PHEASANT CROWING SURVEY - 2013

PERFORMANCE REPORT
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KANSAS PHEASANT CROWING SURVEY – 2013
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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 forecasts and monitor population change through time.

METHODS

The survey period was from April 25 through May 15. Pheasant routes were 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 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 censored if the observer feels noise is severely inhibiting their ability to count crows.

The results of the 2013 survey and comparisons to the 2012 data are presented in Table 1. All of the 66 established routes were assigned for 2013 (routes in Osage and Coffee counties are run only in even-numbered years) and all 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 reporting purposes summary statistics were used based on 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 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 2012 to 2013 is also included (Figure 4).

RESULTS

Range-wide
The 2013 Pheasant Crowing Survey PCSI was 6.23 crows per station and the comparable routes for the statewide mean decreased 37% from 2012 ($P < 0.01$). Overall, 48 of the 64 comparable (sampled both years) routes decreased. See Table 1 for all route and regional data.

Flint Hills: All of the 7 routes were run. The regional PCSI was 2.51 and the mean decreased 27% from 2012 ($P = 0.57$). **Glaciated Plains:** All 6 routes were run, yielding a PCSI of 2.02, resulting in no change from 2012 ($P = 0.99$). **Northern High Plains:** All 13 routes were run.

The regional PCSI was 13.28, a 39% decrease from 2012 ($P < 0.05$). **Smoky Hills:** All 20 routes were run, and the regional PCSI was 5.75, a 48% decrease from 2012 (P = 0.001). **Southern High Plains:** All 7 survey routes were successfully run this spring yielding a regional PCSI of 5.10, a 41% decrease from 2012 (P = 0.32). **South-Central Prairies:** All 11 routes were run yielding a PCSI of 4.18, a 37% decline from 2012 (P = 0.40).

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. 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 2012 breeding season Kansas experienced another poor year for reproductive conditions. In many areas winter wheat, an important nesting habitat, did not develop and/or was harvested very early, and resulted in poor nest success. This was particularly true in south-west and north-western Kansas, and is reflected in 2013 spring crow counts. The only positive outcome was in northeastern Kansas (Glaciated Plains), where the region index increased in 2012 and stayed the same in 2013.

Overall, spring pheasant populations in western Kansas went from near all-time highs in 2011 to considerable declines in 2012 and 2013 and are now at near all time lows (Figure 1). For most areas extreme drought the last two summers has caused severe declines in pheasant numbers. 2012-2013 estimated harvest shows similar trends. It will likely take at least a couple of good breeding seasons to rebuild the population. Optimal breeding conditions for pheasants are near average precipitation amounts and temperatures, and extreme climatic events such as flooding, hail, or drought generally cause declines. Drought events are part of western Kanas' historical climate, and will likely happen in the future, causing natural fluctuations in pheasant populations through time. Keeping good habitat intact, such as Conservation Reserve Program (CRP) cover, is the best practice that wildlife enthusiasts can manage to conserve populations in the long term.

Many areas in Kansas still support viable populations of pheasants. Breeding conditions in 2013 seem to have more potential for helping pheasants rebound in western Kansas. Wheat development was much later due to a much cooler spring, which will result in a late harvest giving pheasant broods time to hatch and move out of wheat fields. Brooding conditions in late-June, July, and August are yet to be seen. 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 numbers may 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, 2012-2013.

Flint Hills

Route	2012 C/S	2013 C/S	% Δ
Butler-Marion	1.45	1.09	-25
Cowley-Sumner	6.00	6.18	3
Dickinson-Clay	9.90	4.36	-56
McPherson-Marion	3.60	1.90	-47
Morris	0.82	0.73	-11
Riley	2.00	3.18	59
Wabaunsee	0.18	0.09	-50
Region Mean	**3.42**	**2.51**	**-27**

Glaciated Plains

Route	2012 C/S	2013 C/S	% Δ
Brown-Nemaha	1.00	1.36	36
Jackson-Jefferson	1.09	1.90	74
Marshall	5.00	3.27	-35
Perry WA	1.91	0.67	-65
Shawnee	0.45	0.18	-60
Tuttle Creek WA	2.64	4.73	79
Region Mean	**2.02**	**2.02**	**0**

