

# Autumn Raptor Migration Summary 1999

by Jennifer Ottinger and Keith L. Bildstein

Thirteen watchsites and one transect (Broadwing SEPT) reported counts for autumn 1999 (Table 1). Counts were conducted for from 138 to 1129 hours at each site or transect, for a total of 7490 hours. A total of 142,112 raptors representing 18 species was reported. One new watchsite, Brady's Bend in western Pennsylvania, was added, replacing the McVile site that was used last year. In addition, Sterrett's Gap reported this year for the first time since 1995. Swainson's Hawks (*Buteo swainsoni*) were observed at four watchsites in 1999; Jack's Mountain, Militia Hill, Rocky Ridge, and Second Mountain. In addition, a Gyrfalcon (*Falco rusticolus*) was seen at Stone Mountain in early December.

Count efforts (hours of observation) at most watchsites were similar to those in 1998 (6838 total hours in 1998 vs 7021 hours in 1999, up 3%; not including transects). Five watchsites (Allegheny Front, Hawk Mountain, Little Gap, Second Mountain, and Waggoners Gap) logged in more than 700 hours of effort in 1999. The largest increase in observation time was at Second Mountain where 1077 hours were logged, boosting their effort by 18% (166 hours) over last year. Allegheny Front increased its effort by 8% (664 in 1998 vs 719 in 1999). There were substantial decreases in count effort at Council Cup (down 39%; 227 hours in 1998 vs 138 hours in 1999), Jack's Mountain (down 29%; 370 hours in 1998 vs 263 hours in 1999), and Rocky Ridge (down 18%; 193 in 1998 vs 158 in 1999).

## Composition of the flight

As expected, at 40% of the flight overall (excluding the Broadwing SEPT transect), Broad-winged Hawks (*Buteo platypterus*) made up the largest percentage of the flight at all but three watchsites (Allegheny Front, Brady's Bend, and Sterrett's Gap). The broadwing flight ranged from 4% of the total at Brady's Bend to 70% of the flight at Militia Hill. (Note: Militia Hill counted only in September and October). This small buteo made up more than half of the flight at three

(Jack's Mountain, Militia Hill, and Rocky Ridge) of the 13 watchsites (Table 2).

Red-tailed Hawks (*Buteo jamaicensis*), at 23% of the flight overall, made up the second largest portion of the flight, and Sharp-shinned Hawks (*Accipiter striatus*), at 18% of the flight overall, made up the third largest portion of the overall migration. The redtail flight ranged from 3% of the total at Militia Hill to 46% at Sterrett's Gap. (Note: Militia Hill did not count in November). Redtails made up at least 25% of the flight at four of the 13 watchsites (Allegheny Front, Council Cup, Sterrett's Gap, and Stone Mountain). The Sharp-shinned Hawk flight ranged from 10% of the total at Council Cup, to 24% at Tuscarora Summit (Table 2).

As expected, each of the remaining 13 regular migrants comprised less than 10% of the overall flight. None of these species made up more than 10% of the flight at each of the watchsites except for Turkey Vultures (*Cathartes aura*) at Brady's Bend, where this species made up 32% of the flight (Table 2).

## Seasonal Highlights

**Northern Goshawks**—This was a stellar year for Northern Goshawks (*Accipiter gentilis*). A total of 768 individuals of this species was counted in autumn 1999, a 352% increase over the 1998 count of 170. Even so, goshawks made up less than 1% of the total flight at each site. Council Cup had the fewest goshawks with 3; Waggoners Gap had the highest count with 218. The flight was early in 1999, with Second Mountain recording its first goshawk on August 27th. The flight peaked in October-November when 92% (703 of 768 individuals) were sighted. Waggoners Gap recorded the maximum one-day count of 29 on November 7th.

**Allegheny Front (Bedford County)**—Although the hours of coverage at this site increased only slightly, the flight, itself, increased by 93%, with dramatic increases in all species reported except Merlin (*Falco columbarius*). The watchsite's

broadwing flight more than doubled from last year (632 in 1998 vs 1811 in 1999). Allegheny Front reported a record 48 Peregrine Falcons (*Falco peregrinus*) during the season.

