A Review of Iowa's Upland Game Bird Populations


Pheasant – Roger Hill


Quail – Roger Hill


Partridge - Iowa DNR

REPORT TO THE GOVERNOR AND GENERAL ASSEMBLY
JANUARY 10, 2010

Submitted by the Upland Game Bird Study Advisory Committee

Upland Game Bird Advisory Committee Report

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Executive Summary

The upland game bird advisory committee was charged with the task of reviewing the current status of upland game birds in Iowa and making recommendations that would increase populations of these species. The committee met four times in 2009: September 9, October 2, October 22 and November 17. At the first meeting the committee was given an overview of upland game bird biology by Iowa DNR staff and an outside facilitator hired by the DNR. During the first meeting the committee developed a set of questions in an attempt to address the six issues outlined in the legislation. The next three meetings were used to review the information requested by the committee. During the final meeting each committee member voted for the issues that they thought were the most important to upland game bird populations in Iowa.

Game Bird Populations, Harvest, and Habitat Management

The committee considered that over the past 40 years upland game bird numbers and harvest in Iowa have been in a general decline. This trend correlates strongly with a change in agriculture practices which have caused the amount of land used to produce small grains and hay to decline dramatically. The size of farm fields has also increased which decreases the amount of available edge habitat for these species. Current agricultural practices also result in cleaner fields with fewer weeds and weedy edges. As a result even the remaining field edges provide less suitable habitat for upland game birds.

There have been bright spots in upland game bird numbers over the past 40 years when the amount of grassland cover has increased mostly due to federal farm programs. However, over the last 10 years the amount of this type of cover has declined significantly and will likely continue to decline due to the demand for corn and soybeans.

Given suitable habitat the number of upland game birds present at any time is ultimately determined by the weather. Following mild winters when more birds survive and following warm, dry springs when more birds successfully hatch nests the number of birds in the population the following fall generally increase. Following winters with severe cold and prolonged snow cover bird numbers can drop dramatically. By its nature weather is unpredictable and weather patterns constantly change. This makes it difficult to compare the observed counts in different regions of the state and easily determine if habitat or the weather has played a stronger role in influencing numbers. Habitat can help mitigate the impact of weather but less so following extreme weather events such as what occurred during the winter of 2007-08 or the extensive flooding experienced in 2008.

Extreme weather events are not the only factor that affects upland game bird numbers. Since the mid-90s the average amount of rainfall during April and May has increased most notably in southern and eastern Iowa. So although southern Iowa has much more grassland habitat it has had low pheasant counts in recent years at least in part due to this wetter spring weather. Conversely, northwest Iowa, which does not have the greatest amount of suitable habitat, has had the highest pheasant counts in recent years due at least in part to favorable winter and spring weather. In the past 5 years northwest Iowa has had 4 consecutive springs conducive to good hatches whereas south-central Iowa has had but one.

The committee also considered that although pheasants, quail and gray partridge are grassland nesting species each requires somewhat different habitat. Quail are found primarily in southern Iowa and do best in cover in early stages of succession interspersed with brush while pheasants are most abundant in northern Iowa and prefer rank grasses and wetland habitats. Gray partridge are predominately found in northwestern Iowa and prefer open grassland habitat and drier conditions.

Game Bird Economic Impact and Value

Upland game bird hunting generated $135 million of economic activity and 1.3 million days of outdoor recreation in 2006 in Iowa. This has decreased as bird numbers have declined. In 1996 this estimate was close to $200 million which means that when these numbers are adjusted for inflation the loss of economic activity generated by upland game is close to $100 million in just 10 years.

Public Opinion

Hunting upland game birds has been and will continue to be an important component of Iowa's social and cultural fabric as long as adequate populations of upland game are available. Recent opinion surveys show that Iowa residents

appreciate Iowa's natural resources and landscapes that support upland game birds and are willing to devote additional resources to improving conservation efforts.

Other Midwestern States

The committee heard from a wildlife biologist with the South Dakota Department of Game, Fish and Parks who explained what has happened to make South Dakota currently the premier pheasant state. He stated that habitat and the weather were the most important factors that affect pheasants in South Dakota. Stocking pheasants and predator control had been used in the past but did not prove to be effective in restoring pheasant numbers. He also reported that the loss of CRP and more severe winter weather has decreased numbers in parts of South Dakota within the last year.

New and Innovative Ideas

It was not possible for the committee to develop consensus statements because of the complex interactions between weather, habitats and birds numbers. The committee did prioritize the issues which they believe to be the most important for restoring sustainable populations of all three species of upland game birds in Iowa. Each committee member voted for the three issues that they thought were the most important to upland game bird populations in Iowa (Table 1). The top three priorities of the committee for all three species could be summarized as follows:

1. Putting and keeping suitable habitat on the ground is the most important step to restoring upland game birds. The USDA habitat programs with the scope (acres and dollars) to recover populations are CRP and Continuous CRP but other programs could be utilized as well.
2. Adequate field staff needs to be available to promote and deliver these habitat programs to Iowa landowners so that individual landowners can understand the options available and best suited to their farm and farming practices.
3. Adequate funding is needed to accomplish the above two priorities. Ideally a combination of state, local and private funds would be used to leverage these programs to have a broad impact on Iowa's landscape.

Table 1. The priority ranking for the various issues relating to each of the upland game bird species.

Pheasants	Bobwhite	Gray Partridge
19 - Conservation Reserve Program (CRP)	**21 - Reload Iowa (Pheasants Forever)**	**18 - Reload Iowa (Pheasants Forever)**
19 - Reload Iowa (Pheasants Forever)	**18 - DNR Private Lands Program**	**18 - Sustainable Funding**
19 - Sustainable Funding	**17 - Sustainable Funding**	**16 - Conservation Reserve Program (CRP)**
16 - DNR Private Lands Program	**14 - Continuous Conservation Reserve Program (CCRP)**	**14 - DNR Private Lands Program**
11 - Continuous Conservation Reserve Program (CCRP)	**12 - Conservation Reserve Program (CRP)**	**13 - Continuous Conservation Reserve Program (CCRP)**
7 - Stocking Wild Birds	10 - Wildlife Habitat Incentives Program (WHIP)	7 - Casino/Pull Tabs
5 - Conservation Reserve Enhancement (CREP)	7 - DNR Public Land	6 - DNR Public Land
5 - DNR Public Land	5 - Roadside Mowing Limits	6 - Conservation Stewardship Program (CSP)
4 - Grassland Reserve Program (GRP)	4 - Wetland Reserve Program (WRP)	5 - Roadside Vegetation Management
4 - Wildlife Habitat Incentives Program (WHIP)	4 - Grassland Reserve Program (GRP)	5 - Stocking Wild Birds
4 - Casino/Pull Tabs	3 - Conservation Stewardship Program (CSP)	5 - Wildlife Habitat Incentives Program (WHIP)
2 - Wetland Reserve Program (WRP)	3 - Stocking Wild Birds	5 - Grassland Reserve Program (GRP)
2 - Roadside Mowing Limits	3 - Casino/Pull Tabs	5 - Roadside Mowing Limits
2 - Stocking Pen-reared Birds	2 - Conservation Reserve Enhancement (CREP)	4 - Wetland Reserve Program (WRP)
1 - Wetland Reserve Enhancement Program (WREP)	2 - Environmental Quality Incentives Program (EQIP)	1 - Conservation Reserve Enhancement (CREP)

Pheasants	Bobwhite	Gray Partridge
1 - Environmental Quality Incentives Program (EQIP)	0 - Mid-Contract Management (MCM)	1 - Predator Control
1 - Conservation Stewardship Program (CSP)	0 - Wetland Reserve Enhancement Program (WREP)	1 - Access Program
1 - Mid-Contract Management (MCM)	0 - Stocking Pen-reared Birds	0 - Environmental Quality Incentives Program (EQIP)
1 - Predator Control	0 - Predator Control	0 - Mid-Contract Management (MCM)
0 - DNR Water Quality Initiative	0 - DNR Water Quality Initiative	0 - Wetland Reserve Enhancement Program (WREP)
0 - Roadside Vegetation Management	0 - Roadside Vegetation Management	0 - Stocking Pen-reared Birds
0 - Access Program	0 - Access Program	0 - DNR Water Quality Initiative
0 - Bio-fuels	0 - Bio-fuels	0 - Bio-fuels

There are no simple solutions to restoring upland bird numbers in Iowa. Improving and fully implementing the programs identified by the committee will require cooperation, sharing of resources and a close working relationship between the federal, state, county and local governments as well as non-governmental partners and private landowners. There has been a good history of these groups working together in Iowa. For example, Iowa leads the nation in establishing CRP buffers and farmable wetlands, but much more will need to be done if the trend in upland game bird numbers is to be reversed. It will take a dedicated effort by all stakeholders to establish and maintain suitable habitat on the ground.

The body of this report captures the various and varied thoughts of the committee on the issues examined. The report provides the background research and details necessary to better understand what has happened to Iowa's upland game bird populations and the challenges faced in the future. Only by fully understanding where we have been can we choose the best path for the future.

Committee Purpose and Tasks

Legislative Directive:

House File 722 enacted by the 83rd General Assembly established an Upland Game Bird Study Advisory Committee for the purpose of studying the best ways to restore sustainable and socially acceptable populations of pheasants and quail in the state to maximize the economic value of upland game bird hunting to Iowa's economy while balancing the needs of the agricultural industry.

The committee shall review, analyze, and make recommendations on issues relating to the state's upland game bird population, including but not limited to the following:

a. The current status of Iowa's upland game bird populations and harvest and habitat management programs.
b. Current farm programs and their impact on upland game bird populations.
c. The economic impact and value of Iowa's upland game bird populations to Iowa.
d. Upland game bird population challenges and programs in other Midwestern states.
e. New and innovative ways to restore sustainable populations of Iowa's upland game birds.
f. An assessment of public opinion concerning the impact and value of Iowa's upland game bird populations.

The committee was composed of members from the following organizations or entities: a Farmland manager, Farm Service Agency, a farmer in northern and one from southern Iowa, a hunter from northern Iowa and one from southern Iowa, Iowa Association of County Conservation Boards, Iowa Chapter of the Sierra Club, Iowa Conservation Alliance, Iowa Department of Agricultural and Land Stewardship, Iowa Department of Natural Resources

Iowa Department of Transportation, Iowa Farm Bureau Federation, Iowa Farmers Union, Iowa Realtors Association, Iowa Sportsmen's Federation, Iowa State University, Izaak Walton league, Legislative staff from each of Iowa's senators, two state representatives and two state senators, Outdoor Writer's Association, Pheasants Forever, Quails Forever, State Soil Conservation Committee and the United States Fish and Wildlife Service. The Iowa Hospitality Association and the Iowa Department of Economic Development also were designated as members but did not send representatives to any of the

meetings. The committee voted to include a representative from the Natural Resources Conservation Service.

Upland Game Bird Study Committee Appointees

Appointee	Organization
Bruce Ahrens	Farm land manager
Pat Hastings	Farmer in northern Iowa
Ben Moore	Farmer in southern Iowa
Andrea Evelsizer	Hunter from northern Iowa
Ron Dunphy	Hunter from southern Iowa
Deb Neustedt	Iowa Chapter of the Sierra Club
Rick Tebbs	Iowa Conservation Alliance
Rick Robinson	Iowa Farm Bureau Federation
Marvin Shirley	Iowa Farmers Union
Kate Brock	Iowa Realtors Association
Craig Swartz	Iowa Sportsmen's Federation
Roy Overton	Izaak Walton league
Ron Kuntz	Outdoor Writer's Association
Matt O'Conner	Pheasants Forever
Jim Wooley	Quail Forever
Julie Ohde	Iowa Association of County Conservation Boards
Jim Gillespie	Iowa Department of Agricultural and Land Stewardship
Jill Rudloff	Iowa Department of Transportation
Richard Leopold	Iowa Department of Natural Resources
John Sellers	State Soil Conservation Committee
Jennifer Anderson-Cruz	Natural Resource Conservation Service
John Whitaker	Farm Service Agency
Doug Helmers	United States Fish and Wildlife Service
Dr Dave Otis	Iowa State University
Fred Schuster	Legislative staff for Senator Charles Grassley
John Moreland	Legislative staff for Senator Tom Harkin
Representative John Beard	Iowa Legislature
Representative Richard Arnold	Iowa Legislature
Senator Dick Dearden	Iowa Legislature
Senator Kim Reynolds	Iowa Legislature

The body of the report contains the information that was presented during these meetings along with the committee's thoughts and recommendations.

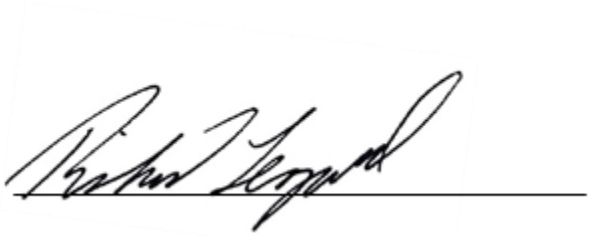
Acknowledgement
To the recipients of this report:

As assigned facilitators of the Upland Game Bird Study Advisory Committee, it has been our pleasure to serve as guiding members of this committee. The forward thinking of our legislators to request individuals from diverse organizations as representatives on the committee should be acknowledged and applauded. The committee members effectively represented their wide range of knowledge, expertise, and concern.

Many DNR staff contributed time to this effort, of which we would like to specifically acknowledge the dedicated work of the following individuals: Mimi Habhab, Todd Bogenschutz, Peter Fritzell, Dr. Dale Garner and Willie Suchy. Finally, we

would be remiss if we did not acknowledge the outstanding work of Dr. Jean Eells (E Resources Group) to facilitate these meetings.

The support for this effort has been outstanding and encouraging and we look forward to the implementation of these recommendations so that we can better manage Iowa's Upland Game Bird Populations.



Richard Leopold
Director
Iowa Department of Natural Resources

Ken Herring
Division Administrator
Iowa Department of Natural Resources

The current status of Iowa's upland game bird populations and harvest and habitat management programs.

Background

The information that follows describes the surveys the Wildlife Bureau uses to track upland game bird (ring-necked pheasant, bobwhite quail, gray partridge) populations, harvest, habitat, and weather. It also provides basic information about the biology of upland species, from Wildlife Bureau research or research in other states.

The DNR uses 2 primary surveys to track pheasant, quail, and gray partridge population trends and harvest. The August roadside survey (ARS) consists of 215 30-mile routes statewide and is used to monitor population trends. The survey has been conducted using the same protocols since 1962. The survey is conducted in the first 2 weeks of August after the completion of most nesting. Results are generally reported as the average number of birds counted per 30-mile route. Hunter harvest is monitored using a post card survey sent to a random sample of small game license holders following the hunting season. Trends in upland game bird populations, harvest, and hunters are shown in Figure 1 and Figure 2. Peaks and valleys in hunter numbers track with peaks and valleys in bird populations.

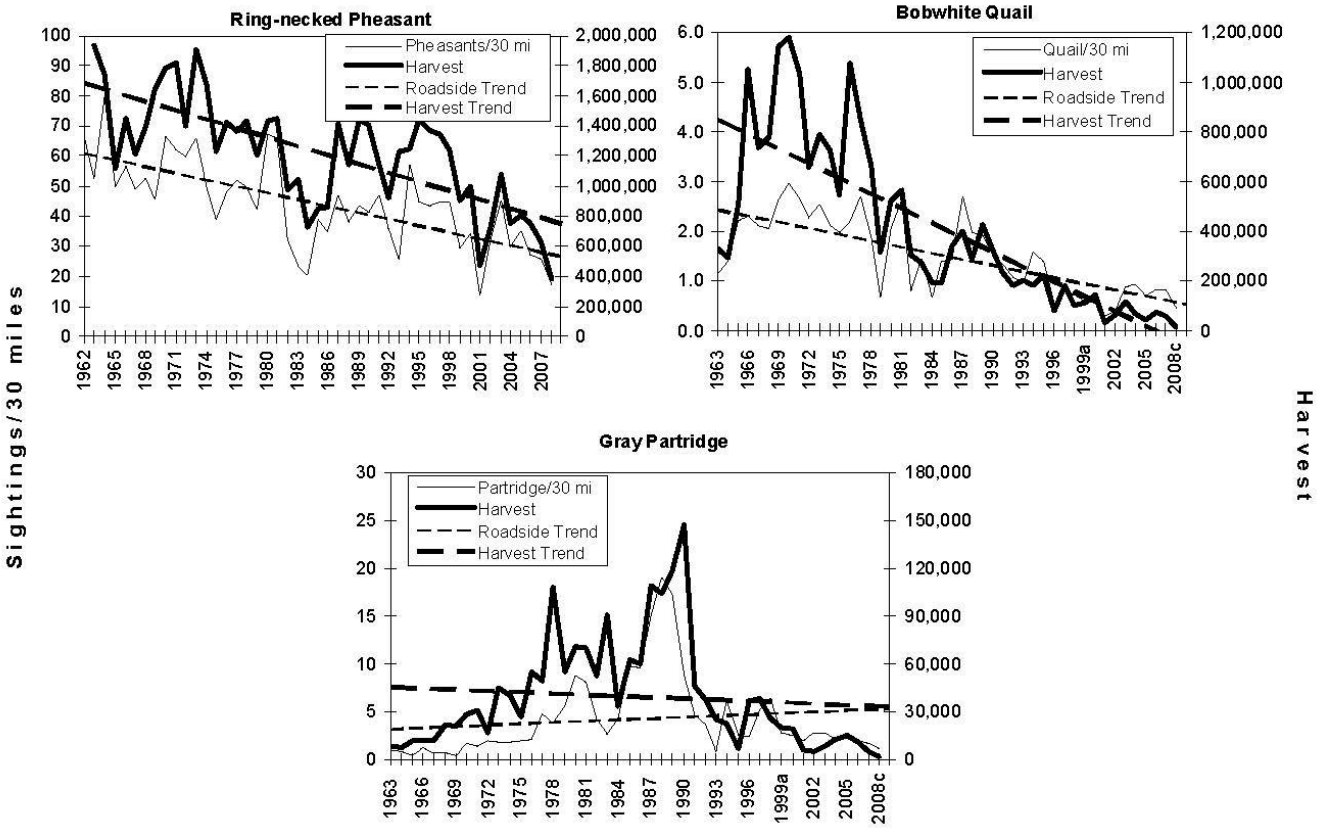


Figure 1. Wildlife Bureau roadside counts and hunters reported harvest 1962-08.

Comparison of these two surveys shows a strong correlation through time. Figure 3 shows the relationship between pheasant and quail counted on roadside counts and subsequent reported hunter harvest. The relationship between these 2 independent surveys is so strong the bureau can make a fairly accurate prediction of harvest before the hunting season. Assuming hunters do not lie when they report their bird harvest to the Wildlife Bureau, it would appear the roadside counts provide an accurate reflection of upland game bird population trends in Iowa.

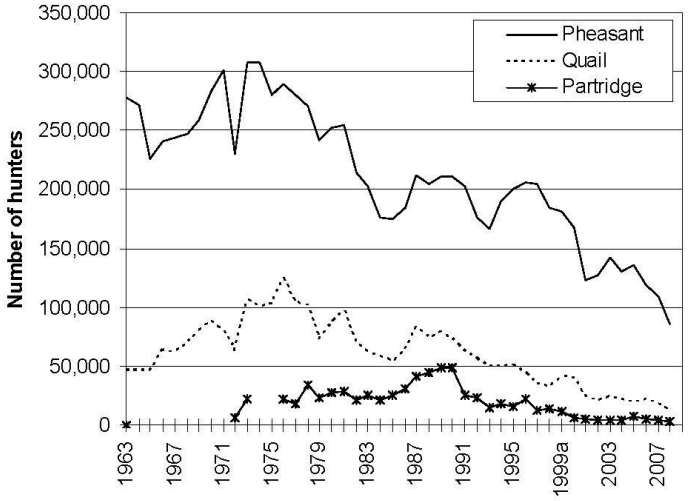


Figure 2. Trends in upland game bird hunters.

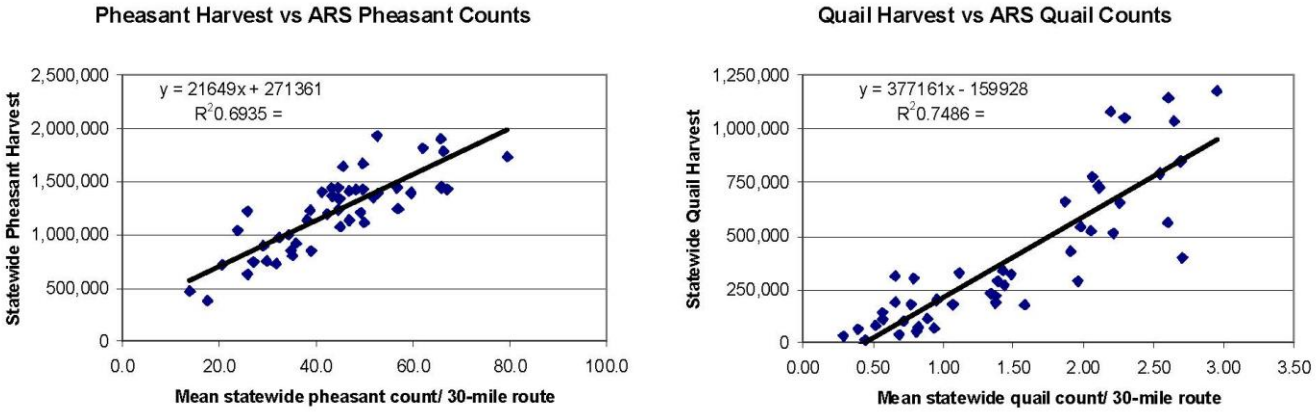


Figure 3. Relationship between reported harvest and mean birds counted per 30-mile route on the August Roadside Survey for ring-necked pheasants, and bobwhite quail, 1963-08.

