

2021 IOWA AUGUST ROADSIDE SURVEY

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September 2021

2021 IOWA UPLAND WILDLIFE POPULATIONS

This report is a summary of the 2021 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 2020 and 2021 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 harsh winter and a dry and cool spring in 2021. Iowa’s weather model predicted pheasant numbers would remain stable or show a small increase based on these weather data. This prediction was confirmed by roadside counts which showed statewide pheasant numbers were essentially unchanged (-1%) compared to 2020. Dew conditions were very favorable in the eastern third of Iowa, while much of the western two-thirds of Iowa was in drought, and counts were quite variable likely related to poor dew conditions. The 2020-21 pheasant harvest was the second highest seen in the last 12 years (Figure 3) and harvest numbers were 31% above the 10-year average. Pheasant numbers showed increases in the NW half of the state and declines in the SE half, while quail and cottontail numbers tumbled all across the southern tier of Iowa. Heavy winter snows and ice in the southern and eastern parts of the state are the primary reason for the declines in those regions. Pheasant hunters should see good to excellent numbers this fall in the northwest half of Iowa, while quail numbers will be some of the lowest seen in years. If drought conditions persist into the fall, Iowa’s corn and soybean harvest could be well ahead of normal. Hunters could potentially see mostly harvested crop fields which generally leads to good success on the pheasant opener.

2020-21 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 2020-21 weather summary.

Weather Variables	Survey Regions									STATE
	NW	NC	NE	WC	C	EC	SW	SC	SE	
Winter Weather*										
Total Snowfall (inch)	27	32	38	35	39	38	36	28	28	33.4
Departure**	0.1	2.9	8.9	8.2	14.2	13.2	14.6	6.4	4.8	8.1
Spring Weather										
Total Rainfall (inch)	5.0	4.5	3.9	4.8	4.5	6.3	5.1	5.3	8.4	5.3
Departure	-1.0	-2.4	-3.2	-2.2	-2.8	-1.0	-2.3	-2.3	0.9	-1.8
Mean Temperature (F)	53	53	53	54	55	54	55	56	55	54.2
Departure	-1.0	-0.4	-0.7	-1.6	0.0	-1.2	-1.8	-1.0	-2.2	-1.1

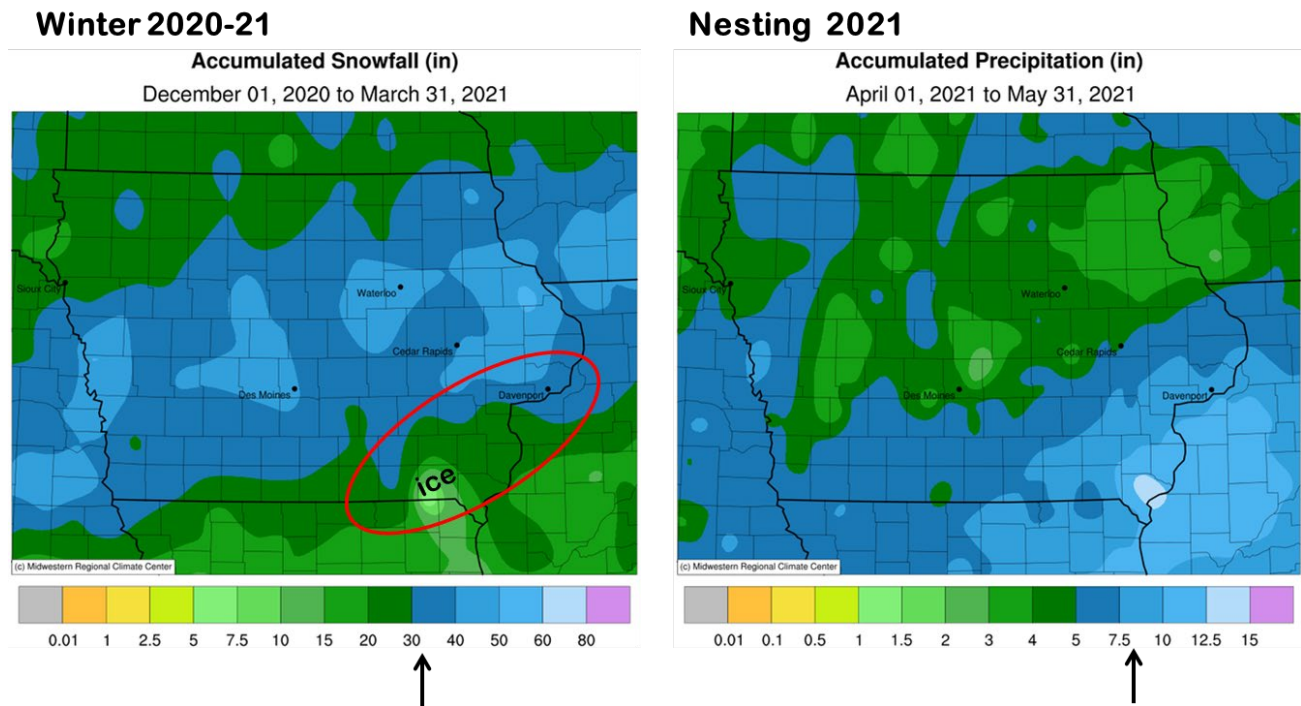
* Winter weather period (1Dec.-31Mar.) and spring period (1April-31May).

