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COVER: Evening Grosbeak - March 8, 1969

Out-of-State Membership

Photo by Mrs. David Howard



## MARYLAND BIRDLIFE

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## A SUMMARY OF EVENING GROSBEAKS IN MARYLAND

Vernon M. Kleen

During the winters of 1966-67 and 1967-68, most Marylanders missed their favorite winter visitors, the Evening Grosbeaks. The only report for 1966-67 was from Damsite in mid-January; and the next winter was hardly any better, with only a half dozen sightings. The only Christmas Counts that included this species in 1967 were Seneca with 2 individuals and Lower Kent County with 1.

#### History and Occurrence

Chandler Robbins published a short history of Evening Grosbeaks in Maryland in Maryland Birdlife 9: 4-5. Here he pointed out that the first Maryland record was in 1922 when W. D. Gould identified 2 in January at Cambridge. A few other individuals were seen at three other locations, all near the fall-line: Laurel, Takoma Park and Cabin John. actly 20 years later, in 1942, when the birds were next found in Maryland. Haven Kolb collected the first 2 birds for Maryland (both males) near Towson on January 17. The first flight of Evening Grosbeaks to Maryland occurred in 1945-46, when they were seen in at least six counties west of Chesapeake Bay. Then in 1951 the first "invasion" occurred. started early, birds arriving in Maryland on October 23, 3 weeks before the earliest date previously. Numerous observations were made from late October to the end of April, and the latest departure date was May 18. Chan Robbins banded 115 birds from those present in early 1952, but it appears that the first Evening Grosbeak banded in the State was in February 1946 by Hervey Brackbill.

The next major flight occurred in 1955-56, with birds first appearing in Prince Georges County on November 5, and in Baltimore County on November 6. The major flight arrived later, mostly in December, and birds lingered into May before completely leaving the State. No birds were recorded in Maryland during the winter of 1956-57. But they returned again in the fall of 1957, earlier than ever before: October 12 in Baltimore County (Simon) and at the Patuxent Research Refuge (Stewart), and before the end of October in at least five other counties. All of these early reports were primarily migrants enroute farther south. The feeding stations were void until late December and early January, and grosbeaks did not appear in numbers until March. They left soon afterward.

Table 1. Arrivals and Departures in Maryland

Season	First Arrival & Location	Last Departure & Location
-1922	Jan. ? Cambridge	May 26 Glen Echo
-1942	Jan. 17 Towson	(Unknown)
1945-1946	Nov. 15 Baltimore	May 13 Dickeyville
-1947	Apr. 5 Halethorpe	Apr. 19 Halethorpe
1947-1948	(No Birds)	(No Birds)
1948-1949	(No Birds)	Mar. 10 Towson
1949-1950	Nov. 19 Patuxent Refuge	Apr. 29 Laurel
1950-1951	Dec. 23 Cumberland	Apr. 16 Berwyn
1951-1952	Oct. 23 Patuxent Refuge	May 18 Laurel
1952-1953	Oct. 27 Patuxent Refuge	Mar. 6 Kensington
1953-1954	(No Birds)	(No Birds)
19 <b>54 -</b> 1955	Oct. 22 Baltimore County	Apr. 18 Worcester County
1955 <b>-</b> 1956	Nov. 5 Prince Georges Co.	May 14 Laurel
19 <b>5</b> 6 <b>-</b> 1957	(No Birds)	(No Birds)
1957 <b>-1</b> 958	Oct. 12 Monkton & Laurel	Mar. 30 Towson
1958 <b>-1</b> 959	(No Birds)	May 5 Myersville
1959 <i>-</i> 1960	Nov. 8 Brookeville	May 15 Baltimore
1960 <b>-1</b> 961	Nov. 8 Baltimore	May 6 Talbot County
1961-1962	Oct. 8 Ocean City	May 21 Cumberland
1962 <b>-</b> 1963	Dec. 2 Rock Run Sanctuary	Mar. 25 Anne Arundel County
1963 <b>-</b> 1964	Oct. 25 Montgomery County	June 2 Towson
1964 <b>-</b> 1965	(No Birds)	Jan. 30 Patuxent Refuge
1965 <b>-1</b> 966	Oct. 7 Monkton	May 23 Greensboro
1966 <b>-</b> 1967	(No Birds)	Jan. 18 Damsite, Chestertown
1967 <b>-</b> 1968	Nov. 17 Prince Georges Co.	Lay 3 Laurel
1968 <b>-</b> 1969	Oct. 28 Marion	

The fall of 1958 produced Evening Grosbeak reports from only two counties and there were only 5 or 6 records during that winter and the following spring. But the 1959-60 winter was different. Although there were no early arrivals, November 8 at Brookeville (Weske) the earliest, the season proved to be the best on record at that time. Birds were common throughout the season and remained until May 15 (Kaestner). In the fall of 1960 a few reports were made and some of the Christmas Counts also noted grosbeaks for the first time. May 6, in Talbot County, was the late date in 1961.

Again they arrived at record-early dates in the fall of 1961: October 8 (Dyke) and October 10 (Robbins) at Ocean City and Laurel respectively. But most passed through the State or remained away from observers until adverse weather brought them to the feeders in late December and early January. May 21 was the last time they were seen in the spring of 1962. That fall there were only two reports: Rock Run Sanctuary and Talbot County. A few birds came in March 1963, but they left almost as soon as they had arrived.

As the cycle continues, the grosbeaks arrived in fair quantities in late October and early November of 1963 through most of the State. Many

remained in Maryland during the winter and record numbers were recorded on most of the 16 Maryland Christmas Counts, totals ranging from 6 to 411 individuals. This was the best year for those who operated feeding stations. Where large quantities of sunflower seeds were provided, large numbers of grosbeaks were present. Another reward of this season was their late departure; they stayed past the middle of May in many places and the last bird was seen on the record-breaking date of June 2 in Baltimore County (Ers. Lingenfelder).

After the great winter of 1963-64, a complete reverse (as would be expected) was noted the following season (1964-65). Only two reports were received: Jan. 30 (Mrs. Horn) at the Patuxent Wildlife Research Center, and 1 bird at Federalsburg (Unger). But they came back in the fall of 1965, arriving throughout most of the State from mid-October to mid-November. October 7 at Monkton (Simon) was the earliest. Again many birds were present during the Christmas Count period, but they were recorded on only 11 of the 17 counts with a high of only 100 birds on the St. Michaels Count. Many of the early arrivals passed through the State and began returning in late January and early February 1966. Many birds were still present through the first week of May and stragglers remained until the 23rd in Greensboro, Caroline County (Hewitt).

We have now returned to the winter of 1966-67. It was expected to be a poor one and it was. Mrs. Mendinhall saw the only bird all season on January 18 at Damsite. Since this was such a poor year, the fall and winter of 1967-68 should have been a good year for the birds if the 2-year cycle is correct. Unfortunately for us, nature supplied the grosbeaks with plenty of seed-bearing cones in the north, and we had to wait until 1968-69 for the grosbeaks to return. Table 1 on the opposite page gives the earliest reported arrival and latest departure dates for the State for each winter.

#### Banding

The Bird Banding Laboratory at the Migratory Bird Populations Station at Laurel has graciously given me two lists of Maryland banders:
1) all licensed banders in Maryland, and 2) all banders who have banded Evening Grosbeaks in Maryland. All 60 banders were contacted and Table 2 shows the totals received from the 26 Evening Grosbeak banders.

The table gives the name of the bander and the location of his banding station with its coordinates of latitude and longitude; it shows when each bander first banded an Evening Grosbeak in Maryland and gives the total number banded by each person. This total is broken down into males, females, and those of unknown sex. The last two columns indicate the number of recoveries (birds banded at the station and caught or found somewhere else) and "foreign" retraps (birds banded by other people and caught at these banding stations). Birds that visited different banding stations in the same town were not included in Table 2.

To give a better idea of approximate location of the banding stations and the numbers of Evening Grosbeaks banded in different parts of the

State, a map was made (Fig. 1) to show all banders and their banding totals in their proper counties. The Cecil County totals do not include Mr. Crowder's 1960 bandings because the records were destroyed by fire and totals are unavailable. Figure 1 shows the number of Evening Grosbeaks banded in each county (first number), the number of foreign retraps caught in the county (second number), and the number of recoveries made from the birds banded in the county (third number, in parenthesis).

Table 2. Evening Grosbeaks Banded in Maryland Through 1967

Name of Bander	Banding Lo	cation	First	Bande	ed M	$\underline{\mathbf{F}}$	Ū	Total	Rec.	For.
Arnold, E.	Chevy Chase	385-0770	Mar.	1958	17	42	9	68	7	3
Brackbill, H.	Dickeyville	391-0764				1	_	1	-	_
Bridge, D.	Greenbelt	<b>3</b> 90 <b>-</b> 0765	Jan.	1962	97	167	-	264	18	13
Carney, S. M.	West Laurel	390-0765	Apr.	1962	32	65	_	97	- 1	8
Cole, Mrs. R.	Towson	392-0763	Feb.	1956	26	26	1	53	_	-
	Charlestown	393 <i>-</i> 0760						, ,	ĺ	1
	Rock Run Sanc.	.393-0760								
Crowder, O. W.	Charlestown	393 <b>-</b> 0760				50	3	85+	6+	-
Fletcher, A.J.	Denton	385-0754	Mar.	1960	52	64	1	117	3	_
Garland, M.	Cumberland	393-0784	Dec.	1963	4	1	-	5	-	-
Goldbeck, C.G.	Chevy Chase	385-0770				2	-	3	-	_
Hodgdon, K. Y.		393-0784	Feb.	1958	58	123	-	181	5	2
Jehl, J.R., Jr.	Reisterstown	393-0765				2	-	4	1	_
Kleen, V. M.	Laurel	390-0765	Jan.	1962	205	397	1	603	13	32
Lubbert, E. K.		392-0763	Mar.	<b>195</b> 8	1	6	-	7	-	-
Martin, A. J.	Cumberland	393 <b>-</b> 0784	Mar.	1962	38	140	2	180	4	11
Minke, P.	Cumberland	393-0784				1	-	2	-	-
Pepper, E. J.	Denton	385-0754			588	912	24	1524	7	26
Reynolds, E.	Cumberland	393-0784			8	9	1	18	-	-
Richards, J.W.	Emmitsburg	394-0772	Feb.	1962	11	19	-	30	1	1
Robbins, C. S.		390 <b>-</b> 0765	Apr.	1952	164	304	14	472	9	31
Rossman, V. C.	Elkton	393-0755	Feb.	1961	73	169	-	242	6	11
Simon, S. W.	Monkton	393 <b>-</b> 0763	Feb.	1956	22	52	1	75	-	2
Stiles, E. W.	Laurel	390 <b>-</b> 0765	Jan.	1964	6	8	-	14	-	_
Turner, C. G.	Silver Spring	390-0770	Dec.	1963	3	2	-	5	-	_
Unger, V. E.	Federalsburg	384-0754	Nov.	1963	324	505	-	8 <b>2</b> 9	9	25
Weske, J. S.	Sandy Spring	390-0770		1964	1	-	- [	1.	- 1	-
Wood, J.E.M.	Annapolis	385 <b>-</b> 076 <b>3</b>	Dec.	1959	7	24	-	31	_	

More birds were banded on the eastern side of Chesapeake Bay than on the western side, but the Bay makes a logical place to divide the State into two sections. All the birds on the eastern side were banded near the Delaware State Line and all those on the western side of the Bay were banded near or to the west of the Fall Line. Table 3 makes a comparison of the number of birds banded each month on each side of the Bay according to numbers of males, females and unknown sex. During the first few seasons there were fewer banders on the east side than on the west.

An interesting fact that all Maryland banders know and that most non-banders have probably suspected is that in Maryland females greatly

Table 3. Evening Grosbeaks Banded per Month in Maryland

West	of Che	esapeal	ce Bay	<i>r</i>	East o	of Che	sapeak	e Bav	
Mo.& Year	M	F	U	Total	Mo. & Year	М	F	U	Total
Feb. 1946	-	1	_	1	Feb. 1946	_	_	-	-
Apr. & May 1952	39	76	-	115	Apr. 1952 May 1952	-	-	-	- -
Feb. 1956 Mar. 1956 Apr. 1956 May 1956	2 2 18 6	6 2 23 4	6 -	8 10 41 10	Feb. 1956 Mar. 1956 Apr. 1956 May 1956	15 8 9 -	27 12 11 -	- - 3 -	42 20 23
Feb. 1958 Mar. 1958	2 16	1 27	-	3 43	Feb. 1958 Mar. 1958	-	-	-	- -
Dec. 1959 Jan. 1960 Feb. 1960 Mar. 1960 Apr. 1960 May 1960	3 29 40 29 22	3 64 65 79 48 1	- - 1 - 2	6 93 105 109 70 3	Dec. 1959 Jan. 1960 Feb. 1960 Mar. 1960 Apr. 1960 May 1960	- - 4 2	- - 6 -		- - 10 2
Jan. 1961 Feb. 1961 Mar. 1961	-	- - -	- -	- - -	Jan. 1961 Feb. 1961 Mar. 1961	8 7 6	5 <b>25</b> 8	1 -	14 32 14
Nov. 1961 Dec. 1961 Jan. 1962 Feb. 1962 Mar. 1962 Apr. 1962 May 1962	2 68 33 30 76	7 115 54 54 94 17	7 1 2 3	11 190 88 86 173 18	Nov. 1961 Dec. 1961 Jan. 1962 Feb. 1962 Mar. 1962 Apr. 1962 May 1962	10 84 8 2	1 24 144 18 7 -		1 34 228 26 9 -
Nov. 1963 Dec. 1963 Jan. 1964 Feb. 1964 Mar. 1964 Apr. 1964 May 1964	23 75 65 36 46	62 199 160 74 106	- 1 - 3 - 3	- 86 274 228 110 155	Nov. 1963 Dec. 1963 Jan. 1964 Feb. 1964 Mar. 1964 Apr. 1964 May 1964	217 295 96 66 27 4	1 325 481 150 81 36	98	1 551 784 246 147 63
Nov. 1965 Dec. 1965 Jan. 1966 Feb. 1966 Mar. 1966 Apr. 1966 May 1966	2 - 4 29 5	2 1 30 7 1	1 1 1 1 1	- 4 - 5 59 12 2	Nov. 1965 Dec. 1965 Jan. 1966 Feb. 1966 Mar. 1966 Apr. 1966 May 1966	2 54 8 81 49 11	7 110 23 143 48 8	- 2 - 4 1	9 166 31 228 98 19
TOTAL W:	705	1391	31	2127	TOTAL E: TOTAL W+E:		1701 3092	<b>2</b> 8 <b>5</b> 9	2802 4929