Information on Iowa land use (habitat) and weather patterns is collected by the National Agricultural Statistics Service/ US Dept. of Agriculture (NASS/USDA) and the National Oceanic and Atmospheric Administration (NOAA). Both federal agencies use the same nine reporting regions to report land use and weather patterns (Figure 4). The Wildlife Bureau uses these same regions when reporting upland game bird information. The NASS/USDA annually collects information by county on the types of crops grown on agricultural lands in Iowa (e.g., acres of corn, soybeans, hay, oats, etc.) as well as the acres of land enrolled in USDA conservation programs like the Conservation Reserve Program (CRP). The NOAA annually collects information by county on temperature, rainfall, and snowfall.

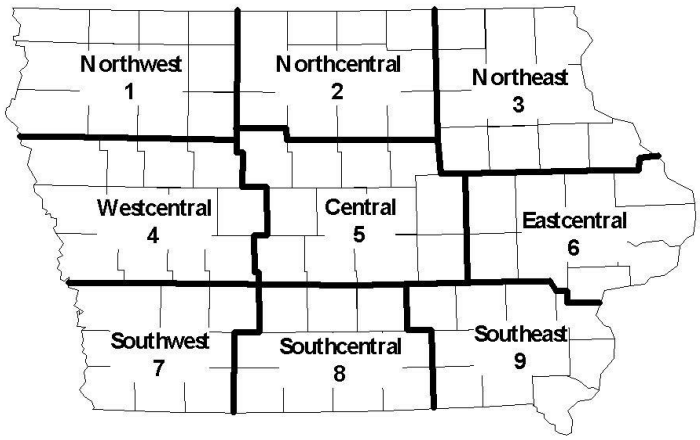


Figure 4. Reporting regions/climate divisions used by USDA, NOAA, and Wildlife Bureau.

Grassy like habitats, whether hay land, CRP land or small grain crops (oats or wheat) are very important in the life cycle of upland game birds. Grassy type habitats are where they nest and raise their young. Grassy habitats also provide fall and early winter cover if undisturbed and food in the case of small grains. Plotting changes in grassy type habitats (hay/CRP/small grains) since 1960 shows a steady decline in overall grassy type habitats in Iowa, the decline is particularly steep for the loss of small grain crops (Figure 5). Small grain acres declined 97% between 1960 and 2008, while hay acres declined by 56% (Appendix 1. Trends in Iowa land use patterns, National Agricultural Statistics Service, USDA.). USDA programs like CRP have helped offset the loss of hay and small grain land use, but CRP acres are also declining in Iowa. At peak enrollment (1994) Iowa had 2.2 M acres enrolled in whole field CRP. USDA's October 2009 CRP status report shows 1.1M acres of whole field enrollment, a 50% decline (Table 6).

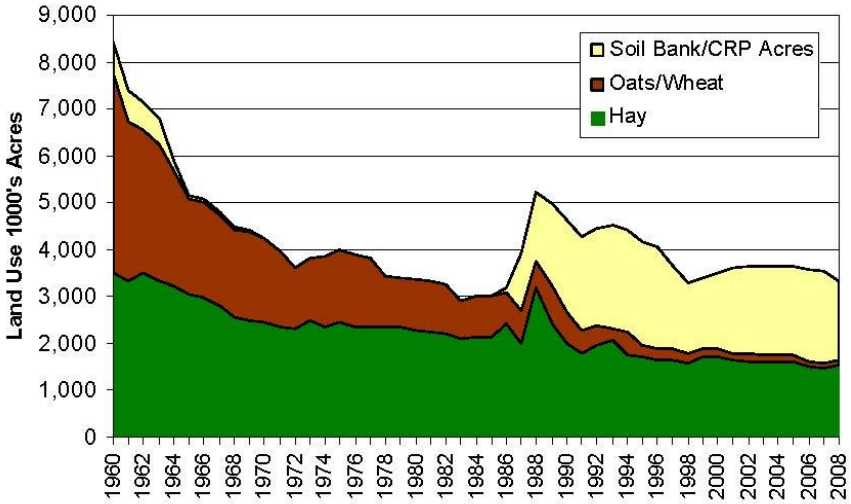


Figure 5. NASS land use trends 1960-08.

Habitat Management Programs

The Wildlife bureau of the Iowa DNR owns or manages through cooperative agreements with the US Fish and Wildlife Serves and US Army Core of Engineers approximately 358,391 acres of public wildlife lands. With some small exceptions all these lands are open to public hunting. These lands vary in nature from upland, to wetland, to riparian, to forested habitats. Wildlife bureau management staff manages these lands for a variety of species both game and non-game. Some of the best habitat for pheasants and quail in the state are found on public wildlife areas. However, 358,391 acres comprises 1% of Iowa's 55,875 square mile land area. Over the last several decades the wildlife bureau has acquired approximately 3,000 acres annually from willing Iowa landowners to provide more habitat for all wildlife, but the fact of the matter is the wildlife bureau will never be able to buy enough lands to satisfy the needs of Iowa's public. In the past the biologists who manage public lands also provided assistance to private landowners regarding wildlife habitat as their schedules allowed. However, with no new staff, increasing lands to manage and tighter budgets the ability to work with private landowners has declined significantly.

To fill the void left by traditional wildlife managers, the wildlife bureau initiated a new Private Lands Program (PLP) in 2000 in cooperation with the Natural Resources Conservation Service (NRCS) of USDA. The goal was to have 5 biologists and 5 specialists stationed in USDA - NRCS offices across Iowa. DNR staff is co-located in NRCS offices because this is the location where most Iowa landowners/producers come regarding farm management. Also, all USDA conservation programs like CRP are delivered out of USDA field offices. When this partnership between DNR and NRCS started it was a 50:50 split with wildlife bureau paying half the position cost and NRCS the other half. Unfortunately, with federal budget cuts NRCS has had to modify this arrangement. Currently 2 of the specialist positions are vacant. Each biologist covers approximately a 20-county area that corresponds to NRCS divisional structure. The goal of the biologist is not so much to work with landowners one on one, but to provide training to NRCS staff in county offices so they can assist landowners with wildlife management. The wildlife specialist work in 1 to 2 counties where NRCS and DNR have mutual priorities and they work one on one with landowners with habitat management plans and delivering USDA conservation programs. Through some soft money with local entities the wildlife bureau also has several temporary 3-6 month

positions working in smaller watersheds in addition to permanent staff.

Recently, the Iowa State Council of Pheasants Forever launched a new initiative in Iowa called “Reload Iowa”. The goal of this program is to hire 50 staff for a 3 year period, one staff person for every 2 counties in Iowa. Over their 3 year employment, these staff would be tasked to visit every landowner in both counties and provide information on wildlife management and conservation programs available to them. Funding for these positions would be thru corporate sponsors in each 2-county area. Since the wildlife bureau already has a private lands program the DNR and Pheasants Forever have formed a partnership to provide training to these staff and assist with the daily coordination of staff. Currently 4 positions have been filled under the Reload Iowa Program covering the following counties: Winnebago/ Hancock, Adair/Madison, Harrison/Pottawattamie, and Lyon/Osceola/Dickinson. A map with current wildlife bureau and Reload Iowa staff can be seen in Appendix 12. Location of wildlife bureau private lands staff and Pheasants Forever Reload Iowa staff (farmbill biologist designation)..

Current Population Trends

Pheasant Biology: the ring-necked pheasant was introduced into this country around 1880 from China. The most abundant populations in the United States occur in the upper Midwest in agricultural landscapes interspersed with grasslands and wetlands (Figure 6). Pheasants are polygamous breeders, meaning one rooster will breed many hens, this is why a rooster-only hunting season does not impact future populations (e.g., the hens are protected from hunting and a single rooster can breed many hens). Preferred winter cover is dense switchgrass, cattails, brush, and evergreens, while preferred nesting/brood-rearing cover is alfalfa/oats or other similar grasses and forbs. The primary nesting season is April and May with peak hatch occurring in mid-June. Pheasant populations can be significantly impacted by weather during winter and during the spring nesting and brood-rearing periods.

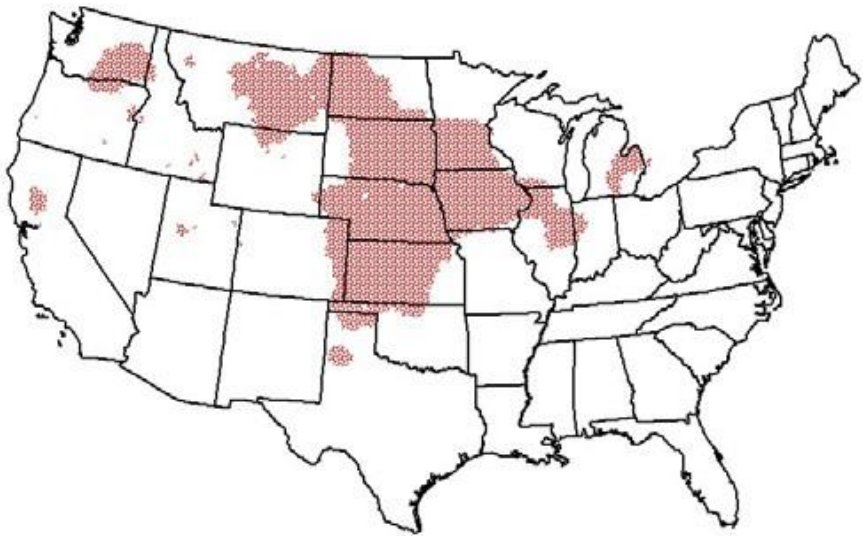
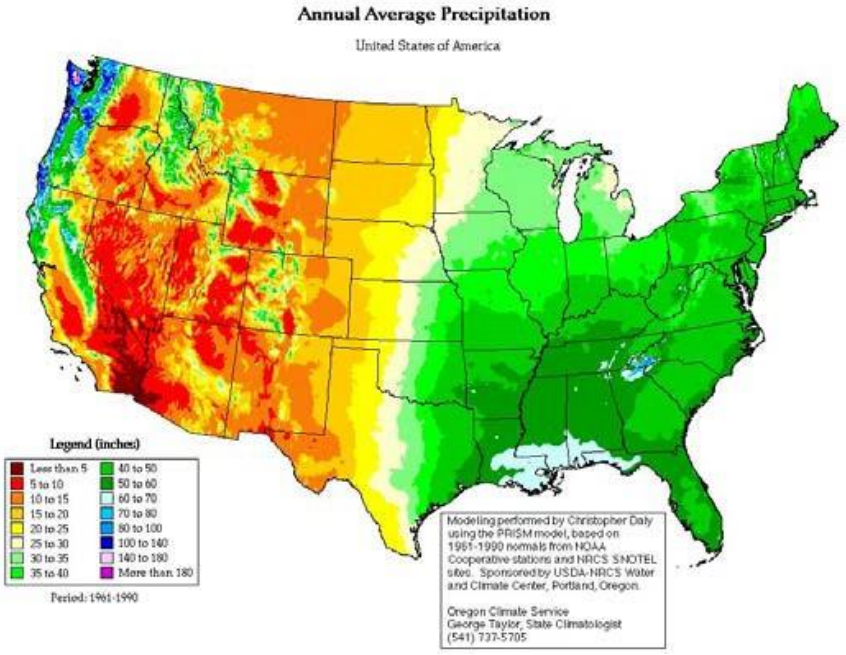


Figure 6. Primary pheasant range, from Breeding Bird Survey 1994-03.

Historically pheasants prefer northern and western Iowa and persist in eastern in southern Iowa. A comparison of the 1932 pheasant distribution map and pheasant distribution over the last 10 years shows this distribution (Appendix 2. Historic and recent pheasant distribution in Iowa. The 1932 map was developed based on flush counts on individual farms, the recent map is the 10 year distribution from the August Roadside Survey.). Given pheasants prefer drier climates and open landscapes without a lot of timber this distribution in Iowa makes sense. The northwestern portion of Iowa is the driest part of the state and has the least woody habitat, while the southeastern portion of Iowa is the wettest part of the state and has the most woody habitat.

Between 1990 and 1994 the Wildlife bureau placed radios on over 500 wild hen pheasants to study the relationships between weather and habitat on pheasant populations. In mild winters with 10 inches of snow hen survival was over 90%, but in snowy winters with over 50 inches of snow hen survival was only 20%. Nest success was as high as 60% in warm/dry springs with 5” of rainfall and as low as 23% in cool/wet springs with 12” of rainfall. Appendix 3. Relationship between hen pheasant survival rates and weather variables between 1990-94 in north central Iowa. shows the

relationship of hen and brood survival to weather variables. Further analysis of these data, assuming average weather conditions, showed nest success must average 42% for the pheasant populations to remain stable. However, data from this study showed nest success falls below 42% when April/May rainfall exceeded 8.4" (Appendix 3. Relationship between hen pheasant survival rates and weather variables between 1990-94 in north central Iowa.).



The 2009 August Roadside Survey yielded a statewide average of 15.6 pheasants counted per 30-mile survey route. This is an 11% decline from the 2008 count of 17.5 pheasants per route. Over the last 10 years (2000-09) the statewide average is 27.6 birds per route and the long-term average is 43.5 birds per route (Appendix 4. Mean number of pheasants counted per 30-mile route on the August roadside survey regionally and statewide (1962-present).). The long-term average references the 47-year period from 1962 thru 2009 in which standardized counts have been conducted. The statewide rooster harvest reported by hunters in 2008 was 383,038 roosters. This is the lowest pheasant harvest ever reported by Iowa pheasant hunters. The 10-year average harvest is 750,000 roosters and the long-term average is 1.2 M roosters harvested (Appendix 5. Hunter reported harvest of upland game birds.).

In 2007 the statewide pheasant count was 26 birds per route, while the 2007 harvest was 631,000 roosters, both numbers significantly higher than 2008 and 2009 numbers. The significant decline in pheasant counts and harvest from 2007 to 2008 was caused by record setting winter snowfall from December 2007 thru March of 2008 and record setting rainfall in the spring of 2008. The following are direct quotes from the State Climatologist:

> "Winter 2007-08 - This was the snowiest season since 2000-01 and ties for 10th snowiest winter in 121 years of records"
> "Spring 2008 - The first six months of 2008 were the wettest recorded since statewide records began in 1873."

This past winter (2008-09) statewide snowfall averaged 31.8 inches or 26% above normal, while spring temperatures during the nesting were significantly cooler than normal. The pheasant decline from 2007 thru 2009 is mostly attributable to record setting weather patterns in 2007-08, and while 2009 weather moderated from 2008 it was still abnormally snowy and cool compared to normal conditions.

Statewide pheasant numbers show a long-term declining trend whether based on roadside counts or reported hunter harvest (Figure 1). Across Iowa's reporting regions the counts show a great degree of variability between regions and also over time (Appendix 4. Mean number of pheasants counted per 30-mile route on the August roadside survey regionally and statewide (1962-present).). This variability is related to changes in farming practices (land use) and weather patterns. These changes will be discussed more in subsequent paragraphs.

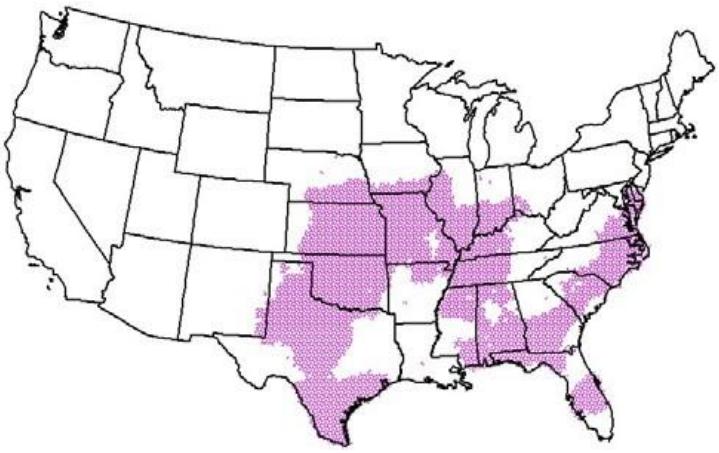


Figure 7. Primary quail range, from Breeding Bird Survey 1994-03.

Quail Biology: the northern bobwhite quail is native to Iowa. The most abundant populations occur across the southeast portion of the United States (Figure 7). Iowa is considered the northern fringe of the bobwhite range. Prior to settlement quail were restricted to the very southeast and south-central regions of Iowa. With settlement they expanded across the state all the way to the MN border. Aldo Leopold (1932) described the quail expansion across Iowa following settlement as follows:

> "The early settler brought the axe, plow, cow, split rail fence, hedges, weeds and grain to Iowa. The axe converted shady woods into brushy stumplots and the plow flanked them with weedy crop fields full of strange nourishing seeds (corn, wheat, oats). Plows on the prairie checked the sweep of prairie fires and shrubs promptly romped up every draw and coulee with quail at their heels. On the flat prairie each settler needed 3-6 miles of fence for each quarter section of land… lacking money for wire and timber for rails, settlers planted Osage orange hedgerows… tens of thousands of miles of as fine a quail cover as ever grew, planted on the hitherto quail-less prairie, and all within in ten steps (quail steps) of weedy laden crop fields. Quail responded to this disturbance in the forest and prairies by the millions… it was the golden age of quail (1860-90)."

Quail populations thrive in shrubby/brushy habitats adjacent to small grains (oats/wheat) interspersed with abundant weeds. Being smaller birds, quail avoid thick and rank vegetation preferred by pheasants because they simply cannot move thru it or escape from it. Brushy thickets, weed patches, and small grain crops all have the characteristics of overhead concealment cover, yet have abundant bare soil underneath them. Quail form coveys of 10-12 individuals in the fall and roost in loose circles to share body heat thru the winter months. Winter covey home ranges in good habitat are approximately 50 acres. Work with radioed wild quail shows coveys are never more than 70 ft from brushy habitat in the winter months. Given this small home range and need for brushy habitats, farm fields must be relatively small or very irregularly shaped to provide the habitat needs of quail and promote abundant numbers.

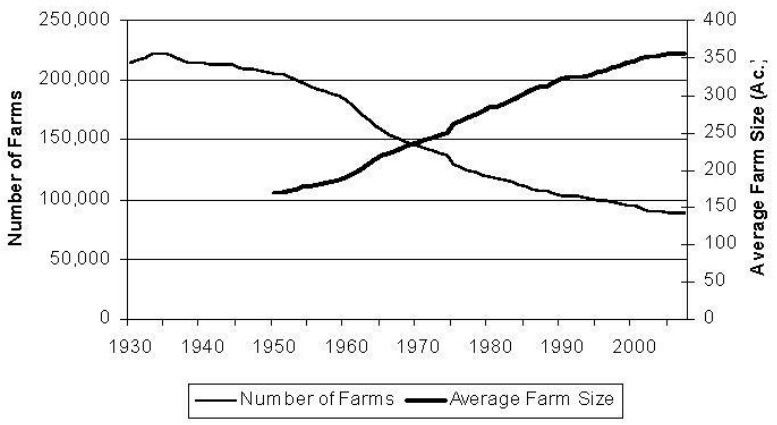


Figure 8. NASS trends in number of Iowa farms and average Iowa farm size.

This type of land use (farming) was common in the late 1800s as noted by Leopold. However, with increasing mechanized farming, quail populations soon began to decline. According to Leopold, most of the Osage hedges established in the 1800s were gone from northern Iowa by the 1930s and with them quail populations. USDA figures on number of farms and average farm size document this improvement in farming efficiency (Figure 8). As farming has become more efficient, fields become larger to accommodate larger more efficient equipment. Hedge rows and other odd brushy/weedy areas are removed to accommodate larger more efficient equipment. Another aspect of increasing farm efficiency is the increase use of pesticides to control weeds in crop fields. Data on US pesticide use shows a dramatic increasing trend (Figure 9). Given Iowa's agricultural landscape a similar trend likely exists for Iowa. Fewer weeds in association with cropland are detrimental to the quail population.