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

The 2020-21 winter statewide snowfall was 33 inches, or 8.1 inches above the long term mean (Table 1). Snowfall was above normal in all regions except the NW and NC which were about normal (Table 1, Figure 1). Winter was mostly nonexistent until January, and then progressive waves of cold and snow followed by melting and icing hit the state in January and the pattern persisted through the end of February. Southern regions reported several ice events and subzero temperatures. The ice and frozen snow were so heavy in southeastern Iowa that adults could walk on top without breaking through. These conditions likely had serious impacts on overwinter survival for all small game, pheasant, cottontail, and especially bobwhite. Overall, the winter was snowier than normal and this likely impacted overwinter hen pheasant survival in many areas. The spring of 2021 was the driest nesting season Iowa has seen in 27 years (1994). All regions reported nesting season rainfall and temperatures as below normal (Table 1). Overall, the spring was favorable for good reproduction, although a bit on the cool side.

In summary, the weather of 2020-21 was a mixed bag for upland wildlife. The winter was harsh, especially in southern and eastern regions, but spring nesting season rainfall was ideal, although temperatures were a bit on the cool side. The Bureau’s weather model predicted a stable to perhaps small increase in the statewide pheasant population this year based on these weather patterns. The 2021 roadside counts confirmed the statewide pheasant population is unchanged from last year.

Figure 1. Iowa 2020-21 snowfall and rainfall summary. Normal winter snowfall is 25 inches, while normal nesting season rainfall is 7 inches.



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 2020 Iowa lost 2,637 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, 2,637 mi² is a strip of habitat **9 miles wide** that would stretch from Omaha to Davenport. The 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 20.6 million acres enrolled in CRP, as of July 2021, the lowest in program history. The July report on CRP shows Iowa has 1,666,350 acres enrolled, with 89,306 acres expiring in September 2021. Opportunities to enroll additional land into CRP in Iowa are improving with recent changes to the program by USDA, with increased CRP incentives and rental rates. The 2018 Farmbill changed rental payments so landowners do not receive fair market rent for their land, which had reduced interest in the program. The CRP is a federal USDA program, thus folks who value CRP for pheasant habitat should visit with their elected congressional representatives. In 2020, Iowa had 2.94 million acres of potential pheasant habitat (Table 2). Grassland habitat acres within Iowa are near an all-time low, with reliable records dating back to 1901.

Table 2. Trends in Iowa habitat and total habitat loss from 1990 to 2020, 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
2020	1,160,000	73,000	1,705,188	2,938,188
Acres of Habitat Lost 1990 vs 2020				-1,687,873
Square Miles of Habitat Lost 1990 vs 2020				-2,637

The DNR’s walk-in hunting program, Iowa Habitat and Access Program (IHAP), is funded through a combination of the Farmbill and DNR license dollars. Most IHAP sites are typically private CRP lands where the DNR has provided incentives to landowners to manage habitat for wildlife in exchange for public hunting access. Iowa DNR has over 30,000 acres in this program. For a list of IHAP sites or information about enrolling visit <http://www.iowadnr.gov/ihap>.

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, staff reported 175 routes (84%) started with a heavy dew verses 141 routes (69%) in 2019. The US Drought Monitor showed moderate to severe drought across much of Iowa in late July, but timely rains in late July provided ample moisture for good dew mornings. Only staff in the NW region reported trouble finding good dew mornings.

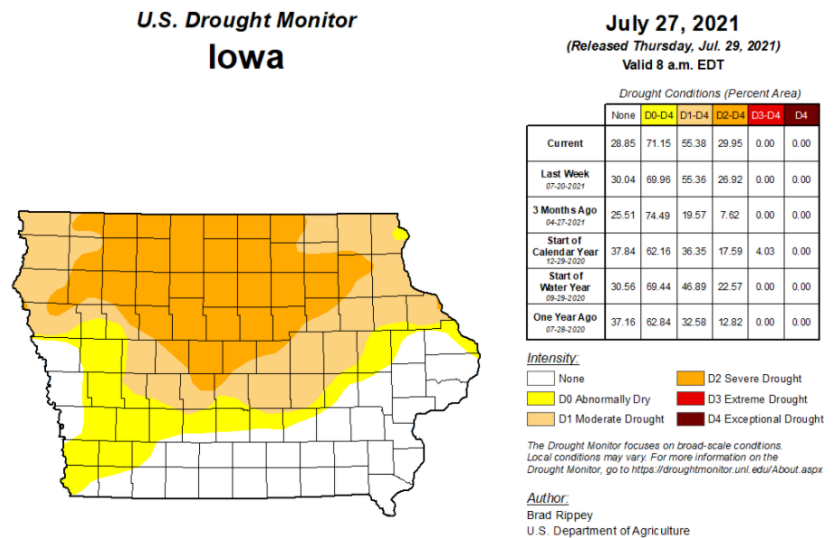


Figure 2. Late July drought map of Iowa.

