



A M E R I C A N
HAWKWATCHER

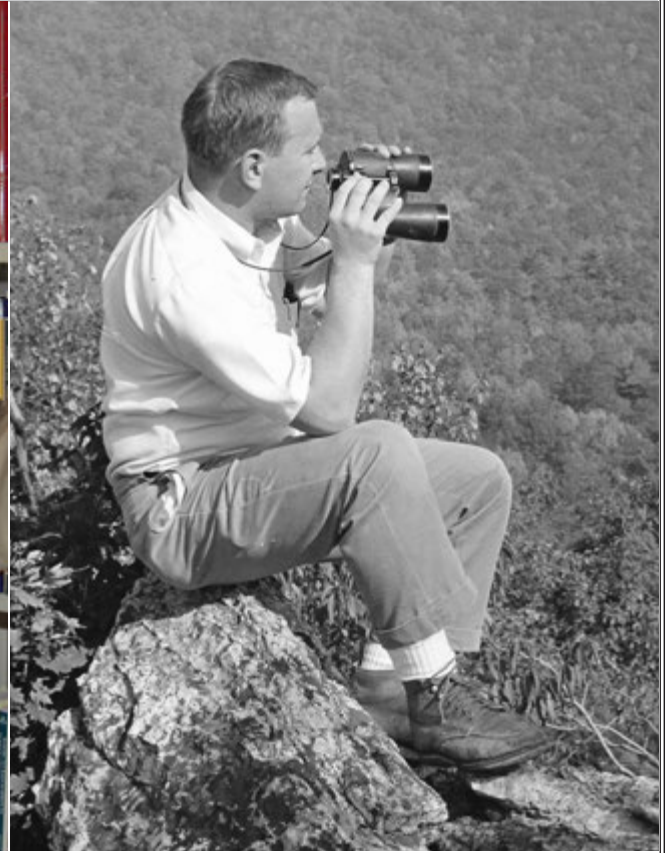
Spring 2020

Number 45

In Memoriam

Just before press time, we learned that Wildlife Information Center founder, Donald S. Heintzelman, died peacefully on August 4.

We will publish a tribute to Don in an upcoming publication.



Lehigh Gap Nature Center Administration and Management

The day-to-day operations of the Lehigh Gap Nature Center are managed by Chad Schwartz, Director of Science & Education, Brian Birchak, Director of Communications, and Lauren Foltz, Office Administrator. Governance of the organization rests with the volunteer Board of Directors. A Board of Advisors serves in various advisory capacities on an as-needed basis to the Executive Director and the Board of Directors. Bonnie Pancoast serves as our Volunteer Liaison.

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Photo credit: Dave Levandusky

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Front Cover: Merlin by Scott Keys

Back Cover: Black Vulture and Bald Eagle by Dave Levandusky

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The Legacy of Maurice Broun, Hawk Mountain's Legendary First Curator

by Donald S. Heintzelman

Late in the summer of 1932, a young man, Maurice Broun, and his wife, Irma, arrived at the tiny village of Drehersville in eastern Pennsylvania to investigate what was reported to be extensive hawk shooting on a remote mountaintop near the village every autumn. Maurice came from New England at the request of conservationist Rosalie Barrow Edge. He quickly discovered the hawk shooting reports were true and set about to stop them.

The task was not easy and entailed considerable danger, because the hawk shooters were a rough crowd. But, ultimately, Maurice was successful, as he tells in his charming book *Hawks Aloft: The Story of Hawk Mountain*. Today, Hawk Mountain is the world's first refuge for birds of prey and a major autumn hawk watching mecca for thousands of people every autumn. It is the place where I began my career as a raptor conservationist in 1956 under the guidance of Maurice. Broun was not only a raptor expert (although his favorite bird was the Black-capped Chickadee), but also an expert on North American ferns and a skilled field botanist. Every winter, when I visited Hawk Mountain, Maurice, Irma, and

I would go to nearby open fields looking for Snow Buntings and other rare winter visitors.

After hawk shooting was stopped at Hawk Mountain, it continued up-ridge at several locations – especially at Bake Oven Knob near Germansville, PA. I made many trips there at Maurice's request to try to stop the hawk shooting, and I eventually was successful. (Today, all raptors are fully protected by state and federal laws – a stellar achievement!) In 1961, I began a long-term autumn hawk watch at

Bake Oven Knob, which lasted for 37 years. The project is now continued every autumn by an intern from the Lehigh Gap Nature Center headquartered at Lehigh Gap, PA. Hopefully, the hawk counts will continue indefinitely.

Maurice Broun passed away in 1972, but he would be proud of what we achieved at Bake Oven Knob. Today, our influence reaches into nearby schools, colleges, and universities, and is ever expanding. It is an achievement of which I, too, am proud.

I am now 81 years old, confined to a wheelchair, and can no longer visit Hawk Mountain or Bake Oven Knob. But I still do what I can by writing articles for various publications. Hopefully they get other people to become involved in raptor and overall wildlife conservation.

If you have never visited Hawk Mountain or Bake Oven Knob, please do so in autumn. You will not be disappointed. Be sure to take a camera with you.

So, what began as a widespread slaughter of raptors now has become an

increasingly popular branch of birdwatching. When visiting Hawk Mountain, be sure to buy a copy of *Hawks Aloft* and enjoy a very good read. You may also want to buy several of my 20+ books and booklets. A few are still in print.

Good hawk watching! 



A photo of legendary hawk watcher Maurice Broun taken by Donald S. Heintzelman in 1956.

Donald S. Heintzelman is a retired professional ornithologist, hawk migration expert, and author of 22 published books. He lives in Allentown, PA.

The 2019 Autumn Hawk Count at Bake Oven Knob, Lehigh County, PA

by Chad I. Schwartz

Lehigh Gap Nature Center, P.O. Box 198, Slatington, PA 18080

This paper summarizes the official 2019 autumn hawk count at Bake Oven Knob (BOK), Lehigh County, Pennsylvania – the 59th consecutive year of this long-term migration study (Heintzelman 1975). As in previous years, standard data collection methods (Heintzelman 1986, Kunkle 2002) were used. Raptor identification criteria used are from Heintzelman 1979, Clark and Wheeler 2001, and Dunne et. al 2012.

The 2019 season began on 15 August and continued through 29 November. Historically, the BOK count ended on the Sunday after Thanksgiving – the day before rifle deer season began on the state game land where our lookouts are located. However, because hunting was allowed on the Saturday after Thanksgiving in 2019, the count concluded on the Friday after Thanksgiving. With the count team’s safety in mind, and in consideration of the fact that Pennsylvania might allow Sunday hunting in the future, the BOK count will likely conclude on the Friday after Thanksgiving as long as a weekend hunting policy is in place.

During the autumn 2019 season, a total of **8,546 raptors** were counted on **106 days**, with **816**

hours of observation. Weather was fairer compared to the previous counting season; poor conditions accounted for zero raptor counts on seven days, compared to 16 in 2018. As always, caution must be used in comparing raw numbers and bird/hr. numbers from 2019 to historical averages, since the long-term average number of observation hours is 529 per year, with a range from 36 to 917 hours. The number of hours of effort has been more consistent since the addition of interns at the BOK Hawk Watch in 1999. Due to consistent weekend coverage and better weather, a net increase of 161 observation hours was logged in 2019 compared to the previous season (816 vs. 655).

