

Federal Aid in Wildlife Restoration Project No: W-15-R**Title of Job:** 2016 April Rural Mail Carrier Survey

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The 2016 April Rural Mail Carrier Survey was conducted 4-7 April 2016. We received 451 cards by 22 April 2016, of which 426 cards contained complete information necessary for processing. The results below (Tables 1 & 2) are based on the complete cards. Rural Carriers made observations while traveling 181,235 miles on rural roads in 87 of Nebraska's 93 counties.

Caveats. High winds occurred during the survey period, noted by several carriers on their cards, likely resulted in lower activity and, therefore, observations of wildlife during the survey. The April survey provides a snapshot of wildlife populations entering the breeding season and might not reflect conditions experienced by hunters the subsequent fall. Interpretations of 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 from one year to the next translates into large percent changes, but result in no observable difference in abundance within a region. For example, an increase in a species index from 0.01 to 0.02 animals observed per 100 miles is a 100% increase, but would not likely be noticeable to hunters afield. Further, survey methodology does not allow for the estimation of population size or density, but only trends in relative abundance through time. At a statewide scale, these indices are correlated with harvest and are, therefore, useful for forecasting conditions hunters might encounter in the fall, particularly when combined with results from other surveys. Upcoming surveys, including the July Rural Mail Carrier Survey will provide important information to help further refine estimates of species' relative abundance.

Interpretations. Compared with April 2015, statewide indices for all species reported here were lower in 2016, and regional indices varied but were generally lower, as well. However, *given overall winter conditions and windy conditions during the survey, these results should be treated with caution.* Given the within and between year variation in survey indices, comparing confidence intervals between years is the best way to determine significant changes. Indices for pheasants were significantly lower than in 2015 statewide and in the Southwest. No indices for bobwhites, statewide or regionally, were significantly different from 2015. Indices for cottontails were significantly lower than in 2015 statewide and in the Southwest. Indices for wild turkey were significantly lower than in 2015 in the Southeast.

Take Home Message. High winds during the survey period, noted by many carriers, likely made wildlife more difficult to detect. Although many species' indices were lower in 2016 compared to April 2015, most changes were not significantly different than April 2015. Given these results, and the cautions indicated by weather conditions, species abundance is likely similar to slightly lower than in April 2015. Results from the July survey will help further refine estimated abundance.

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

| Region | Carriers | Miles | Pheasants | Grouse | Turkey | Cottontail | Jackrabbit |
|-----------|----------|---------|-----------|--------|--------|------------|------------|
| Central | 61 | 24,891 | 122 | 278 | 1,053 | 112 | 2 |
| Northeast | 119 | 51,124 | 232 | 26 | 1,471 | 199 | 4 |
| Panhandle | 47 | 19,239 | 500 | 56 | 318 | 80 | 16 |
| Sandhills | 27 | 11,588 | 169 | 208 | 694 | 60 | 11 |
| Southeast | 118 | 52,430 | 177 | 19 | 867 | 217 | 0 |
| Southwest | 54 | 21,964 | 302 | 59 | 2,378 | 106 | 3 |
| Statewide | 426 | 181,235 | 1,502 | 646 | 6,781 | 774 | 36 |

FIGURE 1. Pheasant Management Regions.

