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Raptor trapping at Wise Point Station: Year 2003 report

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RAPTOR TRAPPING AT WISE POINT STATION: YEAR 2003 REPORT



**CENTER FOR CONSERVATION BIOLOGY
COLLEGE OF WILLIAM AND MARY**

RAPTOR TRAPPING AT WISE POINT STATION: YEAR 2003 REPORT

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**Project Partners:
The Virginia Department of Game and Inland Fisheries
(Wildlife Diversity Program)
United States Fish and Wildlife Service
Center for Conservation Biology**

Front Cover: *Merlin in the hand at Wise Point. Photo by Zach Smith.*



The Center for Conservation Biology is an organization dedicated to discovering innovative solutions to environmental problems that are both scientifically sound and practical within today's social context. Our philosophy has been to use a general systems approach to locate critical information needs and to plot a deliberate course of action to reach what we believe are essential information endpoints.

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EXECUTIVE SUMMARY

Large numbers of diurnal raptors from breeding populations across northern latitudes migrate south along the Atlantic flyway to reach winter destinations from southeastern North America to southern South America. Many of these birds become concentrated within geographic bottlenecks where they rest and forage. Each fall since 1978, staff, students, and associates of the Center for Conservation Biology at the College of William and Mary have trapped diurnal raptors near the tip of the Lower Delmarva Peninsula. The research objectives of this project continue to be 1) to monitor trends in the migration of several raptor species, 2) to learn more about the natural history of migratory raptors, and 3) to add to our understanding of migratory movements and pathways.

During the fall of 2003, the Wise Point Station was operated on 52 days between 9 September and 23 November for a total of 359 hours. A combination of mist nets, bow nets, and dho-gaza nets were used in conjunction with lure birds to trap migrating raptors. A total of 516 raptors of seven species was banded resulting in an overall capture rate of 1.4 birds/operation hr. The project has recorded lower overall capture rates in only 2 of the previous 15 years. The 2003 season continued a downward trend in overall capture rate. Since 1989, capture rate has declined significantly at an average rate of approximately 6%/year. A decline in the capture rate of Sharp-shinned Hawks appears to be solely responsible for the decline in overall rate. The proportion of total captures accounted for by Sharp-shins has declined from more than 60% of total captures in the early 1990's to less than 30% in recent years. The population-level implications of continued declines in capture rates for Sharp-shinned Hawks within the mid-Atlantic remain unclear.

Six birds that were banded at Wise Point during the 2003 season have been recovered elsewhere. This includes 2 Sharp-shinned Hawks, 3 Cooper's Hawks, and 1 Merlin. Recoveries ranged from Dover Delaware to Marathon Florida. The Merlin was banded on the 8th of October and recovered in Marathon, FL just 6 days later. A total of 19 birds were captured that had been banded previously elsewhere. These included a young, male Peregrine that was color banded in Canada.

BACKGROUND

Context

Each fall, large numbers of diurnal raptors from breeding populations across northern latitudes migrate south along the Atlantic Coast to reach winter destinations ranging from southeastern North America to southern South America. For a host of reasons, these birds often become concentrated around significant physical barriers. The mouth of the Chesapeake Bay is one of the largest physical barriers along the Atlantic Flyway. Many taxonomic groups of birds become concentrated along the lower Delmarva Peninsula as they reach the open water of the Bay. For this reason, the lower Delmarva represents one of the best locations in the region to observe and study fall migrating birds.

Over the years, local interests have led to the development of several migration monitoring programs along the Lower Delmarva Peninsula. The Kiptopeke Beach Banding Station (located on the property now designated as Kiptopeke State Park) was established in 1963 by several members of the Virginia Ornithological Society to band and monitor passerine migrants. The station is now one of the longest running migration banding operations in eastern North America and has processed nearly 290,000 migrants. In the fall of 1994, the Center for Conservation Biology initiated a program to band Northern Saw-whet Owls near the tip of the peninsula and since that time have processed more than 2,500 birds. Many different research projects focused on avian migration have been conducted within this location over the past several decades.

Several species of diurnal raptors migrate along the coastal corridor and move through the lower Delmarva in large numbers. Each fall since 1978, staff, students, and associates of the Center for Conservation Biology at the College of William and Mary have trapped diurnal raptors on the Lower Delmarva. Trapping was initiated on Fisherman's Island in the late 1970's and was later expanded to Wise Point. The Wise Point site, located on the Eastern Shore of Virginia NWR, is ideal because large numbers of raptors circulate for a variable length of time before crossing the mouth of the Chesapeake Bay. The early trapping program was initiated to monitor the migration of the endangered population of Peregrine Falcons. Due to the valuable information being collected on other raptor species, the monitoring project has continued after the federal de-listing of the Peregrine. Tens of thousands of raptors have been banded over more than 20 years. A significant number of birds have been recovered throughout the western hemisphere, adding to our understanding of migration pathways.

Objectives

Our objectives in continuing the project to trap raptors at the Wise Point Station are 1) to monitor trends in the migration of several species of diurnal raptors, 2) to learn more about the natural history of migratory raptors, 3) to add to our understanding of migratory movements and pathways for several species, and 4) to continue to develop an educational program at the Eastern Shore of Virginia NWR.

METHODS

Study Area

This ongoing project was conducted within the lower Delmarva Peninsula that forms the northern shoreline near the mouth of the Chesapeake Bay. Raptors were trapped within a single site located just north of the southern extent of the Delmarva Peninsula on the Eastern Shore of Virginia National Wildlife Refuge. The trapping blind is located on a topographic high composed of spoil material. The trapping site below the blind has been cleared of vegetation. Vegetation surrounding the site has been rapidly progressing through secondary succession for several years and is now moving into an early tree stage. Vegetation is dominated by a dense layer of wax myrtle (*Myrica cerifera*) with a canopy forming of loblolly pine (*Pinus taeda*), black cherry (*Prunus serrotina*), and hackberry (*Celtis occidentalis*).

Trapping

The equipment and trapping approach used during the fall of 2003 was consistent with what has been used at the Wise Point site in previous years with some minor modifications. Four mist nets were used instead of the 5 that have been used in recent years. Mist nets were 60-mm, 10-m x 3-m nets. Three of these nets were arranged in a triangle around the high lure pole and the fourth was positioned along an east-west axis near the northern edge of the cleared site. As in past years, two bow nets were used in conjunction with the high and low lure poles. A third bow net and 3 dho-gaza nets were added in 2003 and placed close to the blind for use in the event that the two main bow nets were already sprung on birds. Lure birds used were Rock Doves, European Starlings, and House Sparrows.

The trapping site was operated on 52 days between 9 September and 23 November, 2003. Resident banders logged a total of 359 hrs of operation. The station was closed for 6 days due to Hurricane Isabel. Nets were generally opened at sunrise and remained open until dark or until raptor activity ceased.



Red-tailed Hawk in molt (lft). Male American Kestrel (Rt). Photos by Zach Smith.

RESULTS

A total of 516 raptors of seven species (see Appendix I for list of species and Appendix II for banding details) was banded at the Wise Point station during the 2003 fall season. Overall capture rate was 1.4 birds/hr (excluding foreign retraps). The project has recorded lower overall capture rates in only 2 of the previous 15 years. Both of these years were since 1999. The 2003 season continued a downward trend in overall capture rate. Since 1989, capture rate has declined significantly (F-statistic = 9.5, $df = 1, 13$, $R^2 = 0.42$, $P < 0.01$) at an average rate of approximately 6%/year (Figure 1).