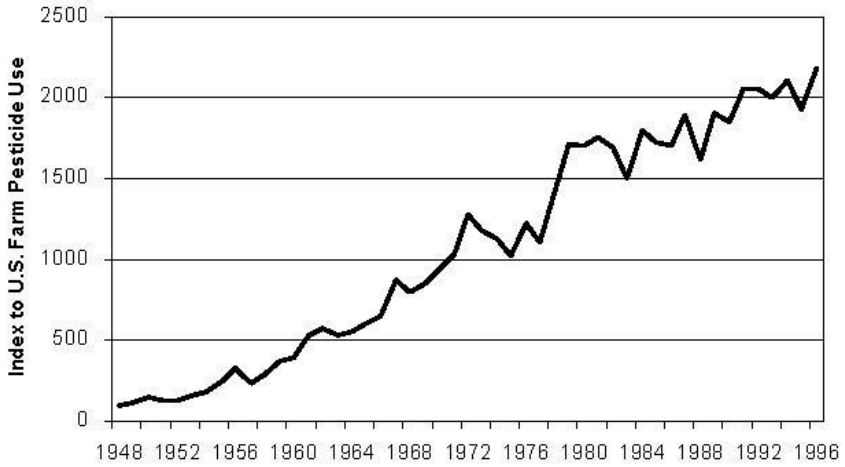


Figure 9. NASS trends in U.S. pesticide use.

Changes in the types of crops Iowa farmers plant have also impacted Iowa's quail numbers through time. The acres of oats and other small grain crops like barley, etc. have declined dramatically in Iowa over the last 50 years (Figure 10). Small grain

acres declined 97% between 1960 and 2008. All these changes in land use practices, larger fields with fewer hedges and fence lines, weed free crops, and loss of small grain crops have reduced Iowa's quail range from statewide in the 1860s to our current range, which is mostly the southern third of Iowa (Figure 7).

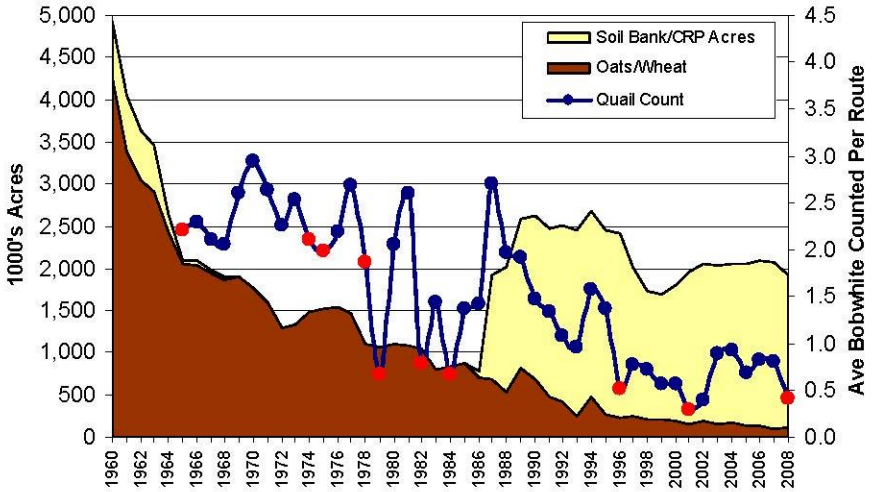


Figure 10. Quail roadside counts and small grain trends. Red dots denote the 10 longest/snowiest winters in the southern Iowa quail range

Because of their small size and Iowa's location on the northern fringe of the US quail range, snowy winters can devastate quail numbers in Iowa. The impact of severe winters is noted in Figure 10. However, as a native bird quail tolerate wetter nesting season weather better than pheasants. Female quail are mostly monogamous breeders (pairing with one male), however Iowa research with wild quail showed approximately 10% of females will hatch a second nest and approximately 20% of males incubated a nest started by a hen. Thus, bobwhite have a higher reproductive potential than pheasant or gray partridge where hens only produce 1 nest per year and males do not assist with nesting.

The 2009 August Roadside Survey yielded a statewide average of 0.68 quail counted per 30-mile survey route. This is a 53% increase from the 2008 count of 0.45 quail per route. Over the last 10 years the statewide average is 0.65 birds per route and the long-term average is 1.48 birds per route (Appendix 6. Mean number of quail counted per 30-mile route on the August roadside survey regionally and statewide (1962-present).). The 2009 statewide count is 5% above the 10-year average and 54% below the long-term average. The statewide quail harvest reported by hunters in 2008 was 13,391 quail an all-time low. The 10-year average harvest is 71,316 and the long-term average is 404,000 quail harvested (Appendix 5. Hunter reported harvest of upland game birds.). Similar to pheasants, quail numbers declined significantly following the winter of 2007-08.

Gray Partridge Biology: the partridge was introduced into Iowa around 1905. Their native range is the arid steppe region east of the Caspian Sea in Southeast Asia. Iowa is considered the southern most tip of their range in the United States as the species prefers more northern climates (Figure 11). Preferred habitat is open treeless grasslands with a good interspersion of cropland, primarily small grains (oats/wheat). Brush or shrub habitats interspersed within the cropland/grassland matrix is also preferred. Survey trends in Iowa show the species reproduces best during drought years in Iowa. Gray partridge in Iowa are most commonly seen in the NW, NC, WC, and C regions, which are also the driest regions of Iowa (Figure 4, Appendix 7. Mean number of gray partridge counted per 30-mile route on the August roadside survey regionally and statewide (1962-present).). Gray partridge seem to fluctuate in Iowa related to spring rainfall patterns. Gray partridge numbers have always been relatively low in Iowa except for one period 1977-1989 (Figure 12). This coincides with most significant drought period in recent Iowa history. Over this period spring rains were below normal 8 of 13 years. This makes sense given their native range in Asia which is arid. Their numbers do not appear to correlate with any habitat trends.

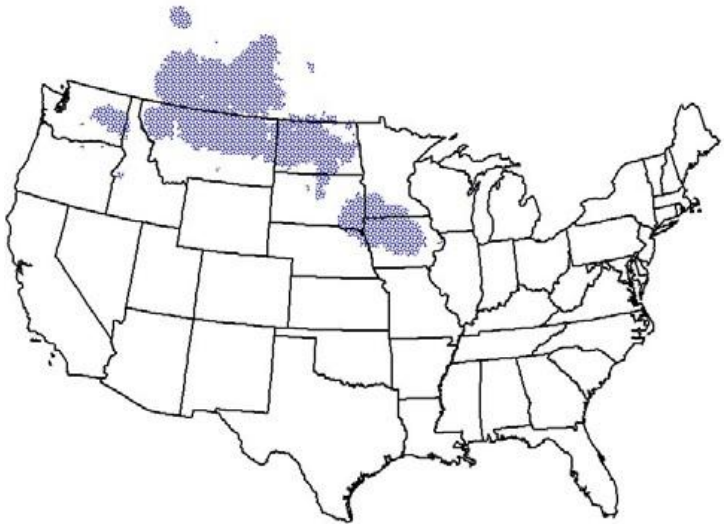


Figure 11. Primary gray partridge range, from Breeding Bird Survey 1994-03.

The 2009 August Roadside Survey yielded a statewide average of 1.2 partridge counted per 30- mile survey route. Over the last 10 years the statewide average is 2.1 birds per route and the long-term average is 4.1 birds per route (Appendix 7. Mean number of gray partridge counted per 30-mile route on the August roadside survey regionally and statewide (1962-present).). The 2009 statewide count is 42% below the 10-year average and 70% below the long-term average. The statewide 2008 harvest was 1,420 partridge. The 10-year average harvest is 10,300 and the long-term average is 39,300 partridge (Appendix 5. Hunter reported harvest of upland game birds.). Similar to pheasant and quail, partridge numbers declined significantly following the severe winter of 2007-08.

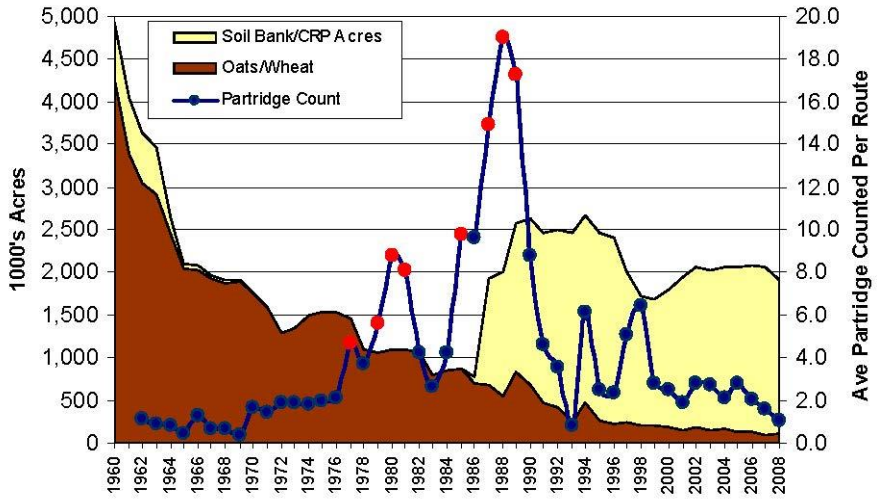


Figure 12. Gray partridge and land use trends. Red dots denote series of years where spring rainfall was consistently below the statewide normal of 7.1 inches.

Summary - Iowa's upland game bird populations have fluctuated over time in relation to farming practices (land use) and weather patterns (Figure 1).

Populations and Weather

Ring-necked Pheasant: Pheasant numbers show a long-term declining trend whether based on roadside counts or reported hunter harvest (Figure 1). The trend has numerous annual fluctuations since 1962. Large year to year swings in numbers are mostly due to annual weather patterns. Regionally, pheasant roadside counts have shown a consistent decline in southern Iowa since 1992, but that trend is not apparent in other regions like northwest Iowa (Appendix 4. Mean number of pheasants counted per 30-mile route on the August roadside survey regionally and statewide (1962-present).). Information on radioed wild hen pheasants in Iowa shows long snowy winters and wet/cool springs depress pheasant survival and reproduction. The changes in hen survival and reproduction can be dramatic even though quantity and quality of habitat is similar between years (Appendix 3. Relationship between hen pheasant survival rates and weather variables between 1990-94 in north central Iowa.). Thus, habitat cannot mitigate "bad" weather for pheasants. Pheasant numbers decline following bad weather in areas with good and poor habitat.

The Wildlife Bureau has also modeled roadside count information with winter and spring weather variables (Table 2). The relationship between statewide pheasant counts and weather over the last 10 years is identical to that seen with individually radioed wild hens. Roadside count data shows that roadside counts decline with wet springs, increase with warm springs, and decline with snowy winters. The model has a 90% accuracy predicting whether the pheasant count will increase or decrease over the last 10 years. If we assume normal spring temperature and normal winter snowfall then the roadside model predicts counts will decline when spring rainfall exceeds 8.1 inches. This compares to a predicted value of 8.4 inches from information gathered with radioed wild hens (Appendix 3. Relationship between hen pheasant survival rates and weather variables between 1990-94 in north central Iowa.).

Spring rainfall patterns in Iowa have increased significantly since 1992 (Table 3). Since 1990 spring rainfall across southern Iowa has consistently averaged above 8.1 to 8.4 inches. The prediction from both radioed hens and roadside model is pheasant populations will decline with spring rainfall of this level, even with adequate habitat. A closer comparison of spring rainfall in NW, NE, and SC regions of Iowa shows stark differences over the last 30 years (Table 4).

Table 2. Relationship of statewide roadside counts to statewide weather variables, 2000-09. Model accuracy is 90%. Model predicted an increase in counts in 2006 and pheasants counted on roadside routes declined. Normal is the 30 year mean from 1961-90.

Year	Mean Average Temp (F) 1 Apr-31 May	Cumulative Prcp (in) 1 Apr-31 May	Cumulative Snowfall (in) 1 Dec-31 Mar.	Statewide Roadside Count Birds/30 miles	Did roadside count increase or decrease from previous year?	Predicted change in counts based on weather variables
Normal	*55.4*	*7.1*	*25.3*			
1999				29.1		
2000	56.1	5.6	21.2	34.3	Increased	Increase
2001	56.8	10.7	39.4	13.9	Decreased	Decrease
2002	53.4	7.8	13.4	31.7	Increased	Increase
2003	54.3	7.9	16.8	44.9	Increased	Increase
2004	56.4	9.7	37.0	29.7	Decreased	Decrease
2005	56.0	7.4	18.1	35.1	Increased	Increase
2006	57.5	6.8	22.7	27.0	*Decreased*	*Increase*
2007	56.2	9.9	29.8	25.8	Decreased	Decrease
2008	52.2	11.7	42.0	17.5	Decreased	Decrease
2009	54.1	7.2	31.8	15.6	Decreased	Decrease

To determine whether roadside counts will increase or decrease enter weather variables into the following equation: -0.7752 - 0.0634*(PRCP) - 0.0077*(SFALL) + 0.0268*(TEMP).
A positive number indicates an increase in counts. A negative number a decrease in counts.

Table 3. NOAA cumulative April/May rainfall totals by 10-year decade and climate division. Normal values are listed in the first row. NOAA defines normal as a 30-year average (1961-90).

Decade	Climate Division									
	NW	NC	NE	WC	C	EC	SW	SC	SE	Statewide
Normal	***5.99***	***6.86***	***7.13***	***6.97***	***7.26***	***7.22***	***7.46***	***7.63***	***7.53***	***7.12***
1960	6.00	6.83	7.32	6.66	7.49	7.26	7.34	7.73	7.54	7.13
1970	5.91	6.91	7.59	7.24	7.66	8.24	7.69	8.15	8.40	7.53
1980	6.45	6.80	6.76	7.01	6.63	6.23	7.40	7.00	6.82	6.79
1990	7.27	8.36	7.98	8.06	8.58	8.29	9.09	9.61	9.14	8.49
2000	6.95	8.67	9.17	8.36	9.05	8.14	8.91	8.57	8.39	8.47

In the 1980s all 3 regions see only 3 springs out of 10 with abnormally wet springs (rainfall over 8.1 inches) and pheasant populations in all 3 regions are good (Appendix 4. Mean number of pheasants counted per 30-mile route on the August roadside survey regionally and statewide (1962-present).). However, in the decade of the 1990s rainfall in SC Iowa increases significantly and this abnormally wet pattern continues into the current decade. Pheasant numbers in this region have declined steadily since 1990. A similar pattern occurs in the NE region, but a slower pace until the current decade. In the NE region Table 3 shows normal rainfall is 7.13 inches, since 2000 the NE region has seen only one year with below normal rainfall - 2005 (Table 4). Pheasants in the NE and SC regions are at all time lows, while numbers in NW remain the most robust in the state (Appendix 4. Mean number of pheasants counted per 30-mile route on the August roadside survey regionally and statewide (1962-present).).

As noted previously snowy winters can also significantly impact pheasant populations. Winter loss of radioed hens approached 80% in winters with 50 inches of snowfall (Appendix 3. Relationship between hen pheasant survival rates and weather variables between 1990-94 in north central Iowa.). The winters of 2000-01 (39 inches snowfall) and 2007-08 (42 inches snowfall) rank as two of the snowiest in 121 years of state history (Table 2). Thus, not only have pheasants had to endure poor weather during nesting across much of Iowa since 2000, but devastating winter mortality as well

during this decade.

Table 4. NOAA spring rainfall for NW, NE, and SC climate regions. Gray shaded years rainfall is 8.1 inches or more.

Year	NW	NE	SC
1980	4.17	5.60	3.35
1981	3.34	7.81	6.80
1982	7.84	8.80	10.78
1983	6.14	9.43	6.97
1984	10.47	8.85	10.98
1985	9.45	4.81	3.44
1986	9.84	7.98	10.98
1987	4.37	5.67	7.95
1988	5.25	3.24	3.07
1989	3.57	5.42	5.72
1990	6.51	7.55	9.15
1991	9.53	12.05	12.43
1992	6.24	5.18	6.40
1993	9.76	8.84	9.11
1994	4.68	4.46	5.01
1995	9.69	8.79	13.26
1996	4.38	6.33	12.63
1997	6.42	6.05	8.58
1998	7.11	8.29	8.32
1999	8.39	12.24	11.26
2000	5.67	8.44	3.62
2001	10.71	9.31	11.32
2002	4.96	7.58	9.16
2003	6.08	8.10	7.87
2004	8.33	12.62	8.74
2005	8.10	5.45	7.38
2006	6.62	7.88	6.24
2007	6.98	8.29	11.99
2008	7.93	15.19	10.83
2009	4.09	8.89	8.54

The large statewide decline in pheasant numbers since 2007 is related to unprecedented winter and spring weather. However, a persistent wetter pattern approaching 20 years across southern Iowa and for 10 years across eastern regions has depressed populations there over a longer period.

Bobwhite Quail and Gray Partridge: Quail numbers also show a long term decline similar to pheasant, since 1960 (Figure 1). As noted previously Iowa quail are highly susceptible to increased mortality with snowy winters and roadside counts document this (Figure 10). Mortality during snowy prolonged winters is related to increased predation and exposure/hypothermia. There appears to be no strong relationship between quail and spring weather in Iowa. Research in Missouri and Texas suggest quail reproduction declines during severe droughts with extremely high (100+) summer temperatures. Iowa does not often see this type of drought pattern (dry and very high temperatures.

Gray partridge, like quail, form coveys of approximately 12 birds in the fall and roost in groups during the winter months. They have the ability to snow burrow, meaning they will dig into the snow and bury themselves to escape severe winter conditions. While this adaption gives them an advantage over pheasant and quail during winter, partridge predation rates do increase during long winters. There has been little research on partridge during the spring and summer reproductive period. In Iowa partridge seem to prefer drought conditions during the spring and summer as Iowa's highest counts occurred from 1977-1989, the most prolonged drought in Iowa since standardized surveys have been conducted (Figure 12).

Summary - Populations of upland game birds will fluctuate in with varying weather patterns.

Populations and Land Use

Ring-necked pheasant: Pheasants need grassy type habitat to nest in and raise their young. Pheasants can nest and raise their young in CRP grasslands, odd areas and in small grain oats and hayfields if time of cutting is after 1 July. They also need thick/rank grassy habitat for winter cover. Suitable winter habitat includes cattail sloughs, switchgrass CRP, and brushy/conifer thickets. Figure 13 shows the trend in Iowa grassy habitats (hay, small grains and USDA conservation programs.

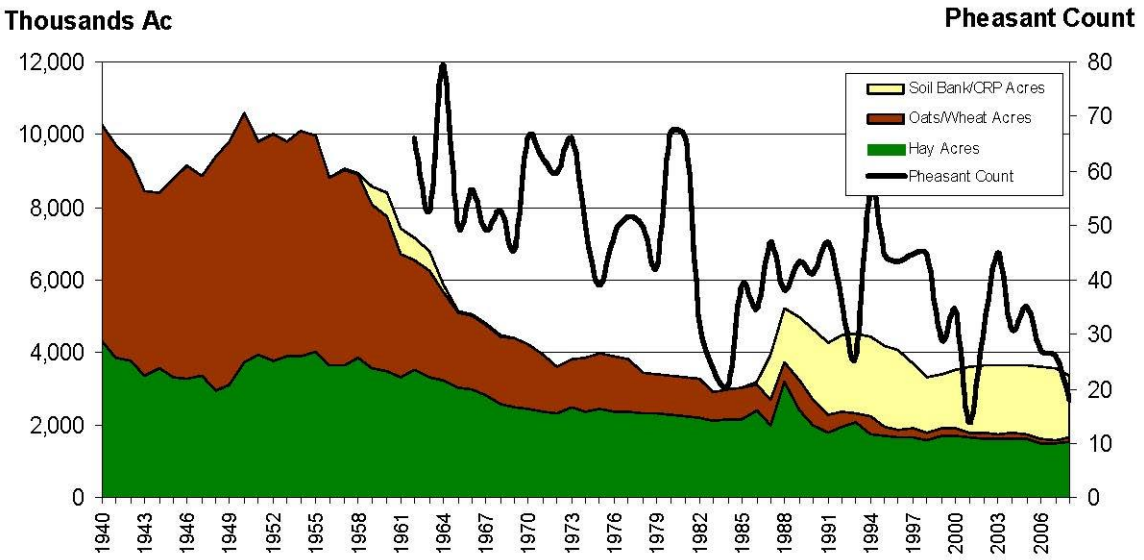


Figure 13. Statewide NASS grassy habitat trends and DNR pheasant counts.

The Iowa's pheasant trend declines in unison with the loss of small grain and hay habitats from 1960 thru 1985. From 1985 thru 1997 there is an increasing trend in pheasant numbers paralleling the increasing trend in pheasant habitat created by the CRP program. Iowa lost approximately 800,000 acres of CRP between 1994-98 and pheasant numbers have declined with this loss of habitat. The pheasant trend shows many fluctuations over the last 40 years and these are related to winter and spring weather. The 1993 flood shows as a big dip in the pheasant trend as does the severe winters of 2000-01 and 2007-08. However, the long-term trend (47-yr period of pheasant counts) in pheasant numbers parallels the habitat trend. In 1963 Iowa harvested 1.9M roosters (Figure 13), but had over 7M acres of hay, small grains, and Soil Bank acres (Appendix 1. Trends in Iowa land use patterns, National Agricultural Statistics Service, USDA.). Today Iowa has 3.4M acres of hay, small grains, and CRP acres. Iowa cannot expect 2M bird rooster harvests with half the habitat.