Northern High Plains

Route	2012 C/S	2013 C/S	% Δ
Gove NE	17.82	16.64	-7
Gove SW	22.22	2.56	-89
Gove-Logan	25.62	10.73	-58
Graham	40.55	23.91	-41
Logan	34.78	20.56	-41
Logan SE	6.60	4.36	-34
Norton	30.55	13.27	-57
Rawlins-Thomas	22.00	16.00	-27
Scott	10.09	4.73	-53
Sheridan	23.10	30.55	32
Sherman	NA	19.10	NA
Thomas	27.50	7.73	-72
Wichita-Greeley	1.45	2.45	69
Region Mean	**21.86**	**13.28**	**-39***

Southern High Plains

Route	2012 C/S	2013 C/S	% Δ
Finney	12.70	4.80	-62
Ford	22.00	17.13	-22
Gray	9.50	2.73	-71
Kearny-Hamilton	3.18	1.78	-44
Morton-Stanton	0.91	0.73	-20
Seward-Haskell	6.00	4.82	-20
Stevens	6.22	3.70	-41
Region Mean	**8.64**	**5.1**	**-41**

Smoky Hills

Route	2012 C/S	2013 C/S	% Δ
Barton	13.09	9.27	-29
Cloud	3.20	1.10	-66
Ellis	20.00	9.45	-53
Ellsworth	3.55	1.09	-69
Hodgeman	14.82	9.36	-37
Lincoln	8.18	3.18	-61
McPherson	5.60	5.80	4
Mitchell	6.73	7.80	16
Ness-Lane	3.82	1.45	-62
Osborne	14.36	6.64	-54
Ottawa	11.89	5.00	-58
Phillips	14.80	5.73	-61
Republic	15.50	11.00	-29
Rice	7.18	6.82	-5
Rooks	10.09	10.09	0
Rush	25.95	4.64	-82
Smith	10.55	4.09	-61
Trego	14.82	2.55	-83
Washington	8.64	6.91	-20
Wilson WA	6.91	3.00	-57
Region Mean	**10.98**	**5.75**	**-48***

South-Central Prairies

Route	2012 C/S	2013 C/S	% Δ
Clark	4.45	1.73	-61
Comanche	0.64	0.73	14
Edwards	6.36	5.18	-19
Harper	NA	0.40	NA
Kingman-Reno	4.91	6.64	35
Pawnee	13.40	2.67	-80
Pawnee (Irrig.)	6.82	7.50	10
Pratt	1.64	1.36	-17
Reno	6.91	13.73	99
Sedgwick-Harvey	1.90	1.45	-23
Stafford-Barton	9.88	4.64	-53
Region Mean	**5.69**	**4.18**	**-27***
Statewide	**9.93**	**6.23**	**-37***

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

Table 2. KDWPT personnel assigned to pheasant crow routes, 2013.

Flint Hills

	Name	Route
Charles	Cope	Butler-Marion
Kurt	Grimm	Cowley-Sumner
Clint	Thornton	Dickinson-Clay
Jeff	Rue~	McPherson-Marion
Brent	Konen	Morris
Corey	Alderson	Riley
Brad	Rueschhoff	Wabaunsee

Glaciated Plains

Megan	Smith~	Brown-Nemaha
Brad	Rueschhoff~	Jackson-Jefferson
James	Svaty	Marshall
Brad	Rueschhoff	Shawnee
James	Svaty	Tuttle Creek WA
Justin	Anderson	Perry WA

Northern High Plains

Mark	Witecha~	Gove NE
David	Dahlgren	Gove SW
David	Dahlgren	Gove-Logan
Marc	Gray	Graham
Wes	Sowards~	Logan
Randy	Rodgers	Logan SE
Blake	Klema~	Norton
Wes	Sowards~	Rawlins-Thomas
Michele	Witecha~	Scott
Kurt	Meier~	Sheridan
Mike	Hopper	Sherman
Kurt	Meier	Thomas
John	Heistand~	Wichita-Greeley

Southern High Plains

Daryl	Fisher	Finney
Aaron	Baugh	Ford
Aaron	Baugh~	Gray
Michele	Witecha~	Kearny-Hamilton
Kraig	Schultz	Morton-Stanton
Kraig	Schultz~	Seward-Haskell
Robert	Watson~	Stevens