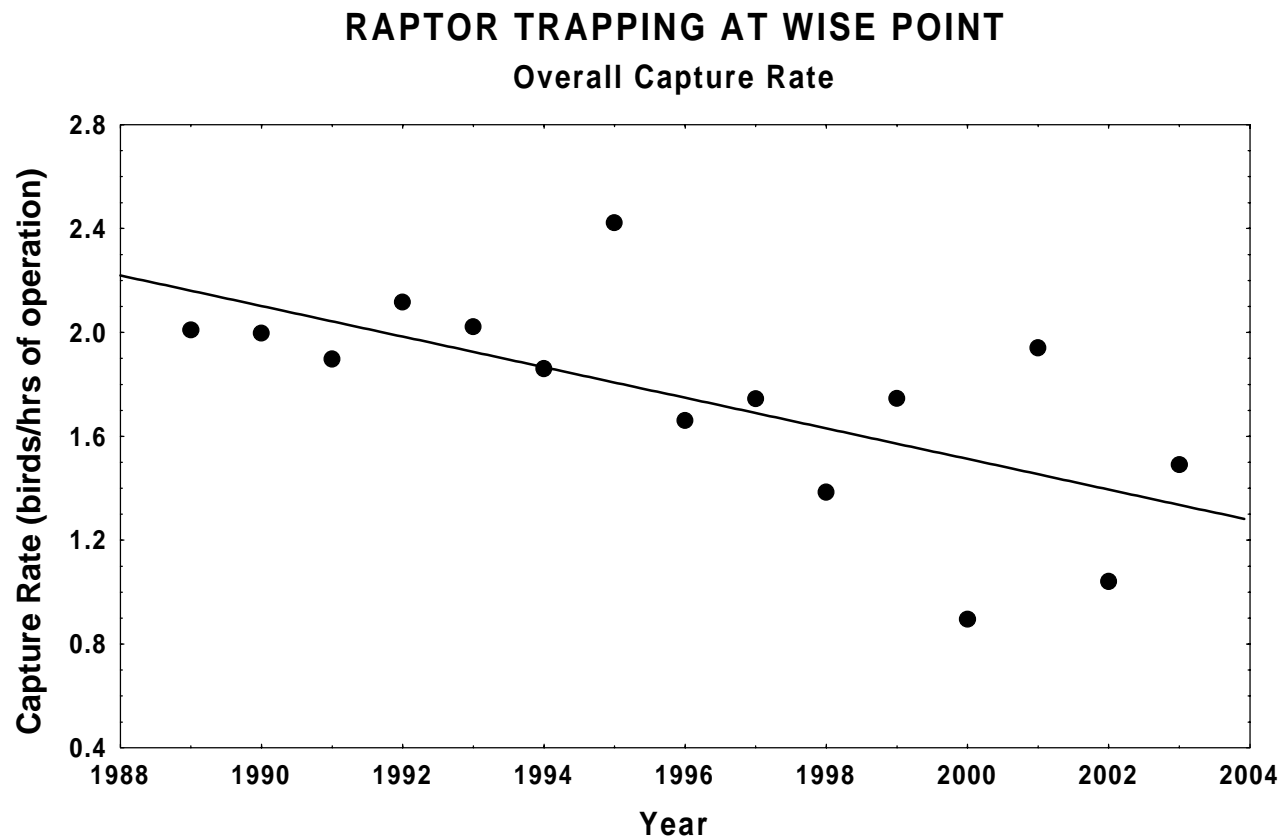


Figure 1. Trend in overall capture rate between 1989 and 2003 at Wise Point.

The composition of raptor captures in 2003 was consistent with the general pattern recorded in previous years. Accipiter species combined represented 67.8% of overall captures followed by falcons (25.3%). The capture of Cooper's Hawks was the highest over the past 15 years both in terms of the total captures (227) and the capture rate (0.63 birds/hr). The capture of Merlins was the highest since 1999 (Table 1). As in all previous years, late September through October continues to represent the period of heaviest movement for accipiters and falcons (Table 2). Trends in capture rates were not significant (all F-statistics < 3.2 , R^2 -values < 0.2 , P-values > 0.1) over the 15-yr period for all species except Sharp-shinned Hawks. Sharp-shinned Hawks continue to follow a very significant (F-statistic = 43.4, $df = 1, 13$, $R^2 = 0.77$, $P < 0.001$) downward trend with an average rate of

Table 1. Summary of trapping results between 1989 and 2003 for the Wise Point station.

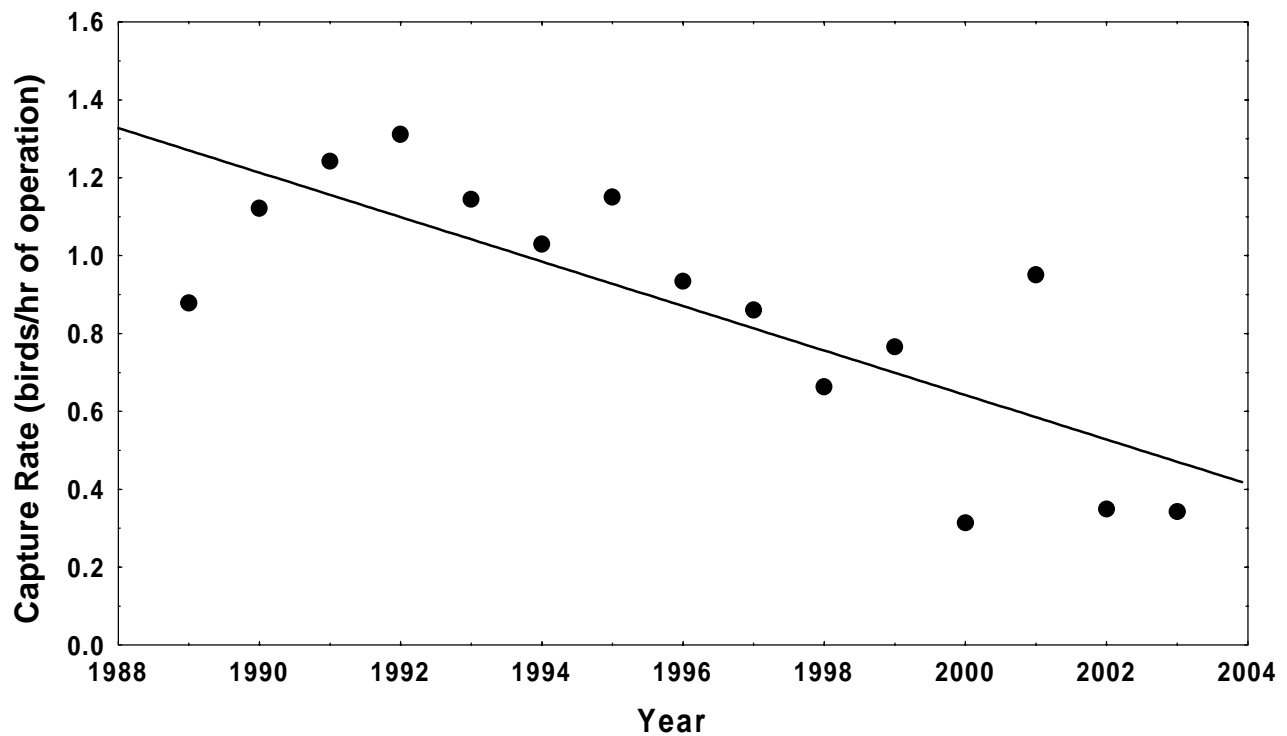
Raptor Species	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	Totals
Sharp-shinned Hawk	123	59	290	120	376	339	407	396	466	384	476	518	523	433	405	5315
Cooper's Hawk	227	68	178	106	157	75	140	136	189	121	190	136	102	150	116	2091
Northern Goshawk	0	0	0	0	3	0	4	0	1	0	0	0	3	0	0	11
Northern Harrier	11	2	10	2	10	10	3	3	5	2	3	2	0	5	9	77
Red-shouldered Hawk	0	0	2	1	2	0	1	1	2	0	1	3	1	2	0	16
Broad-winged Hawk	0	0	0	0	0	0	3	0	2	1	3	2	2	1	0	14
Red-tailed Hawk	24	14	46	51	103	43	58	36	39	57	67	46	34	19	24	661
Rough-legged Hawk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
American Kestrel	21	2	17	6	38	21	23	11	50	9	13	13	12	26	56	318
Merlin	98	16	29	38	131	176	152	77	200	99	64	91	84	81	285	1621
Peregrine Falcon	12	8	9	9	14	23	14	22	10	8	15	10	23	35	25	237
Total Raptors Banded	516	169	581	333	834	687	805	682	964	681	832	821	784	752	921	10362
Foreign Retraps	19	7	11	9	23	21	20	22	17	13	9	15	15	19	5	225
Total Raptors Trapped	535	176	592	342	857	708	825	704	981	694	841	836	799	771	926	10587
#HY*	479	163	563	318	812	673	784	616	939	645	796	796	761	691	870	9906
% HY	89.5%	93%	95%	93%	95%	95%	95%	88%	96%	93%	95%	95%	95%	90%	94%	94%
#AHY/ASY*	56	13	29	23	45	35	41	88	42	49	45	40	38	80	56	680
% AHY/ASY	10.5%	7%	5%	7%	5%	5%	5%	13%	4%	7%	5%	5%	5%	10%	6%	6%
# Days Site Operated	52	27	49	66	72	75	65	65	57	55	52	55	47	48	54	839
Operation Hours	359	169	305	382	491	511	473	424	405	373	416	395	421	386	461	5971
Operation Hours/Day	6.9	6.3	6.2	5.8	6.8	6.8	7.3	6.5	7.1	6.8	8.0	7.2	9.0	8.0	8.5	7.1
# Raptors Trapped/Day	10.3	6.5	12.1	5.2	11.9	9.4	12.7	10.8	17.2	12.6	16.2	15.2	17.0	16.1	17.1	12.6
#Raptors Trapped/Hour	1.4	1.0	1.9	0.9	1.7	1.4	1.7	1.7	2.4	1.9	2.0	2.1	1.9	2.0	2.0	1.8
* includes retraps																

