PHEASANT CROWING SURVEY - 2012

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KANSAS PHEASANT CROWING SURVEY – 2012
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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 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 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 2012 survey and comparisons to the 2011 data are presented in Table 1. All of the 66 established routes were assigned for 2012 (routes in Osage and Coffee counties are run only in even-numbered years) and 64 of 66 routes were successfully run. Personnel assigned these surveys are noted in Table 2. Two new routes were added this year in the Glaciated Plains Region. 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 2011 to 2012 is also included (Figure 4).

RESULTS

Range-wide
The 2012 Pheasant Crowing Survey PCSI was 9.93 crows per station and the comparable routes for the statewide mean decreased 52% from 2011 ($P < 0.01$). Overall, 48 of the 60 comparable (sampled both years) routes decreased. See Table 1 for all route and regional data.

Osage Cuestas: Both routes were run, and no pheasants were detected within this region. **Flint Hills:** All of the 7 routes were run. The regional PCSI was 3.42 and the mean decreased 45% from 2011 ($P = 0.33$). **Glaciated Plains:** All 6 routes were run, yielding a PCSI of 2.02, a 122% increase from 2011 ($P = 0.17$). **Northern High Plains:** Twelve of the 13 routes were run. The regional PCSI was 21.86, a 48% decrease from 2011 ($P < 0.01$). **Smoky Hills:** All 20 routes were run, and the regional PCSI was 10.98, a 39% decrease from 2011 (P = 0.01). **Southern High Plains:** All 7 survey routes were successfully run this spring yielding a regional PCSI of 8.64, a 72% decrease from 2011 (P = 0.07). **South-Central Prairies:** Ten of the 11 routes were run yielding a PCSI of 5.69, a 41% decline from 2011 (P = 0.28).

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 represent breeding population potential.

In the 2011 breeding season Kansas experienced poor reproductive conditions. In many areas winter wheat, an important nesting habitat, did not develop along with general grass growth which resulted in poor nest success. This was particularly true in south-west and south-central Kansas, and is reflected in 2012 spring crow counts. Areas in northwestern and north-central Kansas fared better, but still experienced sharp declines. The only positive outcome was in northeastern Kansas (Glaciated Plains), where the region index increased from 2011 to 2012.

Overall, spring pheasant populations in western Kansas went from near all-time highs in 2011 to considerable declines in 2012, and an all-time low for southwestern Kansas (Southern High Plains; Figure 1). For areas where extreme drought occurred last summer 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' historic 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 have maintained hunt-able populations of pheasants. Northwestern Kansas retained the highest densities of breeding pheasants relative to other areas in Kansas (Figure 3). This area had significant declines compared to 2011, but still contains a viable population of pheasants (Figures 1 and 3), and has the most potential to produce a healthy fall population this year compared to other regions. North-central Kansas also has potential to produce a decent fall population. Southwestern Kansas had the most significant declines

(Figure 4), and will likely take longer to rebound. Even in a down year hunters harvested nearly half a million roosters in Kansas during the 2011-2012 season (Kansas Small Game Harvest Survey 2011). Breeding conditions in 2012 look much better than 2011, and they are likely going to produce more chicks per hen than last year. However, conditions may not be optimal, and with less adult hens in the population it could be just an average reproductive season for Kansas' pheasant population. Brood survey data will be collected in late July and August, and summarized in early September. Predicting the fall population will be much more precise once these data are known.

Table 1. Regional changes in pheasant crow counts in Kansas 2011 to 2012.

Flint Hills			
Route	2011 C/S	2012 C/S	% Δ
Butler-Marion	1.27	1.45	14
Cowley-Sumner	13.00	6.00	-54
Dickinson-Clay	15.18	9.90	-35
McPherson-Marion	10.40	3.60	-65
Morris	0.73	0.82	13
Riley	2.82	2.00	-29
Wabaunsee	0.27	0.18	-33
Region Mean	**6.24**	**3.42**	**-45**

Glaciated Plains			
Route	2011 C/S	2012 C/S	% Δ
Brown-Nemaha	0.91	1.00	10
Jackson-Jefferson	0.64	1.09	71
Perry WA	NA	1.91	NA
Marshall	1.55	5.00	224
Shawnee	0.55	0.45	-17
Tuttle Creek WA	NA	2.64	NA
Region Mean	**0.91**	**2.02**	**122**