## Brady's Bend (Clarion County)

—This was the first year for this watchsite in western Pennsylvania. Brady's Bend overlooks the Allegheny River 50 miles northeast of Pittsburgh in Clarion County. The site is at the Riverview Overlook area along State Route 68, 2 miles east of the town of East Brady. With a total of 1123 raptors in 1999, this site reported more migrants than the McVile site used in 1998 (345 raptors recorded). Most migrants were Turkey Vultures (364 individuals; 32% of the flight). The site also had relatively high numbers of sharpshins and redtails.

## Council Cup (Luzerne County)

—Hours of observation for the watchsite were lower than in 1998 (227 hours in 1998 vs 138 hours in 1999). The only record for the site in 1999 was a one-day count of 22 Bald Eagles (*Haliaeetus leucocephalus*) on September 17th.

## Hawk Mountain (Berks County)

—The watchsite had its sixth highest count for goshawks in 1999 (176 individuals), with its highest count of 347 occurring in 1972. There were record highs for Black Vulture (*Coragyps atratus*) (80 individuals) and Bald Eagle (190 individuals), with a one-day count of 30 Bald Eagles on September 17th (the highest one-day count since the early 1950s). The site had the second highest Golden Eagle (*Aquila chrysaetos*) count of 133, falling short of the 1998 record of 148. All 16 species' counts were higher than the 10-year average (1989-1998), except for Sharp-shinned Hawk.

**Jack's Mountain (Mifflin County)**—Compiler Ron Singer reported a Swainson's Hawk on October 2nd, the first observed at the watchsite since 1996. This was a record year for Black Vultures (303 individuals). The site also had a record year for Broad-winged Hawks (2518 individuals). In addition, Bald Eagles,

Northern Harriers (*Circus cyaneus*), Northern Goshawks, and Peregrine Falcons increased over last year.

**Little Gap** (*Northampton County*) – Twelve of the 16 species reported at the site had a record year, and the site recorded its highest total ever (19,687). Species records of note include 152 Bald Eagles and 148 Northern Goshawks, which compiler Michael Schall called "extraordinary." Turkey Vultures also increased substantially (81 in 1998 vs 149 in 1999). The only species whose numbers were down from 1998 were harriers, sharpshins, broadwings, and peregrines.

**Militia Hill** (*Montgomery County*) – A Swainson's Hawk was observed on September 6th. On October 12th the first Golden Eagle in three years passed by the Hill, accompanied by two Bald Eagles. A second Golden Eagle was seen on October 24th. This was a record year for Bald Eagles at the site, with 44 being observed. Four goshawks were seen in October, the highest count since 1995. Jane Henderson also noted that hundreds of broadwings were seen settling down in the trees near the site late in the day on September 18th, and observed leaving the next morning.

**Rocky Ridge** (*York County*) – A Swainson's Hawk was observed on September 19th. The count at this site was down 66% compared to 1998 (7058 total birds in 1998 vs 2366 total individuals in 1999), mostly due to the record broadwing flight of 6052 they experienced in 1998. The 1999 broadwing count of 1217 was close to average for the site. The site also recorded a record number of Cooper's Hawks (*Accipiter cooperii*) (at least for the 1990s) with 44 birds. There also were high counts of Northern Goshawks, Red-shouldered Hawks, Red-tailed Hawks, and American Kestrels (*Falco sparverius*) for the site.

**Second Mountain** (*Lebanon County*) – A Swainson's Hawk was observed on September 18th, and was determined to be an immature bird. The site had record counts for Turkey Vulture (793), Bald Eagle (60; 23 adult, 37 immature), Northern Harrier (219), Northern Goshawk (104), Red-

tailed Hawk (2567), Golden Eagle (77; 36 adult, 41 immature), and Merlin (58). Harriers and goshawks also had one-day records, and Bald Eagles tied the one-day record set in 1996.

