

Federal Aid in Wildlife Restoration Project No: W-15-R**Title of Job:** 2017 July Rural Mail Carrier Survey

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The 2017 July Rural Mail Carrier Survey was conducted 5-8 July 2017. We received 357 cards by 21 July 2017, of which 340 cards contained complete information needed for analysis (Tables 1-3). Rural carriers made observations while traveling 147,629 miles of rural roads in 79 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 2016, relative, statewide abundance of upland species in July 2017 was generally lower: bobwhite indices were up relative to 2016, and pheasant, grouse, wild turkey, cottontail, and jackrabbit were down. However, none of the statewide indices were significantly lower than in July 2016, based on confidence intervals. Regional indices of relative abundance were more mixed for all species surveyed when compared to July 2016. Similar to statewide indices, the only significantly different index of abundance was for cottontails in the Sandhills based on overlap of confidence intervals. Compared to the five-year mean, statewide indices were higher for pheasants, quail, and jackrabbits, and were lower for grouse, cottontail, and wild turkey. Regional indices were mixed compared to the five-year mean, except for wild turkey.

Take-Home Message. The results of the 2017 July Rural Mail Carrier Survey indicate that relative abundance of pheasant, wild turkey, cottontail, and jackrabbit were lower than in July 2016, but not significantly so, and bobwhite were higher. Further, except for wild turkeys, grouse, and cottontails 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 2017 July Rural Mail Carrier Survey by pheasant management region (Figure 1).

Region	Carriers	Miles	Grouse	Turkey	Cottontail	Jackrabbit
Central	42	17,901	26	287	268	52
Northeast	96	44,281	30	332	260	5
Panhandle	25	9,036	9	72	156	83
Sandhills	23	9,683	20	81	38	5
Southeast	123	53,675	17	404	631	2
Southwest	31	13,052	10	404	169	14
Statewide	340	147,629	112	1,580	1,522	161

TABLE 2. Raw counts from the 2017 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	42	17,901	91	0.10
Northeast	96	44,281	274	0.38
Panhandle	25	9,036	317	0.26
Sandhills	23	9,683	40	0.42
Southeast	123	53,675	210	0.24
Southwest	31	13,052	217	0.22
Statewide	340	147,629	1,149	0.26

TABLE 3. Raw counts from the 2017 July Rural Mail Carrier Survey for bobwhites, by bobwhite management zone (Figure 2).

Zone	Carriers	Miles	Bobwhites
East Central	59	25,799	247
North Central	33	15,077	165
Northeast	90	42,382	44
Republican	23	10,264	178
Southeast	54	22,818	250
West Platte	60	23,261	93
Not Quail Range (NQR)	21	8,029	4
Statewide	340	147,629	981

Results. Statewide, indices of relative abundance were lower for all species except bobwhites, but the indices were not significantly different from the July 2016 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 regional index for cottontails in the Sandhills (Table 8, Figure 7) was significantly lower compared to 2016. Regional indices were lower in 2017 compared to 2016 for pheasants, with relative abundance higher in the Panhandle, and lower elsewhere. For bobwhite, regional indices were higher in 2017 compared to 2016 all regions except for the Northeast. Regional turkey indices were mixed in 2017 compared to 2016, with indices higher in the Central, Panhandle, and Southwest regions, and lower elsewhere. For prairie grouse, 2017 regional indices were higher in the Northeast, Southeast, and Southwest regions, but were lower elsewhere in the state. Regional cottontail indices were lower in 2017 compared to 2016, except in the Panhandle and Southeast regions, and were significantly lower in the Sandhills region. Jackrabbit regional indices were higher in the Central and Panhandle regions in 2017 compared to 2016, but were lower elsewhere. Except for cottontails in the Sandhills, no regional indices were significantly different when compared to the July 2016 estimated. In 2017, 37 of 340 usable cards returned (10.9%) contained no observations of any wildlife species, which is up from the 30 of 406 cards with no observations returned in 2016 (7.4%). The number of cards containing zero observations for particular species is provided in Table 10.

FIGURE 1. Pheasant management regions.

