

Osprey
Photo by Katrina Fenton



Pack Monadnock Raptor Migration Observatory

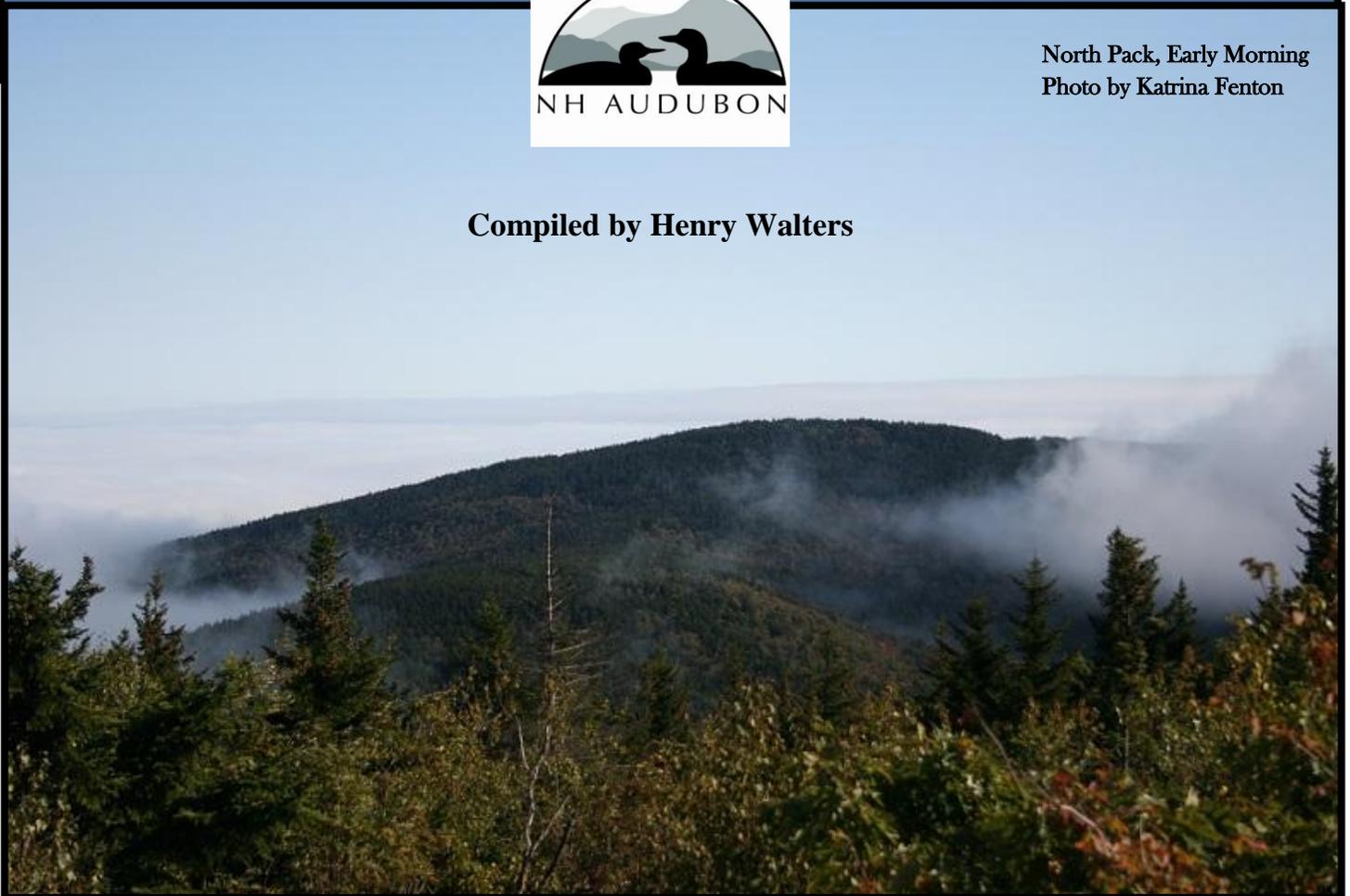
Final Report

Fall, 2012



North Pack, Early Morning
Photo by Katrina Fenton

Compiled by Henry Walters



The 2012 Season

2012 marked the eighth consecutive fall of full-time operation of the Pack Monadnock Raptor Migration Observatory, a season chock-full of old pleasures and fresh surprises, terrific efforts by a team of experienced volunteers, and the arrival of many new, enthralled faces to the hawk-watch platform. Most of all it was full of migrating birds of prey: 12,038 of them, to be precise, all passing through southern New Hampshire between September 1st and October 31st, the official count period, with another 286 migrants tallied in late August and early November. The overall total is the second-highest in the eight years of data collection, and totals for every individual species were above average. What's more, seven of the fourteen species of raptor regularly occurring at Pack were seen in record numbers in 2012, including the Osprey, Bald Eagle, and Peregrine Falcon. And as if that were not enough, two new species of raptor, Swainson's Hawk and Rough-Legged Hawk, were recorded at the site for the first time. In all, 97 species of bird put in an appearance around the observation platform this year, from Cape May Warblers in early September to Bohemian Waxwings and Pine Grosbeaks in mid-November, not to mention the snakes, butterflies, insects, mammals (including a short-tailed weasel), mushrooms, ferns, and ever-shifting cloud formations that would transform the most single-minded hawk-watcher into a full-fledged naturalist. One can hardly imagine, on first arriving at this little granite outcrop at 2300 feet above sea-level, surrounded by thick red-spruce woods and open to the north wind, that the Pack Monadnock Observatory should so teem with life, but time and again the place reveals itself to be one of the crown jewels of southern New Hampshire.

DAILY COUNT		TODAY	SEASON
		10/28	TOTAL
OSPREY			317
NORTHERN HARRIER			88
BALD EAGLE			101
GOLDEN EAGLE			6
SHARP-SHINNED HAWK			1,379
COOPER'S HAWK			178
NORTHERN GOSHAWK			54
RED-SHOULDERED HAWK			187
BROAD-WINGED HAWK			8848
RED-TAILED HAWK			379
SWAINSON'S HAWK			*
AMERICAN KESTREL			194
MERLIN			106
PEREGRINE FALCON			*54
TURKEY VULTURE			164
* Denotes new single-season record			
TOTAL RAPTORS			12,126

Photo by Jo-Ann Matthews

History and Mission

The Observatory was founded in 2005 by Iain MacLeod and has since been operated by New Hampshire Audubon with a two primary purposes: to gather quantifiable information on raptor migration through the region, and also to serve as an educational classroom, both for students and the general public, informing visitors about raptor biology, habitat, and the relationship between humans and birds of prey. Both goals are consistent with New Hampshire Audubon's stated mission, "to protect New Hampshire's natural environment for wildlife and for people."

The long-term scientific goal of the project is to collect ten years' worth of standardized data, which would allow for the undertaking of statistical analysis of raptor population trends. The site is one of approximately 169 consistently reporting North American watch sites, all of which enter their daily observations into a database administered by the Hawk Migration Association of North America (HMANA). Those numbers, for current and previous years, can be accessed by the public at www.hawkcount.org.

The full-time Counter/Naturalist for 2012 was Henry Walters, who staffed the site Wednesday through Sunday. Volunteers Iain MacLeod and Katrina Fenton acted as counters on Mondays and Tuesdays, respectively, the latter fresh off a spring season of hawk-watching at Bradbury Mountain, Maine. Together they logged 600.75 observation hours over 85 days, with 14 of those days returning zero raptor data on account of bad weather or low visibility. Julie and Phil Brown acted as Site Coordinators, overseeing operations, while their six-month-old daughter Laurel assisted in fundraising efforts.

Education and Outreach

The Pack Monadnock Observatory, located near the summit at the juncture of three hiking trails, and just a few hundred yards from the parking lot, averages a few thousand visitors each year—not only dyed-in-the-wool hawk-watchers, but hikers, tourists, day-trippers, trail-runners, leaf-peepers, motorcycle gangs looking to stretch their legs...all sorts of people, many of whom have never heard of hawk-watching. ***This year over 3,100 people stopped to learn something about hawks at Pack Monadnock.*** Thousands more, simply by walking by the observation platform, gained some exposure to the site. One of the great strengths of the Pack Observatory is the ease with which the general public can be introduced to the project and even begin to participate in it, right there on the spot. Education about birds of prey, their migration patterns, and the critical issues of environmental conservation that we face today, often starts with a glance at the “Daily Count” posted on a white-board and a simple question: “So you’ve really seen 100 Sharp-shinned Hawks today, eh?” Kurt Geerer, a fighter pilot from Pepperell, Massachusetts, out for a weekend jaunt this September, sat down at a picnic table near the observation platform and found the air overhead filled with pepper flakes: hundreds of Broad-winged Hawks, kettling up in a thermal directly over the peak. By the time he left, having seen over a thousand hawks, he was beaming, and repeating two phrases: “I had no idea. I’ve gotta come back. I just had no idea. Oh, I’ve gotta come back.” And indeed, he was back nearly every morning he had the chance.