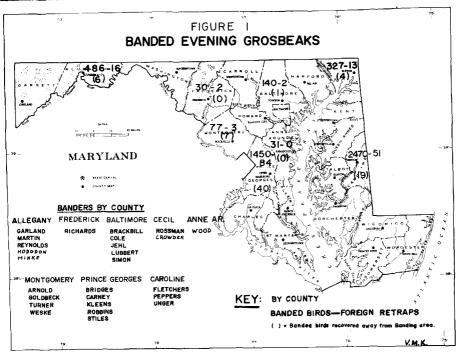


Table 4. Grosbeaks Banded in Maryland Recovered Outside the State

	1	lst :	Year	1	2nd Year After Banding					3rd Year				4th+ Year			
	Afte	er B	andi	ng	Afte	er B	andi	ng	Afte	er B	andi	ng	Afte	er B	andi	ng	
	Jan-	Jun	Jul-	Dec	Jan-	Jun	Jul-	Dec	Jan-	Jun	Jul-	Dec	Jan-	Jun	Jul	Dec	
Month of	West	East	West	East	West	East	West	East	West	East	West	East	West	East	west	East	
Banding	NWNE	MMVE	MMNE	NWNE	MMME	NWNE	NWNE	MME	MMNE	MMN E	MMNE	NWNE	MMNE	MINT	MMINE	MINE	
									ll				١. ١				
Apr 1952	1				1								1	,			
Feb 1956								1		_			[	Т		21	
Mar 1956								L		1			<del>-</del>				
Apr 1956					1		1						1 1				
Mar 1958										]			<sup>_</sup>				
Jan 1960		2		1		1			L	ļ			ļ		ļ		
Feb 1960		1	İ	Ì	Ì .				] . [	]	_		1 ,	1	1	1	
Mar 1960			ļ			1	1	1	1		1		2 2		1		
Apr 1960			L	<u> </u>	<b> </b>		ļ	ļ	<u> </u>			ļ	1 2		├		
Dec 1961				}		l .		_	1	_				١,			
Jan 1962		2	ļ	1		1		1	1 1	ļ 1		ļ	l	+	١,	1 1	
Feb 1962							L		1				<b> </b>	<u> </u>	<del>├──</del>	┼┤	
Mar 1962					1								1	ļ			
Apr 1962		-		İ	1	-		_	2	_							
Dec 1963		1		<u> </u>	L	Ļ	ļ	1	1_	1	ļ		<b>├</b>		├	├	
Jan 1964		1	-	2	1		1	]	1_	1 1	1						
Feb 1964			1		ļ				1	1	┨		1				
Apr 1964	1 1	<u> </u>	] ]	<u> </u>	<u> </u>		<u>L</u>	<u> </u>	J	L	<u></u>	<u></u>			L	<b>_</b>	

From West side of Chesapeake Bay, 10 recovered to the NW, 22 to the NE. From East side of Chesapeake Bay, 5 recovered to the NW, 23 to the NE.

outnumber the males. Although the ratio is not quite 2:1, it is close:

East of the Chesapeake: 38.3% M, 60.7% F West of the Chesapeake: 33.1% M, 65.4% F Maryland Total: 36.1% M, 62.7% F

The remaining small percentages are those birds of unknown sex.

From Table 3 we can tell that the winter of 1963-64 was the best on record for the State for this species. The Table also suggests that grosbeaks arrive at banding stations on the east side of the Bay earlier than on the west side; the the last three grosbeak seasons birds were banded in November in the east, but not in the west. In the same light, the birds also leave earlier in spring in the east than in the west—only one May report in the east, but in every May of good flight years in the west. The birds are at peak abundance from late December to the middle of April.

Many observers have noted the large quantities of sunflower seeds these birds can eat, especially if the flock is large. Some people have used over 500 pounds during one spring. The birds have been timed by several people who discovered one bird can eat as many as eight seeds a minute. Something else that has interested most observers is that the birds, with rare exceptions, leave the bird feeders before 2:00 p.m. and do not return until the next day, a curious habit of this species.

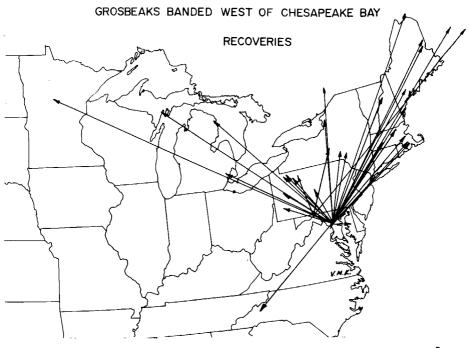
Gradually, in late April and early May, the people have noticed that their flocks are slowly disappearing; the birds are leaving for the breeding grounds in the north. But if we look at the maps, very few head straight north; most go to the northeast and some go way to the northwest. For convenience, I shall refer to the recoveries from north of Maryland as being northeast or northwest of here. The arbitrary dividing line is a straight line drawn from Washington, D. C. to the eastern side of Lake Ontario.

Table 4 on the opposite page shows the numbers of birds recovered from each month of banding, the direction they went and the approximate time of recovery after banding. If a bird had been banded in April 1962 and recovered in June of the same year, it would be placed in the column 1st Year After Banding, Jan-Jun. If it was banded on the west of the Chesapeake and went to the NE, it would appear as the 2nd number down in the first column. All birds in the column: 4th+Year After Banding were recaptured at least 3 years after banding.

Figures 2 and 3 show the direction and nearly exact location of recoveries of Maryland-banded birds. These maps also show the few recoveries to the south; the bird in North Carolina was retaken 4 years after banding.

Table 5 gives some examples of long-distance recoveries of Maryland Evening Grosbeaks. The bird taken in Manitoba is by far the most distant recovery of a Maryland-banded grosbeak. There are additional Maryland recoveries from Canada, as well as many from our northern States, but only a few of each bander's recoveries are listed here.

FIGURE 2



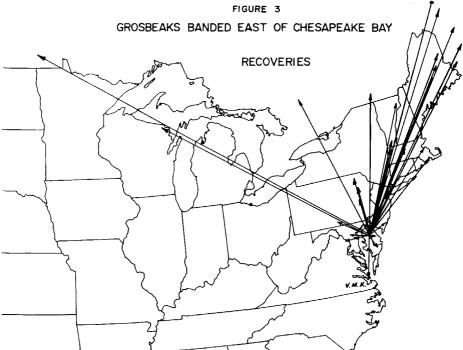


FIGURE 4

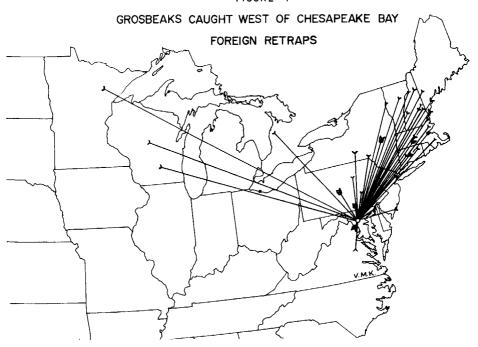


FIGURE 5

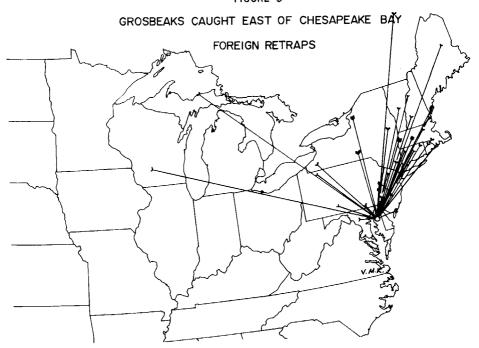


Table 5. Examples of Long-distance Recoveries

			Banding	Information	Recovery	Information
Bander	Band 8	3ex	Date	Location	Date	Location
		$\Box$				<del></del> -
Arnold, E.				Chevy Chase		L. Junaluska, N. C.
11	59-151271	บ		"		Union Lake, Mich.
Bridge, D.	59-184543	F	1 <b>-</b> 19 <b>-</b> 62	Greenbelt		Littleton, N. H.
11	62 <b>-</b> 114007		1-27-62	11	_	Escanaba, Mich.
Crowder,0.	532-49802	F	3 <b>-</b> 22 <b>-</b> 56	Charlestown		Selkirk, Manitoba
Hodgdon,K.	552-78573	M	3 <b>-</b> 19 <b>-</b> 60	La Vale		Edmonston, N. B.
11	552 <i>-</i> 78585	M	3 <b>-</b> 24 <b>-</b> 60	"	J 1	Rockcliff, Ont.
Fletcher	56-158975	M	3 <b>-</b> 29 <b>-</b> 60	Denton		Wisconsin
	61-119233	F	1-27-62	''		New Brunswick
Martin, A.	64-132437	M	4-24-64	Cumberland	6- ?-64	Bouctouche, N. B.
Pepper, E.	66-156050	М	2- 4-64	Denton	4-6-66	Vermont
Robbins, C.	54-166204	F	4-24-56	Laurel	3 <b>-</b> 24 <b>-</b> 57	Walker, Minn.
17	63-153408	F	4-11-64	"		Boiestown, N. B.
Rossman, V.	31-159621	F	1- 3 <b>-</b> 62	Elkton	, .	Pt. Claire, Que.
11	30-112597	М	1 <b>-</b> 1 <b>-</b> 62	11		Kipawa, Que.
Unger, V.E.	59-100904	М	1-11-64	Federalsburg	1 1	Ste. Florence, Que.
- 1	66-157566	F	2 <b>- 3-</b> 66		6 <b>-</b> 4 <i>-</i> 66	Blissfield, N. B.

Table 6. Grosbeaks Banded Outside the State and Retrapped in Maryland

	n_e	1st Year			2nd Year p Before Retrap B					3rd Year Before Retrap						
	Dec~	ore	reur	ap	Бет	Tul	Tun	Tox	Der	Tul	Tun -	Ten	Dec	Jul	Tun	Ten
Month of	Dec.~	Jur	Jun-	Dan	Uz at	Foot	Wost	Foct	70 C+	Fort	Jost	Fact	West	Foot	West	East
MOUPL OT	NWNE	Des C	WESU	TIME TO	MES U	NIT TATE	ATT. TATE	ATT. TATE	ים היים מ	ישומ.חו	VILLANIES OF STANK	MINITED O	VILLUATE.	MINIE	VITATALE.	ALTANIE.
Retrap	TAMME	MMME	MINT	MMAE	IA MTATE	MINE	MMD	MIAT	MIATE	MATATE	A MIATO	MIATO	A MIATO	A AATATO	MINT	V AATATT
Apr 1952							1	1								
Apr 1955			Į į						Į į				1		(	- 1
Apr 1956			İ				1				1			L		
Feb 1959											1					
Jan 1960	l		1		l		11		l		ĺ					
Feb 1961	1			1				1					<u> </u>	<u> </u>		
Jan 1962		2 7										1			1	
Feb 1962	12 4	1	1		İ				l				]		1	
Mar 1962	4										1					
Apr 1962	2 3		2										I		1	
Dec 1963		3	2	5	1	1	1	1		1		]		1		1
Jan 1964	l	5		4			2	2 1			1					
Feb 1964		3	11				1	1		1	1		1			ī
Mar 1964	1	ĺ		2			1	2		1	. 1					1
Apr 1964	Ì	Ì	1	1		]	]	Ì	1		Ì			<u> </u>		1
Feb 1966		1														1
Mar 1966	<u>L_</u>		]_1	<u> </u>			<u> </u>	<u> </u>	<u> </u>		1		<u> </u>	<u> </u>		

On West side of Chesapeake Bay, 12 captured from the NW, 34 from the NE. On East side of Chesapeake Bay, 11 captured from the NW, 46 from the NE.

As fall approaches, everyone is again on the lookout for Evening Grosbeaks. People start asking questions: Are they coming down this year? Should I buy lots of sunflower seeds? When will they get here? Will there be a big invasion? Well, when the birds do arrive, they are usually just heard or seen flying overhead or just perching in the tops of trees, not even considering feeding stations—at least not yet. But when the cold and snowy weather makes natural food supplies hard to find and difficult to get, the birds begin looking for those choice feeding stations with plenty of room, good perching trees and lots of food. Banders then begin their trapping or netting, being careful to keep their fingers away from those "Gros" beaks. Before long, several birds are banded and a few foreign retraps are also caught. Maryland banders catch many foreign retraps; see Table 6 and Figures 4 and 5.