Northern High Plains			
Route	2011 C/S	2012 C/S	% Δ
Gove NE	46.82	17.82	-62
Gove SW	39.40	22.22	-44
Gove-Logan	54.25	25.62	-53
Graham	73.18	40.55	-45
Logan	46.18	34.78	-25
Logan SE	17.22	6.60	-62
Norton	43.73	30.55	-30
Rawlins-Thomas	24.00	22.00	-8
Scott	20.36	10.09	-50
Sheridan	73.13	23.10	-68
Sherman	38.91	NA	NA
Thomas	60.33	27.50	-54
Wichita-Greeley	4.55	1.45	-68
Region Mean	**41.70**	**21.86**	***-48****

Southern High Plains			
Route	2011 C/S	2012 C/S	% Δ
Finney	32.00	12.70	-60
Ford	45.10	22.00	-51
Gray	82.82	9.50	-89
Kearny-Hamilton	17.91	3.18	-82
Morton-Stanton	8.00	0.91	-89
Seward-Haskell	4.64	6.00	29
Stevens	27.00	6.22	-77
Region Mean	**31.07**	**8.64**	***-72****

Smoky Hills			
Route	2011 C/S	2012 C/S	% Δ
Barton	22.73	13.09	-42
Cloud	10.29	3.20	-69
Ellis	29.73	20.00	-33
Ellsworth	3.82	3.55	-7
Hodgeman	39.18	14.82	-62
Lincoln	9.27	8.18	-12
McPherson	12.18	5.60	-54
Mitchell	12.27	6.73	-45
Ness-Lane	35.10	3.82	-89
Osborne	23.82	14.36	-40
Ottawa	19.91	11.89	-40
Phillips	10.27	14.80	44
Republic	13.00	15.50	19
Rice	10.18	7.18	-29
Rooks	21.82	10.09	-54
Rush	24.27	25.95	7
Smith	11.00	10.55	-4
Trego	28.64	14.82	-48
Washington	9.82	8.64	-12
Wilson WA	10.55	6.91	-34
Region Mean	**17.89**	**10.98**	***-39****

South-Central Prairies			
Route	2011 C/S	2012 C/S	% Δ
Clark	12.91	4.45	-65
Comanche	4.20	0.64	-85
Edwards	9.45	6.36	-33
Harper	4.36	NA	NA
Kingman-Reno	3.82	4.91	29
Pawnee	39.55	13.40	-66
Pawnee (Irrig.)	14.18	6.82	-52
Pratt	8.75	1.64	-81
Reno	0.73	6.91	850
Sedgwick-Harvey	2.36	1.90	-20
Stafford-Barton	5.27	9.88	87
Region Mean	**9.60**	**5.69**	**-41**

Statewide	**20.49**	**9.93**	***-52****

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

Table 2. KDWPT personnel assigned to pheasant crow routes, 2012.

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		
Randy	Whiteaker	Brown-Nemaha
Randy	Whiteaker	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
Matt	Bain	Logan
Randy	Rodgers	Logan SE
Blake	Klema~	Norton
Matt	Bain	Rawlins-Thomas
Justin	Hamilton	Scott
Josh	Williams	Sheridan
Mike	Hopper	Sherman**
Josh	Williams	Thomas
Daryl	Fisher	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
Matt	Smith~	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)
Chris	Berens	Pratt
AJ	Meyer	Reno
Charlie	Cope	Sedgwick-Harvey
Charlie	Swank	Stafford-Barton

Osage Cuestas		
Robert	Culbertson	Coffee
Matt	Peek	Osage

Note: ~New observer; *New route for 2012; **Route not completed; Osage and Coffee only run on even years

