

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

Title of Job: 2021 July Rural Mail Carrier Survey



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The 2021 July Rural Mail Carrier Survey was conducted 6-9 July 2021. We received 402 cards by 26 July 2021, of which 371 cards contained complete information needed for analysis (Tables 1-3). Rural carriers made observations while traveling 156,972 miles of rural roads in 86 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 2020, statewide indices of relative abundance were mixed for the various upland game species: indices were down for pheasant and quail, were up for turkey and jackrabbit, and were similar to 2020 for grouse and cottontail. However, none of the statewide indices were significantly different than those observed in July 2020, based on confidence intervals. Compared to the five-year mean, statewide indices were lower or similar to 2021 for all species. Regional indices were also very mixed depending on the species. Pheasant age ratios were higher in the Central and Panhandle regions, potentially indicating better production in these regions compared to 2020.

**Take-Home Message.** The results of the 2021 July Rural Mail Carrier Survey indicate that the relative abundance of small game species was mixed compared July 2020, but not significantly so. Fall abundance for most species will depend on this summer’s production, so the results of the October Rural Mail Carrier Survey may provide more clarity on what to expect this fall.

TABLE 1. Raw counts of prairie grouse, wild turkey, cottontail, and jackrabbits from the 2021 July Rural Mail Carrier Survey by pheasant management region (Figure 1).

Region	Carriers	Miles	Grouse	Turkey	Cottontail	Jackrabbit
Central	50	21422	36	217	168	29
Northeast	88	39094	25	391	325	4
Panhandle	40	15174	36	248	88	19
Sandhills	38	14800	35	198	73	4
Southeast	106	45211	10	356	385	14
Southwest	49	21271	8	669	196	23
Statewide	371	156972	150	2079	1235	93

**TABLE 2.** Raw counts from the 2021 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	50	21422	47	0.18
Northeast	88	39094	230	0.19
Panhandle	40	15174	207	0.15
Sandhills	38	14800	64	0.02
Southeast	106	45211	114	0.20
Southwest	49	21271	230	0.17
Statewide	371	156972	892	0.15

**TABLE 3.** Raw counts from the 2021 July Rural Mail Carrier Survey for bobwhites, by bobwhite management zone (Figure 2).

Zone	Carriers	Miles	Bobwhites
East Central	61	24905	64
North Central	49	22060	47
Northeast	79	35799	67
Republican	25	11807	63
Southeast	42	18321	105
West Platte	78	31323	34
Not Quail Range (NQR)	37	12757	6
Statewide	256	112892	346

### Results.

**Pheasant:** This year's statewide pheasant index was lower than in 2020 and was below the 5-, 10-, and 20-year averages. Regionally, survey results were mixed with an increase observed only in the Sandhills region. Relative abundance continues to be highest in the Southwest and Panhandle regions (Table 4). Statewide, pheasant age ratios (which can be indicative of production) were lower than those observed in 2020 (Table 2).

**Quail:** The bobwhite index was down 22% statewide compared to 2020, and remains well below the 5-, 10-, and 20-year averages. In 2021, declines were observed in all management regions except the Southeast region (Table 5). The index for areas outside the quail range was similar to last year, but was above the 5-, 10-, and 20-year means.

**Wild Turkey:** Statewide, this year's wild turkey index was 10% higher compared to 2020, and is similar to the 5-, 10-, and 20-year means. Increases were observed in 4 of 6 regions (all except Central and Sandhills regions; Table 6).

**Prairie Grouse:** The statewide index for prairie grouse was the same in 2021 compared to 2020, and is slightly above the 20-year average. Regionally, results were mixed this year with increases observed in the Central and Panhandle regions. The index was similar to 2020 in the Sandhills, but remained well below the long-term means (Table 7).

**Cottontail/Jackrabbit:** The statewide cottontail index was similar to that observed in 2020 but decreases were observed in 3 of 6 management regions (Table 8). Jackrabbit indices increased in 3 of 6 management regions and the statewide index was 51% higher than in 2020 (Table 9). Relative abundance of jackrabbits remains highest in the Panhandle and Central regions.

In 2020, 42 of 371 usable cards returned (11.3%) contained no observations of any wildlife species, which is slightly down from the 59 of 403 cards (14.6%) with no observations returned in 2020 (Table 10).

FIGURE 1. Pheasant management regions.

