PHEASANT CROWING SURVEY - 2014

PERFORMANCE REPORT
STATEWIDE WILDLIFE RESEARCH AND SURVEYS

A Contribution of Pittman-Robertson Funds
Federal Aid in Wildlife Restoration

Grant W-39-R-20

Kansas Department of Wildlife, Parks, & Tourism

Robin Jennison
Secretary

Prepared by

Jeff Prendergast
Small Game Specialist

Joe Kramer, Director
Fisheries and Wildlife Division

Mike Mitchener, Chief
Wildlife Section

July 2014

PERMISSION TO QUOTE

This is an annual progress report that may contain information subject to future modification or revision. Persons wishing to quote from this report, for reproduction or reference, should first obtain permission from the Chief of the Wildlife Section, Kansas Department of Wildlife, Parks, & Tourism, 512 SE 25th Avenue, Pratt, KS 67124.

EQUAL OPPORTUNITY STATEMENT

This program receives Federal financial assistance from the U.S. Fish and Wildlife Service. Under Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, Title II of the Americans with Disabilities Act of 1990, the Age Discrimination Act of 1975, and Title IX of the Education Amendments of 1972, the U.S. Department of the Interior and its bureaus prohibit discrimination on the basis of race, color, national origin, age, disability or sex (in educational programs). If you believe that you have been discriminated against in any program, activity or facility, or if you desire further information, please write to:

The U.S. Fish and Wildlife Service
Office of Diversity and Civil Rights Programs- External Programs
4040 North Fairfax Drive, Suite 130
Arlington, VA 22203

KANSAS PHEASANT CROWING SURVEY – 2014
Federal Aid in Wildlife Restoration Grant W-39-R-20

Prepared by: Jeff Prendergast, Small Game Specialist

INTRODUCTION

The Kansas Department of Wildlife, Parks, and Tourism (KDWPT) collects breeding population data for pheasant (*Phasianus colchicus*) by conducting crow counts throughout pheasant range in the state. Measurable wild pheasant populations do not occur in south-east Kansas (Osage Cuestas Region). Pheasants are an extremely important wildlife resource for Kansas, and these indices help to project hunter success and monitor population change through time.

METHODS

The survey period was from April 25 through May 15. Pheasant routes are ~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 Pheasant Crow Survey Index (PCSI) is the mean number of crows per 2-minute 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 are censored if the observer feels noise is severely inhibiting their ability to count crows.

The results of the 2014 survey and comparisons to the 2013 data are presented in Table 1. All of the 66 established routes were assigned for 2014 (routes in Osage and Coffey counties are run only in even-numbered years) and 65 of 66 routes were successfully sampled. Personnel assigned these surveys are noted in Table 2. 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 annual comparisons a Wilcoxon Rank-Sum Test (same as Mann-Whitney U-test) was used to assess changes within a region. A two-tailed test with an alpha level 0.10 was used to identify significant differences.

Krieging is a GIS mapping technique that can be used to interpolate data between known spatial 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. Krieging was used by assigning the route-specific PCSI to the centroid of each route. Then all sampled routes were used to extrapolate data throughout Kansas' pheasant range (Figure 3). For comparison purposes the interpolated percent change of PCSI from 2013 to 2014 is also included (Figure 4).

RESULTS

Range-wide
The 2014 PCSI was 5.35 crows per station across all 65 surveyed routes. Among the 49 comparable routes, there was no significant change in the statewide mean from 2013 (P = 0.69). Overall, the PCSI decreased on 26 of the 49 comparable routes (sampled both years) while PCSI increased on the remaining 23 routes relative to 2013. See Table 1 for all route and regional data.

