

STILL ANOTHER EXPERIENCE WITH EVENING GROSBEAKS IN CANADA

By Mr. & Mrs. G. Haggood Parks

The July-August, 1966, issue of EBBA NEWS carried a report of our first visit, in June of 1965, to the Miramichi watershed in the Canadian province of New Brunswick for the purpose of studying the Evening Grosbeaks there. During that visit we learned that a considerable, but fluid, population of this species had persisted in a pulpwood region which was being subjected to aerial spraying for the sixth consecutive season. We failed to find proof that the sprayed pesticide had harmed these birds and we were able only to surmise a possible causative relationship between the spraying and the westward movement of the region's grosbeak population through our banding site in the town of Astle. We found several dead Evening Grosbeaks along the highways, victims of speeding motor vehicles, and we listened to tales of their shocking slaughter during the previous spring when much larger flocks had been present in the area. Having succeeded in answering so few of the questions that challenged us, we decided to take another look at the Miramichi grosbeaks during the spring of '66.

We reentered New Brunswick at St. Croix on the morning of June 13 and set our course for last year's banding site, a bit more than 100 miles from the border and almost exactly at the geographical center of the province. Last spring we had heard the calls of Evening Grosbeaks almost at once after we had crossed the border. This time, however, we drove mile after mile neither hearing nor seeing even one. Halfway to our destination and still no sign of our quarry, we became disturbed. It was not until we reached Taymouth, only 20 miles short of Astle, that the first Evening Grosbeak call was heard. As we drove through Taymouth 3 males flew up from the gravel by the roadside. Here and there others were seen as we completed the remaining brief portion of our trip, but their numbers were not such as to revive our slumping confidence. We arrived about mid-afternoon at the cabin that had been reserved for our use and to the accompaniment of several grosbeak calls from the surrounding spruce forest we unloaded our equipment.

When we learned that Mr. and Mrs. Wayne Hunter, in whose driveway we trapped 272 Evening Grosbeaks and 5 foreign recoveries during our '65 visit, had moved away we decided to call on Mr. Joseph Munn, next neighbor along Highway #8 (our Canadian friends refer to each numbered route as a "highway"). From him we received our first encouragement. "You won't have any trouble catching all the birds you want" were almost his first words. He explained that he had salted his driveway heavily and large numbers of the birds had been coming there daily just after sunrise. Not only did Mr. Munn grant us permission to set our traps in the driveway, but he and Mrs. Munn and their two grandsons, Brian and Reginald, contributed greatly to the success of our project during the several days which followed.

We agreed upon 0445 as trap-setting time. When that hour arrived on raw and threateningly overcast Tuesday morning, June 14, our traps were set on the bare driveway floor and baited generously with the sunflower seeds we had brought with us from Connecticut. Using our auto as a mobile "secretary's office" and a folding card-table in the driveway beside it for the bander's convenience we awaited the arrival of the first birds. Let it suffice here to report that by the time the sun was due to peek over the eastern horizon the birds began to appear and a very busy week of banding which amply justified Mr. Munn's prediction was under way.

Tables I and II summarize our trapping and banding activities at Astle, New Brunswick, from June 14 to 20 (and 3 hours in the early morning of June 21), 1966. We employed four 3-celled Potter traps and, on June 18 to 21, a single 6-meter mist net was used to supplement the traps at times when flocks were sparse and the bird traffic light.

TABLE I. EVENING GROSBEAKS CAPTURED AT ASTLE, N.B.

Date (1966)	B	A	N	D	E	D	Foreign Retraps	Repeats
June	M	F	Daily Total	Returns				
14	72	5	77	0		1	1	
15	107	2	109	0		1	2	
16	99	8	107	0		2	0	
17	55	1	56	0		1	0	
18	39	3	42	0		0	1(+1)#	
19	51	2	53	0		1	1	
20*	20	0	20	0		1	1	
21**	35	1	36	0		1	0	
Totals	478	22	500	0 ##		8	6	

*Spray planes invaded our banding site at sunrise on June 20; they and heavy showers later in the morning contributed to the day's low total.