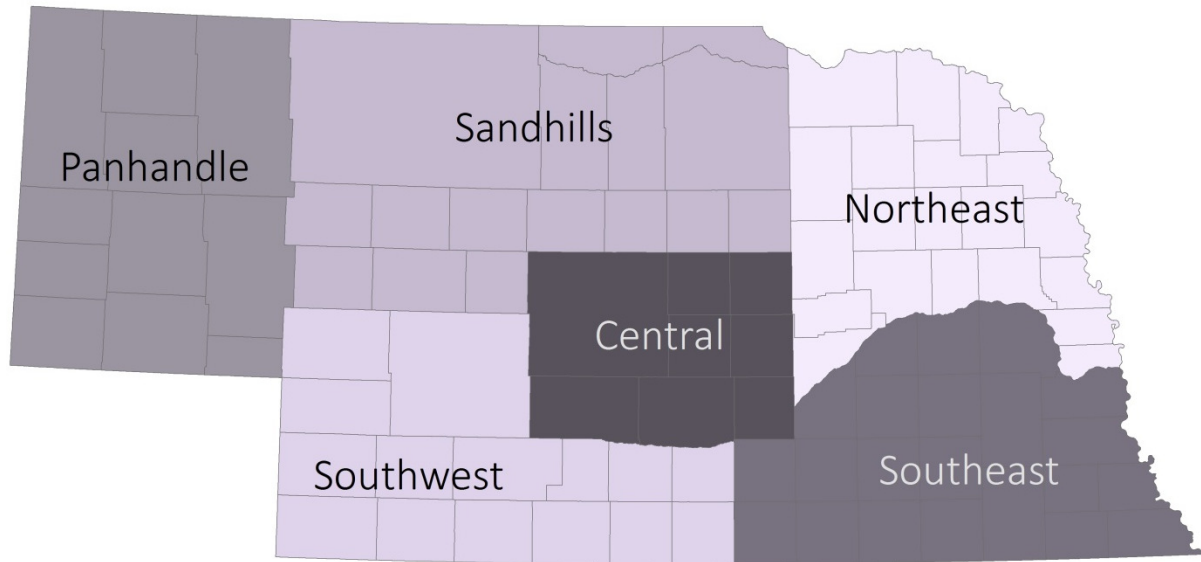
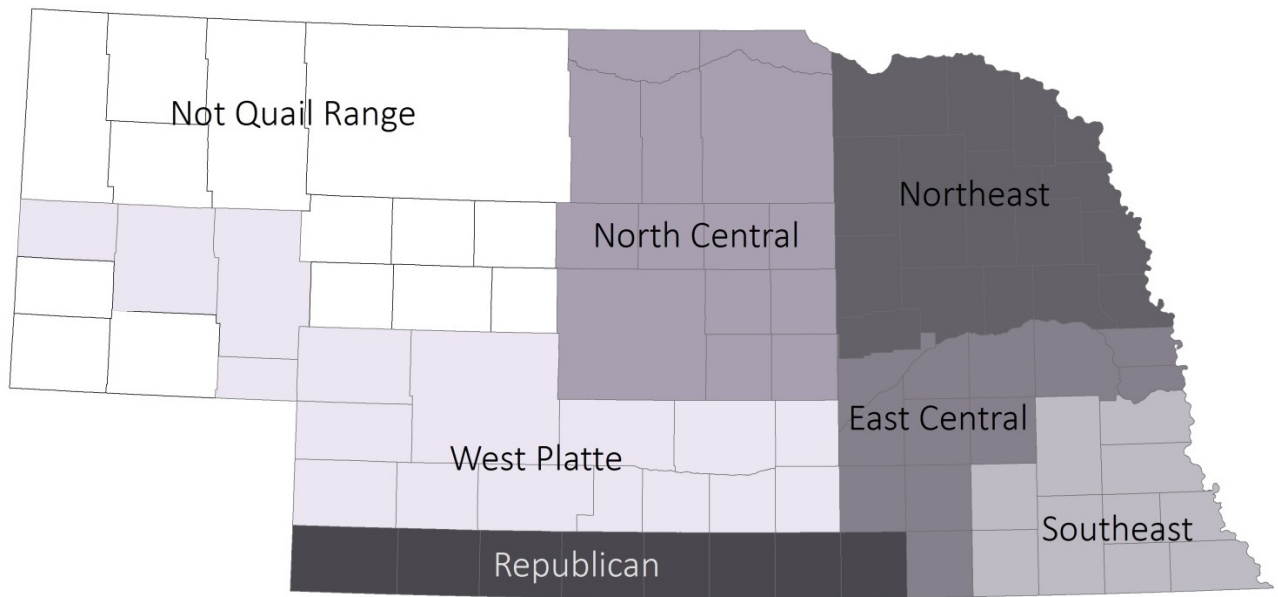


