

2018 Bethany Hawkwatch Fall Report

After three years of averaging about 10,000 raptors, we saw significantly lower raptor totals for this fall season. The cause for such a reduction in numbers is unknown and difficult to determine.

WEATHER

Recorded high temperatures for each day were compared to Mankato daily averages on Weather Underground (www.wunderground.com).

Temperatures were above average in August and September but then below average for much of the remaining season. August was 1.6°C warmer than average which was not significant. September was 2.3°C warmer on average with the first half 3.3°C warmer and the second half 1.3°C warmer; only the last week was cooler than average. October was 1.3°C cooler on average with the first half 4.7°C cooler and the second half 2.0°C warmer than average. November was 3.2°C cooler on average with the first half 3.7°C cooler and the second half 2.7°C cooler. December was 1.3°C cooler than the average.

Wind direction is one of the significant weather factors that influence raptor migration. We experienced only four strong cold fronts (as indicated by a temperature 10°C cooler than the day prior). These normally result in large pushes of migratory raptors. We record hourly weather data that includes wind direction and a comparison was made to the previous five years to determine if there were any significant differences to the overall composition of the winds this fall (see Table 1). Percentages represent percentage of count periods with that wind direction. Generally, winds did not vary much from the average wind composition for the last six fall seasons. Only winds from the south and southeast showed 2.0% variance or more from the six-year average. Perhaps this was one of the causes for our particularly slow raptor season.



***Light-morph Swainson's Hawk
by Scott Seigfried***

Table 1: Composition of Hourly Wind Direction 2013-18

| Wind Direction | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2013-18 Average | 2018 Variance |
|----------------|-------|-------|-------|-------|-------|-------|-----------------|---------------|
| NW | 15.6% | 13.1% | 6.5% | 8.1% | 14.8% | 9.6% | 11.3% | -1.6% |
| NNW | 4.4% | 5.7% | 3.1% | 5.3% | 3.8% | 6.7% | 4.8% | 1.8% |
| N | 8.5% | 10.5% | 3.9% | 4.7% | 2.9% | 5.5% | 6.0% | -0.5% |
| NNE | 2.6% | 2.4% | 1.9% | 3.5% | 1.3% | 2.5% | 2.4% | 0.1% |
| NE | 1.6% | 0.5% | 1.5% | 2.3% | 0.5% | 1.4% | 1.3% | 0.1% |
| ENE | 2.6% | 0.0% | 3.2% | 2.5% | 1.8% | 4.1% | 2.4% | 1.8% |
| E | 2.2% | 0.7% | 7.1% | 5.3% | 3.8% | 3.7% | 3.8% | -0.1% |
| ESE | 2.2% | 1.7% | 3.6% | 4.6% | 2.7% | 1.8% | 2.8% | -0.9% |
| SE | 4.4% | 4.7% | 4.4% | 6.0% | 5.8% | 2.5% | 4.6% | -2.1% |
| SSE | 7.9% | 8.4% | 8.8% | 7.9% | 9.7% | 8.9% | 8.6% | 0.4% |
| S | 12.7% | 15.2% | 25.0% | 14.6% | 14.4% | 18.8% | 16.8% | 2.0% |
| SSW | 5.5% | 4.5% | 4.1% | 5.8% | 6.0% | 3.9% | 5.0% | -1.1% |
| SW | 4.0% | 3.8% | 2.1% | 3.9% | 4.4% | 3.0% | 3.5% | -0.5% |
| WSW | 2.0% | 3.0% | 1.9% | 3.3% | 3.8% | 4.1% | 3.0% | 1.1% |
| W | 8.3% | 10.1% | 8.1% | 11.9% | 3.8% | 8.9% | 8.5% | 0.4% |
| WNW | 12.1% | 14.3% | 12.8% | 10.5% | 20.4% | 14.4% | 14.1% | 0.4% |

EFFORT

Data were collected from 15 August through 11 December 2018. Normally observations would have continued until 15 December 2018, but raptor movement had ground to a halt largely before our intended stop date. Observers were stationed at the Bethany Lutheran College Campus on the eastern bluff overlooking the Minnesota River and Land of Memories City Park (~4km west of Bethany) near the confluence of the Blue Earth and Minnesota Rivers. This is the third consecutive season where raptor migration was tabulated from these two sites and evidence suggests there is no overlap in coverage.

