3 cocks	6
1968	94[c]	53 days, Nov 9-Dec 31, 8am to 4:30pm	3 cocks	6
1969	94[c]	54 days, Nov 8-Dec 31, 8am to 4:30pm	3 cocks	6
1970	94[c]	51 days, Nov 14-Jan 3, 8am to 4:30pm	3 cocks	6
1971	96[d]	51 days, Nov 13-Jan 2, 8am to 4:30pm	3 cocks	6
1972	96[d]	52 days, Nov 11-Jan 1, 8am to 4:30pm	3 cocks	12
1973	96[d]	58 days, Nov 10-Jan 6, 8am to 4:30pm	3 cocks	12
1974	97[e]	58 days, Nov 9-Jan 5, Sunrise to Sunset	3 cocks	12
1975	97[e]	58 days, Nov 8-Jan 4, 8am to 4:30pm	3 cocks	6
1976	99[f]	58 days, Nov 6-Jan 2, 8am to 4:30pm	3 cocks	6

[a]Closed season in Davis, Des Moines, Henry, Jefferson, Lee, Van Buren, and Wapello Counties.

[b]Closed season in that portion of Iowa south of State Highway 92 from Muscatine to Knoxville and east of State Highway 60 from Knoxville to the Missouri line.

[c]Closed season in that portion of Iowa east of Highway 5 from the Missouri line to Knoxville, south of Highway 92 from Knoxville to the junction of Highways 92 and 218, west of Highway 218 to the junction of Highways 218 and 34 at Mt. Pleasant, and south of Highway 34 to the Mississippi River.

[d]Closed season in that portion of Iowa east of Highway 5 from the Missouri line to the junction of Highways 5 and 34 at Albia and south of Highway 34 from Albia to the Mississippi River.

[e]Closed season in that portion of Iowa east of Highway 6& from the Missouri line to the junction of Highways 63 and 34 at Ottumwa and south of Highway 34 from Ottumwa to the Mississippi River.

[f]Entire state open.

Daily bag limits during this 21-year span were usually three cocks; however, six cocks were allowed in 1944, four in 1945, and two in 1947, 1948, and 1949. One hen was allowed in a six-bird daily bag in the fall of 1943. The spring of 1943 was singularly unique in Iowa ringneck hunting history because that was the only year a spring pheasant season was ever held. Not only was it a spring (March 15-22) season, but two hens were allowed in the five-bird daily bag. This spring season was held in an attempt to reduce the large pheasant population in 11 north central counties where crop damage was feared.

Unfavorable weather and heavy rains during the reproductive season brought about poor reproductive success in 1943, 1944, and 1945. Hunting during these war years was not the cause of the decline. Fewer hunters, gas rationing, etc. had also reduced the hunting pressure.

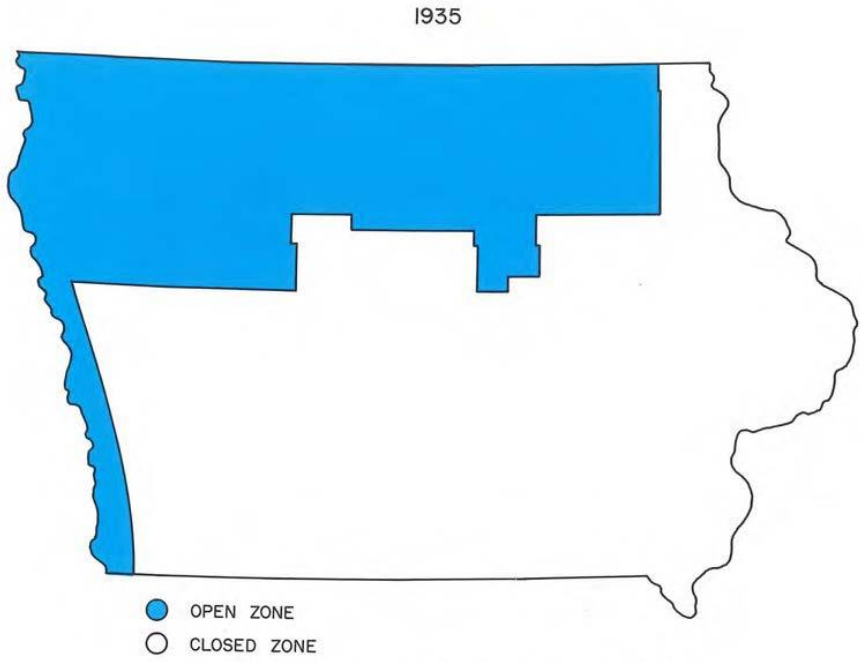


Figure 27. Area open to pheasant hunting in 1935.

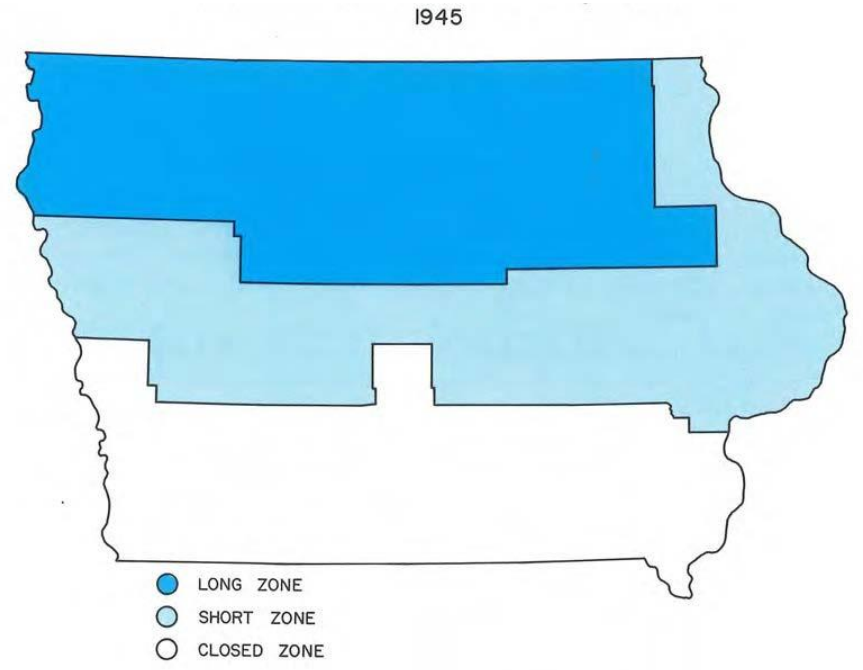


Figure 28. Pheasant hunting zones in 1945.

