



Pack Monadnock Raptor Observatory Fall 2023 Final Report

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Introduction

Fall migration at Pack Monadnock is highly anticipated every year — especially the crisp, cool days of September, October, and November when the hawks pour out of the north to glide towards their wintering grounds south of the mountain.

The 2023 season was yet another successful fall at the Pack Monadnock Raptor Observatory. The 13,058 migrating raptors observed is the fifth-highest season in the 19 years of the project. Harris Center staff and volunteer educators reached thousands of visitors, introducing many to the grand spectacle of raptor migration and engaging through the world of hawks. A fantastic team of counters and volunteers put in long hours to ensure that the count had full coverage all season long, with most days having multiple observers scanning the skies and sharing their passion and knowledge of raptors with curious visitors.

Why Pack Monadnock?

Many raptors migrate long distances to their wintering grounds in Central and South America and shorter distances into interior North America. To conserve energy for this journey, they soar on updrafts created by wind pushing up on the side of mountain ridges and thermals produced by heat rising from the landscape below. With the wind at their backs, many raptors can travel up to 250-300 miles in a single day! Diurnal raptors follow leading lines in the landscape, such as north-south running mountain ridges, river valleys, and coastlines. This combination of geography and weather patterns brings raptors to Pack Monadnock, a more northern and eastern mountain in the Appalachian Mountain range of North America. Pack Monadnock has long been known as an excellent vantage point for observing raptor migration because of its high elevation, location along the north-south running Wapack ridgeline, and prominent views to the north and west. With a seasonally operated auto road, it is also one of the most easily accessible peaks in the region.

Site Description



Hawk watchers diligently scan for migrant raptors at Pack Monadnock Raptor Observatory (PMRO).
photo © Tom Momeyer

The Pack Monadnock Raptor Observatory (PMRO) is located near the summit of Pack Monadnock (2,290 feet) within Miller State Park in Peterborough, New Hampshire. Situated in south-central New Hampshire along the scenic and rugged 22-mile-long Wapack Range, the Observatory platform offers spectacular views to the north and west, including Mount Washington, the White Mountains, Crooked Mountain, Mount Kearsarge, Mount Cardigan, North Pack Monadnock, Mount Monadnock, and several summits in Vermont. Able to accommodate large crowds during peak season, the observation platform is accessed via a short, hard-packed trail from the parking lot atop the scenic summit. This parking lot can be reached from the 1.5-mile paved auto road that connects to the park's entrance at the base of the mountain from NH 101. The observation platform can also be reached from several hiking trails along the mountain for those seeking a less paved route. Bad weather notwithstanding, the auto road is generally open through Veterans Day (conditions permitting), while the trails are open to hikers year-round.

History and Mission

Like many of New Hampshire's mountains, Pack Monadnock has a long and storied history of human use, including hawkwatching. The Hawk Migration Association of North America (HMANA) has data going back to the mid 1970s, mostly collected in the month of September on days that looked promising for a Broad-winged Hawk flight. In 2005, PMRO was founded by New Hampshire Audubon under the leadership of Iain MacLeod, with initial funding from the Samuel P. Hunt Foundation, the Monadnock Community Foundation, and the Putnam Foundation. This allowed for the hire of a seasonal biologist/interpreter to staff the Hawk Watch full-time through the fall migration season. PMRO has been staffed by an official counter every year since, thanks to continued fundraising and support. In 2018, the Harris Center for Conservation Education came on board to partner with NH Audubon to jointly run PMRO. The Hawk Watch was fully handed over to the Harris Center for Conservation Education in 2022.

Pack Monadnock Raptor Observatory has become a fixture of the local community and is widely renowned as one of the premier hawkwatching locations in New England. Having completed its 19th season, PMRO is one of at least 87 hawk watches located in a region designated by HMANA as the 'Eastern Flyway,' which runs the length of the east coast of North America from New Brunswick, Canada, all the way south to Alabama. Hawk watches along this flyway and throughout the Americas report data to the online database, <http://hawkcount.org>, maintained by PMRO's partner organization, HMANA. Further, the Observatory, owing to its longevity and standardized methodology, is now part of a select analysis through the Raptor Population Index (RPI), a project of HMANA and other partners. The set of raptor migration monitoring sites chosen for the RPI analysis is the 'gold standard' for hawk watches, as each contributes key data that conservation biologists use to make determinations about global populations of raptors and conservation strategies for them. In this way, PMRO plays a key regional role in this periodic analysis, the most recent of which was completed in 2019. For more information, see <http://rpi-project.org/index.php>.

Of equal importance to migration data collection is connecting with Hawk Watch visitors. The Harris Center is dedicated to promoting understanding and respect for our natural environment through education of all ages, direct protection and exemplary stewardship of the region's natural resources, conservation research, and programs that encourage active participation in the great outdoors. PMRO's work aligns beautifully with this mission. The splendor of a New England autumn and the accessibility of the mountain draws visitors from across the country and around the world. Local schools bring classes to the Observatory to learn about and witness hawk migration. Every year, PMRO provides thousands of people with the opportunity to learn more about the natural world around them, and some of these visitors become dedicated volunteers at Pack or their own local hawk watch.



Two young hawk watchers scan the skies near PMRO's tally board. photo © Ben Conant

Education and Outreach

Along with the science of raptor migration, education/outreach is the other primary goal at the Observatory. The fall 2023 season was another fantastic one for visiting school groups and other organizations looking to witness some migration directly and hear from educators about what we do. More than 330 students visited the Hawk Watch as a part of their schooling, many already having worked with the Harris Center on a “raptor unit” in the classroom. We welcome many more school groups to visit us in future years! To arrange a visit, contact Miller State Park at (603) 924-3672.

Visiting School Groups

- Franklin Pierce University, Rindge, NH – Freshmen Class
- Bennington Elementary, Bennington, NH – Third Grade
- Mountain Shadows School, Dublin, NH – Sixth Grade
- Jaffrey Grade School, Jaffrey, NH – Fourth Grade
- Fairgrounds Middle School, Nashua, NH
- Compass School Vermont, Westminster, VT – High School
- Crotched Mountain School, Greenfield, NH
- Wilkins School, Amherst, NH – Fourth Grade
- Hollis Elementary School, Hollis, NH

Visiting Organizations

- Seacoast Chapter of NH Audubon
- Antioch University New England University Bird Club

Events

Raptor Release on September 24

This year’s Raptor Release was held on September 24 and drew about 50 visitors. The weather did not look promising, but the mountain cleared of fog in time for the release, and we had a moderately good day for raptor migration that afternoon. With the limitations of the park reservation system and other logistics, we opted not to broadly advertise the release this year, which historically has drawn large crowds. However, there was still a nice turnout that included over a dozen children in the audience. Seeing a bird given a second chance at life in the wild can be a very powerful connection. Two released Broad-winged Hawks and two American Kestrels dazzled and awed spectators.



A rehabilitated kestrel flies free. photo © Ben Conant

Big Sit! on October 8

A rainy Saturday pushed our Big Sit! effort to Sunday this year. While the weather improved by daybreak, a stiff southwest wind kept the raptor flight to a trickle and cut down on songbird activity. We observed a relatively modest 21 species during this 12-hour effort. The highlight species of the day was the Eastern Towhee, with both a male and female kicking around the platform in the scrub. This was our second year promoting the Big Sit! as a *Birding for All* event. Thanks to the holiday weekend peak foliage, we welcomed 316 visitors over the course of the day, sharing birds with many of them.

