

Federal Aid in Wildlife Restoration Project N<sup>o</sup>: W-15-R

Title of Job: 2019 July Rural Mail Carrier Survey



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The 2019 July Rural Mail Carrier Survey was conducted 8-11 July 2019. We received 426 cards by 22 July 2019, of which 404 cards contained complete information needed for analysis (Tables 1-3). Rural carriers made observations while traveling 168,410 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 2018, relative, statewide abundance of upland species in July 2019 was lower: bobwhite, pheasant, grouse, and jackrabbit indices were down relative to 2018, and turkey and cottontail were up or similar. However, none of the statewide indices were significantly lower than in July 2018, based on confidence intervals. Regional indices of relative abundance were generally lower when compared to July 2018. Similar to statewide indices, there were no significant differences based on overlap of confidence intervals. Compared to the five-year mean, statewide indices were lower for pheasants, bobwhites, grouse, cottontail, and jackrabbit, but was higher for wild turkey. Pheasant age ratios were higher than in 2018 in the Central, Sandhills, and Southeast regions potentially indicating better production in these regions than in 2018.

**Take-Home Message.** The results of the 2019 July Rural Mail Carrier Survey indicate that relative abundance of most upland and small game species was lower than in July 2018, but not significantly so. Fall abundance for most species will depend on this summer’s production. For pheasants, age ratios indicate higher production in some area of the state, potentially mitigating lower observed abundances in those areas.

**TABLE 1.** Raw counts of prairie grouse, wild turkey, cottontail, and jackrabbits from the 2019 July Rural Mail Carrier Survey by pheasant management region (Figure 1).

Region	Carriers	Miles	Grouse	Turkey	Cottontail	Jackrabbit
Central	52	22,451	55	361	286	14
Northeast	99	43,576	18	327	249	6
Panhandle	51	19,115	8	110	120	27
Sandhills	31	12,160	33	282	30	2
Southeast	116	48,521	15	404	456	3
Southwest	55	22,587	18	863	195	31
Statewide	404	168,410	147	2,347	1,336	83

**TABLE 2.** Raw counts from the 2019 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	52	22,451	120	0.89
Northeast	99	43,576	230	0.26
Panhandle	51	19,115	205	0.08
Sandhills	31	12,160	55	0.83
Southeast	116	48,521	150	0.27
Southwest	55	22,587	304	0.19
Statewide	404	168,410	1,064	0.27

**TABLE 3.** Raw counts from the 2019 July Rural Mail Carrier Survey for bobwhites, by bobwhite management zone (Figure 2).

Zone	Carriers	Miles	Bobwhites
East Central	69	27,489	211
North Central	45	21,198	101
Northeast	88	40,688	53
Republican	27	11,471	91
Southeast	44	18,160	78
West Platte	86	33,450	100
Not Quail Range (NQR)	45	15,954	5
Statewide	404	168,410	639

**Results.** Statewide, indices of relative abundance were lower for all species except turkey and cottontails, but the indices were not significantly different from the July 2018 survey for pheasants (Table 4, Figure 3), bobwhites (Table 5, Figure 4), wild turkey (Table 6, Figure 5), prairie grouse (Table 7, Figure 6), cottontail (Table 8, Figure 7) or jackrabbit (Table 9, Figure 8). Regional indices were lower in 2019 compared to 2018 for pheasants, with abundance only higher in the Central region. For bobwhite, regional indices were lower in 2019 compared to 2018 in all regions except for the Northeast, where the index was similar to 2018, and the West Platte, where the index was higher. Regional turkey indices were higher in 2019 compared to 2018, except for the Northeast, Panhandle, and Southeast regions. For prairie grouse, 2019 regional indices were lower in the Central, Panhandle, and Sandhills regions, but were higher elsewhere in the state. Regional cottontail indices were lower in 2019 compared to 2018 in the Northeast and Sandhills regions, but higher elsewhere. Jackrabbit regional indices were lower everywhere except the Central and Northeast regions, where indices were similar, in 2019 compared to 2018. Pheasant age ratios (Table 2) in 2019 were higher in the Central, Sandhills, and Southeast regions, but were lower in the Panhandle and Southwest, compared to 2018. Statewide and Northeast age ratios were similar to 2018. In 2019, 58 of 404 usable cards returned (14.4%) contained no observations of any wildlife species, which is up from the 51 of 398 cards with no observations returned in 2018 (12.8%). The number of cards containing zero observations for particular species is provided in Table 10.

FIGURE 1. Pheasant management regions.