**Sterrett's Gap** (*Perry County*) – This is the first year the site has reported its counts to *Pennsylvania Birds* since 1995. Compiler Burie Scholfield reported that Sharp-shinned Hawk, Cooper's Hawk, Red-shouldered Hawk (*Buteo lineatus*), and Broad-winged Hawk counts were down. There were, however, "good counts" of Red-tailed Hawks. During the first week of November almost half of the Golden Eagles (6 of 11) recorded for the season passed the site. No record counts were reported.

**Stone Mountain** (*Huntingdon County*) – This ninth year of coverage at the watchsite brought the best migration season ever. With a total count of 5510 raptors seen, the count "topped our previous high by almost 50%," according to compiler Greg Grove. This was a record year for all but four (Osprey [*Pandion haliaetus*], Bald Eagle, Golden Eagle, and Merlin) of the 14 species recorded at the site. The redtail flight (2125 individuals) was outstanding with a 57% increase over the previous record of 1351 set in 1997. The observers at the site also were treated to a white-phase Gyrfalcon on December 7th.

**Tuscarora Summit** (*Fulton County*) – Turkey Vultures and Golden Eagles set new records at the site, with 306 and 52 individuals reported, respectively. There also were substantial increases over the 1998 count for all species except Black Vulture, Bald Eagle, and Broad-winged Hawk. The Red-tailed Hawk count more than doubled, with 1155 observed in 1999 compared to 433 seen in 1998.

**Waggoners Gap** (*Cumberland County*) – Compiler David Grove reported the highest goshawk count for the state in 1999, with a record 218 individuals for the site. Other species records include Bald Eagle (148), Northern Harrier (420), Red-tailed Hawk (5731), American Kestrel (474), and Merlin (95). The site had the second highest Golden Eagle count of 202, just a few birds short of the 1998

record of 205. Redtails increased 25% over the record set in 1998. The watchsite also had the highest Rough-legged Hawk (*Buteo lagopus*) count (22) among the reporting watchsites, recording one individual more than Hawk Mountain's roughleg count of 21.

**Broadwing SEPT** (*Bucks County*) – The SouthEastern Pennsylvania Transect is an "intersection line consisting of seven sites in South Eastern PA, centered around Doylestown, PA" (Hohenleitner 1998). This was the sixth year of the project run by Kirk and Lois Moulton. In 1999 the count ran from 12 to 23 September. There was a total of 469 hours logged on the transect during 10 days of observation (15 and 16 Sep. were rained out, and observations occurred at only one site on 21 Sep., also due to rain). A total of 23,596 migrants was tallied along the transect, with the peak day of 14,601 on September 19th (98% were broadwings). The total number of Broad-winged Hawks observed during the two-week period was 22,211 (Table 2), slightly lower than the 1998 count of 22,777 broadwings. The majority of the Broad-winged Hawks seen on 19 September were at Pipersville (6871) and Buckingham (4892). The Danboro site between these two locations counted 110 of these buteos on this peak day, indicating "two rivers of raptors, separated by 10 miles, with almost nothing in between," according to compiler Kirk Moulton.

**Acknowledgments:** We thank all of the compilers who reported their counts for the autumn 1999 season, and all watchsite participants who helped the compilers document the migration. Special thanks to Frank Hohenleitner for his assistance in contacting watchsite coordinators. Thanks to Frank and Barbara Haas for the opportunity to act as the new hawk watch editors. This is Hawk Mountain Sanctuary contribution number 84.

#### Reference:

Hohenleitner, F. 1998. Fall Raptor Migration Summary 1988. *Pennsylvania Birds* 12(4): 170-175.