**Our supply of bands became exhausted at 0745 on June 21.

#One male repeated twice on June 18.

##None of the 272 grosbeaks that we had banded at Astle in '65 returned, but notification of the recoveries of two of them has been received. One was recovered at Stevens Point, Wisconsin, on March 19, 1966; the other at Oneonta, N.Y. on March 21, 1966.

We trapped and released eight "foreign" Evening Grosbeaks, as shown on Table II on the opposite page.

We attempted to age every bird we trapped. Finding that we could not "skull" them efficiently we examined the plumage of each one as we handled it. We failed to discover any female with convincing immature plumage characteristics, but among the males we found 284 adults and 185 sub-adults while the plumages of the remaining 9 were so nontypical as to prevent us from satisfying ourselves regarding their true ages.

TABLE II. FOREIGN RETRAPS CAPTURED AT ASTLE, N.B.

Band No.	Age	Sex	Trapped and Released (1966)	This Bird Was Banded:		
				By	At	Date
61-178953	A	M	June 20	P.K.Garland	Wilton, N.Y.	Mar.20,'63
61-198603	S	M	" 16	N.C. Nash	Hamilton, Mass.	Jan.15,'66
64-182373	A	M	" 21	R.P.Potter	Enfield, Maine	Dec. 7,'63
66-153467	A	M	" 16	S.C.Sheldon	Conneautville, Pa.	Feb.22,'64
66-170441	A	M	" 19	T.J.Grisez	Warren, Pa.	Apr.10,'66
67-175600	U	M	" 15	M. Oakes	Westport Pt.Mass.	Apr.15,'66
68-137178	S	M	" 17	R.A. Lof	Storrs, Conn.	Apr.19,'66
69-171576	A	F	" 14	E.P.Teulings	Durham, N. Car.	Mar.23,'66

The male characters upon which we based our judgment were the completely white tertials, the completely black primaries, and the rich golden-yellow undertail coverts of the adults; in contrast, the sub-adults' plumages showed varying areas of black on the white tertials, varying areas of white edging on the vanes of the grayish-black primaries, and pale lemon-yellow undertail coverts.

Our conclusions led us into disagreement with the banders of three of our foreign retraps. Two of these male plumages were so completely in accord with our sub-adult characters that we aged them accordingly. The third, also a male, carried such conflicting plumage characters that we registered him as "age unknown". When the banding records of these birds were received we learned that all three had been aged as "adult" by their banders. Since the birds had been banded in January and April of 1966 we have been able to convince ourselves that our own aging procedure is in error.

DISCUSSION

Sex Ratio. Table I reveals the notable fact that of the 500 Evening Grosbeaks we banded, 478 were males and only 22 were females. This is a ratio of essentially 22 to 1, but let us hasten to emphasize that these figures greatly diminish the true preponderance of males over females that actually prevailed. We feel confident that we were successful in capturing at least one-half of all the females that visited Mr. Munn's driveway while we were engaged in trapping there. We feel equally confident that we succeeded in capturing not more than one percent of the males which stopped at the driveway during that same period.

Table III is an attempt to summarize observations which complement our preceding statement. In this table we have recorded, as our "sunrise count", each day's maximum assemblage which occurred at, or very soon after, sunrise. Here we have tabulated, for comparison, the concurrent male and female totals. In the remainder of the table we have

listed the earliest clock time we observed one or more females simultaneously on each date. More often than not this indicates, also, the only time that number of females was seen together during that day.

TABLE III. EVIDENCE OF MALE PREPONDERANCE OVER FEMALES.

Date (June, 1966)	14	15	16	17	18	19	20	21
Sunrise Count (Males)	66	100+	150+	200+	200	200	50*	2000**
(Females)	0	1	1	2	1	1	1	1
No. of Females Counted	CLOCK TIME WHEN FEMALES WERE SEEN							
1	0655#	0550	0530		0530	0525	0520	0530
2			0710	0530#	0700	0535	0610#	0640#
3		0745	0810#			0645#		
4		1000			0730#			
5		1045#						

*4 airplanes sprayed the trapping site at 0445 on June 20.