The site also serves as an important educational resource for many school groups from around the area. From elementary schools through college-level biology courses, dozens of teachers take advantage of this resource and bring their students to Pack Monadnock each year to witness part of the fall migration. This fall, 655 students visited the site, from Peterborough, Dublin, Penacook, Harrisville, Hinsdale, and places even further afield. The Mass Audubon Young Birders Society made a trip to

Pack, along with a group of teachers being trained in environmental education by Polly Pattison of the Harris Center in Hancock, New Hampshire. As state funding for schools is at a premium, teachers are having more and more difficulty finding the resources to bring students on a field trip, but such interactive, outdoor encounters are precisely the experiences that will inspire the next generation of environmental stewards in our area and elsewhere.

Word of the hawk-watch is spreading, and with it, its outreach potential is growing. The site was featured on a number of occasions by *The Monadnock Ledger*, *The Monadnock Shopper News*, *The Keene Sentinel*, *The Dublin Advocate*, *The Hippo Press*, and several other outlets. The annual hawk-release has become a major community event, drawing many hundreds of spectators from the area, plenty of them with youngsters perched on their shoulders. Held the second or third weekend in September, the event centers around the release of a



Photo by Lillian Stokes

raptor back to the wild. Above, Henry Walters prepares to release this year's bird, an immature broad-winged hawk nursed back to health by Maria Colby, director of the Wings of the Dawn rehabilitation clinic in Henniker. Other special events at Pack include the Big Sit, part of a nationwide bird census held in October, and the Big Soup, a celebratory year-end contest in which hawk-watchers bring a homemade soup to the mountain in hopes of being crowned "Soup Champ." After weeks of trash-talking, nine delicious, ornithologically titled soups were heated up on camp stoves this year, including "Creamy Merlin Medley," "Caracara Carrot Cardamom," and "Taiga Bean Goulash," but only Julie Brown's "Thai Chicken Hawk" took the prize, a one-of-a-kind, wool "Peregrine" hat knitted by Katrina Fenton.

Methods

Consistency of observation methods is of great importance to the relevance of the data gleaned from the Pack Monadnock Observatory, and conscientious efforts are made to preserve it, both from day to day and from year to year. The official counter is present and observing between 9 am and 5 pm, every day between September 1st and October 31st, weather permitting. Scanning for birds is done with 8x or 10x binoculars, while use of the spotting scope is generally limited to matters of identification. Efforts are made to scan all parts of the sky, above and below the horizon, even those areas that have been empty most of the day. Observers maintain a conservative approach to the counting of raptors sighted, limiting the official count to "actively migrating" birds.

Challenges to the consistency of these methods are worth noting. Some are partly within our control, such as preservation of the visible horizon where the growth of the spruce woods has begun to encroach upon it. Other factors, such as long-term changes in air quality—and consequently, visibility—may not be. (Hawk-watchers made the—albeit subjective—observation that 2012 had more than its fair share of mornings of low-lying haze. Such trends may, however, be symptomatic of larger climatic changes: this “ground level ozone” is more commonly in evidence on hot, dry, summerlike days, of which we had many this fall, and may, according to projections, continue to have.)

Ironically, one commonly raised question concerning the consistency of method in data-collection is also one of the site’s confirmed successes: the steady increase in the number of dedicated, knowledgeable observers on the hawk-watch platform. While mid-September always brings a crowd, the entirety of 2012 was a team effort. The site effectively had two full-time observers, with Katrina Fenton volunteering at Pack an additional four days/week, in addition to her role as official counter each Tuesday. For the official count period, the average number of experienced observers on the platform at any one time was between four and six, certainly up from the initial years of the study. (How many of us were balancing on the rocks back in 2006?) And even well into November, a number of die-hard hawk-watchers continued to donate their time and expertise to the project. All of this would appear to result in an increase in the number of migrant raptors spotted and identified throughout the season.

But do more observers necessarily mean more birds? Numerous observers are needed to accurately count the hundreds of thousands of raptors seen at sites such as Corpus Christi, Texas, or Veracruz, Mexico; at Pack, however, the skies are not so full (with the exception of mid-September, perhaps) that a single counter cannot monitor the whole sky with reasonable success. This year’s average ratio of 26.75 migrant raptors seen per observer hour logged does not set a terribly frenetic pace. And as any hawk-watcher will attest, certain clear September days bring only a handful of hawks, regardless of the crowd assembled on the platform. The overwhelming factor in spotting high numbers of birds is the *presence* of birds in the roughly three-miles-wide airspace around the site. And their presence is determined by weather conditions, migration patterns, and population density. The number of observers, on the other hand, cannot be directly correlated with the number of birds seen. In other words, a large crew is wonderful, and valuable: birds are often spotted more quickly and enjoyed more thoroughly in passing; the educational outreach of the site is improved; indisputably more *fun* is had. It does not, however, skew hawk-count data in any statistically significant way. If a visitor to Pack asks the question, “How many observers should there be?” the people on the platform will invariably say, “The more the merrier!” And indeed, this is the true spirit of the project: the site was established, in part, to promote the growth of interest in bird migration and in conservation biology more generally. Current levels of interest and participation in the hawk-watch should be sustained and, if possible, augmented. It can be done without compromising the value of the scientific work taking place here.

Expanded Counting Periods

Just over 600 hours of observation were logged in the fall of 2012, well more than the yearly average of roughly 430 hours. The reason for the discrepancy is the expansion of the count period on either side of the “regular season” into the last week of August and the first half of November. The purpose of this expansion was simply to gauge the level of migratory activity before and after the traditional (and somewhat calendrically arbitrary) boundaries of September 1 and October 31. But as the data for these additional periods cannot be compared to previous years, it has been excepted from the conclusions that follow. *All statistics in this report are based on data from the traditional count period of September 1-October 31.* However, a few things can be learned from these “early” and “late” periods.

As for August: 73.5 hours of data was collected between August 23-31, with 97 total migrant raptors counted. Similar data was collected in 2010, between August 24-31, when 143 raptors were counted. Based on these two years of data, *this count period cannot be said to be statistically significant for any of the 10 species observed.* That is, in no species did August birds account for more than 5% of the year-end species total. The one exception was the American Kestrel: in 2010, 15 kestrels were seen in August, accounting for 6.8% of the total of 221. In 2012, only 8 kestrels were seen, accounting for 4.1% of the total of 194.



“Socked In”

Photo by Jo-Ann Matthews

Ospreys, Bald Eagles, Sharp-shinned and Broad-winged Hawks also occur in small but steady numbers in August. However, even based on this extremely limited data set, one can reasonably predict that August hawk migration at Pack will not be full of surprises, nor does the available data indicate that further August counting is especially warranted. As one observer noted—after hours of boredom under a hot sun—“early September is slow enough as it is.” (Foot-traffic at Miller State Park, it is worth noting, is higher in August—an advantage for educational outreach.)

November, on the other hand, is a different story. Over 77.25 hours of observation in 2012, 189 migrants were counted—not in itself an impressive number, but a very important one. 138 of those birds were Red-tailed Hawks, accounting for 26.4% of the year-end total of 522 red-tails. This is the difference between an average, even a below-average year for the species, and an exceptionally good one. Any reasonable sample of a species’ migratory patterns should try to take into account a period in which a quarter of that sample passes the observatory. This year’s data is corroborated by previous November observations: 102 red-tails were counted in Nov. 2010, and 160 red-tails (in just 29

observation hours) were seen in Nov. 2006. The numbers are similarly telling for the Red-tail's smaller cousin, the Red-shouldered Hawk, and for two other important species: the Northern Goshawk and the Golden Eagle. Both are late-season migrants, and both occur in such small numbers that the usefulness of count data depends on seeing as many of these birds as possible. 9 goshawks were seen in November, 2012, 14.3% of the year-end total of 63. November of 2006 turned up 14 goshawks, 20.6% of the record total of 68. Data for the Golden Eagle tells the same story: 2 of this year's 7 goldens were seen in November; 3 of 9 in 2010; 5 of 11 in 2006. The importance of this species, which is not yet breeding in New England, cannot be understated. If hawk-watches like Pack's are an important tool in understanding this population and its migration tendencies, there is no question that the first half of November is a crucial period in which to scan the skies for them.

To conclude: while extending the count period into late August does not yield important statistical results, counting into the first half of November certainly does. Though data-collection during this period has been spotty in previous years, 2012 should mark the start of consistent observation at the site through November 15. With continued support from the wider community, Pack Monadnock will surely continue to function as a hawk-watch well beyond its original ten-year charter (2005-2014), and the additional data set for November—while not currently of great use—will gradually become more meaningful. Furthermore, counting later in the season can help to answer one pressing but very difficult question: will the long-term warming trends noted by climatologists have any noticeable effect on the timing of bird migration? The warm weather of 2012, and the correspondingly late movement of ospreys, for instance, made this one of the most commonly asked questions at the Observatory. The additional resources needed to extend the count are significant, and arrangements with Miller State Park, which closes for the season on October 31, must be made. But the most important piece of the puzzle—the willingness of volunteers to man the site in sometimes (very) chilly weather—is already in place.



