

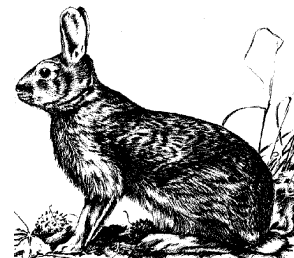
2014 IOWA AUGUST ROADSIDE SURVEY

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2014 IOWA UPLAND WILDLIFE POPULATIONS

This report is a summary of the 2014 Iowa August roadside survey. The survey is conducted each year by Iowa DNR Enforcement and Wildlife Bureau personnel throughout the state of Iowa during the first half of August. Individuals involved in this survey should be credited for their efforts to collect these data during the early-morning hours. This survey is partially funded by the Pittman-Robertson Act, Federal Aid in Wildlife Restoration Program, Project Number W-115-R.

The August roadside survey generates data from approximately 215, 30-mile routes on ring-necked pheasants, bobwhite quail, gray partridge, cottontail rabbits, and white-tailed jackrabbits. Counts conducted on cool mornings when the sun is shining, with heavy dew, and no wind yield the most consistent results. Comparisons between 2013 and 2014 are based on routes that are directly comparable between years (routes with no alterations and routes started with good dew), however long-term trends are based on all routes completed. Two factors determine the abundance and distribution of upland game populations in Iowa - **weather** and **habitat**.



Figure 1. Drifted cattails February 2014 blizzard north central Iowa.

2013-14 IOWA WEATHER SUMMARY

Iowa pheasant numbers increase with mild winters (less than 19 inches snowfall) and warm, dry springs (less than 6 inches rainfall) and decline with snowy winters (30+ inches snowfall) and cold, wet springs (8+ inches rainfall). Iowa experienced 5 consecutive severe winters with 30+ inches of snow from 2007 to 2011. In the 50 years of standardized roadside counts, Iowa has never seen 5 consecutive winters of this severity (Figure 4).

The winter of 2014 was snowy, but snowfall varied from below normal in the western third of Iowa to above normal in the eastern third of the state (Table 1). The NE region reported snow early in December that persisted throughout the entire winter (Figure 2). Other regions saw above normal snowfall in December and February with normal to below normal totals in January and March. This winter ranked as the 9th coldest and 42nd driest in 142 years of record by the state climatologist.

Table 1. Iowa 2013-14 weather summary.

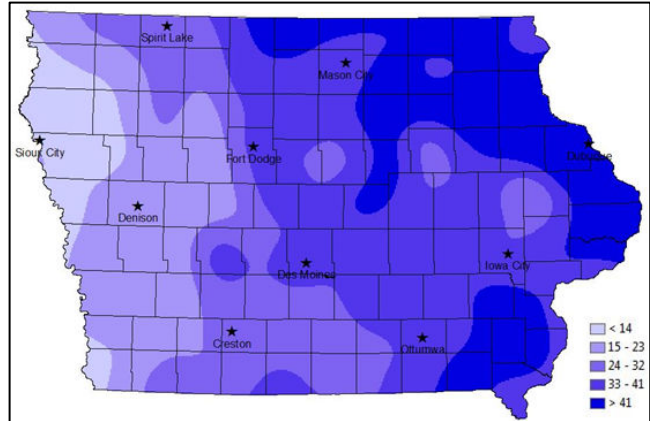
| Weather Variables | Survey Regions | | | | | | | | | STATE |
|------------------------|----------------|------|------|------|------|------|------|------|------|-------------|
| | NW | NC | NE | WC | C | EC | SW | SC | SE | |
| Winter Weather* | | | | | | | | | | |
| Total Snowfall (inch) | 25 | 43 | 52 | 23 | 39 | 44 | 21 | 33 | 42 | 35.8 |
| Departure** | -1.2 | 13.7 | 23.0 | -4.1 | 13.6 | 19.8 | -0.4 | 11.7 | 19.2 | 10.6 |
| Spring Weather | | | | | | | | | | |
| Total Rainfall (inch) | 4.8 | 9.1 | 8.9 | 7.8 | 9.0 | 8.7 | 7.6 | 9.8 | 6.4 | 8.0 |
| Departure | -1.2 | 2.2 | 1.8 | 0.8 | 1.8 | 1.5 | 0.1 | 2.2 | -1.2 | 0.9 |
| Mean Temperature (F) | 52 | 51 | 52 | 54 | 54 | 55 | 56 | 55 | 56 | 53.7 |
| Departure | -1.4 | -2.5 | -1.7 | -2.3 | -1.3 | -1.0 | -1.5 | -1.3 | -1.0 | -1.7 |

* Winter weather period (1Dec.-31Mar.) and spring period (1April-31May).

** Departures calculated using thirty year NOAA average from 1961-1990.

The spring of 2014 saw a considerable moderation in rainfall compared to 2013 with just under 8 inches of rainfall this spring compared to 15+ inches (new state record) in 2013. The NW, WC, SW, and SE regions saw normal to below normal rainfall, while other regions saw rainfall 1-2 inches above normal (Table 1). This spring ranked as the 32nd coolest and 68th driest in 142 years of records according to the Iowa Climate Bureau. Temperatures were also cooler than normal statewide. With the exception of NE region, overwinter survival was likely near normal across most of Iowa with above normal hen survival likely across the western third of Iowa. Nesting conditions should have been better than normal in the western third of Iowa and SE region.

Figure 2. Snowfall Dec- Mar 2014.



UPLAND HABITAT TRENDS IN IOWA

Table 2. Trends in Iowa habitat and total habitat loss from 1990 to 2013, data from USDA.

| Year | Hay Acres | Small Grains Acres | CRP Acres | Total All Habitat Acres |
|-----------------------------------|-----------|--------------------|-----------|-------------------------|
| 1990 | 2,000,000 | 675,000 | 1,951,061 | 4,626,061 |
| 1995 | 1,700,000 | 260,000 | 2,199,360 | 4,159,360 |
| 2000 | 1,700,000 | 198,000 | 1,598,662 | 3,496,662 |
| 2005 | 1,600,000 | 140,000 | 1,917,574 | 3,657,574 |
| 2010 | 1,200,000 | 80,000 | 1,638,546 | 2,918,546 |
| 2013 | 1,170,000 | 81,000 | 1,524,985 | 2,775,985 |
| Habitat Acres 1990 vs 2013 | | | | -1,850,076 |
| Square Miles Habitat 1990 vs 2013 | | | | -2,891 |

Changes in habitat are more gradual and the influence of habitat changes on upland populations are only evident after looking at several years of surveys. Information from USDA shows that between 1990 and 2013 Iowa has lost 2,891 mi² of potential pheasant habitat (Table 2). This habitat was a mix of small grains, hay land, and Conservation Reserve Program (CRP) acres. To put this loss in perspective, 2,891 mi² is a strip of habitat **9+ miles wide** that would stretch from Omaha to Davenport! CRP has become critical for Iowa pheasant populations with the lost of small grains and hay lands to corn and soybean production.

