

# ***Rural Mail Carrier Survey Report***

**2012**

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

**Grant W-39-19**

**Kansas Department of Wildlife, Parks, & Tourism**

**Robin Jennison  
Secretary**

**Prepared by**

**Jim Pitman  
Small Game Coordinator**

**Joe Kramer, Director  
Fisheries and Wildlife  
Division**

**Mike Mitchener, Chief  
Wildlife Section**

**February 2013**



## **PERMISSION TO QUOTE**

**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 and Parks, 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**

## INTRODUCTION AND METHODS

The rural mail carrier survey (RMCS) was initiated in Kansas in 1962. In that first year, mail carriers were asked to record their observations of wildlife along their normal daily routes for 5 consecutive days during the third week of July (Summer). The following year the mail carriers were also asked to record observations during the 3<sup>rd</sup> weeks of January (Winter) and April (Spring). In 1966, a fourth survey period was added during the 2<sup>nd</sup> week of October (Fall). Since 1966, volunteer mail carriers from across the state have made observations during each of those 4 survey periods. In addition to recording wildlife observations the mail carriers also report their total mileage during each survey period and the primary county they traveled. The list of recorded wildlife species differs during each survey period. The species recorded during the summer RMCS includes ring-necked pheasants (cocks, hens, young, and uncertain), northern bobwhites (adults, young, and uncertain), wild turkeys (adult and young), prairie chickens, and eastern cottontails. The species recorded during the spring and winter surveys include: ring-necked pheasants (cocks, hens, and uncertain), northern bobwhites, prairie chickens, eastern cottontails, jack rabbits, and wild turkeys. During the fall survey period, mail carriers record the total number of ring-necked pheasants, northern bobwhites, prairie chickens, eastern cottontails, jack rabbits, wild turkeys, and tree squirrels (fox and gray squirrels).

The collected information is used to develop standardized statewide and regional indices for each species. The index for each species is calculated as the average number of individuals observed for each 100 miles traveled. Data from the spring, summer, and winter surveys are used to develop sex ratios (Male:Female) for ring-necked pheasants. Additionally, the information collected during the summer survey period is used to develop production indices for ring-necked pheasants (Young:Hen), northern bobwhites (Young:Adult), and wild turkeys (Young:Adult). These indices are also calculated within each of our wild turkey and small game management regions (Figure 1). A t-test is used to draw statistical comparisons between indices. Simple linear regression is used to determine if there is a statistically significant trend for each species-season combination over the previous 10-year period.

## RESULTS AND DISCUSSION

The vast majority of the seasonal statewide indices were not significantly different from the previous year (Table 1). The statewide indices to production were above average for wild turkey and bobwhites due to favorable weather conditions for nesting in the eastern half of the state where most of their populations occur (Figure 2). Ring-necked pheasant production was below average due to two excessively dry years across most of their range that negatively impacted nest concealment and forage production. The on-going drought has affected the entire state of Kansas but it has had differing impacts on game bird production across the state. The eastern half of the state typically gets too much precipitation during the spring and early summer which negatively impacts nest and brood survival. Thus, typical drought conditions are usually beneficial to game bird productivity in that portion of the state. Average precipitation in the far

western part of the state is usually nearly ideal for game bird production. Drought conditions in that region negatively impact productivity because vegetative cover and insect abundance become insufficient for nest concealment and efficient foraging.

On a statewide scale, the RMCS survey indicates that small game populations in Kansas have generally been stable over the last decade (Table 1). However, *it is necessary to analyze additional data from other departmental surveys to better understand changes in abundance of these species over time.*

*Ring-necked pheasants* – The spring RMCS indices to the 2012 pheasant breeding population were not significantly different from the previous year within any region of the state (Table 2). Production was generally very poor during summer of 2011 but winter weather was fairly mild throughout the bulk of Kansas' pheasant range. Good overwinter survival could have offset some of the poor production which could be the reason why spring population indices did not differ significantly from the previous year. Carriers again reported seeing more cocks than hens during the winter and spring survey periods (Figure 3). This indicates that plenty of roosters were available to copulate with hens following the fall hunting season. The summer ratio of cocks:hens was less than the other two seasonal indices and is likely due to the fact that many hens were not easily observable during the summer survey period because they were incubating nests or tending to young. The RMCS production indices for 2012 indicated that production was again below the long-term average in all management regions (Figure 4). Poor production was undoubtedly due to severe drought throughout central and southwestern Kansas and a couple of excessive rain events that fell up on portions of northcentral Kansas during the peak of breeding. There were very few places within the pheasant ranges where conditions were good for production during 2012 and the few spots where conditions were at least fair were generally in NW Kansas. The pheasant population appears to be fairly stable in most regions of the state over the last 10-year period with the exception of the South Central Prairies region where trends for 2 of the 4 season indices indicate a significant decline (Table 2).

*Northern bobwhites* – The spring indices showed no significant differences in the number of breeding bobwhites in any management region (Table 3). The RMCS production indices for 2012 indicated that bobwhite productivity was above average in all regions except the Southern High Plains, Northern High Plains, and Smoky Hills (Figure 5). Bobwhites breed later into the summer than do pheasants or prairie chickens and they are also much more prolific which makes it easier for them to take advantage of improved weather conditions if they occur after the normal peak of their reproductive season. Conditions were generally good for productivity in the eastern 1/2 of the state throughout the summer of 2012. Over the last 10-year period bobwhite populations have been relatively stable in all of the management regions except for the Osage Cuestas, Glaciated Plains, and Southern High Plains (Table 3). The 10-year declines in the two eastern management regions are due mostly to slowly degrading habitat availability whereas the 10-year declining trend in the Southern High Plains is due mostly to severe drought that has caused large population dips in just the last couple of years. Bobwhite populations in the Southern High Plains should return to pre-

drought numbers with only a couple of consecutive normal or above normal precipitation years.

Prairie chickens – The mail carriers generally see few prairie chickens during the 4 observation periods. Thus, the reliability of this survey for detecting annual or long-term changes in prairie chicken abundance on a regional scale is probably poor. However, the 10-year season-specific indices show generally stable populations within most of the prairie chicken management regions (Table 4). The exceptions are the Northern High Plains and the Smoky Hills regions where 1 of 4 season indices indicates an increasing population. Additionally, 1 of the 4 seasonal indices in the South Central Prairies region indicates a declining population over the last 10 years. However, to better understand changes in prairie chicken abundance it is necessary to use results from this survey along with results from other annual departmental surveys (e.g. annual prairie chicken lek survey).

