

2019 IOWA AUGUST ROADSIDE SURVEY

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2019 IOWA UPLAND WILDLIFE POPULATIONS

This report is a summary of the 2019 Iowa August roadside survey. Iowa DNR Enforcement and Wildlife Bureau personnel throughout the state conduct the survey each year 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 218, 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 2018 and 2019 are based on routes that are directly comparable between years (routes with no alterations and started with good dew). Long-term trends are based on all routes completed. The two factors that determine the abundance and distribution of upland game populations in Iowa are **weather** and **habitat**.

SUMMARY

Statewide, Iowa experienced a snowy winter and a wet and cold spring in 2019. Iowa’s weather model predicted pheasant numbers would decline. This prediction was confirmed by roadside counts which showed pheasant (-17%) and quail (-36%) both decreased significantly compared to 2018. Dew conditions were comparable to last year and very good across most of the state during the survey. Bird hunters reported very good success last year with 2018-19 pheasant (Figure 3) and quail harvests the highest seen in a decade. Pheasant and quail harvest numbers were 45% and 142% above their respective 10-year averages in 2018. Pheasants appeared more successful than quail this summer and pheasant hunters should see numbers similar or slightly lower than last year, while quail numbers will be significantly lower than last year. Excessive rains throughout May resulted in significant delays in corn and soybean planting. Iowa’s crop harvest will be very late this fall and hunters will likely see mostly unharvested crop fields on Iowa’s pheasant and quail opener.

2018-19 IOWA WEATHER SUMMARY

Iowa pheasant numbers increase with mild winters (less than 19 inches snowfall) followed by warm, dry springs (less than 6 inches rainfall). They decline with snowy winters (30 or more inches of snowfall) followed by cold, wet springs (8 or more inches of rainfall), and remain generally stable with average weather conditions, winters with 20–30 inches of snow and springs with 6–8 inches of rainfall.

Table 1. Iowa 2018-19 weather summary.

Weather Variables	Survey Regions									STATE
	NW	NC	NE	WC	C	EC	SW	SC	SE	
Winter Weather*										
Total Snowfall (inch)	36	52	49	32	42	41	39	36	26	39.1
Departure**	9.6	22.9	19.7	4.7	16.6	16.7	17.2	14.0	3.3	13.9
Spring Weather										
Total Rainfall (inch)	11.3	10.2	10.3	8.7	10.6	12.2	9.9	12.2	13.3	11.0
Departure	5.3	3.3	3.2	1.8	3.3	5.0	2.5	4.5	5.8	3.8
Mean Temperature (F)	51	51	51	53	53	53	56	55	55	53.1
Departure	-3.1	-2.5	-2.6	-2.8	-1.4	-2.4	-1.7	-1.7	-2.5	-2.3

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

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

The 2018–19 winter statewide snowfall was 39.1 inches, or more than a foot above the long term mean (Table 1). Snowfall was above normal in all regions (Table 1 and Figure 1). The winter began mild with little to no persistent snow thru about mid-January. Iowa saw significant snow, ice and freezing rain thereafter. Statewide snowfall in February was 23 inches and the month finished as the snowiest February in state history (147 years of record). Subzero temperatures and ice were particularly hard on quail in southern Iowa. The DNR received numerous reports of pheasant and quail traveling large distances on top of ice covered snow looking for food in February. Overwinter hen survival for pheasant and quail was likely lower than seen the last several years. Winter stress likely reduced hen reproductive potential coming into spring in most regions.



Buried rooster after February snowstorm.

The spring of 2019 started with mostly normal rainfall and temperatures in April. Unfortunately, this pattern did not continue in May. May was the 6th wettest and 22nd coldest in 147 years of state record. Rainfall amounts for April/May surpassed 10



Food and cover scarce by end of February.

inches in virtually all regions, and rainfall was particularly heavy in southern regions (Table1). Significant flooding occurred up and down the Missouri river and destroyed I-29. Excess rain and cold temperatures likely reduced nest success and brood survival in most regions (Table 1 and Figure 1). First report of a pheasant brood in 2019 was May 29th, almost 2 weeks later than 2018.

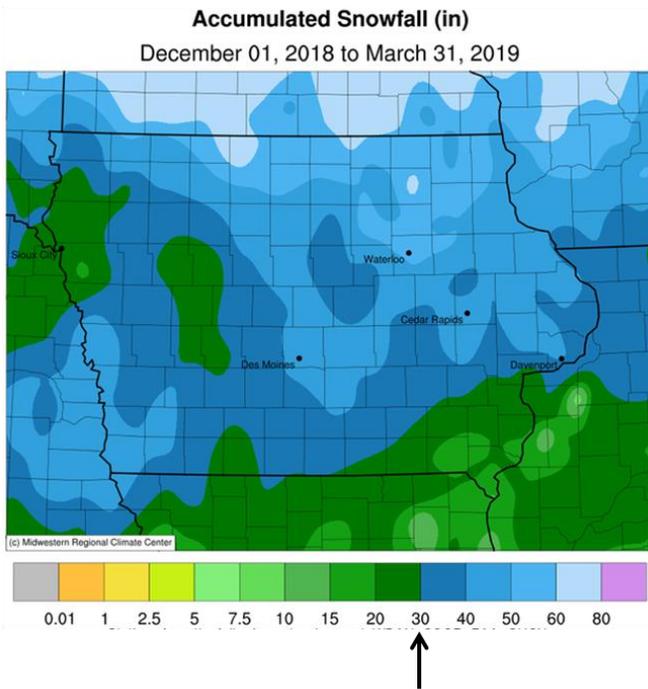
In summary, the weather of 2018–19 was the worst Iowa has seen since 2013. Winter conditions were particular harsh in southern regions with subzero temperatures and several ice events. Wet and cold weather in May likely reduce nesting and broods survival statewide. The Bureau’s weather model predicted a decrease in the statewide pheasant population this year and roadside counts confirmed the decline.