Congress finally passed a Farm Bill in early 2014 which was good news for conservation programs. Unfortunately, because of budget cuts, the CRP program will be reduced from a 32M acre program to a 24M acre program by 2017. USDA did not have a general CRP signup in 2014. CRP contracts covering 92,000+ acres expired this September in Iowa, but USDA did offer landowners a one year extension. Hopefully USDA will hold a general CRP signup in 2015. On a positive note, Iowa was awarded a new continuous CRP practice called Iowa Pheasant Recovery SAFE (CP38). This new practice is designed to help recover pheasant populations on farms that enroll in the practice. There is over 40,000 acres currently available www.iowadnr.gov/habitat. The Iowa DNR was also awarded another \$3M grant from USDA to expand the states walk in hunting program, Iowa Habitat and Access Program (IHAP). IHAP sites are typically WRP or CRP on private lands where the DNR has provided incentives to manage habitat for landowners in exchange for hunting access. For a list of IHAP sites visit <http://www.iowadnr.gov/Hunting/PlacestoHuntShoot/HabitatAccessProgram.aspx>

SURVEY WEATHER CONDITIONS

The August Roadside Survey yields the most consistent results when surveys are completed on mornings with heavy dew, no wind, and sunny skies. Research at Iowa State University in the 1950's showed the number of pheasants counted on mornings with medium dew averaged 43% less than when the route was run on a morning with heavy dew. Heavy dews require good soil moisture in late July and early August.

This year's survey shows pheasant numbers are significantly higher than in 2013, higher than can be accounted for through good reproduction alone. This suggests populations were better in 2013 than the roadside survey indicated; the same may have also been true for 2012 as well. Staff noted dew conditions this year were much wetter than in the past several years.

RING-NECKED PHEASANT

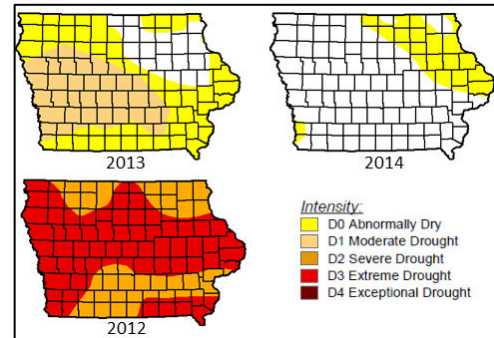
Statewide: This year the statewide index is 17.4 birds/route, a 151% increase from the 2013 estimate (Figure 6). This year's statewide count is the highest seen in over 6 years dating back to 2008 (Table 4). Every region reported significant increases of 100% or more in pheasant counts, except the NE which report no change in bird numbers compared to 2013. This year's index is 2% above the 10 year average and -57% below the long term average (Table 4, Figure 4). Iowa research indicates overwinter hen survival, brood survival, and nest success are the major factors influencing annual changes in pheasant numbers. Statewide, the total hens (+142%) and roosters (+53%) counted on routes this year were significantly higher than last year, suggesting excellent overwinter survival AND/OR that poor dew conditions during the 2013 survey lead to a poor count (Table 3 – statewide numbers, Figure 3). Statewide data on chicks (measure of nest success) and age ratios (chicks per adult hen – measure of overall hen success) showed no change compared to 2013. Both indicate the nesting season was very similar to 2013 (Table 3).

This year's count represents the highest single year increase every recorded in the surveys 52 year history! Within the regions, increases of 200-300% were reported. These increases are beyond the reproductive capability ever measured in radioed wild hen populations. This suggests that counts in 2013 and perhaps 2012 were higher than reported because of drought conditions in August 2013 and 2012 (Figure 3). The small game harvest survey also supports this notion as hunters harvested almost 10,000 more roosters in 2013 than 2012. Dry soils lead to poor dew conditions. Reliability of the roadside counts is highly dependent on heavy dew conditions. Given this information, it is likely the statewide pheasant population was closer to 10 to 12 birds per route in 2013, not the 7 reported (Figure 6- statewide numbers). Thus part of the increase in bird numbers this year is related to birds not counted last year as well as good over winter survival across several regions in 2014. Good soil moisture and thus excellent dew condition also provided for a very good bird count in 2014.

Based on this year's statewide index of 17.4 birds/route, Iowa pheasant hunters should harvest approximately 200,000-300,000 roosters this fall (Figure 4). Iowa currently has 2.77 M acres of potential pheasant habitat (Table 2). This level of habitat should support an 850,000 rooster harvest, ~80% of this harvest coming from CRP lands. Iowa finally has sufficient hen numbers in most regions to make a recovery from the catastrophic years of 2007 thru 2011, but needs 2 or 3 more good winters and springs back to back to fully recover numbers to what habitat levels can support (Figure 4). It will be very hard to recover Iowa pheasant numbers if significant CRP habitat losses continue in Iowa (Table 2).

Northern Regions: Counts in the NW were the highest in the state at almost 30 birds/rte, while the NE has the lowest densities at 2.7 birds/rte (Table 3, Figure 6). Looking at data in Table 3, changes in adult hen numbers rather than hen success/brood size led to the increased bird numbers in the NW and NC regions – suggesting excellent overwinter survival or last year's survey did a poor job counting hens. The NE region had

Figure 3. U.S. Drought Monitor soil moisture conditions Iowa mid-August.



the longest and snowiest winter of any region which likely explains the lack of any increase (Table 1). Poor dew conditions could also be a factor (Figure 3). Parts of NW and NC Iowa should offer very good pheasant hunting, particularly around public and private lands with good winter habitat (Figure 7). Better counts came from Clay, Dickinson, Emmet, Hancock, Kossuth, Osceola, and Sioux counties.

Central Regions: Counts in the C and WC regions were 2nd and 3rd only to counts in the NW region. Similarly, changes in adult hen numbers rather than hen success/brood size led to the increasing trends in all 3 central regions. Brood size and age ratio data in all 3 regions suggest nest success and chick recruitment were similar to 2013 (Table 3), while below normal snowfall likely led to improved hen survival in the WC region. Better bird numbers were reported in Boone, Carroll, Greene, Guthrie, Hamilton, Iowa, Johnson, Poweshiek, Sac, and Webster counties (Figure 7).

Southern Regions: The southern regions also showed 100 to 200% increases in pheasant numbers although overall densities remain low compared to other regions (Figure 6). The exception was the SE region which reported about 20 birds/rte (Table 3). As seen in other regions, a significant increase in adult hens led to the higher counts across all 3 regions in 2014 (Table 3). Some of the better counts in 2014 came from Henry, Louisa, Mahaska, Marion, Pottawattamie, and Washington counties.