Wild turkeys – The spring breeding populations were not significantly different from 2011 within any region of the state (Table 5). Wild turkey production indices in 2012 were above the long-term average in all management regions (Figure 6). However, sample size was low in the far western part of the state where severe drought conditions existed. Thus, the observed indices for those western regions may be misrepresentative of the actual production that occurred. Over the last 10-year period the RMCS generally shows stable to slightly declining populations in the eastern management regions and stable to slightly increasing numbers in the central and western regions (Table 5).

Rabbits – Both eastern cottontail and black-tailed jackrabbit populations appear to be stable to slightly declining over the last 10-year period on a statewide scale (Table 1). The regional trends are also fairly stable for these species with the exception of cottontails in the Osage Cuestas where 3 of the 4 season indices show significant 10-year declines (Tables 6, & 7). The KDWPT does not conduct a survey to gauge rabbit production but it is likely that production was poor across far western Kansas due to severe drought. The eastern part of the state also experienced severe drought but that region typically gets too much precipitation for good production so the dry conditions likely resulted in very good rabbit production in those easternmost regions.

Squirrels – The mail carriers only count squirrels during the fall survey period. There were no significant annual changes from the previous year (Table 8). Over the last 10-year period squirrel abundance has been stable in every management region.

Table 1. Statewide seasonal indices (birds/100 mi. traveled) to small game and wild turkey abundance in Kansas from the rural mail carrier survey, 2011-2012.

Species-Season <sup>a</sup>	n <sup>b</sup>	2011	n	2012	Annual Change (%)	10-year trend <sup>c</sup>
<b>Ring-necked pheasant</b>						
Winter	101	2.28	96	0.47	-79.4%	Stable
Spring	96	1.32	97	1.07	-18.9%	Stable
Summer	97	0.90	97	0.73	-18.9%	Stable
Fall	97	0.41	99	0.52	+26.8%	Decreasing
<b>Northern bobwhite</b>						
Winter	101	0.48	96	0.15	-68.8%*	Stable
Spring	96	0.14	97	0.20	+42.9%	Stable
Summer	97	0.45	97	0.64	+42.2%	Declining
Fall	97	0.32	99	0.17	-46.9%	Declining
<b>Prairie chicken<sup>d</sup></b>						
Winter	101	0.51	96	0.07	-86.3%	Stable
Spring	96	0.20	97	0.09	-55.0%	Stable
Summer	97	0.03	97	0.02	-33.3%	Stable
Fall	97	0.06	99	0.05	-16.7%	Stable
<b>Wild turkey</b>						
Winter	101	6.95	96	2.60	-62.6%*	Stable
Spring	96	4.43	97	3.08	-30.5%	Stable
Summer	97	1.04	97	1.69	+62.5%*	Stable
Fall	97	3.72	99	4.93	+32.5%	Stable
<b>Eastern cottontail</b>						
Winter	101	0.35	96	0.27	-22.9%	Stable
Spring	96	0.52	97	0.42	-19.2%	Stable
Summer	97	0.52	97	0.61	+17.3%	Declining
Fall	97	0.25	99	0.35	+40.0%*	Declining
<b>Black-tailed jackrabbit</b>						
Winter	101	0.04	96	0.03	-25.0%	Stable
Spring	96	0.06	97	0.06	0.0%	Stable
Fall	97	0.04	99	0.03	-25.0%	Stable
<b>Tree squirrels<sup>e</sup></b>						
Fall	97	1.68	99	1.59	-5.4%	Stable

<sup>a</sup> Not all species are counted during all 4 seasons.

<sup>b</sup> The number of counties from which data were collected.

<sup>c</sup> Stable indicates that a statistically significant trend was not detectable ( $P > 0.05$ ).

<sup>d</sup> Includes both greater and lesser prairie chickens.

<sup>e</sup> Includes both gray and fox squirrels.

\* Index is significantly different than previous year;  $P < 0.05$ .

Table 2. Regional and seasonal indices (birds/100 mi. traveled) to ring-necked pheasant abundance in Kansas derived from the rural mail carrier survey, 2011-2012.

Region-Season	n <sup>a</sup>	2011	n	2012	Annual Change (%)	10-year trend <sup>b</sup>
<b>Flint Hills</b>						
Winter	15	0.40	15	0.21	-47.5%	Stable
Spring	15	0.40	15	0.31	-22.5%	Stable
Summer	14	0.19	15	0.26	+36.8%	Stable
Fall	15	0.24	15	0.15	-37.5%	Decreasing
<b>Glaciated Plains</b>						
Winter	12	0.16	11	0.12	-25.0%	Stable
Spring	11	0.20	11	0.22	+10.0%	Stable
Summer	12	0.06	11	0.15	+150.0%	Stable
Fall	11	0.11	11	0.06	-45.5%	Stable
<b>Northern High Plains</b>						
Winter	14	6.31	13	1.44	-77.2% <sup>*</sup>	Stable
Spring	12	3.79	11	3.53	-6.9%	Increasing
Summer	13	3.36	12	2.86	-14.9%	Stable
Fall	12	1.72	14	2.17	+26.2%	Stable
<b>Osage Cuestas</b>						
Winter	15	0.10	15	0.01	-90.0%	Stable
Spring	15	0.44	15	0.01	-97.7%	Stable
Summer	15	0.01	15	0.02	+100.0%	Stable
Fall	15	0.03	14	0.00	-100.0%	Stable
<b>Smoky Hills</b>						
Winter	21	5.05	21	0.80	-84.2% <sup>*</sup>	Stable
Spring	21	2.09	22	1.92	-8.1%	Stable
Summer	21	1.49	22	1.24	-16.8%	Stable
Fall	21	0.51	21	0.76	+49.0% <sup>*</sup>	Stable
<b>South Central Prairies</b>						
Winter	13	2.17	12	0.39	-82.0% <sup>*</sup>	Stable
Spring	13	1.48	13	0.73	-50.7%	Declining
Summer	12	0.84	13	0.74	-11.9%	Stable
Fall	13	0.42	13	0.47	+11.9%	Declining
<b>Southern High Plains</b>						
Winter	11	3.26	9	1.06	-67.5%	Stable
Spring	9	2.17	10	1.85	-14.7%	Stable
Summer	10	1.39	9	0.70	-49.6%	Stable
Fall	10	0.42	11	0.59	+40.5%	Stable

<sup>a</sup> The number of counties from which data were collected.

<sup>b</sup> Stable indicates that a statistically significant trend was not detectable ( $P > 0.05$ ).

<sup>c</sup> NA = not applicable

<sup>\*</sup> Index is significantly different than previous year;  $P < 0.05$ .