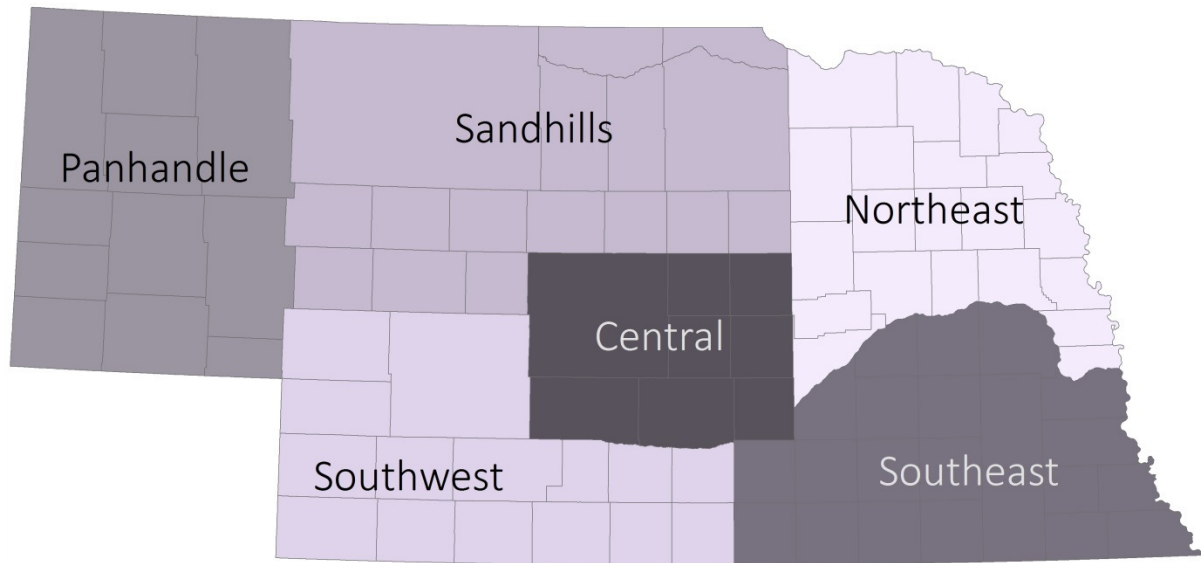


FIGURE 2. Bobwhite management zones.

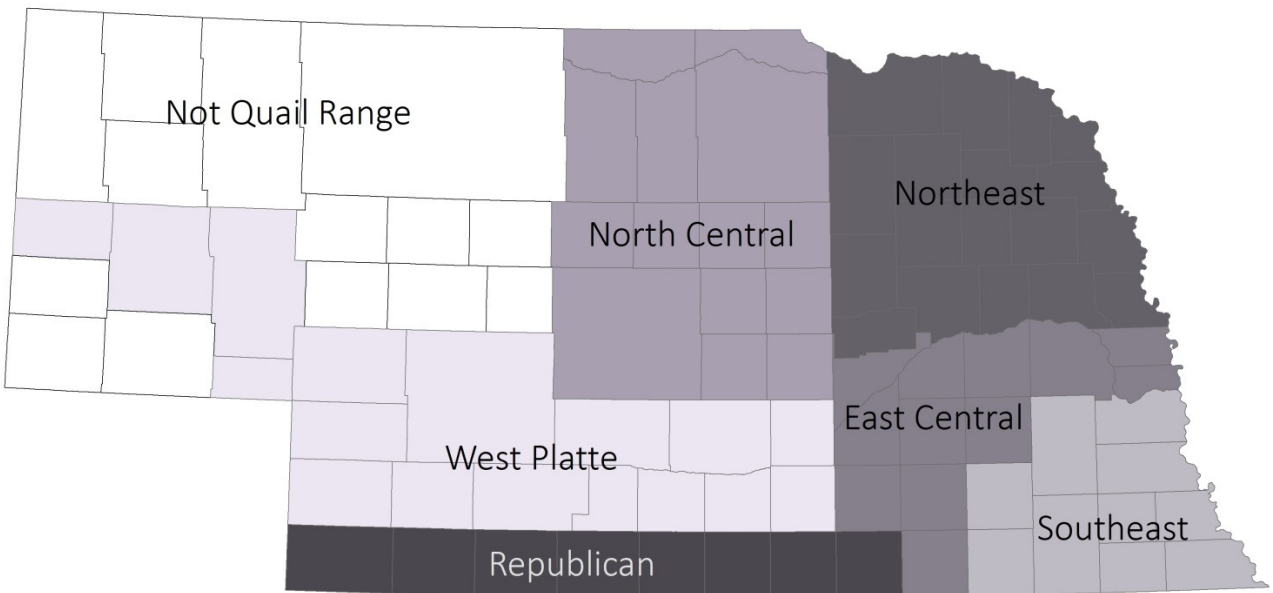


TABLE 4. Pheasant indices from the 2017 July Rural Mail Carrier Survey by pheasant management region (Figure 1). Carrier means are weighted by miles traveled per carrier.

Region	Mean pheasants per 100 miles & 90% Confidence Limits	Percent Difference from:			
		2016	Mean 2012-2016	Mean 2007-2016	Mean 1997-2016
Central	0.51 (0.30-0.72)	-27	-9	-34	-53
Northeast	0.62 (0.43-0.81)	-6	-3	-35	-54
Panhandle	3.51 (0.37-6.65)	195	189	186	189
Sandhills	0.41 (0.20-0.62)	-54	-32	-51	-55
Southeast	0.39 (0.28-0.51)	-11	-13	-45	-59
Southwest	1.66 (1.06-2.27)	-11	0	-24	-23
Statewide	0.78 (0.53-1.03)	-5	4	-23	-37

FIGURE 3. Regional and statewide time series (1979-2017) of pheasant abundance indices from the July Rural Mail Carrier Survey by pheasant management region (Figure 1).