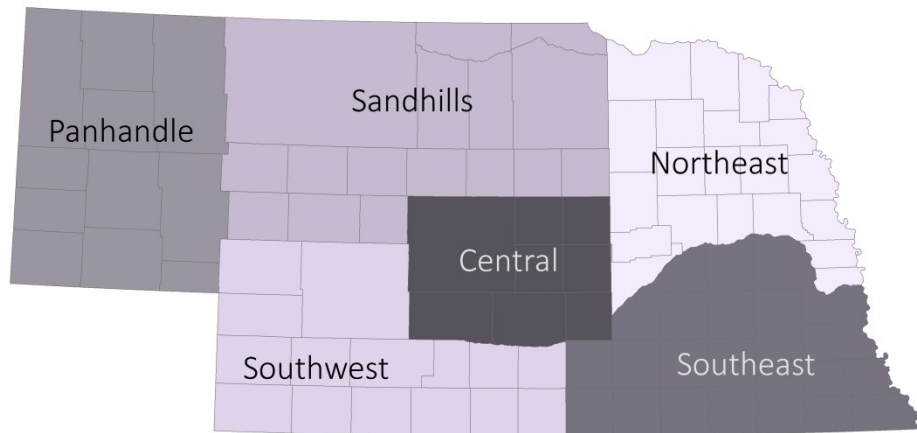
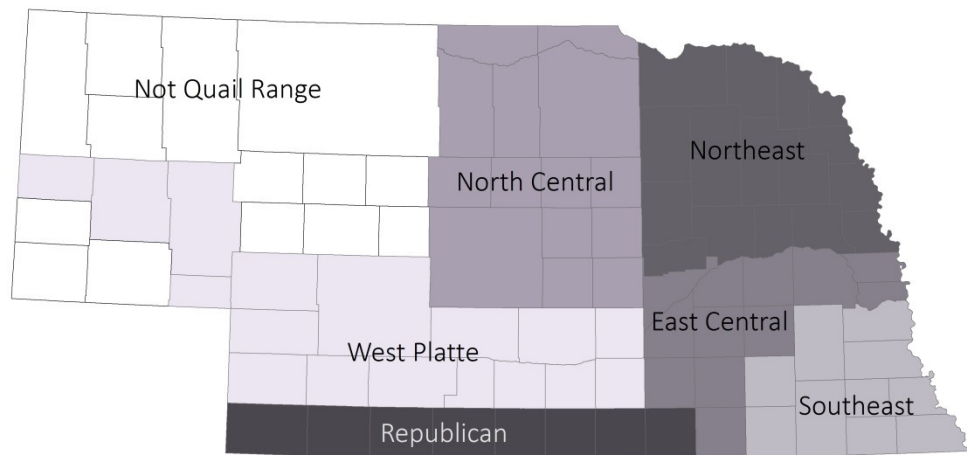


TABLE 2. Raw bobwhite counts from the 2016 April Rural Mail Carrier Survey by bobwhite management zones (Figure 2).

| Zone | Carriers | Miles | Bobwhites |
|-----------------|----------|---------|-----------|
| East Central | 71 | 30,862 | 43 |
| North Central | 46 | 20,578 | 119 |
| Northeast | 104 | 46,105 | 42 |
| Republican | 24 | 10,272 | 18 |
| Southeast | 48 | 20,550 | 64 |
| West Platte | 95 | 37,831 | 21 |
| Not Quail Range | 38 | 15,036 | 2 |
| Statewide | 426 | 181,235 | 309 |

FIGURE 2. Bobwhite Management Zones.



Results. Statewide indices for pheasants, cottontail, wild turkey, and northern bobwhite were all lower or similar in 2016 compared to April 2015 (Tables 3-6; Figures 3-6). Regional indices were also generally lower for these species, except for bobwhites, which had more regional increases than decreases. In 2016, 58 of 426 cards contained no observations of any wildlife species, which is higher compared to the 36 of 442 cards that did not contain any wildlife observations in April 2015. Zero counts by species are provided in Table 7.

TABLE 3. Pheasant indices from the 2016 April 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 | 0.49 (0.33-0.65) | -44 | -38 | -43 | -58 |
| Northeast | 0.45 (0.34-0.56) | -20 | -19 | -54 | -68 |
| Panhandle | 2.60 (1.44-3.76) | -18 | 25 | 17 | 23 |
| Sandhills | 1.46 (0.48-2.43) | -22 | -4 | -15 | -14 |
| Southeast | 0.34 (0.25-0.42) | -41 | -24 | -52 | -64 |
| Southwest | 1.37 (0.89-1.86) | -56 | -44 | -49 | -45 |
| Statewide | 0.88 (0.71-1.05) | -40 | -17 | -32 | -40 |