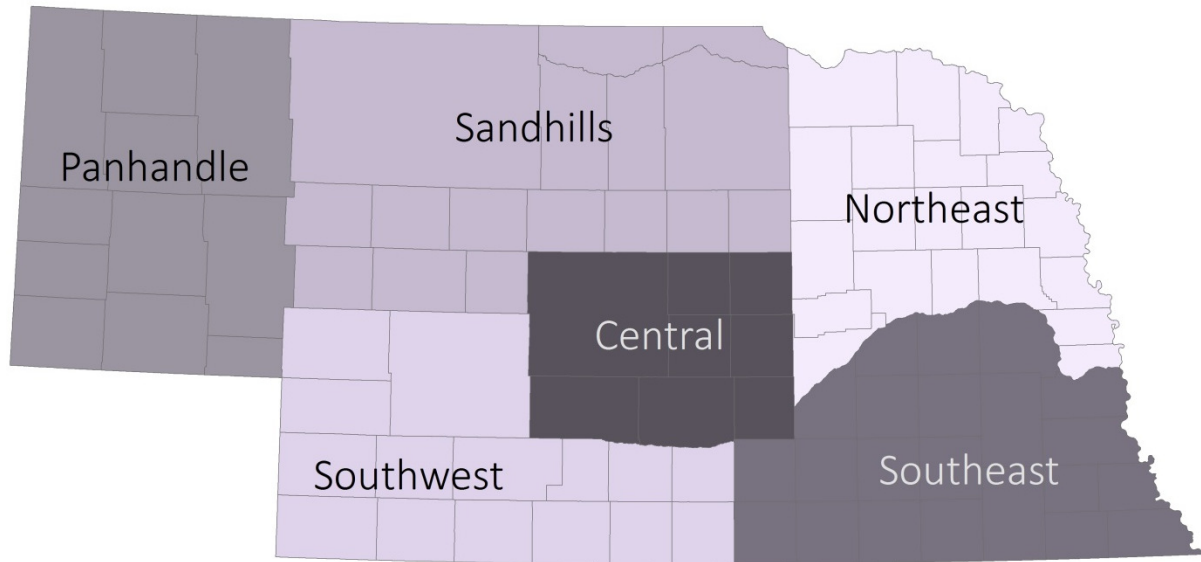
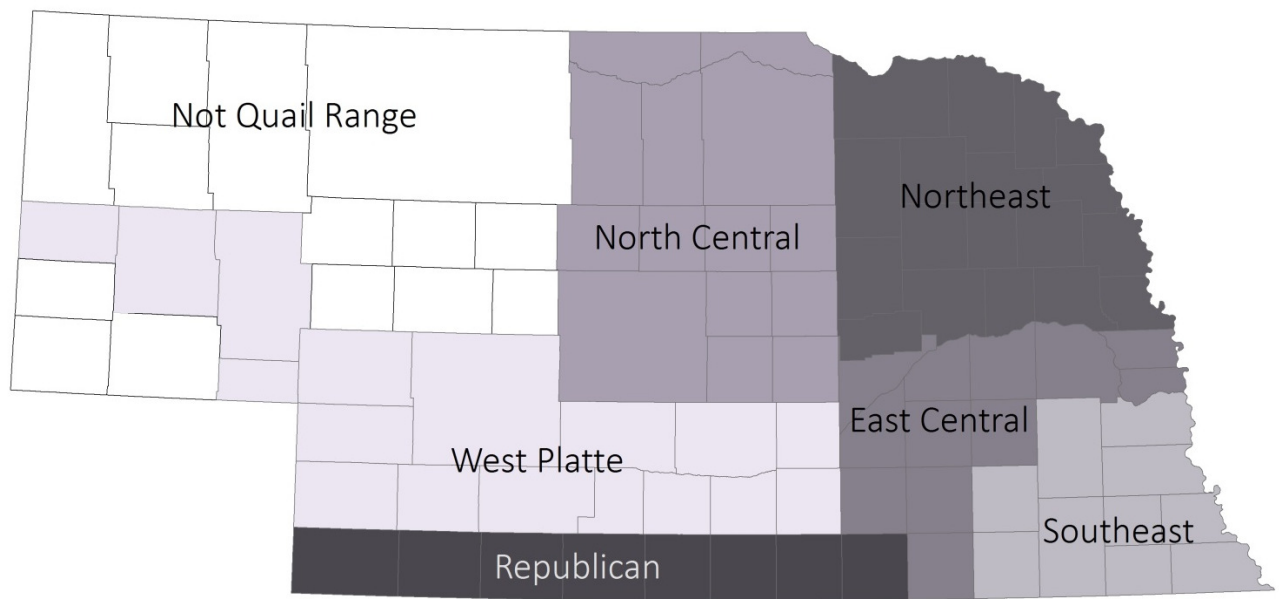