2019 Bake Oven Knob Hawk Count Totals

SPECIES	AUG	SEP	OCT	NOV	TOTAL	#/HR
Black Vulture	40	94	65	48	247	0.303
Turkey Vulture	138	304	317	169	928	1.138
Osprey	24	133	25	1	183	0.224
Mississippi Kite	0	0	0	0	0	0.000
Bald Eagle	41	110	85	129	365	0.448
Northern Harrier	0	17	11	10	38	0.047
Sharp-shinned Hawk	16	504	624	79	1,223	1.500
Cooper's Hawk	6	45	84	13	148	0.181
Northern Goshawk	0	0	1	6	7	0.009
Red-shouldered Hawk	0	5	12	64	81	0.099
Broad-winged Hawk	98	4,055	8	0	4,161	5.102
Red-tailed Hawk	60	72	84	631	847	1.039
Rough-legged Hawk	0	0	0	0	0	0.000
Golden Eagle	0	1	14	58	73	0.090
American Kestrel	7	63	21	1	92	0.113
Merlin	5	10	15	8	38	0.047
Peregrine Falcon	3	11	16	5	35	0.043
Unidentified Raptor	26	32	11	11	80	0.098
TOTALS	464	5,456	1,393	1,233	8,546	
Observation Days	16	30	31	29	106	
Observation Hours	128	248	225	215	816	

Table 1. 2019 season summary

Tables 1, 2, and 3 below summarize the count and compare it with long-term averages. Table 4 records the age and sex data collected throughout the season for selected species. See pages 14-15 for the annual counts for all 59 years of the BOK count, and page 16 for a table of record counts and early/late dates for each species.

The **Black Vulture** (*Coragyps atratus*) and **Turkey Vulture** (*Cathartes aura*) totals of 247 and 928, respectively, both marked an increase over 2018 totals. These numbers still remained below the short-term averages, but are well above the long-term averages for these species. Both vulture species were counted following the methodology established by Heintzelman (1975, 2001), i.e., recording the maximum number of each vulture seen at one time

each day. Vultures are observed commonly in the vicinity of Bake Oven Knob throughout the year, and both species have been documented in Lehigh Gap Nature Center’s BOK Area Winter Bird Survey (LGNC database).

The **Osprey** (*Pandion haliaetus*) count of 183 was the lowest total recorded at BOK since the 1991 counting season. This number was well below the short- and long-term averages, which all exceed 300 birds. The passage rate of 0.22 birds/hr. was likewise below all averages. While this marks the sixth lowest Osprey count since counting began in 1961, on all other occasions where totals dipped, they rebounded within the following few seasons.

In spite of this decrease in the Osprey count, **Bald Eagle** (*Haliaeetus leucocephalus*) migration remained



Bald Eagle (Photo credit: Dave Levandusky)

SPECIES	Hawks per Hour															TOTAL *
	OS	MK	BE	NH	SS	CH	NG	RS	BW	RT	GE	AK	ML	PF		
2019	0.22	0.00	0.45	0.05	1.50	0.18	0.01	0.10	5.10	1.04	0.09	0.11	0.05	0.04	8.94	
5 Yr. Ave. **	0.39	0.00	0.43	0.11	3.42	0.28	0.02	0.15	7.17	1.78	0.13	0.15	0.11	0.07	14.21	
10 Yr. Ave.#	0.45	0.00	0.39	0.11	3.77	0.33	0.03	0.15	7.48	2.01	0.13	0.19	0.11	0.07	15.23	
Since 1962	0.69	0.00	0.20	0.28	5.73	0.34	0.09	0.27	11.58	3.73	0.10	0.32	0.07	0.05	23.46	

Table 2

SPECIES	Total Number of Hawks per Season															TOTAL *
	OS	MK	BE	NH	SS	CH	NG	RS	BW	RT	GE	AK	ML	PF		
2019	183	0	365	38	1,223	148	7	81	4,161	847	73	92	38	35	7,291	
5 Yr. Ave. **	311	0	346	88	2,743	227	17	121	5,745	1,430	107	124	90	57	11,406	
10 Yr. Ave.#	352	0	305	87	2,949	254	23	120	5,847	1,572	100	149	90	54	11,902	
Since 1962	363	0	104	150	3,029	180	49	141	6,125	1,972	52	170	39	26	12,401	

Table 3

*Total for all species and unidentified raptors (some not included on this table)

**Average (mean) for 5 years prior to current year.

#Average (mean) for 10 years prior to current year.

NOTE: Calculations for these data, and for other statistics throughout this paper, were made from the WIC database. All published articles with statistics and yearly count summaries are listed in the Bake Oven Knob Hawk Count section of <http://lgnc.org>.

Key to Abbreviations

- OS = Osprey
- BE = Bald Eagle
- NH = Northern Harrier
- SS = Sharp-shinned Hawk
- CH = Cooper’s Hawk
- NG = Northern Goshawk
- RS = Red-shouldered Hawk
- BW = Broad-winged Hawk
- RT = Red-tailed Hawk
- GE = Golden Eagle
- AK = American Kestrel
- ML = Merlin
- PF = Peregrine Falcon

strong in 2019. The count of 365 was the fourth-highest total recorded at BOK, and it is in line with an ongoing trend of recovery since the DDT era. The passage rate of 0.45 birds/hr. did not quite reach the 2018 season's record of 0.59 birds/hr., but it did still exceed the short- and long-term averages. Of the 361 Bald Eagles aged, about two-thirds (66.5 percent) were adults. Not only are Bald Eagle sightings now common throughout the count season, this species is also now observed with frequency in the Bake Oven Knob area, even during the winter months. A record three Bald Eagles were observed during Lehigh Gap Nature Center's 2019 BOK Area Winter Bird Survey (LGNC database). This is more than the total Bald Eagle migration count (two birds) during the inaugural BOK count in 1961 (although only 36 observation hours were recorded that season).

As with the Osprey count, the 2019 **Northern Harrier** (*Circus cyaneus*) count of 38 was the lowest since 1991, when only 25 harriers were counted. This marked the third lowest harrier count on record at BOK. This low count is a continuation of a notable decline in harriers at BOK in recent years, raising some concern for the species. The passage rate of 0.05 birds/hr. was also far below all averages. Approximately 27 percent of the 26 harriers that were aged were immatures, down from 43 percent last year. This was slightly below the typical number of immature harriers for Kittatinny Ridge watch sites, according to Heintzelman (1986).

In keeping with the trend noted above, the **Sharp-shinned Hawk** (*Accipiter striatus*) count of 1,223 was the lowest since 1991, when only 1,148 birds were counted. The passage rate of 1.5 bird/hr. was well below all averages. Interestingly, the 2019 season total was below the maximum daily record of 1,265 Sharp-shinned Hawks counted on 13 October 1979. The all-time average count for this species is 3,029.

The **Cooper's Hawk** (*Accipiter cooperii*) count of 148 and passage rate of 0.18 birds/hr. also dropped below all averages this season, following a strong count the previous three seasons. The 2019 count still surpassed the total of 117 Cooper's Hawks recorded

in 2015. Only seven **Northern Goshawks** (*Accipiter gentilis*) were counted during the 2019 season, ten birds short of the five-year average of 17. By comparison, 15 goshawks were counted during the 2018 season and eight were counted in 2017.

The **Red-shouldered Hawk** (*Buteo lineatus*) count of 81 was the lowest since 2011, but it was only slightly below the count of 98 recorded two seasons ago. The passage rate of 0.10 birds/hr. was below all averages. Of the 11 birds that were aged, 45.5% were immature – a slight decrease from the 2018 season, but still well above the 18% average reported by Heintzelman (1986).

The **Broad-winged Hawk** (*Buteo platypterus*) count of 4,161 was below all averages,

although it was only 120 birds shy of the 2018 season total of 4,281. The passage rate of 5.10 birds/hr. was below all averages. Of the 392 birds aged, 52.6 percent were immature – up from 28 percent during the previous counting season.

As with the Osprey, harrier, and Sharp-shinned Hawk counts, the **Red-tailed Hawk** (*Buteo jamaicensis*) count of 847 was the lowest since 1991. This was well below the short-term averages and over 1,000 birds below the long-term average. As noted by Kunkle (2018, 2016), fewer late-season migrants, including Red-tailed Hawks, have been counted in recent years, perhaps due to milder winters. Nearly 40 percent of the 234 Red-tailed Hawks that were aged during the 2019 season were immatures. This total is nearly identical to that of the previous season and well above the ten percent reported for Kittatinny watch sites by Heintzelman (1986).

The 2019 season was the seventh in a row without a **Rough-legged Hawk** (*Buteo lagopus*).