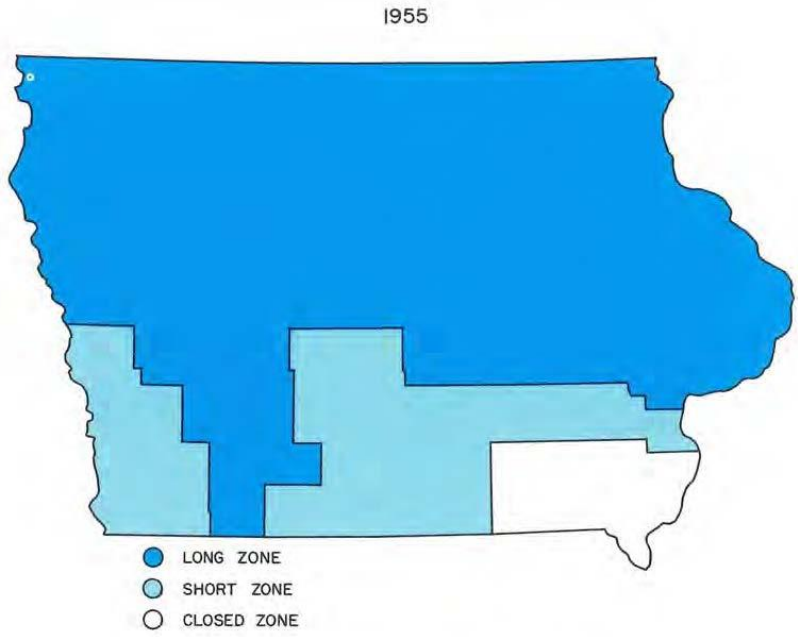


Figure 29. Pheasant hunting zones in 1955.

Public demand for a closed or restrictive season increased during 1947 when the population reached a new low level. The pheasant population had decreased to a level much below the highs of the early forties. Despite considerable controversy, the season was opened for 10 days with a daily bag limit of two cocks.

Ring-neck hunting traditionally started in late October or early November until 1947 when the season began on Armistice Day, November 11. This became the traditional opening for the next seven years with the exception of 1952. That season was set to open on November 11, 1952; however, the dry conditions of that drought year and the high potential for fires delayed the opening day until November 18. The holiday opening permitted an equal opportunity for all Iowa pheasant hunters to participate; however, it also caused a great deal of controversy because November 11 became opening day of pheasant season for a quarter million hunters rather than a day to honor war veterans. Therefore, beginning in 1955, opening day became the Saturday nearest Veteran's Day. In 1959 the opening day of rooster hunting was set for November 7; however, at the request of the governor it was changed to November 14. This was the era of Forest Evashevski, and the Iowa Hawkeyes were making football news. November 7, 1959, was homecoming at the University of Iowa so pheasant season was delayed a week to avoid a conflict between Hawkeye ringnecks and the Hawkeye homecoming game (Iowa 33 - Minnesota 0).

Shooting hours were contorted and twisted into almost every possible combination. The closing hours were 4pm, 4:30pm, or 5pm. Opening time changed from Noon to 9am to 10am back to Noon to 10am and then to 9am. From 1949 through 1957 the daily shooting hours were Noon to 4:30pm.

MODERN ERA (1963-1976

Since the 1963 season, pheasant hunting has been allowed for 51-58 days in all the state except a small region in southeast Iowa (Figure 30 and Figure 31). In 1976 the entire state was opened to pheasant hunting. Three cocks have been allowed in the daily bag with the exception of 1965 following the St. Patrick's Day blizzard which killed approximately half the pheasant population in northwest and north central Iowa. Daily shooting hours were 8am to 4:30pm from 1966 through 1976 with the exception of 1974. In 1974 the shooting hours were from sunrise to sunset and were found to be unpopular. Generally, the hunting season has opened on the second Saturday in November since 1955. In recent years this opening day has been tied to the corn harvest. On the average (1964-1975) 63 percent of the corn has been harvested by November 10. This allows Iowa's 300,000 pheasant hunters a good chance to take a bird home to dinner. Exceptional years such as 1964 and 1975 with 88 and 96 percent of the corn harvested by November 10 have made the birds more available on opening day. In late harvest years (1967-39 percent and 1972-34 percent), opening day hunting has been difficult with oceans of corn to hide the birds.

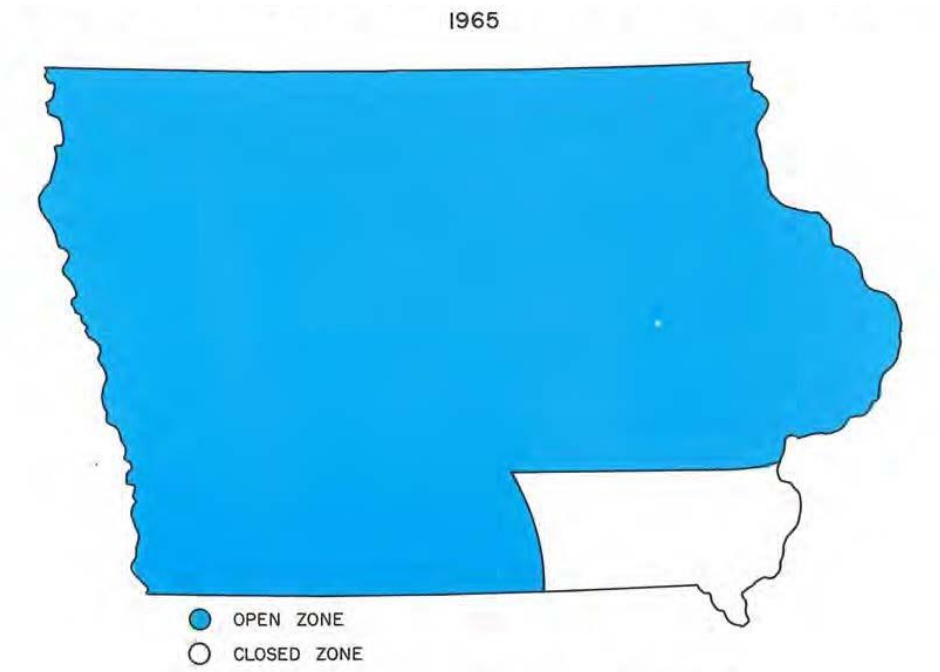


Figure 30. Area open to pheasant hunting in 1965.