BOBWHITE QUAIL

Statewide bobwhite quail numbers were up significantly (+142%) from 2013 counts (Table 3, Figure 6). Landowners and staff reported more calling males this spring, suggesting good winter survival. This year's index is 61% above the 10 year average and -33% below the long term average (Table 4, Figure 5). Changing land-use, mainly intensified agriculture, loss of small grain agriculture, and loss of shrubby/brushy habitat are the leading factors in Iowa's long-term quail decline. This year's statewide count is the highest since 2004 and 1995 prior to that (Table 4). Better quail numbers were reported in SW and SC Iowa where DNR staff has focused management on providing quail habitat (Figure 7). Iowa has 10,000+ acres of CP33 remaining, a CRP practice that provides needed quail habitat around crop fields in southern Iowa www.iowadnr.gov/habitat. The better quail counts in 2014 came from Adams, Appanoose, Davis, Lucas, Ringgold, and Taylor counties.

GRAY PARTRIDGE

The 2014 gray partridge count was 2.3 birds per 30 miles, an increase of 147% compared to the 2013 count (Table 3, Figure 5). This year's statewide estimate is 50% above the 10-year mean and -40% below the long-mean (Table 4, Figure 5). This is the highest statewide gray partridge index since 2005. Gray partridge prefer the wide open agricultural lands of the northern two-thirds of the state. The NC region reported the best densities in 2014, although improved numbers were also reported in the NE, WC, and C regions (Figure 7). Typically partridge recruitment is highest in Iowa when spring/summer precipitation is well below normal. Better counts in 2014 came from Cerro Gordo, Floyd, Hancock, Kossuth, and Webster counties.

COTTONTAIL RABBIT

Staff reported an average of 7.9 rabbits per route in 2014, a significant increase (+52%) from 2013 and represents the third consecutive year of increases in cottontail numbers (Table 3, Figure 5). This year's count is 63% above the 10-year mean and 33% above the long-term average (Table 4). Regionally, rabbits showed increased numbers in all regions except the NW and NC regions. Cottontails tend to reproduce well in years with good moisture during spring and summer. Cottontail hunters can expect very good hunting in Appanoose, Davis, Iowa, Jones, Johnson, Lucas, Louisa, Marion, Monroe, Ringgold, Van Buren, Warren, Washington, and Wayne counties (Figure 6 and 7).

Table 3. Mean numbers of wildlife observed per 30-mile route on the August roadside survey in 2013 and 2014. Only routes run under heavy to moderate dew conditions are used for statistical comparisons.

| REGION | n | RINGNECKED PHEASANTS | | | | | | | | BOBWHITE QUAIL | | GRAY PARTRIDGE | | RABBITS | |
|---------------------|-----|----------------------|-------------|-----------------|----------------|-------------|-------------|----------------|-----------|----------------|--------|----------------|-------------|--------------------|------------------------|
| | | TOTAL PHEASANT | COCKS | HENS W/O BROODS | HENS W/ BROODS | HENS | CHICKS | CHICKS/ BROODS | AGE RATIO | TOTAL BIRDS | COVEYS | TOTAL BIRDS | COVEYS | EASTERN COTTONTAIL | WHITETAILED JACKRABBIT |
| Northwest | 26 | | | | | | | | | | | | | | |
| 2014 | | 29.27 | 2.46 | 0.77 | 4.00 | 5.50 | 22.04 | 4.50 | 3.95 | | | 1.81 | 0.12 | 2.27 | 0.04 |
| 2013 | | 13.28 | 1.72 | 0.88 | 1.40 | 2.84 | 9.28 | 4.42 | 3.28 | | | 1.04 | 0.08 | 2.44 | |
| % CHG | | 120% | 43% | -13% | 186% | 94% | 138% | 2% | 20% | | | 74% | 50% | -7% | |
| Northcentral | 27 | | | | | | | | | | | | | | |
| 2014 | | 18.07 | 1.26 | 0.74 | 1.85 | 4.00 | 14.22 | 4.63 | 4.00 | | | 7.74 | 0.67 | 2.59 | 0.04 |
| 2013 | | 8.96 | 0.88 | 0.50 | 1.23 | 1.92 | 6.35 | 4.02 | 2.78 | | | 2.00 | 0.15 | 2.96 | |
| % CHG | | 102% | 43% | 48% | 50% | 108% | 124% | 15% | 44% | | | 287% | 347% | -13% | |
| Northeast | 17 | | | | | | | | | | | | | | |
| 2014 | | 2.71 | 0.88 | 0.12 | 0.12 | 0.65 | 1.59 | 2.64 | 2.06 | | | 3.12 | 0.29 | 4.41 | |
| 2013 | | 2.71 | 0.65 | 0.18 | 0.12 | 0.65 | 1.76 | 3.14 | 2.31 | | | 1.94 | 0.18 | 3.65 | |
| % CHG | | 0% | 35% | | 0% | 0% | -10% | -16% | -11% | | | 61% | 61% | 21% | |
| West Central | 21 | | | | | | | | | | | | | | |
| 2014 | | 22.05 | 1.76 | 1.29 | 2.76 | 4.95 | 16.24 | 4.11 | 3.19 | | | 2.10 | 0.19 | 7.38 | |
| 2013 | | 5.65 | 0.55 | 0.35 | 0.70 | 1.20 | 4.05 | 4.71 | 3.63 | | | 1.25 | 0.10 | 3.75 | |
| % CHG | | 290% | 220% | 269% | 294% | 313% | 301% | -13% | -12% | | | 68% | 90% | 97% | |
| Central | 27 | | | | | | | | | | | | | | |
| 2014 | | 22.56 | 1.78 | 0.85 | 2.00 | 4.52 | 17.93 | 4.69 | 3.79 | 0.70 | 0.04 | 2.85 | 0.22 | 10.00 | 0.15 |
| 2013 | | 7.41 | 1.00 | 0.26 | 0.93 | 1.44 | 5.22 | 4.58 | 3.88 | | | 0.74 | 0.04 | 4.22 | 0.07 |
| % CHG | | 204% | 78% | 227% | 115% | 214% | 243% | 2% | -2% | | | 285% | 450% | 137% | 114% |
| Eastcentral | 19 | | | | | | | | | | | | | | |
| 2014 | | 15.16 | 0.79 | 0.32 | 1.53 | 2.47 | 12.53 | 4.92 | 3.90 | | | 1.05 | 0.05 | 9.37 | |
| 2013 | | 5.18 | 0.47 | 0.06 | 0.59 | 0.88 | 4.06 | 5.25 | 4.56 | 0.12 | | 1.00 | 0.06 | 8.12 | |
| % CHG | | 193% | 68% | | 159% | 181% | 209% | -6% | -14% | | | 5% | -17% | 15% | |
| Southwest | 16 | | | | | | | | | | | | | | |
| 2014 | | 6.56 | 0.75 | 0.44 | 0.94 | 1.69 | 4.44 | 3.26 | 2.82 | 3.88 | 0.25 | | | 4.81 | |
| 2013 | | 3.21 | 0.86 | 0.50 | 0.43 | 1.00 | 1.43 | 3.00 | 2.07 | 0.93 | | | | 3.21 | |
| % CHG | | 104% | -13% | -12% | 119% | 69% | 210% | 9% | 36% | 317% | | | | 50% | |
| Southcentral | 23 | | | | | | | | | | | | | | |
| 2014 | | 10.00 | 0.78 | 0.39 | 0.91 | 2.26 | 7.91 | 4.25 | 3.29 | 2.83 | 0.17 | | | 19.09 | |
| 2013 | | 4.91 | 0.82 | 0.23 | 0.45 | 0.95 | 3.41 | 4.69 | 3.33 | 1.91 | 0.14 | | | 11.45 | |
| % CHG | | 104% | -5% | 70% | 102% | 138% | 132% | -9% | -1% | 48% | 21% | | | 67% | |
| Southeast | 20 | | | | | | | | | | | | | | |
| 2014 | | 20.70 | 1.75 | 0.85 | 2.75 | 4.15 | 15.35 | 4.63 | 3.28 | 1.75 | 0.05 | | | 11.55 | |
| 2013 | | 6.79 | 1.05 | 0.58 | 0.79 | 1.58 | 4.37 | 4.64 | 2.77 | 0.74 | | | | 7.95 | |
| % CHG | | 205% | 67% | 47% | 248% | 163% | 251% | 0% | 18% | 136% | | | | 45% | |
| Statewide | 196 | | | | | | | | | | | | | | |
| 2014 | | 17.37 | 1.42 | 0.67 | 1.98 | 3.56 | 13.30 | 4.35 | 3.51 | 0.92 | 0.05 | 2.30 | 0.19 | 7.93 | 0.03 |
| 2013 | | 6.92 | 0.93 | 0.41 | 0.80 | 1.47 | 4.79 | 4.37 | 3.21 | 0.38 | 0.02 | 0.93 | 0.07 | 5.21 | 0.01 |
| % CHG | | 151% | 53% | 63% | 148% | 142% | 178% | 0% | 9% | 142% | 150% | 147% | 171% | 52% | 200% |

