

# Autumn Raptor Migration Summary 2009

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Weather can make or break a hawk watch season. In autumn 2009 a strengthening El Niño disrupted autumn weather, particularly during November. Precipitation and temperatures were above-average (Northeast Regional Climate Center, <www.nrcc.cornell.edu>), with October unusually wet and November turning out to be one of the warmest on record across the northeast, as well as the fifth warmest for Pennsylvania since 1895. Snowfall was nonexistent through most of New England until mid-December and this, along with the warmth, may have prompted late-season migrants—for example Red-tailed Hawks and Rough-legged Hawks—to linger farther north than usual. November also included periods of strong easterly winds that appear to have pushed some migrants farther west than usual.

Despite the weather, Pennsylvania's fourteen autumn hawk-watches recorded an impressive 117,824 hawks of 19 species between 1 Aug and 31 Dec (Table 2). Rarities included one Swallow-tailed Kite (Militia Hill, adult), four Mississippi Kites (one immature, one adult, 2 unknown age), and one Swainson's Hawk (Rose Tree Park, juvenile, light morph). The four Mississippi Kites were seen on different days across the state and likely represent different birds. Autumn sightings of this species have increased due to the expanding eastern populations (now breeding in Connecticut and New Hampshire). McWilliams and Brauning (2000) report only one autumn sighting prior to 2000, that in October 1989, whereas

autumn hawkwatches have tallied one to four per year since 2000. Pennsylvania watch-sites may soon need to add this species as a regular migrant!

Counters covered a combined total of 7370 hours and 1132 days, with individual site coverage ranging from 48 to 1136 hours and 9 to 140 days per site. The average passage rate was 16 birds per hour statewide, a slight increase compared with 2008's 14.5 birds per hour, although effort was slightly lower as well (Table 2).

Species showing an increase in 2009 compared with 2008 included Northern Goshawk (36%), Sharp-shinned Hawk (28%), Cooper's Hawk (23.7%), Bald Eagle (10.6%), Broad-winged Hawk (5%), American Kestrel (39%), Merlin (12%), and Peregrine Falcon (30%). Decreases were seen for Rough-legged Hawk (63%), Golden Eagle (24%), and Black Vulture (16%). Other species' totals showed less than 5% change between years.

Bald Eagles continued their upswing with four watch-sites (Allegheny Front, Militia Hill, Stone Mountain, and Waggoner's Gap) setting new season records, and most remaining sites showing above-average counts (Table 2). Two sites, Hawk Mountain and Militia Hill, set new season records for Peregrine Falcon, and most sites showed noteworthy one-day counts as well (Table 1, 2). 10 October was "Peregrine Falcon day" for the Kittatinny Ridge, when Bake Oven Knob, Little Gap, and Hawk Mountain saw 8, 9, and 11 Peregrines respectively. Stone Mountain also set a new season record (325) for Turkey

Vultures.

Broad-winged Hawks moved in large numbers through the southeastern Piedmont and along the northern ridges. Higher than average counts were recorded at Militia Hill, Buckingham, and Rose Tree Park in the southeast, and at Stone and Second Mountains north of the Kittatinny (Table 2). Waggoner's Gap reported that a low fog-bank blanketed the ridge and may have kept them from spotting broad-wings on their peak day when birders in the valley were seeing many flocks nearby (Table 1). Southeastern sites observe their largest flight on the 19 and 20 September, with 7525 at Militia Hill on 19 September and 2577 at Buckingham on 20 September, together representing the state's highest one-day counts for 2009 (Table 1). The ridge-migrating birds moved slightly earlier, with 1396 at Stone Mountain on 16 September and 1477 at Second Mountain on 17 September. Most other Kittatinny sites reported their peak Broad-winged Hawk flight on 17 September as well, suggesting that a widespread pulse of migrants moved through Pennsylvania on that date (Table 1).

Despite the frequent rain, October included several days of strong northwest winds, which brought respectable accipiter flights to the ridges. Route 183 and Waggoner's Gap recorded the state's highest one-day count of Sharp-shinned Hawks with 665 and 742 respectively, both on 10 October. Little Gap was a close third with 571 on 8 October (Table 1). Overall Sharp-shinned Hawk counts were higher than in 2008, but average compared to long-term totals.

November's brisk east winds appear to have pushed Golden Eagles to the west central region. Both Allegheny Front and Tuscarora Summit tallied above-average season counts. Allegheny Front recorded 59 eagles in a two-day period, including the state one-day high count of 30 on 12

Table 1. Peak count dates for selected species at all Pennsylvania watch sites.

Site	Peregrine Falcon		Golden Eagle		Br.-winged Hawk		Sharp-shn. Hawk	
	Count	Date	Count	Date	Count	Date	Count	Date
Allegheny Front	6	10/12	30	11/12	710	9/18	93	10/12
Blue Mtn./Rte. 183	4	10/10	4	11/6	426	9/21	665	10/10
Bake Oven Knob	8	10/10	6	10/25	940	9/17	340	10/11
Buckingham	1	several	-	-	2577	9/20	32	9/19
Council Cup	-	-	-	-	38	9/24	33	9/24
Hawk Mountain	11	10/10	7	11/1	1613	9/17	461	10/8
Jack's Mountain	2	10/4	5	11/4	423	9/20	75	10/11
Little Gap	9	10/10	4	10/18	927	9/17	571	10/8
Militia Hill	5	10/11	1	10/16	7525	9/19	74	10/11
Rose Tree Park	3	10/9	1	11/1,18	1448	9/19	103	10/11
Second Mountain	6	10/7	4	11/1	1477	9/17	169	10/6
Stone Mountain	5	10/4,5	22	11/3	1396	9/16	129	10/4
Tuscarora Summit	2	10/8	5	11/5	466	9/20	168	10/9
Waggoner's Gap	6	9/24	17	11/1	1445	9/18	742	10/10

November. Stone Mountain tallied 22 Golden Eagles on 3 November and was the only other watch site not to record below-average counts for this species (Table 1, 2).

