

Federal Aid in Wildlife Restoration Project No: W-15-R

Title of Job: 2016 July Rural Mail Carrier Survey



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The 2016 July Rural Mail Carrier Survey was conducted 5-8 July 2016. We received 427 cards by 21 July 2016, of which 406 cards contained complete information needed for analysis (Tables 1-3). Rural carriers made observations while traveling 169,899 miles of rural roads in 87 of Nebraska’s 93 counties.

Caveats. Interpretations of the percent change from previous year’s indices and longer-term means are only meaningful in relation to the indices themselves. That is, when an index value is low, insignificant changes in the index can translate into large percent changes, but result in no observable difference in abundance within the region. For example, an increase in a species’ index from 0.01 animals observed per 100 miles to 0.02 animals per 100 miles is a 100% increase, but would not likely be noticeable to hunters afield. Further, survey methodology does not allow the estimation of population size or density, but only trends in relative abundance through time. At a statewide scale, these indices are correlated with annual harvest and are, therefore, useful for forecasting conditions hunters may encounter in the fall, particularly when combined with results from other surveys.

Interpretations. Compared to July 2015, relative, statewide abundance of upland species in July 2016 was generally lower: grouse indices were up relative to 2015, and pheasant, bobwhite, wild turkey, cottontail, and jackrabbit were down. However, only the indices for cottontails were significantly lower than in July 2015, based on confidence intervals. Regional indices of relative abundance were more mixed for all species surveyed except cottontail, where all regional estimates were lower when compared to July 2015. Similar to statewide indices, the only significantly different index of abundance was for cottontails in the Southeast based on overlap of confidence intervals. Compared to the five-year mean, statewide indices were higher for pheasants, quail, grouse, cottontails, and jackrabbits, and were lower for wild turkey. Regional indices were mostly higher compared to the five-year mean, except for wild turkey.

Take-Home Message. The results of the 2016 July Rural Mail Carrier Survey indicate that relative abundance of pheasant, bobwhite, wild turkey, cottontail, and jackrabbit were lower than in July 2015, but not significantly so. Further, except for wild turkeys, regional and statewide indices were greater than the five-year mean, indicating abundances are above average for the recent past.

TABLE 1. Raw counts of prairie grouse, wild turkey, cottontail, and jackrabbits from the 2016 July Rural Mail Carrier Survey by pheasant management region (Figure 1).

Region	Carriers	Miles	Grouse	Turkey	Cottontail	Jackrabbit
Central	53	21,634	76	217	359	23
Northeast	115	50,214	11	430	430	8
Panhandle	50	18,828	23	129	138	71
Sandhills	28	11,333	139	190	119	30
Southeast	114	48,376	8	386	553	6
Southwest	46	19,513	14	673	267	63
Statewide	406	169,899	271	2,025	1,866	201

TABLE 2. Raw counts from the 2016 July Rural Mail Carrier Survey for pheasants and pheasant age-ratios by pheasant management region (Figure 1).

Region	Carriers	Miles	Total Pheasants	Juveniles/Adults
Central	53	21,634	151	0.37
Northeast	115	50,214	332	0.31
Panhandle	50	18,828	224	0.31
Sandhills	28	11,333	101	0.28
Southeast	114	48,376	214	0.41
Southwest	46	19,513	365	0.27
Statewide	406	169,899	1,387	0.32

TABLE 3. Raw counts from the 2016 July Rural Mail Carrier Survey for bobwhites, by bobwhite management zone (Figure 2).

Zone	Carriers	Miles	Bobwhites
East Central	68	28,175	167
North Central	47	20,923	213
Northeast	103	45,949	79
Republican	23	9,877	108
Southeast	44	18,462	240
West Platte	83	32,118	72
Not Quail Range (NQR)	38	14,949	3
Statewide	406	169,899	882

Results. Statewide, indices of relative abundance were lower for all species except prairie grouse, but the indices were not significantly different from the July 2015 survey for pheasants (Table 4, Figure 3), bobwhites (Table 5, Figure 4), wild turkey (Table 6, Figure 5), prairie grouse (Table 7, Figure 6), or jackrabbit (Table 9, Figure 8). Only the statewide index for cottontails (Table 8, Figure 7) was significantly lower compared to 2015. Regional indices were mixed in 2016 compared to 2015 for pheasants, with relative abundance higher in the Central and Sandhills regions, and lower elsewhere. For bobwhite, regional indices were higher in 2016 compared to 2015 for the North Central and Republican regions, and lower elsewhere. Regional turkey indices were lower in 2016 compared to 2015, in all regions except the Panhandle. For prairie grouse, 2016 regional indices were higher in the Northeast and Sandhills regions, but were lower elsewhere in the state. Regional cottontail indices were lower in 2016 compared to 2015, and were significantly lower in the Southeast region. Jackrabbit regional indices were higher in the Central and Southeast regions in 2016 compared to 2015, but were lower elsewhere. Except for cottontails in the Southeast, no regional indices were significantly different when compared to the July 2015 estimated. In 2016, 30 of 406 usable cards returned (7.4%) contained no observations of any wildlife species, which is up from the 19 of 421 cards with no observations returned in 2015 (4.5%). The number of cards containing zero observations for particular species is provided in Table 10.