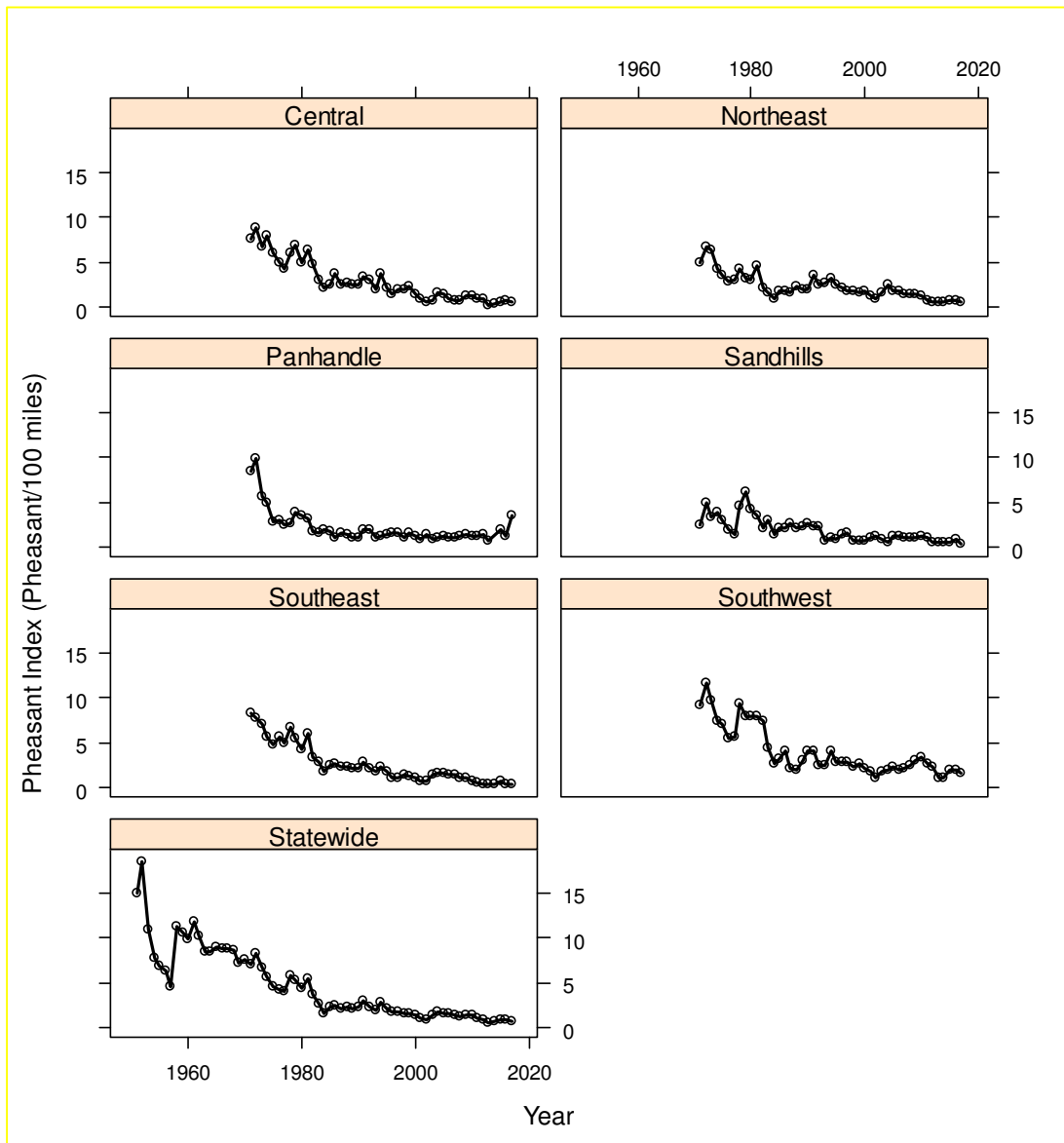


TABLE 5. Northern bobwhite indices by bobwhite management zone from the 2017 July Rural Mail Carrier Survey. Carrier means are weighted by miles traveled per carrier.

Zone	Mean bobwhites per 100 miles & 90% Confidence Limits	Percent Difference from:			
		2016	Mean 2012-2016	Mean 2007-2016	Mean 1997-2016
East Central	0.95 (0.59-1.32)	61	164	129	88
North Central	1.09 (0.11-2.07)	7	68	55	64
Northeast	0.10 (0.05-0.16)	-41	-28	-48	-60
Republican	1.73 (0.99-2.48)	59	193	132	148
Southeast	1.10 (0.75-1.44)	-15	15	26	36
West Platte	0.40 (0.23-0.57)	82	102	67	50
NQR	0.05 (0.00-0.16)	150	4	40	46
Statewide (QR)	0.67 (0.53-0.81)	29	81	65	50

FIGURE 4. Regional and statewide time series (1979-2017) of indices of northern bobwhite abundance from the July Rural Mail Carrier Survey.

