

Hawk Ridge Bird Observatory
Migration Count Final Report
Fall 2023

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Introduction

The 52nd consecutive fall migration count at Hawk Ridge Bird Observatory (HRBO) was conducted from the main overlook along East Skyline Parkway in Duluth, Minnesota between 08/15/23 and 11/30/23. A total of 963 count hours were logged during this time. This is the highest number of count hours ever logged for the HRBO fall count (Previous high: Fall 2011 with 961 hours). The count was staffed by two primary counters (Lead Counter: Jess Cosentino, Assistant Counter: Sean McLaughlin) in addition to three count trainees (Megan Hanson, Sarah Needles, Marie Chappell). Daily counts began at, or slightly before, sunrise and continued until roughly two to three hours prior to sunset on most days. All migrant bird species (raptor and non-raptor) were recorded. The following report summarizes the HRBO Fall 2023 count season.

Weather Summary

As at most hawkwatch count sites, weather conditions are a critical component for the volume, composition, and duration of daily flights. Wind direction and speed often dictate how good or poor the flight along the Ridge and lake shore will be on any given day throughout the count season. Inclement weather (e.g., heavy precipitation) often limits the amount of migratory movement that is observed; however, migrant raptors of certain species will still make southbound progress in these conditions depending on the time of year. During fall migration at Hawk Ridge, northwest winds are typically most favorable as these funnel migrant raptors towards the lake shore and Ridge (which runs in a north-south orientation), creating optimal orographic lift and assisting updrafts. West winds are also favorable; however, the lack of a northern component can make for a slow migration pace. Similarly, southwest winds can be productive; however, migrant raptors often take longer to make passage and can often pass at much lower altitudes on the Ridge (on either side). These southwest winds can provide excellent closer viewings of passage migrant raptors. East winds are generally the least favorable for documenting southbound migrant raptors as these are coming in off Lake Superior and generally push flight lines farther inland and away from the Ridge, causing migrant raptors to pass beyond the limits of detection of count staff. Weather data were obtained from the Duluth International Airport Station.

August

The average temperature over the final two weeks of August (15-31) was 63.9 F. Inclement weather only prevented a count from being conducted on one day (8/22) throughout this time period. Of the 16 days where a count was conducted in August, the following were the dominant wind directions (# of days): Southwest (4), East (3), West (2), Southeast (2), Variable (2), Northwest (1), North (1), South (1). This early season component of the fall count is generally characterized by hot, often cloudless, days with varying levels of migrant raptor movement.

September

The average temperature over the month of September was 61 F (Average maximum: 81 F, Average minimum 48 F). No counts were missed due to inclement weather, allowing for 30 consecutive days of counting; however, two days (9/22 and 9/22) had reduced count hours (2.25 and 3.67, respectively) due to inclement weather. Of the 30 days where a count was conducted in September, the following were the dominant wind directions (# of days): Southeast (8), East (7), East/Southeast (4), Southwest (3), North/Northwest (3), Variable (3), South (Variable) (1), South (1). The second half of the month was characterized by consistent poor weather, specifically stronger east winds off of Lake Superior and intermittent-to-heavy precipitation. This likely played a direct role in the historically low September Broad-winged Hawk monthly and season totals (see: below), as well as several other species that make passage in good numbers during that same time window, such as Bald Eagles.

October

The average temperature over the month of October was 46 F (Average maximum: 72 F, Average minimum: 25 F). No counts were missed due to inclement weather, allowing for 31 consecutive days of counting. Of the 31 days where a count was conducted in October, the following were the dominant wind directions (# of days): Northwest (6), North (4), East (4), West (3), Southwest (3), Variable (3), Southeast (2), South (2), West/Northwest (2), West/Southwest (1), Northeast (1). Following the consistent poor weather and wind conditions in September, October brought overall more favorable conditions beginning in the first days of the month. Northwest and north winds dominated nearly 1/3 of the month, which allowed for several larger eagle and buteo flights to make passage over the month.