FIGURE 1. Pheasant management regions.

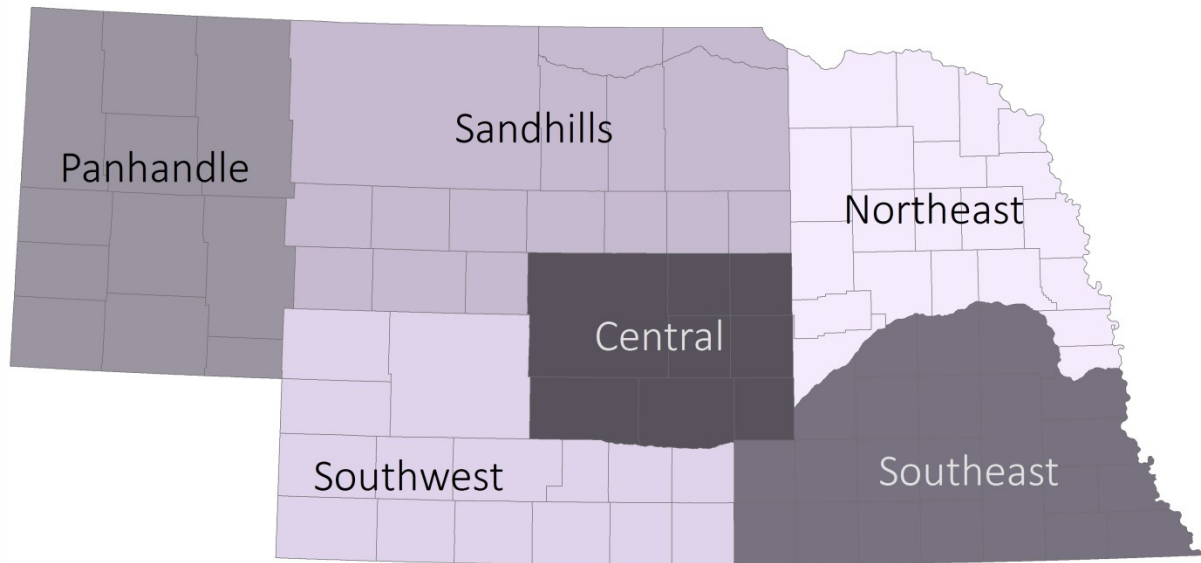


FIGURE 2. Bobwhite management zones.

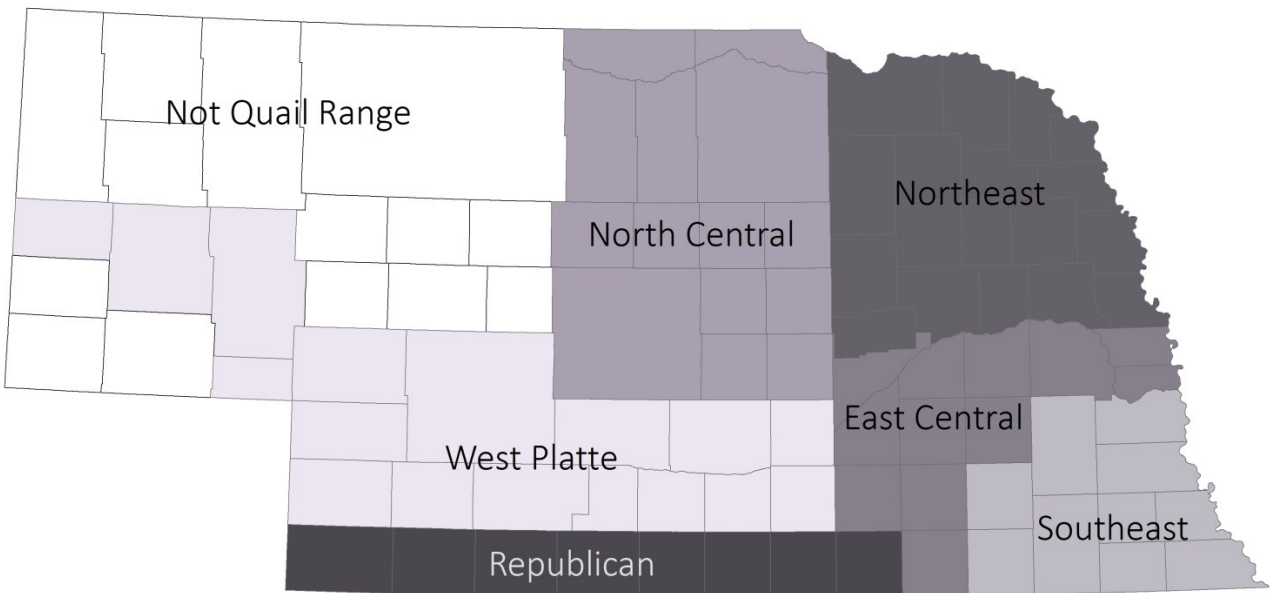


TABLE 4. Pheasant indices from the 2016 July Rural Mail Carrier Survey by pheasant management region (Figure 1). Carrier means are weighted by miles traveled per carrier.