Table 6 indicates where most of the Maryland retraps have migrated from in terms of direction and the approximate time between banding and recapture. The table is read in just the opposite direction of Table 4 in that time goes in reverse, from present to past. Therefore, a bird caught in Feb. 1961, which is in the 1st Year Before Retrap, was banded some time during the period Jul-Dec. 1960, and a Dec. 1963 bird in the same column could also have been banded in the same month as its recovery although the table indicates only that it was in the period Jul-Dec. 1963. Figures 4 and 5 show that NE and NW migrants have no partiality to what side of the Chesapeake Bay they visit, but birds from the NE still outnumber those from the NW by about 3:1. The large ends on some of the arrows indicate 3 or more records of foreign retraps originating from these locations.

A table showing places and dates from which foreign retraps originate is similar to that for birds recovered outside the State. The main difference is that foreign retraps tend to come from definite banding locations, many from the exact same point, while recoveries are more scattered.

Occasionally a banded bird will be retrapped and released from more than one place. David Bridge caught such a bird, an adult female, #59-141552, on 4-26-62 at his Greenbelt home. It was banded by Dorothy Bordner at State College, Pennsylvania on 12-28-61. She then wrote him a letter stating that this bird was also caught on 12-26-63 at Ft. Hunt, Virginia. Dave was also the first person in a string of captures of one of my birds. I banded #60-189655, a female, at my home in Laurel on 1-13-62. On 1-31-62 Dave caught it at Greenbelt; it then went down to Virginia where Arthur Fast caught it in Arlington on 4-23-62. After wandering around nearly two years, it was caught and released for a fourth time in Middleboro, Massachusetts on 12-21-63.

Since Evening Grosbeaks are erratic wanderers, not only in Maryland but throughout their range, it is not surprising that returns (birds caught at the same location after a lapse of 90 days or more) are rare. Edwin Unger at Federalsburg has recaptured two of his birds after an absence of 90 days, but both were retrapped during the same winter they were banded. He has also caught some of Essie Pepper's birds from Denton, one of which, female #61-119117, was banded on 12-31-61 and caught at

Federalsburg on 12-24-63, nearly 2 years after banding. Another female, #62-114063, banded by David Bridge in Greenbelt on 2-12-62, was caught at my home in Laurel, in the same 10-minute block of latitude and longitude, on 4-2-64, over two years later.

Although two years is a respectable recovery, there have been several others much older. Andy Martin reports a male, #52-146611, that was banded by E. Cook in Berlin, New Hampshire, on 3-25-53, that he caught in Cumberland on two occasions in 1962, April 16 being the last. This bird was over 9 years old. Chan Robbins has had two 7-year birds recovered and another over 6 years old. Mrs. Pepper also caught a bird that had been banded 7 years earlier. Several banders have recaptures of birds 4 and 5 years old.

In conclusion I want to thank Chan Robbins for much of the information in the first part of this paper; it was primarily summarized from his Season reports in Maryland Birdlife. I thank Mrs. Rosemary O'Loughlin of the Bird Banding Laboratory for verifying some of the band recovery data. And also, I wish to thank all the banders who took the time to extract and send me their data. Although this summary took longer than anticipated and some of the banders have accumulated more recovery information, I hope that all records can continue to be kept up to date.

339 Talbot Ave., Laurel

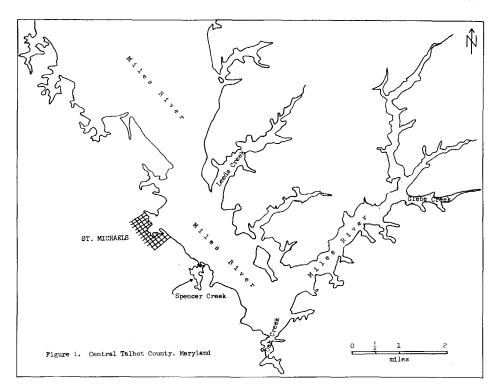
## MUTE SWANS BREEDING IN TALBOT COUNTY, MARYLAND

Jan G. Reese

On June 11, 1961, I observed a Mute Swan (Cygnus olor) in the Miles River at Newcomb, Talbot County (Robbins, Md. Birdlife 17: 121). This bird was assumed wild (though never seen flying) and believed to have been the first such sighting for the county. During the next 15 months this bird infrequently disappeared for short periods, usually during high concentrations of Whistling Swans (C. columbianus) in the area. However, it was more or less continuously observed in Oak Creek at Newcomb to mid-October 1962, at which time it disappeared with early migrating Whistling Swans.

During the destructive northeast storm of March 7, 1962, extremely high tides enabled a pair of pinioned Mute Swans to escape from their waterfront impoundment at a private estate in Leeds Creek (Fig. 1). These birds remained near their former home where they nested and fledged 3 cygnets during the spring and summer of that year (Robbins, Md. Birdlife 29: 28).

A single Mute Swan was observed near St. Michaels on February 2, 1963, at Glebe Creek on March 25, and at Oak Creek on May 2 and 26. This bird was suspected of being the one that had previously resided at Oak Creek.



Owing to the paucity of recorded observations of Mute Swans in Talbot County since the spring of 1963, I cannot piece together the entire story of the growth of this population. It seems desirable, however, to document the population's expansion in 1966, 1967, and 1968.

In 1966 the Mute Swan population on the Miles River consisted of 7 birds. Two attempts at nesting were made (Leeds Creek and Spencers Creek), but to my knowledge both pairs were unsuccessful.

In 1967, 3 pairs of Mute Swans were thought to have made nesting attempts, but no nests were located. The pair in Leeds Creek probably lost their nest to spring tides or intense boating activities. A nest at Glebe Creek was possibly destroyed by predators. The pair in Spencers Creek emerged from the marsh borders in late April with 4 cygnets. By late September all 4 cygnets had fledged and the river population stood at 11 Mute Swans.

In 1968, 3 pairs of Mute Swans nested in the Miles River estuary. The pair in Leeds Creek fledged 2 cygnets and the pair in Spencers Creek fledged 5 cygnets. The pair in Glebe Creek made two nesting attempts. The first clutch was destroyed by extremely high spring tides on April 22 and 23. The second clutch was maliciously destroyed by a group of young boys who persecuted the adult birds on June 23. The 4 cygnets

fledged by the Spencers Creek pair in 1957 had been routed from that creek and had taken up residence along the shoreline just north of there. A single Mute Swan (possibly the bird infrequently observed at various locations along the river during the past several years) seems to have taken up residence just south of the Glebe Creek pair. So at this writing the Miles River Mute Swan population is 18 birds. In addition to these, 7 other Mute Swans were observed in 1968 in other tidewater localities of Talbot County.

In 1968 the Mute Swan population in the Miles River was nearly triple that of 1966. Aside from nest and egg losses mentioned earlier, mortality thus far has not been detected; but in view of the swans' tolerance of man and his activities (shooting, boating), domesticated pets, environmental contamination, and natural enemies (predators and diseases) I am sure mortality occurs. The success of this isolated population will provide an interesting subject for future study.

St. Michaels

# A WINTER RECORD OF THE WILSON'S WARBLER AT THE PATUXENT WILDLIFE RESEARCH CENTER, LAUREL, MARYLAND

Louis N. Locke and Frances S. Locke

On December 7, 1968, we observed a small yellow warbler flitting among the branches in a line of deciduous trees near our residence on the Patuxent Wildlife Research Center, Prince Georges County, Maryland. The warbler was loosely associated with a group of House Sparrows (Passer domesticus) and Slate-colored Juncos (Junco hyemalis) that had been at our bird-feeding station. When the sparrows and juncos returned to the feeding station, the warbler flew into a deciduous bush just outside a window of our house where we observed it closely for 2 to 3 minutes. We identified this bird as a male Wilson's Warbler (Wilsonia pusilla) on the basis of the typical yellow plumage, warbler characteristics and black cap.

The only other December records of Wilson's Warblers in Maryland are those of Robbins (Stewart and Robbins, Birds of Maryland and the District of Columbia, 1958), who collected one in Worcester County on December 22, 1947, and Mrs. Jane Offutt (Maryland Birdlife 12: 99), who had one in her Easton garden, November 30 to December 30, 1956. The latest record for Prince Georges County was October 17, 1961 by Dr. Francis G. Scheider (Robbins, Maryland Birdlife 18: 15). Our observation sets a new late record for the Wilson's Warbler in the Western Shore Section of Maryland.

Patuxent Wildlife Research Center, Laurel

## \*\*\* STATE-WIDE BIRD COUNT REPORT FORMS \*\*\*

The annual State-wide Bird Count will be held this year on Saturday, May 3. We hope that all of last year's participants can cover their same areas this year. We would also like to have counts made in the five counties that were not represented in 1968. Special forms have been prepared for use in reporting the results. Party leaders who have not received these forms can obtain them from the editor.

## THE PRESIDENT'S PAGE



### V. Edwin Unger

With increasing frequency, my mail brings me a letter from someone deeply concerned about what is happening to our forests, our streams, our wildlands and our wildlife. Their concern has led them to wonder what they can do to help in this struggle to preserve for future generations the things which have made so great a contribution to their own lives. Some of these people have asked about the feasibility and practicability of conveying their property to an organization such as ours in the hope that it may be preserved as is and used in some way to promote the study and the understanding of nature. Some wish to bequeath property and intangibles which may be converted to cash and used for sanctuary purchases.

Of course, the last-mentioned plan is the one most appealing and convenient from our point of view, but the former one can have great possibilities, depending upon the location, size, and the type of the property. In either case, I am pleased to suggest consideration of a "living trust," a device mentioned in our brochures. The plan has much to recommend it. It provides a tax saving to the donor at the time the trust is created, yet he surrenders neither the use nor the income from the property until his death or the death of designated beneficiaries. This device works equally well for those who would give securities to the cause. A living trust can consist of intangibles as well as of real estate. Here again, the income accrues to the donor or to designated beneficiaries during his or their lifetime. Under this plan, estate taxes are reduced, an income tax reduction is enjoyed at once, and the ability to further the work and objectives of the recipient organization is augmented.

Additional inquiries have been relayed to me by members who have been approached by interested parties. I hope that each member so approached will recognize the occasion as an opportunity to serve the Society and to render assistance to the other party. Please feel free to pass the inquiry on to me, but assure the questioner that there is an easy and practical solution to his problem, a solution that will assure a lasting and living memorial to him and his generosity.

West Central Avenue, Federalsburg

### BROWN THRASHER OBSERVATIONS

#### Hervey Brackbill

From 1941 through 1967 I bended 90 Brown Thrashers (<u>Toxostoma rufum</u>) in four northwestern suburbs of Baltimore—Forest Park, Howard Park, Dickeyville and Larchmont; 71 of the birds were color-banded. Resulting data, and other observations, add a little to the picture of the species' behavior in Maryland that Van Velzen (1968) compiled from nest record cards.

#### Returns

Of 22 known summer residents, 3 (36.3%) returned in one or more years after the year of their banding. Counting those 8 again in their return years, of 38 known summer residents, 16 (42.1%) returned in later years. Males have shown a much greater return rate than females. Five of 6 males (83.3%) returned once or oftener; 2 of 12 females (16.6%) did.

	number	failed	re	turns	m	ade	total
	banded	to return	1_	_2	3	_4_	returns
males	6	1	3	_	1	1	10
females	12	10	1	-	1	-	4
sex unknown	4	3	_	1	-		2

None of 10 nestlings, 2 dependent fledglings or 6 larger immatures was ever trapped or--5 of them were color-banded--seen after the year of their banding.

#### Age

The greatest age I know to have been reached was 5 years; a male and a bird of unknown sex attained this. One female reached 4 years, and a male and a bird of unknown sex reached 3. These are not great ages; one thrasher banded by Mrs. Cole reached 3 or 9 years (MOS Newsletter, May, 1967) and Bent (1948:367) mentions several that reached 3 to 13 years.

#### Place of breeders in the migrations

Summer resident birds have at least occasionally been among the first thrashers to arrive in my neighborhood in spring, but only once has a summer resident been the last of the species seen in fail.

I have 3 times identified return summer resident males on the first day I saw the species, and a few more times have seen a return male on one of the first few days. In one year I saw a return female on the second day that I saw the species. The one summer resident that I saw on the last day I recorded the species was a male.

Breeding birds have occasionally disappeared as early as June and July. In the 12 years in which I have observed stays into September the last-seen bird has been a male 6 times, a female 3 times, of unknown sex 3 times.

#### Double-brooded

I have never found successive nests of a marked thrasher, but in 1956 a color-banded male was carrying food on June 8, and from August 7 to 16 was seen feeding a fledgling; he is thus shown to have been double-brooded. Van Velzen (1968:4) reported evidence of two broods in one instance.

#### Nesting data

At one nest in 1948 four eggs were laid April 29-May 2. The laying was done fairly early in the morning: egg No. 2 was laid before 7:32 a.m., No. 3 between 5:56 and 6:46 a.m., and No. 4 between 7:00 and 7:19 a.m., E.S.T.; sunrise on those mornings was at 5:10, 5:09 and 5:07.

There was some incubation from the first laying day. Egg No. 4 had been incubated 12 days when I accidentally broke it. The other 3 hatched between 4:40 p.m. May 13 and 7 a.m. May 14, and the young left the nest between 6:20 p.m. May 26 and 6:50 a.m. May 27--a nestling period of about 13 days. At another 1948 nest the young hatched May 21-22 and left June 2, nestling periods of 11 and 12 days.

Ven Velzen (1968:6) reported incubation periods of 12 and 13 days and nestling periods of 10 to 14 days.

