

2015 Autumn Raptor Migration Summary

Laurie Goodrich

Weather: “the state of the atmosphere with respect to wind, temperature, cloudiness, moisture, pressure, etc.” (merriam-webster.com)

Weather can bring bliss or boredom to hawkwatchers. It determines the patterns of the migration, if birds fly low or soar high, or if they hug ridges and lakeshores or travel in broad fronts. In 2015, *El Niño* strengthened during autumn months and led to above average temperatures in fall and early winter, and a shifting jet stream that frequently brought unusual wind patterns (www.noaa.gov). September was beset with east winds, fog, and drizzle. The remainder of the migration was warm and winds often light. The strong cold fronts and frigid temperatures typical of November and December never arrived, which in turn perhaps dissuaded late season buteos from moving south at all.

Despite the unusual weather, Pennsylvania hawkwatchers tallied 91,876 raptors at 14 watchsites at a rate of 12.2 hawks per hour. The total number of hawks was 28% below the 10-year average and the lowest in more than a decade for the state (Table 1). Hours of observation statewide were slightly above average at 7649, compared to a 10-year average of 7461 hours; however the 1108 total days of counting was slightly lower than average (1121, Table 1). One southern watchsite, Tuscarora Summit, went uncovered for the first year in over a decade, due to lack of hawkwatchers, and two of the 14 sites reporting were only covered for one or two days. Rarities included an immature light morph Swainson’s Hawk at Waggoner’s Gap 19 October and another immature light morph at Hawk Mountain 4 October. Three Mississippi Kites included one adult 16 September at Militia Hill, an

immature 22 September at Militia Hill, and one at Hawk Mountain 25 Sept.

Statewide, 13 of the 16 regularly recorded raptors were counted in below-average numbers during autumn 2015 (Table 1). The three most numerous migrants were observed less often in 2015 than any year in more than a decade. Pennsylvania watchers tallied 20,764 Sharp-shinned Hawks, 25% below the 10-year average, 41,283 Broad-winged Hawks, 34% below average, and 9434 Red-tailed Hawks, 30% below average (Table 1). The largest dips compared to averages were encountered for Osprey at 1870 or 33% below average, Northern Goshawk at 60 or 64% below average, and Rough-legged Hawk at 6 or 53% below average. Three of the 16 regularly detected raptors were counted in above-average numbers; these included Turkey Vulture at 6498 or 1.3% above average, Bald Eagle at 2164 or 12% above average, and Golden Eagle at 1295 or 23% above average.

Allegheny Front (Somerset/Bedford) – Allegheny Front recorded 5035 raptors in 833.5 hours and 139 days of observation from 15 August to 26 December, a rate of 6.04 hawks per hour (Table 1). Counts were 44% below average, with Broad-winged Hawks showing the largest drop—1039 compared to the recent average of 4795, the lowest broadwing count since 1998. A new season record was set for Golden Eagle at 320, 58% above 10-year average of 204 (Table 1). Other above-average counts were tallied for Black Vulture (55), Turkey Vulture (775), and Bald Eagle (112). Southeast winds 24 October ushered one of the largest single-day counts for Golden Eagles for the state and for the site—74 in total, 58 of which were adults. Only 101 other raptors were tallied that day,

led by 37 Red-tailed Hawks and 44 Sharp-shinned Hawks, but only 2 Bald Eagles. A total of 150 Golden Eagles were added to the season total during November, with many double-digit days including 27 on 4 November and 32 on 21 November. On the latter day eagles flew late in the afternoon with the last ones spotted against the starry sky.

Bake Oven Knob (Lehigh) – Bake Oven counters tallied 11,645 hawks in 107 days and 895 hours, for a rate of 13 hawks per hour (Table 1). Above-average counts were tallied for Black Vulture (381), Turkey Vulture (1074), and Bald Eagle (264). All other raptors appeared in below-average numbers (Table 1). East-southeast winds 26 September brought one of the largest Bald Eagle flights for the season—13 total which included 10 adults. Two Golden Eagles joined the flight, one adult and one juvenile, two of the four goldens recorded for the month. Northwest winds 11 November ushered a late season eagle flight to the lookout, including 11 Golden Eagles, five of which were immatures, and a lone adult Bald Eagle. A busy accipiter flight was recorded 17 October with 350 Sharp-shinned and 15 Cooper’s Hawks passing the watch; other highlights included 7 Merlins and 10 Bald Eagles.

Broadwing SEPT, Pipersville (Bucks) – This Broad-winged Hawk site in eastern Pennsylvania was covered 20-21 September and tallied 959 hawks including 914 broadwings. The higher count occurred 21 September when 708 broadwings, 22 Sharp-shinned Hawks, 2 Cooper’s Hawks, one Bald Eagle, one Merlin, one Northern Harrier and one unidentified accipiter were all tallied (Table 1). The season total recorded at the site was only 8% below average.