**Estimated (See discussion under "The East-to-West Movement").

#Maximum count on this date of females simultaneously present.

The East-to-West Movement. The fact that only 6 of our birds repeated is a pretty fair indication that the flocks were not tarrying long in the neighborhood. This evidence was well supplemented by daily observations at sunrise which indicated not only that there definitely was a movement of the flocks through the area, but that the movement was from east to west.

We had noted this same phenomenon upon the occasion of our '65 study and this spring, again, the presence of such a movement was undisputable. We watched many thousands of Evening Grosbeaks as they passed within visual range of our trapping site at heavy sunrise traffic time. Almost never was any individual or group seen to fly for any appreciable distance toward us from the west. Great numbers, usually in flocks of from half a dozen to scores, flew toward us from the east (frequently salty-gravel-hopping along the shoulders of the highway or from driveway to driveway.) After pausing briefly they continued on in a like manner almost always toward the west.

It is quite perplexing that these migrating flocks were composed almost exclusively of males. What urge could be compelling the males westward at nesting season? Could it be that they had fulfilled their procreatory function and had exempted themselves from further involvement in the arduous duties which befall a feathered parent? Is it possible that they were fleeing from an area which had been sprayed recently with poison - deserting mates on nests already established within that area? Or were they hurrying westward to mates still unchosen in nesting territories as yet unclaimed? The answers elude us, but the fact of the movement is undeniable.

That aerial spraying does influence the behavior of these birds will be discussed later. Meanwhile, our puzzlement was not in the least diminished when Dr. C.D. Fowle told us on June 22 that the sexes were present in equally balanced numbers when he had observed them during the first week of the month. (Dr. C. David Fowle is Chairman of the Department of Biology at York University in Toronto, Canada.)

Again, The Spray Planes. On the afternoon of our arrival at Astle we learned that our study area had already been sprayed from the air during the previous week and, before dusk that evening, it became evident that we were scheduled to experience more of the same. Two flights, totalling 11 planes, made repeated passes over our cabin. Loaded, they flew southward to drop their poisons beyond the horizon; empty, they flew northward to Taxis Air Strip to reload. No spray was released within our sight, but the recurring roar of the engines made us well aware of their activity. Throughout the week, at dawn and dusk, the planes were in the air; nor did Saturday, or even Sunday, bring any respite. At no time was their spraying close enough to our location to permit us to see it and on only one occasion during this period was any special behavior of the birds we were watching attributable to them. This occasion was when, on Thursday, June 16, our large sunrise flock panicked as some of the empty planes passed quite low over the driveway on their way back to Taxis.

But then came Monday, June 20. We were in the act of setting our traps at 0445 when 4 spray planes and the customary single guide plane passed directly overhead, so low as barely to miss the tops of chimneys and trees. Trailing each spray plane was a gray cloud which drifted earthward. There were no droplets like the "rain" we had experienced in Quebec (Bird-Banding 34(1):29). There was no sensation of moisture, but the pungent, suffocating odor made breathing uncomfortably difficult for many minutes. Observations were complicated by a heavy rain shower which fell for about two hours after the passage of the planes. Meanwhile, the sunrise flock was the smallest of our entire stay. Not more than 50 males and a single female appeared. All seemed uneasy, flushing repeatedly without apparent provocation, and flying helter-skelter into the woods, frequently without having eaten at all from the supply of seeds or gravel. Although we supplemented our traps with a 6-meter net we banded only 20 birds (all males) in an all-day effort.