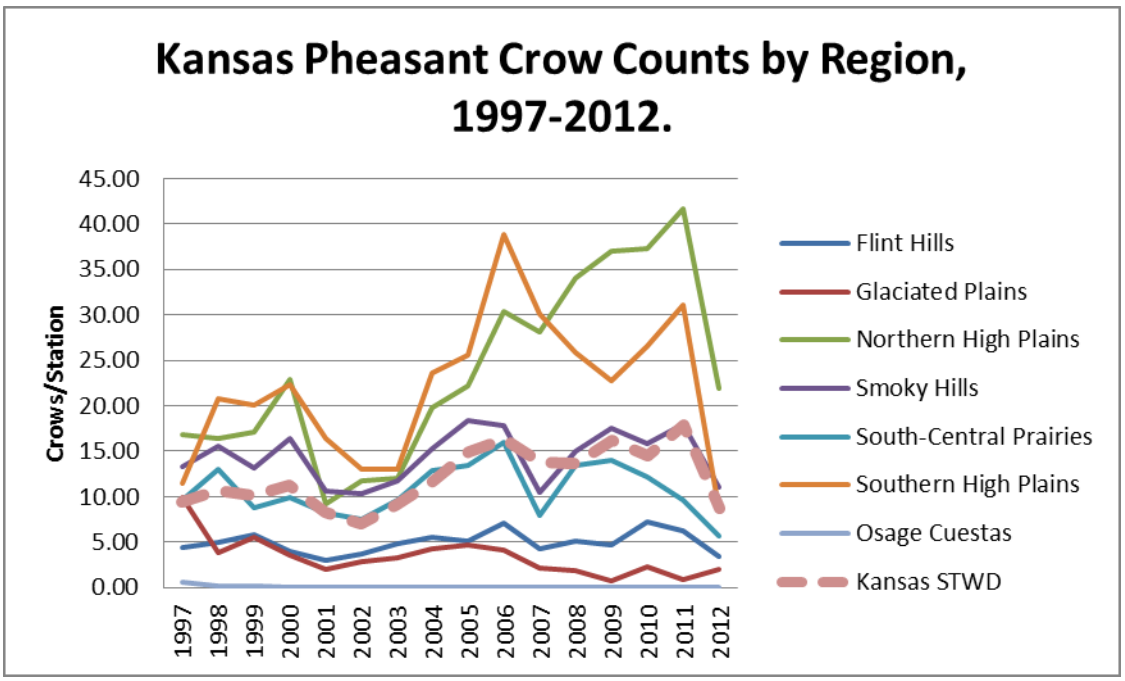

Figure 1. Regional (see Figure 2 for region boundaries) trends for pheasant crow counts in Kansas, 1997-2012.