**Allegheny Front (Somerset/Bedford)** – Allegheny Front recorded 6237 hawks in 113 days of coverage from 15 August to 18 December, averaging 8.5 birds per hour (Table 1). The total count was 30% below-average primarily due to low counts of Broad-winged, Sharp-shinned, and Red-tailed hawks. Record counts were made for Bald Eagle (103), and above-average counts were tallied for Golden Eagles (204). The latter tally was the highest of any watch site in the eastern United States. The site's highest one-day tally occurred 18 September with 763 total hawks including 710 Broad-winged Hawks.

**Bake Oven Knob (Lehigh)** – Bake Oven Knob recorded a below-average total (down 27%) of 11,066 hawks in 106 days of coverage from 14 August through 29 November (Table 2). Highlights included above-average tallies for Black Vulture, Turkey Vulture, Bald Eagle, American Kestrel, Merlin, and Peregrine Falcon, and two sightings of Mississippi Kite on 23 August and 9 September. Both Turkey Vulture and Peregrine Falcon totals were the second highest ever recorded at this long-running site (Table 2).

**Blue Mountain/Route 183 (Berks/Schuylkill)** – Blue Mountain tallied 4415 hawks with increased coverage in 2009 spanning from 15 August to 28 November. Visitation also increased in 2009 providing more spotting assistance than in past years. One of the highlights of the season was 10 October when counters tallied 12 species including 665 Sharp-shinned Hawks, 44 Cooper's Hawks, 29 American Kestrels, 27 Red-tailed Hawks, 4 Bald Eagles, and 4 Peregrine Falcons.

**Buckingham-BWSEPT (Bucks)** – Two BroadwingSEPT sites, Buckingham and Pipersville, conducted counts in 2009, although Pipersville counted only 15 September totaling 20 hawks. Buckingham tallied the state's second highest one-day count of Broad-winged Hawks (2577) 20 September. The total count, 5827, was 49% above average, recorded primarily in two days, 19 and 20 September. During the nine days of

counts, watchers also tallied 18 Bald Eagles, 48 Osprey, and one Mississippi Kite.

**Council Cup (Luzerne)** – Council Cup sighted 626 hawks in 22 days of coverage from 18 August to 4 November, during a lower than average 22 days of effort (Table 2). Totals included 226 Red-tailed Hawks and 105 Broad-winged Hawks. The peak flight occurred on 24 September with 38 Broad-winged Hawks, 33 Sharp-shinned Hawks, and 7 Bald Eagles, for a total of 95 migrants. In another encouraging sign, the Bald Eagle season total of 37 was well above the season average despite lower hours of coverage (Table 2).

**Hawk Mountain Sanctuary (Berks/Schuylkill)** – Hawk Mountain registered 15,600 hawks in 126 days of counts, 14% below the recent 10-year average. Eight species showed below-average counts. Turkey Vulture and Merlin counts were above average (Table 2). The site set new season records for Black Vulture (154) and Peregrine Falcon (68). The falcon count included 11 on 10 October, the highest one-day count for the state. Late-season migrants were particularly low in 2009. For the first time since 1955, Hawk Mountain recorded no Rough-legged Hawks. The Golden Eagle count was 35% below-average and the Red-tailed Hawks were 46% below average. Several observers watched an adult Mississippi Kite hawking for insects in the air along the ridge top 15 August.

**Jack's Mountain (Mifflin)** – Jack's Mountain recorded 2642 hawks in 60 days of coverage from 18 August to 29 November (Table 2). Counts were lower than average for all but Bald Eagle, despite slightly increased coverage. The site tallied 44 Bald Eagles with a peak of nine on 21 September. The highest one-day count for the season was made on 20 September, with 423 Broad-winged Hawks, 21 Sharp-shinned Hawks, 6 Bald Eagles, and 6 Osprey.

**Little Gap (Northampton)** – Little Gap tallied 9091 hawks in 90 days of counts in 2009, 39% below the 10-year average (Table 2). Merlin and Peregrine Falcons were above-average, with 82 and 38 respectively. Broad-winged Hawk and Red-tailed Hawk were 42% and 60% below average due to inclement weather during peak flight periods. October brought some

excitement with the second highest state-wide count of Peregrine Falcons, 9, that on 10 October (Table 1).

**Militia Hill (Montgomery)** – Militia Hill tallied an above-average count of 16,136 hawks in 61 days of coverage (Table 2). An adult Swallow-tailed Kite was observed from late August to 5 September and allowed many birders excellent looks at this rarity. 19 September brought the third highest Broad-winged Hawk flight in the history of the site (7525), pushing the total Broad-winged Hawk for 2009 to an above-average 13,436. New season records were set for Bald Eagle (86) and Peregrine Falcon (41). A new one-day record was set for Turkey Vulture (134) on 17 October.