#### winter behavior

A thrasher spent the winter 1960-61 about my home (Brackbill, 1961). Watching it on my window feeding shelf, I noticed that on very cold days its soft side plumage covered up the edge of the wings, sometimes to an extent that the white bars were chiefly obscured. Once I watched very closely in an effort to see how this came about. When the bird first alit on the shelf the wing edge was normally visible, but gradually either it sank into the side plumage or that plumage was fluffed up over it—the change occurred so imperceptibly that even at my distance of about 2 feet I could not tell which. On the same day a Cardinal (Richmondena cardinalis), a Starling (Sturnus vulgaris) and several White—throated Sparrows (Zonotrichia albicollis) did no such covering of the wing edge. And on a later, comparatively mild, day that I again particularly watched, the thrasher did not do it.

When snow covered my open shelf the thrasher dug down to the buried food by swinging its bill sharply from side to side. This made the snow fly, and seemed to be as effective as the forward-and-back scratching hops that White-throats and Slate-colored Juncos (Junco hyemalis) make under the same circumstances. All 3 of these species got down easily through an inch of snow, and once when the feeder was piled a foot high the thrasher, standing on an exposed upright rim, swung its bill against the base of the pile and got down to food.

From January 19 through February 7 in 1961 the ground was completely under snow. The only places I saw bare earth were occasional narrow

lines along the bases of house walls, though possibly some bare ground could also have been found at the base of broad evergreen trees. Yet now and then my wintering bird came to the feeder with a lump of dirt clinging to the underside of its bill. As it was chiefly eating chick grain and millet on the feeder, I thought the dirt must indicate that it needed gravel and was digging somewhere for that. But although on two days I put out a dish of bird-cage sand, and on each day saw the thrasher come a number of times, it never ate sand.

#### Song from wing and on ground

I have 6 times seen a thrasher sing from the wing. The dates were April 17, 18, 13, May 1, 7, June 19 in 5 different years—dates that fit the beginning of the two nesting periods. On 5 of the occasions the birds had been singing in one tree and sang on during, usually, the first few yards of a flight to another tree, where they then resumed song. On the other occasion a bird that had given some song on the ground while eating in my banding trap, also gave several single song notes as he flew from there to a tree.

One of the April 18 singers was a color-banded bird from the preceding year who had returned on April 15 and had been singing a great deal from them on. His singing from the wing thus was clearly a part of his proclaiming of territory and advertising for a mate--analogous to the much more familiar flight singing of the related Mockingbird (Mimus polyglottos).

On the May I occasion I found 3 thrashers in the top of a tree, one singing steadily and a second continuously chasing the third about. This went on for half a minute, then all 3 flew away in the same direction, the singer last and still singing for several yards of his flight. Here the singer appeared to be in the midst of pair formation—or perhaps his mate was in the midst of pair preservation.

#### Downtown

The thrasher is one of several species that appear fairly often in little areas of downtown greenery during the migration periods. I have repeatedly seen it in Preston Gardens in both spring and fall, and it has been reported to me in Mount Vernon Place and in the little garden of the Peale Museum on Holliday Street.

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1961. Brown Thrasher wintering in Piedmont. Md. Birdlife 17: 102. Van Velzen, Willet T.

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2620 Poplar Drive, Baltimore 21207

Evening Grosbeak

Savannah Sparrow

White-crowned Spar

Tree Sparrow

Fox Sparrow



## THE SEASON

## OCTOBER, NOVEMBER, DECEMBER, 1968

Chandler S. Robbins

Warm and moderately dry weather continued through the fall migration period, resulting in the lingering of many transients beyond their usual departure dates. The only really dull day in October was the 3rd, when southerly winds ahead of an approaching cold front held migration to a stand-still. The banding stations revealed that there was some movement on all the other days of the month. There were strong peaks of grounded birds at Ocean City on Oct. 5-6, 8-9, 14, 20-23, and Oct. 30 through Nov. 1. On each of these days except the 23rd the winds were from the north-west or north, or were calm. The cold fronts that had generated most of these flights had passed overhead on Oct. 4, 19, 23, and 28. The Oct. 14 influx of migrants apparently penetrated a cold front that lay over Pennsylvania and New Jersey that morning but that seems not to have actually passed over Maryland.

Although Maryland (except Garrett County) was spared any appreciable snow cover, a huge Arctic high pressure cell settled over the Free State on Dec. 9-13 and dropped the mercury into the low 'teens on Dec. 10-11. This froze all but the larger lakes and brought a speedy end to the fall migration.

Tables 1 and 2 give a summary of the earliest and latest 1968 fall migration dates for selected counties. As usual, the counties listed are those for which the largest number of migration dates were submitted. About two pounds of field reports (excluding Operation Recovery) are

m-13- 3														
Table 1. Fall Arrival Dates, 1968														
Species	W.Md	Balt	Howd	Mont	Pr.G	Anne	Kent	Caro	QuAn	Talb	Dore	Som	Word	
Whistling Swan	0	10/24			11/10			10/19	11/3	10/30				
Canada Goose	10/ ĉ	9/14	10/ 8	10/8	10/10	10/ 5	8/29	9/14		9/3	9/29		9/29	
Green-winged Teal	0	10/30						11/27		7/27	8/18	6/24	8/18	
Am. Widgeon	0					10/9		0		8/24	9/1	11/9	9/3	
Saw-whet Owl	0	0	0	0	0	0	10/22	0	0	11/14	0	21/25	10/26	
Hermit Thrush		10/11	10/21			10/17	10/6		9/9	10/12	10/20	11/9	9/29	
Orange-cr. Warbler	0	0	0	10/13	0	0	10/9	0	0	0	0	0	10/8	
Rusty Blackbird		11/7	0	10/6	9/18					11/22	10/20	11/9		

10/26 11/12 10/29

10/20 10/31 11/11 11/11 11/ 9 10726

10/20 10/21

11/13 11/11

11/9 11/16

|10/30|10/30|11/2|11/1|10/29|11/4| -- |11/2|11/17|11/3| -- |10/25|11/5

12/21

11/ 3 10/20 11/ 9 10/27

10/20

11,55

11/12

-- |11/ 1 |10/21 |10/ 6 |

Species   15/5   15/6   19/7   19/8   11/6   19/7   15/8   11/6   19/7   15/8   11/6   19/7   15/8   11/6   19/7   15/8   11/6   19/7   15/8   11/6   19/7   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8   15/8			Lates	t															
Cattle Egget Common Egpet 12/15 11/20 10/1h 0 0 11/2h 0 0 - 0 0 0 0 0 0 0 12/5 10/28 10/28 Common Egret 10/30 9/17 10/22 0 0 0 10 0 0 0 0 8/25 9/26 - 0/10 10/27 11/3 9 - 11/20 12/1h Showy Egret 10/30 9/17 10/22 0 0 0 10/3 0 12/1 11/30 - 11/20 12/1h Showy Egret 10/30 9/17 10/22 0 0 0 10/3 0 12/1 11/30 - 11/20 12/1h Showy Egret 10/30 9/17 10/22 10/13 0 12/2 1 11/30 - 11/20 1 11/11	Species	1965			W.Md	Fred	Balt	Howd	Mont	Pr.G	Anne	Calv	Kent	Caro	QuAn	Talb	Dore	Som	Word
Cattle Egget Common Egpet 12/15 11/20 10/1h 0 0 11/2h 0 0 - 0 0 0 0 0 0 0 12/5 10/28 10/28 Common Egret 10/30 9/17 10/22 0 0 0 10 0 0 0 0 8/25 9/26 - 0/10 10/27 11/3 9 - 11/20 12/1h Showy Egret 10/30 9/17 10/22 0 0 0 10/3 0 12/1 11/30 - 11/20 12/1h Showy Egret 10/30 9/17 10/22 0 0 0 10/3 0 12/1 11/30 - 11/20 12/1h Showy Egret 10/30 9/17 10/22 10/13 0 12/2 1 11/30 - 11/20 1 11/11	Control House		10/15	0/15		2/01		0/10	0/25			10/19			10/13	10/19	10/20	11/11	9/20
Common Egnet	-	111.	Lario																
Showledge   10/30   9/17   10/22   0   0   0   0   0   0   0   0   0		10/15	11/90						1 - 1			-							
Comman Goode									;						3/14				
Seriod - Afriged Hawk   16/17   16/7 0   16/82   16/13   9/78   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/70   16/7						-	~			- 1	-						1 ' '		
Separted Sandpiper																9/13	10/27		0
Spotted Sandpiper					, ,													. <u></u>	
Solitary Sardpiper													1 1						
Creater Vellowlegs													1 1			//			
Resident Yellowlegs					1 1					_			1 ~ 1	10/20					
Semipalmsted Sandpiper   11/35					,														
Semiphane Gel   10/30   11/3   0   0   10/18   0   0   0   0   0   0   0   0   0		12/20		II/CZ														/	
Rellow-billed Cuckoo   11/21 10/11 10/12   8/29   9/12 9/13 9/13 9/25   10/10   9/21 9/25 10/18 10/6   0   0   0   0   0   0   0   0   0				12/20							i i		1 ''					11/9	
Black-billed Cickoo		11/01											1						11/3
Milp-poor-will								2,								10, 0	-		10/ 9
Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Sect													_				l		
Chimmy Swift Ruby-thr. Hummingbird 10/2 10/15 10/18   6/30   7/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10/15   10																-	· ·	1	
Raby-thr. Hummingbird																		i i	
Rastern Kingbird    3/ 7 10/5 9/19																1 -	1		
Gt. Crested Flycatcher   10/20 10   10   6     9/5 9/2 9/15         9/19 9/8 9/14   10/20 10   11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/20 11/					, -	9/5						9/15	4					6/00	
Eastern Phoebe Yel-bellied Flycatcher Acadian Flycatcher Acadian Flycatcher 10/4 10/25 10/3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Eastern Kingbird	9/ 7	10/ 5	9/19		l .	1 '	1 * *			9/27	9/ 6				9/ 9		C/29	
Yel-oellied Flycatcher 10/10 9/29 10/26	Gt. Crested Flycatcher												9/19						9/13
Acadian Flycatcher 10/10 9/29 10/26 9/25 9/8 9/27 9/18 9/7 0 0 0 9/25    Least Flycatcher 10/14 16/22 10/27 0 0 9/17 9/15 0 0 0 0 0 0 9/20 0 10/7    Battern Wood Pewee 10/20 16/27 16/27 10/7 9/22 10/6 9/28 10/14 9/19 9/30 10/6 9/29 10/9    Tree Swallow 10/30 10/16 11/2 10/7 9/22 10/6 9/28 10/14 9/19 9/30 10/6 9/29 10/9    Barn Swallow 9/11 10/25 9/17 10/4 9/4 9/15    Burn Swallow 9/11 10/25 9/17 10/4 9/4 9/15    Burn Swallow 9/12 9/1 9/14 8/31 9/4 8/24 8/27 9/15    Blue Jay 10/26 11/1 11/6 10/9 10/24 10/11    Red-br. Nuthatch 10/30 10/27 11/15 11/27 11/17 11/1 10/20 10/16 10/27    Red-br. Nuthatch 11/2 10/31 10/29    Catbird 11/4 11/24 12/2 10/20 10/16 10/12 11/2 10/18 10/2 10/20 10/15 10/20 10/6    Brown Thrasher 11/3 11/20 12/2 12/5 9/28 10/16 10/14 10/28 10/14 10/16 10/12 11/2 10/17 10/16 10/17    Wood Thrush 11/24 10/31 10/29 10/12 10/16 10/15 10/12 10/17 9/25 10/27 11/9 10/27 10/17    Wood Thrush 11/24 10/30 10/27 10/20 11/16 10/15 10/12 10/17 9/25 10/27 11/9 10/27 11/9 10/27    Wood Thrush 10/24 10/30 10/27 10/20 11/16 10/15 10/15 10/17 9/25 10/27 9/26 10/3 10/27    Brown Thrush 10/24 10/30 10/27 10/20 11/16 10/15 10/15 10/17 9/25 10/27 9/26 10/6 10/3 10/27    Gray-cheeked Thrush 10/26 10/30 10/27 10/20 11/16 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15	Eastern Phoebe					9/16	9/29	12/6											
Least Flycatcher   10/14 10/22 10/27     0   0   9/17   9/15   0   0   0   0   0   0   0   0   0	Yel-bellied Flycatcher	10/4	10/25	10/3	0	0			0	0	0		9/23				_	· i	
Eastern Wood Pewee   10/20 10/27 10/27   10/7 9/22 10/6   9/28 10/14 9/19 9/30 10/6 9/29   10/7 9/22 10/6   10/25 10/25 11/29   10/25 11/29   10/25 11/29   10/25 11/29   10/25 11/2   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25 11/25   10/25	Acadian Flycatcher	10/10	9/29	10/28				9/25			4				/	0			
Tree Swallow   10/30 10/16 11/2       10/6       10/5     10/25 10/13 10/29   10/27 11/9     10/4   9/4       9/15     9/15     9/15     9/15     9/15     9/15     9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       9/15       10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/25   10/	Least Flycatcher	10/14	10/22	10/27		0	0	9/17	9/15	0	0	1 -						0	
Tree Swallow   10/30 10/16 11/2       10/4   9/4       10/5     10/5   10/31   10/27   11/9     10/4   9/4       9/15     9/15   10/27   11/9     10/4   9/4       10/5     10/5   10/31   10/29   10/27   11/9     10/4   10/41     10/4   10/41     10/4   10/41     10/4   10/41     10/4   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42   10/42	Eastern Wood Pewee	10/20	10/27	10/27			10/7	9/22	10/6			9/28	10/14			10/6		i . I	10/9
Barm Swallow   9/11 10/25 9/17       10/4   9/4         8/24   8/27       9/15   9/2   9/2   10/26   11/1 11/6       10/9   10/24   10/11     10/13   10/30     10/26   10/27     10/23   10/26   11/1 11/6       10/2   10/11     10/13   10/30     10/26   10/26   10/27     10/23   10/26   11/2   10/27   11/15     11/27     11/17   11/2     10/26   10/26   10/27   11/26     10/26   10/27   11/26     10/26   11/2   10/27   10/26   10/27   11/26     10/26   11/2   10/27   11/26     10/26   11/26   11/29   11/29   10/26   10/27   11/26   11/29   11/29   10/26   10/27   11/27   10/28   10/26   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   11/29   10/27   10/28   10/27   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28		10/30	10/16	11/2					10/6			10/5		10/25		10/29	10/27	11/9	
Purple Martin 9/12 9/ 1 9/14 6/31 9/ 4 10/9 10/24 10/11 10/13 10/26 11/1 11/6 10/9 10/24 10/11 10/13 10/26 11/1 11/6 10/9 10/24 10/11 10/13 10/26 11/1 11/6 10/9 10/24 10/11 11/2 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/12 10/1							10/4	9/4				9/15			9/15				
Blue Jay											8/24	8/27			9/ 2			;	
White-br. Nuthatch   Red-br. Nu							1	10/9	10/24	10/11		10/13	10/30		10/20	10/6	10/27		10/23
Red-br, Nuthatch					H			1		11/27		11/17	11/1		10/20	10/16	<del></del>		10/30
Fouse Wren   11/2 10/22 10/25   11/3   10/10 10/7 10/12 10/25   10/20 10/5 10/25   11/4 11/24 12/2   10/20 10/16 10/12 11/2 10/18 10/5 10/20 10/5 10/20 10/5 10/20 10/5 10/20 10/5 10/20 10/5 10/20 10/5 10/20 10/5 10/20 10/5 10/20 10/5 10/20 10/5 10/20 10/20 10/5 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/20 10/					ll .				l		1				10/25	10/6		!	11/2
Catodrd   11/4 11/24 12/2   10/26   10/16   10/12   11/2   10/18   10/5   10/20   10/5   10/20   10/5   10/20   10/15   10/20   10/15   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20   10/20						l .								9/15	10/12		10/27	11/9	10/6
Brown Thrasher   11/3   11/20   12/2   12/5   9/28   10/16   10/14   10/28   10/14   10/16   10/12   10/17     10/12   11/2   10/27     10/20   10/20   10/17   10/16   10/17   9/28   10/27   9/26   10/3   10/27   9/26   10/3   10/27   9/26   10/3   10/27   9/26   10/3   10/27   9/26   10/3   10/27   9/26   10/3   10/27   9/26   10/3   10/27   9/26   10/3   10/27   9/26   10/3   10/27   9/26   10/3   10/27   9/26   10/3   10/27   9/26   10/3   10/27   9/26   10/3   10/27   9/26   10/3   10/27   9/26   10/3   10/27   9/26   10/3   10/27   9/26   10/3   10/27   9/26   10/3   10/27   9/26   10/3   10/27   9/26   10/3   10/27   9/26   10/3   10/27   9/26   10/27   9/26   10/27   9/26   10/27   9/26   10/27   10/27   9/26   10/27   10/27   9/26   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27   10/27														11/29		10/16	`	11/11	10/31
Wood Thrush																	10/27		
1/4   10/3   10/2   11/16       11/3   10/2   11/16     11/3   10/2   11/16     11/3   10/2   11/16     11/3   10/2   11/16     11/3   10/2   11/16     11/3   10/2   10/15   10/5   10/5   9/28   10/2   9/26   10/13   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2   10/2						L				_	1			0/26	10/ 6	107.8	0/20		10/31
Swafnson's Thrush   10/24 10/30 10/27     10/20   11/20 10/15   12/1   10/25   10/25   9/28   10/20   9/26   10/13   10/27     10/24   10/26   10/27   10/26   10/27   10/26   10/27   10/26   10/27   10/26   10/27   10/26   10/27   10/26   10/27   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/27   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28   10/28		11	/ 3-	, ,	11				10/17			1 ''			10, 0		1		
Gray-cheeked Thrush   10/26 10/30 10/26   0   0   10/12 10/17 10/16 10/12 10/12 10/12 10/2   10/24   9/26 10/33 10/33 10/20   0   10/30   Veery   10/13 10/23 10/14       10/10   9/29 10/3   9/30     9/28   9/24     10/4 10/8   9/29   0   10/5   Blue-gray Gnatcatcher   9/21 10/9 10/1       8/30   9/6   9/15         9/13   9/14       10/20   Blue-gray Gnatcatcher   11/29 11/13 11/29     10/16 11/21 11/1   10/23   10/11   10/24   10/15   11/3     10/20       11/23   Cedar Waxwing   12/8 11/20 12/9     9/28   10/31   10/21   11/1     11/9   9/22   11/1   11/7   10/5   11/9   9/29   11/9   10/31						10/00			10/1						10/13			i l	
Veery     10/13 10/23 10/14       10/10 9/29 10/ 3 9/30      9/28 9/24      10/ 4 10/ 8 9/29 0 10/ 5     9/29 0 10/ 5       Blue-gray Gnatcatcher Ruby-crowned Kinglet Cedar Waxwing     11/29 11/13 11/29      10/16 11/21 11/ 1 10/23 10/11 10/24 11/ 1 1     11/29 11/13 11/29      10/16 11/21 11/ 1 10/23 10/11 10/24 10/15 11/ 3 11/ 3     11/3 11/ 7 10/20 11/ 9 9/29 11/ 9 10/31	- 11 - 11 - 11 - 11				()	'		1	1 '			1		1 * '					
Blue-gray Gnatcatcher   9/21 10/9 10/1     8/30 9/6 9/15       9/13 9/14       10/26   11/29 11/13 11/29     10/16 11/21 11/1 1 10/23 10/11 10/24 10/15   11/3     10/20       10/26   11/3   11/3     10/20       11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3   11/3					11	1								1 "					
Ruby-crowned Kinglet   11/29   11/13   11/29     10/16   11/21   11/1   10/23   10/11   10/24   10/15   11/3     10/20       11/3   11/2   11/4   10/23   10/21   11/1   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/2   11/		1								9/30		9/28	9/24	1	I <del></del>	_	1		
Cedar Waxwing   12/8 11/20 12/9     9/28 10/31 10/21 11/1     11/9 9/22 11/1   11/7 10/5 11/9 9/29 11/9 10/31		11 27,												9/13					
- 99444 Nami 216     1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -										10/11							1		
White-eyed Vireo   10/18 10/22 10/21       9/14   9/19     9/21     9/3 10/9     9/29       9/27	Cedar Waxwing					9/28			11/ 1		11/ 9			$\mu_{1}/7$		11/9	9/29	11/ 9	
	White-eyed Vireo	10/18	10/22	10/21			9/14	9/19		9/21		9/3	10/9		9/29				9/27