The 10,000th Bird of the Season: September 23

Photo by Francie Von Mertens

Species Accounts

with charts by Julie Brown

Osprey (*Pandion haliaetus*)

2012 Season Total: 307 [August: 7

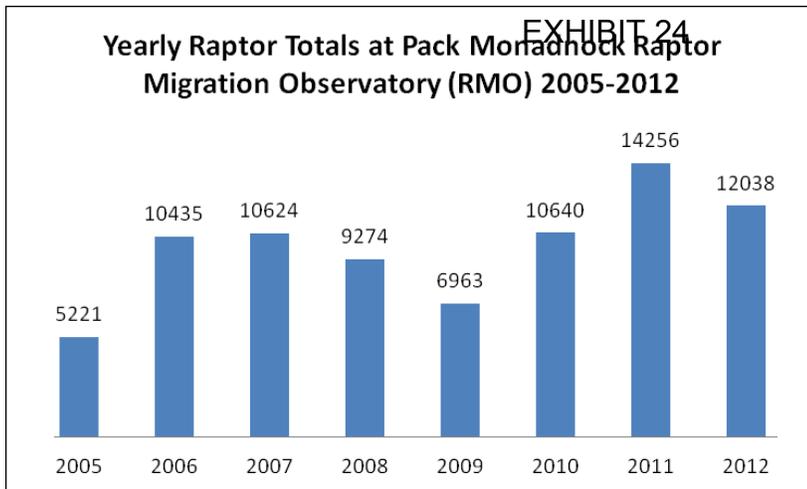
New Season Record

2005-11 Average: 252

Single-day High: 36 (Oct. 6)

[Previous Record Highs: 291 (2007); 289 (2010)

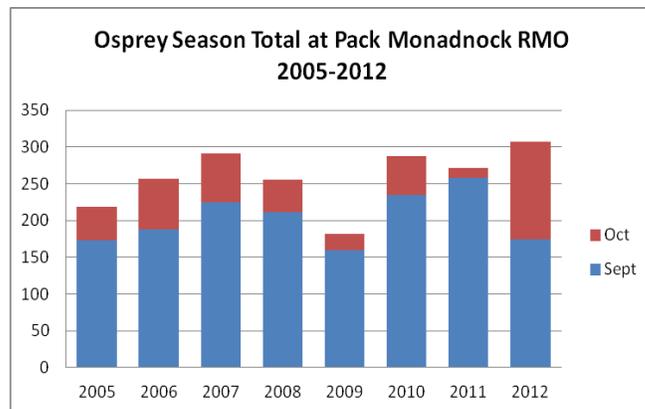
[Single-day Record High: 75 (9/28/11)



When a vicious-looking pile of black clouds made its move toward the Observatory one afternoon in September, the couple hawk-watchers still remaining packed up their gear and skedaddled like shorebirds beneath a peregrine. A couple hundred yards down the mountain, the storm still hadn't broken. They stopped. "There's going to be an osprey coming through," muttered one to the other. They turned around and set up scopes again: sure enough, riding the front edge of the storm, slow and steady, a long-winged fish-hawk, tucked up in its trademark "M."

Not only will the osprey fly in almost any weather, the height of its flight remains eerily consistent, as well as the flight path the species chooses to take as it approaches the Wapack Ridge. Rarely does an osprey dart in and out of the vision; most are spotted well to the north, and can be relied upon to provide excellent looks as they pass the Observatory. All these factors may, perhaps, make count-data for this species more meaningful from year to year than for other species, whose flight patterns are more weather-dependent.

Osprey movement this fall was noticeably protracted, with 133 migrants counted during October. By way of illustration, *total* osprey numbers were comparable to the 2006 and 2010 seasons, but the count for October in each of those years was less than half of that recorded in October of this year. (Average count over the previous seven Octobers: 45.) The 29 ospreys counted in the last two weeks of October were unprecedented—more than all ospreys counted in the



same period during the previous seven years combined. Furthermore, the peak period (defined here as high count over three-day interval) occurred between October 5-7, well over a week later than the average. (Sightings of lingering ospreys were widespread in many other corners of New Hampshire this fall, even into December in a couple NH locations.) Warm weather may have been an indirect factor in delaying the southward movement of ospreys, causing fish to feed closer to the surface, though the likely determinant was probably the prolonged period of high pressure and southerly winds in October, as birds will often wait for the passage of a cold front and the helpful winds it brings.

Bald Eagle (*Haliaeetus leucocephalus*)

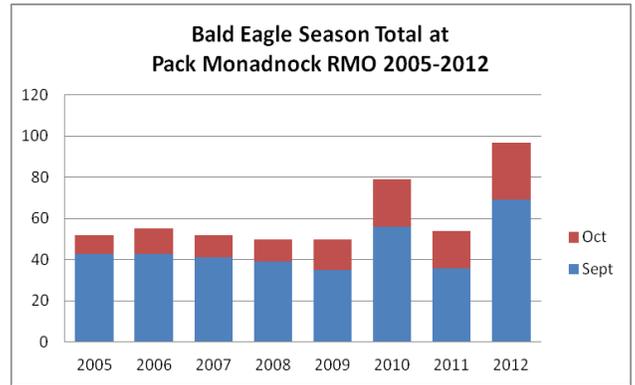
2012 Season Total: 97 [August: 5 [November: 3

New Season Record

2005-11 Average: 55 [Previous Record Highs: 80 (2010); 55 (2006)

Single-day High: 14 (Sept. 12) [Single-day Record High: 15 (9/11/06)

When visitors run their eyes over the “Daily Count,” they nearly always pause first at the same spot: “You’ve *really* seen a Bald Eagle today?” Indeed, a September afternoon *without* a Bald Eagle was a rarity at Pack this season; the 97 birds seen (with another 8 during extended count periods) is nowhere near the seven-year average of 55 birds, and 17 better than Pack’s previous high total of 80, set in 2010. Sudden spikes in a species count, like this one, are not themselves indicative of year-to-year changes in populations, but this increase in eagle sightings certainly tallies with observations made all over the Eastern half of the country in the past decade. Since eagle populations plummeted during the DDT era, they have rebounded strongly: 37 pairs of Bald Eagles are now known to nest in New Hampshire. (Compare this with the number of known nesting pairs in the state in 1988: zero.) Of the migrant eagles that could be definitively aged, 40.8% were full adults, 32.7% sub-adults, and 26.5% first-year birds, percentages that show a slight uptick in the relative numbers of mature eagles—a possible trend worth keeping an eye on in years to come.



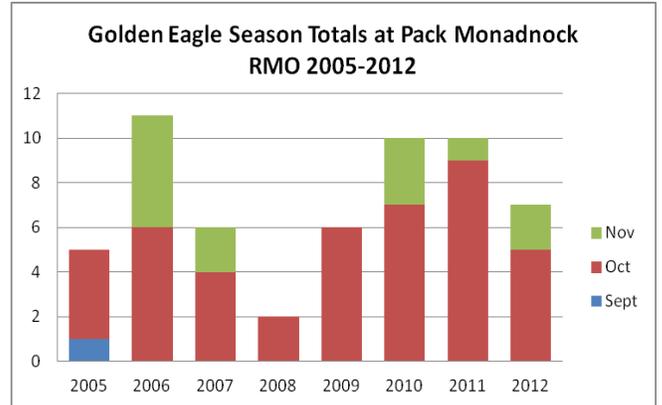
Adult Bald Eagle (Parker River NWR)

Photo by Jo-Ann Matthews

Golden Eagle (*Aquila chrysaetos*)

2012 Season Total: 5 [November: 2
 2005-11 Average: 7.0 (*includes Nov. records*) [Season Record High: 11 (2006)
 Single-day High: 2 (Oct. 25) [Single-day Record High: 3 (10/30/06, 11/3/06)

The rarest of the annual visitors to the hawk-watch, and far and away the raptor most eagerly awaited by the hardy October faithful, the Golden Eagle seems to inspire that mixture of awe and excitement usually reserved for pop stars or ancient ancestors risen from the grave. Part of the bird’s mythic aura comes from its—possibly imagined—tendency to arrive during periods of extremity: if you are standing on the platform experiencing extreme boredom, extreme cold, or feel yourself under physical or emotional duress, the next bird to appear will almost certainly be that jewel in the crown of any New England birder, a ridge-riding Golden Eagle. Its size, but also the peculiar ripple that runs through its long, hawk-like wing, the ease with which it makes progress even into a headwind, the sheen off its dark dark feathers... What exactly makes a golden beautiful is a matter of some debate, but nowhere is its beauty in question.



