

1-Cover-Map-NEHW	2
4_Spring-2020	5
15_Fall-2020	16
26_Centerfold-NEHW-Trends	27
33_Fall-Broadwings	34
36_Peak-Days2-020	37
46_DrewPankos-Column	47

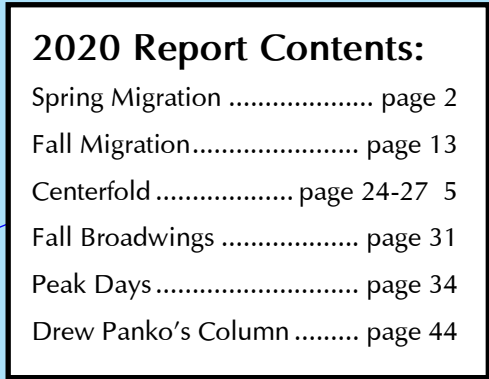


Join us for a FREE
50th Anniversary Webinar (via Zoom):
August 29, 2021, 6-9 p.m.



NorthEast Hawk Watch 2020 Hawk Migration Report

Red-tailed Hawk by Brian Rusnica



NorthEast Hawk Watch

The *NorthEast Hawk Watch* promotes the systematic study of migrating hawks in New England, southeastern New York and northeast New Jersey. Membership is open to anyone. Annual dues are \$10 payable to "NEHW" c/o treasurer: Joe Wojtanowski, PO Box 142, Poquonock, CT 06064.

Visit the website of *NorthEast Hawk Watch* at www.battaly.com/nehw/ to download a membership application, view seasonal site totals at all sites and daily counts at selected sites, download PDFs of previous reports, and find directions to hawkwatch sites in the northeast.

All counts can be easily reported online through a free service offered by the Hawk Migration Association of North America (HMANA). To sign up, visit www.hawkcourt.org and click on "Account Request" link. To receive daily reports from all sites using the hawkcount program, subscribe to BIRDAWK, which is also free and can be done by visiting the HMANA homepage at www.hmana.org and following the simple instructions there.

NEHW Regional Coordinators:

Connecticut

Steve Mayo, 27 Tuttle Court, Bethany, CT 06524-3027
(203) 393-0694 - rsdmayo@sbcglobal.net

Maine, New Hampshire and Vermont

Julie Brown, 151 Antrim Rd., Hancock, NH 03449
(781) 264-0778 - brown@hmana.org

Massachusetts & Rhode Island

Paul Roberts, 254 Arlington Street, Medford, MA 02155
(781) 483-4263 - phawk254@comcast.net

New Jersey & New York

Drew Panko, 14 Dunham Road, Hartsdale, NY 10530
(914) 693-6365 - dpanko@pipeline.com

NEHW Officers:

President Iain MacLeod
Vice President & Clerk Larry Fischer
Membership Secretary/Treasurer Joe Wojtanowski
Webmaster Trudy Battaly

Board of Directors:

Trudy Battaly White Plains, NY
Julie Brown Hancock, NH
Katrina Fenton Nashua, NH
Larry Fischer Newtown, CT
Earnie Lewis Calverton, NY
Iain MacLeod Sandwich, NH
Ted Mara Arlington, MA
Steve Mayo Bethany, CT
Drew Panko Hartsdale, NY
Gerhard Patsch Gardiner, NY
Paul Roberts Medford, MA
Brian Rusnica Cambridge, MA
Joe Wojtanowski Poquonock, CT

Hawk Migration Report:

Editor Trudy Battaly
Design and Production Iain MacLeod

NEHW Website:
www.battaly.com/nehw



From the President:

NEHW is kicking off its 50th anniversary year with a special FREE webinar open to everyone! Join us for four 20-minute presentations by noted local experts with Q&A and a special 45-minute keynote by Kate Davis.

Celebrating 50 years!

Sunday, August 29, 2021, 6-9 p.m.

This event will be via Zoom: Register in advance for this meeting:
<https://tinyurl.com/s65s9j2>

Full Program Schedule: (detailed schedule and speaker bios at <http://www.battaly.com/nehw/50th>)

Program:

Hawk Watching—Join the Fun! By Drew Panko.

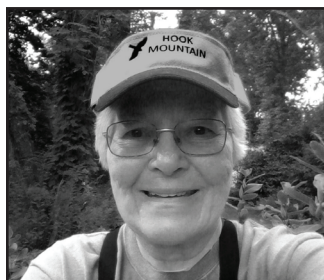
WE COUNT! Fifty Amazing Years of the NorthEast Hawk Watch.
By Paul Roberts.

Trends for the Hawks that You Counted. By Trudy Battaly.

Beyond the Numbers: Hawk Trapping. By Larry Fischer.

KEYNOTE:

Three Decades of Raptor Education: Optimism for the Future.
By Kate Davis.



From the Editor:

You braved the 2020 COVID pandemic to count hawks! For some of you that meant your site was closed to the public and quieter than usual. For others it meant a dramatic increase in hikers and visitors, and a consequent increase in health risks. Thank you for being careful and staying well.

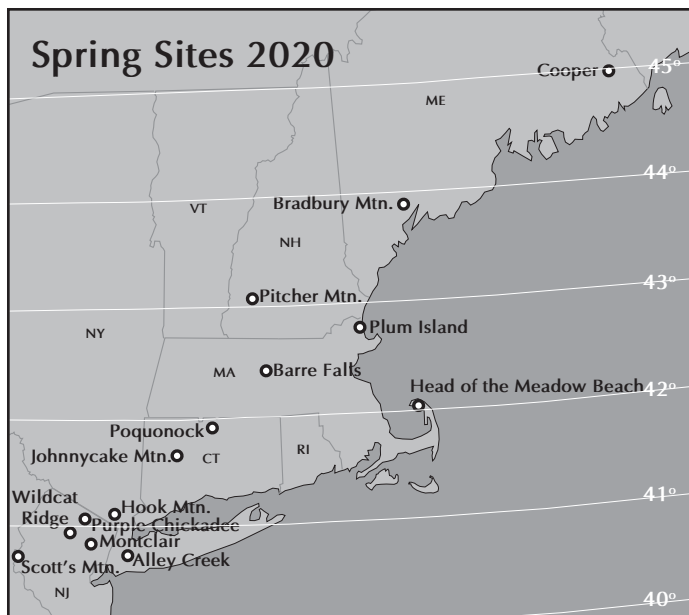
The hawks were flying, and you counted more in 2020 than in 2019. You have once again helped us

to monitor the migration of our wondrous raptors. Your counts are seen here in tables and graphs. But, more than that, your counts are helping us to look at migration patterns.

To explore a sudden drop in spring Harriers, this report includes a comparison of Harrier counts to winds, breeding birds, and even fall Harriers, with a surprising outcome. For our increasing Red-shoulder counts, this report examines a drop in Shoulders for the decade from 2000 to 2009, and considers the possibility that our data supports a hypothesis of West Nile Virus. For our slowly declining Goshawks, there is a comparison of your counts to the amount of forest in our five regions, to further explore if we are monitoring residents or migrants. There are also density maps for the four peak Broadwing days. These maps show the Broadwings spread out across the NorthEast, making each and every site important! We needed all of you to get our 33% increase this year. Both the centerfold and the Watch List have been updated. While Sharpies did better in 2020 than 2019, they are still our most-at-risk species.

Be sure to check out Drew's column, always a surprise. This year he focuses on the importance of hawk watch locations. He uses counts at four hawk watch sites to explore flight patterns along shorelines. Do the flight patterns fit what we think should happen? It's a thought-provoking read.

... continued on page 43



Spring 2020 Hawk Watching in a Pandemic

Fourteen hawk watch sites across the NorthEast braved the COVID pandemic to document our spring migrants in 2020. These watchers are our heroes, for their persistence in the face of a rapidly spreading virus. This is especially true for our weekend watchers, who dealt with streams of hikers—sometimes hundreds of people daily, many of whom would stop at the watch site for inquiries. While some of these visitors were unmasked and potentially threatening to the health of our people, our sites continued to count and to encourage hawk watching. At Hook Mountain, we carried up safety cones and ribbon for our counters to mark off a separate and safe social distancing area. And, of course, we used a Turkey Vulture wing span as our safe social distance everywhere.

Sites

Our 14 spring watch sites in 2020 are two fewer sites than 2019. Johnnycake Mountain returned after a three year hiatus, but three of our 2019 sites did not conduct a count in 2020, including Blueberry Hill, Munn Brook, and Bear Mountain. Pilgrim Heights ceased operation on site, having lost adequate visibility, but moved to a nearby location at Head of the Meadow Beach.

Our sites are organized into regions named for their southern-most latitude. Our furthest north site is Cooper at 45°N latitude. This is included in Region 43 with Bradbury Mountain and Pitcher Mountain, both between 43°N and 44°N latitude. Region 42 includes Plum Island, Barre Falls, and Head of the Meadow, between 42°N and 43°N. Region 41 includes Poquonock, Johnnycake Mountain, Hook Mountain, and Purple Chickadee, all between 41°N and 42°N. Region 40, our southern-most region includes Wildcat Ridge, Montclair, Alley Creek, and Scott's Mountain, between 40°N and 41°N.

Region 43 accounted for 5973 hawks in 572 hours, or 10.4 hawks/hour. This accounts for 37.7% of our hawks in 27.9% of the hours. **Cooper** doubled its usual effort, and continued to bring in the rarities. This season they had one of the eight Northern Goshawks, and both of our two Golden Eagles! Since 2012, **Bradbury Mountain** has consistently counted the most total hawks and recorded the most hours. This season Bradbury had our high of 5057 Total Hawks and the only single day count over 1000. They also had high counts for eight species: Osprey (401), Bald Eagle (89), Sharp-shinned Hawk (776), Northern Goshawk (6), Red-shouldered Hawks (65), Broad-winged Hawk (2531), Red-tailed Hawk (136), and Peregrine Falcon (8). **Pitcher Mountain** had a good showing with 14 species, including the last of the eight Goshawks. Thus, all the Spring 2020 Goshawks were counted in Region 43. Pitcher also had the highest hawks/100 hours for Red-tailed Hawk (52/100 hr).

Region 42 accounted for 2593 hawks in 348 hours, or 7.5 hawks/hour. This accounts for 16.4% of our hawks in 17.0% of the hours. **Plum Island** had our highest counts for three species: Northern Harrier (60), American Kestrel (603), and Merlin (109). Their Kestrel count was more than twice any other count. **Barre Falls** was able to count on two days, tallying 63 hawks of five species, mostly Broadwings. **Head of the Meadow** had our high count for Turkey Vulture (557), and one of the two Mississippi Kites of the season. It also had our highest /100 hour counts for Osprey (102/100 hr).

Region 41 counted 4518 hawks in 430 hours, or 10.5 hawks/hour. This accounts for 28.5% of our hawks in 21.0% of the hours. **Poquonock** counted 14 species of raptors, including the 2nd of our two Mississippi Kites this season. **Johnnycake** counted 12 species, including our highest '100 hour' count for Black Vulture (26/100 hours). **Hook Mountain** had the highest Cooper's Hawk count (104) and the 2nd highest Total Hawks (2595). It also had several high '100 hour' counts, including the high for Total Hawks (1857/100 hr) and for four species: Coopers Hawk (74/100 hr), Red-shouldered Hawk (41/100 hr), Broad-winged Hawk (1465/100 hr), and Peregrine Falcon (4/100 hr). **Purple Chickadee** increased coverage for its 2nd spring season, resulting in more hawks than in 2019, and increasing their species count from 11 to 13 species.

NorthEast Spring 2020 Seasonal Totals

	Site	Days	Hrs	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	MK	TOT	HK/DY	MAX	DATES
43	Cooper	22	101	0	20	3	11	4	0	2	1	0	12	0	0	2	4	1	0	0	0	60	3	13	3/27-5/4
	Bradbury Mountain	55	407	1	557	401	89	58	776	56	6	65	2531	136	0	0	249	79	8	45	0	5057	92	1814	3/15-5/15
	Pitcher Mountain	18	64	0	122	28	13	6	45	14	1	3	556	33	0	0	19	6	2	8	0	856	48	452	2/23-4/29
42	Plum Island	33	157	0	44	8	13	60	232	13	0	0	0	0	0	0	603	109	2	18	0	1102	33	168	3/14-5/17
	Barre Falls	2	9	0	0	3	2	0	5	0	0	0	51	2	0	0	0	0	0	0	0	63	32	45	4/29-5/3
	Head of the Meadow	42	182	7	731	186	20	19	139	42	0	2	77	59	0	0	84	25	5	31	1	1428	34	150	4/6-6/25
41	Poquonock	40	139	4	78	34	17	7	11	6	0	9	102	39	0	0	23	5	1	6	1	343	9	26	3/4-5/6
	Johnnycake Mt	13	46	12	48	20	17	1	13	11	0	5	319	23	0	0	13	0	1	16	0	499	38	113	4/14-5/5
	Hook Mountain	30	140	11	29	118	8	8	132	104	0	57	2048	15	0	0	40	18	6	1	0	2595	87	669	3/7-5/7
40	Purple Chickadee	22	105	11	58	39	21	2	61	21	0	3	777	32	0	0	18	7	1	30	0	1081	49	286	3/21-5/9
	Wildcat Ridge	27	126	17	0	13	12	0	23	15	0	1	133	61	0	0	1	3	1	11	0	291	11	122	2/15-5/15
	Montclair	48	356	27	278	121	35	8	94	29	0	24	951	63	0	0	68	11	6	6	0	1721	36	410	3/16-5/15
	Alley Creek	51	215	11	300	174	81	5	44	35	0	3	1	14	0	0	24	19	4	0	0	715	14.02	92	2/22-5/17
	Scott's Mountain	1	5	0	0	4	2	2	2	1	0	0	9	2	0	0	2	0	0	0	0	24	24	24	4/11
	Total	404	2050	101	2265	1152	341	180	1577	349	8	172	7567	479	0	2	1148	283	37	172	2	15835	39		2/15-6/25
	Average, 1990-2019	267	1685	48.2	1336	831	112	289	2256	323	12	225	5386	696	4.5	2.6	1664	270	36	183	4	13679			

BV: Black Vulture, TV: Turkey Vulture, OS: Osprey, BE: Bald Eagle, NH: Northern Harrier, SS: Sharp-shinned Hawk, CH: Cooper's Hawks, NG: Northern Goshawk, RS: Red-shouldered Hawk, BW: Broad-winged Hawk, RT: Red-tailed Hawk, RL: Rough-legged Hawk, GE: Golden Eagle, AK: American Kestrel, ML: Merlin, PG: Peregrine Falcon, UR: Unidentified Raptor,

NorthEast Spring 2020 Seasonal Totals: Hawks per 100 hour

	Site	Days	Hrs	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	MK	TOT
43	Cooper	22	101	0	20	3	11	4	0	2	1	0	12	0	0	2	4	1	0	0	0	59
	Bradbury Mountain	55	407	0	137	99	22	14	191	14	1	16	622	33	0	0	61	19	2	11	0	1243
	Pitcher Mountain	18	64	0	192	44	20	9	71	22	2	5	876	52	0	0	30	9	3	13	0	1348
42	Plum Island	33	157	0	28	5	8	38	148	8	0	0	0	0	0	0	384	69	1	11	0	702
	Barre Falls	2	9	0	0	35	24	0	59	0	0	0	600	24	0	0	0	0	0	0	0	741
	Head of the Meadow	42	182	4	402	102	11	10	76	23	0	1	42	32	0	0	46	14	3	17	1	785
41	Poquonock	40	139	3	56	25	12	5	8	4	0	6	74	28	0	0	17	4	1	4	1	247
	Johnnycake Mt	13	46	26	104	43	37	2	28	24	0	11	693	50	0	0	28	0	2	35	0	1085
	Hook Mountain	30	140	8	21	84	6	6	94	74	0	41	1465	11	0	0	29	13	4	1	0	1857
	Purple Chickadee	22	105	11	55	37	20	2	58	20	0	3	742	31	0	0	17	7	1	29	0	1032
40	Wildcat Ridge	27	126	14	0	10	10	0	18	12	0	1	106	49	0	0	1	2	1	9	0	231
	Montclair	48	356	8	78	34	10	2	26	8	0	7	267	18	0	0	19	3	2	2	0	483
	Alley Creek	51	215	5	140	81	38	2	20	16	0	1	0	7	0	0	11	9	2	0	0	333
	Scott's Mountain	1	5	0	0	80	40	40	40	20	0	0	180	40	0	0	40	0	0	0	0	480
	Total	404	2050	5	110	56	17	9	77	17	0	8	369	23	0	0	56	14	2	8	0	772
	Average,1989-2018	230	1684	3	79	50	7	17	130	18	1	13	325	42	0.3	0.2	100.9	15	2	10.9	0.2	814

Region 40 counted 2751 hawks in 702 hours, or 3.9 hawks/hour. This accounts for 17.4% of our hawks in 34.2% of the hours. **Wildcat Ridge** increased coverage a bit over 2019, and increased their species count from 10 to 11. Their Redtail count of 61 was a near high at 49/100 hrs. **Montclair** maintained its regular coverage, contributing significantly to our counts. They tallied 13 species, and had our high count for Black Vultures (27). **Alley Creek** continued to increase coverage in its 3rd season, thereby increasing hawks, including the 2nd highest counts for three species: Turkey Vulture (330), Osprey (174), and Bald Eagle (81), and the highest /100 hour count for Bald Eagle (38/100 hr). **Scott's Mountain** tallied 8 species on its single day this season.

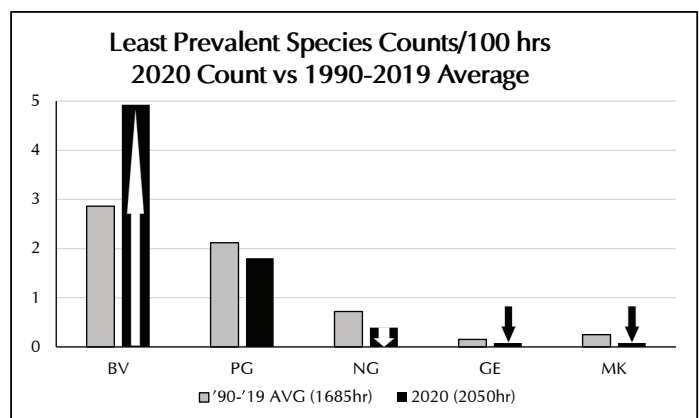
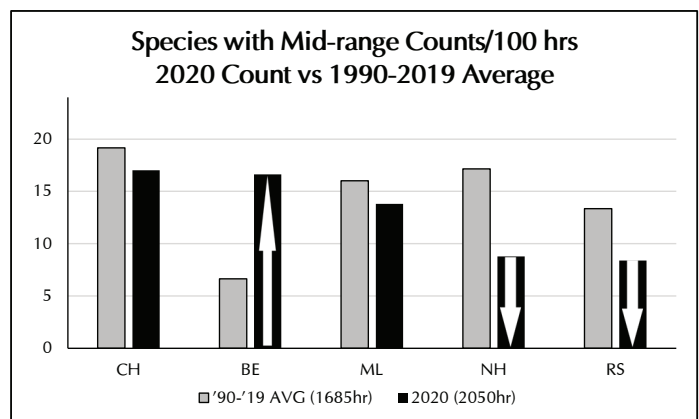
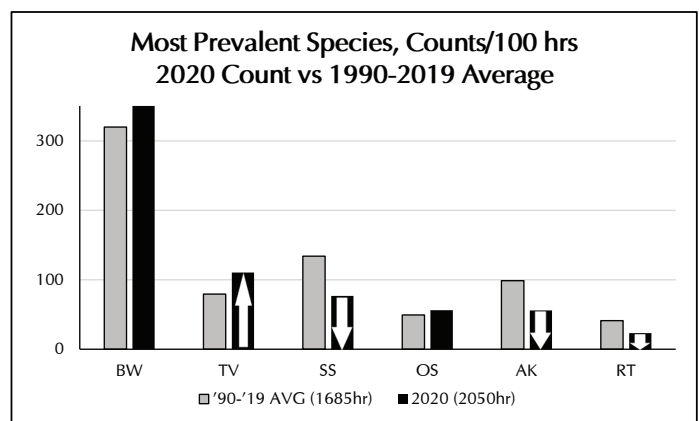
The 2020 Count—Close to Average Spring

Thanks to our devoted hawk watchers, and in spite of pandemic circumstances, our 14 sites counted 15835 spring migrants. This is 20.6% more than the 13127 counted at 16 sites in 2019 and 15.7% more than the 30-year average of 13679 hawks at 14 sites. Our total of 2050 hours were also higher than both the 1728 hours in 2019 and the 30 year average of 1680 hours. So, the increased effort accounted for the gain in hawks. Our 772 hawks/100 hours in 2020 was about the same as the 757 hawks/100 hours in 2019 and our 30 year average of 811 hawks/100 hours. Thus 2020 was a close-to-average year for Total Hawks, with a larger sample to evaluate than in 2019.

This season we had five species with counts of more than 1000: Broad-winged Hawk (7567), Turkey Vulture (2262), Sharp-shinned Hawk (1577), Osprey (1152), and American Kestrel (1148). Of these, the biggest changes from 2019 was an increase of about 2000 Broadwings and about 500 Sharpies. Seven species had counts of more than 100: Red-tailed Hawk (479), Cooper's Hawk (349), Bald Eagle (341), Merlin (283), Northern Harrier (180), Red-shouldered Hawk (172), and Black Vulture (101). Of these, the most notable differences from 2019 are a 57% increase in Bald Eagles and a 48% decrease in Harriers. Species with fewer than 100 include: Peregrine Falcon (37), Northern Goshawk (8), Golden Eagle (2), and Mississippi Kite (2). For comparison, there were 2 Goshawks and 12 Kites in 2019.

Species Prevalence—the wheel spins again

In 2017 our species prevalence was like a spinning roulette wheel—Turkey Vultures and Red-shouldered Hawks jumped up three ranks, while Sharp-shinned Hawks dropped two ranks. 2020 brought a similar spin of the wheel, with eight of 16 species changing rank. Bald Eagles jumped up two ranks, Northern Harrier dropped three ranks and American Kestrel dropped two. All other changes involved the loss or gain of one rank.



Using standardized hawk count data (hawks/100 hours) we compare our 2020 Spring data to our 30 year history in the NorthEast. Our two most prevalent species have remained the same since 2017. **Broad-winged Hawks** (365/100 hrs) have been our 1st ranked species in all years except one—in 1996 Broadwings were actually outranked by Kestrels! **Turkey Vultures** (111/100 hrs) rose to 2nd rank in 2017, and have settled in for the 4th year in a row. But, beginning with our 3rd ranked species, the wheel spins once again. **Sharpies** (77/100 hrs) returned to 3rd rank after three years in 4th, and **Osprey** (56.2/100 hrs) returned to 4rd after the same three years in 5rd. These two shifts were a consequence of **Kestrels** (56/100 hrs) dropping two ranks to 5th, though by a small margin. There were 16 more Sharpies per 100 hours in 2020 compared to 2019, but there were 9 fewer Kestrels and 2 fewer Osprey. **Red-tailed Hawk** (23.4/100 hrs) retains its long-held rank of 6th.

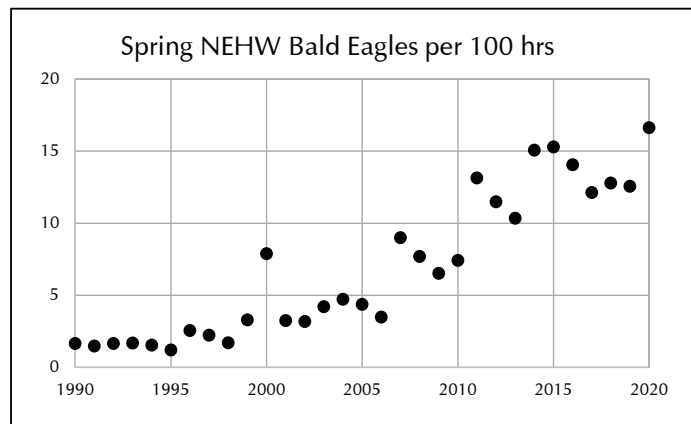
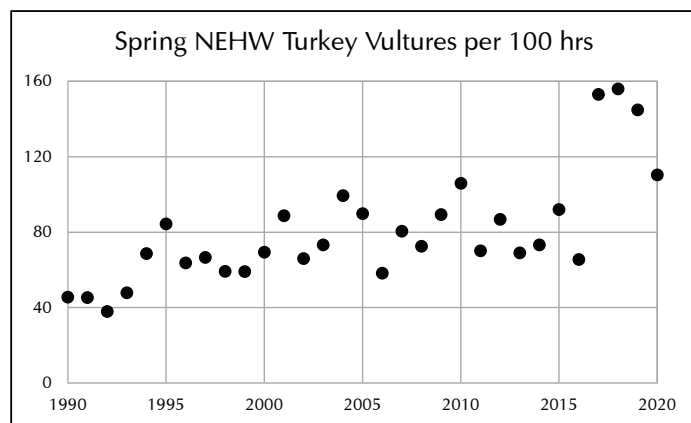
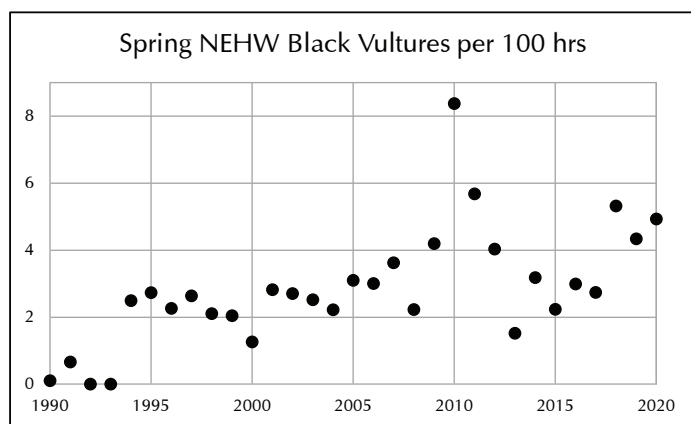
Species with mid-range counts include those with counts below 20/100 hours and above 5/100 hours. **Cooper's Hawk** (17.0/100 hrs) moved up one rank, back to 7th place for the first time since 2012. **Bald Eagle** (16.6/100 hrs) jumped up two ranks to 8th for the first time ever, and almost made it into 7th! Check out how close to Coops they are—16.6 Eagles compared to 17.0 Coops. **Merlin** (13.8/100 hrs) retained 9th place, as it has in six of the last nine years. While Bald Eagle leap-frogged over Merlin, **Northern Harrier** (8.8/100 hrs) was left behind by Bald Eagles, Coops, and Merlin, and ended up in 10th place. Harrier dropped 3 ranks, and is barely ahead of the next rank! **Red-shouldered Hawk** (8.4/100 hrs) retains 11th place for the 3rd time in the last 8 years. In the other five years, Shoulders did much better, ranking 8th.

Our least prevalent species have counts at or below 5 hawks/100 hours. **Black Vulture** (4.9/100 hrs) and **Peregrine Falcon** (1.8/100 hrs) continue to dominate this group. But, the wheel spun once again for the remaining species. **Northern Goshawk** (0.4/100 hrs) and **Golden Eagle** (0.1/100 hrs) each moved up, while **Mississippi Kite** (0.1/100 hrs) dropped two ranks, having dropped from a count of 12 in 2019 to 2 in 2020. There were no Rough-legged Hawks, Short-eared Owls, or Swallow-tailed Kites reported for the Spring 2020 season.

Species with Above Average Counts

From our Seasonal Totals Table we see that five species had above average counts in Spring 2020—**Black Vulture** (101), **Turkey Vulture** (2265), **Osprey** (1152), **Bald Eagle** (341), and **Broad-winged Hawk** (7567). However, when we standardize the data, only three of these were more than 20% above average—Black Vulture (+72%), Turkey Vulture (+39%), and Bald Eagle (+205%). Spring Black Vultures have been increasing for 15 years, and Turkey Vultures have been increasing for 30 years.

Record High Bald Eagles. Furthermore, the Bald Eagle counts were record highs, for both the actual and the standardized counts! While this is



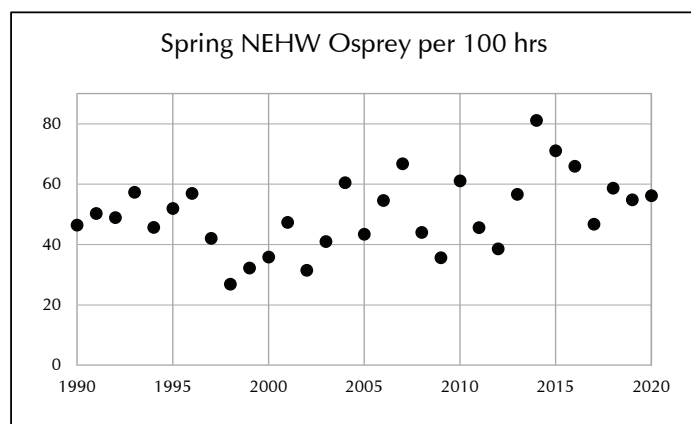
no surprise, as we have watched the Bald Eagle numbers grow from year to year, it does represent a conservation success story. Bald Eagles have returned to the NorthEast after 40 years on the endangered species list.

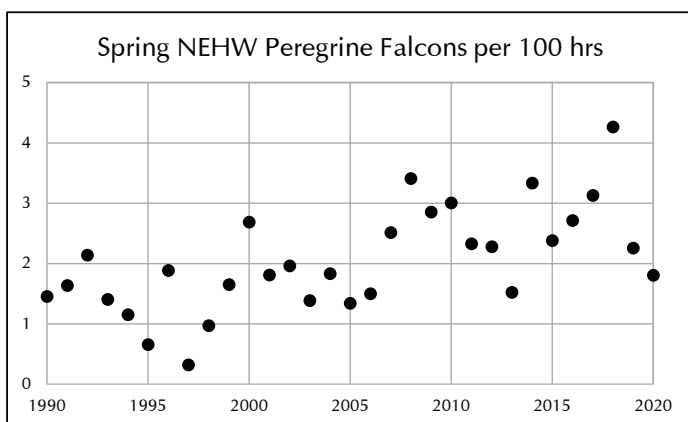
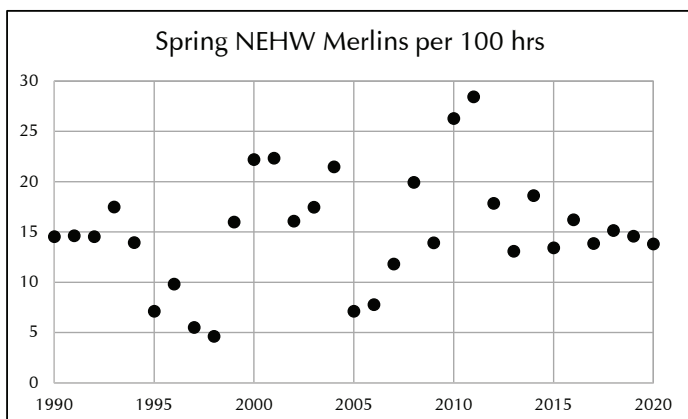
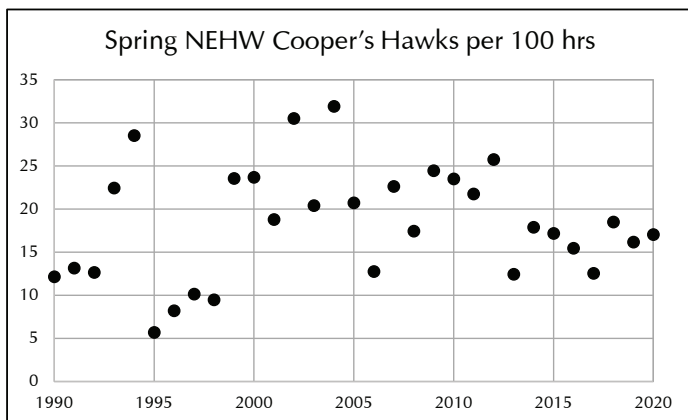
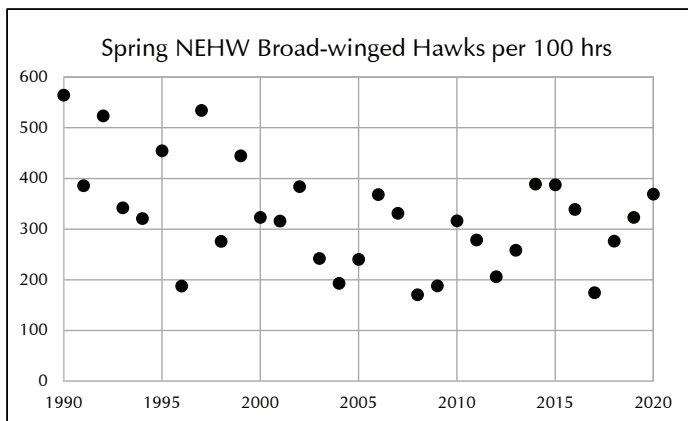
Species with Average Counts

The standardized **Osprey** (+12%) and **Broadwing** (+14%) counts brought those species within 20% of average. Other species in this range include **Cooper's Hawk** (-7%), **Merlin** (-9%) and **Peregrine Falcon** (-12%). Notable among these, our 1.8 Peregrines/100 hours is the lowest since the 1.5 Peregrines/100 hrs that we recorded in 2013 and again back in 2006. Prior to 2006 our Peregrine counts were normally below two per 100 hrs.

Species with Below Average Counts

Spring 2020 had six species with below average counts: **Northern Harrier** (-49%), **Sharp-shinned Hawk** (-41%), **Northern Goshawk** (-44%), **Red-shouldered Hawk** (-38%), **Red-tailed Hawk** (-44%) and **American Kestrel** (-45%). Thankfully, only one of these, Red-tailed Hawk, was a record low.

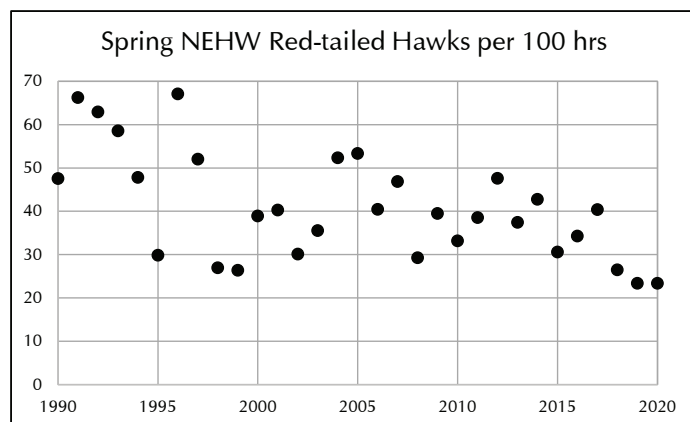




Red-tailed Hawk—another Record Low

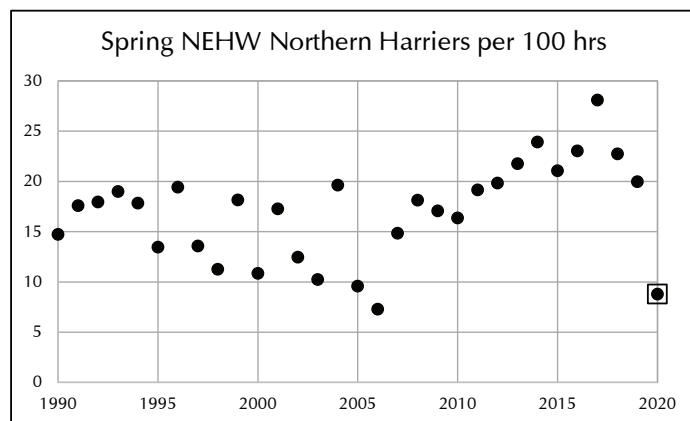
The actual Spring count of Redtails (479) was higher than either of the previous two years, yet they continued for a third year with a record low standardized count, per 100 hours. The 2020 count of 23.4 Redtails per 100 hours tied the 2019 count and was lower than the 26 Redtails

per 100 hours in 2018. Three years of record lows firmly establishes a decline in migration for an iconic species that has become one of the most recognized and observed raptors of the NorthEast. Redtails are now easily seen in the NorthEast throughout the year. For a comparison of our migration counts to overwintering data from Christmas Counts, see NEHW 2018 Hawk Migration Report, p. 5, <http://www.battaly.com/nehw/reports/NEHW2018.pdf>



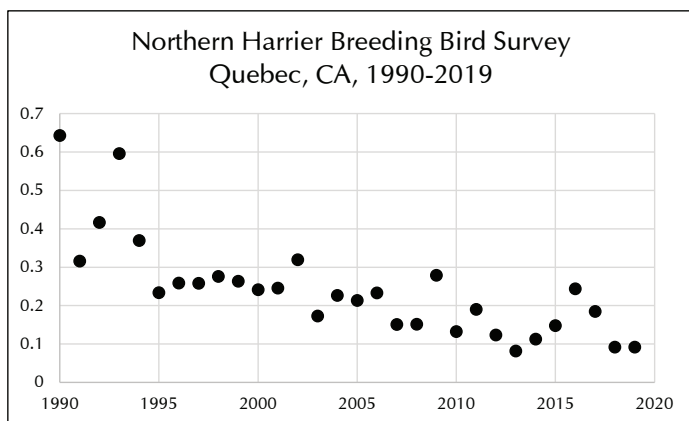
Northern Harrier—a Sudden Puzzling Drop

The most concerning and puzzling of the below average species is Northern Harrier. After a decade of above average spring counts, Harriers had a sudden drop to 8.8 Harriers/100 hours. This is about half of the average (17/100 hr) and very near the record low of 7.3/100 hr. Why the sudden drop?

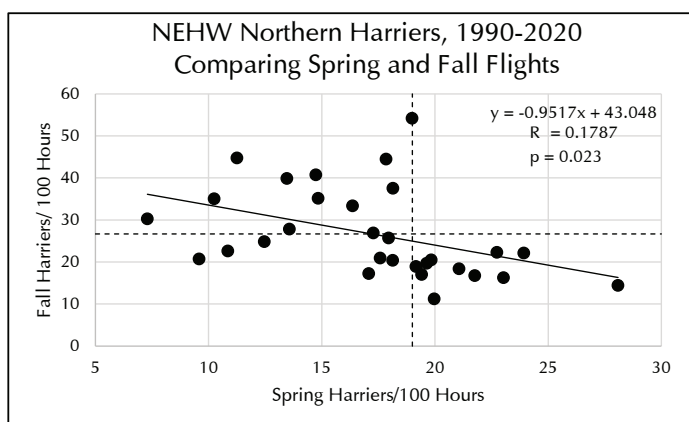
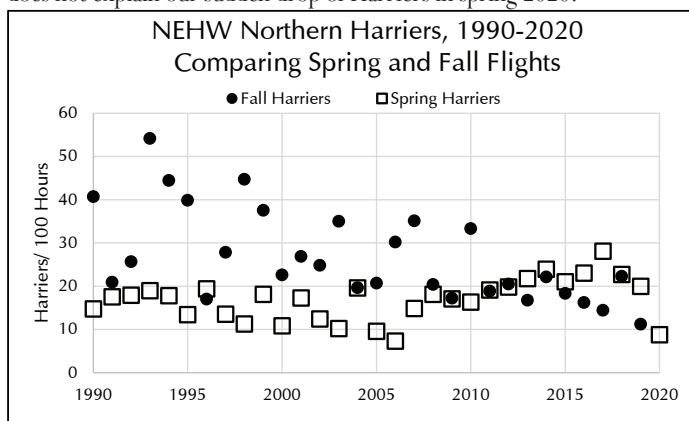


In our 2019 NEHW Report we recognized that our spring Harriers were generally increasing since 2010 but our fall Harriers were decreasing. At that time we were unable to support a hypothesis of different flight paths—coastal in spring, inland in fall. We did find, however, that our fall flight was strongly correlated with breeding Harriers in Quebec, CA (BBS). Since our spring counts monitor adult breeders, could the sudden drop be a consequence of a similar drop in breeding birds in Quebec? A review of that data does show a low count for summer 2019. But, it also shows a low count for 2018, and our 2019 Harriers in the following spring season were still above average. So, the BBS data does not explain both spring counts.

Remembering our record low count for Fall Harriers in 2019, I wondered if our Fall Harrier counts could explain this. Do Fall counts from one year predict the Spring count of the following year? That seems feasible—a low breeding season means low fall numbers and fewer spring migrants the following year. Unfortunately, though, the answer is no; there is no statistical relationship between them ($r = -0.081$, $p = 0.359$).



While looking at data for the spring and fall seasons, and remembering the increasing trend for spring Harriers in the last decade, I decided to compare these data for the same calendar year—do our spring Harriers predict our fall Harriers? We would generally expect any species to have at least as many flying south in the fall as flew north in the spring. Surprisingly, for Harriers, this has a strangely mixed outcome. From 1990 to 2007, we did have more Harriers in the fall. But since then, it has been a mixed bag, with about equal numbers spring and fall for about eight years, and then more in spring than in fall. Furthermore, there is a correlation between spring and fall Harriers of the same year ($r = -0.423$, $p = 0.023$), but it's negative! Higher counts of Harriers in spring are associated with lower counts in the fall. Can this possibly be true? From the graph comparing spring and fall Harriers we see that any spring count above 19/100 hours is associated with a below average fall count. This describes a relationship between spring and fall Harriers that is unexpected indeed, but it does not explain why—are they migrating over water in fall? Are they migrating at night? Or is last year's hypothesis of north along the coast, south inland beyond our region, really true, though unsupported? Unfortunately, there are no answers here. Furthermore, it does not explain our sudden drop of Harriers in spring 2020.



Many of the standard explanations for declining species, such as habitat loss or competition with other species, contribute to slow declines and simply cannot explain a sudden drop in the Harrier count. Two possible factors could conceivably result in a sudden drop in numbers—introduction of disease, and unusual weather conditions. With no indications of a new disease in wild birds, the focus here is weather. Specifically, did 2020 have wind patterns that were different from other spring seasons? Two airports were selected: Logan International Airport, on the coast in Boston MA, and Bradley International Airport, north of Hartford CT. Logan represents the coastal winds relatively close to the three hawk watch sites that counted 76% of the Harriers this season: Plum Island (33%), Bradbury Mountain (32%), and Head of the Meadow (11%). Bradley represents the winds centrally located in the NorthEast region, approximately 110 miles southwest of Logan. From wunderground.com, hourly data was obtained from 7am to 5pm for all days in April from 2010 to 2020. Using vector resolution (cosine of the angle), winds were converted to their components in the four cardinal directions—North, East, South, and West. For each wind direction, the wind speed and the number of hours in that direction were recorded.

The following table shows the average for the ten years prior to 2020, the winds in 2020, and the percent deviation of 2020 from the 10 year average.