Smokey Hills

	Name	Route
Gene	Schneweis	Barton
Aaron	Deters	Cloud
Mike	Nyhoff	Ellis
Matt	Smith	Ellsworth
Aaron	Baugh	Hodgeman
Victoria	Cikanek~	Lincoln
Brent	Theede	McPherson
Chris	Lecuyer	Mitchell
Randy	Rodgers	Ness-Lane
Toby	Marlier	Osborne
Pat	Riese	Ottawa
Marc	Gray	Phillips
Rob	Unruh	Republic
Steven	Adams	Rice
Michael	Zajic	Rooks
Brian	Hanzlick	Rush
Brad	Odle	Smith
Kent	Hensley	Trego
Clint	Thornton	Washington
Scott	Thommason	Wilson WA

South-Central Prairies

Jon	Zuercher	Clark
Matt	Hanvey	Comanche
Matt	Stucker	Edwards
Chris	Stout	Harper**
Kyle	McDonald	Kingman-Reno
Charlie	Swank	Pawnee
Tom	Bidrowski	Pawnee (Irrig)
Charlie	Swank~	Pratt
Steve	Adams~	Reno
Charlie	Cope	Sedgwick-Harvey
Charlie	Swank	Stafford-Barton

Note: ~New observer; *New route for 2013; **Route not completed; Osage and Coffee only run on even years

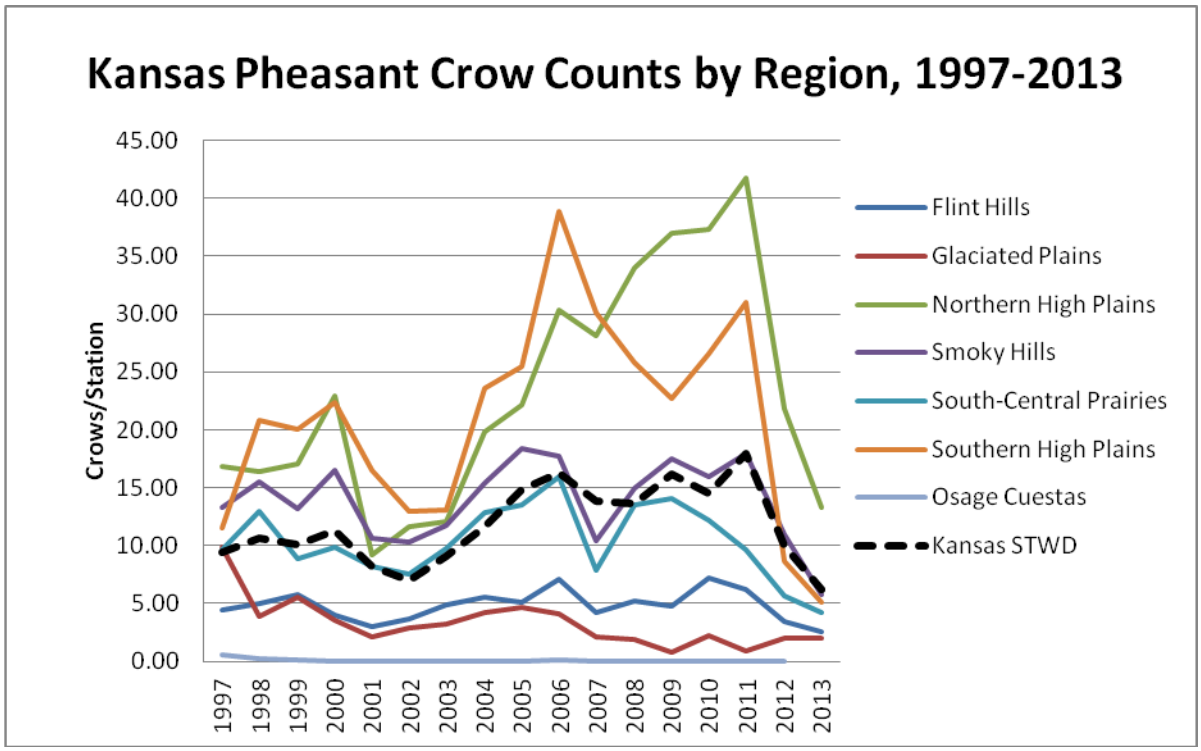

Figure 1. Regional (see Figure 2 for region boundaries) trends for pheasant crow counts in Kansas, 1997-2013.