Bobwhite Quail: Show a trend similar to pheasants as it relates to small grain habitats (Figure 10). Quail have not responded to CRP habitat like pheasants because CRP is mostly rank grassy habitat, which is not preferred by quail. Quail prefer habitats with good overhead concealment cover, but with abundant bare ground below. Ragweed patches, brushy thickets, and small grain crops like oats and barley create the preferred quail habitat. It is important to note quail did respond to CRP in the first several enrollment years (1986-88). These were the establishment years for CRP and most CRP fields were very weedy in the early establishment years and Figure 10 shows the response of quail to these weedy fields (1986-88). However, the fields quickly became established to grass and quail numbers declined (1989-96).

Gray Partridge: Show now particular trend in Iowa related to grassy habitats responding most to climatic conditions (Figure 12). The greatest densities of partridge in the United States are found in North Dakota, Montana, and up into prairie Canada where most cropland is planted to small grains (oats, wheat, barely, etc.). Thus, an increase in small grain type crops in Iowa would likely favor partridge, but below normal spring rainfall would likely be necessary for the partridge population to respond in any significant way to this habitat.

Summary - The primary factor that determines the number of upland game birds is the amount of suitable (quality and quantity) habitat that is available.

Hunting

Ring-necked pheasant: Pheasants are polygamous species, meaning 1 rooster breeds many hens. Roosters crow in the spring to announce their presence to any hen within earshot. Roosters attract hens and form harems during the spring averaging 4-6 hens per rooster. However, hens are not tied to any particular rooster and frequently move between roosters being breed by several. Fertility tests show no loss of egg fertility with a ratio of 1 rooster to 10 hens. The wildlife bureau conducted winter sex ratio counts after the pheasant hunting season from 1963-90. The long-term average showed 1 rooster per 3.4 hens (Appendix 4. Mean number of pheasants counted per 30-mile route on the August roadside survey regionally and statewide (1962-present).). So, Iowa's current hunting structure keeps rooster densities more than high enough to satisfy fertility requirements.

Table 5. Current Iowa upland game hunting seasons and bag limits.

Species	Season Dates	Shooting Hours	Daily Bag Limit	Year[a]
Ring-necked Pheasant	Last Saturday in October until 10 January.	8:00AM - 4:30PM	3 roosters	1976
Bobwhite Quail	Last Saturday in October until 31 January.	8:00AM - 4:30PM	8 either sex	1965
Gray Partridge	Second Saturday in October until 31 January.	8:00AM - 4:30PM	8 either sex	1986

[a]Year when current statewide season structure was established.

Whenever pheasant numbers decline invariable there is discussion about reducing the hunting season. However, what fails to be discussed is why the population declined? Was it a bad winter that killed most hens? Was it a wet/cold spring and few hens hatched nests? In either case the hen is the important variable. So, if the wildlife bureau were to shorten the pheasant season or reduce the bag limit (e.g., reduce the kill of roosters) how does this action make any more hens in the population, or increase hen winter survival or increase hen nest success the following spring? Pheasant harvest regulations function mainly to distribute the rooster harvest equitably among hunters thru the season. The population breeders (hens) are protected from hunting, so changing male harvest has no impact on future populations.

Bobwhite quail and gray partridge: Unlike pheasant the sex (male/female) of quail and partridge cannot be determined easily by hunters when flushing birds, thus females can be harvested. Over hunting can impact the population if too many females are harvested. Thus, harvest regulations must be formulated to ensure in most years that harvest is not excessive. Research shows that up to 40% of the population coming to the fall can be harvested with no impact on future populations. However, researchers feel a more conservative harvest of 30% or less is a better goal to account for crippling losses and the uncertainty of ever knowing the exact number of individuals in a given population. Assuming an average fall covey size of 10 birds, this means hunters could remove 3 birds from a covey (30% harvest) during the course of a hunting season, leaving 7 birds for the remainder of the winter and into the following spring for reproduction. The wildlife bureau has conducted 2 recent studies looking at quail harvest rates in Iowa. In both studies hunting regulations (season length, bag limits, and shooting hours) were the same as current regulations.

The first study was located in south central Iowa from 1983-88 and compared hunter harvest rates on public wildlife areas to harvest rates on private farmland. Hunter harvest on public land averaged 28% (range 14-36%) over the 4 years and 12% (range 6-16%) on private farm land. Since most of Iowa's quail habitat is located on private lands and therefore most of Iowa quail population, it appears Iowa hunting regulations keep harvest rates are well below 30% on a statewide basis. Harvest on public lands was much higher due to its access to the public. The second study is an ongoing study started in 2008 looking at harvest on the Lake Sugema public wildlife area. Harvest during the 2008 season

equaled 30% of the estimated fall population.

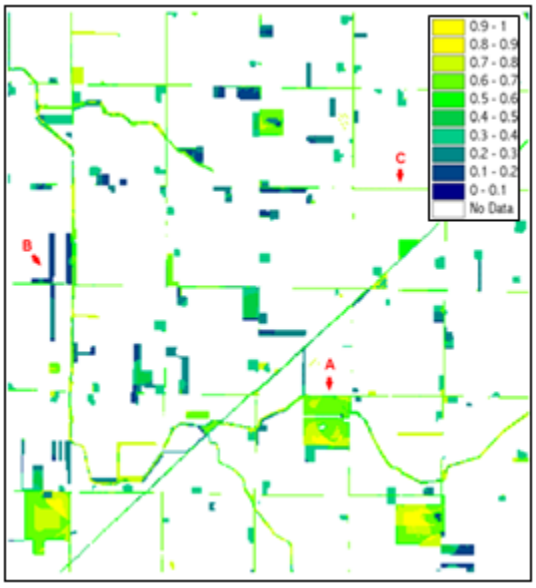


Figure 14. Relationship between nest success and size and shape of habitat in Kossuth County. White area is non-nesting habitat (row crops). Yellow denotes areas with high nest success and dark areas low nest success.

Similar to quail most of Iowa's gray partridge population is located on private lands (e.g., crop land). Given the harvest rates measured in Iowa, current hunting regulations are not excessive, on private land. Harvest rates on public land warrant monitoring as they have approached 30%.

However, a very small fraction of Iowa's total quail and partridge populations reside on public lands, any overharvest would have minimal impact on statewide population trends.

Summary - There is no evidence that the length and timing of Iowa's hunting seasons affect the number of upland game birds in the long term.

Predators

Research on pheasants in Iowa shows most bird mortality is caused by (60-70%) mammalian predators (fox, skunk, raccoon, mink). Avian predators (hawks and owls) accounted for 15-20%. Nests were susceptible to the same mammalian predators, but also to snakes, ground squirrels, jays and crows. Mortality on bobwhite quail is more balanced with raptors accounting for 30% of the annual mortality and mammalian predators 20%. Snakes have been shown to be important nest egg predators on quail nests.

As mentioned in the introduction the wildlife bureau conducted a large study of hen pheasants from 1990-94 to evaluate habitat and weather impacts on pheasant populations. This research showed the odds of a hen dying during the pre-nesting season increased 2% for every 13.3ft/acre of additional edge in her home range. Edge was defined at a change from one habitat to another, crop to grass, grass to wetland, etc. This makes sense with mammalian predators, which use edges for travel corridors. This same study showed nest success was highest in large blocks of habitat away from the edges of field, denoted by the A in Figure 14. Nest success was very low in small patches with lots of edge, denoted by B (Figure 14). The research showed nest success could be good in small remote patches away from other habitats (C in Figure 14), however few hens could survive winter in such habitats. Large blocks of habitat were where nest success and survival were the highest.

Research with bobwhite quail in Van Buren County from 2003-05 has shown similar results with nesting quail. Quail nesting on public lands managed for quail habitat had much higher nest success (50%) than quail nesting on private lands in smaller/linear patches of habitat (28%). Smaller fragmented habitat on the private land led to higher rates of nest predation.

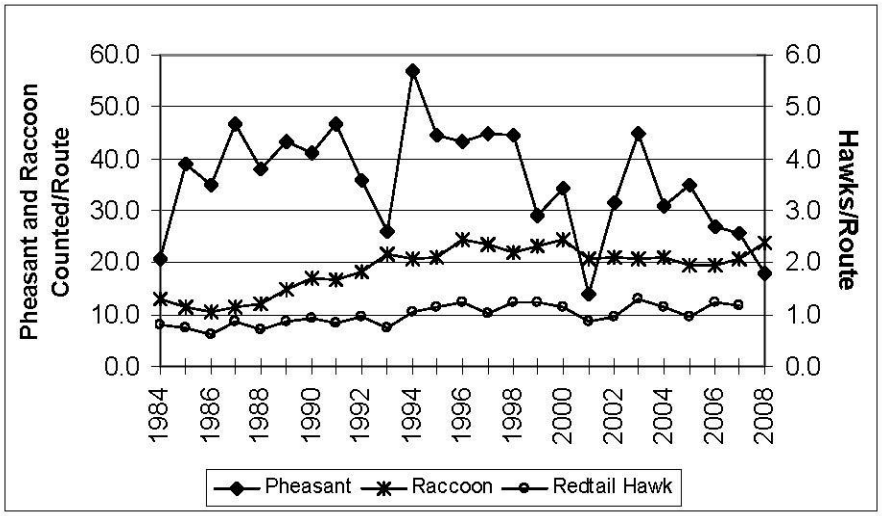


Figure 15. Pheasant, raccoon, and red-tailed hawk trends in Iowa.

The Wildlife Bureau has one long term survey on raccoons, a primary mammalian predator on upland nests and chicks. Red-tailed hawks Iowa's most common avian predator is monitored by US Fish and Wildlife Services Breeding Bird Survey (Figure 15). Raccoon trends showed an increase in the mid 1980s with the loss of the fur market, but have been relatively stable since 1993. Red-tailed hawk trends have shown a slight increase over time. Neither trend shows any relationship to pheasant trends. Pheasants declined following the severe winter of 2000-01 and doubled in 2002 and 2003, while raccoon hawk numbers remained unchanged. Gray partridge trends (Figure 12) also show no relationship to predator trends. Bobwhite quail populations show a declining trend since 1987 corresponding to an increasing trend in raccoon numbers. However, even quail numbers show significant increases 1987, 1994, and 2003, while predator numbers are increasing or stable (Figure 10). Thus, all three bird populations fluctuate independent of raccoon and hawk trends, but their numbers correlate well with weather and land use patterns. Weather patterns and amount and arrangement of habitat determine how effective predators can be on upland birds and nests. Clearly in bad winters (2000-01) and in wet springs (1993) predators have bigger impacts on upland birds. However, in open winters with good springs (2002-03) predators have very little impact on birds.

Summary - Predators do have an impact on upland game bird populations, especially during snowy winters or cool/wet springs. However, they have little effect on populations with mild winters and warm/dry springs. The best way to reduce predation is to provide suitable habitat that reduces predator efficiency and helps birds hide or escape from predators

Stocking

Ring-necked Pheasant: The genus *Phasianus* or true pheasant is native to Southeast Asia. The Chinese ring-necked pheasant was first successfully introduced into the United States in the Willamette Valley of Oregon by Owen Denny 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 foundation or other birds from China. 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 wind storm of approximately 1,000 birds from the William Benton game farm in Cedar Falls. The source of Mr. Benton's birds is not known for sure but records say they were imported and likely wild stock. State records mention pheasants for the first time in 1910. Early on eggs (wild or tame is unknown) were purchased from breeders 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 (stock unknown) were distributed statewide from 1915-16. Records show all northwest counties received 200-800 plantings of pheasants from 1915-18, with a planting of 2,500 in Winnebago County. The 1916 biennial report says success was mixed. 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 and 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 environment 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."

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 1940s and stocking was greatly reduced, approximately 4,000 chicks and spent adults in 1943. The state game farm operated at the same level until 1961. Through the 1940-50s it became increasingly evident that pen raised birds were not contributing to wild pheasant numbers. In 1955 a new 5-yr policy of trap and transfer of wild birds was started in southern Iowa. Increasing populations in Union and Adair counties were trapped 1,375 and transplanted to Ringgold, Decatur, Wayne, Washington, and Appanoose counties. New wild stock was also brought to the state game farm. These new "wild" birds were distributed to unoccupied range (Washington, Keokuk, Henry, Davis, Van Buren counties) thru 1973. The state game farm was closed in late 1970s and dismantled.

Bobwhite Quail and Gray Partridge: The bobwhite quail is a native to Iowa. While few records exist, Leopold reported that a few scattered attempts were made to stock "Mexican" and "Kentucky" quail in Iowa by 1933, but these failed and most effort focused on managing habitat and hunting seasons. Records gathered by Leopold in 1933 show approximately 24,000 partridge had been released in Iowa from 1909-14, but he notes plantings ceased abruptly in 1915 with the start of the war. Implying most of Iowa's partridge were imported from Europe. He later states:

> "The pre-depression cost of imported planting stock was $9 a pair… American game farm stock is not available in quantity and costs even more than imported stock. If wild Iowa pheasant can be trapped and delivered for less than $2 each, why not wild Iowa partridge? The execution of this plan awaits only the development of a trapping area with a sufficient abundance of birds to justify the annual removal."

Again, the reference to imported, but whether these birds were wild or captive is not clear. However, similar to pheasants, stocking of birds shifted to trap and transfer of excess wild birds because of better success.

Two states (SD and ID) have recently compared releasing pen reared and wild hens into the wild to supplement wild populations. Adult hens are released in the spring into good cover and followed via radio telemetry to determine nest success and survival. The South Dakota Game and Fish department in 1992 released 44 wild and 159 pen-reared hens on public lands with excellent habitat during April to augment natural reproduction. Hens were followed for 181 days, through the nesting season, by radio telemetry. Only 8% of pen-reared hens survived the nesting season verses 55% of the wild hens. Predation accounted for 90% of pen-reared hen losses. Pen-reared hens contributed little to nesting, because few lived long enough to hatch a nest. On average 100 wild hens produced 168 young, 100 pen reared hens produced 16.

Idaho Game and Fish in 2001 compared pen-reared and wild ring-necked pheasant stocks and assessed effects of predator control on these pheasants released into current range to augment low resident populations. Wild (112 released) female survival from 1 March-1 October was significantly greater than that of pen-reared (1,059 released) females in both 2000, 40% vs 4% and 2001, 43% vs 8%. Survival did not increase for either stock of female pheasants after predator removal. Predator control did not increase the number of hens surviving to reach the nesting season (1 May), nesting rate or nest success. Wild female pheasants were seven times more likely to survive translocation to 1 October, ten times more likely to survive to the nesting season, and eight times more productive, than pen-reared females. Low survival and poor productivity of spring-released pen-reared female pheasants strongly suggest this is an inappropriate management tool for increasing pheasant numbers.

Summary - Supplemental stocking of pen raised game birds has never been shown to improve wild bird numbers. Relocation of wild birds into suitable habitat has been shown to be an effective way to restore depleted populations, if appropriate habitat exists.

Current farm programs and their impact on upland game bird populations.

All major USDA farm conservation programs were summarized and provided to the committee (Appendix 8. Major USDA farm conservation programs available in Iowa.). The Conservation Reserve Program (CRP) by far has the largest impact on upland game bird populations in Iowa (Figure 5) simply because of the sheer acres of grassland habitat it provides. Iowa's enrollment peaked in 1994 and has declined since (Table 6). Other programs like the WRP, GRP, EQIP, and WHIP programs all provide some potential benefits to upland game bird habitat, but are small in scope (acres) compared to CRP (Appendix 8. Major USDA farm conservation programs available in Iowa.).

Iowa saw a significant decline in general CRP acres following the 1997 Farmbill (Table 6). Some of this acreage was recovered thru the Continuous CRP signups. Total acreage in the program increased to 1.97M acres by 2007; however Continuous CRP is targeted to smaller practices. As such it has much more edge associated with it compared to the whole fields enrolled under the general signup. As noted in Figure 14 more edge is conducive to higher mammalian predation. Thus, Continuous CRP acres likely do not produce as many birds as general CRP fields do.

Table 6. Iowa CRP acreage since program inception in 1985 Farmbill.

Year	General CRP (acres)	Continuous CRP (acres)	Total CRP (acres)
1986	76,469	0	76,469
1987	1,239,129	0	1,239,129
1988	1,472,786	0	1,472,786
1989	1,760,059	0	1,760,059
1990	1,951,061	0	1,951,061
1991	1,987,846	0	1,987,846
1992	2,087,172	0	2,087,172
1993	2,203,794	0	2,203,794
1994	2,203,794	0	2,203,794
1995	2,199,360	0	2,199,360
1996	2,120,476	55,756	2,176,232
1997	1,640,049	117,632	1,757,681
1998	1,334,399	176,881	1,511,280
1999	1,283,268	200,679	1,483,947
2000	1,358,761	239,901	1,598,662
2001	1,527,486	274,683	1,802,169
2002	1,507,546	357,755	1,865,301
2003	1,483,566	398,987	1,882,553
2004	1,442,890	451,697	1,894,587
2005	1,430,153	487,421	1,917,574
2006	1,432,512	526,390	1,958,902
2007	1,427,198	543,363	1,970,561
2008	1,264,972	546,750	1,811,722
2009	1,054,341	561,943	1,616,284

The CRP is a significant portion of grassland habitat available to upland game birds in Iowa today (Figure 5). Unfortunately, Iowa CRP acreage is trending down because USDA has not had a general signup since 2006, so contracts are expiring (Table 6). Other grassland habitats (hay and small grains) in Iowa are also declining (Figure 5, Appendix 1.

Trends in Iowa land use patterns, National Agricultural Statistics Service, USDA.). The CRP is a very important part of upland bird habitat in Iowa. If the loss of CRP with other grassland habitat continues it will be very difficult if not impossible to restore upland game bird populations in Iowa.

Summary - Since most of Iowa is privately owned and used for agricultural production, federal farm programs have the largest impact on the amount of suitable habitat for upland game birds in Iowa.

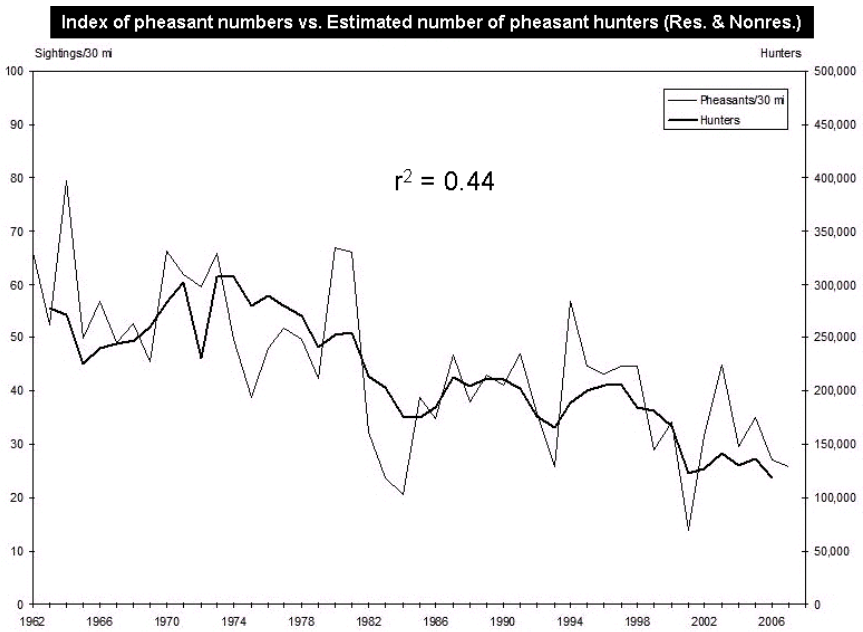
The economic impact and value of Iowa's upland game bird populations to Iowa.

Economic benefits can be estimated by two types of economic measures: economic impacts and economic values. An economic impact addresses the business and financial activity resulting from the use of a resource. Economic value, on the other hand, measures the difference between what an individual would be willing to pay and what they actually pay for a commodity or activity. The following information is taken from "2006 Economic Benefits of Hunting, Fishing and Wildlife Watching in Iowa". This study is done every 5 years and provides the best information on the economic impact of fish and wildlife resources in Iowa.

2006 Economic Benefits of Hunting, Fishing and Wildlife Watching in Iowa

There are three types of economic impacts: direct, indirect and induced. A direct impact is defined as the economic impact of the initial purchase made by the consumer. For example, when a person buys a pair of binoculars for $100 there is a direct impact to the retailer of $100. Indirect impacts are the secondary effects generated from a direct impact. Indirect impacts indicate that sales in one industry affect not only that industry, but also the industries that supply the first industry. For example, the retail store must purchase additional binoculars; the binocular manufacturers must purchase additional materials for production; materials manufacturers must buy inputs, and so on. Therefore, the original expenditure of $100 for the binoculars benefits a host of other industries. An induced impact results from the salaries and wages paid by the directly and indirectly impacted industries. The employees of these industries spend their income on various goods and services. These expenditures are induced impacts which, in turn, create a continual cycle of indirect and induced effects.