Region	Mean pheasants per 100 miles & 90% Confidence Limits	Percent Difference from:			
		2015	Mean 2011-2015	Mean 2006-2015	Mean 1996-2015
Central	0.70 (0.42-0.98)	15	14	-12	-37
Northeast	0.66 (0.50-0.82)	-12	1	-38	-53
Panhandle	1.19 (0.83-1.55)	-37	-2	-3	-4
Sandhills	0.89 (0.47-1.32)	62	43	2	-5
Southeast	0.44 (0.30-0.58)	-36	-7	-46	-56
Southwest	1.87 (1.19-2.55)	-4	4	-15	-15
Statewide	0.82 (0.70-0.94)	-15	4	-25	-36

FIGURE 3. Regional and statewide time series (1979-2016) of pheasant abundance indices from the July Rural Mail Carrier Survey by pheasant management region (Figure 1).

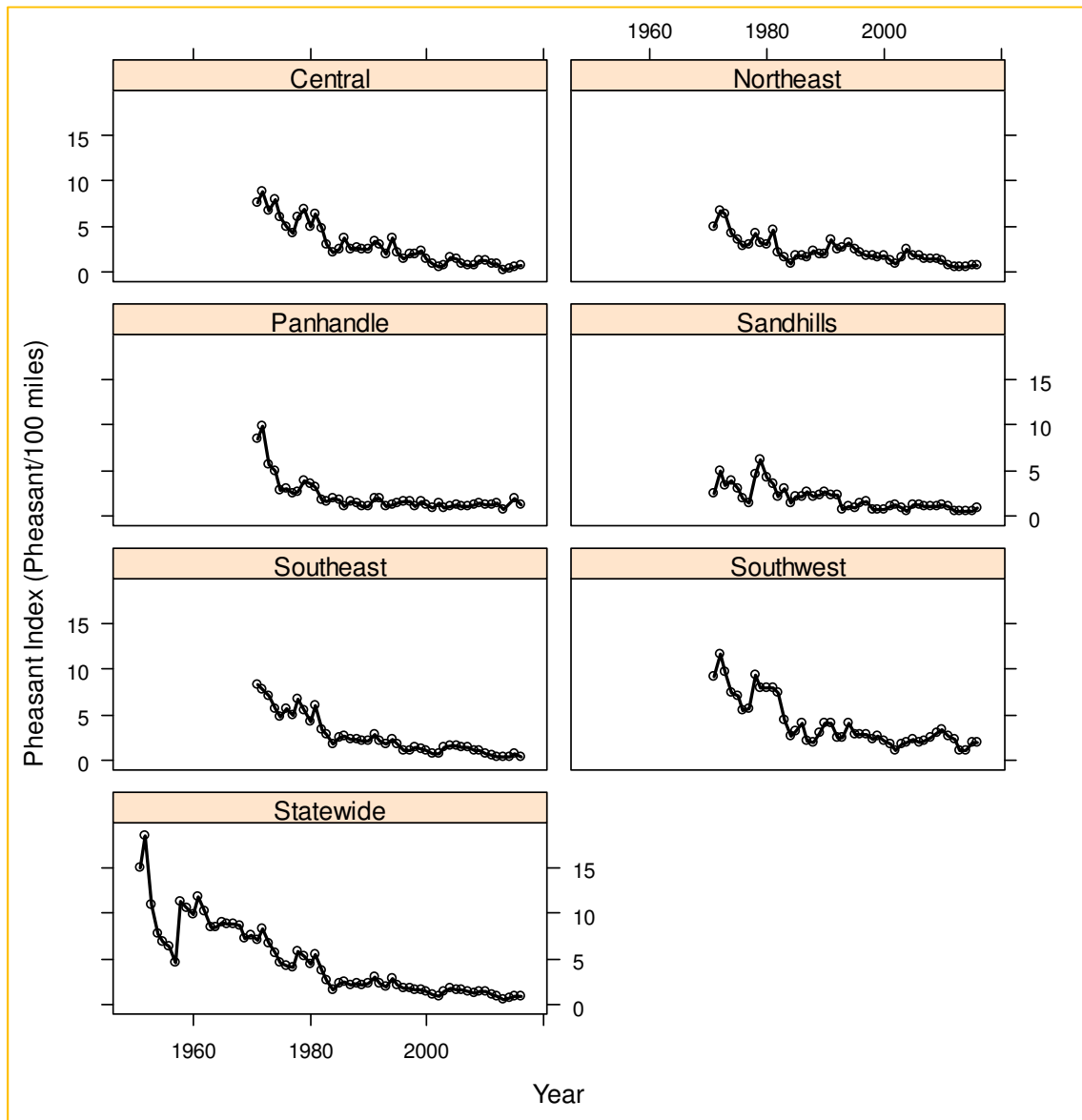


TABLE 5. Northern bobwhite indices by bobwhite management zone from the 2016 July Rural Mail Carrier Survey. Carrier means are weighted by miles traveled per carrier.