November

The average temperature over the month of November was 32 F (Average maximum: 50 F, Average minimum: 10 F). No counts were missed due to inclement weather, allowing for 30 consecutive days of counting. Of the 30 days where a count was conducted in October, the following were the dominant wind directions (# of days): Southwest (7), Northwest (6), West/Northwest (4), West (3), West/Southwest (2), West (2), South (2), East (1), East/Southeast (1), Southeast (1), Variable (1). Overall winds throughout the month were generally favorable, as a mix of northwest, west, and west-northwest comprised approximately 43% of the count days. There were several days with very light snowfall; however, no significant snow events occurred throughout the month.

Raptor Migration Summary

The general trend for raptor migration on Hawk Ridge this fall was that of the 18 diurnal raptor species documented, slightly under half (8) exhibited above-average season totals relative to the recent ten-year (2013-2022) averages, while one-third exhibited below-average totals compared to the same recent long-term averages. The remaining species (4) exhibited seasons totals that generally aligned with the recent long-term species averages. Notable raptor highlights from the fall count included recording a new season high total for Golden Eagles and the highest season total for American Kestrels since 2005.

Species Accounts

The following are individual species accounts for all 18 diurnal raptor species documented during the HRBO fall raptor count. Each species account provides season total, day high count and date, recent ten-year (2013-2022) season average, and long-term population trend at HRBO during the fall raptor count using the Raptor Population Index summary (www.rpi-project.org).

Format:

Species: Season Total (High Day Count Date and Total), 10-Year Average (2013-2022)
Raptor Population Index (RPI) Long-term trend: (Increasing, Decreasing, Stable)
RPI Long-term trend (%)

Turkey Vulture (*Cathartes aura*): 2000 (October 8: 585), 10-Year Average: 1576
Population Trend: *Increasing*
(1974-2019): 3.25%/year (CI: 2.12%/ 4.5%), (2009-2019): 7.47%/year (CI: 3.77%/ 11.07%)

As populations of this species continue to increase across most of their North American range, annual count totals at the Ridge have paralleled this trend. Current season totals range in between one- and two-thousand annually, while much smaller triple-digit counts were more common just several decades ago. This season total was somewhat higher than the recent long-term average; however, this may be an artifact of annual variability in count staff efforts and the discretion used to discern between migrant and resident birds. While always a challenging species to document as migrants in the early season while resident vultures continue to linger locally, there is generally a noticeable shift in behavior which aligns with the second half of September as small-to-medium sized groups of vultures begin to consistently move in a north-south fashion on days with favorable winds. This consistent southbound movement continues steadily into the first half of October, while tapering abruptly following that time window. Over 80% of the season total for this species made passage between just four consecutive days in early October (6-9), which included the season day high count total. A highlight on the season included the latest record for this species ever recorded for the HRBO fall count as a single Turkey Vulture slowly wobbled through the sky while passing down the shore on November 30 (Previous late record being 11/18/17).

Osprey (*Pandion haliaetus*): 259 (September 8: 28), 10-Year Average: 226
Population Trend: *Increasing* (1974-2009), *Decreasing* (2009-2019)
(1974-2019): 1.41%/year (CI: -0.8%/ 3.56%), (2009-2019): 0.3%/year (CI: -4.4%/ 4.92%)

One of the earliest raptor passage migrants to begin moving south during the fall count, with most (84%) making passage between late August and throughout September. Southward movement is protracted across the entire month of September, with migration momentum abruptly tapering following the first week of October, although a couple late migrant Osprey passed in the second half of the month (October 17 and 21). While the season total was slightly above the recent ten-year average, the recent long-term trends appear to show this species declining in the fall count. On a broad-scale, Ospreys have been increasing dramatically range-wide since the 1970's in response to increased federal protections and the banning of known harmful contaminants, such as DDT. However, as other raptor species' populations that share similar ecological niches, such as Bald Eagles, also increase, this may result in increased

competition for limited food and habitat resources. Cruz et al. (2019) found that Bald Eagles, Ospreys and Great Blue Herons (all picivorous birds that rely on fish as their main food staple) began repatriating Voyageurs National Park, Minnesota, USA, in the mid-20th century. However, after 1990, only Bald Eagles continued their recovery, while both Osprey and heron recovery failed for unknown reasons. Cruz et al. reported that increased numbers of eagles were associated with a reduction in the numbers of osprey nests and their nesting success. It is still unclear why this species has shown declines during fall counts along the Ridge.