**Rose Tree Park (Delaware)** – Rose Tree Park counted 6877 hawks in 530 hours of coverage for a rate of 13 migrants per hour. Broad-winged Hawks represented the majority of the migrants with 4514 recorded equaling 66% of the flight. Bald Eagles soared past in above-average numbers (177), following an increasing trend seen across the state. A juvenile light-morph Swainson's Hawk passed over the site 25 September, the second year in a row for this rarity at Rose Tree. Most other species totals were below-average, possibly due to a drop in hours or the weather.

**Second Mountain (Lebanon)** – Second Mountain tallied 8588 hawks in 843 hours and 140 days of counts. Species totals were above-average for Bald Eagle (118) and Broad-winged Hawk (4386), but were below-average for most other species (Table 2). Watchers counted the highest one-day count 17 September when 1477 Broad-winged Hawks swirled overhead. A one-day high count of 169 Sharp-shinned Hawks on 6 October and 6 Peregrine Falcons on 7 October were the mid-season highlights (Table 1).

**Stone Mountain (Huntington)** – Stone Mountain, in its 15th season, counted an above-average 5163 migrants in 322 hours of coverage. A new season record was set for Bald Eagle (69), and Black Vulture, Turkey Vulture, Broad-winged Hawk, and Peregrine Falcon showed above-average season totals (Table 2). A one-day count of 1396 Broad-winged Hawks 16 September set a new record for the species and brought the season total to 2873. The site recorded 22

Golden Eagles 3 November, for the second highest state one-day total. In contrast, the season count of Red-tailed Hawks was one of the lowest on record, 522.

**Tuscarora Summit (Fulton)** – Tuscarora Summit increased their coverage 10% to tally 4346 hawks in 419 hours from 1 September to 22 November (Table 2). Counters were rewarded with above-average counts of Turkey Vulture, Bald Eagle, Sharp-shinned Hawk, Cooper's Hawk, Red-shouldered Hawk, and Golden Eagle. The peak one-day count of Broad-winged Hawks, 466, swirled past 20 September for a total of 535 hawks. Both Sharp-shinned and Cooper's hawks peaked 9 October with 168 and 10 counted respectively. A peak one-day count of 5 Golden Eagles was seen 4 November.

**Waggoner's Gap (Cumberland)** – Waggoner's Gap counted 21,216 hawks in 1136 hours of coverage from 1 August through 31 December. Watchers set a new site record for Bald Eagles (405), a notable increase over the prior record count of 332. Above-average counts were tallied for Turkey Vulture, Sharp-shinned Hawk, and Merlin as well. Accipiter flights peaked 10 October with an impressive 726

Sharp-shinned and 106 Cooper's hawks, followed by 657 Sharp-shinned and 85 Cooper's on 11 October. 4 November brought the best Red-tailed Hawk daily counts for the state (526) among a total of 591 migrants. Golden Eagles were below-average with 182 total migrants and a peak count of 17 on 1 November (Table 2).

**References**

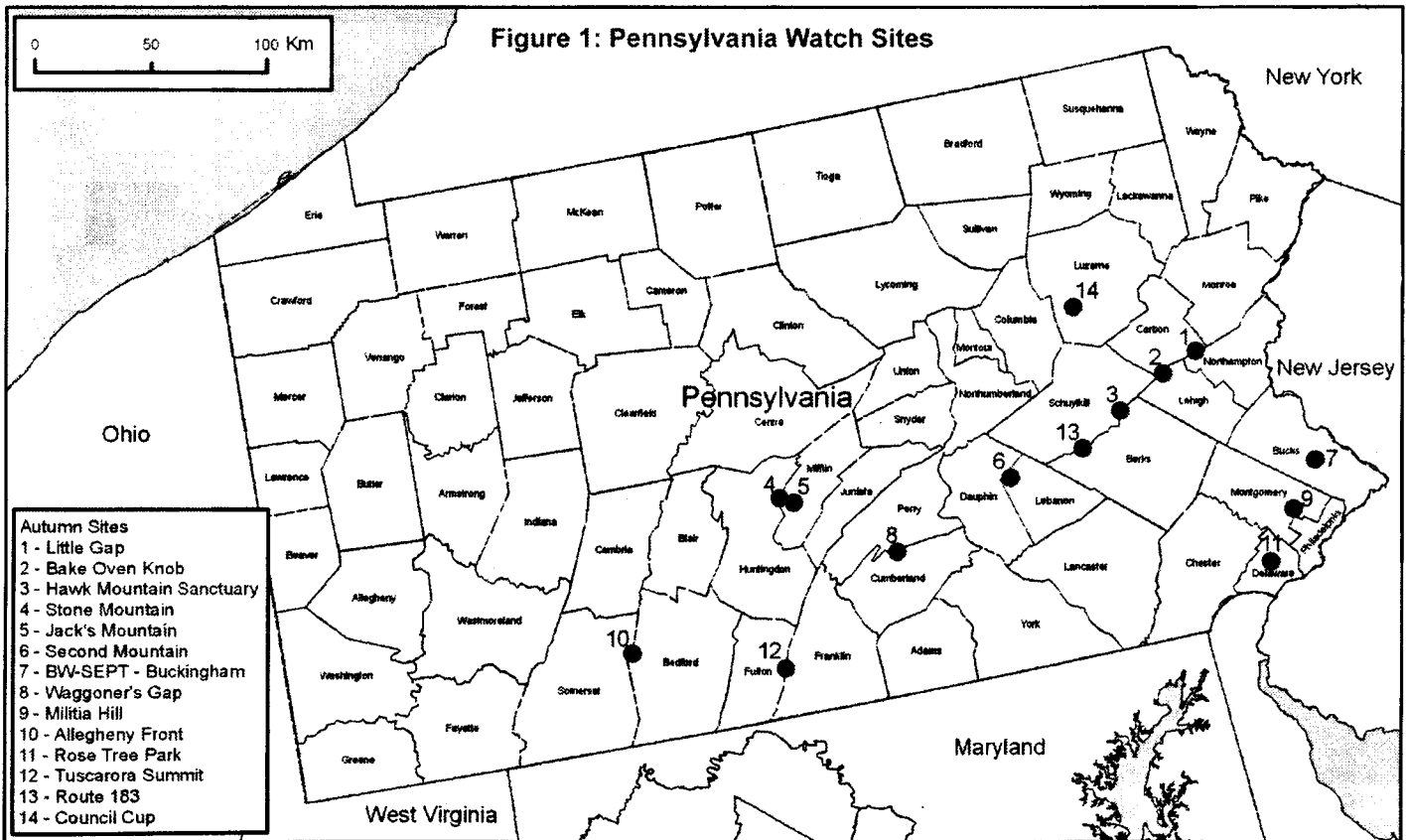
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This is Hawk Mountain Sanctuary contribution number 187.