Council Cup (Luzerne) – In contrast to most sites, Council Cup counts were slightly above-average in 2015; the total of 1042 hawks compared to the average of 941.3, with slightly below average hours of coverage at 98.5 (Table 1). Highlights included 690 Broad-winged Hawks, the highest count for that species since 1999, which included a big day of 567 on 20 September. Northwest winds that same day also brought other highlights, including 2 Bald Eagles, 4 Osprey, 2 Sharp-shinned Hawk and 5 American Kestrels. The 4 Golden Eagles for the season was also above the average of one per autumn; this was achieved on the strength of the 3 goldens 13 November, accompanied by 82 Redtails, 3 Turkey Vultures, and 4 Bald Eagles.

Table 2. Peak one-day migration counts for selected species.

Site	Broad-winged Hawk		Golden Eagle	
	Count	Date	Count	Date
Allegheny Front	189	9/24	74	10/24
Bake Oven Knob	1237	9/17	9	11/11
Pipersville (BW)*	708	9/21	-	-
Council Cup	567	9/20	3	11/13
Hawk Mountain	1532	9/18	10	10/23,11/14
Jack’s Mountain	965	9/19	18	10/30
Little Gap	1349	9/22	16	11/14
Militia Hill	2333	9/20	2	10/24
Rocky Ridge*	648	9/18	-	-
Rose Tree Park	772	9/14	1	10/17
Second Mountain	1638	9/19	6	11/14
Stone Mountain	590	9/17	30	11/20
Waggoner’s Gap	1760	9/19	41	10/24

Bold counts indicate top four totals by species

**limited coverage*

Hawk Mountain (Berks/Schuylkill) – Hawk Mountain recorded 13,468 hawks in 128 days and 1127 from 12 August to 31 December. Total raptors were 29% below average, and only one species showed above-average counts: Bald Eagle at 316 or 6% above the 10-year average. This continued a long-term upswing in this species. The most abundant migrants, Broad-winged Hawk, Red-tailed Hawk and Sharp-shinned Hawk, were 27%, 49%, and 20% below the 10-year averages, respectively (Table 1). The count of American Kestrel, 232, was 46% below the 10-year average. On 25 September, a Mississippi Kite of unknown age was observed repeatedly swooping down and up, presumably catching flying insects above the ridge, before circling higher to soar with a Broad-winged Hawk. The sun angle prevented examination of plumage and therefore classifying the bird's age. Another rarity, an immature, light morph Swainson's Hawk, was sighted soaring south with a small flock of Turkey Vultures at 14:27 on 4 October. The largest one-day count for 2015 was 1588 raptors 18 September when 1532 Broad-winged Hawks swirled past along with 17 Osprey, 4 Bald Eagles and a few other raptors. A cold front in mid-October released a three-day Sharp-shinned Hawk deluge that featured 452 on 16 October, 521 on 17 October, and 282 on 18 October. The three day total represented nearly 33% of the autumn's count for the species. The first Golden Eagle was early on 14 September, and the highest one-day count of 10 eagles passed by 23 October and again 14 November. Counters 14 November also recorded 175 Red-tailed Hawks, the one-day high count for the species.

Jack's Mountain (Mifflin) – Jack's hawkwatchers recorded one of the few above-average counts for the state—5536 compared to 4417 for their 10-year average. The above-average coverage of 530 hours and 92 days may have partly accounted for this increase (Table 1). Counts of all raptors at Jack's were above-average except the 102 Turkey Vultures, which compared to the average of 131 in the recent 10 years. The largest flight day for the site was 19 September with 1000 hawks sighted, including 965 broadwings and 7 Bald Eagles. Jack's Mountain recorded an above-average 152 Golden Eagles for the autumn of 2015, including several double-digit flight days. On 14 October, 16 goldens were recorded along with a one-day high count of 81 Red-tailed Hawks. On 30 October, another 18 Golden Eagles were tallied, mostly adults, and on 13, 14, and 20 November, Jack's recorded 15, 12, and 15 Golden Eagles respectively, culminating in an impressive eagle season for 2015.

Little Gap (Northampton) – Little Gap counters tallied 12,526 hawks in 104 days and 700 hours of hawkwatching, 13% below their 10 year average (Table 1). Five raptors were counted in above-average numbers: 106 Black Vultures, 277 Bald Eagles, 115 Golden Eagles, 111 Merlins, and 61 Peregrine Falcons. A light north wind 22 September switched to the northeast for the afternoon and brought the season's largest one-day flight of 1349 Broad-winged Hawks and the second Golden Eagle for the fall. The highest number of Sharp-shinned Hawks (452) and Cooper's Hawks (47) were tallied following one of the few cold fronts of the autumn 16 October; these appeared along with 3 Peregrine Falcons. A strong west-northwest wind 14 November brought the high count for late season migrants including 159 Red-tailed Hawks, 9 Bald Eagles, and 16 Golden Eagles, one of the best days for the fall.

