

PHEASANT CROWING SURVEY - 2011

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KANSAS PHEASANT CROWING SURVEY – 2011

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Prepared by: David Dahlgren, Small Game Specialist

INTRODUCTION

The Kansas Department of Wildlife and Parks (KDWP) collects breeding population data for pheasant (*Phasianus colchicus*) by conducting crow counts throughout pheasant range in the state. Pheasants are an extremely important wildlife resource for Kansas, and these indices help to project hunter forecasts and monitor population change through time.

METHODS

The survey period was from April 25 through May 15. Pheasant routes are set up along ~20 mile transects, with at least 2 miles between each of the 11 stops. At stops, observers listen for 2 minutes and count all the audible 2-note (syllable) crows heard from male pheasants. The indices are the mean crows per stop for each route. The first stop begins 45 minutes before sunrise and continues through the last stop. Noise interference is taken into consideration, and data censored if the observer feels noise is inhibiting their ability to count crows.

The results of the 2011 survey and comparisons to the 2010 data are presented in Table 1. All of the 62 established routes were assigned for 2011 (routes in Osage and Coffee counties are run only in even-numbered years) and all 62 routes were successfully run. Fifty-six of the routes were completed in both 2010 and 2011 by the same observers. Personnel assigned these surveys are noted in Table 2. A new route was added this year at the Wilson Wildlife Area in Russell County. Range wide and regional trends since the survey's 1997 initiation are shown in Figure 1. Location of routes within the state are shown in Figure 2.

Data Analysis

For reporting purposes summary statistics were used based on crows/2-minute stop, which is the Pheasant Crow Survey Index (PCSI). For year to year comparisons a Wilcoxon Rank-Sum Test (same as Mann-Whitney U-test) was used to make comparisons within a region. A one-tailed test with an alpha level 0.10 was used to determine significant differences. One-tailed tests are only recommended to test the directional difference between two distributions. For example, are the PCSI higher (or lower) in 2011 than 2010? However, a two-tailed test would need to be used to test the question are PCSI different in 2011 compared to 2010? For our purposes, assessing direction was sufficient in year to year comparisons.

Kriging is a technique that can be used to interpolate data between known points, providing extrapolation to areas not surveyed. This technique has limitations at smaller scales (e.g., within counties and townships) because no habitat variables are included (only count data), but may be useful for large-scale interpretation of statewide data for regional comparisons. Kriging was used by assigning the route-specific PCSI to the centroid of each route. Then all routes were used to extrapolate data throughout Kansas' pheasant range (Figure 3).

RESULTS

Rangewide

The 2011 Pheasant Crowing Survey PCSI was 20.5 crows per station and the comparable routes increased a mean of 17% over 2010. This was not a significant increase ($P = 0.27$). Overall, 25 of the 56 comparable routes increased, and 29 decreased. See Table 1 for all route and regional data.

Flint Hills: All of the 12 routes were run. The regional PCSI was 6.24 and the mean decreased 13% from 2010 ($P = 0.39$). **Glaciated Plains:** All 4 routes were run, yielding a PCSI of 0.91, and a 60% decrease from 2010 ($P = 0.08$). **Northern High Plains:** All 13 routes were run. The regional PCSI was 41.70, a 12% increase over 2010 ($P = 0.26$). **Smoky Hills:** All 20 routes were run, and the regional PCSI was 17.89, a 13% increase over 2010 ($P = 0.25$). **Southern High Plains:** All 7 survey routes were successfully run this spring yielding a regional PCSI of 31.07, a 17% increase over 2010 ($P = 0.35$). **South-Central Prairies:** All 11 routes were run yielding a PCSI of 9.6, a 21% decline from 2010 ($P = 0.28$). **Osage Cuestas:** Only run in even years.

DISCUSSION

The spring pheasant survey results can represent two important life stages for pheasant populations in Kansas. Spring surveys can indicate over-winter survival for a population. Often winter can be a bottleneck for some upland game populations. However, in western Kansas winters are often much more mild than more northern latitudes and pheasant survival is usually high throughout much of Kansas. When this is the case, spring surveys can also reflect the previous breeding season success or production for the population. In the 2010 breeding season Kansas experienced high production for much of the pheasant population, which is carried over into the 2011 Pheasant Crow Count because of a fairly mild winter in western Kansas. Other regions in the south-central and north-eastern part of the state showed declines, likely due to extreme weather events (e.g., hail storms) during the nesting and brooding period, or not enough precipitation prior to the 2010 breeding season. North-east Kansas has had some severe winters recently, combined with inclement weather during the breeding season, and the population has declined as a result.