Big Soup! — Soup Contest on November 11

Pulled from retirement induced by the COVID-19 Pandemic, the fun Big Soup! soup contest was a smashing success this year. There were a record number of 12 entries vying for the top spot and all the glory (bragging rights) that come with it. Adding to the success was the number of folks casting votes. A total of 42 visitors came down on this last weekend when the auto road was open. We think most would have hiked the mountain anyway for our soups, regardless of the auto road's status. Competition was fierce, and ultimately, former counter (and former soup contest champion) Julie Brown won top honors with her deliciously smoky "Gavilán Tortilla con Pollo" (chicken tortilla soup).

Methods

Data collection at PMRO has remained largely unchanged over the years. By standardizing the data collection process through a series of established protocols and hiring qualified counters, PMRO has ensured that the data collected is of consistent quality. Through the years, these protocols have been handed down through the coordinator and from one official counter to the next. This standardization eliminates unnecessary variables that could impart negative and unforeseen influences on subsequent analyses. What follows is a general accounting of the protocol used. An official written protocol is in the works to be provided to new counters and volunteers in the years to come.

For the 2023 season, an official counter was present daily at the count site for the entire survey period from September 1 through November 20. Exceptions were made on rainy days and days with low visibility (inability to see at least North Pack Monadnock) when the count would be postponed or canceled until conditions improved. Official hours were 8 a.m. EST to 4 p.m. EST from September 1 through November 4, then from 9 a.m. EST to 3 p.m. EST from November 5 through November 20. The switch from Daylight Savings Time to Eastern Standard Time was the marker for the change in hours (which was on the late side again this year). On days when the weather forecasts were favorable for good flights, the counter made the effort to extend the effort beyond the regular hours. This involved getting to the Hawk Watch early or using the "15-minute rule" to stay late on days when the flight continued past the official count hours. With this rule, if a hawk were seen within a 15-minute block, the counter would stay for another quarter hour until a quarter-hour went by without a migrant.

This year, Hawk Watch volunteer Glen Chretien put in an additional 17.75 hours between August 20 and August 31, recording 43 migrants. The Harris Center has been exploring the option of expanding the count to a full three-month window, and this effort, along with August data collected in other seasons, may help to inform the decision on whether to expand the count into August or to the end of November.

While some migrating raptors are undoubtedly first detected with the unaided eye, optics are integral to the project; without them, only a small portion would ever be spotted and correctly identified. Thus, most detected raptors are spotted using 8X or 10X binoculars. Spotting scopes (20X-60X) are also employed and are necessary for scanning distant horizons for “speck birds” that would otherwise slip past undetected. They are also critical for correctly identifying distant migrants, particularly those with challenging IDs (e.g. Accipiters and small falcons).

Only raptors deemed actively migrating are counted for this project. This important distinction is determined from various factors, including known migration periods for a given species at this site, knowledge of the local individuals based on early season viewing, and the behavior of the individual bird or kettle being monitored. Nevertheless, this distinction can be tricky, particularly for such species where local, non-migratory individuals are regularly seen throughout parts of the season. Troublesome species include Turkey Vulture, Bald Eagle, Cooper’s Hawk, Red-tailed Hawk, Merlin, and in some years, American Goshawk, Red-shouldered Hawk, and Sharp-shinned Hawk.

Beyond numbers and species, hourly data are (to a varying degree) collected on the height of flight, flight direction, and distance for migrants. Weather data are collected at the top of each hour. These data include cloud cover, wind speed and direction, visibility, and the temperature in degrees Celsius. This information and a daily summary and next-day forecast are submitted to HawkCount (<https://www.hawkcount.org>), the online hawk watch database for the Hawk Migration Association of North America (HMANA). Copies of this daily report are submitted to the NH.Birds listserv.

In addition to migrating raptors, daily checklists (including numbers) are typically kept for other species of birds. This information, along with raptor numbers (migrants and non-migrants), is then submitted to eBird (<https://ebird.org>), an online database of bird observations that provides scientists, researchers, and amateur naturalists with real-time data about bird distribution and abundance. All checklists are submitted to the ‘Miller SP-Pack Monadnock’ hotspot (<https://ebird.org/hotspot/L450946>).

The 2023 Season

A total of 13,058 individual raptors were tallied over the course of 568 hours of observation. In terms of species and numbers, this was a fairly average year, with few records being set. Thinking positively about this, one might say that it was just a solid standard year and that the PMRO dataset is starting to mature. However, this makes it a little difficult to write a glowing season summary report filled with exclamation points and pats on the back. One noteworthy record was set — a record-high season total for Black Vultures, with several additional non-migrants of this species observed. This was also a fantastic year for raptor diversity, being only the second time that all 16 “expected” species were observed in a single season at the Hawk Watch. There were no real raptor rarities, but it wasn’t for a lack of trying.



Hawk Watch counter Levi Burford scans the skies with scopes at the ready behind him. photo © Ben Conant

Some surprises were in store this year: Bald Eagle migrant numbers failed to set a record for the second year in a row (though this is still the third-highest count). Osprey numbers have dipped to an all-time low, as have American Goshawk numbers, and American Kestrels had their second-lowest showing since the beginning of the project.

This was the ninth year that the season's end was extended from November 15 to 20. The number of birds observed after November 16 is highlighted in the summary of numbers for each species, but this practice will likely be dropped going forward.

The following table shows how many days were affected by weather (days lost or shortened) or by a good flight (days with overtime coverage; more than 8 hours (Sept 1-Nov 4) and more than 6 hours (Nov 5-20)).

Table 1. Daily Effort By Month.

Months	Days with 0 hours covered	Days shortened by weather	Days with standard coverage	Days with overtime coverage	Total hours
September	1	8	10	10	216.75
October	3	6	13	9	213
November	1	4	11	4	120.25
Totals	5	18	34	23	550

The Dog Days of September

Total September migrants: 11,338

September was anything but crisp and cool, with a distinct heat wave in the first week of the project bringing near record heat, haze, and a lot of red smoke from wildfires in various parts of Canada. Visibility was often a problem for the first half of September, but on cue for the Broad-winged Hawk (BWAH) migration, the weather changed to north and west winds, and the Broad-winged Hawks came forth.

An excellent team of volunteers and veteran counters had their eyes on the skies through the peak of BWAH migration time. Most days in this window, at least two observers had counting experience. There were four days with over 1,000 migrants counted, with our best day on 9/15 when we recorded 2,940 migrants.

The Crisp October Cool

Total October migrants: 1,179

In contrast to the last few years, the weather was largely mild and fog-free this October. This allowed PMRO observers to put in the most hours since 2015 and 4th most hours overall for the month. There were three days with over 100 birds, during which the 6th highest Sharp-shinned Hawk flight was observed. It was a fantastic month for raptor diversity, with all 16 species recorded this season coming through.

The first week of October was unseasonably warm, with light wind and summertime temps in the 70s. The rest of the month was dominated by southwest wind, with the few north wind days being affected by inclement weather to the north or persistent clouds over the Monadnock Region. There were very few days with an easterly component to the wind, which may have negatively impacted Turkey Vulture and American Kestrel numbers.

The persistent Southwest wind and a lack of strong cold fronts likely contributed to this being Pack's lowest October Red-tailed Hawk flight on record and the lowest October count of Red-shouldered Hawk since 2017. It was also the lowest October for American Kestrel since 2005 and the worst overall for American Goshawk.