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**Figure 1: Pennsylvania Watch Sites**

Table 2. Autumn 2009 count results for Pennsylvania watchsites.

**ALLEGHENY FRONT (Somerset/Bedford) - Che Mincone, compiler**

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	Other	Unid	Total
August	16	113	1	14	6	9	2	15	9	0	1	104	44	0	0	6	0	2	0	8	221
September	30	195	6	11	74	57	11	194	52	0	1	2849	104	0	1	21	4	5	0	83	3473
October	28	189	2	167	4	21	8	381	85	1	16	1	663	0	27	14	18	14	0	56	1478
November	28	187.5	0	105	0	12	17	27	17	3	35	0	642	0	166	2	0	1	0	12	1039
December	11	50.5	0	0	0	4	0	3	1	1	0	0	7	0	10	0	0	0	0	0	26
<b>Total</b>	<b>113</b>	<b>735</b>	<b>9</b>	<b>297</b>	<b>84</b>	<b>103</b>	<b>38</b>	<b>620</b>	<b>164</b>	<b>5</b>	<b>53</b>	<b>2954</b>	<b>1460</b>	<b>0</b>	<b>204</b>	<b>43</b>	<b>22</b>	<b>22</b>	<b>0</b>	<b>159</b>	<b>6237</b>
Total per hr			0.01	0.40	0.11	0.14	0.05	0.84	0.22	0.01	0.07	4.02	1.99	0.00	0.28	0.06	0.03	0.03	0.00	0.22	8.49
% of flight			0.1	4.8	1.3	1.7	0.6	9.9	2.6	0.1	0.8	47.4	23.4	0.0	3.3	0.7	0.4	0.4	0.0	2.5	100.0
Average last 10yrs	109	779	22	608	115	60	72	1,160	253	14	94	3,958	2,069	4	157	77	37	35	0.0	237	8972.4

**BAKE OVEN KNOB (Lehigh) - Dan Kunkle, compiler**

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	Other <sup>1</sup>	Unid	Total
August	18	122.75	58	158	51	45	9	20	8	1	2	75	52	0	0	12	1	0	1	18	511
September	28	218.92	84	239	286	75	20	616	60	0	8	3873	100	0	1	81	44	24	1	111	5623
October	31	189	82	351	83	52	47	2029	285	7	31	5	526	0	22	103	46	37	0	107	3813
November	29	190.42	82	261	1	14	22	59	16	13	33	0	569	0	17	0	0	1	0	31	1119
<b>Total</b>	<b>106</b>	<b>721.09</b>	<b>306</b>	<b>1,009</b>	<b>421</b>	<b>186</b>	<b>98</b>	<b>2,724</b>	<b>369</b>	<b>21</b>	<b>74</b>	<b>3,953</b>	<b>1,247</b>	<b>0</b>	<b>40</b>	<b>196</b>	<b>91</b>	<b>62</b>	<b>2</b>	<b>267</b>	<b>11066</b>
Total per hr			0.42	1.40	0.58	0.26	0.14	3.78	0.51	0.03	0.10	5.48	1.73	0.00	0.06	0.27	0.13	0.09	0.00	0.37	15.35
% of flight			2.8	9.1	3.8	1.7	0.9	24.6	3.3	0.2	0.7	35.7	11.3	0.0	0.4	1.8	0.8	0.6	0.0	2.4	100.0
Average last 10 yrs	101.818	788.8318	260.182	821.2	616.0	178.2	164.6	3224	382.2	41.2	145.3	5962	2618	2.3	91.2	206.7	84.8	52.1	0.0	312.0	15151

<sup>1</sup>two Mississippi Kites.