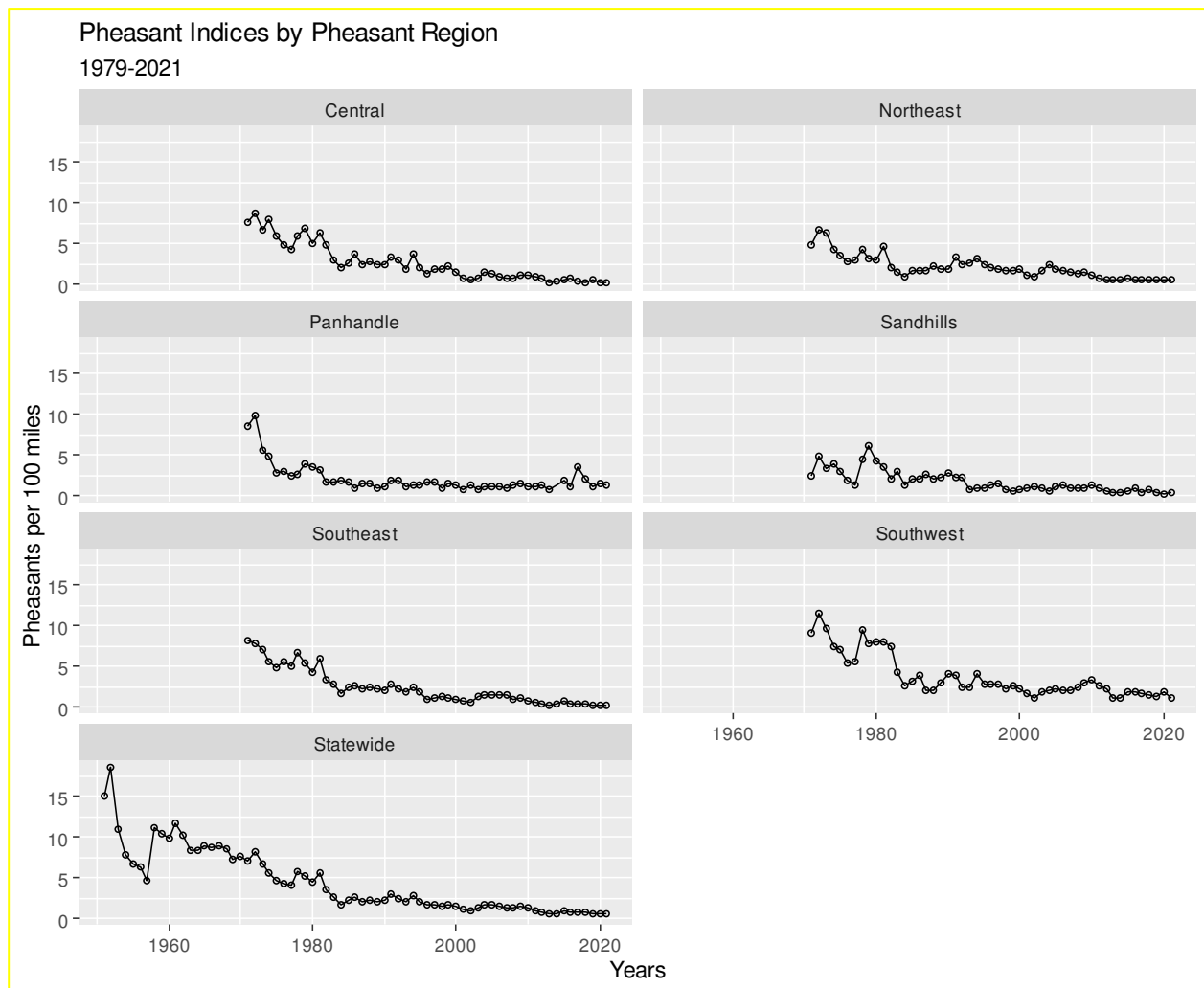
FIGURE 2. Bobwhite management zones.



**TABLE 4.** Pheasant indices from the 2021 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:			
		2020	Mean 2016-2020	Mean 2011-2020	Mean 2001-2020
Central	0.22 (0.12-0.32)	5	-51	-59	-72
Northeast	0.59 (0.45-0.72)	0	0	-5	-46
Panhandle	1.36 (0.57-2.16)	-7	-27	-12	1
Sandhills	0.43 (0.16-0.70)	48	-22	-27	-48
Southeast	0.25 (0.17-0.33)	-17	-29	-40	-68
Southwest	1.08 (0.71-1.45)	-45	-36	-38	-45
Statewide	0.57 (0.46-0.68)	-14	-21	-25	-46