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

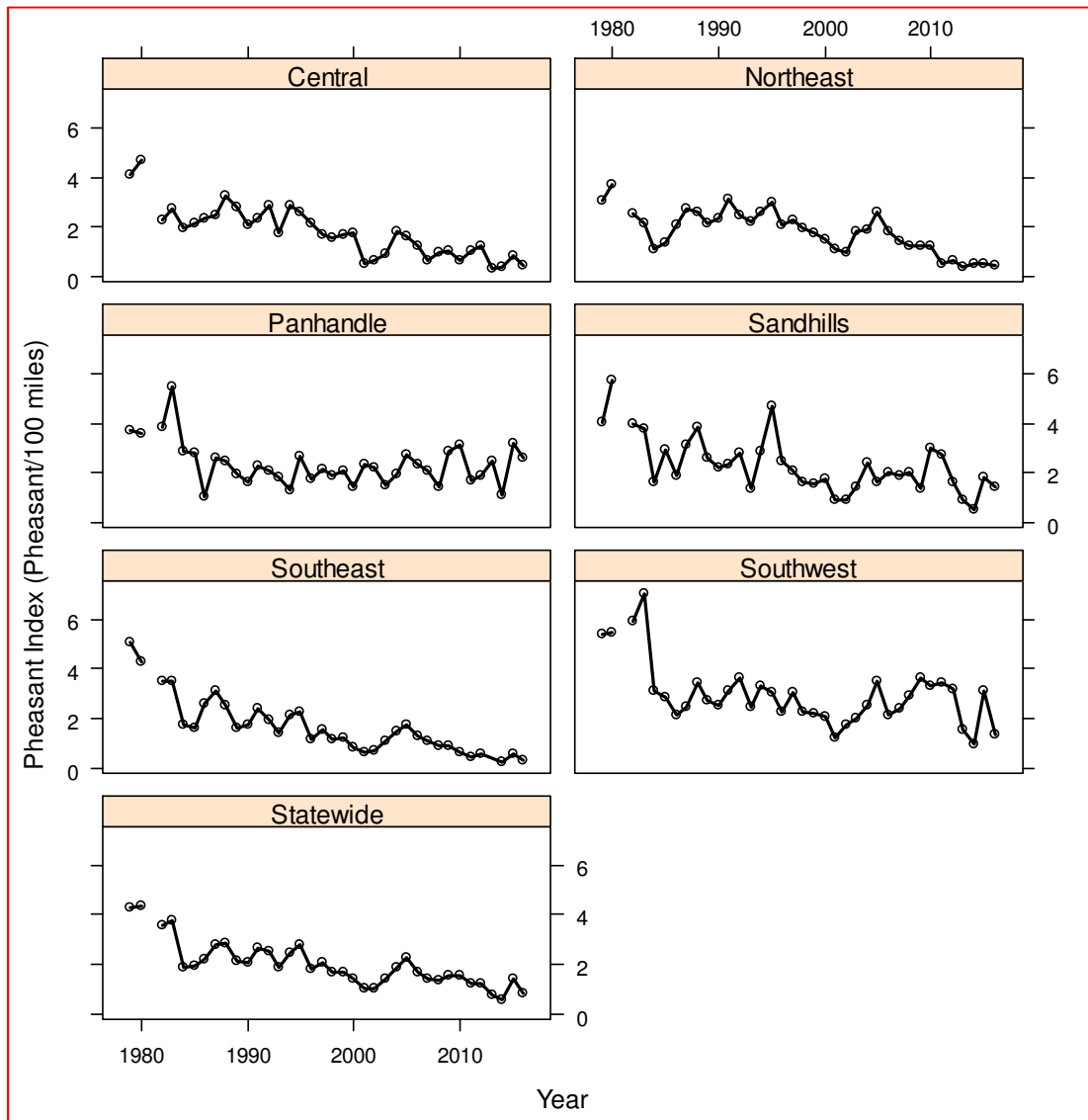


TABLE 4. Northern bobwhite indices from the 2016 April Rural Mail Carrier Survey by bobwhite management zone (Figure 2). Carrier means are weighted by miles traveled per carrier.