**BLUE MOUNTAIN Rte. 183 (Schuylkill/Berks) - Scott Fisher, compiler**

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	Other	Unid	Total
August	9	34	14	36	8	5	2	13	1	0	0	34	5	0	0	12	0	0	0	3	133
September	12	69	49	43	65	25	4	484	27	1	5	915	55	0	1	56	6	5	0	15	1756
October	13	60	16	65	16	16	8	1727	131	6	6	2	153	0	10	43	24	7	0	12	2242
November	7	36	23	18	0	2	3	22	10	1	6	0	187	0	8	2	1	0	0	1	284
<b>Total</b>	<b>41</b>	<b>199</b>	<b>102</b>	<b>162</b>	<b>89</b>	<b>48</b>	<b>17</b>	<b>2246</b>	<b>169</b>	<b>8</b>	<b>17</b>	<b>951</b>	<b>400</b>	<b>0</b>	<b>19</b>	<b>113</b>	<b>31</b>	<b>12</b>	<b>0</b>	<b>31</b>	<b>4415</b>
Total per hr			0.51	0.81	0.45	0.24	0.09	11.29	0.85	0.04	0.09	4.78	2.01	0.00	0.10	0.57	0.16	0.06	0.00	0.16	22.19
% of flight			2.3	3.7	2.0	1.1	0.4	50.9	3.8	0.2	0.4	21.5	9.1	0.0	0.4	2.6	0.7	0.3	0.0	0.7	100.0
Average last 2 yrs	36	200.25	74	142.5	64.5	39.5	15.5	1518	123.5	5.5	24	927	363	0	27.5	75	20	8	0	29	3456.5

**BUCKINGHAM-BWSEPT (Bucks), Kirk Moulton, compiler**

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	Other*	Unid	Total
September	9	48.25	0	7	48	18	10	77	26	0	1	5583	9	0	0	40	2	3	1	2	5827
<b>Total</b>	<b>9</b>	<b>48.25</b>	<b>0</b>	<b>7</b>	<b>48</b>	<b>18</b>	<b>10</b>	<b>77</b>	<b>26</b>	<b>0</b>	<b>1</b>	<b>5583</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>40</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>5827</b>
Total per hr			0.00	0.15	0.99	0.37	0.21	1.60	0.54	0.00	0.02	115.71	0.19	0.00	0.00	0.83	0.04	0.06	0.02	0.04	120.77
% of flight			0.0	0.1	0.8	0.3	0.2	1.3	0.4	0.0	0.0	95.8	0.2	0.0	0.0	0.7	0.0	0.1	0.0	0.0	100.0
Average last 8 yrs		60.21875	3.4	2.9	52.8	13.8	9.9	73.5	19.9	0.0	1.4	3650.5	10.1	0.3	0.0	39.5	2.1	1.9	0.1	6.0	3888.8

\*one Mississippi Kite.

**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	Other	Unid	Total
August	3	12.5	0	8	3	8	0	1	0	0	0	7	3	0	0	2	0	0	0	5	37
September	9	39.5	0	6	13	14	1	51	3	0	0	98	3	0	0	10	0	0	0	7	206
October	7	29.5	0	46	12	11	4	45	3	0	0	0	4	0	0	6	0	0	0	3	134
November	3	14.5	0	12	0	4	2	9	0	0	2	0	216	0	0	2	0	0	0	2	249
<b>Total</b>	<b>22</b>	<b>96</b>	<b>0</b>	<b>72</b>	<b>28</b>	<b>37</b>	<b>7</b>	<b>106</b>	<b>6</b>	<b>0</b>	<b>2</b>	<b>105</b>	<b>226</b>	<b>0</b>	<b>0</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>17</b>	<b>626</b>
Total per hr			0.00	0.75	0.29	0.39	0.07	1.10	0.06	0.00	0.02	1.09	2.35	0.00	0.00	0.21	0.00	0.00	0.00	0.18	6.52
% of flight			0.0	11.5	4.5	5.9	1.1	16.9	1.0	0.0	0.3	16.8	36.1	0.0	0.0	3.2	0.0	0.0	0.0	2.7	100.0
Average for 4yrs	39.1	135.2	2.9	204.2	50.7	28.2	16.0	207.5	24.5	2.4	6.7	978.3	746.0	0.5	2.7	42.0	2.9	3.5	0.0	36.3	2336.1

**HAWK MOUNTAIN (Berks/Schuylkill) - Laurie Goodrich, compiler**

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	Other*	Unid	Total*
August	18	164.75	0	2	56	32	9	37	16	1	1	131	35	0	0	70	8	6	1	3	408
September	30	295.75	9	22	319	90	45	1015	112	0	2	6293	99	0	1	218	63	20	0	36	8344
October	31	249	11	303	78	56	55	3185	452	9	55	16	631	0	29	171	87	41	0	46	5225
November	29	231	61	133	2	24	35	60	30	11	79	0	919	0	40	2	2	1	0	29	1428
December	18	107.75	73	1	0	16	4	2	2	4	4	0	81	0	7	0	1	0	0	0	195
<b>Total</b>	<b>126</b>	<b>1048.25</b>	<b>154</b>	<b>461</b>	<b>455</b>	<b>218</b>	<b>148</b>	<b>4299</b>	<b>612</b>	<b>25</b>	<b>141</b>	<b>6440</b>	<b>1765</b>	<b>0</b>	<b>77</b>	<b>461</b>	<b>161</b>	<b>68</b>	<b>1</b>	<b>114</b>	<b>15600</b>
Total per hr			0.15	0.44	0.43	0.21	0.14	4.10	0.58	0.02	0.13	6.14	1.68	0.00	0.07	0.44	0.15	0.06	0.00	0.11	14.88
% of flight			1.0	3.0	2.9	1.4	0.9	27.6	3.9	0.2	0.9	41.3	11.3	0.0	0.5	3.0	1.0	0.4	0.0	0.7	100.0
Average last 10 yrs		1087.8	73.0	360.4	600.5	215.2	217.4	4214.3	759.2	58.3	236.4	7179.0	3282.7	7.5	118.9	473.3	155.8	52.3	0.5	161.3	18145.8