The Brisk November Numbness

Total November migrants: 448

It was a solid November, with Pack's 2nd highest raptor total for between November 1 and 15, and 3rd highest overall. There was one day with over 100 migrants, and it was the best November for Red-shouldered Hawk and Cooper's Hawk in the Observatory's records.



A Red-shouldered Hawk soars over Pack in early November. photo © Chuck Carlson

The change to Eastern Standard Time was on the later side this year, which marks the drop from eight hours of observation per day to six. There were five days with 8-hour coverage before the time change, and with a lack of stormy weather, this ended up being the second most hours covered in a November effort.

As with October, the weather was largely without major rain or snow events, or strong cold fronts. There was no shortage of westerly wind, with more days of southwest than northwest.

Species Accounts

Black Vulture (*Coragyps atratus*)

Season Total: 3

High Count: 2 (October 28)

19-year Mean: <1 19-year Median: <1

Number counted between November 16 and 20: 0

RPI (2009-2019): N/A

Since its founding, PMRO counters have been speculating that this species would become an annual sight at the Hawk Watch. The first Black Vulture was observed on Pack in 2021; the species has since been present yearly. Given their expanding population in the northeast, sightings of Black Vultures at Pack are expected to increase in frequency. It may become another “troublesome species” if a breeding population becomes established locally. An additional two birds were not counted this year due to their “non-migratory” behavior.

Turkey Vulture (*Cathartes aura*)

Season Total: 286

High Count: 54 (October 14)

19-year Mean: 199 19-year Median: 142

Number counted between November 16 and 20: 2

RPI (2009-2019): +8.65% per year

While Turkey Vultures have had some wild swings in numbers in the last couple of years, this year’s numbers were close to average. This season ranked 5th out of our 19 seasons but still supports a general increasing trend noted in the last RPI.

In general, the best Turkey Vulture flights were in October on a northeast or light northwest wind. Both wind conditions were sorely lacking this year during the peak of vulture migration, which likely dropped this year’s numbers back to average instead of having another banner year. Other sites around the region had similar numbers — good, but not great. It could also suggest that vultures had a poor year for breeding success due to a rainy summer.



A juvenile Turkey Vulture gives a close flyby on November 2. photo © Chuck Carlson

Osprey (*Pandion haliaetus*)

Season Total: 122

High Count: 16 (September 22)

19-year Mean: 216 19-year Median: 213

Number counted between November 16 and 20: 0

RPI (2009-2019): **-2.76% per year**



A nice close Osprey. They aren't always like that at Pack. photo © Chuck Carlson

This is the second year in a row that Pack has recorded a record-low count of Ospreys. Looking at regional numbers, Pack's decreasing numbers mirror what other sites have been recording since 2018, even coastal sites, which are thought to have more consistent flights of Ospreys.

Historically, most Ospreys come on winds from the west. This year, many came on east winds despite a predominant westerly component to the winds. Could these be from the more robust coastal population blown a little inland?

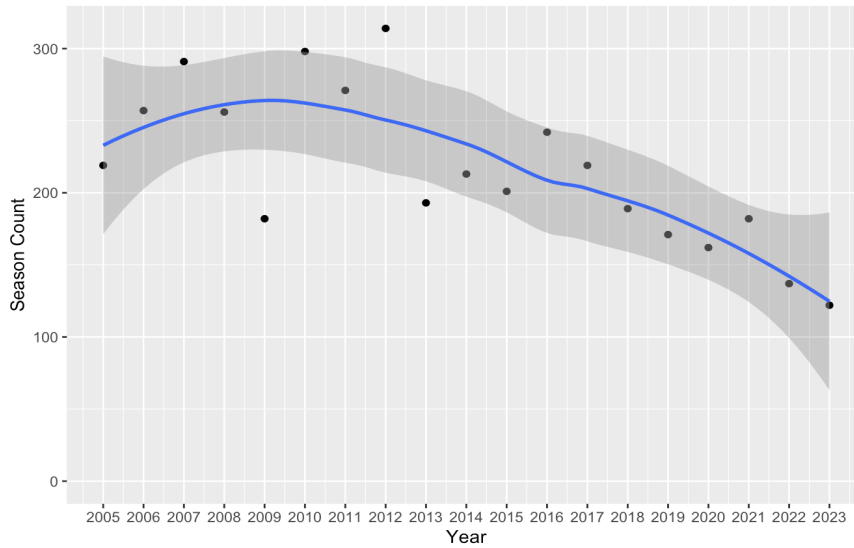


Figure 1. PMRO Overall Osprey Trend, 2005-2023

Bald Eagle (*Haliaeetus leucocephalus*)

Season Total: 196

High Count: 10 (Sept. 22)

19-year Mean: 122 19-year Median: 120

Number counted between November 16 and 20: 6

RPI (2009-2019): +12.08% per year

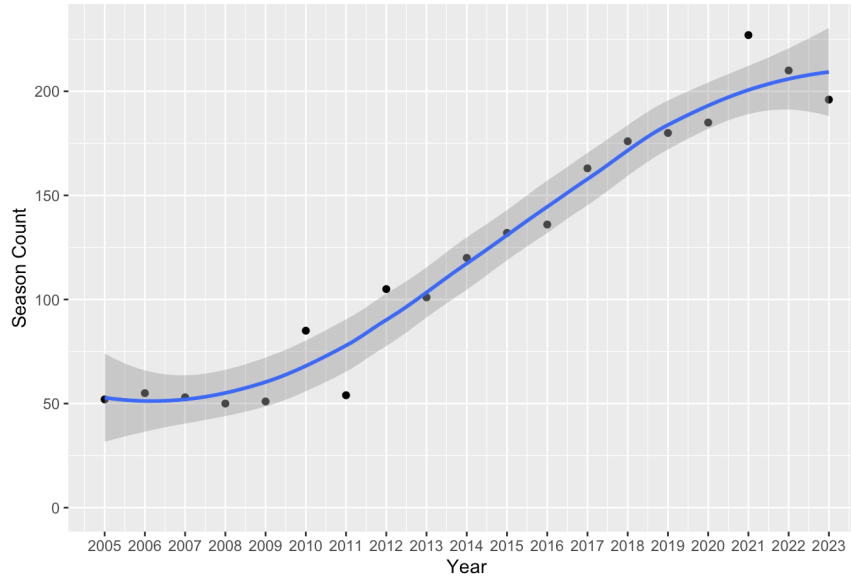


Figure 2. PMRO Overall Bald Eagle Trend, 2005-2023

Bald Eagle numbers have potentially started to plateau. In reality, it’s probably too early to make that call, but 2023 brought us the second year in a row without a season record after a decade of nearly linear sharp increase.

PMRO counters are conservative with their Bald Eagle numbers due to the presence of local birds. As to be expected at Pack, it was a rare day to not see at least one Bald Eagle, and non-migrants were often seen flying northward. In general, locals are ruled out due to flight direction, behavior, and timing (seeing a bird go in one direction, then a short while later seeing a bird in the same plumage fly from that direction). Unique plumage details can help rule out individual immature birds. This year, there were at least 57 local eagle sightings (not unique individuals), so there was quite a bit of “extracurricular” movement.