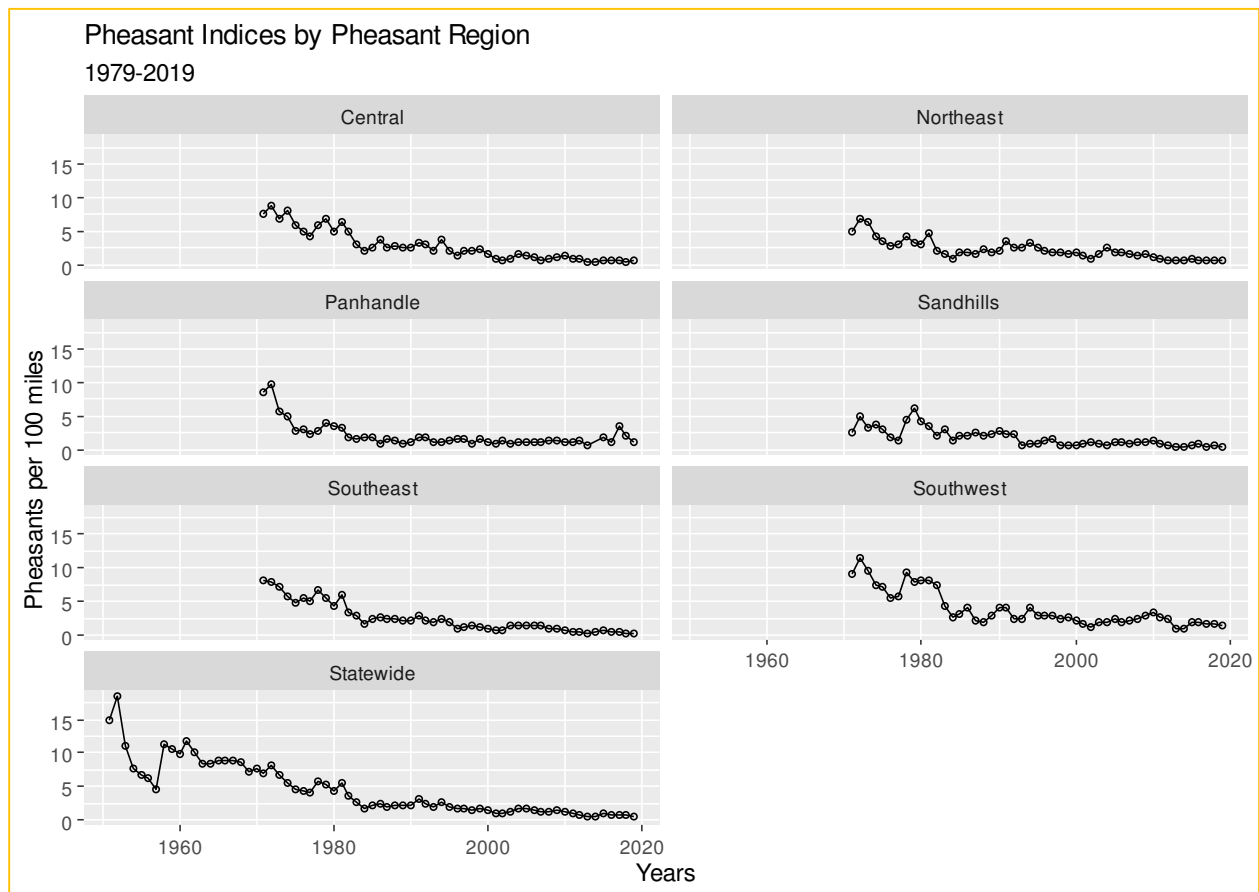
FIGURE 2. Bobwhite management zones.



**TABLE 4.** Pheasant indices from the 2019 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:			
		2018	Mean 2014-2018	Mean 2009-2018	Mean 1999-2018
Central	0.53 (0.28-0.78)	83	6	-24	-43
Northeast	0.53 (0.38-0.67)	-2	-17	-32	-56
Panhandle	1.07 (0.63-1.52)	-50	-44	-31	-22
Sandhills	0.45 (0.08-0.82)	-38	-26	-40	-47
Southeast	0.31 (0.21-0.41)	-6	-32	-42	-64
Southwest	1.35 (0.79-1.90)	-13	-17	-34	-34
Statewide	0.63 (0.52-0.74)	-14	-19	-30	-45

