

# Autumn Raptor Migration Summary 2002

Kyle McCarty

Thirteen hawkwatch sites reported counts for autumn 2002 (Table 1). No official count was conducted this year at Sterrett's Gap, in Perry County, or at Council Cup, in Luzerne County, a site that has suspended activity for the indefinite future. Count hours ranged from 138 to 1,127 hours, for a total of 7,809 hours, and count days ranged from 22 to 131 days (including January at Hawk Mountain) for a total of 1,082 days. An overall total of 150,354 raptors representing 18 species was reported. Swainson's Hawks (*Buteo swainsoni*) were observed at two sites, Little Gap (Northampton County) and Second Mountain (Lebanon County), as were Mississippi Kites (*Ictinia mississippiensis*), at Hawk Mountain Sanctuary (Berks County) and Rocky Ridge (York County). Eleven sites posted daily results to the *BirdSource Autumn Hawkwatch* website (<http://entry.birdsource.org/HawkWatchDataEntry/>), *RaptorsOnline* (<http://raptorsonline.org/>), or the HMANA *Birdhawk* listserv.

Watchsite	County	Hours of observation
Hawk Mountain	Berks	1127
Wagoner Gap	Cumberland	1022
Second Mountain	Lebanon	891
Bake Oven Knob	Lehigh	782
Allegheny Front	Bedford	777
Little Gap	Northampton	667
Rose Tree Park	Delaware	613
Militia Hill	Montgomery	448
Jack's Mountain	Mifflin	426
Stone Mountain	Huntington	425
Tuscarora Summit	Fulton	354
Rocky Ridge	York	139
Brady's Bend	Clarion	138

Table 1. Watchsites reporting data for autumn 2002.

Average count effort (hours of observation) per watchsite in 2002 decreased slightly from 2001 (601 hours/site vs. 636 hours/site), with the largest decreases at Brady's Bend (Clarion County) (-34%), Second Mountain (-25%), and Tuscarora Summit (Fulton County) (-21%). Only Stone Mountain (Huntington County) logged more total hours this year, and only three sites logged more than 800 hours [Hawk Mountain, Wagoner Gap (Cumberland County), Second Mountain]. A high number of rainy and foggy October days appears to have affected count effort at almost every site, with fewer days and hours this October than in the previous three October.

## Composition of the flight

In autumn 2002, peak counts of

Peregrine Falcons (*Falco peregrinus*) were synchronous among watchsites (Table 2), centering on 5 October. Daily flights of more than twenty peregrines are rarely recorded away from coastal or Great Lakes watchsite, however four Pennsylvania sites (all of which set season-record counts) exceeded this mark last fall, and several other watchsite in the Northeast and mid-Atlantic states also counted above average numbers of peregrines on 5 October. Most watchsite also experienced a higher than average flight of Bald Eagles (*Haliaeetus leucocephalus*), continuing a trend over the last several years, with season records at five sites. After lower than average counts of Broad-winged Hawks (*Buteo platypterus*) last year, many sites reported higher counts this year, possibly because the birds stayed closer to the ridges this year than in recent years, when watchsite to our east reported the bulk of the flight passing them.

Watchsite	Peak date	Number
Rocky Ridge	28 Sept	4
Bake Oven Knob	5 Oct	25
Hawk Mountain	5 Oct	31
Jacks Mountain	5 Oct	2
Little Gap	5 Oct	21
Militia Hill	5 Oct	3
Rose Tree Park	5 Oct	4
Stone Mountain	5 Oct	22
Tuscarora Summit	5 Oct	5
Allegheny Front	6 Oct	12
Brady's Bend	6 Oct	2
Second Mountain	9 Oct	4
Waggoner's Gap	9 Oct	9

Table 2. Peak date and number of Peregrine Falcons in fall 2002.

The four most numerous migrants this year were Broad-winged Hawks, Red-tailed Hawks (*Buteo jamaicensis*), Sharp-shinned Hawks (*Accipiter striatus*), and Turkey Vultures (*Cathartes aura*) (Table 3). Broadwings made up the largest percentage of the overall flight at 55% (range 22-80%). Red-tailed Hawks (15% overall), ranged from 3% at Militia Hill (Montgomery County) to 30% at Stone Mountain. Sharp-shinned Hawks (14% overall) ranged from 6% at Jack's Mountain (Mifflin County) to 24% at Rose Tree Park (Delaware County), and Turkey Vultures (4% overall) ranged from 1% at Hawk Mountain to 22% at Brady's Bend.