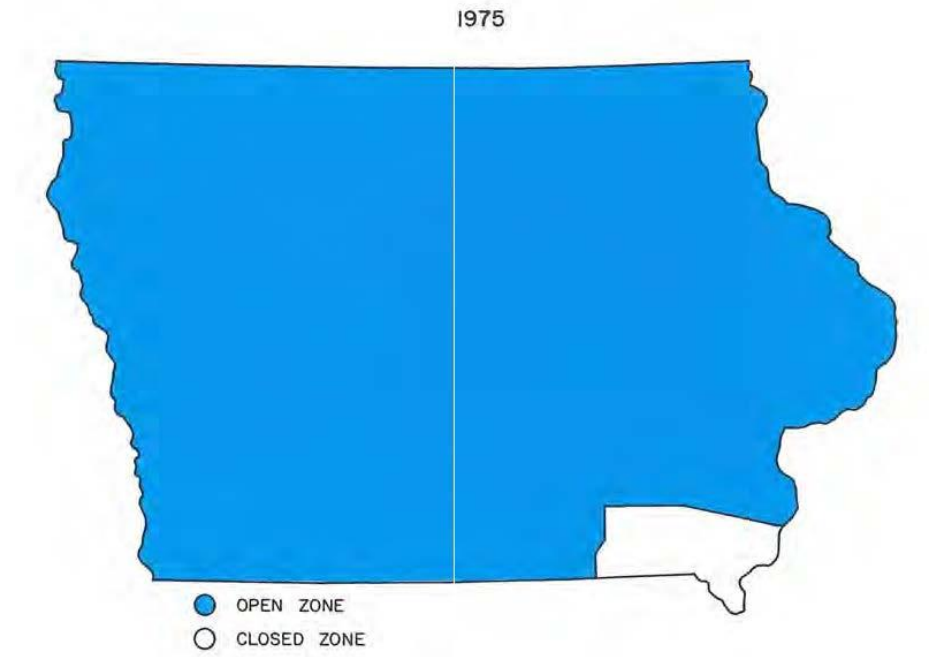


Figure 31. Area open to pheasant hunting in 1975.

During these last 14 years of pheasant hunting, more counties were added to the hunting territory, and by 1975 all or parts of 97 Iowa counties were open to rooster hunting (Figure 31). In 1976 the entire state was open to pheasant hunting for the first time.

SOME HUNTING SEASON FACTS

The Iowa Hunting and Fishing Survey of 1955 clearly indicated the popularity and importance of the ring-necked pheasant. About 60 percent of all hunters voted him their favorite, and 82 percent (290,000) took to the fields in 1955 in pursuit of the king of Iowa hunting.

A special survey was conducted in 1958 and 1959 to collect detailed information concerning the total harvest, number of

pheasant hunters, distribution of hunting pressure and kill, and seasonal hunter activity. Hunters provided this information after being requested at the end of the season to return information about their pheasant hunting. The response from hunters was excellent, and the information gathered proved to be of great interest and value. So, in 1963, an annual postcard survey was started to collect this data each year.

Table 11. Summary of Iowa's pheasant hunting facts

Year	Estimated statewide bag	Estimated number of hunters	Percent of all hunters hunting this species	Average bag per hunter per season	Average hours to bag one pheasant
1958	1,549,000	247,500	75	5.8	2.1
1959	1,070,000	238,900	75	4.5	2.8
1960	NO SURVEY				
1961	NO SURVEY				
1962	NO SURVEY				
1963	1,935,000	277,400	88	7.0	3.0
1964	1,737,000	271,300	88	6.4	3.0
1965	1,118,000	225,800	81	4.9	3.8
1966	1,449,000	240,400	83	6.3	3.5
1967	1,212,000	244,300	82	5.0	4.5
1968	1,394,000	247,100	82	5.6	4.0
1969	1,643,000	259,100	81	6.3	3.8
1970	1,789,000	283,400	83	6.3	3.9
1971	1,817,000	201,100	84	6.0	4.0
1972[a]	1,397,000	-	-	6.1	-
1973	1,905,000	308,000	90	6.1	-
1974	1,673,000	-	-	-	-
1975	1,230,000	-	-	-	-

[a]Survey questionnaire changed so that not all data were available.

Hunter success is normally best during the first week, and about 40-45 percent of the total season kill occurs during this period. Young hunters are also active during the Christmas-New Year holiday period. High school and college students on vacation make good use of the extended hunting season. Records have shown that about 20 percent of all hunting trips are made during the last two weeks of the season.

The average season kill per hunter is about five or six. Some get as many as 30 while others go home empty-handed. One young hunter fired over a box of shells on 10 hunts without touching a feather. He was undoubtedly disappointed but definitely not discouraged. His comment was, "Just wait until next year." Since 1963, the estimated total annual harvest has varied from 1.1 to 1.9 million cocks (Table 11). In recent years, Iowa hunters have harvested more roosters than any other state.

Chapter 11
Hunting

Pheasant hunting ranks first for most hunters in the Hawkeye State and attracts more hunters than any other game animal in Iowa. Over a quarter million hunters tramp the fields each year in pursuit of the gaudy ringneck. It provides several million hours of healthful and exciting outdoor recreation as well as fine eating.