Table 3. Regional and seasonal indices (birds/100 mi. traveled) to northern bobwhite abundance in Kansas derived from the rural mail carrier survey, 2011-2012.

Region-Season	n <sup>a</sup>	2011	n	2012	Annual Change (%)	10-year trend <sup>b</sup>
<b>Flint Hills</b>						
Winter	15	0.75	15	0.41	-45.3%	Stable
Spring	15	0.18	15	0.41	+127.8%	Stable
Summer	14	0.76	15	1.25	+64.5%	Stable
Fall	15	0.79	15	0.47	-40.5%	Declining
<b>Glaciated Plains</b>						
Winter	12	0.08	11	0.05	-37.5%	Stable
Spring	11	0.08	11	0.07	-12.5%	Declining
Summer	12	0.31	11	0.34	+9.7%	Declining
Fall	11	0.18	11	0.11	-38.9%	Stable
<b>Northern High Plains</b>						
Winter	14	0.03	13	0.03	0.0%	Stable
Spring	12	0.06	11	0.07	+16.7%	Stable
Summer	13	0.23	12	0.11	-52.2%	Stable
Fall	12	0.00	14	0.03	NA	Stable
<b>Osage Cuestas</b>						
Winter	15	0.40	15	0.19	-52.5%	Stable
Spring	15	0.14	15	0.23	+64.3%	Declining
Summer	15	0.55	15	0.73	+32.7%	Declining
Fall	15	0.47	14	0.17	-63.8%*	Declining
<b>Smoky Hills</b>						
Winter	21	0.67	21	0.08	-88.1%*	Stable
Spring	21	0.20	22	0.29	+45.0%	Stable
Summer	21	0.64	22	0.56	-12.5%	Stable
Fall	21	0.15	21	0.10	-33.3%	
<b>South Central Prairies</b>						
Winter	13	0.70	12	0.16	-77.1%	Stable
Spring	13	0.13	13	0.11	-15.4%	Stable
Summer	12	0.28	13	0.68	+142.9%	Stable
Fall	13	0.17	13	0.08	-52.9%	Stable
<b>Southern High Plains</b>						
Winter	11	0.14	9	0.02	-85.7%	Declining
Spring	9	0.07	10	0.05	-28.6%	Stable
Summer	10	0.04	9	0.09	+125.0%	Declining
Fall	10	0.04	11	0.08	+100.0%	Declining

<sup>a</sup> The number of counties from which data were collected.

<sup>b</sup> Stable indicates that a statistically significant trend was not detectable ( $P > 0.05$ ).

\* Index is significantly different than previous year;  $P < 0.05$ .



Table 4. Regional and seasonal indices (birds/100 mi. traveled) to prairie chicken abundance in Kansas derived from the rural mail carrier survey, 2011-2012.

<b>Region-Season</b>	<b>n<sup>a</sup></b>	<b>2011</b>	<b>n</b>	<b>2012</b>	<b>Annual Change (%)</b>	<b>10-year trend<sup>b</sup></b>
<b>Flint Hills (GPCH)</b>						
Winter	15	1.19	15	0.07	-94.1%	Stable
Spring	15	0.26	15	0.08	-69.2%	Stable
Summer	14	0.05	15	0.04	-20.0%	Stable
Fall	15	0.28	15	0.08	-71.4%	Stable
<b>Glaciated Plains (GPCH)</b>						
Winter	12	0.00	11	0.00	NA	Stable
Spring	11	0.01	11	0.01	0.0%	Stable
Summer	12	0.05	11	0.00	-100.0%	Stable
Fall	11	0.01	11	0.00	-100.0%	Stable
<b>Northern High Plains (GPCH &amp; LPCH)</b>						
Winter	14	0.33	13	0.26	-21.2%	Stable
Spring	12	0.23	11	0.17	-26.1%	Increasing
Summer	13	0.08	12	0.03	-62.5%	Stable
Fall	12	0.02	14	0.29	+1,350.0%	Stable
<b>Osage Cuestas (GPCH)</b>						
Winter	15	0.00	15	0.00	NA	Stable
Spring	15	0.00	15	0.02	NA	Stable
Summer	15	0.00	15	0.00	NA	Stable
Fall	15	0.00	14	0.00	NA	Stable
<b>Smoky Hills (GPCH)</b>						
Winter	21	1.34	21	0.17	-87.3%	Stable
Spring	21	0.61	22	0.28	-54.1%	Increasing
Summer	21	0.06	22	0.03	-50.0%	Stable
Fall	21	0.05	21	0.06	+20.0%	Stable
<b>South Central Prairies (GPCH &amp; LPCH)</b>						
Winter	13	0.00	12	0.01	NA	Stable
Spring	13	0.00	13	0.01	NA	Decreasing
Summer	12	0.00	13	0.00	NA	Stable
Fall	13	0.00	13	0.00	NA	Stable
<b>Southern High Plains (LPCH)</b>						
Winter	11	0.00	9	0.00	NA	Stable
Spring	13	0.00	10	0.01	NA	Stable
Summer	10	0.00	9	0.02	NA	Stable
Fall	10	0.00	11	0.00	NA	Stable

<sup>a</sup> The number of counties from which data were collected.

<sup>b</sup> Stable indicates that a statistically significant trend was not detectable ( $P > 0.05$ ).

<sup>c</sup> NA = not applicable.

GPCH = greater prairie-chicken, LPCH = lesser prairie-chicken

\* Index is significantly different than previous year;  $P < 0.05$ .

Table 5. Regional and seasonal indices (birds/100 mi. traveled) to wild turkey abundance in Kansas derived from the rural mail carrier survey, 2011-2012.

<b>Region-Season</b>	<b>n<sup>a</sup></b>	<b>2011</b>	<b>n</b>	<b>2012</b>	<b>Annual Change (%)</b>	<b>10-year trend<sup>b</sup></b>
<b>Northcentral</b>						
Winter	15	11.07	15	2.76	-75.1%	Stable
Spring	15	8.33	16	4.92	-40.9%	Stable
Summer	15	1.94	16	2.44	+25.8%	Stable
Fall	15	5.96	15	6.68	+12.1%	Stable
<b>Northeast</b>						
Winter	16	12.31	15	4.16	-66.2%	Stable
Spring	15	4.78	15	3.41	-28.7%	Declining
Summer	16	1.19	15	1.93	+62.2%	Stable
Fall	15	7.55	15	3.77	-50.1%	Stable
<b>Northwest</b>						
Winter	18	8.42	17	1.57	-81.4%*	Stable
Spring	16	6.93	15	5.85	-15.6%	Increasing
Summer	17	1.32	16	1.64	+24.2%	Stable
Fall	16	3.49	18	11.46	+228.4%	Stable
<b>Southcentral</b>						
Winter	16	5.58	16	2.52	-54.8%	Stable
Spring	16	2.90	16	2.21	-23.8%	Stable
Summer	15	0.93	16	1.68	+80.6%	Stable
Fall	16	2.46	16	4.46	+81.3%	Stable
<b>Southeast</b>						
Winter	14	3.96	14	3.16	-20.2%	Stable
Spring	14	2.91	14	2.97	+2.1%	Declining
Summer	14	0.84	14	1.66	+97.6%	Declining
Fall	14	3.58	13	3.95	+10.3%	Stable
<b>Southwest</b>						
Winter	22	1.73	19	1.19	-31.2%	Stable
Spring	20	2.04	21	0.89	-56.4%	Stable
Summer	20	0.43	20	0.90	+109.3%	Stable
Fall	21	1.17	22	1.46	+24.8%	Stable

<sup>a</sup> The number of counties from which data were collected.