Northern Harrier (*Circus hudsonius*)

Season Total: 90
 High Count: 7 (September 21)
 19-year Mean: 85 19-year Median: 87
 Number counted between November 16 and 20: 4
 RPI (2009-2019): -3.15% per year

In 2020, Hawk Watch counters increased their efforts to age and sex the Northern Harriers that migrated past. The original intent was to try to correlate migration data with ground-based breeding surveys in northern New Hampshire (and beyond). While it is a small dataset, some interesting trends emerge when PMRO data is compared to other sites. The most obvious trend is the relatively high percentage of juvenile birds that migrate past Pack Monadnock, which could help indicate whether or not it was a good breeding season for harriers in the northeast.

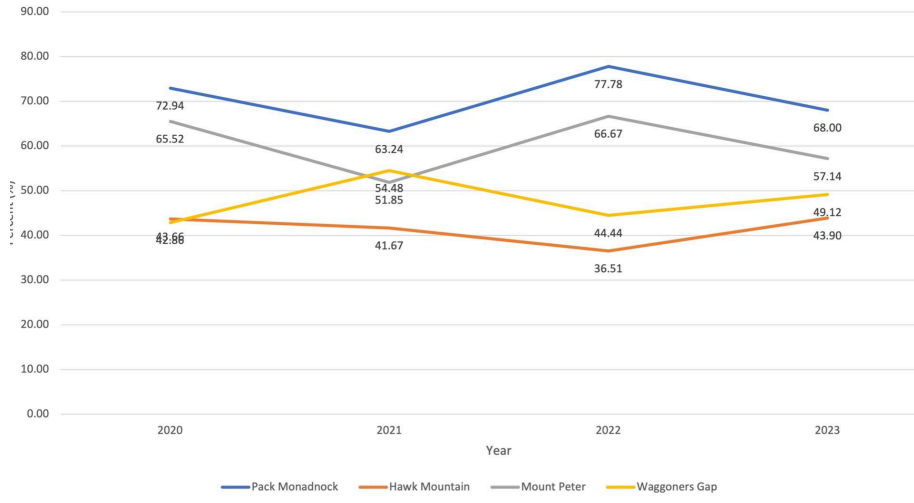


Figure 3. Percentage of Juvenile Northern Harriers at Four Northeastern US Sites, 2020-2024. The proportion of adults to juveniles shows a decrease with latitude. Data taken from Hawkcount.org.

These numbers are derived from the number of juveniles divided by the number of birds aged, so they don't consider unaged birds. The percentage of Harriers aged over the four seasons at each site goes as follows: Pack Monadnock (82%), Hawk Mountain (62%), Mount Peter (63%), and Waggoner's Gap (71%).

Overall, this season's Northern Harrier total landed close to the 19-year average. There were a surprising number of late-season adults, especially females.

Sharp-shinned Hawk (*Accipiter striatus*)

Season Total: 1,198

High Count: 100 (September 21)

19-year Mean: 1,141 19-year Median: 1,196

Number counted between November 16 and 20: 2

RPI (2009-2019): -2.47% per year

Sharpies had a solid October, in contrast to so many other species who were below average to record to near record lows that month. Juvenile Sharp-shinned Hawk migration peaked at the same time Broad-winged Hawks were pouring through, with the best juvenile sharpie flights falling on the best broad-winged days. Adult Sharpies followed in October, peaking in the early teens, which saw back-to-back-to-back 80+ Sharpie days.

While it was good to see Sharpie numbers rebound after last year's discouraging flight, numbers are still trending downward regionally. Pack's good flight was matched at neighboring Putney Mountain, but Wachusett had a mediocre year for Sharp-shinned Hawks.



A Sharpie flies over Pack in mid-October. photo © Chuck Carlson

Cooper's Hawk (*Accipiter cooperii*)

Season Total: 167

High Count: 17 (September 17)

19-year Mean: 147 19-year Median: 149

Number counted between November 16 and 20: 2

RPI (2009-2019): **-1.98% per year**

This year saw a solid showing from the Cooper's Hawk, with the second-highest count of the past decade. This was the strongest September and November for Cooper's Hawks out-of-peak flights on record, with 81 and 17 individuals counted, respectively. The 17 Cooper's Hawks counted on 9/17 tied for the second-highest single-day count for the project.

American Goshawk (*Accipiter gentilis*)

Season Total: 6

High Count: 2 (October 22)

19-year Mean: 29 19-year Median: 22

Number counted between November 16 and 20: 0

RPI (2009-2019): **-11.49% per year**

This was a record low year for American Goshawks, and the second year in Pack's history when one was more likely to see a Golden Eagle than a goshawk. The Hawk Watch has not recorded a flight of over 50 birds since 2012, and in the last seven years, a count of 20 goshawks in a year has been broken only once. Mild temperatures and a lack of strong cold fronts this fall certainly affected Red-tailed Hawk numbers, and it could be that these environmental factors also contributed to a lighter Goshawk flight.

Red-shouldered Hawk (*Buteo lineatus*)

Season Total: 188

High Count: 41 (November 1)

19-year Mean: 140 19-year Median: 126

Number counted between November 16 and 20: 10

RPI (2009-2019): +3.46% per year

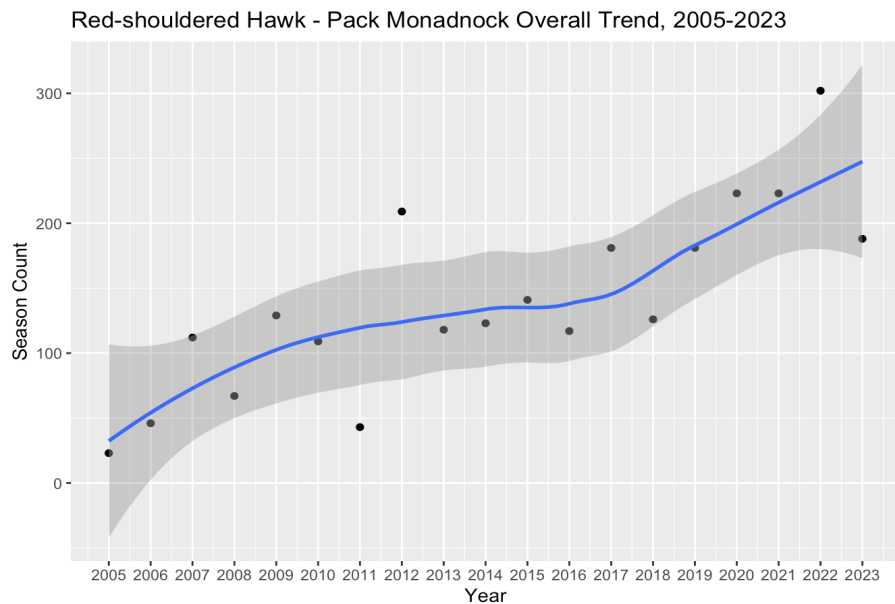


Figure 4. PMRO Overall Red-shouldered Hawk Trend, 2005-2023

Pack's Red-shouldered Hawk numbers continue to climb. Numbers this season were lower than the last three years, but this was still the 5th highest count for this species overall. This year, the best red-shouldered flights came between October 31 and November 5, later than usual for this species at PMRMO. Ten birds were also counted on the last day of the project, suggesting that there could be quite a few more to come after our season's official end.