| Zone | Mean Bobwhites per 100 miles & 90% Confidence Limits | Percent Difference from: | | | |
|---------------|--|--------------------------|----------------|----------------|----------------|
| | | 2015 | Mean 2011-2015 | Mean 2006-2015 | Mean 1996-2015 |
| East Central | 0.14 (0.04-0.23) | 75 | 218 | 94 | 48 |
| North Central | 0.58 (0.01-1.14) | 29 | 164 | 240 | 224 |
| Northeast | 0.09 (0.00-0.19) | 800 | 165 | 47 | 11 |
| Republican | 0.18 (0.00-0.35) | 80 | 87 | 32 | 8 |
| Southeast | 0.31 (0.12-0.50) | -21 | 112 | 107 | 83 |
| West Platte | 0.06 (0.01-0.10) | -45 | -9 | -4 | -32 |
| Not in Range | 0.01 (0.00-0.04) | -95 | -87 | -84 | -78 |
| Statewide | 0.17 (0.10-0.24) | 0 | 102 | 81 | 48 |

FIGURE 4. Regional and statewide time series (1979-2016) of bobwhite population indices from the April Rural Mail Carrier Survey by bobwhite management zone (Figure 2).

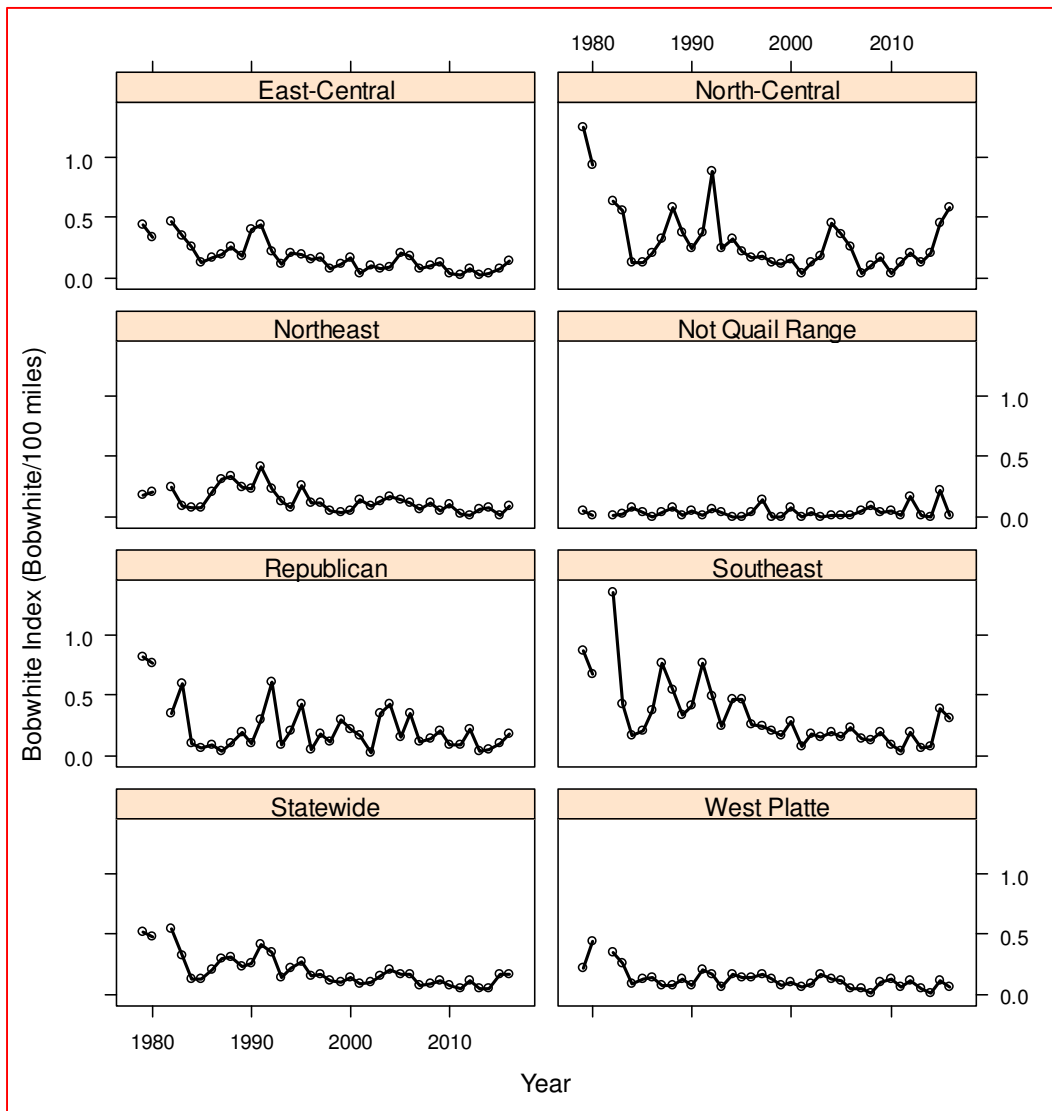