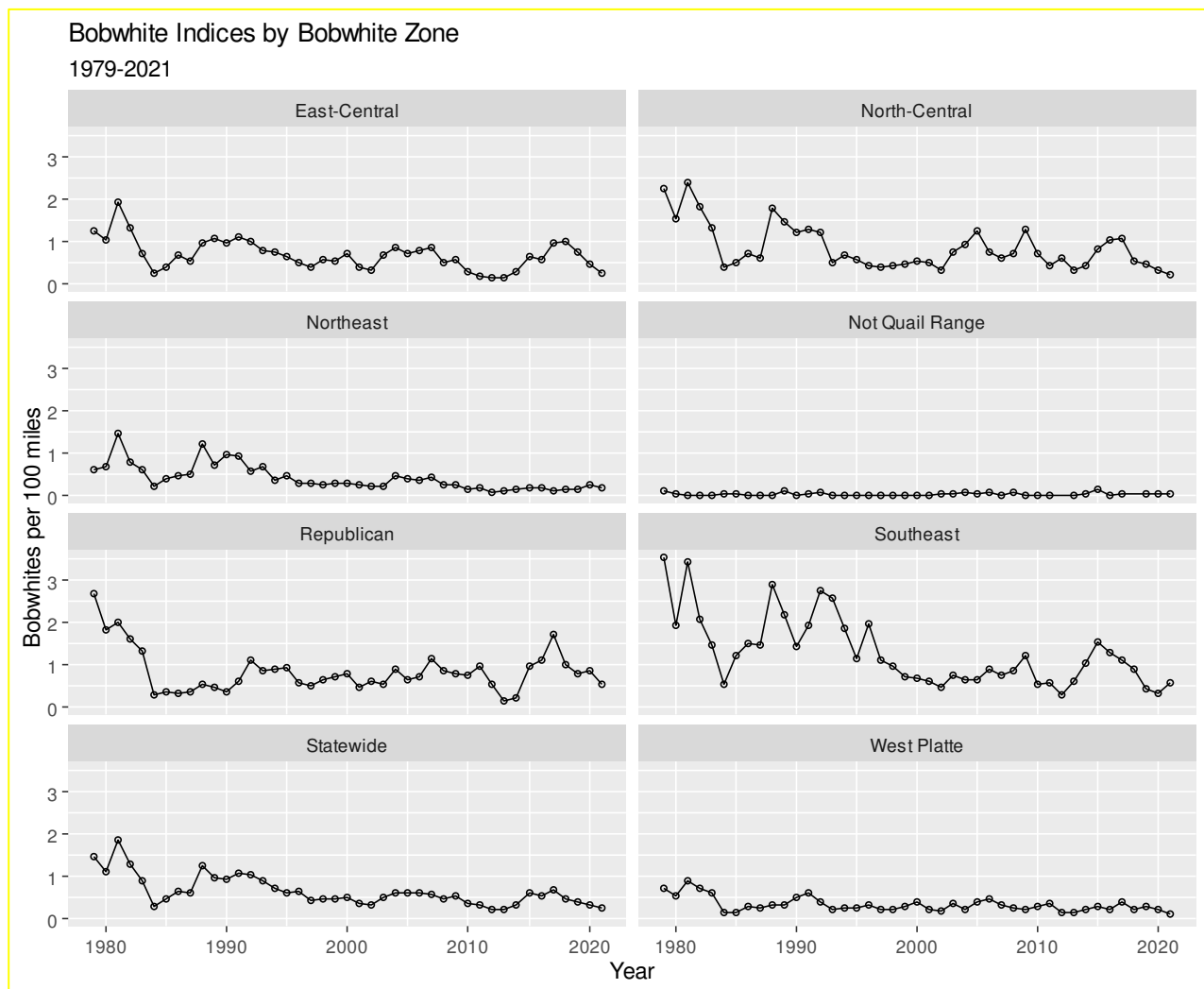
**FIGURE 3.** Regional and statewide time series (1979-2021) of pheasant abundance indices from the July Rural Mail Carrier Survey by pheasant management region (Figure 1).



**TABLE 5.** Northern bobwhite indices by bobwhite management zone from the 2021 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:			
		2020	Mean 2016-2020	Mean 2011-2020	Mean 2001-2020
East Central	0.26 (0.15-0.36)	-45	-66	-50	-53
North Central	0.21 (0.00-0.43)	-38	-70	-66	-70
Northeast	0.19 (0.11-0.26)	-27	20	28	-15
Republican	0.53 (0.23-0.84)	-38	-52	-36	-32
Southeast	0.57 (0.19-0.96)	78	-29	-30	-26
West Platte	0.11 (0.05-0.17)	-45	-59	-55	-59
NQR	0.05 (0.00-0.10)	0	56	30	27
Statewide (QR)	0.25 (0.19-0.31)	-22	-47	-38	-44