Overall, western Kansas has one of the strongest breeding populations of pheasants in its history this year (Figure 3), which is reflected in extremely high crow counts for 2011 (Figure 1). However, breeding season climate conditions are not very favorable for 2011 (extreme drought), and the 2011 fall pheasant population may not continue to increase like it has in recent years in western Kansas. Figure 3 shows the interpolated breeding density of pheasants across their habitable range in Kansas. Those areas of high percentage cropland in western Kansas show the highest densities of pheasants. This year many of those same areas are seeing problems with winter wheat growth, which may impact nesting success in those areas. Poor wheat development can lead to early harvesting, which could add to the decline of successful pheasant nests and broods. The drought will also cause a decline in brooding conditions, possibly negatively impacting brood survival. Our late summer brood surveys (July and August) will provide better projections of fall populations.

Table 1. Regional changes in pheasant crow counts in Kansas, 2010-2011.

Flint Hills				Smoky Hills			
<u>Route</u>	<u>2010 C/S</u>	<u>2011 C/S</u>	<u>% Δ</u>	<u>Route</u>	<u>2010 C/S</u>	<u>2011 C/S</u>	<u>% Δ</u>
Butler-Marion	1.70	1.27	-25	Barton	12.95	22.73	75
Cowley-Sumner	12.10	13.00	7	Cloud	2.90	10.29	255
Dickinson-Clay	16.20	15.18	-6	Ellis	19.30	29.73	54
McPherson-Marion	12.70	10.40	-18	Ellsworth	6.70	3.82	-43
Morris	1.70	0.73	-57	Hodgeman	33.30	39.18	18
Riley	4.70	2.82	-40	Lincoln	15.90	9.27	-42
Wabaunsee	1.20	0.27	-77	McPherson	9.70	12.18	26
Mean	7.19	6.24	-13	Mitchell	8.90	12.27	38
Glaciated Plains				Ness-Lane	26.30	35.10	33
<u>Route</u>	<u>2010 C/S</u>	<u>2011 C/S</u>	<u>% Δ</u>	Osborne	16.50	23.82	44
Brown-Nemaha	1.80	0.91	-49	Ottawa	20.30	19.91	-2
Jackson-Jefferson	2.10	0.64	-70	Phillips	13.10	10.27	-22
Marshall	4.30	1.55	-64	Republic	8.60	13.00	51
Shawnee	0.80	0.55	-32	Rice	12.50	10.18	-19
Mean	2.25	0.91	-60*	Rooks	18.00	21.82	21
Northern High Plains				Rush	20.80	24.27	17
<u>Route</u>	<u>2010 C/S</u>	<u>2011 C/S</u>	<u>% Δ</u>	Smith	.	11.00	NA
Gove NE	35.40	46.82	32	Trego	30.30	28.64	-05
Gove SW	34.40	39.40	15	Washington	10.10	9.82	-03
Gove-Logan	44.10	54.25	23	Wilson WA	.	10.55	NA
Graham	39.90	73.18	83	Mean	15.90	17.89	13
Logan	35.50	46.18	30	South-Central Prairies			
Logan SE	18.60	17.22	-07	<u>Route</u>	<u>2010 C/S</u>	<u>2011 C/S</u>	<u>% Δ</u>
Norton	51.60	43.73	-15	Clark	17.60	12.91	-27
Rawlins-Thomas	44.80	24.00	-46	Comanche	3.90	4.20	8
Scott	37.00	20.36	-45	Edwards	14.30	9.45	-34
Sheridan	46.20	73.13	58	Harper	6.50	4.36	-33
Sherman	53.40	38.91	-27	Kingman-Reno	.	3.82	NA
Thomas	37.30	60.33	62	Pawnee	31.40	39.55	26
Wichita-Greeley	6.90	4.55	-34	Pawnee (Irrig.)	16.00	14.18	-11
Mean	37.32	41.70	12	Pratt	8.80	8.75	-1
Southern High Plains				Reno	9.40	0.73	-92
<u>Route</u>	<u>2010 C/S</u>	<u>2011 C/S</u>	<u>% Δ</u>	Sedgwick-Harvey	2.70	2.36	-12
Finney	31.30	32.00	2	Stafford-Barton	10.90	5.27	-52
Ford	33.20	45.10	36	Mean	12.15	9.60	-21
Gray	50.30	82.82	65	Statewide	18.52	20.49	17
Kearny-Hamilton	19.30	17.91	-7				
Morton-Stanton	8.30	8.00	-4				
Seward-Haskell	.	4.64	NA				
Stevens	16.80	27.00	61				
Mean	26.53	31.07	17				

Note: C/S = Mean Crows per Station; % Δ = percent change; * = significant change ($P \leq 0.10$); Osage and Coffee routes excluded and are only run on even years in Osage Cuestas Region

Table 2. KDWP personnel assigned to pheasant crow routes, 2011.