(Source: Cruz et al. 2019. Top-down effects of repatriating bald eagles hinder jointly recovering competitors. *Journal of Animal Ecology*. 88: 1054-1065.)

Bald Eagle (*Haliaeetus leucocephalus*): 4563 (September 10: 168), 10-Year Average: 5274
Population Trend: *Increasing*
(1991-2019): 6.5%/year (CI: 5.23%/ 8.11%), (2009-2019): 3.87%/year (CI: 2.02%/ 5.76%)

One of the premier conservation success stories of the 20th century throughout North America, Bald Eagles continue to be the most frequently documented raptor passage migrant during the fall while being documented on 99% of the days between the start and end of the count. This fall season total was slightly below the recent long-term average; however, this likely was partially due to the sustained poor weather throughout much of late September as consistent precipitation and heavy east winds off the lake likely pushed much, if any, southbound raptor movement more inland. In general, this species continues to show consistent long-term increases with robust day counts spanning August and late November.

Northern Harrier (*Circus cyaneus*): 742 (October 4: 76), 10-Year Average: 537
Population Trend: *Decreasing (1974-2019), Increasing (2009-2019)*
(1974-2019): -0.1%/year (CI: -1.09%/ 0.8%), (2009-2019): 3.67%/year (CI: -1.88%/ 10.19%)

This fall count witnessed a fantastic year for this species, far exceeding the recent long-term average. One of the more frequently observed migrant raptor species throughout the entire count period, Northern Harriers were observed on 71% of the count days, with slow but consistent movement beginning as early as late August and persisting well into September and October, while tapering dramatically in the first half of November. While this year's count exhibited an above-average total, Northern Harriers appear to be showing declines across parts of their North American range in recent decades following population rebounds after the banning of DDT in

the 1970s. As raptors of the open country, habitat loss of these open grassy areas which they depend on is thought to possibly be playing a role in the documented declines.

Sharp-shinned Hawk (*Accipiter striatus*): 16,502 (October 5: 1750), 10-Year Average: 16,696
Population Trend: *Decreasing*
(1974-2019): 0.4%/year (CI: -0.7%/ 1.41%), (2009-2019): -1%/year (CI: -4.78%/ 2.84%)

While this species remains one of the most abundant documented on the fall count, with this season total generally aligning with the recent long-term average, consistent long-term declines continue to be documented at Hawk Ridge. This appears to be reflective of broader, large-scale declines at the population-level. A 2019 RPI analysis examined migration count data from 79 North American count sites, spanning between Canada and Panama, and found that Sharp-shinned Hawks had declined at 47% of these sites. This highlights the critical importance of annual migration counts, such as those conducted each fall at Hawk Ridge, in order to properly monitor long-term population health in raptor species across their entire North American range.

Cooper's Hawk (*Accipiter cooperii*): 66 (October 6: 5), 10-Year Average: 104
Population Trend: *Increasing* (1974-2009), *Decreasing* (2009-2019)
(1974-2019): 2.22%/year (CI: -2.37%/ 5.87%), (2009-2019): -0.6%/year (CI: -9.88%/ 7.68%)

With limited breeding range extending north of the Ridge, Cooper's Hawks are the far less abundant migrant Accipiter during the fall count compared to their Sharp-shinned relatives. However, in-flight identification between these two species can provide one of the most difficult challenges for raptor counts. This season total was quite a bit below the recent long-term average; however, this species continues to show strong population-level increases across much of its North American range while flourishing in suburban and even urban areas. Thus, interpreting the variability in the count data at Hawk Ridge may be an artifact of variability across count staff. This species has shown dramatic population-level increases since the 1970s which have been reflected in the HRBO fall count data.