BOLD numbers indicate a mathematically significant change from the previous year ($P < 0.10$, Wilcoxon Signed Rank Test).

Table 4. Historical upland wildlife numbers from the August Roadside Survey. Numbers represent the average number of animals counted on 30-mile routes^a.

| YEAR ^b | PHEASANTS | | | | | | | | | | BOBWHITE | GRAY | EASTERN | WHITETAILED |
|-------------------|-----------|-------|------|------|------|-------|-------|------|------|-------|-----------|-----------|------------|-------------|
| | NW | NC | NE | WC | C | EC | SW | SC | SE | STATE | QUAIL | PARTRIDGE | COTTONTAIL | JACKRABBIT |
| | | | | | | | | | | | STATEWIDE | STATEWIDE | STATEWIDE | STATEWIDE |
| 1962 | 84.7 | 95.5 | 85.3 | 85.0 | 74.6 | 32.3 | 44.4 | | 12.8 | 65.9 | 0.62 | 113 | 5.2 | 0.45 |
| 1963 | | 200.4 | 40.8 | | 60.3 | | 200.4 | | 19.8 | 52.6 | 1.12 | 0.92 | 7.9 | 0.41 |
| 1964 | 99.9 | 138.0 | | 1016 | 54.4 | 53.9 | 92.6 | 26.3 | 18.3 | 79.4 | 1.39 | 0.85 | 7.9 | 0.53 |
| 1965 | 46.0 | 67.5 | 47.8 | 64.7 | 36.2 | 43.9 | 97.6 | 44.6 | 22.8 | 49.9 | 2.21 | 0.48 | 8.1 | 0.35 |
| 1966 | 43.5 | 75.3 | 57.5 | 58.4 | 49.3 | 63.9 | 144.1 | 40.7 | 17.1 | 56.6 | 2.29 | 1.30 | 10.3 | 0.35 |
| 1967 | 31.0 | 56.8 | 57.2 | 42.4 | 53.2 | 58.6 | 108.3 | 38.8 | 21.1 | 49.1 | 2.10 | 0.66 | 7.5 | 0.60 |
| 1968 | 38.0 | 56.0 | 56.6 | 53.5 | 52.2 | 64.3 | 127.4 | 38.7 | 19.7 | 52.7 | 2.06 | 0.68 | 7.4 | 0.28 |
| 1969 | 18.8 | 44.7 | 62.5 | 42.2 | 57.6 | 57.2 | 77.9 | 44.2 | 25.2 | 45.5 | 2.60 | 0.38 | 6.3 | 0.31 |
| 1970 | 39.2 | 53.0 | 59.6 | 56.1 | 87.8 | 91.7 | 129.1 | 63.8 | 40.5 | 66.2 | 2.95 | 1.66 | 4.4 | 0.15 |
| 1971 | 34.6 | 45.2 | 49.0 | 66.2 | 82.6 | 104.3 | 101.6 | 49.7 | 48.4 | 62.0 | 2.64 | 1.44 | 5.4 | 0.35 |
| 1972 | 37.9 | 44.6 | 61.0 | 61.4 | 73.2 | 88.6 | 112.3 | 54.3 | 25.8 | 59.6 | 2.26 | 1.92 | 5.5 | 0.30 |
| 1973 | 47.0 | 56.9 | 65.4 | 66.3 | 88.7 | 103.5 | 72.4 | 54.3 | 30.2 | 65.8 | 2.54 | 1.87 | 5.8 | 0.20 |
| 1974 | 46.6 | 53.2 | 52.5 | 60.5 | 40.0 | 55.9 | 90.1 | 49.6 | 16.8 | 49.7 | 2.11 | 1.82 | 4.1 | 0.07 |
| 1975 | 10.5 | 28.7 | 52.3 | 34.3 | 43.2 | 64.3 | 51.0 | 45.4 | 27.4 | 38.8 | 1.98 | 1.98 | 3.2 | 0.11 |
| 1976 | 14.8 | 42.2 | 68.1 | 44.8 | 54.9 | 75.4 | 61.7 | 49.2 | 28.7 | 48.2 | 2.19 | 2.14 | 6.4 | 0.11 |
| 1977 | 26.9 | 44.2 | 86.7 | 56.9 | 50.8 | 78.5 | 75.1 | 44.3 | 24.4 | 51.7 | 2.69 | 4.70 | 4.3 | 0.08 |
| 1978 | 36.3 | 26.1 | 68.8 | 67.8 | 50.5 | 63.2 | 76.7 | 45.5 | 30.5 | 49.7 | 1.87 | 3.73 | 6.2 | 0.14 |
| 1979 | 40.1 | 29.6 | 44.8 | 49.4 | 39.2 | 39.6 | 80.9 | 51.5 | 21.8 | 42.4 | 0.66 | 5.59 | 3.6 | 0.16 |
| 1980 | 51.2 | 61.7 | 81.2 | 98.7 | 72.2 | 63.5 | 82.1 | 68.9 | 37.2 | 67.0 | 2.05 | 8.81 | 4.2 | 0.15 |
| 1981 | 66.4 | 53.5 | 83.6 | 92.9 | 57.8 | 72.9 | 97.1 | 57.8 | 35.2 | 65.9 | 2.60 | 8.08 | 7.8 | 0.31 |
| 1982 | 26.7 | 27.9 | 38.9 | 55.5 | 23.1 | 20.9 | 41.6 | 47.7 | 19.3 | 32.3 | 0.79 | 4.21 | 6.4 | 0.10 |
| 1983 | 9.6 | 12.8 | 21.7 | 21.6 | 13.3 | 25.3 | 42.6 | 51.1 | 27.5 | 23.7 | 1.44 | 2.65 | 6.8 | 0.05 |
| 1984 | 8.8 | 11.1 | 19.2 | 22.1 | 14.4 | 24.5 | 23.8 | 38.5 | 26.4 | 20.6 | 0.66 | 4.22 | 5.6 | 0.08 |