A total of 399 hours were spent counting raptors this fall, falling well short of our goal of 500 hours for the season. In total, 12 observers volunteered 644 hours spread over 463 count periods (hours in which birds were counted). Jim Amundson once again was the primary counter at Bethany though he helped at Land of Memories when winds were more southerly; he accounted for 312 (67%) count periods. Other regular observers at Bethany included John Wagner, Chad Heins, and John Sehloff. Marty Rost served as the primary counter at Land of Memories and he accounted for 259 (56%) count periods. He was assisted primarily by John Nelson who accounted for 72 (15%) count periods.

Unlike many larger count sites that have a paid counter who counts birds for the entire day, our count sites have no set hours and our counters observe as their schedule allows. This year's slower movement often resulted with less hours per day of counting

as counters were discouraged by seeing only one or two birds per hour and quit to make better use of their time. The Bethany site was manned for some period of time on 64 days (240 hours) and produced 15.8 birds per hour; the Land of Memories site was manned for some period of time for 90 days (261 hours) and produced 10.4 birds per hour. Overall, we recorded 16.3 birds per hour of observation.

SUMMARY OF DATA

All data were submitted to the Hawk Migration Association of North America's Hawkcount website (www.hawkcount.org/bethany). These data are contributed to a larger database used to track raptor migration across North America and are also useful in the Raptor Population Index, an ongoing research project. Additionally, they were submitted to the Minnesota Ornithologists' Union where they will be incorporated into the seasonal report for Autumn 2018.

A total of 6,503 raptors of 16 species were observed this year (See Tables 2 & 3). Most species totals were below both the 3 and 5 year averages which are probably the most accurate since we have been counting at both sites for five years now. During the 123 day fall count season, there were 37 days with no raptors observed. On 14 days this season we had more than 100 birds for the day (3% of days). In 2017, there were 32 such days (26%) for comparison.

New early/late date records established in 2016:

- Earliest record for Northern Goshawk: 10 October 2018
- Earliest record for Golden Eagle: 4 October 2018

DISCUSSION

Land of Memories Municipal Park continues to be the better location to observe Turkey Vulture and Bald Eagle migration. Most other species were more commonly observed at the Bethany site. This fall, 80% of our Bald Eagles passed through Land of Memories with 1,055 of the 1,540 (68%) passing through this count site between 9-23 November 2018.

Birds generally pushed through earlier than usual this fall, probably as a reflection of the cooler weather that started the last week in September and prevailed for the remainder of the count season. The median departure date for Broad-winged Hawks the last four years has been 10 October. This year our last Broad-wings were seen on 4 October. Similarly, Turkey Vulture median departure date for the last four years has been 20 October. This year our last Turkey Vultures passed over on 13 October. The median departure date for Bald Eagles over the last four years has been 14 December; this year our last Bald Eagle was recorded on 6 December. We also had our earliest recorded dates for Northern Goshawk and Golden Eagle.

Table 2: Season totals for both sites and comparison to 10-year, 5-year and 3-year averages

| | 10 Year Average | 5 Year Average | 3 Year Average | 2018 | | |
|------------------------|--------------------|-------------------|-------------------|-------------|---------------------|-------------|
| | | | | Total | Land of Memories | Bethany |
| Turkey Vulture | 1409 | 2508 | 3263 | 2089 | 1167 | 922 |
| Osprey | 30 | 45 | 45 | 40 | 3 | 37 |
| Bald Eagle | 1077 | 1966 | 1796 | 1540 | 1228 | 312 |
| Northern Harrier | 25 | 38 | 36 | 24 | 6 | 18 |
| Sharp-shinned Hawk | 348 | 555 | 531 | 419 | 102 | 317 |
| Cooper's Hawk | 44 | 59 | 60 | 53 | 4 | 49 |
| Northern Goshawk | 1 | 2 | 2 | 2 | 0 | 2 |
| Red-shouldered Hawk | 3 | 4 | 6 | 2 | 0 | 2 |
| Broad-winged Hawk | 1591 | 2215 | 2068 | 1707 | 119 | 1588 |
| Swainson's Hawk | 5 | 8 | 7 | 5 | 0 | 5 |
| Red-tailed Hawk | 660 | 1014 | 803 | 520 | 75 | 445 |
| Rough-legged Hawk | 17 | 28 | 22 | 5 | 2 | 3 |
| Ferruginous Hawk | <1 | <1 | 0 | 0 | 0 | 0 |
| Golden Eagle | 3 | 4 | 5 | 2 | 1 | 1 |
| American Kestrel | 27 | 35 | 30 | 34 | 1 | 33 |
| Merlin | 18 | 24 | 20 | 13 | 5 | 8 |
| Peregrine Falcon | 19 | 28 | 32 | 31 | 5 | 26 |
| Unidentified Vulture | 0 | 0 | 0 | 0 | 0 | 0 |
| Unidentified Accipiter | 7 | 6 | 7 | 3 | 0 | 3 |
| Unidentified Buteo | 20 | 19 | 20 | 7 | 0 | 7 |
| Unidentified Eagle | 1 | 1 | 1 | 0 | 0 | 0 |
| Unidentified Falcon | 2 | 2 | 2 | 1 | 0 | 1 |
| Unidentified Raptors | 22 | 16 | 15 | 6 | 0 | 6 |
| Mississippi Kite | <1 | <1 | 0 | 0 | 0 | 0 |
| TOTAL: | 5329 | 8578 | 8770 | 6503 | 2718 | 3785 |