American Goshawk (*Accipiter atricapillus*): 61 (October 31: 9), 10-Year Average: 187
Population Trend: *Decreasing*
(1991-2019): -5.73%/year (CI: -9.52%/ -2.08%), (2009-2019): 0.6%/year (CI: -4.11%/ 5.23%)

The great goshawk eruptions from the northern forests have been a vibrant topic of hawkwatching folklore surrounding Hawk Ridge for as long as the fall count has existed; however, this season total documents the third consecutive double-digit species total. For

reference, the recent long-term average is nearly three times this while the most recent double-digit counts prior to 2021-2023 date back to 1986-1989. Understanding large-scale cyclical events within complex ecological systems requires more than interpreting count data from a single site, such as Hawk Ridge, yet there seems to be a dramatic drop off in both the frequency and abundance of this species being documented during the fall migration count.

Red-shouldered Hawk (*Buteo lineatus*): 2 (October 27/November 23: 1), 10-Year Average: 1
Population Trend: *NA (Limited count data available)*

While this species breeds southwest of the Ridge in central Minnesota, it is generally a sparse passage migrant documented during the fall count. Some years do not detect any, making this year's season total of two individuals a pleasant outcome. The first adult migrant passed low along the west of the Ridge while being mobbed by Common Ravens. The second individual represents the latest fall record (11/23/23) for this species, as the distant adult mixed in with a strong push of Red-tailed Hawks moving down the lake shore on a blustery northwest wind.

Broad-winged Hawk (*Buteo platypterus*): 10,210 (September 16: 4601), 10-Year Average: 30,042

Population Trend: *Increasing*
(1974-2019): 0.9%/year (CI: -0.4%/ 2.22%), (2009-2019): 0.4%/year (CI: -4.69%/ 5.97%)

The first noticeable movement of southbound Broad-winged Hawks appeared on August 20, with individuals and small groups taking advantage of assisting winds as 23 migrants made passage. Another 52 would follow a week later on August 26; however, the anticipation for the large, awe-inspiring kettles increases as the calendar turns over into September. Unfortunately, weather conditions throughout the month were generally poor. Persistent southwest and east winds coupled with precipitation limited any strong southward movement during the time window this species historically makes passage along the Ridge. The second half of September especially had consistent east winds blowing in off Lake Superior. As a result, the entire month of September only witnessed a single four-digit day count (September 16: 4601), resulting in the lowest September total (6587) ever recorded (Previous record low: September 1998 with 8665). Quickly becoming despondent in the wake of such low numbers, the first week of October provided an abnormally late pulse of Broad-winged Hawks, with a second four-digit day count (2542) passing on October 5. This day was book-ended by several other triple-digit day counts and

several late straggling southbound individuals, which resulted in the highest October total (4173) ever recorded for this species. This late pulse of migrant Broad-winged Hawks also prevented this season from being the lowest ever recorded, as Fall 1998 documented 9411 – slightly below this year's total. Individual low annual counts are rarely reflective of larger population-level declines, as this species has generally showed an increasing trend during the fall count at Hawk Ridge, while many other fall count sites along the Great Lakes region experienced record Broad-winged Hawk day count totals this past fall. This may simply highlight the variability in route selection and migration timing in response to a number of variables, including weather.

Red-tailed Hawk (*Buteo jamaicensis*): 5106 (October 28: 573), 10-Year Average: 6218
Population Trend: *Decreasing*
(1991-2019): -2.08%/year (CI: -3.82%/ -0.4%), (2009-2019): -4.3%/year (CI: -9.7%/ 1.21%)

A prominent late season migrant at the Ridge, annual Red-tailed Hawk season totals have exhibited gradual declines over recent decades. This season total is slightly above more recent years; however, compared to recent decades, it appears that several thousand less are making passage throughout the peak migration window. Whether this relates more to changes in migratory route selection or demographic changes at the population-level remains unclear.