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PENNSYLVANIA'S FALL 1999 HAWK MIGRATION SUMMARIES

ALLEGHENY FRONT (Bedford)  
Thomas Dick, compiler

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	Unid	Total
Aug	9	48	0	0	6	3	3	15	3	0	1	57	34	0	0	12	0	0	7	141
Sep	30	220	0	99	78	15	23	206	105	0	7	1733	137	0	0	35	3	10	88	2539
Oct	31	258	3	373	27	12	61	885	159	29	30	21	1621	1	67	33	35	38	86	3481
Nov	28	193	0	16	1	1	24	35	27	14	32	0	857	3	75	1	0	0	39	1125
Total	98	719	3	488	112	31	111	1141	294	43	70	1811	2649	4	142	81	38	48	220	7286
Total per hr			0.00	0.68	0.16	0.04	0.15	1.59	0.41	0.06	0.10	2.52	3.68	0.01	0.20	0.11	0.05	0.07	0.31	10.13
% of flight			0.0	6.7	1.5	0.4	1.5	15.7	4.0	0.6	1.0	24.9	36.4	0.1	1.9	1.1	0.5	0.7	3.0	100.0

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
Aug	2	18	0	0	2	0	3	6	2	0	0	2	0	0	0	7	0	2	4	28
Sep	16	103	0	10	8	9	11	45	12	0	4	38	2	0	0	8	1	0	9	157
Oct	13	80	0	350	9	14	35	136	13	1	15	3	101	0	1	5	3	5	18	709
Nov	12	52	0	4	0	10	13	22	6	6	9	0	152	2	0	0	0	0	5	229
Total	43	253	0	364	19	33	62	209	33	7	28	43	255	2	1	20	4	7	36	1123
Total per hr			0.00	1.44	0.08	0.13	0.25	0.83	0.13	0.03	0.11	0.17	1.01	0.01	0.00	0.08	0.02	0.03	0.14	4.44
% of flight			0.0	32.4	1.7	2.9	5.5	18.6	2.9	0.6	2.5	3.8	22.7	0.2	0.1	1.8	0.4	0.6	3.2	100.0

COUNCIL CUP (Luzerne)  
Rick Koval, compiler

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	Unid	Total
Aug	4	10	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	3
Sep	11	49	0	10	37	27	13	75	4	2	2	889	54	0	0	46	1	0	10	1170
Oct	16	52	0	127	4	11	7	136	17	1	9	3	510	0	1	15	1	3	3	848
Nov	6	27	0	1	0	0	4	6	3	0	0	0	230	0	1	0	1	2	1	249
Total	37	138	0	138	42	39	24	217	24	3	11	892	794	0	2	62	3	5	14	2270
Total per hr			0.00	1.00	0.30	0.28	0.17	1.57	0.17	0.02	0.08	6.46	5.75	0.00	0.01	0.45	0.02	0.04	0.10	16.45
% of flight			0.0	6.1	1.9	1.7	1.1	9.6	1.1	0.1	0.5	39.3	35.0	0.0	0.1	2.7	0.1	0.2	0.6	100.0

PENNSYLVANIA'S FALL 1999 HAWK MIGRATION SUMMARIES

**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
Jul	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
Aug	21	174	0	0	76	33	20	97	19	0	4	152	6	0	0	118	8	1	34	568
Sep	29	259	29	10	395	82	84	1372	291	2	6	8193	126	0	0	415	42	15	68	11,130
Oct	30	297	27	300	207	30	147	2771	593	64	171	289	2647	4	69	191	72	31	169	7782
Nov	28	234	24	57	3	20	62	172	35	95	151	0	2137	9	51	6	5	1	52	2880
Dec	17	103	0	1	0	5	2	4	0	10	0	0	38	1	9	0	0	0	1	71
Jan	9	58	0	1	0	20	2	0	0	5	1	0	23	7	4	0	1	0	0	64
Total	135	1129	80	369	681	190	317	4416	938	176	333	8634	4977	21	133	732	128	48	324	22,497
Total per hr			0.07	0.33	0.60	0.17	0.28	3.91	0.83	0.16	0.29	7.65	4.41	0.02	0.12	0.65	0.11	0.04	0.29	19.93
% of flight			0.4	1.6	3.0	0.8	1.4	19.6	4.2	0.8	1.5	38.4	22.1	0.1	0.6	3.3	0.6	0.2	1.4	100.0