Table 2. Fall Departure Dates, 1968

		atest																
Species	1965	1966	<u> 1967</u>	W.Md	Fred	Balt	Howd	Mont	Pr.G	Anne	Calv	Kent	Caro	QuAn	Talb	Dore	Som	Word
Solitary Vireo	10/28 1	0/24	10/27		0	10/25	10/22	0	10/12	0	0	10/21	0	10/6	0		0	10/23
Red-eyed Vireo	10/27 1	0/24	10/27		9/26	9/29	10/13	10/16	10/ 5	10/11	9/22	10/21	9/26	10/13	10/6	9/29		10/26
Black-&-white Warbler	10/29 1	0/28	10/22			10/10	9/19		9/29	10/10	9/28	10/20	9/30	107 5	10/12	10/20		10/21
Worm-eating Warbler	9/18	9/29	9/14				9/14					9/12		9/ 7		0	0	
Blue-winged Warbler	9/51	0/26	10/8			0	9/11	0	0		0	70	0	9/12	0	0	0	9/ 9
Tennessee Warbler	10/17 1	0/23	10/22	0	0	0		0	0	10/13	9/2	10/6	0	9/21		0	0	10/31
Orange-crowned Warbler	1	0/30	10/31	0	0	0	0	10/13	0	0	0	11/ 1	0	0	0	0	0	107 E
Nashville Warbler	10/25 1	0/21	10/30		10/3	10/5	9/27	10/10	0	10/10	9/6	10/ 8	0	10/6	0	0	0	11/2
Parula Warbler	10/15 1	0/28	10/27			9/28	9/15	10/26	9/21	10/5	9/28	9/20	9/18	9/27		0	0	10/14
Yellow Warbler	9/27	9/30	10/16			9/14	9/16	9/ 7	0	0	0	0	9/12	9/19		0	0	10/5
Magnolia Warbler			10/22		10/7	10/20	10/17	10/11	10/12	9/14	10/12	10/16	9/28	10/5	10/ 5	9/29	0	10/21
Cape May Warbler	10/25 1	0/30	10/29	0	0	0	10/ 2	10/9	9/22	9/30	0	9/27	0	10/20		0	0	10 29
Black-thr. Blue Warbler	10/27 1	0/24	10/31		10/9		10/10	10/6	10/12	9/27	9/26	10/16	0	10/12	10/9	9/29	0	10 24
Myrtle Warbler	11/25 1	2/10	12/2				11/24	11/ 1	11/2	10/27		11/ 2			11/3			11/3
Black-thr. Green Warble	4		10/22		10/13	· /	10/10	10/15	9/29	9/27	10/12	10/14	9/28	10/ 5		0	0	1C 23
Blackburnian Warbler			10/ 7			10/8	9/19	10/8	0	0	0	9/24	0	10/6	0	0	0	10/6
Chestnut-sided Warbler	10/25 1	0/22	10/12		9/19	9/15	9/28	9/7	0		0	10/ 6	0	10/4	9/29	0	0	10 6
Bay-breasted Warbler	10/24 1	c/16	10/14	0	9/25	9/21	0	9/26	0	9/30	9/28	10/23	0	9/29		0	0	10 6
Blackpoll Warbler	10/29 1	0/31	10/27	0	9/26		0		9/28	10/12	10/5	10/22		107 4		0	0	10'27
Prairie Warbler	10/11 1	0/2	10/8		9/19		6/28			9/14	9/7	9/17		10/20				10/22
Palm Warbler	11/21	0/31	11/2	0	10/6	10/10	10/4	10/27	10/6		0	11/1	0	10/20		10/20		11 2
Ovenbird	10/14 1	0/24	10/27			9/29			9/29		9/28	10/11	9/26	10/ 5	10/6		11/9	10 31
Northern Waterthrush	10/14 1	0/18	10/21		0	0	0	9/15	0		0	10/ 9		10/4	107 9	0	0	10/13
Kentucky Warbler		9/24	9/18			9/15						9/13		0	0	0	0	
Connecticut Warbler	10/16 1	0/8	<b>1</b> 0/9	0	9/22	0	9/19	9/26	9/28	0	9/28	10/ E	0	9/29	0	0	0	10/1
Mourning Warbler	10/71	0/ 9	10/12	0	0	0	0	Э	0	0	0	10/10	0	9/17	0	3	0	107 E
Yellowthroat	10/30 1	1/24	10/23		10/12		10/17		9/29		9/26		10/21	10/20	10/12	9/29	~-	10/26
Yellow-breasted Chat	10/18 1	0/29	10/27			9/23	10/14:					10/15	9/21	9/29	10/15			11 1
Hooded Warbler	10/ 5 1	0/5	10/30			9/7					9/8	0	0	97 E	0	0	0	
Wilson's Warbler	11/81	0/26	10/6	0	10/1	9/29	9/28		0		9/5	10/9	0	9/15	0	0	0	10/5
Canada Warbler	9/26 1				.0	9/15	∋/15.	<del></del> -	.0	9/18	С	9/14	.0	9/27	9/29	C	0	9/23
Am. Redstart	10/27 1	1/ 1	10/29		10/10	9/29	10/ 1	9/26	10/5	9/16	9/22	10/14	9/27	10/4	9/21	9/29		10/23
Bobolink		9/30		8/30		0	0	0	- <b>-</b>		9/22	97.3		9/14	9/22	9/29	8/29	10/2
Orchard Oriole		9/17	9/, 7		9/28	9/30	9/ 1			8/ 7	8/4		9/, 7			0		
Baltimore Oriole	10/28 1	,	11/17			11/22				9/20	11/30	9/14	9/6	9/16		0	11/10	10/13
Scarlet Tanager			10/23		9/28	11/23	10/15	10/8	10/6	9/ 6	9/22	10/16	9/14	10/5	10/12	0		10/22
Summer Tanager	10/21 1			0	0	0	0	0	0		9/4	0	9/19	0				10/1
Rose-breasted Grosbeak	10/51			11/12	9/28		10/11	10/7	9/29	9/21	9/28	10/20	10/15	10/2	10/6	9/29	ာ	107 9
Blue Grosbeak	9/19 1			0	0						9/12	9/22	10/12	9/21			- <b>-</b>	10 / 5
Indigo Bunting	10/29 1	,	, . <del></del> .			10/13		10/6			10/4	10/16	9/28	10/13	10/17			10/25
Rufous-sided Towhee			12/ 1	11/2	11/17	11/15	11/29	11/10			11/18	10/31		10/20	10/15			11/3
Chipping Sparrow			10/30	11/ 2			10/30	10/23	10/12		10/8	10/31		10/12	9/30			10/22
White-crowned Sparrow				10/30	7-0		10/2)			0	0	10/31		0				10'17
Fox Sparrow	12/ 3 1				11/28		12/27		12/15			11/1		7.7				
Lincoln's Sparrow	11/ 7 10	U/31	10/53	0	9/19	0						10/12	0	10/20	0	2./29	0	10/16

summarized here. Although the listed acknowledgments include only those observers who submitted the lion's share of the reports that were used in the tables, all communications that contributed to this compilation are very much appreciated. The principal contributors by counties were: Western Md. (Garrett, Allegany and Washington Counties) -- Stanley R. Eckstine, Allen Eckstine, Mrs. Donald Cutshall, Kendrick Y. Hodgdon; Frederick -- Dr. John W. Richards, William Shirey; Baltimore City and County -- Mrs. Robert E. Kaestner, Stephen W. Simon, Burton J. Alexander, C. Haven Kolb, Mr. and Mrs. Richard Krahe, Mrs. Joshua Rowe; Howard--Mrs. Dorothy Rauth, Morris Collins, Mrs. G. Colin Munro, Willet T. Van Velzen; Montgomery -- Robert W. Warfield, Mrs. John Frankel; Prince Georges --Chandler S. Robbins, John H. Fales; Anne Arundel -- Paul and Danny Bystrak, Prof. and Mrs. David Howard, Burton Alexander; Calvert--John H. Fales; Kent--Mr. and Mrs. Edward Mendinhall; Caroline--Marvin W. Hewitt, Mr. and Mrs. A. J. Fletcher, Ethel Engle, V. Edwin Unger; Queen Annes--Mr. and Mrs. David Bridge, Danny and Paul Bystrak; Talbot--Jan Reese, Don Meritt, Harry Armistead; Dorchester -- Harry Armistead; Somerset -- Mrs. Richard D. Cole, V. Edwin Unger, Chandler S. Robbins; Worcester -- Mrs. Richard D. Cole, Ted and Aldeen Van Velzen, Mrs. M. B. Donnald, Mrs. M. B. Peacock, Mrs. Aldridge Pepper, Capt. J.E.M. Wood, C. S. Robbins, Samuel H. Dyke.