Osage Cuestas: Both routes were completed, and no pheasants were detected within this region. **Flint Hills:** All of the 7 routes were completed. The regional PCSI was 3.68, resulting in

no significant change from 2013 (P = 0.52). **Glaciated Plains:** All 6 routes were completed. The regional PCSI was 2.34, resulting in no significant change from 2013 (P = 0.83). **Northern High Plains:** All 13 routes were completed. The regional PCSI was 7.95, a 50% decrease from 2013 (P < 0.06). **Smoky Hills:** There were 19 of 20 routes were completed, the regional PCSI was 7.50, resulting in no significant change from 2013 (P = 0.33). **Southern High Plains:** All 7 survey routes were completed. The regional PCSI was 3.85, resulting in no significant change from 2013 (P = 0.57). **South-Central Prairies:** All 11 routes were completed. The regional PCSI was 5.71, resulting in no significant change from 2013 (P = 0.41)

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. During extended harsh conditions winter can be a bottleneck for some upland game populations. However, in 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 also reflect the previous breeding season success (i.e., production) for the population. Spring crow counts usually do not predict fall populations well, but can indicate breeding population potential.

In the 2013 breeding season Kansas experienced another poor year for reproductive conditions. In many areas winter wheat, an important nesting habitat, was in poor condition and resulted in poor nest success. This was followed by continued drought producing poor brooding conditions for the limited number of birds that were successful in hatching chicks, adding further constraints to recruitment. This was particularly true in the Northern High Plains, and is reflected in 2014 spring crow counts. One positive note after declining several years in a row, the regional index showed slight yet non-significant increases in 2014 in the Flint Hills, the South-Central Prairies, and the Smoky Hills regions

Overall, the spring PCSI in Kansas went from the highest recorded values in 2011 to the lowest recorded value in 2013 and declined again in 2014 (Figure 1). Extreme drought has plagued the primary KS pheasant range over the last three years causing severe declines in pheasant numbers. Estimated harvest over this timeframe shows similar trends. With current population levels it will likely take multiple breeding seasons to rebuild the population. Optimal breeding conditions for pheasants are near average precipitation and temperatures, while extreme climatic events such as flooding, hail, or drought generally cause declines. Drought events are part of western Kansas' historical climate, and will likely happen in the future, causing natural fluctuations in pheasant populations through time. Managing for good habitat structure, such as through properly managed Conservation Reserve Program (CRP) cover, is the best tool that wildlife managers and wildlife enthusiasts have for long-term population management.

Most areas in Kansas still support viable populations of pheasants. Late summer rains in 2013 across much of the state improved conditions coming into 2014, however winter and early spring precipitation was spotty through the primary pheasant range creating nesting conditions that are more likely to produce localized improvements rather than wide spread recoveries. Late spring rains have improved brooding cover but conditions yet remaining to be seen from late-June, through August will dictate survival. Fall pheasant populations are highly dependent on production and recruitment of young of the year. Because pheasant have high reproductive output they can rebound relatively rapidly, given good reproductive conditions. However, due to low breeding populations and, numbers will likely be limited this coming fall, even with good conditions the remainder of the summer. Brood survey data will be collected in late July and August, and summarized in early September. Predicting the fall population will be much more accurate once these data are known.

Table 1. Regional changes in pheasant crow counts in Kansas, 2013-2014.

Flint Hills

Route	2013 C/S	2014 C/S	% Δ
Butler-Marion	1.09	1.00	-8
Cowley-Sumner	6.18	8.73	41
Dickinson-Clay	4.36	10.36	138
McPherson-Marion	1.9	2.09	10
Morris	0.73	1.00	37
Riley	3.18	2.45	-23
Wabaunsee	0.09	0.09	1
Region Mean	**2.51**	**3.68**	**47**

Glaciated Plains

Route	2013 C/S	2014 C/S	% Δ
Brown-Nemaha**	1.36	1.18	-13
Jackson-Jefferson**	1.9	0.82	-57
Marshall	3.27	1.27	-61
Perry WA**	0.67	3.73	456
Shawnee	0.18	0.30	67
Tuttle Creek WA	4.73	3.00	-37
Region Mean	**2.73**	**2.34**	**-14**

Northern High Plains

Route	2013 C/S	2014 C/S	% Δ
Gove NE**	16.64	7.55	-55
Gove SW**	2.56	4.50	76
Gove-Logan**	10.73	6.45	-40
Graham**	23.91	10.64	-56
Logan	20.56	7.22	-65
Logan SE	4.36	1.45	-67
Norton	13.27	12.73	-4
Rawlins-Thomas	16	9.91	-38
Scott**	4.73	2.64	-44
Sheridan	30.55	10.27	-66
Sherman	19.1	5.91	-69
Thomas	7.73	8.18	6
Wichita-Greeley**	2.45	1.27	-48
Region Mean	**15.94**	**7.95**	**-50***