<sup>b</sup> Stable indicates that a statistically significant trend was not detectable ( $P > 0.05$ ).

\* Index is significantly different than previous year;  $P < 0.05$ .

Table 6. Regional and seasonal indices (animals/100 mi. traveled) to eastern cottontail abundance in Kansas derived from the rural mail carrier survey, 2011-2012.

Region-Season	n <sup>a</sup>	2011	n	2012	Annual Change (%)	10-year trend <sup>b</sup>
<b>Flint Hills</b>						
Winter	15	0.48	15	0.47	-2.1%	Stable
Spring	15	0.69	15	0.52	-24.6%	Stable
Summer	14	0.58	15	0.87	+50.0%	Stable
Fall	15	0.31	15	0.64	+106.5%	Stable
<b>Glaciated Plains</b>						
Winter	12	0.16	11	0.24	+50.0%	Stable
Spring	11	0.49	11	0.39	-20.4%	Stable
Summer	12	0.45	11	0.56	+24.4%	Declining
Fall	11	0.26	11	0.29	+11.5%	Stable
<b>Northern High Plains</b>						
Winter	14	0.35	13	0.15	-57.1%	Stable
Spring	12	0.43	11	0.54	+25.6%	Stable
Summer	13	0.47	12	0.80	+70.2%	Stable
Fall	12	0.15	14	0.38	+153.3%	Stable
<b>Osage Cuestas</b>						
Winter	15	0.27	15	0.24	-11.1%	Stable
Spring	15	0.55	15	0.36	-34.5%*	Declining
Summer	15	0.59	15	0.61	+3.4%	Declining
Fall	15	0.29	14	0.25	-13.8%	Declining
<b>Smoky Hills</b>						
Winter	21	0.40	21	0.39	-2.5%	Stable
Spring	21	0.47	22	0.56	+19.1%	Stable
Summer	21	0.73	22	0.61	-16.4%	Declining
Fall	21	0.25	21	0.35	+40.0%	Stable
<b>South Central Prairies</b>						
Winter	13	0.40	12	0.20	-50.0%	Stable
Spring	13	0.54	13	0.27	-50.0%	Stable
Summer	12	0.35	13	0.39	+11.4%	Stable
Fall	13	0.24	13	0.32	+33.3%	Declining
<b>Southern High Plains</b>						
Winter	11	0.28	9	0.07	-75.0%	Stable
Spring	9	0.25	10	0.25	0.0%	Stable
Summer	10	0.27	9	0.24	-11.1%	Declining
Fall	10	0.11	11	0.08	-27.3%	Stable

<sup>a</sup> The number of counties from which data were collected.

<sup>b</sup> Stable indicates that a statistically significant trend was not detectable ( $P > 0.05$ ).

\* Index is significantly different than previous year;  $P < 0.05$ .

Table 7. Regional and seasonal indices (animals/100 mi. traveled) to black-tailed jackrabbit abundance in Kansas derived from the rural mail carrier survey, 2011-2012. Jackrabbits are not counted during the summer survey period.

Region-Season	n <sup>a</sup>	2011	n	2012	Annual Change (%)	10-year trend <sup>b</sup>
<b>Flint Hills</b>						
Winter	15	0.01	15	0.00	-100.0%	Stable
Spring	15	0.02	15	0.03	+50.0%	Stable
Fall	15	0.07	15	0.02	-71.4%	Stable
<b>Glaciated Plains</b>						
Winter	12	0.00	11	0.02	NA	Stable
Spring	11	0.03	11	0.01	-66.7%	Stable
Fall	11	0.01	11	0.02	+100.0%	Stable
<b>Northern High Plains</b>						
Winter	14	0.15	13	0.05	-66.7%	Stable
Spring	12	0.10	11	0.24	+140.0%	Stable
Fall	12	0.08	14	0.11	+37.5%	Stable
<b>Osage Cuestas</b>						
Winter	15	0.00	15	0.04	NA	Stable
Spring	15	0.01	15	0.01	0.0%	Stable
Fall	15	0.02	14	0.01	-50.0%	Stable
<b>Smoky Hills</b>						
Winter	21	0.06	21	0.02	-66.7%	Stable
Spring	21	0.07	22	0.05	-28.6%	Stable
Fall	21	0.03	21	0.03	0.0%	Stable
<b>South Central Prairies</b>						
Winter	13	0.03	12	0.04	+33.3%	Stable
Spring	13	0.09	13	0.04	-55.6%	Stable
Fall	13	0.01	13	0.01	0.0%	Declining
<b>Southern High Plains</b>						
Winter	11	0.07	9	0.04	-42.9%	Stable
Spring	9	0.23	10	0.18	-21.7%	Stable
Fall	10	0.07	11	0.08	+14.3%	Stable

<sup>a</sup> The number of counties from which data were collected.

<sup>b</sup> Stable indicates that a statistically significant trend was not detectable ( $P > 0.05$ ).

<sup>c</sup> NA = not applicable.

\* Index is significantly different than previous year;  $P < 0.05$ .

Table 8. Regional and seasonal indices (animals/100 mi. traveled) to tree squirrel (gray and fox squirrel) abundance in Kansas derived from the rural mail carrier survey, 2011-2012. Squirrels are only counted during the fall survey period.