decline of nearly 6%/yr (Figure 2). The decline in this species is responsible for the decline in the overall capture rate. The proportion of total captures accounted for by Sharp-shins has declined from more than 60% of total captures in the early 1990's to less than 30% in recent years.

Table 2. Monthly summaries of raptors trapped at Wise Point during 2003. Parenthetical values are retraps.

Species	September	October	November	Total
Northern harrier	1	8	2 (1)	11
Sharp-shinned hawk	16	96 (2)	11 (1)	123
Cooper's hawk	39 (2)	168 (5)	20 (1)	227
Red-tailed hawk	1	6	17 (1)	24
American kestrel	14	6 (1)	1	21
Merlin	39 (1)	59	0	98
Peregrine falcon	2	8 (2)	2 (1)	12
Totals	112	351	53	516

RAPTOR TRAPPING AT WISE POINT Sharp-shinned Hawk Capture Rate



The age distribution of raptors captured in 2003 is generally consistent with that observed in all other years (Table 3). Birds of many species that stop along the lower Delmarva are dominated by young-of-the-year. Mean percentage of hatching-year birds over the past 15 years is 92.8 ± 0.828 for all species combined. During the fall of 2003 overall percentage of hatching-year birds was the lowest during the 15 years at 86.4%.

Six birds that were banded at Wise Point during the 2003 season have been recovered elsewhere. This includes 2 Sharp-shinned Hawks, 3 Cooper's Hawks, and 1 Merlin (see Appendix III for listing of recoveries from the Wise Point station). Recoveries ranged from Dover Delaware to Marathon Florida. The Merlin was banded on the 8th of October and recovered in Marathon just 6 days later. A total of 19 birds were captured that had been banded previously elsewhere (see Appendix IV for listing of foreign retraps from Wise Point station). Six of these birds had been banded at Cape May and 7 from Kiptopeke State Park. The remaining birds were from other locations (information requested from banding laboratory).

Table 3. Age and sex distribution of raptors capture during 2003 at Wise Point Station. Parenthetic values are percentages.

Species	HY-M	HY-F	AHY-M	AHY-F	HY-U	AHY-U	TOTAL HY	TOTAL AHY
Northern Harrier	5	5	0	1	0	0	10(90)	1(9)
Sharp-shinned Hawk	48	65	2	8	0	0	113(92)	10(8)
Cooper's Hawk	130	74	11	12	0	0	204(90)	23(10)
Red-tailed Hawk	0	0	0	0	24	0	24(100)	0
American Kestrel	8	13	0	0	0	0	21(100)	0
Merlin	37	43	5	12	0	0	79(81)	18(19)
Peregrine Falcon	6	6	0	0	0	0	12(100)	0
Totals	234	206	18	33	24	0	463(90)	53(10)

DISCUSSION

Results of the fall trapping season of 2003 generally followed the patterns observed on the lower Delmarva Peninsula over the past 20+ years. Migration phenology of the various species and age classes, age ratios, and species composition, were all generally consistent with previous years. Overall capture rate continues to exhibit a significant decline. This decline is apparently driven by the downward trend in captures of Sharp-shinned Hawks. None of the other dominant species show any indication of significant temporal trends.

As with many other raptor species, Sharp-shinned Hawks experienced significant population declines between the 1940's and 1970's in response to environmental contaminants (Snyder et al. 1973). Throughout the 1970's and early 1980's numbers apparently rebounded rapidly in eastern North America (Bednarz et al. 1990). However, migration watch sites reported a second period of decline throughout the 1980's and early 1990's (Kellogg 1993, Kerlinger 1992). Reported declines first appeared on the outer coast (Sutton 1988) and later within more inland locations (Laura 1992). The number of Sharp-shinned Hawks migrating along the Delmarva Peninsula appears to have declined since approximately 1980 (Williams, unpubl. data). This observation is consistent with other reports along the mid-Atlantic coast.

Sharp-shinned Hawks breed within forest habitats throughout the northeast. Migrants along both the Atlantic and Appalachian flyways appear to winter primarily in southeastern North America. As with many species, coastal migrants are dominated by hatching-year birds and inland migrants are composed of a comparatively higher ratio of adults. Differences between flyways in both decline rates and age ratios suggest that hatching-year birds may account for a considerable portion of the decline.

The population-level implications of continued declines in capture rates for Sharp-shinned Hawks within the mid-Atlantic remain unclear. A recent investigation by Viverette et al. (1996) that examined trends from both Christmas Bird Counts and mid-Atlantic migration stations shows that wintering birds are increasing north of the mid-Atlantic stations. The study further finds that numbers from migration stations and Christmas Bird Counts north of the mid-Atlantic are inversely correlated suggesting that at least a portion of the reported decline may be due to migration short stopping. It is possible that Sharp-shins are undergoing a northward shift in winter range. Continued long-term monitoring at stations such as Wise Point are essential for documenting and understanding these population-level changes.

ACKNOWLEDGMENTS

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Appendix I: List of raptor species captured at Wise Point since 1989.

Common Name	Species Name
Northern Harrier	<i>Circus cyaneus</i>
Sharp-shinned Hawk	<i>Accipiter striatus</i>
Cooper's Hawk	<i>Accipiter cooperi</i>
Northern Goshawk	<i>Accipiter gentiles</i>
Broad-winged Hawk	<i>Buteo platypterus</i>
Red-shouldered Hawk	<i>Buteo lineatus</i>
Red-tailed Hawk	<i>Buteo jamaicensis</i>
Peregrine Falcon	<i>Falco peregrinus</i>
Merlin	<i>Falco columbarius</i>
American Kestrel	<i>Falco sparverius</i>

Appendix II: Daily summaries of raptors trapped at Wise Point during 2003.