Southern High Plains

Route	2013 C/S	2014 C/S	% Δ
Finney	4.8	3.40	-29
Ford	17.13	9.38	-45
Gray**	2.73	4.91	80
Kearny-Hamilton	1.78	0.40	-78
Morton-Stanton	0.73	0.36	-50
Seward-Haskell	4.82	3.55	-26
Stevens	3.7	6.00	62
Region Mean	**5.49**	**3.85**	**-30**

Smoky Hills

Route	2013 C/S	2014 C/S	% Δ
Barton	9.27	12.64	36
Cloud**	1.1	3.40	209
Ellis	9.45	6.36	-33
Ellsworth	1.09	2.60	139
Hodgeman	9.36	8.00	-15
Lincoln	3.18	2.27	-29
McPherson	5.8	6.45	11
Mitchell	7.8	13.40	72
Ness-Lane	1.45	1.56	7
Osborne	6.64	12.73	92
Ottawa**	5	8.64	73
Phillips**	5.73	3.27	-43
Republic	11	14.27	30
Rice	6.82	7.36	8
Rooks	10.09	5.36	-47
Rush**	4.64	NA	NA
Smith	4.09	9.82	140
Trego	2.55	2.45	-4
Washington**	6.91	3.91	-43
Wilson WA	3	7.27	142
Region Mean	**6.11**	**7.50**	**23**

South-Central Prairies

Route	2013 C/S	2014 C/S	% Δ
Clark	1.73	1.09	-37
Comanche	0.73	0.36	-50
Edwards	5.18	3.45	-33
Harper	0.4	3.00	650
Kingman-Reno	6.64	6.27	-6
Pawnee	2.67	6.90	158
Pawnee (Irrig.)	7.5	9.91	32
Pratt	1.36	5.80	326
Reno	13.73	13.00	-5
Sedgwick-Harvey	1.45	1.09	-25
Stafford-Barton	4.64	11.89	156
Region Mean	**4.18**	**5.71**	**37**
Statewide	**6.28**	**5.85**	**-7**

*Note: C/S = Mean Crows per Station; % Δ = percent change; * = significant regional change (P ≤ 0.10)*

**Route not included in regional or state means, info. is presented for descriptive purposes only

Osage Cuestas region is only surveyed biennially thus info is excluded from inter-annual comparison

Table 2. Pheasant crow survey routes and observers in Kansas, 2014.

Route	Observer	Route	Observer
Barton	Gene Schneweis	Ness-Lane	Randy Rodgers
Brown-Nemaha	Tyler Warner~	Norton	Blake Klema
Butler-Marion	Charles Cope	Osage	Matt Peek
Clark	Jon Zuercher	Osborne	Toby Marlier
Cloud	Luke Kramer~	Ottawa	Matt Smith~
Coffey	Robert Culbertson	Pawnee	Charlie Swank
Comanche	Matt Hanvey	Pawnee (Irrig)	Tom Bidrowski
Cowley-Sumner	Kurt Grimm	Perry WA	Andrew Page~
Dickinson-Clay	Clint Thornton	Phillips	Brad Odle~
Edwards	Matt Stucker	Pratt	Charlie Swank
Ellis	Mike Nyhoff	Rawlins-Thomas	Wes Sowards
Ellsworth	Matt Smith	Reno	Steve Adams
Finney	Daryl Fisher	Republic	Rob Unruh
Ford	Aaron Baugh	Rice	Steven Adams
Gove NE	Megan Rohweder~	Riley	Corey Alderson
Gove SW	Jason Wagner~	Rooks	Michael Zajic
Gove-Logan	Jeff Prendergast~	Rush	Brian Hanzlick
Graham	Alex Lyon~	Scott	Brent Clark~
Gray	Jake Danner~	Sedgwick-Harvey	Charles Cope
Harper	Chris Stout	Seward-Haskell	Jeff Sutton
Hodgeman	Aaron Baugh	Shawnee	Brad Rueschhoff
Jackson-Jefferson	Tyler Warner~	Sheridan	Kurt Meier
Kearny-Hamilton	Brent Clark	Sherman	Mike Hopper
Kingman-Reno	Kyle McDonald	Smith	Brad Odle
Lincoln	Viki Cikanek	Stafford-Barton	Charlie Swank
Logan	Wes Sowards	Stevens	Kraig Schultz
Logan SE	Randy Rodgers	Thomas	Kurt Meier
Marshall	James Svaty	Trego	Kent Hensley
McPherson	Brent Theede	Tuttle Creek WA	James Svaty
McPherson-Marion	Jeff Rue	Wabaunsee	Brad Rueschhoff
Mitchell	Chris Lecuyer	Washington	Megan Smith~
Morris	Brent Konen	Wichita-Greeley	Jake Danner~
Morton-Stanton	Kraig Schultz	Wilson WA	Scott Thommason