<b>Region-Season</b>	<b>n<sup>a</sup></b>	<b>2011</b>	<b>n</b>	<b>2012</b>	<b>Annual Change (%)</b>	<b>10-year trend<sup>b</sup></b>
<b>Flint Hills</b>						
Fall	15	1.94	15	2.04	+5.2%	Stable
<b>Glaciated Plains</b>						
Fall	11	3.53	11	3.62	+2.5%	Stable
<b>Northern High Plains</b>						
Fall	12	0.13	14	0.25	+92.3%	Stable
<b>Osage Cuestas</b>						
Fall	15	3.77	14	2.80	-25.7%	Stable
<b>Smoky Hills</b>						
Fall	21	0.55	21	0.66	+20.0%	Stable
<b>South Central Prairies</b>						
Fall	13	0.68	13	1.11	+63.2%	Stable
<b>Southern High Plains</b>						
Fall	10	0.07	11	0.08	+14.3%	Stable

<sup>a</sup>The number of counties from which data were collected.

<sup>b</sup>Stable indicates that a statistically significant trend was not detectable ( $P > 0.05$ ).

\* Index is significantly different than previous year;  $P < 0.05$ .

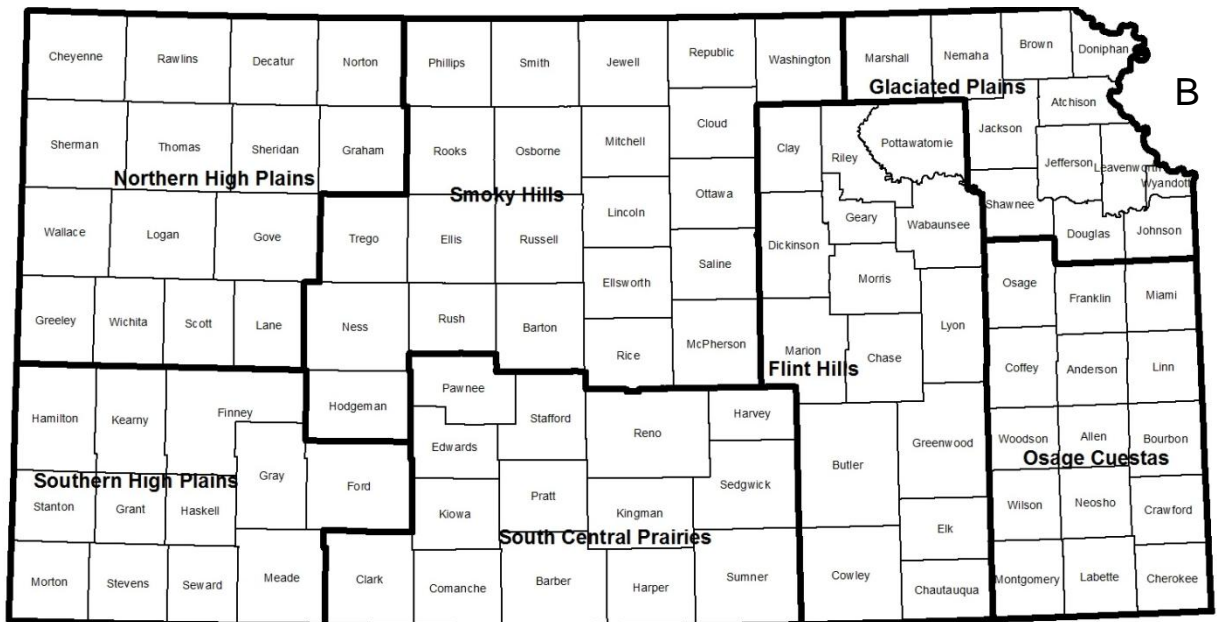
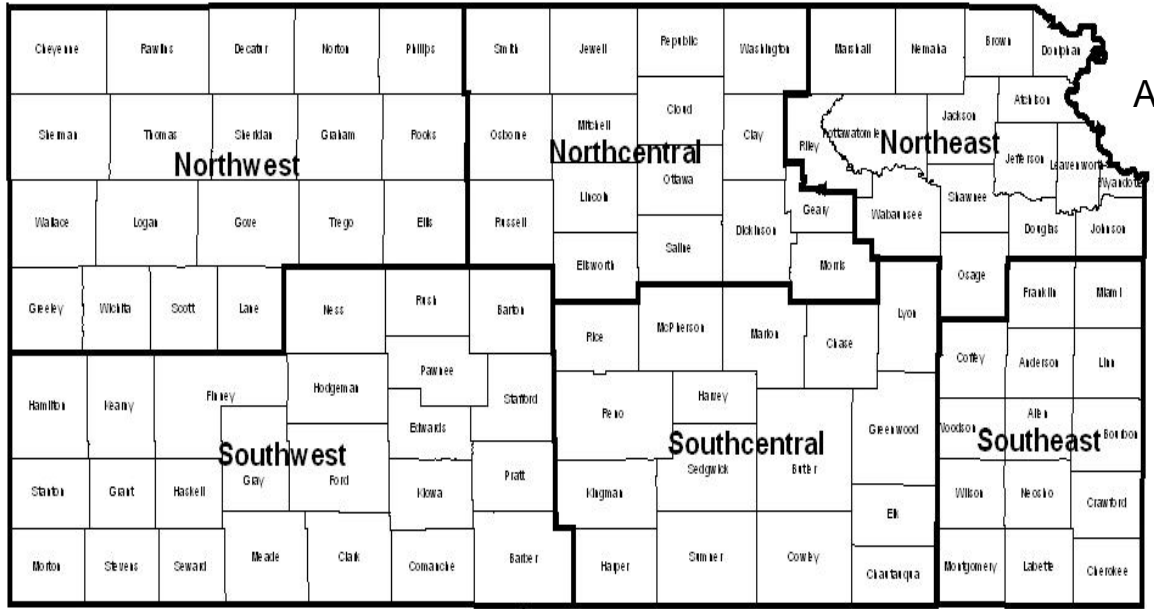


Figure 1. Kansas Department of Wildlife, Parks, and Tourism management regions for (A) wild turkeys and (B) all other small game.