Zone	Mean bobwhites per 100 miles & 90% Confidence Limits	Percent Difference from:			
		2015	Mean 2011-2015	Mean 2006-2015	Mean 1996-2015
East Central	0.59 (0.42-0.76)	-11	111	35	17
North Central	1.02 (0.33-1.70)	21	92	51	60
Northeast	0.17 (0.12-0.23)	-11	23	-19	-33
Republican	1.09 (0.70-1.48)	16	93	54	62
Southeast	1.30 (0.82-1.78)	-15	60	56	54
West Platte	0.22 (0.14-0.31)	-21	-2	-17	-19
NQR	0.02 (0.00-0.04)	-88	-56	-53	-42
Statewide (QR)	0.52 (0.41-0.63)	-12	59	25	15

FIGURE 4. Regional and statewide time series (1979-2016) of indices of northern bobwhite abundance from the July Rural Mail Carrier Survey.

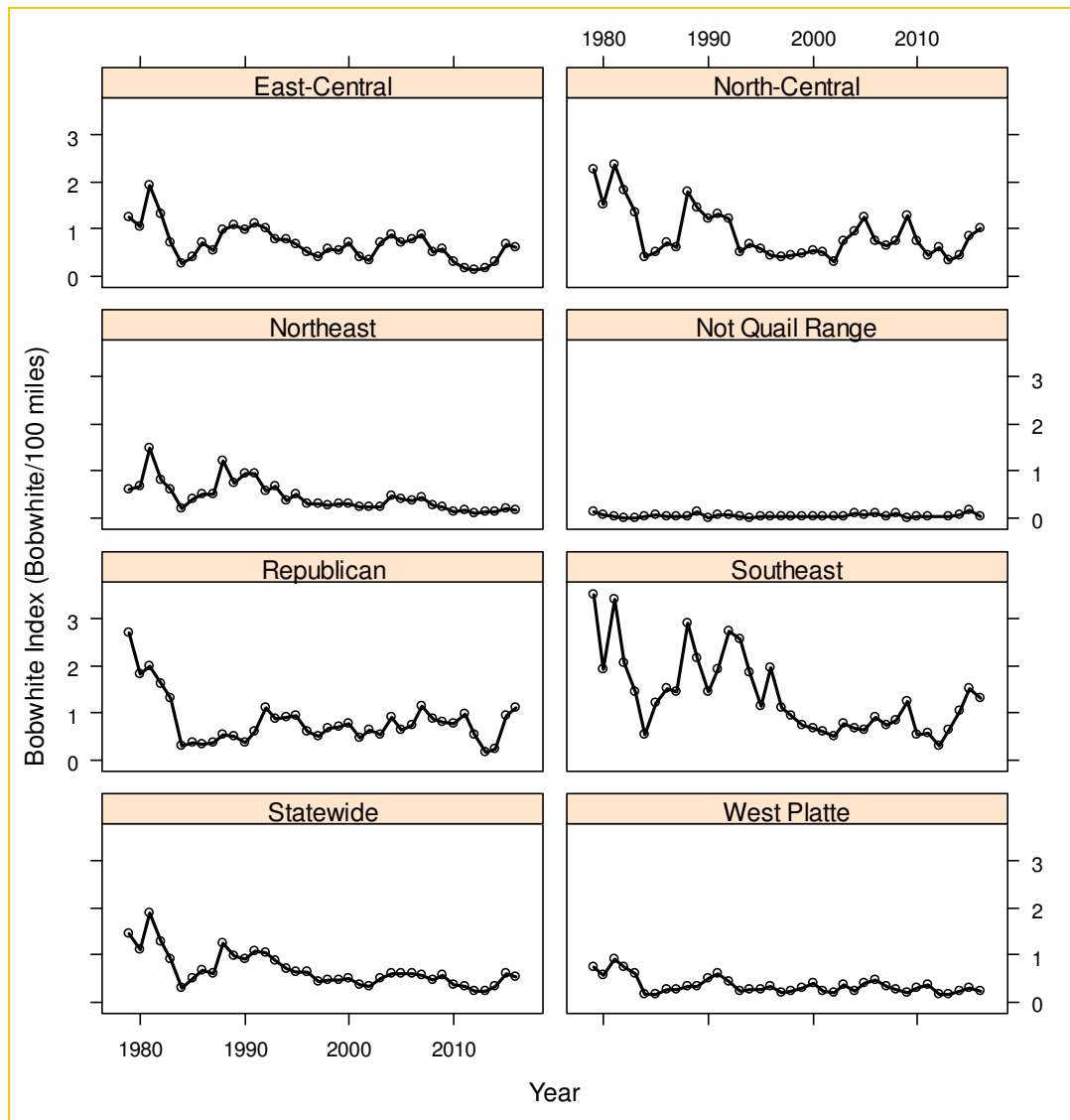


TABLE 6. Wild turkey indices by pheasant management region from the 2016 July Rural Mail Carrier Survey. Carrier means are weighted by miles traveled per carrier.