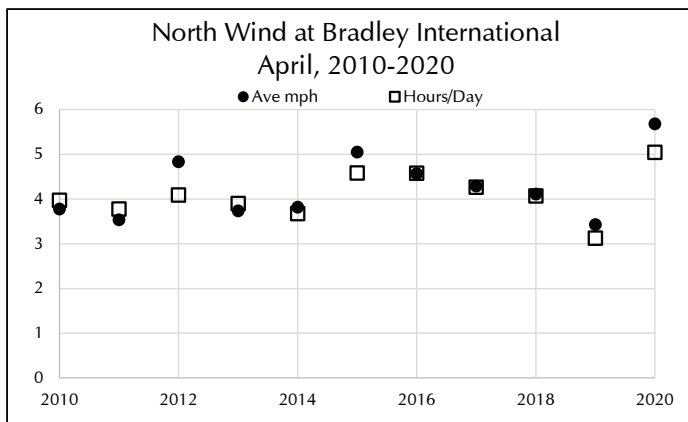
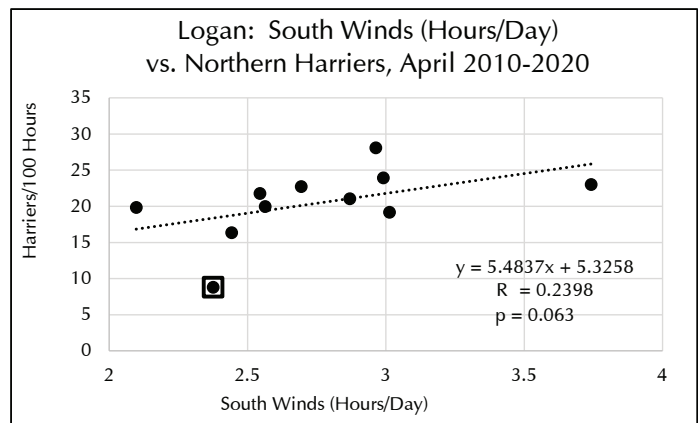
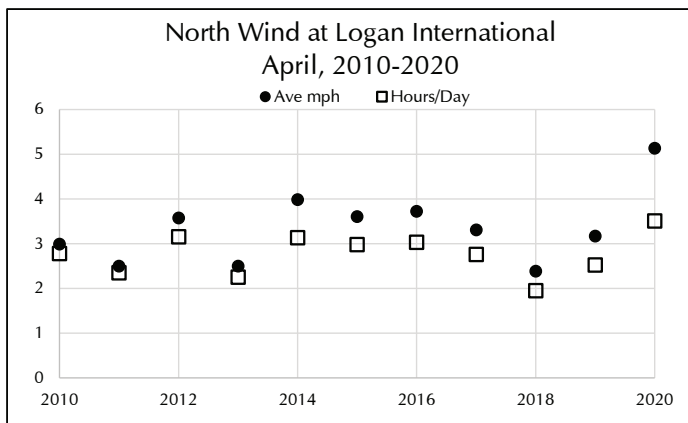
		AVERAGE SPEED (MPH)				HOURS/DAY			
		N	E	S	W	N	E	S	W
LOGAN	Average 2010-2019	3.2	4.0	3.2	5.2	2.7	3.5	2.8	4.1
	2020 Winds	5.1	4.1	3.1	5.2	3.5	3.3	2.4	3.9
	% Deviation	62%	1%	-4%	0%	30%	-5%	-15%	-4%
BRADLEY	Average 2010-2019	4.1	1.1	3.1	3.5	4.0	1.4	2.7	2.7
	2020 Winds	5.7	1.1	2.9	4.5	5.0	1.0	1.9	3.2
	% Deviation	38%	3%	-4%	28%	26%	-25%	-31%	19%

The biggest difference from the previous 10 year period is the speed of North winds—62% stronger than average at Logan and 38% stronger at Bradley. To a lesser extent the hours/day of North winds was also higher than average at both locations. Also, the hours/day of both East and South winds were below average. With the 62% increase in the speed of North winds glaring at us, the question is, how much of an increase is this? Is it meaningful? Graphs of North winds at both Logan and Bradley help us to visualize these differences. First, we notice that North winds seem to be randomly dispersed from 2010 to 2019, with no obvious trends. We also see that the speed of the 2020 North winds is above all other years at both locations. Notably, the speed of North winds at Logan stands out at 3.5 standard deviations above the mean, which would occur in only 3 of 10,000 Aprils. ($p = 0.0003$, normal distribution). That makes it a different year! But, did it contribute to our drop in Harriers?

A comparison of our spring Harrier counts to these wind data has some interesting results. Starting with Harriers and North winds, for 2010 to 2019 we see a random distribution with no general trends and no linear relationship. But the 2020 data stands out like a lonely lighthouse on an off-shore island. There is a big drop in Harriers in the same year we had a big increase in the speed of North winds. Even without any significance between the speed of North winds and the number of Harriers, it is hard to believe that this is a coincidence.

Further exploring the relationship between spring Harriers and wind patterns, there were several significant findings.

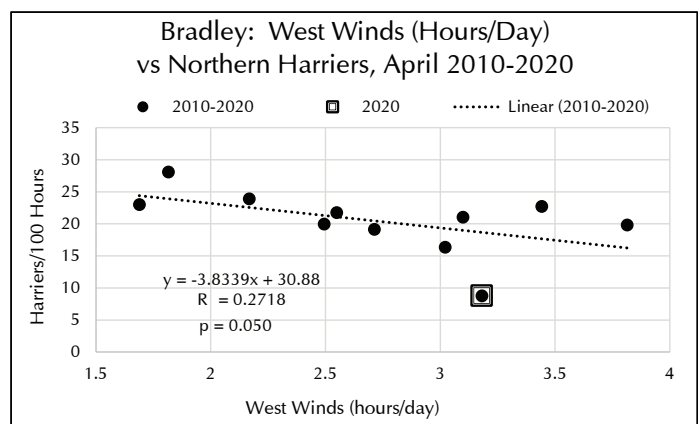
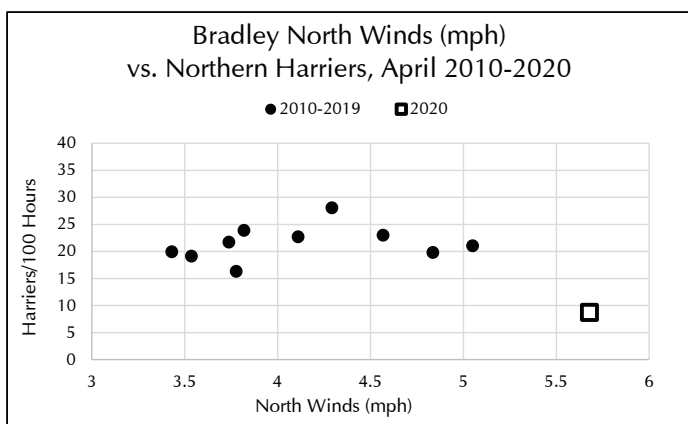
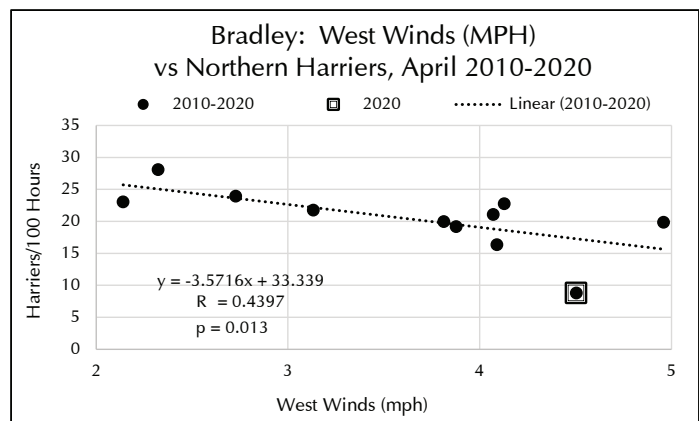
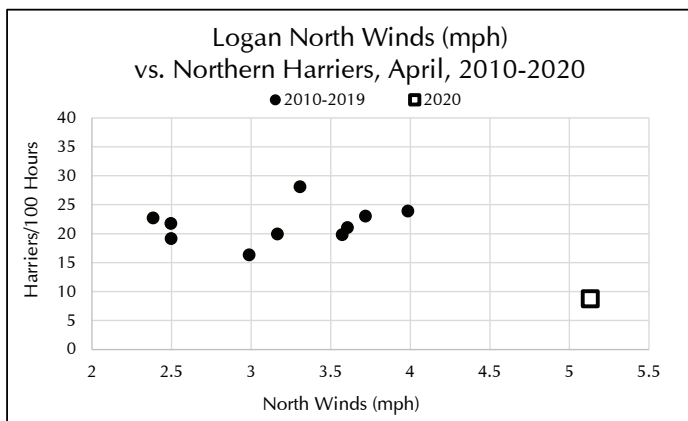
At Logan the Hours/Day of South winds showed a moderately significant positive correlation ($r = 0.490$, $p = 0.063$). This did not show a large % Deviation (see Airport comparison table) because the average 2.4 hours/day of South winds in 2020 is within the range of South winds for the previous 10 years (2.1 to 3.7 hr/day). It is, however, the second lowest hours/day over that period.

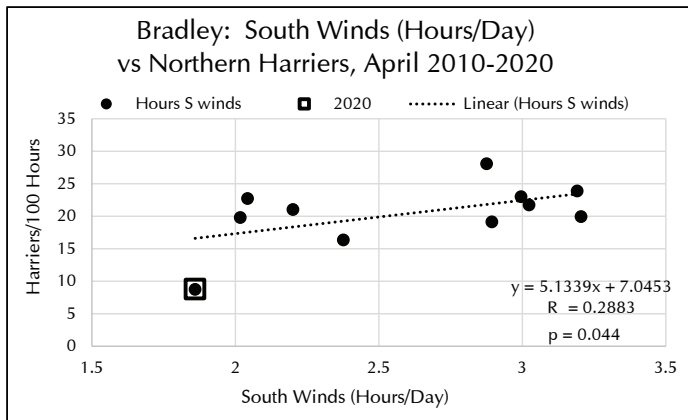
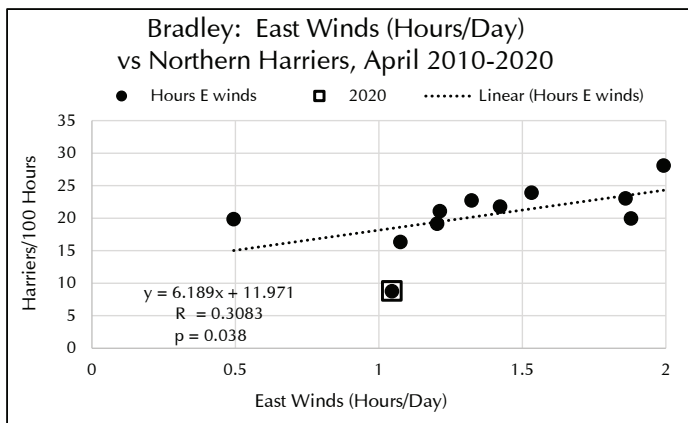


a negative correlation with frequency of West Winds ($r = -0.521$, $p = 0.050$), and positive correlations with frequencies of both East winds (0.555 , $p = 0.038$) and South winds ($r = 0.537$, $p = 0.044$). These associations reveal that in years with more West winds there are fewer Harriers, and in years with more East and South winds there are more Harriers. Can this help us explain the 2020 spring drop in Harriers? 2020 did have higher than average West winds and lower than average East winds. Furthermore, there were fewer hours/day of South winds in 2020 than any of the previous 10 years. So, it does appear that winds are associated with the drop of Harriers. Yet, it is not clear that the winds explain the magnitude of the drop.

At Bradley, there are four categories of winds with significant correlations to Harriers. The best fit is a negative correlation between Harriers and the speed of West winds ($r = -0.662$, $p = 0.013$). Three of the four frequency (hours/day) categories were significant. There was

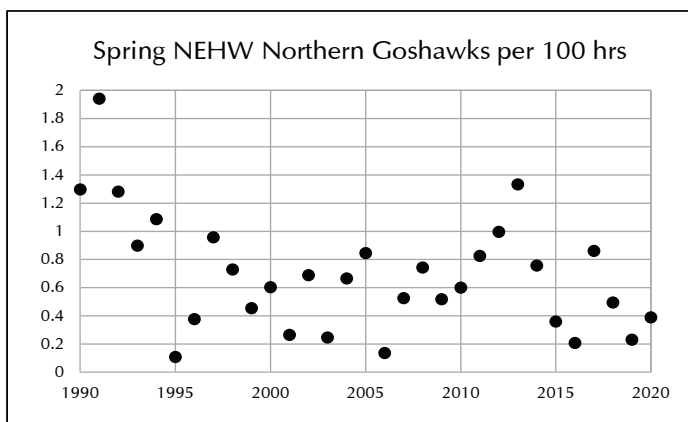
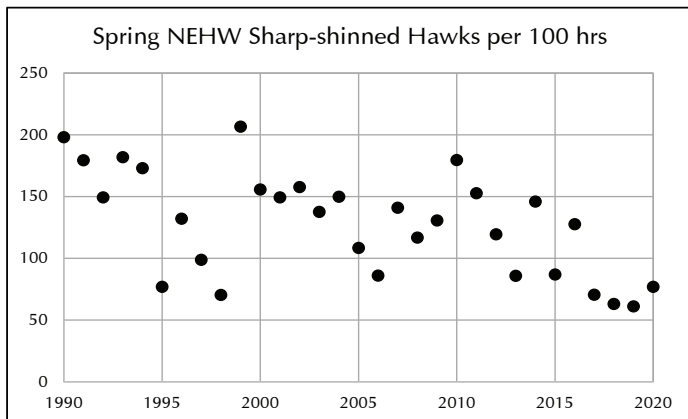
While our overview of Harrier migration is broader with these analyses, we are left with an incomplete understanding of Harrier migration strategies. The bottom line: how will the sudden drop impact the long term status of Harriers? How many will we count in 2021? I can't wait to find out! Your counts have helped us identify these questions about Harriers. We need your continuing counts to help us answer these questions. So, keep counting!



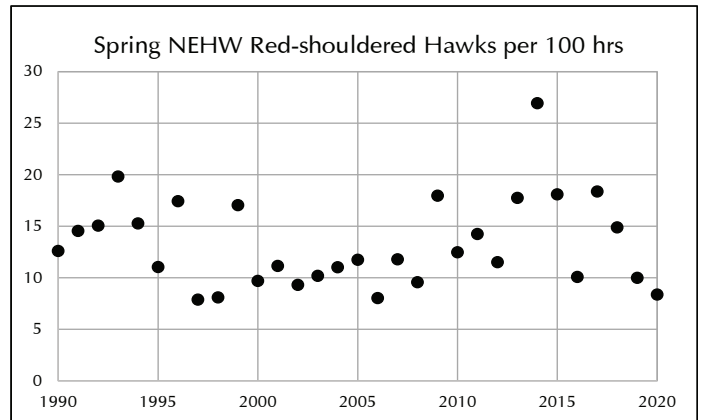


Other Below Average Species

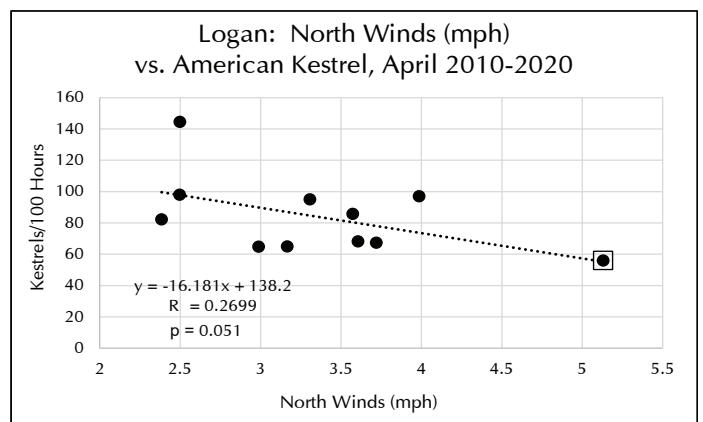
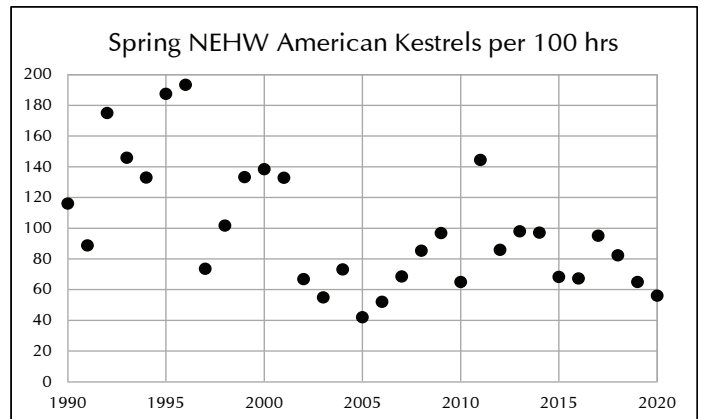
The remaining Below Average species—Sharp-shinned Hawk, Northern Goshawk, Red-shouldered Hawk, and American Kestrel—all had counts near the lowest quarter of their range. For **Sharpies**, it was



the fourth year in a row with low counts, but the 2020 count was a little higher than the previous three years. The **Goshawk** count was double that in 2019, but still remains low relative to most counts from 2000 to 2014. The low **Red-shouldered** count was somewhat of a surprise. There were three other years with slightly lower counts, but Shoulders have done quite well in the last 10 years, with more counts above average than below. It will be interesting to see if counts stay low, as they did from 2000 to 2005, or bounce back.



The **Kestrel** count is the 3rd lowest count since 1990, and is the fourth in a declining sequence. Similar to the Harriers, Kestrels migrate predominantly along the coast with 53% counted at Plum Island and 22% at Bradbury Mountain. Could this low count be related to the 2020 wind patterns? The Kestrel counts for 2010 to 2020 were compared to the wind speed and number of hours for each direction—North, East, South, and West—as described above. Kestrels are inversely correlated with the speed of North winds at both Logan ($r = -0.0520$, $p = 0.051$) and Bradley ($r = -0.497$, $p = 0.060$). So, it appears that the unusually high North wind speed (3.5 stand deviations above the mean) may well be a contributing



factor to the reduced number of Kestrels. If this is true, we should expect more in the years ahead with more normal wind speeds in April.

References

1. NorthEast Hawk Watch. 2018 Hawk Migration Report. <http://www.battaly.com/nehw/reports/NEHW2018.pdf>
2. NorthEast Hawk Watch. 2019 Hawk Migration Report. <http://www.battaly.com/nehw/reports/NEHW2019.pdf>
3. Pardieck, K.L., Ziolkowski Jr., D.J., Lutmerding, M., Aponte, V.I., and Hudson, M-A.R., 2020, North American Breeding Bird Survey Dataset 1966-2019: U.S. Geological Survey data release, <https://doi.org/10.5066/P9J6QUF6>. Direct link to state data: <https://www.pwrc.usgs.gov/BBS/PublicDataInterface/index.cfm>

“ *Light WNW winds and clear skies ... Huge day for SSHA migration with by far our highest total of the season [245] ... Just before noon, we were very excited to see a Short-eared Owl headed NW.* ”
Richard Aracil, Chestnut Ridge, hawkcount.org, 10/8/2020

Daily Counts at the 14 Northeastern Watch Sites, Spring 2020

COOPER, ME																			
Karen E. Holmes																			
2020	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOT
3/27	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/28	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/4	3	0	1	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	4
4/5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/6	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/7	4	0	1	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	5
4/8	5.5	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4/12	4	0	1	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	4
4/14	5	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4/15	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4/16	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/18	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
4/19	8	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
4/21	1.5	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4/22	5	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4/24	8	0	7	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	8
4/25	7	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4/26	4.5	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
4/29	7.5	0	5	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	6
4/30	6.5	0	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	3
5/2	7.5	0	0	0	1	0	0	0	0	0	4	0	0	0	0	1	0	0	6
5/4	4	0	0	0	0	1	0	0	1	1	0	6	0	0	0	4	0	0	13
TOT	101	0	20	3	11	4	0	2	1	0	12	0	0	2	4	1	0	0	60
10YrAv	57	0.4	15	3	10	2.2	4	1.4	0	0	7	1	0	0	3	1	0	3	52

BRADBURY MOUNTAIN, POWNAL, ME																		
Luke Fultz, Jeannette Lovitch, Derek Lovitch, Jim Pinfold, Matthew Gilbert, others																		
2020	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	TOT			
3/15	8	0	17	0	22	1	2	1	0	22	0	17	0	0	82			
3/16	8	0	9	0	5	0	2	2	0	3	0	4	0	1	26			
3/17	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
3/18	8	0	30	0	22	0	0	0	1	12	0	11	0	0	79			
3/19	2	0	5	0	0	0	0	0	1	0	0	0	0	0	6			
3/20	3	0	1	0	0	0	0	0	0	0	0	0	0	0	1			
3/21	8	0	21	0	10	0	0	1	0	1	0	4	0	1	41			
3/22	8	0	5	0	2	2	2	0	0	2	0	3	0	0	18			
3/23	8	0	7	0	3	0	0	1	0	0	0	0	0	0	11			
3/24	7	0	23	0	2	0	0	0	0	2	0	4	0	0	31			
3/25	8	0	21	0	4	0	0	0	0	1	0	3	0	0	30			
3/26	9	0	10	0	3	1	1	0	0	2	0	2	0	0	20			
3/27	8	0	30	0	1	0	2	1	0	0	0	0	0	0	34			
3/28	8	0	74	0	0	0	9	1	0	2	0	26	0	0	114			
3/29	5	0	8	0	0	0	0	0	0	0	0	0	0	0	8			
3/31	8.0	0	6	0	0	0	2	0	0	0	0	0	0	0	8			
4/1	8	0	9	1	0	0	0	0	0	0	0	1	0	0	11			
4/4	8	0	16	0	1	0	2	2	0	0	0	1	0	0	22			
4/5	8	0	164	0	0	2	9	3	0	2	1	9	0	3	197			
4/6	8	0	37	0	2	1	7	3	0	0	1	2	0	0	53			
4/7	8	1	21	4	2	3	17	0	0	1	0	1	0	3	55			
4/8	8	0	21	8	1	0	3	1	1	1	1	2	0	2	42			
4/9	4	0	2	0	0	2	0	0	0	0	0	0	0	0	5			
4/10	6	0	4	6	0	0	0	0	0	0	2	1	0	0	14			
4/11	8	0	7	5	0	1	7	2	0	0	5	2	0	3	33			
4/12	8	0	9	25	1	2	36	3	1	2	17	3	0	12	60			
4/14	8	0	0	15	0	2	14	2	0	3	15	3	0	7	2	3	120	
4/15	8	0	0	12	0	5	27	1	1	3	33	5	0	17	9	1	3	117
4/16	8	0	0	2	0	1	6	2	0	0	5	1	0	0	0	0	0	17
4/17	8	0	0	6	0	1	10	1	1	1	14	2	0	4	0	0	0	40
4/18	7	0	0	9	0	1	0	0	0	0	6	1	0	0	0	0	1	18

BRADBURY MOUNTAIN, POWNAL, ME															
Luke Fultz, Jeannette Lovitch, Derek Lovitch, Jim Pinfold, Matthew Gilbert, others															
2020	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	E	TOT
4/19	10	0	0	43	0	4	71	4	0	1	130	7	0	0	334
4/20	8	0	0	6	0	3	4	1	0	0	43	3	0	1	65
4/21	6	0	0	13	1	0	11	2	0	0	38	0	0	0	80
4/22	8	0	0	4	0	0	1	2	0	0	12	1	0	0	25
4/23	8	0	0	13	0	0	18	0	0	0	76	2	0	0	110
4/24	8.0	0	0	10	0	2	10	1	0	3	19	1	0	0	48
4/25	8	0	0	19	1	2	13	3	0	0	91	2	0	0	138
4/26	8	0	0	11	0	0	9	1	0	0	106	0	0	0	130
4/28	8	0	0	11	0	0	4	0	0	0	37	0	0	0	53
4/29	8	0	0	22	0	1	30	3	0	0	86	0	0	0	155
4/30	8	0	0	2	0	0	3	0	0	0	9	0	0	0	14
5/2	9	0	0	21	0	0	40	2	0	0	213	1	0	0	285
5/3	9	0	0	84	4	12	323	9	0	1	1270	3	0	0	1814
5/4	8	0	0	2	0	6	13	1	0	0	104	1	0	0	135
5/5	8	0	0	7	0	0	17	0	0	0	36	0	0	0	60
5/6	8	0	0	5	0	0	16	0	0	0	41	1	0	0	69
5/7	8	0	0	8	1	1	4	0	0	0	27	2	0	0	48
5/8	8	0	0	1	0	0	7	0	0	0	29	1	0	0	39
5/10	8	0	0	4	0	1	3	0	0	0	5	0	0	0	14
5/11	8	0	0	13	0	0	14	0	0	0	19	1	0	0	53
5/12	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/13	8	0	0	2	0	1	2	0	0	0	4	0	0	0	9
5/14	8	0	0	2	1	0	3	0	0	0	12	0	0	0	22
5/15	8	0	0	5	0	0	2	0	0	0	24	2	0	0	38
TOT	407	1	557	401	89	58	776	56	6	65	2531	136	0	0	5057
17YrAv	369	1	279	366	63	87	589	58	6	71	1524	196	1	0	3657

PITCHER MOUNTAIN, STODDARD, NH														
Levi Burford, Katrina Fenton														
2020	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	TOT
2/23	3.5	0	2	0	2	0	0	1	0	0	0	0	0	5
2/24	4	0	0	0	1	0	0	0	0	1	0	0	0	2
3/3	2	0	2	0	1	0	0	0	0	0	0	2	0	5
3/8	3	0	1	0	0	0	0	0	0	0	0	1	0	2
3/9	2.8	0	2	0	6	0	0	1	0	0	0	3	0	12
3/18	1.5	0	4	0	0	0	0	0	0	1	0	0	0	5
3/26	4.5	0	9	0	1	0	0	0	0	0	0	3	0	13
4/5	2.8	0	45	0	1	0	4	0	0	0	0	11	0	65
4/6	3.5	0	9	0	1	2	7	1	1	0	0	7	0	31
4/7	2	0	10	0	0	0	2	0	0	0	0	0	0	14
4/12	2.5	0	7	1	0	0	0	0	0	0	3	0	0	13
4/15	5.5	0	3	1	0	0	2	0	0	0	4	2	0	14
4/16	2	0	0	0	0	0	0	0	0	0	1	0	0	2
4/19	5.5	0	0	5	0	1	8	2	0	1	38	3	0	64
4/20	4	0	0	0	0	3	4	3	0	0	32	0	0	45
4/23	2.5	0	0	0	0	0	2	1	0	0	16	0	0	20
4/25	5.5	0	0	2	0	0	4	0	0	0	85	1	0	92
4/29	6.5	0	28	19	0	0	12	5	0	0	377	0	0	452
TOT	64	0	122	28	13	6	45	14	1	3	556	33	0	856
6YrAv	27	0	19	10	3	2	17	4	1	3	126	9	0	212

PLUM ISLAND, NEWBURYPORT, MA																			
Bob Secatore, Mark Schoene, Kathryn Chihowski, Paul Roberts, Brian Rusnica, Judd Nathan, others																			
2020	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	JR	TOT
3/14	6	0	18	0	9	3	0	0	0	0	0	0	0	0	0	1	0	1	32
3/18	6	0	12	0	2	2	0	0	0	0	0	0	0	0	0	0	0	1	17
3/20	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/21	7.0	0	0	0	0	1	0	0	0	0	0	0	0	0	4	1	0	0	6
3/24	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/26	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PLUM ISLAND, NEWBURYPORT, MA

Bob Secatore, Mark Schoene, Kathryn Chihowski, Paul Roberts, Brian Rusnica, Judd Nathan, others

2020	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOT
3/27	8	0	13	0	0	1	0	0	0	0	0	0	0	0	0	2	0	3	19
4/5	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
4/6	5.5	0	0	2	0	4	0	0	0	0	0	0	0	0	9	1	0	0	16
4/7	4	0	0	2	1	3	0	1	0	0	0	0	0	0	27	4	0	0	38
4/10	6.5	0	0	2	0	5	0	2	0	0	0	0	0	0	141	5	0	0	155
4/11	6	0	0	1	0	12	1	2	0	0	0	0	0	0	29	6	0	0	51
4/12	2.5	0	0	0	0	0	1	2	0	0	0	0	0	0	1	0	0	0	4
4/14	6.5	0	0	0	0	7	3	1	0	0	0	0	0	0	32	3	0	0	46
4/15	2.5	0	0	1	1	1	1	0	0	0	0	0	0	0	22	2	0	0	28
4/16	5.5	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	1	4
4/19	8.3	0	0	0	0	5	21	1	0	0	0	0	0	0	62	7	2	1	99
4/22	5.3	0	0	0	0	0	2	0	0	0	0	0	0	0	23	1	0	0	26
4/23	7	0	0	0	0	4	86	0	0	0	0	0	0	0	27	10	0	1	128
4/25	4	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	3
4/29	2	0	0	0	0	0	2	0	0	0	0	0	0	0	2	2	0	0	6
4/30	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/1	2.3	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	3
5/2	9	0	0	0	0	0	26	2	0	0	0	0	0	0	104	34	0	2	168
5/3	4.8	0	0	0	0	3	19	0	0	0	0	0	0	0	20	1	0	3	46
5/4	5.5	0	0	0	0	1	18	1	0	0	0	0	0	0	22	6	0	0	48
5/5	6.5	0	0	0	0	1	20	0	0	0	0	0	0	0	36	4	0	0	61
5/8	6.8	0	0	0	0	1	6	0	0	0	0	0	0	0	12	4	0	0	23
5/10	3.3	0	0	0	0	2	3	0	0	0	0	0	0	0	2	1	0	0	8
5/12	4.3	0	0	0	0	2	0	0	0	0	0	0	0	0	2	3	0	1	8
5/13	5	0	0	0	0	0	3	0	0	0	0	0	0	0	10	2	0	1	16
5/14	6.3	0	0	0	0	0	16	0	0	0	0	0	0	0	14	6	0	3	39
5/17	4	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
TOT	157	0	44	8	13	60	232	13	0	0	0	0	0	0	603	109	2	18	1102
14YrAv	137	0	58	36	4	108	135	16	0	0	1	7	1	0	521	67	8	15	977

BARRE FALLS, BARRE, MA

Donna Schilling, Jim Emerton

2020	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOT
4/29	5	0	0	2	2	0	4	0	0	0	35	2	0	0	0	0	0	0	45
5/3	3.5	0	0	1	0	0	1	0	0	0	16	0	0	0	0	0	0	0	18
TOT	8.5	0	0	3	2	0	5	0	0	0	51	2	0	0	0	0	0	0	63
19YrAv	107	0	48	82	15	11	98	12	1	12	544	75	0	0	38	4	1	12	952

HEAD OF THE MEADOW BEACH, NORTH TRURO, MA

Donald Manchester, Maryellen Stone

2020	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOT
4/6	3	0	31	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	33
4/7	5	0	63	0	0	2	0	0	0	0	0	3	0	0	1	0	0	0	69
4/11	3	0	4	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	6
4/12	4	0	25	1	0	1	2	2	0	0	0	0	0	0	1	0	0	0	32
4/14	5	0	15	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	17
4/19	3	0	2	0	1	0	1	1	0	0	1	1	0	0	0	0	0	0	7
4/21	3	0	5	1	0	0	1	1	0	0	0	1	0	0	1	0	0	0	10
4/23	7	0	36	5	1	2	6	1	0	0	0	2	0	0	14	2	0	4	73
4/25	6	0	19	1	0	1	3	0	0	0	0	6	0	0	2	0	0	1	33
4/29	3	0	4	2	0	0	0	0	0	0	0	0	0	0	2	1	0	0	9
5/2	7	0	20	5	0	1	11	1	0	0	1	0	0	0	12	3	0	2	56
5/3	5	2	21	20	0	4	43	19	0	0	0	3	0	0	36	2	0	0	150
5/4	4	0	11	4	0	1	1	1	0	0	0	0	0	0	0	2	0	0	20
5/5	7	0	23	8	1	1	14	1	0	0	1	2	0	0	5	1	0	3	60
5/6	5	0	23	7	0	1	9	4	0	0	0	5	0	0	0	2	0	1	52
5/7	6	0	33	3	0	2	4	0	0	0	1	1	0	0	0	1	0	3	48
5/8	6	2	12	15	0	0	3	1	0	0	2	1	0	0	0	3	0	1	40
5/10	6	0	18	8	1	0	2	0	0	0	2	4	0	0	2	2	0	6	45
5/11	5	0	15	6	6	1	7	2	0	0	0	4	0	0	3	1	3	4	52
5/13	3	0	9	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
5/14	6	2	42	4	2	1	9	0	0	0	2	0	0	0	3	1	0	1	67
5/15	6	1	15	16	1	1	6	3	0	0	2	7	0	0	0	1	1	3	57
5/17	6	0	44	6	0	0	4	1	0	0	3	1	0	0	1	1	0	0	61
5/21	6	0	34	15	3	0	4	0	0	0	9	5	0	0	0	1	1	0	72
5/22	3	0	18	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	23
5/27	3	0	7	15	0	0	0	0	0	0	0	1	0	0	0	0	0	0	23
5/28	5	0	14	12	0	0	2	1	0	0	18	1	0	0	0	0	0	0	48
5/30	3	0	12	5	1	0	1	0	0	0	0	2	0	0	0	0	0	0	21
5/31	2	0	3	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	6
6/2	3	0	19	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	22
6/3	5	0	8	4	0	0	0	0	0	0	3	3	0	0	0	1	0	0	19
6/4	2	0	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
6/8	6	0	25	4	0	0	0	2	0	1	14	0	0	0	0	0	0	0	47
6/9	3	0	17	1	1	0	0	0	0	0	3	1	0	0	0	0	0	0	23
6/13	5	0	14	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	18
6/14	1	0	4	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	6
6/16	5	0	21	1	0	0	0	1	0	0	3	0	0	0	0	0	0	2	28
6/17	3	0	11	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
6/18	4	0	11	1	0	0	0	0	0	0	8	1	0	0	0	0	0	0	21
6/19	4	0	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
6/20	3	0	7	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	10
6/25	2	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
TOT	182	7	731	186	20	19	139	42	0	2	77	59	0	0	84	25	5	31	1428

*1 Mississippi Kite on 6/8

POQUONOCK, POQUONOCK, CT

Joseph Wojtanowski

2020	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOT
3/4	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
3/8	2	2	0	0	2	0	0	0	0	0	0	3	0	0	0	0	0	0	7
3/9	3.1	0	2	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	5
3/10	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
3/11	2.7	0	1	0	0	0	0	0	0	2	0	5	0	0	0	0	0	0	8
3/13	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
3/18	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
3/21	1	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
3/22	4.5	0	4	0	0	0	2	1	0	0	0	2	0	0	0	0	0	0	9
3/26	5.5	0	9	0	3	0	0	0	0	2	0	3	0	0	0	0	0	0	17
3/31	5.1	0	4	0	0	0	0	0	0	0	0	4	0	0	0	1	0	0	9
4/1	1	0	2	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	4
4/2	3.8	0	12	0	2	1	1	0	0	0	0	0	0	0	0	0	0	0	16
4/4	6.2	0	16	2	0	0	0	0	0	0	0	8	0	0	0	0	0	0	26
4/5	2.5	2	4	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	8
4/6	5.5	0	1	4	1	2	0	0	0	0	0	0	0	0	0	1	0	0	9
4/7	5.6	0	1	1	0	0	1	2	0	3	0	1	0	0	2	0	0	0	11
4/8	2.3	0	0	2	0	1	1	0	0	0	0	0	0	0	2	0	0	0	6
4/9	1.3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
4/10	7	0	5	2	1	0	1	1	0	0	6	0	0	0	3	1	0	0	20
4/11	4.7	0	1	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	4
4/12	6.7	0	1	2	0	1	2	0	0	0	4	0	0	0	0	0	0	0	10
4/14	7.2	0	2	2	0	1	1	2	0	0	8	1	0	0	0	0	0	0	17
4/15	6.3	0	0	0	3	0	0	0	0	1	9	0	0	0	0	0	0	0	13
4/16	3.8	0	0	1	0	0	0	0	0	0	4	0	0	0	3	0	0	1	9
4/17	6.3	0	0	0	0	0	0	0	0	0	9	0	0	0	1	0	0	0	10
4/18	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
4/19	5.5	0	1	4	0	0	0	0	0	0	1	0	0	0	0	1	1	0	8
4/20	1.4	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	3
4/22	4.9	0	2	2	0	0	0	0	0	0	17	1	0	0	0	0	0	1	23
4/23	4.7	0	0	3	0	0	0	0	0	0	5	0	0	0	0	0	0	1	9
4/24	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4/28	4.2	0	0	2	0	0	0	0	0	0	3	0	0	0	1	0	0	1	7
4/29	2.8	0	0	1	0	0	0	0	0	0	2	1	0	0	2	0	0	0	6
5/1	1.4	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	4
5/2	4.2	0	0	1	0	0	2	0	0	0	14	2	0	0	4	0	0	1	24
5/3	4.5	0	0	0	0	0	0	0	0	0	16	1	0	0	0	1	0	0	18
5/4	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5/5	3.5	0	0	0	3	0	0	0	0	0	0	0	0	0	2	0	0	0	6
5/6	0.9	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
TOT	139	4	78	34	17	7	11	6	0	9	102	39	0	0	23	5	1	6	343
6YrAv	102	7	58	22	10	4	22	9	0	9	139	37	0	0	10	2	1	6	337.3

HOOK MOUNTAIN, ROCKLAND LAKE, NY

Ajit Antony, Liza Antony, Steve Sachs, others

2020	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOT
4/19	7.8	0	0	7	1	3	20	10	0	2	122	1	0	0	10	3	0	0	179
4/20	6	0	0	2	0	1	5	5	0	0	53	0	0	0	2	0	0	0	68
4/22	8.3	0	0	11	0	2	5	1	0	0	379	0	0	0	0	0	0	0	398
4/23	5.5	0	0	3	0	0	0	2	0	0	664	0	0	0	0	0	0	0	669
4/25	5	0	0	5	0	0	9	0	0	0	110	1	0	0	0	2	0	0	127
4/27	3.5	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
4/28	8	0	0	12	0	0	7	14	0	0	189	0	0	0	3	8	0	0	233
5/2	6.3	0	0	6	0	0	10	4	0	0	174	0	0	0	0	0	0	0	194
5/3	5	0	0	7	14	0	17	7	0	0	54	1	0	0	0	0	0	0	100
5/4	3	0	0	0	0	0	2	0	0	0	4	0	0	0	0	0	0	0	6
5/7	2.5	0	0	3	0	0	1	0	0	0	1	0	0	0	0	0	0	0	5
TOT	140	11	29	118	8	8	132	104	0	57	2048	15	0	0	40	18	6	1	2595
15YrAv	33	3	16	29	7	7	61	17	0	18	730	18	0	0	29	5	3	4	946

PURPLE CHICKADEE, RINGWOOD, NJ

Stephanie Seymour

2020	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOT
3/21	1.5	1	4	1	0	0	0	0	0	2	0	1	0	0	0	0	0	0	9
4/4	1.5	1	13	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	16
4/5	7	0	2	4	0	0	3	0	0	0	0	2	0	0	0	0	0	0	11
4/11	6.5	0	2	1	1	0	1	0	0	0	4	3	0	0	0	0	0	2	14
4/14	6	0	1	2	0	1	2	2	0	0	16	1	0	0	1	1	0	2	29
4/15	1.8	0	0	1	0	0	0	0	0	0	5	1	0	0	0	0	0	0	7
4/17	5.5	0	2	3	3	0	4	0	0	0	26	1	0	0	0	3	0	1	43
4/19	6.8	0	4	5	4	0	4	1	0	0	117	5	0	0	4	0	0	1	145
4/20	1	0	1	0	0	0	0	0	0	0	8	1	0	0	1	0	0	0	11
4/21	1	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	4
4/22	7.3	0	2	5	1	0	3	2	0	0	58	4	0	0	1	0	0	2	78
4/23	5.5	2	4	1	0	1	9	2	0	0	259	1	0	0	0	0	1	6	286
4/25	9	0	3	3	2	0	10	3	0	0	43	3	0	0	2	1	0	2	72
4/28	8.5	1	7	6	2	0	11	6	0	0	126	4	0	0	5	0	0	6	174
5/1	0.5	2	1	1	2	0	5	2	0	0	11	1	0	0	1	0	0	0	26
5/2	8.5	2	3	5	2	0	4	1	0	0	76	3	0	0	3	1	0	4	104
5/4	3.3	0	4	1	1	0	1	0	0	0	4	1	0	0	0	0	0	3	15
5/5	8.8	1	3	0	2	0	4	2	0	0	12	0	0	0	0	0	0	0	24
5/6	1	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	5
5/7	1.5	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	3
5/8	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5/9	12	1	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	4
TOT	105	11	58	39	21	2	61	21	0	3	777	32	0	0	18	7	1	30	1081
2YrAv	20	93	9	57	27	17	1	40	24	0	7	639	26	0	0	10	4	2	22

WILDCAT RIDGE, HIBERNIA, NJ

Frank Budney, Mike Leone, Nora O'Rourke, others

2020	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOT
2/15	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/24	4	0	0	0	1	0	1	0	0	0	0	2	0	0	0	0	0	0	4
2/29	3.5	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	2
3/2	4.5	3	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	5
3/7	4.5	0	0	0	3	0	0	0	0	0	0	2	0	0	0	0	0	1	6
3/9	5	5	0	0	0	0	1	0	0	0	0	4	0	0	0	0	0	1	11
3/14	5	3	0	0	0	0	0	2	0	0	0	3	0	0	0	0	0	1	9
3/16	4	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	1	5
3/26	7	1	0	0	1	0	0	1	0	0	0	3	0	0	0	0	1	1	8
3/30	4.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/1	2.3	0	0	1	0	0	2	1	0	0	0	2	0	1	0	0	0	0	7
4/2	6	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	2
4/4	1.5	0	0	1	0	0	1	0	0	0	5	1	0	0	0	0	0	0	8
4/6	6	0	0	1	0	0	1	0	0	0	0	4	0	0	0	0	0	0	6
4/10	4.5	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	3
4/12	2.3	0	0	2	0	0	3	2	0	0	3	3	0	0	0	0	0	0	13
4/14	6.8	1	0	0	0	0	0	0	0	0	6	8	0	0	0	0	0	0	15
4/16	4.5	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
4/20	6.5	0	0	0	0	0	1	1	0	0	0	3	0	0	0	0	0	0	5
4/22	6	0	0	0	3	0	2	0	0	0	15	2	0	0	0	0	0	1	23
4/25	5.5	0	0	5	2	0	7	5	0	1	96	2	0	0	3	0	1	1	122
4/28	6	1	0	1	0	0	0	0	0	0	4	2	0	0	0	0	0	1	9
5/2	6.5	0	0	1	1	0	2	0	0	0	2	6	0	0	0	0	0	0	12
5/4	4.5	2	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	1	7
5/7	4.5	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	3
5/12	6	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	3
5/15	1.5	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
TOT	126	17	0	13	12	0	23	15	0	1	133	61	0	0	1	3	1	11	291
19YrAv	178	9	13	35	8	5	82	21	0	9	369	55	0	0	21	1	1	11	641

MONTCLAIR, NJ

Caleb Hinojos, Evan Cutler, Alex Bernzweig

2020	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOT
3/16	8	0	9	0	0	0	2	1	0	0	0	2	0	0	0	0	0	0	14
3/17	8	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3
3/18	8	0	11	0	0	0	2	0	0	0	0	6	0	0	0	0	0	0	19
3/20	8	0	1	3	0	0	0	0	0	0	0	1	0	0	1	0	0	0	6
3/21	7	0	29	3	1	0	0	1	0	0	0	1	0	0	0	0	0	0	35
3/22	8	2	21	2	0	0	0	2	0	2	0	5	0	0	0	0	0	0	34
3/24	8	1	3	1	2	0	1	2	0	1	0	0	0	0	0	0	0	0	11

MONTCLAIR, NJ

Caleb Hinojos, Evan Cutler, Alex Bernzweig

2020	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOT
3/25	8	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	4
3/26	8	0	6	0	1	1	4	1	0	0	0	2	0	0	0	0	0	0	15
3/27	8	0	8	0	0	0	2	1	0	1	0	1	0	0	1	0	1	1	16
3/28	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/30	8	0	1	3	1	0	4	0	0	0	0	0	0	0	0	0	0	0	9
3/31	8	0	3	7	2	0	1	0	0	0	0	1	0	0	0	0	0	0	14
4/1	8	6	29	23	2	0	7	3	0	1	0	5	0	0	11	0	0	3	90
4/2	8	0	21	5	3	0	9	3	0	6	1	0	0	0	12	1	1	0	62
4/3	7	4	6	2	0	0	5	1	0	2	1	1	0	0	1	0	0	0	23
4/4	3	0	35	4	0	0	2	1	0	1	0	1	0	0	1	0	1	0	46
4/5	5	0	15	0	0	0	1	0	0	4	0	5	0	0	1	0	0	0	26
4/6	8	0	16	3	1	0	4	0	0	1	1	3	0	0	3	1	0	0	33
4/7	8	2	15	2	1	1	3	0	0	1	1	5	0	0	1	0	0	0	32
4/8	8	3	1	4	1	0	1	0	0	1	1	1	0	0	13	0	0	0	26
4/9	5.3	0	8	4	0	2	2	0	0	2	1	2	0	0	1	0	0	0	22
4/10	8.2	1	5	13	1	1	4	0	0	0	37	5	0	0	4	1	0	0	72
4/14	8	1	6	0	0	1	3	0	0	1	3	0	0	0	0	0	0	0	15
4/15	8	1	9	2	0	0	2	0	0	0	9	3	0	0	1	0	0	0	27
4/16	8	0	2	8	3	1	4	0	0	0	55	4	0	0	2	1	0	0	80
4/17	8	0	0	0	0	0	1	1	0	0	15	0	0	0	0	0	0	0	17
4/19	4	0	6	2	1	0	3	3	0	0	27	0	0	0	0	0	0	0	42
4/20	8	3	2	2	0	0	1	0	0	0	7	3	0	0	2	0	0	0	20
4/21	8	0	1	0	0	1	3	1	0	0	18	1	0	0	1	1	0	0	27
4/22	8	0	2	6	2	0	4	0	0	0	312	0	0	0	1	0	0	0	327
4/23	8	0	0	0	2	0	3	0	0	0	404	0	0	0	1	0	0	0	410
4/24	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/27	8	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
4/28	8	2	4	7	0	0	2	2	0	0	39	1	0	0	2	0	0	0	61
4/29	8	0	0	2	2	0	3	0	0	0	4	0	0	0	3	4	2	0	20
4/30	8	0	1	3	0	0	2	1	0	0	7	1	0	0	1	0	0	1	17
5/1	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/4	8	0	2	6	0	0	1	2	0	0	3	1	0	0	2	1	0	0	19
5/5	8	1	0	0	1	0	2	0	0	0	2	1	0	0	0	0	0	0	6
5/6	8	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5/7	8	0	0	1	0	0	2	3	0	0	3	0	0	0	0	0	0	0	9
5/8	5	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
5/11	8	0	0	0	1	0	2	0	0	0	0	0	0	0	0	1	0	0	4
5/12	8	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3
5/13	8	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
5/14	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
5/15	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOT	356	27	278	121	35	8	94	29	0	24	951	63	0	0	68	11	6	6	1721
32YrAv	337	24	357	180	16	38	388	58	0	60	1481	127	0	0	248	24	5	34	3048

ALLEY CREEK, QUEENS, NY

Steve Walter

2020	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOT
4/16	3.5	0	3	2	1	0	2	0	0	0	0	0	0	0	0	0	0	0	8
4/17	4.5	0	3	4	3	0	1	1	0	0	0	0	0	0	0	1	0	0	13
4/19	7.5	0	9	3	5	2	1	2	0	0	0	1	0	0	0	0	2	0	25
4/20	5	0	9	5	0	0	0	1	0	0	0	0	0	0	0	2	0	0	17
4/21	2.5	0	0	3	1	0	1	0	0	0	0	0	0	0	0	0	2	0	7
4/22	3	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3
4/23	2	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3
4/25	6.5	0	5	3	2	0	3	0	0	0	0	0	0	0	0	1	0	0	14
4/28	4.5	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
5/3	4.5	0	3	0	4	0	4	1	0	0	0	0	0	0	0	2	0	1	15
5/4	3.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5/5	3	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	3
5/7	5	3	8	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	12
5/10	3	0	9	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	10
5/17	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
TOT	215	11	300	174	81	5	44	35	0	3	1	14	0	0	24	19	4	0	715
3YrAv	139	6	224	124	37	12	31	20	0	2	2	6	0	0	20	15	5	1	506

SCOTT'S MOUNTAIN, MCR HARMONY TWP. NJ

Paul Murray, Henry F. Kielblock, Paul Shanahan

2020	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOT
4/11	5	0	0	4	2	2	2	1	0	0	9	2	0	0	2	0	0	0	24
TOT	5	0	0	4	2	2	2	1	0	0	9	2	0	0	2	0	0	0	24
5YrAv	7	0	0	6	8	2	6	4	0	0	43	9	0	0	3	0	0	2	84

“ What a wonderful day.
Good action every hour until 3 PM.
Only 4 birds after 3, but they were an Osprey,
Broadwing, Merlin, and at ten of four, a
Northern Harrier. We had 12 species visit us
today. Earlier in the day we had our second
Golden Eagle, and an adult Northern Goshawk
spotted by Bob and seen well in the scope by
Eileen, for whom it was her first adult Gos.”

