Iowa Upland Game Program Report

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ABSTRACT

The Iowa Department of Natural Resources (DNR) conducts 2 statewide surveys to monitor upland game populations in Iowa, the August Roadside survey and the Small Game Harvest survey. The data from these 2 surveys form the basis for historical information on upland game populations in Iowa and are summarized in the tables and figures. Both surveys have been conducted annually since 1962. The full reports for both surveys can be found on the DNR's website at http://www.iowadnr.gov/pheasantsurvey.

INTRODUCTION

Ring-necked Pheasant

The genus Phasianus or true pheasant is native to Southeast Asia. The ring-necked pheasant now found in Iowa has been classified as (*Phasianus colchicus torquatus*). This name suggests a cross between two of the true Asiatic pheasants. One the Rion Caucasian (Black-necked) pheasant (*Phasianus colchicus colchicus*) native to the area between the Black and Caspian Seas and the true Chinese ring-necked pheasant (*Phasianus torquatus torquatus*) found in eastern China and northwestern Indo-China (Faber 1946).

Owen Denny first successfully introduced the ring - necked pheasant into the United States in the Willamette Valley of Oregon in 1882. Mr. Denny transported wild birds from China to the US to establish a population on his land. It is believed that the majority of the pheasant range in the US was stocked with birds from this original wild foundation or other wild birds from China (Farris et.al 1977).

Early records for Iowa are limited, but accounts suggest attempts were made to establish pheasants in Iowa as early as 1884, but the first recorded successful release was an accidental release, following a windstorm, of approximately 2,000 birds from the William Benton game farm in Cedar Falls. Where Mr. Benton's birds were from is unknown, but reports say they were from an importer in Tacoma, Washington and thus very likely wild birds from China or wild birds from the Owen Denny Farm (Leopold 1933b, Faber 1946, Farris et.al. 1977). The conservation department mentions pheasants for the first time in 1910. Early on eggs were purchased from breeders (wild or tame is unknown) and given to landowners to raise and release statewide, the 1910 biennial report indicates 6,000 eggs were distributed to applicants in 82 counties. Egg distribution met with poor success and the conservation department established a hatchery in 1913 and by 1914 mostly young birds were distributed (1,088 that year). Another 10,912 birds were distributed statewide from 1915-16. Records show all northwest counties received 200-800 bird plantings of pheasants from 1915 to 1918, with a planting of 2,500 in Winnebago County (Leopold 1933b, Faber 1946, Farris et.al. 1977).

In 1905, it was generally assumed that southern Iowa had better pheasant habitat than northern Iowa. The existence of this belief is supported by the fact that up until 1913 it was customary to make stockings in timber. It is interesting to note Iowa's pheasant populations reached their highest abundance in NW and NC Iowa. The early success, 1920-40's, of pheasants in north central Iowa was undoubtedly due to the abundance of grassy habitats (tame and native hay, oats, flax, and prairie pothole wetlands) interspersed with weedy crop fields (Leopold 1933b, Faber 1946, Farris et.al. 1977).

Pheasants did extremely well in northern Iowa with crop depredation reported in 1923, with the first open season in 1925. Policy changed in 1924-25 and wild birds and eggs were trapped and moved in an effort to establish populations in southern Iowa. Between 1925-1931 some 26,498 wild birds and 60,000 wild eggs were gathered from areas of undue abundance in northern Iowa and distributed to other regions, mostly southern Iowa. From 1927-30 an additional 10,211 birds and 31,372 eggs were distributed in southern Iowa counties. During, 1929-30 the average southern Iowa county received over 500 birds. However, by 1936 the policy on stocking had changed:

"The old policy of stocking birds without paying attention to the habitat has been discontinued … for instance, during the past 20-25 years there have been thousands of pheasants released in southern Iowa and … in except a few cases pheasants disappeared after two or three generations in most counties." With the success of wild birds, the state game

farms were shut down in 1932, but following several bad weather years, it was re-established in 1938. Populations recovered with good weather in the 1940's and stocking was greatly reduced, approximately 4,000 chicks and spent adults in 1943. The state game farm operated at approximately the same level until 1961 (Leopold 1933b, Faber 1946, Farris et.al. 1977).