Date	Op Hrs	NOHA	SSHA	COHA	RSHA	RTHA	AMKE	MERL	PEFA	Total
9-Sep	1.75									0
11-Sep	2.50							3		3
13-Sep	2.75									0
14-Sep	9.00							1		1
16-Sep	9.00			2			6	1		9
17-Sep	5.50	1	3	5			4	1		14
18-Sep	0.00									0
19-Sep	0.00									0
20-Sep	0.00									0
21-Sep	0.00									0
22-Sep	0.00									0
23-Sep	0.00									0
24-Sep	5.00		2	1			1	5		9
25-Sep	10.00			5			3	17	1	26
26-Sep	7.25		3	2				7	1	13
27-Sep	5.75			1						1
28-Sep	5.75		2	8				3		13
29-Sep	9.25		2	7				1		10
30-Sep	10.25		4	8		1				13
1-Oct	11.25		3	2				6		11
2-Oct	9.00		1	6				1		8
3-Oct	7.50			1						1
4-Oct	5.00		4	2				2	1	9
5-Oct	9.75		2	6				1		9
6-Oct	10.00		7	16				2		25
7-Oct	11.25		5	12		1		9		27
8-Oct	9.00	2	2	2		1		3		10
9-Oct	8.00		2	15			1	1	3	22
10-Oct	3.00		1	2				1		4
11-Oct	6.50	1		2				9	2	14
12-Oct	9.00	1	4	16		1	1	2		25
13-Oct	4.00		2	5						7
14-Oct	6.50		7	7				1	1	16
15-Oct	7.25		15	17			2	9		43
16-Oct	4.25		4	2						6

Appendix II: -continued-

Date	Op Hrs	NOHA	SSHA	COHA	RSHA	RTHA	AMKE	MERL	PEFA	Total
19-Oct	0.00									0
20-Oct	8.75		1	6						7
21-Oct	8.00		5	6				4		15
22-Oct	7.50	1	4	7						12
23-Oct	8.75	2	5	6			1	2		16
24-Oct	7.25		1	2						3
25-Oct	5.00			2						2
26-Oct	4.50		4						1	5
27-Oct	0.00									0
28-Oct	6.50		3	3			1	3		10
29-Oct	5.25									0
30-Oct	7.50		2	2		1		1		6
31-Oct	6.50		1	2		1				4
1-Nov	7.25		1	3		2				6
2-Nov	0.00									0
3-Nov	7.00		3	2					2	7
4-Nov	0.00									0
5-Nov	0.00									0
6-Nov	0.00									0
7-Nov	5.00		1	4						5
8-Nov	6.50	1	2	5		3				11
9-Nov	6.50	1	3	1		9				14
12-Nov	6.50					1				1
13-Nov	4.50			2						2
14-Nov	5.50		1	3		1				5
15-Nov	5.25					1				1
23-Nov	5.25						1			1
Totals	358.75	11	123	227	0	24	21	98	12	516

Appendix III: Partial list of birds banded at Wise Point that were recovered elsewhere.

Species	Banded	Recovered	Town/Location	State	Country
Northern Harrier	10/22/78	01/24/79		FL	USA
Northern Harrier	11/04/92	04/19/95	Braddock Bay	NY	USA
Sharp-shinned Hawk	10/03/77	12/29/77	Brunswick	GA	USA
Sharp-shinned Hawk	10/23/78	5/00/80	Pollet Cove	NS	CAN
Sharp-shinned Hawk	09/26/78	11/30/78	St. George	SC	USA
Sharp-shinned Hawk	09/26/78	05/10/79	Great Gull Island	NY	USA
Sharp-shinned Hawk	09/27/78	04/30/79	Westwood	MA	USA
Sharp-shinned Hawk	09/27/78	12/28/78	Goose Creek	SC	USA
Sharp-shinned Hawk	10/13/78	05/13/79	Doylestown	PA	USA
Sharp-shinned Hawk	10/23/78	11/20/80	Ridgely	MD	USA
Sharp-shinned Hawk	10/09/79	12/10/79	Bellair	FL	USA
Sharp-shinned Hawk	10/09/79	11/10/79	Washington	NC	USA
Sharp-shinned Hawk	09/28/84	01/24/89	Charleston	SC	USA
Sharp-shinned Hawk	10/12/84	10/08/86	Kittatinny Mt.	NJ	USA
Sharp-shinned Hawk	10/19/84	01/05/85	Courtland	VA	USA
Sharp-shinned Hawk	09/26/85	05/04/89	Randolph	NJ	USA
Sharp-shinned Hawk	10/04/86	11/27/86	St. Augustine	FL	USA
Sharp-shinned Hawk	10/04/86	12/20/86	Bokeeiia	FL	USA
Sharp-shinned Hawk	10/04/86	12/29/86	Hendry County	FL	USA
Sharp-shinned Hawk	10/10/86	10/10/86	Kiptopeke SP	VA	USA
Sharp-shinned Hawk	10/06/87	10/05/88	Lehigh Furnace	NJ	USA
Sharp-shinned Hawk	10/06/87	10/11/88	Cape May	NJ	USA
Sharp-shinned Hawk	10/11/87	10/18/88	Fisherman Island	VA	USA
Sharp-shinned Hawk	09/29/88	11/28/88	Lake City	FL	USA
Sharp-shinned Hawk	10/01/88	11/05/88	Jacksonville	FL	USA
Sharp-shinned Hawk	10/30/89	04/20/92	Colebrook	NH	USA
Sharp-shinned Hawk	10/02/90	01/20/91	Dagsboro	DE	USA
Sharp-shinned Hawk	11/03/90	04/30/91	Skowhegan	ME	USA
Sharp-shinned Hawk	11/11/90	12/10/90	Chesapeake	VA	USA
Sharp-shinned Hawk	10/08/91	04/22/95	Norcross	GA	USA
Sharp-shinned Hawk	10/05/91	04/22/94	St. Redempter	QU	CAN
Sharp-shinned Hawk	10/15/91	12/24/91	Key West	FL	USA
Sharp-shinned Hawk	10/10/92	02/25/95	Santee Cooper Lakes	SC	USA
Sharp-shinned Hawk	10/16/92	02/14/93	Charleston	SC	USA

Appendix III: -continued-

Species	Banded	Recovered	Town/Location	State	Country
Sharp-shinned Hawk	10/18/92	10/18/92	Kiptopeke SP	VA	USA
Sharp-shinned Hawk	10/25/92	10/26/92	Kiptopeke SP	VA	USA
Sharp-shinned Hawk	09/26/93	04/02/01	Summerville	SC	USA
Sharp-shinned Hawk	10/28/93	11/17/93	Kiptopeke SP	VA	USA
Sharp-shinned Hawk	10/29/94	07/15/97	Gatineau	QU	CAN
Sharp-shinned Hawk	10/12/94	12/21/94	Tuckahoe	NJ	USA
Sharp-shinned Hawk	10/19/94	01/01/95	Smyrna	DE	USA
Sharp-shinned Hawk	11/02/94	11/09/94	Kiptopeke SP	VA	USA
Sharp-shinned Hawk	11/29/96	04/07/99	Ayer's Cliff	QU	CAN
Sharp-shinned Hawk	10/04/96	10/04/96	Kiptopeke SP	VA	USA
Sharp-shinned Hawk	10/14/96	04/23/99	North Hartland	VT	USA
Sharp-shinned Hawk	10/10/97	10/10/97	Fisherman Island	VA	USA
Sharp-shinned Hawk	10/25/97	10/29/97	Kiptopeke SP	VA	USA
Sharp-shinned Hawk	11/04/97	11/08/97	Virginia Beach	VA	USA
Sharp-shinned Hawk	11/10/97	11/18/97	Kiptopeke SP	VA	USA
Sharp-shinned Hawk	09/16/98	11/06/98	Sylacauga	AL	USA
Sharp-shinned Hawk	09/21/98	04/24/99	Middletown	NJ	USA
Sharp-shinned Hawk	10/07/99	12/06/99	Virginia Beach	VA	USA
Sharp-shinned Hawk	10/09/99	12/05/99	Folly Beach	SC	USA
Sharp-shinned Hawk	10/16/99	11/09/99	Kitty Hawk	NC	USA
Sharp-shinned Hawk	10/26/99	10/26/99	Kiptopeke SP	VA	USA
Sharp-shinned Hawk	11/14/99	11/20/99	Kiptopeke SP	VA	USA
Sharp-shinned Hawk	10/03/01	11/04/01	Onancock	VA	USA
Sharp-shinned Hawk	09/28/03	02/04/04	Arcadia	FL	USA
Sharp-shinned Hawk	10/17/03	11/26/03	Norfolk	VA	USA
Cooper's Hawk	09/22/77	03/18/78	Sandy Hook	NJ	USA
Cooper's Hawk	10/09/79	03/10/81	Nassawadox	VA	USA
Cooper's Hawk	10/27/83	05/09/84	Cambridge	NY	USA
Cooper's Hawk	10/26/85	03/04/88	Meadowbrook	PA	USA
Cooper's Hawk	10/10/87	10/13/88	Cape May	NJ	USA
Cooper's Hawk	10/10/87	10/15/90	Branchville	NJ	USA
Cooper's Hawk	09/30/88	07/11/01	Crumpton	MD	USA
Cooper's Hawk	10/08/88	02/03/89	Swanadell Acres	DE	USA
Cooper's Hawk	10/22/89	10/25/90	Fisherman Island	VA	USA
Cooper's Hawk	10/06/90	10/06/90	Fisherman Island	VA	USA