Eileen Page / Bob Claussen, Scott's Mountain,

9/30/2020

NEHW Spring Historical Summary Per 100 Hours: 1990-2020

YEAR	SITES	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	M	PF	UR	MK	SK	TOT
1991	21	1957	0.7	45	50	1.5	18	179	13	1.9	15	386	66	0.7	0.3	89	15	1.6	24	0.0	0.0	892
1992	21	1638	0.0	38	49	1.6	18	149	13	1.3	15	523	63	0.7	0.1	175	15	2.1	16	0.0	0.0	1080
1993	22	1780	0.0	48	57	1.7	19	182	22	0.9	20	342	59	0.1	0.3	146	17	1.4	8	0.0	0.0	980
1994	33	1564	2.5	69	46	1.5	18	173	29	1.1	15	321	48	0.4	0.2	133	14	1.2	14	0.0	0.0	904
1995	26	914	2.7	84	52	1.2	13	77	6	0.1	11	455	30	0.0	0.1	187	7	0.7	9	0.0	0.0	936
1996	20	1061	2.3	64	57	2.5	19	132	8	0.4	17	188	67	0.4	0.1	193	10	1.9	10	0.0	0.0	773
1997	25	1253	2.6	67	42	2.2	14	99	10	1.0	8	534	52	0.1	0.3	74	6	0.3	23	0.0	0.0	934
1998	21	1235	2.1	59	27	1.7	11	70	9	0.7	8	276	27	0.0	0.0	102	5	1.0	11	0.0	0.0	611
1999	8	1758	2.0	59	32	3.3	18	206	24	0.5	17	445	26	0.0	0.1	133	16	1.6	13	0.0	0.0	998
2000	14	1824	1.3	69	36	7.9	11	156	24	0.6	10	323	39	0.1	0.1	138	22	2.7	11	0.1	0.0	851
2001	10	1881	2.8	89	47	3.2	17	149	19	0.3	11	316	40	0.0	0.1	133	22	1.8	13	0.0	0.0	866
2002	9	1886	2.7	66	31	3.2	12	158	30	0.7	9	384	30	0.0	0.1	67	16	2.0	4	0.6	0.0	820
2003	7	2021	2.5	73	41	4.2	10	138	20	0.2	10	242	36	0.2	0.2	55	17	1.4	8	0.0	0.0	658
2004	8	1803	2.2	99	61	4.7	20	150	32	0.7	11	193	52	0.4	0.3	73	21	1.8	8	0.3	0.0	731
2005	7	1419	3.1	90	43	4.4	10	108	21	0.8	12	241	53	0.2	0.1	42	7	1.3	11	0.1	0.0	647
2006	8	1466	3.0	58	55	3.5	7	86	13	0.1	8	368	40	0.1	0.2	52	8	1.5	10	0.1	0.0	714
2007	12	1711	3.6	81	67	9.0	15	141	23	0.5	12	331	47	0.6	0.2	68	12	2.5	9	0.6	0.0	821
2008	11	2288	2.2	73	44	7.7	18	117	17	0.7	10	170	29	0.7	0.0	85	20	3.4	7	0.2	0.0	612
2009	9	2313	4.2	89	36	6.5	17	131	24	0.5	18	188	40	0.3	0.2	97	14	2.9	7	0.0	0.0	675
2010	14	2329	8.4	106	61	7.4	16	180	23	0.6	12	317	33	0.0	0.2	65	26	3.0	9	0.4	0.0	869
2011	13	2061	5.7	70	46	13.1	19	153	22	0.8	14	279	39	0.2	0.1	144	28	2.3	10	0.5	0.0	846
2012	11	2107	4.0	87	39	11.5	20	119	26	1.0	12	206	48	0.0	0.2	86	18	2.3	11	0.0	0.0	690
2013	11	1576	1.5	69	57	10.3	22	86	12	1.3	18	259	37	0.4	0.1	98	13	1.5	9	0.3	0.0	695
2014	8	1321	3.2	73	81	15.1	24	146	18	0.8	27	389	43	0.3	0.2	97	19	3.3	10	0.5	0.2	950
2015	11	1386	2.2	92	71	15.3	21	87	17	0.4	18	388	31	0.6	0.1	68	13	2.4	11	0.7	0.1	839
2016	11	1430	3.0	66	66	14.1	23	128	15	0.2	10	339	34	0.1	0.1	67	16	2.7	7	0.3	0.0	792
2017	10	1272	2.7	153	47	12.1	28	70	13	0.9	18	175	40	0.7	0.2	95	14	3.1	7	0.2	0.1	680
2018	13	1618	5.3	156	59	12.9	23	62	18	0.5	20	271	27	0.1	0.2	82	15	4.2	7	0.1	0.0	764
2019	16	1728	4.3	145	55	12.6	20	61	16	0.2	10	323	23	0.2	0.1	65	15	2.3	4	0.7	0.0	757
2020	13	2050	4.9	110	56	16.6	9	77	17	0.4	8	369	23	0.0	0.1	56	14	1.8	8	0.1	0.0	772
AVE	14.1	1688	2.9	82	50	7.1	17	126	18	0.7	14	318	41	0.3	0.2	99	15	2.1	10	0.2	0.0	805

2020 Fall Season

In Fall of 2020, hawk watchers counted hawks at 43 sites in the NorthEast from New Brunswick CA in the northeast to Warren County NJ in the southwest. Our watchers counted 180873 hawks during a total of 10405 hours. This effort is more than the 9834 hours in 2019 and the 9527 hours in 2018, above our 40 year average of 7104, and right on target with our 10 year average of 10489 hours. Our counters tallied 99 hawks/day, more than the 81 hawks/day in 2019 but fewer than our recent high in 2018 of 121 hawks/day. On balance, we have four more sites reporting in 2020 than in 2019. We lost Harpswell Peninsula in Maine with the passing of George N. Appell in May, 2020. He counted hawks at Harpswell since 1981, an amazing 39 years! In 2020, we added four new sites and one returning site. The four new sites include: Mt. Ascutney State Park in Windsor VT, Mount Holyoke Summit in Hadley MA, Apple Hill in Morris CT, and I-84 in Greenville NY. Our returning site is Johnnycake Mountain in Burlington CT.

The watch sites are organized into six regions, named for their southern-most latitudes. Region 44 includes sites north of latitude N 44, Region 43 north of latitude N 43, Region 42 north of latitude N 42, etc. Region CO is the southern Coastal Region. Region 44 has five sites, Region 43 has five sites, Region 42 has nine sites, Region 41 has 14 sites, and Region 40 has six sites. Region CO has four sites along the southern coastline, overlapping Regions 40 and 41. The summary table for Seasonal Totals is arranged by Region with the sites listed from north to south. For site descriptions, above average refers to 20% or more above their 10 year average, below average is 20% or more below, and average is within 20%.

Region 44

13% of hawks, 10% of XBV*, 26 hawks/hour, 155 hawks/day, 41 XBV/day, 9% of hours.

[*Note: XBV= Hawks without Broadwings and both vultures]

Region 44 includes Greenlaw Mountain in New Brunswick; Cooper, Cadillac Mountain, and Clarry Hill in Maine; and Mount Philo in Vermont. This region counted 13% of the hawks in the NorthEast, averaging 155 hawks/day and 26 hawks/hour, the highest of all the regions. The 41 XBV/day is about the same as in 2019.

Greenlaw Mountain enjoyed an above average year (6822), with record high counts for Bald Eagle (207) and Rough-legged Hawk (3). Roughleg had been previously recorded in only two of their 12 years. Their Goshawk count (20) was the highest in the NorthEast, and they had above average counts for Turkey Vulture (366) and Broad-winged Hawk (5036). Below average species include Sharp-shinned Hawk (464) and Merlin (29). All other species were average, including Golden Eagle (1). Cooper counted for the tenth year, documenting seven species. Turkey Vultures (17) were the most prevalent, and the 1st migrating Red-tailed Hawk in the ten years was counted. The absence of eagles is surprising, since there have been good numbers of eagles in all other years except one. **Cadillac Mountain** had an average year for Total Hawks, yet achieved above average counts for three species—Turkey Vulture (159), Bald Eagle (99), and Northern Goshawk (10). The Goshawk count was a flashback to a decade ago when double digit counts were the norm at this site. The only below average species was Red-tailed Hawk (38), with all other species at average. **Mt. Philo** counted for their third year, documenting 12 species for our most northwestern site. Even with fewer days and hours than 2019, there were almost four times the number of Turkey Vultures (163), for a new record. They averaged 36 hawks/hour. Similar to Cadillac Mountain, **Clarry Hill** had an average year for Total Hawks. Yet, in its 10th year of counting, it had seven record highs! These include Turkey Vulture (1414), Bald Eagle (590), Northern Harrier (174)

Northern Goshawk (8), Red-tailed Hawk (609), Rough-legged Hawk (14), and Golden Eagle (10). The Bald Eagle and Roughleg counts were also season highs for the NorthEast. Other above average species include Sharp-shinned Hawk (977), Red-shouldered Hawk (45), and American Kestrel (248). Only two species were below average: Merlin (22) and Osprey (194). The Osprey was a record low.

Region 43

6% of hawks, 4% of XBV, 108 hawks/day, 28 XBV/day, 15 hawks/hour, 7% hours

Region 43 includes Interlakes School, Concord School, and Carter Hill in New Hampshire; and Mt. Ascutney State Park and Putney Mt. in Vermont. This region counted 6% of the hawks of the NorthEast, averaging 108 hawks/day, substantially more hawks/day than 2019. The region also counted 4% of XBV, averaging 28 XBV/day which was higher than 2019, and 15 hawks/hour.

Interlakes School documented six species on their two days of counting, and had a Broadwing (895) count that is more than four times their average. That raised their Total Hawks (940) to more than four times average, as well. **Mt. Ascutney State Park**, now our third mountain watch site in Vermont, counted six species in their first year, dominated by Broad-winged Hawks and Sharpies. **Concord School** counted for seven hours and counted seven species. They set a new record high for Red-tailed Hawk (9), and counted their 2nd Peregrine Falcon. **Carter Hill** had a year of reduced coverage with 32 hours. This is 1/10th of their average, and resulted in proportionately below average counts. They counted 12 species, with Broadwing (437) and Sharpie (38) the most abundant. Putney Mountain put in a record number of hours (592) for the 2nd year in a row, and counted 14 species, including remarkable eagle counts. They had a record high count for Bald Eagle (172), and three additional species above average: Golden Eagle (11), Red-shouldered Hawk (44), and Peregrine Falcon (40). Three species were below average: Osprey (103), Cooper's Hawk (72), and Northern Goshawk (15). All other species were at average.

Region 42

23% of hawks, 12% of XBV, 146 hawks/day, 16 XBV/day, 24 hawks/hour, 17% hours

Region 42 includes Pack Monadnock in New Hampshire, Helderberg in New York, and seven sites in Massachusetts—Mount Watatic, Wachusett Mountain, Pinnacle Rock, Barre Falls, Mount Holyoke, Shatterack Mountain, and Blueberry Hill. This region counted 23% of the hawks of the NorthEast, averaging 146 hawks/day, 12% of XBV, averaging 16 XBV/day, and 24 hawks/hour. These averages are substantially higher than the 93 hawks/day and 15 hawks/hour in 2019.

Pack Monadnock had three record high counts—Bald Eagle (185), Red-shouldered Hawk (223), and American Kestrel (257). They also had above average counts for Northern Harrier (108), Cooper's Hawk (180), and Merlin (143). Their Broadwing count (8815) was average, but nevertheless was the season high for the NorthEast. Their below average species include Osprey (162), Northern Goshawk (12), Golden Eagle (5), and Peregrine Falcon (30). **Mount Watatic** had a record high for Bald Eagles (103) and above average counts for a remarkable seven more species! These include Turkey Vulture (48), Osprey (74), Sharp-shinned Hawk (267), Cooper's Hawk (55), Broad-winged Hawk (5986), American Kestrel (82), and Peregrine Falcon (3). **Helderberg** had lower than average hours (68), yet achieved record high counts for two species and above average counts for nine others. The records were for Northern Harrier (12) and Red-tailed Hawk (154). The above average species include Black Vulture (50), Turkey Vulture (175), Bald Eagle (50), Sharpshins

(38), Cooper's Hawk (39), Broadwings (2383), American Kestrel (18), Merlin (7), and Peregrine Falcon (11). **Wachusett** counted both of the two Mississippi Kites seen this season. They increased coverage to record high days and hours. This resulted in record high counts for seven species: Black Vulture (14), Turkey Vulture (783), Cooper's Hawk (160), Red-shouldered Hawk (93), Red-tailed Hawk (199), and Merlin (61). There were also above average counts for five additional species: Bald Eagle (156), Northern Harrier (45), Sharp-shinned Hawk (427), Golden Eagle (3), and American Kestrel (226). The only below average count was Broad-winged Hawk (6955). **Pinnacle Rock** had about one third the average hours of effort this season. Nevertheless, they had a record high count for Peregrine Falcon (7) and above average counts for Osprey (51), Northern Harrier (10), and Cooper's Hawk (60).

Barre Falls once again had low coverage compared to the previous 20 years, so its counts for this season are below average, with one exception. Turkey Vulture (274) was well above average. They documented 12 species, the most prevalent being Broadwings (587) and Sharpies (153). **Mount Holyoke Summit** documented its first year with 11 species in 18 hours, and averaged 135 hawks/hour. They picked two good September days and

counted 2340 Broadwings. **Shatterack Mountain** had a record high count for Golden Eagle (5), and above average counts for three additional species: Turkey Vulture (256), Bald Eagle (40), and Red-shouldered Hawk (23). Four species had below average counts: Northern Harrier (10), Sharp-shinned Hawk (210), American Kestrel (25), and Peregrine Falcon (5). The Kestrel count was the lowest in the last ten years. **Blueberry Hill** improved coverage compared to the last few years, but is still below the long term average. Nevertheless, 15 species were counted, including Northern Goshawk (4) and Golden Eagle (1), and three species were above average: Bald Eagle (46), Red-shouldered Hawk (48), and Merlin (25). Broad-winged Hawks (2456) were at average, but all other hawks were below average.

Region 41

32% of hawks, 30% of XBV, 85 hawks/day, 28 XBV/day, 16 hawks/hour, 34% hours

Region 41 has 14 sites, seven in Connecticut, six in New York, and one in New Jersey. The Connecticut sites include Poquonock, Middle School, Johnnycake, Chestnut Hill, Apple Hill, Botsford Hill, and Quaker Ridge.

NorthEast Fall 2020 Seasonal Totals

Reg	Site	Days	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	Other	Total	XBV
44	Greenlaw Mt NB	42	285	0	366	138	207	78	464	12	20	3	5035	216	3	1	136	29	25	89	0	6822	1421
	Cooper ME	14	51	0	17	0	0	1	0	1	0	0	6	1	0	0	3	1	0	0	0	30	7
	Cadillac Mt ME	56	257	0	159	123	99	85	758	19	10	1	1039	38	0	0	468	56	24	94	0	2973	1775
	Mt. Philo SP VT	7	37	0	163	7	60	6	25	6	0	1	982	10	0	0	37	4	5	14	0	1320	175
	Clarry Hill ME	36	303	0	1414	194	590	174	977	48	8	45	8414	609	14	10	248	22	24	55	0	12846	3018
43	Interlakes School NH	2	9	0	18	4	5	0	15	0	0	0	895	0	0	0	0	0	2	1	0	940	27
	Mt. Ascutney SP VT	17	48	0	3	0	8	0	12	0	0	0	72	4	0	0	0	0	3	7	0	109	34
	Concord School NH	3	7	0	17	1	1	0	5	0	0	0	51	9	0	0	0	0	1	33	0	118	50
	Carter Hill NH	6	32	0	20	8	15	4	38	6	0	6	437	5	0	0	10	2	1	0	0	552	95
	Putney Mt VT	70	592	0	327	103	172	70	1255	72	15	44	5958	552	0	11	187	51	40	0	0	8857	2572
42	Pack Monadnock NH	74	558	0	172	162	185	108	1325	180	12	223	8815	293	0	5	257	143	30	122	0	12032	3045
	Mount Watatic MA	18	125	0	48	74	103	8	267	55	0	5	5986	16	0	0	82	13	3	23	0	6683	649
	Helderberg NY	11	68	50	175	8	50	12	38	39	0	0	2383	154	0	0	18	7	11	107	0	3052	444
	Wachusett Mt MA	73	433	14	783	129	156	45	427	160	0	93	6955	199	3	3	226	61	27	168	2MK	9451	1699
	Pinnacle Rock MA	12	32	0	4	51	5	10	117	60	0	2	0	8	0	0	4	4	7	16	0	288	284
	Barre Falls MA	33	181	0	274	24	42	6	153	38	0	5	587	59	0	0	26	13	3	33	0	1263	402
	Mount Holyoke MA	2	18	0	23	3	5	1	22	5	0	1	2340	15	0	0	7	7	0	2	0	2431	68
	Shatterack Mt MA	30	161	0	256	17	40	10	210	41	0	23	2966	82	0	5	25	10	5	14	0	3704	482
	Blueberry Hill, MA	36	182	1	127	22	46	21	173	38	4	48	2456	111	0	1	108	25	2	17	0	3200	616
41	Poquonock CT	64	203	13	73	17	17	5	13	8	0	6	616	29	0	2	6	5	2	5	0	817	115
	Middle School CT	15	45	0	0	4	3	0	4	5	0	2	588	0	0	0	3	0	0	5	0	614	26
	Johnnycake CT	15	63	3	0	18	37	1	22	16	0	4	328	0	0	1	25	0	1	22	0	478	147
	Mohonk NY	30	176	33	317	54	97	47	320	67	0	26	2846	91	0	1	116	21	6	10	0	4052	856
	Chestnut Hill CT	16	47	0	0	12	20	1	28	11	0	0	2639	0	0	0	9	3	0	3	0	2726	87
	Apple Hill CT	84	217	9	20	52	26	15	93	30	0	17	328	26	0	0	38	13	5	9	0	681	324
	Botsford Hill CT	15	46	0	0	7	14	2	24	3	0	0	865	0	0	0	11	0	1	2	0	929	64
	I-84 NY	26	127	6	74	5	207	18	203	49	0	21	120	484	0	9	23	5	3	2	0	1229	1029
	Bear Mountain NY	37	158	0	63	35	71	7	150	36	0	13	442	51	1	3	44	8	8	10	0	942	437
	Mount Peter NY	70	453	109	850	121	177	42	1048	85	0	149	3864	465	0	1	121	20	13	30	0	7095	2272
	Chestnut Ridge NY	87	640	41	3423	248	233	138	2123	473	0	802	3140	207	0	14	368	90	37	124	1SE	11462	4858
	Hook Mountain NY	82	515	201	972	302	291	124	1357	223	1	390	4590	271	0	8	370	66	27	15	1SE	9209	3446
	Quaker Ridge CT	93	641	39	2167	238	215	95	1771	312	1	602	6912	255	0	6	447	69	21	37	0	13187	4069
	Purple Chickadee NJ	46	246.8	27	304	27	59	17	408	176	0	67	2937	107	0	1	89	24	15	80	0	4338	1070
40	State Line NJ	80	430	41	1780	278	190	66	897	267	1	355	1295	519	1	1	318	60	63	4	0	6136	3020
	Lenoir Wildlife NY	46	176	119	419	163	118	4	136	38	1	70	375	135	0	1	52	7	18	2	0	1658	745
	Wildcat Ridge NJ	48	235	50	206	21	50	7	118	132	1	8	1499	72	0	2	27	5	5	28	0	2231	476
	Montclair NJ	83	569	193	2241	155	153	53	565	353	1	287	848	285	0	0	180	150	47	23	0	5534	2252
	Scott's Mountain NJ	90	592	0	0	196	255	92	1579	229	8	394	4893	749	1	28	191	63	47	133	0	8858	3965
	Washington Val NJ	48	233	0	70	116	178	40	863	142	0	210	5132	158	0	1	565	113	26	1	0	7615	2413
CO	Lighthouse Pt CT	97	634	43	524	932	229	255	2321	1127	0	209	190	321	0	2	963	275	139	388	0	7918	7161
	Boothe Memorial CT	10	35	10	36	188	65	4	213	36	0	10	359	16	0	1	123	5	9	9	0	1084	679
	Fire Island NY	77	416	0	0	685	14	182	166	44	1	1	0	4	0	0	1155	1099	147	9	0	3507	3507
	Fort Tilden NY	20	134	0	4	454	16	95	261	53	0	11	7	14	0	0	728	230	29	0	0	1902	1891
	Totals	1821	10405	1002	17909	5396	4524	1949	20964	4695	84	4154	100190	6640	23	118	7814	2779	882	1746	2,2*	180873	61772

*2 Mississippi Kites, 2 Short-eared Owls; BV Black Vulture, TV Turkey Vulture, OS Osprey, BE Bald Eagle, NH Northern Harrier, SS Sharp-shinned Hawk, CH Cooper's Hawk, NG Northern Goshawk, RS Red-shouldered Hawk, BW Broad-winged Hawk, RT Red-tailed Hawk, RL Rough-legged Hawk, GE Golden Eagle, AK American Kestrel, ML Merlin, PG Peregrine Falcon, UR Unidentified Raptor, XBWV Total without Broad-winged Hawks and Vultures

The New York sites include Mohonk, I-84, Bear Mountain, Mount Peter, Chestnut Ridge, and Hook Mountain. The single New Jersey site is Purple Chickadee. This region counted about the same percentage of hawks as the last two years, 32% of the hawks of the NorthEast and 30% of XBV. The percentage of total hawks is the largest for the Northeast, consistent with the number of sites reporting. With our overall count higher than last year but lower than 2018, the 2020 averages fall between those counts: 85 hawks/day is higher than the 83 in 2019 and lower than the 130 in 2019; 28 XBV/day is higher than the 23 in 2019 and lower than the 41 in 2018; and 16 hawks/hour is higher than the 14 in 2019 and lower than the 22 in 2018.

Poquonock had more hours of effort (203) than in recent years, surpassed only by 2008 (348 hr) and 2009 (900 hr). Note here that the 900 hours of coverage in 2009 is the highest in our records for the NorthEast for all sites, current and historic! What an extraordinary effort by Joseph Wojtanowski! Reflecting that effort, 2009 still holds most of the records for the site. This season, there were 14 species of hawks counted, including two Golden Eagles. Three species had above average counts—Black Vulture (13), Turkey Vulture (73), and Broad-winged Hawk (616). The vulture counts were the 2nd highest, surpassed by the count in 2009. **Middle School** increased coverage over 2019, but still had lower than average hours (45). They counted seven species, and their Broadwings (588) and Total Hawks (614) doubled the 2019 count. Notably, they counted two Red-shouldered Hawks, which was missed in five of the last 10 years. **Johnnycake** returned, after a hiatus for 2019, with above average coverage this season. They counted 11 species, including a Golden Eagle, which has been seen at the site in only seven of their 30 years. They had above average counts for three species: Bald Eagle (37), Cooper's Hawk (16), and Red-shouldered Hawk (4). **Mohonk** has sustained above average coverage for the last six years, and this season's results are remarkable—above average counts for 10 of the 14 species documented, and they had a record high count for Black Vulture (33)! Their one Golden Eagle and six Peregrine Falcons were the only below average species. Sharpshins (320) and Redtails (91) were at average. All others fall into the above average category, including three which were more than double average: Turkey Vulture (317), Northern Harrier (47), and American Kestrel (116). **Chestnut Hill** had below average hours (47), resulting in below average counts for five of the eight species counted. There were two above average counts—Cooper's Hawk (11) and Merlin (3), and one at average count—Bald Eagle (20).

Apple Hill got off to a good start, with 84 days and 217 hours of coverage. They counted 13 species, with Broadwings (328), Sharpies (93), and Osprey (52) leading the list. **Botsford Hill** had below average hours (46) of coverage, which resulted in below average counts for most species. They counted eight species. Two species were just about average, Bald Eagle (14) and American Kestrel (11). Their most prevalent species, Broad-winged Hawk (865) and Sharp-shinned Hawk (24) were both 70% below average. **I-84** had ten times the coverage of previous years, so 2020 is a year in which almost all species reached a record high count. The only species that has a high count from a previous year is Black Vulture (6). There were 14 species, including nine Golden Eagles. The most prevalent species were Red-tailed Hawk (484), Bald Eagle (207), and Sharp-shinned Hawk (203). **Bear Mountain** had record low coverage this season, mostly due to COVID-19 closure/access. This resulted in most species having below average counts. However, two species did have above average counts—Turkey Vulture (63) and American Kestrel (44). Furthermore, they counted a Rough-legged Hawk (Nov 10). This was the third Roughleg counted at this site since 1997, with the other two both seen in 2014. **Mount Peter** had two site records this season: Turkey Vulture (850) and Bald Eagle (177). They counted one Golden Eagle, and had average counts for Black Vulture (109), Osprey (121), Northern Harrier (42), Sharp-shinned Hawk (1048),

Red-shouldered Hawk (149), Red-tailed Hawk (465), American Kestrel (121), and Merlin (20). Other species had below average counts, with the most notable being Broad-winged Hawk (3864). This was the first year since 2009 with fewer than 5000 Broadwings.

Chestnut Ridge had two of the highest counts in the NorthEast—Turkey Vulture (3423) and Red-shouldered Hawk (802). The Red-shouldered was a site record, along with Bald Eagle (233). They also recorded one of the two Short-eared Owls of the season, and 14 Golden Eagles. Other above average species include Northern Harrier (138), Cooper's Hawk (473), Merlin (90), and Peregrine Falcon (37). **Hook Mountain** had the highest count in the NorthEast for Black Vulture (201), and the 2nd of the two Short-eared Owls of the season. The Black Vulture is also a site record, along with two other species, Turkey Vulture (972) and Bald Eagle (291). Golden Eagle (8) was above average, as were Northern Harrier (124), Red-shouldered Hawk (390), Red-tailed Hawk (271), and American Kestrel (370). Broad-winged Hawk (4590) was at average, along with Osprey (302), Cooper's Hawk (223), and Merlin (66). All other species were below average, including Northern Goshawk (1). **Quaker Ridge** had the highest NorthEast count for hours of coverage (641) and Total Hawks (13187). They had a site record for Turkey Vulture (2167), and counted six Golden Eagles and one Northern Goshawk. They had average counts for Black Vulture (39), Bald Eagle (215), Red-shouldered Hawk (602) Red-tailed Hawk (255), and American Kestrel (447). All other species were below average, with Osprey (238) and Sharpie (1771) at only half of average. **Purple Chickadee** increased coverage by 75% this season. That resulted in record highs for all species, except Golden Eagle (1) and Goshawk (0). Each record high was at least double the average of the previous three years. They documented 14 species, mostly Broadwings (2937) and Sharpies (408).

Region 40

18% of hawks, 21% of XBV, 81 hawks/day, 33 XBV/day, 14 hawks/hour, 21% hours

Region 40 has one site in New York, Lenoir Wildlife Sanctuary, and five sites in New Jersey—State Line, Wildcat Ridge, Montclair, Scott's Mountain, and Washington Valley. This region counted 18% of the hawks of the NorthEast, averaging 81 hawks/day, and 21% of XBV, averaging 33 XBV/day, and 14 hawks/hour. These averages are somewhat higher than in 2019, but still substantially lower than the 142 hawks/day and 23 hawks/hour counted in 2018.

State Line counted 16 species of hawks, including Northern Goshawk (1), Golden Eagle (1), and Rough-legged Hawk (1, Oct 27). The Roughleg was their second since 2005, with the first counted in 2016. There were three above average species: Bald Eagle (190), Red-shouldered Hawk (355), and Red-tailed Hawk (519). Species at average include Turkey Vulture (1780), Northern Harrier (66), Cooper's Hawk (267), American Kestrel (318), Merlin (60), and Peregrine Falcon (63). All other species were below average. **Lenoir** increased coverage by about 50% resulting in two new record high counts, for Black Vulture (116) and Bald Eagle (118). Other above average species include Osprey (163), Red-shouldered Hawk (70), Red-tailed Hawk (135), and Peregrine Falcon (18). They also had both Northern Goshawk (1) and Golden Eagle (1). Species at average include Cooper's Hawk (38) and American Kestrel (52). All other species were below average, including Broad-winged Hawk (375). **Wildcat Ridge** had close to average coverage, yet experienced two record low counts, for Osprey (21) and Sharp-shinned Hawk (118). They had above average counts for Black Vulture (50), Turkey Vulture (206), Cooper's Hawk (132), and Red-tailed Hawk (72). Species with average counts include Bald Eagle (50), Northern Goshawk (1), Golden Eagle (2), and Peregrine Falcon (5). All other species were below average.

Montclair had above average counts for five species: Black Vulture (193), Turkey Vulture (2241), Cooper's Hawk (353), Red-tailed Hawk (285), and Merlin (150). They counted one Northern Goshawk, along with four species with average counts: Bald Eagle (153), Northern Harrier (53), Red-shouldered Hawk (287), and Peregrine Falcon (47). All other species had counts below average. Unfortunately, there was a record low count for Broad-winged Hawk (848). **Scott's Mountain** had the highest NorthEast count for two species, Red-tailed Hawk (749) and Golden Eagle (28). The Golden count was a site record, along with Red-shouldered Hawk (394). Rough-legged Hawk (1, Nov 16) was counted for the 10th year since 2002. Species with average counts include Northern Goshawk (8), Osprey (196), Bald Eagle (255), Northern Harrier (92), Sharp-shinned Hawk (1579), Cooper's Hawk (229), American Kestrel (191), Merlin (63), and Peregrine Falcon (47). **Washington Valley**, in their 4th year at the new location, had record high effort, resulting in record high counts for seven species and for Total Hawks (7615). The species with record highs are Osprey (116), Bald Eagle (178), Broad-winged Hawk (5132), Red-tailed Hawk (158), American Kestrel (565), Merlin (113), and Peregrine Falcon (26). Two additional species with above average counts include Northern Harrier (40) and Sharp-shinned Hawk (863). Species with average counts include Cooper's Hawk (142) and Red-shouldered Hawk (210). Golden Eagle (1) was below average.

Region CO

8% of hawks, 21% of XBW, 71 hawks/day, 65 XBW/day, 12 hawks/hour, 12% hours

Region CO includes four coastal sites, Lighthouse Point and Boothe Memorial in Connecticut, and Fire Island and Fort Tilden in New York. These four sites counted 8% of the hawks of the NorthEast, averaging 71 hawks/day, and 21% of XBW, averaging 65 XBW/day, and 12 hawks/hour.

While the percentage noted has not changed much for the last three years, the hawks/day and hawks/hour have. As with the other Regions, these are higher than in 2019 but are still substantially below the averages of 2018.

Lighthouse Point had a number of high counts for the NorthEast: the highest days (97), the highest counts for four species, and the highest Total without Broadwings or Vultures (7161 XBWV). These high count species include Osprey (932), Northern Harrier (255), Sharp-shinned Hawk (2321), and Cooper's Hawk (1127). None of these were above average for the site, and two—Harrier and Sharpie—were below average. Black Vulture (43) was the only above average species, and it was a site record. Other species with average counts include Bald Eagle (229), Red-shouldered Hawk (209), American Kestrel (963), Merlin (275), and Peregrine Falcon (139). Golden Eagle (2) was below average. **Boothe Memorial** increased their coverage to half of the 10 year average. This resulted in counts that are all higher than in 2019. They documented 14 species, including one Golden Eagle. The most prevalent species included Broad-winged Hawks (359), Sharp-shinned Hawks (213) and American Kestrel (123). **Fire Island** had the highest counts in the NorthEast for all three falcon species—American Kestrel (1155), Merlin (1099) and Peregrine Falcon (147). The Kestrels were above the 10 year average for the site, and Merlins and Peregrines were at average. There was one record high count this season—Bald Eagle (14). Above average species include Osprey (685), Northern Goshawk (1), and Red-tailed Hawk (4). Species at average included Northern Harrier (182) and Cooper's Hawk (44). The only below average species was Sharp-shinned Hawk (166). **Fort Tilden**, in its 3rd year, increased effort and had high counts, compared to the prior two years, for five species: Osprey (454), Bald Eagle (16), Red-shouldered Hawk (11), Red-tailed Hawk (14), and Peregrine Falcon (29). Northern Harrier (95) was above average, and American Kestrel (728) was at average. The other five species also counted this season include Turkey Vulture (4), Sharp-shinned Hawk (261), Cooper's Hawk (53), Broad-winged Hawk (7), and Merlin (230).