The **Golden Eagle** (*Aquila chrysaetos*) count of 73 exceeded the long-term average of 52 birds, but it fell short of the 5- and 10-year averages. The passage rate of 0.09 birds/hr. fell short of all averages. The 53-to-47 percent adult-to-immature ratio was very close to the previous season's ratio and likewise similar to the age ratios reported by Heintzelman (1986) for Kittatinny watch sites.



Sharp-shinned Hawk (Photo credit: Scott Keys)

Species	Age/Sex	Totals	% of Aged
Osprey	Adult	105	74.5%
	Immature	36	25.5%
	Total Aged	141	
	Total Observed	183	
Bald Eagle	Adult	240	66.5%
	Immature	121	33.5%
	Total Aged	361	
	Total Observed	365	
Northern Harrier	Male	5	19.2%
	Female	14	53.8%
	Immature	7	26.9%
	Total Aged	26	
	Total Observed	38	
Sharp-shinned Hawk	Adult	81	16.3%
	Immature	415	83.7%
	Total Aged	496	
	Total Observed	1,223	
Cooper's Hawk	Adult	13	22.8%
	Immature	44	77.2%
	Total Aged	57	
	Total Observed	148	
Northern Goshawk	Adult	3	42.9%
	Immature	4	57.1%
	Total Aged	7	
	Total Observed	7	
Red-shouldered Hawk	Adult	6	54.5%
	Immature	5	45.5%
	Total Aged	11	
	Total Observed	81	
Broad-winged Hawk	Adult	186	47.4%
	Immature	206	52.6%
	Total Aged	392	
	Total Observed	4,161	
Red-tailed Hawk	Adult	141	60.3%
	Immature	93	39.7%
	Total Aged	234	
	Total Observed	847	
Golden Eagle	Adult	38	52.8%
	Immature	34	47.2%
	Total Aged	72	
	Total Observed	73	
American Kestrel	Male	23	41.8%
	Female	32	58.2%
	Total Aged	55	
	Total Observed	92	
Peregrine Falcon	Adult	25	83.3%
	Immature	5	16.7%
	Total Aged	30	
	Total Observed	35	

Table 4. Age and sex data for raptors counted in 2019

Following a rebound in 2018, the **American Kestrel** (*Falco sparverius*) count dipped below all averages during the 2019 season. With only 92 kestrels tallied and a passage rate of 0.11 birds/hr., 2019 saw one of the top-ten lowest counts for this species. An ongoing decline in kestrel numbers at BOK continues to raise concern for the health of the population.

The **Merlin** (*Falco columbarius*) count of 38 birds was just below the long-term average of 39, but well below the 5- and 10-year averages. The 2019 season saw the lowest Merlin count since 1998 and, at 0.05 birds/hr., less than half the short-term average passage rates.

The **Peregrine Falcon** (*Falco peregrinus*) count of only 35 birds was less than half the near-record tally of 72 in 2018. Although this number falls short of both short-term averages, it still exceeds the long-term average, as well as the low totals recorded early in the history of the BOK count following the impact of DDT. The passage rate of 0.04 birds/hr. was below all averages for this species. Out of the 30 peregrines that were aged, almost 17 percent were immatures, which is slightly above the typical number of immature harriers for Kittatinny Ridge watch sites, according to Heintzelman (1986). This percentage of immatures is a promising sign for a species previously classified as Endangered.

Notably, the unidentified raptor count of 80 was the lowest since 1980.

In summary, 2019 was a comparatively slow year at the BOK Hawk Watch. Not only was the count of 8,546 raptors the ninth lowest on record (and the lowest count since 1996), the autumn 2019 season also had the lowest passage rate on record for BOK. As noted above, despite the count team logging 816 observation hours in 2019, four species – Osprey, Northern Harrier, Sharp-shinned Hawk, and Red-tailed Hawk – all saw their lowest totals since 1991, when only 117 counting hours were logged. With the exception of Bald Eagles, Golden Eagles, and Peregrine Falcons (and excluding vultures due to the different counting protocol), the counts for all species were below their respective long-term average count. All species but Bald Eagles (excluding vultures) saw a passage rate below both short and long-term averages.

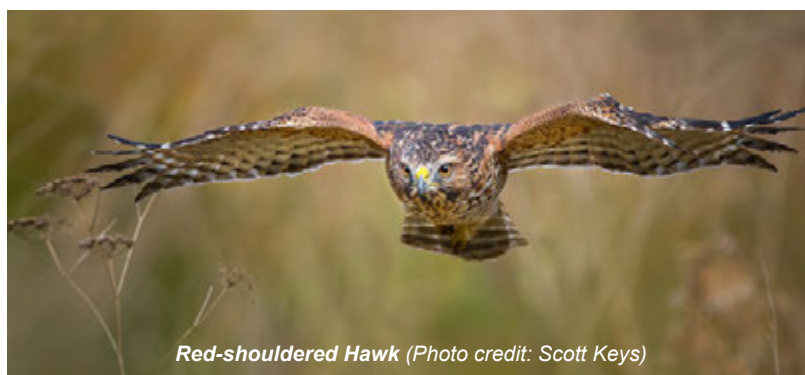
For most species, these results are not likely indicative of a decrease in population. Rather, weather may have been the primary influence on low numbers during the autumn 2019 season. Milder, calmer days, especially later in the season, likely favored off-ridge migration. On such days, even when updrafts are weak, migrating raptors might still utilize thermals beyond the ridge generated by forests, roads, parking lots, and other dark surfaces. Furthermore, as the autumn and winter seasons grow increasingly mild in the coming decades due to global climate change, perhaps more raptors will overwinter at higher latitudes. This could also account for (and might already account for) lower migratory counts along the Kittatinny Ridge compared to long-term averages.

While it is anticipated that 2019 was an anomalous year, and that most counts will rebound in subsequent seasons, counts for several species, on average, have trended downward in recent years. Of particular concern are the grassland-dependent species – Northern Harriers and American Kestrels. Development, changing agricultural practices, and pollution are considered substantial threats

to these species in the decades ahead, according to the Cornell Lab of Ornithology (2020). We will continue to monitor these species.

A total of **778,520 migrating raptors of 19 species** has been tallied since 1961 at the Bake Oven Knob Autumn Hawk Count. Fifteen species were recorded migrating past the lookouts during the fall of 2019, with no Mississippi Kites, Swainson's Hawks, Rough-legged Hawks, or Gyrfalcons observed.

The value of long-term studies such as this hawk count grow with each passing year and can be utilized in efforts to monitor raptor populations and environmental health (Heintzelman 1986, Bednarz 1990, Bildstein 2001).



Red-shouldered Hawk (Photo credit: Scott Keys)

Acknowledgements

We thank Bob Hoopes for his extensive work compiling the 2019 BOK count records. The tables and figures in this paper were created by Ian Adler from Bob's compilations. We also thank all the counters and spotters for their time and effort in recording the passage of raptors at Bake Oven Knob in 2019. The 2019 volunteer team included the following individuals: Debbie Andrews, Bob Astleford, Mark Boyd, Fritz Brock, Doug Burton, Joe Farkas, Rick Gaeta, John Good, Al Grout, Ron Hillegass, Jeff Hopkins, Jason Horn, Alan Jennings, Rob Keith, Scott Keys, Devin Kline, Ron Kline, Dave Leibert, John Leskosky, Rick Morrissey, Barry Reed, Richard, Rich Rehrig, Travis Rennig, Kathie Romano, Ed Sinkler, John Traynor, Ed & Judy Wanamaker, Jack Welsh, and Joe Yuhas. Finally, we thank Donald S. Heintzelman for establishing the Bake Oven Knob Autumn Hawk Count in 1961 and managing the count for nearly four decades.

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Season Review of the 2019 Autumn Hawk Count at Bake Oven Knob, Lehigh County, PA

by Chad I. Schwartz

Lehigh Gap Nature Center (LGNC) completed the 59th Bake Oven Knob Hawk Count on Friday, 27 November 2019. Thanks to the dedication of our count team (with a special nod to our most steadfast weekend counters for the season, Rob Keith and Rick Morrissey), 816 observation hours were logged. Although milder, calmer weather meant more counting hours compared to the previous season, these conditions seem to have been less conducive to raptor flight along the ridge. The final tally of 8,546 migrating raptors was well below the 12,105 birds counted in the autumn of 2018.