Broad-winged Hawk (*Buteo platypterus*)

Season Total: 10,256

High Count: 2,841 (September 15)

19-year Mean: 8,579 19-year Median: 8,221

Number counted between November 16 and 20: 0

RPI (2009-2019): +3.25% per year

There was a hurricane that hit the northeast on 9/18 and 9/19, right in the middle of the peak migration window for Broad-winged Hawks. The storm delayed birds and created two pronounced waves of migrants. The first wave came through between 9/14 and 9/17, with 5,647 broadwings. The second wave was between 9/20 and 9/22, with 4,151 broad-wings. The Hawk Watch's highest count for the year occurred on 9/21 when a continuous river of 1,876 broadwings streamed overhead. This is the first time since 2016 that more than 10,000 Broad-winged Hawks were recorded at Pack in one migration season.



This broadwing was one of 5,647 that came through between 9/14 and 9/17. photo © Tom Momeyer

Red-tailed Hawk (*Buteo jamaicensis*)

Season Total: 212

High Count: 38 (November 1)

19-year Mean: 321 19-year Median: 300

Number counted between November 16 and 20: 14

RPI (2009-2019): -8.79% per year



Red-tailed Hawks and Common Ravens interacting is a typical occurrence at the Hawk Watch.
photo © Chuck Carlson

Mild temps were the rule this fall, especially in November. The lack of strong cold fronts and snow to the north likely contributed to the lack of motivation for Red-tailed Hawks to migrate. This was PMRO's lowest count since 2011 and the third-lowest count overall. This year's October push was mainly nonexistent, with only 36 birds counted, a record low for the month. November came in with a more respectable 178 migrants, but even that was still below average for that month for the last 11 years.

Rough-legged Hawk (*Buteo lagopus*)

Season Total: 1

High Count: 1 (October 16)

19-year Mean: <1 19-year Median: 0

Number counted between November 16 and 20: 0

RPI (2009-2019): N/A

This year there was an interesting push of RLHAs through the northeast, which PMRO benefited from on October 16. Iain Macleod spotted the bird on one of his poor, weathered Mondays, and the dark morph bird never got close enough for good looks.

The numbers regionally suggest that there was a little bit of an exodus for this Arctic and Subarctic predator. Quaker Ridge had three this fall, and Putney Mountain had one. Wachusett Mountain recorded 5 RLHAs this season, 4 of which came between 11/30 and 12/8.

Golden Eagle (*Aquila chrysaetos*)

Season Total: 10

High Count: 2 (November 15)

19-year Mean: 8 19-year Median: 7

Number counted between November 16 and 20: 0

RPI (2009-2019): N/A

Another great year with a higher than average count — this was the third year in a row with ten or more Golden Eagles tallied at PMRO, including a site-record early golden on 9/20, one day earlier than the prior record. Talliers then waited more than a month before seeing another golden. All eight birds that came close enough to age were immatures, with a mix of hatch-year birds and sub-adults on the ones seen well enough to observe molt and other characteristics.

American Kestrel (*Falco sparverius*)

Season Total: 92

High Count: 9 (September 27)

19-year Mean: 163 19-year Median: 167

Number counted between November 16 and 20: 0

RPI (2009-2019): +1.01% per year

It was a greatly depressed year for American Kestrels, and only in the first year of the project had a lower count. The lack of easterly wind during their peak migration window may have contributed to low numbers. However, it is also known that kestrels have been declining due to habitat loss, competition with starlings for nest cavities, and other factors. Efforts are underway to help boost kestrel numbers in the Monadnock Region, including a Harris Center project working with local landowners to put up and monitor kestrel nest boxes. Compare this year's numbers to PMRO's record day count of 50 birds on 9/18/03 and record season flight of 257 as recently as 2020.

Merlin (*Falco columbarius*)

Season Total: 108

High Count: 10 (October 5)

19-year Mean: 90 19-year Median: 90

Number counted between November 16 and 20: 0

RPI (2009-2019): -0.60% per year

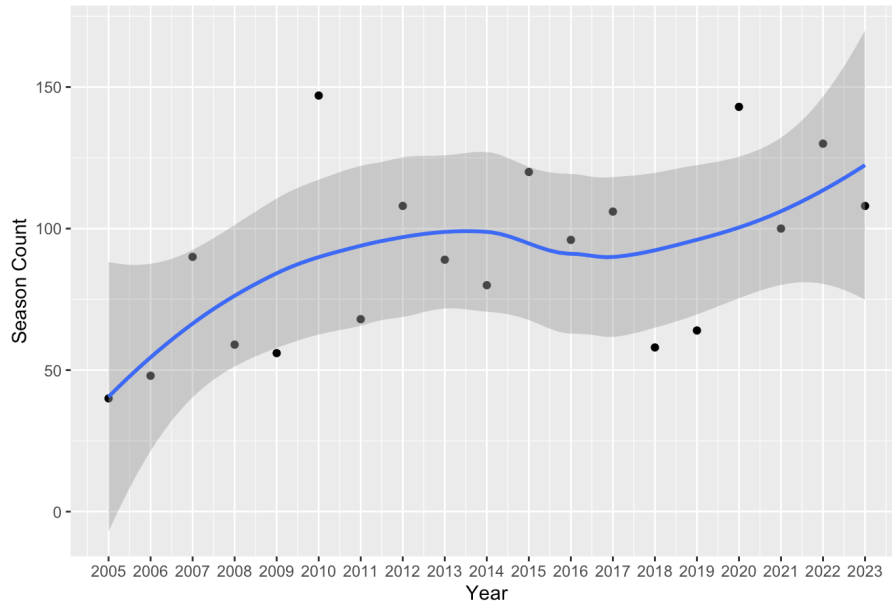


Figure 5. PMRO Overall Merlin Trend, 2005-2023

This year’s Merlin count seems to continue its trending increase despite being down from last year’s count. PMRO has seen over 100 Merlin a year annually since 2020. This is the second time that talliers have counted more Merlin than kestrels. Merlin came through steadily in September and October, with just one bird counted in November.



A Merlin showing its pugnacious attitude. photo © Chuck Carlson

Peregrine Falcon (*Falco peregrinus*)

Season Total: 61

High Count: 9 (October 4)

19-year Mean: 43 19-year Median: 44

Number counted between November 16 and 20: 0

RPI (2009-2019): +3.56% per year

This year's count was the third highest Peregrine Falcon count. The flight peaked in the first half of October, with very few birds counted after the 15th. Interestingly, two of the three biggest peregrine flights came on a light south wind this year.

Regional numbers have been pretty steady since 2015. It will be interesting to see if the RPI changes with the next major number crunch, perhaps showing less of an increase per year.

PMRO averaged 26 peregrines per year from 2005-2009, 47 from 2010-2014, 52 from 2015-2019, and so far is averaging 48 per year from 2020 on.

Non-Raptor Species

This was a great year for non-raptors, with 96 species tallied, which is pretty high for the Raptor Observatory. The bird of the year was the Hawk Watch's second-ever Townsend's Solitaire, found and photographed on November 6. Other highlights included the first Snow Goose since 2015, a late Common Nighthawk on September 20, and three Black-bellied Plovers on September 19.

Some regular migrants that counters at Pack keep track of include:

- Canada Geese, 1,417 (pretty low since we started keeping track in 2014)
- Ruby-throated Hummingbirds, 63 (beating last year's high of 61)
- Common Loon, 33 (high since 2014)
- Tree Swallow, 16 (low)
- Barn Swallow, 4 (low, but not every year)
- Chimney Swift, 10 (low)

Migrating American Crow numbers came in below Pack's yearly average of 428. This year was difficult for counting migrant American Crows. A resident flock grew to approximately 60 in number, and seemed content to hang out near the summit, especially in the afternoons. Their presence made it difficult to count migrant crows that might be sneaking through. There were only three days where talliers recorded decent numbers of migrant crows, totaling 337 migrants for the 2023 season. This year's largest murder was 182 birds strong on November 1.