Recent Year Counts for Major Sites (with previous year averages and % change in 2020)

Greenlaw Mountain - St. Andrews, New Brunswick (ave for 2010-2019, % change in 2020)																				Region 44			
YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	M	PF	UR	TOT	XTOT	PH	XPH
2015	42	265	0	218	132	58	76	524	7	11	1	3791	106	0	1	158	35	24	83	5225	1216	20	4.6
2016	46	324	0	249	110	92	120	514	16	22	3	6990	211	1	2	147	34	11	87	8609	1370	27	4.2
2017	49	325	0	492	142	90	64	571	11	13	6	1989	151	0	2	166	34	30	102	3865	1384	12	4.3
2018	48	342	1	374	162	199	95	572	12	28	5	600	272	2	4	164	45	28	100	2663	1688	8	4.9
2019	40	271	0	293	173	133	34	456	10	6	1	3040	112	0	0	134	24	21	72	4510	1177	17	4.4
2020	42	285	0	366	138	207	78	464	12	20	3	5035	216	3	1	136	29	25	89	6822	1421	24	5.0
ave10	45	283	0.1	247	154	80	70	576	10.9	15	4.3	3369	193	0.3	1.1	169	38.2	22	83.9	5035	1418.3	18	5.1
%chg	-7	1		48	-11	158	11	-20	10	37		49	12			-19	-24	13	6	35	0	32	

Cooper - Cooper, Maine (ave for 2011-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2015	7	40	0	8	0	2	8	1	1	0	0	0	0	0	0	4	0	0	0	24	16	0.6	0.4
2016	12	57	0	31	3	15	4	6	6	0	0	20	0	0	1	6	3	0	0	95	44	1.7	0.8
2017	24	134	0	82	1	8	2	2	1	0	0	0	0	0	0	3	2	0	0	101	19	0.8	0.1
2018	16	88.5	0	32	0	13	0	0	0	0	0	4	0	0	0	1	1	1	1	53	17	0.6	0.2
2019	12	55	0	26	0	5	0	0	2	0	0	9	0	0	0	0	0	0	0	42	7	0.8	0.1
2020	14	51	0	17	0	0	1	0	1	0	0	6	1	0	0	3	1	0	0	30	7	0.6	0.1
ave 9	8.8	48.1	0	23	0	5.7	1.6	2	1.1	0	0	10.1	0	0	0.1	3.6	0.8	0.1	1	49	16	1.5	0.5
%chg	59	6		-27		-100	-36		-10			-41				-16	29			-39	-56		

Mount Philo State Park - Charlotte, Vermont (ave for 2018-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2018	3	19	10	28	1	5	1	1	11	0	14	190	29	3	0	2	0	3	49	347	119	18.8	6.4
2019	16	87	3	44	39	118	20	67	14	0	1	3213	8	0	0	54	6	8	24	3619	359	41.7	4.1
2020	7	37	0	163	7	60	6	25	6	0	1	982	10	0	0	37	4	5	14	1320	175	35.7	4.7
ave2	10	53	7	36	20	62	11	34	13	0	8	1702	19	2	0	28	3	6	37	1983	239	30	5
%chg	-26	-30		353	-65	-2	-43	-26	-52		-87	-42	-46			32	33	-9	-62	-33	-27	18	-11

Cadillac Mountain - Acadia National Park, Maine (ave for 2010-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2015	67	281	0	79	150	27	137	1127	25	5	3	360	15	0	0	613	96	18	100	2755	2316	9.8	8.2
2016	42	192	0	49	126	57	80	582	25	3	1	1490	37	0	1	330	54	17	55	2907	1368	15.1	7.1
2017	60	255	0	92	109	113	75	683	18	2	3	585	63	0	0	395	55	37	130	2360	1683	9.3	6.6
2018	60	270	0	133	102	75	79	544	18	7	2	429	20	0	0	495	24	33	139	2100	1538	7.8	5.7
2019	51	274	0	193	155	150	67	1112	22	2	0	363	19	0	0	542	53	22	138	2838	2282	10.3	8.3
2020	56	257	0	159	123	99	85	758	19	10	1	1039	38	0	0	468	56	24	94	2973	1775	11.6	6.9
ave	54	248	0	95	141	70	103	910	20	7	1	1008	51	1	0	498	62	25	101	3092	1990	13	8
%chg	3	3		67	-13	42	-17	-17	-5	45		3	-25			-6	-10	-2	-7	-4	-11	-11	-15

Clarry Hill - Union, Maine (ave for 2011-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2015	35	248	0	569	215	334	126	792	59	7	47	17369	369	0	9	113	27	20	20	20076	2138	81.0	8.6
2016	39	296	0	594	310	313	89	597	67	4	27	12526	280	1	8	178	38	30	26	15089	1969	51.0	6.7
2017	44	328	0	716	228	315	102	760	49	7	34	3969	370	1	6	211	31	25	31	6855	2170	20.9	6.6
2018	36	286	0	884	231	468	95	1014	71	6	27	2358	316	3	8	216	33	34	28	5792	2550	20.3	8.9
2019	36	304	1	1271	299	449	64	735	38	4	36	6782	201	0	2	288	44	17	33	10265	2211	33.8	7.3
2020	36	303	0	1414	194	590	174	977	48	8	45	8414	609	14	10	248	22	24	55	12846	3018	42.4	10.0
ave	33	253	0	596	246	274	85	701	56	5	33	9093	248	1	5	157	31	24	24	11580	1890	49	8
%chg	9	20		137	-21	116	104	39	-15	71	35	-7	145		120	58	-29	-1	127	11	60	-13	33

Region 43

Interlakes School - Meredith, New Hampshire (ave for 2010-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	M	PF	UR	TOT	XBWV	PH	XPH
2015	2	11	0	15	3	1	0	13	2	0	1	68	1	0	0	0	0	0	4	108	25	9.8	2.27
2016	2	6	0	10	2	5	0	5	0	0	0	163	0	0	0	0	0	0	7	192	19	32.0	3.2
2017	2	10	0	12	1	4	0	12	0	0	0	123	1	0	0	0	1	2	2	158	23	15.8	2.3
2018	2	10	0	28	1	5	0	1	1	0	0	76	8	0	0	0	1	0	5	126	22	13.3	2.3
2019	2	10	0	14	5	7	1	2	0	0	0	476	1	0	0	0	0	0	3	509	19	50.9	1.9
2020	2	9	0	18	4	5	0	15	0	0	0	895	0	0	0	0	0	2	1	940	27	104	3.0
ave	2	10	0	18	3	4	0	11	1	0	0	199	2	0	0	1	1	0	5	245	28	25	3
%chg	-9	-7		1	25	39		40	-100		-100	350	-100					567	-80	284	-4	325	8

Concord School - Concord, New Hampshire (ave for 2010,2012-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	M	PF	UR	TOT	XBWV	PH	XPH
2015	6	19	0	22	2	1	0	4	0	0	0	31	5	0	0	2	0	0	23	90	37	4.7	1.95
2016	6	26	0	32	0	1	0	5	2	0	0	215	2	0	0	2	0	0	8	267	20	10.2	0.8
2017	6	24	0	41	2	0	0	1	0	0	0	19	1	0	0	2	0	0	6	72	12	3.0	0.5
2018	5	20	0	16	0	3	1	7	0	0	0	63	4	0	0	1	0	1	6	102	23	5.0	1.1
2019	6	28	0	17	2	3	0	1	0	0	0	86	7	0	0	0	0	0	4	120	17	4.4	0.6
2020	3	7	0	17	1	1	0	5	0	0	0	51	9	0	0	0	0	1	33	118	50	16.9	7.1
ave	6	22	0	24	1	1	0	3	1	0	0	61	4	0	0	1	0	0	12	109	24	5	1
%chg	-53	-68		-29	13	-10		73				-17	103						170	8	109	237	527

Carter Hill - Concord, New Hampshire (ave for 2010-2019 % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2015	71	554	0	299	134	91	81	1164	140	21	45	6274	345	0	3	171	41	23	55	8887	2314	16.0	4.2
2016	71	527	0	244	90	98	71	551	130	12	28	5045	169	1	3	172	62	22	130	6828	1539	13.0	2.9
2017	71	513	0	429	131	96	53	868	108	6	87	3842	224	1	5	242	51	21	114	6278	2007	12.2	3.9
2018	2	9.5	0	10	1	0	0	15	3	0	0	0	2	0	0	5	4	0	0	40	30	4.2	3.2
2019	27	173	0	2	37	29	12	121	43	0	9	2051	6	0	2	51	13	1	48	2425	372	14.0	2.2
2020	6	32	0	20	8	15	4	38	6	0	6	437	5	0	0	10	2	1	0	552	95	17.3	3.0
ave	56	373	0	199	122	77	52	709	121	12	37	4722	173	0	2	175	48	19	199	6668	1747	17	4
%chg	-89	-91		-90	-93	-81	-92	-95	-95		-84	-91	-97			-94	-96	-95		-92	-95	2	-34

Putney Mountain - Putney, Vermont (ave for 2010-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2015	73	554	0	603	149	109	81	1624	129	19	28	5831	482	5	10	122	36	22	0	9250	2816	17	5
2016	69	554	4	425	120	132	73	1385	101	46	30	6434	590	3	7	146	36	25	0	9557	2694	17	5
2017	71	562	2	460	139	151	51	1456	105	7	32	11728	428	1	5	181	45	32	0	14823	2633	26	5
2018	70	508	0	514	148	144	77	1840	147	23	43	12045	588	2	16	298	56	30	0	15971	3412	31	7
2019	71	583	2	331	95	83	59	1075	57	8	27	5721	393	0	6	164	48	22	0	8091	2037	14	3
2020	70	592	0	327	103	172	70	1255	72	15	44	5958	552	0	11	187	51	40	0	8857	2572	15	4
ave	70	567	1	496	154	136	67	1440	130	24	36	6182	491	3	8	192	45	31	0	9246	2716	19	6
%chg	5	19		-6	-33	78	5	-13	-44	-36	22	-4	12		38	-3	13	30		-4	-5	-19	-22

Pack Monadnock - Peterborough, New Hampshire (ave for 2010-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2015	78	587	0	137	201	132	125	1443	115	48	141	16593	546	1	13	118	120	54	58	19845	3115	34	5.31
2016	70	527	0	322	242	136	92	1126	163	48	117	10530	294	1	5	167	96	49	78	13466	2614	26	4.96
2017	72	515	0	324	219	163	82	1179	142	16	181	8744	341	2	7	166	106	64	68	11804	2736	23	5.31
2018	66	455	0	98	181	176	64	668	124	11	126	6756	246	2	22	171	58	31	108	8842	1988	19	4.37
2019	79	557	0	268	171	180	54	1027	105	9	181	7840	223	0	4	185	64	64	128	10503	2395	19	4.3
2020	74	558	0	172	162	185	108	1325	180	12	223	8815	293	0	5	257	143	30	122	12032	3045	22	5.46
ave10	71	531	0	183	230	125	87	1155	142	33	135	9801	351	1	10	167	94	50	80	12642	2658	24	5
%chg	4	5		-6	-30	48	25	15	27	-64	65	-10	-17		-47	54	53	-40	52	-5	15	-11	8

Mount Watatic - Ashby, Massachusetts (ave for 2010-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	M	PF	UR	TOT	XBWV	PH	XPH
2015	16	107	0	11	72	60	8	282	79	0	2	5723	4	0	0	38	45	8	28	6360	626	59.4	5.9
2016	14	92	0	168	75	51	7	157	24	0	1	3040	2	0	0	30	6	2	30	3593	385	39.2	4.2
2017	11	85	0	1	51	41	14	178	33	0	0	5039	0	0	0	68	22	1	33	5481	441	64.9	5.2
2018	12	84	1	11	52	52	8	176	33	0	4	3874	3	0	0	39	9	4	25	4291	405	50.9	4.8
2019	14	95	0	9	33	64	6	201	23	1	8	2069	2	0	0	46	13	1	10	2486	408	26.2	4.3
2020	18	125	0	48	74	103	8	267	55	0	5	5986	16	0	0	82	13	3	23	6683	649	53.6	5.2
ave10	10	70	0	24	47	37	7	163	28	0	5	4125	15	0	0	32	11	2	19	4515	366	76	5
%chg	75	78		101	59	181	11	64	96		2	45	7			155	15	43	24	48	77	-29	5

Helderberg Escarpment - Voorheesville, New York (ave for 2009, 2011-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2015	15	104	0	0	16	35	7	27	10	0	0	1714	20	0	0	9	2	1	49	1890	176	18	1.7
2016	13	115	0	0	15	12	2	7	4	0	0	652	5	0	0	8	0	0	38	743	91	6.5	0.8
2017	12	75	26	40	8	17	6	12	7	0	1	907	21	0	0	5	3	4	40	1097	124	15	1.7
2018	12	78	42	110	15	33	9	24	41	0	0	951	59	0	0	18	7	11	35	1357	254	18	3.3
2019	16	102	98	201	16	52	3	30	33	0	3	1181	112	0	1	16	9	23	137	1915	435	18	3.3
2020	11	68	50	175	8	50	12	38	39	0	0	2383	154	0	0	18	7	11	107	3052	444	45	6.5
ave10	13	96	22	44	18	25	5	24	11	0	1	1569	25	0	0	12	4	6	47	13	13	13	1.57
%chg	-15	-29	125	296	-57	103	155	58	268			52	511			54	79		126	-15	-15	-15	24

Wachusett - Princeton, Massachusetts (ave for 2010-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	M	PF	UR	TOT	XBWV	PH	XPH
2015	49	319	2	62	205	159	23	406	86	0	18	11205	52	0	5	121	30	34	81	12489	1220	39	3.82
2016	42	261	3	215	166	163	17	451	106	0	18	6962	64	0	0	107	32	35	125	8465	1285	32	4.93
2017	57	328	1	293	144	117	23	322	121	1	14	10348	99	0	0	132	19	37	118	11789	1147	36	3.5
2018	47	258	6	267	100	135	17	281	132	0	13	5042	65	0	1	121	44	21	82	6327	1012	25	3.92
2019	64	391	7	404	133	148	10	359	114	0	12	2832	85	0	0	141	52	34	152	4484	1241	11	3.18
2020	73	433	14	783	129	156	45	427	160	0	93	6955	199	3	3	226	61	27	168	9451	1699	22	3.93
ave10	41	246	3	150	141	109	18	313	88	1	10	9971	47	0	1	99	27	23	116	11116	993	45	4
%chg	78	76	383	423	-8	43	153	37	81		869	-30	328			129	127	15	45	-15	71	-51	-4

Pinnacle Rock - Medford, Massachusetts (ave for 2010-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	M	PF	UR	TOT	XBWV	PH	XPH
2015	14	41.3	0	5	4	1	1	40	10	0	0	14	9	0	1	3	3	0	2	93	74	2.3	1.8
2016	18	71.5	0	6	6	10	5	103	42	0	1	9	0	0	0	6	6	1	10	205	190	2.9	2.7
2017	20	96.8	0	2	9	7	9	95	29	0	1	0	2	0	0	6	1	4	19	184	182	1.9	1.9
2018	24	136	0	19	13	22	15	276	69	0	4	9	20	0	0	17	12	5	66	547	519	4.0	3.8
2019	18	95.8	0	5	5	18	1	22	9	0	1	0	25	0	0	3	3	3	10	105	100	1.1	1.0
2020	12	31.8	0	4	51	5	10	117	60	0	2	0	8	0	0	4	4	7	16	288	284	9.1	8.9
ave10	19	89	0	7	12	9	7	123	30	0	1	4	13	0	0	9	6	3	23	245	235	3	2
%chg	-38	-65		-42	321	-41	54	-5	103		43		-37			-54	-31	119	-31	17	23	251	266

Barre Falls - Barre, Massachusetts (ave for 2010-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2015	53	235	0	94	62	48	20	273	55	3	4	3131	113	0	3	38	11	9	23	3887	662	16.6	2.8
2016	55	243	0	290	45	43	27	267	60	1	10	1123	145	0	0	36	22	8	49	2126	713	8.7	2.9
2017	54	256	2	334	39	52	8	192	63	1	16	2159	153	0	1	41	11	6	34	3112	617	12.2	2.4
2018	49	219	0	156	45	58	13	341	65	1	11	1134	148	0	4	55	20	4	35	2090	800	9.5	3.6
2019	31	160	0	88	31	22	4	120	22	0	2	295	23	0	2	18	8	4	19	658	275	4.1	1.7
2020	33	181	0	274	24	42	6	153	38	0	5	587	59	0	0	26	13	3	33	1263	402	7.0	2.2
ave10	48	231	0	212	99	55	23	536	94	3	22	4626	176	0	2	86	25	11	36	6006	1169	26	5
%chg	-31	-22		29	-76	-23	-74	-71	-60		-77	-87	-66			-70	-48	-73	-9	-79	-66	-74	-54

Shatterack Mountain - Russell, Massachusetts (ave for 2010-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2015	43	203	0	176	32	40	19	467	34	2	23	3009	110	0	3	47	19	5	19	4005	820	20	4.04
2016	39	190	0	491	46	15	8	299	38	3	33	1755	132	0	1	32	11	5	12	2882	636	15	3.34
2017	25	132	0	100	17	20	12	189	28	1	21	1904	58	0	0	34	11	2	5	2402	398	18	3.03
2018	33	175	0	336	38	54	15	321	51	0	38	3080	116	0	4	44	10	5	14	4126	710	24	4.06
2019	33	150	0	194	32	62	16	210	36	0	13	2565	6	0	2	61	13	4	9	3223	464	22	3.1
2020	30	161	0	256	17	40	10	210	41	0	23	2966	82	0	5	25	10	5	14	3704	482	23	2.99
ave10	30	155	0	208	55	30	17	370	35	1	18	2763	72	0	1	49	11	7	15	3652	680	23	4
%chg	0	4		23	-69	35	-41	-43	17		26	7	14			-49	-10	-25	-6	1	-29	-1	-34

Blueberry Hill - Granville, Massachusetts (ave for 2009-2016, 2018, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2014	44	212	0	128	49	32	49	373	77	1	40	4658	224	0	2	128	10	5	30	5804	1018	27	4.8
2015	47	205	0	190	46	32	28	327	39	1	24	1694	87	0	5	111	13	4	7	2608	724	13	3.53
2016	9	44.3	0	59	3	5	2	12	8	0	3	3	17	0	1	8	0	0	2	123	61	2.8	1.38
2018	13	51.5	0	104	5	5	8	107	27	1	11	1108	58	0	0	28	8	2	14	1486	274	29	5.32
2019	1	7	0	0	1	3	0	14	2	0	0	485	0	0	0	2	0	0	2	509	24	73	3.43
2020	36	182	1	127	22	46	21	173	38	4	48	2456	111	0	1	108	25	2	17	3200	616	18	3.38
ave10	45	235	0	194	81	27	35	413	55	3	25	2754	161	0	3	155	16	6	23	3950	1002	23	4
%chg	-20	-23		400	-73	70	-40	-58	-31	21	92	-11	-31			-30	55	-64	-24	-19	-39	-22	-15

Region 41

Poquonock - Poquonock, Connecticut (ave for 7 years from 2008-2009, 2011-2012, 2017-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2011	71	162.8	2	39	16	15	8	30	17	0	3	20	69	0	4	8	4	4	10	249	188	1.5	1.2
2012	8	18.5	0	0	2	0	0	0	0	0	0	107	0	0	0	1	1	0	0	111	4	6.0	0.2
2017	13	30.0	6	10	6	1	0	1	1	0	3	732	1	0	0	2	2	1	0	766	18	25.5	0.6
2018	33	133.2	7	25	11	7	2	9	9	0	2	51	32	0	3	7	3	3	5	176	93	1.3	0.7
2019	47	182.6	7	51	14	13	2	13	3	0	9	90	12	0	1	8	7	1	7	238	90	1.3	0.5
2020	64	202.5	13	73	17	17	5	13	8	0	6	616	29	0	2	6	5	2	5	817	115	4.0	0.6
ave7	56	254	10	57	15	17	8	35	14	2	12	461	55	1	2	13	6	6	12	727	199	6	1
%chg	14	-20		28	12	-2	-40	-63	-41		-52	34	-47			-53	-17		-59	12	-42	-34	-19

Middle School - Torrington, Connecticut (ave for 2010-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2015	15	49.8	2	7	9	7	0	4	2	0	1	1409	1	0	0	2	0	0	7	1451	33	29.2	0.7
2016	18	77.5	1	0	9	1	1	7	7	0	0	277	0	0	0	3	3	0	17	326	48	4.2	0.6
2017	13	51.5	6	0	6	7	1	5	6	0	0	890	0	0	0	6	0	0	5	932	36	18.1	0.7
2018	9	43.0	0	0	7	3	1	3	9	0	1	1419	0	0	0	6	1	0	12	1462	43	34.0	1.0
2019	11	37.3	0	0	1	2	0	4	3	0	0	247	1	0	0	3	0	1	3	265	18	7.1	0.5
2020	15	44.8	0	0	4	3	0	4	5	0	2	588	0	0	0	3	0	0	5	614	26	13.7	0.6
ave10	15	62	2	1	12	7	1	16	9	0	1	2199	2	0	0	7	3	0	14	2273	71	35	1
%chg	0	-27			-66	-57		-74	-41	-100		-73				-55			-64	-73	-63	-61	-46

Johnnycake Mountain- Connecticut (ave for 2009-2018, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2014	13	58.5	24	67	59	50	10	81	8	0	1	3239	6	0	0	63	2	0	0	3610	280	61.7	4.8
2015	14	58.0	2	4	59	40	2	58	9	0	5	1430	0	0	2	49	1	3	2	1666	230	28.7	4.0
2016	15	65.8	35	109	48	49	2	56	42	0	5	1010	18	0	0	46	2	2	0	1424	270	21.7	4.1
2017	6	30	13	5	27	15	3	13	5	0	2	1144	4	0	0	9	0	0	0	1240	78	42.0	2.6
2018	4	26	4	44	21	20	5	33	19	0	0	1708	9	0	0	17	3	3	0	1886	130	72.5	5.0
2020	15	63	3	0	18	37	1	22	16	0	4	328	0	0	1	25	0	1	22	478	147	7.6	2.3
ave10	9	42	9	24	42	28	3	61	12	0	1	2656	4	0	1	30	2	2	0	2875	187	74	5
%chg	69	51	-67	-100	-57	32	-71	-64	33	-100	186	-88				-18		-38		-83	-21	-90	-51

Mohonk Preserve - New Paltz, New York (ave for 2008-2012, 2015-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2015	39	150	0	0	46	36	12	221	20	0	10	2307	47	0	2	46	16	2	43	2808	501	18.7	3.3
2016	67	302.9	17	236	94	106	48	740	137	3	35	3776	250	0	1	74	32	33	16	5598	1569	18.5	5.2
2017	59	313.6	11	471	79	105	43	645	115	2	52	4059	305	1	7	50	28	20	19	6012	1471	19.2	4.7
2018	32	161	3	108	81	100	30	751	108	1	34	4453	170	0	3	78	29	15	6	5970	1406	37.1	8.7
2019	44	208	2	174	50	151	28	357	101	1	38	1030	92	0	1	104	22	23	13	2187	981	10.5	4.7
2020	30	176	33	317	54	97	47	320	67	0	26	2846	91	0	1	116	21	6	10	4052	856	23.0	4.9
ave10	29	131	4	110	41	51	19	295	52	1	17	1693	90	0	2	39	13	10	15	2451	645	18	5
%chg	5	35	843	189	32	90	153	8	29		52	68	2			196	63	-42	-35	65	33	27	5

Chestnut Hill - Litchfield, Connecticut (ave for 2010-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2015	19	89	0	2	20	39	5	39	8	0	0	4011	6	0	1	9	1	0	15	4156	143	46.7	1.6
2016	19	83.3	0	0	18	36	2	59	5	0	0	1509	1	0	0	24	0	1	16	1671	162	20.1	1.9
2017	16	74	0	0	10	17	1	27	0	0	0	1631	0	0	0	14	1	0	3	1704	73	23.0	1.0
2018	9	39.8	0	0	6	17	1	47	6	0	0	2818	0	0	0	16	0	2	4	2917	99	73.4	2.5
2019	18	65.9	0	0	14	9	1	38	7	0	0	1792	0	0	0	7	1	0	3	1872	80	28.4	1.2
2020	16	47.1	0	0	12	20	1	28	11	0	0	2639	0	0	0	9	3	0	3	2726	87	57.9	1.8
ave10	15	63	0	0	21	19	2	43	6	0	0	3342	3	0	0	12	1	0	8	3458	115	58	2
%chg	8	-26			-42	6	-55	-35				-21				-27			-63	-21	-25	1	-1

Botsford Hill - Bridgewater, Connecticut (ave for 2010-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2015	14	66	0	0	20	16	5	101	1	0	0	2778	0	0	0	4	5	1	7	2938	160	44.5	2.4
2016	13	54	0	0	14	9	3	51	4	0	0	885	0	0	0	7	5	0	11	989	104	18.5	1.9
2017	11	44	0	0	19	12	2	60	4	0	0	1264	1	0	0	15	6	0	10	1393	129	32.0	3.0
2018	11	53	0	0	17	12	4	63	4	0	0	2571	0	0	0	10	1	0	9	2691	120	50.5	2.3
2019	14	49	0	0	13	29	0	55	2	0	0	2240	1	0	1	8	1	0	14	2364	124	48.0	2.5
2020	15	46	0	0	7	14	2	24	3	0	0	865	0	0	0	11	0	1	2	929	64	20	1.41
ave10	15	63	0	0	30	18	3	96	8	0	0	3111	0	0	0	13	3	0	13	3296	185	50	3
%chg	1	-27			-77	-20	-39	-75	-63			-72	-100			-18			-85	-72	-65	-59	-51

I-84 Overlook - Greenville, NY (ave for 2010-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2015	6	21.3	0	0	0	31	0	1	0	0	1	0	27	0	6	0	0	1	0	67	67	3.9	1.7
2016	1	7	2	5	0	4	0	0	1	0	0	0	86	0	4	0	0	0	0	102	95	2.6	1.5
2017	5	22.5	9	9	0	23	1	19	6	1	13	0	297	0	10	0	0	1	0	389	371	2.4	1.4
2018	3	15.8	0	16	2	27	2	92	13	0	1	0	222	0	4	18	1	3	0	401	385	10.2	1.7
2019	2	9.25	0	2	0	16	3	7	0	0	4	0	179	0	1	0	0	0	1	213	211	8.3	3.2
2020	26	127	6	74	5	209	18	203	49	0	21	120	484	0	9	23	5	3	2	1231	1031	24.2	2.3
ave7	4	17	3	8	1	21	1	28	5	0	4	0	158	0	6	5	0	1	0	240	230	6	2
%chg	-47	-44		-73		-25	300	-75			7		13		-83					-11	-8	284	9

Bear Mountain - Fort Montgomery, New York (ave for 2010-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2015	70	400	0	0	56	81	10	262	27	3	9	421	102	0	7	29	5	7	17	1036	615	2.6	1.5
2016	63	338	0	0	46	142	5	141	27	1	6	333	40	0	4	35	7	11	11	809	476	2.4	1.4
2017	40	215	0	0	42	108	6	117	28	2	0	1828	9	0	0	23	2	11	13	2189	361	10.2	1.7
2018	45	238	0	0	55	66	8	374	56	0	16	1217	86	0	5	48	11	12	28	1982	765	8.3	3.2
2019	48	186	1	0	43	79	5	116	30	0	38	4051	63	0	0	28	5	14	13	4486	434	24.2	2.3
2020	37	158	0	63	35	71	7	150	36	0	13	442	51	1	3	44	8	8	10	942	437	6.0	2.8
ave10	57	307	0	0	65	85	10	285	34	1	15	1559	99	0	3	36	8	8	14	2223	664	8	2
%chg	-35	-49			-46	-16	-29	-47	7		-12	-72	-48		-9	24	3	1	-30	-58	-34	-27	27

Mount Peter - Warwick, New York (ave for 2010-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2015	71	465	107	292	114	70	28	1017	74	0	85	11256	289	0	5	75	24	11	34	13481	1826	29.0	3.9
2016	69	488	84	337	98	95	35	1104	94	0	104	5894	478	0	3	52	15	13	42	8448	2133	17.3	4.4
2017	74	480	96	320	111	85	26	841	121	1	122	6874	232	0	4	83	18	26	36	8996	1706	18.8	3.6
2018	66	419	79	504	134	112	35	1469	176	2	213	5071	508	0	6	159	15	23	24	8530	2876	20.4	6.9
2019	74	479	136	426	123	163	27	693	82	0	203	7360	443	0	9	85	8	14	28	9800	1878	20.5	3.9
2020	70	453	109	850	121	177	42	1048	85	0	149	3864	465	0	1	121	20	13	30	7095	2272	15.7	5.0
ave10	71	457	96	309	140	101	40	1223	117	1	130	7177	445	0	6	130	19	16	47	9996	2414	22	5
%chg	-1	-1	14	175	-13	75	5	-14	-27		15	-46	5		-82	-7	7	-20	-36	-29	-6	-29	-6

Chestnut Ridge - Bedford, New York (ave for 2010-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2015	103	703	119	2717	362	100	82	1532	290	4	319	6138	216	0	8	225	26	28	103	12269	3295	17.5	4.7
2016	100	670	64	1308	104	47	39	473	148	7	78	945	129	0	2	85	22	14	90	3555	1238	5.3	1.8
2017	84	589	29	3098	263	149	90	1270	373	1	494	2133	265	0	13	334	120	32	343	9007	3747	15.3	6.4
2018	84	578	86	3414	314	159	103	1932	346	2	272	4278	454	0	3	446	84	27	151	12071	4293	20.9	7.4
2019	89	632	29	2589	233	137	59	1414	248	1	439	3363	168	0	9	240	101	25	151	9206	3225	14.6	5.1
2020	87	640	41	3423	248	233	138	2123	473	0	802	3140	207	0	14	368	90	37	124	11462	4858	17.9	7.6
ave10	96	666	67	2547	317	110	100	1835	334	5	286	5859	314	0	8	319	58	26	177	12362	3889	19	6
%chg	-9	-4	-39	34	-22	112	38	16	42		181	-46	-34		69	15	54	42	-30	-7	25	-4	29

Hook Mountain - Nyack, New York (ave for 2010-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2015	76	432	32	416	319	197	97	1433	161	3	130	2296	79	0	10	210	82	28	12	5505	2761	12.7	6.4
2016	77	461	46	245	353	194	91	1424	207	19	165	2777	159	0	5	156	81	30	22	5974	2906	13.0	6.3
2017	72	412	55	124	236	190	69	1161	149	1	94	4952	55	0	3	196	65	59	6	7415	2284	18.0	5.6
2018	69	415	127	780	166	159	112	2337	204	5	439	3279	200	0	8	217	94	37	3	8167	3981	19.7	9.6
2019	64	362	36	232	133	119	35	799	132	0	54	873	22	0	1	139	21	24	8	2628	1487	7.3	4.1
2020	82	515	201	972	302	291	124	1357	223	1	390	4590	271	0	8	370	66	27	15	9209	3446	17.9	6.7
ave10	73	428	59	284	275	156	103	1716	196	5	179	4654	129	0	5	213	67	36	16	8093	3096	19	7
%chg	12	20	244	242	10	87	21	-21	14	-79	118	-1	110		67	74	-1	-26	-6	14	11	-7	-7

Quaker Ridge - Greenwich, Connecticut (ave for 2010-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2015	102	821	47	1469	594	191	156	2160	403	4	406	5745	228	0	17	374	101	40	141	12076	4815	14.7	5.9
2016	98	733	24	673	461	159	104	1600	343	8	566	3484	197	0	7	284	75	28	62	8075	3894	11.0	5.3
2017	97	720	24	1743	321	172	86	1532	378	2	1006	3008	304	0	8	418	93	21	74	9191	4416	12.8	6.1
2018	96	674	62	1344	592	317	142	2456	489	4	648	9342	271	0	8	628	133	32	73	16541	5793	24.5	8.6
2019	96	695	53	1332	431	215	75	1535	306	0	370	4599	228	0	3	268	66	25	49	9557	3573	13.7	5.1
2020	93	641	39	2167	238	215	95	1771	312	1	602	6912	255	0	6	447	69	21	37	13187	4069	20.6	6.3
ave10	92	708	33	1129	517	207	145	2524	426	6	546	8717	268	0	10	442	96	29	90	15183	5304	22	8
%chg	1	-9	19	92	-54	4	-35	-30	-27	-82	10	-21	-5		-38	1	-28	-27	-59	-13	-23	-7	-17

Purple Chickadee - Ringwood, New Jersey (ave for 2017-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2017	22	117	3	24	12	10	3	73	56	0	0	858	2	0	0	17	8	3	7	1076	191	9.2	1.6
2018	32	170	1	142	13	13	13	201	139	1	12	971	45	0	4	49	11	7	23	1645	531	9.7	3.1
2019	26	127	19	133	13	22	4	146	58	1	35	628	75	0	3	43	9	7	30	1226	446	9.6	3.5
2020	46	247	27	304	27	59	17	408	176	0	67	2937	107	0	1	89	24	15	80	4338	1070	17.6	4.3
ave3	27	138	8	100	13	15	7	140	84	1	16	819	41	0	2	36	9	6	20	1316	389	10	3
%chg	73	79	252	205	113	293	155	191	109		328	259	163			145	157	165	300	230	175	85	57

Region 40

State Line - Alpine, New Jersey (ave for 2010-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2015	77	478	127	2278	857	151	86	1433	284	0	144	1613	395	0	1	333	49	52	128	7931	3913	16.6	8.2
2016	82	450	60	1311	856	160	74	1258	239	5	353	1010	539	1	1	227	61	61	106	6322	3941	14.0	8.8
2017	76	445	45	1628	448	219	71	818	266	2	286	1216	431	0	0	288	70	57	97	5942	3053	13.4	6.9
2018	76	467	26	3388	956	373	98	1794	572	1	388	3210	634	0	1	685	124	86	73	12409	5785	26.6	12.4
2019	75	446	65	2290	420	186	53	834	261	2	186	1368	491	0	1	359	56	46	43	6661	2938	14.9	6.6
2020	80	430	41	1780	278	190	66	897	267	1	355	1295	519	1	1	318	60	63	4	6136	3020	14.3	7.0
ave10	67	404	62	1548	524	143	69	1407	265	3	229	2350	410	0	1	351	57	57	122	7599	3639	19	9
%chg	20	6	-34	15	-47	33	-5	-36	1		55	-45	27			-10	5	11	-97	-19	-17	-24	-23

Lenoir Wildlife Sanctuary - Yonkers, New York (ave for 2007-2009, 2011-2015, 2018-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2013	41	123	61	606	78	78	7	143	19	0	30	794	53	0	0	53	2	9	7	1940	479	15.7	3.9
2014	23	62.5	12	223	40	58	8	120	19	0	30	61	75	0	0	25	2	0	2	675	379	10.8	6.1
2015	23	69	23	481	33	56	7	51	28	0	39	10	51	0	1	7	5	4	0	796	282	11.5	4.1
2018	25	94.5	39	621	211	114	18	267	61	0	45	3115	75	0	0	146	12	16	2	4742	967	50.2	10.2
2019	24	92.3	58	210	95	76	2	59	16	0	9	45	32	0	0	40	3	5	2	652	339	7.1	3.7
2020	46	176	119	419	163	118	4	136	38	1	70	375	135	0	1	52	7	18	2	1658	745	9.4	4.2
ave10	36	117	34	589	108	67	13	217	44	1	33	964	94	0	1	59	12	8	4	2249	661	20	6
%chg	30	51	247	-29	51	76	-70	-37	-14		112	-61	43			-11	-42	114	-52	-26	13	-52	-26

Wildcat Ridge - Hibernia, New Jersey (ave for 2010-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2015	54	321	11	0	82	66	15	418	107	0	16	2332	56		0	39	13	3	6	3164	821	9.9	2.6
2016	62	316	15	0	62	62	6	313	100	3	15	1264	60	0	1	32	9	2	0	1944	665	6.2	2.1
2017	40	189	26	0	40	23	3	129	43	0	2	502	20	0	1	14	7	6	16	832	304	4.4	1.6
2018	31	166	31	0	49	32	14	280	83	2	7	3031	43	0	0	24	9	3	38	3646	584	21.9	3.5
2019	47	252	27	0	40	30	5	284	114	1	16	840	104	0	2	32	8	10	37	1550	683	6.2	2.7
2020	48	235	50	206	21	50	7	118	132	1	8	1499	72	0	2	27	5	5	28	2231	476	9.5	2.0
ave10	48	272	30	42	90	58	16	496	109	1	14	3830	55	0	1	52	10	6	14	4825	923	17	3
%chg	1	-14	66	396	-77	-14	-55	-76	21		-42	-61	30			-48	-50	-19	94	-54	-48	-45	-39

Montclair Hawk Lookout - Montclair, New Jersey (ave for 2010-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2015	91	590	56	2067	302	120	39	1259	289	1	239	1223	118	0	1	207	107	55	59	6142	2796	10.4	4.7
2016	83	572	21	1044	182	102	31	671	167	2	174	1074	75	0	1	127	53	23	24	3771	1632	6.6	2.9
2017	88	670	61	2866	251	184	51	1187	321	1	418	2396	298	0	1	296	126	82	44	8583	3260	12.8	4.9
2018	91	600	80	1863	272	160	53	1090	340	2	347	5442	174	0	1	324	92	45	9	10294	2909	17.2	4.8
2019	84	619	99	491	125	102	13	362	185	1	103	1208	133	0	0	119	52	34	9	3036	1238	4.9	2.0
2020	83	569	193	2241	155	153	53	565	353	1	287	848	285	0	0	180	150	47	23	5534	2252	9.7	4.0
ave10	85	588	73	1452	312	146	59	1306	295	2	282	4702	224	0	2	304	92	48	52	9350	3122	16	5
%chg	-2	-3	164	54	-50	5	-10	-57	20		2	-82	27			-41	64	-1	-56	-41	-28	-40	-26

Scott's Mountain - MCR Harmony Twp., New Jersey (ave for 2010-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2015	89	611	0	0	198	204	121	1800	176	6	146	15050	544	0	7	169	79	34	136	18671	3621	30.6	5.9
2016	88	604	0	0	148	240	80	1168	158	10	96	10431	586	1	8	97	43	40	116	13222	2791	21.9	4.6
2017	89	624	0	0	169	274	81	1460	242	13	228	6786	477	1	13	167	54	61	96	10123	3337	16.2	5.3
2018	87	582	0	0	217	259	72	2018	273	11	152	8466	598	0	15	195	58	50	114	12498	4032	21.5	6.9
2019	91	599	0	0	182	244	72	967	177	8	257	4966	467	0	14	121	50	43	91	7659	2693	12.8	4.5
2020	90	592	0	0	196	255	92	1579	229	8	394	4893	749	1	28	191	63	47	133	8858	3965	15.0	6.7
ave10	87	586	0	0	219	243	99	1881	224	9	166	10621	662	0	15	183	63	41	123	14549	3928	25	7
%chg	3	1			-11	5	-7	-16	2	-15	137	-54	13		85	4	-1	16	8	-39	1	-40	-1

Washington Valley - Martinsville, New Jersey (ave for 2017-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2017	33	172	0	108	41	94	17	427	52	0	154	1224	63	1	5	152	35	6	0	2379	1047	13.8	6.1
2018	37	200	4	33	86	155	60	1105	198	2	249	3188	99	0	4	304	82	10	0	5579	2354	28.0	11.8
2019	43	205	107	125	92	155	23	302	143	0	163	933	90	0	2	161	62	1	1	2360	1195	11.5	5.8
2020	48	233	0	70	116	178	40	863	142	0	210	5132	158	0	1	565	113	26	1	7615	2413	32.8	10.4
ave3	38	192	37	89	73	135	33	611	131	1	189	1782	84	0	4	206	60	6	0	3439	1532	18	8
%chg	27	21	-100	-21	59	32	20	41	8		11	188	88			175	89	359		121	58	84	31

Coastal Region

Lighthouse Point - New Haven, Connecticut (ave for 2010-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2015	77	631	6	696	1027	164	291	2325	849	0	62	133	186	0	4	428	250	61	297	6779	5944	10.7	9.4
2016	96	611	10	496	764	234	294	2434	1013	7	155	213	433	1	3	460	305	148	344	7314	6595	12.0	10.8
2017	91	588	12	527	1084	181	263	2136	1080	2	298	441	243	2	0	1070	277	124	377	8120	7140	13.8	12.1
2018	103	631	4	239	1630	342	439	3634	2272	3	243	225	409	1	3	1717	475	215	589	12440	11972	19.7	19.0
2019	96	614	0	337	1035	232	183	1658	1509	4	159	208	291	0	2	657	229	99	295	6899	6354	11.2	10.3
2020	97	634	43	524	932	229	255	2321	1127	0	209	190	321	0	2	963	275	139	388	7918	7161	12.5	11.3
ave10	95	630	11	448	1038	206	330	3432	1368	6	206	1029	431	1	4	1058	319	167	424	10478	8991	17	14
%chg	2	1	310	17	-10	11	-23	-32	-18		2	-82	-25			-9	-14	-17	-9	-24	-20	-25	-21

Fire Island - Islip, New York (ave for 2010-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2015	65	410	0	0	378	6	164	220	41	0	0	0	1	0	0	344	1064	73	2	2293	2293	5.6	5.6
2016	75	475	2	1	349	10	159	195	55	2	0	0	6	0	0	300	1016	121	8	2224	2221	4.7	4.7
2017	74	457	0	0	836	11	144	92	52	0	1	0	1	1	0	712	1177	216	6	3249	3249	7.1	7.1
2018	75	452	0	0	496	14	249	480	84	0	0	0	1	0	0	985	1590	172	3	4074	4074	9.0	9.0
2019	71	414	0	0	418	8	118	130	71	0	0	0	3	0	0	423	884	103	4	2162	2162	5.2	5.2
2020	77	416	0	0	685	14	182	166	44	1	1	0	4	0	0	1155	1099	147	9	3507	3507	8.4	8.4
ave10	68	434	0	0	455	7	199	253	51	0	0	0	2.0	0	0	696	1239	173	8	3083	3083	7	7
%chg	13	-4			51	109	-8	-34	-14	233	400					66	-11	-15	15	14	14	18	18

Boothe Memorial - Stratford Connecticut (ave for 2008-2016, 2019, % change in 2020)

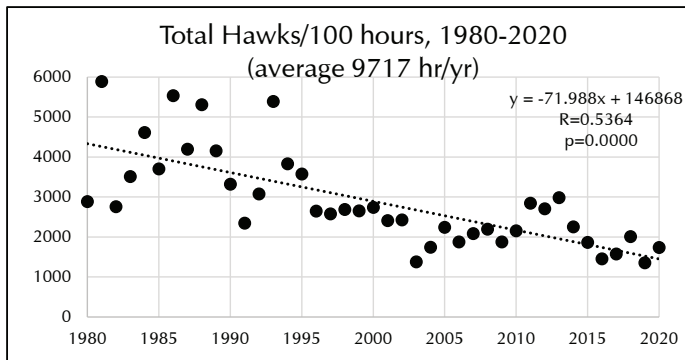
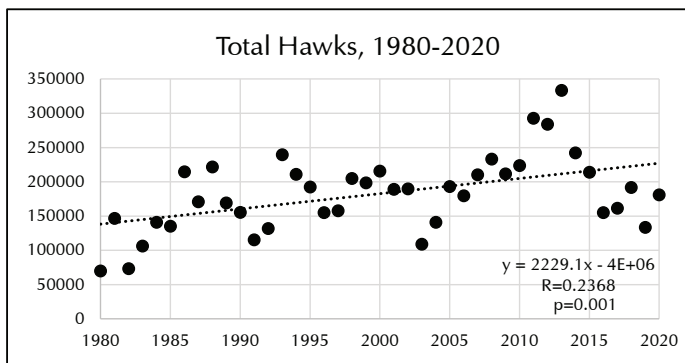
YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2013	41	130	19	200	173	92	16	334	70	0	22	2339	55	0	0	41	14	14	37	3426	868	26.4	6.7
2014	22	86.4	2	333	97	89	14	527	45	0	13	182	73	0	0	61	17	6	21	1480	963	17.1	11.1
2015	20	82	2	37	413	105	8	278	28	0	0	351	7	0	0	57	17	5	14	1322	932	16.1	11.4
2016	4	12.5	0	0	27	2	0	2	0	0	0	1	0	0	0	0	1	0	2	35	34	2.8	2.7
2019	3	11.3	0	7	53	43	4	96	20	0	0	293	0	0	0	26	1	1	3	547	247	48.6	22.0
2020	10	35	10	36	188	65	4	213	36	0	10	359	16	0	1	123	5	9	9	1084	679	31	19.4
ave 6	23	83	7	239	183	64	20	581	97	1	30	2444	131	0	1	82	16	9	35	3667	1221	41	16
%chg	-56	-58	50	-85	3	2	-80	-63	-63		-66	-85	-88			51	-69	0	-74	-70	-44	-25	22

Fort Tilden - Queens, New York (ave for 2018-2019, % change in 2020)

YR	DYS	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	XBWV	PH	XPH
2018	7	59	0	17	30	6	103	708	105	0	5	12	9	0	0	1210	332	16	0	2553	2524	43.3	42.8
2019	15	95	0	10	232	8	33	149	51	0	3	7	14	0	0	401	242	20	0	1170	1153	12.3	12.1
2020	20	134	0	4	454	16	95	261	53	0	11	7	14	0	0	728	230	29	0	1902	1891	14	14.1
ave2	11	77	0	14	131	7	68	429	78	0	4	10	12	0	0	806	287	18	0	1862	1839	28	27
%chg	82	74		-70	247	129	40	-39	-32		175	-26	22			-10	-20	61		2	3	-49	-49

The Count—about average

Collectively, we counted 180,873 hawks for this Fall 2020 season. This is 47,308 more hawks than we counted in 2019—nice! It is also 10,816 hawks fewer than we counted in 2018. Yes, 2018 was a good year; we had an average number of hawks that year, and the Sharpies and Kestrels were flying. Then we had 2019 with our record low count, when some of us struggled to find the Sharpies and Kestrels. Thankfully, 2020 is a return toward average. In fact, 180873 hawks is at our 40 year average, 11.8% below our 20 year average, and 18.9% below our 10 year average. Interestingly, our current effort is about 40% higher than our 40 year average. So, we now need 40% more effort to achieve our 40 year average. Check out the trends in the centerfold to see what has happened in that time. Our historically most prevalent species—Broadwings, Sharpies, and Kestrels—have declined, and the growing populations of vultures, Bald Eagles, and Shoulders, together with your added effort, are filling in the gap.



This emphasizes the importance of standardizing the data to get a more realistic comparison across the years. Our 180873 hawks are equivalent to 1738 hawks/100hr. This is 40% below our 40 year average, and 18% below both the 20 year and 10 year averages. Since this is within 20% of average for the last 20 years, we can describe 2020 as being about average for recent years. Does this describe your experience during the Fall 2020 season? For me, I was so thankful to see more Kestrels darting over the top of Hook Mountain and hover-hunting on Fire Island. As for Sharpies, even though not near average numbers yet, we had 558 more Sharpies at Hook than our record low in 2019. That works out to about 7 more Sharpies a day—I'll take that!

Distribution of Hawks Across the Northeast

To consider how the hawks were distributed across the NorthEast, we first look at a simple sum of the hawks in each region, shown in the Distribution: Hawks by Region Table. If the hawks were equally distributed, we would expect the counts for each species to be distributed across each region similarly to the effort in that region. Since Region 41 has the most sites with the most hours, we would expect Region 41 to have the highest count for each species. This is true for half of the species. Yet, in spite of Region 41 having the greatest effort, our Coastal Region counted more Osprey, Harriers, and all three falcons, and the furthest north region, Region 44, had the most Goshawks and Roughlegs. So, the species are not all equally distributed throughout the NorthEast. Furthermore, our uneven distribution of sites biases the simple sums.