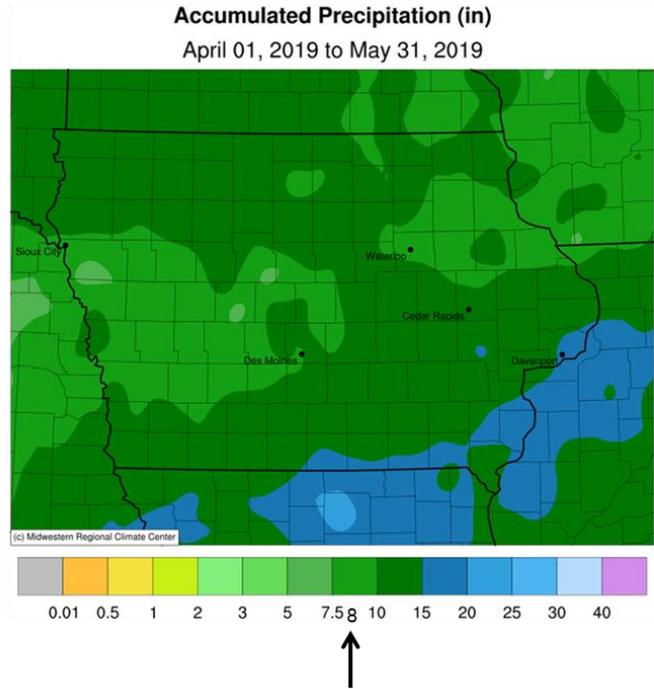
Flooding Missouri River Valley/I-29, spring 2019.

Figure 1. Iowa 2018–19 snowfall and rainfall summary. Normal winter snowfall is 25 inches, while normal nesting season rainfall is 7 inches.

Winter 2018-19



Nesting 2019



Arrows denote snowfall and rainfall amounts critical for pheasant populations. Values above these points trend toward decreased populations in Iowa.

UPLAND HABITAT TRENDS IN IOWA

The influence of habitat changes on upland populations are more gradual than the impacts of weather. The effects of habitat change are only evident after looking at several years of surveys. Information from the USDA shows that between 1990 and 2018 Iowa lost 2,886 square miles of potential pheasant habitat (Table 2). This habitat was a mix of small grains, hay, and Conservation Reserve Program (CRP) acres. To put this loss in perspective, 2,886 mi² is a strip of habitat **10 miles wide**, that would stretch from Omaha to Davenport. CRP has become critical for Iowa pheasant populations with the loss of small grains and hay lands to corn and soybean production.

The 2018 Farm Bill increased the CRP program from a 24 million acre to a 25 million acre program. Nationally USDA reports 22.4 million acres enrolled in CRP, as of June 2019. The USDA’s June report on CRP shows Iowa has 1,746,936 acres enrolled, with 184,357 acres expiring in September 2019. Opportunities to enroll additional land into CRP in Iowa seem very limited.

The 2018 Farmbill changed rental payments so now landowners do not receive fair market rent for their land, which has reduced interest in the program. USDA expects to hold its first general signup in years in the

Table 2. Trends in Iowa habitat and total habitat loss from 1990 to 2018, 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	1,637,130	2,917,130
2018	940,000	39,000	1,800,061	2,779,061
Acres of Habitat Lost 1990 vs 2018				-1,847,000
Square Miles of Habitat Lost 1990 vs 2018**				-2,886

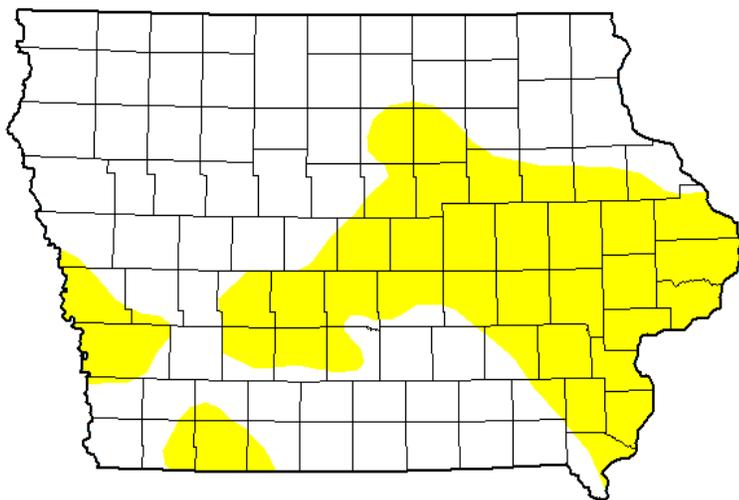
winter of 2019. The CRP is a federal USDA program, thus folks who value CRP for pheasant habitat should visit with their elected congressional representatives.

Iowa has three special continuous CRP practices, under USDA’s CP38 practice, which are very beneficial to pheasants and quail; Iowa Pheasant Recovery (86,604 ac), Gaining Ground (162,200 ac), and Iowa Early Successional Quail (37,193 ac) practices. Iowa has requested additional CRP acres, but so far USDA has not made any announcements of new acres. Interested landowners can visit www.iowadnr.gov/habitat to find more information about CP38. The DNR’s walk-in hunting program, Iowa Habitat and Access Program (IHAP), is also funded thru the Farmbill. IHAP sites are typically CRP on private lands where the DNR has provided incentives to landowners to manage habitat for wildlife in exchange for public hunting access. Iowa DNR has over 20,000 acres in this program. For a list of IHAP sites or information about enrolling visit <http://www.iowadnr.gov/ihap>. In 2018, Iowa had 2.78 million acres of potential pheasant habitat (Table 2). This is the lowest recorded level of grassland habitat in Iowa since reliable record keeping began in 1901.