Region	Mean turkeys per 100 miles & 90% Confidence Limits	Percent Difference from:		
		2015	Mean 2011-2015	Mean 2006-2015
Central	1.00 (0.68-1.33)	-24	-44	-48
Northeast	0.86 (0.65-1.06)	-14	-11	-9
Panhandle	0.69 (0.47-1.32)	48	-1	15
Sandhills	1.68 (0.98-2.38)	-17	-36	-53
Southeast	0.80 (0.51-1.09)	-42	-29	-38
Southwest	3.45 (1.97-4.93)	-64	-54	-53
Statewide	1.19 (0.97-1.41)	-30	-24	-28

FIGURE 5. Regional and statewide time series (2000-2016) of wild turkey abundance indices from the July Rural Mail Carrier Survey.

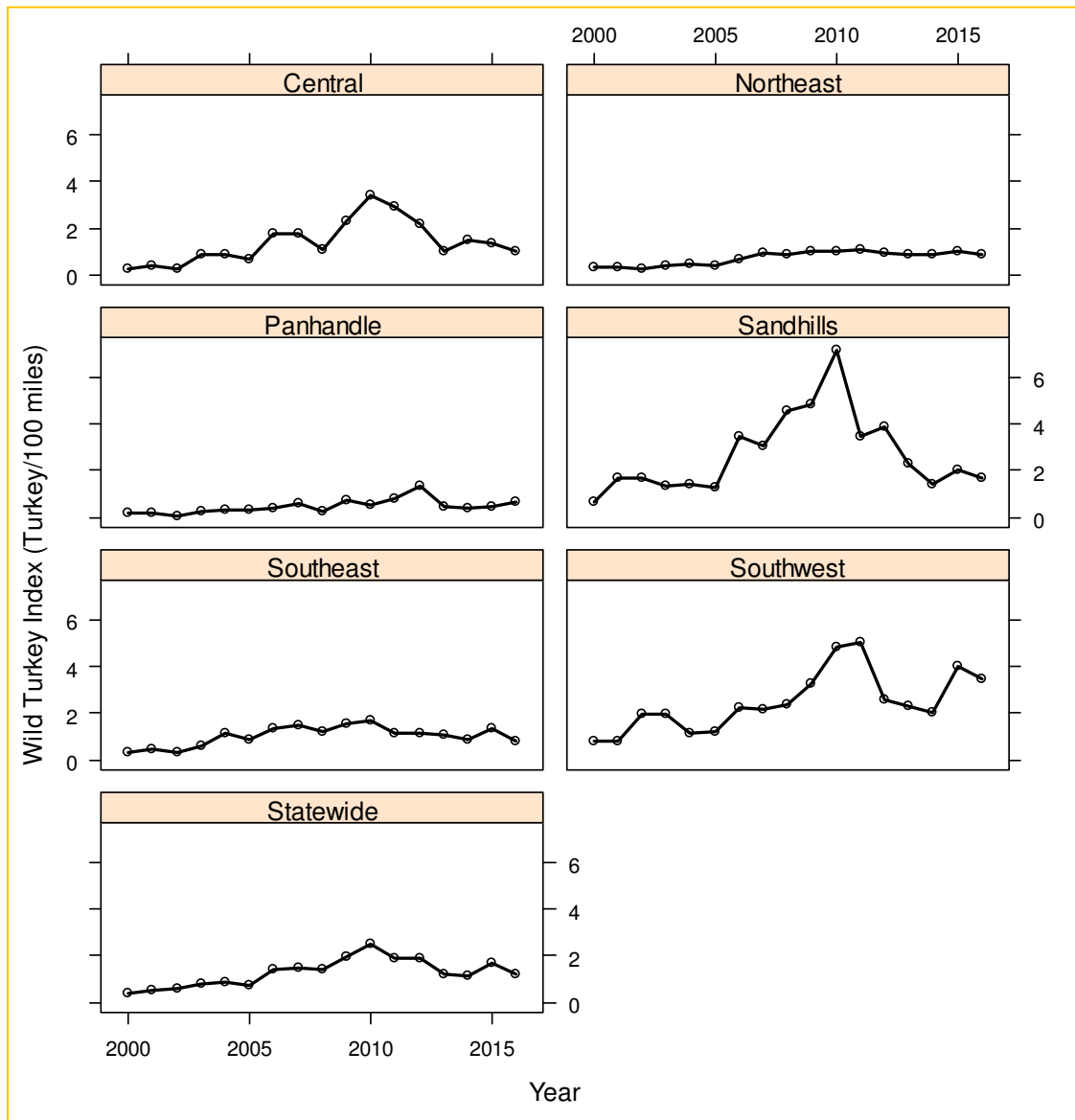


TABLE 7. Prairie grouse indices by pheasant management region (Figure 1) from the 2016 July Rural Mail Carrier Survey. Carrier means are weighted by miles traveled per carrier.