RING-NECKED PHEASANT

Statewide: This year the statewide pheasant index of 20.1 birds/route is essentially identical to last year’s estimate of 20.3 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). Counts in the NC and C regions were statistically higher than 2020, while counts in the SE region were significantly lower. All other regions reported numbers comparable to 2020 with counts showing upward or downward trends, but none statistically significant. This means there was no consistent trend in the counts within these regions; some routes increased while others decreased.

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 (-2%) and chicks (-1%) counted on routes this year were unchanged from 2020 (Table 3). Statewide data on chicks/brood (measure of chick survival) and age ratios (chicks per adult hen – measure of overall hen success), were also statistically unchanged from last year (Table 3), suggesting that winter hen survival and total nests were similar to 2020, from a statewide view. However, the regional numbers suggest trends were negative in eastern and southern regions and positive in the northern and western regions, and the overall statewide result was no change (Figure 5).

Overall, pheasant hunters in the Hawkeye state should expect pheasant numbers very similar to 2020. However, hunters in NW, NC, WC, and C regions will likely see similar or better pheasant numbers than 2020, while hunters in the other regions will see fewer birds. Three (NW, NC, WC) of the 9 survey regions reported pheasant averages of 30+ birds per route (Table 3/Figure 5). Iowa has not had 3 regions report 30+ pheasant averages since 2007. Pheasant hunting last fall in the Hawkeye state was very good with a reported harvest of 300,000 roosters, and this fall should be on par with last year. Given this year's statewide index of 20 birds per route, Iowa pheasant hunters should harvest approximately 250,000 to 350,000 roosters this fall (Figure 3). As of early September, Iowa was still experiencing very dry conditions across most of the state. If this pattern continues into October, Iowa could see an early crop harvest, with most fields harvested and worked by the pheasant opener. Hunter success is usually very good on openers where most crops have been harvested. Pheasant hunters, especially in the NW, NC, WC, and C regions could have a very good fall!

Northern Regions: Counts in the NW and NC regions trended up from last year, while the NE showed a downward trend (Table 3, Figure 5). Counts in all three regions were above their 10-year averages, and all averaged 20 or more birds per route (Table 4). Counts in the NW region were the highest that region has seen since 2016, and counts in the NC were the highest that region has seen in 14 years - since 2007 (Table 4). The NC region averaged 31.8 birds per route which was the highest density of any region in 2021, although counts in the NW region were only slightly lower at almost 30 birds per route (Table 3). All 3 regions should offer good to excellent pheasant hunting, particularly around public and private lands with good winter habitat. Better counts in NW came from Clay, Dickinson, Emmet, Osceola, Palo Alto, and Pocahontas counties. Butler, Cerro Gordo, Floyd, Hancock, Kossuth, Winnebago, and Wright counties reported better numbers in the NC region, while the NE region reported good counts in Bremer, Delaware, Fayette, and Howard counties (Figure 6).

Central Regions: The WC region reported the highest counts in the central third of Iowa with 31.6 birds per route in 2021, second only to the NC region in density. The C region also had good counts with 25.5 birds per route (Figure 5). The last time the counts in the WC region reached over 30 birds a route was 2005 (16 years ago). Counts in the WC region are 64% above the 10-year average, while counts in the C and EC regions were right at their 10-year averages (Table 4). All 3 regions should offer good to excellent hunting this fall where good quality pheasant habitat exists (Figure 6). The WC region reported better counts in Calhoun, Greene, Ida, and Sac counties. The Central region reported good bird numbers in Boone, Hamilton, Poweshiek, Story and Webster counties, while the EC region reported better numbers in Cedar, Iowa, Johnson, and Jones counties (Figure 6).

Southern Regions: Counts across the southern regions showed a general downward trend, with only the SC regions showing a slight increase (Table 3 & Figure 5). Counts across all three regions are some of the lowest in the state ranging from only 5-10 birds per route. Declines in pheasant, quail and cottontails were all expected given the snow and persistent ice conditions across the region this past winter. Counts in the SW and SE regions are 20-30% below their 10-year averages, while the SC region is near its 10-year average of 7.4 birds per route (Table 4). Some of the better counts in 2021 came from Adams, Louisa, Keokuk, Pottawattamie, Ringgold, Union, and Warren counties (Figure 6).

BOBWHITE QUAIL

Iowa's statewide bobwhite quail index fell to 0.38 birds per route (Table 3, Figure 4) a statistically significant decline from last year's index of 0.74 birds per route. This year's statewide quail index is 58% below the 10-year average of 0.9 quail per route (Table 4). This decline was expected given the 2 months of ice cover and subzero temperatures most of southern Iowa experienced in January and February. Above normal winter mortality was expected with these weather conditions. Dry conditions through spring and summer also likely did not favor nesting as quail do not reproduce well when significant drought conditions persist through the summer. Overall, very few quail were reported across most regions in 2021. The SW region reported the best overall quail numbers in 2021, followed by the SC region (Figure 5). This is the fifth lowest quail index in 60 years of roadside surveys (Table 4). Hunters harvested just 7,900 bobwhite last fall, and a smaller harvest is expected this fall. Hunters should focus quail hunting where there is a good mix of shrubs, ag fields, and weedy cover (Figure 6).