Through the 1940-50's it became increasingly evident that pen-raised birds were not contributing to wild pheasant numbers. So similar to 1924-25, in 1955 a new policy of trap and transfer of wild birds was started in southern Iowa. Increasing wild populations in Union and Adair counties were trapped (1,375 birds) and transplanted to Ringgold, Decatur, Wayne, Washington, and Appanoose counties. Also new wild birds were brought to the state game farm. These new "wild" birds were distributed to unoccupied range (Washington, Keokuk, Henry, Davis, and VanBuren Counties) thru 1973. The state game farm was closed in late 1970's and dismantled (Farris et.al. 1977, Klonglan 1962).

Iowa's first pheasant season was held October 20-22, 1925 in Kossuth, Humboldt, Winnebago, Hancock, Wright, Cerro Gordo, Franklin, Mitchell, Floyd, Butler, Grundy, Blackhawk and Bremer counties. The hunting season opened 1/2 hour before sunrise and ended at noon with a bag limit of 3 cocks (Farris et.al. 1977). It appears the decision to open counties to hunting in these early years was based largely on pheasant crop depredation complaints, as annual pheasant censuses, predecessor to the August Roadside Survey, were not begun until 1935 (Faber 1946, Farris et.al. 1977). Flush count records show 7 men flushed 850 pheasants in 5 hours in Hancock County in 1931. By 1945 most of northern Iowa was open to hunting and by 1965, all of Iowa, except a few southeastern counties, were open to pheasant hunting. The entire state was opened to hunting in 1976 (Farris et.al. 1977). Historically (1930-50's), the NW, NC, and C regions had Iowa's highest pheasant densities (Figure 1). However, intensified agriculture has led to a decline in pheasant populations since the 1960's (Figure 2). Regionally, the greatest declines have occurred in the NC, C, and SW regions (Figure 7). By the early 1970's southern Iowa had become the states premiere pheasant range (Farris et.al 1977).

Populations have declined following severe winter weather in 1964-65, 1966-67, 1978-79, 1981- 82, 2000-01, and 2007-11, with recoveries occurring in years with milder winters (Table 1). While the number of broods sighted/30-mile route has also fluctuated with the severity of the winter (Figure 3), the all-time lows recorded in 1983, 1984, 1993, 1999, 2001, and 2007-11 were the results of very cool and/or wet conditions during spring and early summer (Table 2; Figure 3). Observed brood sizes have declined slightly since 1962, with the 2010 estimate of 4.0 chicks/brood the lowest ever recorded (Table 2; Figure 3). Modest recoveries of all survey parameters occurred between 1984 and 1996 with the enrollment and seeding down of 2.2 million acres of row crops in the 10-year federal Conservation Reserve program (CRP). Pheasant populations in historical ranges, northern and central regions, have rebound since the inception of CRP (Figure 7). Populations in the southern regions initially responded to CRP the same way northern and central populations did, but have declined since 1992. Declines in SW and SC regions, in particular, are likely related to wet weather during the nesting season, lack of habitat management on CRP acres and other land use changes. The pheasant season opens the last Saturday in October and runs through January 10th, statewide with a bag/possession limit of 3/12 roosters (Table 10). Shooting hours are 8 am - 4:30 pm. Iowa's first youth pheasant season was held during the 1997-98 hunting season. Youth hunting is allowed statewide for resident hunter's 15 years or younger whom a licensed adult accompanied. The youth pheasant season opens the weekend proceeding the regular season. Bag limit is 1 rooster/day with 2 in possession after the first day (Table 10).