Loons. Common Loons were scarce in mid-winter, but Harry Armistead made a record-breaking count of 365 on Nov. 9 in the Deal Island area of Somerset County; 145 of them were seen from one point at Chance. Mr. Armistead pointed out that these birds were seen on smooth water under excellent visibility, so his count will be hard to duplicate in future years. With the Common Loons at Chance were 2 Red-throated Loons. On Nov. 24, Robert Warfield estimated that Red-throated Loons were migrating offshore along Assateague Island at the rate of 30 per minute between 10 a.m. and 11:30 a.m. The State Park has erected a platform near the Assateague parking area and this provides a good spot for making offshore observations (when it's not too windy).

Gannets and Cormorants. Although Gannets probably occur in the lower part of Maryland's Chesapeake Bay each year, they are seldom seen and reported. Harry Armistead saw 3 from Deal Island, Somerset Co., on Nov. 9. Thanks to a new set of offshore stakes, he counted a record 187 Double-crested Cormorants from Hoopers Island on Oct. 20, and 141 on the 27th.

Herons. There was a whole rash of late heron reports, involving all Sections of the State except the Allegheny Plateau. In the Hagerstown Valley the Eckstines noted a Cattle Egret on Oct. 30, the latest inland observation for Maryland; and Don Meritt saw another in Talbot County as late as Dec. 5. At Lake Roland on the north edge of Baltimore, a Common Egret was in residence until Nov. 24 (Mrs. Norwood Schaffer), a new Piedmont record. Edith Cobley broke the State departure date for the Louisiana Heron when she identified one near St. Michaels on Oct. 13; this record was short lived, however, because Armistead found a still later individual at Deal Island Wildlife Management Area on Nov. 9. And finally, a very late Least Bittern was identified at Denton on Dec. 12, 3 days beyond the State record (Marvin Hewitt and Mrs. A. J. Fletcher).

A tally of 137 Cattle Egrets at Hoopers Island on Oct. 20 (Armistead) is an all-time high for Dorchester County. Although not in the category with the record-breakers, a Dec. 29 count of 23 Great Blue Herons within the boundaries of the new M. O. S. Sanctuary at Irish Grove in Somerset County (Danny Bystrak and William Anderson) will be of interest to many readers. Single Green Herons are discovered on Christmas Counts every few years; for the first time, 2 were noted at Ocean City on Dec. 27.

<u>Waterfowl</u>. The 3 Mute Swan cygnets at Linchester Pond, Preston, were still accompanied by parents on Dec. 6 (Hewitt). It was another excellent season for Canada Geese along the east shore of the Chesapeake; Ocean City's total of 21,460 on Dec. 27 was nearly twice their previous high, and Southern Dorchester County had their fourth highest with over 36,000 individuals. A Blue Goose at Holly Beach Farm near Sandy Point on Dec. 29 was a winter rarity for the Western Shore (Prof. Harold Wierenga). A concentration of 1,200 American Widgeon at Deal Island on Nov. 9 is noteworthy for that area (Armistead) as is a single Surf Scoter at Druid Hill Reservoir in Baltimore on the same day (Peggy Bohanon).

Hawks. Although this was a good Goshawk year on the Pennsylvania ridges, not one of this species was reported in Maryland. The best Cooper's Hawk count (3) came from the M.O.S. Sanctuary at Irish Grove on Nov. 9 (Unger). William Anderson saw a Golden Eagle at close range in the Pocomoke Swamp near Libertytown on Dec. 27. On Assateague Island James Ruos counted 12 Pigeon Hawks on Sept. 28 and 25 Marsh Hawks and 30 Sparrow Hawks on Oct. 4. Tardy Broad-winged Hawks were spotted in three counties: at Highland on Oct. 21 (Mrs. Harry Rauth), Dover Bridge on Oct. 23 (A. J. Fletcher), and near Blackwater Refuge on Oct. 27 (Armistead). A late Peregrine Falcon was seen over Laytonsville on Nov. 26 (Warfield).

Rails and Gallinules. Virginia Rails were much in evidence at the M.O.S. Sanctuary at Trish Grove, where they supplied the staple diet for the local Barn Owl. Sora, King and Clapper Rails were heard there in smaller numbers. Armistead heard 9 King Rails in the Nanticoke River marshes along Route 50 east of Vienna just before sunrise on Nov. 24, and he saw 2 late Common Gallinules at Deal Island on Nov. 9.

Shorebirds. Edwin McKnight continued to check the Summit Hall turf farm  $\overline{5}$  miles up-river from Seneca, where he counted 11 Golden Plovers on Oct. 6, 6 on the 12th and 7 on the 20th; none were found on subsequent week ends. A stray Black-bellied Plover was seen with 2 Killdeer at Sandy Point State Park on Dec. 27 by W. Howard Ball.

Gulls, Terns and Skimmers. Notable high counts by Armistead included 120 Great Black-backed Gulls, 1,150 Laughing Gulls, and 2 Royal Terns at Barren Island, Dorchester County, on Oct. 20, and 18 Caspian Terns on the same day; the Caspians were mostly at Elliott Island. These gulls and terns were evidently taking shelter from Hurricane Gladys which was churning the Atlantic at the mouth of Chesapeake Bay. A belated report of a Black Skimmer seen at Sandy Point State Park on Aug. 9 is worth noting (Prof. Wierenga). Totals of 3540 Ring-billed Gulls and 362 Bonaparte's Gulls on Dec. 27 were the highest in the 20-year history of the

the Ocean City Christmas Counts.

Owls. Both Damsite and Ocean City had their best banding totals for Saw-whet Owls when Mr. and Mrs. Edward Mendinhall tagged 10, Oct. 22-31, and Mrs. Cole and party ringed 9, Oct. 26-31. Kent Point, unfortunately, had closed for the season before the Saw-whets arrived. Four species of owls were added to the official list for the new Sanctuary at Irish Grove in Somerset County during this period: Barn, Great Horned, Shorteared and Saw-whet.

Woodpeckers. Although I have not seen copies of all the Christmas Counts, it appears that between 60 and 75 Pileated Woodpeckers were counted in Maryland during Christmas week; Ocean City tied their highest total (20), and Allegany County and Southern Dorchester County were very close behind with 19 and 18 individuals. An immature Red-headed Woodpecker in the Quindoqua churchyard on Nov. 9 was a rarity for Somerset County (Unger). Yellow-bellied Sapsuckers seemed to be up in numbers; Ocean City observers had their second highest figure of 20, and way out in the mountains the Allegany team found 11--an all-time record for that area.

Flycatchers, Swallows. Eastern Phoebes are gradually becoming reestablished as wintering birds in Maryland. They were found on most of the Coastal Plain Christmas Counts, with a maximum of 6 at Ocean City. Glenn Austin saw one in North Laurel on Dec. 6 and Ted Van Velzen found one at the Patuxent Wildlife Research Center on Dec. 13. The Patuxent bird is known to have survived the winter. Harry Armistead estimated 19,000 Tree Swallows at Hoopers Island just after sunrise on Oct. 27. The only previous Maryland counts in excess of 5,000 birds have been made in October in that same county.

Jays, Chickadees, Nuthatches. There must have been a bumper crop of Blue Jays in the Northeast, judging by the heavy flights through Maryland in late September and the first two-thirds of October. Since our mast crop was a light one, most of the birds continued southward; yet enough remained to provide a prominent showing on the Christmas Counts. The Black-capped Chickadee flight failed to penetrate into Maryland except in the mountains. Red-breasted Nuthatches began to thin out in the last week of October, and only small numbers were still present at Christmas. The highest Christmas tallies came from Denton (16 birds) and Allegany County (12 birds).

Wrens. For the third time a Bewick's Wren was found on the Ocean City Count; this bird was seen by Will Russell in the slum area of West Ocean City, Dec. 27. The only Short-billed Marsh Wrens reported were on the Somerset County M. O. S. Sanctuary, Dec. 29 (Paul Bystrak, William Anderson). Seven House Wrens were found on the Ocean City Count.

Catbirds and Thrashers. Catbirds wintered in exceptional numbers, surpassing Brown Thrashers in several areas; there were 24 on the Ocean City Count (second highest), 14 in Southern Dorchester County, 3 at Denton, and singles at Seneca (observer not given) and Triadelphia (Bystraks).

Thrushes. Mrs. Rauth made half-hour counts of Robins flying over her home near Highland each evening in October; her cumulative total was 3,186 birds of which 599 were tallied on the 15th and 669 on the 17th. October 5 was definitely the peak day for thrushes along the coast, with 33 Wood Thrushes, 121 Swainson's and 74 Gray-cheeks banded at Ocean City (Mrs. Richard D. Cole); seasonal Ocean City totals of 611 Swainson's and 240 Gray-cheeks set new records. The Sept. 9 date for Hermit Thrush arrival in the Queen Annes column of Table 1 is not a typographical error; one was banded on this day at Kent Point, a whole month ahead of schedule (David Bridge). There were late records too: a Swainson's Thrush found dead in Baltimore on Nov. 20, and another seen at Seneca on Dec. 1 (Warfield and others).

Warblers. It is becoming increasingly difficult to break late departure records of warblers in Maryland, although hardly a year has gone by without extensions for two or three species-especially at the banding stations. Very late, though not the latest on record, were: Tennessee Warbler banded at Ocean City on Oct. 31 (Mrs. Cole), Orange-crowned banded at Damsite near Chestertown on Nov. 1 (Mrs. Mendinhall), Nashville banded at Ocean City on Nov. 2 (Mrs. Cole), Prairie banded at Ocean City on Oct. 22 (Mrs. Cole), Ovenbird seen at Oriole, Somerset County, Nov. 9 (Armistead). A female Pine Warbler appeared at the Robbins' feeder in the Piedmont west of Laurel on Dec. 21, but was not sighted after the 27th.

Orioles, Tanagers. Late Baltimore Orioles were at Pikesville on Nov.  $\overline{22}$  (Frances Clancy) and at Irish Grove on Nov. 10 (Unger). Except for single December and January dates, a Scarlet Tanager banded at Monkton on  $\underline{\text{Nov.}}$  23 is the latest ever logged for Maryland (Stephen Simon).

Finches. Both northern and southern finches created excitement this winter. Two Rose-breasted Grosbeaks at Hagerstown on Nov. 12 were very late (Stanley Eckstine); a third, a male, had the good fortune to find Marvin Hewitt's feeder at Greensboro on Dec. 18 and was still present at the end of the period. The first Evening Grosbeaks (15 birds) were seen on Oct. 28 near the southernmost tip of the State, a mile west of the M.O.S. Sanctuary in Somerset County (Unger). Subsequent arrivals followed on a daily basis: Indian Head on the 29th (John Wiggins), many Baltimore sightings on the 30th and 31st, and half a dozen other counties in the next four days. Largest numbers occurred in the central Eastern Shore, where close to 1,000 were found on the St. Michaels Christmas Count and hundreds were banded at Federalsburg (Unger). With the grosbeaks came Pine Siskins, American Goldfinches, and small flocks of Purple Finches. Other northern finches were indeed at a premium: 2 Pine Grosbeaks near Blackwater Refuge on Dec. 26 (Paul Kalka), 2 Common Redpolls at Bishops Head on the same day (Armistead), and 20 Red Crossbills at Hillsboro on Dec. 21 (Terry Moore). Single Dickcissels were seen north of St. Martin on the Ocean City Christmas Count (Robbins party) and at Professor Wierenga's feeder in Annapolis on Dec. 26.

Lark Bunting, Sparrows. The fourth Maryland observation of a Lark Bunting was recorded on Dec. 3 near the Potomac River just south of Blue Plains in Prince Georges County by Leonard Teuber; the bird was most

accommodating and was subsequently seen by many other observers. Sparrows as a group were present in larger numbers than usual, especially the Tree and Fox Sparrows and Slate-colored Junco. On the Seneca Count as many as 1,815 juncos and 392 Tree Sparrows were enumerated. A Fox Sparrow wintered as far west as Allegany County and about 10 in the vicinity of the Fall Line.