Only two of the remaining twelve regular migrants, Ospreys (*Pandion haliaetus*) (at 3%) and Cooper's Hawks (*Accipiter cooperii*) (at 2%) made up 2% or more of the overall flight. Compared to last year, overall passage rates (birds per hour) increased greatly for Peregrine Falcons (+25%), Bald Eagles

(+36%), Ospreys (+35%), and Broad-winged Hawks (+210%), and decreased for Sharp-shinned Hawks (-20%) (Table 3). Passage rates for all other species [Black Vulture (*Coragyps atratus*), Turkey Vulture, Northern Harrier (*Circus cyaneus*), Cooper's Hawk, Red-shouldered Hawk (*Buteo lineatus*), Red-tailed Hawk, Rough-legged Hawk (*Buteo lagopus*), Golden Eagle (*Aquila chrysaetos*), American Kestrel (*Falco sparverius*), and Merlin (*F. columbarius*)] fluctuated by less than 20% from 2001. The irruptive Northern Goshawk (*Accipiter gentilis*) was off by -43%. Several watchsite experienced well-below average counts of Northern Harriers.

## Seasonal highlights

**Allegheny Front (Bedford County)** - Observation effort decreased more than 100 hours compared to 2001, however new season records were established for Ospreys (119), Bald Eagles (64), Broad-winged Hawks (3,766), American Kestrels (101), Peregrine Falcons (52), and total raptors (9,743). Nearly half of the kestrel flight was seen in a single day, October 6, when 47 were counted. During the week of October 18-24, observers counted one-third of the total Red-tailed Hawk flight. Passage rates for most species, all but Northern Goshawk, Rough-legged Hawk, Golden Eagle (which dropped 40% from last season, a record count year), and Merlin were equal to or greater than last year.

**Bake Oven Knob (Lehigh County)** - Season records were established for Ospreys (794; peak count 116 on September 14) and Peregrine Falcons (63; 25 on October 5). The 80 Merlins counted (26 on October 5) is the second highest season total after last year's record of 102. This is a species seen in increasing numbers across the state. Other species passing at rates above the short-term average were Black Vultures, Turkey Vultures, Bald Eagles, Broad-winged Hawks, and Golden Eagles. Northern Harriers, Sharp-shinned Hawks, Red-shouldered Hawks, Red-tailed Hawks, and American Kestrel were below short-term averages.

**Brady's Bend (Clarion County)** - Count effort decreased for the second straight year, with subsequent declines in overall count numbers and passage rate. However, passage rates for some species, including Bald Eagles, Sharp-shinned Hawks, Cooper's Hawks, and Broad-winged Hawks were higher than in 2001.

**Hawk Mountain Sanctuary** (Berks County) - Season records were set for Bald Eagle (207) and Peregrine Falcon (62) during the August 15 to December 15 count period. A new single day record of 31 Peregrine Falcons was seen on 5 October. The previous record was 11 peregrines on 7 October 1937. Overall, the total raptor count was 20% higher than the 10-year average. Above ten-year average counts were reported for Broad-winged Hawks, Golden Eagle (122; 2<sup>nd</sup> highest on record), and Ospreys. Below ten-year average counts were reported for Northern Harriers, American Kestrels and all *Accipiter* hawks. The Sanctuary's first-ever fall sighting of Mississippi Kite was reported on October 8. Volunteers counted 27 southbound Bald Eagles during 14 days of observation in January.

**Jack's Mountain** (Mifflin County) - A season record flight of Broad-winged Hawks (6,844, with 2,900 on September 18) made up 75% of the total raptor count, the site's second-highest total count in 8 years of reporting. The overall passage rate without the Broad-winged was 5.3 birds per hour, the lowest since 1994. Other above average species counts included those for Turkey Vultures, Bald Eagles, and Golden Eagles. Observers counted 148 and 120 Turkey Vultures on October 15 and 17, respectively. A season high 9 Northern Harriers was seen on September 18.