SURVEY CONDITIONS

The August roadside survey yields the most consistent results on mornings with heavy dew, no wind, and sunny skies. Research by Dr. Klonglan at Iowa State University in the 1950s showed the number of pheasants counted on mornings with medium dew averaged a third fewer birds than routes run on a morning with heavy dew. Heavy dew conditions require good soil moisture in late July and early August. During this year’s survey,

Drought conditions in Iowa week of August 6, 2019.



Drought Conditions (Percent Area)

	None	D0	D1	D2	D3	D4
Current	63.61	36.39	0.00	0.00	0.00	0.00
Last Week <i>07-30-2019</i>	76.52	23.48	0.00	0.00	0.00	0.00
3 Months Ago <i>05-07-2019</i>	100.00	0.00	0.00	0.00	0.00	0.00
Start of Calendar Year <i>01-01-2019</i>	100.00	0.00	0.00	0.00	0.00	0.00
Start of Water Year <i>09-25-2018</i>	93.64	4.21	1.31	0.84	0.00	0.00
One Year Ago <i>08-07-2018</i>	66.40	22.04	7.36	3.37	0.84	0.00

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

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staff reported 153 routes started with a heavy dew verses 161 routes in 2018. Staff reported more fog in 2019 and similar start temperatures. The US Drought Monitor showed no drought in 63.61% of the state this year compared to 66.4% in 2018 during the first week of August. The EC region may have had counts impacted by drier soils as well as parts of the C and SE regions, but timely rains the second week of the survey helped with dew conditions in those regions.

RING-NECKED PHEASANT

Statewide: This year the statewide pheasant index is 17.4 birds/route and is statistically lower than the 2018 estimate of 21 birds/route (Table 3). This year’s statewide pheasant population index is 21% above the 10-year trend, but remains below the long-term average (Table 4, Figure 3). Regionally only pheasant counts in the

SC and SE regions were statistically, lower than 2018. All other regions reported numbers comparable to 2018 with counts up or down slightly, but none were statistically significant, meaning there was no consistent trend in the counts, some routes increased, while others decreased in those regions.

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 (-16%) and chicks (-21%) counted on routes this year were significantly lower than 2018, suggesting poor overwinter hen survival, nest success, or chick survival compared to 2018 (Table 3). Statewide data on chicks/brood (measure of chick survival) and age ratios (chicks per adult hen – measure of overall hen success) however, were statistically unchanged from last year (Table 3), suggesting, from a statewide perspective that poor winter hen survival and nest success contributed to most of this year's decline as chick survival metrics were similar to 2018.

Overall pheasant hunters in the Hawkeye state should expect pheasant numbers similar to or slightly lower than in 2018. The exception would be the SC and SE regions where hunters will see fewer roosters. Given this year's statewide index of 17 birds per route Iowa, pheasant hunters should harvest approximately 200,000 to 275,000 roosters this fall (Figure 3). Because May rainfall significantly delayed corn and soybean planting in Iowa this year, hunters should expect many unharvested/standing crop fields on the pheasant opener this fall. Birds will quickly move to standing crops and make early season hunting more difficult, but hunting should improve later in the season as the crop harvest progresses.

Northern Regions: Counts in the northern regions were unchanged from last year. Counts were down slightly in NW, up slightly in the NC, and unchanged in the NE compared to 2018. (Table 3, Figure 5). Counts in all three regions were near or above their 10-year averages (Table 4). Numbers for cocks, hens, and chicks in all three regions were unremarkable with about two-thirds of routes showing declines with the other third showing increases (Table 1). The NW region averaged 24 birds per route, the third highest average of any region. Parts of NW and NC Iowa should offer good pheasant hunting, particularly around public and private lands with good winter habitat. Better counts in NW came from Clay, Dickinson, Emmet, Palo Alto, Plymouth and Osceola counties, while Humboldt, Kossuth, and Winnebago reported better numbers in the NC region, and the NE reported fair counts in Bremer, Fayette, and Howard counties (Figure 6).

Central Regions: The Central region had highest counts of any region in the state in 2019 with 28.2 birds/route; however the WC region was a close second at 27.2 birds/route (Figure 5). Counts in the C region are 30% above the 10-year average while counts in the WC region were 100% above the 10-year mean (Table 4). The WC region had the most routes reporting higher bird numbers (Figure 5). This region also had the most favorable winter and spring weather of any region (Table 1). The region's better hen, and chick numbers reflects this more favorable weather (Table 3). Reproductive parameters, particularly hens with brood, showed statistically lower trends in the C and EC regions (Table 3). The WC and C regions should offer good to excellent hunting this fall where good quality pheasant habitat exists. The WC region reported better counts in Calhoun, Crawford, Sac, and Woodbury counties. The Central region reported good bird numbers in Hamilton, Marshall, Polk, Poweshiek, Story and Webster, while the EC region reported fair numbers in Iowa, Johnson, and Jones counties (Figure 6).

Southern Regions: The SC and SE regions were the only regions that reported statistically fewer pheasants in 2019 compared to 2018 (Table 3 & Figure 5). Reproductive parameters, hens with broods, hens and chicks, were all statistically lower suggesting poor over winter hen survival and reproduction. These regions saw significant ice with subzero temperatures in late January and into February, likely affecting hen survival. Each region also saw significant May rainfall that affected reproduction. The SW region showed similar trends, but brood survival (chicks/brood, young/hen) appeared better in this region. Counts in all three regions are similar to the 10-year average (Table 4). Some of the better counts in this region came from Adair, Cass, Henry, Louisa, Mahaska, Warren, and Washington counties (Figure 6).