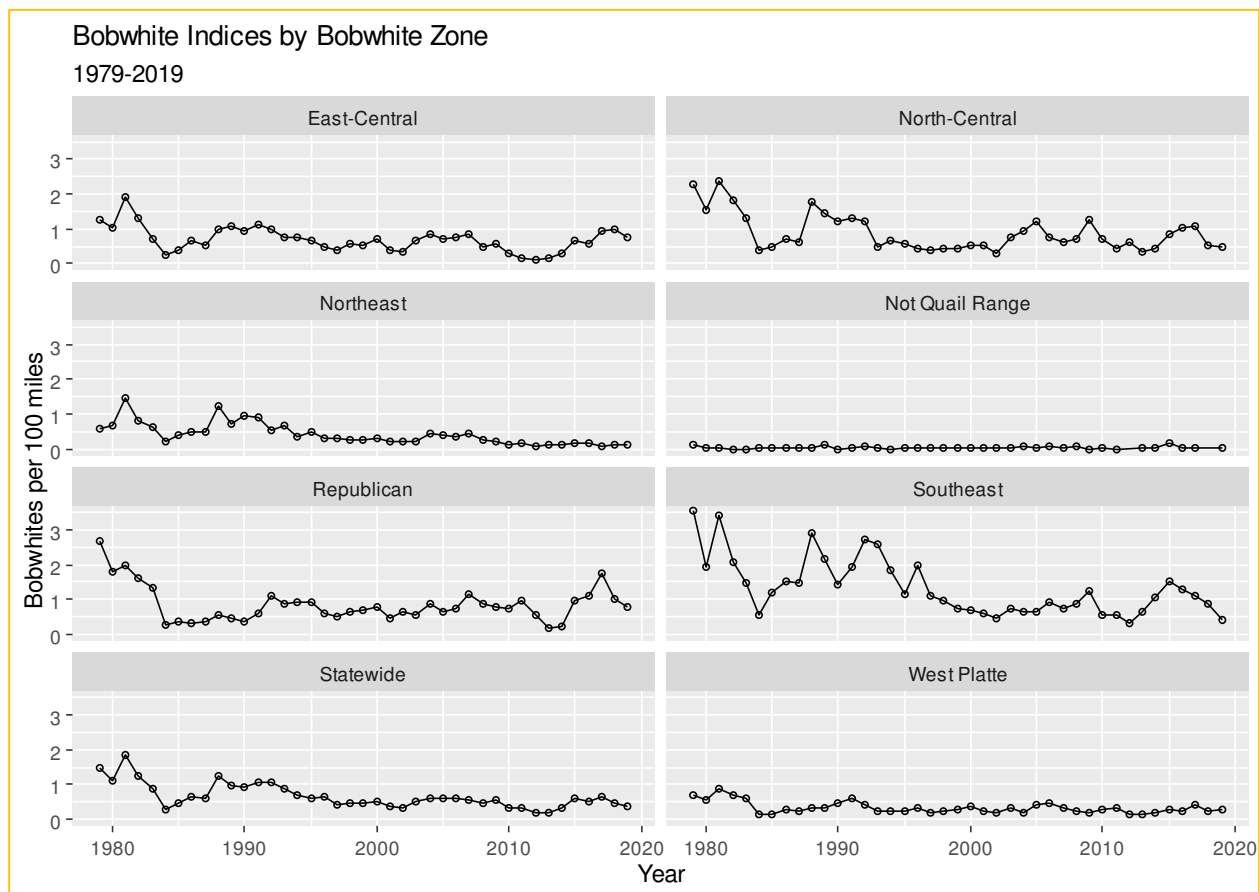
**FIGURE 3.** Regional and statewide time series (1979-2019) of pheasant abundance indices from the July Rural Mail Carrier Survey by pheasant management region (Figure 1).



**TABLE 5.** Northern bobwhite indices by bobwhite management zone from the 2019 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:			
		2018	Mean 2014-2018	Mean 2009-2018	Mean 1999-2018
East Central	0.77 (0.51-1.03)	-23	10	61	38
North Central	0.48 (0.02-0.93)	-11	-39	-34	-32
Northeast	0.13 (0.08-0.18)	0	-11	-12	-44
Republican	0.79 (0.49-1.10)	-22	-21	-4	2
Southeast	0.43 (0.28-0.57)	-52	-63	-53	-47
West Platte	0.30 (0.16-0.44)	36	13	22	9
NQR	0.03 (0.00-0.09)	200	-48	-5	-17
Statewide (QR)	0.38 (0.30-0.46)	-21	-26	-10	-17