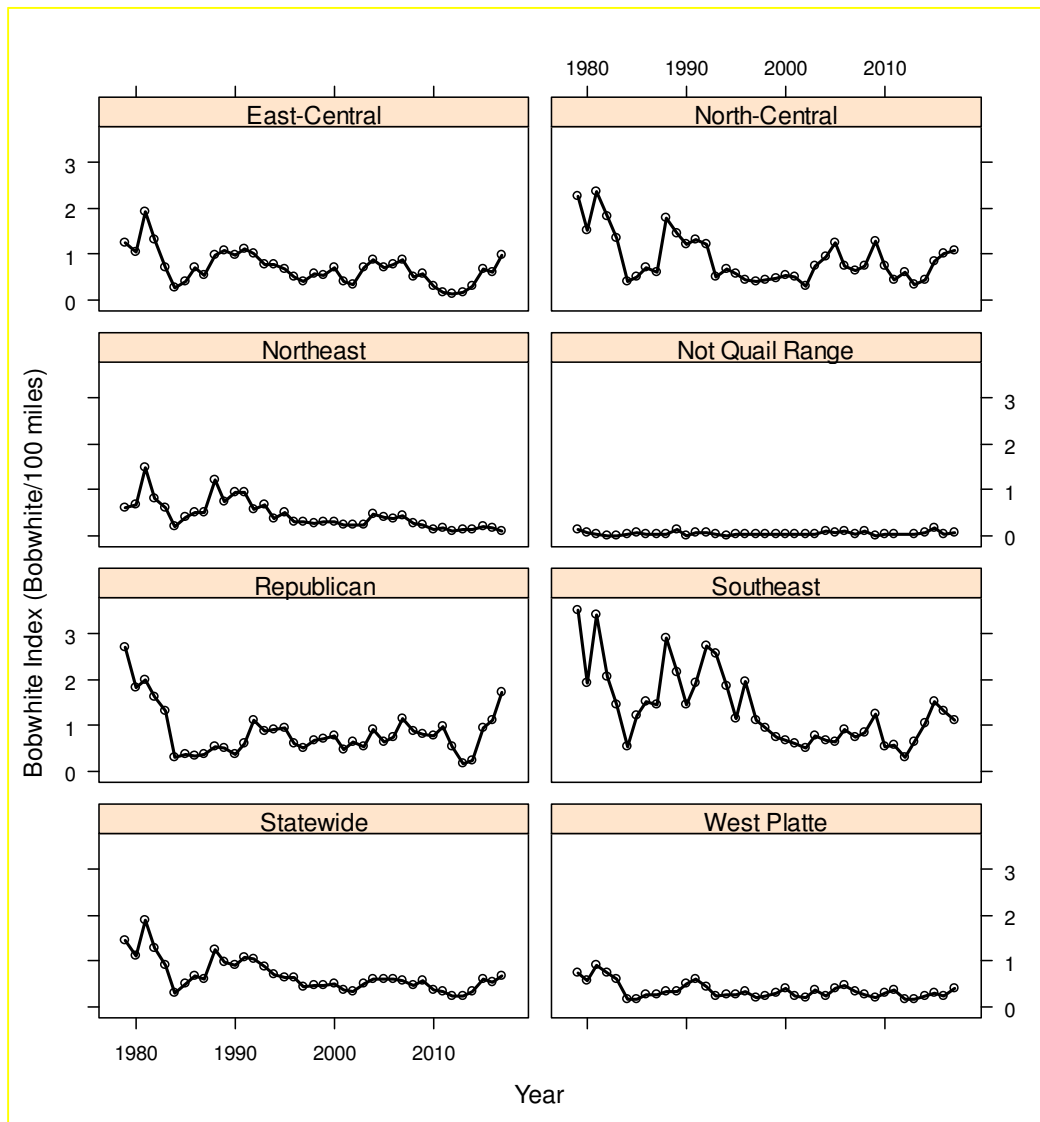


TABLE 6. Wild turkey indices by pheasant management region from the 2017 July Rural Mail Carrier Survey. Carrier means are weighted by miles traveled per carrier.

Region	Mean turkeys per 100 miles & 90% Confidence Limits	Percent Difference from:		
		2016	Mean 2012-2016	Mean 2007-2016
Central	1.60 (0.85-2.36)	60	15	-13
Northeast	0.75 (0.44-1.06)	-13	-18	-22
Panhandle	0.80 (0.00-1.62)	16	20	29
Sandhills	0.84 (0.27-1.40)	-50	-63	-76
Southeast	0.75 (0.56-0.94)	-6	-29	-39
Southwest	3.09 (1.43-4.76)	-10	26	3
Statewide	1.07 (0.85-1.29)	-10	-25	-34

FIGURE 5. Regional and statewide time series (2000-2017) of wild turkey abundance indices from the July Rural Mail Carrier Survey.