KEEP HUNTING SAFE

First, to be a good hunter, one must be a safe hunter. The best way to insure a safe hunting trip is to know and follow the rules of shooting safety:

1. Treat every gun with the respect due a loaded gun.
2. Watch that muzzle! Carry your gun safely; keep the safety on until ready to shoot.
3. Unload guns when not in use, take down or have actions open; guns should be carried in cases to shooting area.
4. Be sure the barrel is clear of obstructions and that you have ammunition only of the proper size for the gun you carry.
5. Be sure of your target before you pull the trigger; know identifying features of game you hunt.
6. Never point a gun at anything you do not want to shoot; avoid horseplay.
7. Never climb a tree or fence or jump a ditch with a loaded gun; never pull a gun toward you by the muzzle.
8. Never shoot a bullet at a flat, hard surface or water; at target practice, be sure your backstop is adequate.
9. Store guns and ammunition separately - and beyond reach of children.
10. Avoid alcoholic beverages before or during shooting.

Know these safety precautions and practice them! If youngsters are with you, teach them the safety rules. These rules,

plus a little common sense and courtesy, will make your hunt a much more pleasant outing.

RULES AND REGULATIONS

As with any sport, there are certain rules and regulations that must be followed. The season is set each year to harvest surplus roosters and to distribute this surplus among the several hundred thousand hunters. Each hunter should know the opening and closing dates of the season, shooting hours each day, and the daily bag and possession limit.

WHERE TO HUNT

Iowans are indeed fortunate that shootable populations of ringnecks exist throughout the state. They need not travel far to find pheasant range, but it helps to know more about the country they plan to hunt. A leisurely drive after the season is over can help locate prospective hunting areas for next fall. Pheasants usually do not travel far from winter cover to nest. Since most hens remain within two thirds of a mile of winter cover, when a good winter concentration of pheasants is located, there is a good chance one will be able to bag some roosters the following fall in that vicinity.

If a winter trip is impossible, a trip in early spring can provide the same information. Sometime in late April through mid-May, drive slowly around the countryside and look for the strutting roosters with their harems. Normally the field cover is sparse at that time. Oats are just beginning to show, and bean and cornfields are being prepared for planting.

The first hour after sunrise is the best time to observe pheasants, but an evening trip is all right if the weather is clear and the wind calm. One can learn much about this farm game bird by careful observation. Besides, every hunter or non-hunter can enjoy an early morning drive through pheasant country in the spring. Field glasses help but are not an absolute necessity. Birds seem to tolerate the automobile but flush if doors open.

Even if a hunter has not been able to scout around the previous winter or spring, he should do so in early fall. Now is the time to start spotting likely cover patches for opening day and even later. Half a day spent cruising the countryside now can save a lot of frantic effort and frustration. Once the crop harvest has started, the grassy fields and brushy draws that have been hidden all summer will become obvious. Since the biggest push for hunting space is on opening weekend, the wise hunter makes arrangements in advance so he can drive directly to the land where he has permission to hunt on opening day.

Since Iowa's 34,000,000 acres of cropland provide the place to hunt pheasants, every hunter should talk with landowners and obtain permission to hunt. Not only is it illegal to hunt on private property without permission, but each trespass incident creates an unnecessary barrier between farmers and sportsmen. Be a courteous hunter and help preserve hunting as a pleasant sport in Iowa. Also, do not impose on the landowner's hospitality by adding extra hunters in your party the next time you return.

GUNS AND AMMUNITION

Arguments can be found at any place and time over what combination of shotgun and shot shell is best for bringing home the bird. There are those corn row trampers who proclaim the full choke 12 gauge with number 4 or 5 shot as the only adequate equipment for the task. The opposite extreme is the brush beater from the hill country who prefers the open bore 20 gauge throwing a charge of 7½'s. Early in the season when the birds are not too wild, most shots will be relatively close, and the open bore, fast handling gun shooting smaller (6 or 7½) shot is an advantage. The same equipment later in the season might be nice to carry in the field. However, when the birds are flushing 30 or more yards out, carrying the gun is about all that will be accomplished. Seldom would shot larger than number 5 or smaller than 7½ be used although some early season, close flushing cocks are taken with 8's and 9's by southern Iowa quail hunters. In the final analysis, much of the argument boils down to personal preference, time of year, weather conditions, and region of the state hunted.

BIRD DOGS

Even more controversial is the subject of hunting dogs. Perhaps the only safe statement is that a good dog is a benefit when it comes to hunting the ringneck. It is unbelievable how such a brilliantly colored creature can hide in sparse cover or vanish when knocked down but not killed outright. Most body-shot birds do not move far after they hit the ground, but a canine nose can save time and birds in those instances. Where a good dog can really earn his room and board is

fetching that wing-tipped rooster downed, but running like an Olympic sprinter in knee-high cover. Past records show that parties with dogs lost only one bird in 10 downed compared to two to three out of 10 for those without dogs.

Any breed of dog that works close to the hunters will help. At the risk of starting an argument, here are the results of several thousand hunter interviews. Labradors consistently lost fewer birds, five or six out of each 100. Pointers performed almost as efficiently only losing seven, followed closely by the spaniels.

Hunters using dogs usually spent one hour less afield to bag each bird than those without the canine help. Parties with dogs averaged 31 percent more birds bagged at the time of contact than those without dogs. One suggestion, if a hunter is hunting with a friend that has a dog, he should leave the dog handling to his friend. He knows his dog and the best ways to work the dog. Good dog work makes any pheasant hunt more enjoyable and profitable.

HUNTING THAT BIRD

Field conditions determine hunting technique. Present-day fields of standing corn provide a lot of habitat for pheasants. Five or six million acres of unpicked corn can securely hide a large portion of the pheasant population. If there are fields of standing corn, that is where the ringnecks are found. They have been using this habitat since midsummer and continue to do so until the stalks are flattened. They are also very reluctant to leave; it usually takes a large crew to flush them. Hunters should walk fairly closely together to prevent the birds from running between them. Once in the air, it is often difficult to get a clear shot, and lost birds are common in this type of cover. It is also a good idea to post some fellow hunters at the end of the field to keep the birds from flushing far ahead of the drivers.