**Little Gap** (Northampton County) - Season records were set for Broad-winged Hawks (11,891), Peregrine Falcons (49; previous record 39 set in 1990), and Ospreys (630; peak count 71 on September 14) and this was the second-best year for total migrants (20,346). Peak broadwing days occurred September 18-20 and 23 with counts of 1,332; 4,259; 2,423; and 1,304 respectively. The site reported the highest overall passage rates in the state both with (30.5 birds per hour), and without broadwings (12.7 birds per hour). Peak counts of 23 Bald Eagles on September 17 and 21 Peregrines on October 5 both were single-day records. The site's sixth Swainson's Hawk was seen on October 20, and a late Osprey was seen on November 30.

**Militia Hill** (Montgomery County) - The peak flight day on September 24 of 7,021 total hawks accounted for 60% of the season count total, and included 6,948 Broad-winged Hawks, the 4<sup>th</sup> highest one-day count on record. Eighty-one Black Vultures, a season record, were counted. In 1999, the count period was defined as September and October only. With little variation in observation hours and coverage since then, passage rates (birds/hour) have decreased each year for Osprey, Northern Harrier, Sharp-shinned Hawk, Red-shouldered Hawk,

American Kestrel, Merlin, and Peregrine Falcon. All other species were about average this year except that both species of vultures were seen at above average rates.

**Rocky Ridge** (York County) - One of two sites reporting a Mississippi Kite in 2002, the first-ever record of this species at the site. Randy Phillips, compiler, notes that an adult Mississippi Kite [was] observed by many on October 6. This was an overall average year for the site, with above-average numbers of Turkey Vulture, Bald Eagle, Cooper's Hawk (including a record season count of 56), Red-tailed Hawk, and Peregrine Falcon, and below-average numbers of Northern Harrier and Broad-winged Hawks. Flights of the latter species may have been missed because of incomplete coverage. A Rough-legged Hawk was seen November 3, the first reported for Rocky Ridge since 1999.

**Rose Tree Park** (Delaware County) - New season records were set for Turkey Vulture (689; peak count 117 on October 31), Black Vulture (94; 13 on October 21), Bald Eagle (155; 9 on September 24), and Cooper's Hawk (236; 25 on October 20). Bald Eagles were seen on 57% of all count days. The Peregrine Falcon season record of 19 was tied. Count effort decreased by 12% over last year's high of 686 hours. Passage rates for most species were equal to or greater than in 2001, except for Northern Goshawk, Golden Eagle, American Kestrel, and Merlin.

**Second Mountain** (Lebanon County) - The eleventh site record of a Swainson's Hawk was seen on October 3. A peak flight of 5,367 Broad-winged Hawks on September 20 contributed to a new season record of 8,076. Hours of observation were down from last year, the lowest since 1997, but still above-average compared to all other watchsite. After a 2001 record of 104 Northern Goshawks observers counted 55 in 2002. Nearly 70% of the Turkey Vultures were counted between 3 and 13 November. The 20 Peregrine Falcons counted was the lowest since 1995.

**Stone Mountain** (Huntingdon County) - Observers logged a season record 425 hours, and season record were set for Cooper's Hawks (309; peak count of 38 on October 5), Broad-winged Hawks (1,890; 1,135 on September 18), Merlins (68; 18 on October 5), Peregrine Falcons (47; 22 on October 5) and total migrants (5,651). At least one Golden Eagle was seen on 59% of the count days in October and November. This is the only watchsite at which Golden Eagles made up more than 1% of the total count.

**Tuscarora Summit** (Fulton County) - Twelve Golden Eagles on November 25

helped set a season record of 55. The Bald Eagle season record was tied at 31 (peak count 6 on September 18). New records were also set for Black Vulture (46) and Turkey Vulture (442). Observation effort was the third lowest in thirty years of counts. Ospreys, Bald Eagles, Cooper's Hawks, Broad-winged Hawks, Golden Eagles, and Peregrine Falcons were seen at above average rates. Passage rates were below average for Northern Harriers, Sharp-shinned Hawks, and Northern Goshawks.

**Waggoner's Gap** (Cumberland County) - Peak counts on 5-6 October of 17 and 13 Merlins contributed to a season record of 98, and 187 Bald Eagles also sets a new season record over 149 seen in 2001. The Broad-winged Hawk flight was highlighted by the count of 5,305 on 20 September, the highest ever single-day count (previously 4,827 on 21 September 1987). The peak counts of Golden Eagles occurred 27 October (27 birds, a single day count record) and 28 October (18 birds). Forty-one percent of the Red-shouldered Hawks were counted in the 10 days between 28 October and 7 November.