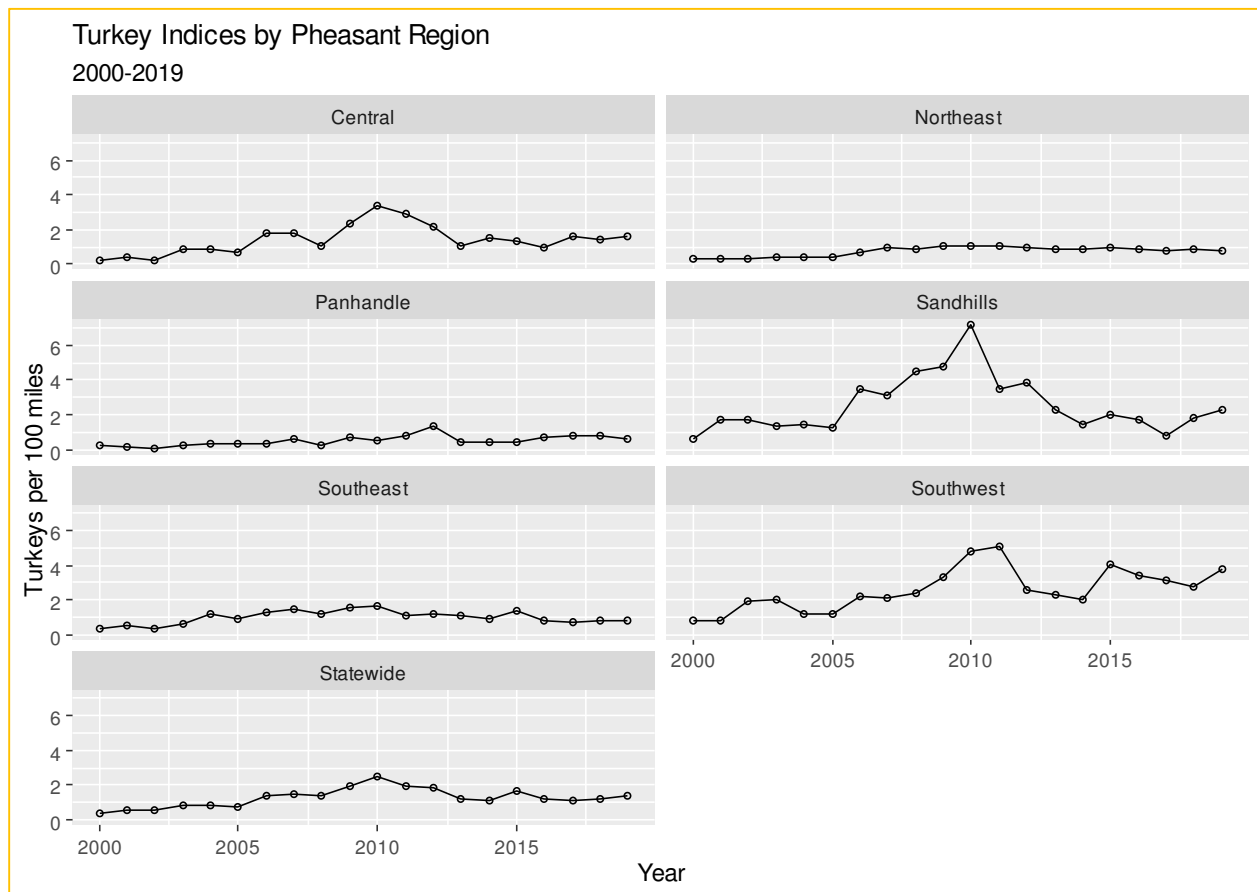
**FIGURE 4.** Regional and statewide time series (1979-2019) of indices of northern bobwhite abundance from the July Rural Mail Carrier Survey.



**TABLE 6.** Wild turkey indices by pheasant management region from the 2019 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:		
		2018	Mean 2014-2018	Mean 2009-2019
Central	1.61 (1.07-2.15)	16	19	-14
Northeast	0.75 (0.47-1.03)	-11	-14	-20
Panhandle	0.58 (0.00-1.47)	-29	-9	-17
Sandhills	2.32 (1.07-3.57)	27	49	-21
Southeast	0.83 (0.57-1.10)	-1	-11	-26
Southwest	3.82 (2.57-5.07)	38	43	22
Statewide	1.39 (1.13-1.65)	12	10	-12