It was a mast year for mountain ash, spruce, balsam, and pine cone crops. This brought good numbers of both Red and White-winged Crossbills along with Pine Siskins to the mountain. A Bohemian Waxwing and small numbers of Cedar Waxwings showed up to feed on the mountain ash, though no other boreal frugivores were observed. The berries were also fed on by American Robins, Hermit Thrushes, Dark-eyed Juncos, and White-throated Sparrows.

This was a lackluster year for Monarchs, with only 299 counted.

Beyond monarchs, counters and volunteers put a bit more effort into observing butterflies this season than usual. Below is a full species list for those interested:

PMRO Butterfly Species List (migrants and locals):

- Eastern Tiger Swallowtail *Papilio glaucus*
- Black Swallowtail *Papilio polyxenes*
- Cabbage White *Pieris rapae*
- Clouded Sulphur *Colias philodice*
- Monarch *Danaus plexippus*
- Great Spangled Fritillary *Speyeria cybele*
- Red-spotted Purple *Limenitis arthemis*
- White Admiral *Limenitis arthemis*
- Red Admiral *Vanessa atalanta*
- Eastern Comma *Polygonia comma*
- Painted Lady *Vanessa cardui*
- American Lady *Vanessa virginiensis*
- Mourning Cloak *Nymphalis antiopa*
- Summer Azure *Celastrina neglecta*
- Eastern Tailed Blue *Cupidio comyntas*
- Gray Hairstreak *Strymon melinus*

Acknowledgements

First and foremost, thank you to the many organizations and entities involved with the continued success of this project, especially the Harris Center for Conservation Education, Miller State Park, and the NH Division of Natural and Cultural Resources. Thanks go to our project supporters and champions, those sustaining donors who have contributed time and time again, and to those who made their first gift this year. Thanks to the Osaic Foundation and volunteer Glen Chretien for leveraging this new support. Nature's Green Grocer, which selected the PMRO as a seasonal recipient of their Green Giving Program, continues to be a steadfast partner of the Observatory. Finally, to all who made donations onsite and leveraged funds in other ways, we thank you greatly.

Furthermore, many thanks to Phil Brown for coordinating this site and serving as the driving force for its continued success. Thank you to Julie Brown for sharing the duties of the official counter with Phil on Tuesdays. Thank you to Norma Reppucci, Park Manager at Miller State Park, for her heartfelt support of Pack Monadnock Raptor Observatory. Things wouldn't have run as smoothly at the Observatory without the procedures the State Park and its staff were following.

Another special thanks to Iain MacLeod for being the official counter on Mondays. He had some good but mostly bad days up there, and we are grateful that we still have his experience and willingness to come up for a few days every year and help with the data collection. At least he got a few good birds for his effort this year!

Finally, the strength of the numbers comes from the number of dedicated volunteers who come out and help spot and identify the birds. We would like to extend a heartfelt thank you to those below for your diligence and good company through both the good times and the bad:

Mark Archambault, Tom Baillio, Holly Bauer, Alden & Laurel Brown, Julie Brown, Phil Brown, Levi Burford, Marie Burgess, Michael Burgess, Wayne Byrnes, Meade Cadot, Chuck Carlson, Alan Chretien, Glen Chretien, Lori-Ann Chretien, Jerry Coffey, Dennis Connely, Dot Currier, Janet Delaney, Tom Delaney, Dori Drachman, Rebecca Durinick, Katrina Fenton, Miki Foley, Rich Frechette, Dan Gardoqui, Mike Gebo, Ginny & Jerry Gonville, Melanie Haber, Nora Hanke, Scott Harvell, Sharon Harvell, Mary Hoffheimer, Dr. Jonathan Atwood, Steven Lamonde, Howard Mansfield, Nate Marchessault, Amy Maurer, Jim McCoy, Chris McPherson, Tom Momeyer, Sy Montgomery, Andre Moraes, Nancy Moreau, Kevin Murphy, Judd Nathan, Quinn Nial, Cynthia Nichols, Mike Nork, Cliff Otto, Polly Pattison, Jim Pinfeld, John Ranta, Hejara Russo, Annamarie Saenger, Cliff Seifer, Hillary Siener, Betsy Smith, Kim Snyder, Scott Spangenberg, Russ Spaulding, Susie Spikol, Will Stollsteimer, Bob Sweet, Diane Temple, Mark Timmerman, Francie Von Mertens, Henry Walters, Tom Warren, Carolyn Wawrzynski, Barry Wicklow, Mark Wilson, Jon Woolf, Van Zimmer



The tally board, wiped clean for a new day of hawkwatching. photo © Ben Conant

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Appendix

Table I – All Seasonal Data from Pack Monadnock Raptor Observatory

Year	Obs. Hrs	B V	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UA	UB	UF	UE	UR	S W	S E	Yearly Total
2005	330	0	29	219	52	24	520	47	11	23	3978	122	0	5	78	40	11	4	7	5	4	42	0	0	5221
2006	408	0	99	257	55	77	1253	213	68	46	7595	407	0	11	201	48	29	7	4	2	1	62	0	0	10435
2007	430	0	121	291	53	121	1288	186	49	112	7776	263	0	5	143	90	44	9	2	3	0	68	0	0	10624
2008	436	0	47	256	50	87	1189	162	28	67	6835	254	0	3	183	59	17	5	8	2	2	20	0	0	9274
2009	421	0	80	182	51	88	1196	133	25	129	4322	421	0	6	135	56	30	8	14	8	2	77	0	0	6963
2010	628	0	145	298	85	115	1248	168	66	109	7606	410	0	10	221	147	53	17	10	5	3	70	0	0	10786
2011	368	0	127	271	54	58	1124	145	21	43	11831	202	0	9	170	68	40	14	6	4	0	69	0	0	14256
2012	601	0	164	314	105	91	1388	181	63	209	8848	522	1	7	194	108	54	7	4	2	2	59	1	0	12324
2013	575	0	142	193	101	100	1254	146	25	118	8221	378	1	11	166	89	48	10	2	1	3	20	0	1	11030
2014	497	0	99	213	120	85	1094	126	22	123	11043	348	1	7	112	80	39	5	6	6	2	34	0	0	13565
2015	587	0	137	201	132	124	1443	115	48	141	16593	546	1	13	118	120	54	3	5	5	2	42	1	0	19844
2016	527	0	322	242	136	92	1126	163	48	117	10530	294	1	5	167	96	49	6	4	3	2	63	0	0	13466
2017	515	0	324	219	163	82	1179	142	16	181	8744	341	2	7	166	106	64	6	6	4	1	51	0	0	11804
2018	455	0	98	189	176	64	668	124	11	126	6756	246	2	22	172	58	31	16	18	10	1	63	0	0	8851
2019	558	0	268	171	180	54	1027	105	9	181	7840	220	0	4	185	64	64	15	14	4	0	95	0	0	10500
2020	558	0	172	162	185	108	1325	180	12	223	8815	293	0	5	257	143	30	11	25	2	2	82	0	0	12032
2021	548	2	641	182	227	85	1291	157	13	223	6055	329	1	11	165	100	57	7	5	2	4	48	0	0	9605
2022	553	1	493	137	210	84	886	149	22	301	9369	300	0	11	92	108	44	2	12	1	0	43	0	0	12370
2023	568	3	286	122	196	90	1198	167	6	188	10256	212	1	10	175	130	61	8	12	4	4	34	0	0	13058
Total	9572	6	3794	4119	2331	1629	21697	2809	563	2661	163012	6111	11	162	3100	1710	819	160	164	73	35	1042	2	1	216008
Avg.	504	0	200	217	123	86	1142	148	30	140	8580	322	1	9	163	90	43	8	9	4	2	55	0	0	11369