**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*
Sep	17	125	273	25	51	19	35	172	20	0	1	2482	39	0	1	91	3	6	1	3219
Oct	16	87	16	42	10	2	49	361	33	6	6	36	584	0	9	7	2	8	12	1184
Nov	8	51	14	18	0	0	6	16	7	5	1	0	390	0	20	0	0	0	1	478
Total	41	263	303	85	61	21	90	549	60	11	8	2518	1013	0	30	98	5	14	14	4881
Total per hr			1.15	0.32	0.23	0.08	0.34	2.09	0.23	0.04	0.03	9.57	3.85	0.00	0.11	0.37	0.02	0.05	0.05	18.56
% of flight			6.2	1.7	1.2	0.4	1.8	11.2	1.2	0.2	0.2	51.6	20.8	0.0	0.6	2.0	0.1	0.3	0.3	100.0

\* Includes 1 SWHA seen on 2 Oct.

**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
Aug	21	103	0	0	53	22	6	42	16	0	0	116	16	0	0	52	1	0	9	333
Sep	27	193	11	0	348	74	85	996	135	5	5	8704	155	0	1	192	19	5	42	10,777
Oct	29	253	37	139	196	23	137	2512	394	68	111	172	2421	3	50	117	40	23	82	6525
Nov	29	184	6	10	0	17	45	117	32	71	45	0	1585	1	31	4	7	1	20	1992
Dec	11	51	2	0	0	13	1	1	0	4	0	0	31	1	2	0	0	0	2	57
Jan	1	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Total	118	789	56	149	597	152	274	3668	577	148	161	8992	4208	5	84	365	67	29	155	19,607
Total per hr			0.07	0.19	0.76	0.19	0.35	4.65	0.73	0.19	0.20	11.40	5.33	0.01	0.11	0.46	0.08	0.04	0.20	24.95
% of flight			0.3	0.8	3.0	0.8	1.4	18.6	2.9	0.8	0.8	45.7	21.4	0.0	0.4	1.9	0.3	0.1	0.8	100.0

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

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOGA	AMKE	MERL	PEFA	Unid	Total*
Sep	26	208	6	2	230	34	37	334	57	0	2	6426	4	0	0	235	20	1	44	7433
Oct	30	240	17	283	85	10	33	660	96	4	34	200	297	1	3	200	16	10	36	1985
Total	56	448	23	285	315	44	70	994	153	4	36	6626	301	1	3	435	36	11	80	9418
Total per hr			0.05	0.64	0.70	0.10	0.16	2.22	0.34	0.01	0.08	14.79	0.67	0.00	0.01	0.97	0.08	0.02	0.18	21.02
% of flight			0.2	3.0	3.3	0.5	0.7	10.6	1.5	0.0	0.4	70.4	3.2	0.0	0.0	4.6	0.4	0.1	0.8	100.0

\* includes 1 SWHA seen on 6 Sep.

**ROCKY RIDGE (York)**  
Randy Phillips, compiler

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOGA	AMKE	MERL	PEFA	Unid	Total*
Aug	3	8	0	0	1	5	2	2	1	0	0	5	3	0	0	2	0	0	0	21
Sep	15	59	8	0	31	16	7	156	14	1	8	1198	44	0	0	47	1	1	6	1539
Oct	15	53	15	5	9	4	17	204	27	5	18	14	79	1	0	10	3	1	4	416
Nov	13	31	55	78	1	5	3	23	2	1	10	0	171	0	0	1	0	1	0	351
Dec	5	7	18	0	0	0	0	2	0	0	1	0	16	1	1	0	0	0	0	39
Total	51	158	96	83	42	30	29	387	44	7	37	1217	313	2	1	60	4	3	10	2366
Total per hr			0.61	0.53	0.27	0.19	0.18	2.45	0.28	0.04	0.23	7.70	1.98	0.01	0.01	0.38	0.03	0.02	0.06	14.97
% of flight			4.1	3.5	1.8	1.3	1.2	16.4	1.9	0.3	1.6	51.4	13.2	0.1	0.0	2.5	0.2	0.1	0.4	100.0

\* includes 1 SWHA seen on 19 Sep.