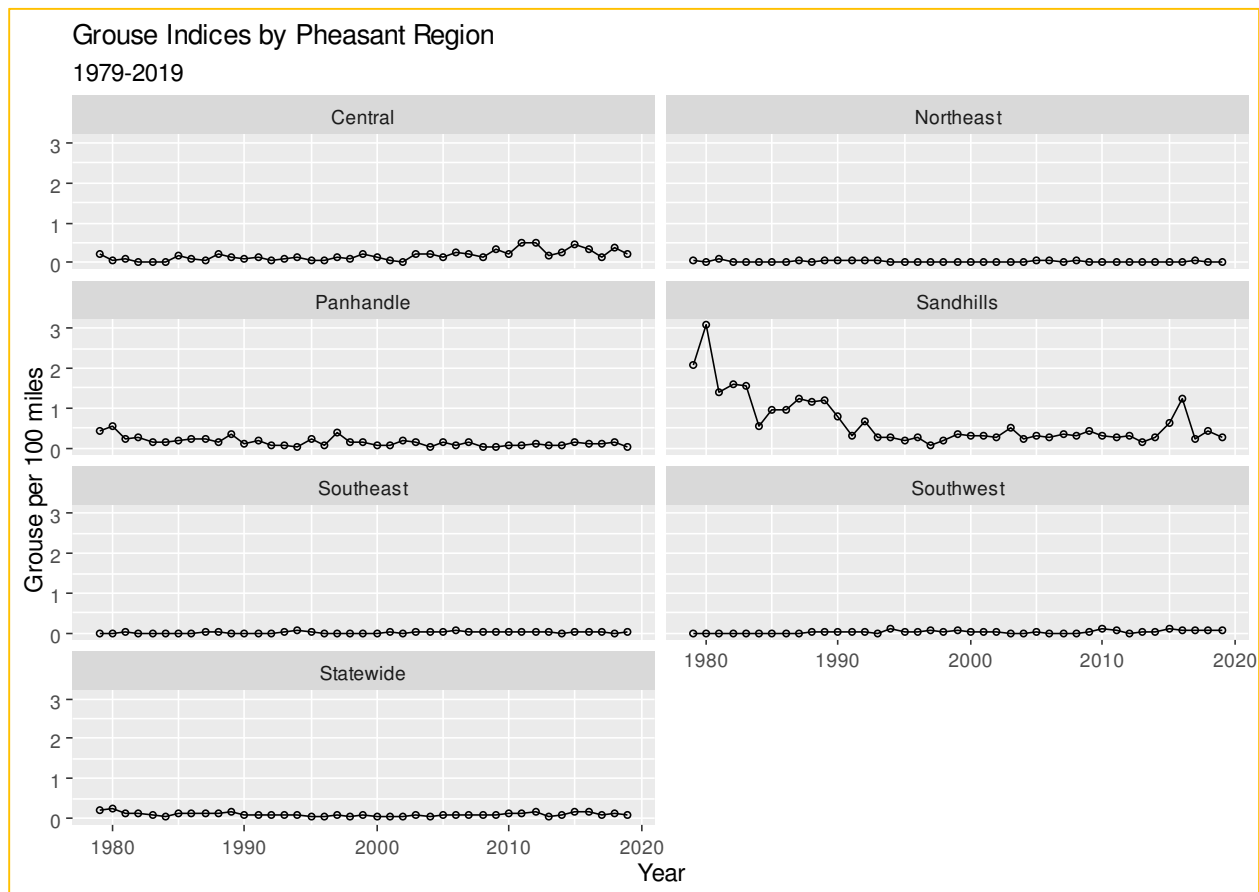
**FIGURE 5.** Regional and statewide time series (2000-2018) of wild turkey abundance indices from the July Rural Mail Carrier Survey.



**TABLE 7.** Prairie grouse indices by pheasant management region (Figure 1) from the 2019 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:			
		2018	Mean 2014-2018	Mean 2009-2018	Mean 1999-2018
Central	0.24 (0.07-0.42)	-35	-24	-28	-5
Northeast	0.04 (0.01-0.07)	100	33	50	30
Panhandle	0.04 (0.00-0.11)	-73	-64	-57	-59
Sandhills	0.27 (0.04-0.51)	-36	-52	-37	-28
Southeast	0.03 (0.00-0.06)	200	25	-3	7
Southwest	0.08 (0.00-0.18)	14	14	25	88
Statewide	0.09 (0.05-0.13)	-18	-21	-18	-3