Rough-legged Hawk (*Buteo lagopus*): 280 (October 31: 31, 10-Year Average: 672
Population Trend: *Decreasing*
(1974-2019): -1.69%/year (CI: -3.73%/ 0.1%), (2009-2019): -7.32%/year (CI: -15.38%/ 0%)

Despite some years having tremendous southbound flights of this species during fall migration (1948 in 2020 and 1123 in 2017), there has been a general declining trend during the fall count. This fall was a second consecutive count with a noticeably lower season total compared to the recent long-term average. However, this could also simply reflect a lack of southbound migrants that are instead remaining at more northern latitudes (possibly due to abundant food sources) before the fall count ends on November 30 rather than population-level changes. Population trends in this species are largely tied to prey (lemmings on their high Arctic breeding grounds), and thus a lack of southbound migrants observed at count sites (such as Hawk Ridge) may be reflective of populations simply remaining at northern latitudes. It is also unclear to what degree this species may continue migrating south beyond November 30, into December and onward, when no count effort from the Ridge is being conducted.

Swainson's Hawk (*Buteo swainsoni*): 4 (September 10: 2), 10-Year Average: 2
Population Trend: *N/A (Limited count data available)*

An infrequent vagrant from the western reaches of the state, the occasional Swainson's Hawk generally mixes with the larger Broad-winged Hawk kettles throughout September as stronger west and northwest winds shuffle birds towards the lakeshore and Ridge. Two individuals mixed in with Broad-winged Hawks during early September. Not surprisingly, during the late October push of Broad-winged Hawks, two additional individual Swainson's Hawks also passed the Ridge on separate days.

Golden Eagle (*Aquila chrysaetos*): 265 (November 13: 35), 10-Year Average: 188
Population Trend: *Increasing*
(1991-2019): 3.67%/year (CI: 2.63%/ 4.71%), (2009-2019): 0.5%/year (CI: -4.5%/ 4.81%)

This season set a new HRBO fall count record for this species, with the previous high count being from 2018 with 245 Golden Eagles. October experienced a below-average monthly total for this species; however, momentum quickly increased in the first days of November (with 25 passing on 11/3) and several larger day counts (23 on 11/10, 30 on 11/13, and 17 on 11/18) throughout the month would contribute the record-breaking season total. This late November push also set a new November high count (173) for this species (Previous November high from 2012 with 150). One highlight on the season included a non-adult Golden Eagle passing low along the Ridge on 11/3 while wearing a visible transmitter on its back. We have not yet discovered the origins of this tagged individual, but it will be interesting to learn more about its annual cycle movements and flight path taking it passed Hawk Ridge.

American Kestrel (*Falco sparverius*): 1812 (September 16: 281), 10-Year Average: 1139
Population Trend: *Increasing* (1974-2009), *Decreasing* (2009-2019)
(1974-2019): 1.41%/year (CI: -1.09%/ 3.77%), (2009-2019): -4.3%/year (CI: -5.64%/ -2.76%)

While this species is exhibiting declines across much of its North American range, this year's season total was remarkably higher than the recent long-term average (Highest season total since 2005). Just over one-hundred individuals were logged in the final two weeks of August during the early season count, which highlights the value in beginning this fall migration count as early as August 15 to fully capture the scope of southward raptor movement (39 of those August individuals came in the first seven days of the count, suggesting that this species is very likely moving in some numbers prior to the start date of this fall count).

Merlin (*Falco columbarius*): 305 (September 10: 33), 10-Year Average: 269

Population Trend: *Increasing*

(1979-2019): 6.18%/year (CI: 2.33%/ 10.3%), (2009-2019): -0.6%/year (CI: -8.24%/ 8.22%)

This species has shown marked increases both during the fall count and at the population-level throughout much its North American range. Breeding pairs are increasingly utilizing both suburban and urban landscapes, which may account for the continued increase in southbound migrants recorded on this fall count. Peak movement was concentrated throughout most of September and into the first weeks of October, while tapering dramatically into November.