Note: ~ new observer for route

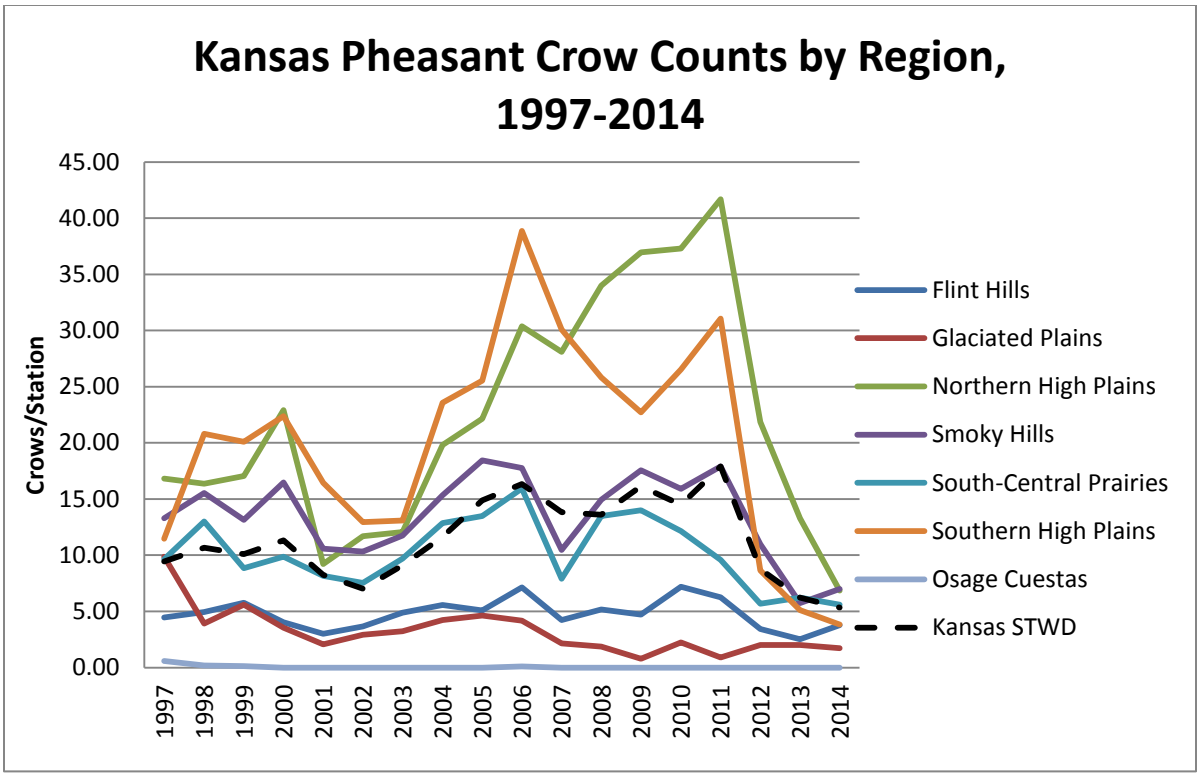

Figure 1. Regional trends for pheasant crow counts in Kansas, 1997-2014.