| 1985 | 21.6 | 28.0 | 36.4 | 40.0 | 32.7 | 26.0 | 59.2 | 72.6 | 42.0 | 38.9 | 1.37 | 9.75 | 7.4 | 0.07 |
| 1986 | 27.5 | 20.4 | 48.2 | 31.2 | 24.8 | 29.0 | 49.7 | 65.2 | 27.2 | 34.8 | 1.42 | 9.62 | 7.7 | 0.12 |
| 1987 | 40.2 | 36.8 | 59.7 | 61.4 | 41.1 | 33.2 | 58.5 | 64.2 | 39.0 | 46.8 | 2.70 | 14.93 | 8.6 | 0.12 |
| 1988 | 33.6 | 35.0 | 45.1 | 60.8 | 29.6 | 26.0 | 45.7 | 49.8 | 29.8 | 38.1 | 1.96 | 19.00 | 4.5 | 0.17 |
| 1989 | 25.3 | 36.5 | 52.1 | 69.9 | 57.1 | 35.3 | 38.6 | 40.0 | 39.0 | 43.2 | 1.91 | 17.27 | 5.4 | 0.22 |
| 1990 | 34.3 | 49.4 | 63.9 | 57.9 | 44.3 | 24.7 | 44.5 | 31.7 | 27.3 | 41.2 | 1.48 | 8.75 | 9.2 | 0.19 |
| 1991 | 37.3 | 45.3 | 48.8 | 77.6 | 41.6 | 33.3 | 61.2 | 49.4 | 41.6 | 46.8 | 1.34 | 4.59 | 5.5 | 0.07 |
| 1992 | 24.4 | 50.5 | 30.5 | 44.0 | 42.1 | 37.8 | 29.4 | 23.6 | 34.2 | 35.8 | 1.07 | 3.58 | 6.0 | 0.14 |
| 1993 | 15.8 | 21.4 | 15.2 | 55.2 | 23.8 | 25.0 | 34.3 | 24.0 | 28.1 | 25.9 | 0.96 | 0.85 | 5.5 | 0.03 |
| 1994 | 45.0 | 74.1 | 33.3 | 83.3 | 55.6 | 67.8 | 47.3 | 46.0 | 56.7 | 56.9 | 1.58 | 6.17 | 6.3 | 0.15 |
| 1995 | 26.0 | 63.2 | 37.6 | 44.7 | 54.3 | 54.3 | 43.7 | 43.2 | 44.6 | | 1.37 | 2.47 | 7.0 | 0.06 |
| 1996 | 54.7 | 61.8 | 29.5 | 45.2 | 49.8 | 59.4 | 29.8 | 19.5 | 28.2 | 43.4 | 0.51 | 2.37 | 6.2 | 0.09 |
| 1997 | 46.1 | 62.0 | 41.2 | 37.3 | 54.7 | 47.4 | 31.7 | 28.8 | 41.3 | 44.8 | 0.77 | 5.10 | 4.9 | 0.10 |
| 1998 | 74.2 | 56.7 | 43.1 | 33.9 | 49.6 | 53.9 | 18.1 | 15.7 | 41.7 | 44.6 | 0.72 | 6.42 | 5.1 | 0.09 |
| 1999 | 42.7 | 33.6 | 21.6 | 19.5 | 37.9 | 36.0 | 17.5 | 12.9 | 27.0 | 29.1 | 0.57 | 2.83 | 5.9 | 0.06 |
| 2000 | 60.6 | 33.3 | 14.9 | 29.0 | 50.3 | 37.0 | 25.5 | 19.3 | 22.0 | 34.3 | 0.57 | 2.53 | 6.4 | 0.03 |
| 2001 | 22.4 | 16.0 | 6.2 | 8.4 | 22.0 | 19.0 | 12.0 | 7.3 | 4.6 | 13.9 | 0.29 | 1.90 | 3.8 | 0.05 |
| 2002 | 47.0 | 42.9 | 13.6 | 32.0 | 49.9 | 32.0 | 15.7 | 11.7 | 22.6 | 31.7 | 0.39 | 2.82 | 5.3 | 0.03 |
| 2003 | 81.2 | 67.3 | 20.7 | 36.1 | 61.2 | 35.6 | 29.3 | 21.8 | 28.2 | 44.9 | 0.89 | 2.76 | 8.8 | 0.03 |
| 2004 | 54.4 | 34.4 | 19.0 | 21.5 | 35.6 | 24.4 | 24.9 | 19.6 | 24.4 | 29.7 | 0.93 | 2.12 | 8.1 | 0.03 |
| 2005 | 63.5 | 42.3 | 25.3 | 32.0 | 49.9 | 25.9 | 28.9 | 12.6 | 23.5 | 35.1 | 0.69 | 2.79 | 6.2 | 0.02 |
| 2006 | 48.3 | 36.1 | 18.4 | 23.7 | 36.8 | 20.4 | 20.3 | 9.0 | 20.0 | 27.0 | 0.82 | 2.01 | 6.4 | 0.05 |
| 2007 | 41.3 | 35.0 | 20.1 | 26.0 | 36.2 | 25.0 | 12.8 | 5.6 | 19.8 | 25.8 | 0.81 | 1.62 | 4.3 | 0.02 |
| 2008 | 49.4 | 25.4 | 9.1 | 21.2 | 18.6 | 7.4 | 5.7 | 4.4 | 5.3 | 17.5 | 0.45 | 1.03 | 6.3 | 0.00 |
| 2009 | 35.5 | 16.6 | 2.6 | 23.5 | 19.1 | 9.3 | 10.0 | 4.8 | 10.1 | 15.4 | 0.72 | 1.17 | 5.0 | 0.01 |
| 2010 | 29.6 | 16.2 | 4.7 | 8.8 | 11.7 | 5.3 | 6.1 | 1.8 | 6.6 | 10.8 | 0.33 | 0.93 | 3.1 | 0.00 |
| 2011 | 11.1 | 7.3 | 2.4 | 5.5 | 10.2 | 5.9 | 6.3 | 2.9 | 4.7 | 6.6 | 0.22 | 1.15 | 2.2 | 0.02 |
| 2012 | 16.3 | 10.9 | 1.3 | 3.5 | 12.3 | 6.3 | 4.4 | 4.0 | 5.4 | 7.8 | 0.36 | 1.47 | 2.0 | 0.01 |
| 2013 | 12.3 | 9.0 | 2.7 | 5.4 | 7.9 | 3.8 | 2.8 | 4.9 | 6.3 | 6.5 | 0.40 | 0.88 | 5.2 | 0.01 |
| 2014 | 29.3 | 18.1 | 2.7 | 22.1 | 22.6 | 15.2 | 6.6 | 10.0 | 20.7 | 17.4 | 0.92 | 2.30 | 7.9 | 0.03 |