TABLE 5. Cottontail indices from the 2016 April Rural Mail Carrier Survey by pheasant management region (Figure 1). Carrier means are weighted by miles traveled per carrier.

| Region | Mean Cottontails per 100 miles & 90% Confidence Limits | Percent Difference from: | | | |
|-----------|--|--------------------------|----------------|----------------|----------------|
| | | Mean 2015 | Mean 2011-2015 | Mean 2006-2015 | Mean 1996-2015 |
| Central | 0.45 (0.26-0.64) | -41 | -3 | -27 | -30 |
| Northeast | 0.39 (0.27-0.51) | -17 | -21 | -38 | -33 |
| Panhandle | 0.42 (0.25-0.58) | -18 | 22 | 18 | 34 |
| Sandhills | 0.52 (0.00-1.10) | -42 | 72 | -74 | 100 |
| Southeast | 0.41 (0.30-0.53) | -21 | 11 | -19 | -30 |
| Southwest | 0.48 (0.31-0.65) | -57 | -18 | -17 | -11 |
| Statewide | 0.44 (0.37-0.51) | -37 | -6 | -18 | -18 |

FIGURE 5. Regional and statewide time series (1958-2016) of cottontail population indices from the April Rural Mail Carrier Survey by pheasant management region (Figure 1).