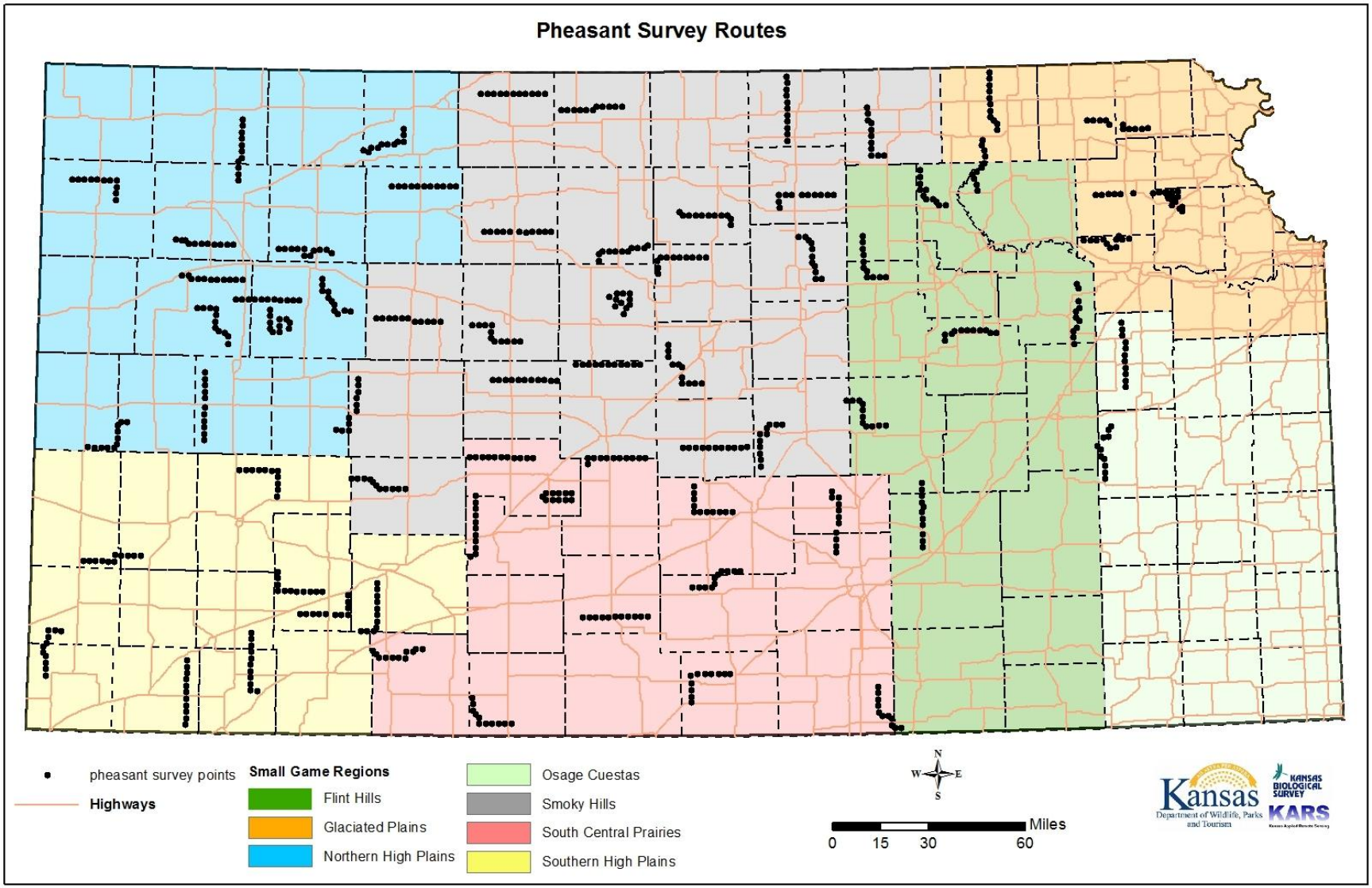

Figure 2. Pheasant crow survey routes and management region boundaries, 2014.