The sum of the direct, indirect and induced impact effects equals the total economic impact. As the original retail purchase (direct impact) goes through round after round of indirect and induced effects, the economic impact of the original purchase is multiplied, benefiting many industries and individuals. Likewise, the reverse is true. If a particular item or industry is removed from the economy, the economic loss is greater than the original retail sale. Once the original retail purchase is made, each successive round of spending is smaller than the previous round. When the economic benefits are no longer measurable, the economic examination ends.



Hunters and wildlife watchers' expenditures were obtained from the 2006 National Survey of Fishing, Hunting and Wildlife-Associated Recreation (Survey). This Survey is conducted approximately every five years by the U.S. Fish and Wildlife Service and U.S. Bureau of the Census. The Survey provides data required by natural resource management agencies, industry and private organizations at the local, state, and national levels to assist in optimally managing natural resources. The Survey is funded through excise taxes on hunting and fishing equipment through the Federal Aid in Sport Fish and Wildlife Restoration Acts.

Expenditures made for fish and wildlife-related recreation support significant industries. Unlike traditional industries which are often easily recognized by large factories, the hunting, fishing and wildlife viewing industries are comprised of widely scattered retailers, manufacturers, wholesalers and support services that, when considered together, become quite significant. Given that outdoor recreation dollars are often spent in rural or lightly populated areas, the economic contributions of fish and wildlife resources can be especially important to rural economies.

This project assessed the 2006 economic contributions of fish and wildlife-based recreation in Iowa. The purpose was to provide resource managers with the economic information necessary to better conserve and manage wildlife and other natural resources. Only the effects of recreation expenditures that occurred within Iowa are considered.

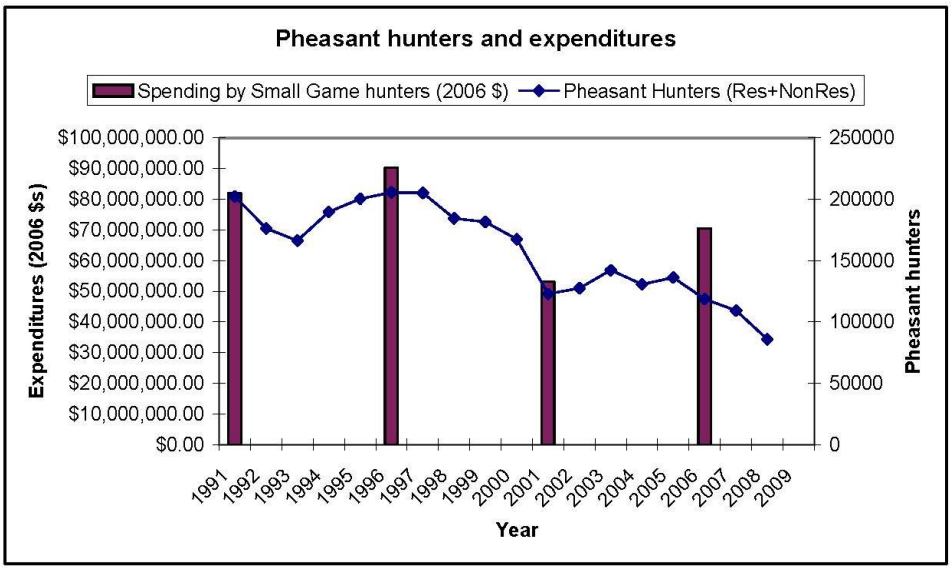
Hunter Participation

Game Abundance

As has been shown earlier in this report major change in agricultural production practices has significantly altered the landscape's suitability for producing upland game birds. Such widespread changes have reduced the amount and quality of wildlife habitat, and consequently the abundance of wildlife dependent on grassland habitats for nesting and brood rearing. In turn, reductions in wildlife abundance reduce the benefits from wildlife-related recreation as well as the support for those activities.

Historical data indicates that hunter interest in pursuing wildlife fluctuates with the perceived abundance of the quarry. Nationwide total hunter numbers have declined in the last 20 years; however, demand for deer hunting licenses has grown mirroring the growth in deer populations. The 1980s, years of drought and poor duck production, saw many hunters abandon waterfowl hunting and sales of waterfowl hunting licenses declined. Duck hunter numbers rebounded somewhat during the late 1990s when water returned to the prairies, and when CRP enrollment was at its peak producing bumper crops of ducks. The same tendency of hunter numbers responding to wildlife abundance is seen in the historic relationship between pheasant abundance and hunter numbers in Iowa.

As expected, more hunters spending more days in the field results in greater spending by hunters on transportation, lodging, food and equipment and other miscellaneous items. Thus, an abundance of pheasants begets hunter participation - hunter participation begets cash flow to gas stations, restaurants, motels, etc.



2001 Impact of Low Bird Numbers on Hunter Site Selection

In 2001 following a hard winter and wet spring Iowa pheasant numbers dropped to near record lows. Consequently, total hunter numbers including residents and nonresidents declined. An online survey of 304 nonresident hunters who had requested the "August Roadside Survey" (ARS) report was administered to determine if the roadside counts had affected the hunter's decision on where to hunt in 2001. Among nonresidents requesting the ARS, approximately 114 individuals did not come to Iowa because of the low bird numbers reported in the ARS report. Of these, sixty (38.7%) individuals chose not to hunt as a nonresident in 2001, and fifty-four (34.8%) decided to purchase a nonresident license and make a different state their pheasant hunting destination in 2001. Respondents who went elsewhere most frequently chose South Dakota as their final destination, or chose not to travel to hunt pheasants in 2001. Hence, low bird abundance affects hunter participation and the location of subsequent hunter expenditures. Since 1996 nonresident pheasant hunter expenditures in Iowa have declined by approximately 68%.

Hunter Access

Lack of hunter access is often cited as a reason that hunters stop hunting or hunt less often, both of which can affect the amount of spending done by hunters and hence the economic impact to communities that might host hunting activities. However, it should be noted that lack of access to land consistently trails a "general lack of time", "work obligations" and "family obligations" in surveys of declining hunter participation.

Public Land - Private Land

Hunting of upland game birds is pursued on both public and privately owned lands in Iowa. Approximately 1.3 million days of upland bird hunting occurred in Iowa during 2006. Hunters reported hunting private lands exclusively on 44% of these days and a mixture of private and public lands 24% of the days they hunted upland game birds.

Quality upland game bird hunting can occur on either private or public land in Iowa. Publicly owned lands managed by the Iowa DNR are often more actively managed for upland game birds and can provide superior hunting opportunities for species such as bobwhite quail, despite receiving greater hunter use. Privately owned lands, though not managed as intensively for upland game birds, do not receive the same hunting pressure as public areas and consequently provide less disturbed birds to hunt.

Hunters have voiced concerns about losing access to places that they used to be able to hunt upland game birds, often indicating that these properties had been sold or leased for hunting by others. Though no quantitative DNR data exists regarding loss of access specifically for upland game bird hunting, DNR did survey deer hunters regarding their ability to obtain access to properties to hunt deer. Most deer hunters reported losing access to a property they had hunted in the past, however, most deer hunters also had greater that one place that they hunted deer and did not have to stop hunting entirely. Deer hunters also reported their success at obtaining permission by knocking on doors. Nearly ninety percent of deer hunters who reported knocking on doors reported receiving permission to hunt more frequently than they were denied permission.

Hunter Access or Walk-in Programs

Hunter Access or Walk-in Programs are popular, especially with nonresident hunters, in states west of Iowa and have been suggested as a way to increase the amount of hunting available to the public on private lands in Iowa. The DNR is completing a feasibility study of a walk-in program for Iowa. The Federal Farm Bill earmarked funding for Voluntary Public Access programs that could support in-part the development of a walk-in program in Iowa; however, USDA rules have not yet been made available to the states regarding how these funds will be administered.

Percentage of Hunters and Hunting Days on Public and Private Land in 2006 (participants 16+ years)

NUMBER OF HUNTERS WHO USE:	Upland Game*	
All Types of Land:	130,457	-
Residents:	93,643	-
Non-residents:	36,814*	-
Public Lands Exclusively:	**	**
Residents:	**	**
Non-residents:	**	**
Private Lands Exclusively:	45,163	34.6%
Residents:	45,163	48.2%
Non-residents*:	**	**
Private and Public Lands:	23,213*	17.8%
Residents:	22,135*	23.6%
Non-residents:	**	**
DAYS OF HUNTING		
All Hunters, All Types of Land	1,319,913	-
Residents:	1,139,250	-
Non-residents:	180,663	-
Public Lands Exclusively:	**	**
Residents:	**	**
Non-residents:		**
Private Lands Exclusively:	582,878	44.2%
Residents:	582,878	51.2%
Non-residents:	**	**
Private and Public Lands:	319,002*	24.2%
Residents:	312,534*	27.4%
Non-residents:	**	**

*data based on a small sample size

**no responses were received in the survey from non-resident hunters using this type of land. The results do not mean that non-residents did not use these types of lands. The results do imply that such use by non-residents is infrequent.

The 2006 National Survey surveyed limited numbers of respondents who hunt either public or private lands exclusively, especially when different types of hunting are considered independently. A supplementary survey of non-resident pheasant hunters conducted by the Iowa DNR, on the other hand, provides a more robust sample with which to examine the use of public and private lands by nonresidents, as well as the economic contribution attributable to the hunting of these lands. In Iowa, nearly one half of hunting days by nonresidents occurs exclusively on private lands; approximately 14% occurs exclusively on public lands.

2008 Nonresident Pheasant Hunters, Hunting Days and Economic Impacts by type of Land (Participants 16+ years)

	Hunters[a]	Days of Hunting[b]	%	Retail Sales	Output	Earnings	Jobs	Federal Tax Revenue	State & Local Tax Revenue
All Types of Land:	16,231	87,009	100.0%	$10,907,314	$17,679,570	$6,147,448	272	$1,346,507	$1,094,888
Public Lands Exclusively:	1,996	12,373	14.2%	$1,532,689	$2,484,322	$863,836	38	$189,210	$153,853
Private Lands Exclusively:	8,648	41,243	47.4%	$5,180,274	$8,396,661	$2,919,643	129	$639,505	$520,002
Both Public and Private Lands:	5,056	29,801	34.3%	$3,743,166	$6,067,265	$2,109,678	93	$462,094	$375,743

a Estimate from 2008 IDNR small game harvest survey

b Estimate applying participation days from 2008 spending survey to the estimated number of hunters from the 2008 DNR small game survey.

Source: Supplementary survey of nonresident pheasant hunters conducted by Iowa DNR, spring 2009.

Economic Activity Generated by Iowa Hunters, 2006 (Participants 16+ years)

	Retail Sales	Output	Earnings	Jobs	Federal Tax Revenue	State & Local Tax Revenue
Upland Game Hunting	$85,879,189	$134,885,021	$44,010,393	1,802	$9,807,955	$9,308,285
Residents Only	$60,668,407	$94,818,336	$31,979,846	1,302	$7,123,307	$6,830,059
Non-Residents Only*	$25,210,782	$40,066,685	$12,030,547	500	$2,684,648	$2,478,226
Pheasant Hunting	$69,561,417	$109,216,509	$35,831,771	1,470	$7,994,458	$7,615,151
Residents Only	$53,061,384	$82,946,222	$27,754,907	1,145	$6,203,641	$6,024,585
Non-Residents Only*	$16,500,033	$26,270,288	$8,076,864	325	$1,790,817	$1,590,566

*Small sample size

Per Day and Per Person Expenditures made by upland game bird hunters in 2006 (Participants 16+ years)

	Upland Game	Pheasant
All Hunters:		
Average daily expenditures	$65.06	$61.85
Average annual expenditures	$658.29	$533.21
Resident Hunters:		
Average daily expenditures	$53.25	$54.06
Average annual expenditures	$647.87	$566.64
Non-Resident Hunters*:		
Average daily expenditures	$139.55*	$115.32*
Average annual expenditures	$684.81*	$448.20*

Taken from: The 2006 Economic Benefits of Hunting, Fishing and Wildlife Watching in Iowa. Prepared by: Southwick Associates, Inc., PO Box 6435, Fernandina Beach, FL 32035.

Determining the full societal value of a natural resource is difficult at best and relies on a number of assumptions on how to assign a value to a resource that is not traded in the marketplace. Latent demand for participation in upland game bird hunting and related activities could be taken into account when trying to estimate the value of upland game birds. For example, how many people are interested in participating but haven't been exposed to upland game bird hunting. Another way of framing this could be expressed as an option value. For example, I would like the opportunity to see/hunt upland game birds in Iowa in the future even though I cannot do so this year. Another approach would be the bequest value. For example, I would like for my grandchildren to be able to hunt upland game birds on this property when they become old enough. Another type of value might be a nonuse values. For example, I enjoy relaxing and hearing pheasants crow when I take walks in the countryside. There has been no comprehensive effort to quantify these non-market values of upland game birds in Iowa.

Summary - Upland game bird hunting generates $135 million of economic activity and 1.3 million days of outdoor recreation annually. (Source: Association of Fish and Wildlife Agencies 2006)

During the 2006-2007 hunting seasons upland game bird hunters spent the following amounts (in millions) on:

- Food - $8.7M, Lodging - $4.0M, Auto - $13.6M, Guide fees - $2.1M, Other - $57.6
- Total - $85.9M (Residents $60.7 + Nonresidents $25.2)

Upland game bird population challenges and programs in other Midwestern states.

The committee had Tom Kirschenmann of the South Dakota Department of Game, Fish, and Parks come and speak on pheasant trends and management in South Dakota. South Dakota was the only state invited to speak, as they are the state Iowa is most often compared to.

Mr. Kirschenmann presented information on the history of pheasant mgmt in SD from 1975 until the present. He detailed SD pheasant trends, stocking and predator policy of the past (Appendix 9. Summary of pheasant management presentation made by South Dakota Game, Fish and Parks.). The department focuses on habitat management programs. South Dakota Game and Fish focuses their habitat efforts on pheasant survival and reproduction. Their programs focus on nesting cover, winter food and cover, and grassland/wetland habitats (Appendix 9. Summary of pheasant management presentation made by South Dakota Game, Fish and Parks.). Weather patterns have been extremely favorable to them over the last decade (Figure 16). The habitat provided by the CRP has been instrumental in the recovery of their pheasant populations. However, they are concerned by the significant losses they are seeing with CRP, similar to Iowa. They have documented large declines in CRP this past year (Appendix 9. Summary of pheasant management presentation made by South Dakota Game, Fish and Parks.). They have initiated a special 100,000 acre CREP in the James River watershed (their prime pheasant range) to improve water quality and increase pheasant habitat (Appendix 9. Summary of pheasant management presentation made by South Dakota Game, Fish and Parks.). They have an aggressive private lands program, similar to Iowa, to help market USDA conservation program and their new CREP. They also have at number of licensed shooting preserves like Iowa.

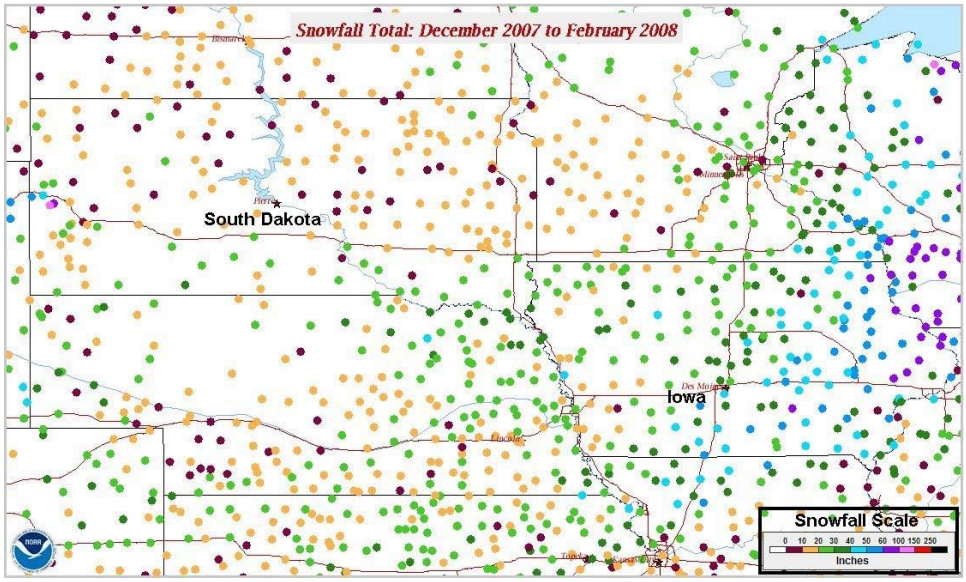


Figure 16. Iowa and South Dakota snowfall during the winter of 2007-08. South Dakota's prime pheasant range northeast of Pierre reported 5-15 inches of snow for the winter, while Iowa reported 25-80 inches.

Summary - The challenges faced by the surrounding states are the same ones faced in Iowa. The amount of suitable habitat determines the potential number of upland game birds present and weather patterns determine the actual number present during any given year.

New and innovative ways to restore sustainable populations of upland game birds.

After reviewing and discussing the information presented above the committee was tasked with developing criteria for new and innovative ways to address Iowa's declining upland game bird populations. The committee was asked to tailor

their suggestions to 4 topic headings:

1. Program funding ideas should…
2. Habitat ideas should…
3. Private landowner programs should…
4. Education / outreach should…

There was a great deal of overlap between topics by committee members. The reoccurring themes are summarized below. The complete table of suggestions according to the topic headings can be seen in Appendix 10. Committee member responses to criteria for new and innovative programs..

1. New and innovative programs should provide additional suitable habitat specifically for upland species.
    - Should be based on sound biological principles for the species of interest that target critical habitat needs including, nesting/brood-rearing habitat and winter habitat/food.

2. New and innovative programs should build upon and strengthen existing partnerships between federal, state, local, and private stakeholders and expand these partnerships where possible.
    - Current programs on water quality and nutrient management could also provide wildlife habitat.
    - Potential funding sources should be new money with a continuous ongoing funding stream. Ideas offered include, lottery pull tabs, increase in license fees, corporate backing from ag/chemical suppliers, foundation grants, and state sales tax. Not sure we should keep or drop.

3. New and innovate programs should allow producers the flexibility needed to tailor the practices to each producers operation.
    - Programs should be developed based on input from landowners through focus groups.
    - Programs should provide compensation to the landowner and provide enough incentives to encourage participation.
    - Programs should be relatively straight forward and understandable by landowners; balanced between habitat and market income opportunities (i.e., use of temporary cover crops, harvestable field crops such as oats or other similar harvestable cropping opportunities).

4. New and innovative programs should meet multiple objectives of the producers, stakeholder groups and the general public.
    - Programs should be developed that focus on marketing and outreach to all groups, landowners (including absentee), producers, hunters, and the general public.

The committee also discussed the idea of a state sponsored public access program to private land similar to South Dakota's Walk-In Hunting program. While not a task assigned to the committee under House File 722, the committee's comments on the idea are summarized in Appendix 11. Committee member responses to questions regarding public access..

An assessment of public opinion concerning the impact and value of Iowa's upland game bird populations.

No direct assessment has been made of public opinion regarding "the cultural impact and value of Upland Game Bird" populations; however, other assessments have been made of public opinion regarding the value of wildlife habitat and hunting. Most notably, and most recently the Sustainable Funding for Natural Resources Advisory Committee polled Iowa residents regarding their willingness to pay for natural resources. Specific results of that polling reflect the general appreciation Iowans have for natural resource conservation.

The Willingness-to-Pay survey of the Sustainable Funding for Natural Resources Study Committee was a poll of 800 adult Iowa voters completed by telephone in 2006. From November 27 to 30, 2006, Fairbank, Maslin, Maullin & Associates (FMM&A) conducted a telephone survey of 800 adult Iowa residents. The margin of error for the entire sample was +/- 3.5percentage points at the 95% confidence level. The sample of approximately 50% men and 50% women closely resembled the demographics of the voting population of Iowans, and was representative of all congressional districts across the state. (https://www.iowadnr.gov/portals/idnr/uploads/trustfund/07mar01_final.pdf))

Do Iowans "value" upland game bird populations and the habitats that support them?
The Willingness-to-Pay survey asked questions as to whether wildlife, grasslands, prairies and the conservation of these habitats were "important" to Iowans. This survey generally indicated that these landscapes are important to Iowans. The survey did not ask them to rank habitats and wildlife against other priorities such as health care, education, or public safety. The survey did ask Iowans whether wildlife and habitats were important and worthy of financial support, the survey did not ask how much each issue should receive. The survey results only acknowledge that wildlife and grassland and prairie habitats have value to Iowans and encompass part of the quality of life in Iowa.