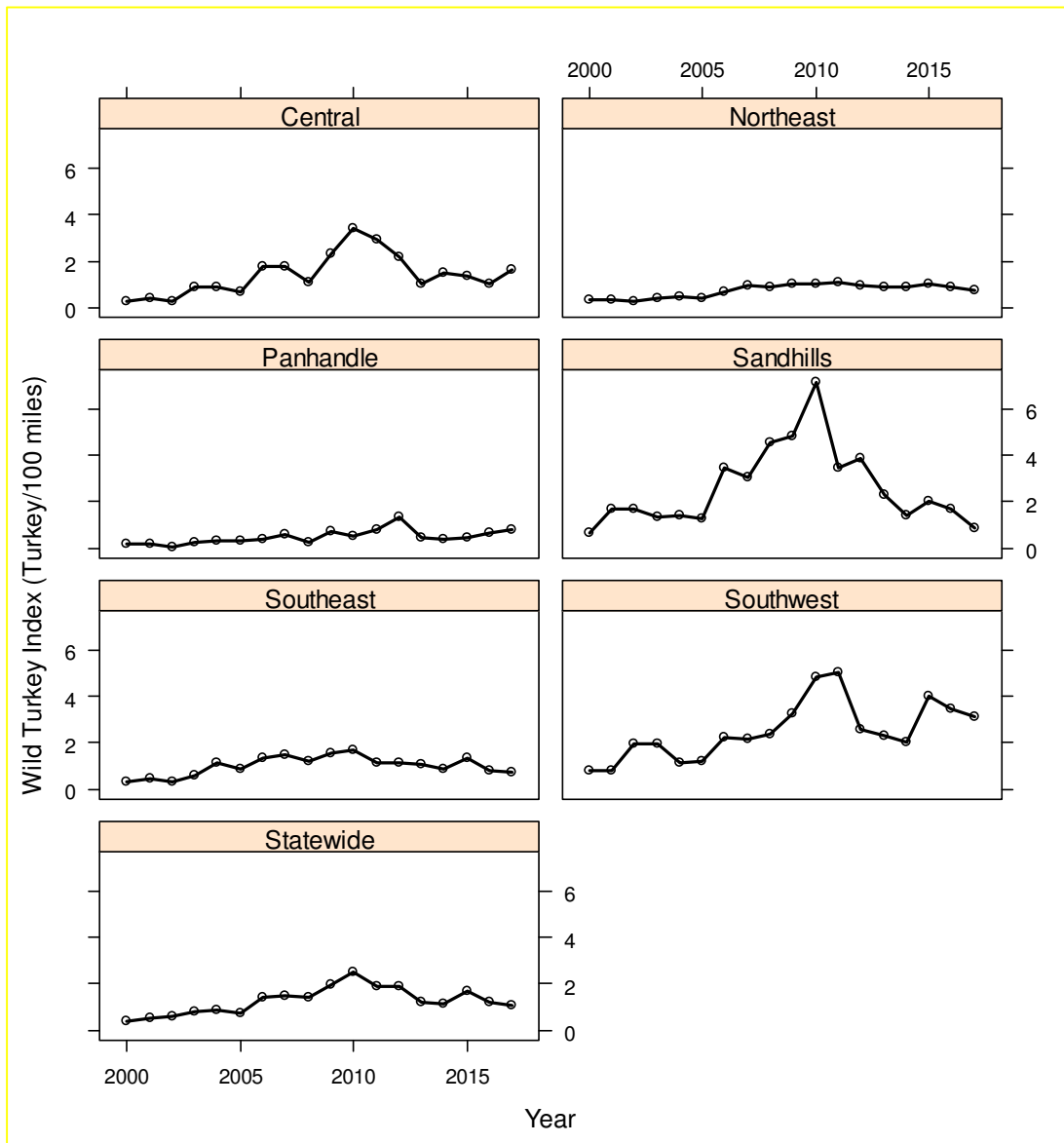


TABLE 7. Prairie grouse indices by pheasant management region (Figure 1) from the 2017 July Rural Mail Carrier Survey. Carrier means are weighted by miles traveled per carrier.

Region	Mean grouse per 100 miles & 90% Confidence Limits	Percent Difference from:			
		2016	Mean 2012-2016	Mean 2007-2016	Mean 1997-2016
Central	0.15 (0.03-0.26)	-57	-60	-56	-41
Northeast	0.08 (0.00-0.16)	300	265	163	147
Panhandle	0.10 (0.00-0.22)	-17	0	19	-11
Sandhills	0.21 (0.00-0.56)	-83	-60	-51	-41
Southeast	0.03 (0.00-0.06)	50	-3	-15	15
Southwest	0.08 (0.00-0.20)	14	60	60	100
Statewide	0.08 (0.04-0.12)	-50	-33	-25	-11

FIGURE 6. Prairie grouse regional and statewide time series (1979-2017) of indices of abundance from the July Rural Mail Carrier Survey.