Appendix III: -continued-

Species	Banded	Recovered	Town/Location	State	Country
Cooper's Hawk	10/09/90	10/10/90	Fisherman Island	VA	USA
Cooper's Hawk	10/10/90	10/12/90	Fisherman Island	VA	USA
Cooper's Hawk	10/11/90	10/12/90	Fisherman Island	VA	USA
Cooper's Hawk	10/14/90	01/16/92	Melitota	MD	USA
Cooper's Hawk	11/03/90	??	Littleton	NH	USA
Cooper's Hawk	10/04/91	01/03/96	Miami	FL	USA
Cooper's Hawk	10/09/91	11/16/97	Kiptopeke SP	VA	USA
Cooper's Hawk	09/18/92	10/23/95	Cape May	NJ	USA
Cooper's Hawk	10/08/92	02/27/93	Accomac	VA	USA
Cooper's Hawk	10/11/92	10/22/92	Cape May	NJ	USA
Cooper's Hawk	10/12/92	10/29/98	Cape May	NJ	USA
Cooper's Hawk	10/15/92	10/29/94	North Round Hill	WV	USA
Cooper's Hawk	11/08/92	11/25/98	Cape May	NJ	USA
Cooper's Hawk	10/03/93	10/14/98	Kiptopeke SP	VA	USA
Cooper's Hawk	10/11/93	05/06/95	Center Tufftonboro	NH	USA
Cooper's Hawk	10/23/94	10/24/95	Cape May	NJ	USA
Cooper's Hawk	10/29/94	06/08/97	Stillwater Reservoir	NY	USA
Cooper's Hawk	11/02/94	11/08/94	Kiptopeke SP	VA	USA
Cooper's Hawk	10/03/95	07/24/00	Wodstock	NB	CAN
Cooper's Hawk	09/28/95	09/28/95	Kiptopeke SP	VA	USA
Cooper's Hawk	09/28/95	08/31/98	Smyrna	DE	USA
Cooper's Hawk	09/30/95	10/28/96	Media	PA	USA
Cooper's Hawk	10/08/95	10/09/95	Kiptopeke SP	VA	USA
Cooper's Hawk	10/19/95	10/20/95	Kiptopeke SP	VA	USA
Cooper's Hawk	09/25/96	03/15/97	Parkesley	VA	USA
Cooper's Hawk	10/27/96	10/28/96	Kiptopeke SP	VA	USA
Cooper's Hawk	09/21/97	12/15/97	Lake Suzy	FL	USA
Cooper's Hawk	10/20/97	10/20/97	Kiptopeke SP	VA	USA
Cooper's Hawk	10/29/97	11/03/97	Kiptopeke SP	VA	USA
Cooper's Hawk	11/24/97	11/25/97	Kiptopeke SP	VA	USA
Cooper's Hawk	09/28/98	10/26/00	Belle Haven	VA	USA
Cooper's Hawk	10/16/98	10/16/98	Kiptopeke SP	VA	USA
Cooper's Hawk	10/03/99	10/22/99	Marathon	FL	USA
Cooper's Hawk	10/18/99	12/18/99	Belle Haven	VA	USA

Appendix III: -continued-

Species	Banded	Recovered	Town/Location	State	Country
Cooper's Hawk	10/19/99	12/03/99	Norfolk	VA	USA
Cooper's Hawk	11/14/99	11/23/99	Painter	VA	USA
Cooper's Hawk	09/05/01	01/03/02	Lehigh Acres	FL	USA
Cooper's Hawk	09/12/01	10/19/01	St. Summit Island	GA	USA
Cooper's Hawk	09/29/01	11/21/01	South Seas Resort	FL	USA
Cooper's Hawk	10/04/01	10/15/02	Salisbury	MD	USA
Cooper's Hawk	10/25/03	12/09/03	Bishopville	MD	USA
Cooper's Hawk	10/12/03	01/22/04	Wilmington	NC	USA
Cooper's Hawk	10/15/03	12/03/03	Dover	DE	USA
Red-tailed Hawk	11/03/84	02/19/85	Virginia Beach	VA	USA
Red-tailed Hawk	12/08/88	05/13/98	Painter	VA	USA
Red-tailed Hawk	12/08/88	11/21/97	Kiptopeke SP	VA	USA
Red-tailed Hawk	10/15/90	03/08/02	Claussville	PA	USA
Red-tailed Hawk	11/13/92	07/21/95	Philadelphia	PA	USA
Red-tailed Hawk	10/28/93	03/02/99	Richwood	NJ	USA
Red-tailed Hawk	11/11/93	11/12/93	Cape May	NJ	USA
Red-tailed Hawk	10/11/94	10/12/94	Kiptopeke SP	VA	USA
Red-tailed Hawk	10/12/94	11/26/94	Mechanicsburg	PA	USA
Red-tailed Hawk	10/25/94	10/25/94	Kiptopeke SP	VA	USA
Red-tailed Hawk	11/12/94	11/14/94	Kiptopeke SP	VA	USA
Red-tailed Hawk	11/12/94	05/03/97	Westminster	MA	USA
Red-tailed Hawk	11/22/95	11/24/95	Kiptopeke SP	VA	USA
Red-tailed Hawk	11/06/96	12/05/99	Egg Harbor	NY	USA
Red-tailed Hawk	11/06/96	05/21/02	Holly Ridge	NC	USA
Red-tailed Hawk	11/15/96	11/15/96	Kiptopeke SP	VA	USA
Red-tailed Hawk	10/28/97	10/28/97	Kiptopeke SP	VA	USA
Red-tailed Hawk	11/15/97	11/15/97	Kiptopeke SP	VA	USA
Red-tailed Hawk	09/29/98	10/01/98	Kiptopeke SP	VA	USA
Red-tailed Hawk	09/18/98	02/04/99	Johns Island	SC	USA
Red-tailed Hawk	10/31/98	12/15/98	Lawrenceville	NJ	USA
Red-tailed Hawk	11/12/98	12/23/98	Cheriton	VA	USA
Red-tailed Hawk	10/14/99	12/09/01	Devon	PA	USA
Red-tailed Hawk	11/15/99	02/16/00	Milton	DE	USA
Red-tailed Hawk	10/28/01	09/04/02	New Tripoli	PA	USA

Appendix III: -continued-

Species	Banded	Recovered	Town/Location	State	Country
Peregrine Falcon	10/04/83	10/10/83	Villa Clara		CUB
Peregrine Falcon	10/10/90	05/07/98	Aguas Belas		BRZ
Peregrine Falcon	10/02/91	04/26/95	Santos		BRZ
Peregrine Falcon	10/10/92	10/10/92	Fisherman Island	VA	USA
Peregrine Falcon	10/10/92	12/01/92	Virginia Beach	VA	USA
Peregrine Falcon	10/05/97	10/09/97	Holden Beach	NC	USA
Merlin	09/24/78	05/15/79	Manati		CUB
Merlin	09/28/82	05/04/86	Baffin Island		CAN
Merlin	09/29/82	04/22/84	Solon	ME	USA
Merlin	10/09/83	12/01/85	Adelaide Beach	FL	USA
Merlin	09/21/84	04/09/85	Guarare		PAN
Merlin	10/10/86	10/15/87	St. Johns	NF	CAN
Merlin	10/10/86	08/10/88	Cupids	NF	CAN
Merlin	09/22/86	08/01/96	Azua		DMR
Merlin	09/16/86	09/20/86	Ponce Inlet	FL	USA
Merlin	10/11/86	10/11/86	Kiptopeke SP	VA	USA
Merlin	09/18/87	11/30/88	La Sierpa		CUB
Merlin	09/30/87	05/14/88	Amherst	VA	USA
Merlin	09/12/88	04/01/91	St. Honore	QU	CAN
Merlin	10/01/88	05/12/94	Lac St. Francis	QU	CAN
Merlin	09/23/88	11/28/88	Guimaro		CUB
Merlin	09/23/88	10/02/88	Belhaven	NC	USA
Merlin	10/14/89	02/22/90	Holguin, Cueto		CUB
Merlin	09/18/91	02/08/92	Banao		CUB
Merlin	09/18/91	02/01/97	Gibara		CUB
Merlin	10/05/92	08/28/96	St. Pierre	QU	CAN
Merlin	10/01/93	06/04/94	Antigonish	NS	CAN
Merlin	10/09/93	11/24/93	Holguin, Cueto		CUB
Merlin	09/19/93	10/20/01	Cape May	NJ	USA
Merlin	09/25/94	05/19/99	Greenwich	CT	USA
Merlin	09/16/95	12/03/95	Los Palos		CUB
Merlin	09/16/95	05/02/96	Sandy River	ME	USA
Merlin	09/29/95	06/13/97	Troy	ME	USA
Merlin	10/02/95	02/13/97	Cape Neddick	ME	USA
Merlin	09/13/96	05/07/97	Centreville	NB	CAN