A picked field of corn is an ideal field to hunt. It is a good idea to hunt completely around the edge of the cornfield including fence rows and roadsides. Birds on the border will be the first to vacate, so try to get them before they sneak into the next field. Walk slowly. Some birds will run and flush out of range regardless of what is done, but some will hold if the hunter takes it easy. Then start working the rest of the field. Check the areas with grassy cover including the waterways and ridges.

Fields of weeds, standing grass and legumes, or idle lands can provide the hunter and his dog some of the finest pheasant shooting possible. After the corn is picked, birds will often be found in these cover areas. They tend to hold better in the heavy cover so that most birds flush well within shotgun range.

Early in the season the birds are likely to be scattered and found in a variety of cover types. However, cover preferences change with the weather. Cold, blustery days, with or without snow, are quite common during late season. Since pheasants do not like wind, they will normally seek heavier cover, such as drainage ditches, roadsides, weed patches, sloughs, and willow bats on these days.

AFTER THE BIRD IS BAGGED

There are those misinformed individuals who turn up their noses and make wry faces at the thought of eating a pheasant or anything else wild. However, pheasant under glass was a delicacy considered fit for royalty long before

pheasants and Iowa cornfields hit it off together. This pheasant-corn team is just the combination that makes Iowa ringnecks rank right at the top of succulent dishes. Nobody will argue the point that what an animal or bird eats affects its taste at the table. Here is where the Iowa ringneck shines. After all, he has been right out in the field dining for the most part on the same stuff that makes Iowa sirloin and ham recognized the country over.

One reason some people turn up their noses at the thought of eating pheasant, or any other game for that matter, is the way it was handled before it reached the kitchen. A bird that was shot on a warm morning, stuffed into a hunting coat, piled into the car trunk midst a heap of other birds and hunting paraphernalia, and hastily cleaned late at night by the weary hunter or his coerced wife cannot be expected to come out a shining example of good eating.

The pheasant's internal organs should be drawn as soon as possible after the bird is shot. This enables the carcass to bleed thoroughly and to cool faster. If the viscera have been punctured by shot, which is usually the case, it is important to get them out of the carcass before any of the leaking juices can impart a bad flavor to the meat. A hunter who likes to show off his game will not want to carry the field-dressing any further. If he wants to take the birds home to show off their gorgeous plumage, he better plan on scalding them in a bucket of boiling water before plucking. However, the hunter who wants to finish the job right on the spot will find it much easier to pluck the feathers from a warm, freshly shot bird than one with rigor mortis. Either way, plucking a bird that has absorbed a direct blast from the shotgun can be a bit frustrating because the skin seems to tear loose at every other puncture. For this reason, many hunters simply skin the birds. Again, the still warm bird skins the easiest. Just cut off the wings next to the body (some prefer at the first joint), the head, and the legs at the first joint above the spur; then make a slit in the skin and peel it off.

Another field dressing technique used by a few hunters is the quickest and neatest of all (Figure 32). This involves a quick skinning job, a deft carving of thigh and leg from the body that leaves most of the good morsel on the back attached to the thigh. Next separate the breast from the back by cutting between the backbone and shoulder blade with a pocket knife. Be sure to cut close to the backbone so that the good strip of meat that lies on each side astride the upper back remains attached. Left for discarding is a long strip from neck to tail that has all the viscera still attached. Next, drop the pieces in a cloth sack to keep them clean and permit cooling. It is best to let them cool a bit first and then put them in a thin plastic bag. Do not seal the bag tightly right away. It is a good idea to leave the top open until the body heat has nearly dissipated. This method provides about 95 percent of the edible portion of the bird to take home, ready to be washed and either eaten or frozen for later.

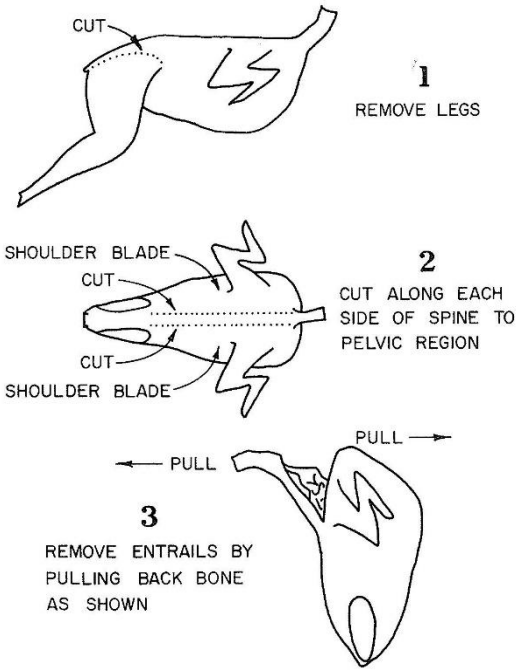


Figure 32. Field dressing a pheasant.

The best way for the amateur pheasant ager to tell juvenile cocks from adults is by the spur. The old birds will have a

long, shiny, blackish, wickedly curved spur, sharply tapering to a needle-point tip. Young roosters have a short, dull, grayish lump of a spur just beginning to show signs of developing the curve and sharp point it will have in a few more months. If this spur is under a half-inch long, you can be reasonably sure it is a young bird. If it is over a half-inch, it is probably an old bird, but the hunter will have to rely on his visual judgment to be sure. A few early-hatched young cocks can have a pretty long spur by the end of the hunting season, so there will be a few cases where he cannot be really positive. To be safe, these questionable birds should be prepared by a recipe that works for either young or old.

The anatomy of the pheasant is exactly the same as that of a chicken so pheasants can be cut into serving pieces in the same manner as a chicken. Since the breast of the pheasant is larger in proportion, it is a good idea to split it for most recipes. This is best accomplished with a pair of sturdy kitchen shears, actually a good all-around tool for cutting up any game bird. Splitting the wishbone section in half also, particularly if the first joint of the wing was left attached when field dressing the bird, is also desirable. This will give you four good pieces of white meat, the best part of the pheasant. With the legs, thighs, back, and leaving ribs and neck together, there will be ten serving pieces from one bird.