One primary goal of the extended November count period was to help give a more complete picture of Golden Eagle migration through the area. The species is a late-season migrant, with many birds thought to pass in those weeks after the official count period has come to an end. From this perspective, November was a bit of a disappointment, with only 2 goldens spotted, and those in the first five days of the month. With warm weather and strong southerly flow persisting even into the middle of November, one may speculate that their migration was slightly delayed, but data from other watch sites does not support this.

Pack’s average count of 7 birds a year is a very small sample; even the broadest conclusions about the species are difficult to support with our own available statistical evidence. Of the year’s 7 goldens, 4 were first-year juveniles, 1 was immature, and 2 were full adults.



Immature Golden Eagle Photo by John Terescik

New research using satellite transmitters is beginning to yield exciting new information about the eastern Golden Eagle population. Migration seems to follow two main patterns: the birds seen at Pack are likely originating in the Gaspé peninsula of Quebec, south of the St. Lawrence, while birds from Labrador and Greenland—a far larger number—travel west of us, through New York and Pennsylvania. (Hawk Mountain saw 172 goldens this fall, including 48 in a single day!)

Turkey Vulture (*Cathartes aura*)

2012 Season Total: 164

New Season Record

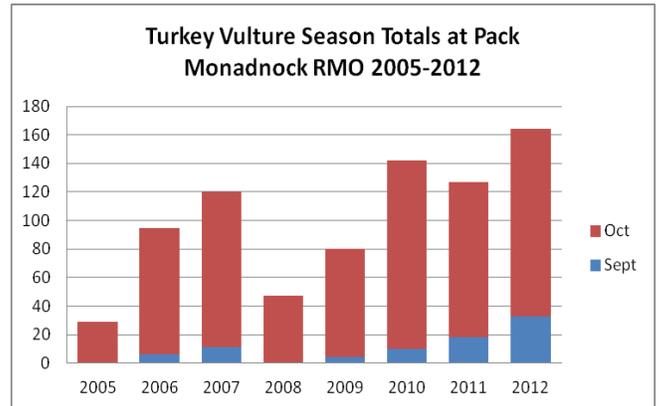
2005-11 Average: 91

[Previous Record Highs: 142 (2010); 120 (2006)]

Single-day High: 18 (Oct. 7)

[Single-day Record High: 27 (10/16/09)]

If a few low, dark shadows put a slight chill in your backbone at the start of September, don't panic—by the end of the month, they will be long gone. The usual squadron of Turkey Vultures around Pack Monadnock in the early fall seems simply to melt away by mid-October—a somewhat mysterious disappearance, given that relatively few vultures are seen actively migrating past the site. There is some evidence that the species prefers river valleys and highways as “leading lines” on migration, which may account in part for lower vulture numbers at Pack, whose main attraction is its ridgeline. Carter Hill Observatory to the north, located near the nexus of two rivers, provides an interesting comparison: many more migrant vultures are seen there annually, including a Black Vulture in 2012. Still, this year marked Pack's high count for Turkey Vultures, at 164 birds, well above its seven-year average of 91. The trend for this species' population in the region continues to point upward.



Northern Harrier (*Circus cyaneus*)

2012 Season Total: 87

[August: 2

[November: 2

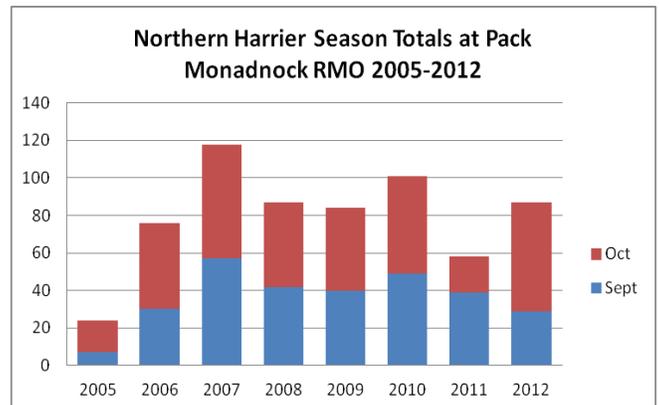
2005-11 Average: 78

[Season Record High: 120 (2007); 112 (2010)]

Single-day High: 10 (Oct. 25)

[Single-day Record High: 5,208 (9/18/11)]

As the last of the leaves fall and the landscape grows pale in late October, the stage is set for the arrival of the “gray ghost”—the adult male Northern Harrier. The long, tapered, scything wings; the buoyant, slightly seasick flight; the white rump patch visible for miles—all our harriers boast these, and each is a treat to see. But the silvery sheen of a male, seeming to collect all the ambient light of an overcast day and emit it again, in condensed form, as he slides down the ridge-line, rocking unsteadily—this seems to belong to a different kind of bird altogether, and may well take an onlooker's breath away until he is safely out of sight.



The highest concentration of harriers occurred in the week-long period between October 20-26, in which 36 of the season's 87 migrants (41.4%) were spotted. These dates are somewhat later than similar "pushes" in past years, though the factors involved in migration timing are multiple and complex. Given that the harrier's migration is drawn out over many months—some birds begin moving south in July; others will still be moving in December—hopes ran high for significant harrier numbers after the finish of the official count period. In light of that, the two harriers seen in November seem a remarkably low number. And by comparison with the elevated numbers of other raptor species seen this fall, the 87 total harriers is none too impressive. The population of this bird in the East is shown to be holding steady or slightly declining, and relevant data from Pack will be important in fleshing out the larger picture in years to come.



Adult Male Northern Harrier Photo by Jo-Ann Matthews — Juvenile Northern Harrier Photo by Katrina Fenton

Red-tailed Hawk (*Buteo jamaicensis*)

2012 Season Total: 378 [August: 6 [November: 138

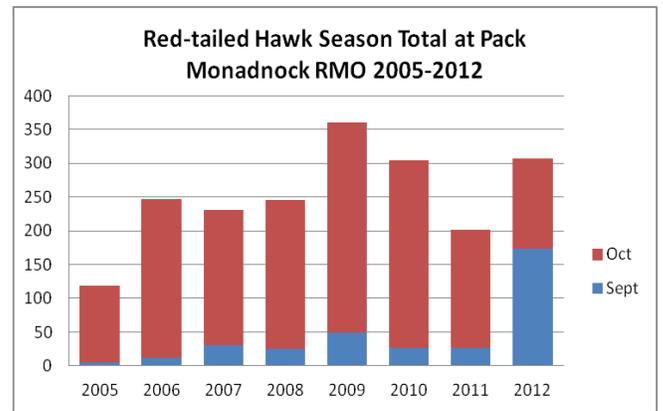
New Season Record

2005-11 Average: 245 [Previous Record Highs: 361 (2009); 308 (2010)

Tied Single-day Record: 53 (Oct. 24) [Previous Single-day Highs: 53 (10/27/06); 50 (10/31/10)

Many a slow afternoon of hawk-watching may be whiled away studying the statuesque pose of a Red-tailed Hawk, stalled in mid-air, wings tucked, head down, with only a quick adjustment of a tail feather or two to balance against the shifting breeze. This behavior, called "kiting," is effectively a kind of perch-hunting without a perch. One need not watch the display for many minutes before realizing the instinctive precision such behavior requires: not simply a friendly association with the wind, but a total harnessing of it to suit the bird's purposes. A red-tail perched along the verge of a highway or the edge of a farm field may give the impression of a plump, sedentary, sluggish, rather complacent hawk, but given a glimpse of it hunting for red squirrels over the spruce woods of Pack Monadnock, a birder begins to change his tune.

Red-tails were everywhere in 2012, with new records set for the September-October count period and an additional 138 migrants tallied in November. (This “additional” push of birds is important to our understanding of the species’ migration patterns and warrants further study.) The peak migration period occurred in the six days from October 21-26, when 180 migrants were counted. The timing of this peak period is in line with previous years.



Rough-legged Hawk (*Buteo lagopus*)

2012 Season Total: 1

New Site Record

Most migrant raptors are within sight for no more than a minute or so, and usually much less, but one hawk of October 23rd stayed in Katrina Fenton’s vision for weeks, long after it had sunk below the spruces to the west. Initially identifying the bird as a Golden Eagle, she remained puzzled by the odd proportions of this large, dark, lanky bird, flying with a prominent dihedral. Much to her credit, her perseverance led to a re-examination of a series of photos she had taken as the bird disappeared. Backlit, edge-on, going away, the bird was not in a terribly photogenic position, and yet certain things could be gleaned from the grainy image: by looking at the width of the body and length of the left wing, one gets a sense of the bird’s proportions, which are manifestly those of a buteo rather than those of an eagle. Furthermore, by heightening the contrast between lighter and darker areas on the underwing, one can see (at right) dark tips on the primary feathers, with the rest of the primaries substantially lighter, and a dark area encompassing the underwing coverts, a plumage which would describe a dark-morph buteo—in the East, at this or any time of year, the most likely candidate is a Rough-legged Hawk, a dweller in tundra and taiga regions far to the north and one that migrates south in late fall or winter. The shape of the left wing, along with Katrina’s observations at the time, are enough to confirm the bird’s identification as a Rough-legged Hawk, the first seen in the site’s eight-year history. Kudos to Katrina, and thanks to a number of others, including Don and Lillian Stokes, whose collective sleuth-work resulted in the confirmation of this exciting record.