Flint Hills			Smoky Hills		
<u>Name</u>		<u>Route</u>	<u>Name</u>		<u>Route</u>
Charles	Cope	Butler-Marion	Gene	Schneweis	Barton
Kurt	Grimm	Cowley-Sumner	Aaron	Deters	Cloud
Clint	Thornton	Dickinson-Clay	Mike	Nyhoff	Ellis
Bryan	Sorensen	McPherson-Marion	Matt	Smith	Ellsworth
Brent	Konen	Morris	Aaron	Baugh	Hodgeman
Corey	Alderson	Riley	Luke	Kramer	Lincoln
Brad	Rueschhoff	Wabaunsee	Brent	Theede	McPherson
Glaciated Plains			Chris	Lecuyer	Mitchell
Randy	Whiteaker	Brown-Nemaha	Randy	Rodgers	Ness-Lane
Randy	Whiteaker	Jackson-Jefferson	Toby	Marlier	Osborne
James	Svaty	Marshall	Pat	Riese	Ottawa
Brad	Rueschhoff	Shawnee	Marc	Gray	Phillips
Northern High Plains			Rob	Unruh	Republic
Steve	Price	Gove NE	Steven	Adams	Rice
David	Dahlgren	Gove SW~	Michael	Zajic	Rooks
David	Dahlgren	Gove-Logan~	Brian	Hanzlick	Rush
Marc	Gray	Graham	Brad	Odle	Smith
Matt	Bain	Logan	Kent	Hensley	Trego
Randy	Rodgers	Logan SE	Clint	Thornton	Washington
Cris	Mulder	Norton	Scott	Thomason	Wilson WA*
Matt	Bain	Rawlins-Thomas	South-Central Prairies		
Justin	Hamilton	Scott	Jon	Zuercher	Clark
Josh	Williams	Sheridan	Matt	Hanvey	Comanche
Mike	Hopper	Sherman	Matt	Stucker	Edwards
Josh	Williams	Thomas	Chris	Stout	Harper
Daryl	Fisher	Wichita-Greeley	Kyle	McDonald	Kingman-Reno~
Southern High Plains			Charlie	Swank	Pawnee
Daryl	Fisher	Finney	Tom	Bidrowski	Pawnee (Irrig)~
Aaron	Baugh	Ford	Chris	Berens	Pratt
Lowell	Aberson	Gray	AJ	Meyer	Reno~
Chasen	Gann	Kearny-Hamilton~	Charlie	Cope	Sedgwick-Harvey
Kraig	Schultz	Morton-Stanton	Charlie	Swank	Stafford-Barton
Jeff	Cakin	Seward-Haskell~			
Kraig	Schultz	Stevens			

Note: ~New observer; *New route for 2011; All routes were run this year; Osage and Coffee only run on even years