GRAY PARTRIDGE

The 2021 gray partridge count was essentially unchanged from 2020 counts with 2.05 versus 1.99 birds per 30 miles (Table 3 & Figure 4). Counts showed upward trends in the NW and NC regions, a declining trend in NE and EC regions, and stable trends in WC and C regions. None of the regional numbers were statistically significant (Table 3), meaning a few routes increased in each region and others decreased. There was no consistent trend among routes. This year's statewide estimate is right at the 10-year mean and 43% below the long term mean (Table 4). Gray partridge prefer the wide-open agricultural lands of the northern two-thirds of the state. The northern regions (NW, NC, NE) and C region reported the best densities in 2021 (Figure 5). Typically, partridge numbers increase following mild winters and when spring/summer precipitation is below normal. Better counts in 2021 came from Butler, Cerro Gordo, Chickasaw, Delaware, Emmet, Grundy, Hamilton, Hancock, Hardin, Palo Alto, Story, and Wright counties (Figure 6).

COTTONTAIL RABBIT

Staff reported an average of 4.4 rabbits per 30-mile route in 2021, which represents a statistically significant decline in counts from the 2020 estimate of 5.4 per route (Table 3, Figure 4). Cottontails remain very abundant in Iowa. The cottontail index is 19% below the 10-year average and 26% below the long-term average respectively (Table 4). Regionally, rabbit numbers showed decreases all across the southern and eastern regions, corresponding to the higher snowfall totals in these regions. Only the decline in the SE region was statistically significant (Table 3 and Figure 5). Cottontails increase following mild winters with good moisture during spring and summer, thus statewide 2021 was a bad winter followed by a dry spring which is not as favorable for cottontails. Cottontail hunters can expect good hunting across most of the state this fall. Staff reported better cottontail densities in the EC, SW, SC, and SE regions (Figure 5 and 6).

Table 3. Mean numbers of wildlife observed per 30-mile route on the August roadside survey in 2020 and 2021. 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	25														
2021		29.64	2.84	1.12	3.48	6.16	22.20	4.58	3.33			3.40	0.36	2.24	
2020		27.96	3.13	1.48	3.57	6.26	19.78	4.11	3.24			1.65	0.17	1.65	
% CHG		6%	-9%	-24%	-3%	-2%	12%	11%	3%			106%	112%	36%	
Northcentral	26														
2021		31.81	3.08	1.69	4.04	7.00	23.00	4.27	3.34			4.04	0.38	1.62	
2020		23.69	2.85	1.19	2.88	4.88	16.77	4.73	3.75			3.46	0.31	1.88	
% CHG		34%	8%	42%	40%	43%	37%	-10%	-11%			17%	23%	-14%	
Northeast	20														
2021		19.65	2.35	0.40	2.15	3.60	14.75	4.90	4.09			4.05	0.40	4.70	
2020		24.53	2.05	1.74	2.74	5.74	18.00	4.9	3.61			5.32	0.53	5.47	
% CHG		-20%	15%	-77%	-22%	-37%	-18%	0%	13%			-24%	-25%	-14%	
West Central	23														
2021		31.61	3.52	1.96	3.52	7.17	22.61	4.42	3.04	0.17	0.00	0.43	0.04	3.30	0.04
2020		25.32	2.86	1.64	2.41	5.86	18.41	4.22	2.84	0.18	0.00	0.41	0.05	3.77	0.00
% CHG		25%	23%	20%	46%	22%	23%	5%	7%	-6%		5%	-20%	-12%	
Central	32														
2021		25.53	3.78	1.22	2.88	5.63	17.66	4.12	3.05	0.59	0.03	4.09	0.41	5.06	0.00
2020		20.38	3.24	1.52	2.34	5.17	13.28	3.71	2.83	0.00	0.00	4.14	0.41	4.76	0.03
% CHG		25%	17%	-20%	23%	9%	33%	11%	8%			-1%	0%	6%	
Eastcentral	21														
2021		11.29	2.52	0.43	1.29	2.24	7.05	3.85	3.13	0.00	0.00	1.14	0.14	6.43	
2020		15.60	1.75	0.50	1.65	2.65	11.70	5.08	4.15	0.15	0.05	2.10	0.20	7.85	
% CHG		-28%	44%	-14%	-22%	-15%	-40%	-24%	-25%			-46%	-30%	-18%	
Southwest	18														
2021		4.94	0.94	0.06	0.67	0.94	3.28	3.57	3.50	1.50	0.00			4.89	
2020		7.33	1.89	0.44	0.72	1.44	4.28	4.61	2.92	3.28	0.17			6.50	
% CHG		-33%	-50%	-86%	-7%	-35%	-23%	-23%	20%	-54%	-100%			-25%	
Southcentral	24														
2021		8.54	1.25	0.38	0.96	1.67	5.96	4.28	3.44	1.17	0.04			6.38	
2020		6.05	0.86	0.14	0.73	1.27	4.32	4.06	3.46	1.95	0.05			8.68	
% CHG		41%	45%	171%	32%	31%	38%	5%	-1%	-40%	-20%			-26%	
Southeast	24														
2021		10.33	2.46	0.71	1.50	2.42	5.67	3.37	2.22	0.17	0.04			5.67	
2020		28.59	4.00	0.95	3.64	5.18	20.00	5.12	3.62	1.05	0.05			9.09	
% CHG		-64%	-39%	-25%	-59%	-53%	-72%	-34%	-39%	-84%	-20%			-38%	
Statewide	213														
2021		20.11	2.62	0.94	2.38	4.30	14.17	4.23	3.22	0.38	0.01	2.05	0.21	4.42	
2020		20.29	2.58	1.09	2.35	4.38	14.27	4.46	3.36	0.76	0.03	1.99	0.19	5.36	
% CHG		-1%	2%	-14%	1%	-2%	-1%	-5%	-4%	-50%	-67%	3%	11%	-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	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	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	0.086
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	0.060
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	0.029
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	0.053
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	0.034
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	0.033
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	0.033
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	0.019
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	0.052
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	0.019
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	0.000
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	0.005
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	0.000
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	0.019
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	0.005
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	0.009
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	0.028
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	0.019
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	0.005
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	0.005
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	0.019
2019	23.3	20.9	12.8	26.4	27.3	9.1	7.3	6.8	12.3	17.0	0.84	1.35	5.7	0.005
2020	28.5	22.9	24.4	25.4	20.9	13.6	7.3	6.4	28.2	20.0	0.72	1.90	5.2	0.005
2021	29.6	31.8	19.7	31.6	25.5	11.3	4.9	8.5	10.3	20.1	0.38	2.05	4.4	0.010