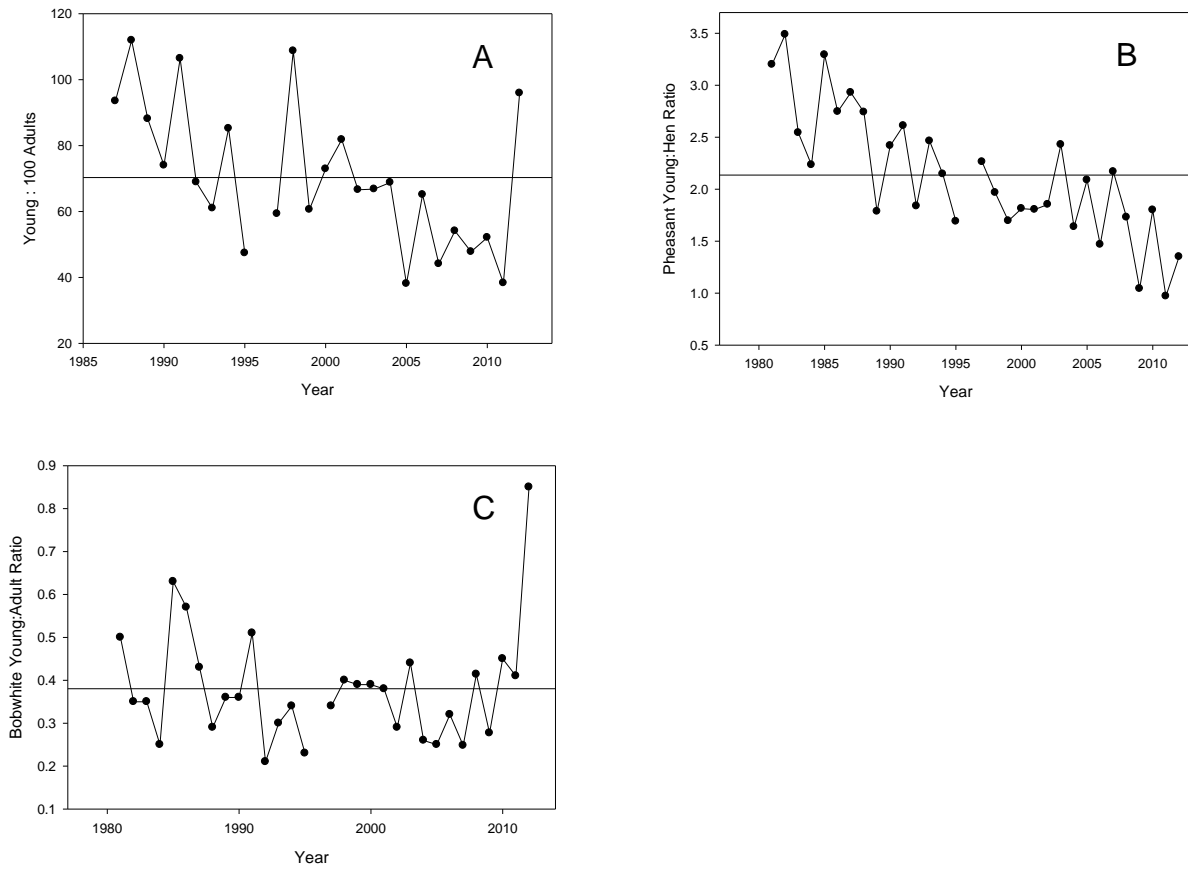


Figure 2. Statewide production indices for wild turkey (A), ring-necked pheasant (B), and northern bobwhite (C) for Kansas derived from July rural mail carrier survey data. The horizontal line is the long-term average production index.

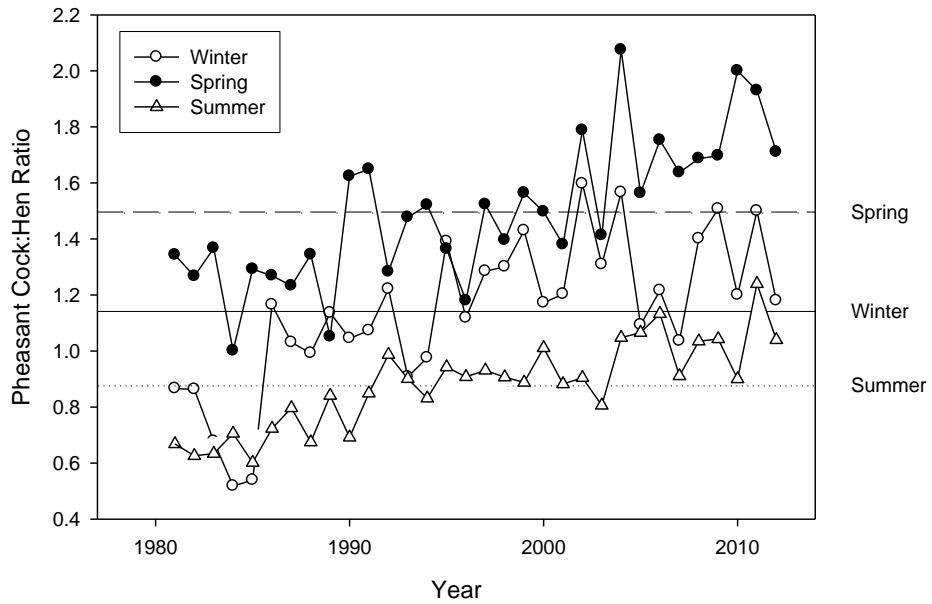


Figure 3. Statewide index to the sex ratio (Cocks:Hens) of Kansas' ring-necked pheasant population derived from rural mail carrier survey data. The horizontal lines represent the long-term average cock:hen ratios for the winter, spring, and summer survey periods.