Rough-legged Hawk, 10/23/12
photo by Katrina Fenton
[contrast heightened]

Red-shouldered Hawk (*Buteo lineatus*)

2012 Season Total: 187 [November: 22]

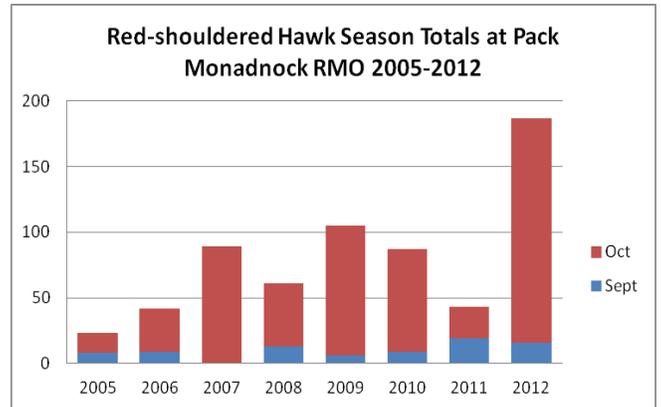
New Season Record

2005-11 Average: 64 [Previous Record Highs: 105 (2009); 89 (2007)]

New Single-day Record: 46 (Oct. 24) [Previous Single-day High: 45 (10/29/09)]

October 24 is rarely the most surprising day of the hawk-watch season, but this year it held a bonanza of buteos—not quite on the level of the September broad-wing spectacle, but quite staggering in its own way. Groups of red-tails and red-shoulders, five and six at a time, came thermaling up and streaming off in the broad-wing style, in a profusion hardly ever seen at Pack. Both large hawks set daily highs, with 99 birds of the two species combined. Unseasonably warm

conditions late in the month, complete with good thermal activity, may have given these migrants more lift than usual and aided viewing conditions, but even so, this day was in a league of its own, and no one explanation seemed to satisfy. For red-shoulders in particular, an uptick in sightings was noticeable throughout the fall, so that more than once hawk-watchers found themselves saying aloud, “Where are all these birds coming from?” Last year the high daily count of red-shoulders was 11 birds; this year, double digits were reached on seven different occasions. As the species, with its transparent wing-crescents and handsome plumage, often wins the popular vote in the catch-all category of “Most Beautiful Raptor,” many will be hoping for a repeat red-shoulder performance in 2013.



Swainson's Hawk (*Buteo swainsonii*)

2012 Season Total: 1

New Site Record

Conversation on the hawk-watch platform often turns to speculation about what rarity might appear in the upcoming half-hour. All sorts of names are tossed around: early in the year, Black Vulture, or Mississippi Kite, and later on, as the weather gets chilly and the wishful thinking gets wishier, Gyrfalcon, or Snowy Owl. Rarely, however, have the words *Swainson's Hawk* taken flight from anyone's lips, until the late afternoon of

September 10, 2012. A long-winged bird of slender proportions rose up circling over North Pack, a stiff wind dragging it slowly south-eastward. Though the late sunlight washed out many plumage details, the bird's shape and style of flight were striking: very harrier-like in a soar—with pronounced dihedral and thin, tapered wings—and osprey-like in a glide—the wing pushed well forward at the wrist, with the



“Swainson's Hawk Over North Pack”

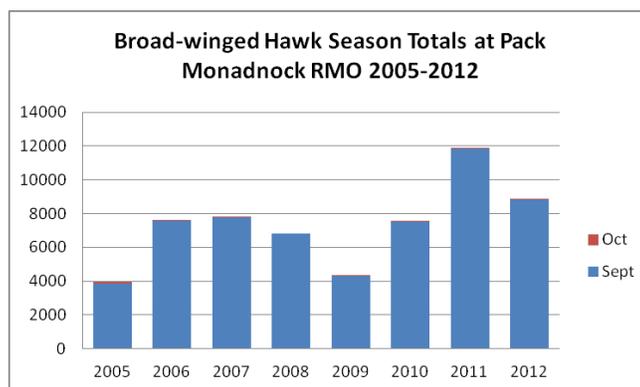
Pumpkin by Henry Walters

Photo by Jo-Ann Matthews

“hand” thrown sharply backwards—but otherwise the bird’s proportions and plumage were unmistakably those of a *buteo*, cousin to our familiar red-tails and broad-wings. Fortunately, this immature hawk gave plenty of time for observers to put together the pieces of the identification puzzle: memories of Nebraska grasslands clicked into place, and open-mouthed mystification turned into electrically charged butterflies in the stomach: the site’s first record of this western species. Interestingly, an immature Swainson’s was recorded on the day following our sighting, at Chestnut Ridge in Bedford, New York, 140 miles southwest of Pack Monadnock—a reasonable distance for the bird to have traveled in 24 hours. Although the bird is an annual visitor to a number of eastern hawk-watches (25 Swainson’s have been recorded in the last ten years in Cape May, New Jersey), it is rare in New Hampshire; the eastern vagrants, by and large, are birds that are trapped on the eastern side of the Great Lakes, getting funneled down through New York and Pennsylvania. Most of these birds end their wayward migration in Florida, with a small population of others like them, while the vast majority of the species spends the winter on the *pampas* of Argentina.

Broad-Winged Hawk (*Buteo platyterus*)

2012 Season Total: 8,821 [August: 27]
 2005-11 Average: 7,124
 [Season Record High: 11,831 (2011)]
 Single-day High: 2,556 (Sept. 17)
 [Single-day Record High: 5,208 (9/18/11)]

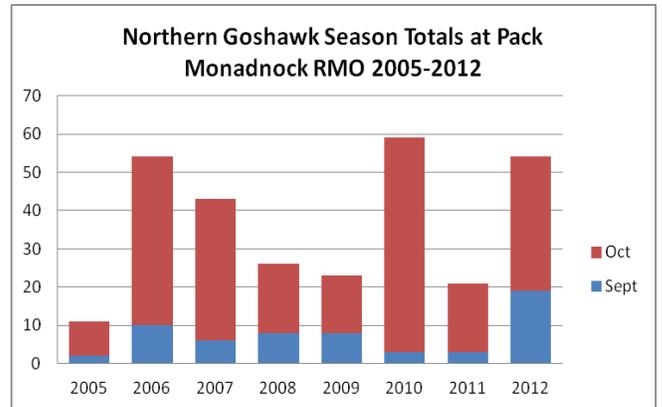


One year ago, in 2011, an unprecedented wave of Broad-winged Hawks broke over Pack Monadnock—over 8,700 in just two days in mid-September. The airborne “stream” of hawks became a river, and then a flood. Afterwards, chiropractors all over southern New Hampshire were besieged with requests for neck massage. In 2012, while the broad-wing movement was also very strong, it occurred in a much less concentrated fashion. Days with the highest counts were September 12 (2,401 hawks), September 17 (2,556), and September 20 (1,266). The timing of these “big days” is fairly consistent with previous years. (The trend, if anything, is one of very minor—perhaps irrelevant—delay of the migration. This is the first year in which a movement of 1,000 birds has happened as late as September 20.) Each push occurred two or three days after the passage of a front, but weather on all three of those days was very clear, with high pressure, warm sun, and little wind. As a result of the calm conditions, birds seemed to pop up in almost any quadrant of the sky without sticking to any particular flight path. Some of the biggest streams of birds appeared late in the day, directly out of the east, flying toward us, due west. The southeast is also a common place to find kettles forming before noon, as the eastern side of the Wapack Ridge heats up in the morning sun and provides strong thermal lift. (Such patterns underscore the importance of preserving the view of the eastern and northeastern horizons, which are quickly being overtaken by the growth of spruces.) Broad-wings are complete migrants, meaning that they vacate their breeding territory entirely during the winter months. While only a handful of broad-wings are left in the Northeast by the start of October, this year an immature bird was seen on October 17, a very late record, though broad-wings have been observed at Pack as late as October 24 (2006).