BOBWHITE QUAIL

Iowa's statewide bobwhite quail index was 0.86 birds/route (Table 3, Figure 4); a significant decrease over last year. This year's statewide quail index matches the 10-year average (Table 4). This decline was expected given the month of ice cover and subzero temperatures most of southern Iowa experience from late January thru the end of February. High winter mortality was expected with these weather conditions. Over the last four years

Iowa's quail index had been the highest seen in the last 20 years (Figure 4). Hunters reported harvesting more than 45,000 quail last fall, the state's highest quail harvest in 11 years. Unfortunately, Iowa's 5-year string of mild winters in this region disappeared last winter. Only the SE region reported a statistically significant decline in quail. Other regions showed some variability among routes, but the trend overall was downward (Figure 5). The SC region reported the best overall quail numbers in 2019 followed by the SW region (Figure 5).

GRAY PARTRIDGE

The 2019 gray partridge count was 1.3 birds per 30 miles and was statistically lower than last year's 2.1 birds/route (Table 3 & Figure 4). Counts showed downward trends in all regions except the NE, however only the decline in the EC region was statistically significant (Table 3), meaning a few routes increased in each region, but most others decreased and there was no consistent trend among routes. This year's statewide estimate is 27% below the 10-year mean and 64% below the long mean (Table 4). Gray partridge prefer the wide-open agricultural lands of the northern two-thirds of the state. The NE, NC and C regions reported the best densities in 2019 (Figure 5). Typically, partridge numbers increase following mild winters and when spring/summer precipitation is below normal. Icy conditions this past winter prevented snow burrowing and wet weather in May likely impacted reproduction this year. Better counts in 2019 came from Bremer, Buchanan, Floyd, Franklin, Grundy, Hamilton, Howard, Mitchell, and Story counties.

COTTONTAIL RABBIT

Staff reported an average of 5.7 rabbits per 30-mile route in 2019, which represents a statistically significant decrease (-18%) from 2018 (Table 3, Figure 4). Cottontails remain very abundant in Iowa. The cottontail index is 13% above the 10-year average and right at the long-term average respectively (Table 4). Regionally, rabbit numbers showed decreases in all regions except the NE, but only the declines in the EC and SW regions were statistically significant (Table 3 and Figure 5). Cottontails increase following mild winters with good moisture during spring and summer, thus statewide 2019 was a poor winter, but a favorable spring for cottontails. Cottontail hunters can expect excellent hunting across most of the state this fall. Staff reported better cottontail densities in the SC, SE and C regions (Figure 5 and 6).

Table 3. Mean numbers of wildlife observed per 30-mile route on the August roadside survey in 2018 and 2019. 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	22														
2019		24.27	3.64	1.18	2.86	5.23	16.59	4.02	3.09			0.91	0.09	1.36	
2018		27.05	3.45	1.50	3.32	5.95	18.77	4.09	3.27			1.50	0.14	2.00	
% CHG		-10%	6%	-21%	-14%	-12%	-12%	-2%	-6%			-39%	-36%	-32%	
Northcentral	26														
2019		21.42	2.35	0.85	2.19	4.08	16.04	5.26	3.82			2.88	0.23	3.27	
2018		18.77	2.69	0.81	2.27	3.38	13.00	4.94	3.46			4.38	0.50	2.15	
% CHG		14%	-13%	5%	-4%	21%	23%	6%	10%			-34%	-54%	52%	
Northeast	19														
2019		13.05	2.05	0.53	1.74	2.42	8.74	4.37	3.51			3.16	0.26	5.53	
2018		13.58	1.79	0.37	1.53	2.95	9.89	4.19	3.48			1.74	0.16	6.53	
% CHG		-4%	15%	43%	14%	-18%	-12%	4%	1%			82%	63%	-15%	
West Central	20														
2019		27.15	4.10	1.25	2.95	5.50	18.85	4.49	3.46	0.55	0.00	0.90	0.15	4.95	
2018		22.95	2.68	1.26	3.42	5.42	15.58	3.69	2.90	1.79	0.11	1.63	0.21	5.53	
% CHG		18%	53%	-1%	-14%	1%	21%	22%	19%					-10%	
Central	30														
2019		28.17	3.77	1.73	3.10	6.30	19.57	4.22	3.05	0.10	0.00	3.00	0.30	7.40	
2018		38.62	3.45	1.21	4.97	7.45	29.00	4.45	3.82	0.69	0.03	4.90	0.48	7.90	
% CHG		-27%	9%	43%	-38%	-15%	-33%	-5%	-20%			-39%	-38%	-6%	
Eastcentral	22														
2019		9.14	1.55	0.68	0.82	1.91	6.09	4.99	3.25	1.32	0.05	0.05	0.00	4.91	
2018		11.90	1.57	0.38	1.52	2.10	8.43	4.04	3.19	0.14	0.00	2.38	0.29	10.33	
% CHG		-23%	-1%	79%	-46%	-9%	-28%	24%	2%			-98%	-100%	-52%	
Southwest	16														
2019		7.75	2.19	0.38	0.81	1.63	4.38	3.98	3.42	2.06	0.06			5.00	0.00
2018		9.56	2.06	0.69	1.19	2.31	5.63	3.43	2.53	4.00	0.19			9.13	0.06
% CHG		-19%	6%	-45%	-32%	-29%	-22%	16%	35%	-49%	-68%			-45%	
Southcentral	23														
2019		6.61	1.61	0.22	0.74	1.13	4.04	4.83	3.78	2.87	0.17			11.09	
2018		13.05	1.80	0.75	1.45	2.80	9.05	5.31	3.92	3.65	0.20			13.20	
% CHG		-49%	-11%	-71%	-49%	-60%	-55%	-9%	-4%	-21%	-15%			-16%	
Southeast	23														
2019		12.83	3.74	0.96	1.26	2.78	6.87	3.74	2.48	1.30	0.04			6.91	
2018		22.86	2.09	0.64	2.91	4.41	17.23	4.56	4.06	3.05	0.18			7.14	
% CHG		-44%	79%	50%	-57%	-37%	-60%	-18%	-39%	-57%	-78%			-3%	
Statewide	201														
2019		17.41	2.82	0.91	1.90	3.60	11.78	4.45	3.29	0.86	0.03	1.31	0.12	5.69	0.00
2018		20.95	2.47	0.87	2.65	4.27	14.96	4.36	3.47	1.35	0.07	2.08	0.22	6.92	0.01
% CHG		-17%	14%	5%	-28%	-16%	-21%	2%	-5%	-36%	-57%	-37%	-45%	-18%	