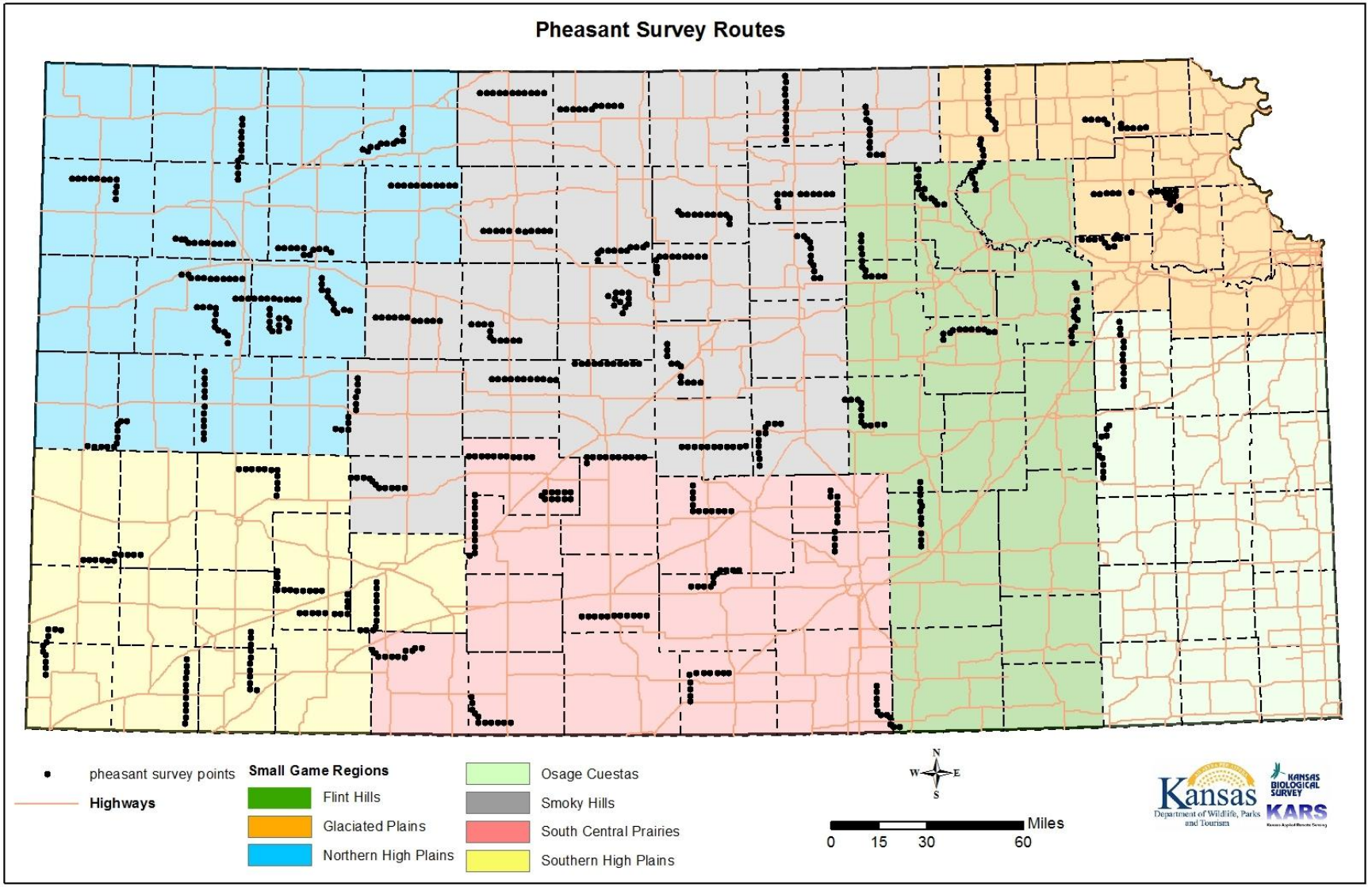

Figure 2. Pheasant crow routes distributed among regions in Kansas, 2013.