Kansas Pheasant Crow Counts by Region, 1997-2011

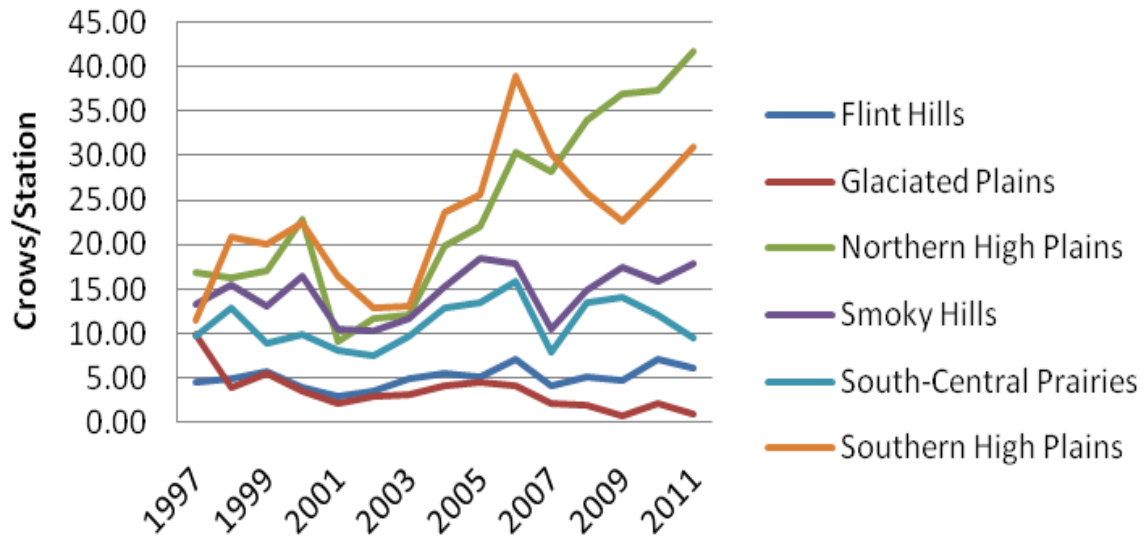


Figure 1. Regional (see Figure 2 for region boundaries) trends for pheasant crow counts in Kansas, 1997-2011.

Pheasant Survey Routes

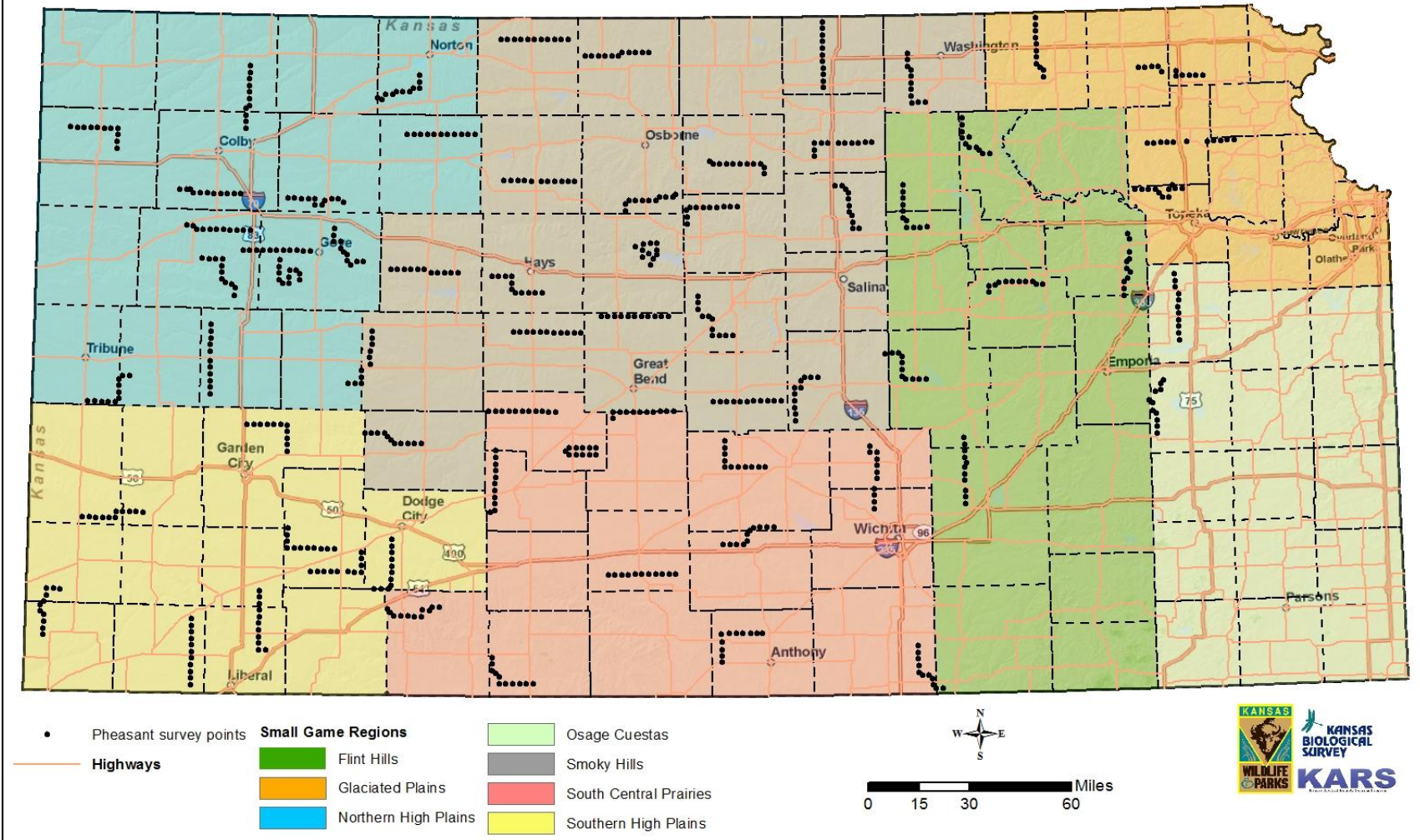


Figure 2. Pheasant crow routes distributed among regions in Kansas, 2011.