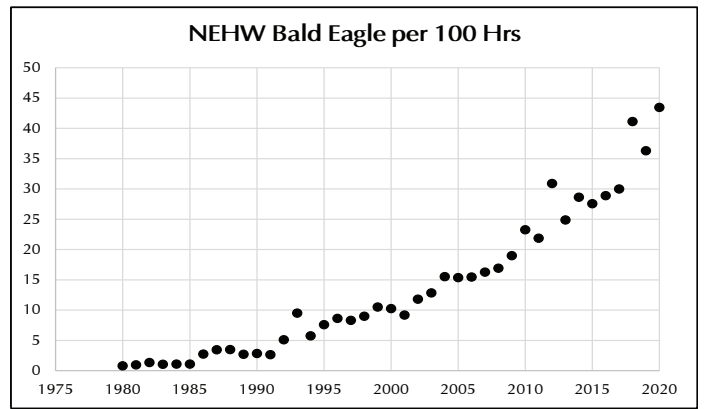
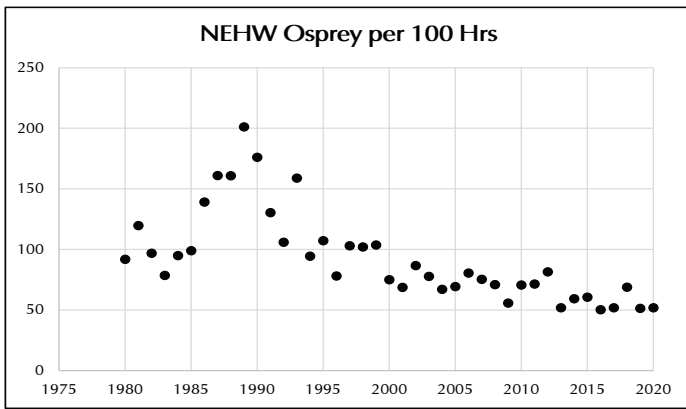
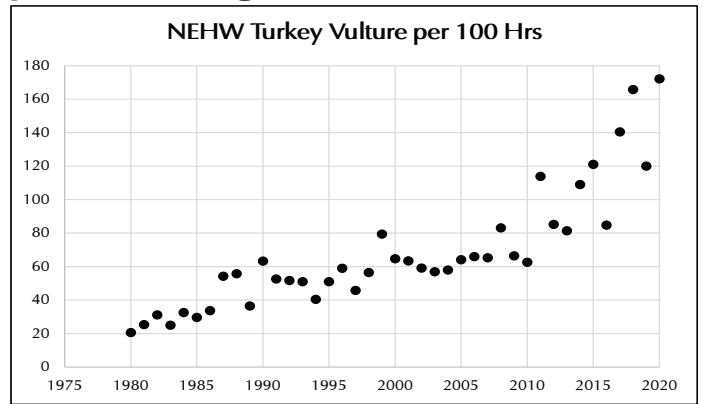
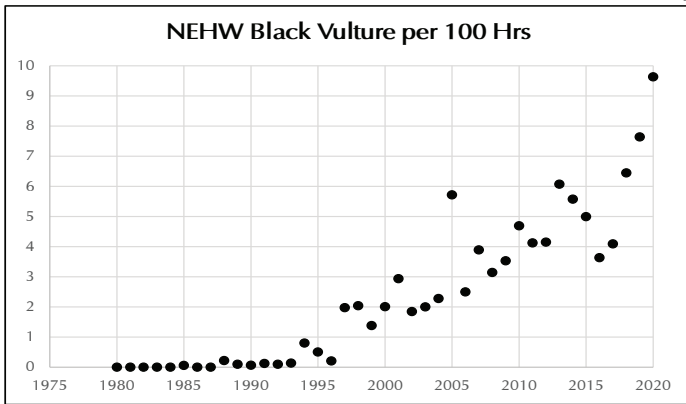
To compensate for the difference in effort across the regions, the data is standardized in the Distribution: Hawks/100 Hour Table. This provides a more reasonable comparison of the regions, and allows us to get a better perspective of just where the hawks were flying. We see that Black Vultures are still focused in the southern two regions, whereas Turkey Vulture is more evenly distributed. Osprey and Harriers are most prominent in the coastal region, with an added pulse in Region 44, where most of the sites are relatively close to the coast. Bald Eagles are distributed throughout the NorthEast, but occur in the northern-most region at a rate more than double all other regions. Sharp-shinned Hawks are almost uniformly distributed across the regions. Cooper's Hawk has a gradient distribution, increasing from north to south. This would be consistent with an expected migration southward of a regional breeder. Goshawks show the reverse distribution, decreasing from north to south. This would be consistent with a non-migrating northern breeder. For the last several years Goshawk has occurred almost equally in Regions 44 and 43. This season clearly shows

NorthEast Fall 2020 Distribution: Hawks by Region

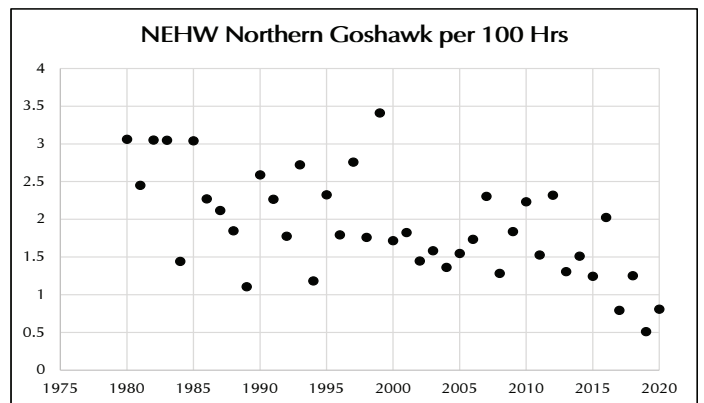
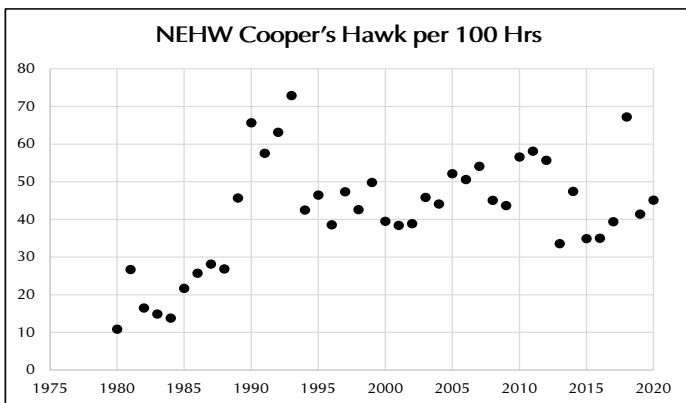
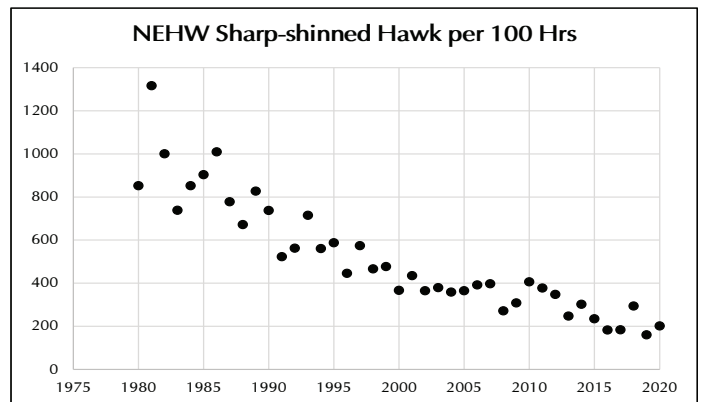
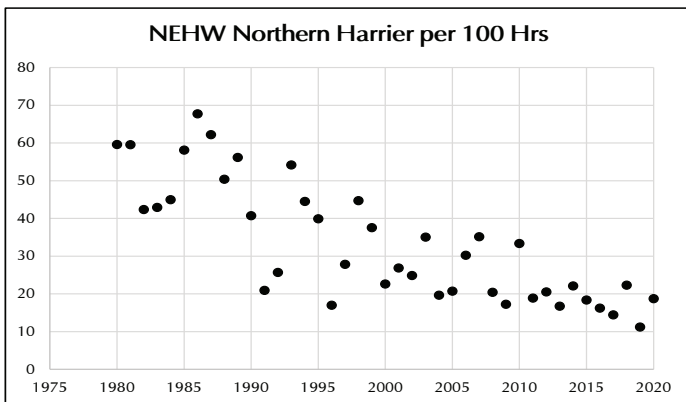
Reg	Sites	Days	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	Total	XBV
44	5	155	933	0	2119	462	956	344	2224	86	38	50	15476	874	17	11	892	112	78	252	23991	6396
43	5	98	688	0	385	116	201	74	1325	78	15	50	7413	570	0	11	197	53	47	41	10576	2778
42	9	289	1757	65	1862	490	632	221	2732	616	16	400	32488	937	3	14	753	283	88	502	42104	7689
41	14	680	3575	481	8263	1140	1467	512	7564	1494	2	2099	30215	1986	1	46	1670	324	139	354	57759	18800
40	6	395	2234	403	4716	929	944	262	4158	1161	12	1324	14042	1918	2	33	1333	398	206	191	32032	12871
CO	4	204	1219	53	564	2259	324	536	2961	1260	1	231	556	355	0	3	2969	1609	324	406	14411	13238
TOT	43	1821	10405	1002	17909	5396	4524	1949	20964	4695	84	4154	100190	6640	23	118	7814	2779	882	1746	180873	61772

NorthEast Hawk Watch Fall Migration Trends, 1980–2020

Vultures, Osprey, Bald Eagle

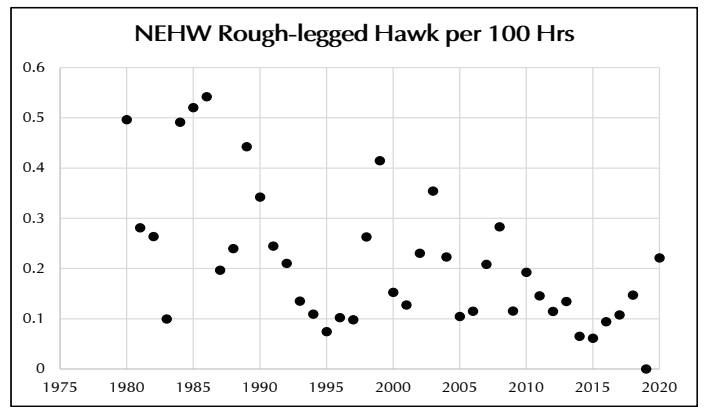
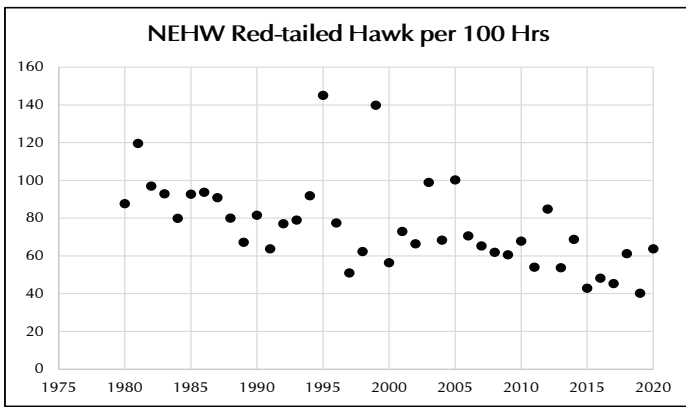
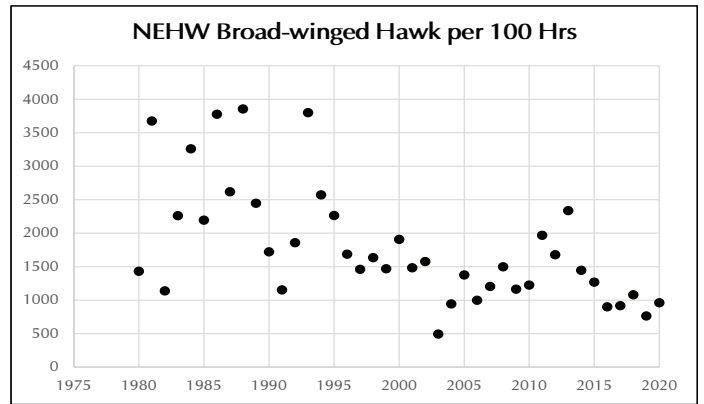
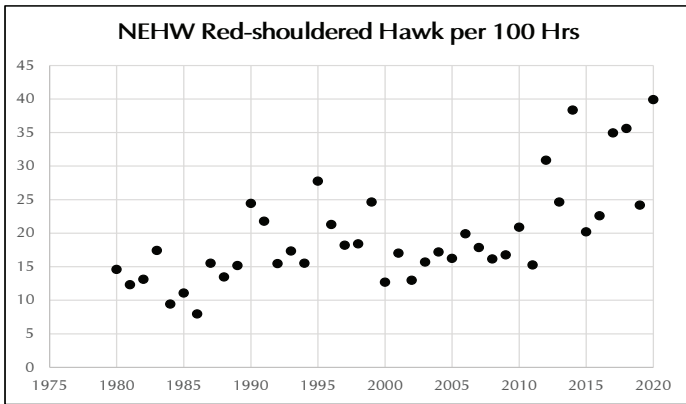


Harrier, Accipiters

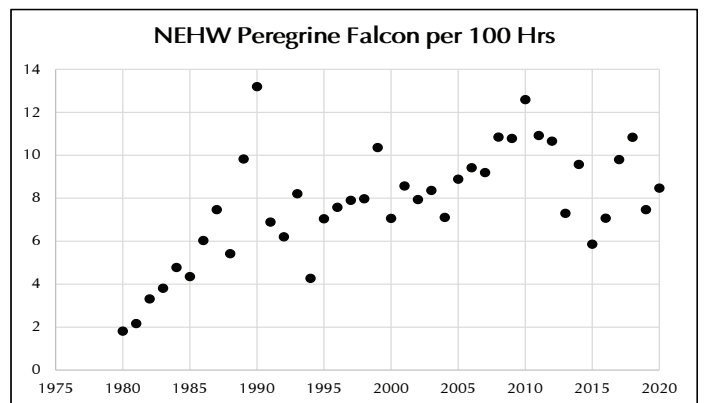
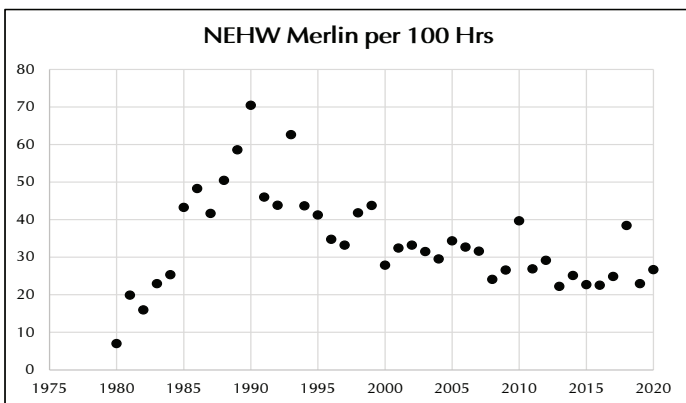
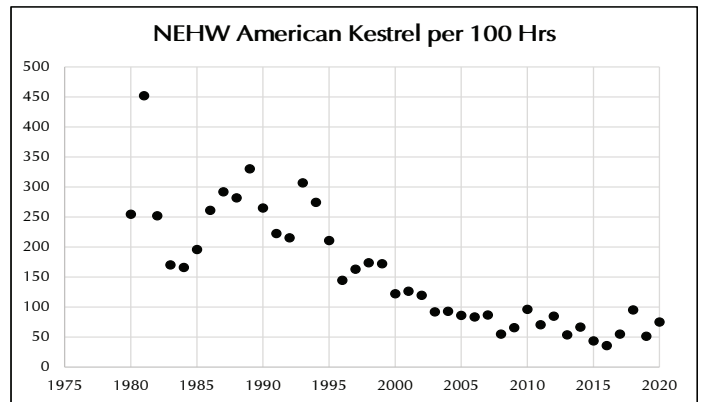
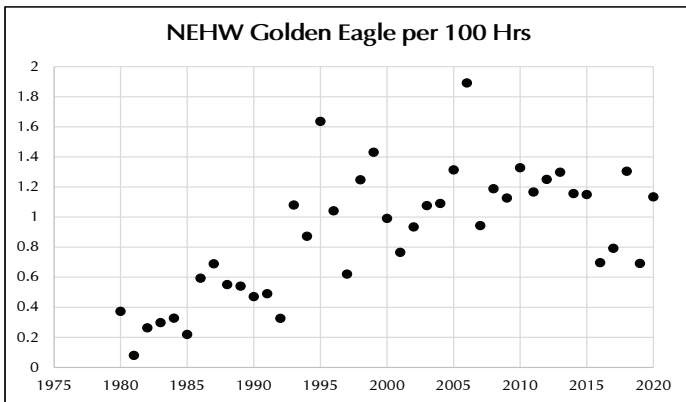


NorthEast Hawk Watch Fall Migration Trends, 1980–2020

Buteos



Golden Eagle, Falcons



NorthEast Fall 2020 Distribution: Hawks/100 Hours by Region

Reg	Sites	Days	Hours	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	Total	XBV
44	5	155	933	0	227	50	102	37	238	9	4	5	1659	94	1.8	1.2	96	12	8	27	2571	686
43	5	98	688	0	56	17	29	11	193	11	2	7	1078	83	0.0	1.6	29	8	7	6	1537	404
42	9	289	1757	4	106	28	36	13	155	35	1	23	1849	53	0.2	0.8	43	16	5	29	2396	438
41	14	680	3575	13	231	32	41	14	212	42	0.1	59	845	56	0.0	1.3	47	9	4	10	1616	526
40	6	395	2234	18	211	42	42	12	186	52	0.5	59	629	86	0.1	1.5	60	18	9	9	1434	576
CO	4	204	1219	4	46	185	27	44	243	103	0	19	46	29	0.0	0.2	244	132	27	33	1183	1086
TOT	43	1821	10405	10	172	52	43	19	201	45	1	40	963	64	0	1	75	27	8	17	1738	594
Total 2019		1644	9825	8	120	51	36	11	160	41	1	24	764	42	0	1	51	23	7	16	1358	466
10 year Ave			10471	5	108	62	29	19	274	47	1	27	1359	58	0	1	65	27	9	20	2121	649

Region 44 is dominant. This could be random, or perhaps our Goshawk decline of the last decade reflects a population that is moving further north in response to global warming.

Red-shouldered Hawk has a distribution pattern very similar to Black Vultures. Both species are historically more populous south of our region and are spreading their populations into the NorthEast. Broadwings are spread across the NorthEast, avoiding the coast, and occur in greater numbers in our three northern regions. This is consistent with our observations in recent years. Redtails are almost uniformly widespread across the NorthEast, and are showing up along the coast as well. Roughleg, MIA in 2019, followed its northerly distribution this season, occurring mostly in Region 44. Golden Eagles are still low in numbers, but are spread across the whole NorthEast. Falcons continue their usual flight pattern, mostly along the coast.

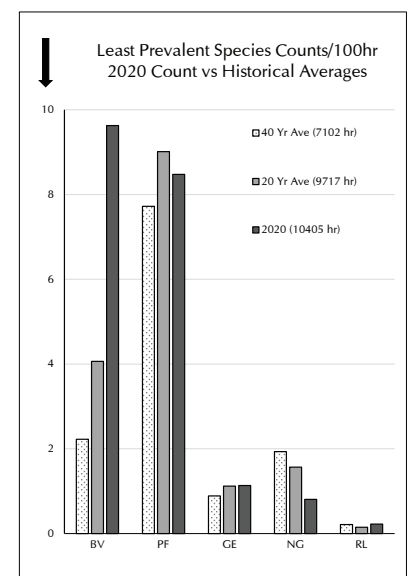
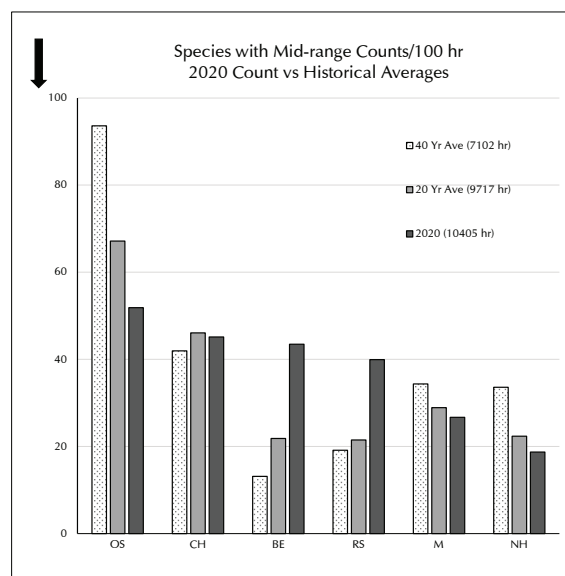
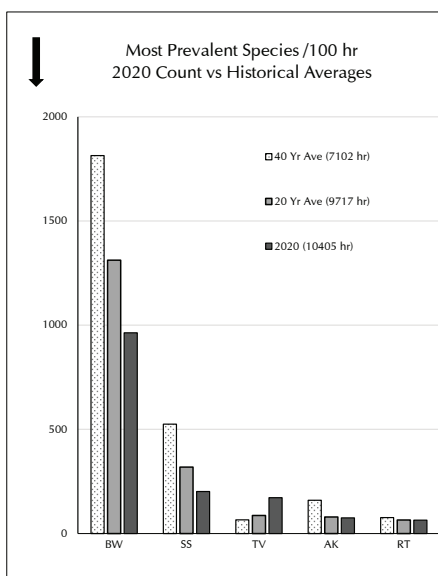
The Species

Our Species Prevalence charts are arranged from most prevalent species to least prevalent. The charts provide an overview of both prevalence and trend. Note that the vertical scale, which represents hawks/100 hours, is different for each chart. The species rankings for the four most prevalent species remains the same as last year, with Broadwings most prevalent, followed by Sharp-shins, Turkey Vultures, and then Kestrels. However, 5th place was an upset this season. Redtails jumped up two ranks to replace Osprey. All other species ranked in the same order as in 2019. Our Mid-Range species include Osprey, Cooper's Hawk, Bald Eagle, Red-shouldered Hawk, Merlin, and Northern Harrier. Our Least Prevalent species include Black Vulture, Peregrine Falcon, Golden

Eagle, Northern Goshawk, and Rough-legged Hawk. Notice how close Bald Eagle is to Coopers Hawk. That's 43 Bald Eagles /100 hr compared to 45 Cooper's Hawk /100 hr. Considering the steady and strong growth in Bald Eagles, it seems likely that Bald Eagles will be moving up in the ranks within the next couple of years.

For each species the charts show three bars. From left to right, the bars represent the 40 year average, the 20 year average, and the 2020 count. This offers a glimpse at the trend for each species. Those that are steadily declining over the years since 1980 show a pattern with a larger 40 year average than 20 year average, and a larger 20 year average than the 2020 count. These include Broadwings, Sharpshins, Osprey, and Goshawks. Other species with a declining trend, with 2020 just a little below the 20 year average, include Merlin and Harrier. Two species that have been in this category in recent years are Kestrels and Redtails. Our charts show these species at the 20 year average in 2020, a good sign and hope for a future with more of them. Species that are increasing over the years show a pattern with 40 year average less than the 20 year average, and the 20 year average less than the 2020 count. These species include Turkey Vulture, Bald Eagle, Red-shouldered Hawk, and Black Vulture. A different patterns exists for some species, which first increased, but then either declined, like the Peregrine Falcon, or remained steady like the Cooper's Hawk and Golden Eagle. So, these charts reveal much about our migrating raptors here in the NorthEast.

The data for the 20 year average is included on The Fall Regional Totals Table. It contains the counts/100 hours for each species for the 20 years prior to 2020, along with the 2020 counts, the 20 year average, and the percent difference of the 2020 count from that average.



NORTHEAST FALL REGIONAL TOTALS, 2000-2020

			COUNTS PER 100 HOURS																		
YEAR	Sites	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOT	XBV
2000	31	7869	2.0	65	75	10	23	367	39	1.7	13	1908	56	0.2	1.0	122	28	7	23	2741	767
2001	32	7846	2.9	63	69	9	27	436	38	1.8	17	1485	73	0.1	0.8	126	32	9	18	2408	857
2002	38	7812	1.8	59	87	12	25	365	39	1.4	13	1577	66	0.2	0.9	120	33	8	20	2426	789
2003	40	7901	2.0	57	78	13	35	380	46	1.6	16	493	99	0.4	1.1	92	32	8	20	1378	826
2004	39	8073	2.3	58	67	16	20	359	44	1.4	17	943	68	0.2	1.1	93	30	7	19	1745	742
2005	43	8605	5.7	64	69	15	21	365	52	1.5	16	1378	100	0.1	1.3	86	34	9	23	2242	794
2006	44	9572	2.5	66	80	15	30	392	51	1.7	20	1001	71	0.1	1.9	83	33	9	19	1876	807
2007	43	10077	3.9	65	75	16	35	397	54	2.3	18	1205	65	0.2	0.9	87	32	9	20	2086	813
2008	45	10607	3.1	83	71	17	20	272	45	1.3	16	1499	62	0.3	1.2	55	24	11	16	2197	612
2009	52	11274	3.5	66	56	19	17	309	44	1.8	17	1164	61	0.1	1.1	66	27	11	20	1877	643
2010	42	10391	4.7	63	71	23	33	406	57	2.2	21	1226	68	0.2	1.3	96	40	13	29	2153	860
2011	45	10292	4.1	114	71	22	19	377	58	1.5	15	1968	54	0.1	1.2	71	27	11	21	2844	758
2012	46	10482	4.2	85	81	31	21	348	56	2.3	31	1680	85	0.1	1.2	85	29	11	24	2708	939
2013	43	11177	6.1	81	52	25	17	248	34	1.3	25	2338	54	0.1	1.3	54	22	7	18	2983	557
2014	41	10727	5.6	109	59	29	22	303	47	1.5	38	1448	69	0.1	1.2	67	25	10	22	2255	693
2015	44	11449	5.0	121	60	28	18	235	35	1.2	20	1270	43	0.1	1.1	43	23	6	15	1868	472
2016	38	10630	3.6	85	50	29	16	183	35	2.0	23	900	48	0.1	0.7	36	23	7	15	1456	468
2017	37	10228	4.1	140	52	30	14	184	39	0.8	35	919	45	0.1	0.8	55	25	10	18	1573	509
2018	41	9511	6.4	166	69	41	22	295	67	1.3	36	1081	61	0.1	1.3	95	38	11	20	2011	758
2019	39	9825	7.6	120	51	36	11	160	41	0.5	24	765	40	0.0	0.7	51	23	7	16	1357	464
2020	43	10405	9.6	172	52	43	19	201	45	0.8	40	963	64	0.2	1.1	75	27	8	17	1738	594
20yrAv	41	9717	4	86	67	22	22	319	46	2	22	1312	65	0.1	1	79	29	9.0	20	2109	707
% diff, ±	4	7	##	99	-23	99	-16	-37	-2	-48	86	-27	-2	49	1	-5	-8	-6	-15	-18	-16

BV Black Vulture, TV Turkey Vulture, OS Osprey, BE Bald Eagle, NH Northern Harrier, SS Sharp-shinned Hawk, CH Cooper's Hawk, NG Northern Goshawk, RS Red-shouldered Hawk, BW Broad-winged Hawk, RT Red-tailed Hawk, RL Rough-legged Hawk, GE Golden Eagle, AK American Kestrel, ML Merlin, PG Peregrine Falcon, UR Unidentified Raptor, XBV Total without Broad-winged Hawks and Vultures
 To find the original counts, divide by 100 and multiple by the hours. Eg: AK totals for 2016 = 35.9/ 100 * 10630 = 3816

Species—Good News: Four Record High Counts! & One Surprise

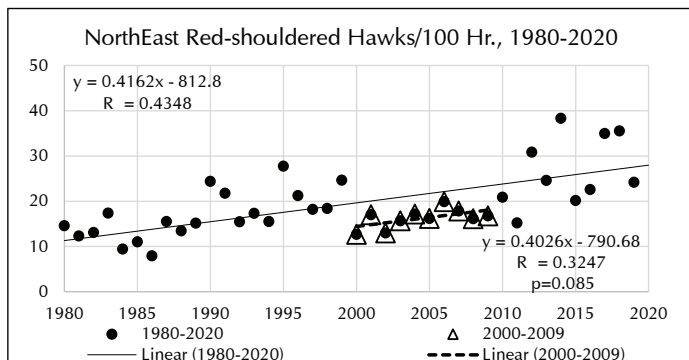
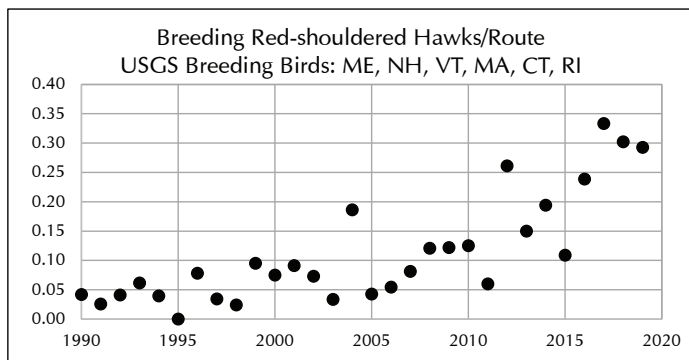
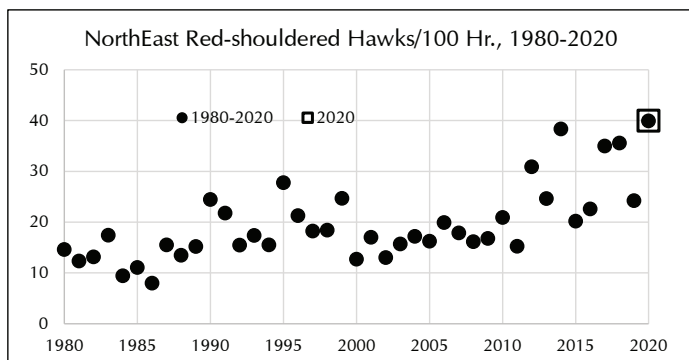
Your efforts in this 2020 season brought us four record high counts! We had record numbers of **Black Vulture** (1002, 9.6/100 hr), **Turkey Vulture** (17909, 172/100 hr), **Bald Eagle** (4524, 44/100 hr), and **Red-shouldered Hawk** (4154, 40/100 hr)! Wow! You got this for us. Moreover, these are records for both actual counts and standardized data. Of course, record Black Vulture is no surprise. Afterall, we had a record high for them last year during a record low year for Total Hawks. Also, there were record highs for both Turkey Vulture and Bald Eagle in 2018. So, these records are no surprise. In fact, they are a strong testament to the continued growth of these species, and you are documenting that for us. Great job counting, everyone!

Surprise, surprise! **Rough-legged Hawks** graced six of our watch sites this season, after not showing up anywhere in 2019. There were 23 Roughlegs this season! Since 1980 there have been only three years with more: 30 in 2008, 28 in 2003, and 31 in 1999. Of course, our 23 Roughlegs

were not ranked third when standardized. At 0.22/100hr, this year's count was definitely above average, but lower than many of our earlier years. So, again we see the power of your efforts. You counted enough hours to find 23 Roughlegs, reminiscent of our counts 20 to 40 years ago! Amazing!

“Another great movement of mainly Bald Eagles and Redtails with a surprise TWO Dark Morph Roughlegs, with one seen @ 1:30 PM. crossing paths with another to the southwest of the hill, just a few minutes later. Superb looks.”

Thom McCullough, Clarry Hill,
 hawkcount.org, 11/21/2021

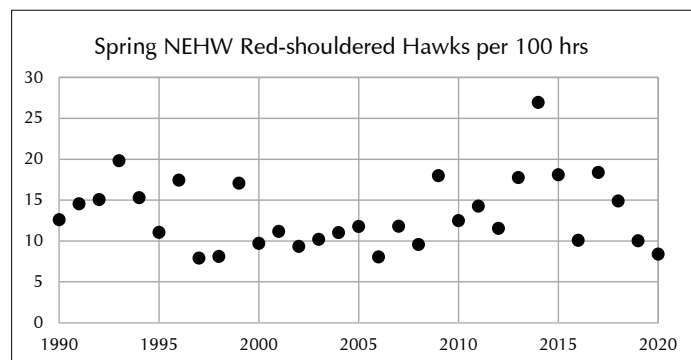


Red-shouldered Hawks—Record High Count, ... a decade after recovery?

At 40/100hr, our **Red-shouldered Hawk** record is slightly higher than our previous high of 38/100hr in 2014. Checking the graph, we see that Shoulders have shown a climb to higher numbers over this last decade. Just 11 years ago we counted fewer than 20 /100 hr for the whole decade from 2000 to 2009, and this was a drop from higher counts in the previous decade. This is a strange, non-random pattern for a species with a generally increasing trend. If there really is an overall increasing pattern (like Shoulders expanding into the NorthEast with global warming), then why the drop from 2000 to 2009? Coincidentally, that timing is a year after the first case of West Nile Virus (WNV) in the U.S. Could West Nile be a factor? West Nile arrived in New York in 1999 with 62 human cases and many dead birds. It then expanded to Connecticut and New Jersey in 2000, and to Massachusetts and other states along the east coast, including wintering territories such as Florida, Alabama, and Georgia in 2001. (See links below.) Raptors were among the most sensitive to WNV, including Red-shouldered Hawk. Human cases of West Nile continue in the U.S. today, but our Shoulder graph shows a recovery and a gradual return to what seems like its original trend before the interruption. In fact, the slope of the regression line for the dropped decade (0.403) is almost the same as that of the overall regression line (0.416), indicating a continued rise at the same rate during that interval. Perhaps our Shoulders today are

survivors with natural WNV immunity. Since raptors of other species have been shown to develop “long lasting antibodies” to the virus, this seems feasible. (Nemeth, 2008) While we have no evidence here that West Nile caused our dropped decade, our graph does provide observational support for such a hypothesis.

If the Shoulders had a drop as a migrating population across the NorthEast, is there a similar drop in breeding birds? The USGS Breeding Bird Survey is available online (see link below). Data for Connecticut, Massachusetts, Maine, New Hampshire, Vermont, and Rhode Island was combined and averaged to hawks per route for each year from 1990 to 2019. Results show a general rise in breeding birds over the three decades, but it does not show a clear drop for the period from 2000 to 2009.



What about spring? Does the NEHW spring migration data show a drop for the decade 2000 to 2009? Yes, and no. Yes, the 2000 decade is definitely different in pattern from both the decade before and the decade after, and it has generally low counts. But, no, counts in the 2000 decade are not actually lower than the other two decades.

How can our migration data show this unusual decade when the breeding data does not? Since West Nile is mostly a late summer to fall disease among humans (CDC), it is likely that the breeding hawks observed in June were not yet impacted for that season. Also, the lack of variation in counts during fall migration suggests that there was reduced breeding success. It seems possible that the young of the year had a low survival rate or at least inadequate resources for migration, while the adult population survived to develop immunity, continue migration, and adapt to living with West Nile or breeding further north where West Nile is less prevalent. Again, we have no evidence, but your counts have provided the graphs that would support a West Nile hypothesis. Thankfully, our Shoulders have survived and are growing strong! Both our Fall data and the Breeding Bird Survey data show that growth.

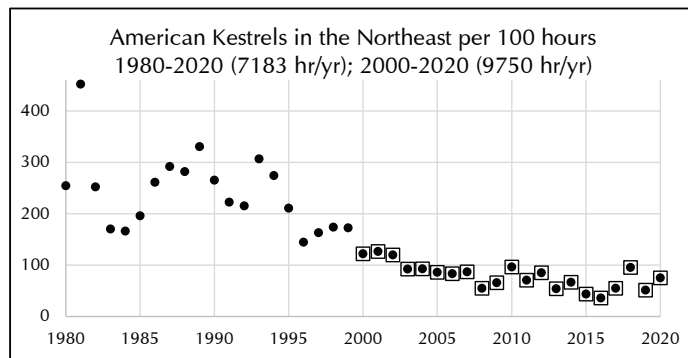
Sources: 1. Centers for Disease Control and Prevention. *West Nile Virus disease cases reported to CDC by state of residence, 1999-2019* <https://www.cdc.gov/westnile/statsmaps/cumMapsData.html#one>
2. Nemeth NM, Kratz GE, Bates R, Scherpelz JA, Bowen RA, Komar N (2008) *Naturally Induced Humoral Immunity to West Nile Virus Infection in Raptors. EcoHealth* 5, 298-304
3. Pardieck, K.L., Ziolkowski Jr., D.J., Lutmerding, M., Aponte, V.I., and Hudson, M.-A.R., 2020, *North American Breeding Bird Survey Dataset 1966-2019: U.S. Geological Survey data release*, <https://doi.org/10.5066/P9J6QUF6>. <https://www.pwrc.usgs.gov/BBS/PublicDataInterface/index.cfm>

Species—Moderate News: 8 Species at Average

What a pleasure to have eight species at average, especially after 2019 when we had five record low counts and four of those five are among this season's eight average counts. Yes, we actually had average counts for **Osprey** (5396, 52/100hr), **Northern Harrier** (1949, 19/100hr),

Cooper's Hawk (4695, 45/100hr), **Red-tailed Hawk** (6640, 64/100hr), **Golden Eagle** (118, 1.1/100hr), **American Kestrel** (7814, 75/100hr), **Merlin** (2779, 27/100hr), and **Peregrine Falcon** (882, 9/100hr). These are average counts when compared to our 10 year average. All of these species, except Osprey, are also at average for 20 years. For those of you who think our counts for some species just don't seem as high as what we remember, you are right. This year's counts for Osprey, Harrier, Kestrel, and Merlin are all below our 30 and 40 year averages.

When I checked Kestrels and found that they were 53% below our 40 year average, it was a bit of a surprise to me. The feel of the count at Fire Island this season was so much like those years past, with two or three Kestrels hovering simultaneously along the primary dunes, while the Merlins zipped past. I really thought we were closer to historical numbers, but apparently watchers on other days were not as lucky. But, I have hope that Kestrels are on the road to recovery. Maybe, just maybe, the historic-feel days will become the regular everyday experience it used to be.

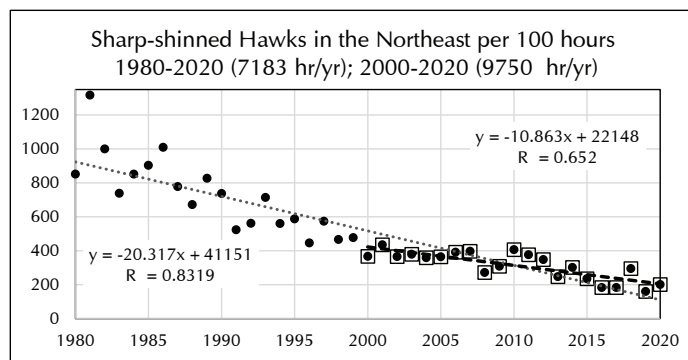


Species—the Bad, but not terrible news: 3 Species Below Average

Unfortunately, the good news of record highs, above average species, and at average species did not extend to all species this season. We still have three species with counts more than 20% below our 10 year average. The below average species are Sharp-shinned Hawk (20964, 202/100hr), Northern Goshawk (84, 0.8/100hr), and Broad-winged Hawk (100190, 963/100hr). Thankfully, none of these is a record low.

Sharp-shinned Hawk Improves to 4th Lowest

With 202 Sharpies/100hr, we were 26% below the 10 year average of 274/100 hr. This is the fourth lowest count since 1980, so our Sharpies are still in decline. A possible contributing factor is a decline in passerines, an important food source for Sharpies. In 2019, when Sharpies had their 4th record low in five years, analyses showed a significant positive association between Sharpie counts and the number of passerines/route in the USGS Breeding Bird Survey. In the years when passerine counts were low, the Sharpie counts were also low. <http://www.battaly.com/nehw/reports/NEHW2019.pdf>

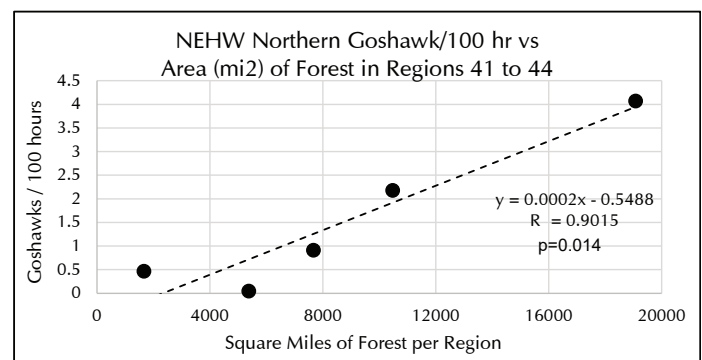
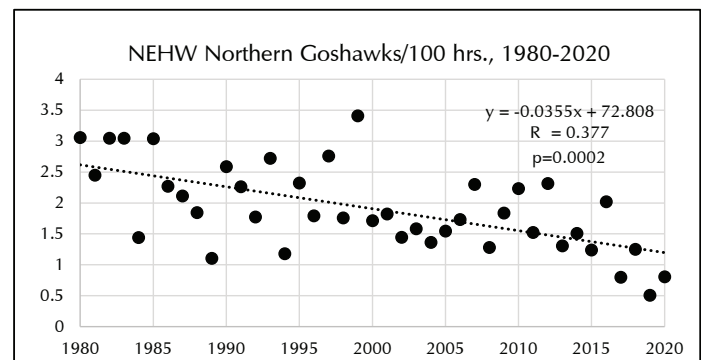


Nevertheless, even though our 2020 count was the 4th lowest on record, it was an improvement compared to 2019. At Hook we had 600 more Sharpies than in 2019. That was enough to have the feel of our normal watch, with Sharpies zipping through hourly. That experience brings hope that we will see higher counts soon.

Northern Goshawk—60% better than 2019, but still low, and resident

Our 84 Northern Goshawks this season is a big improvement over the 50 counted in 2019. However, it is also the 3rd lowest count since 1980. At 0.8/100hr, it still represents counts that are less than one Gos in 100 hours. Of course, Goshawk are most prevalent in our northern regions, and both Region 44 at 4/100hr and Region 43 at 2/100hr saw two to three times the number of Goshawks as in 2019.

As noted in our Hawk Distribution section above, the declining counts of Goshawks from north to south suggest that our data for Goshawk represents breeding birds rather than migrants. The assumption there is that birds that breed in the NorthEast but migrate south in fall would most likely be seen in larger numbers at the southern end of the NorthEast. Since our data shows the reverse, we can assume that the Goshawks seen at watch sites in the fall are moving within the region rather than migrating through it. Since Gos prefer old growth forest for breeding and hunting, can we use the amount of forest in our regions to help us evaluate their status as locals or migrants? If our birds are locals, they should be more prevalent in the regions that have more forests. If they are migrants, their prevalence in moving through the NorthEast would be independent of the amount of forests. To explore this hypothesis we need the area of forests in each of our Regions, 40 to 44, with Region CO incorporated into the corresponding Regions 40 and 41. The polygon option in Google Earth was used to measure the approximate area of the portion of each state in each of the regions 40 to 44. This area was then multiplied by the proportion of each state that is forested. (See link below.) The forested areas for each state in a region were then added. A comparison of these areas to our Goshawks/100hr for each region shows a strong correlation ($r=0.949$, $p=0.014$). The regions with more forested area had more Goshawks and the regions with less forested area had fewer



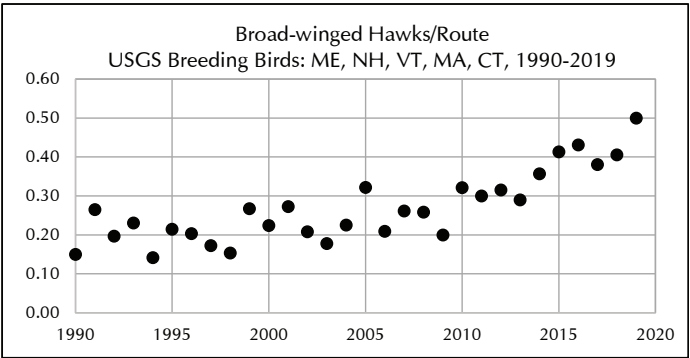
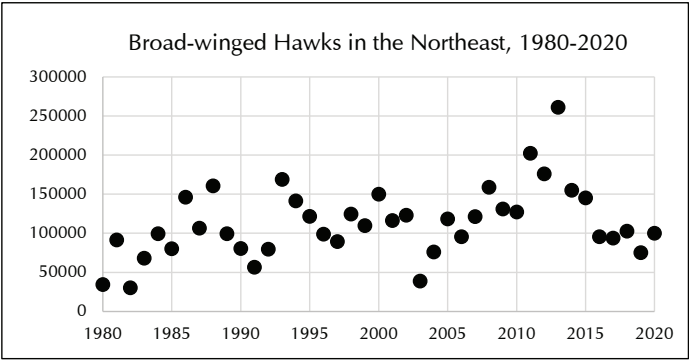
hawks. So, your hawk watch counts provide us with strong evidence that the Gos we see are not just flying randomly south across our landscape. They are associated with forests, their preferred breeding habitat. Without having radio tags on the Gos and watching their movements, we are not likely to get better evidence that the Goshawks we count are not migrants.