<u>Bobwhite Quail</u>

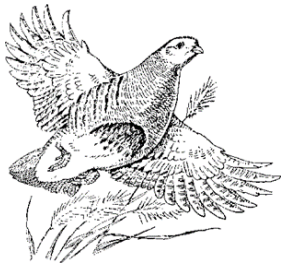
Our native bobwhite was probably never very abundant on Iowa's virgin prairie; most populations were likely restricted to the prairie-timber edges of Iowa (Leopold 1933a). Early settlement changed Iowa's landscape forever. At least initially these changes proved to be a boom to Iowa's quail population. Between 1860-90 settlers began carving up Iowa a ¼ section at a time, but early settlers lacked timber and wire to make fences, so they planted Osage hedges instead. Three to 6 miles of some of the finest quail cover ever grown in ever 1/4 section, all within spitting distance of newly planted "weedy" grain fields (Leopold 1933a). Quail populations exploded like never seen before or likely to be seen again. Quail could be found in every county, but these conditions could not last. By 1920 reports show quail populations beginning to decline as farming practices improved and hedgerows were replaced with barbed wire fence. The 1931-32 winter quail survey reported population densities of 1 quail per 20-40+ acres in the northern third of the state, 1 quail/6-20 ac. in the central

third and 1 quail/1-6 ac. in the southern third of the state (Leopold 1933a). However, quail populations have declined steadily, both nationally and in Iowa since the 1930's. Large scale landscape changes and clean farming practices are considered the major factors in this decline (Dimmick et.al. 2002).

Since survey procedures were standardized in the early 1960's the mean number of quail/30 miles sighted on the August roadside survey has fluctuated over the years with significant declines occurring since 1977 (Figure 6). This decline, along with the severe fluctuations in SW and SC Iowa in recent years, are related to losses in shrubby habitat and clean farming practices that have occurred since row-crop agriculture expanded in the mid 70's and early 80's (Figure 8). Similar to pheasants, quail numbers have declined sharply following harsh winters in 1964-65, 1966-67, 1978-79, 1981-82, 2000-01, and 2007-11. Populations rebounded between 2012-18 with 5 consecutive relatively mild winters across southern Iowa, which led to above normal hen survival and increased populations (Figure 8).

Quail have been hunted in Iowa since settlement. The first bag limit was set in 1878 at 25 birds/day, it was reduced to 15/day in 1915. The season was closed in 1917 and a limited season reopened in 1933. Currently the season opens the last Saturday in October and runs through January 31st, statewide, with a bag/possession limit of 8/16 birds. Shooting hours are 8 am - 4:30 pm (Table 11).

Gray Partridge



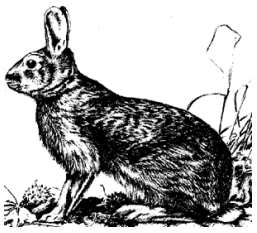
Senator H.W. Grant of Waterloo made the first release of fifty Hungarian or gray partridge in Iowa in Blackhawk County in 1902, but all birds died. The first successful release of Huns in Iowa occurred in Palo Alto County in 1905. This release constitutes Iowa's first wild stock (Leopold 1933c).

Successful releases were made in Humboldt county in 1906, O'Brien in 1909, and in Kossuth in 1910. By 1914 most northern Iowa counties had received standardized releases of 20 pairs each. All releases, similar to pheasants, were made on leased timbered lands. Reports show many local farmers were surprised when the bird promptly moved to the nearest prairie upland. By 1932 it is estimated the state conservation commission had stocked 20,000+ partridge in Iowa. Most plantings were in northern Iowa, although a few were attempted in south central Iowa; all southern attempts failed. The birds gained their strongest hold in northwest Iowa in Osceola, O'Brien, Dickinson, and Clay counties and were generally present in most northern Iowa counties by 1940 (Leopold 1933c).