As shown in Tables 2 and 3, the counts and passages rates for most species were below short and long-term averages in 2019. Only Turkey Vultures and Black Vultures (which are counted through a different protocol) saw an improvement over the previous season's counts. Nonetheless, there were a few positive highlights worth noting. The autumn 2019 season saw another strong Bald Eagle count, plus five immature Peregrine Falcons, reflecting a continued rebound for two formerly Endangered species. While the Bald Eagle count of 365 did not quite reach the BOK record of 411, imagine how one or two more days with northwest winds might have affected this total. In addition, two all-time records were broken during the season – the earliest passage dates for Merlin and Peregrine Falcon were recorded on the very first day of the count (15 August). Below is a month-by-month highlight of the 2019 season.

August

As noted above, hawk counter Caleb Hinojos and the volunteer team kicked off the season with earliest-date records for two of the three falcon species. Amazingly, they logged not one, but *three* peregrines on the first day of the count. The first day also offered Hinojos a good variety of raptors, including 15 Broad-winged Hawks, an Osprey, and a Bald Eagle.

On 18 August, volunteers Nelson Klitzka and Rick Morrissey counted five Bald Eagles on an otherwise slow day. Four days later, Hinojos tallied another 15 Broad-winged Hawks, preparing him for the spectacle that awaited in September. Hinojos, joined by volunteers Ed Wanamaker, Jeff Hopkins, and Rob Keith, recorded 12 Bald Eagles on 29 August – the highest daily count to date for the season. Volunteers Morrissey, Keith, and Rick Gaeta added another eight Bald Eagles to the count

on the final day of the month. According to Morrissey, “The first seven raptors were all eagles and Ospreys, a great start indeed!”

August ended with a total of 11 species, including 41 Bald Eagles (one more than the team recorded in August 2018!). While an average of about 27 birds passed by the lookout each day, 144 fewer birds were recorded compared to the previous August.

September

September also had a slow start, with only 20 raptors (including 12 vultures) counted on the first day of the month and nothing but eight Turkey Vultures counted the following day. Although numbers improved for Hinojos on 3 September, with 67 raptors passing the lookout, the migration didn't really pick up in earnest until 6 September, when 42 raptors – including 16 Broad-winged Hawks – were counted. A day later, Keith and Wanamaker recorded 16 Bald Eagles and another 34 raptors taking advantage of an early-season northwest wind.

From that point on, the Broad-winged Hawk count steadily increased – 34 on 8 September, 62 on 10 September, and 187 on 13 September – until Morrissey recorded the peak count of 1,651 (along with two dozen Bald Eagles) on 15 September. Morrissey reported that, of those 1,651 Broad-wings, about 1,450 migrated past the lookout within a 90-minute timeframe beginning around 1430 DST. Hinojos, joined by Burton, Wanamaker, Keith, and Scott Keys, logged 1,147 Broad-wings the following day, and their numbers gradually dwindled each day thereafter.

Aside from Broad-wings, kestrels and harriers peaked in September. The season high count of 19 kestrels was recorded on 29 September. The first Golden Eagle of the season was counted on 24 September. With Sharp-shinned Hawk numbers beginning to increase (reaching 85 on 29 September) and other raptors steadily passing through, the second month at the lookout concluded with 14 raptor species. The total of 5,456 birds was slightly below the previous September's count. Interestingly, the September 2019 Broad-winged Hawk count was only three birds short of September 2018's total of 4,058.

October

As the Sharp-shinned Hawk count continued to pick up in October, the last few straggling Broad-wings




to have the season-high count of 26 Cooper’s Hawks. Merlin and Peregrine Falcon counts both peaked in October, though their numbers were down from the previous October. Perhaps fitting of this slow trend, the last three days of October saw a combined total of 12 raptors, seven of which were vultures.

November

November started off fairly strongly. On the first day of the month, 123 migrating raptors were logged, including three goshawks (a season high), 16 Bald Eagles, and four Golden Eagles. Sharp-shinned Hawk migration mostly wrapped up within the first week of the month, although a handful passed by the lookout through the remainder of the season. Meanwhile, Red-tailed Hawk numbers peaked, reaching the season high of 146 on 8 November. Hinojos, Wanamaker, Morrissey, Bob Hoopes, Al Grout, and company also counted the season high of 18 Golden Eagles on that date on a strong northwest wind.

passed the lookout on the second day of the month. A strong northwest wind resulted in a big day for Hinojos, Burton, Wanamaker, Hopkins, Keys, Bob Astleford, and ‘Hazelton’ John Leskosky on 4 October. In addition to the season-high counts of 181 Sharpies and 6 Merlins, 37 Bald Eagles were counted – only three shy of the record daily count for the species. The first and only Northern Goshawk of the month (also the first for the season) was recorded on 8 October.

November (like October) tapered off toward the end of the month. After 110 birds – including a season-high 15 Red-shouldered Hawks – were counted on 13 November, the remaining 16 days of the counting season produced between zero and only 31 migrating raptors per day. Hinojos still wrapped up the season on a high note with a good flight of 21 Bald Eagles on 29 November. 


The remainder of the month was very slow. In all, October averaged only about 45 birds per day compared to about 158 per day (mostly Sharpies) in October 2018. Aside from 4 October, 23 October was the only day of the month with over 100 birds. That day also happened

Spring 2019 Observations at Bake Oven Knob

During the spring of 2019, Doug Burton, John Traynor, Rick Morrissey, and Ed Wanamaker recorded the following raptors migrating past Bake Oven Knob, Lehigh County, PA:

Spring 2019 TOTALS																		
DATE	HOURS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	GE	AK	ML	PF	UR	TOT
3/15	3	1	8		2		1			1	6	4	1				3	30
3/20	6	3	9		2	1					1	5					2	23
3/28	6	3	12	1	4		2			1		4		2				29
3/30	3	1	5	4	3	1	6	2		1		13		9	1	1		47
4/3	3	2	5	1								1						9
4/10	3		7				1	1				3					2	14
4/17	5	4	8	40	4	3	10	3	3	2	374	11	2	2		2	3	471
4/23	3		7	2			1				6	1					2	19
TOTALS	32	14	61	48	15	5	21	6	3	5	387	42	3	13	1	3	12	642

In addition to raptors, the spring counters observed the following:

- 1 Common Raven; 1 Barred Owl; and 1 mourning cloak butterfly on 15 March 2019
- 400 Canada Geese; 1700 Snow Geese; and 1 mourning cloak butterfly on 20 March 2019
- 6 Double-crested Cormorants; 2 Common Ravens; mourning cloak and comma butterflies; and a colt’s foot flower on 28 March 2019
- 5 Double-crested Cormorants and 2 Common Ravens on 30 March 2019
- 1 Common Raven on 3 April 2019
- 1 Common Raven on 10 April 2019
- 29 loons; 2 Double-crested Cormorants; 2 Common Ravens; and 2 Barred Owls on 17 April 2019
- 6 loons and eastern tiger swallowtail, cabbage white, and spring azure butterflies on 23 April 2019 

78 Days: Reflections from the Hawk Count Intern

by Caleb Hinojos

When I first arrived in Pennsylvania, I didn't have a solid idea of what to expect. I knew that it was going to be cold by the end of my time there, but beyond that I was open and willing to having a slew of new experiences. The journey to get there was an experience in itself. I spent a week traveling 2200+ miles across 7 states while camping at different sites to practice my birding skills.



Red-tailed Hawk (Photo credit: Scott Keys)


When I arrived in Slatington, I was met by Bob Hoopes at the Nature Center. He showed me around the Center, quizzed me on some bird phenotypes, and eventually introduced me to my new living quarters after dinner. Although small, it was better than other places I have called a humble abode. Upon beginning my job, I knew that this was going to be fun and interesting, to say the least. My office had an open-door policy, although I never had a say in the matter. This allowed for a variety of visitors. From pot smokers to flat earthers, the conversations were quite fun to engage in.