**SECOND MOUNTAIN (Lebanon)**  
David Schwenk, compiler

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOGA	AMKE	MERL	PEFA	Unid	Total*
Aug	27	186	0	0	18	5	9	59	13	1	6	144	79	0	0	41	0	0	2	377
Sep	28	253	5	0	175	32	73	578	83	14	4	5384	193	0	2	66	26	15	25	6676
Oct	30	279	70	604	66	15	107	1553	230	62	98	148	1679	1	39	45	32	30	34	4813
Nov	27	210	94	138	1	3	28	39	10	24	54	0	591	5	31	0	0	0	14	1032
Dec	27	149	71	51	0	5	2	0	0	3	0	0	25	1	5	0	0	0	1	164
Total	139	1077	240	793	260	60	219	2229	336	104	162	5676	2567	7	77	152	58	45	76	13,062
Total per hr			0.22	0.74	0.24	0.06	0.20	2.07	0.31	0.10	0.15	5.27	2.38	0.01	0.07	0.14	0.05	0.04	0.07	12.13
% of flight			1.8	6.1	2.0	0.5	1.7	17.1	2.6	0.8	1.2	43.5	19.7	0.1	0.6	1.2	0.4	0.3	0.6	100.0

\* includes 1 SWHA seen on 18 Sep.

PENNSYLVANIA BIRDS

WAGONERS 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
Aug	31	190	0	0	48	21	36	147	21	0	3	359	32	0	0	120	2	0	11	800
Sep	29	227	0	0	321	65	102	1703	179	2	20	7188	140	0	0	256	22	7	74	10,079
Oct	31	293	95	742	130	33	222	3458	521	76	245	374	3336	5	79	93	68	51	101	9629
Nov	28	223	23	233	0	21	60	117	40	126	132	0	2129	13	108	5	3	2	28	3040
Dec	27	161	4	0	0	8	0	4	1	14	3	0	94	4	15	0	0	0	1	148
Total	146	1094	122	975	499	148	420	5429	762	218	403	7921	5731	22	202	474	95	60	215	23,696
Total per hr			0.11	0.89	0.46	0.14	0.38	4.96	0.70	0.20	0.37	7.24	5.24	0.02	0.18	0.43	0.09	0.05	0.20	21.66
% of flight			0.5	4.1	2.1	0.6	1.8	22.9	3.2	0.9	1.7	33.4	24.2	0.1	0.9	2.0	0.4	0.3	0.9	100.0

TOTAL FOR ALL WATCHSITES

Month	Days	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	Unid	Total
Jul	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
Aug	123	758	0	0	208	91	81	379	79	1	16	847	203	0	0	357	11	3	68	2344
Sep	283	2007	333	166	1850	409	544	6486	1019	28	68	45,224	1146	0	5	1614	142	75	441	59,550
Oct	306	2278	348	3300	810	167	940	14,264	2315	341	830	1345	15,386	18	361	785	300	223	633	42,366
Nov	226	1433	237	697	8	79	282	636	184	362	486	0	10,031	37	428	19	19	7	188	13,700
Dec	89	478	95	52	0	31	5	11	1	31	4	0	211	8	33	0	0	0	5	487
Jan	10	63	0	1	0	23	2	0	0	5	1	0	23	7	4	0	1	0	0	67
Total	1038	7021	1013	4216	2876	800	1854	21,776	3598	768	1405	47,416	27,000	70	831	2777	473	308	1335	118,516
Total per hr			0.14	0.60	0.41	0.11	0.26	3.10	0.51	0.11	0.20	6.75	3.85	0.01	0.12	0.40	0.07	0.04	0.19	16.88
% of flight			0.9	3.6	2.4	0.7	1.6	18.4	3.0	0.6	1.2	40.0	22.8	0.1	0.7	2.3	0.4	0.3	1.1	100.0
% change from 1998 *			27	13	17	37	13	-8	0	450	11	-6	48	233	20	11	17	33	46	6