Appendix III: -continued-

Species	Banded	Recovered	Town/Location	State	Country
Merlin	10/03/96	10/09/97	Kiptopeke SP	VA	USA
Merlin	09/15/97	06/16/01	Pynn's Brook	NF	CAN
Merlin	09/19/97	10/19/98	Marathon	FL	USA
Merlin	10/06/98	09/24/99	South Norwalk	CT	USA
Merlin	09/28/99	05/12/01	St. Johns	NF	CAN
Merlin	09/19/99	05/29/01	Sedgwick	ME	USA
Merlin	10/08/03	10/14/03	Marathon	FL	USA
American Kestrel	09/18/87	01/20/88	Anquilla		BWI
American Kestrel	09/25/90	07/01/91	Phillipsburg	NJ	USA

Appendix IV: Partial list of birds banded elsewhere and retrapped at Wise Point.

Species	Age	Sex	Retrapped	Banded	Location	State	Country
Northern Harrier	F	SY	11/9/03				
Sharp-shinned Hawk	M	HY	10/19/78	10/9/78	Old Saybrook	CT	USA
Sharp-shinned Hawk	F	HY	9/26/90	9/24/90	Cape May	NJ	USA
Sharp-shinned Hawk	M	HY	10/5/90	9/28/90	Cape May	NJ	USA
Sharp-shinned Hawk	F	HY	9/28/90	9/24/90	Cape May	NJ	USA
Sharp-shinned Hawk	F	HY	11/3/90	10/27/90	Cape May	NJ	USA
Sharp-shinned Hawk	F	HY	10/1/90	9/17/90	Cape May	NJ	USA
Sharp-shinned Hawk	F	HY	10/15/90	9/17/90	Cape May	NJ	USA
Sharp-shinned Hawk	F	HY	10/3/90	9/28/90	Cape May	NJ	USA
Sharp-shinned Hawk	F	HY	10/9/90	10/2/90	Cape May	NJ	USA
Sharp-shinned Hawk	F	HY	10/24/90	9/27/90	Cape May	NJ	USA
Sharp-shinned Hawk	F	HY	10/17/90	10/15/90	Cape May	NJ	USA
Sharp-shinned Hawk	M	HY	10/4/91	10/4/91	Kiptopeke	VA	USA
Sharp-shinned Hawk	M	HY	10/18/91	10/4/91		MA	USA
Sharp-shinned Hawk	F	HY	10/31/91	10/25/91	Cape May	NJ	USA
Sharp-shinned Hawk	F	HY	10/15/91	10/15/91	Kiptopeke	VA	USA
Sharp-shinned Hawk	F	HY	10/25/91	10/20/91	Cape May	NJ	USA
Sharp-shinned Hawk	F	HY	10/23/91	10/21/91	Cape May	NJ	USA
Sharp-shinned Hawk	F	HY	10/26/92	10/25/92	Cape May	NJ	USA
Sharp-shinned Hawk	F	HY	10/19/92	10/18/92	Cape May	NJ	USA
Sharp-shinned Hawk	F	HY	11/2/92	10/25/92	Cape May	NJ	USA
Sharp-shinned Hawk	F	HY	10/18/92	10/15/92	Cape May	NJ	USA
Sharp-shinned Hawk	F	HY	10/6/92	10/5/92	Kiptopeke	VA	USA
Sharp-shinned Hawk	F	HY	10/8/92	10/8/92	Kiptopeke	VA	USA
Sharp-shinned Hawk	F	HY	10/9/92	10/9/92	Kiptopeke	VA	USA
Sharp-shinned Hawk	F	HY	11/14/92	10/24/92	Cape May	NJ	USA
Sharp-shinned Hawk			10/17/93	10/13/90	Cape May	NJ	USA
Sharp-shinned Hawk	F	HY	10/21/93	10/16/93	Northern	VA	USA
Sharp-shinned Hawk	F	HY	10/3/93	10/2/93	Kiptopeke	VA	USA
Sharp-shinned Hawk	M	HY	11/5/94	11/3/94	Kiptopeke	VA	USA
Sharp-shinned Hawk	M	HY	9/29/94	9/19/94	Cape May	NJ	USA
Sharp-shinned Hawk	M	HY	10/12/94	10/9/94	Cape May	NJ	USA
Sharp-shinned Hawk	F	HY	10/19/94	10/17/94	Cape May	NJ	USA
Sharp-shinned Hawk	F	HY	11/3/94	11/2/94	Kiptopeke	VA	USA

Appendix IV: -continued-

Species	Age	Sex	Retrapped	Banded	Location	State	Country
Sharp-shinned Hawk	F	HY	9/28/94	9/27/94	Kiptopeke	VA	USA
Sharp-shinned Hawk	F	HY	10/11/94	10/8/94	Kiptopeke	VA	USA
Sharp-shinned Hawk	M	HY	9/25/95	9/13/95	Cape May	NJ	USA
Sharp-shinned Hawk	F	AHY	10/17/96	10/13/93	Cape May	NJ	USA
Sharp-shinned Hawk	M	HY	10/30/96	10/1/96	Westport	NS	CAN
Sharp-shinned Hawk	M	HY	9/26/96	9/23/96	Cape May	NL	USA
Sharp-shinned Hawk	F	HY	10/18/96	10/18/96	Kiptopeke	VA	USA
Sharp-shinned Hawk	F	HY	10/23/96	10/18/96	Kiptopeke	VA	USA
Sharp-shinned Hawk	F	HY	10/6/96	10/4/96	Kiptopeke	VA	USA
Sharp-shinned Hawk	M	HY	11/16/96	10/4/96	Westport	NS	CAN
Sharp-shinned Hawk	F	HY	10/8/97	10/5/97	Cape May	NJ	USA
Sharp-shinned Hawk	F	HY	10/9/97	10/7/97	Cape May	NJ	USA
Sharp-shinned Hawk	F	AHY	10/29/97	10/24/97	Cape May	NJ	USA
Sharp-shinned Hawk	M	HY	10/8/98	10/7/98	Kiptopeke	VA	USA
Sharp-shinned Hawk	F	HY	11/9/98	11/8/98	Kiptopeke	VA	USA
Sharp-shinned Hawk	F	HY	12/14/98	11/9/98	Cape May	NJ	USA
Sharp-shinned Hawk	M	HY	12/15/98	11/9/98	Kiptopeke	VA	USA
Sharp-shinned Hawk	F	HY	9/26/98	9/24/03	Kiptopeke	VA	USA
Sharp-shinned Hawk	F	HY	10/4/99	9/28/99	Cape May	NJ	USA
Sharp-shinned Hawk	M	HY	10/14/99	10/13/99	Kiptopeke	VA	USA
Sharp-shinned Hawk	F	HY	10/21/99	10/12/99	Cape May	NJ	USA
Sharp-shinned Hawk	F	HY	11/22/99	11/22/99	Kiptopeke	VA	USA
Sharp-shinned Hawk	M	HY	10/19/00				
Sharp-shinned Hawk	F	HY	10/3/01	9/16/01	Cape May	NJ	USA
Sharp-shinned Hawk	F	HY	10/30/01				
Sharp-shinned Hawk	M	HY	10/18/02	10/12/02	Cape May	NJ	USA
Sharp-shinned Hawk	F	HY	10/19/02	10/18/02	Kiptopeke	VA	USA
Sharp-shinned Hawk	F	HY	11/5/02	11/4/02	Kiptopeke	VA	USA
Sharp-shinned Hawk	M	HY	11/7/02	10/31/02	Cape May	NJ	USA
Sharp-shinned Hawk	F	HY	10/9/03				
Sharp-shinned Hawk	F	HY	10/14/03				
Sharp-shinned Hawk	F	HY	10/23/03				
Sharp-shinned Hawk	F	HY	11/3/03				
Cooper's Hawk	M	HY	10/24/89	10/23/89	Fisherman Is.	VA	USA