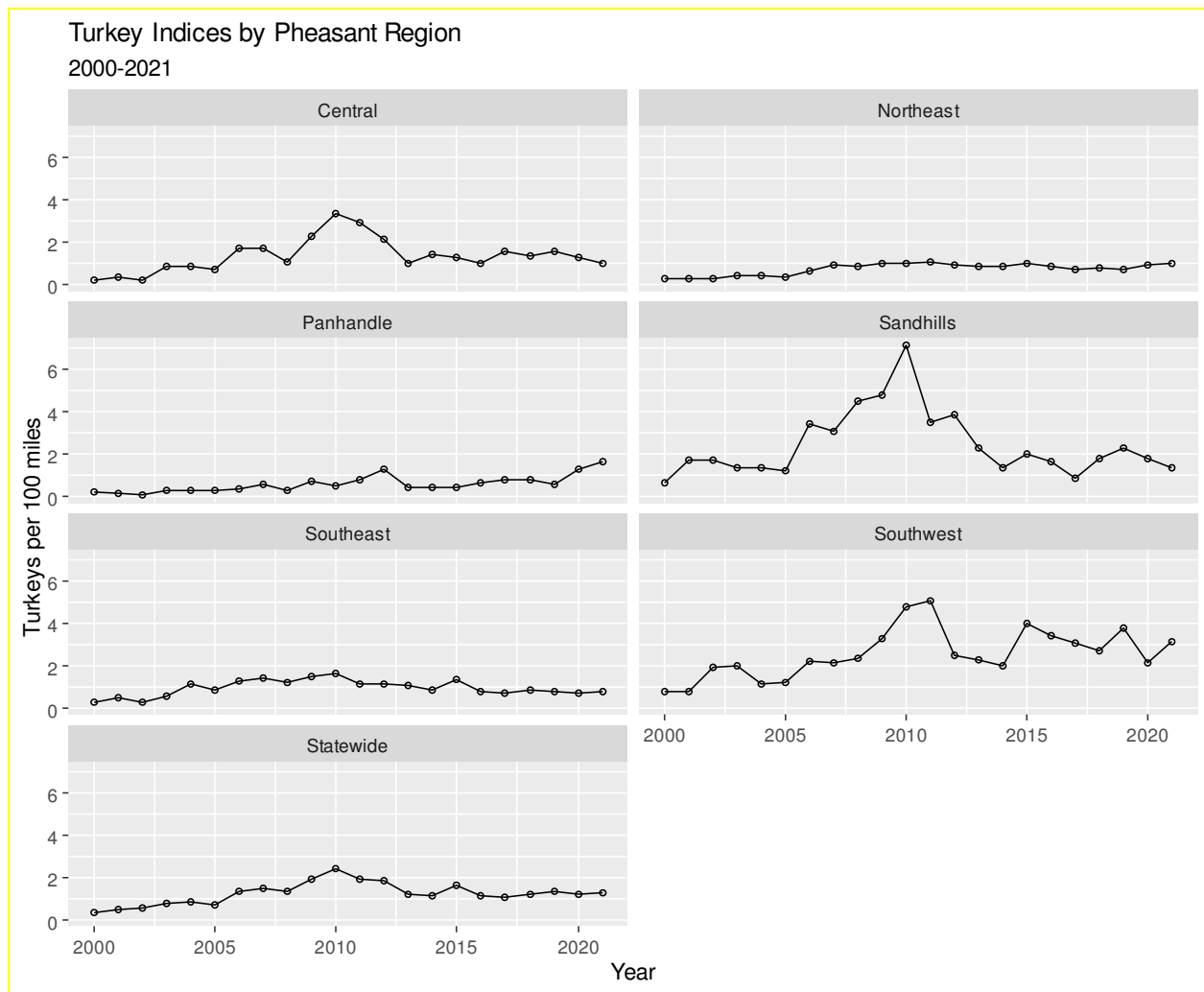
**FIGURE 4.** Regional and statewide time series (1979-2021) of indices of northern bobwhite abundance from the July Rural Mail Carrier Survey.



**TABLE 6.** Wild turkey indices by pheasant management region from the 2021 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:			
		2020	Mean 2016-2020	Mean 2011-2020	Mean 2001-2020
Central	1.01 (0.62-1.40)	-23	-27	-36	-31
Northeast	1.00 (0.65-1.35)	6	21	12	30
Panhandle	1.63 (0.17-3.10)	24	95	114	190
Sandhills	1.34 (0.70-1.97)	-26	-21	-38	-49
Southeast	0.79 (0.54-1.04)	10	0	-17	-22
Southwest	3.15 (1.41-4.88)	44	18	8	23
Statewide	1.32 (1.01-1.63)	10	8	-5	1