*Hawk Mountain Sanctuary  
Kempston*

Table 3. Count results for autumn 2002 in Pennsylvania.

**ALLEGHENY FRONT (Bedford) 2000**  
**Che Mincone, compiler**

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	Unid	Total
August	17	133	0	0	27	7	9	65	14	1	6	196	91	0	0	10	2	2	21	451
September	28	242	13	144	75	38	10	203	77	3	3	3,556	277	0	0	29	6	17	71	4,522
October	27	210.5	1	641	17	17	34	859	191	6	82	14	2,024	0	36	60	25	33	124	4,164
November	26	156	0	51	0	1	11	30	6	8	31	0	381	3	51	2	0	0	20	595
December	5	35	0	0	0	1	0	0	0	1	0	0	7	0	2	0	0	0	0	11
<b>Total</b>	<b>103</b>	<b>776.5</b>	<b>14</b>	<b>836</b>	<b>119</b>	<b>64</b>	<b>64</b>	<b>1,157</b>	<b>288</b>	<b>19</b>	<b>122</b>	<b>3,766</b>	<b>2,780</b>	<b>3</b>	<b>89</b>	<b>101</b>	<b>33</b>	<b>52</b>	<b>236</b>	<b>9,743</b>
Total per hr			0.02	1.10	0.15	0.08	0.08	1.50	0.37	0.02	0.16	4.80	3.60	0.00	0.11	0.13	0.04	0.07	0.30	12.50
% of flight			0.14	8.60	1.20	0.66	0.66	11.90	3.00	0.20	1.30	38.70	28.50	0.03	0.91	1.04	0.34	0.53	2.40	100.00

**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	Unid	Total
August	16	143	35	174	29	16	5	37	6	0	0	80	28	0	0	14	2	0	8	434
September	29	268	57	296	591	113	31	526	88	0	7	12,200	138	0	1	117	16	13	47	14,241
October	25	195	50	186	174	19	56	1,730	235	10	160	28	1,535	0	30	76	62	49	168	4,568
November	27	175.7	55	30	0	17	12	78	21	21	30	0	1,158	2	56	0	0	1	55	1,536
<b>Total</b>	<b>97</b>	<b>781.7</b>	<b>197</b>	<b>686</b>	<b>794</b>	<b>165</b>	<b>104</b>	<b>2,371</b>	<b>350</b>	<b>31</b>	<b>197</b>	<b>12,308</b>	<b>2,859</b>	<b>2</b>	<b>87</b>	<b>207</b>	<b>80</b>	<b>63</b>	<b>278</b>	<b>20,779</b>
Total per hr			0.25	0.87	1.00	0.21	0.13	3.00	0.45	0.04	0.25	15.70	3.60	0.00	0.11	0.26	0.10	0.08	0.35	26.50
% of flight			0.90	3.30	3.80	0.80	0.50	11.40	1.70	0.10	0.90	59.20	13.80	0.00	0.40	1.00	0.40	0.30	1.30	100.00

**BRADY'S BEND (Clarion)**  
**Mark McConaughy, compiler**

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	Unid	Total
August	3	20	0	0	2	3	2	7	2	0	0	25	2	0	0	2	0	0	0	45
September	13	79	0	55	6	5	2	14	13	0	1	31	4	0	0	2	0	0	3	136
October	6	39	0	1	2	5	2	38	6	0	0	0	18	0	0	2	1	3	1	79
<b>Total</b>	<b>22</b>	<b>138</b>	<b>0</b>	<b>56</b>	<b>10</b>	<b>13</b>	<b>6</b>	<b>59</b>	<b>21</b>	<b>0</b>	<b>1</b>	<b>56</b>	<b>24</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>1</b>	<b>3</b>	<b>4</b>	<b>260</b>
Total per hr			0.00	0.41	0.07	0.09	0.04	0.43	0.15	0.00	0.01	0.41	0.17	0.00	0.00	0.04	0.01	0.02	0.03	1.90
% of flight			0.00	21.50	3.85	5.00	2.30	22.70	8.10	0.00	0.38	21.50	9.20	0.00	0.00	2.30	0.38	1.20	1.50	100.00