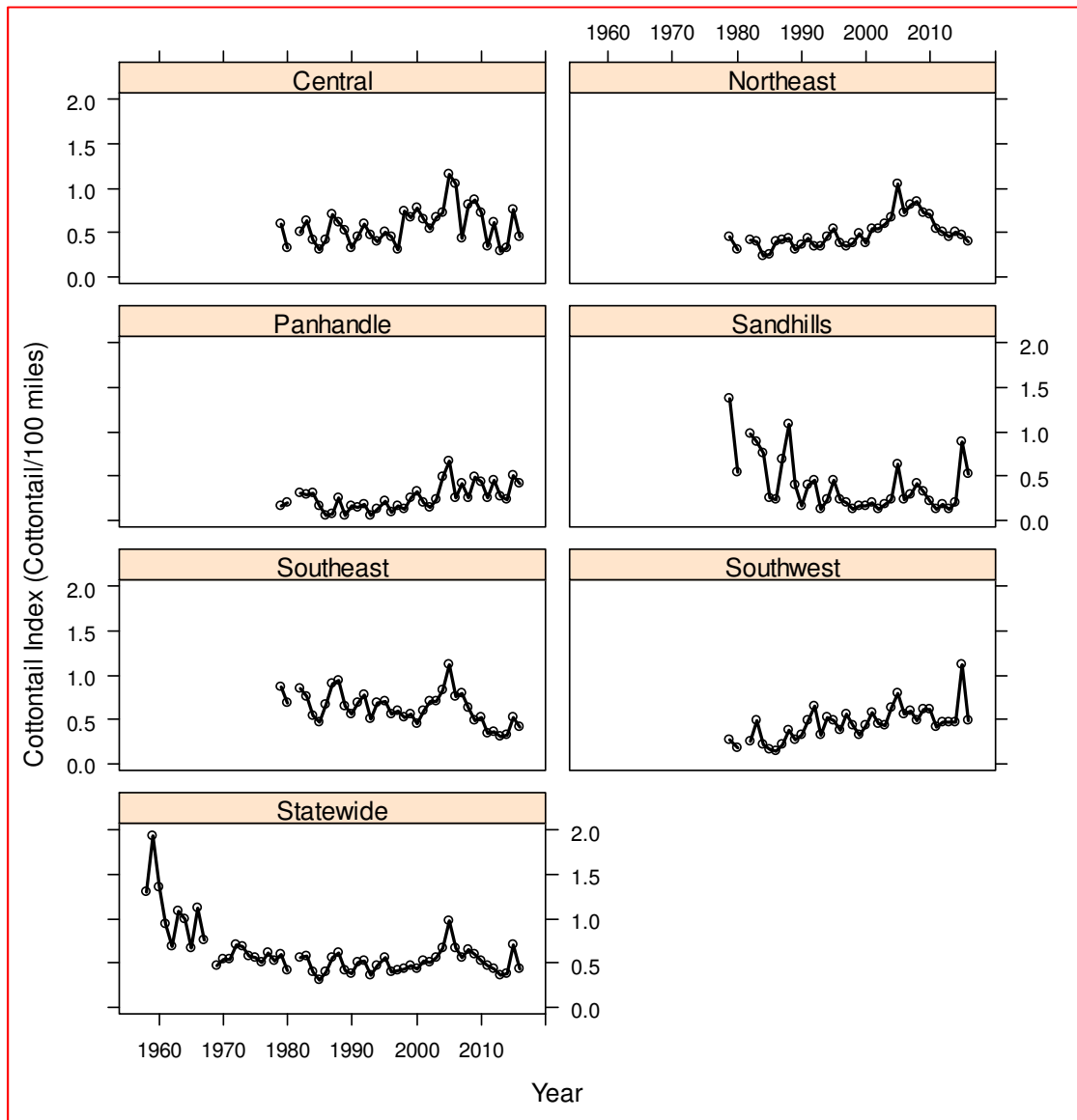


TABLE 6. Wild turkey indices from the 2016 April Rural Mail Carrier Survey by pheasant management region (Figure 1). Carrier means are weighted by miles traveled per carrier.

| Region | Mean Wild Turkeys per 100 miles & 90% Confidence Limits | Percent Difference from: | | |
|-----------|---|--------------------------|----------------|----------------|
| | | 2015 | Mean 2011-2015 | Mean 2006-2015 |
| Central | 4.23 (2.98-5.48) | -34 | -48 | -46 |
| Northeast | 2.88 (1.53-4.23) | 5 | 2 | 3 |
| Panhandle | 1.68 (0.66-4.64) | 9 | -13 | -3 |
| Sandhills | 5.99 (3.49-8.48) | -31 | -44 | -45 |
| Southeast | 1.65 (1.30-2.01) | -48 | -51 | -52 |
| Southwest | 10.8 (4.23-16.4) | -14 | -15 | -8 |
| Statewide | 3.74 (2.88-4.60) | -30 | -34 | -31 |

FIGURE 6. Regional and statewide time series (2000-2016) of wild turkey population indices from the 2015 April Rural Mail Carrier Survey by pheasant management region (Figure 1).