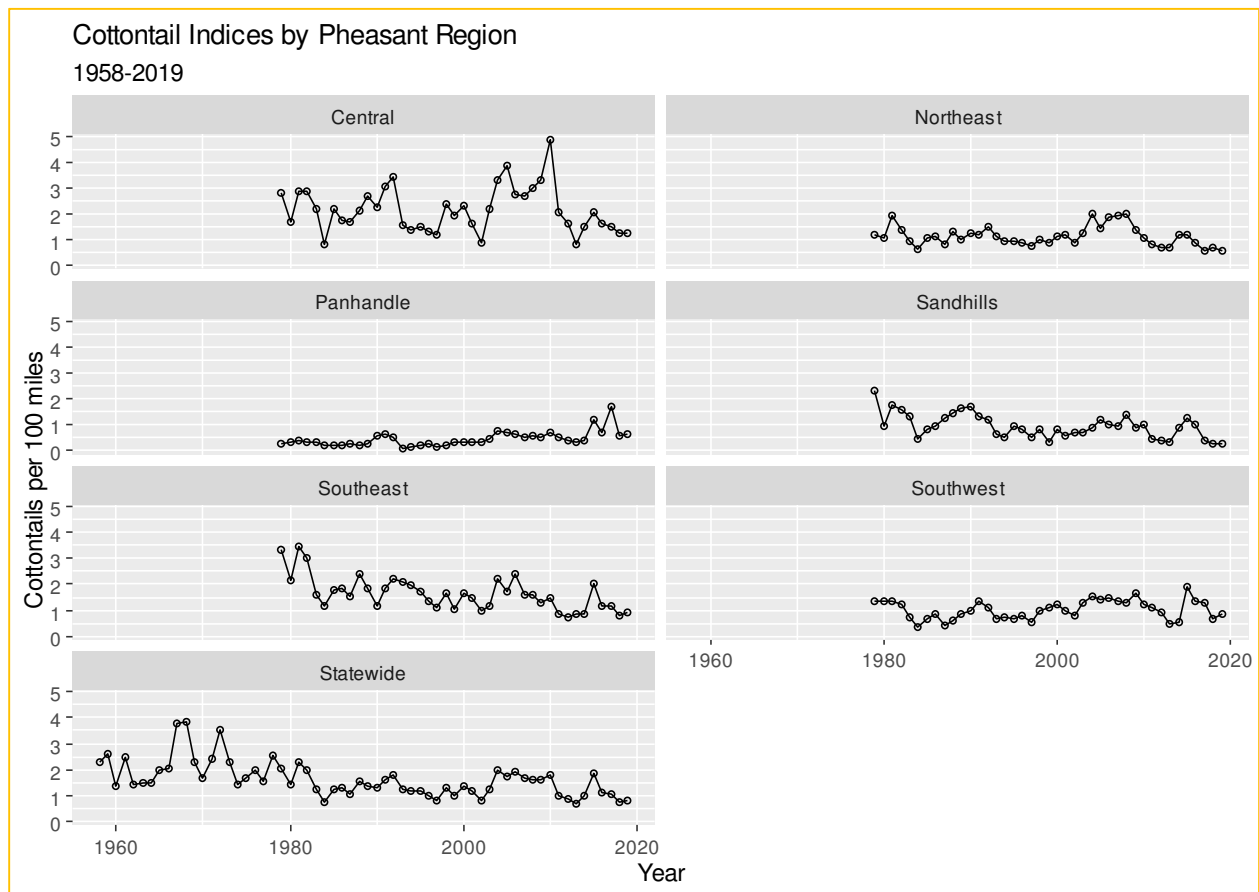
**FIGURE 6.** Prairie grouse regional and statewide time series (1979-2019) of indices of abundance from the July Rural Mail Carrier Survey.



**TABLE 8.** Cottontail indices by pheasant management region (Figure 1) from the 2019 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:			
		2018	Mean 2014-2018	Mean 2009-2018	Mean 1999-2018
Central	1.27 (0.75-1.80)	2	-20	-39	-44
Northeast	0.57 (0.40-0.74)	-20	-37	-38	-52
Panhandle	0.63 (0.27-0.99)	5	-32	-12	3
Sandhills	0.25 (0.08-0.41)	-4	-67	-64	-68
Southeast	0.94 (0.72-1.16)	22	-21	-16	-30
Southwest	0.86 (0.47-1.25)	30	-25	-23	-27
Statewide	0.79 (0.67-0.91)	5	-31	-32	-40

**FIGURE 7.** Regional and statewide time series (1958-2019) of cottontail abundance indices from the July Rural Mail Carrier Survey.