Peregrine Falcon (*Falco peregrinus*): 140 (October 3: 25), 10-Year Average: 124

Population Trend: *Increasing*

(1974-2019): 5.97%/year (CI: 5.13%/ 6.82%), (2009-2019): 4.71%/year (CI: -1.19%/ 10.63%)

This season witnessed both a fantastic season total for this species, as well as two impressive early October counts on consecutive days (October 3 and 4), with 46 Peregrines passing during those two days alone. The first day (October 3) tied the second highest day count for this species, tying 9/19/19 with 25 Peregrines. Those two days were truly a spectacle to witness from the Ridge, as southwest winds provided excellent viewing opportunities while the large falcons pushed steadily in great numbers throughout the entire count period.

Mississippi Kite (*Ictinia mississippiensis*): 1 (September 4: 1), 10-Year Average: < 1

Population Trend: *N/A (Limited count data available)*

A vagrant from southern latitudes during fall migration, the only migrant kite of the fall passed along the Ridge in the first days of September on a hot, cloudless, hazy day. The bird rose low over the summit and traversed slowly into the southeast winds just above treetop-level passing directly along the Ridge while moving southwest. The bird provided excellent looks to all those on the Overlook as well as offering fantastic photograph opportunities before disappearing over the horizon line.

Short-eared Owl (*Asio flammeus*): 5 (All observations individuals), 10-Year Average: < 1

Population Trend: *N/A (Limited count data available)*

As the only diurnal owl species recorded during the fall count, this fall witnessed an above-average season total with five migrant Short-eared Owls moving south along the Ridge and shore throughout the count. While two of these owls were distant and spotted moving down the shore,

the remaining birds passed directly over the Ridge at fairly lower altitudes while providing excellent, sustained views from below.

Non-Raptor Migration Summary

A total of 141 non-raptor migrant bird species were documented throughout the season (Table 1).

Non-raptor count highlights include: (a) New season total records for Blue Jays and Sandhill Cranes and (b) New day count records for Sandhill Cranes and Red-headed Woodpeckers.

The most abundant non-raptor bird species include:

- (1) Blue Jay (78,631; *New HRBO season record high total*)
- (2) American Robin (37,001)
- (3) Unidentified warbler species (16,955)
- (4) Cedar Waxwing (14,413)
- (5) Pine Siskin (12,651)
- (6) Canada Goose (9380)
- (7) Purple Finch (9065)
- (8) Rusty Blackbird (8764)
- (9) American Crow (7873)
- (10) Common Crackle (6418)

The table below provides a complete species list including both season totals and high day counts (with date in parentheses) for each. **Bold highlighted species and count indicates either new site (1) season total or (2) day count total record.**

Table 1. HRBO Fall Migration Count Non-Raptor Migrant Species List

#	Species	Season Total	High Day Count
1	Snow Goose	87	39 (October 22)
2	Ross's Goose	1	1 (October 22)
3	Cackling Goose	37	28 (October 8)
4	Canada Goose	9380	2077 (September 6)
5	Trumpeter Swan	22	15 (October 31)
6	Wood Duck	5	4 (September 24)