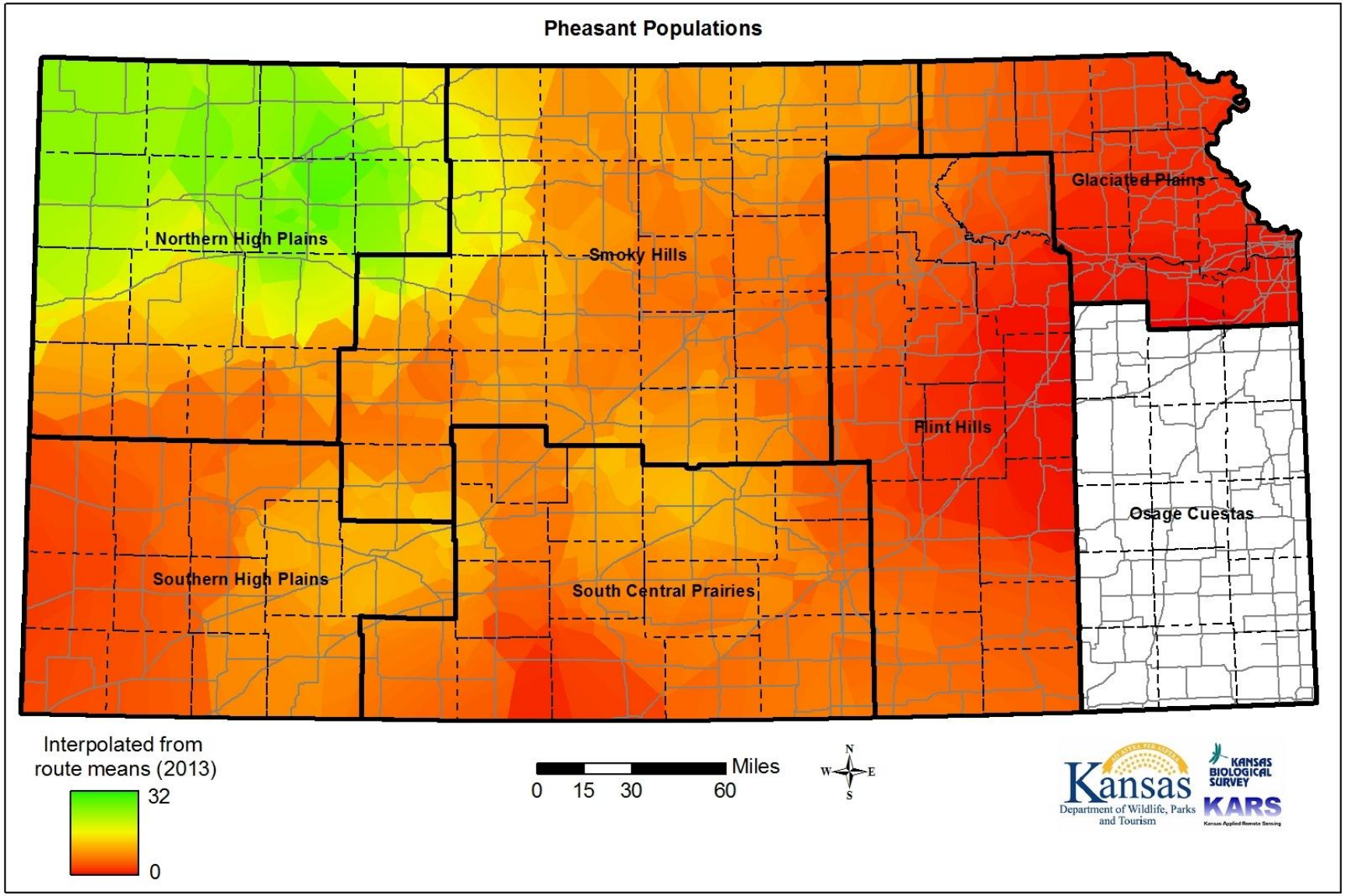

Figure 3. Pheasant breeding population index (crows per station) interpolated from route-specific indices across pheasant range in Kansas, using Krieging technique, 2013.