Any chicken recipe can be used on pheasants with a few distinctive wrinkles added here and there to make the meal something special. Young birds can be fried or roasted just like young chickens. An especially tasty way to prepare a young bird is to brown it and then oven-bake it with a sauce or gravy. Try one of these recipes for variety.

Pheasant Smothered in Cream

½ cup hot fat
½ cup all-purpose flour
1 teaspoon salt
¼ teaspoon pepper
¼ teaspoon thyme
2 cups sliced onions
1 young pheasant cut in serving pieces
1 cup light cream

Oven 325°

Roll pheasant pieces in mixture of flour, salt, pepper, and thyme. In Dutch oven brown pieces slowly in hot fat. Drain.

Top pieces with onion. Pour cream over all. Bake until tender for 60 minutes. Make gravy from the drippings. Serves four.

Pheasant in Mushroom Gravy

1 young pheasant cut in serving pieces as above
¼ cup lard or melted shortening
½ cup un-sifted all-purpose flour
1 teaspoon salt
¼ teaspoon pepper
1 teaspoon onion powder

GRAVY
1 - 10 oz. can mushroom soup
1½ cups milk
1/s teaspoon salt
1/8 teaspoon pepper

OVEN 350°

Wipe pheasant with absorbent paper towels. Combine flour, salt, pepper, and onion powder in bag. Shake pheasant pieces until well-coated with flour mixture. Heat lard in deep skillet or Dutch oven; brown pheasant, turning it several

times. Drain and remove the skillet from heat.

Combine mushroom soup, milk, salt, and pepper in saucepan. Bring to boil and pour over meat. Cover skillet with dome lid and bake for 1 hour. Remove meat to serving platter. Add flour or milk until gravy is the right consistency. It will be a thick gravy with pieces of breading, pheasant, and mushrooms in it.

It should be hard for a passable chef to ruin a young pheasant, but many a good cook has stumbled over a tough old bird. Such birds can be put in stews, deep dish pies, casseroles, noodles, or other ways used with domestic fowl. A pressure cooker can be a big help in making these tough birds palatable.

Pheasant Egg Foo Yong

1 mature pheasant
1 - 14 oz. box egg foo yong mix (plain serves 4)
6 eggs
1 teaspoon onion powder or 1 tablespoon grated onion
2 - 2½ cups prepared rice (wild, long grained-white mixture, long grained- wild mixture, or old-fashioned white).

Pressure cook pheasant 15 minutes. Cut meat in small cubes. This makes more meat than the recipe box calls for, but the two extra eggs will compensate. Prepare rice as a side dish and set aside to keep warm. Follow cooking directions on the box, adding the two extra eggs because of the extra meat. The extra rice, meat, and eggs make this recipe comfortably serve six.

Quick Pheasant Chow Mein

1 mature pheasant
1 - 16 oz. can plain chow mein
1 can or package chow mein noodles or any favorite rice (see above)
Soy sauce to taste

Pressure cook pheasant 15 minutes. Cut meat in small cubes. Combine chow mein and pheasant and heat. Serve over noodles or rice, seasoning with soy sauce to taste. This recipe will serve four to six. Serve more by using a larger size can of chow mein and more noodles or rice. This is one of the advantages of this recipe.

For stuffing the pheasant, use apples and nuts, various rices, bread and snack-type combinations, other fruits, and imagination.

Most cookbooks contain a section on game recipes and related meal ideas. Good books which deal only with game cookery are **Cy Littlebee's Guide to Cooking Fish and Game,** from Missouri Conservation Commission, Jefferson City, Missouri, and **Cooking the Sportsman's Harvest,** from South Dakota Department of Game, Fish and Parks, Pierre, South Dakota.

Chapter 12
Raising Pheasants for Fun or Profit

In a previous chapter we discussed the futility of the average private individual rearing pheasants and turning them loose in hopes of creating a boom in the local wild pheasant population. Does this mean then that such people should just forget about the idea of raising pheasants? Not necessarily, depending on their interests and motivation. If one likes to work with birds and animals and enjoys having something different around, raising pheasants can be a worthwhile and enjoyable hobby, perhaps one that can even show a bit of profit if enough energy and resources are put into it.

To get started, the first stock should come from a reputable game breeder. One can buy anything from newly hatched chicks to adult birds; the older the bird, the higher the price. If one does not know of an established pheasant breeder in his area, stock is advertised in most of the out- door magazines and in many farm magazines, as well as some nationally known mail-order catalogues. Usually a source can be located in one's own or adjacent states. Local Conservation Commission personnel should also be able to help locate breeders within driving distance who might have birds to sell.

If one has access to incubating facilities, it is cheaper to buy eggs to get started. There are small artificial incubators that can be purchased. However, if one is not sure how large scale an operation he wants to get into, he may not want to lay out the money for one the first year. For a farmer, nothing is as easy and reliable as a bantum hen for hatching a few pheasant eggs; she can even take care of rearing the young chicks the first few weeks. Another domestic breed of chicken will work, too, if one can find one ready to set. However, if the "banty approach" is used, the pheasant raiser should give the chicks the run of the place and not leave them with the hen too long. Otherwise he might wake up one morning to find they have left her. The birds should be under wire by the time they are six weeks old, and certainly not more than eight weeks. The simplest way to get the eggs hatched, however, is to use the services of a local chicken hatchery. Often a hatchery will not even charge for hatching a few eggs as long as it has room to spare.

Unless the chicks are being reared by hens, the raiser will have to provide them with heated brooder facilities for the first few weeks. Depending on the number of chicks he has, he can use electric heat bulbs, or he can buy small hover or battery brooders. The first week, chicks need a temperature of around 98 degrees measured a couple of inches above the floor near the outer rim of the brooder. The temperature can be reduced gradually, about 5 degrees a week, for the first month. It is just as bad to overheat the chicks' quarters as to let them get too chilly. The chicks' behavior is a good

clue to their comfort. If they are all huddled right under the brooder, they are probably too cold; if they are all crowding into the far corners, they are too warm.