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	PHEASANTS										BOBWHITE	GRAY	EASTERN	WHITETAILED
	NW	NC	NE	WC	C	EC	SW	SC	SE	STATE	QUAIL	PARTRIDGE	COTTONTAIL	JACKRABBIT
											STATEWIDE	STATEWIDE	STATEWIDE	STATEWIDE
1962	84.2	104.6	98.0	81.7	70.6	32.3	52.4	12.0	7.4	61.1	0.70	0.89	6.0	0.38
1963	135.8	110.3	99.5	94.2	65.0	47.1	123.1	23.2	18.2	78.7	1.08	0.91	7.9	0.41
1964	96.4	137.8	109.9	92.9	54.5	53.9	92.6	26.3	18.2	75.4	1.33	0.79	7.6	0.52
1965	45.4	67.5	47.7	64.7	35.5	43.9	97.6	44.4	21.5	49.6	2.25	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	5.11	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	27.8	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	14.3	9.0	2.7	5.2	7.1	4.2	2.5	4.4	6.3	6.5	0.36	0.81	5.1	0.01
2014	29.3	18.1	2.6	20.8	19.9	13.0	6.5	9.8	19.8	16.3	0.86	2.13	7.8	0.03
2015	42.4	22.5	8.1	23.6	36.4	16.7	11.3	8.2	27.8	23.2	1.42	3.26	7.2	0.02
2016	33.0	24.1	11.2	20.5	30.9	15.4	8.7	7.8	22.2	20.4	1.65	2.76	5.2	0.01
2017	25.8	15.1	5.3	13.0	22.7	12.0	6.8	5.8	15.5	14.4	1.11	1.99	5.4	0.01
2018	25.9	18.1	13.1	22.7	37.4	12.2	8.7	12.3	22.2	20.2	1.37	2.09	6.8	0.02
2019	24.3	21.4	13.1	27.2	28.2	9.1	7.8	6.6	12.8	17.4	0.86	1.31	5.7	0.00

Statistics:														
10 Year Avg.	25.2	16.3	6.4	15.1	21.7	10.0	6.9	6.4	14.3	14.4	0.9	1.8	5.0	0.0
Long-term Avg.	39.5	41.9	39.0	44.0	42.5	40.0	48.7	30.9	25.2	38.7	1.36	3.68	6.0	0.13

Percent Change from:														
10 Year Avg.	-4%	32%	103%	80%	30%	-9%	12%	4%	-11%	21%	0%	-27%	13%	-100%
Long-term Avg.	-39%	-49%	-67%	-38%	-34%	-77%	-84%	-79%	-49%	-55%	-37%	-64%	-5%	-100%

^a Values do not match those in Table 3/Figure 5 because historical data is based on ALL routes completed, whereas values in Table 3/Figure 5 are calculated between only directly comparable routes.