Bureau of Sport Fisheries and Wildlife Migratory Bird Populations Station, Laurel

# THIRD LIST OF CONTRIBUTORS TO SOMERSET COUNTY SANCTUARY November 20, 1968 - March 19, 1969

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## FOUR-YEAR SUMMARY OF THE BREEDING BIRD SURVEY IN MARYLAND

Chandler S. Robbins

In June 1965, 60 M.O.S. members participated in the first trial run of a continental Breeding Bird Survey, designed to document changes in abundance of North American birds in the years to come. Progress reports in Maryland Birdlife (21:73-79 and 22:88-93) summarized the purposes and results of the first two years of the Survey in Maryland. The present report brings Marylanders up to date by summarizing the Maryland results for 1967 and 1968 and relating these to data from the two prior years.

The Breeding Bird Survey in Maryland consists of a randomly selected series of 50 roadside counts of 50 3-minute stops each. Coverage begins one-half hour before sunrise on a June morning, the stops are one-half mile apart, and the count is completed in about 4 to 4 1/2 hours. The records are summarized on special forms by the observers, then are entered on magnetic tape and analyzed by computer.

In 1965 only Maryland and Delaware were included in the Survey. In 1966, coverage was extended west to the Mississippi River, in 1967 to the Great Plains states and provinces, and in 1968 to the West Coast.

In the first year, all 50 Maryland routes were run; but in subsequent years there have been a few gaps in the coverage. Consequently, it would be meaningless to compare the total numbers of various species recorded from year to year. Instead, we might divide the total finds for a given year by the number of routes covered in that year and compare the mean for that year with mean tallies for the other years. But if there were fewer routes run in the mountains in a certain year and more run on the Coastal Plain, the mean counts for a mountain species would show an artificial drop and perhaps mask any actual trend in population. For this reason, we take the trouble to divide the State into ecological regions, compute an average (mean) figure for each region and then combine the regional averages to obtain a weighted mean for the State. This weighted mean is the sum of the products of the regional means multiplied by their respective proportions of the total area of the State.

It would be great if we could observe all of the birds present at each 3-minute stop! Since we know that this is impossible, we always stress the fact that we observe a high percentage of conspicuous birds and a much lower percentage of the more secretive species. This means that the most commonly recorded birds are not necessarily the commonest birds in that State. It is still of interest to know which species are noted in greatest numbers.

Table 1 gives a summary for the 12 most conspicuous species. The left half of this table shows the actual totals reported for each species, together with the number of routes that were run each year. The right half is based on only the 39 routes that were covered in all four years.

The numbers given are the weighted means for each year; these are the figures that are used for year-to-year comparisons.

	T	otal In	dividua	ls	1			
•	1965	1966	1967	1968	1965	1966	1967	1968
Number of routes	50	49	46	41	39	39	39	39
Common Grackle	7,480	8,696	7,576	7,193	152.3	176.3	173.8	180.9
Starling	4,948	5,681	5,324	5,187	100.0	116.5	115.0	113.6
House Sparrow	5,840	5,091	5,522	4,162	123.3	102.5	118.7	102.8
Red-wing Blkbird	2,846	3,500	3,484	3,209	53.0	64.3	70.7	76.6
Bobwhite	2,129	2,341	2,200	2,020	44.4	45.3	47.2	49.9
Robin	2,324	2,233	2,132	1,691	46.6	46.1	45.4	39.6
Common Crow	1,642	1,685	1,589	1,515	31.0	34.6	33.7	36.4
Mockingbird	1,488	1,476	1,454	1,347	26.9	26.5	28.5	29.6
Cardinal	1,218	1,416	1,406	1,087	23.4	22.8	28.4	26.9
Barn Swallow	1,196	1,112	927	867	24.2	20.7	20.1	19.9
Mourning Dove	1,074	1,218	1,111	1,020	20.8	23.3	23.2	23.4
Indigo Bunting	1,077	1,080	1,029	858	20.3	21.8	20.9	20.3

Table 1. Four-year Summary of the Twelve Most Conspicuous Species

In addition to the year-to-year changes in the weighted means for each species, we also need an estimate of the accuracy of each of these values. It is possible for the number of birds reported to double without any change having taken place in the actual population. On the other hand, a change of only 10 or 15 percent in the weighted mean may reflect an actual population change. Statistical methods (see Appendix for details) are available for measuring the amount of variability within the counts and giving an estimate of the "confidence limits" associated with any desired degree of accuracy. For present purposes we shall specify that we wish our confidence limits to show the range within which the true mean will fall 95 percent of the time. In other words, there is only one chance in 20 that the true mean in a given year is outside the range shown by the 95 percent confidence limits. This concept is demonstrated graphically in Figure 1, using a method that has been used in England by R. S. Bailey (Bird Study 14: 195-209, Dec. 1967).

Maryland population trends for eight species are shown in Figure 1. The central heavy line connects the weighted means for each year, while the width of the arrows indicates the 95 percent confidence limits for that species for each year. If variability between routes in the same physiographic region of Maryland is high, the arrows are broad (as for the Red-wing and Common Grackle in Figure 1) and a change in populations from one year to another would have to be great in order to be detected.

For most species no measurable population change is indicated during the period 1965-1968, as the mean varies no more than half the width of the arrows. For four of the species illustrated here, however, significant changes did occur. These significant changes are readily detected by examining the slopes of the arrow heads: if both of the outer lines

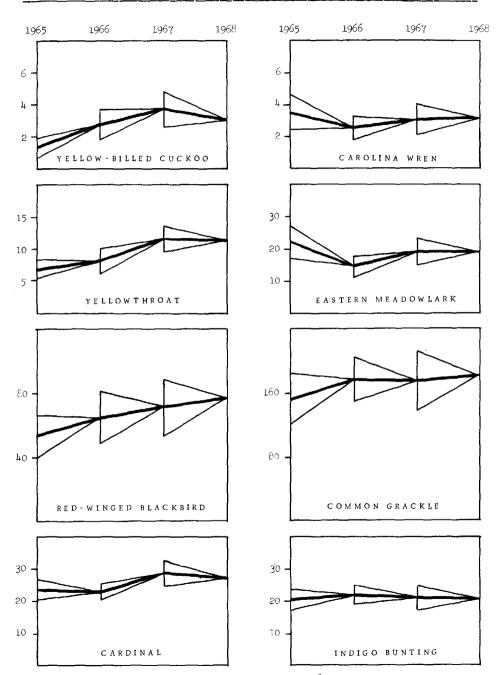


Figure 1. Population trends for 8 species

slope upward, we conclude there was a significant population increase (95% probability), and if both slope downward there was a decrease. In Figure 1 there were significant increases in the Yellow-billed Cuckoo from 1965 to 1966 and (barely) from 1966 to 1967; in the Yellowthroat from 1966 to 1967; in the Eastern Meadowlark from 1966 to 1967; and in the Cardinal from 1966 to 1967. The only significant decrease on these charts was in the Eastern Meadowlark from 1965 to 1966.

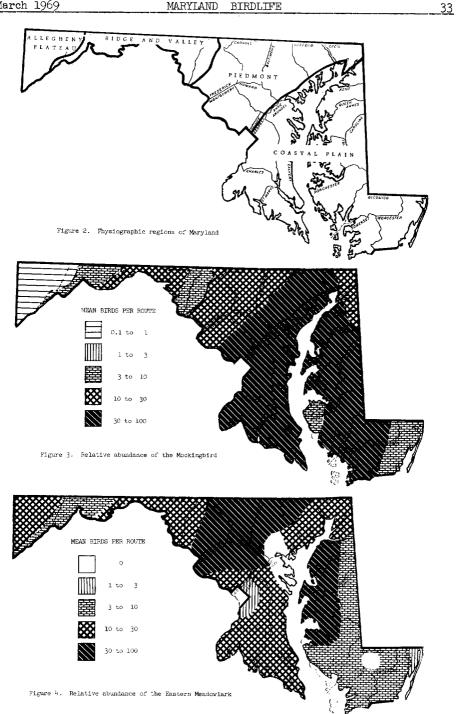
It is no surprise that each species varies in abundance from one part of the State to another. We drive to the Allegheny Plateau (Garrett County) to look for Northern Waterthrushes and Canada Warblers in the breeding season, and to the Lower Eastern Shore or southern Maryland for Prothonotary and Yellow-throated Warblers. Cardinals and Mockingbirds are common on the Coastal Plain, but rare or local on the Allegheny Plateau. Many species are common to abundant in all parts of Maryland: Common Grackle, Red-winged Blackbird, Starling and House Sparrow; but even these are more common in some regions than in others.

The Breeding Bird Survey presents an opportunity to compare relative abundance of a species in different parts of our State. This has been done in Table 2 for the 20 most conspicuous species by computing for each year the mean number of birds recorded per route in each of the four

Table	2.	Average	Totals	bν	Physiographic	Regions
Taule	<i>c.</i> •	v A C T OF C	TOGGTD	v.y	THAPTOELGENIC	110 84 0110

	llegheny Plateau	Ridge and Valley	Piedmont	Coastal <u>Plain</u>	Entire State
% of Maryland area	7.49	14.49	23.37	54.65	100.00
Common Grackle Starling House Sparrow *Red-wing Blackbird Bobwhite	52.4	165.4	179.9	172.9	164.4
	31.9	102.8	171.8	93.4	108.5
	23.5	101.4	128.4	112.0	107.7
	66.4	49.6	104.2	57.8	68.1
	1.3	39.2	31.8	60.3	46.2
Robin	53.4	41.8	66.5	33.6	44.0
Common Crow	23.5	30.6	55.8	32.3	36.9
*Mockingbird	0.1	11.7	31.3	36.8	29.1
*Cardinal	2.5	19.2	17.5	36.2	26.8
Barn Swallow	5.0	43.3	24.5	24.0	25.5
Mourning Dove Indigo Bunting Chipping Sparrow Rock Dove *Eastern Meadowlark	2.7	15.5	32.6	22.7	22.5
	17.1	13.9	18.6	24.9	21.2
	19.8	13.9	16.4	24.2	20.6
	0.8	29.0	30.2	16.3	20.2
	20.9	16.2	35.5	12.3	18.9
Wood Thrush	19.6	16.4	15.9	20.7	17.4
Field Sparrow	12.3	8.6	18.6	19.3	17.1
Rufous-sided Towee	32.5	9.1	12.5	15.8	15.3
Red-eyed Vireo	29.4	10.3	5.9	15.4	13.5
Catbird	14.0	7.7	24.6	9.6	13.2

<sup>\*</sup>See map for this species



physiographic regions (outlined in Figure 2), then taking the mean of the four years. Data from all 50 Maryland routes are included even though 11 of the routes were covered in fewer than four years. The column at the right shows the weighted means for the State (see Appendix for method of computation).

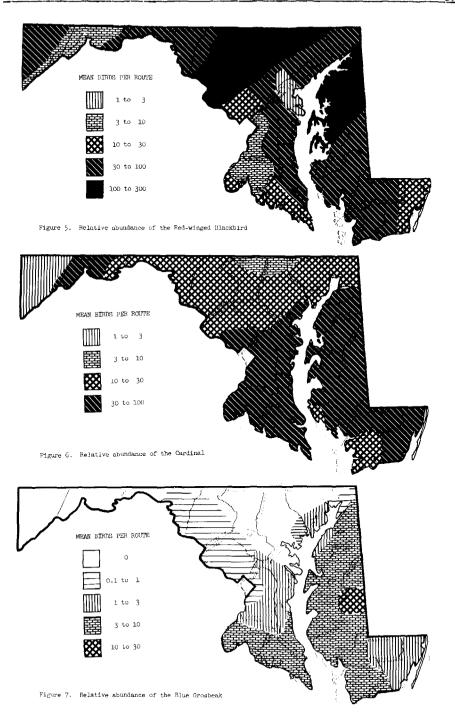
The Common Grackle was the most conspicuous species for the State as a whole as well as in three of the four regions; but top place in the Allegheny Plateau went to the Red-winged Blackbird. Two introduced species, Starling and House Sparrow, ran neck and neck for second and third place--except on the Plateau where the Robin was second highest.

Several of Maryland's nesting species are tolerant of a wide variety of habitats and are fairly uniformly distributed throughout the State. The following, for instance, vary little in abundance from one region of Maryland to another; in their commonest region they are no more than twice as common as in the region where they are scarcest: Robin, Wood Thrush, Indigo Bunting and Chipping Sparrow.

Geographical differences in relative abundance are more easily grasped when abundance is mapped, route by route, using the four-year mean for each route (Figures 3-7). The Mockingbird (Figure 3) reaches its greatest density on the Coastal Plain and becomes progressively scarcer in the higher country; it is distinctly scarcer in Worcester County and the marsh country of western Dorchester County than elsewhere on the Coastal Plain. The Eastern Meadowlark (Figure 4) is most common in the Piedmont and rich farmland of the central Eastern Shore; it is least common in the urban areas and the heavily wooded Appalachian ridges. Red-winged Blackbird (Figure 5) follows a pattern similar to that of the meadowlark; those who associate the Red-wing with marshland will be surprised to find that its center of abundance is in the Piedmont. The Cardinal (Figure 6), on the other hand, shows strong affinities for the Coastal Plain in the Maryland portions of its range; but note the local pocket of abundance in the Cumberland area. The Blue Grosbeak (Figure 7) is primarily a Coastal Plain species in Maryland, but nests sparingly as far inland as the Hagerstown Valley; it reaches its greatest abundance on the central Eastern Shore.

In addition to covering their regular routes, many M.O.S. members are continuing to run "check routes." This extra coverage is providing a wealth of information on the consistency of variability between observers, and on effects of temperature and wind speed on the Breeding Bird Survey counts. The observers who are participating in this pioneer study deserve special credit. All those with numbers greater than 4 in the following list, as well as several with smaller numbers, have run one or more of the check routes.