By the time the birds are a month old, they can be let outside in an enclosure small enough that they will have no trouble finding their way back to the brooder if the weather turns bad or when night comes. By the time they are six weeks old, they will be well feathered and large enough to run in bigger pens. It will no longer be necessary to furnish heated quarters either. If one does not have covered pens, he better plan on clipping the birds' wings before putting them in, or they will soon fly out. Only the outer ten feathers on one wing are clipped. The birds should not be over-crowded, or they will begin pecking each other. Once they have developed the cannibalism habit, there is a real problem.

Proper feeding is very important. For a few birds, the typical series of chicken feeds available at the local feed store are all right. However, the nutritional needs of pheasants are slightly different from those of chickens, so one of the commercial game bird feeds available from some large feed companies is better. If local outlets do not handle such, they should be able to advise on how to go about obtaining a supply. Instructions for feeding will be made available with the feed.

If one becomes really serious about raising pheasants, beyond just the hobby or fun stage, he should obtain copies of available detailed bulletins that cover all phases of a larger scale program. There are many details and aspects too involved to cover in this short chapter which should be thoroughly understood before embarking on such an endeavor. Companies producing commercial game bird feeds usually have material available and might be good places to write for such information. A good approach to follow is to visit an established game breeder and look over his operation closely. Ask questions and try to find out the key things to do or what things not to do. As with many "do-it-yourself" projects, there is a lot more to it than meets the eye. What seems rather glamorous at first can in reality evolve into a lot of hard work and headaches.

Suppose one does have the desire and means to get into the pheasant rearing business on a scale that puts one well above the hobbyist or bird fancier level. Without a sizable sum of cash that can be spared just for the pleasure of doing so, one will want to make his game bird business pay its way, and better yet, return a profit. What are the chances of accomplishing this? There are several approaches to take.

One is to raise birds to sell for their meat. As the average family's income continues to rise, more and more housewives will be interested in buying specialty delicacies such as pheasant. The local supermarket will often be willing to purchase dressed birds to sell over their meat counter if they can be assured of a reasonably steady supply. Many restaurants, particularly those catering to the more expensive tastes, will jump at the chance to offer something as unusual as pheasant on their menus. Again, they will want some assurance of a regular supply.

A second possibility is to rear birds to sell to shooting preserves. Some preserves raise their own birds. Many, however, would rather buy their birds from a guaranteed source. They will want attractive, well-feathered, strong flying birds that will appear wild to the hunter, so the rearing facilities and program would have to be tailored to produce this type of specimen.

Though the opportunity is more limited, sales of some birds to field dog and retriever trials are possible. There are special regulations covering this type of event, so be sure to check on these first.

Another aspect to specialize in is to offer eggs, chicks, or adult breeders for sale to other bird fanciers, particularly those interested in a hobby-type operation. If taking this approach, the raiser may want to experiment with some of the more exotic types of pheasants, such as the Golden, Lady Amherst's, Silver, or Reeves'. If he has a small-scale operation, he may be able to dispose of the small number of surplus birds he winds up with each fall to local friends and acquaintances for their holiday tables. Or he could put the birds in his freezer as an addition to his own meat supply. He may not make any profit with this type of operation, but he at least recoups some of his costs, thus leaving a smaller portion to be chalked off as aesthetic benefit or pleasure.

If the raiser cannot bring himself to reduce his birds to the platter, he can do what many small-scale game bird raisers do, just turn them out on his farm or acreage and have the pleasure of watching them for a while. If this is done, do not just turn them out and expect them to fare on their own. They are still essentially equivalent to domestic fowl, and feeders, waterers, and shelter should be kept available to them. This should be done anyway in order to keep them close by where they can be observed regularly. Be prepared for losses to predators if the birds wander too far afield. A great horned owl or two in the vicinity can wreak havoc on these unwary birds if they are so foolish as to roost outside in a vulnerable location. Do not expect these birds to eventually become wild and miraculously increase the population of wild pheasants around the area. To be more realistic, expect them to pass from the scene rather quickly, depending on the care given them and on their own instincts. They may wander off and disappear regardless of what is done to hold them. If the raiser wants to release some birds to hunt, they should be held until right before the opening. Liberating them early on opening morning will give the best rate of return.

In any and all phases of his pheasant rearing operation, the new game bird raiser should be sure to check with his Conservation Officer for the current laws pertaining to such operations. For example, a game breeder's license must be obtained. There are laws covering the sale of dressed pheasants, the importing of birds into the state, or the releasing of exotic birds to the wild. He needs to keep in mind that pheasant farming is not a get-rich-quick proposition. However, he can derive a great deal of pleasure and even a bit of income if he is willing and able to pursue it in proper fashion.

Chapter 13
Crystal Ball Gazing

What does the future hold for pheasants in Iowa? As the inroads of modern civilization take more and more pheasant habitat, it is easy to develop a doomsday forecast for the years ahead. Pessimists feel the pheasant, and most other wildlife as well, will be greatly reduced in numbers in the not too distant future. Optimists talk about new imaginative programs to maintain or increase pheasant populations.

Some insight into what to expect may be gained by a look back in history. Early publications on hunting and wildlife management, many dating back 40, 50, or more years, contained statements about disappearing habitat, reduced food supplies, and dwindling game populations and predicted a gloomy future. Has this come to pass? In some instances, yes- the prairie chicken in Iowa is a good example. Generally, however, the answer is no. We still have good numbers of most game species, and good hunting is found by those willing to make an effort. Hunting may not be as easy today because more hunters are after a portion of the game. The “good old days,” that seem to become ever better with age, often do not stand up to close scrutiny or cold, hard statistics.

The science of wildlife management is no different than any of the other sciences; new and better information constantly replaces the old. New facts become evident. For example, through research, we now know that early hunting seasons were far more restrictive than necessary. Millions more pheasant cocks could have been taken over the years without changing today’s pheasant population. By better utilization of the harvestable surplus, more pheasants can be taken per year now than were taken previously. Also, research efforts have provided much information on pheasant nesting cover preferences. This information helps the modern wildlife manager produce the maximum number of pheasants on limited amounts of land.