Statistics:														
10 Year Avg.	26.8	19.3	10.1	19.3	24.0	11.4	6.8	7.4	17.0	16.6	0.9	2.0	5.5	0.011
Long-term Avg.	39.2	41.4	38.4	43.4	41.8	39.0	47.3	30.1	24.9	38.1	1.33	3.62	5.9	0.128
Percent Change from:														
10 Year Avg.	10%	65%	95%	64%	6%	-1%	-28%	16%	-39%	21%	-58%	4%	-19%	-9%
Long-term Avg.	-24%	-23%	-49%	-27%	-39%	-71%	-90%	-72%	-59%	-47%	-71%	-43%	-26%	-92%

^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

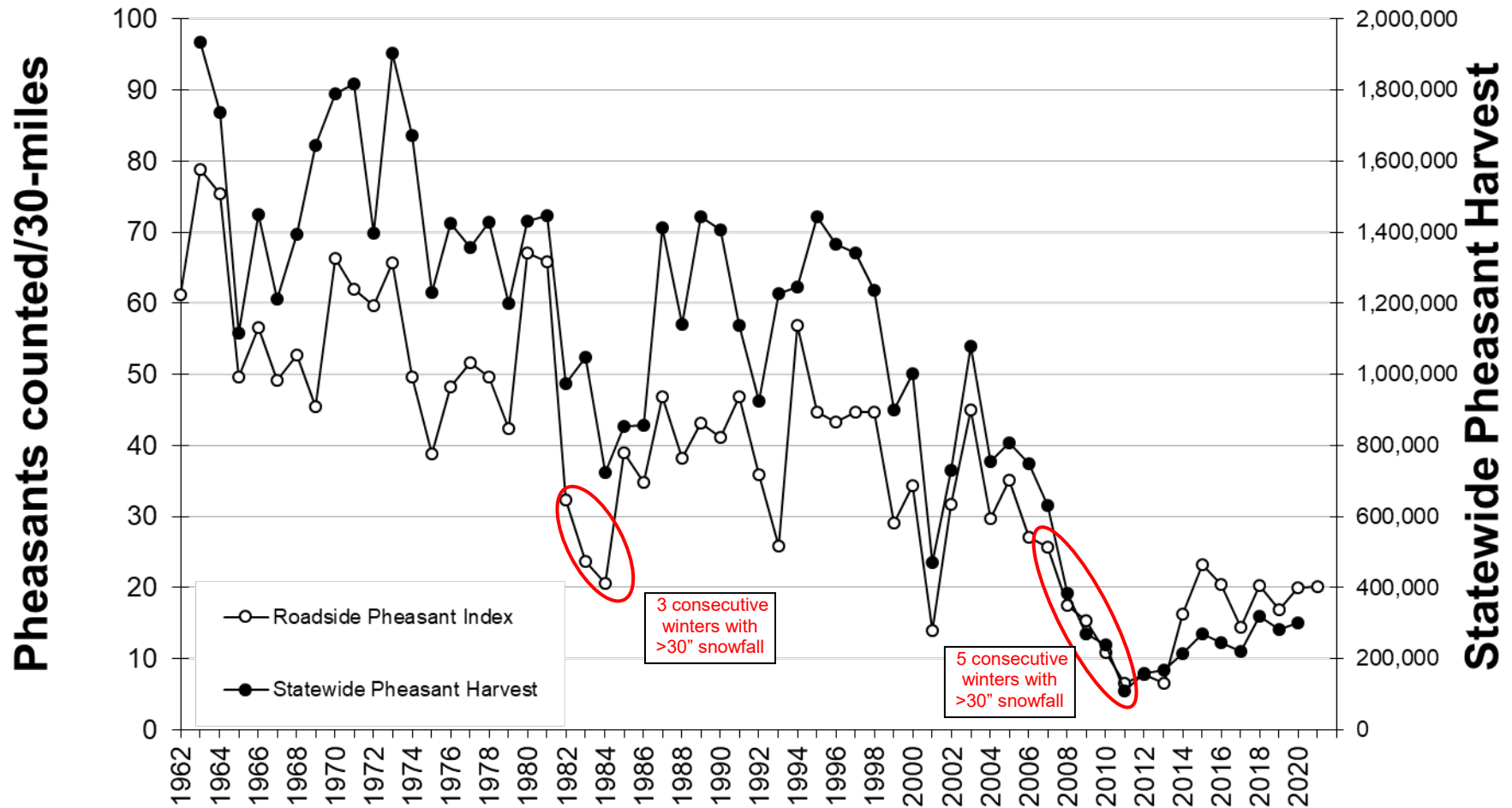


Figure 3. Mean number of pheasants counted on 30-mile August roadside survey routes, statewide, compared to total statewide pheasant harvest, 1962-present.

Statewide Upland Game Trends

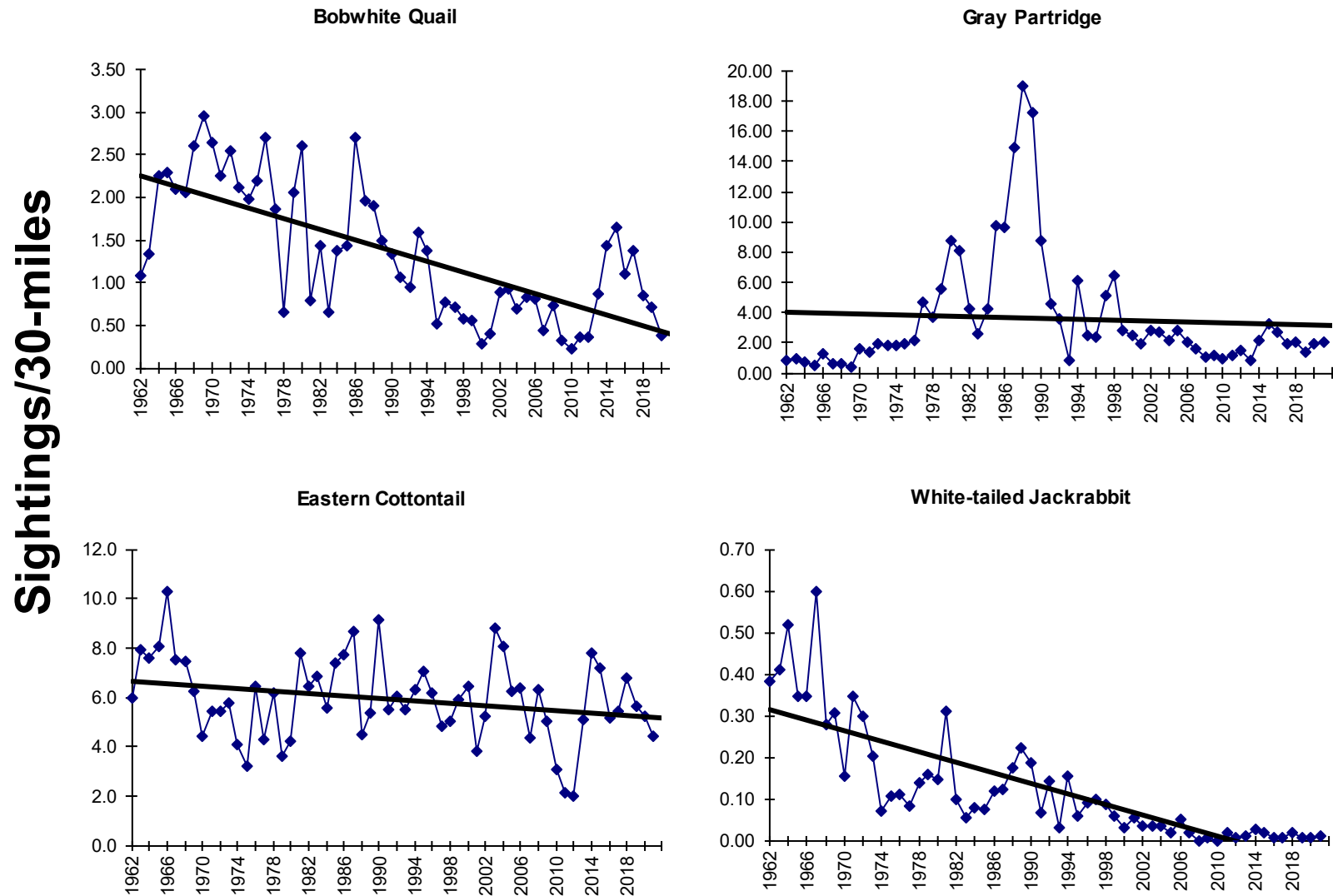


Figure 4. Mean number of quail, partridge, cottontails, and jackrabbits sighted per 30 mile route on the August roadside survey, statewide, 1962 to the present.