Statewide Pheasant Trends

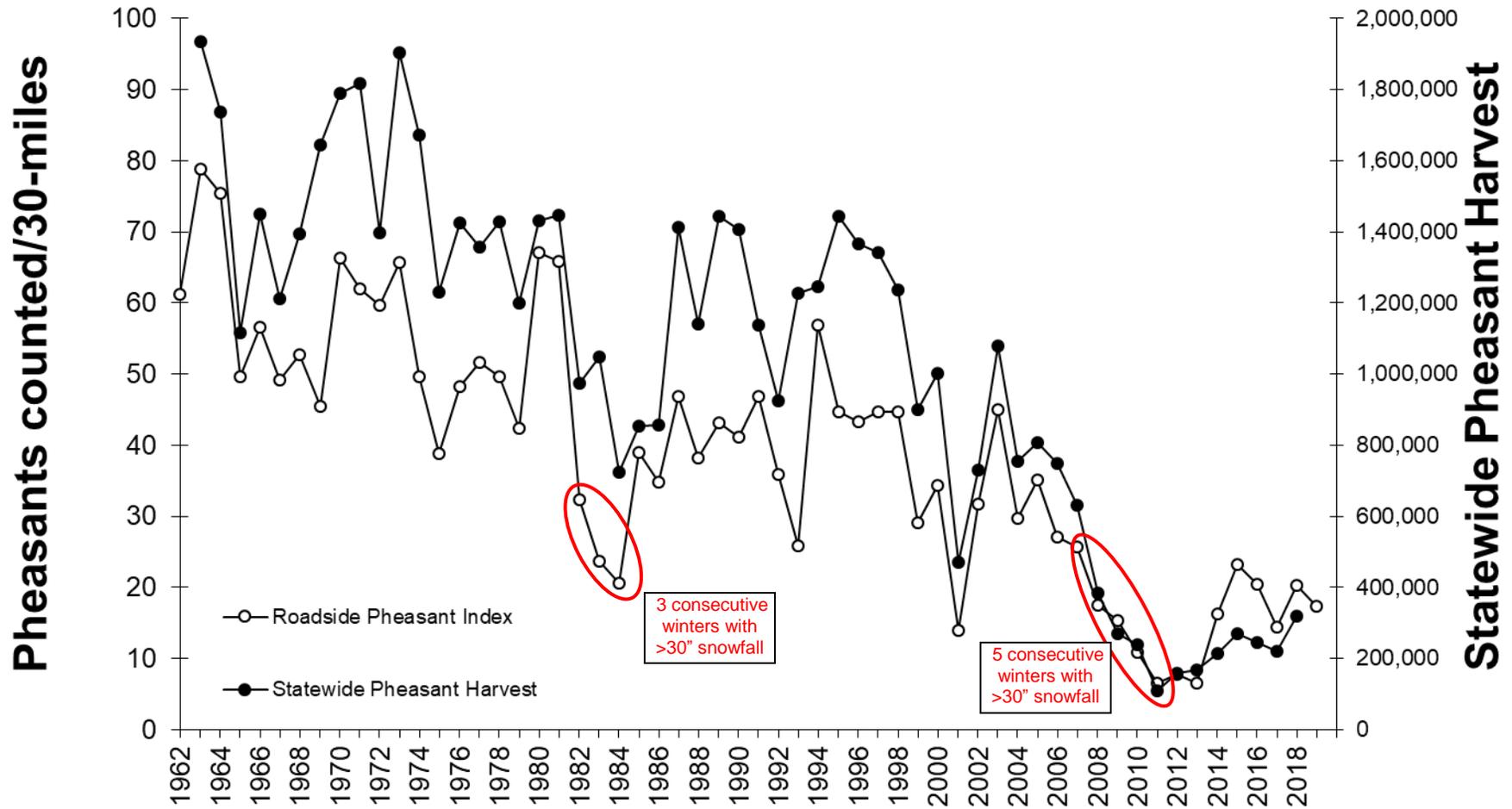


Figure 3. Mean number of pheasants counted on 30-mile August roadside survey routes, statewide, 1962-present compared to total statewide pheasant harvest.