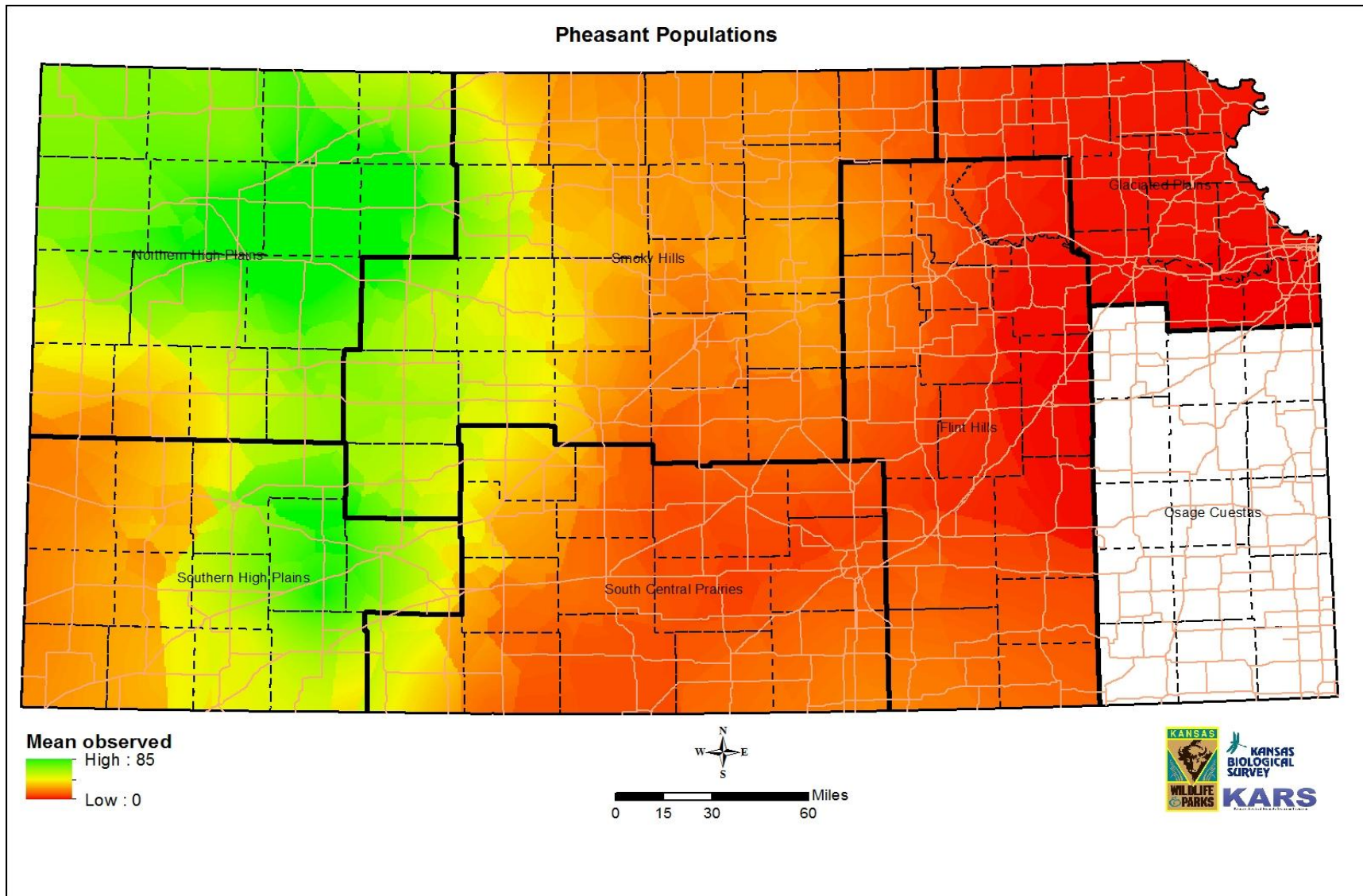


Figure 3. Pheasant breeding population index interpolated from route-specific indices across pheasant range in Kansas, using Kriegering technique, 2011.