From the 2006 Willingness-to-Pay Survey Iowa registered voters:

- 31% of those surveyed currently hunt
- 39% of those surveyed currently hunt or have hunted at some point in the past
- 97% of those surveyed believe that ALL Iowans have a personal responsibility to protect Iowa's natural resources
- 73% of those surveyed agreed that the loss of wildlife habitat was a problem
- 70% of those surveyed believe that funding for natural resources is insufficient
- 87% of those surveyed believe that the protection of fish and wildlife benefits ALL Iowans
- 83% of those surveyed believe that providing additional funding to conserve and restore prairies and grasslands is important
- 90% of those surveyed believe that providing additional funding to protect fish and wildlife habitat is important
- 74% of those surveyed support an income tax credit for landowners who permanently set aside lands to prevent erosion and protect streams, lakes and wildlife
- 58% of those surveyed support an income tax credit for landowners who permit the public non-motorized recreational access to their land

Why do people hunt upland game birds?
Hunter satisfaction surveys have repeatedly shown that hunters derive multiple satisfactions from the activity of hunting regardless of the type of game being hunted. Being with others, being part of a traditional family activity, and just being outdoors are consistently mentioned as being important motivations for going hunting, and are commonly a more important component of a satisfying hunt than actually killing game. Pheasant hunting as a family activity is something that brings generations together for quality family time.

The enjoyment of sharing outdoor experiences and/or stories of outdoor experiences with other people is central to having a fulfilling hunting experience. Civic organizations have furthered the social network of hunters, and have capitalized on this need of hunters to socialize with like-minded individuals by offering opportunities for hunters to get together at breakfasts, dinners, and banquets that support the causes of these organizations. The cultural and societal benefits of pheasant hunting are not easily quantifiable and should be considered as additive to Iowa's quality of life.

In 2006 approximately 130,457 individuals hunted upland game birds in Iowa. Of these 72% were residents and 28% were nonresidents.

Pheasants Forever® in Iowa

Since 1985, Iowa 's 102 Pheasants Forever and two Quail Forever chapters have raised and spent $33,439,806 on the organization's wildlife habitat mission. Chapters have planted 500,495 acres of nesting cover, 219,845 acres of food plots, 10,380,955 shrubs and trees for winter cover, and improved 56,062 CRP acres. Additionally, Iowa PF has restored 17,494 acres of wetlands and contributed to 602 land acquisitions that permanently protect 73,694 acres of public wildlife habitat.

National Pheasant Fest 2010

Pheasants Forever recognizes the great enthusiasm that Iowans have for upland birds, and is bringing the organization's National Pheasant Fest - the nation's largest event for upland hunters, landowners, sport dog owners and wildlife habitat conservationists - to Des Moines for the 2nd time February 26, 27 & 28 in 2010. The Fest combines a national consumer show, habitat seminar series, and family event complete with puppies, tractors, shotguns, and art.

"Pheasant and quail hunting in Iowa is not only a time-honored tradition, but upland hunting has a $135 million impact on the state's economy," said Howard Vincent, Pheasants Forever CEO. Vincent added, "We look forward to working with new U.S. Secretary of Agriculture, former Iowa Governor Tom Vilsack, and U.S. Senator Tom Harkin (D-IA), former Chair of the Senate Ag Committee and everyone involved with National Pheasant Fest 2010 to enhance wildlife habitat efforts in Iowa."

"Additionally, Iowa has always been a great supporter of Pheasants Forever," Vincent added, "With over 100 local Pheasants Forever chapters - the most of any state - over 20,000 Pheasants Forever members and over 100,000 pheasant hunters in the state annually, there is tremendous support for Pheasants Forever's mission. Having National Pheasant Fest in Des Moines has the potential to draw over 30,000 attendees, and the more people we can connect to our organization, the easier it will be to accomplish our conservation goals in Iowa." National Pheasant Fest first came to the state of Iowa and the Iowa Events Center for National Pheasant Fest 2007, Pheasants Forever's third such event. Despite a heavy snowstorm on the final day of the event, Fest-goers still set a then-record for attendance at the event, with 24,510 passing through the gates.

"After the success of the 2007 Pheasant Fest in Des Moines, it was a must to work with the Greater Des Moines Convention and Visitors Bureau to bring the event back to the many pheasant enthusiasts throughout the state," said Global Spectrum's Matt Homan, General Manager at the Iowa Events Center. "We are appreciative of Mr. Vincent and Pheasants Forever and Quail Forever for providing all of Iowa the opportunity to showcase what tremendous support Iowans give to events of this nature."

"We're proud to welcome National Pheasant Fest back home to Greater Des Moines in 2010," said Greg Edwards, President & CEO of the Greater Des Moines Convention and Visitors Bureau. "Once again our community will totally embrace this great event. We know with the thousands of outdoor enthusiasts in Iowa alone, we will have record attendance in 2010."

Is there enthusiasm for upland game birds and particularly pheasants in Iowa? Pheasants Forever® answers unequivocally yes!

For more information and updates on **National Pheasant Fest 2010**, log onto www.PheasantFest.org.

Summary - Hunting upland game birds has been and will continue to be an important component of Iowa's social and cultural fabric as long as adequate populations of upland game are available. Recent opinion surveys show that Iowa residents appreciate Iowa's natural resources and landscapes that support upland game birds and are willing to devote additional resources to improving conservation efforts.

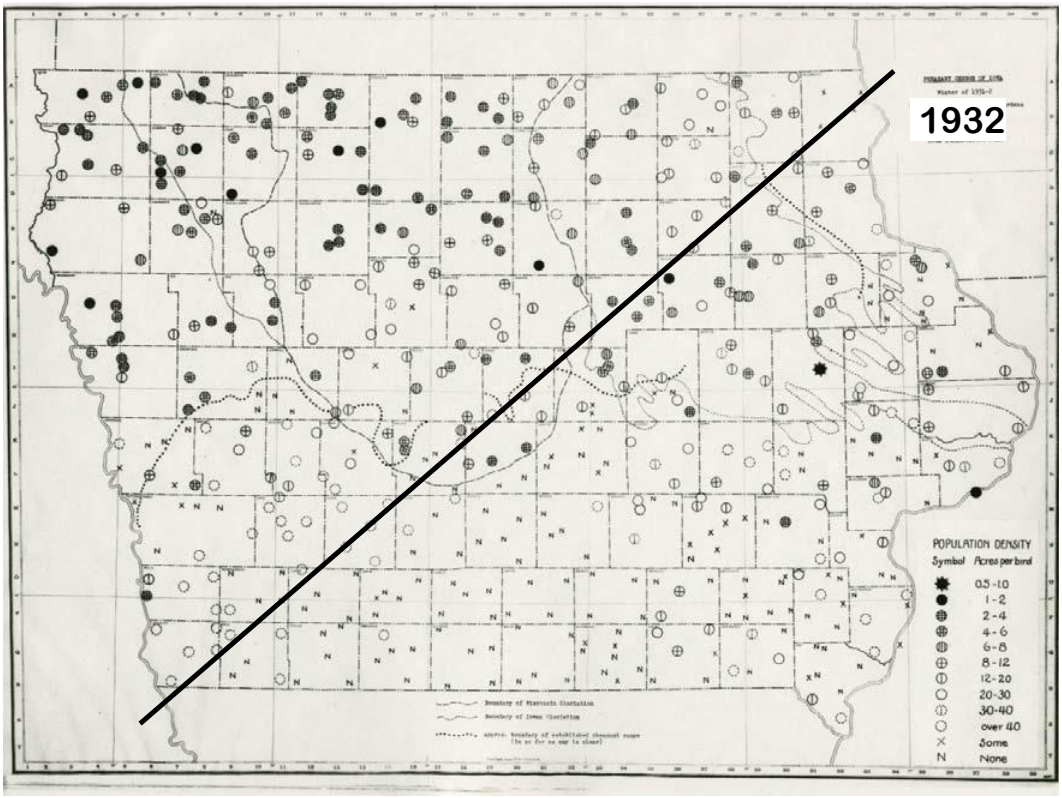
Appendix 1. Trends in Iowa land use patterns, National Agricultural Statistics Service, USDA.

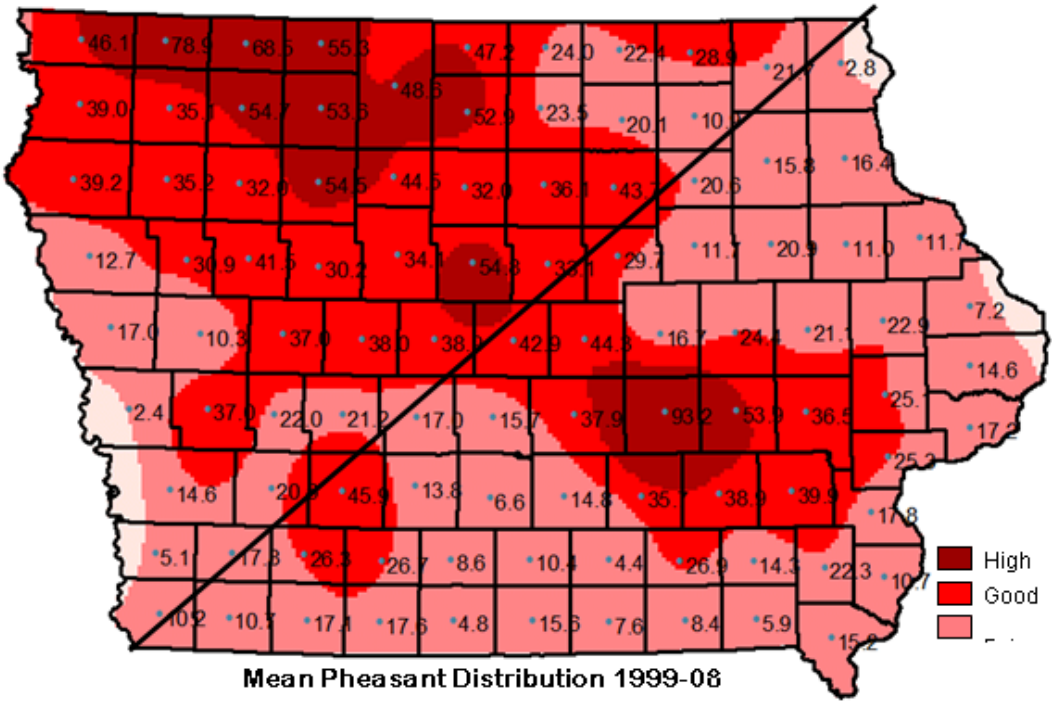
Year	Number Farms	Ave. Farm Size ac.	Corn All 1,000 ac.	Soybeans All 1,000 ac.	Hay All 1,000 ac.	Small Grains (o, w, b, r) 1,000 ac.	Hay and Small grains 1,000 ac.	Soil Bank & CRP 1,000 ac.
1962	172,000	202	10,051	3,405	3,502	3,051	6,553	586
1963	167,000	207	11,068	3,575	3,318	2,918	6,236	549
1964	162,000	214	10,195	4,254	3,233	2,436	5,669	202
1965	158,000	219	10,399	4,850	3,038	2,048	5,086	52
1966	155,000	223	10,612	4,996	2,980	2,032	5,012	50
1967	152,000	227	11,683	5,246	2,808	1,930	4,738	44
1968	149,000	231	10,290	5,561	2,560	1,868	4,428	40
1969	147,000	234	10,089	5,450	2,500	1,894	4,394	11
1970	145,000	237	10,690	5,680	2,460	1,760	4,220	0
1971	143,000	241	12,175	5,500	2,350	1,597	3,947	
1972	141,000	243	11,200	6,000	2,300	1,294	3,594	
1973	139,000	247	11,910	7,650	2,480	1,338	3,818	
1974	138,000	249	13,020	7,110	2,360	1,492	3,852	
1975	130,000	262	13,270	6,970	2,450	1,530	3,980	
1976	127,000	267	13,870	6,450	2,360	1,535	3,895	
1977	125,000	270	13,575	7,080	2,340	1,463	3,803	
1978	123,000	275	13,510	7,550	2,330	1,100	3,430	
1979	121,000	279	13,700	8,170	2,330	1,065	3,395	
1980	119,000	284	13,940	8,270	2,270	1,097	3,367	
1981	118,000	286	14,330	8,050	2,230	1,090	3,320	
1982	117,000	288	13,670	8,400	2,200	1,054	3,254	
1983	115,000	293	9,070	7,960	2,100	803	2,903	
1984	113,000	297	13,295	8,400	2,150	845	2,995	
1985	111,000	303	13,850	8,150	2,150	878	3,028	
1986	109,000	308	12,250	8,450	2,400	694	3,094	76
1987	107,000	313	10,370	7,900	2,000	684	2,684	1,239
1988	107,000	313	11,250	8,100	3,200	540	3,740	1,473
1989	105,000	319	12,590	8,280	2,400	825	3,225	1,760
1990	104,000	322	12,700	7,900	2,000	675	2,675	1,951
1991	103,000	325	12,450	8,630	1,800	475	2,275	1,988
1992	103,000	324	13,180	8,170	1,950	415	2,365	2,087
1993	102,000	325	11,400	8,300	2,050	250	2,300	2,204
1994	101,000	328	12,870	8,770	1,750	475	2,225	2,204
1995	100,000	330	11,850	9,260	1,700	260	1,960	2,199
1996	99,000	333	12,650	9,450	1,650	230	1,880	2,176
1997	98,000	337	12,160	10,400	1,650	255	1,905	1,758
1998	97,000	340	12,450	10,350	1,570	217	1,787	1,511
1999	96,000	344	12,070	10,750	1,700	206	1,906	1,484
2000	95,000	345	12,250	10,680	1,700	198	1,898	1,599
2001	93,500	350	11,630	10,920	1,650	148	1,798	1,802
2002	90,600	351	12,120	10,400	1,600	191	1,791	1,865

Year	Number Farms	Ave. Farm Size ac.	Corn All 1,000 ac.	Soybeans All 1,000 ac.	Hay All 1,000 ac.	Small Grains (o, w, b, r) 1,000 ac.	Hay and Small grains 1,000 ac.	Soil Bank & CRP 1,000 ac.
2003	90,000	352	12,230	10,550	1,600	151	1,751	1,883
2004	89,700	353	12,630	10,150	1,600	164	1,764	1,895
2005	89,000	355	12,730	10,000	1,600	140	1,740	1,918
2006	88,600	356	12,570	10,100	1,500	128	1,628	1,959
2007	88,400	356	14,150	8,520	1,480	95	1,575	1,971
2008			13,000	9,670	1,550	110	1,660	1,812

Iowa crop harvest figures from NASS. (http://www.nass.usda.gov/Data_and_Statistics/index.asp) USDA had large annual idling programs in 1983-84 thus the swings in corn/bean acreage.
Small grains includes acreage for oats, wheat, rye, and barley.

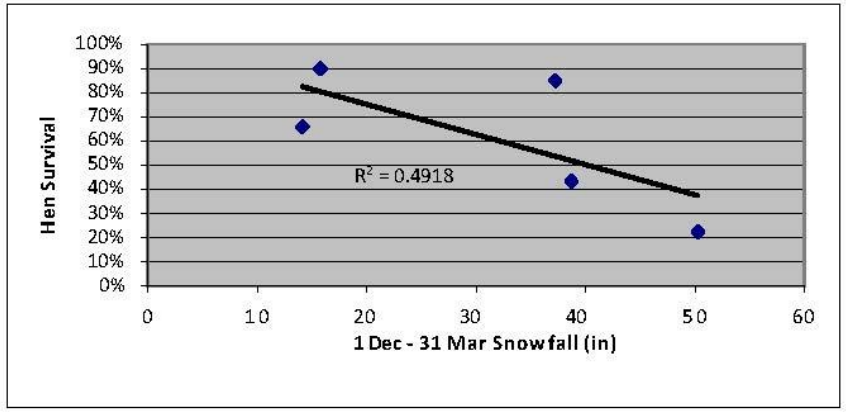
Appendix 2. Historic and recent pheasant distribution in Iowa. The 1932 map was developed based on flush counts on individual farms, the recent map is the 10 year distribution from the August Roadside Survey.



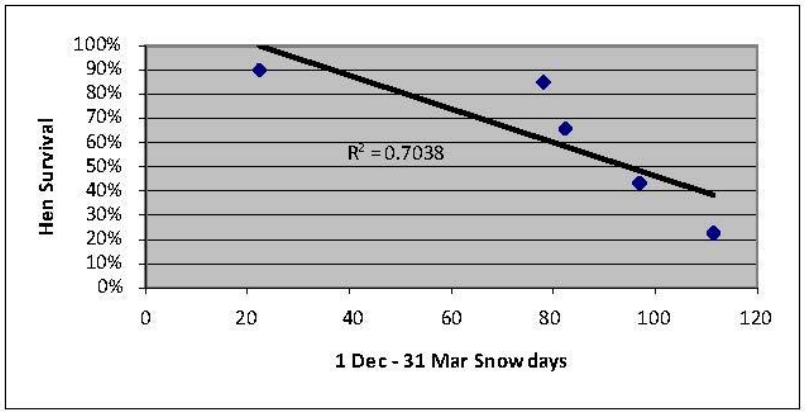


Appendix 3. Relationship between hen pheasant survival rates and weather variables between 1990-94 in north central Iowa.

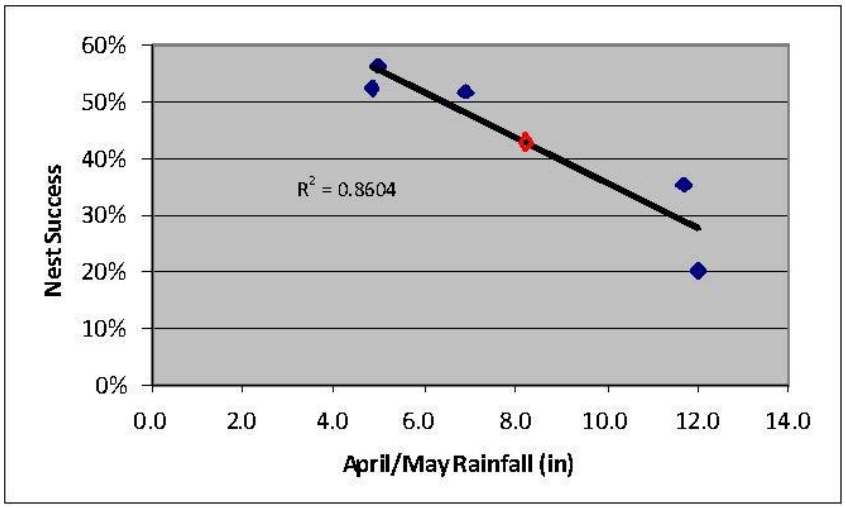
Over the 5 year study habitat acreages of grassland, wetland, cropland habitats were unchanged.



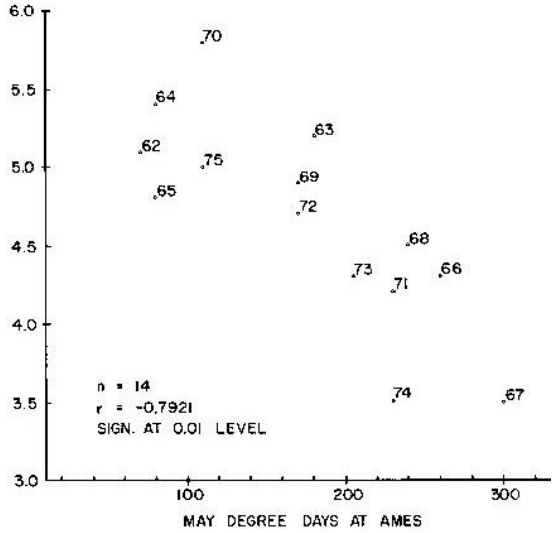
3a. Relationship between hen winter survival and snowfall 1990-94.



3b. Relationship between hen winter survival and days with measurable snow on the ground (snowdays).



3c. Relationship between hen nest success and rainfall. Open point is rainfall amount below which nest success cannot maintain the population, unless other rates (winter hen survival or chick survival) are well above average.



3d. Relationship between brood size and spring temperatures (degree days). Higher the degree days the cooler the spring has been. Number next to point is the year.

Appendix 4. Mean number of pheasants counted per 30-mile route on the August roadside survey regionally and statewide (1962-present).