Statistics:

| | | | | | | | | | | | | | | |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|-----|------|
| 10 Year Avg. | 33.7 | 21.7 | 8.9 | 17.2 | 22.5 | 12.4 | 10.4 | 6.0 | 12.2 | 17.0 | 0.6 | 15 | 4.9 | 0.0 |
| Long-term Avg. | 38.6 | 45.5 | 39.0 | 45.4 | 43.6 | 42.4 | 53.8 | 33.6 | 25.8 | 40.3 | 1.36 | 3.82 | 6.0 | 0.14 |

Percent Change from:

| | | | | | | | | | | | | | | |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|-----|------|
| 10 Year Avg. | -13% | -17% | -70% | 29% | 0% | 22% | -37% | 67% | 69% | 2% | 61% | 50% | 63% | 89% |
| Long-term Avg. | -24% | -60% | -93% | -51% | -48% | -64% | -88% | -70% | -20% | -57% | -33% | -40% | 33% | -79% |

^a Values do not match those in Table 1 because historical data is based on ALL routes completed, whereas values in Table 1 are calculated only between directly comparable routes.

Statewide Pheasant Trends

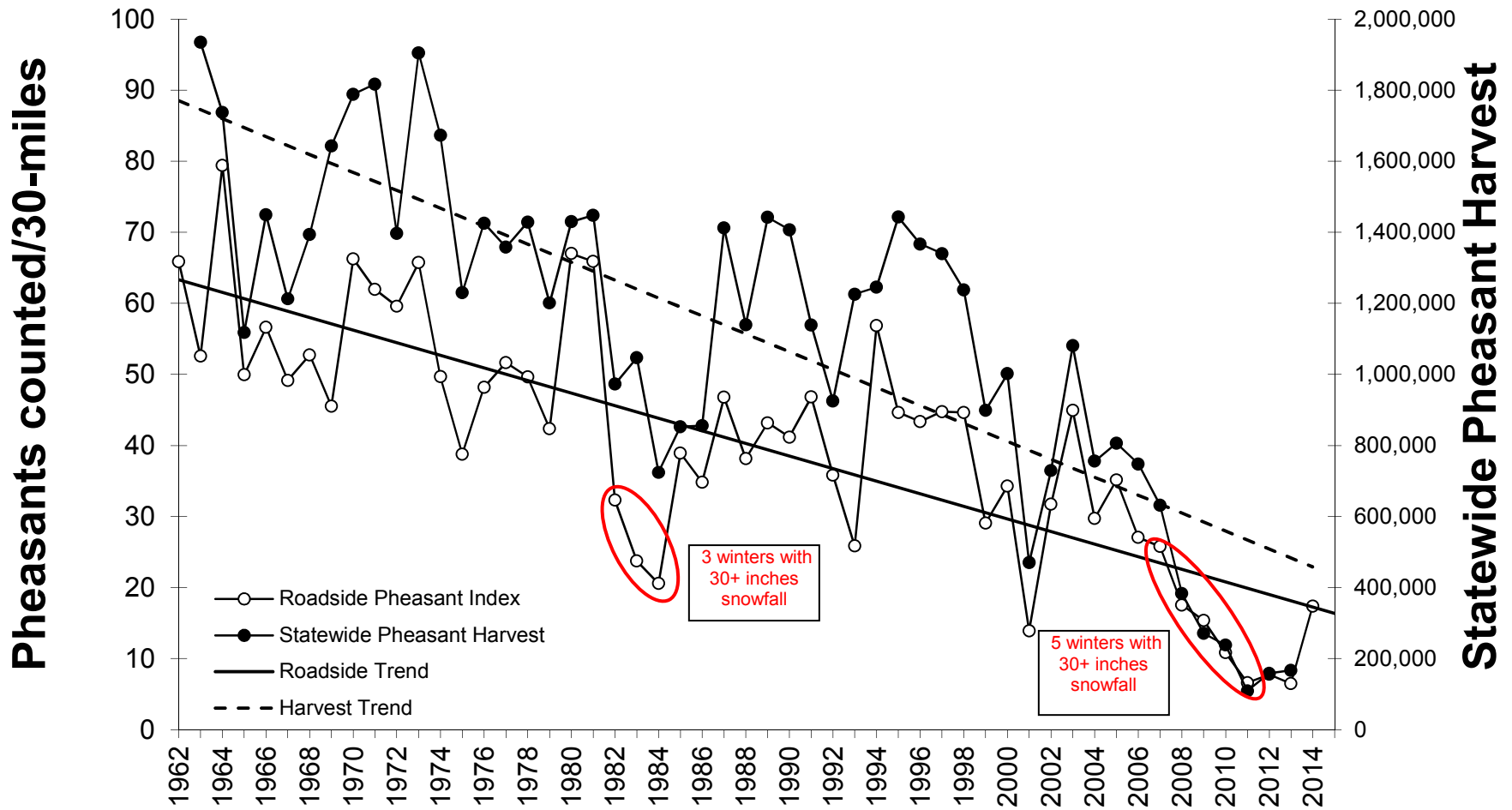


Figure 4. Mean number of pheasants counted on 30-mile August roadside survey routes, statewide, 1962-present compared to total statewide pheasant harvest.