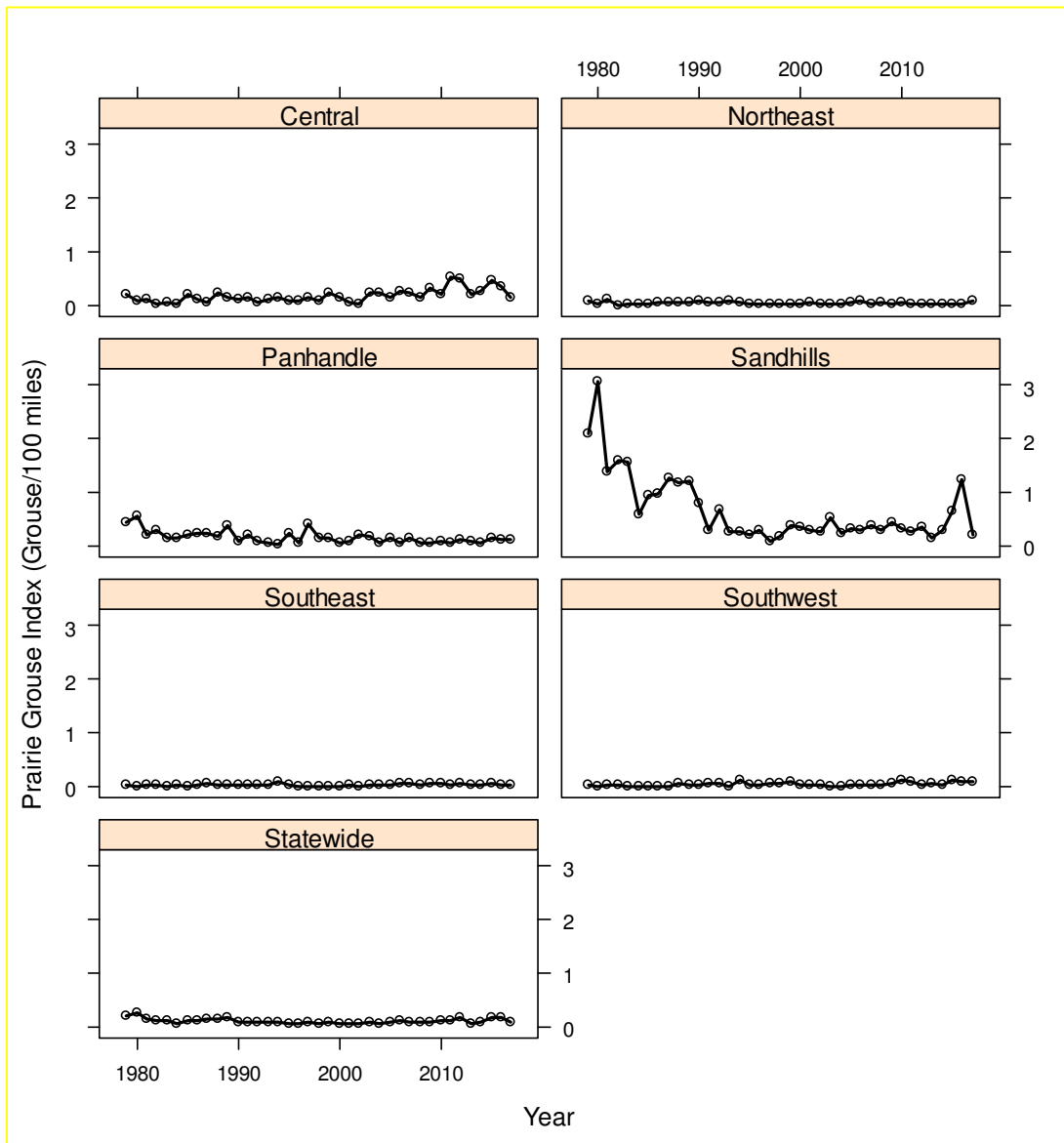


TABLE 8. Cottontail indices by pheasant management region (Figure 1) from the 2017 July Rural Mail Carrier Survey. Carrier means are weighted by miles traveled per carrier.