2021 August Roadside Survey

Statewide			
	2020	2021	Change
Pheasant	20.3	20.1	-1%
Quail	0.76	0.38	-50%
Partridge	2.0	2.1	3%
Cottontail	5.4	4.4	-18%

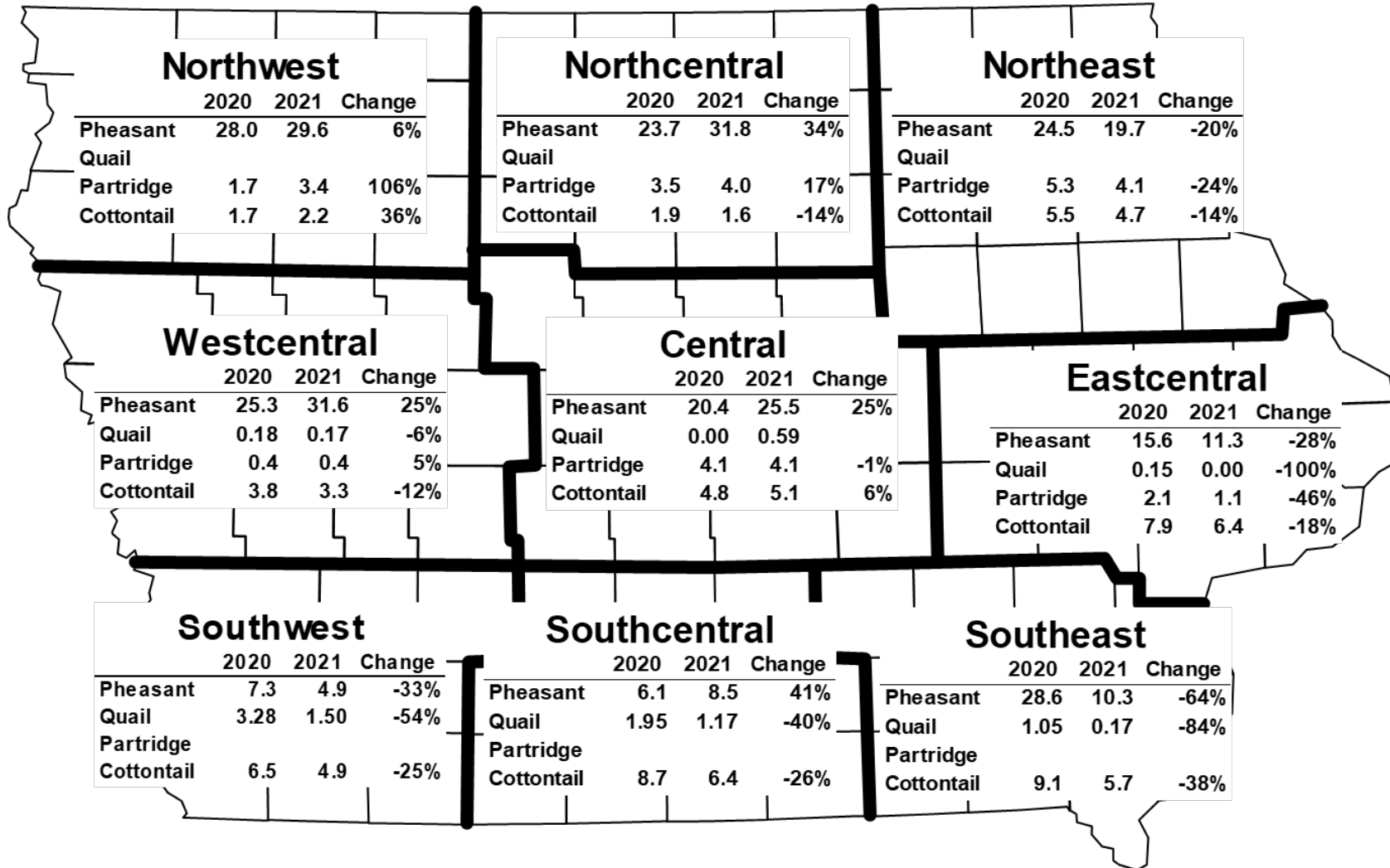
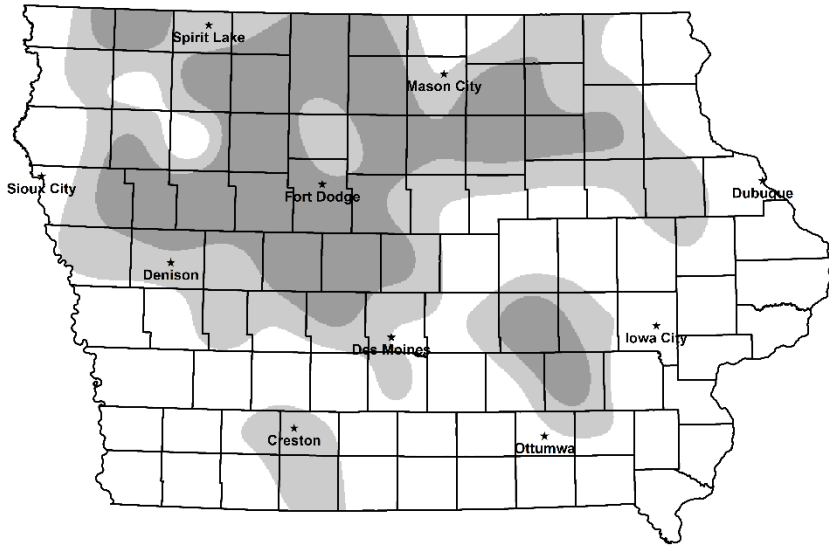