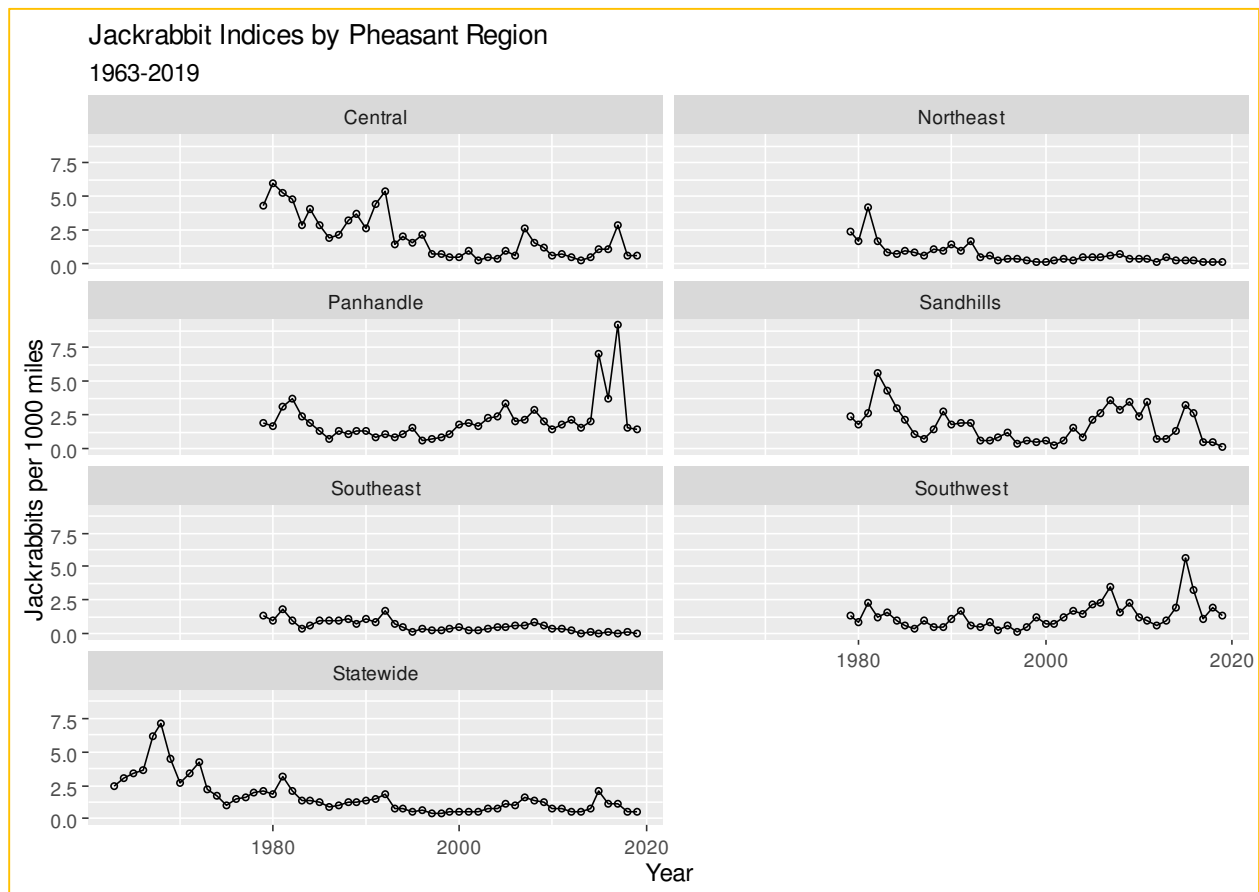




**TABLE 9.** Jackrabbit indices by pheasant management region (Figure 1) from the 2019 July Rural Mail Carrier Survey. Carrier means are weighted by miles traveled per carrier.

Region	Mean Jackrabbit per 1000 miles & 90% Confidence Limits	Percent Difference from:			
		2018	Mean 2014-2018	Mean 2009-2018	Mean 1999-2018
Central	0.63 (0.23-1.02)	5	-49	-32	-30
Northeast	0.14 (0.05-0.22)	0	-18	-42	-53
Panhandle	1.41 (0.47-2.35)	-8	-70	-57	-48
Sandhills	0.16 (0.00-0.59)	-63	-90	-91	-91
Southeast	0.06 (0.00-0.22)	-50	-43	-74	-83
Southwest	1.37 (0.73-2.02)	-28	-50	-31	-26
Statewide	0.49 (0.32-0.66)	-13	-57	-49	-47

**FIGURE 8.** Regional and statewide time series (1963-2019) of jackrabbit abundance indices from the July Rural Mail Carrier Survey.



**TABLE 10.** Number of cards and percent of total cards ( $n = 404$ ) that contained zero observations of each species of wildlife. Overall, 14.4% of cards contained zero observations of all species (58 cards).

	Pheasant	Bobwhite	Grouse	Turkey	Cottontail	Jackrabbit
N <sup>o</sup> of Cards	198	268	366	190	159	357
Percent	49.0	66.3	90.6	47.0	39.4	88.4

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