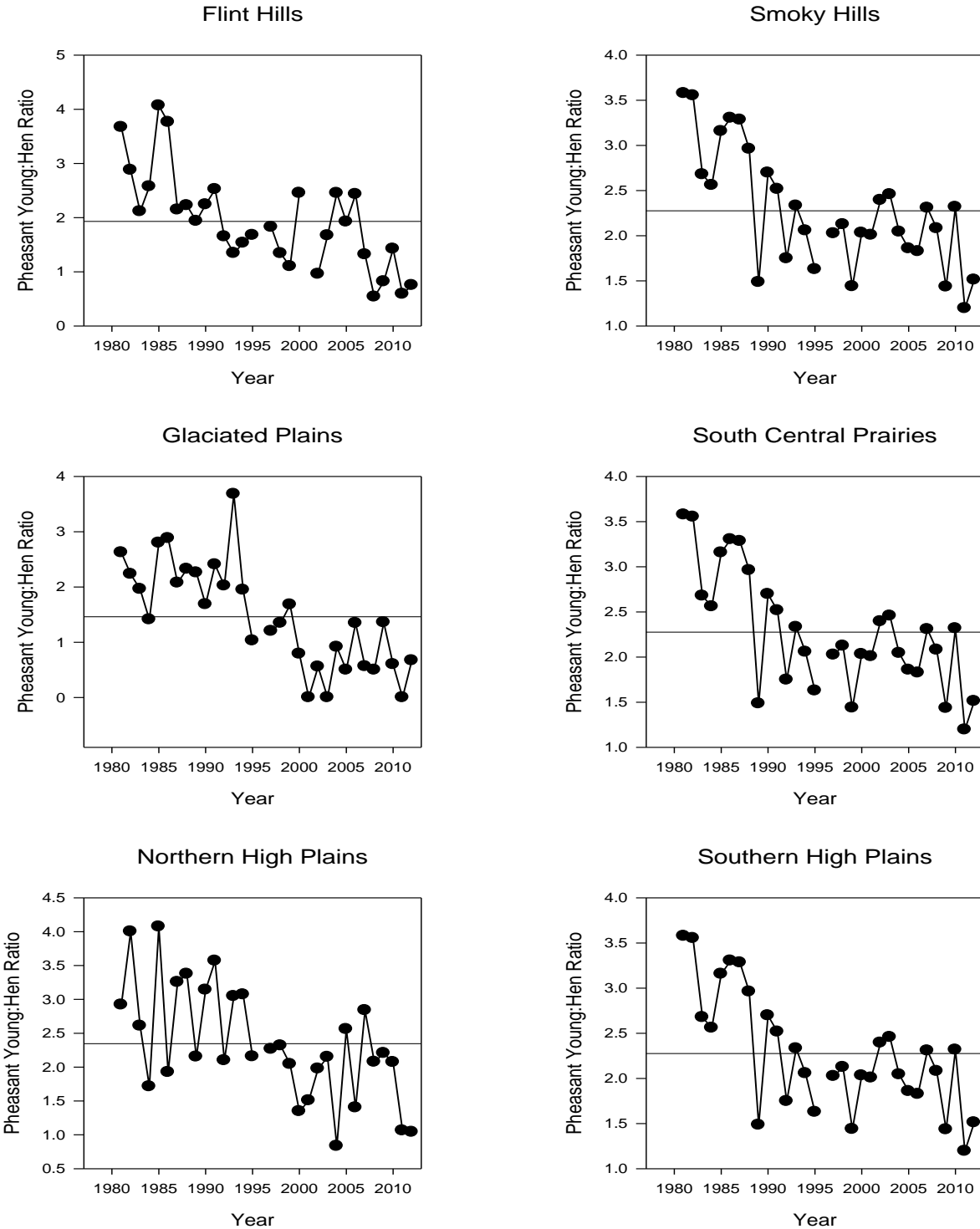


Figure 4. Regional ring-necked pheasant production indices (young:hen ratios) in Kansas derived from July rural mail carrier survey data. The horizontal lines are the long-term average production indices. Osage Cuestas region excluded because it is primarily non-range.

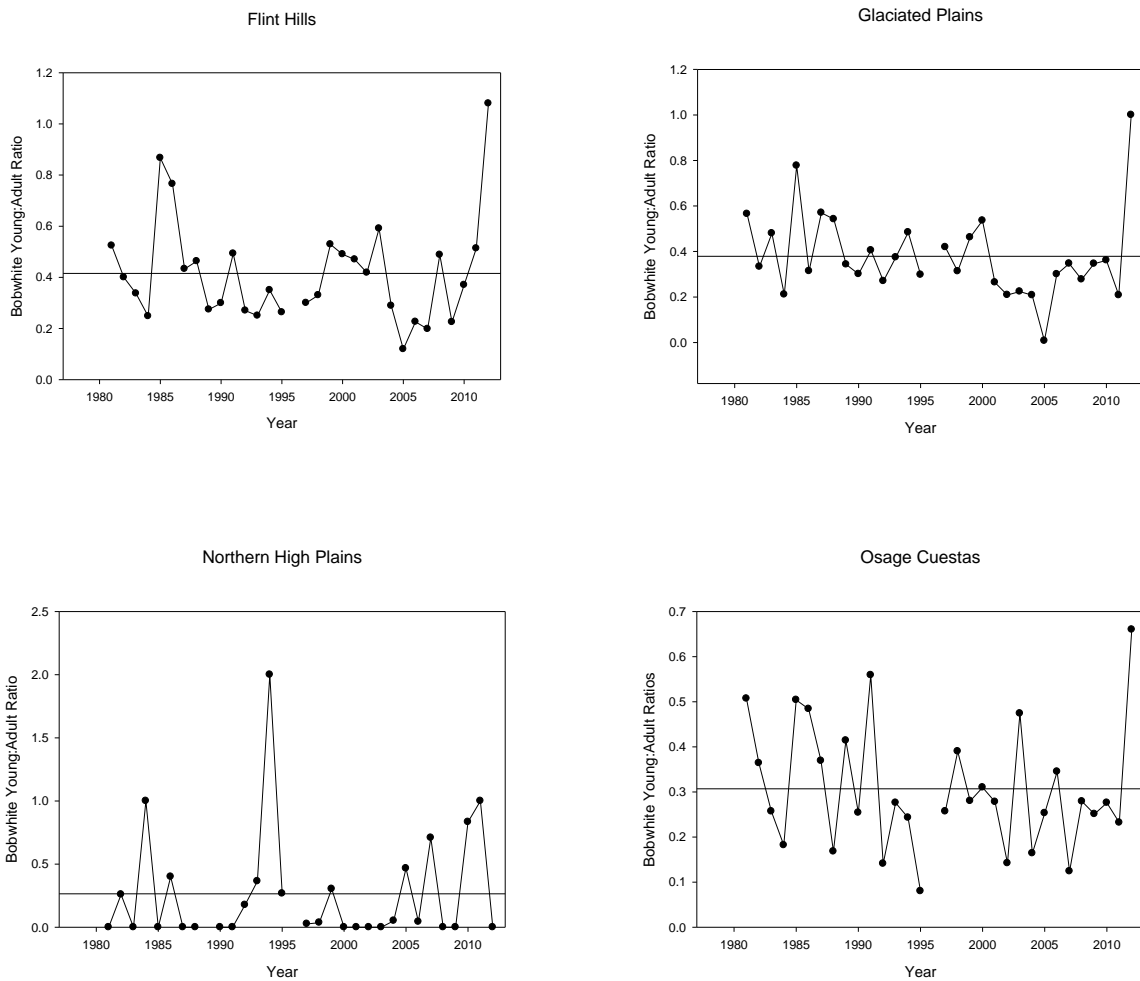


Figure 5. Regional northern bobwhite production indices (young:adult ratios) in Kansas derived from July rural mail carrier survey data. The horizontal lines are the long-term average production indices. Sample sizes are small in the Southern High Plains and the Northern High Plains due to limited suitable habitat for the species.