Statewide Upland Game Trends

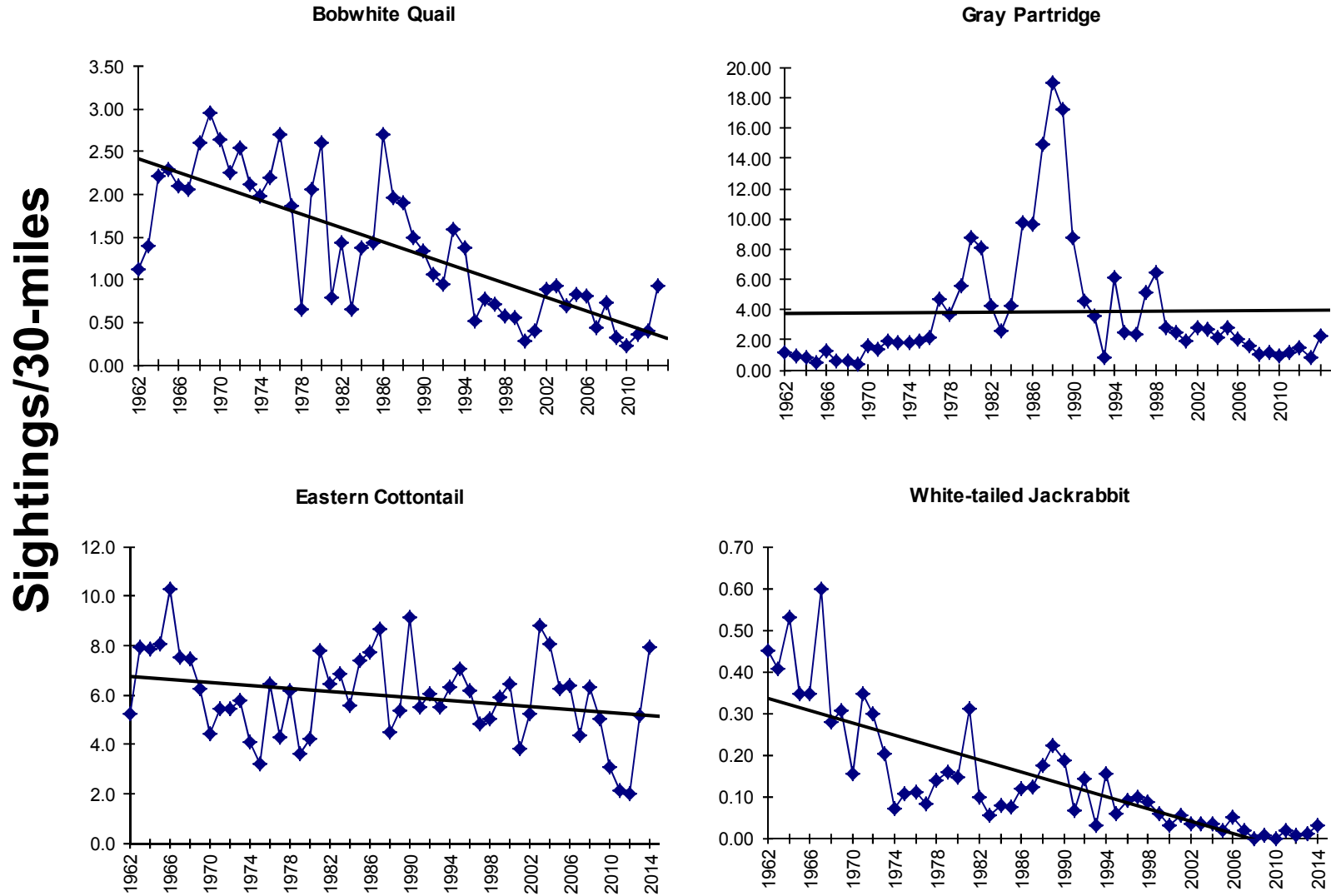


Figure 5. Mean number of quail, partridge, cottontails, and jackrabbits sighted per 30 mile route on the August roadside survey, statewide, 1962 to the present.

2014 August Roadside Survey

Statewide

| | 2013 | 2014 | Change |
|------------|------|------|--------|
| Pheasant | 6.9 | 17.4 | 151% |
| Quail | 0.38 | 0.92 | 142% |
| Partridge | 0.9 | 2.3 | 147% |
| Cottontail | 5.2 | 7.9 | 52% |

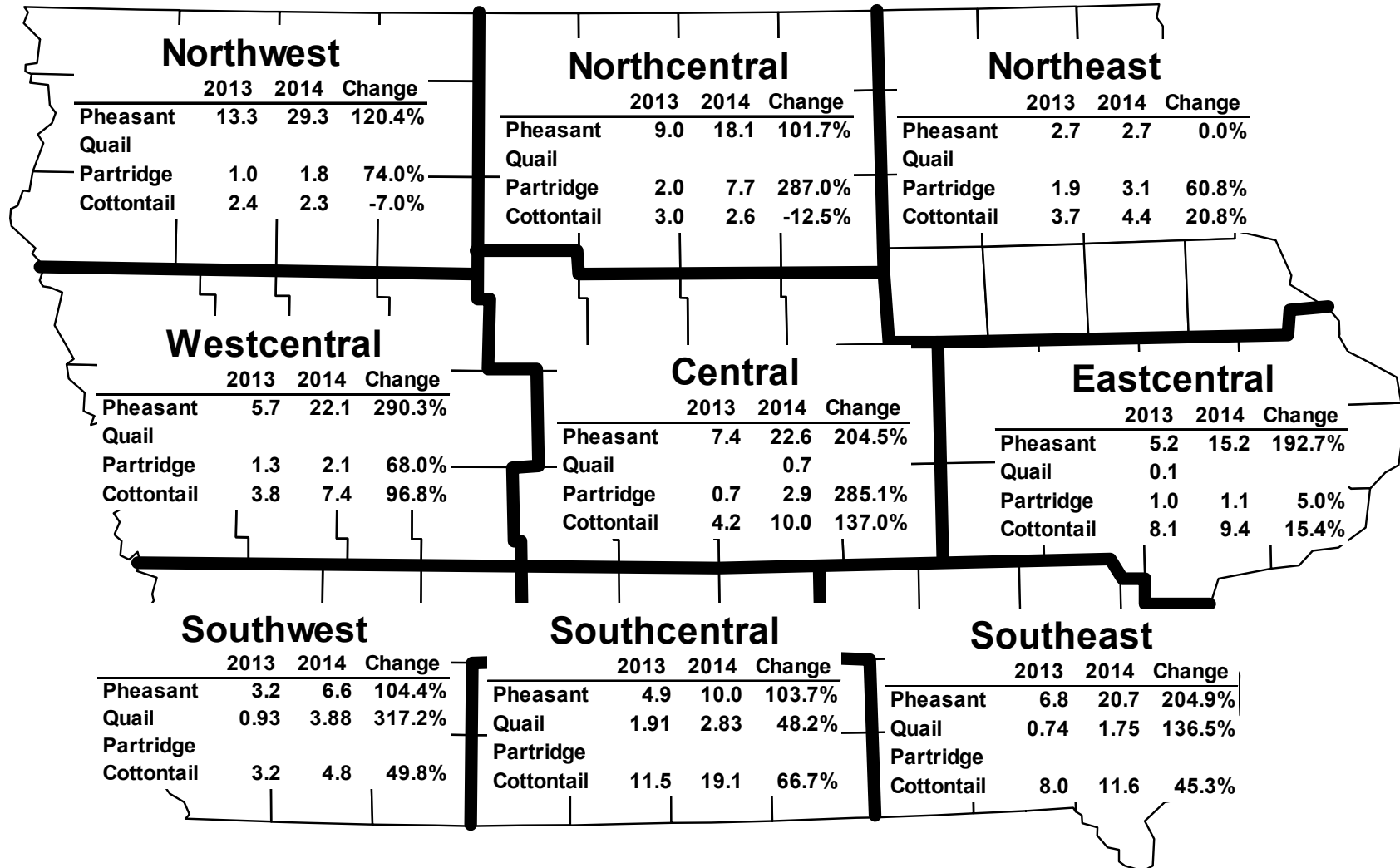
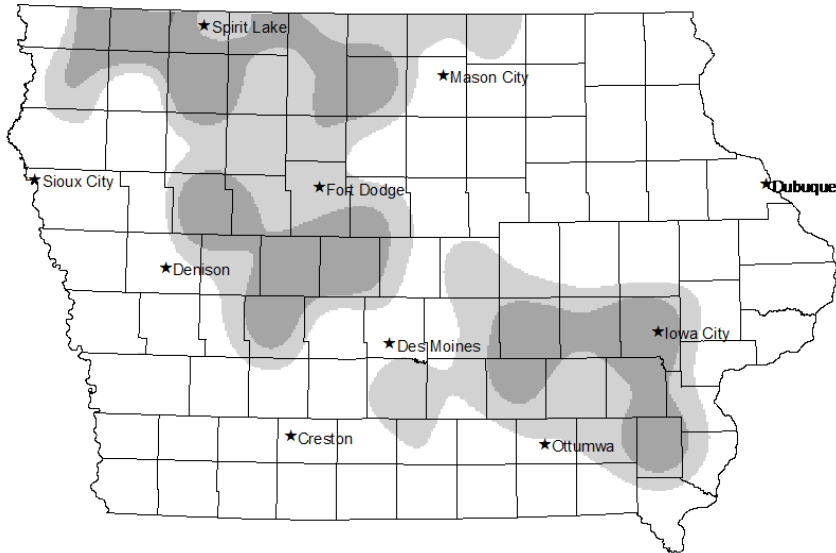