YEAR	NORTH WEST	NORTH CENTRAL	NORTH EAST	WEST CENTRAL	CENTRAL	EAST CENTRAL	SOUTH WEST	SOUTH CENTRAL	SOUTH EAST	STATEWIDE	SEX[a] RATIO	COCK[b] HARVEST
1962	84.7	95.5	85.3	85.0	74.6	32.3	44.4		12.8	65.9		
1963		200.4	40.8		60.3		200.4		19.8	52.6	2.9	66%
1964	99.9	138.0		101.6	54.4	53.9	92.6	26.3	18.3	79.4	4.3	77%
1965	46.0	67.5	47.8	64.7	36.2	43.9	97.6	44.6	22.8	49.9	3.2	69%
1966	43.5	75.3	57.5	58.4	49.3	63.9	144.1	40.7	17.1	56.6	3.1	68%
1967	31.0	56.8	57.2	42.4	53.2	58.6	108.3	38.8	21.1	49.1	4.2	76%
1968	38.0	56.0	56.6	53.5	52.2	64.3	127.4	38.7	19.7	52.7	3.6	72%
1969	18.8	44.7	62.5	42.2	57.6	57.2	77.9	44.2	25.2	45.5	3.5	71%
1970	39.2	53.0	59.6	56.1	87.8	91.7	129.1	63.8	40.5	66.2	3.5	71%
1971	34.6	45.2	49.0	66.2	82.6	104.3	101.6	49.7	48.4	62.0	3.6	72%
1972	37.9	44.6	61.0	61.4	73.2	88.6	112.3	54.3	25.8	59.6	2.0	50%
1973	47.0	56.9	65.4	66.3	88.7	103.5	72.4	54.3	30.2	65.8	3.7	73%
1974	46.6	53.2	52.5	60.5	40.0	55.9	90.1	49.6	16.8	49.7	4.5	78%
1975	10.5	28.7	52.3	34.3	43.2	64.3	51.0	45.4	27.4	38.8	4.8	79%
1976	14.8	42.2	68.1	44.8	54.9	75.4	61.7	49.2	28.7	48.2	4.0	75%
1977	26.9	44.2	86.7	56.9	50.8	78.5	75.1	44.3	24.4	51.7	3.6	72%
1978	36.3	26.1	68.8	67.8	50.5	63.2	76.7	45.5	30.5	49.7	3.9	74%
1979	40.1	29.6	44.8	49.4	39.2	39.6	80.9	51.5	21.8	42.4	3.5	71%
1980	51.2	61.7	81.2	98.7	72.2	63.5	82.1	68.9	37.2	67.0	3.7	73%
1981	66.4	53.5	83.6	92.9	57.8	72.9	97.1	57.8	35.2	65.9	3.4	71%
1982	26.7	27.9	38.9	55.5	23.1	20.9	41.6	47.7	19.3	32.3	2.9	66%
1983	9.6	12.8	21.7	21.6	13.3	25.3	42.6	51.1	27.5	23.7	2.9	66%
1984	8.8	11.1	19.2	22.1	14.4	24.5	23.8	38.5	26.4	20.6	2.6	62%
1985	21.6	28.0	36.4	40.0	32.7	26.0	59.2	72.6	42.0	38.9	2.1	52%
1986	27.5	20.4	48.2	31.2	24.8	29.0	49.7	65.2	27.2	34.8	2.0	50%
1987	40.2	36.8	59.7	61.4	41.1	33.2	58.5	64.2	39.0	46.8	2.9	66%
1988	33.6	35.0	45.1	60.8	29.6	26.0	45.7	49.8	29.8	38.1	3.3	70%
1989	25.3	36.5	52.1	69.9	57.1	35.3	38.6	40.0	39.0	43.2	2.9	66%
1990	34.3	49.4	63.9	57.9	44.3	24.7	44.5	31.7	27.3	41.2	5.5	82%
1991	37.3	45.3	48.8	77.6	41.6	33.3	61.2	49.4	41.6	46.8	Discontinued	

YEAR	NORTH WEST	NORTH CENTRAL	NORTH EAST	WEST CENTRAL	CENTRAL	EAST CENTRAL	SOUTH WEST	SOUTH CENTRAL	SOUTH EAST	STATEWIDE	SEX[a] RATIO	COCK[b] HARVEST
1992	24.4	50.5	30.5	44.0	42.1	37.8	29.4	23.6	34.2	35.8		
1993	15.8	21.4	15.2	55.2	23.8	25.0	34.3	24.0	28.1	25.9		
1994	45.0	74.1	33.3	83.3	55.6	67.8	47.3	46.0	56.7	56.9		
1995	26.0	63.2	37.6	44.7	54.3	54.3	43.7	27.8	43.2	44.6		
1996	54.7	61.8	29.5	45.2	49.8	59.4	29.8	19.5	28.2	43.4		
1997	46.1	62.0	41.2	37.3	54.7	47.4	31.7	28.8	41.3	44.8		
1998	74.2	56.7	43.1	33.9	49.6	53.9	18.1	15.7	41.7	44.6		
1999	42.7	33.6	21.6	19.5	37.9	36.0	17.5	12.9	27.0	29.1		
2000	60.6	33.3	14.9	29.0	50.3	37.0	25.5	19.3	22.0	34.3		
2001	22.4	16.0	6.2	8.4	22.0	19.0	12.0	7.3	4.6	13.9		
2002	47.0	42.9	13.6	32.0	49.9	32.0	15.7	11.7	22.6	31.7		
2003	81.2	67.3	20.7	36.1	61.2	35.6	29.3	21.8	28.2	44.9		
2004	54.4	34.4	19.0	21.5	35.6	24.4	24.9	19.6	24.4	29.7		
2005	63.5	42.3	25.3	32.0	49.9	25.9	28.9	12.6	23.5	35.1		
2006	48.3	36.1	18.4	23.7	36.8	20.4	20.3	9.0	20.0	27.0		
2007	41.3	35.0	20.1	26.0	36.2	25.0	12.8	5.6	19.8	25.8		
2008	49.4	25.4	9.1	21.2	18.6	7.4	5.7	4.4	5.3	17.5		
2009	35.5	17.2	1.9	23.5	19.9	9.4	9.1	4.4	10.1	15.6		
Statistics:												
10 Ye ar Avg.	50.4	35.0	14.9	25.3	38.0	23.6	18.4	11.6	18.0	27.6		
Long-term Avg	40.6	49.0	42.9	49.3	46.9	46.2	58.8	36.8	27.6	43.5	3.4	69%
Percent Change from:												
2008	-28.1	-32.1	-79.4	10.7	7.0	26.9	59.4	0.5	91.2	-11.4		
10 Ye ar Avg.	-29.5	-50.7	-87.4	-7.3	-47.6	-60.4	-50.5	-61.8	-44.1	-43.6		
Long-term Avg	-12.7	-64.8	-95.6	-52.4	-57.5	-79.8	-84.5	-88.0	-63.4	-64.2		

[a] Hens per cock.

[b] Percent cock harvest calculated as [((hens/cocks)-1)/(hens/cock)] *100 *(Wooley, J.B. etal.1978. IA WL Res Bull No 24.)*

Appendix 5. Hunter reported harvest of upland game birds.

YEAR	PHEASANT	QUAIL	HUNS
1958*	1,548,564		
1959*	1,070,285		
1963	1,935,000	327,977	8,000
1964	1,737,400	291,030	7,000
1965	1,117,500	513,760	11,500
1966	1,449,400	1,051,630	12,000
1967	1,212,200	736,520	11,300
1968	1,393,900	777,685	21,600
1969	1,642,899	1,144,700	20,900
1970	1,788,500	1,178,685	28,300
1971	1,817,000	1,037,957	31,100
1972	1,396,900	657,300	16,800
1973	1,905,086	791,242	45,284
1974	1,672,476	727,324	39,976
1975	1,230,095	543,971	26,436
1976	1,425,500	1,080,500	54,800
1977	1,357,862	849,183	48,991
1978	1,428,708	660,625	108,473
1979	1,200,709	312,410	55,414
1980	1,429,617	524,450	70,764
1981	1,447,969	563,569	69,698
1982	972,556	302,648	52,782
1983	1,047,027	270,690	91,035
1984	724,192	190,708	33,306
1985	852,716	189,236	62,931
1986	855,894	339,000	60,018
1987	1,412,082	397,633	109,061
1988	1,139,599	289,592	104,094
1989	1,441,990	426,302	118,282
1990	1,407,002	321,493	147,922
1991	1,138,463	231,818	45,541
1992	925,123	179,825	37,328
1993	1,226,010	201,461	24,577
1994	1,245,580	178,589	22,331
1995	1,443,010	220,999	6,677
1996	1,367,060	81,039	36,358
1997	1,340,050	181,025	38,045
1998	1,237,980	100,594	25,613
1999[a]	899,174	110,128	20,200
2000	1,001,867	140,828	19,258
2001	470,116	32,226	5,814
2002	729,460	63,872	5,130
2003	1,080,466	114,067	8,204
2004	756,184	68,256	12,535
2005	806,601	40,675	14,674

YEAR	PHEASANT	QUAIL	HUNS
2006	748,025	75,276	10,724
2007	631,638	54,444	4,885
2008	383,083	13,391	1,420
Statistics:			
10 Year Avg.	750,661	71,316	10,284
Long-term Avg.	1,218,552	404,051	39,284
Percent Change from			
2008	-39.4	-75.4	-70.9
10 Year Avg.	-49.0	-81.2	-86.2
Long-term Avg.	-68.6	-96.7	-96.4

[a] Small Game Harvest Survey changed from a single to a double mailing. Harvest estimates from 1999 on are more conservative than pre-1999 estimates.

Appendix 6. Mean number of quail counted per 30-mile route on the August roadside survey regionally and statewide (1962-present).

YEAR	QUAIL PER ROUTE									
	NORTH WEST	NORTH CENTRAL	NORTH EAST	WEST CENTRAL	CENTRAL	EAST CENTRAL	SOUTH WEST	SOUTH CENTRAL	SOUTH EAST	STATEWIDE
1962	0.00	0.00	0.00	2.22	0.25	0.18	0.88		2.00	
1963	0.00	0.29	0.08	0.50	0.47	0.13	0.54	5.58	3.20	1.12
1964	0.00	0.00	0.29	0.64	0.50	0.60	0.83	4.69	4.47	1.39
1965	0.81	0.04	0.32	0.28	0.25	0.81	2.08	6.76	8.27	2.21
1966	0.22	0.00	0.12	0.11	0.44	3.05	2.58	6.65	7.59	2.29
1967	0.38	0.00	0.16	0.56	0.20	1.81	2.17	5.48	8.09	2.10
1968	0.00	0.00	0.28	0.17	0.65	2.68	3.46	5.81	5.55	2.06
1969	0.00	0.00	0.00	0.06	1.68	3.00	6.83	8.58	5.40	2.60
1970	0.00	0.00	0.00	0.00	0.17	1.64	10.75	10.15	7.36	2.95
1971	0.00	0.00	0.00	0.06	0.52	1.35	11.42	6.82	6.79	2.64
1972	0.00	0.00	0.00	0.26	0.25	1.13	10.27	6.84	3.80	2.26
1973	0.00	0.00	0.00	0.21	1.24	1.29	13.31	6.58	5.55	2.54
1974	0.00	0.00	0.11	0.25	0.13	1.00	8.07	6.39	5.13	2.11
1975	0.00	0.00	0.00	2.00	0.30	0.92	7.64	3.78	5.64	1.98
1976	0.00	0.00	2.00	2.21	0.16	2.04	2.40	7.39	4.68	2.19
1977	0.00	0.00	0.41	0.21	0.68	1.55	5.40	12.63	3.96	2.69
1978	0.00	0.00	1.06	1.37	0.17	0.50	2.73	8.42	3.40	1.87
1979	0.04	0.00	0.88	0.00	0.35	0.32	2.75	2.00	0.30	0.66
1980	0.36	0.00	0.00	0.68	1.39	1.00	5.27	7.88	2.61	2.05
1981	0.40	0.00	1.00	0.21	0.10	1.64	7.00	11.84	2.43	2.60
1982	0.00	0.00	0.67	0.05	0.00	0.14	0.87	2.64	2.83	0.79
1983	0.08	0.08	0.28	0.16	0.50	0.57	1.64	7.32	1.87	1.44
1984	0.00	0.00	0.22	0.80	0.03	0.00	1.13	2.40	1.57	0.66
1985	0.00	0.00	1.44	0.00	0.10	0.00	1.27	6.24	3.30	1.37
1986	0.00	0.00	0.00	0.37	0.03	0.14	1.73	8.16	2.09	1.42
1987	0.00	0.00	0.33	0.47	0.00	0.74	3.93	14.52	4.17	2.70
1988	0.00	0.00	0.44	0.94	0.00	0.00	4.87	8.46	4.13	1.96
1989	0.04	0.00	0.33	1.06	0.10	0.70	6.07	7.67	3.17	1.91
1990	0.00	0.00	1.00	0.72	0.13	1.04	2.93	6.25	2.21	1.48

YEAR	QUAIL PER ROUTE									
	NORTH WEST	NORTH CENTRAL	NORTH EAST	WEST CENTRAL	CENTRAL	EAST CENTRAL	SOUTH WEST	SOUTH CENTRAL	SOUTH EAST	STATEWIDE
1991	0.08	0.00	0.47	0.72	0.13	0.52	3.13	5.54	2.33	1.34
1992	0.12	0.00	0.22	1.50	0.07	0.96	2.43	2.83	2.71	1.07
1993	0.00	0.00	0.37	0.50	0.03	0.78	5.07	2.13	1.61	0.96
1994	0.08	0.00	0.00	0.65	0.00	0.87	9.19	3.21	3.04	1.58
1995	0.08	0.00	0.63	0.17	0.06	0.86	2.53	5.54	3.22	1.37
1996	0.08	0.00	0.21	0.28	0.09	0.71	2.73	0.88	0.65	0.51
1997	0.00	0.00	0.00	0.00	0.07	1.24	4.27	2.25	0.50	0.77
1998	0.00	0.00	0.00	0.00	0.07	1.48	1.20	2.30	1.81	0.72
1999	0.00	0.00	0.05	0.00	0.00	0.13	1.07	2.50	1.50	0.57
2000	0.00	0.00	0.00	0.20	0.47	0.17	4.40	0.83	0.41	0.57
2001	0.00	0.00	0.00	0.00	0.09	0.76	1.31	0.50	0.32	0.29
2002	0.00	0.00	0.00	0.70	0.03	0.27	1.06	0.88	0.96	0.39
2003	0.00	0.00	0.00	0.00	0.22	0.14	3.27	3.92	1.36	0.89
2004	0.00	0.00	0.50	0.05	0.19	0.55	2.19	2.64	3.19	0.93
2005	0.00	0.00	0.00	0.09	0.53	0.00	1.71	2.52	1.64	0.69
2006	0.00	0.00	0.00	0.32	0.03	0.52	1.65	2.16	3.22	0.82
2007	0.04	0.00	0.00	0.78	0.00	1.40	0.63	1.52	3.30	0.81
2008	0.00	0.00	0.00	0.13	0.00	0.00	2.00	1.04	1.26	0.45
2009	0.04	0.00	0.00	0.67	0.00	0.20	1.29	2.33	1.67	0.68
Statistics:										
10 Year Avg.	0.01	0.00	0.05	0.29	0.16	0.40	1.95	1.83	1.73	0.65
Long-term Avg.	0.06	0.01	0.29	0.49	0.27	0.86	3.79	5.18	3.26	1.48
Percent Change from:										
2008				415.4			-35.5	124.0	32.4	52.8
10 Year Avg.	412.8		-100.0	128.1	-100.0	-50.2	-33.8	27.0	-3.6	4.5
Long-term Avg.	-32.4	-100.0	-100.0	37.9	-100.0	-76.9	-66.0	-55.0	-48.7	-54.0

Appendix 7. Mean number of gray partridge counted per 30-mile route on the August roadside survey regionally and statewide (1962-present).

YEAR	NORTH WEST	NORTH CENTRAL	NORTH EAST	WEST CENTRAL	CENTRAL	EAST CENTRAL	SOUTH WEST	SOUTH CENTRAL	SOUTH EAST	STATEWIDE
1962	6.27	0.82	0.00	1.00	0.08	0.00	0.00		0.00	1.13
1963	4.67	2.71	0.00	0.69	0.00	0.00	0.00	0.00	0.00	0.92
1964	4.93	2.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85
1965	2.38	1.52	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.48
1966	2.70	4.96	0.00	0.00	0.76	0.00	0.00	2.05	0.00	1.30
1967	3.33	1.13	0.00	1.11	0.20	0.00	0.00	0.00	0.00	0.66
1968	4.13	1.30	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.68
1969	1.25	1.14	0.00	0.17	0.32	0.00	0.00	0.00	0.00	0.38
1970	8.43	4.00	0.00	0.00	0.75	0.00	0.00	0.00	0.00	1.66
1971	7.09	3.55	0.00	0.29	0.00	0.00	0.00	0.00	0.00	1.44
1972	8.92	5.44	0.00	0.47	0.61	0.00	0.00	0.00	0.20	1.92
1973	6.57	7.08	0.22	0.32	0.52	0.00	0.00	0.00	0.00	1.87
1974	9.00	4.79	0.00	0.30	0.33	0.00	0.00	0.00	0.00	1.82
1975	8.50	6.73	0.00	0.00	0.19	0.00	0.00	0.00	0.00	1.98
1976	9.50	7.20	0.00	0.84	0.23	0.00	0.00	0.00	0.00	2.14
1977	22.04	13.88	0.00	1.58	0.55	0.00	0.00	0.00	0.00	4.70
1978	17.23	7.68	0.11	1.42	2.43	0.00	0.00	0.00	0.00	3.73
1979	20.28	19.32	0.18	1.58	2.90	0.77	0.00	0.00	0.00	5.59
1980	35.04	28.08	0.11	3.00	4.03	0.82	0.00	0.00	0.00	8.81
1981	31.44	23.60	1.78	5.00	4.19	0.32	0.00	0.00	0.00	8.08
1982	18.48	10.16	0.94	3.37	1.87	0.00	0.00	0.00	0.00	4.21
1983	8.04	8.88	0.72	1.84	1.87	0.65	0.00	0.00	0.00	2.65
1984	14.16	13.24	2.11	1.05	3.03	1.05	0.00	0.00	0.00	4.22
1985	26.84	25.23	8.06	10.68	9.26	1.18	0.00	0.00	0.00	9.75
1986	29.48	21.04	10.00	5.79	11.13	2.41	0.13	0.00	0.00	9.62
1987	36.88	35.08	10.56	17.00	20.32	3.17	0.00	0.00	0.61	14.93
1988	42.84	48.65	15.61	17.83	25.07	4.48	0.20	0.38	1.39	19.00
1989	36.54	31.82	14.39	12.06	37.48	0.96	2.07	0.38	0.70	17.27
1990	18.40	20.12	16.68	5.89	6.93	5.52	1.00	0.38	0.88	8.75
1991	13.88	7.52	4.16	3.17	4.23	4.00	0.87	0.54	0.58	4.59

YEAR	NORTH WEST	NORTH CENTRAL	NORTH EAST	WEST CENTRAL	CENTRAL	EAST CENTRAL	SOUTH WEST	SOUTH CENTRAL	SOUTH EAST	STATEWIDE
1992	5.15	4.76	6.67	2.61	3.77	4.17	0.07	1.46	2.05	3.58
1993	1.33	1.39	0.84	2.00	1.19	0.17	0.00	0.13	0.17	0.85
1994	7.92	14.48	4.47	10.41	8.29	5.39	0.13	0.29	0.35	6.17
1995	3.72	4.86	4.11	1.28	2.52	3.18	0.00	0.29	0.78	2.47
1996	4.42	6.64	3.00	2.61	1.81	1.24	0.00	0.00	0.00	2.37
1997	9.00	7.33	6.47	3.16	10.77	3.95	0.00	0.00	0.36	5.10
1998	23.00	13.96	9.17	3.58	3.36	1.24	0.07	0.00	0.05	6.42
1999	11.41	2.75	2.11	1.84	3.68	0.52	0.00	0.00	0.09	2.83
2000	6.54	4.75	0.90	2.05	4.00	1.74	0.00	0.00	0.00	2.53
2001	3.23	1.30	3.44	2.75	3.94	1.33	0.13	0.00	0.00	1.90
2002	7.04	2.04	2.94	4.00	5.88	1.23	0.00	0.00	0.00	2.82
2003	6.77	3.04	3.20	1.50	7.00	0.13	0.00	0.00	0.00	2.76
2004	7.77	2.30	1.90	0.86	3.25	1.00	0.00	0.04	0.00	2.12
2005	9.31	3.59	1.80	2.68	3.53	1.83	0.00	0.00	0.36	2.79
2006	2.50	4.96	2.10	2.14	3.53	0.86	0.00	0.00	0.39	2.01
2007	2.19	2.93	2.30	1.96	2.90	0.85	0.00	0.28	0.00	1.62
2008	2.39	4.11	0.00	1.09	0.40	0.20	0.00	0.12	0.00	1.03
2009	2.92	1.44	2.44	1.57	1.96	0.00	0.00	0.00	0.21	1.21
Statistics:										
10 Year Avg.	5.07	3.05	2.10	2.06	3.64	0.92	0.01	0.04	0.10	2.08
Long-term Avg.	12.00	9.49	2.99	3.01	4.40	1.13	0.10	0.13	0.19	4.08
Percent Change from:										
2008	22.4	-65.0		44.4	390.0	-100.0		-100.0		17.7
10 Year Avg.	-42.3	-52.7	16.1	-23.8	-46.1	-100.0	-100.0	-100.0	117.6	-41.8
Long-term Avg.	-75.7	-84.8	-18.4	-47.9	-55.4	-100.0	-100.0	-100.0	10.0	-70.3

Appendix 8. Major USDA farm conservation programs available in Iowa.