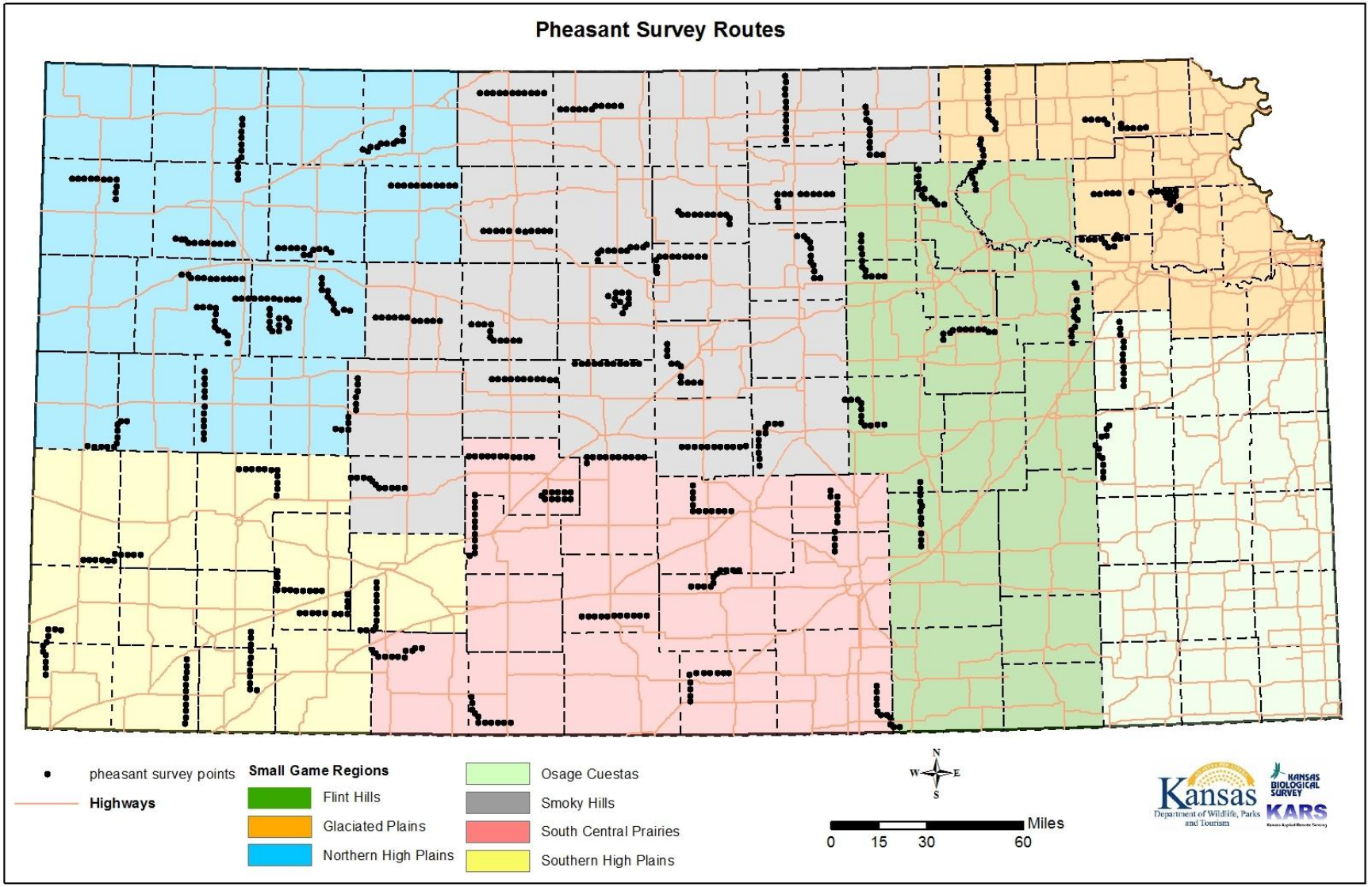

Figure 2. Pheasant crow routes distributed among regions in Kansas, 2012.

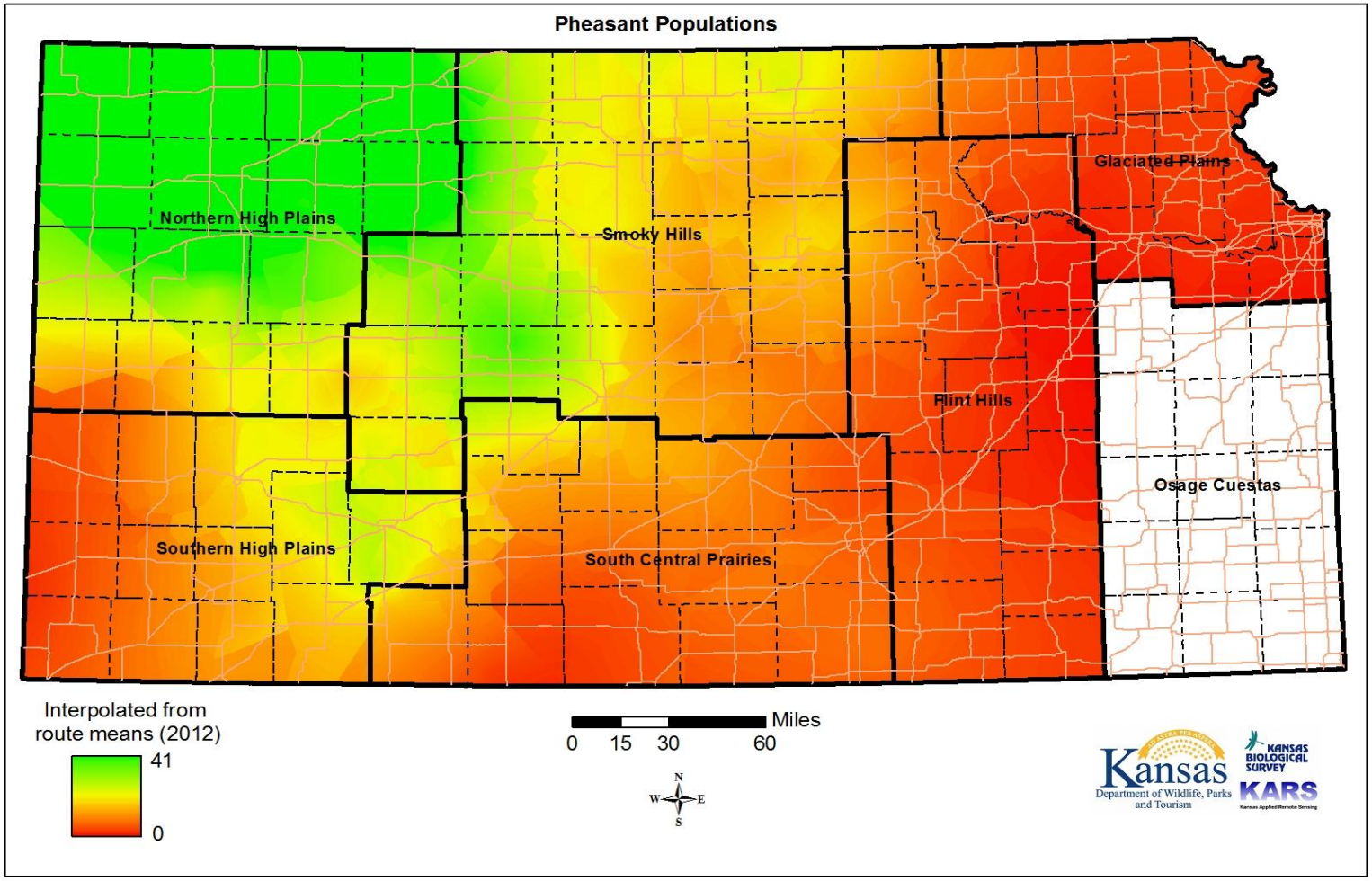

Figure 3. Pheasant breeding population index (crows per station) interpolated from route-specific indices across pheasant range in Kansas, using Krieging technique, 2012.