Region	Mean cottontails per 100 miles & 90% Confidence Limits	Percent Difference from:			
		2016	Mean 2012-2016	Mean 2007-2016	Mean 1997-2016
Central	1.50 (0.75-2.24)	-10	-3	-36	-35
Northeast	0.59 (0.41-0.77)	-31	-37	-50	-52
Panhandle	1.73 (0.00-4.03)	137	185	194	236
Sandhills	0.39 (0.09-0.69)	-63	-50	-55	-52
Southeast	1.16 (0.88-1.47)	2	6	-5	-15
Southwest	1.29 (0.70-1.89)	-6	23	9	11
Statewide	1.03 (0.80-1.26)	-6	-6	-22	-22

FIGURE 7. Regional and statewide time series (1958-2017) of cottontail abundance indices from the July Rural Mail Carrier Survey.

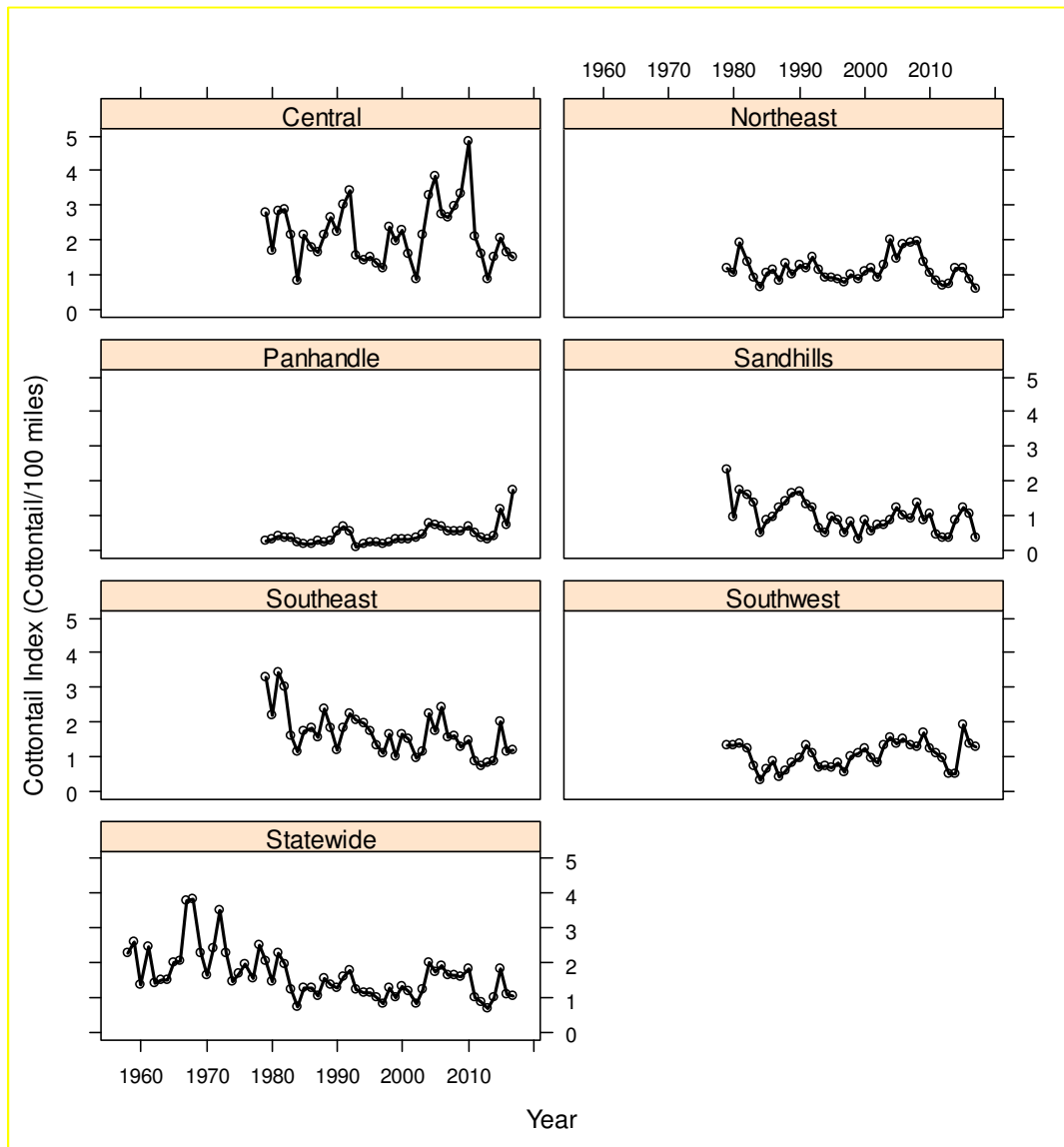


TABLE 9. Jackrabbit indices by pheasant management region (Figure 1) from the 2017 July Rural Mail Carrier Survey. Carrier means are weighted by miles traveled per carrier.