Statewide Upland Game Trends

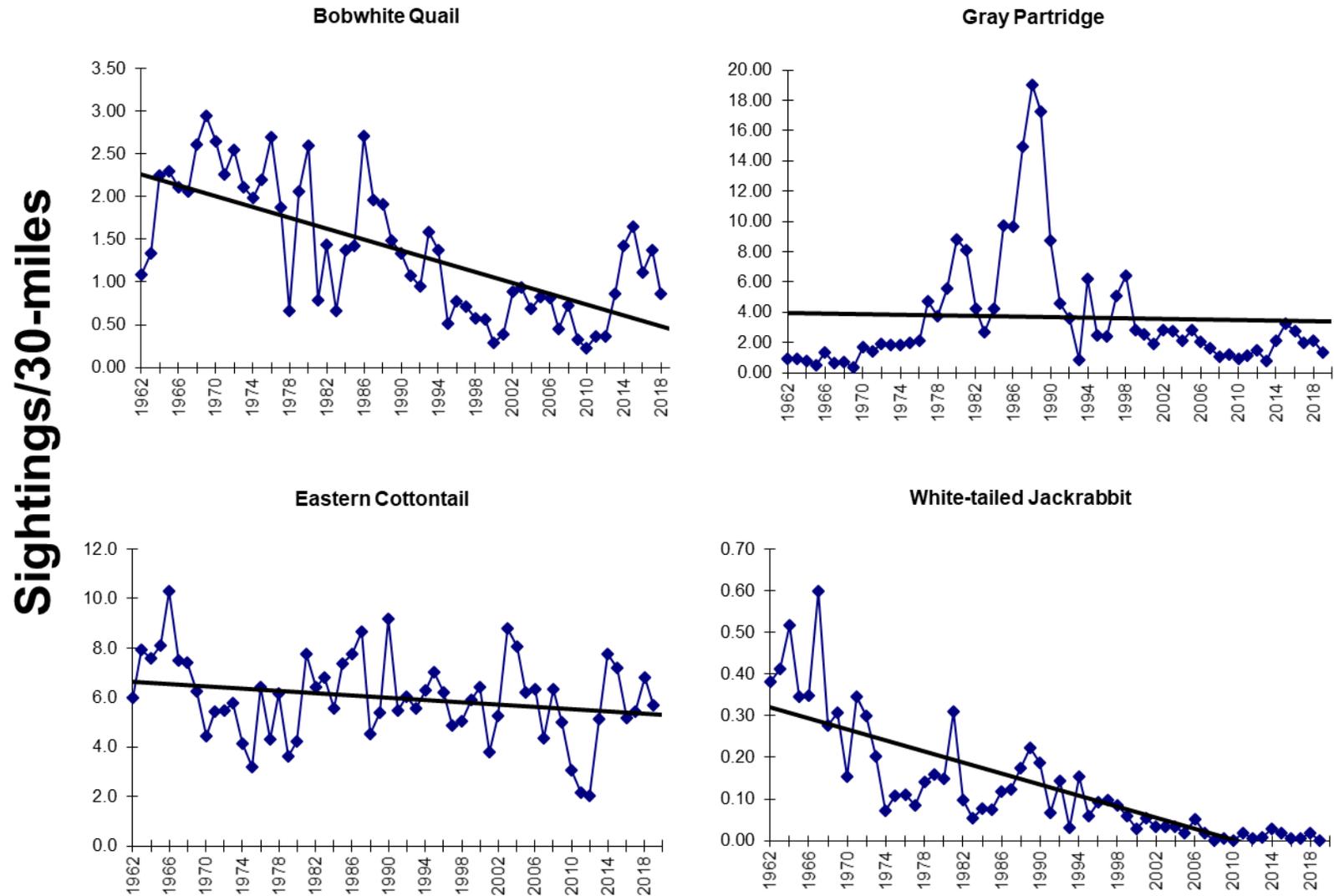


Figure 4. Mean number of quail, partridge, cottontails, and jackrabbits sighted per 30 mile route on the August roadside survey, statewide, 1962 to the present.

2019 August Roadside Survey

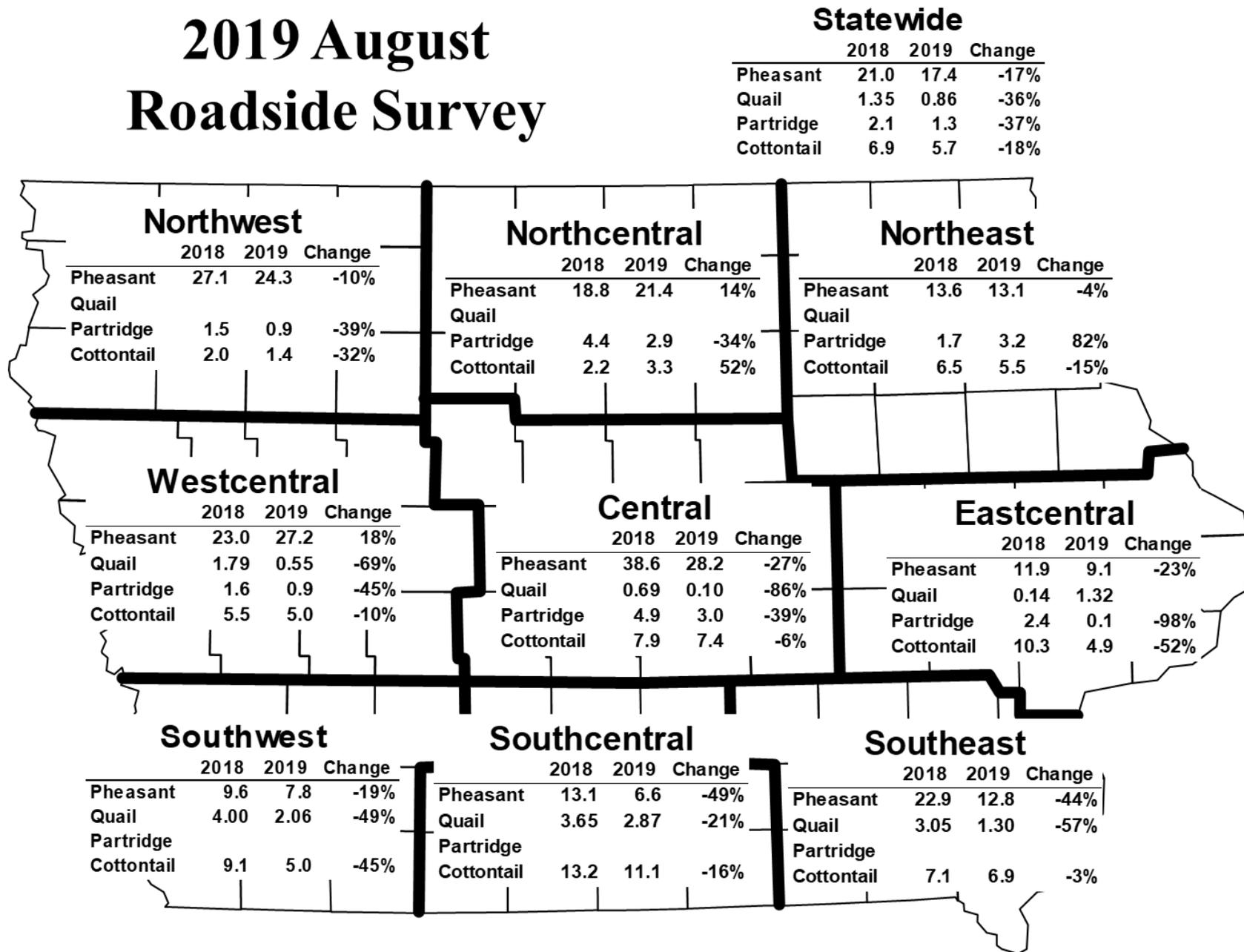
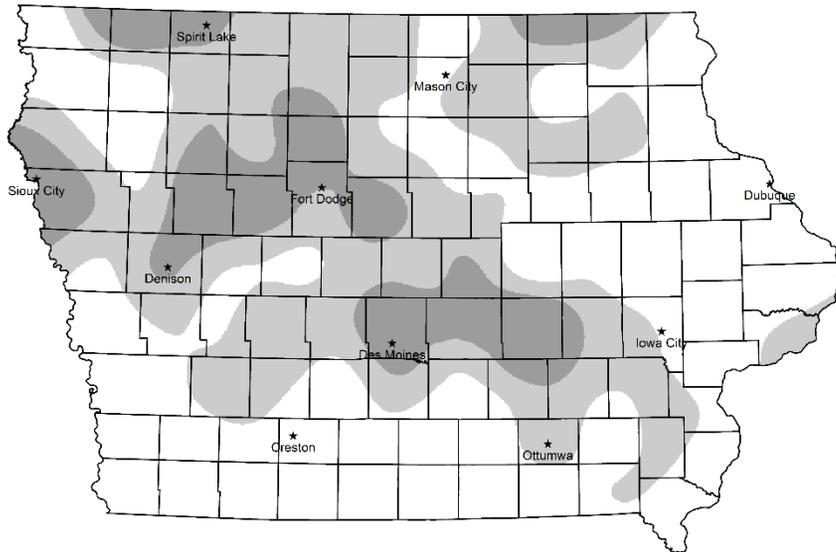