Regarding the volunteers, I was pleasantly surprised. While applying and interviewing for the job, nobody had told me that most of my friends were going to be retired and my side job on the mountain was that of a cell phone photographer. This quickly became something that I began to appreciate. Because the volunteers had taken such a variety of life paths, I was able to pick their brains and learn from their experiences. I enjoyed many stories from their pasts and was happy when I could

interject with a story from my present to find a common ground.

As the first few days passed by, I began to look forward to my time on the mountain for this reason. Not only would I get my daily recommended amount of vitamin D, but I would also get a handful of interesting stories of a time when life was different. Through these stories, I learned much about the volunteers. Although I won't say anything about the contents, I realized that I began to know more about the volunteers than they knew about each other. This made me feel accepted in a roundabout way. They were willing to share small nuggets of their lives with a kid, relatively speaking, from Texas that they had never divulged with their avian watching comrades.

Apart from stories they shared with me, they also shared their wisdom. Although many young people may not have appreciated this for obvious reasons, I was cognizant enough to realize that over half of a millennium of knowledge was something that I should not ignore. This led me on many introspective journeys into the recesses of my mind. After breaching a surface of ignorance, I realized that these people began to see more in me than I saw in myself. Subsequently, catching up to the confidence levels displayed by my peers in me, I began to explore my horizons with a fervor. Applications to jobs became a daily occurrence. Unfortunately, nothing came from them, but my confidence began to rise and for this I am grateful to the volunteers.

With regards to the work itself, I really enjoyed most days on the mountain. Granted there were some days that I really hated, but the birds helped to keep me warm. I got to see many amazing scenes unfold in the air. Not only was seeing our national symbol really inspiring, but the many other birds that I saw really helped me to appreciate each of their specific niches. Granted, I don't think that I would ever do a hawk count job again, but I will never forget the amazing memories I made and people I met. Thanks to all the volunteers who eventually became my friends. We had a good season and I hope to make my way back up at some point. 

A native of Texas, **Caleb Hinojos** graduated from the University of Texas at Arlington with a Master's degree in biology in 2019.

Easter Eggs from the Counter

by Caleb Hinojos

12 August 2019: On a walk on the D&L, a large snapping turtle was seen sunbathing on a rock in the Lehigh River.

19 August 2019: A white-marked tussock moth caterpillar was found crawling over my journal for data entry.

27 August 2019: A bright yellow and black caterpillar was found on the Knob postmortem, and none of the volunteers could ID it. After some research, the unique caterpillar was ID'ed as Drexel's datana.

29 August 2019: While on a hike around the Nature Center, a large Pandorus sphinx moth caterpillar was found near the A.T. shelter.

9 September 2019: While on the Knob, a pair of northern walking sticks were observed copulating for over four hours straight.

10 September 2019: A white furcula moth caterpillar and twin spotted sphinx moth caterpillar were seen on the Knob.

16 September 2019: A group of nine Common Nighthawks were viewed flying around the Knob.

24 September 2019: While on the N Lookout, a pair of Red-headed Woodpeckers flew overhead onto a dead tree. It was an adult and juvenile which began bickering and chasing each other around the tree.

26 September 2019: On the way down from the Knob, an imperial moth caterpillar was seen on the trail postmortem.

27 September 2019: A pair of Black-billed Cuckoos and Northern Flickers were spotted from the S Lookout.

30 September 2019: On the S Lookout, a young eastern milk snake was seen. It was in the middle of a shed.

2 October 2019: A trio of 'flat earthers' came up to the Knob. Their logic was that because there was no curvature from the S Lookout to Allentown, then the earth was flat.

3 October 2019: While moving from the parking lot to the S Lookout, I flipped rocks along the way and found 3 red-backed salamanders, a northern slimy salamander, and a northern ring-necked snake. A hickory tussock moth was also observed at the S Lookout.

8 and 9 October 2019: While leaving the Center for work, a North American porcupine was observed down by the pavilion.

15 October 2019: While on the S Lookout, an Osprey was spotted on the northern side of the bowl. It remained for roughly two hours while eating a meal. On the way home, a leucistic Mourning Dove was seen on a power line.

23 October 2019: Two local Cooper's Hawks were observed harassing a Pileated Woodpecker for roughly five minutes.

30 October 2019: While on the S Lookout, an American red fox came up to visit.


31 October 2019: A late-in-season female Black-throated Blue Warbler was seen.

1 November 2019: A tree fell the night before and created an impediment along the trail. Also, a large giant leopard moth caterpillar was spotted.

2 November 2019: A snowberry clearwing caterpillar was observed outside my front door.

4 November 2019: A cremation tag from Treasure Coast Crematory was found on the N Lookout alongside a grouping of ashes. ID 27401

19 November 2019: A Turkey Vulture was observed to have a grouping of silver feathers on the back of the right wing.

26 November 2019: An eastern garter snake was seen on the S Lookout. It remained for roughly 25 minutes, alternating between basking and moving about the area. A Turkey Vulture was also observed flying while impaled by an arrow. 



Peregrine Falcon (Photo credit: Dave Levandusky)

Bake Oven Knob Hawk Count Monthly Data for 2019

2019 TOTALS

MONTH	HOURS	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	MK	UR	TOT
AUG	127.8	40	138	24	41	0	16	6	0	0	98	60	0	0	7	5	3	0	26	464
SEP	248.0	94	304	133	110	17	504	45	0	5	4,055	72	0	1	63	10	11	0	32	5,456
OCT	225.0	65	317	25	85	11	624	84	1	12	8	84	0	14	21	15	16	0	11	1,393
NOV	214.8	48	169	1	129	10	79	13	6	64	0	631	0	58	1	8	5	0	11	1,233
TOTALS	815.5	247	928	183	365	38	1,223	148	7	81	4,161	847	0	73	92	38	35	0	80	8,546

AUGUST 2019

DATE	Vis	% F	Wind	Dir	% Cl	Hrs.	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	
8/15	5	83	5	E	80	8.0	2	8	1	1	0	1	0	0	0	15	6	0	0	1	1	3	11	50	
8/16	5	80	5	S	100	8.0	3	10	2	0	0	0	1	0	0	8	2	0	0	0	0	0	0	0	26
8/17	5	85	2	SE	50	6.0	3	7	2	1	0	0	0	0	0	4	5	0	0	2	1	0	0	25	
8/18	20	89	5	S	40	8.8	3	6	1	5	0	4	0	0	0	4	5	0	0	1	0	0	2	31	
8/19	5	88	2	S	40	8.0	1	12	1	1	0	0	0	0	0	3	2	0	0	0	0	0	0	20	
8/20	5	89	4	S	10	8.0	4	10	1	0	0	1	0	0	0	4	8	0	0	0	1	0	1	30	
8/21	4	92	4	SW	90	8.0	4	15	2	0	0	0	0	0	0	7	3	0	0	0	0	0	0	31	
8/22	8	89	6	W	40	8.0	2	8	0	1	0	1	0	0	0	15	10	0	0	0	0	0	3	40	
8/23	5	73	6	NW	100	8.0	1	8	3	5	0	2	0	0	0	2	0	0	0	0	0	0	3	24	
8/24	20	73	2	NW	20	8.0	2	6	1	1	0	1	1	0	0	9	4	0	0	0	1	0	4	30	
8/25	No counter available					0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/26	8	81	4	SE	50	8.0	2	8	0	0	0	1	1	0	0	4	5	0	0	0	1	0	0	22	
8/27	5	72	3	SE	100	8.0	2	5	1	3	0	0	0	0	0	2	0	0	0	0	0	0	1	14	
8/28	3	73	3	SE	100	8.0	1	9	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	12	
8/29	8	75	13	NW	10	8.0	2	7	2	12	0	2	2	0	0	2	1	0	0	1	0	0	0	31	
8/30	5	87	3	W	10	8.0	1	7	1	2	0	0	0	0	0	7	1	0	0	0	0	0	0	19	
8/31		6	NE	75		9.0	7	12	6	8	0	3	1	0	0	11	8	0	0	2	0	0	1	59	
MONTHLY TOTALS							128	40	138	24	41	0	16	6	0	0	98	60	0	0	7	5	3	26	464