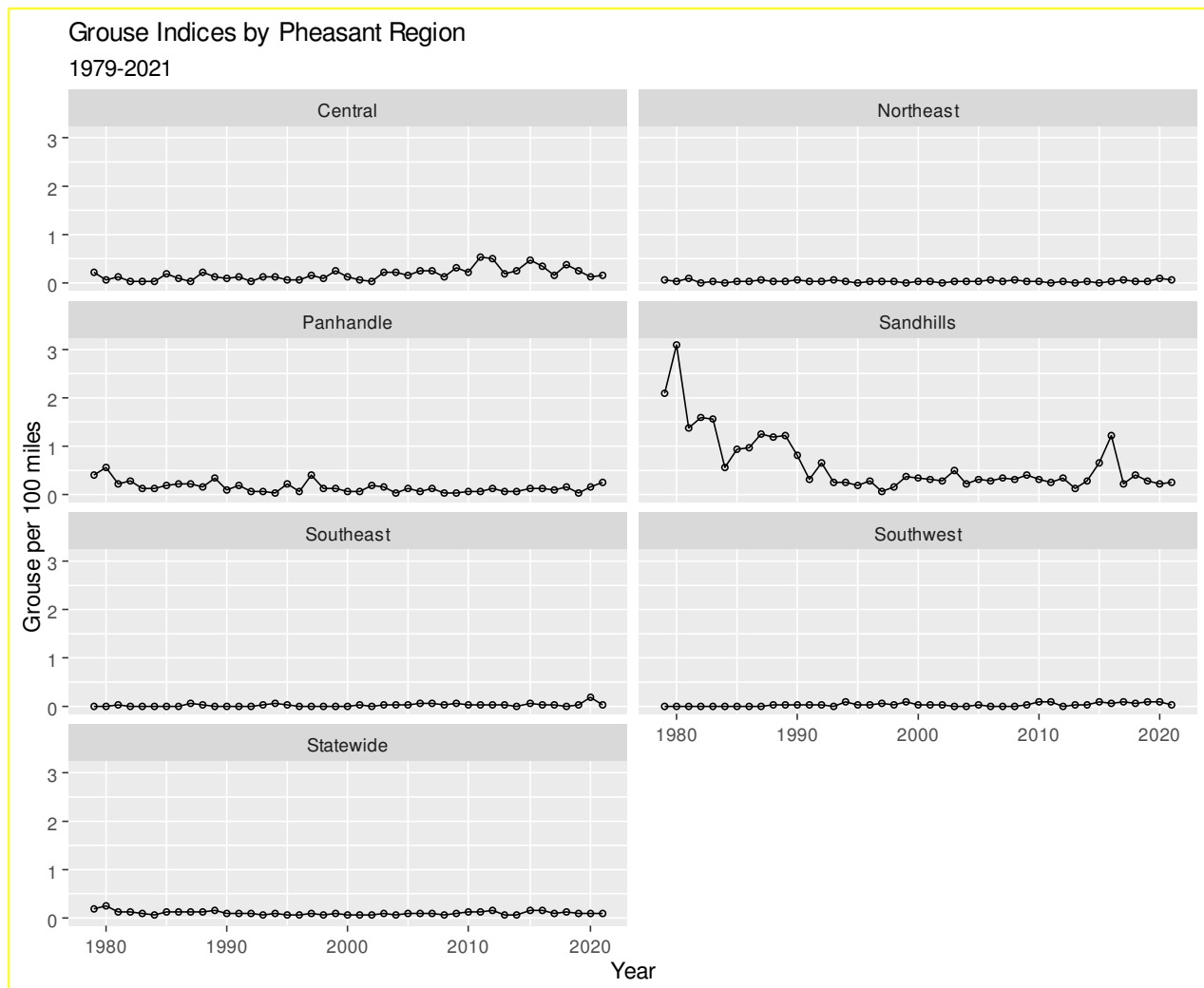
**FIGURE 5.** Regional and statewide time series (2000-2021) of wild turkey abundance indices from the July Rural Mail Carrier Survey.



**TABLE 7.** Prairie grouse indices by pheasant management region (Figure 1) from the 2021 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:			
		2020	Mean 2016-2020	Mean 2011-2020	Mean 2001-2020
Central	0.17 (0.02-0.32)	21	-31	-46	-32
Northeast	0.06 (0.00-0.13)	-45	15	73	63
Panhandle	0.24 (0.03-0.44)	41	107	135	146
Sandhills	0.24 (0.02-0.46)	9	-49	-40	-34
Southeast	0.02 (0.00-0.05)	0	-9	-26	-34
Southwest	0.04 (0.00-0.09)	-64	-51	-41	-14
Statewide	0.10 (0.06-0.14)	0	-7	-8	6