Nothing remains the same. One need merely look around to witness the truism of that simple statement. There is no reason to expect hunting and pheasants to be exempt from that rule. Some wild species have been able to adjust to man’s changing ways; others have not. The pheasant seems to fit into the first category about as well as any species of wildlife. There has to be a limit, of course, to the pheasant’s ability to adapt to human interference with life requirements. But a bird that has managed to flourish in such diverse places as Iowa’s cornfields, Hawaii, the bleak plains of the Dakotas, the Imperial Valley in California, the wheatfields of the Northwest, high mountain valleys in

Colorado, drained lake bottoms around the Great Lakes, and a myriad of other habitats, certainly carries within its makeup as much resilience as any game bird.

In Iowa the future of the ringneck is inextricably linked with trends in modern farming. Food, nesting cover areas, winter cover - nearly all are produced on agricultural land in Iowa. The effects of more fall plowing, decreased oats and hay acreage, removal of fencerows and farmsteads, drainage of sloughs and marshes, and many more have all been discussed in earlier chapters. In recent years the trend has been for these major changes to be detrimental to the welfare of pheasants. These detrimental changes in pheasant habitat brought about a decline in pheasant numbers in northwest and north central Iowa. About the same time, pheasant populations increased in southern and eastern Iowa. This counter-balanced the decrease in northern Iowa, and the statewide pheasant population remained fairly stable. However, now pheasants occur in all parts of Iowa, and no new areas are left to occupy. The habitat available in the future will determine the number of pheasants present in Iowa. Development of a new crop or changes in cultural practices of old crops could improve pheasant habitat. Very few farmers ever considered the soybean 40 or 50 years ago; yet today it ranks second in acreage only to corn in Iowa. Agricultural colleges and seed companies constantly experiment with potential crops. One of these may be another major crop like the soybean, and it just might be beneficial to pheasants.

What about changes in cultural practices of the crops we now have, particularly corn and soybeans? As nesting cover becomes an increasing bottleneck with the disappearance of small grains and hay, is there any chance the birds can switch to these cultivated fields? Not much, so long as the current row crop system is used. However, agricultural research is underway on aerial, broadcast, and narrow row seeding methods. With no cultivator disturbing the ground, the crop would be undisturbed long enough for a hen to successfully establish and incubate a clutch of eggs. A variety of soybeans that could be planted in April in narrow rows and left uncultivated could well provide pheasant nesting cover.

Minimum tillage methods that leave crop residues undisturbed on the ground and eliminate cultivation could provide the much needed nesting cover for pheasants in corn and soybean fields. Specialized herbicides are used to control competitive weeds in the absence of mechanical cultivation. This brings up a subject that is of increasing concern. What is the effect of pesticides on game birds and other wild animals? Since the pheasant spends most of its life right in the midst of the fields on which farmers are every year pouring more and more insecticides and herbicides, it should be more exposed to possible harmful effects than almost any other species. Experiments carried on under artificial conditions in pens have shown that certain kinds of chemicals can have a drastic effect on the birds. Thus, we know what could happen in the wild if these conditions were duplicated. To date, we have no solid evidence that such is occurring. Certainly, we can measure the presence of the commonly used agricultural chemicals in the birds and their eggs. The establishment of a proved detrimental cause and effect relationship between pesticides and declining pheasant numbers in a specific area has not yet been established.

However, this does not allow for complacency. Just because pheasants are apparently in good shape as yet does not mean this will remain true with repeated applications of these powerful chemicals for decades, or with the advent of new and even more powerful agents. A constant monitoring of the situation is a must, continued testing and experimenting an absolute necessity. Because these chemicals have the potential to affect man and other wildlife as well as pheasants, recent aroused public concern over the entire broad area of pesticides will hopefully ensure that such checks will be maintained.

Government programs come and go, with features both good and bad for wildlife. There is always the chance that someday the good aspects may take on significant proportions. Cropland diversion programs hold the greatest potential for benefits to pheasants. However, over-production is a prerequisite to any major cropland diversion program. If wildlife interests can gain a greater voice in formulating future programs, who knows what good effects might be forthcoming?

There is also the potential of providing pheasant habitat by using an old crop in a new way. Native grasses with deep extensive root systems, drought resistance, and high forage yields can be used as summer pasture or cut for hay.

The welfare and future of pheasants in Iowa are so inescapably tied to people that the birds would certainly shudder in

their roosts were they able to thoroughly comprehend that fact. The farmer facet of this relationship has already been discussed. The hunter aspect is an obvious one, albeit generally overplayed. There is also a dedicated group, ever increasing in number, often referred to collectively as bird-watchers, who make a special effort to spend time in the field with eye and camera, studying and observing pheasants along with other birds. Even those who belong to the remaining segment of the public enjoy the sight of a brilliantly colored cock pheasant, glimpsed along a highway. The problem is that the above groups tend to assume that pheasant management is a simple task with easy answers. Too often this is translated as close the hunting season and everything will soon be okay. Fortunately, there is another group of people, by far the smallest, who realize such is not the case. These are the professional wildlife researchers and managers who have made a life's career out of unravelling the mysteries that lie behind the seemingly simple lives led by wild animals like the pheasant. This is not to say that one group is always right and the other wrong, or that there are not informed dedicated non-professionals as well, or maybe even a misguided professional or two! But the hard fact remains that the gap between the lay groups and professionals is still too wide. (The same could be said for almost any technical field in this ever more technological age.)

The intense interest of most people works both for and against the wildlife scientist. It helps to have everyone interested in his subject, for this overcomes the first hurdle in getting his thoughts to the other man, getting his attention. Conversely, nearly everyone who has gone hunting or spent a fair amount of time out-of-doors assumes he has become well-versed on what makes wild populations go. Such is just not possible. Even those professional individuals who spend their lives in the field realize they cannot hope to have all the answers. Who was it that said the mark of the truly educated man is to be aware of how little one really knows of all there is to know?

It is thus evident that more stress must be placed on educating the general public to what can and cannot be done in managing pheasant populations. The burden for accomplishing this task of education must necessarily fall on the professional group. They will have to translate their research findings into layman's language and then make sure that the layman learns about these findings through the many communication media available. Hopefully, this book on Iowa pheasants will in some small measure help.

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