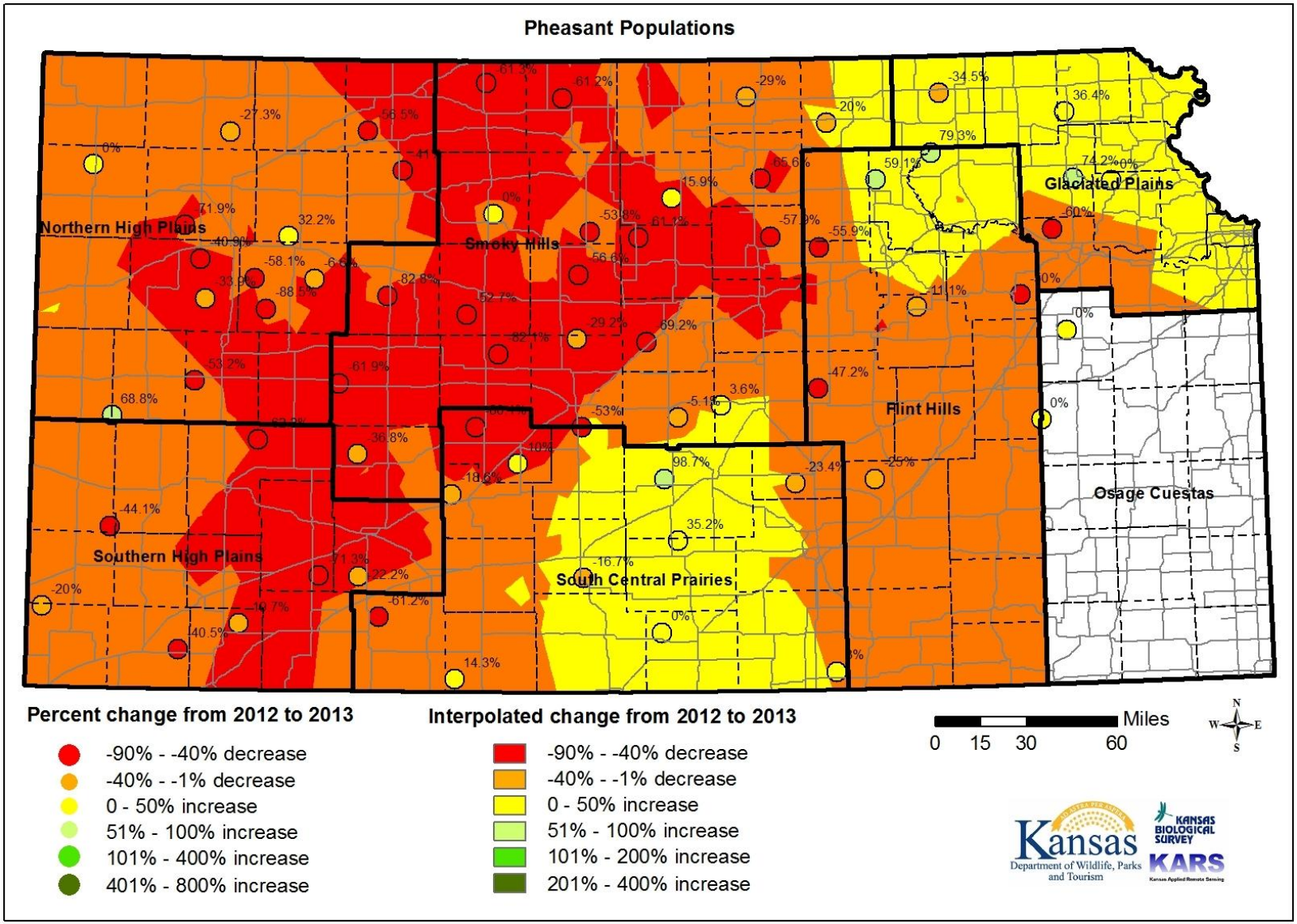

Figure 4. Percent change (2012 to 2013) in pheasant breeding index (crows per station) interpolated across pheasant range in Kansas, 2013.