\*one Mississippi Kite

**JACK'S MOUNTAIN (Mifflin) - Ron Singer, compiler**

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	Other	Unid	Total
August	4	22	0	0	1	3	1	5	1	0	0	5	10	0	0	1	0	0	0	2	29
September	22	139.75	7	0	45	31	8	101	12	0	1	1378	32	0	0	34	2	1	0	0	1652
October	20	115.5	9	39	7	10	402	24	3	3	3	149	0	6	15	7	5	0	4	693	
November	14	64.25	0	54	0	3	8	10	4	0	2	0	169	0	14	2	1	0	0	1	268
<b>Total</b>	<b>60</b>	<b>341.5</b>	<b>16</b>	<b>93</b>	<b>53</b>	<b>44</b>	<b>27</b>	<b>518</b>	<b>41</b>	<b>3</b>	<b>6</b>	<b>1386</b>	<b>360</b>	<b>0</b>	<b>20</b>	<b>52</b>	<b>10</b>	<b>6</b>	<b>0</b>	<b>7</b>	<b>2642</b>
Total per hr			0.05	0.27	0.16	0.13	0.08	1.52	0.12	0.01	0.02	4.06	1.05	0.00	0.06	0.15	0.03	0.02	0.00	0.02	7.74
% of flight			0.6	3.5	2.0	1.7	1.0	19.6	1.6	0.1	0.2	52.5	13.6	0.0	0.8	2.0	0.4	0.2	0.0	0.3	100.0
Average last 10 yrs*	52.1	330.0	54.1	183.1	112.4	41.0	62.5	855.9	105.5	10.2	18.1	2966.4	744.5	0.5	27.9	92.3	16.5	11.8	0.0	29.6	4847.7

\*No data for 2000

**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	Other	Unid	Total*
August	4	20.25	0	0	10	7	0	16	1	0	0	33	1	0	0	3	2	0	0	2	75
September	27	172.5	1	8	218	67	19	691	89	0	2	3958	84	0	1	141	20	5	0	47	5351
October	31	146	15	58	54	34	20	1836	204	10	10	3	259	0	21	48	58	31	0	22	2683
November	28	149.75	34	69	2	18	27	97	38	14	46	0	602	2	15	3	2	2	0	11	982
<b>Total</b>	<b>90</b>	<b>488.5</b>	<b>50</b>	<b>135</b>	<b>284</b>	<b>126</b>	<b>66</b>	<b>2640</b>	<b>332</b>	<b>24</b>	<b>58</b>	<b>3994</b>	<b>946</b>	<b>2</b>	<b>37</b>	<b>195</b>	<b>82</b>	<b>38</b>	<b>0</b>	<b>82</b>	<b>9091</b>
Total per hr			0.10	0.28	0.58	0.26	0.14	5.40	0.68	0.05	0.12	8.18	1.94	0.00	0.08	0.40	0.17	0.08	0.00	0.17	18.61
% of flight			0.5	1.5	3.1	1.4	0.7	29.0	3.7	0.3	0.6	43.9	10.4	0.0	0.4	2.1	0.9	0.4	0.0	0.9	100.0
Average last 10 yrs	98.5	620.8	58.8	348.8	465.3	131.5	148.3	3199.0	456.9	41.1	116.5	6916.7	2398.2	2.4	67.3	265.3	66.0	34.4	0.0	140.0	14857.0

**MILITIA HILL (Montgomery) - Andy Fayer, Jamie Stewart, and Rich Conroy, co-compilers**

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	Other*	Unid	Total
September	30	233	4	13	206	49	15	396	33	0	2	13398	7	0	0	138	10	10	1	22	14304
October	31	209	8	422	57	37	62	773	103	1	40	38	53	0	2	136	16	31	0	47	1826
<b>Total</b>	<b>61</b>	<b>442</b>	<b>12</b>	<b>435</b>	<b>263</b>	<b>86</b>	<b>77</b>	<b>1169</b>	<b>136</b>	<b>1</b>	<b>42</b>	<b>13436</b>	<b>60</b>	<b>0</b>	<b>2</b>	<b>274</b>	<b>26</b>	<b>41</b>	<b>1</b>	<b>69</b>	<b>16130</b>
Total per hr			0.03	0.98	0.60	0.19	0.17	2.64	0.31	0.00	0.10	30.40	0.14	0.00	0.00	0.62	0.06	0.09	0.00	0.16	36.49
% of flight			0.1	2.7	1.6	0.5	0.5	7.2	0.8	0.0	0.3	83.3	0.4	0.0	0.0	1.7	0.2	0.3	0.0	0.4	100.0
Average last 10 yrs	59.5	452.5	37.2	303.9	266.0	56.1	62.8	966.0	141.5	1.7	38.7	7384.9	200.5	0.2	2.3	260.2	21.7	15.6	0.0	72.0	9832.0