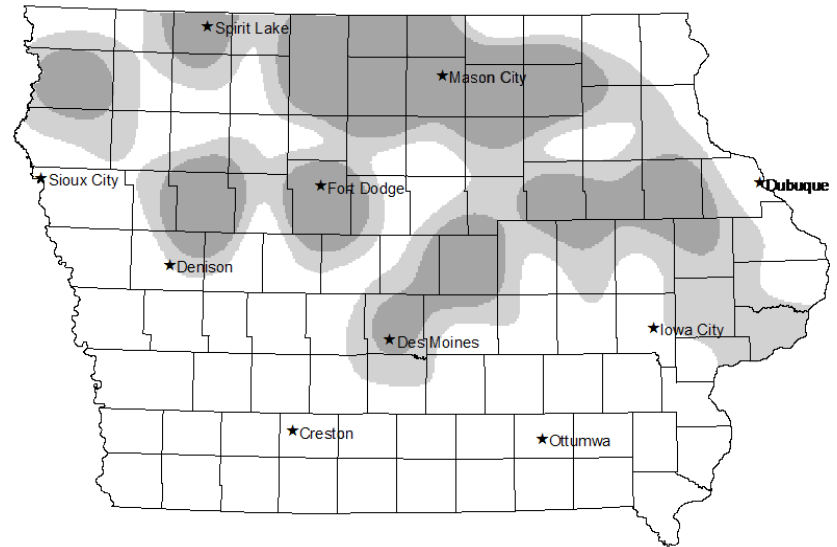
Figure 6. Numbers indicate the average number of animals counted on 30 mile routes in each region (e.g., the northwest region counted an average of 29.3 pheasants on 30-mile survey routes in 2014). Data from 196 of 212 returned routes.

2014 GAME DISTRIBUTION

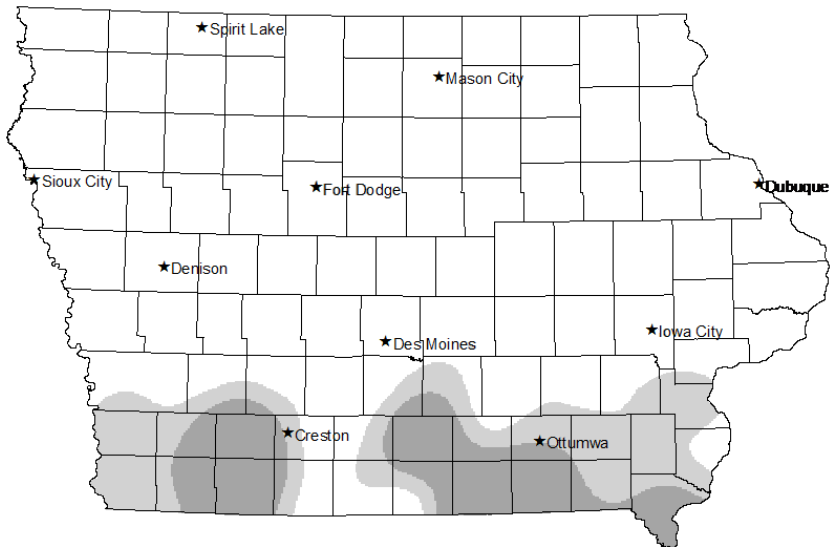
PHEASANT



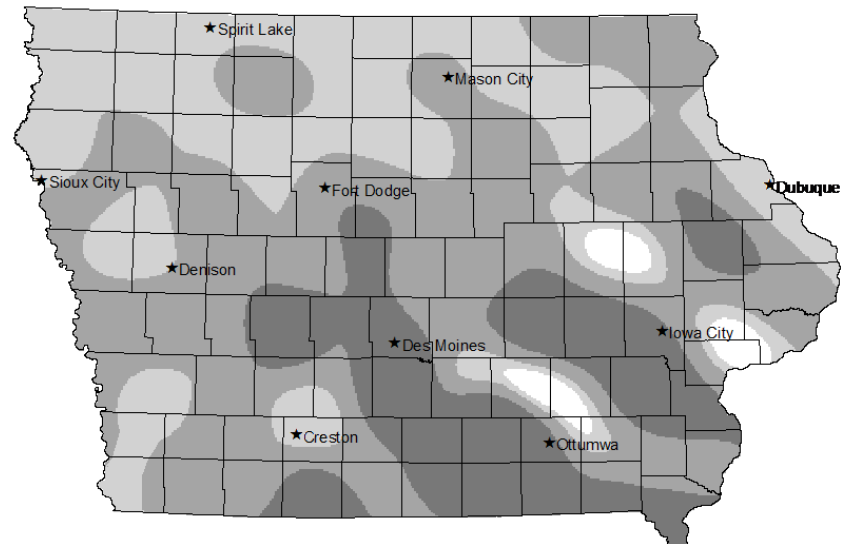
GRAY PARTRIDGE



QUAIL



COTTONTAIL



EXCELLENT

GOOD

FAIR

POOR

Figure 7. Iowa small game distribution maps represent generalized game abundance. There can be areas of low game abundance in regions with "high" counts and vice versa.