Militia Hill (Montgomery) – Militia Hill's total of 4954 was its lowest count since 2003 and 63% below the 10-year average (Table 1). The Broad-winged Hawk count of 2830 was 73% below average. The only species showing an above-average count was the Bald Eagle at 103 compared to an average of 101 (Table 1). Most of the broadwings spotted in 2015 flew past 20 September, when a light northwest wind carried 2333 of them over the platform. These were accompanied by 14 Bald Eagles and 26 Ospreys, with most birds passing during the afternoon. The one-day count of Broad-winged Hawks was the largest recorded for Pennsylvania sites in 2015 and the Bald Eagle count was the highest for Militia Hill for the season.

Rocky Ridge (York) – Rocky Ridge hawkwatchers tallied 2379 hawks in 24 days and 119 hours of coverage, 15% above average. The slight increase was largely due to a 40% increase in Broad-winged Hawks. The total of 1851 broadwings was largely spotted between 17 and 19 September with a peak of 648 on 18 September. Five count days in September exceeded 100 raptors and the monthly total of 2060 raptors comprised most the migrants for the site. A late cold front 23 October brought 88 raptors, the highest one-day count for the late season, including 15 Black Vultures, 44 Turkey Vultures, 3 Bald Eagles, 20 Red-tailed Hawks, 5 Sharp-shinned Hawks, and 1 Cooper's Hawk. Only two days were covered in November at this partial coverage site, for a total of 9 hawks.

Rose Tree Park (Delaware) – Rose Tree Park hawkwatchers counted 3195 hawks in 500.3 hours and 79 days of counts from 1 September to 21 November 21 (Table 1). The total was 54% below average with

a 74% dip in Broad-winged Hawks, which accounted for much of the difference. Counts of most raptors were below average except Turkey Vultures, which came in at 480 compared to 394 on average (Table 1). The highest one-day raptor count for 2015 occurred on 14 September when 772 broadwings flew over the site, along with 8 Bald Eagles, 9 Ospreys, 19 Sharp-shinned Hawks, and 24 other raptors. Light west winds 19 October brought one of the best October flights for the autumn. Counters tallied a parade of vultures including 157 Turkey and 11 Black Vultures, as well as 2 Osprey, 2 Bald Eagles, 23 Sharp-shinned Hawks, 10 Cooper's Hawks, 5 Red-shouldered Hawks, 26 Red-tailed Hawks, 6 American Kestrels, 3 Merlin, and one Peregrine Falcon. Flights slowed in November, as was the case at most sites in 2015, with only 311 migrants tallied in that month.

Second Mountain (Lebanon) – Second Mountain watchers counted 6746 hawks in 834 hours and 135 days of counts from 12 August to 31 December. The 2015 total was the lowest since 1986, and no species registered in above average numbers (Table 1). Despite the lackluster flight some exciting highlights were recorded. On 19 September, 1638 Broad-winged Hawks glided past the site and gave counters great looks as they hugged the ridgetop. The highest one-day count during October occurred during threatening rain clouds, when the 207 raptors coursing downridge included 148 Sharp-shinned Hawks, 24 Turkey Vultures, a lone Peregrine Falcon, and 2 Golden Eagles. November's highest count occurred 21 November when 86 raptors were tallied, including 53 Red-tailed Hawks and 2 Golden Eagles. Intrepid late season watchers tallied another 92 migrants during December, including on the very last day of counting, 31 December, when they added a surprising 25 migrants to the season's total, including two Bald Eagles.

Stone Mountain (Huntingdon) – Stone Mountain recorded 4091 hawks in 460 hours from 30 August to 4 December, only 6% below the 10-year average (Table 1). The 460 hours of coverage were up 25% compared to prior years, which helped this site buck the downward trends seen at most other sites (Table 1). Five species were above-average for the site; these included 43 Black Vultures, 295 Turkey Vultures, 61 Northern Harriers, 2335 Broad-winged Hawks, and 34 Merlins. In addition, new records were set for Bald Eagle at 149, compared to the prior record of 113 in 2012, and Golden Eagle at 171. The above average count of 2335 Broad-winged Hawks was 43% above the 10-year average and the