Table 2 – All Avian Observations from Pack Monadnock Raptor Observatory

	Common Name – <i>Scientific Name</i>	First Seen	Last Seen	High Count	High Date	Total Obs.
1	Snow Goose - <i>Anser caerulescens</i>	2023-10-13	2023-10-13	1	2023-10-13	1
2	Brant - <i>Branta bernicla</i>	2023-10-31	2023-10-31	65	2023-10-31	65
3	Canada Goose - <i>Branta canadensis</i>	2023-09-15	2023-11-20	368	2023-11-20	1417
4	White-winged Scoter - <i>Melanitta deglandi</i>	2023-10-16	2023-10-16	40	2023-10-16	40
5	Black Scoter - <i>Melanitta americana</i>	2023-10-16	2023-10-23	15	2023-10-16	27
6	scoter sp. - <i>Melanitta sp.</i>	2023-10-23	2023-11-20	30	2023-10-23	33
7	Common Merganser - <i>Mergus merganser</i>	2023-11-02	2023-11-11	1	2023-11-11	2
8	duck sp. - Anatidae (duck sp.)	2023-10-18	2023-10-18	2	2023-10-18	2
9	Ruffed Grouse - <i>Bonasa umbellus</i>	2023-10-19	2023-10-19	1	2023-10-19	1
10	Mourning Dove - <i>Zenaida macroura</i>	2023-08-20	2023-10-27	2	2023-09-04	8
11	Common Nighthawk - <i>Chordeiles minor</i>	2023-09-02	2023-09-20	10	2023-09-03	12
12	Chimney Swift - <i>Chaetura pelagica</i>	2023-09-01	2023-09-24	3	2023-09-03	10
13	Ruby-throated Hummingbird - <i>Archilochus colubris</i>	2023-08-28	2023-09-26	10	2023-09-14	63
14	Black-bellied Plover - <i>Pluvialis squatarola</i>	2023-09-19	2023-09-19	3	2023-09-19	3
15	Ring-billed Gull - <i>Larus delawarensis</i>	2023-10-13	2023-11-20	5	2023-10-22	14
16	Herring Gull - <i>Larus argentatus</i>	2023-09-15	2023-11-13	4	2023-11-13	12
17	gull sp. - Larinae sp.	2023-10-13	2023-11-01	3	2023-10-13	5
18	Common Loon - <i>Gavia immer</i>	2023-08-31	2023-11-20	12	2023-10-18	33
19	Double-crested Cormorant - <i>Nannopterum auritum</i>	2023-08-20	2023-11-06	31	2023-10-13	61
20	Black Vulture - <i>Coragyps atratus</i>	2023-08-20	2023-10-28	2	2023-10-28	5
21	Turkey Vulture - <i>Cathartes aura</i>	2023-08-20	2023-11-16	54	2023-10-14	557
22	Osprey - <i>Pandion haliaetus</i>	2023-08-28	2023-10-31	16	2023-09-22	123
23	Golden Eagle - <i>Aquila chrysaetos</i>	2023-09-20	2023-11-15	2	2023-11-15	10
24	Northern Harrier - <i>Circus hudsonius</i>	2023-09-06	2023-11-20	7	2023-09-21	90
25	Sharp-shinned Hawk - <i>Accipiter striatus</i>	2023-08-20	2023-11-20	100	2023-09-21	1210
26	Cooper's Hawk - <i>Accipiter cooperii</i>	2023-08-31	2023-11-18	17	2023-09-17	181
27	American Goshawk - <i>Accipiter atricapillus</i>	2023-09-15	2023-11-05	2	2023-10-22	6
28	Accipiter sp. - <i>Accipiter sp.</i>	2023-09-12	2023-11-12	2	2023-09-22	8
29	Bald Eagle - <i>Haliaeetus leucocephalus</i>	2023-08-28	2023-11-20	12	2023-09-22	253
30	Red-shouldered Hawk - <i>Buteo lineatus</i>	2023-09-03	2023-11-20	41	2023-11-01	210

31	Broad-winged Hawk - <i>Buteo platypterus</i>	2023-08-20	2023-10-15	2841	2023-09-15	10261
32	Red-tailed Hawk - <i>Buteo jamaicensis</i>	2023-08-20	2023-11-20	38	2023-11-01	308
33	Rough-legged Hawk - <i>Buteo lagopus</i>	2023-10-16	2023-10-16	1	2023-10-16	1
34	Buteo sp. - Buteo sp.	2023-09-19	2023-11-12	2	2023-11-01	11
35	eagle sp. - Accipitridae sp. (eagle sp.)	2023-10-23	2023-11-12	1	2023-11-12	3
36	Barred Owl - <i>Strix varia</i>	2023-09-12	2023-09-12	1	2023-09-12	1
37	Yellow-bellied Sapsucker - <i>Sphyrapicus varius</i>	2023-09-26	2023-10-17	1	2023-10-17	2
38	Red-bellied Woodpecker - <i>Melanerpes carolinus</i>	2023-09-19	2023-10-14	1	2023-10-14	2
39	Downy Woodpecker - <i>Dryobates pubescens</i>	2023-09-05	2023-11-19	1	2023-11-19	5
40	Hairy Woodpecker - <i>Dryobates villosus</i>	2023-09-12	2023-11-06	1	2023-11-06	3
41	Pileated Woodpecker - <i>Dryocopus pileatus</i>	2023-09-01	2023-11-13	1	2023-11-13	19
42	Northern Flicker - <i>Colaptes auratus</i>	2023-09-15	2023-10-14	10	2023-09-17	26
43	American Kestrel - <i>Falco sparverius</i>	2023-08-27	2023-10-31	9	2023-09-27	92
44	Merlin - <i>Falco columbarius</i>	2023-09-01	2023-10-31	10	2023-10-05	112
45	Peregrine Falcon - <i>Falco peregrinus</i>	2023-09-02	2023-11-06	9	2023-10-04	61
46	falcon sp. - Falco sp.	2023-09-14	2023-10-10	1	2023-10-10	3
47	diurnal raptor sp. - Accipitriformes/Falconiformes sp.	2023-09-04	2023-11-12	4	2023-10-15	26
48	Eastern Wood-Pewee - <i>Contopus virens</i>	2023-09-04	2023-09-07	1	2023-09-07	3
49	Eastern Phoebe - <i>Sayornis phoebe</i>	2023-09-02	2023-09-21	1	2023-09-21	6
50	Blue-headed Vireo - <i>Vireo solitarius</i>	2023-09-01	2023-10-05	2	2023-10-02	18
51	Philadelphia Vireo - <i>Vireo philadelphicus</i>	2023-09-10	2023-09-17	1	2023-09-17	2
52	Red-eyed Vireo - <i>Vireo olivaceus</i>	2023-09-01	2023-10-06	1	2023-10-06	9
53	Blue Jay - <i>Cyanocitta cristata</i>	2023-08-31	2023-11-10	8	2023-10-24	160
54	American Crow - <i>Corvus brachyrhynchos</i>	2023-08-20	2023-11-13	182	2023-11-01	640
55	Common Raven - <i>Corvus corax</i>	2023-08-20	2023-11-20	31	2023-10-05	707
56	Black-capped Chickadee - <i>Poecile atricapillus</i>	2023-08-20	2023-11-20	6	2023-11-15	215
57	Tufted Titmouse - <i>Baeolophus bicolor</i>	2023-09-21	2023-09-21	1	2023-09-21	1
58	Tree Swallow - <i>Tachycineta bicolor</i>	2023-08-20	2023-09-17	8	2023-09-02	16
59	Barn Swallow - <i>Hirundo rustica</i>	2023-08-28	2023-09-04	2	2023-09-01	4
60	Cliff Swallow - <i>Petrochelidon pyrrhonota</i>	2023-09-15	2023-09-15	5	2023-09-15	5
61	swallow sp. - Hirundinidae sp.	2023-09-01	2023-09-12	3	2023-09-01	5
62	Ruby-crowned Kinglet - <i>Corthylio calendula</i>	2023-09-06	2023-10-27	2	2023-10-24	30
63	Golden-crowned Kinglet - <i>Regulus satrapa</i>	2023-08-20	2023-11-19	6	2023-09-26	115