\*one Swallow-tailed Kite

**ROSE TREE PARK (Delaware) - Chris Pugliese, compiler**

Month	Days	Hours	TUVU	BLVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	Other*	Unid	Total
August	2	14	0	0	6	4	0	0	4	0	0	4	0	0	0	2	1	0	0	0	21
September	30	208.25	1	2	133	103	14	287	43	0	14	4490	22	0	0	74	11	4	1	18	5217
October	31	165.5	111	3	16	47	24	562	77	2	59	20	119	0	0	63	7	9	0	13	1132
November	30	142.25	82	8	3	23	10	90	21	0	102	0	155	0	2	1	5	1	0	4	507
<b>Total</b>	<b>93</b>	<b>530</b>	<b>194</b>	<b>13</b>	<b>158</b>	<b>177</b>	<b>48</b>	<b>939</b>	<b>145</b>	<b>2</b>	<b>175</b>	<b>4514</b>	<b>296</b>	<b>0</b>	<b>2</b>	<b>140</b>	<b>24</b>	<b>14</b>	<b>1</b>	<b>35</b>	<b>6877</b>
Total per hr			0.37	0.02	0.30	0.33	0.09	1.77	0.27	0.00	0.33	8.52	0.56	0.00	0.00	0.26	0.05	0.03	0.00	0.07	12.98
% of flight			2.8	0.2	2.3	2.6	0.7	13.7	2.1	0.0	2.5	65.6	4.3	0.0	0.0	2.0	0.3	0.2	0.0	0.5	100.0
Average last 10 yrs	96.1	659.3	452.4	98.3	272.5	144.455	87.0909	1493.6	234.5	7.5	170.8	4377.8	501.1	0.4	4.9	289.6	46.8	18.5	0.0	82.8	8281.9

\*One Swainson's Hawk.

**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	Other	Unid	Total
August	20	92.5	0	0	19	12	7	12	4	0	9	46	18	0	0	18	4	0	0	0	149
September	30	242	0	0	135	48	51	388	67	5	7	4326	81	0	9	38	9	15	0	24	5203
October	31	216.5	89	165	25	28	26	1308	132	6	33	11	218	0	14	29	16	12	0	20	2132
November	30	186	168	146	0	20	24	49	17	9	75	3	457	0	22	0	2	1	0	12	1005
December	29	106	52	8	0	10	0	1	0	2	4	0	21	1	0	0	0	0	0	0	99
<b>Total</b>	<b>140</b>	<b>843</b>	<b>309</b>	<b>319</b>	<b>179</b>	<b>118</b>	<b>108</b>	<b>1758</b>	<b>220</b>	<b>22</b>	<b>128</b>	<b>4386</b>	<b>795</b>	<b>1</b>	<b>45</b>	<b>85</b>	<b>31</b>	<b>28</b>	<b>0</b>	<b>56</b>	<b>8588</b>
Total per hr			0.37	0.38	0.21	0.14	0.13	2.09	0.26	0.03	0.15	5.20	0.94	0.00	0.05	0.10	0.04	0.03	0.00	0.07	10.19
% of flight			3.6	3.7	2.1	1.4	1.3	20.5	2.6	0.3	1.5	51.1	9.3	0.0	0.5	1.0	0.4	0.3	0.0	0.7	100.0
Average last 10 yrs	140.3	1021.2	325.5	601.1	214.4	95.4	147.6	2147.2	288.7	57.6	147.4	3713.5	1446.5	3.1	78.3	132.2	47.0	29.0	1	76.364	9552.0

**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	Other	Unid	Total
August	1	8.5	0	0	2	6	0	0	0	0	0	2	0	0	0	3	0	0	0	0	13
September	13	82	0	0	58	24	6	108	28	0	5	2870	26	0	1	24	1	0	0	6	3157
October	19	103	10	294	18	24	14	601	130	10	20	1	179	0	21	56	30	28	0	19	1455
November	19	99.75	12	31	1	13	22	25	6	2	12	0	298	1	73	0	1	0	0	2	499
December	5	28.75	6	0	0	2	0	0	1	0	1	0	19	0	10	0	0	0	0	0	39
<b>Total</b>	<b>57</b>	<b>322</b>	<b>28</b>	<b>325</b>	<b>79</b>	<b>69</b>	<b>42</b>	<b>734</b>	<b>165</b>	<b>12</b>	<b>38</b>	<b>2873</b>	<b>522</b>	<b>1</b>	<b>105</b>	<b>83</b>	<b>32</b>	<b>28</b>	<b>0</b>	<b>27</b>	<b>5163</b>
Total per hr			0.09	1.01	0.25	0.21	0.13	2.28	0.51	0.04	0.12	8.92	1.62	0.00	0.33	0.26	0.10	0.09	0.00	0.08	16.03
% of flight			0.5	6.3	1.5	1.3	0.8	14.2	3.2	0.2	0.7	55.6	10.1	0.0	2.0	1.6	0.6	0.5	0.0	0.5	100.0
Average last 10 yrs	62.1	354.3	16.3	62.9	98.2	43.6	81.4	921.5	223.3	14.8	66.9	1650.0	1312.7	2.5	107.5	110.3	36.3	26.2	0.0	67.0	4841.7