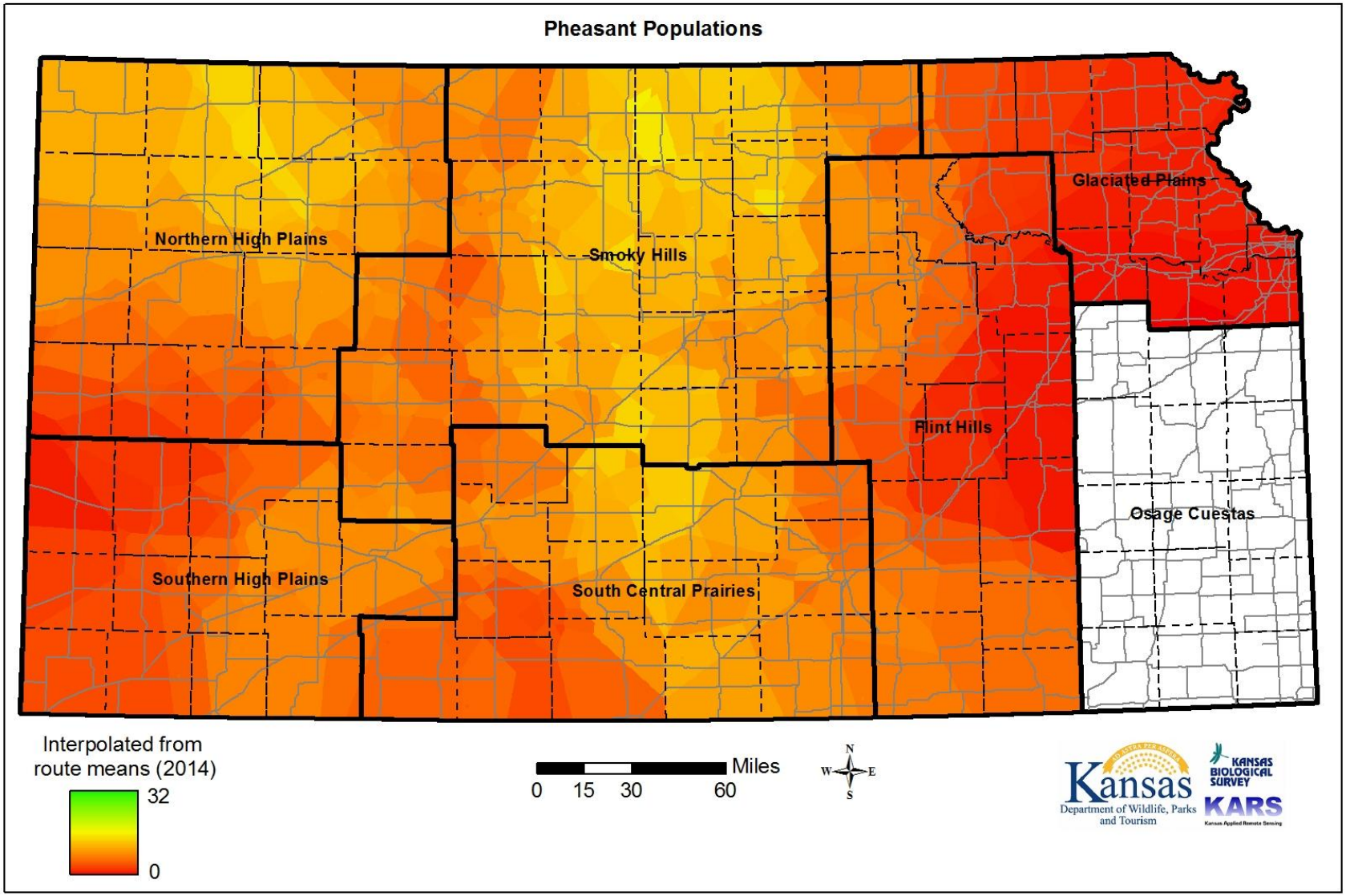

Figure 3. Pheasant breeding population index (crows per station) interpolated from route-specific indices across pheasant range in Kansas, using Krieging technique, 2014.