Conservation Reserve Program (CRP) - 1,054,341 acres in Iowa, Oct. 2009

- pays farmers to remove environmentally sensitive farm fields from production for 10 years and seed the land to grasses or trees.
- can only enroll when USDA announces a signup, uses a ranking process - only the most environmentally sensitive lands accepted.
- Program purpose soil erosion, water quality, and wildlife.

- Continuous Conservation Reserve Program (CCRP) - 561,943 acres in Iowa
  - sub program under CRP
  - "buffers program" removes small portions of farm fields from production, targeted to address priority areas within fields.
  - can enroll any day of the year, automatically accepted if land located in a priority area, some acreage caps on some practices.

- Conservation Reserve Enhancement Program (CREP) - 1,611 acres in Iowa.
  - sub program under CRP
  - partnership agreement between USDA and state Governor to focus CRP/CCRP practices on a mutual concern.
  - State must provide 20% of cost, usually provides extra incentives to encourage enrollment and longer contracts.
  - Iowa CREP directs agricultural nutrients to constructed wetlands.

Wetland Reserve Program (WRP) - 150,000 acres in Iowa

- Pays farmers to restore cropped wetlands, lands ranked for acceptance.
- Mostly offers 30 year or perpetual easements, part of the deed.

- Wetland Reserve Enhancement Program (WREP)
  - Similar to CREP, partners come together in a focused area of wetland restoration.

Grassland Reserve Program (GRP) - 6,227 acres (FY04&05)

- Pays farmers not convert range/pasture lands to other uses, ranked for acceptance.
- Mostly offers 30 year or perpetual easements, part of the deed.

Environmental Quality Incentives Program (EQIP) - 97,000 acres FY09 ($21.5M)

- Provides mostly cost share to landowners to install structural practices on their farms to improve soil and water resource concerns (e.g., nutrient mgmt, erosion control structures). Ranking process, limited dollars each year.

Conservation Stewardship Program (CSP) - new program

- Pays farmers to address all natural resource concerns on their operation.
- Ranking process, limited dollars each year.

Wildlife Habitat Incentives Program (WHIP) - 4,800 acres FY09 ($1M)

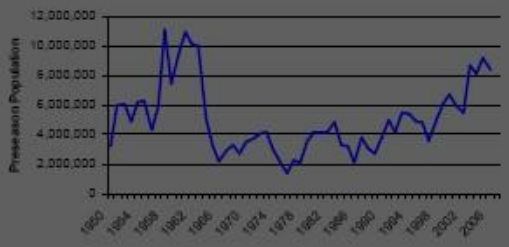
- Provides mostly cost share for landowners to install wildlife friendly habitat practices on their property. Ranking process, limited dollars each year.

Appendix 9. Summary of pheasant management presentation made by South Dakota Game, Fish and Parks.

Evolution of Pheasant Management in South Dakota

Tom Kirschenmann
SD GF&P, Division of Wildlife
Chief of Terrestrial Resources

Population Estimate



Chick Release Evaluation

- Banded chicks for 5 years
- Average of 12% of released cocks shot
- Average of 8% survived until spring
- Low population areas only - 1988
- Discontinued in 1990
- What's the next stocking alternative?

Stocking Hen Pheasants

Cock pheasants in the fall

- Common practice for shooting preserves
- Cost-effective for fees being charged
- Birds can survive the short period
- Not a GFP statewide management option
- Have to raise license fees too high
- Instead focus on wild pheasants: habitat

How about predator control?

- Source of pheasant mortality
- Companion focus of pheasant stocking
- Sometimes offered as a habitat substitute
- If localized, predator removal can help
- Concentrated effort in spring
- Habitat MUST come first

Pheasant Predation Management

Pheasant Management Options

- Manipulate hunting season structures
  - little effect as long as cock-only
- Raising and releasing pheasants
  - ineffective way to enhance densities
- Habitat programs: key to success
  - focus: survival & reproduction
- Localized predator removal
  - only after habitat

Current habitat program - SD

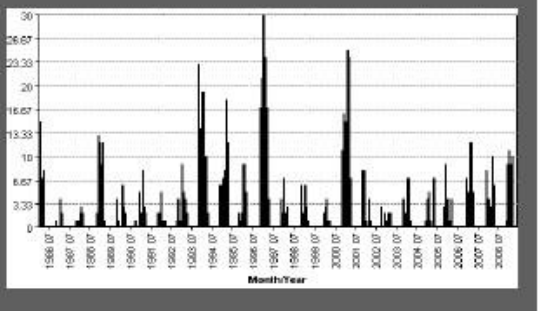
- Amended the 1975 act in 1988
- $5 PR stamp became $8 Habitat Stamp
- Habitat programs that compliment CRP
- Winter habitat: woody cover and food
- New focus: public access to private land
- Birth of the Walk-In Area program

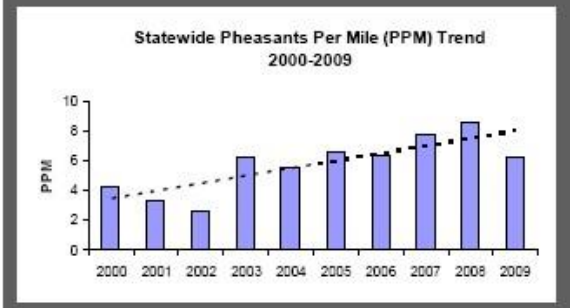
Private Lands Habitat Programs

- Nesting Cover
- Winter Food Plots
- Woody Cover
- Wetland/Grassland

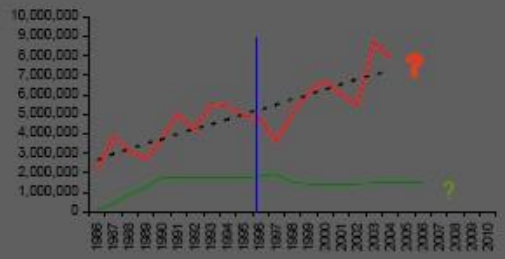
Land Acquisition

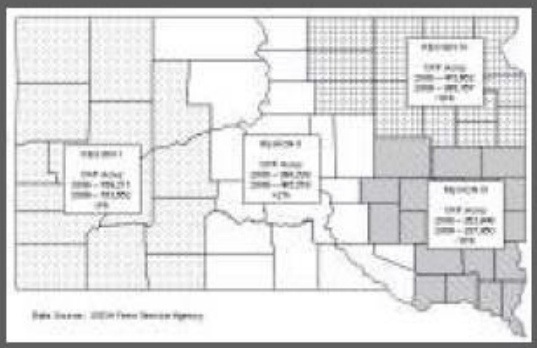
Weather Impact on Pheasant Populations





CRP & Pheasant Population





SouthDakota CREP JAMES RIVER WATERSHED

Goal: 100,000 acres

Program Components:
- ➢40% incentive above CRP Rental Rate
- ➢Access Required

PF Farm Bill Biologists

- ➢Started partnership in 2003-4
- ➢GFP/PF/NRCS
- ➢6 Biologists – goal is 9 or 10
- ➢Emphasis on wildlife Farm Bill programs
  - CRP, WHIP, WRP
- ➢Secondary emphasis – technical assistance and GFP programs
- ➢CREP

Private Shooting Preserves

Requirements:
- ➢September 1 – March 31
- ➢Birds must be 15 weeks of age at time of release
- ➢A minimum of 600 male pheasants must be released on the preserve
- ➢Wild and released birds harvested can not exceed 100% of total released
- ➢Daily limit 20 birds through the regular season, then 15 thereafter

Appendix 10. Committee member responses to criteria for new and innovative programs.

Criteria for New and Innovative Programs.

Program funding ideas should do…

- Create an awareness as to why our wild bird populations have diminished, an education as to what the primary paradigm shifts are necessary to reverse the trends, research by outsiders to gain an understanding of the "Whys & Whats" and a proactive public advertising campaign to bring about changes in perceptions. Funding sources:
  a. small increase in hunting privileges
  b. corporate backing from ag chemical suppliers
  c. "foundation" grants
  d. like Missouri, a much larger tax on hunting equipment & ammo.
- Be new money not reallocated
- Encourage matching funds (double or triple)
- Provide incentives or compensation (like an Iowa CRP) to help landowners and operators to set aside land for quality habitat. It should complement local, state and federal programs if possible. Provide strong quality technical assistance in marketing, planning, implementation, education and promotion. It needs to be the right people to work with landowners and operators, someone they can trust and not appear threatening or intimidating.
- Do their best to piggyback on existing programs: practices aimed at preventing soil and nutrient loss should incorporate the additional goal of habitat creation. In light of the budget woes of the present this may be the only way to secure funding. Sec. of Ag. Tom Vilsack recently announced 320 million dollars targeted at reducing the hypoxic zone in the Gulf of Mexico. Measures taken to reduce nutrient loss in Iowa can and should also serve to enhance or create habitat.
- Articulate objective and measurable objectives
- Require continuous monitoring and evaluation of progress toward success
- a. Help the farmer; b. Provide more birds; c. Improve on the over-used word habitat"; d. Promote hunting; and e. Marketing of all the above
- Fund habitat acreages greater than critical mass levels to benefit upland game for a sufficient period of time that will allow the habitat to develop and be fruitful to upland game.
- New programs should increase the quality, availability, accessibility to public of upland habitat in Iowa.
- Concentrate on long-term, ongoing streams of revenue
- Address all areas of possible cross cooperation
- Identify all potential funding partners
- Be available to both private landowners and public agencies (maybe not the same funding sources but there should be a mix)
- Focus on targeted federal farm program options, such as the targeted, continuous CRP sign-ups vs. use of general sign-ups; and, be flexible to allow use of multiple federal farm program options that could meet the overall goals.

Habitat ideas should…

- Come from the experts! There needs to be a shift from "enforcement" to "encouragement" by DNR personnel. That encouragement must also come from FSA and NRCS offices and personnel; all that needs to be done cannot be accomplished by one government office. Can sporting organizations do more?
- Be sustainable
- Relatively easy to implement/maintain (include plans for maintenance)
- Help landowners and operators develop the best habitat they can, remaining sustainable form a farming (business) standpoint. Help landowners and operators place the habitat where the land is not as productive (uplands included) and compensate them to do it, otherwise they will continue to farm it. We need flexibility with Federal programs to address state resource concerns (national rules do not always fit Iowa, and sometimes keep land from being put into habitat).
- Follow the time-proven, scientifically based practices established by Pheasants Forever. These practices work

well and have great public acceptance.
- Be separate for pheasant and bobwhite
- Target specific biological requirements, e.g., winter cover vs. nesting cover
- Habitat should be the State's responsibility and not the farmers as there is no money / profit for the farmers. As farming goes so does habitat and as habitat goes so does hunting and as hunting goes so goes the pheasants.
- Incent nesting and food plots as well
- New programs should increase the quality, availability, accessibility to public of upland habitat in Iowa.
- Be practical, and easily applied by landowners
- Identify all potential partners that may be of assistance to landowners financially and otherwise
- Address areas of improvement and opportunities in existing state, federal and local programs
- Recognize funding constraints
- Be based on sound ecological principles
- Be based on an ideal pheasant habitat goal but be flexible to include multiple habitat implementation options to appeal to the widest variety of landowners;
- Be flexible to allow for multiple objectives, such as a balance between habitat and market income opportunities (i.e., use of temporary cover crops, harvestable field crops such as oats or other similar harvestable cropping opportunities); and, primarily meets the needs and goals of landowners.

Private landowner programs should…

- Can be hugely expanded. Some through the Conservation Security Program. Since farm ground enrolled in the Conservation Reserve Program has had a detrimental effect on bird populations shuttle it for expansion into habitat programs that also improves water quality via the CSP.
- Provide enough incentive to the landowners (monetary or other i.e. in kind habitat work???) that would encourage adequate participation
- Be located where it is widely accessible to the public
- Be maintained to provide good hunting opportunities
- Be simple and not be interpreted to threaten income and the opportunity to farm the land. It should fit into their operation and be manageable (possible haying and grazing at times without penalties, and be something that they can maintain on their own). They would retain all ownership and rights to the land, easements could be a show stopper. These programs are not intended to take good agricultural land out of production, but help connect agricultural land with land that could be set aside for habitat. Landowners and operators will require some incentive or compensation for this habitat land so it is a realized as an asset and not a liability.
- Be encouraged as much as possible because of the nearly negligible amount of public land in Iowa. One caveat should be that state money may not be used to develop fee hunting preserves.
- Incentivize long-term (10 year, permanent easement) commitment
- Be of great enough incent to promote landowners to make adequate investments in the recommended seedings to ensure that they are successful.
- New programs should increase the quality, availability, accessibility to public of upland habitat in Iowa.
- Be additive to and complement existing programs (piggy back on, or incentivize federal farm bill programs)
- Have excellent delivery mechanisms (more feet to sell program—Farm Bill Biologists, Reload IA)
- Provide additional economic incentives where existing programs fall short of acceptance (cost share, linkage to participation in other programs)
- Use non-economic incentives to spur participation and cooperation (recognition)
- Explore non-traditional avenues to create and protect and manage habitat (permanent easements on stream buffers)
- Provide both funding opportunities and technical assistance
- Be based on input from farmers through focus groups; be voluntary; and, focus on the landowners' management interests, capabilities and goals.

Education / outreach should…

- PARTICULARILY landowners who only use their property for occasional deer hunting or lease it for such. Much improvement of bird habitat could be made on these properties if grazing was encouraged. As at the "Kellerton"

partridge area. Re-staff the state position of “grassland specialist” with another person knowledgeable about “habitat.”

- Be widely accessible to the public but not overload the DNR staff
- Be targeted to landowners and operators, but heavy on landowners. We really need to reach out to landowners, women landowners, social groups, absentee landowners, commodity groups, farm organizations and land decision makers. Help these people work with operators so it does not threaten their business to follow the principle of “Farming the Best and Putting Habitat on the Rest”. Help them understand resource issues and deliver programs and cost share payments or compensation that fits. Without taking prime farm land out of production, can we help identify land (including uplands) that can be set aside for habitat and come up with fair compensation, as these people need to remain in business? Farmer to Farmer - Landowner to Operator - Landowner to operator to wildlife enthusiast, can we all work together to help bring upland birds back to better numbers? We need to remember that we need the owners and operators to make that happen, so what is the best for them in their operations need to be considered!
- Provide more education in the school systems regarding hunting, fishing and trapping and how this affects Iowa environment and economic development to be directed towards the young.
- Be targeted toward every audience that may have an impact (Landowners, women landowners, etc.) This should include all of the audiences that benefit from the revenue that is generated from hunting. We need some economic examples and how the dollars turn.
- Put the mythical solutions to bed for the last time - stocking game farm birds, predator control, Surrogators, etc.
- Present a very few select, and clearly articulated alternatives to decision makers (minimize noise and confusion)
- Be designed to garner support from the general populace, regardless of hunting interest
- Present insightful data that elicits multi-level support = economic, recreational, aesthetic, practical (e.g., water quality), etc.
- Be multi-faceted (online, classes, newsletters, etc.)
- Distributed at the local level - through PF chapters, Soil & Water Conservation districts, county conservation boards
- Include messages directed at increasing voluntary landowner participation.

Appendix 11. Committee member responses to questions regarding public access.

Any new or innovative idea for upland game birds should (or not) do for public access.

- Should not legitimize any public access rights, a majority of the land in Iowa is in private ownership and if we want to try and help the upland bird population recover on as many acres as possible, we do not want to possibly alienate any potential habitat projects that could be assisted with by requiring public access with any public financial assistance. If any landowner wants to allow public access, it should be up to that individual, but do not spend money for public access.
- Recognize the need for more public access to hunting land. Adequate access is vital in recruiting new hunters and in gaining public support for programs
- Increase public access. That being said, the 'new idea' cost should be recovered by an increase in fees. My experience hunting in Kansas 'Walk-in Hunting Areas' is less than satisfactory for shooting game birds as the areas I have visited were over hunted. There should be a limit as to the number of public areas a hunter can access. (By county or use a self-adhesive stamp for attaching to access signage.)
- Allow access to the public when they have the expressed permission of the landowner. Landowners who participate in these programs should be informed that they will be required to allow public access, but they should be given the right to dis-allow those individuals whom have caused them trouble in the past. No vehicle access should be allowed. Adjacent landowners should not be required to allow right of passage across their land in order for a person to access "public access" land.
- I think implementation of a program that provides increased public access to hunting on private land, and provides strong incentive for landowner participation, is vital to maintenance of Iowa's heritage as an upland bird hunting state. My simple-minded idea is to implement a public access 'stamp' that could be purchased by hunters for the privilege to hunt on participating landowner's property. Funds generated would be used to pay landowners a flat fee as well as providing matching funds for habitat improvement/technical assistance.
- (Think about who should have access if public funds are used; what exchange of public access rights for technical assistance or cost-share is appropriate?)
- Should only be funded after all other options for new or innovative ideas are funded.
- Should be an optional "top-tier" program and in additional to any other incentives offered.
- Should indemnify landowners from any potential liability claims.
- Should recognize landowners established property rights.
- Should inform hunters of any/all site-specific landowner requirements for public use.
- Consider all opportunities to improve bird numbers and habitat before considering public access.
- Should not have mandated public access. If we can get owners to create habitat for upland birds, the population will carry over to areas outside of their property. If there is a population worth hunting, it will create hunting opportunities for the public. Maybe some sportsmen will develop relationships with property owners who develop and maintain quality wildlife habitat.
- I believe that we should leverage additional funds to farmers for better habitat that will be available for public hunting. Thus, someone needs to have seeded a mix that we recommend and get it established in order for us to pay. If we get an easement for walk in hunting and do a tax credit for the farm then we should have public access for that parcel. We should have additional funds for habitat improvement such as the filter strips but there has to be a mowing guideline that will benefit upland game where folks do not want to participate in the walk-in hunting. In the end we need to get the walk-in hunting program started.
- There one answer for upland game bird regarding pheasants and that is we need "Sustainable Funding, A Constitutional Amendment". My reason for this is that this passage in 2010 will be of great benefit to the FARMER. As of this date, pheasants are worth zero to a farmer and the only way to make them of any value to a farmer is to have a "walk-in" program such as South Dakota, Kansas and others states have. Financially, the DNR cannot afford the staffing and funding however, if we can get "Sustainable Funding, A Constitutional Amendment" for the farmer, there will be money available for the walk-in hunting and funding by the DNR.

Any new or innovative idea for upland game birds should (or not) do for hunters.

- If we could build a "Field of Dreams" upland bird population will come. We need to build the population so people can get reacquainted with the sport, give youth a new experience and help extended families and friends

to have a great outdoor experience. I believe that people would be willing to pay more for a habitat fee if they felt it would improve the upland population. But what would it get them that the current habitat fee is not getting? Do not combine access to upland bird enhancement.

- Give hunters appropriate reward for their contributions
- Increase public access. That being said, the 'new idea' cost should be recovered by an increase in fees. My experience hunting in Kansas 'Walk-in Hunting Areas' is less than satisfactory for shooting game birds as the areas I have visited were over hunted. There should be a limit as to the number of public areas a hunter can access. (By county or use a self-adhesive stamp for attaching to access signage.)
- Increase the amount of land available to hunters.
- (Think about the hunting experience, what impact on hunter fees; what should hunters do in return for access if anything, etc.)
- Should inform hunters of any/all site-specific landowner requirements for public use.
- Improve habitat and improve bird numbers
- Will most likely cost money and hunters must realize that quality habitat is not an accident or is free. Something must be done to motivate/reward owners who manage their property in a way that it encourages upland birds (early successional plant growth). By working with this type of owner, hopefully a relationship could be established and youth hunts could be part of the reward for all parties.
- There should be a hunter fee for access to walk in sites. This should help offset the cost but not be viewed as cost neutral. The state needs to step up and help with the costs in order to get the program rolling and reap the economic benefits.
- I hunted opening day pheasant season in Poweshiek County, which has been the capital of pheasant hunting in the past, however, the motel I stayed in was filled with Michigan hunters who claim that in Michigan, they lost all their pheasants due to farm chemicals and they feel we are headed in that direction also. What we need to do is have the DNR, Pheasants Forever and the Farm Bureau get together and investigate the effect farm chemicals have upon wild life. My opening day of pheasant season, includes walking over 5 miles in the best habitat in the world, habitat is no problem in the state of Iowa, but the fact is we didn't see a pheasant, in fact any birds, any wild life, including rabbits, blue jays or starlings. I have the best hunting dog in the state and he couldn't even move a bird. We didn't even see any bird tracks. If habitat is not the problem then it's another problem and we have to face the facts and the facts are as we find them. It takes two birds to make three but we don't even have one pheasant to try for a pair. The bottom line is that we need Sustainable Funding Constitutional Amendment to provide money to the farmers.

Appendix 12. Location of wildlife bureau private lands staff and Pheasants Forever Reload Iowa staff (farmbill biologist designation).

Permanent DNR biologists are shown by black dots and specialists by green shading. Yellow and blue shading are temporary positions or Reload Iowa positions. Large outlined regions are NRCS administrative divisions.