SEPTEMBER 2019

DATE	Vis	% F	Wind	Dir	% Cl	Hrs.	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	
9/1	20	75	0-3	E	90	5.8	2	10	2	3	0	1	1	0	0	0	0	0	0	0	1	0	0	20	
9/2	3	77	1-2	SW	10	8.0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	
9/3	5	80	1-2	SW	10	8.0	9	19	7	3	0	4	1	0	1	8	14	0	0	0	0	0	1	67	
9/4	4	82	1-3	SW	90	8.0	3	5	6	6	0	0	1	0	0	1	0	0	0	0	0	0	0	22	
9/5	5	78	2-4	N	90	8.0	2	8	4	1	0	2	0	0	0	13	1	0	0	0	0	1	1	33	
9/6	5	70	6-10	E	100	8.0	3	13	0	1	0	6	0	0	0	16	2	0	0	0	1	0	0	42	
9/7	20	73	5-10	NW		9.0	2	8	3	16	1	2	0	0	0	8	8	0	0	2	0	0	0	50	
9/8	20	76	2-8	NW	80	8.8	1	20	5	2	2	4	0	0	0	34	0	0	0	0	0	0	0	68	
9/9	5	80	2-6	E	80	8.0	5	6	2	1	0	9	1	0	0	49	4	0	0	0	0	0	0	77	
9/10	5	79	4-8	SW	90	8.0	9	8	7	5	0	20	0	0	0	62	2	0	0	3	0	0	2	118	
9/11	3	88	2-6	W	10	8.0	8	8	14	2	0	11	0	0	0	42	1	0	0	2	1	0	0	89	
9/12	5	79	2-6	NW	100	8.0	2	11	3	0	0	1	0	0	0	8	1	0	0	0	0	0	0	26	
9/13	5	63	6-8	SE	100	9.0	3	9	26	1	0	27	0	0	0	187	2	0	0	1	2	1	2	261	
9/14	10	67	3-5	S	100	8.5	1	3	1	1	0	2	1	0	0	3	0	0	0	0	0	0	0	12	
9/15	20	76	1-5	W	30	9.5	2	6	6	24	1	18	3	0	0	1651	7	0	0	4	1	0	5	1728	
9/16	5	76	2-4	N	100	8.0	1	15	6	2	0	20	2	0	0	1147	0	0	0	0	0	0	0	1193	
9/17	7	81	2-6	E	0	8.0	2	8	2	7	0	11	4	0	1	238	8	0	0	4	0	0	0	285	
9/18	10	68	5-9	N	5	8.0	1	14	1	2	1	11	5	0	0	22	2	0	0	0	0	0	1	60	
9/19	6	71	3-5	E	0	8.0	4	10	4	4	0	10	2	0	0	254	0	0	0	1	0	0	0	289	
9/20	5	76	1-3	W	50	8.0	4	10	2	2	1	12	0	0	0	108	1	0	0	0	0	0	0	140	
9/21	20	80	2-5	NW	10	9.0	4	10	0	0	2	8	3	0	0	10	1	0	0	1	0	0	5	44	
9/22	15	85	2-6	SW	60	9.3	2	10	6	1	0	33	4	0	0	110	4	0	0	1	0	2	7	180	
9/23	5	86	2-5	W	40	8.0	7	12	6	1	0	6	1	0	0	44	5	0	0	0	1	2	0	85	
9/24	10	71	9-14	NW	70	8.5	5	10	1	16	0	62	3	0	1	10	3	0	1	18	2	3	3	138	
9/25	7	72	7-9	NW	0	8.0	5	6	1	0	0	22	3	0	0	4	0	0	0	0	0	0	0	41	
9/26	3	71	1-5	S	90	8.0	0	9	4	0	2	32	0	0	1	6	0	0	0	1	0	0	0	55	
9/27	7	75	2-4	S	0	8.0	3	24	2	1	1	28	0	0	0	10	3	0	0	4	0	0	0	76	
9/28	10	77	1-5	SW	90	9.3	2	15	2	0	0	5	1	0	0	0	1	0	0	2	0	1	0	29	
9/29	20	78	3-7	NW	10	9.5	2	6	7	8	4	85	7	0	1	10	2	0	0	19	1	0	4	156	
9/30	7	60	6-8	E	100	8.0	0	3	3	0	2	52	2	0	0	0	0	0	0	0	0	1	1	64	
MONTHLY TOTALS							248	94	304	133	110	17	504	45	0	5	4055	72	0	1	63	10	11	32	5456

Bake Oven Knob Hawk Count Monthly Data for 2019

OCTOBER 2019

DATE	Vis	°F	Wind	Dir	% Cl	Hrs.	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	
10/1	3	73	1-5	W	100	8.0	7	9	5	0	0	39	2	0	2	3	0	0	0	0	0	0	1	68	
10/2	5	86	3-5	W	50	8.0	15	17	3	2	1	52	1	0	0	5	0	0	0	0	0	1	0	97	
10/3	0	54	7-10	E	100	8.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10/4	12	54	10-19	NW	80	9.0	3	5	12	37	4	181	7	0	1	0	6	0	0	4	6	3	2	271	
10/5	6	58	5-10	E	0	9.0	2	15	0	2	0	18	6	0	0	0	8	0	0	2	0	0	1	54	
10/6	4	56	3-5	S	100	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	
10/7	4	65	11-15	SW	100	8.5	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	5	0	8	
10/8	7	60	3-9	E	100	9.0	2	14	1	6	1	48	3	1	1	0	2	0	0	1	0	2	0	82	
10/9	5	58	10-16	E	100	8.0	2	16	0	1	0	1	0	0	0	0	0	0	0	1	0	0	0	21	
10/10	10	68	5-10	N	60	8.3	2	21	0	2	0	18	3	0	1	0	3	0	0	0	0	1	1	52	
10/11	10	66	6-12	E	50	8.0	3	11	0	0	0	3	1	0	0	0	0	0	0	0	0	0	0	18	
10/12	20	57	0-3	NW	100	2.0	0	3	0	0	0	4	1	0	0	0	0	0	0	0	0	0	2	10	
10/13	20	67	1-5	SE	70	8.3	2	12	0	2	0	20	5	0	0	0	2	0	0	0	1	0	2	46	
10/14	7	71	3-6	W	0	8.5	4	14	0	0	0	12	0	0	0	0	2	0	0	0	1	0	0	33	
10/15	15	62	1-4	Var	20	8.5	2	13	0	0	1	10	1	0	0	0	1	0	0	2	0	0	0	30	
10/16	1	58	4-10	SE	100	7.0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	3	
10/17	15	49	26-29	NW	90	8.3	2	3	1	11	1	6	3	0	0	0	3	0	1	1	1	2	0	35	
10/18	10	51	16-20	NW	70	8.0	2	3	0	12	0	36	9	0	0	0	14	0	2	1	2	0	0	81	
10/19	10	59	1-3	NW	10	7.5	2	11	0	0	0	5	0	0	0	0	1	0	0	0	0	0	0	19	
10/20	Rain					2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10/21	10	62	7-8	E	0	9.0	2	24	0	0	0	1	5	0	2	0	4	0	0	0	0	0	0	38	
10/22	0	51	8-11	SE	100	6.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10/23	12	57	10-12	NW	20	8.5	3	14	2	5	0	73	26	0	0	0	11	0	6	4	1	1	0	146	
10/24	15	61	5-9	SW	0	8.5	3	10	0	3	1	60	5	0	1	0	5	0	5	0	2	0	0	95	
10/25	5	60	4-5	S	100	8.5	2	20	1	0	2	21	4	0	0	0	3	0	0	0	0	0	0	53	
10/26	10	59	2-5	E	50	9.0	2	11	0	0	0	6	1	0	3	0	14	0	0	0	0	1	2	40	
10/27	20	67	8-10	W	60	2.8	0	9	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	10	
10/28	15	63	4-7	Var	0	8.0	2	53	0	0	0	5	1	0	1	0	4	0	0	2	0	0	0	68	
10/29	5	56	2-4	S	100	8.0	0	6	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	9	
10/30	3	59	1-4	E	100	7.0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
10/31	0	62	10-15	S	100	4.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
MONTHLY TOTALS							225	65	317	25	85	11	624	84	1	12	8	84	0	14	21	15	16	11	1393