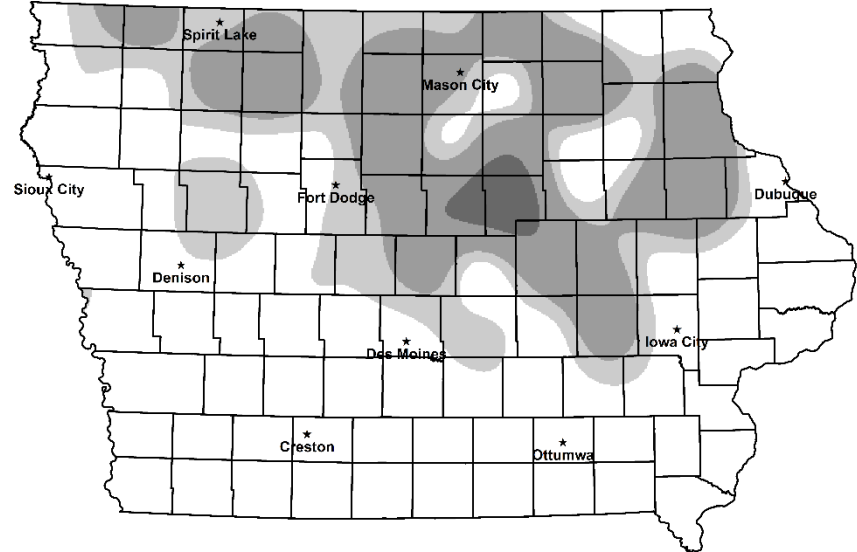
Figure 5. Numbers indicate the average number of animals counted on 30-mile routes in each region (e.g., the northwest region counted an average of 29.6 pheasants on 30-mile survey routes in 2021). Data from 213 of 217 comparable returned routes.

2021 GAME DISTRIBUTION

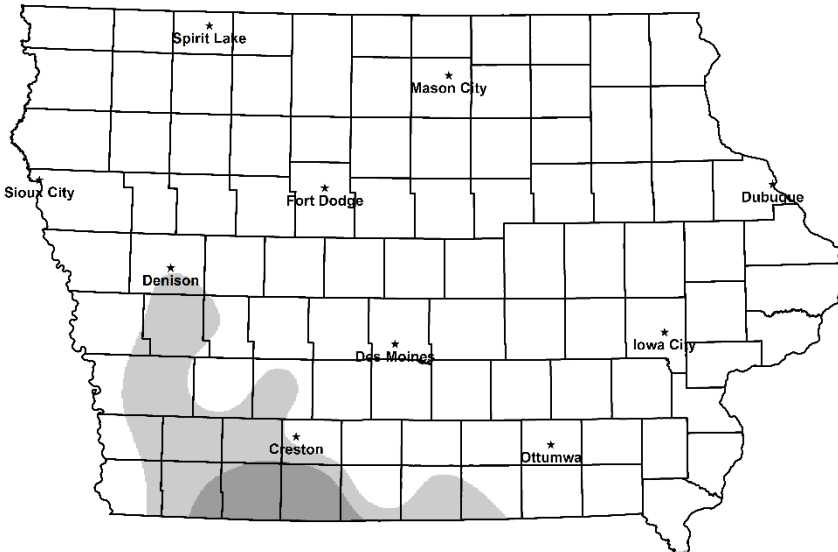
PHEASANT



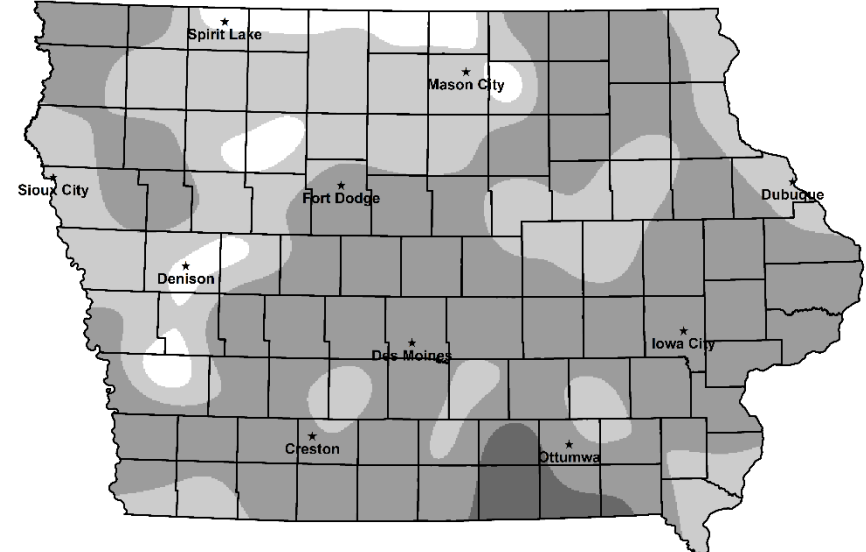
GRAY PARTRIDGE



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.