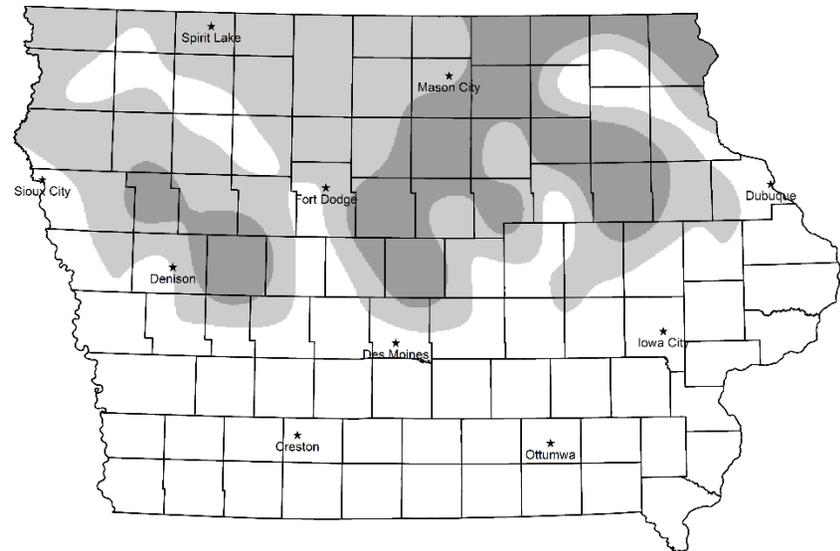
Figure 5. Numbers indicate the average number of animals counted on 30-mile routes in each region (e.g., the northwest region counted an average of 24.3 pheasants on 30-mile survey routes in 2019). Data from 201 of 209 usable returned routes.

2019 GAME DISTRIBUTION

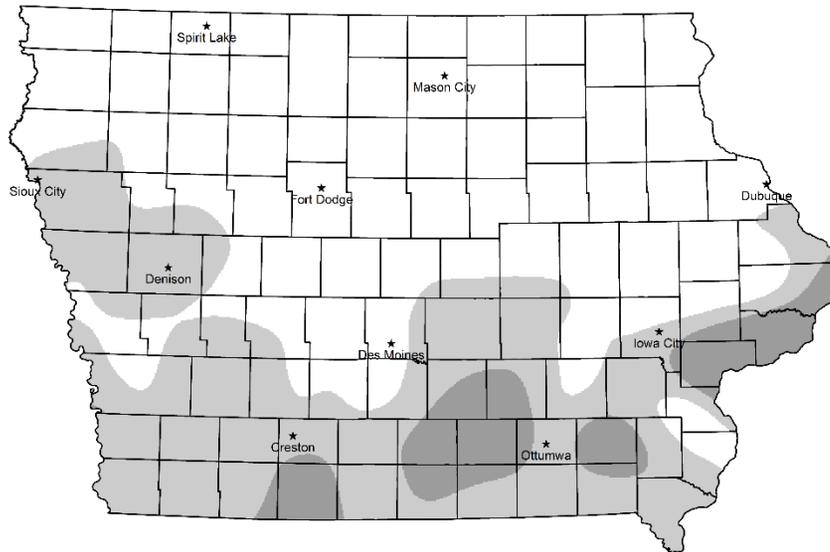
PHEASANT



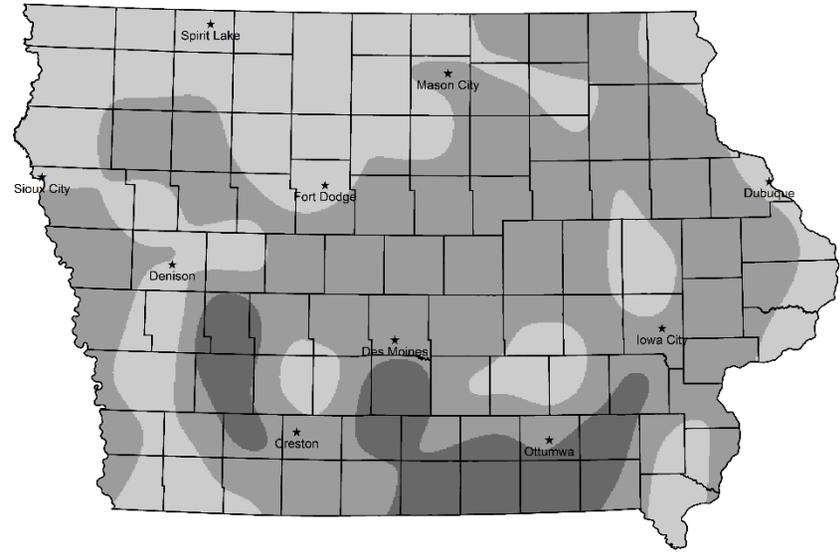
GRAY PARTRIDGE



QUAIL



COTTONTAIL



■ EXCELLENT ■ GOOD ■ FAIR □ POOR

Figure 6. 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.