NOVEMBER 2019

DATE	Vis	°F	Wind	Dir	% Cl	Hrs.	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PF	UR	TOT	
11/1	15	44	14-20	NW	50	8.0	4	41	1	16	2	21	3	3	4	0	22	0	4	0	2	0	0	123	
11/2	10	49	3	S	10	9.0	4	14	0	5	1	9	0	0	4	0	14	0	0	0	0	0	1	52	
11/3	20	44	7-11	NW	40	8.3	2	11	0	13	1	15	4	0	4	0	50	0	1	0	2	0	2	105	
11/4	10	49	12-18	S	70	8.5	2	9	0	9	0	8	2	0	6	0	95	0	5	0	1	2	1	140	
11/5	8	56	2-4	Var	100	8.5	2	16	0	0	1	4	0	0	3	0	15	0	0	0	0	0	0	41	
11/6	10	48	7-11	NW	0	8.5	1	14	0	4	0	6	0	1	7	0	17	0	1	0	0	1	1	53	
11/7	3	42	7-10	SW	100	4.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11/8	15	32	17-21	NW	50	8.5	2	2	0	17	2	5	3	0	4	0	146	0	18	0	0	1	1	201	
11/9	20	37	2-4	S	40	8.0	3	2	0	0	1	0	0	0	5	0	42	0	3	0	1	0	2	59	
11/10	15	48	1-3	SW		7.8	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	
11/11	5	56	3-7	S	80	8.5	3	13	0	1	0	3	1	1	10	0	37	0	2	0	2	0	1	74	
11/12	18	28	19-26	NW	100	8.0	0	2	0	6	0	0	0	1	1	0	84	0	2	0	0	0	0	96	
11/13	18	25	12-15	NW	20	8.0	1	2	0	12	1	3	0	0	15	0	61	0	14	0	0	0	1	110	
11/14	12	38	6-12	S	100	8.0	0	1	0	0	0	1	0	0	0	0	8	0	0	0	0	0	0	10	
11/15	10	48	2-3	W	10	8.0	3	12	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	17	
11/16	20	39	8-12	NE	0	4.0	2	3	0	1	1	0	0	0	0	0	4	0	0	0	0	0	0	11	
11/17	15	36	4-8	SE	100	7.8	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
11/18	0	37	4-7	N	100	6.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11/19	10	43	8-10	NW	70	8.0	2	4	0	3	0	0	0	0	0	0	2	0	0	0	0	0	0	11	
11/20	12	41	15-20	NW	90	7.5	1	2	0	3	0	0	0	0	1	0	9	0	0	0	0	1	0	17	
11/21	10	47	5-6	NW	40	8.0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	
11/22	5	51	9-13	W	100	5.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11/23	20	41	0-2	W	50	7.5	7	1	0	1	0	0	0	0	0	0	2	0	0	1	0	0	0	12	
11/24	20	36	8-13	NW	75	2.3	0	0	0	2	0	0	0	0	0	0	6	0	0	0	0	0	1	9	
11/25	10	46	3-9	N	90	8	2	2	0	2	0	2	0	0	0	0	0	0	2	0	0	0	0	10	
11/26	12	57	2-5	SW	10	7	2	5	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	8	
11/27	8	50	11-16	S	100	8	3	6	0	0	0	1	0	0	0	0	3	0	0	0	0	0	0	13	
11/28	15	42	26-30	NW	90	7	0	2	0	13	0	0	0	0	0	0	1	0	6	0	0	0	0	22	
11/29	15	32	10-15	NW	100	8	0	0	0	21	0	1	0	0	0	0	9	0	0	0	0	0	0	31	
MONTHLY TOTALS							214.8	48	169	1	129	10	79	13	6	64	0	631	0	58	1	8	5	11	1,233

Bake Oven Knob Autumn Hawk Count Data 1961-2019

Year	Hours	BV	TV	OS	MK	BE	NH	SS	CH	NG	RS	BW
1961	36	0	26	10	0	2	15	71	2	3	26	236
1962	116	0	47	110	0	3	47	280	18	13	31	2,606
1963	155	0	146	59	0	10	56	207	8	7	44	5,132
1964	258	0	106	219	0	6	100	429	8	9	78	5,940
1965	353	0	113	379	0	25	140	1,719	58	37	142	7,491
1966	363	0	130	355	0	30	126	1,475	60	38	325	6,082
1967	362	0	210	265	0	19	136	1,954	56	24	158	6,278
1968	349	0	182	297	0	21	282	1,987	65	67	341	11,476
1969	488	0	229	421	0	16	211	2,603	48	59	226	7,211
1970	604	0	317	398	0	22	369	2,517	116	79	242	7,729
1971	591	0	241	444	0	23	299	2,824	65	31	243	4,306
1972	654	0	251	287	0	16	191	2,185	93	357	186	8,902
1973	652	0	465	399	0	23	305	3,368	99	244	271	8,679
1974	539	1	295	223	0	11	299	3,988	83	93	246	13,638
1975	472	0	194	201	0	13	277	4,908	138	128	350	13,322
1976	531	0	241	334	0	16	195	4,225	70	64	148	8,535
1977	381	0	161	260	0	13	323	8,873	139	48	266	10,655
1978	378	0	205	323	0	20	165	6,524	143	96	213	15,599
1979	197	1	138	266	0	6	93	4,897	112	7	34	6,045
1980	175	1	100	161	0	19	105	2,950	120	8	39	4,180
1981	260	11	131	258	0	17	120	3,741	109	52	86	4,939
1982	546	22	377	280	0	18	201	3,321	112	87	165	4,659
1983	441	42	272	302	0	22	173	4,431	136	82	165	3,000
1984	511	29	279	326	0	26	194	2,644	84	60	192	8,814
1985	461	32	251	338	0	19	210	4,335	216	82	209	1,694
1986	401	37	200	521	0	23	194	5,926	165	40	96	8,838
1987	412	62	255	550	0	53	201	4,617	252	38	142	8,934
1988	410	42	252	347	0	30	125	3,485	160	35	124	3,939
1989	469	69	364	394	0	35	258	6,756	197	13	93	7,015
1990	293	33	270	485	0	23	110	3,495	96	13	47	1,295
1991	117	13	104	97	0	20	25	1,148	42	11	17	3,007
1992	435	61	332	312	0	48	56	1,798	99	99	85	6,348
1993	405	78	335	431	0	50	156	2,603	144	60	67	2,536
1994	303	43	347	190	0	32	100	1,233	78	12	42	1,550
1995	279	37	251	196	0	42	72	2,128	176	35	100	4,675
1996	355	55	310	278	0	43	43	1,693	145	18	141	1,085
1997	357	140	309	325	0	37	106	1,602	181	38	47	4,330
1998	521	49	358	296	0	74	147	2,315	218	17	111	6,437
1999	730	108	473	630	0	127	227	3,270	296	104	155	8,605
2000	745	266	589	480	0	140	88	3,278	375	33	114	5,018
2001	801	289	804	571	0	175	205	3,972	459	57	156	3,053
2002	782	195	687	794	0	165	104	2,371	350	31	197	12,308
2003	767	328	788	634	0	174	197	2,808	263	27	146	3,354
2004	784	238	988	749	1	208	104	2,295	312	47	111	6,083
2005	832	326	1,023	526	0	174	152	3,673	492	57	178	4,770
2006	802	330	957	649	0	171	247	4,052	469	16	224	9,735
2007	789	199	792	839	0	204	267	4,146	490	49	143	5,711
2008	917	280	920	478	0	236	122	2,872	329	11	99	2,992
2009	716	306	1,008	421	2	186	98	2,724	369	21	74	3,953
2010	786	204	871	338	0	226	110	3,282	240	20	103	3,653
2011	712	246	1,052	366	0	220	52	3,354	190	14	62	8,567
2012	769	238	802	436	0	300	103	3,832	337	71	220	7,123
2013	827	391	1,145	402	0	388	69	2,579	272	18	137	6,447
2014	851	314	923	365	0	312	111	3,935	196	18	101	4,051
2015	895	381	1,074	308	0	264	90	2,354	117	14	116	5,021
2016	814	287	981	280	1	352	90	2,111	222	32	152	6,477
2017	793.8	291	842	268	0	411	69	1,837	238	8	98	8,893
2018	655	200	859	335	0	389	82	3,479	360	15	137	4,281
2019	816	247	928	183	0	365	38	1,223	148	7	81	4,161
Total	31,207	6,522	27,300	21,389	4	6,113	8,850	178,702	10,635	2,874	8,342	361,393