Northern Goshawk (*Accipiter gentilis*)

2012 Season Total: 52 [November: 9]
 2005-11 Average: 34 [Season Record Highs: 59 (2010); 52 (2006)]
 Single-day High: 7 (Sept. 27) [Single-day Record High: 8 (10/25/07)]

The goshawk seems to show up to the best effect when paired with other raptors: dwarfing a red-shoulder, chasing a Cooper’s, climbing in a thermal below an eagle... 2012 was full of these comparisons, but no matter what species entered its orbit, all eyes stayed glued on the goshawk. That a bird of such stunning size should also be able to juke through dense woods with the sneaky quickness of a pickpocket seems somehow unfair, as if a heavyweight boxer were also granted the ability to

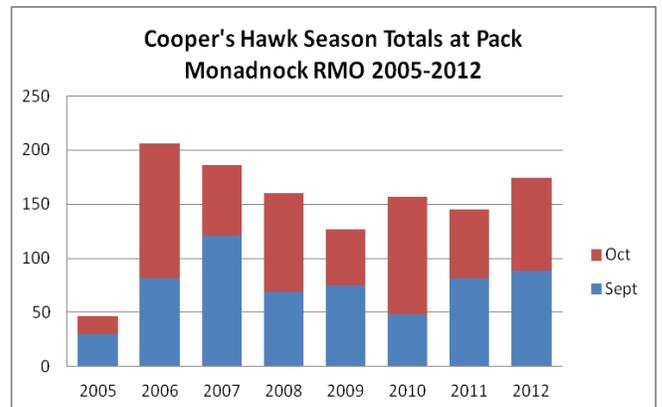


perform ballet. Pack Monadnock remains one of the prime hawk-watches in the East for viewing this secretive bird in good numbers. This year was no exception, with good pushes of immature birds in late September and numerous point-blank looks at adults later in the fall. The migration peaks around the second or third week of October, though the September birds, including the 7 of Sept. 27, may represent a sizable irruption of immature birds early in the year, a cyclical event noted in 2012 at other northern hawk-watch sites from Hawk Ridge, Minnesota, to Hawk Mountain, Pennsylvania. No early September sightings of goshawks at Pack, however, which might have indicated that a pair is nesting on or near Pack Monadnock itself, as has been reported in previous years.

Cooper’s Hawk (*Accipiter cooperii*)

2012 Season Total: 174 [August: 4 [November: 3]
 2005-11 Average: 147 [Season Record Highs: 206 (2006); 186 (2007)]
 Single-day High: 13 (Oct. 5) [Single-day Record High: 21 (10/2/10); 16 (9/25/11)]

Like the other two hawks of the accipiter clan (the “true” hawks, as the genus is called in Europe), the Cooper’s made a good showing in 2012, finishing well above its seven-year average. The species is thought to be on the increase in the eastern part of North America. Like its smaller cousin the sharp-shinned, it moves southward past Pack Monadnock throughout the count period, with migration of immatures peaking in the second half of September and the adults in mid-October. As a predator, its specialty is hunting birds in woodland areas, though its presence is increasingly noted in developed and even urban areas, where it preys on pigeons, starlings, and—if you would believe the story of one very earnest passerby—the occasional kitten. (No evidence was furnished of the criminal role the accused Coop



played in the kitten’s disappearance.) Like the goshawk, it commonly chases prey into thick cover, even pursuing its quarry on foot into brambles or underbrush if necessary. While no birds or kittens were lost to Cooper’s Hawks on Pack this fall, so far as we can tell, and while the Cooper’s tends not to be as showily aggressive toward other raptors on migration as the sharp-shinned, still, the bobbing head of our owl decoy can vouch for the fear this bird can inspire, should you ever chance to stare one down, beak to beak.

Sharp-shinned Hawk (*Accipiter striatus*)

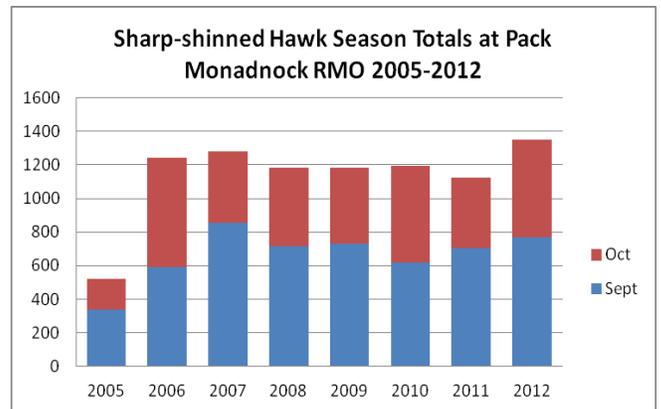
2012 Season Total: 1,349 [August: 31 [November: 8

New Season Record

2005-11 Average: 1,103 [Previous Record Highs: 1,280 (2007); 1,242 (2006)

Single-day High: 111 (Oct. 8) [Single-day Record High: 122 (10/4/06)

Sharp-shinned Hawk numbers have been remarkably consistent over the past six seasons at Pack, with totals falling somewhere between 1,124-1,280 birds each year, a variation of only 12.2%. The jump in sharpies recorded in 2012, then, represents a modest but significant milestone, particularly for a species whose population is only holding steady, or slightly decreasing, over much of the East. Because of the ubiquity of this hawk in late September and early October (“There’s a sharpie over the rocks...another two at Crotched...another sharpie behind us...”), having a number of observers helping to pick them out is important in registering a high count. This year, the crew of volunteers was more dedicated than ever, and their hard work was certainly a factor, though likely not the determinant one, in the new sharp-shin record. Migration of immature birds peaks in mid-September, with the migration of adults peaking in mid-October.



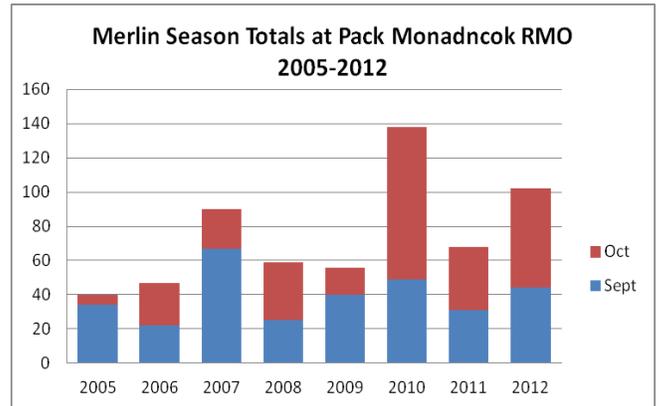
Sharp-shinned Hawk

Photo by Jo-Ann Matthews

Merlin (*Falco columbarius*)

2012 Season Total: 102 [August: 5 [November: 1
 2005-11 Average: 71 [Season Record High: 138 (2010)
 Single-day High: 6 (Oct. 5, Oct. 21) [Single-day Record Highs: 13 (10/2/10); 12 (9/12/07)

If you want to learn something about meteorites, you'll have to do more than watch shooting stars. A similar problem presents itself when counting merlins: the bird's flight-path is not always enough information to determine its intentions. In early September, when dragonflies are numerous in the air around Pack, individual merlins will often stop for the night on or near the peak. This year, one particular male with especially vivid "eyebrow"-markings and consistent feeding habits hung around the area for at least four days. Unfortunately for data-collectors, a



merlin that's "hanging around" often behaves no differently from active migrants: both appear and disappear in a flash at treetop level, if not below, zipping by southward without so much as a how-d'you-do...until one pulls up sharply and perches on a dead snag, where he begins to preen his feathers and survey the peak like a landlord inspecting property. And so that old question—"How do you know you're not counting the same bird twice?"—rears its head. While a male merlin rising up to the west may likely be the same that plummeted there in a vertical stoop five minutes ago, what about this merlin to the east a minute later, coming in to harass the owl? A definite conservatism in counting merlins, plus an awareness of their hour-to-hour and day-to-day activities around the peak, are necessary in order for count data on this species to be meaningful from year to year.



Merlin

Photo by Katrina Fenton

Beyond a doubt, 2012 was an excellent year for the merlins at Pack—the 102 birds recorded are second only to the 138 birds of 2010. Migration is spread out more evenly across September and October than for any other raptor species, though slightly higher numbers occur in October. The merlin's speed, aerial stunts, frequent attacks on the fake owl, and its tendency to perch on the snags around the Observatory, make this little falcon one of the crowd-pleasing favorites.