7	Mallard	188	24 (October 21)
8	Northern Pintail	2	1 (September 25)
9	Green-winged Teal	1	1 (September 25)
10	Redhead	15	8 (October 27)
11	Lesser Scaup	5	4 (October 23)
12	Common Goldeneye	24	9 (October 23)
13	Hooded Merganser	5	4 (October 25)
14	Common Merganser	231	119 (October 31)
15	Red-breasted Merganser	5	4 (October 14)
16	Common Nighthawk	1422	258 (August 25)
17	Chimney Swift	74	24 (August 28)
18	Ruby-throated Hummingbird	146	22 (September 2)
19	Black-billed Cuckoo	1	1 (September 22)
20	Rock Dove (Feral Pigeon)	19	12 (August 25)
21	Mourning Dove	10	3 (September 2)
22	Sandhill Crane	1437	1132 (October 7)
23	Red-necked Grebe	4	3 (August 25)
24	Horned Grebe	2	2 (November 22)
25	American Golden Plover	2	2 (September 15)
26	Semipalmated Plover	5	3 (August 17)
27	Killdeer	1	1 (August 27)
28	Stilt Sandpiper	4	3 (August 20)
29	Baird's Sandpiper	1	1 (August 17)
30	Least Sandpiper	7	4 (August 17)
31	American Woodcock	2	1 (September 28)
32	Wilson's Snipe	134	49 (September 15)
33	Spotted Sandpiper	2	1 (August 15)
34	Solitary Sandpiper	13	4 (August 16)
35	Lesser Yellowlegs	7	4 (August 18)
36	Greater Yellowlegs	1	1 (October 29)
37	Bonaparte's Gull	5	3 (October 13)
38	Ring-billed Gull	62	22 (October 19)
39	Herring Gull	138	50 (November 12)
40	Common Loon	127	10 (October 31)
41	Double-crested Cormorant	229	75 (August 19)
42	Great Blue Heron	35	6 (August 16)
43	American White Pelican	562	172 (September 12)
44	Belted Kingfisher	29	4 (September 17)
45	Red-headed Woodpecker	29	10 (September 2)
46	Red-bellied Woodpecker	7	All Individuals, Different Date
47	Yellow-bellied Sapsucker	110	30 (September 21)
48	Black-backed Woodpecker	14	2 (September 10)
49	Downy Woodpecker	19	3 (September 16)
50	Hairy Woodpecker	21	3 (October 20)
51	Northern Flicker	314	75 (October 5)
52	Pileated Woodpecker	4	2 (August 18)

53	Eastern Phoebe	15	3 (September 2)
54	Olive-sided Flycatcher	11	6 (September 2)
55	Yellow-bellied Flycatcher	2	1 (August 20)
56	Least Flycatcher	5	2 (August 15)
57	Eastern Kingbird	36	15 (September 2)
58	Great-crested Flycatcher	1	1 (August 16)
59	Northern Shrike	21	2 (October 15)
60	Red-eyed Vireo	21	8 (September 2)
61	Philadelphia Vireo	2	1 (August 31, September 14)
62	Blue-headed Vireo	8	3 (October 2)
63	Blue Jay	78629	14054 (September 10)
64	Black-billed Magpie	1	1 (September 16)
65	American Crow	7873	1159 (October 12)
66	Common Raven	919	82 (November 18)
67	Bohemian Waxwing	471	241 (November 20)
68	Cedar Waxwing	14413	2292 (September 2)
69	Boreal Chickadee	2	1 (October 8, October 15)
70	Black-capped Chickadee	10	7 (October 3)
71	Horned Lark	252	44 (September 16)
72	Bank Swallow	2	1 (August 15, September 2)
73	Tree Swallow	114	32 (August 16)
74	Purple Martin	10	9 (September 2)
75	Barn Swallow	88	18 (August 31)
76	Cliff Swallow	1646	560 (September 3)
77	Ruby-crowned Kinglet	4	2 (October 3)
78	Golden-crowned Kinglet	5	4 (October 3)
79	White-breasted Nuthatch	4	2 (October 3)
80	Red-breasted Nuthatch	116	18 (September 3)
81	Brown Creeper	2	1 (October 2)
82	European Starling	308	56 (October 15)
83	Townsend's Solitaire	2	1 (October 15, October 16)
84	Swainson's Thrush	17	5 (September 21)
85	Hermit Thrush	1	1 (October 23)
86	Veery	2	2 (August 25)
87	American Robin	37001	13224 (September 30)
88	American Pipit	124	22 (September 13)
89	Evening Grosbeak	28	14 (November 11)
90	Pine Grosbeak	26	8 (November 4)
91	Purple Finch	9065	1574 (October 5)
92	House Finch	1	1 (October 17)
93	Common Redpoll	2505	437 (November 23)
94	Red Crossbill	1292	132 (November 3)
95	White-winged Crossbill	180	40 (November 4)
96	American Goldfinch	2387	248 (November 4)
97	Pine Siskin	12651	1154 (September 16)
98	Lapland Longspur	205	169 (September 17)