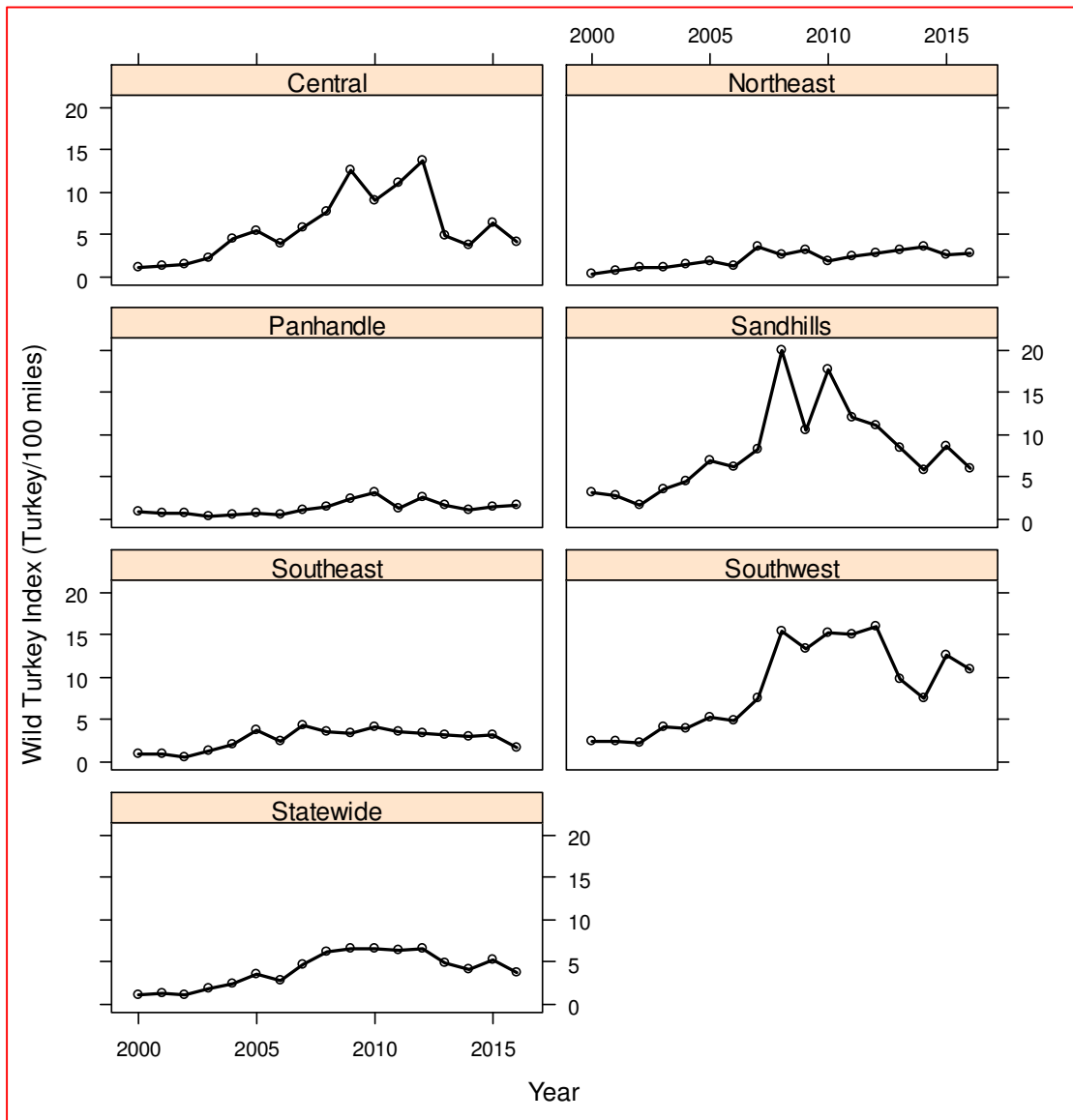


TABLE 7. Number of cards and percent of total cards ($n = 426$) that contained zero observations by species. Overall, 13.6% (cf. 8.1% in 2015, $n = 442$) of cards contained zero counts for all species (58 cards). Percentages by species from the 2015 survey are reported for comparison.

| | Pheasant | Quail | Grouse | Wild Turkey | Cottontail | Jackrabbit |
|----------------|----------|-------|--------|-------------|------------|------------|
| No of Cards | 186 | 386 | 361 | 135 | 225 | 404 |
| Percent (2016) | 44 | 91 | 85 | 32 | 53 | 95 |
| Percent (2015) | 30 | 86 | 80 | 26 | 41 | 93 |