Links: https://en.wikipedia.org/wiki/Forest_cover_by_state_and_territory_in_the_United_States

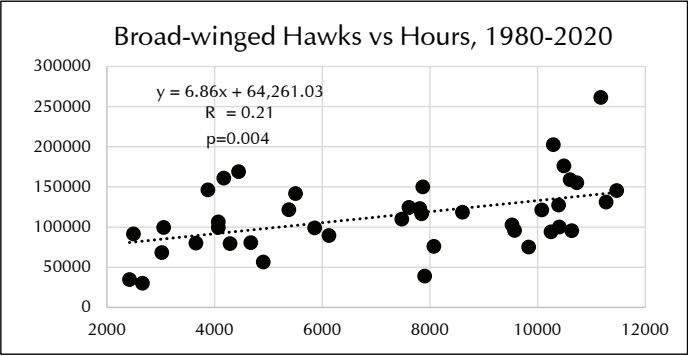
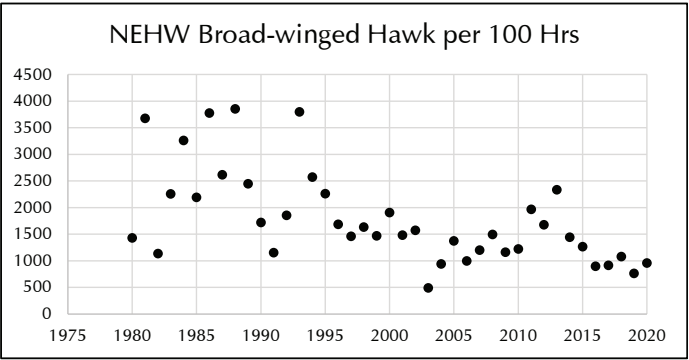
Broad-winged Hawk—below average migrants, and . . . increased breeding?

Our 100190 Broad-winged Hawks (963/100hr) this season are about 30% below our 10 year averages for both the actual count (143577) and the standardized count (1359/100hr).

Broadwings, however, are so variable that we expect years below average, to balance the years above average—in this case the two years with counts over 200,000: 202,572 in 2011 and 261,313 in 2013. We can see those years as the highest points on the Broadwing graph.



While looking at the USGS Breeding Bird Survey for Shoulders, and always curious about our most prevalent Broadwings, I did the totals for the Broadwing counts/route in Maine, New Hampshire, Vermont, Massachusetts, Connecticut, and Rhode Island. Good news—the BBS shows an increase in breeding Broadwings in the NorthEast! Wow! So, why doesn't our migration data show an increase? Our fall data does not look at all like the BBS data, especially when we use the Broadwings/100hr graph. But, even when we use the actual count of migrating Broadwings, our low counts in recent years are totally inconsistent with the BBS data. This is quite a dilemma. Are Broadwings migrating along different routes? Are they using the same routes, but in ways that make them less visible? Just as perplexing is the question of whether we should use the actual counts or the hawks/100 hours for Broadwings. Up until 2015, the graph of the actual counts looks a little more like the BBS graph. Yet, a comparison of Broadwings to hours for each year shows a significant correlation ($r = 0.455$, $p = 0.004$), and indicates that hours account for about 21% of the variation in the number of Broadwings. This suggests that we need to continue to account for the hours, and use the standardized data. If you have any explanation for the lack of agreement between the



BBS and NEHW data, please let me know. I am especially interested in any changes in thermals. Could thermals be weaker now, and not concentrating Broadwings where we can see them? Could thermals extend higher so the Broadwings are beyond our vision? These are questions I have been unable to answer.

WATCH LIST

The purpose of the NEHW Watch List is to keep us aware of the species that are at the greatest risk of decline. On the List, species are arranged from lowest to highest according to the Watch List value, WL. A check mark indicates a Record Low and has a value of 1, and the numbers indicate the rank for that season above the record low. The WL is simply the sum for that species. The species with the lowest WL values are most at risk of decline.

NEHW Watch List: Declining Species								Status
	2015	2016	2017	2018	2019	2020	WL	
Sharp-shinned Hawk	✓	✓	✓	6	✓	4	14	M
Northern Harrier	4	✓	✓	14	✓	8	29	M
Northern Goshawk	4	20	✓	4	✓	3	33	R
American Kestrel	✓	✓	5	15	3	10	35	M
Osprey	3	✓	3	9	2	5	23	xFS
Red-tailed Hawk	✓	2	2	9	✓	14	29	xCS

Check mark indicates a Record Low year. The numbers indicate the rank above record low when record low = 1. WL = sum of all years. The lowest possible count = number of years. Species with lower WL are at greater risk of continued declines in migration counts. Status: M=migrant, R=resident, x=population not threatened, CS=climate shift, FS=flyway shift

With no record low counts this season, no new species are added. Each of the species on the list was updated for this season with its rank in 2020 above the record low for the species.

We see that Sharp-shinned Hawk remains our most at risk species, with a WL of 14. It had record lows for four of the last six years. Our second most at risk species is Northern Harrier, with a WL of 29. With a comfortable rank of 8 in 2020, the sense of emergency is alleviated. Harrier had record lows for three of the last six years. Recall the sudden drop of Harriers in Spring and the comparison to our fall counts of the same year. That comparison showed an inverse relationship between spring

and fall counts, where the fall numbers increase when the spring counts decrease. This higher Fall 2020 count, our 8th lowest, is consistent with that comparison, even as it is counter-intuitive—fewer adults moving through in the spring brought us more Harriers in the fall. (See the Spring section of this Report)

Goshawks and Kestrels, both having two record lows in the last six years, exchanged places this year. Kestrels had the 10th lowest year since 1980, far from a record low. Furthermore, this is the fourth year in a row without a record low. These are very good signs for Kestrels. Goshawks, on the other hand, still had low ranking this season. As a resident, our counts are monitoring the year to year changes in its population, and it seems our NorthEast population is in decline.

The WL values for Osprey and Red-tailed Hawk continue to be low. However, neither population appears to be in jeopardy. Discussions in earlier NEHW Reports suggest that both of these species are changing patterns of migration, resulting in reduced counts.

Two Specialties—a Kite, and an Owl

Mississippi Kites have been slowly expanding into the NorthEast, with occasional sightings at our watch sites. They are generally late spring and early fall migrants, and this season fit that pattern. Two Kites were seen early, on September 4th, at Wachusett Mountain. They were immatures, flying together—good news for a nascent population.

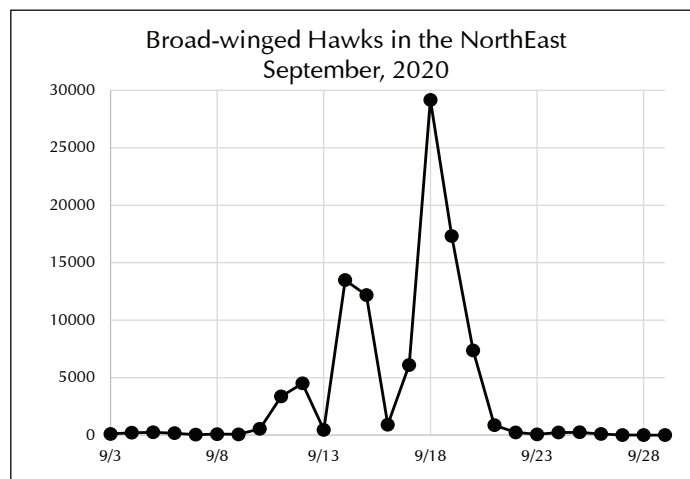
Short-eared Owls are generally seen later in the season, as they move into grassland and coastal areas to overwinter. We had two sightings this season, both in New York. The first was at Chestnut Ridge on October 8. The second was at Hook Mountain on November 22. Both of these individuals were seen in flight. In contrast, on Oct 25, 2012, we had a Short-eared flush up out of the grasses on the top of Hook Mountain in the middle of the afternoon. It had spent the day in the grasses about 25 feet from us! So, if your site has some grasses nearby, check it out for Short-eareds. Let's try for more than two next year.

Broadwing Distribution—over land and time

Our 100190 Broadwings (963/100hr) this season are 33% more than the 75184 Broadwings (765/100hr) last year. In 2019 we had no sites with more than 10,000 Broadwings, and in spite of our increase of one third, we had none this year either! We did, however, have eight sites with more

than 5000 Broadwings—Pack Monadnock (8815), Clarry Hill (8414), Wachusett (6955), Quaker Ridge (6912), Mount Watatic (5986), Putney Mt (5958), Washington Valley (5132), and Greenlaw Mountain (5035). The map shows the Broadwings were spread across the whole NorthEast, with four of these sites centrally located, balanced by two sites to the northeast and two to the southwest.

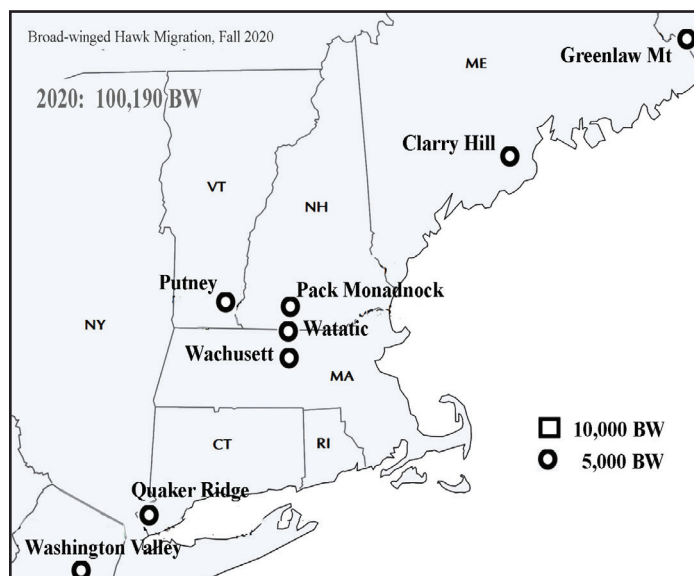
While some of our watch sites had double digit Broadwings prior to Sep 10, most Broadwings came through the NorthEast from Sep 10 to Sep 23. This fits our two week historical window. During those two weeks there were two different peaks, the first on Sep 14 and Sep 15, the second on Sep 18 and Sep 19.



The Broadwing flight period table displays the counts from Sep 10 to Sep 25 for all sites in the NorthEast that counted 100 or more Broadwings. Totals for each day are included at the bottom of the table. The flight started on Sep 10 when Greenlaw Mountain had 546 Broadwings and no other sites had any. That's our furthest northeastern site, just where we expect the Broadwings to start. The following day, on Sep 11, eight of our 13 northernmost sites had counts of more than 100, with Pack Monadnock at 986. Wildcat Ridge became our first southern site with more than 100. On Sep 12, Putney stole the show with 1726, as the Broadwings began to filter southward with triple digits at Mohonk, Chestnut Ridge and Scott's Mountain. Then on Sep 13, Greenlaw had another showing, while everywhere else watchers waited for the action ahead.

The action came the next day. Sep 14 was our first big day of the season—a total of 13487 Broadwings flew over our sites, with a peak day at Greenlaw (2572), more than a thousand at Chestnut Ridge (1159), Hook Mountain (1350), and Quaker Ridge (1253), and near a thousand at Helderberg (994) and Mohonk (979). Sep 15 was the second big day—a total of 12181 Broadwings, with peak numbers at Clarry Hill (2347), another good day for Putney (1171) and 23 other sites with hundreds of Broadwings. Sep 16 was mostly cloudy, and only a few sites along the western border counted triple digits. Sep 17 brought some action at Putney (1270) and Pack Monadnock (2195), and triple digits at a few other sites up north.

Then came Sep 18, and the skies exploded with 29163 Broadwings! Twelve sites had more than a thousand, and eight sites had counts in the hundreds. The Wachusett count (3898) was the highest single day NorthEast count of the season. Nine sites had their peak counts for the season: Pack Monandack (2886), Mount Watatic (2988), Mount Holyoke (1910), Shatterack (1835), Blueberry Hill (1456), Chestnut Hill (1364), Mount Peter (1357), Quaker Ridge (2704), and Washington Valley (2963). It was also the first big day for Scott's Mountain and the last big day for Greenlaw.



Broad-winged Hawk Comparative Counts during Flight Period, Fall 2020

	Sites	9/10	9/11	9/12	9/13	9/14	9/15	9/16	9/17	9/18	9/19	9/20	9/21	9/22	9/23	9/24	9/25
44	Greenlaw	546	144		249	2572			3	1035	212	37	17		2	8	
	Cadillac Mt.		126	29			295		7	17	244	284	1				1
	Mt.Philo SP		462	184		148	104			81	3						
	Clarry Hill		172	471		98	2347	2	902	975	716	2229	34			178	21
43	Interlakes School							60	835								
	Carter Hill		65				320										
	Putney Mt.		264	1726	3	729	1171	140	1270	457	37	9	9	5		2	6
42	Pack Monadnock		986	312	1	328	882	2	2195	2886	366	378	156	6	1	1	118
	Mount Watatic		392	55	1	209	356	4	378	2988	451	791	292	17	2	13	
	Helderberg		154	191	82	994	193	179	45	512	26	2	5				
	Wachusett Mt.		62	23		367	364	1	22	3898	970	1032	32	12	5	5	19
	Barre Falls			14			133	3	12		310	32	6	12	4	1	
	Mount Holyoke									1910	430						
	Shatterack		21	71		358	420			1835	46	172	16	5	1	1	
	Blueberry Hill		79	9		390	306		1	1456	149	61		3			1
41	Poquonock		3						1	30	102	462					2
	Middle School		6		6	570	3										
	Johnnycake		8	17	21	7	19	9	22	18	130	17	34	16			
	Mohonk		40	701	37	979	202	147	318	295	3		3	11	17		1
	Chestnut Hill		29	98		569	41	4		1364	195	332	2	4			
	Apple Hill		20	5	3	11	4	7	3	14	12	1	124	9			4
	Botsford Hill			13		185	4			123	490	29		3	2	4	7
	I-84 Overlook					118											
	Bear Mountain		25	26		2	261	28	13	12	22		8	7			1
	Mount Peter		39	54	5	317	561	51	1	1357	998	312	14				6
	Chestnut Ridge		43	101		1159	261	3	11	588	610	152	6	13	1	15	19
	Hook Mountain		5	14		1350	273	1		71	2618	56	6	2	3		
	Quaker Ridge	1	45	7	3	1253	583			2704	1801	86	7	7	16		4
	Purple Chickadee		2	38		22	333	1	1	13	2221	184	33	38			
40	State Line		4	7	1	40	716		4	149	260	12	5	5	1		4
	Lenoir						32			1	298	3	1				
	Wildcat Ridge		113	73	2	3	102	18	18	13	798	316	12				20
	Montclair		4	26	2	144	204			80	132	22	3	8	1		5
	Scott's Mountain		47	229	47	139	942	252	43	1058	1604	261	31	15	6	3	6
	Washington Valley		5	8		299	599			2963	1034	63	0	41	6		
CO	Lighthouse Pt		2							87	6	23	3	2	2		
	Boothe Memorial		2			52	120			173	12						
Total		547	3369	4502	466	13487	12181	912	6105	29163	17319	7358	860	242	70	231	245

Sep 19 brought another big day, with the second highest count of the season—17319 Broadwings. Five sites had more than a thousand Broadwings, all in the southern sections. There were peak counts for Hook Mountain (2616), Purple Chickadee (2221), and Scott's Mountain (1604), and additional counts of a thousand for Quaker Ridge (1801) and Washington Valley (1034). Nineteen additional sites had counts in the hundreds. And, there were still Broadwings yet to come. Sep 20 had 7358 Broadwings with two counts in the thousands, at Clarry Hill (2229) to the north, and Wachusett (1032), plus 11 sites with counts in the hundreds. This was the last big day for the 2020 Broadwings, as totals dropped below a thousand from Sep 21 to Sep 25. What an exciting season! Our Broadwings came through in a big rebound after the 2019 low.

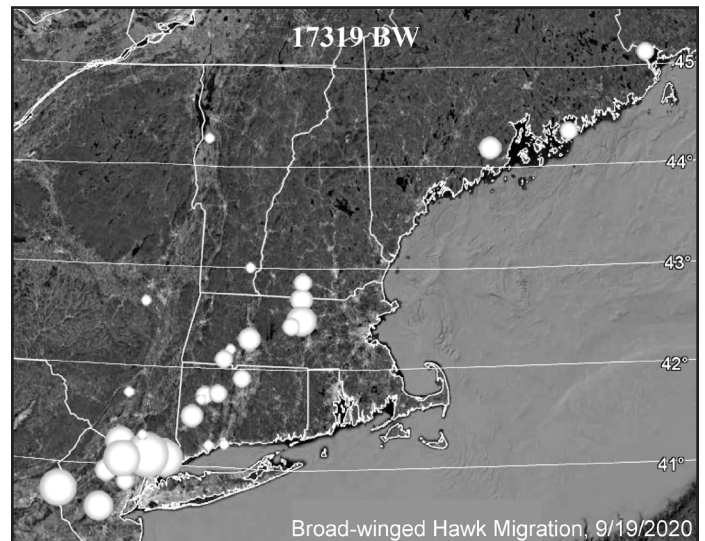
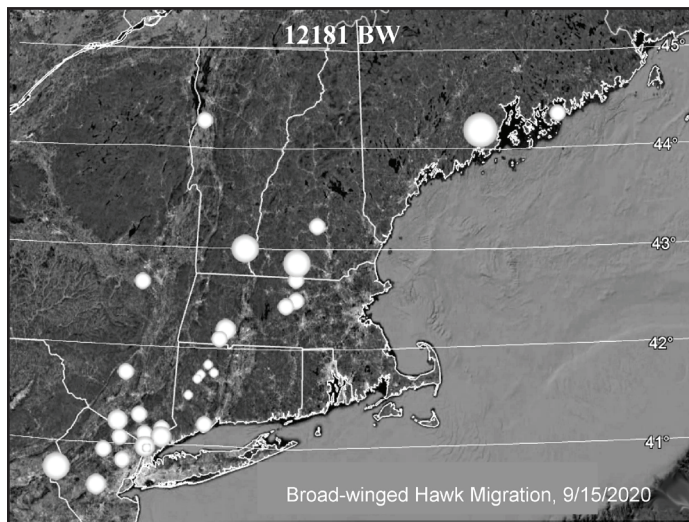
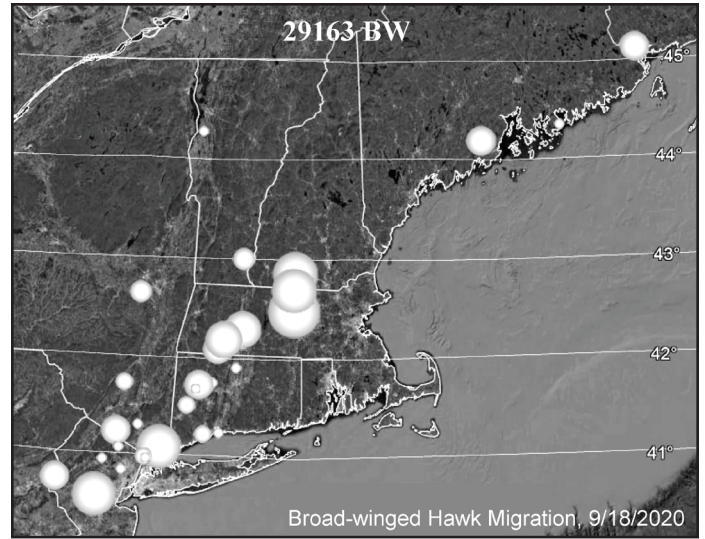
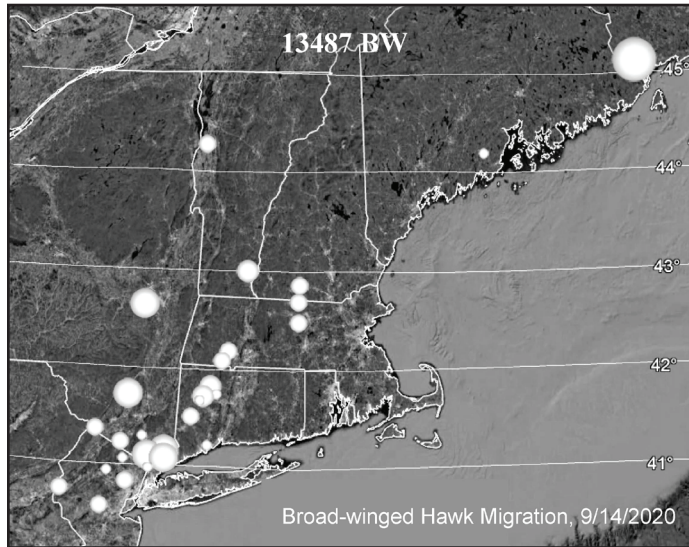
While we can see the distribution of Broadwings by checking out the bold type in the table, it is helpful to visualize the spread of Broadwings across the NorthEast using density maps. The images show the first peak on Sep 14-15 and the second peak on Sep 18-19.

The first thing we notice during the 9/14-15 peak is the pattern of Broadwings from northeast to southwest. This reflects the locations of our watch sites. There are no circles in the northern portions of Maine and New

Hampshire because we have no sites there. Next we notice that the most Broadwings (biggest circle) occur in the northeast on both days, with the change in locations, suggesting that from 9/14 to 9/15 the hawks moved down the coast. We also see wide dispersal across the NorthEast—that's you, under the circles, counting those hawks! Sep 14 appears to have more Broadwings (bigger circles) in Region 41 than Sep 15, and Sep 15 has more in Regions 42 and 43. This seems counter-intuitive for southbound migrants. However, there had already been 10000 hawks counted prior to Sep 14. So, there were hawks around to lift up when the good weather arrived.

In comparison to the first peak, the maps for the second peak, 9/18 and 9/19, stand out with substantially larger counts. The 9/18 map clearly shows the spread of the hawks in large numbers across Regions 40, 41, and 42. We can easily see the biggest day count at Wachusett right there in the middle of Massachusetts. And, we know that hawk watchers across all these regions had great fun and excitement that day. The map for 9/19 shows the last large numbers of Broadwings leaving the NorthEast through Regions 40 and 41. Note that on both of these days there is still activity in the northeastern section.

Two things stand out from looking at the maps. First, we need more sites in northern Maine, New Hampshire, and Vermont so we can find out what is happening up there. Second, the Broadwings seem to be concentrating less at isolated watch sites and spreading out more across the landscape. This emphasizes the importance of each of our watch sites.



Sep 14-15. The smallest circles represent counts below 100, whereas the largest circles represent counts in the thousands. Cutoff values for the circle sizes are 100, 400, 800, 1500, 2500, 3500, 4500.

Sep 18-19. The smallest circles represent counts below 100, whereas the largest circles represent counts in the thousands. Cutoff values for the circle sizes are 100, 400, 800, 1500, 2500, 3500, 4500.

“It was October 10, a Saturday. I had single handedly braved the crowd of bicyclists at the bottom of Perkins Memorial Drive, driven up the mountain, parked at the hawk watch, and stepped out into a world of fog. But there were breaks and I was seeing a single hawk fly by from time to time. As the Bear Mountain field became clear, I spotted a hawk. The upper side looked completely brown, the underside looked completely brown. It was a buteo but it wasn’t a tail, wasn’t a shoulder, wasn’t a broadwing. I don’t recall seeing a tail band but did see the dark wrist patches. This was a short encounter, just seconds long, with the bird moving away from throughout.”

Carol Weiss, Bear Mountain, 10/10/2020

Peak Daily Site Counts—Fall 2020

BROAD-WINGED HAWK			RED-SHOULDERED HAWK			SHARP-SHINNED HAWK			AMERICAN KESTREL			OSPREY					
Wachusett Mt.	9/18	3898	Chestnut Ridge	11/4	98	Lighthouse Pt	10/8	345	Fort Tilden	10/8	239	Fort Tilden	9/11	150			
Mount Watatic	9/18	2988	Quaker Ridge	10/25	90	Chestnut Ridge	10/8	245	Fire Island	10/8	204	Fire Island	9/14	142			
Washington Valley	9/18	2963	Chestnut Ridge	11/19	88	Chestnut Ridge	10/9	214	Lighthouse Pt	10/8	178	Fire Island	9/18	142			
Pack Monadnock	9/18	2886	Chestnut Ridge	11/3	82	Lighthouse Pt	10/17	206	Fire Island	9/14	173	Boothe Memorial	9/11	106			
Quaker Ridge	9/18	2704	Hook Mountain	10/31	77	Lighthouse Pt	9/19	173	Fire Island	9/19	164	Lighthouse Pt	9/3	73			
Hook Mountain	9/19	2618	Pack Monadnock	10/25	70	Quaker Ridge	10/9	170	Fire Island	9/22	162	Lighthouse Pt	10/5	70			
Greenlaw	9/14	2572	Quaker Ridge	11/3	68	Lighthouse Pt	9/20	168	Fire Island	9/18	129	Lighthouse Pt	9/11	68			
Clarry Hill	9/15	2347	Quaker Ridge	11/19	65	Lighthouse Pt	10/11	164	Lighthouse Pt	9/14	124	Fort Tilden	9/18	61			
Clarry Hill	9/20	2229	State Line	11/4	51	Quaker Ridge	9/19	161	Fort Tilden	9/22	94	Lighthouse Pt	9/18	58			
Purple Chickadee	9/19	2221	State Line	10/27	51	Quaker Ridge	9/20	160	Cadallic Mt.	9/11	90	Lighthouse Pt	10/8	58			
Pack Monadnock	9/17	2195	Scott's Mountain	11/22	51	Lighthouse Pt	9/18	156	Fort Tilden	9/18	90	Fire Island	9/11	55			
Mount Holyoke	9/18	1910	Washington Valley	10/27	50	Cadallic Mt.	9/15	153	Fort Tilden	9/14	87	Lighthouse Pt	9/12	54			
Shatterack	9/18	1835	Montclair	11/4	49	State Line	10/9	150	Washington Valley	9/11	84	Fort Tilden	9/14	47			
Quaker Ridge	9/19	1801	Chestnut Ridge	11/9	47	Scott's Mountain	10/11	149	Quaker Ridge	9/19	76	Lighthouse Pt	9/15	45			
Putney Mt.	9/12	1726	Chestnut Ridge	10/25	46	Putney Mt.	10/8	148	Cadallic Mt.	9/19	75	Fort Tilden	10/3	42			
Scott's Mountain	9/19	1604	Quaker Ridge	11/4	44	Washington Valley	10/8	147	Lighthouse Pt	9/18	72	Lighthouse Pt	9/30	40			
Blueberry Hill	9/18	1456	Washington Valley	11/21	43	Hook Mountain	10/9	140	Cadallic Mt.	9/15	69	Pinnacle Rock	10/4	40			
Chestnut Hill	9/18	1364	Chestnut Ridge	11/21	41	Lighthouse Pt	10/25	138	Clarry Hill	10/3	68	NORTHERN HARRIER					
Mount Peter	9/18	1357	Chestnut Ridge	11/20	41	Quaker Ridge	10/8	132	Lighthouse Pt	10/11	68						
Hook Mountain	9/14	1350	Lighthouse Pt	10/25	41	Hook Mountain	10/3	127	Washington Valley	10/9	64						
Putney Mt.	9/17	1270	Chestnut Ridge	10/31	40	Washington Valley	10/3	124	Fire Island	10/17	64						
Quaker Ridge	9/14	1253	Quaker Ridge	10/31	39	Pack Monadnock	10/11	123	MERLIN			Lighthouse Pt	9/18	19			
Putney Mt.	9/15	1171	State Line	11/19	38	Cadallic Mt.	9/19	120				Fire Island	9/19	18			
Chestnut Ridge	9/14	1159	Scott's Mountain	10/25	37	Clarry Hill	9/18	118				Fire Island	9/18	153	Fire Island	9/18	17
Scott's Mountain	9/18	1058	GOLDEN EAGLE			Quaker Ridge	10/11	117	Fire Island	10/8	151	Clarry Hill	10/4	17			
Greenlaw	9/18	1035				Lighthouse Pt	10/9	111	Fire Island	9/14	150	Fire Island	11/3	17			
Washington Valley	9/19	1034				Scott's Mountain	10/31	5	COOPER'S HAWK			Fort Tilden	10/8	79	Fire Island	9/22	15
Wachusett Mt.	9/20	1032				Scott's Mountain	11/2	4				Fire Island	10/17	73	Lighthouse Pt	10/9	15
Mount Peter	9/19	998	Clarry Hill	10/11	3	Lighthouse Pt	10/8	71				Fort Tilden	9/22	14			
Helderberg	9/14	994	Putney Mt.	10/8	3	Fire Island	9/22	61				Lighthouse Pt	10/11	14			
Pack Monadnock	9/11	986	I-84 Overlook	12/6	3	Lighthouse Pt	10/8	77	Fire Island	9/11	57	Fort Tilden	10/27	13			
Mohonk Preserve	9/14	979	I-84 Overlook	12/10	3	Lighthouse Pt	10/25	76	Fire Island	9/19	55	5 days with 12 NH					
Clarry Hill	9/18	975	Shatterack	10/25	2	Lighthouse Pt	9/19	63	Fire Island	10/2	49						
Wachusett Mt.	9/19	970	Pack Monadnock	10/27	2	Lighthouse Pt	9/18	60	Fire Island	10/27	34				TURKEY VULTURE		
Scott's Mountain	9/15	942	Hook Mountain	11/3	2	Lighthouse Pt	10/5	55	Fire Island	10/11	32	Montclair	10/27	501			
Clarry Hill	9/17	902	Chestnut Ridge	11/4	2	Lighthouse Pt	9/20	54	Fort Tilden	9/18	28	Chestnut Ridge	10/25	409			
Interlakes School	9/17	835	Bear Mountain	11/5	2	Chestnut Ridge	10/9	54	Fire Island	10/13	25	Clarry Hill	10/22	282			
RED-TAILED HAWK			Scott's Mountain	11/14	2	Lighthouse Pt	11/3	37	Washington Valley	9/11	22	Clarry Hill	10/12	267			
			BALD EAGLE			Quaker Ridge	10/11	33	Fire Island	9/20	22	Wachusett Mt.	10/25	263			
						Quaker Ridge	10/9	29	Fire Island	9/25	22	Montclair	10/31	237			
						Chestnut Ridge	10/11	28	Lighthouse Pt	10/11	20	Chestnut Ridge	10/9	218			
Mount Peter	11/3	208				Clarry Hill	11/14	87	Chestnut Ridge	10/18	28	Fort Tilden	10/27	19	Mount Peter	10/27	204
I-84 Overlook	11/3	110	Clarry Hill	10/27	61	Chestnut Ridge	10/18	28	Fort Tilden	10/27	19	Quaker Ridge	10/27	203			
Putney Mt.	10/31	107	Clarry Hill	11/17	56	Lighthouse Pt	10/9	27	Fire Island	10/14	18	PEREGRINE FALCON					
Scott's Mountain	11/2	97	Clarry Hill	11/21	38	Lighthouse Pt	11/18	27	QUAKER RIDGE								
Clarry Hill	10/27	81	I-84 Overlook	11/14	35	Quaker Ridge	10/8	25									
Clarry Hill	10/31	73	I-84 Overlook	11/14	35	Quaker Ridge	10/8	25									
I-84 Overlook	11/14	71	Quaker Ridge	9/19	32	Purple Chickadee	10/8	25				Fire Island	10/8	28	BLACK VULTURE		
I-84 Overlook	10/27	68	I-84 Overlook	10/8	31	Montclair	10/11	23	Fire Island	10/13	20						
Clarry Hill	11/14	66	Clarry Hill	10/25	28	NORTHERN GOSHAWK			Fire Island	10/7	11	Hook Mountain	10/31	41			
Clarry Hill	10/22	59	Clarry Hill	9/14	27				Lighthouse Pt	10/7	10	Montclair	10/25	39			
Putney Mt.	10/25	58	Lighthouse Pt	9/18	27				Pack Monadnock	10/11	3	Fire Island	10/11	9	Montclair	11/15	31
Scott's Mountain	11/4	55	Clarry Hill	10/11	23				Greenlaw	10/29	3	Lighthouse Pt	10/11	9	Montclair	11/27	29
Clarry Hill	10/25	54	Clarry Hill	10/18	22	Putney Mt.	11/3	3	Fire Island	10/6	8	Mohonk Preserve	11/10	27			
Putney Mt.	10/22	53	I-84 Overlook	11/21	22	Cadallic Mt.	9/19	2	Lighthouse Pt	9/11	7	Mount Peter	10/14	23			
Putney Mt.	11/3	53	I-84 Overlook	10/24	21	Scott's Mountain	10/2	2	Lighthouse Pt	10/2	7	Mount Peter	10/31	20			
Lighthouse Pt	10/25	53	Mt.Philo SP	9/11	20	7 more days with 2 NG			Scott's Mountain	10/4	7	Montclair	9/17	18			
Clarry Hill	10/30	52	Washington Valley	9/19	20				State Line	10/7	7	Hook Mountain	10/25	18			
Scott's Mountain	11/3	52	SHORT-EARED OWL						Lighthouse Pt	10/8	7	Helderberg	9/15	13			
Lighthouse Pt	11/18	52							Clarry Hill	10/30	3	Lenoir	10/3	6	MISSISSIPPI KITE		
Clarry Hill	10/11	49				Chestnut Ridge	10/8	1	Greenlaw	10/2	6						
Greenlaw	10/29	48				Hook Mountain	11/22	1	Clarry Hill	3days	2	5 more days with 6 PG	6	Wachusett Mt.			

Greenlaw Mountain, Fall 2020 - St. Andrews, New Brunswick

Date	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOTAL
8/25	8.3	0	0	15	11	0	2	0	0	0	16	0	0	0	2	0	0	2	48
8/26	4.5	0	0	6	3	0	0	0	0	0	10	0	0	0	0	0	0	0	19
8/27	8.3	0	0	4	6	0	1	0	0	0	25	0	0	0	0	0	0	0	36
8/29	4.8	0	0	4	0	0	0	0	0	0	1	1	0	0	0	0	0	1	7
8/30	8.3	0	1	9	9	0	1	0	0	0	53	1	0	0	1	0	0	2	77
9/4	8.8	0	0	7	16	2	4	0	0	1	31	2	0	0	5	0	0	3	71
9/5	4.3	0	0	7	0	1	7	0	0	0	31	2	0	0	5	0	0	0	53
9/10	10.0	0	0	12	8	4	24	0	0	0	546	3	0	0	11	1	0	2	611
9/11	8.3	0	0	6	5	1	46	0	0	0	144	3	0	0	3	0	0	1	209
9/13	9.3	0	0	5	5	5	23	0	1	0	249	2	0	0	2	2	2	3	299
9/14	10.3	0	0	3	11	6	32	2	0	0	2572	1	0	0	3	0	1	0	2631
9/17	2.5	0	0	2	0	0	6	0	0	0	3	0	0	0	0	0	0	0	11
9/18	10.0	0	0	6	7	1	37	0	0	0	1035	4	0	0	5	1	0	14	1110
9/19	9.0	0	2	10	4	2	34	1	1	2	212	5	0	0	6	0	0	3	282
9/20	9.5	0	0	3	3	3	23	0	0	0	37	3	0	0	12	0	0	3	87
9/21	5.8	0	0	2	0	2	2	0	0	0	17	2	0	0	3	0	1	4	33
9/22	8.0	0	0	2	2	2	3	0	0	0	0	0	0	0	0	0	1	0	8
9/23	5.3	0	0	4	1	0	2	1	0	0	2	2	0	0	3	0	1	1	17
9/24	8.5	0	40	1	1	4	13	1	0	0	8	5	0	0	9	0	0	3	85
10/2	9.0	0	25	6	1	12	38	0	0	0	7	1	0	0	37	2	6	7	142
10/3	6.5	0	4	4	0	3	29	1	0	0	34	7	0	0	14	3	2	5	106
10/4	5.0	0	21	8	11	7	24	3	1	0	2	7	0	0	4	2	1	0	91
10/7	8.0	0	4	4	6	0	4	0	0	0	0	1	0	0	0	1	1	0	21
10/8	9.0	0	22	7	6	0	9	1	0	0	14	0	0	0	1	0	4	3	67
10/10	9.0	0	7	0	3	5	17	1	1	0	0	15	0	0	6	2	2	7	66
10/11	8.0	0	29	0	5	4	17	0	0	0	0	5	0	1	0	1	0	2	64
10/12	2.5	0	26	0	2	1	8	1	0	0	0	1	0	0	0	1	0	1	41
10/13	5.0	0	5	0	0	1	3	0	1	0	0	2	0	0	1	0	0	0	13
10/14	4.5	0	0	1	0	0	9	0	1	0	0	1	0	0	0	0	0	1	13
10/17	8.3	0	79	0	8	4	18	0	1	0	0	5	0	0	3	6	1	4	129
10/18	7.0	0	19	1	10	2	8	0	0	0	0	5	0	0	0	2	0	2	49
10/21	8.3	0	13	1	4	0	1	0	2	0	0	4	0	0	0	4	2	5	36
10/24	8.5	0	54	0	13	2	7	0	2	0	0	26	0	0	0	1	0	3	108
10/25	1.3	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	14
10/26	5.0	0	0	0	2	0	1	0	1	0	0	9	0	0	0	0	0	1	14
10/28	5.8	0	4	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	8
10/29	7.5	0	4	0	12	1	0	0	3	0	0	48	1	0	0	0	0	3	72
10/30	7.5	0	7	0	3	0	3	0	2	0	0	3	1	0	0	0	0	2	21
11/2	4.0	0	0	0	15	0	0	0	1	0	0	3	0	0	0	0	0	0	19
11/3	4.8	0	0	0	3	0	2	0	2	0	0	21	1	0	0	0	0	1	30
11/6	3.0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
11/13	4.5	0	0	0	10	1	1	0	0	0	0	2	0	0	0	0	0	0	14
TOTAL	285.0	0	366	138	207	78	464	12	20	3	5035	216	3	1	136	29	25	89	6822

Cooper Fall 2020 - Cooper, Maine

Date	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOTAL
9/6	2.0	0	3	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	6
9/9	2.0	0	3	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	6
9/10	4.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/11	4.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/12	4.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/13	4.0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/14	4.0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	5
9/15	2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/19	3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
9/23	5.0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
9/25	4.0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
10/5	4.5	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	3
10/8	4.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/9	4.5	0	3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	4
14	51.0	0	17	0	0	1	0	1	0	0	6	1	0	0	3	1	0	0	30

Cadillac Mountain 2020 - Acadia National Park, Maine

Date	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOTAL
8/14	2.5	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3
8/16	5.0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	3
8/17	5.0	0	0	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	4
8/19	5.0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	3
8/20	5.0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
8/24	3.0	0	2	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	4
8/25	3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/26	5.0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	3
8/27	5.0	0	0	0	1	0	0	0	0	0	4	0	0	0	0	0	0	6	11
8/28	5.0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	2
8/29	1.0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
8/30	5.0	0	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	1	4
8/31	5.0	0	4	12	13	0	6	0	0	1	16	3	0	0	9	2	0	5	71
9/1	5.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/2	5.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/3	5.0	0	3	1	0	1	3	0	0	0	1	0	0	0	0	0	0	0	9
9/4	4.0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	2
9/5	4.5	0	0	1	1	3	0	0	0	0	2	1	0	0	8	1	0	4	21
9/6	5.0	0	0	2	0	0	12	0	0	0	4	0	0	0	11	0	0	2	31
9/7	4.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/8	5.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/9	3.0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	6
9/10	5.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/11	6.5	0	0	31	5	10	73	1	0	0	126	0	0	0	90	4	1	9	350
9/12	5.0	0	4	1	0	1	40	0	0	0	29	0	0	0	14	1	0	7	97
9/13	4.5	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	2
9/14	5.5	0	0	2	4	2	10	0	0	0	0	0	0	0	17	2	0	2	39
9/15	7.5	0	3	22	9	12	153	7	0	0	295	3	0	0	69	5	5	2	585
9/16	2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/17	5.0	0	5	1	2	0	4	0	0	0	7	0	0	0	0	0	0	2	21
9/18	6.0	0	0	1	0	2	42	0	0	0	17	0	0	0	11	0	0	2	75
9/19	8.0	0	2	11	10	2	120	3	2	0	244	5	0	0	75	4	3	7	488
9/20	8.0	0	5	5	10	11	91	2	2	0	284	1	0	0	47	5	1	8	472
9/21	5.5	0	1	3	8	1	19	1	0	0	1	1	0	0	24	1	0	3	63
9/22	3.0	0	0	0	1	0	2	0	0	0	0	0	0	0	2	1	0	0	3
9/23	5.0	0	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	3
9/24	5.0	0	0	1	0	3	4	0	0	0	0	0	0	0	1	2	0	0	11
9/25	4.0	0	6	2	0	3	16	0	0	0	1	2	0	0	0	1	0	2	33
9/26	4.0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
9/27	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/1	4.0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
10/3	6.0	0	6	11	3	5	44	1	1	0	1	1	0	0	34	3	2	10	122
10/4	3.0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	2
10/5	6.0	0	0	8	2	7	5	1	0	0	1	0	0	0	1	1	4	1	31
10/6	4.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/7	5.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
10/8	5.0	0	0	1	1	1	3	0	0	0	0	0	0	0	5	0	2	1	14
10/11	5.5	0	12	1	5	4	49	1	1	0	0	4	0	0	26	7	2	6	118
10/12	5.0	0	2	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0	0