Appendix IV: -continued-

Species	Age	Sex	Retrapped	Banded	Location	State	Country
Cooper's Hawk	M	HY	10/6/89	10/6/89	Kiptopeke	VA	USA
Cooper's Hawk	M	HY	10/23/89	10/11/89	Cape May	NJ	USA
Cooper's Hawk	M	HY	10/14/90	10/2/90	Cape May	NJ	USA
Cooper's Hawk	F	HY	9/26/90	9/20/90	Kiptopeke	VA	USA
Cooper's Hawk	F	HY	10/2/90	10/2/90	Kiptopeke	VA	USA
Cooper's Hawk	M	HY	10/23/91	10/18/91	Cape May	NJ	USA
Cooper's Hawk	F	HY	9/27/91	9/27/91	Fisherman Is.	VA	USA
Cooper's Hawk	F	HY	10/11/91	10/2/91		CT	USA
Cooper's Hawk	F	HY	10/30/91	10/7/91	Cape May	NJ	USA
Cooper's Hawk	F	HY	10/14/91	10/13/91	Kiptopeke	VA	USA
Cooper's Hawk	F	ASY	10/27/92	3/29/88	Little Gap	PA	USA
Cooper's Hawk	M	HY	10/5/92	9/23/92		CT	USA
Cooper's Hawk	F	HY	10/25/92	10/25/92	Fisherman Is.	VA	USA
Cooper's Hawk	F	HY	10/20/92	10/17/92	Cape May	NJ	USA
Cooper's Hawk	F	HY	10/5/93	10/2/93	Cape May	NJ	USA
Cooper's Hawk			11/8/93	11/8/93	Kiptopeke	VA	USA
Cooper's Hawk	F	HY	10/21/93	10/11/93	Cape May	NJ	USA
Cooper's Hawk	F	AHY	10/28/93	10/23/93	Kiptopeke	VA	USA
Cooper's Hawk	F	HY	10/5/94	10/5/94	Fisherman Is.	VA	USA
Cooper's Hawk	M	ASY	10/27/95	10/20/91	Cape May	NJ	USA
Cooper's Hawk	M	HY	9/28/95	9/27/95	Cape May	NJ	USA
Cooper's Hawk	M	HY	9/30/95	9/20/95	Cape May	NJ	USA
Cooper's Hawk	F	HY	10/2/95	10/1/95	Kiptopeke	VA	USA
Cooper's Hawk	F	HY	9/30/95	9/29/95	Kiptopeke	VA	USA
Cooper's Hawk	F	HY	10/2/95	9/29/95	Cape May	NJ	USA
Cooper's Hawk	F	HY	10/19/95	9/29/95	Cape May	NJ	USA
Cooper's Hawk	F	U	9/30/95	9/24/95		CT	USA
Cooper's Hawk	F	HY	10/12/95	10/11/95	Kiptopeke	VA	USA
Cooper's Hawk	M	ASY	10/22/96	10/7/91	Cape May	NJ	USA
Cooper's Hawk	M	HY	10/17/96	10/15/96	Cape May	NJ	USA
Cooper's Hawk	M	HY	10/5/96	10/4/96	Cape May	NJ	USA
Cooper's Hawk	M	HY	10/9/96	10/5/96	Cape May	NJ	USA
Cooper's Hawk	F	HY	10/3/96	10/3/96	Kiptopeke	VA	USA
Cooper's Hawk	M	HY	9/16/97	9/15/97	Kiptopeke	VA	USA

Appendix IV: -continued-

Species	Age	Sex	Retrapped	Banded	Location	State	Country
Cooper's Hawk	M	HY	10/11/97	10/8/97	Kiptopeke	VA	USA
Cooper's Hawk	F	HY	10/12/97	10/12/97	Kiptopeke	VA	USA
Cooper's Hawk	M	HY	10/23/97	10/20/97	Cape May	NJ	USA
Cooper's Hawk	F	ASY	11/5/98	10/25/92	Cape May	NJ	USA
Cooper's Hawk	F	HY	10/7/98	10/7/98	Kiptopeke	VA	USA
Cooper's Hawk	F	HY	10/10/98	9/30/98	Cape May	NJ	USA
Cooper's Hawk	M	HY	10/10/98	10/1/98	Cape May	NJ	USA
Cooper's Hawk	M	HY	10/14/98	10/13/98	Kiptopeke	VA	USA
Cooper's Hawk	M	HY	10/16/98	10/11/98	Cape May	NJ	USA
Cooper's Hawk	F	HY	12/10/98	9/13/98	Kiptopeke	VA	USA
Cooper's Hawk	F	HY	9/18/99	9/11/99	Cape May	NJ	USA
Cooper's Hawk	M	HY	10/2/99	9/23/99	Cape May	NJ	USA
Cooper's Hawk	M	HY	10/7/99	9/30/99	Cape May	NJ	USA
Cooper's Hawk	M	HY	10/11/99	10/5/99	Cape May	NJ	USA
Cooper's Hawk	M	HY	10/12/99	10/1/99	Cape May	NJ	USA
Cooper's Hawk	F	HY	10/14/99	10/12/99	Fisherman Is.	VA	USA
Cooper's Hawk	F	HY	10/14/99	10/14/99	Fisherman Is.	VA	USA
Cooper's Hawk	F	HY	11/14/99	11/7/99	Cape May	NJ	USA
Cooper's Hawk	M	HY	11/22/99	10/15/99	Cape May	NJ	USA
Cooper's Hawk	F	HY	11/22/99	11/21/99	Kiptopeke	VA	USA
Cooper's Hawk	F	ASY	10/16/00	9/28/98	Wise Point	VA	USA
Cooper's Hawk	M	HY	10/7/00	10/5/00	Kiptopeke	VA	USA
Cooper's Hawk	M	HY	10/10/00	10/10/00	Kiptopeke	VA	USA
Cooper's Hawk	M	HY	10/22/00	10/29/00	Cape May	NJ	USA
Cooper's Hawk	F	HY	11/20/00	11/21/00	Kiptopeke	VA	USA
Cooper's Hawk	M	HY	10/4/01	10/3/01	Kiptopeke	VA	USA
Cooper's Hawk	F	HY	10/16/01	10/16/01	Kiptopeke	VA	USA
Cooper's Hawk	M	HY	10/18/01	9/15/01	Cape May	NJ	USA
Cooper's Hawk	F	HY	10/20/01	9/29/01	Cape May	NJ	USA
Cooper's Hawk	F	HY	10/21/01	10/18/01	Cape May	NJ	USA
Cooper's Hawk	F	HY	10/26/01	10/18/01	Cape May	NJ	USA
Cooper's Hawk	F	AHY	10/27/01	9/17/01	Cape May	NJ	USA
Cooper's Hawk	M	HY	10/23/01	10/6/01	Cape May	NJ	USA
Cooper's Hawk	F	HY	10/7/02	9/24/02	Cape May	NJ	USA