While numbers of other upland game birds have decreased over time, the number of gray partridge sighted on roadside counts increased until 1990 (Figure 6). Not only had the mean number partridge per 30-mile route increased statewide, but partridge populations had expanded their range from the NW and NC regions to all other regions of the state by 1986 (Figure 9). While losses of woody cover and nesting cover have created less favorable conditions for pheasant and quail, partridge were more adept at coping with row-crop expansion. The statewide increase in partridge numbers between 1983-89 can be attributed a drought during these years and improved nesting conditions on land enrolled in CRP. Following the drought populations have returned to levels seen prior to 1983 (Figure 6). Huns come from the arid, steppe region of southeastern Europe and northern Asia, and research has shown they do not reproduce well in this country during years with wet springs.

Iowa's first partridge season was held in 11 northwestern counties in 1937-39. Partridge season was standardized in 1989 to opens the second Saturday in October and runs through January 31st, statewide, with a bag/possession limit of 8/16 birds. Shooting hours are 8 am - 4:30 pm. (Table 12).

Eastern Cottontail



Little is known about the pre-settlement distribution of cottontail rabbits in Iowa. Cultivation by man no doubt favored rabbits much the same way it favored quail at the turn of the century (Schwartz 1973). Cottontails prefer habitats similar to quail, favoring shrubby-grassy edge habitats. Cottontails may have up to 6 litters a year in Iowa and reproduce best during warm moderately wet springs. Numbers of cottontail rabbits observed on the August roadside survey have fluctuated with changing land use and weather conditions (Figure 6). Hunter interest has declined in recent years (Figure 12). Cottontails have been hunted in Iowa since settlers first arrived. The cottontail season was standardized in 1978 and opened the first Saturday in September through February 28th, statewide, with a bag/possession limit of 10/20 rabbits. Shooting hours are sunrise to sunset (Table 13). The rule regarding the opening day of the cottontail season was changed in 1997 to open the 1997-98 season on Sept. 1st. This change in date allows inclusion of the Labor Day weekend in all years. It was changed again in 2008 to open the Saturday before Labor Day to allow youth hunters to participate in the opener.

White-tailed Jackrabbit

Before settlement, white-tailed jackrabbits were likely most common in NW Iowa (Schwartz 1973). Their greatest abundance however was on the glaciated soils of the Des Moines Lobe and the Missouri Loess soils of northwestern Iowa. They are most at home on the wide-open expanses of prairie/wetland/pasture habitat types, although moderate cultivation favors the species. Dry growing seasons appear conducive to jackrabbit abundance as population's decline in wet years. Jackrabbit counts have declined greatly over time, closely paralleling the losses of pasture, hay, and small grain acreages (Tapia 2010). Because of this downward trend, the bag/possession limit was reduced from 2/4 to 1/2 following the 2005-06 hunting season. The hunting season on jackrabbits was closed during 2011-12 hunting season because of continued declines on the August roadside survey. It may be reopened if populations recover due to landscape changes like grass-based biomass. Jacks have been hunted in Iowa since the time of settlement. Conservation officers reported hunters killing 180+ jacks on two circle hunts in Carroll and Buena Vista counties during the winter of 1960 (Kline 1963). Historic trends in jackrabbit population, harvest, and hunting seasons can be found in Tables 3, 6, and 13.

STUDY AREA

Data for both the August Roadside and Small Game Harvest surveys are summarized by USDA and NOAA crop reporting regions in Iowa (Figure 1). This allows for comparison of population and harvest data with cropping and climate summaries readily available from USDA and NOAA.