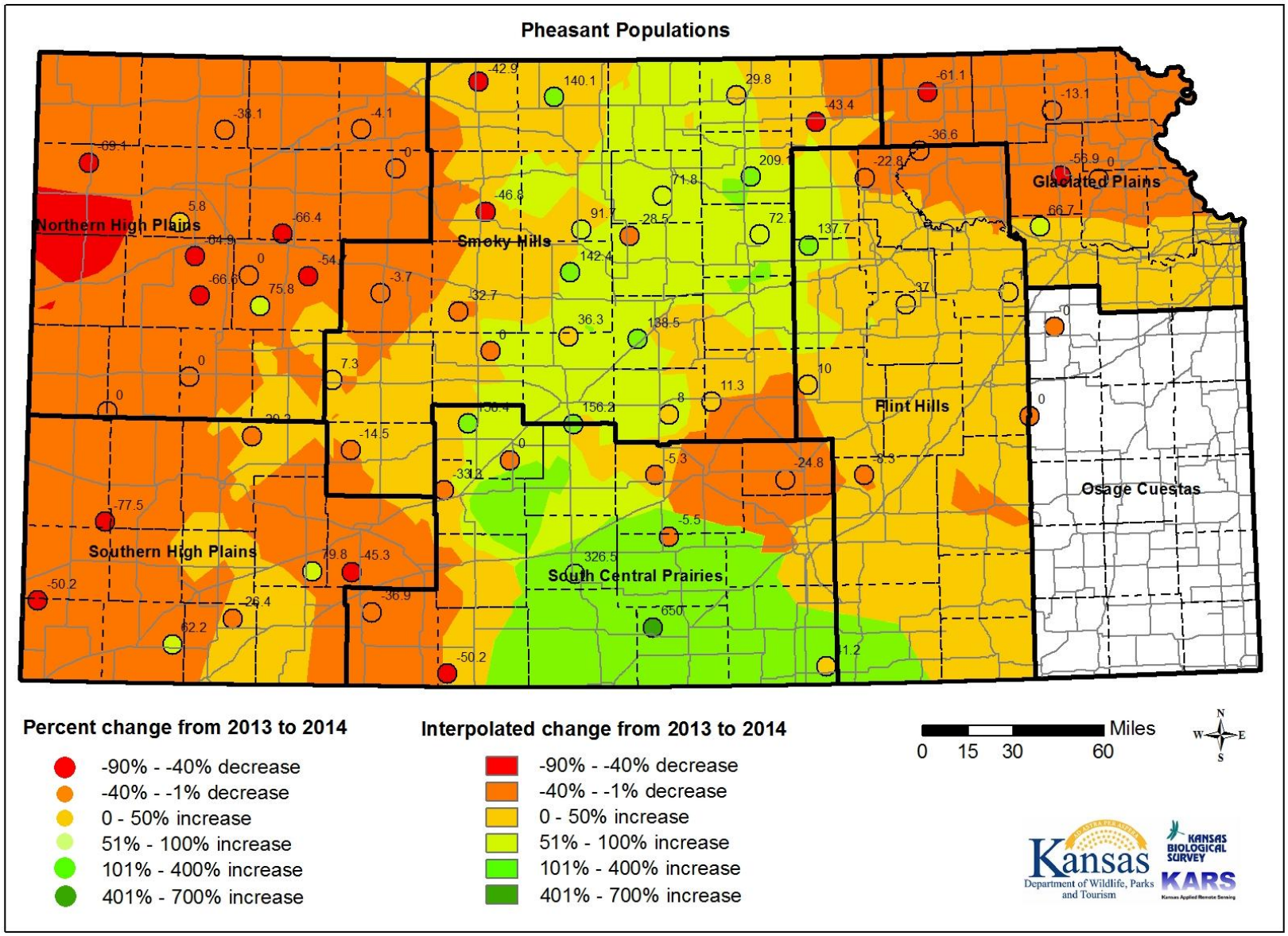

Figure 4. Percent change (2013 to 2014) in pheasant breeding index (crows per station) interpolated across pheasant range in Kansas.