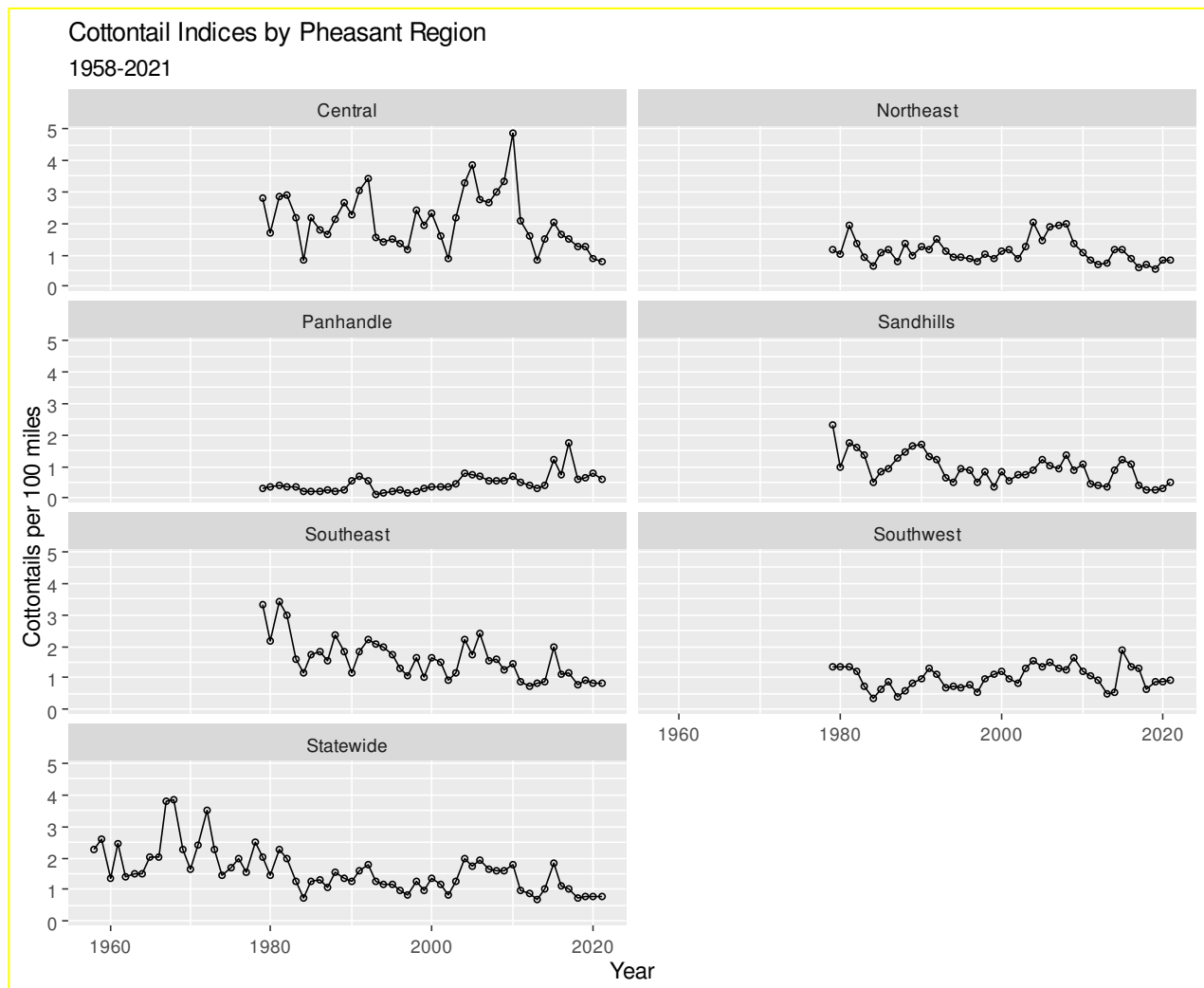
**FIGURE 6.** Prairie grouse regional and statewide time series (1979-2021) of indices of abundance from the July Rural Mail Carrier Survey.



**TABLE 8.** Cottontail indices by pheasant management region (Figure 1) from the 2021 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:			
		2020	Mean 2016-2020	Mean 2011-2020	Mean 2001-2020
Central	0.78 (0.51-1.06)	-13	-41	-47	-64
Northeast	0.83 (0.64-1.02)	0	17	1	-29
Panhandle	0.58 (0.30-0.86)	-25	-35	-20	-11
Sandhills	0.49 (0.26-0.73)	58	8	-12	-35
Southeast	0.85 (0.68-1.02)	1	-13	-17	-35
Southwest	0.92 (0.67-1.17)	-9	-19	-18	-29
Statewide	0.79 (0.70-0.88)	-1	-12	-20	-38

**FIGURE 7.** Regional and statewide time series (1958-2021) of cottontail abundance indices from the July Rural Mail Carrier Survey.