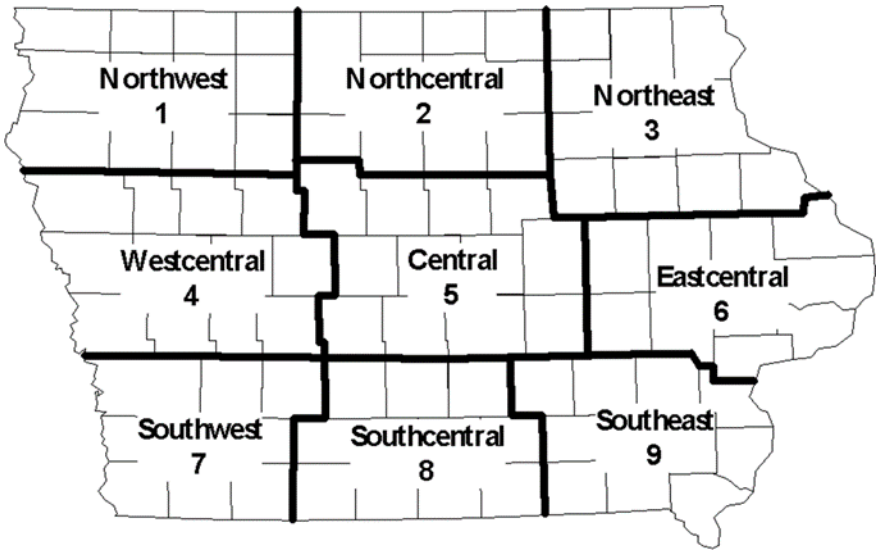


Figure 1. Survey regions for the August Roadside Survey.

METHODS

August Roadside Survey

DNR Wildlife and Law Enforcement Bureau personnel throughout the state of Iowa conduct August Roadside Survey each year during the first half of August. The survey generates data from 220 30-mile routes, across all counties, on ring-necked pheasants, bobwhite quail, gray partridge, cottontail rabbits, and white-tailed jackrabbits. Staff are encouraged to run routes under ideal conditions if possible, sunny, calm mornings with a heavy dew. For the annual August Roadside report (http://www.iowadnr.gov/pheasantsurvey) comparisons between years are based on directly comparable routes, routes run under good weather conditions and with no changes to the route location from the previous year. A Wilcoxon signed rank test is used to test for difference between years. Data in this report are for all routes completed.

Bennett and Hendrickson (1938) first proposed a September/October roadside survey as a method for indexing Iowa pheasant populations in 1936. Several subsequent studies confirmed the value of the survey for tracking statewide pheasant populations (Stiles and Hendrickson 1946, and Kozicky et.al. 1952). Klonglan's (1955) evaluation of the survey showed routes run under ideal weather conditions and conducted in August provided more consistent data. These recommendations were implemented in 1962 and still guide the survey today. Analysis of roadside count data by Wooley et.al. (1979) and Suchy et.al. (1991) reconfirmed the validity of the survey for tracking regional and statewide upland game population trends. Most recently Dienes (2022) conducted an analysis of roadside surveys across the U.S. pheasant range and found meteorological data did improve detection, although the relationships were not as strong as those reported by Klonglan (1955). The use of repeated counts with N-mixture models could be used to improve the survey when conducting comparisons across regions or states.

Small Game Harvest Survey

The Small Game Harvest Survey (Nomsen 1961) is a mail survey of Iowa licensed hunters conducted following the small game hunting seasons. Each year a stratified random sample of 8,500 licensed hunters are send a postcard and survey participants are asked if they hunted small game, which species they hunted, how many days they hunted, and how many of each species they harvested. The survey is a double mailing with weights to adjust for non-response bias. Three strata (license type, residency, and whether the hunter purchased a deer license) are used for pulling a sample of licensed hunters. Overall means are reported in text and figures. Over the years the survey has changed to accommodate changes in license types, survey questions, and to improve estimates (e.g. survey changed from a single to double mailing in 1999 or account for unrealistic reporting Table 6). Wooley et.al. (1979) and Suchy et.al (1991) provide the most recent reviews of the survey.

RESULTS

The tables and figures are a summary of the August Roadside and Small Game Harvest surveys. Most tables show data beginning in 1962 when the August Roadside and Small Game Harvest surveys were initiated/standardized, but some tables have data dating further back (license sales, season dates, etc) depending upon what was captured in historical archives. See upland game excel spreadsheet for tables and figures.

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