**HAWK MOUNTAIN (Berks)**  
**Laurie Goodrich, compiler**

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	Unid	Total
August	20	179	6	0	34	21	10	28	12	0	0	108	13	0	0	30	3	0	4	269
September	27	283.5	0	7	524	118	61	623	128	0	4	12,062	91	0	1	221	45	8	48	13,941
October	27	244.9	16	162	152	31	67	2,419	416	6	173	58	1,641	3	34	248	69	52	100	5,647
November	27	218	26	57	5	18	44	137	51	21	59	0	1,607	2	69	1	3	2	20	2,122
December	16	103	0	0	0	27	4	4	2	15	6	0	139	0	18	0	0	0	0	215
January	14	98.5	1	2	0	27	1	0	0	3	0	0	42	0	2	0	1	0	1	80
Total	131	1127	49	228	715	242	187	3,211	609	45	242	12,228	3,533	5	124	500	121	62	173	22,274
Total per hr																				
% of flight			0.20	1.00	3.20	1.10	0.80	14.50	2.80	0.20	1.10	55.30	16.00	0.02	0.60	2.30	0.50	0.30	0.80	100.70

\*\*Total includes one Mississippi i Kite seen October 8.

**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	Unid	Total
August	8	49	14	16	7	9	2	11	6	0	0	36	1	0	0	8	0	0	2	112
September	24	180	18	22	81	24	26	112	24	0	2	6,796	35	0	0	24	1	2	1	7,168
October	21	135	24	333	34	7	33	444	42	10	3	12	488	0	20	36	6	7	1	1,500
November	12	62	11	0	0	0	8	15	5	1	1	0	239	0	21	0	1	0	0	302
Total	65	426	67	371	122	40	69	582	77	11	6	6,844	763	0	41	68	8	9	4	9,082
Total per hr			0.16	0.87	0.29	0.09	0.16	1.40	0.18	0.03	0.01	16.10	1.80	0.00	0.10	0.16	0.02	0.02	0.01	21.30
% of flight			0.74	4.10	1.30	0.44	0.76	6.40	0.85	0.12	0.07	75.40	8.40	0.00	0.45	0.75	0.09	0.10	0.04	100.00

**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	Unid	Total
August	12	61	4	0	16	10	6	26	10	0	0	55	12	0	0	16	1	0	2	158
September	27	207	13	42	445	98	33	553	77	1	4	11,798	112	0	1	136	27	5	59	13,404
October	27	214	18	224	168	20	68	2,196	292	16	77	38	1,549	0	29	153	48	42	80	5,018
November	26	170	5	88	1	12	16	159	31	12	68	0	1,285	2	42	2	3	2	17	1,745
December	3	16	0	0	0	1	0	0	0	0	1	0	16	0	3	0	0	0	0	21
Total	95	668.6	40	354	630	141	123	2,934	410	29	150	11,891	2,974	2	75	307	79	49	158	20,346
Total per hr			0.06	0.53	0.94	0.21	0.18	4.40	0.61	0.04	0.22	17.80	4.50	0.00	0.11	0.46	0.12	0.07	0.24	30.50
% of flight			0.20	1.70	3.10	0.69	0.60	14.40	2.02	0.14	0.74	58.40	14.60	0.01	0.37	1.50	0.39	0.24	0.78	100.01

\*\*Total includes one Swainson's Hawk seen October 20.

**MILITIA HILL (Montgomery)**  
**Marylea Klauder, compiler**

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	Unid	Total
September	29	232	17	49	169	27	19	299	46	0	5	9,400	17	0	0	116	3	1	30	10,198
October	27	216	64	404	58	8	23	524	86	2	13	6	283	0	1	88	7	3	24	1,594
<b>Total</b>	<b>56</b>	<b>448</b>	<b>81</b>	<b>453</b>	<b>227</b>	<b>35</b>	<b>42</b>	<b>823</b>	<b>132</b>	<b>2</b>	<b>18</b>	<b>9,406</b>	<b>300</b>	<b>0</b>	<b>1</b>	<b>204</b>	<b>10</b>	<b>4</b>	<b>54</b>	<b>11,792</b>
Total per hr			0.18	1.00	0.51	0.08	0.09	1.80	0.29	0.00	0.04	21.00	0.67	0.00	0.00	0.46	0.02	0.01	0.12	26.30
% of flight			0.70	3.80	1.90	0.30	0.40	7.00	1.10	0.00	0.20	79.80	2.50	0.00	0.00	1.70	0.10	0.00	0.50	100.00