Peregrine Falcon (*Falco peregrinus*)

2012 Season Total: 54

New Season Record

2005-11 Average: 32

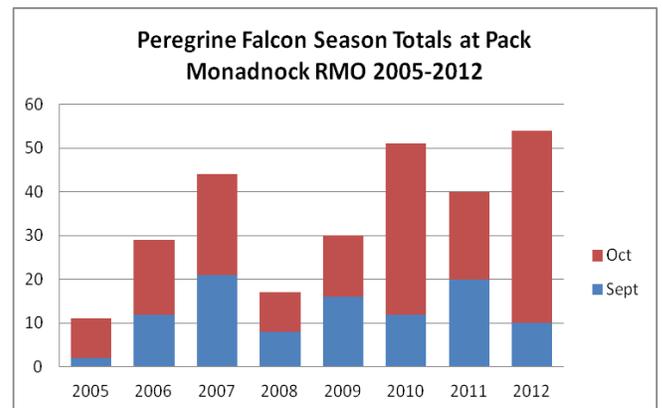
[Previous Record Highs: 51 (2010); 44 (2007)]

New Single-day Record: 9 (Oct. 5)

[Previous Single-day High: 7 (four times)]

One of the enduring images from the 2012 hawk-watch was the slow-motion approach of an adult peregrine late in the day on October 1. How this big falcon makes any progress at all into a stiff southern headwind, without so much as a twitch of the wings, is hard to fathom. After many minutes, just as she was about to disappear to the west of the Observatory, she gave a little wing-flick and fell out of the sky. A moment later she rose up again, yipping like coyote: underneath her, a second adult peregrine, another female, the two rising up together like a pair of

shadows mimicking each other, perfectly synchronized. They raked across each other's path, chattering their displeasure, only to re-emerge a minute later, this time with a *third* bird, a sharp-shinned hawk diving out of their way with the panic of a rabbit bolting for cover. Sometimes a hawk-watcher begins to expect one marvel to yield another, and then another, in an unbroken chain.

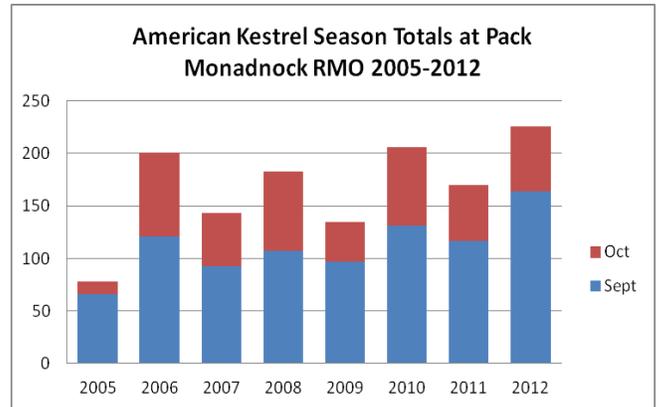


Peak time to see the peregrine comes in the first two weeks of October; in 2012, 36 of the year's 54 birds (66.7%) occurred between October 1 and October 15. Overall numbers of this species continue their slow but steady increase. Two different subspecies of peregrine are seen at Pack: the *tundrius*, or "Tundra" peregrine, a breeder far to the north, which makes a vast migration southward from Alaska, northern Canada, or Greenland. Some *tundrius* winter as far south as the western coast of Chile, a trip of some 9,000 miles. The other subspecies seen at Pack is the more rapidly increasing "Eastern" peregrine—the hybrid race reintroduced to eastern North America after the bird was extirpated here. Birds of this "Eastern" type, many of which nest in urban areas, often make more limited movements southward, sometimes even staying on or near their breeding territory for the duration of the winter. Though "Eastern" peregrines show varying plumage characteristics, they tend to be much darker around the head than *tundrius*, a difference often visible even at significant distances. Keeping track of relative numbers of peregrine subspecies is another piece of the raptor migration puzzle that observers at Pack can help to fill in.

American Kestrel (*Falco sparverius*)

2012 Season Total: 186 [August: 8]
 2005-11 Average: 159 [Season Record Highs: 206 (2010); 201 (2006)]
 Single-day High: 15 (Oct. 8) [Single-day Record Highs: 32 (9/20/10); 30 (9/28/11)]

One thinks of the American Kestrel as a bird of open fields, subsisting on meadow voles and insects, at home on fenceposts and telephone wires, with a distant horizon laid out before him. How delightful, then, to watch a kestrel hunt the dense spruce woods atop Pack Monadnock in early September. From tree to tree he went, as if he owned the place, the late-afternoon sun on him like a spotlight. The food the kestrel was seeking was a large green katydid living in the upper stories of the spruces—he crashed in after them with the reckless abandon of an accipiter, catching five or six in the course of twenty minutes, and eating them from an exposed perch fifty yards away. Through the spotting scope one could see the insect’s discarded wings spinning down like maple seeds.



The American Kestrel continues to be a species of some concern, as data from hawk-watches and breeding bird surveys show significant declines in its population, particularly in the East. 2012 was a good year for kestrel numbers at Pack, however, with above-average counts in both September and October. Kestrels are moving even by the end of August, and continue through mid-October. Timing of the migration in 2012 was consistent with previous years; at Pack, there seem often to be two peak periods, the first coming



American Kestrel

Photo by Katrina Fenton

somewhere in the vicinity of September 20-24, the second around October 6-10. Concentrated movements of kestrels are highly weather-dependent; long stretches of clear, calm weather in 2012 meant that kestrel migration was more evenly spread, with fewer “big days.” The documented declines have certainly put the bird on the radar of conservationists across the country; with their concerted efforts, we hope to see these solid kestrel numbers at Pack for many years to come.

Non-raptor Migrants

While Pack Monadnock was marked out as a prime spot to witness fall raptor migration, it also proves to be a whale of a good place for birding of all sorts. 97 species were recorded here between August 23 and November 15—quite remarkable for what looks, at first glance, like a monoculture of spruce forest barely hanging on to its granite substrate. But flocks of warblers descend here to feed in the mornings of early September, 18 species all told in 2012, including Tennessee, Bay-breasted, and 9 discrete sightings of Cape Mays. Vireos, kinglets, thrushes, and other passerines can be found in abundance throughout the month of September. Yellow-bellied Flycatcher was a particular treat early in the season.

As the weather turns colder, swallows and swifts give way to flocks of migrating crows and waterfowl. Snow Buntings, American Pipits, Bohemian Waxwings, and a Northern Shrike made appearances, not to mention a panoply of winter finches, including Pine Siskin, Pine Grosbeak, Common Redpoll, and both species of crossbill. November also brought an extremely late record of Tree Swallow.

Below is a complete list of species recorded at Pack Monadnock this fall. They are listed along with the date each was first seen and last seen, and the high daily count for the species. Data of particular interest are highlighted in **bold**.

Canada Goose	<i>(Branta canadensis)</i>	[Sept. 10-Nov. 15]	(759, 10/13)
Black Scoter	<i>(Melanitta nigra)</i>	[Oct. 12]	(30)
Common Merganser	<i>(Mergus merganser)</i>	[Sept. 9]	(1)
Red-breasted Merganser	<i>(Mergus serrator)</i>	[Nov. 5]	(1)
Common Loon	<i>(Gavia immer)</i>	[Sept. 10-Nov. 5]	(7, 10/8)
Double-crested Cormorant	<i>(Phalacrocorax auritus)</i>	[Aug. 26-Oct. 23]	(65, 10/6)
Great Blue Heron	<i>(Ardea herodias)</i>	[Sept. 11-Oct. 8]	(2, 10/8)
Semipalmated Plover	<i>(Charadrius semipalmatus)</i>	[Sept. 29]	(1)
Herring Gull	<i>(Larus argentatus)</i>	[Sept. 2-Nov. 15]	(17, 11/3)
Great Black-backed Gull	<i>(Larus marinus)</i>	[Sept. 3-Nov. 14]	(1)
Common Nighthawk	<i>(Chordeiles minor)</i>	[Sept. 16]	(1)
Chimney Swift	<i>(Chaetura pelagica)</i>	[Aug. 24-Sept. 14]	(18, 8/25)
Ruby-throated Hummingbird	<i>(Archilochus colubris)</i>	[Aug. 25-Oct. 5]	(6, 8/26 & 8/31)
Belted Kingfisher	<i>(Megaceryle alcyon)</i>	[Sept. 13]	(1)
Red-bellied Woodpecker	<i>(Melanerpes carolinus)</i>	[Aug. 28]	(1)
Yellow-bellied Sapsucker	<i>(Sphyrapicus varius)</i>	[Sept. 21-28]	(1)
Northern Flicker	<i>(Colaptes auratus)</i>	[Aug. 25-Oct. 13]	(3, 9/27)
Eastern Wood-Pewee	<i>(Contopus virens)</i>	[Aug. 26-Sept. 10]	(1)
Yellow-bellied Flycatcher	<i>(Empidonax flaviventris)</i>	[Aug. 24]	(1)
Northern Shrike	<i>(Lanius excubitor)</i>	[Nov. 12]	(1)
Blue-headed Vireo	<i>(Vireo solitarius)</i>	[Aug. 26-Sept. 17]	(4, 9/9)
Philadelphia Vireo	<i>(Vireo philadelphicus)</i>	[Sept. 6]	(1)