99	Snow Bunting	256	54 (November 2)
100	Chipping Sparrow	27	6 (August 20)
101	Clay-colored Sparrow	2	1 (September 15, October 4)
102	Fox Sparrow	4	All Individuals, Different Date
103	American Tree Sparrow	25	6 (October 15)
104	Dark-eyed Junco	84	21 (October 5)
105	White-crowned Sparrow	2	2 (October 4)
106	Harris's Sparrow	1	1 (October 2)
107	White-throated Sparrow	8	3 (October 4)
108	Bobolink	160	56 (September 5)
109	Baltimore Oriole	15	7 (September 2)
110	Red-winged Blackbird	1717	668 (September 2)
111	Rusty Blackbird	8764	4107 (October 6)
112	Common Grackle	6418	1412 (October 14)
113	Ovenbird	2	1 (August 15, August 18)
114	Northern Waterthrush	11	3 (August 18)
115	Golden-winged Warbler	2	1 (August 20, September 3)
116	Black-and-white Warbler	21	5 (September 3)
117	Tennessee Warbler	427	45 (September 2)
118	Orange-crowned Warbler	3	1 (October 7)
119	Nashville Warbler	405	76 (August 16)
120	Connecticut Warbler	1	1 (September 8)
121	Mourning Warbler	1	1 (August 18)
122	Common Yellowthroat	3	2 (August 15)
123	American Redstart	187	38 (September 3)
124	Cape May Warbler	25	4 (September 21)
125	Northern Parula	11	2 (September 15)
126	Magnolia Warbler	45	6 (August 21)
127	Bay-breasted Warbler	1	1 (September 6)
128	Blackburnian Warbler	15	4 (August 16)
129	Yellow Warbler	12	5 (September 2)
130	Chestnut-sided Warbler	22	3 (August 15)
131	Blackpoll Warbler	10	5 (September 21)
132	Black-throated Blue Warbler	3	2 (September 2)
133	Palm Warbler	320	73 (September 21)
134	Yellow-rumped Warbler	6024	867 (September 21)
135	Black-throated Green Warbler	7	2 (September 21)
136	Canada Warbler	2	1 (August 25, September 3)
137	Wilson's Warbler	7	2 (September 2)
138	Scarlet Tanager	14	3 (August 26)
139	Rose-breasted Grosbeak	297	154 (September 2)
140	Dickcissel	1	1 (August 25)
141	Indigo Bunting	14	2 (August 16)
	OTHER TAXA OBSERVED		
1	goose sp.	3	2 (September 17)
2	Tundra/Trumpeter Swan	48	21 (October 31)

3	dabbling ducking sp.	10	5 (August 20)
4	duck sp.	1449	169 (October 27)
5	Aythya sp.	99	70 (October 27)
6	Greater/Lesser Scaup	141	35 (October 21)
7	scoter sp.	16	16 (October 7)
8	Surf/Black Scoter	4	3 (October 6)
9	shorebird sp.	56	15 (September 15)
10	small shorebird sp.	3	2 (August 17)
11	dowitcher sp.	8	8 (September 2)
12	Greater/Lesser Yellowlegs	20	16 (August 17)
13	Large gull sp.	9	4 (October 21)
14	woodpecker sp.	6	All Individuals, Different Date
15	Philadelphia/Warbling Vireo	2	1 (August 28, September 2)
16	Hirundine sp.	287	122 (September 3)
17	Golden-/Ruby-crowned Kinglet	1	1 (October 16)
18	Catharus sp.	3	2 (September 2)
19	flycatcher sp.	9	7 (September 3)
20	sparrow sp.	2	2 (October 2)
21	finch sp.	1861	238 (September 16)
22	blackbird sp.	865	326 (October 6)
23	Bay-breasted/Blackpoll Warbler	14	3 (September 2)
24	warbler sp.	16955	3468 (September 2)
25	passerine sp.	311	65 (September 26)