**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	Unid	Total
August	10	22.75	0	0	4	3	0	12	2	0	0	15	5	0	0	8	0	2	1	52
September	17	53	0	0	28	15	4	68	12	1	1	894	17	0	0	12	0	4	5	1,061
October	12	41	4	123	12	12	7	167	37	0	7	24	110	0	3	26	4	3	5	544
November	8	20.25	4	81	0	1	3	40	5	1	5	0	132	1	0	0	0	0	2	275
December	1	1.5	0	3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	4
<b>Total</b>	<b>48</b>	<b>138.75</b>	<b>8</b>	<b>207</b>	<b>44</b>	<b>31</b>	<b>14</b>	<b>287</b>	<b>56</b>	<b>2</b>	<b>13</b>	<b>933</b>	<b>265</b>	<b>1</b>	<b>3</b>	<b>46</b>	<b>4</b>	<b>9</b>	<b>13</b>	<b>1,936</b>
Total per hr			0.06	1.50	0.32	0.22	0.10	2.10	0.40	0.01	0.09	6.70	1.90	0.01	0.02	0.33	0.03	0.06	0.09	14.00
% of flight			0.40	10.70	2.30	1.60	0.70	14.80	2.90	0.10	0.70	48.20	13.70	0.10	0.20	2.40	0.20	0.50	0.70	100.00

\*Total includes one Mississippi Kite seen October 6.

**ROSE TREE PARK (Delaware)**  
**Jim Lockyer, compiler**

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	Unid	Total
August	20	122	4	2	25	7	4	16	5	0	4	59	10	0	0	12	0	0	6	154
September	30	217	16	5	176	70	30	593	54	0	8	2,923	34	0	0	180	7	5	23	4,124
October	28	182.75	52	589	110	60	35	1,050	147	2	84	20	254	0	1	134	19	13	36	2,606
November	14	91.25	22	93	0	18	14	134	30	0	40	0	181	0	2	4	2	1	5	546
<b>Total</b>	<b>92</b>	<b>613</b>	<b>94</b>	<b>689</b>	<b>311</b>	<b>155</b>	<b>83</b>	<b>1,793</b>	<b>236</b>	<b>2</b>	<b>136</b>	<b>3,002</b>	<b>479</b>	<b>0</b>	<b>3</b>	<b>330</b>	<b>28</b>	<b>19</b>	<b>70</b>	<b>7,430</b>
Total per hr			0.15	1.10	0.51	0.25	0.14	2.90	0.38	0.00	0.22	4.90	0.78	0.00	0.00	0.54	0.05	0.03	0.11	12.10
% of flight			1.30	9.30	4.20	2.10	1.10	24.10	3.20	0.03	1.80	40.40	6.40	0.00	0.00	4.40	0.40	0.30	0.90	100.00

**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	Unid	Total
August	28	169	0	0	7	3	8	18	11	2	0	248	69	0	0	18	3	0	6	393
September	27	252.5	0	0	175	27	20	265	58	14	5	7,821	109	0	7	55	9	2	37	8,604
October	26	226.5	3	86	54	11	51	1,287	163	27	127	7	735	0	27	50	26	18	41	2,713
November	27	201	94	380	0	14	24	74	10	11	26	0	542	1	32	0	3	0	10	1,221
December	8	42	15	3	0	7	1	0	0	1	1	0	20	0	8	0	1	0	1	58
Total	116	891	112	469	236	62	104	1,644	242	55	159	8,076	1,475	1	74	123	42	20	95	12,989
Total per hr			0.13	0.53	0.26	0.07	0.12	1.80	0.27	0.06	0.18	9.10	1.70	0.00	0.08	0.14	0.05	0.02	0.11	14.60
% of flight			0.86	3.60	1.80	0.48	0.80	12.70	1.90	0.42	1.20	62.20	11.40	0.01	0.57	0.95	0.32	0.15	0.73	100.00

\*\*\*Total includes one Swainson's Hawk seen October 3.