Red-eyed Vireo	(<i>Vireo olivaceus</i>)	[Aug. 24-Sept. 6]	(3, 8/28)
Blue Jay	(<i>Cyanocitta cristata</i>)	[Sept. 16-Oct. 15]	(50, 10/9)
American Crow	(<i>Corvus brachyrhynchos</i>)	[Oct. 11-Nov. 14]	(225, 10/24)
Red-breasted Nuthatch	(<i>Sitta canadensis</i>)	[Aug. 24-Nov. 2]	(3, 10/5)
Tree Swallow	(<i>Tachycineta bicolor</i>)	[Aug. 30- Nov. 11]	(6, 9/15)
Barn Swallow	(<i>Hirundo rustica</i>)	[Aug. 24-Sept. 5]	(3, 8/24)
Winter Wren	(<i>Troglodytes troglodytes</i>)	[Aug. 31-Oct. 21]	(1)
Golden-crowned Kinglet	(<i>Regulus satrapa</i>)	[Aug. 30-Nov. 12]	(8, 10/7 & 10/15)
Ruby-crowned Kinglet	(<i>Regulus calendula</i>)	[Sept. 24-Oct. 26]	(4, 10/26)
Eastern Bluebird	(<i>Sialia sialis</i>)	[Oct. 18-Nov. 5]	(4, 10/15)
Hermit Thrush	(<i>Catharus guttatus</i>)	[Oct. 18]	(3)
American Robin	(<i>Turdus migratorius</i>)	[Aug. 28-Nov. 5]	(26, 11/5)
European Starling	(<i>Sturnus vulgaris</i>)	[Aug. 28-Oct. 6]	(1100, 8/28)
American Pipit	(<i>Anthus rubescens</i>)	[Oct. 6-Oct. 21]	(1)
Bohemian Waxwing	(<i>Bombycilla garrulus</i>)	[Nov. 5]	(3)
Cedar Waxwing	(<i>Bombycilla cedrorum</i>)	[Aug. 24-Oct. 6]	(6, 10/6)
Snow Bunting	(<i>Plectrophenax nivalis</i>)	[Oct. 26-Nov. 15]	(10, 11/15)
Ovenbird	(<i>Seiurus aurocapilla</i>)	[Aug. 26-Sept. 21]	(3, 8/26)
Black-and-white Warbler	(<i>Mniotilta varia</i>)	[Aug. 24-Sept. 4]	(1)
Tennessee Warbler	(<i>Oreothlypis peregrina</i>)	[Aug. 25-Sept. 2]	(2, 9/2)
Nashville Warbler	(<i>Oreothlypis ruficapilla</i>)	[Aug. 25-Sept. 13]	(3, 8/25 & 8/26)
Common Yellowthroat	(<i>Geothlypis trichas</i>)	[Aug. 24-Sept. 12]	(1)
American Redstart	(<i>Setophaga ruticilla</i>)	[Aug. 24-Sept. 1]	(2, 8/25)
Cape May Warbler	(<i>Setophaga tigrina</i>)	[Aug. 24-Sept. 6]	(3, 9/1)
Northern Parula	(<i>Setophaga americana</i>)	[Sept. 3-Sept. 28]	(1)
Bay-breasted Warbler	(<i>Setophaga castanea</i>)	[Aug. 26]	(1)
Blackburnian Warbler	(<i>Setophaga fusca</i>)	[Aug. 25-Sept. 7]	(2, three times)
Yellow Warbler	(<i>Setophaga petechia</i>)	[Sept. 8]	(1)
Blackpoll Warbler	(<i>Setophaga striata</i>)	[Aug. 26-Oct. 12]	(7, 8/26)
Black-throated Blue Warbler	(<i>Setophaga caerulescens</i>)	[Aug. 24-Sept. 22]	(2, 9/7 & 9/8)
Palm Warbler	(<i>Setophaga palmarum</i>)	[Sept. 6 -Oct. 20]	(2, 10/8 & 10/15)
Pine Warbler	(<i>Setophaga pinus</i>)	[Aug. 25-Sept. 14]	(2, 10/25)
Yellow-rumped Warbler	(<i>Setophaga coronata</i>)	[Aug. 30-Nov. 3]	(200, 10/20)
Prairie Warbler	(<i>Setophaga discolor</i>)	[Oct. 7]	(1)
Black-throated Green Warbler	(<i>Setophaga virens</i>)	[Aug. 25-Sept. 22]	(6, 8/27)
Chipping Sparrow	(<i>Spizella passerina</i>)	[Sept. 6-Sept. 7]	(1)
White-throated Sparrow	(<i>Zonotrichia albicollis</i>)	[Oct. 8-Nov. 1]	(2, three times)
Dark-eyed Junco	(<i>Junco hyemalis</i>)	[Aug. 23-Nov. 15]	(10, 9/20)
Scarlet Tanager	(<i>Piranga olivacea</i>)	[Aug. 24-Sept. 21]	(6, 9/21)
Red-winged Blackbird	(<i>Agelaius phoeniceus</i>)	[Oct. 17]	(6)
Pine Grosbeak	(<i>Pinicola enucleator</i>)	[Nov. 6-Nov. 14]	(2, 11/14)
Purple Finch	(<i>Haemorhous purpureus</i>)	[Sept. 15-Oct. 13]	(7, 10/6)
Red Crossbill	(<i>Loxia curvirostra</i>)	[Sept. 1-Nov. 15]	(9, 11/12)

White-winged Crossbill	<i>(Loxia leucoptera)</i>	[Sept. 7-Nov. 15]	(30, 10/28)
Common Redpoll	<i>(Acanthis flammea)</i>	[Nov. 14]	(35)
Pine Siskin	<i>(Spinus pinus)</i>	[Sept. 6-Nov. 15]	(61, 10/17)
American Goldfinch	<i>(Spinus tristis)</i>	[Aug. 26-Oct. 18]	(18, 10/18)
Evening Grosbeak	<i>(Coccothraustes vespertinus)</i>	[Oct. 13-Nov. 14]	(7, 10/24)

Non-migrant Sightings

[Species given with date first seen and date last seen, and the high daily count for the species.]

Ruffed Grouse	<i>(Bonasa umbellus)</i>	[Sept. 14]	(1)
Wild Turkey	<i>(Meleagris gallopavo)</i>	[Sept. 21]	(3)
Mourning Dove	<i>(Zenaida macroura)</i>	[Aug. 26-Sept. 28]	(1)
Barred Owl	<i>(Strix varia)</i>	[Sept. 11]	(1)
Downy Woodpecker	<i>(Picoides pubescens)</i>	[Oct. 7]	(1)
Hairy Woodpecker	<i>(Picoides villosus)</i>	[Sept. 16-Nov. 1]	(1)
Pileated Woodpecker	<i>(Dryocopus pileatus)</i>	[Sept. 9-Nov. 2]	(2, 9/21)
Common Raven	<i>(Corvus corax)</i>	[Aug. 24-Nov. 15]	(43, 11/4)
Black-capped Chickadee	<i>(Poecile atricapillus)</i>	[Aug. 23-Nov. 15]	(20, 9/21)
Tufted Titmouse	<i>(Baeolophus bicolor)</i>	[Oct. 12-Oct. 22]	(1)
White-breasted Nuthatch	<i>(Sitta carolinensis)</i>	[Aug. 31-Oct. 6]	(2, 9/24)



Immature Red-shouldered Hawk & Common Raven

Photo by Cliff Otto



The Great Soup Contest (2012 Champion: Julie Brown, for “Thai Chicken Hawk”)

Photo by Jo-Ann Matthews

Acknowledgments

Without the support of a growing band of volunteers, the hawk-watch would not exist as we know it: you are at the very heart of this project. If standing together nose to nose with the north wind were not so much fun, who would keep coming back? You are almost too many to name—how lucky we are that that is the case!—but we thank you for your time, energy, laughter, and delicious baked goods. We would be remiss not to acknowledge the exceptional company and commitment of Tom Delaney and Al Grimstad, both of whom spent a good deal of the fall squinting at distant specks through the spotting scope. And Katrina Fenton has practically grown up on this observation platform—thank you for your untiring efforts and your love for the place.

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Thank you to Norma Rapuzzi and the wonderful staff at Miller State Park, who continue to support the project in any way they can. Keeping the Park safe and open for visitors is difficult enough without having to orchestrate a crowd of hundreds that descend one afternoon to watch the release of a hawk on top of your mountain. And hawk-watching, especially in September, often begins before and ends after the Park's scheduled hours—the permission to occupy the lookout for over two months is invaluable. The success of our project is largely due to the understanding and cooperation of Miller's generous staff.

Thank you to the Jack Daniels' Motor Inn for its continued support of the project, and to the many private donors whose contributions allow the hawk-watch to survive from year to year. All of you who bought a t-shirt, a hat, a silhouette guide, or simply left a donation in the bluebird box—these gifts add up to a great deal.

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And thank you, as always, to Iain MacLeod, Phil Brown, and Julie Brown, whose wisdom and hard work have kept this whole wonderful thing going, and whose love for birds and the natural world are an inspiration to all they touch.



Juvenile Broad-winged Hawk

Photo by Katrina Fenton



Clouds over North Pack, October 25, 2012

Photo by Glen Chretien

~Here's to a great year past, and a great year to come~

~Thank you for all your support~