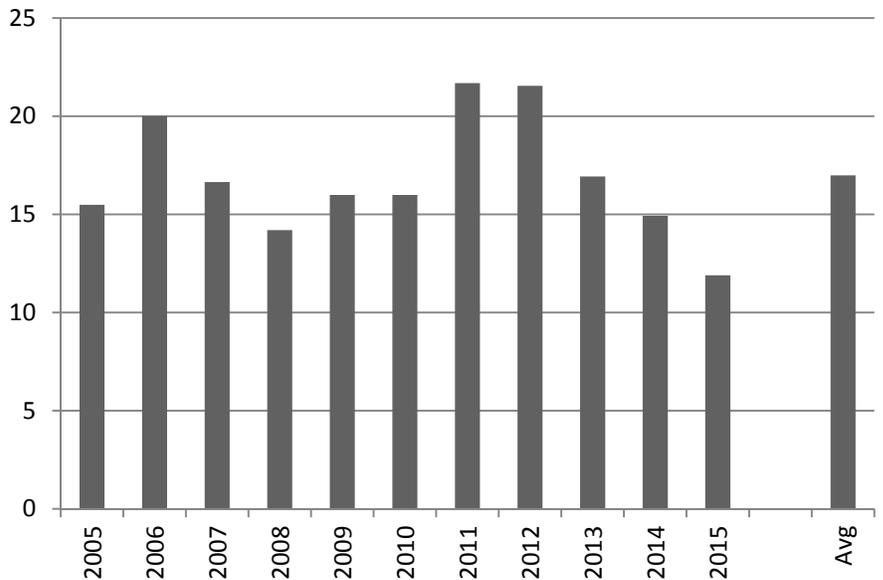
third highest count ever recorded there. The largest one-day flight for 2015 season occurred 17 September when 590 broadwings soared overhead along with 7 Osprey, one Bald Eagle, 2 Sharp-shinned Hawks, and 2 Northern Harriers. Golden Eagles were sighted nearly every day in November with several double digit count days. The highest one-day count was 20 November, when 30 goldens were counted, the first passing by at 07:15 and the last at 16:30. Most of the eagles were adults. Nine Bald Eagles and 19 Red-tailed Hawks joined the parade of goldens. On 4 December, the last day of the count, Stone watchers spotted 5 Golden Eagles and one Bald eagle.

Waggoner's Gap (Cumberland) – Waggoner's Gap hawkwatchers recorded 19,752 hawks in 1084 hours and 137 days, 17% below the 10-year average of 23,718 hawks (Table 1). Above-average counts were tallied for four species: 1730 Turkey Vultures, 528 Bald Eagles, 246 Red-shouldered Hawks, and 259 Golden Eagles. On 19 October a juvenile light morph Swainson's Hawk was observed harassing an immature Bald Eagle, providing the site's rarest bird of the autumn. September counts began building on 16 September when 796 Broad-winged Hawks sailed past. The next day 1050 broadwings appeared, and a light south wind 19 September ushered the largest flight day of the autumn, which consisted of 1760 broadwings along with 11 Bald Eagles, 21 Osprey, 44 Sharp-shinned Hawks, and singles of Cooper's Hawk, Red-shouldered Hawk, American Kestrel, Merlin, and Peregrine Falcon. Unlike many sites, the accipiter flights at Waggoner's Gap were steady through October, despite a shifting wind direction. By mid-month, counts surpassed 300 birds a day on most days and several days surpassed 600. The highest one-day count in October occurred 21 October and included 524 Sharp-shinned Hawks and 70 Cooper's Hawks. Several days later the site was graced by the highest one-day count of 41 Golden Eagles. November began slowly, but a cold front 14 November brought another eagle day to Waggoner's with 17 Bald and 29 Golden Eagles along one of the best 161 Red-tailed Hawks, the best count of that species for the season. December counts added another 206 late season migrants including 51 Bald and 8 Golden Eagles and a light morph Rough-legged Hawk 3 December (Table1).

Conclusions

In 2015, the state's hawkwatchers were reminded how important local, regional, and global weather patterns can be to the birds we see during autumn migration. The mild temperatures, fog,

Figure 1. Hawks per hour at Pennsylvania sites, 2005-2015



and weak winds in 2015 suppressed totals of many common species. Despite this, the flights of Bald and Golden Eagles were surprisingly strong. Some species that continued their upswings, e.g. Black and Turkey Vultures, were also seen in higher than average numbers.

We are just beginning to understand the complexities and changes occurring in weather patterns in recent years. Researchers have documented changing migration behaviors and distances in short-distance migrants, while long-distance migrants such as Broad-winged Hawks, may be traveling higher and faster, using the lift provided by warmer temperatures to travel more efficiently. Red-tailed and Rough-legged Hawks are lingering farther north in winter and being spotted less often at Pennsylvania migration sites. Kestrels, Cooper's Hawks and others also may be showing some changes as well. The strong impact that *El Niño* had in 2015 should diminish in 2016, and, hopefully, north winds, cold temperatures, and snow will return to next year and bring a torrent of raptors. Regardless of the vagaries of weather, Pennsylvania hawkwatches continue to provide some of the best hawkwatching experiences possible. The ninety-one thousand hawks this year was less than usual but still quite a lot of hawks.

Acknowledgements

I thank Pennsylvania's hawk counters for their many hours of counting, as well as the site compilers for organizing the data and sharing their results. Data were provided by <www.hawkcount.org> with permission of site compilers, a website maintained by the Hawk Migration Association of

North America and managed by Jason Sodergren, database manager. Locations of sites and site totals can be viewed at <www.hawkcount.org> as well. I thank David Barber for the site map and Katerina Ramos for assistance with the tables. This is Hawk Mountain Sanctuary contribution number 262.