Region	Mean grouse per 100 miles & 90% Confidence Limits	Percent Difference from:			
		2015	Mean 2011-2015	Mean 2006-2015	Mean 1996-2015
Central	0.35 (0.00-0.89)	-24	-9	13	56
Northeast	0.02 (0.01-0.04)	100	16	-39	-31
Panhandle	0.12 (0.00-0.25)	-8	36	56	10
Sandhills	1.23 (0.47-1.99)	89	270	268	297
Southeast	0.02 (0.00-0.03)	-60	-39	-49	-21
Southwest	0.07 (0.00-0.16)	-36	30	59	84
Statewide	0.16 (0.09-0.25)	7	45	58	90

FIGURE 6. Prairie grouse regional and statewide time series (1979-2016) of indices of abundance from the July Rural Mail Carrier Survey.

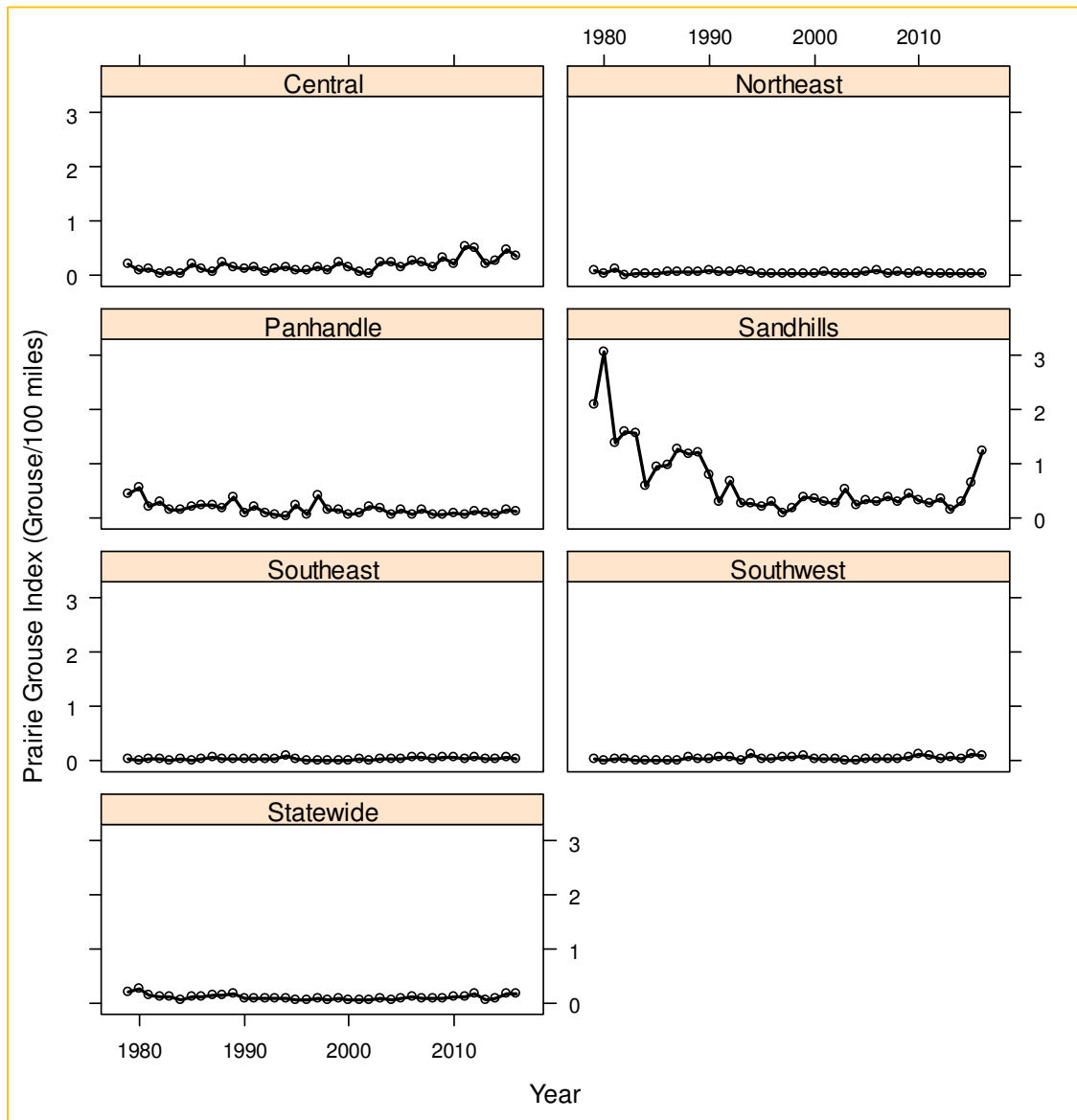


TABLE 8. Cottontail indices by pheasant management region (Figure 1) from the 2016 July Rural Mail Carrier Survey. Carrier means are weighted by miles traveled per carrier.