**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	Unid	Total
August	6	45.5	0	0	9	4	13	48	10	0	0	72	22	0	0	11	0	0	2	191
September	23	149.5	0	0	45	19	23	152	87	2	9	1,802	111	0	0	58	11	7	24	2,350
October	20	131	0	0	42	8	34	759	199	12	57	16	932	0	34	88	57	40	46	2,324
November	19	94	0	0	0	1	16	34	13	6	20	0	615	4	56	0	0	0	4	769
December	1	5	0	0	0	0	0	1	0	0	1	0	13	0	2	0	0	0	0	17
Total	69	425	0	0	96	32	86	994	309	20	87	1,890	1,693	4	92	157	68	47	76	5,651
Total per hr			0.00	0.00	0.20	0.10	0.20	2.30	0.70	0.00	0.20	4.40	4.00	0.00	0.20	0.40	0.20	0.10	0.20	13.30
% of flight			0.00	0.00	1.70	0.57	1.50	17.60	5.50	0.35	1.50	33.40	30.00	0.07	1.60	2.80	1.20	0.83	1.30	100.00

**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	Unid	Total
September	23	140.5	20	21	93	22	11	152	27	0	5	2,956	15	0	1	15	8	4	29	3,379
October	20	123	17	292	29	6	39	634	70	1	14	15	420	0	22	25	4	18	35	1,641
November	19	90	9	129	0	3	15	18	12	3	10	0	435	0	32	1	0	2	9	678
Total	62	353.5	46	442	122	31	65	804	109	4	29	2,971	870	0	55	41	12	24	73	5,698
Total per hr			0.13	1.25	0.35	0.09	0.18	2.27	0.31	0.01	0.08	8.40	2.46	0.00	0.16	0.12	0.03	0.07	0.21	16.10
% of flight			0.81	7.80	2.10	0.54	1.10	14.10	1.90	0.07	0.51	52.10	15.30	0.00	0.97	0.72	0.21	0.42	1.30	100.00

## 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	Unid	Total
August	31	215.5	0	0	33	24	21	88	22	0	0	284	42	0	0	73	0	1	13	601
September	27	249.5	0	0	327	74	47	675	134	1	7	9,202	137	0	1	135	16	19	40	10,815
October	26	238.75	27	634	137	52	89	3,355	475	19	173	73	2,228	1	77	118	77	37	70	7,642
November	26	221.5	57	220	2	30	49	211	35	45	91	0	2,244	2	102	2	5	0	28	3,123
December	15	97	10	8	0	7	6	5	2	14	0	0	104	0	24	0	0	0	6	186
Total	125	1,022	94	862	499	187	212	4,334	668	79	271	9,559	4,755	3	204	328	98	57	157	22,367
Total per hr			0.09	0.84	0.49	0.18	0.21	4.20	0.65	0.08	0.27	9.40	4.70	0.00	0.20	0.32	0.10	0.06	0.15	21.90
% of flight			0.42	3.90	2.20	0.84	0.95	19.40	3.00	0.35	1.20	42.70	21.30	0.01	0.91	1.50	0.44	0.25	0.70	100.00

## TOTAL FOR ALL WATCHSITES 2002

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	Unid	Total
August	171	1,160	63	192	193	107	80	356	100	3	10	1,178	295	0	0	202	11	5	65	2,860
September	324	2,554	154	641	2,735	650	317	4,235	825	22	61	81,441	1,097	0	12	1,100	149	87	417	89,708
October	292	2,198	276	3,675	989	256	538	15,462	2,359	111	970	311	12,217	4	314	1,104	405	318	731	40,040
November	231	1,500	283	1,129	8	115	212	930	219	129	381	0	8,819	17	463	12	17	8	170	12,912
December	49	299	25	14	0	43	11	10	4	31	9	0	300	0	57	0	1	0	7	512
January	14	98	1	2	0	27	1	0	0	3	0	0	42	0	2	0	1	0	1	80
Total	1,081	7,809	802	5,653	3,925	1,198	1,159	20,993	3,507	299	1,431	82,930	22,770	21	848	2,418	584	418	1,391	150,347
Total per hr			0.10	0.72	0.50	0.15	0.15	2.70	0.45	0.04	0.18	10.60	2.90	0.00	0.11	0.31	0.07	0.05	0.18	19.30
% of flight			0.50	3.80	2.60	0.80	0.80	14.00	2.30	0.20	1.00	55.00	15.00	0.01	0.60	1.60	0.40	0.30	0.90	100.00
% change from 2001**			-17	1	35	36	-17	-20	-10	-43	12	210	13	0	10	-11	-13	25	0	56

\*\*Count total includes 2 Swainson's Hawks and 2 Mississippi Kites.

\*\*\*Total birds per hour in 2002 vs. total birds per hour in 2001.