*Acopian Ctr for Conservation Learning
Hawk Mountain Sanctuary Association
410 Summer Valley Road
Orwigsburg, Pennsylvania 17961*

Table 2. Autumn 2015 count results for Pennsylvania watchsites.

ALLEGHENY FRONT (Bedford/Somerset) - Bob Stewart, compiler

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	SWHA	Unid	Total
August	17	114.0	20	0	7	3	1	6	3	0	0	111	27	0	0	7	3	0	0	7	195
September	30	215.5	32	0	70	55	11	104	18	1	5	885	89	0	4	18	10	14	0	32	1348
October	31	205.8	2	715	4	31	28	863	85	3	22	43	641	2	164	18	12	6	0	38	2677
November	30	211.3	1	60	2	23	13	55	9	0	15	0	463	0	150	3	0	0	0	12	806
December	31	87.0	0	0	0	0	2	1	0	0	0	0	4	0	2	0	0	0	0	0	9
Total	139	833.5	55	775	83	112	55	1029	115	4	42	1039	1224	2	320	46	25	20	0	89	5035
Total per hr			0.07	0.93	0.10	0.13	0.07	1.23	0.14	0.00	0.05	1.25	1.47	0.00	0.38	0.06	0.03	0.02	0.00	0.11	6.04
% of flight			1.1	15.4	1.6	2.2	1.1	20.4	2.3	0.1	0.8	20.6	24.3	0.0	6.4	0.9	0.5	0.4	0.0	1.8	100.0
Average last 10 yrs	112.1	810.4	32.1	425.5	98.1	98.2	53.0	1170.6	217.2	6.9	60.6	4794.6	1450.0	2.9	204.3	67.4	30.6	28.4	0.1	167.9	8999.5

BAKE OVEN KNOB (Lehigh) - Bob Hoopes, Dan Kunkle, co-compilers

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	SWHA	Unid	Total
August	17	155.3	41	197	49	27	1	11	7	0	0	108	54	0	0	13	3	2	0	48	561
September	30	265.0	74	244	225	95	14	499	27	1	8	4904	60	0	64	0	65	19	0	174	6435
October	31	252.5	102	424	33	87	41	1756	77	9	56	9	253	0	44	40	45	19	0	198	3193
November	29	222.5	164	209	1	55	34	88	6	4	52	0	738	0	42	0	4	0	0	59	1456
Total	107	895.3	381	1074	308	264	90	2354	117	14	116	5021	1105	0	86	118	78	40	0	479	11645
Total per hr			0.43	1.20	0.34	0.29	0.10	2.63	0.13	0.02	0.13	5.61	1.23	0.00	0.10	0.13	0.09	0.04	0.00	0.54	13.01
% of flight			3.3	9.2	2.6	2.3	0.8	20.2	1.0	0.1	1.0	43.1	9.5	0.0	0.7	1.0	0.7	0.3	0.0	4.1	100.0
Average last 10 yrs	102.8	806.0	288.6	954.9	459.1	230.7	126.8	3312.3	301.9	25.1	127.9	5725.3	1,802	1	102	163	96	53	0.0	293.0	14071.3

BW SEPT - Pipersville (Bucks) - Diane Allison, Kirk Moulton, co-compilers

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	SWHA	Unid	Total
September	2	9.8	6	4	1	1	1	25	2	0	1	914	1	0	0	0	0	0	0	2	959
Total	2	9.8	6	4	1	1	1	25	2	0	1	914	1	0	0	0	0	0	0	2	959
Total per hr			0.60	0.40	0.10	0.10	0.10	2.50	0.20	0.00	0.10	91.40	0.10	0.00	0.00	0.00	0.10	0.00	0.00	0.20	95.90
% of flight			0.6	0.4	0.1	0.1	0.1	2.6	0.2	0.0	0.1	95.3	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.2	100.0
Average for 10 yrs	3.0	14.5	5.0	5.8	5.9	3.0	1.1	35.3	1.5	0.0	0.1	1115.3	1.5	0.0	0.0	2.5	0.5	0.1	0.0	0.4	1047.0

COUNCIL CUP (Luzerne) - Donald Kapral, compiler

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	SWHA	Unid	Total
September	10	43.0	0	0	10	7	1	14	1	0	0	689	0	0	0	15	0	0	0	4	741
October	6	22.0	0	22	1	4	5	47	8	0	0	1	13	0	0	14	0	0	0	1	116
November	8	33.5	0	9	0	8	5	9	3	0	0	0	143	0	4	1	0	1	0	2	185
Total	24	99	0	31	11	19	11	70	12	0	0	690	156	0	4	30	0	1	0	7	1042
Total per hr			0.00	0.31	0.11	0.19	0.11	0.71	0.12	0.00	0.00	6.97	1.58	0.00	0.04	0.30	0.00	0.01	0.00	0.07	10.53
% of flight			0.0	3.0	1.1	1.8	1.1	6.7	1.2	0.0	0.0	66.2	15.0	0.0	0.4	2.9	0.0	0.1	0.0	0.7	100.0
Average for 10 yrs	22.3	100.8	1.4	150.9	18.8	39.6	6.8	105.6	10.8	0.0	0.8	325.8	225.5	0.0	0.8	25.5	0.1	1.1	0.0	26.6	941.3