The honor roll of participants is a long one, and the number of routes that many members covered is quite impressive. The figure following each observer's name tells how many Maryland routes he ran during the four-year period: C. Edward Addy (4), R. Glenn Austin (8), Richard Banvard (6), Capt. T. J. Banvard (2), A. D. Braeuninger (2), David Bridge



(8), Danny Bystrak (10), Paul Bystrak (13), Carl W. Carlson (2), William S. Clark (6), Mrs. Richard D. Cole (8), Mrs. M. B. Donnald (5), Samuel H. Dyke (4), John H. Fales (2), Frederick W. Fallon (2), Mr. A. J. Fletcher (9), Mrs. A. J. Fletcher (11), Dr. Edgar E. Folk, III (1), Dr. Bertram Haines (3), Dr. Harvey N. Hall (2), David W. Holmes (1), Hank Kaestner (8), Richard L. Kleen (3), Vernon Kleen (3), Marcia Lakeman (11), John T. Linehan (3), Peter P. McLaughlin (1), Edwin T. McKnight (6), Anderson J. Martin (1), Mrs. Edward Mendinhall (2), Dr. Donald Messersmith (2), Don Meritt (4), Terry S. Moore (2), Charles Mullican (4), Dr. J. William Oberman (5), Dr. Robert L. Pyle (2), Edgar W. Reynolds (3), Chandler S. Robbins (38), William C. Russell (2), Edward J. Rykiel, Jr. (9), Mrs. Carol E. Scudder (13), Dr. William W. Shirey (8), Dr. W. J. L. Sladen (6), Dr. Turner L. Smith (2), Dr. Karl Stecher, Jr. (2), Ted Stiles (15), Mrs. Cynthia Turner (1), Dr. Thomas Valega (3), Willet T. Van Velzen (17), Carl Westerdahl (1), Mrs. Elmer Worthley (4).

In addition to these 51 official observers there was an efficient supporting force of assistants who acted as drivers, time keepers, recorders or map readers. Several of the observers also served as assistants on routes other than their own. Assistants in addition to those listed above were: Bill Anderson, Mrs. Sarah Baker, Dr. Lytle Blankenship, C. H. Briggs, Penny Brody, Mrs. Ethel Cobb, Mrs. Arlene Delario, M. B. Donnald, Gene Evans, Gerald Elgert, Mrs. Elizabeth H. Fales, Kirsten Flyger, John Getgood, Mrs. Mary Haines, Kit Hannon, Peter Kaestner, Melvin Kleen, Mrs. Betty Linehan, Martha McJunkin, Asenath McKnight, Ted McSorley, E. Pat Monaghan, Marcia Nelson, David Pierce, Mrs. Bertha Poe, Eugene Redden, Mrs. Alpha Reynolds, Mrs. J. Ropes, L. Ruhnka, R. Rytter, Leslie Schunick, Percy Scudder, David Simon, Pat Slavin, Mrs. Jane D. Smith, P. Sonnet, Mrs. H. E. Stiles, Joan Stiles, Pat Straat, David Styer, Robert Sundell, Mrs. Aldeen Van Velzen, Dr. Francis Williamson, Dr. Robert C. Wood, Wilford W. Ward, Bill Worthley, Kimball Worthley.

#### APPENDIX

MEAN  $(\overline{x}) = \frac{\sum x}{N}$ , where  $\Sigma$  stands for Sum of, x is number of birds observed on each route in a stratum, and N is number of routes in the stratum. Weighted Mean  $(\overline{x}) = \sum W\overline{x}$ , where W is percent of Land area of Maryland Lying within a stratum. Variance  $(v) = \frac{\sum x^2 - (\sum x)^2}{N-1}$ . Standard Error of the Mean  $(s = s = m = n) = \sqrt{\sum \frac{vW^2}{N}}$ . 95% Confidence Limits  $= \overline{x} \pm 2$  (s.e.m.).

Bureau of Sport Fisheries and Wildlife Migratory Bird Populations Station Laurel 20810

#### CONVENTION RESERVATIONS

Reservations for the 22nd Annual Convention, May 9-11, should be made directly with the Hastings-Miramar, Ocean City, by May 1. The following special M.O.S. rates include two nights lodging, six meals starting with Friday night dinner, and gratuities.

Double room and bath \$22.00 per person, plus tax Annex rooms, double \$20.00 per person, plus tax

A limited number of single rooms are available at somewhat higher prices. The telephone number is 289-7417.

## IN MEMORIAM: STERLING W. EDWARDS

The bird world lost a good friend and a dedicated worker with the death of Sterling W. Edwards, Sr., last December. He and his wife, Ellen, both retired from the field of education, were enthusiasts of ornithology and conservation. They were constantly walking, riding and studying and wonders of nature. Sterling had been a very active worker in M.O.S. He had served as a Trustee, 1958-62, was on the By-Laws Committee, 1959-61; the Sanctuary Committee, 1958-61; and was State Treasurer for a brief period in 1961.

In recent years, the Edwards had spent the winters in Florida. In addition to their many visits to the National Parks and Bird Sanctuaries in that state, they also took a trip to the Aransas National Wildlife Refuge in Texas to get a close-up view of the Whooping Cranes. Twice they had driven the Alcan Highway to Alaska, where just last June they attended the annual American Ornithologists' Union meeting at Fairbanks.

Always on the move, Sterling had walked the Appalachian Trail from Maine to Georgia, with the exception of a few miles in the center section which he hoped to complete this year. When bad weather interrupted his walk last year, he stopped in North Carolina and studied woodcarving, pieces of which he exhibited when he demonstrated the art of carving to members of the Frederick Chapter. He was surely a man of many talents.

At his home near Myersville, which he built himself, he had established a Wildlife Demonstration Area where he conducted classes for Middletown Valley school children. Walking the half-mile trail, Sterling instructed the classes in wildlife, wildflowers, trees and bushes, while explaining the purpose, the need, and the value of such areas. Much of the vegetation he had marked with identification tags.

Indeed, M.O.S. has lost a talented and brilliant member. Members of the Frederick Chapter who knew him well will remember him as a gifted leader and a knowledgeable and versatile man.

Mary Motherway

#### JUNIOR NATURE CAMP

The 10th Annual Junior Nature Camp, sponsored by the Baltimore Chapter of M. O. S., will be held June 13-15, 1969, at Camp Mohawk. Anyone who has at least completed the 5th grade by June and has not yet entered the 10th grade is eligible if he (or she) has a keen interest in one or more phases of nature study. Areas of study will include birds, mammals, botany, insects, water biology and fossils.

The cost to each camper will be \$11.00 with an extra charge of \$3.00 for round-trip bus transportation. Since the number of campers is limited it would be well to get your application in early. For applications and further information please call Mrs. Dorothy Clark at 665-3532 or Mrs. Anthony Perlman at 664-6908.



## COMING EVENTS

April 1	BALTIMORE	Lake Roland 8 A.M. Leader: Mrs. Robert E. Kaestner.
	BALTIMORE	Shorebird Identification Class, 8 P. M. at
_	******	Cylburn. Mr. Malcolm Thomas.
2	KENT	Audubon Lecture: "Unique Water Wilderness, The
		Everglades" by Anderson
3	FREDERICK	Monthly meeting 7:30 P. M. Film. "The Colonial Naturalist."
6	ALLEGANY	Duck walk at Koon Dam, 2 P. M.
8	BALTIMORE	Lake Roland, 8 A.M.
10	BALTIMORE	
		MOS Nature Study Class "Insects". Dr. Elizabeth Fisher. 8 P. M. at Cylburn
11	ANNE ARUNDEL	Monthly meeting at A. A. County Library 7:20 P.M.
		Illustrated lecture 8 P. M. "Where Land Meets
		the Sea* by Mr. & Mrs. Donald Sutherland
12	FREDERICK	Field trip to Linganore Road. Leave Baker Park
		7:30 A. M.
13	TALBOT	Breakfast Hike 7 A.M. from Easton Court House
15	BALTIMORE	Lake Roland 8 A. M.
	BALTIMORE	Spring Migrant Identification Class, 8 P. M. at
		Cylburn, Mrs. Richard D. Cole.
16	ALLEGANY	Monthly meeting 7:30 P. M. Board of Education
		Bldg. Film: "Wild Rivers."
17	BALTIMORE	Nature Study for the Beginner: "Common Birds"
		8 P.M. at Cylburn. Mrs. Alfred Lawson
18 - 2	O EBBA	Eastern Bird Banding Association Convention,
		University of Delaware, Newark, Del.
18	TALBOT	Monthly meeting 8 P.M. Easton Library. Speaker:
	1.0000	Mr. Dickson Preston, "Olympics 1968".
19	BALTIMORE	C & O Canal ( Great Falls Area). Meet Hutzler's
17	DALITHORE	Westview, 7:30 A. M.
40	CAROLINE	Westview, 7:30 A. M.
19	CARULINE	Monthly meeting 8 P. M. at home of Percy Scudder on
		Trice Road. "Breeding Bird Census Studies", Ted
		Van Velzen. (and listen for woodcocks earlier in
		evening).
20	ALLEGANY	Bird Walk on C & O Canal. 2 P. M., for Spring
		Warblers. Leader: Mr. John Workmeister
20	TALBOT	Breakfast Hike 7 A. M. from Easton Court House
22	BALTIMORE	Lake Roland 8 A. M.
	PATUXENT	Monthly meeting.
24		MOS Class - Nature Study for the Beginner. "Sea
		Shore Life of Maryland", Mrs. N. K. Schaffer.
		or imiladiff. Hip. H. H. Deligitor.

Laurel,

April	24	TALBOT	Audubon Screen Tour, Robert C. Hermes, "South on
			the Wind". 8 P. M., Mt. Pleasant School.
	25	BALTIMORE	Audubon Screen Tour: Robert C. Hermes, "South on
			the Wind". 8 P. M. Merganthaler High School,
			35th St. & Hillen Road,
25.	.29		National Audubon Society, Convention, St. Louis, Mo.
26-	.27	ALLEGANY	Work days at Carey Run Sanctuary
	26	ANNE ARUNDET	Cedarville State Park 7:40 A.M. for Spring Warblers
			Meet Parole Parking lot, Riva Road entrance. Leader:
			Miss Friel Sanders.
	27	BALTIMORE	Brigantine National Wildlife Refuge. Meet Korvette
			Parking area, 7:30 A. M.
*		FREDERICK	Field trip to Tresselt's Fish Ponds, Catoctin Fur-
			nace. Leave Baker Park 2 P. M.
		TALBOT	Breakfast Hike 7 A. M.
	29	BALTIMORE	Lake Roland 8 A. M.
			Enrichment Class: "Breeding". Cylburn, 8 P. M.
			Mr. C. Haven Kolb.
May	1	FREDERICK	Monthly meeting 7:30 P. M. Winchester Hall. Edwin
			Unger, President of MOS, will talk about the new
	_		Sanctuary in Somerset County.
	2	HARFORD	Dinner Meeting 6:15 P. M., Churchville Presbyterian
	2	OR ARTISTON	Church.
	3	STATEWIDE BALTIMORE	May Count Loch Raven, 8 A. M.
	7	TALBOT	Breakfast Hike 7 A. M.
	6	BALTIMORE	Lake Roland 8 A. M.
	7	KENT	Monthly meeting
9.		STATEWIDE	MOS Convention, Hastings-Miramar Hotel, Ocean City,
	•		Md. Make reservations early.
•	10	BALTIMORE	Loch Raven for warblers. Meet at Box 311, Manor
			Road, ½ mile north of Glen Arm Road. 7 A.M.
		FREDERICK	Field Trip to Seneca. Leave Baker Park 7:30 A.M.
•	13	BALTIMORE	Lake Roland, 8 A.M.
•	15	MONTGOMERY	Monthly meeting.
•	17	BALTIMORE	Patapsco (Glen Artney Area) State Park. Meet
			Hutzler's Westview 7 A.M. Leader: Mr. Irving Hampe.
•	18	BALTIMORE	McDonogh Woods, along Gwynn's Falls. Meet on west
			side of RR bridge on McDonogh Rd., about 1 mile
			west of Reisterstown Rd. 8 A.M.
	18	TALBOT	Breakfast Hike 7 A. M.
	20	BALTIMORE	Lake Roland 8 A. M.
23-2	25	BALTIMORE	Cape May weekend. Reservations with leader, Miss
	<b>.</b> .	ANTON ADDITION	Grace Naumann by May 15th.
•	24	ANNE AKUNDE	L Ogle's Fiddler's Creek Farm. Meet Parold parking
	25	DAT THOU	lot, 7:40 A. M. Catoctin Mt. & Buckeystown. Meet Hutzler's West-
•	25	BALTIMORE	
		PPPDPDTCV	view 7:30 A.M. Leader: Mrs. Joshua Rowe.
		FREDERICK	Field trip to Patapsco River Dam on Route 26 to Baltimore. Leave Baker Park 2 P. M.
	27	PATUXENT	Monthly meeting 7:45 P. M. St. Philip's Parish House
•	٠(	TWIOVERNI	Laurel

June	1	CAROLINE	Annual Picnic 3 - 6 P. M., Mill Creek Sanctuary, Wye Mills.
	4	KENT	Monthly meeting
	Ė	FREDERICK	Monthly meeting
	,		
	7	BALTIMORE	Picnic Supper, Y. M. C. A. Camp Black Rock in Butler, 6 P. M.
	8	FREDERICK	Field trip and picnic at Harpers Ferry.
	22	ALLEGANY	Covered Dish Supper or Cook-out 4:30 P. M. Carey Run Sanctuary.
	24	PATUXENT	Annual Picnic, Scott's Cove, Rocky Gorge Reservoir, 6:30 P. M.

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