Region	Mean cottontails per 100 miles & 90% Confidence Limits	Percent Difference from:			
		2015	Mean 2011-2015	Mean 2006-2015	Mean 1996-2015
Central	1.66 (0.99-2.33)	-19	2	-33	-27
Northeast	0.86 (0.66-1.06)	-28	-8	-33	-30
Panhandle	0.73 (0.50-0.96)	-39	29	25	49
Sandhills	1.05 (0.66-1.44)	-15	58	22	31
Southeast	1.14 (0.90-1.38)	-43	7	-16	-18
Southwest	1.37 (0.94-1.80)	-28	38	15	21
Statewide	1.10 (0.96-1.24)	-40	3	-22	-17

FIGURE 7. Regional and statewide time series (1958-2016) of cottontail abundance indices from the July Rural Mail Carrier Survey.

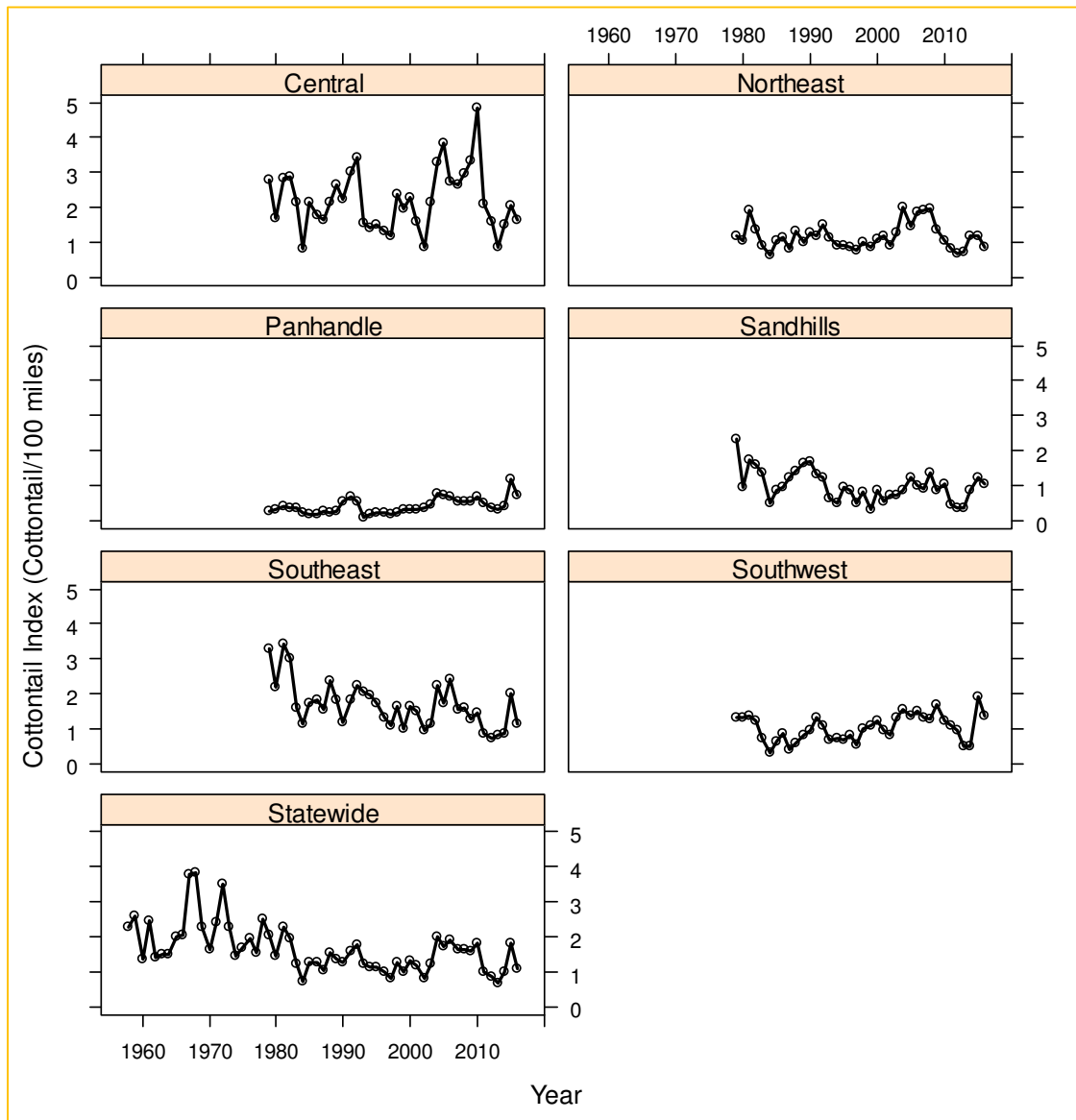


TABLE 9. Jackrabbit indices by pheasant management region (Figure 1) from the 2016 July Rural Mail Carrier Survey. Carrier means are weighted by miles traveled per carrier.