HAWK MOUNTAIN (Berks and Schuylkill) - Laurie Goodrich, compiler

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	SWHA	Unid	Total
August	19	161.5	4	8	33	25	6	16	8	0	3	138	33	0	0	35	4	0	0	0	313
September	30	308.3	5	10	242	102	22	499	86	0	2	5489	61	0	2	121	72	17	0	93	6823
October	31	287.5	48	263	61	98	61	3128	271	2	36	21	334	0	53	75	86	38	1	90	4666
November	30	249.0	48	135	1	67	58	172	28	7	74	0	912	0	53	0	14	1	0	22	1592
December/January	18	121.5	10	1	0	24	0	3	0	0	0	0	24	0	10	1	0	0	0	0	74
Total	128	1127.8	115	417	337	316	147	3818	393	9	116	5648	1364	0	118	232	176	56	1	205	13468
Total per hr			0.10	0.37	0.30	0.28	0.13	3.38	0.35	0.01	0.10	5.01	1.21	0.00	0.10	0.21	0.16	0.05	0.00	0.18	11.94
% of flight			0.9	3.1	2.5	2.3	1.1	28.3	2.9	0.1	0.9	41.9	10.1	0.0	0.9	1.7	1.3	0.4	0.0	1.5	100.0
Average last 10 yrs	123.7	139.9	563.4	512.7	298.9	181.1	4743.1	678.9	37.3	196.8	7685.0	2650.2	1.9	136.7	432.2	178.3	59.9	0.3	273.0	18969.7	

*Hawk Mountain total includes one Mississippi kite.

JACK'S MOUNTAIN (Miffin) - Ron Singer, compiler

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	SWHA	Unid	Total	
August	1	4.0	0	0	2	2	0	3	0	0	0	1	2	0	0	0	0	0	0	0	0	10
September	30	166.3	0	3	49	58	20	81	16	0	7	3460	37	0	1	30	2	8	0	11	3793	
October	31	174.0	24	79	6	11	14	496	53	1	15	4	296	0	60	19	12	4	0	11	1105	
November	27	163.8	12	20	2	36	21	28	10	1	14	0	381	0	83	4	1	0	0	2	615	
December	3	21.5	0	0	0	10	1	0	0	0	0	0	3	0	8	0	0	0	0	0	23	
Total	92	529.5	36	102	59	117	56	608	79	3	36	3465	719	0	152	53	15	12	0	24	5536	
Total per hr			0.07	0.19	0.11	0.22	0.11	1.15	0.15	0.01	0.07	6.54	1.36	0.00	0.29	0.10	0.03	0.02	0.00	0.05	10.45	
% of flight			0.7	1.8	1.1	2.1	1.0	11.0	1.4	0.1	0.7	62.6	13.0	0.0	2.7	1.0	0.3	0.2	0.0	0.4	100.0	
Average last 10 yrs	55.0	312.9	25.0	131.0	55.7	64.7	30.6	559.0	58.5	1.8	11.8	2615.4	428.4	0.1	49.6	49.9	11.3	10.8	0.0	15.0	4117.0	

LITTLE GAP (Northampton) - Michael Schall, compiler

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	SWHA	Unid	Total
August	7	45.0	3	0	15	6	1	9	3	0	1	40	11	0	0	5	1	0	0	2	97
September	30	223.0	8	47	184	93	19	684	48	0	3	6190	77	0	2	134	52	19	0	39	7599
October	31	228.5	41	211	39	80	33	2081	254	3	31	6	268	0	50	43	45	39	0	34	3258
November	30	171.3	44	190	2	70	38	163	43	4	45	0	818	0	59	0	13	2	0	20	1511
December	6	31.8	10	0	0	28	0	1	0	0	0	0	17	0	4	0	0	1	0	0	61
Total	104	699.5	106	448	240	277	91	2938	348	7	80	6236	1191	0	115	182	111	61	0	95	12526
Total per hr			0.15	0.64	0.34	0.40	0.13	4.20	0.50	0.01	0.11	8.91	1.70	0.00	0.16	0.26	0.16	0.09	0.00	0.14	17.89
% of flight			0.8	3.6	1.9	2.2	0.7	23.5	2.8	0.1	0.6	49.8	9.5	0.0	0.9	1.5	0.9	0.5	0.0	0.8	100.0
Average last 10 yrs	92.3	568.5	88.0	470.7	366.7	208.0	111.9	3332.7	379.2	21.3	102.8	7120.9	1658.9	0.7	74.5	186.4	93.5	40.8	0.1	104.0	14361.2