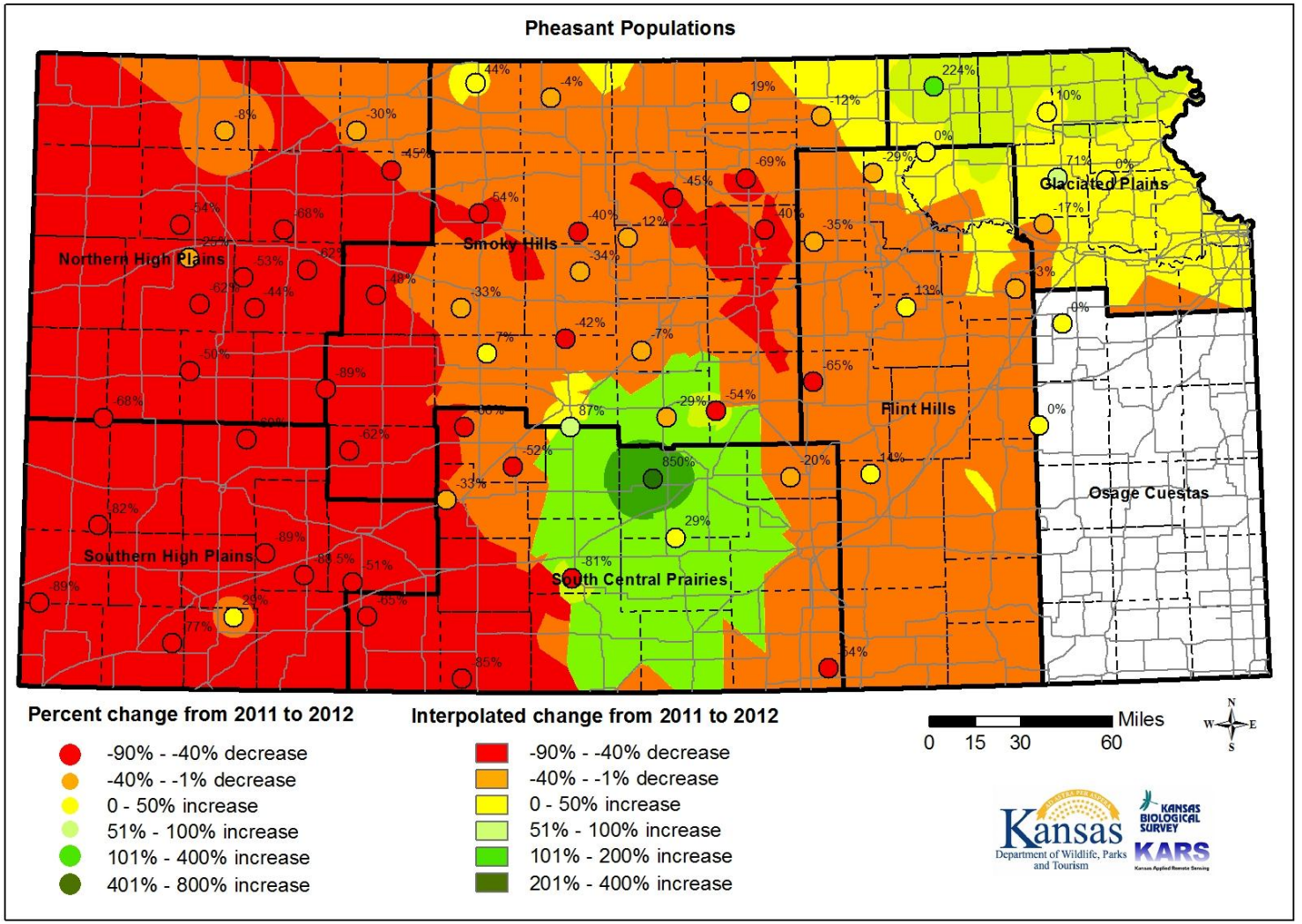

Figure 4. Percent change (2011 to 2012) in pheasant breeding index (crows per station) interpolated across pheasant range in Kansas, 2012.