\* Total per hr 1999 vs total per hr 1998

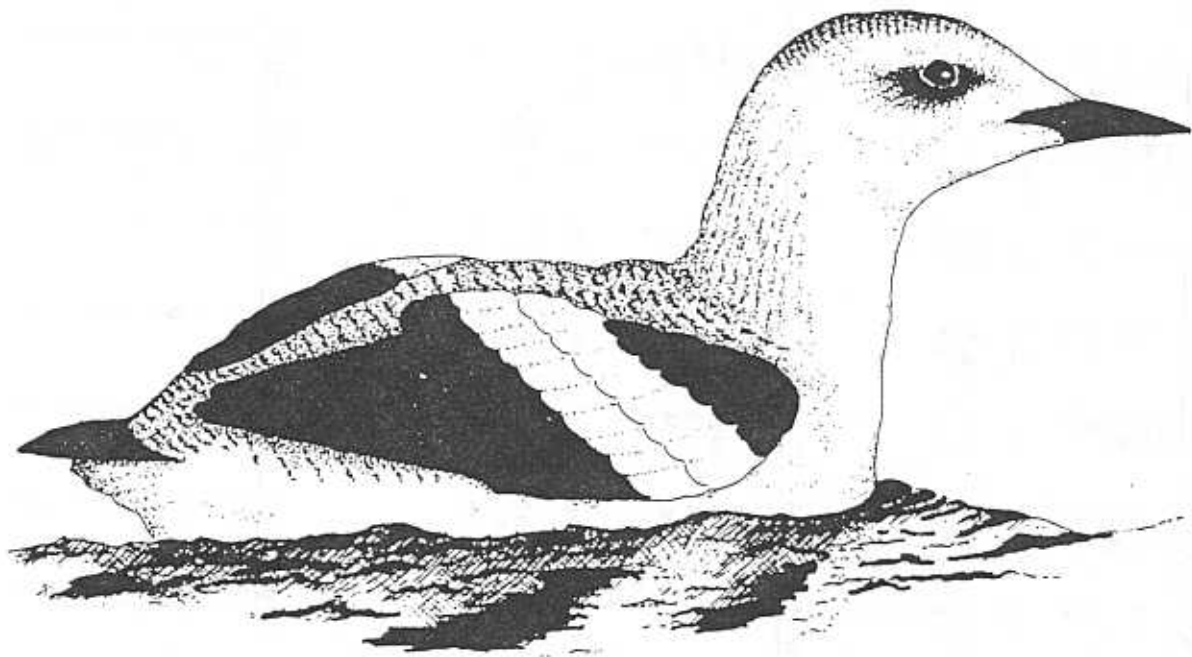
BROADWING SEPT TRANSECT (Bucks)

Kirk Moulton, compiler

Date	Hours	BLVU	TUVU	OSPR	BAEA	NOHA	SSHA	COHA	NOGO	RSHA	BWHA	RTHA	RLHA	GOEA	AMKE	MERL	PEFA	Unid	Total
12 Sep	62	7	7	20	12	4	21	8	0	0	699	7	0	0	13	1	0	13	812
13 Sep	47	4	14	25	1	7	37	4	0	0	164	8	0	0	8	0	0	0	272
14 Sep	46	5	18	27	2	3	23	4	0	0	18	0	0	0	4	1	0	7	112
17 Sep	55	7	5	14	8	21	45	3	0	7	1770	20	0	0	42	0	0	10	1952
18 Sep	65	16	14	31	8	6	41	4	0	4	2066	14	0	0	7	1	1	11	2224
19 Sep	60	6	19	48	11	25	90	15	0	2	14,317	8	0	0	37	7	8	8	14,601
20 Sep	47	40	15	69	2	6	38	6	0	0	183	2	0	0	17	0	1	4	383
21 Sep	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22 Sep	40	12	2	25	7	5	43	7	0	0	2303	6	0	0	21	2	0	9	2,442
23 Sep	40	11	0	14	7	13	34	4	0	0	691	3	0	0	12	0	0	9	798
Total	469	108	94	273	58	90	372	55	0	13	22,211	68	0	0	161	12	10	71	23,596
Total per hr			0.23	0.20	0.58	0.12	0.19	0.79	0.12	0.03	47.36	0.14	0.00	0.00	0.34	0.03	0.02	0.15	50.31

\* Total hours for 7 sites

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