MILITIA HILL (Montgomery) - Andy Fayer, Lynne Jackson, Rich Conroy, co-compilers

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	SWHA	Unid	Total
September	30	232.0	0	0	169	63	16	337	24	0	12	2827	1	0	0	111	10	9	0	32	3611
October	31	225.0	8	512	24	40	20	488	70	0	28	3	41	0	6	43	19	6	0	34	1343
Total	61	457.0	8	512	193	103	36	825	94	0	40	2830	42	0	6	154	29	15	1	66	4954
Total per hr			0.02	1.12	0.42	0.23	0.08	1.81	0.21	0.00	0.09	6.19	0.09	0.00	0.01	0.34	0.06	0.03	0.00	0.14	10.84
% of flight			0.2	10.3	3.9	2.1	0.7	16.7	1.9	0.0	0.8	57.1	0.8	0.0	0.1	3.1	0.6	0.3	0.0	1.3	100.0
Average last 10 yrs	59.8	448.1	28.6	613.0	281.6	101.2	79.6	1115.8	148.3	1.6	64.9	10496.7	119.8	0.2	3.9	266.8	32.8	28.4	0.0	68.1	13452.1

ROCKY RIDGE (York) - Randy Phillips, compiler

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	SWHA	Unid	Total
September	13	75.5	0	0	38	14	5	132	2	0	0	1848	1	0	0	16	2	1	0	1	2060
October	9	37.5	19	58	3	6	8	102	7	0	1	3	33	0	0	18	0	1	0	1	260
November	2	6.3	0	0	0	1	0	3	0	0	0	0	3	0	0	0	1	0	0	0	9
Total	24	119.25	19	58	41	21	13	237	9	1	1	1851	37	0	0	34	3	2	0	2	2329
Total per hr			0.16	0.49	0.34	0.18	0.11	1.99	0.08	0.01	0.01	15.52	0.31	0.00	0.00	0.29	0.03	0.02	0.00	0.02	19.53
% of flight			0.8	2.5	1.8	0.9	0.6	10.2	0.4	0.0	0.0	79.5	1.6	0.0	0.0	1.5	0.1	0.1	0.0	0.1	100.0
Average last 10 yrs	34.6	120.7	14.1	68.9	34.875	52.0	17.9	289.6	30.5	1.0	8.5	1336.4	147.6	0.1	1.9	52.4	2.4	3.1	0.0	10.3	2073.1

ROSE TREE PARK (Delaware) - Holly Merker and Janet Crawford, co-compilers

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	SWHA	Unid	Total
September	30	206.3	0	0	112	59	11	211	33	0	5	967	9	0	0	70	10	5	0	21	1513
October	30	196.0	25	396	34	34	22	472	98	0	66	9	84	0	1	74	19	17	0	20	1371
November	19	98.0	23	84	0	11	4	58	14	0	42	0	66	0	0	1	2	1	0	5	311
Total	79	500.3	48	480	146	104	37	741	145	0	113	976	159	0	1	145	31	23	0	46	3195
Total per hr			0.12	1.22	0.37	0.27	0.09	1.89	0.37	0.00	0.29	2.49	0.41	0.00	0.00	0.37	0.08	0.06	0.00	0.12	8.15
% of flight			2.4	24.1	7.3	5.2	1.9	37.2	7.3	0.0	5.7	49.0	8.0	0.0	0.1	7.3	1.6	1.2	0.0	2.3	160.3
Average last 10 yrs	90.1	578.4	85.6	393.6	210.9	133.6	80.2	1174.0	177.6	2.6	171.2	3899.3	339.9	0.2	3.6	177.3	35.4	17.9	0.2	51.3	6954.5

SECOND MOUNTAIN (Lebanon) - David Schwenk, compiler

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	SWHA	Unid	Total
August	16	97.0	0	0	9	10	6	6	0	0	2	66	42	0	0	5	0	2	0	1	145
September	29	217.0	43	0	45	44	11	124	28	1	4	3274	48	0	3	40	7	4	0	8	3684
October	31	238.8	78	359	17	64	51	985	114	9	44	7	178	0	31	32	21	10	0	18	2018
November	29	189.0	97	206	0	26	19	55	10	3	14	0	339	2	28	1	1	1	0	5	807
December	30	92.5	38	7	0	9	2	0	0	0	0	0	35	0	1	0	0	0	0	0	92
Total	135	834.3	256	572	71	153	84	1170	153	13	64	3347	642	2	63	78	29	17	0	32	6746
Total per hr			0.31	0.69	0.09	0.18	0.10	1.40	0.18	0.02	0.08	4.01	0.77	0.00	0.08	0.09	0.03	0.02	0.00	0.04	8.09
% of flight			3.8	8.5	1.1	2.3	1.2	17.3	2.3	0.2	0.9	49.6	9.5	0.0	0.9	1.2	0.4	0.3	0.0	0.5	100.0
Average last 10 yrs	131.5	927.1	337.9	713.1	162.7	168.8	114.1	2329.8	254.0	24.3	122.2	4038.8	1049.1	2.6	92.9	108.5	39.6	27.3	0.7	61.3	9649.2