TUSCARORA SUMMIT (Fulton) - Dale Gearhart, compiler

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	Other	Unid	Total
September	27	160	0	0	57	22	21	250	41	0	3	1719	5	0	5	14	4	4	0	18	2163
October	27	160.5	0	292	14	24	25	850	61	3	12	2	140	0	14	26	6	9	0	33	1511
November	20	98.5	4	180	1	8	15	28	8	1	22	0	367	0	28	1	1	1	0	7	672
<b>Total</b>	<b>74</b>	<b>419</b>	<b>4</b>	<b>472</b>	<b>72</b>	<b>54</b>	<b>61</b>	<b>1128</b>	<b>110</b>	<b>4</b>	<b>37</b>	<b>1721</b>	<b>512</b>	<b>0</b>	<b>47</b>	<b>41</b>	<b>11</b>	<b>14</b>	<b>0</b>	<b>58</b>	<b>4346</b>
Total per hr			0.01	1.13	0.17	0.13	0.15	2.69	0.26	0.01	0.09	4.11	1.22	0.00	0.11	0.10	0.03	0.03	0.00	0.14	10.37
% of flight			0.1	10.9	1.7	1.2	1.4	26.0	2.5	0.1	0.9	39.6	11.8	0.0	1.1	0.9	0.3	0.3	0.0	1.3	100.0
Average last 10 yrs	68.2	373.7	24.1	341.0	102.5	34.8	71.7	916.6	92.4	3.8	29.7	1842.5	661.3	0.5	37.9	39.1	9.0	14.9	0.0	75.7	4297.6

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	Other	Unid	Total
August	31	216.25	0	0	61	87	13	82	20	0	4	124	67	0	1	55	1	1	0	4	520
September	30	270.5	0	0	327	160	40	1694	163	1	3	5726	127	0	0	149	25	20	0	46	8481
October	27	232	33	1084	53	85	67	5305	639	17	92	16	1021	0	48	108	76	29	0	50	8723
November	27	240.5	49	363	1	39	77	107	32	28	144	0	2185	4	101	1	2	1	0	24	3158
December	25	176.75	22	9	0	34	8	6	2	9	3	0	202	1	32	0	0	0	0	6	334
<b>Total</b>	<b>140</b>	<b>1136</b>	<b>104</b>	<b>1456</b>	<b>442</b>	<b>405</b>	<b>205</b>	<b>7194</b>	<b>856</b>	<b>55</b>	<b>246</b>	<b>5866</b>	<b>3602</b>	<b>5</b>	<b>182</b>	<b>313</b>	<b>104</b>	<b>51</b>	<b>0</b>	<b>130</b>	<b>21216</b>
Total per hr			0.09	1.28	0.39	0.36	0.18	6.33	0.75	0.05	0.22	5.16	3.17	0.00	0.16	0.28	0.09	0.04	0.00	0.11	18.68
% of flight			0.5	6.9	2.1	1.9	1.0	33.9	4.0	0.3	1.2	27.6	17.0	0.0	0.9	1.5	0.5	0.2	0.0	0.6	100.0
Average last 10 yrs	141.9	1125.0	105.2	1283.1	486.5	239.9	308.1	6434.6	864.5	90.1	304.5	6196.5	4270.5	8.8	219.9	349.5	97.2	57.5	0.0	183.0	21499.0

2009 TOTALS FOR ALL WATCHSITES

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	Other	Unid	Total*
August	126	821	73	218	223	218	43	201	64	2	17	565	235	0	1	184	17	9	2	45	2,117
September	327	2,374	161	351	1,984	783	265	6,352	756	7	54	57,476	754	0	20	1,038	201	116	4	435	70,757
October	327	2,065	386	3,289	437	442	370	19,004	2,326	75	377	118	4,115	0	214	818	391	253	0	432	33,047
November	264	1,640	515	1,380	11	180	262	583	199	82	568	3	6,766	7	486	16	17	9	0	136	11,210
December	88	470	153	18	0	66	12	12	6	16	12	0	330	2	59	0	1	0	0	6	693
<b>Total</b>	<b>1132</b>	<b>7369.59</b>	<b>1288</b>	<b>5256</b>	<b>2655</b>	<b>1689</b>	<b>952</b>	<b>26152</b>	<b>3351</b>	<b>182</b>	<b>1018</b>	<b>58162</b>	<b>12200</b>	<b>9</b>	<b>780</b>	<b>2056</b>	<b>627</b>	<b>387</b>	<b>6</b>	<b>1054</b>	<b>117,824</b>
Total per hr			0.17	0.71	0.36	0.23	0.13	3.55	0.45	0.02	0.14	7.89	1.66	0.00	0.11	0.28	0.09	0.05	0.00	0.14	15.99
% of flight			1.1	4.5	2.3	1.4	0.8	22.2	2.8	0.2	0.9	49.4	10.4	0.0	0.7	1.7	0.5	0.3	0.0	0.9	100.0
2008 totals	1049	7617.4	1528	5436	2628	1527	888	20427	2708	134	983	55258	11896	24	1028	1484	558	298	0	1337	108146
% change from 2008	8%	-3%	-16%	-3%	1%	11%	7%	28%	24%	36%	4%	5%	3%	-63%	-24%	39%	12%	30%		-21%	9%

KEY TO TABLE HEADERS

BLVU	Black Vulture	RSHA	Red-shouldered Hawk
TUVU	Turkey Vulture	BWHA	Broad-winged Hawk
OSPR	Osprey	RTHA	Red-tailed Hawk
BAEA	Bald Eagle	RLHA	Rough-legged hawk
NOHA	Northern Harrier	GOEA	Golden Eagle
SSHA	Sharp-shinned Hawk	AMKE	American Kestrel
COHA	Cooper's Hawk	MERL	Merlin
NOGO	Northern Goshawk	PEFA	Peregrine Falcon