64	Red-breasted Nuthatch - <i>Sitta canadensis</i>	2023-09-01	2023-11-11	1	2023-11-11	16
65	Brown Creeper - <i>Certhia americana</i>	2023-08-20	2023-11-01	1	2023-11-01	10
66	House Wren - <i>Troglodytes aedon</i>	2023-09-01	2023-09-17	1	2023-09-17	5
67	Winter Wren - <i>Troglodytes hiemalis</i>	2023-09-01	2023-11-20	1	2023-11-20	10
68	Gray Catbird - <i>Dumetella carolinensis</i>	2023-09-30	2023-09-30	1	2023-09-30	1
69	Eastern Bluebird - <i>Sialia sialis</i>	2023-10-10	2023-11-13	5	2023-11-13	15
70	Townsend's Solitaire - <i>Myadestes townsendi</i>	2023-11-06	2023-11-06	1	2023-11-06	1
71	Hermit Thrush - <i>Catharus guttatus</i>	2023-09-21	2023-10-28	4	2023-10-26	12
72	American Robin - <i>Turdus migratorius</i>	2023-09-26	2023-11-20	106	2023-11-10	372
73	Bohemian Waxwing - <i>Bombycilla garrulus</i>	2023-11-01	2023-11-06	1	2023-11-06	3
74	Cedar Waxwing - <i>Bombycilla cedrorum</i>	2023-08-20	2023-11-01	25	2023-09-01	91
75	House Finch - <i>Haemorhous mexicanus</i>	2023-11-01	2023-11-01	1	2023-11-01	1
76	Purple Finch - <i>Haemorhous purpureus</i>	2023-09-07	2023-11-20	11	2023-10-26	73
77	Red Crossbill - <i>Loxia curvirostra</i>	2023-08-20	2023-11-20	113	2023-11-16	387
78	White-winged Crossbill - <i>Loxia leucoptera</i>	2023-08-20	2023-11-19	53	2023-11-15	100
79	crossbill sp. - <i>Loxia</i> sp.	2023-11-11	2023-11-11	3	2023-11-11	3
80	Pine Siskin - <i>Spinus pinus</i>	2023-09-21	2023-11-20	262	2023-10-26	2179
81	American Goldfinch - <i>Spinus tristis</i>	2023-08-20	2023-11-19	8	2023-11-12	61
82	finch sp. - Fringillidae sp.	2023-09-01	2023-11-13	38	2023-11-11	101
83	Snow Bunting - <i>Plectrophenax nivalis</i>	2023-10-15	2023-11-19	2	2023-10-31	4
84	Fox Sparrow - <i>Passerella iliaca</i>	2023-10-24	2023-11-07	2	2023-11-07	6
85	Fox Sparrow (Red) - <i>Passerella iliaca iliaca/zaboria</i>	2023-11-02	2023-11-16	1	2023-11-16	2
86	Dark-eyed Junco - <i>Junco hyemalis</i>	2023-08-20	2023-11-20	24	2023-11-04	423
87	White-crowned Sparrow - <i>Zonotrichia leucophrys</i>	2023-10-02	2023-10-12	1	2023-10-12	8
88	White-throated Sparrow - <i>Zonotrichia albicollis</i>	2023-09-16	2023-11-13	4	2023-09-26	39
89	Song Sparrow - <i>Melospiza melodia</i>	2023-10-12	2023-10-12	1	2023-10-12	1
90	Eastern Towhee - <i>Pipilo erythrophthalmus</i>	2023-10-02	2023-10-08	2	2023-10-08	4
91	Black-and-white Warbler - <i>Mniotilta varia</i>	2023-09-10	2023-09-15	2	2023-09-10	4
92	Tennessee Warbler - <i>Leiothlypis peregrina</i>	2023-09-19	2023-09-19	1	2023-09-19	1
93	Nashville Warbler - <i>Leiothlypis ruficapilla</i>	2023-09-01	2023-09-19	1	2023-09-19	4
94	Common Yellowthroat - <i>Geothlypis trichas</i>	2023-09-26	2023-09-26	1	2023-09-26	1
95	American Redstart - <i>Setophaga ruticilla</i>	2023-09-09	2023-09-09	1	2023-09-09	1
96	Cape May Warbler - <i>Setophaga tigrina</i>	2023-08-20	2023-10-05	4	2023-09-10	12

97	Northern Parula - <i>Setophaga americana</i>	2023-09-10	2023-09-19	1	2023-09-19	2
98	Magnolia Warbler - <i>Setophaga magnolia</i>	2023-09-26	2023-10-05	1	2023-10-05	2
99	Bay-breasted Warbler - <i>Setophaga castanea</i>	2023-09-10	2023-09-10	1	2023-09-10	1
100	Blackpoll Warbler - <i>Setophaga striata</i>	2023-09-10	2023-10-18	5	2023-09-26	28
101	Black-throated Blue Warbler - <i>Setophaga caerulescens</i>	2023-09-03	2023-09-27	1	2023-09-27	7
102	Palm Warbler - <i>Setophaga palmarum</i>	2023-09-10	2023-10-01	1	2023-10-01	3
103	Palm Warbler (Yellow) - <i>Setophaga palmarum hypochrysea</i>	2023-09-26	2023-10-24	2	2023-10-24	4
104	Pine Warbler - <i>Setophaga pinus</i>	2023-09-03	2023-09-10	1	2023-09-10	2
105	Yellow-rumped Warbler - <i>Setophaga coronata</i>	2023-08-28	2023-11-01	12	2023-10-12	160
106	Yellow-rumped Warbler (Myrtle) - <i>Setophaga coronata coronata</i>	2023-10-03	2023-10-03	10	2023-10-03	10
107	Black-throated Green Warbler - <i>Setophaga virens</i>	2023-09-01	2023-10-05	7	2023-09-10	27
108	new world warbler sp. - Parulidae sp.	2023-09-03	2023-10-10	16	2023-09-17	21
109	Northern Cardinal - <i>Cardinalis cardinalis</i>	2023-08-20	2023-08-20	1	2023-08-20	1
110	passerine sp. - Passeriformes sp.	2023-09-12	2023-11-12	6	2023-10-04	12