STONE MOUNTAIN (Huntingdon) - Greg Grove, compiler

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	SWHA	Unid	Total
August	1	4.5	0	0	0	1	0	2	0	0	0	8	2	0	0	1	0	0	0	0	14
September	22	136.8	0	0	63	48	9	89	22	0	3	2311	15	0	0	24	7	9	0	6	2606
October	27	158.8	22	139	8	54	24	685	69	4	16	16	201	1	61	28	24	13	0	13	1378
November	24	145.0	21	156	0	43	28	36	13	0	16	0	248	0	99	0	3	0	0	1	664
December	2	15.0	0	0	0	3	0	1	0	0	0	0	11	0	11	0	0	0	0	1	27
Total	76	460.0	43	295	71	149	61	813	104	4	35	2335	477	1	171	53	34	22	0	21	4091
Total per hr			0.09	0.64	0.15	0.32	0.13	1.77	0.23	0.01	0.08	5.08	1.04	0.00	0.37	0.12	0.07	0.05	0.00	0.05	8.89
% of flight			1.1	7.2	1.7	3.6	1.5	19.9	2.5	0.1	0.9	57.1	11.7	0.0	4.2	1.3	0.8	0.5	0.0	0.5	100.0
Average last 10 yrs	65.6	367.1	24.1	217.1	77.1	90.7	58.9	886.3	152.0	8.0	52.5	1633.9	891.9	0.9	123.2	91.0	31.4	20.1	0.1	44.3	4343.8

WAGGONER'S GAP (Cumberland) - David Grove, compiler

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	SWHA	Unid	Total
August	30	183.5	0	0	30	43	1	28	7	0	3	149	63	0	0	23	2	2	0	9	390
September	28	241.8	0	0	201	168	23	726	50	0	5	6718	64	0	2	92	22	9	0	22	8102
October	29	290.5	23	1424	77	168	117	5186	455	3	122	64	840	0	146	101	46	38	1	78	8899
November	28	245.0	11	269	1	98	90	194	37	1	112	0	1256	0	103	3	0	1	0	19	2195
December	22	123.3	3	37	0	51	2	2	1	1	4	0	94	1	8	0	0	1	0	2	206
Total	137	1084.0	37	1730	309	528	232	6136	550	5	246	6931	2317	1	259	219	70	51	1	130	19752
Total per hr			0.03	1.60	0.29	0.49	0.21	5.66	0.51	0.00	0.23	6.39	2.14	0.00	0.24	0.20	0.06	0.05	0.00	0.12	18.22
% of flight			0.2	8.8	1.6	2.7	1.2	31.1	2.8	0.0	1.2	35.1	11.7	0.0	1.3	1.1	0.4	0.3	0.0	0.7	100.0
Average last 10 yrs	140.2	1128.9	86.6	1611.3	444.0	442.2	245.2	8059.6	760.9	47.0	243.2	7769.4	3123.8	3.6	240.1	317.6	109.3	60.7	0.1	153.8	23718.4

2015 TOTALS FOR ALL WATCHSITES

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	SWHA	Unid	Total
August	108	765	68	205	145	117	11	81	29	0	9	621	234	0	0	89	13	6	0	67	1,695
September	314	2,340	168	308	1,409	807	163	3,525	357	3	55	40,476	463	0	14	736	221	114	0	445	49,264
October	318	2,317	392	4,602	307	677	424	16,289	1,561	34	437	186	3,182	3	616	505	329	191	3	536	30,274
November	256	1,735	421	1,338	9	438	310	861	173	21	384	0	5,367	2	621	13	39	7	0	147	10,151
December	112	493	61	45	0	125	6	8	1	2	5	0	188	1	44	1	0	2	0	3	492
Total	1108	7649	1110	6498	1870	2164	914	20764	2121	60	890	41283	9434	6	1295	1344	602	320	3	1198	91876
Total per hr			0.15	0.86	0.25	0.29	0.12	2.75	0.28	0.01	0.12	5.48	1.25	0.00	0.17	0.18	0.08	0.04	0.00	0.16	12.19
% of flight			1.2	7.2	2.1	2.4	1.0	22.9	2.3	0.1	1.0	45.5	10.4	0.0	1.4	1.5	0.7	0.4	0.0	1.3	101.3
Average of last 10 yrs	1121.4	7461.4	1288.3	6411.2	2809.0	1937.3	1134.0	27581.2	3163.9	168.1	1141.1	62566.8	13544.8	12.7	1054.1	1955.5	666.5	372.2	4.3	1201.0	126997.7
% compared to average	-1.2	2.5	-13.8	1.4	-33.4	11.7	-19.4	-24.7	-33.0	-64.3	-22.0	-34.0	-30.3	-52.8	22.9	-31.3	-9.7	-14.0	-30.2	-0.2	-27.7

*Total includes 3 hours of coverage from Chambers Lake, Chester County counting one American kestrel; also includes 1 Mississippi kite recorded at Hawk Mountain and 2 recorded at Millita Hill.