Putney Mountain Fall 2020 - Putney, Vermont																			
Date	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOTAL
9/8	8.8	0	0	1	1	0	3	0	0	0	16	0	0	0	2	0	0	0	23
9/9	9.0	0	0	0	3	1	1	0	0	0	5	0	0	0	0	0	0	0	10
9/10	10.3	0	0	0	0	0	1	0	0	0	0	0	0	0	2	1	0	0	3
9/11	9.5	0	0	1	2	1	11	1	0	0	264	0	0	0	1	1	0	0	283
9/12	9.5	0	0	1	5	0	26	1	0	1	1726	0	0	0	1	0	0	0	1761
9/13	9.3	0	0	1	0	0	0	0	0	0	3	0	0	0	2	0	0	0	6
9/14	10.5	0	0	16	17	3	43	1	1	0	729	0	0	0	8	2	3	0	823
9/15	9.5	0	0	12	2	13	2	0	0	0	1171	0	0	0	1	0	0	0	1202
9/16	8.8	0	0	2	2	3	1	0	1	0	140	0	0	0	1	0	0	0	150
9/17	9.3	0	0	8	5	2	23	0	0	0	1270	0	0	0	0	0	0	0	1308
9/18	9.5	0	0	9	12	1	33	1	0	0	457	0	0	0	8	3	0	0	524
9/19	8.5	0	0	0	3	1	10	0	0	0	37	0	0	0	0	0	0	0	51
9/20	9.8	0	2	1	3	0	10	1	0	0	9	2	0	0	1	0	0	0	29
9/21	9.3	0	0	2	3	3	6	0	0	1	9	0	0	0	0	0	0	0	24
9/22	9.3	0	5	1	4	5	29	3	0	0	5	0	0	0	5	1	1	0	59
9/23	9.5	0	5	1	2	3	34	3	0	0	0	1	0	0	8	2	1	0	60
9/24	9.0	0	5	0	1	0	7	0	0	0	2	4	0	0	2	0	0	0	21
9/25	8.5	0	0	0	0	1	6	0	0	0	6	6	0	0	3	0	0	0	22
9/26	9.0	0	2	2	1	0	8	0	0	0	2	0	0	0	5	0	0	0	20
9/27	9.3	0	0	1	0	0	4	0	0	0	1	0	0	0	0	0	0	0	6
9/28	9.3	0	6	0	0	0	2	0	0	0	0	0	0	0	2	0	0	0	10
9/29	7.3	0	0	0	0	1	2	1	0	0	0	0	0	0	1	0	1	0	6
9/30	10.0	0	8	5	2	0	21	4	0	1	0	5	0	0	10	3	6	0	65
10/1	10.0	0	14	2	6	6	86	3	0	8	8	3	0	0	9	0	1	0	146
10/3	10.3	0	10	10	2	1	73	4	0	2	1	5	0	0	9	2	5	0	124
10/4	9.5	0	1	1	0	7	22	2	1	1	0	3	0	0	4	0	4	0	46
10/5	9.5	0	13	1	1	2	24	3	1	1	0	3	0	0	6	0	2	0	57
10/6	8.3	0	11	0	0	0	11	0	0	1	2	0	0	0	2	0	0	0	29
10/7	6.0	0	3	2	0	0	4	0	0	0	0	0	0	0	0	0	2	0	11
10/8	10.8	0	25	9	3	2	148	8	0	3	1	14	0	3	33	9	4	0	262
10/9	9.5	0	26	1	1	1	45	1	0	4	0	8	0	0	3	3	1	0	94
10/10	9.0	0	3	0	2	2	30	0	0	0	0	2	0	2	2	3	0	0	46
10/11	9.8	0	50	1	10	0	45	5	1	2	0	13	0	1	5	0	0	0	133
10/12	8.8	0	7	1	4	1	48	2	0	1	0	4	0	1	1	0	1	0	71
10/14	9.8	0	10	0	5	1	91	7	1	3	0	27	0	1	9	2	1	0	158
10/15	8.3	0	8	1	1	1	8	0	0	0	0	3	0	0	0	0	0	0	22
10/17	9.3	0	26	0	4	1	63	2	1	0	0	24	0	0	5	0	1	0	127
10/18	9.0	0	2	0	0	2	27	0	0	0	0	4	0	0	1	1	0	0	37
10/19	8.8	0	16	0	0	0	28	2	0	0	0	2	0	0	0	1	0	0	49
10/20	4.0	0	12	0	0	1	8	0	0	1	0	0	0	0	0	0	0	0	22
10/21	9.0	0	1	0	0	0	9	0	0	0	0	1	0	0	0	0	0	0	11
10/22	9.3	0	13	1	2	2	55	1	0	4	0	53	0	0	4	1	1	0	137
10/23	6.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/24	9.5	0	11	0	2	3	27	2	0	1	1	26	0	1	1	4	0	0	79
10/25	9.3	0	20	0	3	1	16	1	0	1	0	58	0	0	1	1	0	0	102
10/27	8.5	0	6	0	3	2	20	2	0	6	0	44	0	0	3	0	0	0	86
10/28	4.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/30	4.0	0	0	0	0	1	3	1	1	0	0	5	0	2	0	0	0	0	13
10/31	8.0	0	2	0	5	0	11	0	1	2	0	107	0	0	0	0	0	0	128
11/1	7.0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
11/2	7.8	0	0	0	0	0	1	1	1	0	0	34	0	0	1	0	0	0	38
11/3	7.5	0	0	0	0	2	5	1	3	0	0	53	0	0	0	0	0	0	64
11/4	7.3	0	0	0	0	1	1	0	0	0	0	4	0	0	0	0	0	0	6
11/5	7.8	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
11/6	7.8	0	1	0	0	0	4	2	1	0	0	6	0	0	0	0	1	0	15
11/7	7.5	0	1	0	1	0	2	3	0	0	0	11	0	0	0	0	0	0	18
11/8	7.5	0	2	0	0	1	2	0	0	0	0	6	0	0	0	0	0	0	11
11/9	7.5	0	2	0	0	0	2	0	0	0	0	4	0	0	0	0	0	0	8
11/10	7.3	0	1	0	1	0	7	0	0	0	0	5	0	0	0	0	0	0	8
TOTAL	591.5	0	327	103	172	70	1255	72	15	44	5958	552	0	11	187	51	40	0	8857

Pack Monadnock Fall 2020 - Peterborough, New Hampshire																			
Date	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOTAL
9/1	8.0	0	0	2	0	0	8	0	0	0	2	0	0	0	2	1	0	1	16
9/3	8.0	0	0	6	0	0	7	1	0	0	6	0	0	0	0	0	0	0	20
9/4	8.0	0	0	4	5	0	4	0	0	0	7	0	0	0	5	4	1	2	32
9/5	8.8	0	0	0	4	0	11	1	0	0	5	0	0	0	3	3	0	0	27
9/6	8.5	0	0	4	10	4	9	3	0	0	32	0	0	0	2	1	0	7	72
9/7	8.0	0	0	5	3	1	3	0	0	0	6	0	0	0	3	2	0	0	23
9/8	8.0	0	0	2	1	1	6	2	0	2	11	0	0	0	5	4	0	0	34
9/9	8.0	0	0	2	1	0	1	0	0	0	1	0	0	0	4	0	0	0	9
9/11	10.0	0	0	12	12	3	9	2	0	1	986	0	0	0	15	1	0	6	1047
9/12	9.5	0	0	4	2	4	28	3	0	1	312	0	0	0	22	8	0	7	391
9/13	8.0	0	0	3	1	0	5	1	0	0	1	0	0	0	2	2	0	2	17
9/14	9.0	0	0	9	11	2	48	7	0	0	328	0	0	0	25	3	0	9	442
9/15	10.5	0	0	13	9	7	27	5	0	0	882	0	0	0	1	1	3	2	950
9/16	8.0	0	0	3	1	0	0	0	0	0	2	0	0	0	0	0	0	2	8
9/17	9.8	0	1	16	4	7	36	2	0	1	2195	0	0	0	6	1	0	0	2269
9/18	10.0	0	0	9	10	4	67	1	0	0	2886	0	0	0	18	3	0	2	3000
9/19	10.5	0	3	3	2	2	76	8	0	1	366	0	0	0	10	1	0	5	477
9/20	10.0	0	1	4	5	4	101	9	0	0	378	1	0	0	16	3	0	2	524
9/21	8.6	0	0	2	2	0	37	4	0	2	156	2	0	0	10	1	0	2	218
9/22	9.0	0	1	6	2	9	31	4	0	0	6	2	0	0	13	3	0	4	81
9/23	9.0	0	0	1	2	1	13	2	0	0	1	2	0	0	6	1	0	2	31
9/24	8.0	0	0	1	2	1	9	1	0	0	1	0	0	0	0	1	0	1	17
9/25	8.3	0	0	1	3	1	42	2	0	3	118	0	0	0	6	0	0	1	177
9/26	8.0	0	0	3	1	1	26	2	0	2	82	0	0	0	8	3	1	2	131
9/27	8.0	0	0	2	4	0	14	2	0	1	2	0	0	0	0	0	0	0	25
9/28	8.3	0	0	1	0	0	10	0	0	0	0	0	0	0	0	4	0	0	15
9/29	7.0	0	0	1	2	0	15	4	0	0	1	0	0	0	2	1	1	0	27
9/30	7.0	0	0	0	1	0	3	2	0	0	2	0	0	0	0	1	0	1	10
10/1	8.3	0	8	1	5	0	18	5	0	1	6	1	0	0	6	4	0	1	56
10/2	3.0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
10/3	9.3	0	0	3	1	3	33	2	0	1	1	2	0	0	3	1	2	3	55
10/4	8.3	0	30	6	1	6	38	9	1	11	1	2	0	0	6	0	3	3	111
10/5	8.3	0	5	3	3	8	39	13	0	2	19	3	0	0	13	2	3	5	118
10/6	8.0	0	0	6	0	0	5	2	0	0	0	0	0	0	0	2	2	1	19
10/7	6.0	0	0	1	0	0	2	0	0	0	0	0	0	0	0	1	0	0	4
10/8	8.3	0	4	2	9	1	55	8	0	1	2	3	0	0	8	7	4	2	106
10/9	8.5	0	0	4	0	0	34	3	0	7	0	3	0	0	1	3	0	2	57
10/10	10.0	0	0	3	3	3	13	0	1	0	0	1	0	1	1	6	3	1	35
10/11	12.0	0	17	4	7	7	123	16	3	7	2	13	0	0	18	17	6	12	252
10/12	8.3	0	19	0	15	3	38	5	1	1	2	4	0	2	2	3	0	4	97
10/14	8.3	0	10	0	1	1	11	0	0	19	1	1	0	0	2	1	0	2	49
10/15	8.3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	7	0	1	9
10/17	7.0	0	0	0	1	0	8	2	3	0	3	0	3	0	0	2	0	1	22
10/18	8.0	0	0	1	3	0	13	1	0	2	1	2	0	0	0	1	0	2	26
10/19	8.5	0	0	4	1	3	41	2	0	6	0	1	0	0	2	1	0	0	61
10/20	3.0	0	3	0	0	0	4	0	0	0	0	1	0	0	0	1	0	0	9
10/21	6.0	0	2	1	1	1	2	2	2	0	2	0	2	0	1	0	0	1	15
10/22	8.0	0	25	1	5	4	57	14	0	13	3	12	0	0	5	9	0	4	152
10/23	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/24	8.5	0	1	2	2	1	17	3	0	0	0	9	0	0	2	13	1	1	52

Wachusett Fall 2020 - Princeton, Massachusetts

Date	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOTAL
10/14	7.0	0	21	1	3	3	5	3	0	0	0	12	0	0	2	0	0	2	52
10/15	2.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/16	2.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/17	6.0	0	3	1	0	0	4	1	0	0	0	0	0	0	1	2	0	2	14
10/18	2.0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
10/19	6.5	0	43	1	2	2	5	3	0	0	0	2	0	0	1	2	0	4	65
10/20	6.0	0	18	0	0	1	1	1	0	0	0	0	0	0	0	0	0	2	23
10/22	7.5	1	80	2	14	1	28	16	0	6	0	15	0	0	2	5	2	8	180
10/23	6.0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	3
10/24	4.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/25	8.5	0	263	0	3	3	32	15	0	2	0	46	0	0	2	3	0	7	376
10/27	8.0	1	15	0	13	0	12	8	0	7	0	14	0	0	0	0	0	3	73
10/31	6.0	0	29	0	1	0	7	7	0	17	0	28	1	1	0	1	0	10	102
11/3	2.0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3	4
11/4	4.5	0	0	0	0	0	0	0	0	2	0	4	1	0	0	0	0	3	10
11/7	6.0	0	0	0	2	0	0	1	0	1	0	3	1	1	0	0	0	2	11
11/8	2.3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	2
11/9	6.0	0	3	0	1	1	0	1	0	15	0	1	0	0	0	0	0	3	25
11/12	2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/14	4.8	0	0	0	7	1	0	0	0	3	0	6	0	0	0	0	0	1	18
11/21	4.0	0	0	0	0	1	0	0	0	6	0	6	0	0	0	0	0	1	14
11/22	3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
11/28	3.0	0	0	0	1	1	0	0	0	3	0	7	0	0	0	0	0	3	15
12/10	2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	432.5	14	783	129	156	45	427	160	0	93	6955	199	3	3	226	61	27	168	9451

Other: 9/4 2 Mississippi Kites

Pinnacle Rock Fall 2020 - Medford, Massachusetts

Date	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOTAL
10/3	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/4	5.5	0	0	40	1	2	25	15	0	0	0	1	0	0	0	1	5	3	93
10/5	1.8	0	0	2	1	0	1	1	0	0	0	0	0	0	0	1	0	0	6
10/8	3.3	0	2	2	0	4	36	19	0	0	0	0	0	0	2	0	1	9	75
10/9	1.5	0	0	0	1	1	1	1	0	0	0	0	0	0	0	1	1	0	6
10/11	6.0	0	1	4	2	2	22	11	0	1	0	1	0	0	0	1	1	0	46
10/14	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/17	4.0	0	1	2	0	1	27	8	0	1	0	2	0	0	2	0	0	2	46
10/24	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/25	4.3	0	0	1	0	0	5	4	0	0	0	4	0	0	0	0	0	0	14
11/16	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
11/17	1.0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	1
TOTAL	31.8	0	4	51	5	10	117	60	0	2	0	8	0	0	4	4	7	16	288

Barre Falls, Fall 2020 - Barre, Massachusetts

Date	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOTAL
9/12	6.5	0	0	0	3	0	5	1	0	0	14	0	0	0	1	0	1	0	25
9/13	5.5	0	0	2	0	0	6	2	0	1	0	1	0	0	0	1	0	0	5
9/15	6.0	0	0	0	0	0	6	2	0	0	133	0	0	0	1	0	0	2	144
9/16	5.0	0	0	2	0	0	4	0	0	0	3	1	0	0	0	1	0	0	11
9/17	5.8	0	0	2	4	0	1	0	0	0	12	0	0	0	1	1	0	1	22
9/19	7.0	0	0	1	3	0	15	1	0	0	310	1	0	0	1	0	0	3	335
9/20	5.0	0	0	1	0	1	8	3	0	0	32	0	0	0	0	1	0	3	49
9/21	4.5	0	0	1	1	0	6	2	0	0	6	1	0	0	0	0	0	0	17
9/22	5.5	0	0	1	1	0	5	2	0	0	12	1	0	0	1	0	0	0	23
9/23	6.0	0	0	0	0	0	1	0	0	0	4	3	0	0	1	0	0	0	9
9/24	6.0	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	1	4
9/26	5.5	0	4	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	6
9/27	5.0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
10/1	5.5	0	4	1	1	0	3	0	0	0	0	0	0	0	2	1	1	1	14
10/3	5.5	0	3	0	1	0	4	3	0	0	5	6	0	0	1	1	1	3	28
10/4	6.0	0	8	1	2	0	7	2	0	0	0	0	0	0	2	1	0	0	22
10/6	5.5	0	2	0	1	1	2	0	0	2	4	2	0	0	2	1	0	0	17
10/8	5.0	0	0	0	1	0	11	1	0	0	0	1	0	0	3	1	0	1	19
10/9	5.5	0	11	1	3	0	10	4	0	0	0	4	0	0	2	0	0	1	36
10/10	6.0	0	31	2	1	1	7	1	0	0	0	0	0	0	5	0	0	0	48
10/11	6.0	0	59	1	10	0	7	2	0	1	0	8	0	0	0	1	0	1	90
10/14	6.0	0	27	0	0	0	7	2	0	1	0	6	0	0	1	0	0	4	48
10/15	5.5	0	13	1	2	0	12	1	0	0	0	0	0	0	1	1	0	1	32
10/18	6.5	0	22	0	2	0	7	2	0	0	0	4	0	0	0	2	0	1	40
10/19	4.0	0	8	1	0	0	1	3	0	0	0	0	0	0	0	0	0	0	13
10/22	6.0	0	15	0	0	0	2	2	0	0	0	0	0	0	1	0	0	1	21
10/23	3.5	0	4	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	7
10/24	3.5	0	0	0	0	0	2	0	0	0	0	2	0	0	1	1	0	2	8
10/25	5.5	0	59	0	4	2	7	2	0	0	0	6	0	0	0	0	0	3	83
10/27	3.5	0	4	0	0	1	2	2	0	0	0	1	0	0	0	0	0	0	10
11/7	4.5	0	0	0	0	0	3	0	0	0	0	4	0	0	0	0	0	1	8
11/9	2.0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
11/10	4.0	0	0	0	0	0	1	0	0	0	0	2	0	0	0	0	0	0	3
TOTAL	181.3	0	274	24	42	6	153	38	0	5	587	59	0	0	26	13	3	33	1263

Mount Holyoke Summit Fall 2020 - Hadley, Massachusetts

Date	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOTAL
9/18	8.0	0	2	3	4	0	9	2	0	1	1910	3	0	0	2	7	0	0	1943
9/19	10.0	0	21	0	1	1	13	3	0	0	430	12	0	0	5	0	0	2	488
TOTAL	18.0	0	23	3	5	1	22	5	0	1	2340	15	0	0	7	7	0	2	2431

Shatterack Mountain Fall 2020 - Russell, Massachusetts

Date	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOTAL
9/11	6.0	0	0	0	2	1	0	0	0	0	21	0	0	0	1	1	1	0	27
9/12	6.3	0	0	0	3	1	1	0	0	0	71	0	0	0	2	0	0	0	78
9/13	6.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/14	5.3	0	0	2	1	0	10	1	0	0	358	0	0	0	2	0	0	0	374
9/15	6.0	0	0	0	0	0	2	1	0	0	420	0	0	0	2	0	0	0	425
9/18	8.0	0	0	5	10	0	38	4	0	0	1835	0	0	0	6	2	0	0	1900
9/19	7.3	0	0	0	2	0	6	0	0	0	46	0	0	0	0	0	0	0	54
9/20	6.3	0	0	1	1	0	13	0	0	0	172	0	0	0	0	0	0	0	187
9/21	5.3	0	0	0	0	1	4	0	0	0	16	0	0	0	0	0	0	0	21
9/22	4.3	0	4	1	2	0	2	1	0	0	5	0	0	0	1	0	0	0	16
9/23	5.0	0	0	0	1	0	10	1	0	0	1	0	0	0	0	0	0	0	13
9/24	4.0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	3
10/1	5.5	0	4	0	2	0	12	4	0	2	18	0	0	0	0	0	0	0	42
10/3	6.5	0	0	1	1	0	21	2	0	0	1	1	0	0	2	0	1	3	33
10/4	5.0	0	2	0	0	1	2	2	0	0	0	0	0	0	0	1	0	0	8
10/5	5.8	0	19	3	2	1	9	4	1	0	0	0	0	0	2	0	1	1	43
10/6	5.0	0	2	0	0	1	1	1	0	1	0	0	0	0	0	2	0	0	8
10/7	6.0	0	29	3	4	0	16	2	0	0	1	0	0	0	1	1	1	2	60
10/8	5.0	0	19	0	1	1	12	3	0	0	0	5	0	0	1	0	0	1	43
10/10	4.5	0	25	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	29
10/11	6.0	0	50	0	3	0	6	3	0	0	0	1	0	0	0	0	0	1	64
10/14	5.0	0	18	0	0	0	10	2	0	1	0	5	0	0	0	0	0	2	38
10/17	5.8	0	27	0	1	0	9	3	1	0	3	0	1	3	3	1	0	0	49
10/18	4.3	0	9	0	0	1	1	0	0	1	0	1	0	0	0	0	0	0	13
10/22	4.5	0	0	0	0	0	2	0	0	3	0	3	0	0	0	1	0	0	9
10/24	5.8	0	20	0	1	1	6	3	0	1	0	8	0	1	0	0	1	0	42

Bear Mountain Fall 2020 - Fort Montgomery, New York

Days	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOTAL
9/1	2.0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
9/3	2.5	0	0	2	0	0	0	1	0	0	5	0	0	0	0	0	0	0	8
9/8	5.5	0	0	10	6	0	0	0	0	2	22	0	0	0	0	0	0	0	40
9/9	3.3	0	0	0	1	0	0	0	0	1	2	0	0	0	0	0	0	0	4
9/10	2.8	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3
9/11	5.8	0	0	1	7	0	1	0	0	0	25	0	0	0	0	0	0	0	34
9/12	6.3	0	0	6	13	1	0	0	0	1	26	0	0	1	1	1	1	1	51
9/14	4.5	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	4
9/15	5.8	0	0	0	1	0	15	1	0	0	261	0	0	7	1	1	1	1	288
9/16	5.5	0	0	5	4	2	12	6	0	1	28	2	0	10	1	0	0	2	73
9/17	5.8	0	0	5	5	0	0	1	0	0	13	4	0	1	1	3	1	3	34
9/18	4.5	0	0	0	1	0	0	2	0	1	12	0	0	5	1	0	0	0	22
9/19	5.0	0	0	0	1	0	0	2	0	0	22	0	0	0	0	0	0	0	25
9/21	5.5	0	0	1	1	0	5	0	0	0	8	0	0	7	0	0	0	0	22
9/22	4.0	0	0	1	3	0	3	2	0	0	7	0	0	0	0	0	0	0	16
9/23	4.0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	3
9/25	6.3	0	0	0	1	1	9	3	0	0	1	2	0	3	0	0	0	0	20
9/30	3.0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
10/1	5.8	0	0	2	2	0	14	2	0	0	6	3	0	0	0	1	0	0	30
10/3	2.5	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2
10/5	3.5	0	0	0	1	0	4	0	0	0	0	0	0	1	0	0	0	0	6
10/6	4.3	0	0	0	1	1	7	1	0	0	2	0	0	1	1	0	0	0	14
10/7	4.3	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	2
10/8	4.0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3
10/9	4.8	0	0	0	5	0	30	1	0	1	0	3	0	0	0	2	0	0	42
10/14	5.8	0	17	0	1	0	4	1	0	1	0	4	0	1	0	0	2	3	31
10/15	4.5	0	0	1	3	1	12	2	0	0	0	3	0	6	1	0	0	0	29
10/17	4.3	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3
10/19	3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/22	4.0	0	0	0	2	1	21	5	0	0	0	5	0	0	0	0	0	0	34
10/24	5.0	0	22	0	0	0	1	1	0	0	0	4	0	0	0	0	1	29	29
10/27	3.5	0	8	0	2	0	1	1	0	0	0	6	0	0	0	0	1	19	19
11/4	2.5	0	5	0	0	0	4	0	0	1	0	4	0	0	0	0	0	0	14
11/5	4.0	0	7	0	2	0	2	2	0	0	0	2	0	2	0	0	0	0	17
11/7	3.5	0	2	0	1	0	0	0	0	3	0	4	0	0	0	0	0	0	10
11/10	4.3	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	3
11/29	2.8	0	0	0	1	0	0	1	0	1	0	2	0	0	0	0	0	0	5
TOTAL	157.8	0	63	35	71	7	150	36	0	13	442	51	1	3	44	8	8	10	942

Mount Peter Fall 2020 - Warwick, New York

Date	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOTAL	
8/30	4.0	0	0	7	17	0	5	0	0	0	47	0	0	0	0	0	0	0	76	
8/31	6.5	0	0	3	1	0	1	1	0	0	8	0	0	0	1	0	0	0	15	
9/1	5.0	0	0	1	0	0	0	0	0	0	5	0	0	0	0	0	0	0	6	
9/2	2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9/3	7.5	0	0	1	1	0	4	1	0	1	14	0	0	0	1	0	0	0	23	
9/4	7.0	0	3	6	12	1	2	1	0	0	6	0	0	0	1	0	0	0	32	
9/5	6.5	0	0	0	4	0	0	0	0	0	5	0	0	0	1	0	0	0	10	
9/6	7.0	0	0	3	3	1	0	0	0	0	8	0	0	0	0	1	0	0	16	
9/7	6.0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	3	
9/8	6.0	0	0	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	4	
9/9	6.0	0	0	0	0	0	1	0	0	0	3	0	0	0	0	1	0	0	5	
9/11	7.5	0	1	6	4	0	4	1	0	2	39	0	0	0	6	1	0	1	65	
9/12	7.5	0	0	7	4	0	1	0	0	2	54	0	0	0	2	0	0	0	70	
9/13	8.0	0	0	5	0	1	15	1	0	0	5	0	0	0	1	1	0	2	31	
9/14	8.5	0	2	2	14	0	19	4	0	0	317	0	0	0	11	3	0	0	372	
9/15	8.0	1	1	5	7	0	3	1	0	1	561	0	0	0	1	0	0	0	581	
9/16	8.5	0	0	3	1	2	27	0	0	0	51	0	0	0	1	1	1	1	88	
9/17	7.0	0	0	0	0	0	7	1	0	0	1	0	0	0	1	0	0	0	10	
9/18	9.5	1	0	21	8	3	22	5	0	0	1357	0	0	0	14	1	2	2	1436	
9/19	8.5	0	2	2	4	1	20	1	0	0	998	0	0	0	5	0	0	1	1034	
9/20	9.5	1	2	2	2	1	26	5	0	0	312	0	0	0	4	0	0	1	356	
9/21	7.5	0	3	0	0	0	15	0	0	0	14	0	0	0	0	0	0	0	32	
9/22	6.3	0	0	1	0	0	2	1	0	1	0	0	0	0	0	0	0	0	5	
9/23	8.0	4	2	3	4	0	23	0	0	1	0	0	0	0	8	0	1	1	47	
9/24	8.0	0	0	1	2	0	37	1	0	0	0	0	0	0	6	0	0	0	47	
9/25	7.0	0	1	0	1	0	10	0	0	1	6	0	0	0	4	0	0	0	23	
9/26	7.5	0	0	5	2	0	21	3	0	0	3	0	0	0	3	0	0	0	37	
9/27	6.5	0	0	2	0	0	5	0	0	1	2	0	0	0	0	0	0	0	10	
9/28	7.8	0	0	2	0	1	8	1	0	0	0	0	0	0	0	0	0	0	12	
9/30	7.5	8	4	7	3	0	14	1	0	1	4	0	0	0	4	1	1	0	48	
10/1	8.0	0	0	1	0	3	23	0	0	2	8	0	0	0	3	0	1	1	42	
10/2	5.0	0	0	1	4	1	9	1	0	0	6	0	0	0	2	1	0	0	25	
10/3	8.0	2	0	5	2	1	53	0	0	6	6	0	0	0	3	0	0	0	78	
10/4	8.0	0	6	1	5	0	23	0	0	0	10	0	0	0	0	0	0	1	46	
10/5	3.8	0	0	0	6	0	15	1	0	2	7	0	0	0	1	0	0	1	33	
10/6	7.0	5	55	1	0	1	22	2	0	3	2	2	0	0	4	0	1	0	98	
10/7	5.5	0	14	0	0	0	8	0	0	0	2	0	0	0	1	0	0	0	25	
10/8	7.0	0	40	0	0	0	34	1	0	1	0	1	0	0	5	0	0	0	82	
10/9	8.0	0	6	1	6	3	70	4	0	3	0	0	0	0	2	0	1	1	97	
10/10	7.0	3	6	4	0	2	58	8	0	4	0	4	0	0	4	3	2	3	101	
10/11	8.0	0	53	3	1	4	69	6	0	8	1	9	0	0	1	0	0	2	157	
10/14	8.0	23	66	0	6	1	59	2	0	2	0	0	0	0	4	0	0	1	164	
10/15	7.0	0	0	1	0	1	33	0	0	0	0	0	0	0	2	0	0	0	37	
10/17	8.0	4	27	1	14	2	53	0	0	11	0	11	0	1	1	0	1	3	129	
10/18	8.0	0	87	0	4	0	62	0	0	5	0	10	0	0	2	0	0	1	171	
10/19	5.0	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	12	
10/20	4.0	0	0	0	0	2	1	0	0	1	0	0	0	0	1	0	0	0	5	
10/21	2.5	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	
10/22	5.0	0	0	0	0	1	26	0	0	0	0	0	0	0	0	1	0	0	28	
10/23	5.5	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	2	0	5	
10/24	8.5	0	13	2	6	5	38	8	0	2	0	12	0	0	5	1	1	1	94	
10/25	8.0	0	57	0	3	0	7	1	0	21	0	12	0	0	0	0	0	0	1	102
10/27	6.0	9	204	0	4	0	22	4	0	17	0	35	0	0	1	1	0	0	297	
10/28	3.5	0	0	0	0	0	2	1	0	1	0	0	0	0	0	1	0	0	5	
10/30	2.8	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	2	
10/31	6.0	20	85	0	2	1	10	8	0	10	0	31	0	0	0	0	0	0	167	
11/1	3.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11/2	7.0	4	32	1	4	1	7	0	0	1	0	45	0	0	1	0	1	0	96	
11/3	7.0	5	17	1	6	0	13	0	0	9	0	208	0	0	1	0	0	1	260	
11/4	5.5	5	0	0	1	0	0	0	0	3	0	4	0	0	0	0	0	0	13	
11/5	6.0	0	0	0	1	0	1	0	0	2	0	0	0	0	0	0	0	0	4	
11/6	6.0	0	1	0	4	0	3	0	0	0	0	11	0	0	0	0	0	0	19	
11/7	7.3	5	1	0	0	0	2	3	0	8	0	8	0	0	0	0	0	2	29	
11/8	7.0	1	33	0	0	2	1	0	0	6	0	16	0	0	0	0	0	0	59	
11/9	6.8	3	4	0	0	0	5	1	0	5	0	4	0	0	1	0	0	0	23	
11/10	4.0	0	6	0	0	0	1	1	0	0	0	4	0	0	0	0	0	0	12	
11/11	1.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11/13	3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11/14	7.8	4	16	0	4	0	8	1	0	7	0	31	0	0	0	0	0	1	72	
11/15	5.0	0	0	0	0	0	1	2	0	0	0	6	0	0	0	0	0	0	7	
TOTAL	452.8	109	850	121	177	42	1048	85	0	149	3864	465	0	1	121	20	13	30	1095	

Hook Mountain Fall 2020 - Nyack, New York

Date	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOTAL
9/19	9.5	0	2	5	15	2	54	8	0	3	2618	1	0	0	20	0	0	0	2728
9/20	7.5	0	0	5	5	0	14	6	0	0	56	4	0	0	14	1	0	2	107
9/21	7.5	0	0	3	3	0	31	6	0	0	6	1	0	0	5	0	0	2	57
9/22	7.5	0	0	5	1	4	46	5	0	2	2	0	0	0	4	1	0	0	70
9/23	10.0	0	0	4	6	4	39	3	0	0	3	0	0	0	10	0	0	0	69
9/24	6.8	0	0	1	1	1	2	0	0	0	0	0	0	0	0	0	0	0	6
9/25	5.5	0	0	6	0	2	30	4	0	0	0	0	0	0	7	0	0	0	49
9/26	7.0	0	4	4	0	2	59	3	0	0	3	0	0	0	5	1	0	0	81
9/27	6.5	3	0	2	0	1	12	4	0	0	0	3	0	0	3	1	0	0	29
9/28	7.5	9	21	3	0	0	3	0	0	0	0	0	0	0	1	0	0	0	37
9/29	3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/30	4.0	0	0	0	1	1	3	0	0	0	0	0	0	0	1	2	1	0	9
10/1	7.3	5	4	2	3	2	20	2	0	0	2	1	0	0	3	0	1	2	47
10/2	5.0	1	0	16	1	1	54	9	0	1	3	0	0	0	6	0	0	0	92
10/3	10.0	0	3	22	8	3	127	6	0	0	18	1	0	0	19	2	2	0	211
10/4	7.0	2	0	0	0	3	38	5	0	1	0	5	0	0	7	0	2	0	63
10/5	8.0	0	22	7	9	2	48	6	0	1	92	2	0	0	6	1	2	0	198
10/6	7.0	6	12	2	5	4	11	3	0	0	2	0	0	0	10	2	1	0	58
10/7	5.5	0	0	3	1	1	12	1	0	0	0	0	0	0	0	0	1	1	20
10/8	6.5	0	1	0	2	0	27	0	0	0	0	2	0	0	2	1	0	0	35
10/9	6.8	0	0	0	2	5	140	10	0	6	12	0	0	0	9	0	1	0	185
10/10	8.0	0	152	4	6	7	36	5	0	8	0	2	0	0	9	4	1	0	234
10/11	6.5	0	12	4	2	2	15	14	0	3	0	1	0	0	5	1	3	0	62
10/12	2.8	0	1	2	0	2	21	1	0	0	2	0	0	0	5	6	0	0	40
10/13	4.5	12	5	2	0	0	6	1	0	2	0	0	0	0	0	4	0	0	28
10/14	7.0	0	32	1	0	0	14	4	0	1	0	2	0	0	3	1	1	0	59
10/15	7.0	4	14	4	8	2	33	2	0	0	0	3	0	0	19	4	2	1	96
10/17	10.0	0	69	2	12	4	58	14	0	24	3	15	0	1	7	1	0	1	211
10/18	9.0	4	12	0	14	1	63	4	0	3	0	3	0	0	8	2	2	1	117
10/20	6.0	0	0	1	1	1	3	1	0	0	0	0	0	0	0	1	0	0	7
10/22	5.5	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	3
10/23	5.8	0	0	2	1	6	36	9	0	5	0	0	0	0	2	2	1	0	64
10/24	8.0	0	33	0	4	6	43	18	0	8	0	5	0	0	3	1	1	0	122
10/25	8.0	18	49	0	14	2	39	3	1	21	0	19	0	0	1	3	0	0	170
10/26	1.5	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
10/27	6.0	4	15	0	1	3	14	4	0	10	0	0	0	0	0	1	1	0	53
10/30	2.3	0	24	3	0	0	1	1	0	4	0	0	0	0	0	0	0	0	33
10/31	8.0	41	70	3	10	4	35	9	0	77	0	18	0	0	0	1	0	0	268
11/1	3.8	0	0	0	2	3	6	3	0	4	0	1	0	0	2	0	0	0	21
11/2	7.5	7	15	2	5	0	2	1	0	2	0	14	0	0	0	3	1	0	52
11/3	7.0	6	17	1	13	5	8	2	0	3	0	12	0	2	1	1	1	0	72
11/4	5.3	0	0	0	0	2	16	0	0	25	0	1	0	0	0	0	0	0	44
11/5	9.5	0	0	0	3	0	6	1	0	3	0	4	0	0	0	0	0	0	17
11/6	5.3	0	0	0	0	0	0	2	0	0	0	1	0	0	1	1	0	0	5
11/7	10.0	8	74	0	0	2	17	3	0	24	0	8	0	0	0	1	0	0	137
11/8	4.3	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
11/9	4.0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
11/10	6.5	8	9	0	4	4	5	0	0	1	0	11	0	1	0	4	0	0	47
11/14	6.5	12	30	0	10	1	6	1	0	12	0	13	0	2	0	0	0	0	87
11/15	8.0	3	5	0	4	1	2	2	0	5	0	8	0	0	0	0	0	0	30
11/16	4.0	15	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	16
11/17	4.0	7	11	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	21
11/18	5.0	0	22	0	4	1	0	1	0	19	0	24	0	1	0	0	0	0	72
11/19	5.3	1	0	0	5	0	0	0	0	5	0	13	0	0	0	0	0	0	24
11/20	5.0	2	20	0	1	0	1	1	0	26	0	7	0	0	0	0	0	0	58
11/21	8.0	0	81	0	8	1	1	2	0	35	0	20	0	0	0	0	0	0	148
11/22	5.0	5	15	0	14	1	0	0	0	18	0	8	0	0	0	0	0	0	62
11/23	4.3	9	0	0	2	0	0	0	0	0	0	9	0	0	0	0	0	0	20
11/24	6.5	0	41	0	8	0	2	2	0	3	0	8	0	0	0	3	0	0	67
11/27	4.3	1	0	0	0	0	0	1	0	4	0	0	0	0	0	0	0	0	6
11/28	5.0	6	70	1	0	1	0	1	0	11	0	12	0	1	0	1	0	0	104
11/29	4.5	0	0	0	0	0	1	0	0	3	0	0	0	0	0	0	0	0	4
12/10	2.8	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
TOTAL	514.5	201	972	302	291	124	1357	223	1	390	4590	271	0	8	370	66	27	15	9209

Other: 11/22 1 Short-eared Owl

Quaker Ridge Fall 2020 - Greenwich, Connecticut

Date	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOTAL
8/26	9.0	0	0	7	4	0	0	0	0	0	8	0	0	0	2	0	0	0	21
8/28	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/30	7.0	0	0	9	7	0	1	1	0	0	4	0	0	0	0	2	0	0	24
8/31	3.8	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
9/1	7.5	0	0	4	1	1	0	0	0	0	0	0	0	0	0	0	0	0	6
9/2	7.3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
9/3	9.7	0	0	1	0	1	0	1	0	0	7	0	0	0	3	0	0	0	13
9/4	8.1	0	0	6	1	0	0	1	0	0	3	0	0	0	9	2	0	0	22
9/5	8.0	0	0	6	3	0	2	1	0	0	9	1	0	0	4	1	0	0	27
9/6	7.0	0	0	12	2	0	1	0	0	0	0	0	0	0	1	2	0	0	18
9/7	3.6	0	0	2	1	0	5	0	0	0	4	0	0	0	0	0	1	0	13
9/8	2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/9	10.0	0	0	7	1	0	2	0	0	0	2	0	0	0	4	0	0	0	16
9/10	8.5	0	0	4	0	0	0	0	0	0	1	0	0	0	2	1	0	0	8
9/11	10.0	0	0	11	2	9	7	1	0	2	45	0	0	0	8	0	0	3	88
9/12	9.0	2	0	19	8	1	3	1	0	0	7	0	0	0	9	2	0	2	54
9/13	8.5	0	0	8	0	1	6	1	0	0	3	0	0	0	10	0	1	0	30
9/14	9.0	0	0	9	4	3	21	0	0	0	1253	0	0	0	36	4	0	0	1330
9/15	11.5	0	0	6	7	2	44	1	0	0	583	0	0	0	17	1	0	1	662
9/16	8.0	0	0	2	0	0	3	0	0	0	0	0	0	0	3	0	0	0	8
9/17	6.5	0	0	3	0	0	3	0	0	0	0	0	0	0	1	0	0	0	7
9/18	11.0	0	3	18	9	11	60	5	0	0	2704	0	0	0	20	0	0	0	2830
9/19	9.1	0	6	6	32	11	161	10	0	0	1801	0	0	0	76	3	0	1	2107
9/20	9.5	0	13	5	8	1	160	13	0	0	86	2	0	0	39	1	0	2	330
9/21	7.0	0	1	3	0	1	41	0	0	0	7	0	0	0	5	0	0	0	58
9/22	10.0	0	0	3	2	2	46	2	0	0	7	0	0	0	17	0	0	0	79
9/23	11.0	0	2	6	3	2	73	1	0	0	16	0	0	0	16	1	0	0	120
9/24	7.0	0	1	2	2	0	10	0	0	0	0	0	0	0	0	0	0	0	15
9/25	9.0	0	1	6	2	1	10	0	0	0	4	0	0	0	3	2	0	0	29
9/26	1.0	0	0	6	6	1	4	2	0	0	0	0	0	0	0	1	0	0	20
9/27	6.0	0	0	6	2	2	4	2	0	0	4	1	0	0	0	0	0	1	22
9/28	9.0	0	3	2	0	0	3	0	0	0	0	0	0	0	2	0	0	0	10
9/29	4.0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
9/30	8.0	0	2	5	3	0	6	0	0	0	2	0	0	0	3	2	1	0	24
10/1	9.0	13	20	12	6	3	93	9	0	0	202	1	0	0	14	6	1	0	380
10/2	7.0	0	3	0	5	5	47	6	0	0	48	4	0	0	10	2	2	1	133
10/3	4.0	1	5	5	3	2	70	20	0	1	9	2	0	0	6	1	2	0	129
10/4	3.0	0	1	0	1	0	18	8	0	1	14	2	0	0	5	0	1	0	51
10/5	9.0	0	61	4	4	1	35	12	0	0	19	8	0	0	6	2	0	0	152
10/6	9.0	0	50	4	4	1	8	1	0	1	14	0	0	0	10	0	2	0	95
10/7	9.0	0	10	4	1	0	15	1	0	0	0	0	0	0	3	0	0	1	35
10/8	10.0	0	66	3	3	6	132	25	0	2	2	6	0	0	42	5	1	2	295
10/9	11.0	1	188	4	9	2	170	29	0	10	31	6	0	0	11	5	0	2	468
10/10	3.0	0	24	1	2	1	3	0	0	0	0	3	0	0	2	4	0	0	0

Lenoir Wildlife Sanctuary 2019 - Yonkers, New York

Date	HS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOTAL
11/14	5.0	11	32	0	12	0	3	0	0	1	0	8	0	0	0	1	1	1	69
11/15	2.5	4	23	0	1	0	1	3	1	10	0	6	0	0	0	0	0	0	49
11/16	1.5	3	2	0	3	0	0	0	0	0	0	8	0	0	0	0	0	0	16
11/21	2.8	2	1	0	0	0	2	0	0	22	0	9	0	0	0	1	0	0	37
11/22	1.0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
11/28	3.5	6	14	0	13	1	1	3	0	2	21	0	0	0	0	0	2	1	64
11/29	1.8	1	3	0	0	0	1	0	0	6	0	1	0	0	0	0	0	0	12
12/6	2.3	2	17	0	11	0	1	0	0	0	0	4	0	0	0	0	0	0	35
TOTAL	176.0	119	419	163	118	4	136	38	1	70	375	135	0	1	52	7	18	2	1658

Date	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOTAL
8/15	2.5	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8/19	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/21	3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/30	2.0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
9/1	4.0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
9/2	2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/4	4.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
9/6	6.0	0	0	3	2	0	0	3	0	0	0	0	0	0	1	0	0	0	9
9/7	5.0	0	0	0	2	0	2	2	0	0	1	0	0	0	1	0	0	0	8
9/8	5.3	3	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	6
9/11	2.5	0	0	0	0	1	3	1	0	0	113	0	0	0	4	0	2	0	124
9/12	10.0	0	0	4	2	1	3	14	0	0	73	0	0	0	3	1	0	1	102
9/13	4.5	0	0	1	1	0	3	5	0	1	2	0	0	0	0	0	0	1	14
9/14	5.5	0	0	3	1	0	1	1	0	0	3	0	0	0	0	1	0	0	10
9/15	6.0	3	0	0	1	0	0	8	0	0	102	0	0	0	2	0	0	0	116
9/16	9.0	0	0	1	0	1	1	4	0	0	18	0	0	0	0	0	0	1	26
9/17	9.0	0	0	1	1	0	0	3	0	0	18	0	0	0	1	1	0	0	25
9/18	5.0	0	0	0	2	0	1	0	0	0	13	0	0	0	0	0	0	1	17
9/19	10.0	0	0	0	10	2	9	14	1	1	798	1	0	0	2	0	0	2	840
9/20	8.5	0	0	0	0	0	26	11	0	0	316	1	0	0	3	0	0	4	361
9/21	6.0	0	0	0	0	0	0	3	0	0	12	0	0	0	0	0	0	1	16
9/25	5.0	3	0	0	2	0	0	9	0	0	20	0	0	0	0	0	0	1	35
9/28	4.5	0	0	1	0	0	2	1	0	0	3	0	0	0	0	0	0	0	7
9/30	3.0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	0	4
10/1	5.5	6	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	9
10/2	2.5	5	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	6
10/3	7.0	1	0	2	2	0	0	1	0	0	4	3	0	0	0	1	0	2	16
10/6	5.5	0	0	1	2	0	9	3	0	0	3	4	0	0	2	0	1	2	27
10/8	6.5	3	0	0	0	0	3	1	0	0	0	0	0	0	0	0	0	1	8
10/14	6.5	0	0	0	0	0	13	0	0	0	0	2	0	0	0	0	0	0	15
10/15	3.5	0	0	1	2	0	3	1											

Montclair Hawk Lookout Fall 2020 - Montclair, New Jersey																			
Date	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOTAL
9/1	8.0	0	4	3	0	0	0	2	0	4	11	0	0	0	0	0	0	0	24
9/2	7.9	3	2	3	0	0	0	1	0	0	0	0	0	0	0	0	0	9	
9/3	8.0	15	3	7	4	0	0	1	0	0	7	1	0	0	0	0	0	38	
9/4	8.0	3	3	3	7	0	0	4	0	0	5	0	0	0	1	0	0	26	
9/5	7.0	0	1	3	3	0	1	2	0	1	3	0	0	0	5	1	0	20	
9/6	5.0	0	0	6	5	0	2	1	0	0	10	1	0	0	1	2	0	27	
9/7	8.1	0	0	7	4	0	1	2	0	0	1	0	0	0	2	2	1	20	
9/8	8.0	2	0	1	6	0	0	4	0	1	1	0	0	0	1	1	0	17	
9/9	8.0	0	0	2	0	0	0	2	0	0	2	0	0	0	4	1	0	11	
9/11	8.0	0	0	7	6	0	0	4	0	1	4	0	0	0	7	5	1	36	
9/12	6.1	0	0	4	3	0	0	1	0	0	26	3	0	0	8	2	0	47	
9/13	6.0	0	8	4	3	0	0	3	0	0	2	3	0	0	2	1	0	26	
9/14	8.0	0	0	5	8	0	0	5	0	0	144	0	0	0	6	5	2	176	
9/15	8.0	0	1	9	5	0	2	12	0	0	204	0	0	0	6	2	0	241	
9/16	8.0	0	0	6	3	0	0	0	0	0	0	2	0	0	2	1	0	14	
9/17	8.0	18	0	3	1	0	2	2	0	0	0	0	0	0	0	4	0	30	
9/18	8.0	0	0	5	3	0	6	9	0	0	80	0	0	0	2	1	0	106	
9/19	7.0	0	0	5	7	0	18	10	0	1	132	0	0	0	25	0	1	201	
9/20	6.0	0	2	1	3	3	20	3	0	0	22	0	0	0	6	1	0	61	
9/21	8.0	0	3	0	1	1	8	5	0	0	3	0	0	0	3	3	1	29	
9/22	8.0	0	0	0	1	0	21	3	0	0	8	1	0	0	6	1	0	41	
9/23	8.0	1	1	0	0	1	5	0	0	0	1	0	0	0	4	0	0	13	
9/24	8.0	0	0	1	1	0	3	2	0	0	0	0	0	0	1	1	0	9	
9/25	8.0	2	0	4	2	1	4	0	0	0	5	2	0	0	2	1	0	23	
9/26	4.0	0	0	3	2	0	4	5	0	1	6	0	0	0	1	0	1	23	
9/27	8.0	2	0	2	2	1	1	2	0	0	0	14	0	0	1	2	1	28	
9/28	8.0	0	1	4	1	0	3	2	0	0	0	0	0	0	2	0	1	14	
9/29	6.6	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	
9/30	8.0	0	0	9	1	0	7	2	0	0	6	0	0	0	1	7	1	34	
10/1	8.0	2	0	4	1	1	15	5	0	0	23	0	0	0	2	3	1	58	
10/2	5.1	0	14	1	1	0	9	6	0	0	8	3							

Continued on next page ...