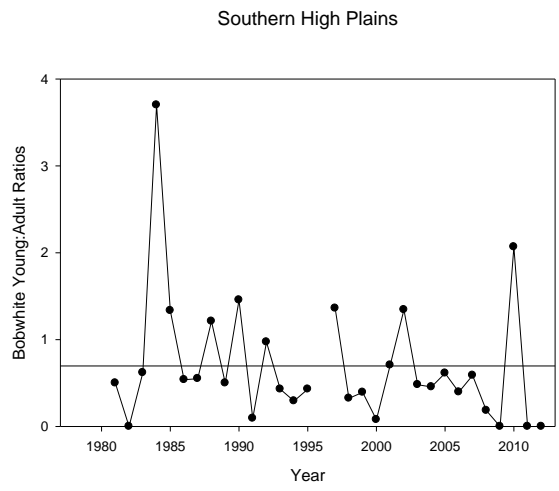
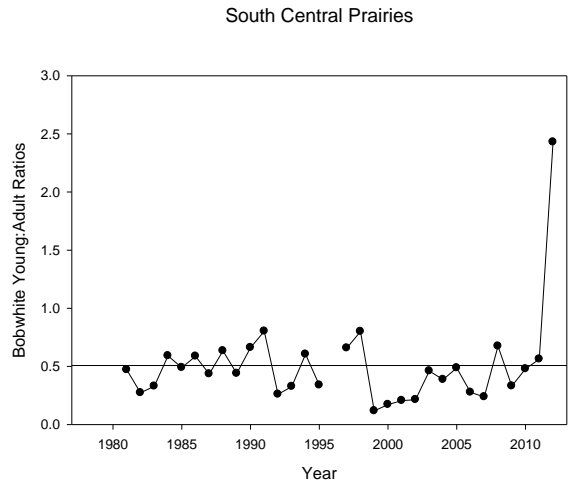
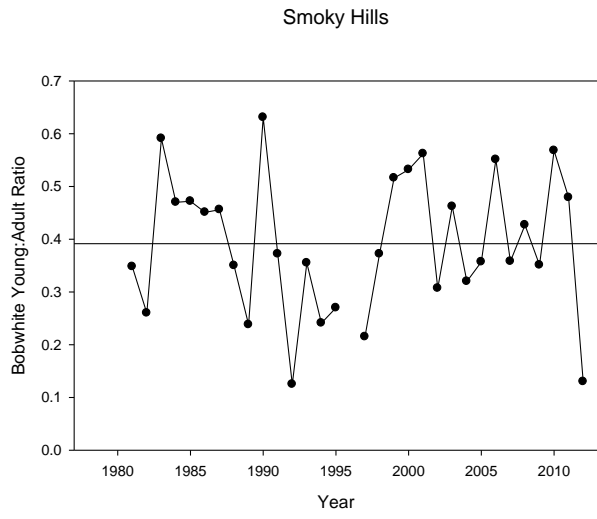


Figure 5. continued...

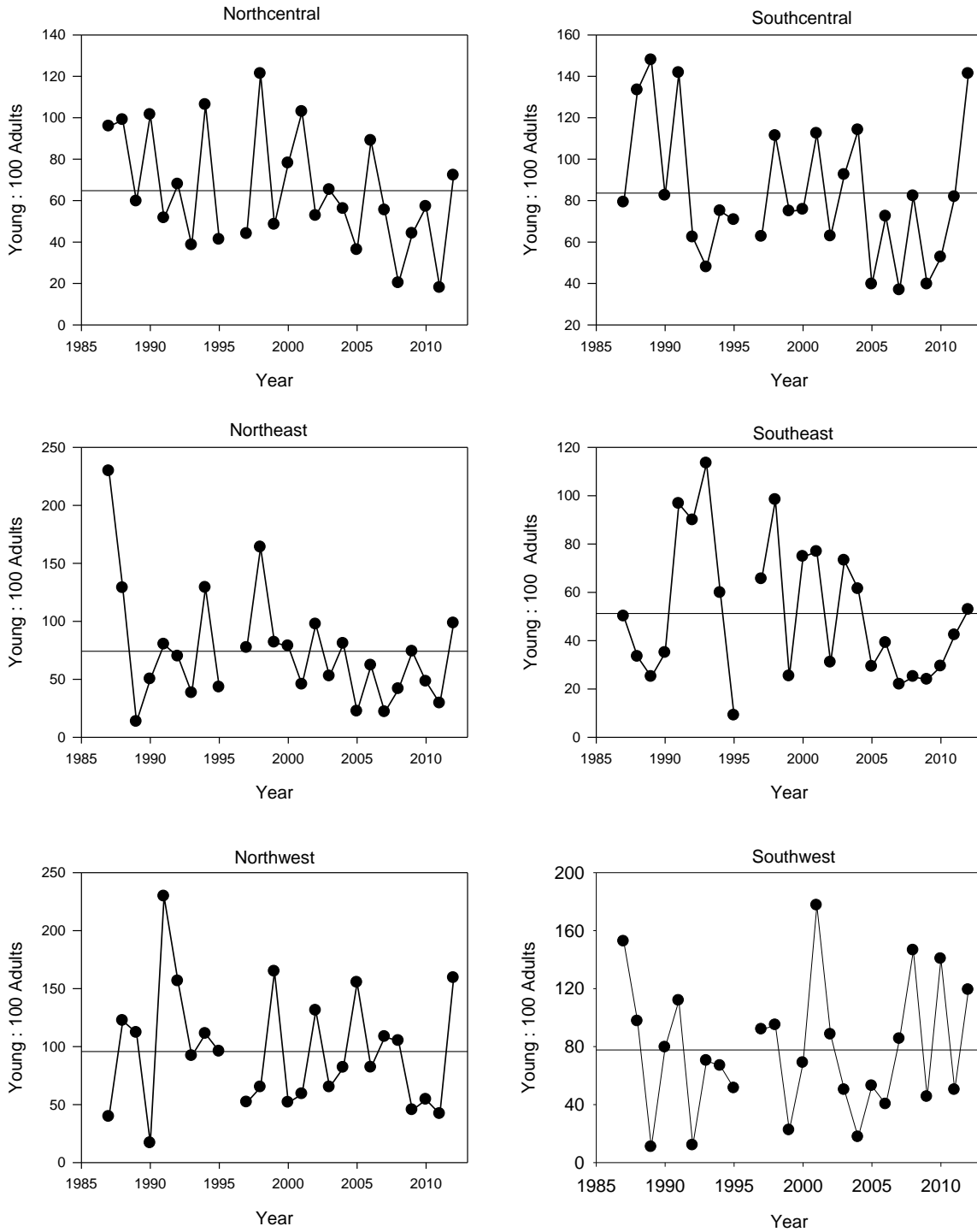


Figure 6. Regional wild turkey production indices (young:100 adults) in Kansas derived from July rural mail carrier survey data. The horizontal line are the long-term average production indices.