Region	Mean Jackrabbit per 1000 miles & 90% Confidence Limits	Percent Difference from:			
		2014	Mean 2010-2014	Mean 2005-2014	Mean 1995-2014
Central	1.06 (0.00-2.17)	1	86	12	27
Northeast	0.16 (0.01-0.31)	-33	-38	-56	-51
Panhandle	3.77 (2.44-5.10)	-47	28	49	80
Sandhills	2.65 (0.02-5.27)	-17	41	10	61
Southeast	0.12 (0.02-0.23)	33	-37	-71	-69
Southwest	3.23 (1.80-4.66)	-43	59	52	103
Statewide	1.18 (0.84-1.52)	-42	26	10	38

FIGURE 8. Regional and statewide time series (1963-2016) of jackrabbit abundance indices from the July Rural Mail Carrier Survey.

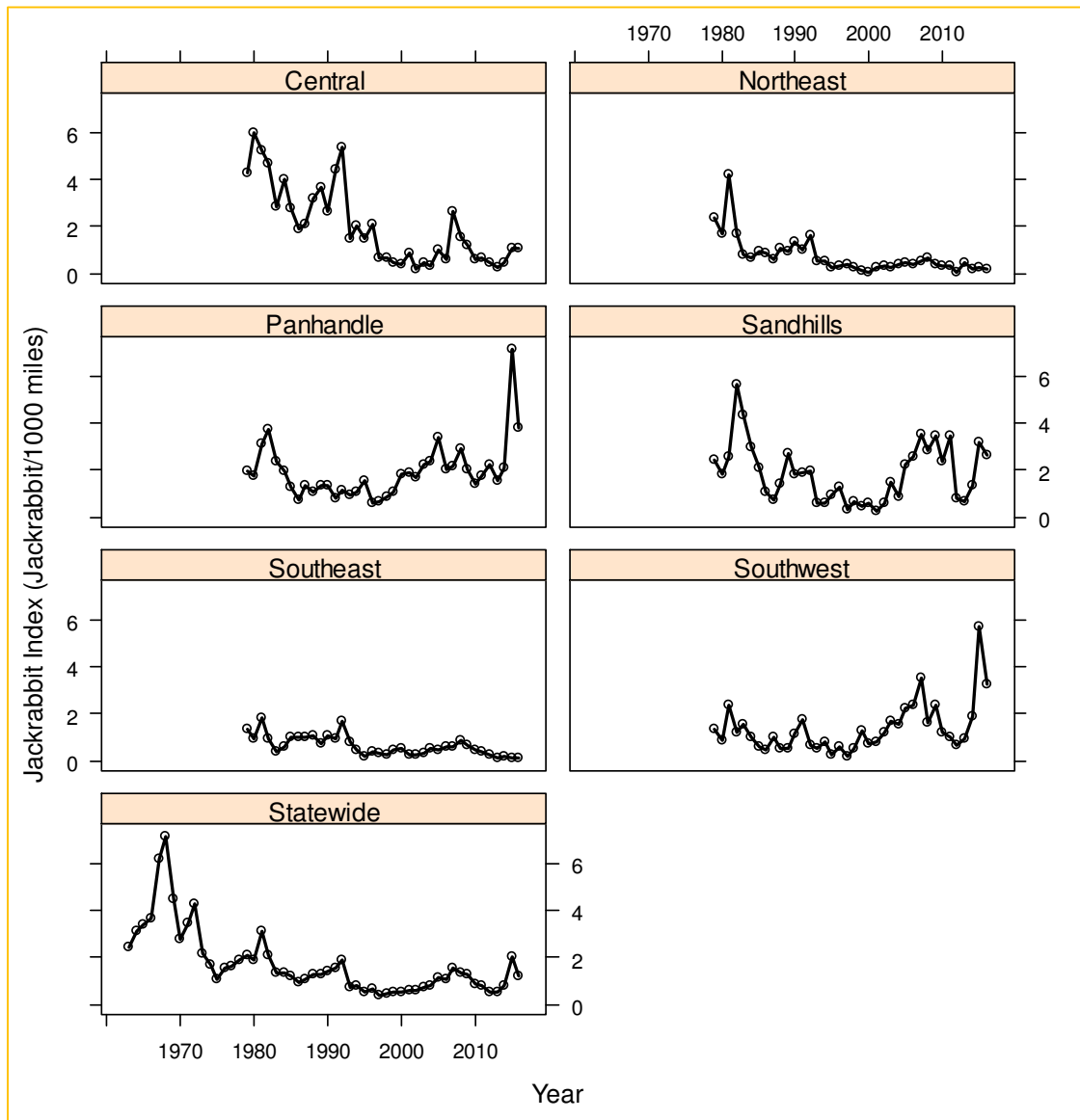


TABLE 10. Number of cards and percent of total cards ($n = 406$) that contained zero observations of each species of wildlife. Overall, 7.4% of cards contained zero observations of all species (30 cards).

	Pheasant	Bobwhite	Grouse	Turkey	Cottontail	Jackrabbit
No of Cards	166	251	365	186	105	335
Percent	41	62	90	46	26	83