Fire Island Fall 2020 - Islip, New York

Date	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UK	TOTAL
10/15	5.5	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2	3	4	10
10/16	4.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
10/17	8.0	0	0	0	8	0	4	25	2	0	0	0	0	0	0	64	73	22	178
10/18	8.0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	5	4	10
10/19	3.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
10/20	8.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3
10/21	4.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/22	4.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/23	4.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
10/24	4.0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	4	0	1	7
10/25	8.0	0	0	4	6	8	6	0	0	0	0	0	0	0	6	11	3	0	44
10/26	2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
10/27	8.3	0	0	4	0	5	16	5	0	0	0	0	0	0	1	34	1	0	66
10/28	3.0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2	0	0	4
10/29	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/30	3.0	0	0	0	1	2	3	0	0	0	0	0	0	0	0	3	2	0	11
10/31	6.0	0	0	0	0	2	4	2	0	0	0	0	0	0	3	4	1	0	16
11/1	2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5
11/2	4.0	0	0	0	0	3	0	1	0	0	0	1	0	0	1	4	22	0	12
11/3	8.3	0	0	2	1	17	7	1	0	0	0	0	0	0	3	6	0	0	37
11/4	5.5	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	2
11/5	5.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/6	5.5	0	0	0	0	1	1	0	0	0	0	0	0	0	1	1	1	0	5
11/7	9.0	0	0	0	0	1	5	1	1	0	0	0	0	0	1	1	1	1	12
11/8	8.0	0	0	0	0	2	4	1	0	0	0	0	0	0	0	4	0	0	11
11/10	2.0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	2
11/11	3.5	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
11/12	1.5	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	3
11/13	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
11/14	6.5	0	0	1	1	5	2	2	0	0	0	0	0	0	2	5	2	0	20
11/15	2.0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	3
11/18	7.0	0	0	0	3	5	1	0	0	1	0	1	0	0	1	4	22	0	19
11/19	2.0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
11/21	5.0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	1	0	0	4
11/22	4.0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
11/24	1.0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
11/25	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/27	3.0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	3
11/28	4.0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
12/6	4.0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
TOTAL	415.8	0	0	685	14	182	166	44	1	1	0	4	0	0	1155	1099	147	9	3507

Date	HRS	BV	TV	CS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOTAL
9/11	7.0	0	0	150	1	2	0	0	0	0	0	0	0	0	63	8	1	0	225
9/14	8.0	0	1	47	0	0	0	2	0	0	0	1	0	0	87	8	2	0	148
9/18	9.5	0	0	61	4	11	5	1	0	0	0	0	0	0	90	28	0	0	200
9/20	5.0	0	0	4	0	1	8	2	0	0	0	0	0	0	14	3	0	0	32
9/22	10.5	0	0	16	1	14	18	4	0	0	1	0	0	0	94	15	1	0	164
9/23	5.0	0	0	8	0	1	2	0	0	0	0	0	0	0	9	3	0	0	23
10/2	7.5	0	0	21	0	0	0	1	0	0	0	0	0	0	7	8	1	0	38
10/3	7.5	0	0	42	1	6	5	2	0	0	0	0	0	0	22	7	4	0	89
10/8	10.5	0	0	39	3	12	38	17	0	0	5	0	0	0	239	79	4	0	436
10/9	5.0	0	0	21	0	8	27	1	0	0	0	0	0	0	24	2	5	0	78
10/11	5.5	0	0	10	0	9	31	1	0	0	0	0	0	0	15	7	2	0	85
10/13	5.0	0	0	14	0	1	7	2	0	0	0	0	0	0	7	7	2	0	40
10/14	5.0	0	0	1	0	0	32	2	0	0	0	0	0	0	10	6	1	0	52
10/17	9.0	0	0	12	3	3	27	6	0	0	0	0	0	0	30	13	1	0	95
10/25	4.5	0	1	1	1	0	4	2	0	0	0	2	0	0	1	1	0	0	13
10/27	8.5	0	2	6	2	13	28	3	0	2	0	5	0	0	2	19	4	0	86
10/31	4.5	0	0	0	0	1	1	1	0	0	0	2	0	0	0	0	1	0	6
11/2	6.0	0	0	0	0	2	4	2	0	0	0	3	0	0	4	6	0	0	21
11/3	5.5	0	0	1	0	9	22	4	0	1	0	1	0	0	8	6	0	0	52
11/18	5.0	0	0	0	0	2	2	0	0	8	0	1	0	0	2	4	0	0	19
TOTAL	134.0	0	4	454	16	95	261	53	0	11	7	14	0	0	728	230	29	0	1902

Date	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOTAL
9/5	2.0	6	1	5	5	0	0	0	0	0	0	0	0	0	1	0	0	0	19
9/11	6.0	0	1	106	19	1	8	6	0	1	2	0	0	0	38	2	2	0	186
9/12	1.3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
9/14	6.5	0	0	16	7	1	9	1	0	0	0	0	0	0	26	0	0	0	112
9/15	3.3	0	4	11	2	1	16	4	0	1	120	5	0	0	8	0	1	0	173
9/18	5.0	0	1	29	14	1	100	8	0	0	173	0	0	1	36	1	3	5	372
9/19	2.8	0	0	4	4	0	4	0	0	0	12	1	0	0	3	0	0	1	29
10/2	4.0	4	0	5	3	0	9	1	0	1	0	1	0	0	5	0	0	1	30
10/3	2.5	0	10	10	8	0	46	10	0	7	0	8	0	0	1	0	2	1	103
10/8	1.8	0	19	1	3	0	21	6	0	0	0	1	0	0	5	2	0	1	59
TOTAL	35.0	10	36	188	65	4	213	36	0	10	359	16	0	1	123	5	9	9	1084

Date	HRS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOTAL
8/20	2.0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	7
8/26	3.0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
9/1	2.3	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
9/5	7.5	0	0	21	0	1	0	0	0	0	0	0	0	0	7	4	0	0	33
9/11	7.5	0	0	55	0	0	0	0	0	0	0	0	0	0	19	57	0	0	131
9/12	4.0	0	0	14	0	0	1	0	0	0	0	0	0	0	0	3	0	0	18
9/13	5.0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	4	1	0	7
9/14	9.0	0	0	142	0	3	0	1	0	0	0	0	0	0	173	150	5	0	474
9/15	8.0	0	0	33	0	5	1	0	0	0	0	0	0	0	31	14	0	2	86
9/16	4.5	0	0	6	0	0	0	0	0	0	0	0	0	0	0	5	0	0	11
9/17	6.3	0	0	2	0	0	0	0	0	0	0	0	0	0	0	3	0	0	5
9/18	9.5	0	0	142	0	17	2	1	0	0	0	0	0	0	129	153	2	0	446
9/19	10.0	0	0	39	0	18	10	1	0	0	1	0	0	0	164	55	1	0	289
9/20	8.0	0	0	27	0	4	14	2	0	0	0	0	0	0	53	22	5	0	127
9/21	7.0	0	0	11	0	6	6	3	0	0	0	0	0	0	22	6	1	0	55
9/22	8.8	0	0	38	0	15	16	3	0	0	0	0	0	0	162	61	1	1	297
9/23	4.5	0	0	6	0	1	1	0	0	0	0	0	0	0	4	5	0	0	17
9/24	6.0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	12	2	0	17
9/25	6.5	0	0	1	0	0	0	0	0	0	0	0	0	0	2	22	1	0	26
9/26	9.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
9/27	3.0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3	1	0	5
9/28	5.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/29	7.5	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	4	0	6
9/30	6.5	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
10/1	5.5	0	0	1	0	1	0	0	0	0	0	0	0	0	2	11	4	0	19
10/2	9.0	0	0	23	0	4	1	0	0	0	0	0	0	0	43	49	5	0	125
10/3	6.5	0	0	24	0	8	2	0	0	0	0	0	0	0	25	8	1	0	68
10/4	8.0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	1	5	0	9
10/5	6.0	0	0	6	1	1	0	3	0	0	0	0	0	0	3	6	1	3	24
10/6	7.5	0	0	1	0	0	0	1	0	0	0	0	0	0	1	7	8	0	18
10/7	5.5	0	0</																

Trudy Battaly,
Hawk Migration Report Editor
merlin@pipeline.com

*Mike Bochnick, Lenoir Wildlife Sanctuary,
hawkcount.org, 9/5/2020*

Location, Location, Location

by Drew Panko

A very important aspect of any hawk watch is its location—Duh! Of course, because its location determines the number and species of hawks. But just as significant for understanding hawk migration is its location with respect to other hawk watches. Most often we look to hawk watch data to discern population trends. But hawk watch data can give us insight into how hawks travel during their migration. It has long been known that hawks will concentrate at certain features in the landscape...shorelines, mountain ridges even individual mountains. Moreover their reaction to these features is species specific...different species react differently. Four spring hawk watches are located along the southern shores of Lake Erie and Lake Ontario perfectly located to intercept northbound spring migrants. They are, from west to east Ripley, Hamburg, Braddock Bay and Derby Hill. I decided to look at their counts to see what patterns, if any, are evident.

Spring hawk migration has the potential to be a more important indicator of how the population of the species is doing than the fall migration. The spring migration includes all the possible breeders, and the breeding population is the critical number. The fall migration includes the young of the year, many of which will not survive to breed in the following spring. Of course, the numbers are higher in the fall making it a more impressive spectacle. But we will not be looking at population trends here (perhaps next year), just what these hawk watches tell us about the path that the hawks follow in the spring when they encounter a large body of water.

Knowing nothing about the numbers at these watches we might make the following predictions:

1. Major numbers of northbound migrants will be diverted by the presence of the lakes. The shoreline of the lakes forms a leading line that northbound species encounter and divert to follow.
2. What percentage will be diverted will depend on species. Some species are much more hesitant to cross water than others. Peregrines (PGs), Merlins (MLs) and Osprey (OS) are the most likely to cross a large body of open water. They are at home over water even though it has few or no thermals and they can hunt over it.

3. One reason the small hawk species such as Sharpies and Kestrels are hesitant to cross open water is because they are harassed by gulls. Several gulls will cooperate and drive a small hawk lower and lower, and it has nowhere to escape. If the hawk is driven into the water the gulls immediately pounce and devour it. It is not common but we have seen this when hawks traveling along the Fire Island barrier beach reach the end and must jump over to Jones Beach—about 0.5 mile of open water. So the smaller hawks do not fly over large bodies of water particularly when the wind opposes the crossing.

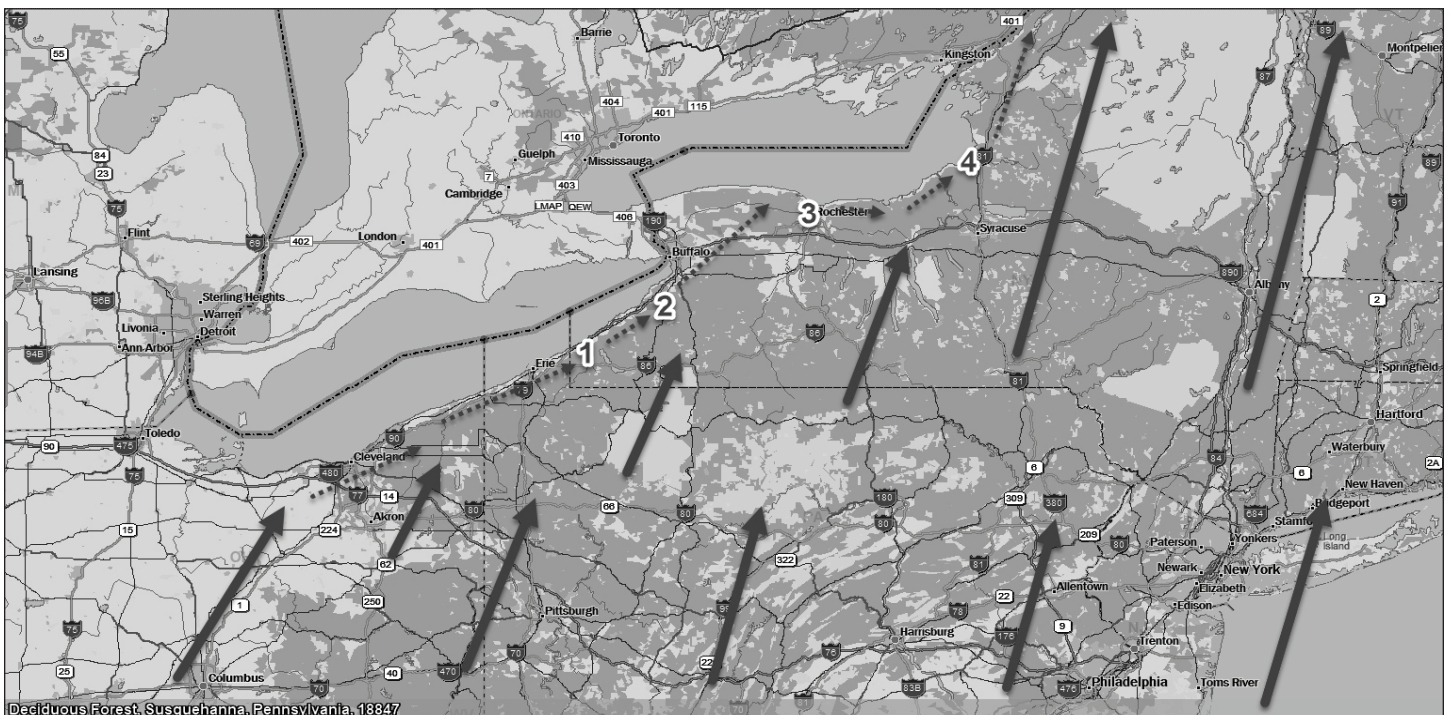
4. Other species such as Red-tails (RTs) & Broadwings (BW) will be diverted because soaring species do not like to cross open water since there are few or no thermals for lift over it. Therefore their numbers should build as they progress from Ripley to Derby Hill as they encounter the Great Lakes in their northward journey and are diverted to avoid flying over them.

So what does the data show?

(Table 1) We have two problems. First of all the averages are for all years the watches have been in operation. Since each watch has been in operation a different length of time some of the differences reflects the differences in the number of migrating hawks in different years as their population varies. The averages are also different because the coverage in each year is different and the coverage varies from watch to watch.

To correct for the different number of years each watch has been in operation, I've used only the last 18 years of each watch (Table 2).

Even the data in this table is distorted by the different number of days (and hours) counted by each hawk watch. To correct for the different number of days & hours of coverage for each hawk watch we could divide by the number of hours and find the number of hawks per hundred hours. But this could introduce a different distortion. If a species only occurs for part of the season covered, and many hours of coverage are done when no number of that species is observed (either too early or too late) then dividing through by the number of hours of coverage will be distorting when compared to a species that occurs throughout the season observed or when compared to another hawk watch that counts during a different length season. In our sample Ripley counts from mid-March to mid-May while Derby Hill counts all of March through all of May. Red-tails migrate



Map 1: Map shows dominate direction of flight for spring migrants. #1 Ripley HW, #2 Hamburg HW, #3 Braddock Bay HW, #4 Derby Hill HW

Average Numbers of Hawks Seen Over All Years

	Ripley	Hamburg	Braddock Bay	Derby Hill
Yrs Coverage	18*	18	43**	42***
Av Hrs Cov/yr	271	360	548	546
BV	1.6	0.6	2.3	1.4
TV	14,000.9	11,331.3	11,608.4	9,036.7
OS	131.1	91.7	210.4	418.0
BE	151.7	60.2	255.1	274.0
NH	137.2	43.4	738.4	583.0
SS	1,150.7	477.2	4,867.7	3,892.2
CH	82.6	123.0	475.4	395.5
NG	3.6	1.2	30.3	46.6
RS	171.4	183.7	668.2	688.3
BW	6,884.1	2,714.2	25,957.5	19,489.2
RT	936.9	954.9	3,680.3	5,525.3
RL	17.6	24.9	308.1	276.1
GE	2.7	2.5	24.6	41.1
AK	239.4	61.4	456.7	366.5
ML	7.5	6.2	24.2	33.4
PG	8.1	3.8	14.1	9.5
TH	23,973.5	16,172.2	49,327.1	41,190.4
TH w/o V	9,971.0	4,840.4	37,716.4	32,152.3
TH w/o BWs	2,676.2	13,458.0	23,369.6	21,701.2
TH w/o V & BWs	3,060.1	1,873.5	11,759.0	12,663.1

Table 1: Average number of hawks seen by species for all years of operation. *Coverage only half normal in 2020 ** Low coverage in 1977 & 2006, unknown amount of coverage in 1996, *** Somewhat reduced coverage (~370 hours) in 4 years in the early 2000's

Average Numbers of Hawks Seen Over Last 18 Years

	Ripley	Hamburg	Braddock Bay	Derby Hill
Yrs Coverage	18*	18	18**	18***
Av Hrs Cov/yr	271	360.7	486.2	562.9
BV	1.6	0.6	4.5	2.6
TV	14,000.9	11,488.3	20,120.7	16,399.4
OS	131.1	91.1	188.2	455.1
BE	151.7	62.2	498.2	566.3
NH	137.2	42.2	642.5	505.9
SS	1,150.7	469.7	3,644.2	3,126.9
CH	82.6	122.7	389.8	311.7
NG	3.6	1.1	21.4	22.6
RS	171.4	181.8	451.6	514.7
BW	6,884.1	2,802.1	29,795.3	21,399.3
RT	936.9	940.1	2,750.3	3,966.4
RL	17.6	25.2	189.9	210.8
GE	2.7	2.6	29.3	57.8
AK	239.4	60.7	354.1	329.1
ML	7.5	6.1	32.6	50.6
PG	8.1	3.9	22.1	16.1
TH	23,973.5	16,390.8	59,141.3	47,996.2
TH w/o V	9,971.0	4,901.9	39,016.2	31,594.2
TH w/o BWs	17089.444	13,588.7	29,346.1	26,596.9
TH w/o V & BWs	3086.9444	2,099.8	9,220.9	10,194.9

Table 2: Average number of hawks counted over the last 18 years * Ripley had low coverage in 2020, only 126 hrs, while it had averaged 279 hrs/yr up to 2019; ** Braddock Bay's coverage in 2006 was only 158 hours, while its average for the others was 506. These deficient years, while serious, had good coverage during the BW season, and much of the TV season so the deficits are mostly in other species, particularly OS, BE, NH, SS, CH & all the falcons.

early in the season and Broad-wings only late while TVs occur throughout the season. After a hawk watch gets up to 250-300 hours/yr I think that the better approach than computing hawks/100hrs, it is to trust that the watchers have covered the whole season that produces significant numbers of hawks at their watch and just compare raw totals. Neither comparing

the totals at different watch sites or comparing the totals divided by the number of hours is correct. What we could do is to determine the number of days each species is passing and how many hours watched during that season, for each species, and to divide by that number of hours. But even that would not be perfect because hours observed on different days are not equivalent. And hours observed at different times of day are not equivalent.

So, for our purposes here, we will assume that all four hawk watches counted for the entire season that hawks were passing their site and use just the totals observed for each species and just ignore the difference in time spent observing at the different watches.

Now, consider the average numbers seen (Table 3) at Ripley & Hamburg (numbers 1 and 2 on Map 1). For most of the hawks Ripley sees more than Hamburg. This is particularly true for BWs and AKs—two species with very different migration flight strategies. This is contrary to our expectations that hawks moving up from the south on a broad front will encounter Lake Erie and divert to fly along the shore rather than make the water crossing. This is also not true for CH, RL, for which Ripley has fewer than Hamburg. The numbers are almost the same at these two watch sites for RT & GE. If the season is earlier for CH, RL, RT, and GE, perhaps the greater coverage is earlier at Hamburg than Ripley allowing them to get ahead on the count. But this is not the case; both counts run from mid-March through mid-May. The difference in coverage is likely due to longer days spent watching at Hamburg. CH, RL, RT and GE also tend to soar more than other species, so this could be the difference. But no, BWs and TVs soar as much as these, and Hamburg counts significantly less of them (particularly the BWs) than Ripley counts. So we have no explanation, except perhaps there is a difference due to location. Perhaps Ripley is located at the right place with the right visibility to see more hawks diverted by the lake than Hamburg. Another explanation (speculation?) is that the hawks can see the loss of the leading line as they approach the end of Lake Erie, and they are moving away from the lake by the time they get to Hamburg and they will go straight on, or more easterly until they run into Lake Ontario and are diverted again. Perhaps some OS, BEs, NHs, MLs & PGs are not seen at Hamburg because they took off over water, but this does not explain the decrease in SSs, and so may not be the explanation for the decrease of the species as well.

% change from Ripley to Hamburg

	Ripley	Hamburg	% Change
Yrs Coverage	18*	18	0
Av Hrs Cov/yr	271	360.7	33.1
BV	1.6	0.6	-62.1
TV	14,000.9	11,488.3	-17.9
OS	131.1	91.1	-30.6
BE	151.7	62.2	-59.0
NH	137.2	42.2	-69.3
SS	1,150.7	469.7	-59.2
CH	82.6	122.7	48.6
NG	3.6	1.1	-69.2
RS	171.4	181.8	6.1
BW	6,884.1	2,802.1	-59.3
RT	936.9	940.1	0.3
RL	17.6	25.2	43.4
GE	2.7	2.6	-6.1
AK	239.4	60.7	-74.7
ML	7.5	6.1	-18.5
PG	8.1	3.9	-51.4
TH	23,973.5	16,390.8	-31.6
TH w/o V	9,971.0	4,901.9	-50.8
TH w/o BWs	2,676.2	13,588.7	407.8
TH w/o V & BWs	3,060.1	2,099.8	-31.4

Table 3: Comparison of Ripley and Hamburg

% change from Hamburg to Braddock Bay

	Hamburg	Braddock Bay	% Change
Yrs Coverage	18	18**	
Av Hrs Cov/yr	360.7	486.2	34.8
BV	0.6	4.5	636.4
TV	11,488.3	20,120.7	75.1
OS	91.1	188.2	106.7
BE	62.2	498.2	700.7
NH	42.2	642.5	1,423.7
SS	469.7	3,644.2	675.8
CH	122.7	389.8	217.8
NG	1.1	21.4	1,825.0
RS	181.8	451.6	148.4
BW	2,802.1	29,795.3	963.3
RT	940.1	2,750.3	192.6
RL	25.2	189.9	654.5
GE	2.6	29.3	1,047.8
AK	60.7	354.1	483.7
ML	6.1	32.6	432.7
PG	3.9	22.1	460.6
TH	16,390.8	59,141.3	260.8
TH w/o V	4,901.9	39,016.2	695.9
TH w/o BWs	13,588.7	29,346.1	116.0
TH w/o V & BWs	2,099.8	9,220.9	339.1

Table 4: Comparison of Hamburg and Braddock Bay

Now on to Braddock Bay. The number of hawks counted at Braddock Bay is extraordinary. Almost an average of 60,000 TH compared to Hamburg's 16,000 and Ripley's 24,000. Its coverage is also higher... 80% higher. This is due to increased coverage in March and May. Braddock Bay covers all of March and May but Ripley covers only half of each month. The higher counts at Braddock Bay are due to much higher counts of TVs, BEs, NHs, SSs, NGs, BWs, RTs, RLs, GEs, MLs, and PGs. To a lesser degree, it counts more OS CHs. RSs and AKs as well.

At first glance this confirms our theory that the flight should build as it moves along the leading line of the shoreline of the lakes. But between Hamburg and Braddock Bay there is no leading line. Lake Erie ends, and some 100 miles later, as the hawk flies, Lake Ontario picks up. Well, the general increase in all species between Hamburg and Braddock Bay does tell us two things. First of all, that Braddock Bay is in a good location to see all the birds moving along the leading line of Lake Ontario, and birds moving north (as indicated by the solid arrows in the diagram do not make a left turn and head into Canada but are diverted to the right and continue on to Braddock Bay. This is something that I always wondered about. Is that little spit of land between the two lakes a major flyway in spring for birds moving north. If anyone reading this birds regularly in this narrow spit of land, I would be very interested in hearing from you. Can you confirm that hawks in spring do not use this pathway in any great numbers or not. It would also be interesting to know about non-raptors as well.

It should be noted that the much smaller increase in numbers of OS and AKs at Braddock Bay could indicate that the OS continue on the leading line formed along the shore of Lake Erie and overtake an overwater flight as they encounter Lake Ontario. This is unlikely for the AKs however, perhaps they are not seen as they pass Braddock Bay because of its location or visibility or perhaps some of them do divert left and use the spit of land between the two lakes to get into Canada.

Now, onto Derby Hill from Braddock Bay (#3 to #4). There is a sizeable increase in coverage at Derby Hill averaging 80 hours per year more than Braddock Bay. Some of this increase over Ripley and Hamburg is due to extending the season into Feb and June (usually only 2 or 3 days) but Braddock Bay does this as well on an irregular basis. The Table below shows the change in hawks seen at Derby and Braddock.

% change from Braddock Bay to Derby Hill

	Braddock Bay	Derby Hill	% Change
Yrs Coverage	18**	18***	
Av Hrs Cov/yr	486.2	562.9	15.8
BV	4.5	2.6	-42.0
TV	20,120.7	16,399.4	-18.5
OS	188.2	455.1	141.8
BE	498.2	566.3	13.7
NH	642.5	505.9	-21.3
SS	3,644.2	3,126.9	-14.2
CH	389.8	311.7	-20.0
NG	21.4	22.6	5.7
RS	451.6	514.7	14.0
BW	29,795.3	21,399.3	-28.2
RT	2,750.3	3,966.4	44.2
RL	189.9	210.8	11.0
GE	29.3	57.8	97.0
AK	354.1	329.1	-7.1
ML	32.6	50.6	55.3
PG	22.1	16.1	-27.1
TH	59,141.3	47,996.2	-18.8
TH w/o V	39,016.2	31,594.2	-19.0
TH w/o BWs	29,346.1	26,596.9	-9.4
TH w/o V & BWs	9,220.9	10,194.9	10.6

Table 5: Comparison of Braddock Bay and Derby Hill

Numbers of BVs, TVs, & BWs are down strongly at Derby. These are soaring birds that avoid water crossings. But NHs & PGs are also down and they are much less deterred by water crossings. Derby sees a strong increase in OSs, which cross water and RTs which do not. Most puzzling of all is ML numbers show an increase and PGs a decrease. Migration patterns of these two species are very similar, so why the difference?

One of the considerations we have comparing these two sites is their difference in coverage, but since DH has the higher coverage and (mostly) the lower numbers this is no help explaining the difference. Also both sites have alternate watch sites indicating that for some reason(s) sometimes the flight is better at one site than the other. Likely wind direction and season (which species dominate the flight) are the reasons one site is used rather than the other. I don't know if both sites are manned under some conditions and if there is communication between them. But the mere presence of two sites means it is likely that some hawks are missed when only one of the sites is covered. Furthermore, Hawkcount does not indicate at which, or both, sites the count was taken.

First consider the TVs, why do they average 18% lower at Derby in spite of 15% more coverage? I do not know, but there are some possibilities. They could move away from the shoreline when moving between Braddock and Derby. Or the flight could split before Derby with only a fraction of those passing visible at whichever site is manned. This might depend on the wind. The only reason the TVs are following the shoreline is that they are heading north and the Lake is blocking them and the southerly winds are 'pushing' them to the shoreline. It should be noted here that the wind is not really pushing them. All hawks, even TVs can determine their direction of flight despite wind conditions. If wind conditions get so extreme that they cannot determine the direction of flight they'll simply land and wait it out until conditions change. However, in the spring the TVs will use the southerly winds to help carry them north...until they hit an obstacle like the lakes that they don't want to be carried across. Could the southerly winds be more consistent or stronger at Braddock, carrying the TVs closer to the shoreline? This seems unlikely to me. I suspect another geographic feature creating lift, thermal or mountain, which is attracting the TVs further away from the shore somewhere between Braddock and Derby. It is likely this same factor which reduces the number of BWs at

Derby and possibly, the CHs as well. But why not the RTs and GEs also? The shoreline also takes a strong turn less eastward and more northward between Braddock and Derby. Perhaps the preferred migration direction of the RTs and GEs are also more northward than the TVs thus keeping them closer to the shoreline to be counted at Derby.

I believe, just from observation, no real data, that the RTs are stronger flyers than the TVs and BWs and less dependent on lift. I suspect, again no real data, that they are more interested in flying over good hunting habitat than getting good lift. This could be the same effect we see in the increase in GEs over Derby as well, but I suspect not quite the same. I suspect the actual habitat surrounding Derby Hill is actually attractive to GEs and possibly the RTs as well. Migrant GEs are mostly from far north—tundra country. They are used to and attracted to short grassy habitat as are the MLs which accounts for their high count at Derby. But this whole theory falls apart as AKs and PGs are also attracted to non-woody, short grassy habitats. And the AKs and PGs are down at Derby but the RTs are not . . . go figure, I must be wrong.

So the picture presented for the migration along Lake Erie & Ontario in spring is more complicated than just a simple increase as you go from Ripley to Derby Hill. And is very dependent on the location of the hawk watch and the species of hawk being considered.

The high numbers of hawks seen along the shoreline of Erie & Ontario certainly point to the fact that northbound migrants encounter the lakes and are diverted along their shores. And then some species drift away from the shoreline at the same time as more northbound migrants are encountering it for the first time. This is not necessarily drift caused by wind off the lakes but motivated movement by the hawks. Why would the soaring birds drift away from the shoreline? Two main possibilities occur to me . . . first, both northerly and southerly winds (on shore and off shore) might interact with inland hills to create lift which soaring hawks would tend to seek out.

And, secondly, hunting and perching habitat would increase. If a bird like a BW or TV or RT flies along the lake shore, it will see only suitable habitat for prey and perches to its south. But if it moves a few miles inland it will have suitable habitat and perches to both its north and south effectively doubling the resources available to it. It would still see the lake and be diverted by it. Certainly we would not expect it to hug the shoreline but to follow the diversion line created by the lake but 5 or 10 miles inland of the shore. Other species, such as OS, MLs & PGs hunt over water. MLs and PGs will actively hunt the shoreline for shorebirds and chase prey over water to more easily capture them. We should expect these species to hug the shoreline.

But there is not a steady buildup of hawks as they travel along the shoreline. What happens depends strongly on the species of hawk considered. I think I see a “hit & drift” pattern in the data. After northbound hawks encounter Lake Erie, they will encounter the shore and change to a more easterly course along the shoreline to be counted at Ripley. But will all of the hawks that encounter the shore follow the shore to Ripley? Once it is obvious that this water barrier is a long term affair some hawks will

move somewhat more inland (inland drift) sometimes in greater numbers than new northbound migrants encounter the lake. This ‘inland drift’ is not the hawks being carried by winds. It is motivated flight by the hawks. So we see that hawk numbers drop off from Ripley to Hamburg. This continues until they encounter Lake Ontario and are diverted east again and we get high counts at Braddock Bay. Where again they drift away from the shoreline and continue on to Derby Hill. The reduction due to drifting between Braddock & Derby Hill is smaller than that between Ripley and Hamburg because the shoreline at Derby Hill is much less easterly than the shoreline along Lake Erie between Ripley and Hamburg. There even may be a re-concentration of some species at Derby after birds drifted away from the shoreline at Braddock and its more easterly shoreline. They re-concentrate to their more northerly course at Derby where the shore line bends north. This encounter at Ripley, reduction due to drifting at Hamburg, re-encounter the water diversion at Braddock Bay and smaller reduction due to the inland drift at Derby seems to be the pattern for BV, TV, NH, SS, BW and AK. And for TH because of the dominance of the numbers of TVs & BWs. All of these species are not known to take long over water flights.

OS and BE are rather similar. They show a big drop at Hamburg which might represent the OS going over water with the BEs going more inland. The BE show a bigger increase at Braddock than OS. This is likely because some of the OS move overwater, while the BE pass inland of Hamburg, encounter Lake Ontario, and are diverted and counted at Braddock. They, along with the OS are very much at home along shorelines, so their numbers continue to increase along the shoreline to Derby, which allows them a more northerly migration route.

I cannot explain why the CHs do not show the big decrease of most soaring hawks from Ripley to Hamburg, but they do show the big increase at Braddock and the much smaller decrease typical of other species at Derby.

NG show the typical decrease at Hamburg and large increase at Braddock, but a small increase at Derby. It is possible that since they do not overwinter as far south as most of the other species the increase in northbound migrants overwhelms the small decrease expected at Derby.

But what about the falcons? BWs are seen in their thousands and even tens of thousands on their northward migration. But the falcons? A few hundred AKs, and only a few dozen ML & PGs. The differences in the observed numbers at the different watches is not as important for the falcons as is their low absolute numbers. These birds will be diverted by large expanses of open water—particularly the AKs—when the winds are not going to be helpful to complete the crossing. They do not want to be caught a 100 miles from land and facing an opposing wind anywhere from 50% to 150% of their flying speed. PGs and MLs are stronger flyers than AKs. They also tend to persist in migration in poorer weather—opposing winds and precipitation than AKs. If fact, the main reason we find as many following the shoreline, rather than crossing the lake is the attractive hunting they find along the shoreline. Both PGs and MLs capture and eat prey in flight and over water making overwater flights easier for them. But many prey species concentrate along the shore and are easily

Braddock Bay Fall

Year	Hrs	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	TOTAL
2018	22	0	177	12	41	2	4	1	0	2	51	1225	0	0	1	0	2	0	1518
2019	116	0	361	13	171	7	3	12	0	3	307	1809	0	0	2	1	5	3	2697
2020	118	0	265	11	152	4	5	7	0	1	157	2659	0	0	5	3	2	0	3271

Table 6: Fall hawk watch data from Braddock Bay

flushed over water to be captured. That may be the only reason that we see as many PGs and MLs at these watches as we do. Most likely they will undertake crossing the lake within a day or two of encountering it. Also how many will stick to the shoreline and how many divert is likely a function of age, experience and gender. Older males are anxious to get to the breeding grounds as soon as possible and be the first to stake out territories and so are much more likely to undertake the over water crossing than younger females that do not have to establish and defend territories early in the season.

The huge drop in AK numbers between Ripley and Hamburg is surprising though. I think it is unlikely that such a large percentage undertake an overwater flight at this point...I suspect there is some attractor in the vicinity of Hamburg that results in a large number of the AKs that are passing close to Hamburg but not detectable at the watch site.

That is about all the sense I can make of the observed numbers of hawks counted along the Great Lakes in NY in the spring. Much of it is speculation, and will have to remain so until we're able to track the actual migration routes of migrating raptors. Satellite tags and Motus towers have the potential to do this, all that is needed is the commitment of time, money and person-power to band and tag the raptors on their breeding grounds.

But wait!

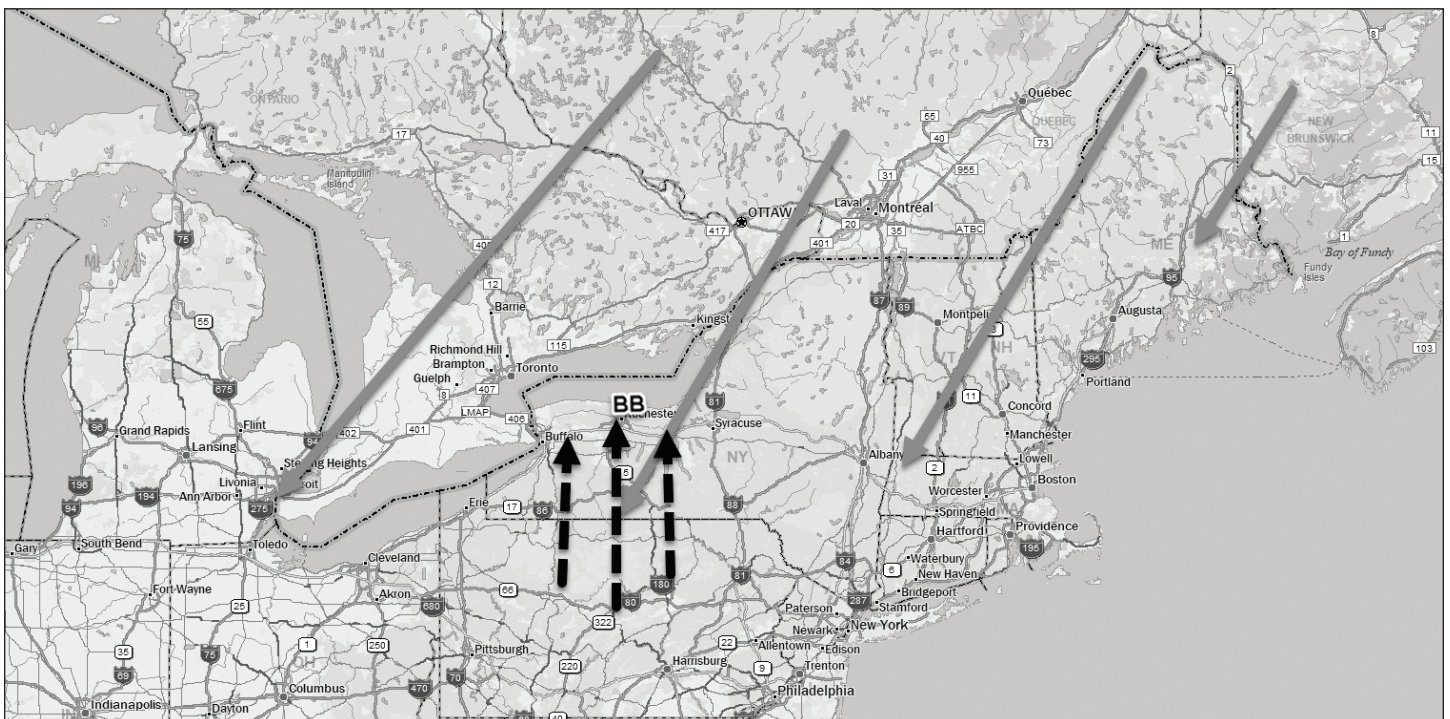
Unknown to me, but on Hawkcount Braddock Bay (and to a lesser extent Derby Hill) have been doing some counting in late July and August. What would we expect them to count? BE and OS certainly. They are water loving species and their young wander widely. Some sources say that adult OS females begin their migration very early. Perhaps TVs as well. Certainly the local population will make their appearance and perhaps their young wander as well. But NO! In southeastern NY RT migration does not begin until late Oct, and only a few hundred to a thousand will pass if coverage is continued through Nov. Here, Braddock Bay is counting ~2000+ in August!!!

Not only are they counting RTs in great numbers in August, but also smaller, but significant numbers of BWs and TVs. The BEs are not surprising as they are well known to wander after the breeding season and as immatures. The smaller number of other species are easily explained by post breeding dispersal. But are those RTs adults or immatures or a mix? And what migratory course are they on? If they are migrating are they going eastward or westward along the lake? Hawk watches are great because they help us understand raptor migration, but we are still at a very early stage of understanding and mostly misunderstanding... In the case of these 4 watches along the Great Lakes, there is a great opportunity to learn lots of new things!

If these RTs are northern birds heading SW from northern New England and Canada they will not pass Braddock Bay, see Map 2—grey arrows. RTs do not cross large bodies of open water so they cannot be reaching Braddock Bay by flying directly south from Canada over Lake Ontario. My best guess is that they are wandering post breeders and juveniles, not true migrants, heading north from breeding grounds in NY, PA and NJ, when they encounter Lake Ontario—see dashed dark arrows. And then they follow the shore eastward or westward, or perhaps both. Derby Hill has covered a few days in August as well, and they also are counting a few dozen RTs and BWs a day. The species well known for northerly post breeding dispersal are OS and BE. But here we are seeing it in TVs, BWs, and most of all RTs!

I hope to contact some of the hawk watchers along the south shore of Erie and Ontario and get their take on this, and the other speculations I have made looking at their data. I think the importance of location is well illustrated by these hawk watches.

- > A hawk watch location should have enough interest and volunteers to keep a hawk watch personed for decades.
- > A hawk watch location should be situated relative to a leading line or other landscape feature so large number of hawks are visible.
- > A hawk watch location should be situated relative to other hawk watches so as to shed light on the migration pattern of the hawks.



Map 2: Fall migration along the great lakes. BB indicates Braddock Bay. Grey arrows indicate southbound migration direction. Dark broken arrows indicate hypothesized movement of TVs, RTs and BWs.

Thank YOU For Your Gifts!

In 2019-20, 47 people made financial gifts to NEHW in addition to their membership dues. Your gifts are vitally important to our efforts and we thank you: Harvey Allen, Martha Allen, Anonymous, Ajit Antony, Trudy Battaly, Claire Breyton, Julie Brown, Gail Cameron, Judith Cinquina, Christine Eddy, Joy Filler, Nancy Given, Barbara J. Goodchild, David Goodine, Ursula Goodine, Gary Goodness., Laurie Goodrich, Else Greenstone, Nora E. Hanke, Bill Hanley, Russ Johnson, Lloyd Klinger, Frankie Knibb, Nigel Kraus, Susan Llorca, William Loomis, Lisa R. Lozier, Iain MacLeod, Donald Manchester, Jr., Ted Mara, Michael Marsano, David D. Matsushita, Thomas McCullough, Megan Megrath, John Merrill, Doris Metraux, Martin Moore, Christine Morabito, Kathy Olson, Drew Panko, John M. Parker, Gerhard Patsch, John Sharp, George J. Steele, Todd Watts, Joe Wojtanowski, Mariko Yamasaki.



“ BW’s became 98% of the count today and we were lucky to have a great group of spotters on the deck—especially when large kettles and peels were often happening in 3 places at once!

The 11am and the 2pm hours were huge! ”

*Rod Chase, Wachusett Mountain,
hawkcount.org, 9/18/2020*



NorthEast Hawk Watch

c/o Joe Wojtanowski

PO Box 142

Poquonock, CT 06064

www.battaly.com/nehw



“ We had a juvenile Northern Goshawk rise up to the west of the platform today but I had to pull out the eraser as it moved north finally disappearing behind North Pack. It was obviously on the hunt for a tasty Snowshoe Hare or Ruffed Grouse. ”

*Levi Burford, Pack Monadnock,
hawkcount.org, 11/16/2020*