Appendix IV: -continued-

Species	Age	Sex	Retrapped	Banded	Location	State	Country
Cooper's Hawk	F	HY	9/28/03				
Cooper's Hawk	F	HY	9/30/03				
Cooper's Hawk	M	HY	10/5/03				
Cooper's Hawk	M	HY	10/9/03				
Cooper's Hawk	F	HY	10/20/03				
Cooper's Hawk	F	AHY	10/28/03				
Cooper's Hawk	F	HY	10/31/03				
Cooper's Hawk	F	SY	11/1/03				
Northern Goshawk	M	HY	11/8/95	11/8/95	Kiptopeke	VA	USA
Northern Goshawk	F	HY	10/17/96	10/16/96	Kiptopeke	VA	USA
Northern Goshawk	M	HY	11/16/99	10/23/99	Ashfield	PA	USA
Red-tailed Hawk	U	HY	10/30/90	10/30/90	Fisherman Is.	VA	USA
Red-tailed Hawk	U	HY	10/27/90	10/27/90	Fisherman Is.	VA	USA
Red-tailed Hawk	U	HY	10/31/91	10/31/91	Fisherman Is.	VA	USA
Red-tailed Hawk	U	HY	10/30/91	10/28/91	Cape May	NJ	USA
Red-tailed Hawk	U	HY	10/6/92	10/6/92	Kiptopeke	VA	USA
Red-tailed Hawk	U	HY	11/11/93	11/10/93	Kiptopeke	VA	USA
Red-tailed Hawk	U	HY	11/16/93	11/10/93	Kiptopeke	VA	USA
Red-tailed Hawk	U	HY	10/1/95	9/30/95	Kiptopeke	VA	USA
Red-tailed Hawk	U	HY	11/22/95	11/9/95	Cape May	NJ	USA
Red-tailed Hawk	U	HY	11/15/96	11/15/96	Kiptopeke	VA	USA
Red-tailed Hawk	U	HY	11/15/96	1/15/96	Kiptopeke	VA	USA
Red-tailed Hawk	U	HY	11/17/96	11/15/96	Kiptopeke	VA	USA
Red-tailed Hawk	U	HY	11/16/97	11/15/97	Kiptopeke	VA	USA
Red-tailed Hawk	U	HY	11/29/97	11/29/97	Kiptopeke	VA	USA
Red-tailed Hawk	U	HY	11/15/97	11/10/97	Cape May	NJ	USA
Red-tailed Hawk	U	HY	11/12/99	11/11/99	Kiptopeke	VA	USA
Red-tailed Hawk	U	HY	11/12/99	11/11/99	Kiptopeke	VA	USA
Red-tailed Hawk	U	HY	11/28/99	11/28/99	Fisherman Is.	VA	USA
Red-tailed Hawk	U	HY	12/7/99				
Red-tailed Hawk	U	HY	9/27/00	12/4/00	W. Greece	NY	USA
Red-tailed Hawk	U	HY	11/5/02	9/25/02	Cape May	NJ	USA
Red-tailed Hawk	U	HY	11/9/03				
Broad-winged Hawk	U	HY	10/14/99	9/18/99	Woodstock	VT	USA

Appendix IV: Partial list of birds banded elsewhere and retrapped at Wise Point.

Species	Age	Sex	Retrapped	Banded	Location	State	Country
Peregrine Falcon	F	HY	10/17/90	8/10/90			GRL
Peregrine Falcon	M	HY	10/10/90	10/10/90	Assateague	VA	USA
Peregrine Falcon	F	HY	10/12/90	10/7/90	Cape May	NJ	USA
Peregrine Falcon	F	HY	10/9/90	10/7/90	Assateague	VA	USA
Peregrine Falcon	F	HY	10/4/91	10/4/91	Kiptopeke	VA	USA
Peregrine Falcon	F	HY	10/5/91	10/3/91	Assateague	VA	USA
Peregrine Falcon	M	HY	10/10/92	10/10/92	Kiptopeke	VA	USA
Peregrine Falcon	M	HY	9/28/92	9/27/92	Assateague	VA	USA
Peregrine Falcon	M	HY	10/2/93	10/2/93	Kiptopeke	VA	USA
Peregrine Falcon	F	HY	9/21/94	9/21/94	Kiptopeke	VA	USA
Peregrine Falcon	M	HY	10/27/95	7/25/95			GRL
Peregrine Falcon	F	ASY	10/24/95	10/24/95	Kiptopeke	VA	USA
Peregrine Falcon	F	HY	9/28/95	5/30/95	Cape May	NJ	USA
Peregrine Falcon	M	HY	10/22/96	7/26/92			GRL
Peregrine Falcon	F	HY	9/30/96	6/10/96		NB	CAN
Peregrine Falcon	M	HY	9/28/96	9/25/96	Cape May	NJ	USA
Peregrine Falcon	F	HY	10/7/96	10/5/96	Assateague	VA	USA
Peregrine Falcon	F	HY	10/4/97	10/3/97	Assateague	VA	USA
Peregrine Falcon	M	HY	10/6/97	10/3/97	Assateague	VA	USA
Peregrine Falcon	F	HY	10/14/97	10/13/97	Assateague	VA	USA
Peregrine Falcon	F	HY	10/8/98	7/17/98	Narssaq		GRL
Peregrine Falcon	F	HY	10/8/98	10/7/98	Kiptopeke	VA	USA
Peregrine Falcon	F	HY	10/8/98	10/8/98	Kiptopeke	VA	USA
Peregrine Falcon	F	AHY	10/21/99	10/18/98	Assateague	VA	USA
Peregrine Falcon	M	HY	10/6/00	10/3/00	Assateague	MD	USA
Peregrine Falcon	M	HY	10/17/00	10/17/00	Kiptopeke	VA	USA
Peregrine Falcon	F	HY	10/4/01	10/2/01	Assateague	VA	USA
Peregrine Falcon	F	ASY	10/5/02	7/27/00	Sisimuit		GRL
Peregrine Falcon	M	HY	10/11/03				
Peregrine Falcon	M	HY	10/14/03				
Peregrine Falcon	F	HY	11/3/03				
Merlin	M	HY	9/13/89	9/13/89	Fisherman Is.	VA	USA
Merlin	M	HY	9/23/89	9/23/89	Fisherman Is.	VA	USA
Merlin	F	HY	10/13/89	10/8/89	Cape May	NJ	USA

Appendix IV: -continued-

Species	Age	Sex	Retrapped	Banded	Location	State	Country
Merlin	F	HY	9/25/94	9/24/94	Kiptopeke	VA	USA
Merlin	F	HY	10/10/94	10/8/94	Cape May	NJ	USA
Merlin	F	HY	9/20/94	9/20/94	Kiptopeke	VA	USA
Merlin	F	HY	9/20/94	9/20/94	Kiptopeke	VA	USA
Merlin	F	HY	9/21/96	9/21/96	Kiptopeke	VA	USA
Merlin	F	HY	9/27/96	9/27/96	Kiptopeke	VA	USA
Merlin	F	HY	9/14/97	9/14/97	Kiptopeke	VA	USA
Merlin	F	HY	9/15/97	9/15/97	Kiptopeke	VA	USA
Merlin	F	HY	9/20/97	9/20/97	Kiptopeke	VA	USA
Merlin	M	HY	10/4/97	10/4/97	Kiptopeke	VA	USA
Merlin	F	HY	10/10/97	10/8/97	Kiptopeke	VA	USA
Merlin	M	HY	9/20/97	9/20/97	Kiptopeke	VA	USA
Merlin	M	HY	9/30/97	9/30/97	Kiptopeke	VA	USA
Merlin	F	HY	9/18/98	9/18/98	Kiptopeke	VA	USA
Merlin	M	HY	9/18/98	9/18/98	Kiptopeke	VA	USA
Merlin	F	HY	9/21/98	9/18/98	Cape May	NJ	USA
Merlin	F	HY	9/21/98	9/18/98	Cape May	NJ	USA
Merlin	F	AHY	10/1/98	9/30/98	Kiptopeke	VA	USA
Merlin	F	HY	10/1/98	9/29/98	Cape May	NJ	USA
Merlin	F	ASY	10/15/99	10/9/97	Kiptopeke	VA	USA
Merlin	M	HY	10/16/99	9/18/99	Broadway	NJ	USA
Merlin	F	HY	9/26/03				
American Kestrel	F	HY	9/15/95	7/3/95		MA	USA
American Kestrel	M	HY	10/23/03				