Region	Mean Jackrabbit per 1000 miles & 90% Confidence Limits	Percent Difference from:			
		2016	Mean 2012-2016	Mean 2007-2016	Mean 1997-2016
Central	2.90 (1.28-4.53)	174	350	194	273
Northeast	0.11 (0.00-0.33)	-31	-51	-67	-65
Panhandle	9.19 (0.00-26.6)	144	175	241	308
Sandhills	0.52 (0.00-1.04)	-80	-70	-79	-70
Southeast	0.04 (0.00-0.08)	-67	-71	-89	-89
Southwest	1.07 (0.00-2.93)	-67	-57	-52	-38
Statewide	1.09 (0.00-2.35)	-8	8	0	24

FIGURE 8. Regional and statewide time series (1963-2017) of jackrabbit abundance indices from the July Rural Mail Carrier Survey.

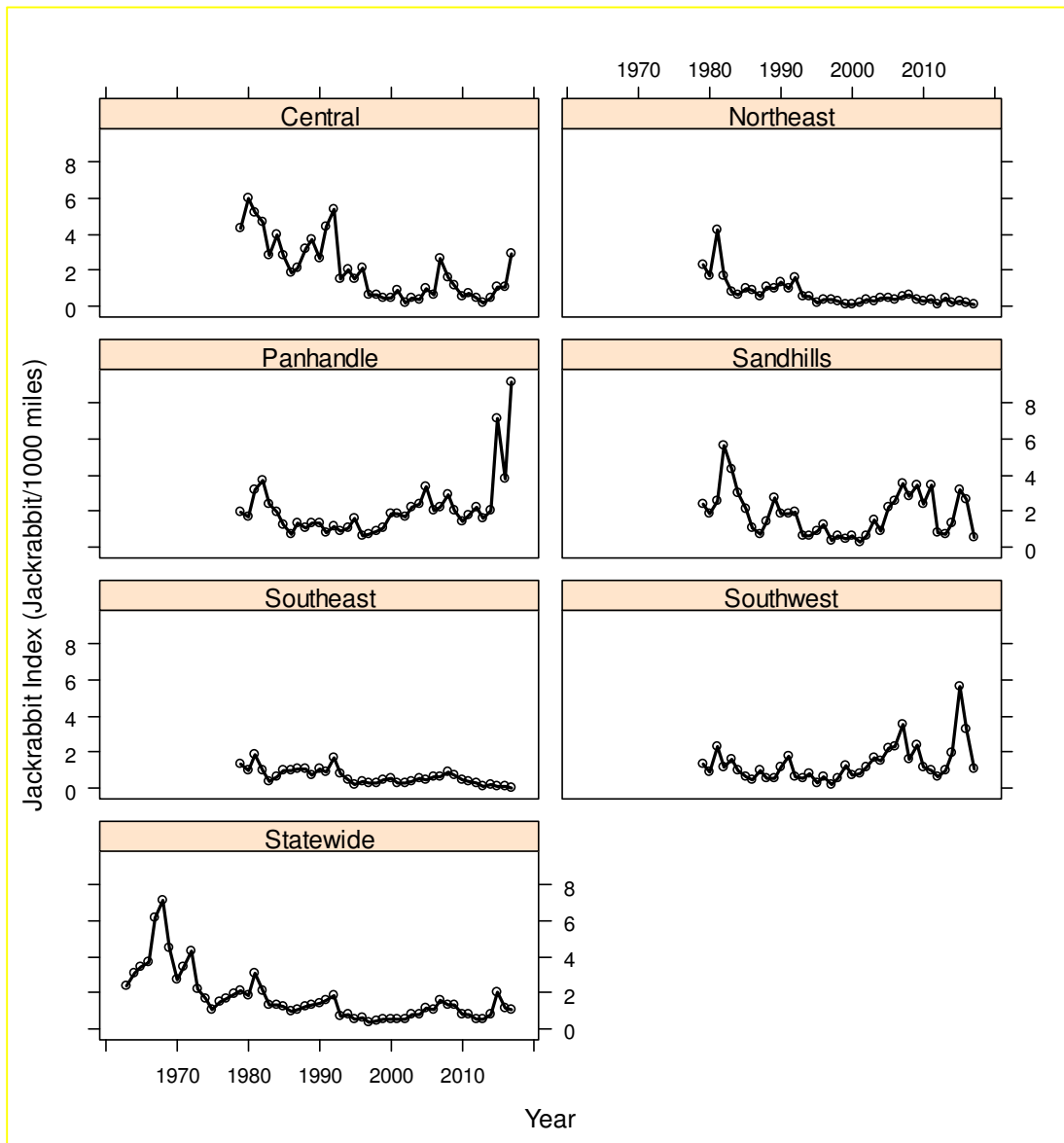


TABLE 10. Number of cards and percent of total cards ($n = 340$) that contained zero observations of each species of wildlife. Overall, 10.9% of cards contained zero observations of all species (37 cards).

	Pheasant	Bobwhite	Grouse	Turkey	Cottontail	Jackrabbit
No of Cards	153	204	307	158	116	300
Percent	45.0	60.0	90.3	46.5	34.1	88.2