We have seen a trend of increasing Turkey Vulture numbers the last three years, but this year we spent much of the fall waiting for a flight of vultures that never came. In particular, in the last couple of years we have seen hundreds of Turkey Vultures passing through Land of Memories during the month of August. That phenomenon did not happen this year. That could be a result of efforts made by the city and businesses south of Land of Memories to discourage Turkey Vultures from roosting on the water tower and other structures in that area. There were relatively few roosting birds there during the summer of 2018 and our hypothesis was that local birds drew the attention of transients, thus increasing the number of birds counted at Land of Memories. It is also possible that our counts may have been inflated by some of the resident vultures and those birds were eliminated from the count this year. We had plans to try and determine resident Turkey Vulture roosting behavior during the summer of 2018, but plans fell through.

Table 3: Monthly totals and comparison to 10-year and 3-year averages

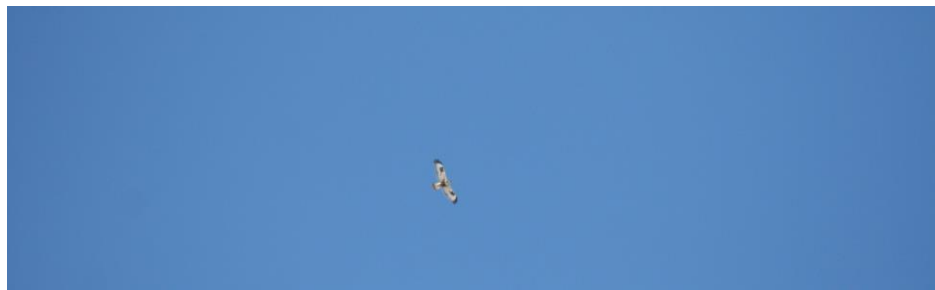
| | 10-year Average | 3-year Average | 2018 |
|-----------|--------------------|-------------------|-------|
| August | 129 | 358 | 232 |
| September | 2,874 | 4,778 | 3,597 |
| October | 1,220 | 1,927 | 1,345 |
| November | 926 | 1,380 | 1,301 |
| December | 180 | 327 | 28 |

The Red-tailed Hawk is one of the most common species in North America and shows a variety of morphs; we try to note the different forms each year. In keeping with our low number of birds this year, we had only 2 dark morph Red-tailed Hawks this year, neither of which was identified to subspecies. Last year we had 20 dark morph birds.

Broad-winged Hawk and Swainson's Hawks also have dark morphs. The dark morph of the Broad-winged Hawk is more common in western parts of its range but is rare no matter where you see it. Last year we had a record 11 dark morphs. This year we had 3 which was still much higher than average. We also recorded our first dark morph Swainson's Hawk on 28 September 2018.

International Hawk Migration Week was from 15-23 September 2018. On the 22nd, Chad Heins led a bird walk around the Bethany campus and then the group settled in for some hawk-watching at the Bethany count site. During the week he also did a presentation about phenomena that have been learned about from counting raptors in the Minnesota River Valley. During the week, a total of 1,706 raptors were counted.

Thanks especially to the following observers who spent several (in some cases, hundreds) of hours volunteering to count raptors: Jim Amundson, Marty Rost, John Nelson, John Sehloff, John Wagner, Austin Schmidt, Sam Retz, Scott Seigfreid, and Glenda Bossow. I would like to especially thank Jim, Marty and John Nelson whose dedication and time spent manning the Hawkwatch were largely responsible for our a successful count. Thank you also to Scott Seigfreid who contributed his gorgeous photograph of a Swainson's Hawk (that bird was not at the Bethany Hawkwatch by the way).



Light morph Rough-legged Hawk by Chad Heins