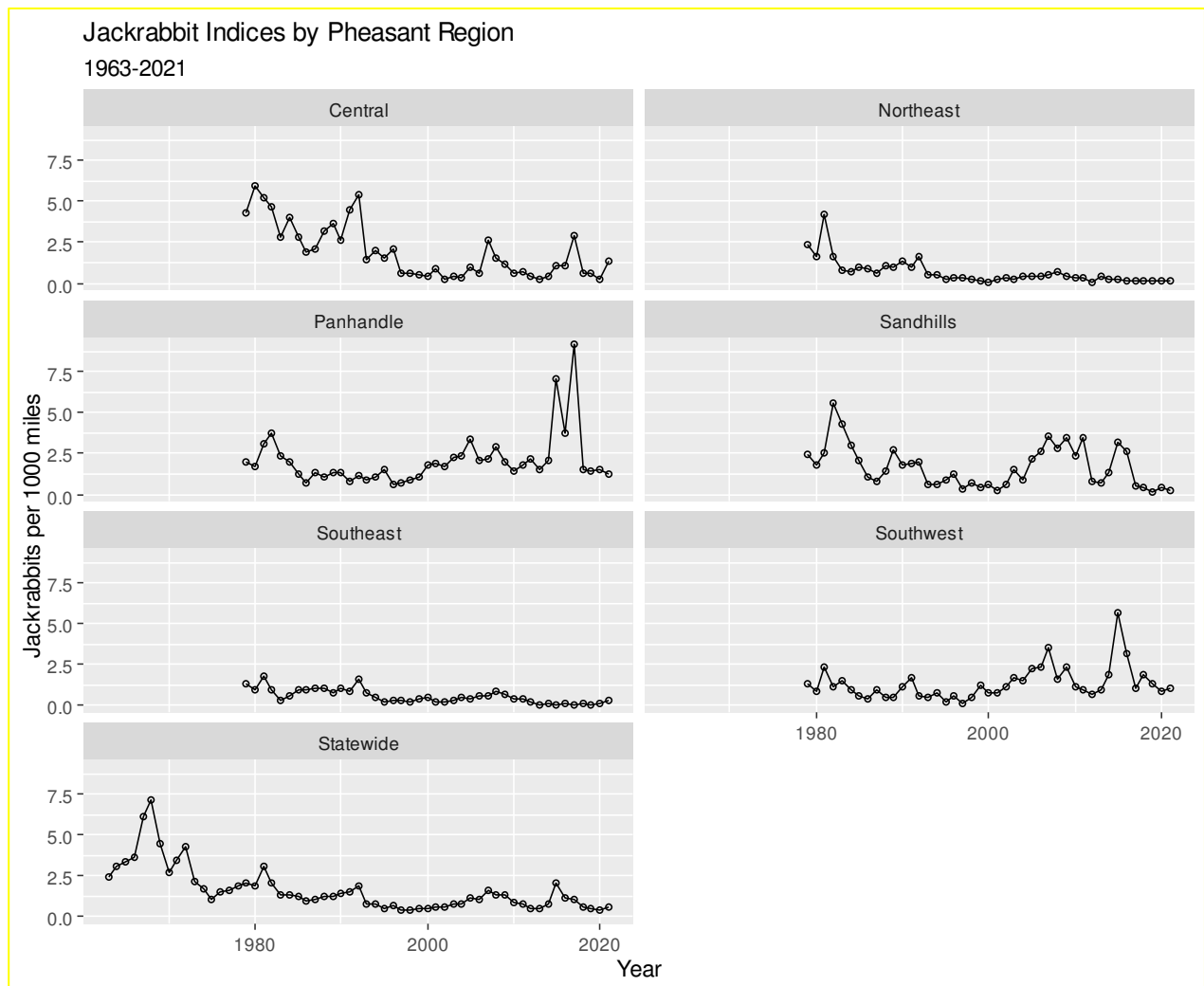




**TABLE 9.** Jackrabbit indices by pheasant management region (Figure 1) from the 2021 July Rural Mail Carrier Survey. Carrier means are weighted by miles traveled per carrier.

Region	Mean Jackrabbit per 1000 miles & 90% Confidence Limits	Percent Difference from:			
		2020	Mean 2016-2020	Mean 2011-2020	Mean 2001-2020
Central	1.35 (0.00-3.45)	440	24	63	52
Northeast	0.10 (0.00-0.25)	-89	-65	-63	-70
Panhandle	1.25 (0.28-2.22)	-19	-64	-61	-54
Sandhills	0.27 (0.00-0.91)	-41	-68	-80	-84
Southeast	0.31 (0.04-0.58)	210	252	123	-3
Southwest	1.08 (0.47-1.69)	24	-36	-42	-42
Statewide	0.59 (0.27-0.91)	51	-20	-30	-35

**FIGURE 8.** Regional and statewide time series (1963-2021) of jackrabbit abundance indices from the July Rural Mail Carrier Survey.



**TABLE 10.** Number of cards and percent of total cards ( $n = 371$ ) that contained zero observations of each species of wildlife. Overall, 11.3% of cards contained zero observations of all species (42 cards).

	Pheasant	Bobwhite	Grouse	Turkey	Cottontail	Jackrabbit
Nº of Cards	182	275	339	165	123	337
Percent	49.1	74.1	91.4	44.5	33.2	90.8

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