Bake Oven Knob Autumn Hawk Count Data 1961-2019

Year	SH	RT	RL	GE	AK	ML	PF	GF	UR	Totals
1961	0	129	3	2	16	0	0	0	23	564
1962	0	733	0	4	69	3	5	0	60	4,029
1963	0	881	5	11	35	4	4	0	67	6,676
1964	0	938	8	13	89	2	13	0	85	8,043
1965	0	1,276	9	21	199	13	10	0	171	11,803
1966	0	1,165	2	15	257	17	13	0	129	10,219
1967	0	1,020	2	17	226	10	13	0	173	10,561
1968	0	2,149	2	16	241	8	6	0	97	17,237
1969	0	2,831	5	29	240	14	16	0	98	14,257
1970	0	3,191	10	34	314	9	15	0	141	15,503
1971	1	3,572	37	31	239	7	17	0	93	12,473
1972	0	3,250	5	42	162	7	3	0	198	16,135
1973	0	2,792	12	45	201	18	5	0	174	17,100
1974	0	3,137	17	22	208	5	7	0	168	22,441
1975	0	2,802	17	28	221	13	7	0	138	22,757
1976	0	2,336	21	34	275	9	8	0	289	16,800
1977	0	2,920	13	24	232	12	4	0	271	24,214
1978	1	1,798	10	34	212	17	6	0	161	25,527
1979	0	780	1	6	190	6	6	0	191	12,779
1980	0	1,574	7	15	127	7	0	0	38	9,451
1981	0	1,693	7	18	219	3	3	0	93	11,500
1982	0	3,732	3	39	180	13	4	0	270	13,483
1983	0	1,997	7	35	138	19	7	1	272	11,101
1984	0	1,901	5	36	91	8	13	1	259	14,962
1985	0	1,818	1	34	148	13	17	0	228	9,645
1986	0	1,812	6	29	125	17	15	0	184	18,228
1987	0	2,750	0	69	178	31	21	0	272	18,425
1988	0	2,013	2	31	159	22	6	1	191	10,964
1989	1	2,207	0	22	296	63	18	0	214	18,015
1990	0	911	2	16	169	28	24	0	204	7,221
1991	0	330	1	15	58	11	5	0	86	4,990
1992	1	1,561	4	35	97	16	31	0	210	11,193
1993	0	1,699	0	29	182	12	28	0	338	8,748
1994	2	1,389	0	19	158	13	9	0	219	5,436
1995	0	2,188	0	35	113	20	8	0	292	10,368
1996	0	1,524	0	48	50	23	15	1	308	5,780
1997	0	1,076	1	41	107	17	20	0	271	8,648
1998	0	2,389	1	61	162	33	18	0	185	12,871
1999	0	3,843	2	93	227	41	58	0	411	18,670
2000	0	1,977	1	68	205	51	32	0	352	13,067
2001	0	2,965	1	57	318	102	41	0	284	13,509
2002	0	2,859	2	87	207	80	63	0	278	20,778
2003	0	2,875	5	137	229	43	49	0	228	12,285
2004	0	2,700	4	85	163	48	42	1	303	14,482
2005	1	3,622	6	117	230	150	55	0	301	15,853
2006	0	3,191	0	130	190	106	45	0	343	20,855
2007	0	2,014	1	70	162	145	76	1	377	15,686
2008	0	1,501	3	119	149	76	50	0	286	10,523
2009	0	1,247	0	40	196	91	62	0	267	11,065
2010	0	1,823	0	75	197	75	31	0	246	11,494
2011	0	1,056	0	74	120	79	62	0	172	15,686
2012	1	2,961	1	167	181	106	64	0	243	17,186
2013	0	1,477	0	108	171	95	35	0	257	13,991
2014	0	1,650	0	151	149	118	69	0	260	12,723
2015	0	1,105	0	86	118	78	40	0	479	11,645
2016	0	2,144	0	113	75	118	56	0	243	13,734
2017	0	970	0	62	111	58	48	0	286	14,490
2018	0	1,282	0	122	167	78	72	0	247	12,105
2019	0	847	0	73	92	38	35	0	80	8,546
Total	8	116,373	252	3,089	10,040	2,319	1,505	6	12,804	778,520

Bake Oven Knob Autumn Hawk Count Records and Earliest and Latest Record Dates

SPECIES	Earliest Date	Latest Date	Max Daily Count	Date	Record High Season	Year	Record Birds per Hour	Year	Hours
Black Vulture	1-Aug-85	29-Nov-97	23	15-Nov-15	391	2013	0.47	2013	827
Turkey Vulture	1-Aug-82	7-Dec-73	104	8-Nov-09	1,145	2013	1.48	2011	712
Osprey	5-Aug-97	28-Nov-09	155	18-Sep-04	839	2007	1.65	1990	293
Mississippi Kite	23-Aug-09	29-Sep-04	1	29-Sep-04	2	2009	0.001	2016	813.5
Bald Eagle	1-Aug-98	13-Dec-76	40	5-Sep-13	411	2017	0.59	2018	655
Northern Harrier	1-Aug-85	4-Dec-71	62	28-Oct-74	369	1970	0.84	1977	381
Sharp-shinned Hawk	1-Aug-92	2-Dec-77	1,265	13-Oct-79	8,873	1977	24.8	1979	197
Cooper's Hawk	1-Aug-97	4-Dec-88	69	19-Oct-05	492	2005	0.68	1980	175
Northern Goshawk	15-Aug-09	13-Dec-76	35	3-Nov-72	357	1972	0.54	1972	654
Red-shouldered Hawk	15-Aug-18	4-Dec-88	79	27-Oct-75	350	1975	0.97	1968	349
Broad-winged Hawk	1-Aug-82	18-Nov-71	5,655	14-Sep-78	15,599	1978	41.2	1978	378
Swainson's Hawk	30-Aug-92	12-Nov-89	2	17-Sep-85	2	1985			
Red-tailed Hawk	1-Aug-82	13-Dec-76	700	2-Nov-80	3,843	1999	8.90	1980	175
Rough-legged hawk	9-Sep-73	5-Dec-71	7	9-Nov-71	37	1971	0.06	1971	591
Golden Eagle	16-Aug-16	9-Dec-76	42	3-Nov-12	167	2012	0.22	2012	769
American Kestrel	1-Aug-71	1-Dec-70	51	15-Oct-05	318	2001	0.96	1979	197
Merlin	15-Aug-19	27-Nov-14	38	15-Oct-05	150	2005	0.18	2005	844
Gyr Falcon	18-Sep-84	18-Nov-83	1	18-Nov-83	1	1983			
Peregrine Falcon	15-Aug-19	22-Nov-14	28	27-Sep-11	76	2007	0.11	2018	655

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The Lehigh Gap Nature Center is a member-supported conservation organization. Our mission is “to protect the wildlife and enhance the habitats of our Refuge, the neighboring Kittatinny Ridge, and the Lehigh River Watershed through conservation, education, research, and outdoor recreation to improve the quality of life of present and future generations.” Our office is located in the Osprey House at the Lehigh Gap Wildlife Refuge, our 750+ acre wildlife sanctuary. Our research projects, education programs, library, and internship programs need special support. Memorial fund donations will be permanently invested to produce interest to help operate the Center. All dues and donations are federally tax deductible to the fullest extent allowed by law.

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