Next morning, June 21, brought our most spectacular sunrise flock. It seemed as if the previous day's spraying had served as a dam to hold back the normal westward flow of the grosbeaks and the nighttime interval had served to remove that barrier. Sunrise was briefly clear with no birds to be seen nor heard. By 0530 clouds obscured the sun and a heavy frontal layer blew in from the northwest. Suddenly the Evening Grosbeaks appeared, coming, as usual, from the east. The flocks were extremely noisy and especially agitated. Within a half-hour no less than 2,000 had alighted in the driveway and moved on westward. During this period only one female was seen among all the males. Flocks of at least 200 would

pause briefly and spring violently again into the air for no perceptible reason, not once having even approached the heavily baited traps. In spite of the heavy traffic not one bird was trapped during an entire hour of this confused activity. Then the flight eased until we dared set the net. By 0745 we had trapped only 8 while netting 28 to exhaust what remained of our 500-band supply.

Our banding completed, we used June 22 to drive eastward to Blackville (40 miles) where we observed another flight of 15 planes in the process of concluding a spraying assignment from their headquarters at Dunphy Air Strip. Frequently during this drive along Highway #8 pairs of Evening Grosbeaks and small groups (predominantly males, but with a greater percentage of females than our observations as Astle had indicated) were seen. As we drove farther and farther eastward the grosbeak population seemed to dwindle and we were told at Blackville that essentially none were to be found east of that town.

We used June 23 to cruise some of the woodlands in the vicinity of Astle. Miscellaneous bird species were seen, but Evening Grosbeaks were most common of all. Males clearly outnumbered females. We returned from the woods with our clothing coated with pitch where we had brushed against young firs and spruces and against the tips of low boughs of the larger trees. This pitch was unmistakable evidence that the pulpwood forests in that area were suffering a serious incursion of the destructive spruce budworm - hence the Evening Grosbeaks (and the spray planes).

When we started for home at sunup on June 24 we joined the sunrise flock on its westward trek. By the time we reached Taymouth (20 miles) we had counted 482 male Evening Grosbeaks without having seen even one female. 413 of these birds were within 7 miles of our starting point at Astle. Westward of Taymouth not one grosbeak of either sex was observed. Highway #8, which follows approximately a northeast-southwest direction, had led us diagonally across and out of the area of heavy budworm infestation where the Evening Grosbeaks had concentrated and, also, out of the line of their westward flight.

Motor Vehicles and the Evening Grosbeak. (We have chosen to use "motor vehicles" hereinafter, for we must include automobiles, trucks, busses, vans, etc., in a faithful report.)

In whatever direction we chose to drive from Astle we found on, or alongside, the highway pathetic splotches of feathers which had once been Evening Grosbeaks. Sometimes the birds were so freshly killed that they seemed pitifully desirous of flying up from where they lay. More often they were but nondescript blobs of dirtied feathers crushed and matted by the passage upon them of many grinding wheels. So frequently was the picture repeated that we almost became used to it, yet each renewal of the sight brought its twinge of pain at the reminder that another beautiful bird had been lost to a speeding mass of unfeeling metal.

On June 15, our second day of banding, we became intimately acquainted with the violence of these encounters. We had deliberately placed our bait in that part of Mr. Munn's driveway farthest away from, and parked our car in that part closest to, the highway in an attempt to attract the birds away from the area where motor vehicles of all sizes and descriptions were flashing almost constantly by.

On this particularly busy morning we were occupied with our banding yet we sensed the rapid approach of "an apartment house on wheels". Simultaneously we saw half a dozen Evening Grosbeaks closely grouped on the gravel shoulder not far away. The speeding van was upon them like a flash. Evening Grosbeaks are strong flyers, but they fly blindly when frightened and, very often, too late. Four of this group were fortunate, but the other two flew into the vehicle's path. The van continued on with no diminution of its frantic haste to reach far-off Newcastle - while two pathetic bundles of bloodied feathers rolled crazily along the surface of the roadway. The bundle which stopped rolling almost in the middle of the road near our car had been a male in the spectacular spring plumage of the species and sex. At once a living male dove down from the safety of its perch on an overhead telephone wire and alighted beside the dead bird. Another tremendous truck was bearing down. The shrill crescendo of its engine gave no warning to the living male so intent did he seem to be, or so puzzled, by the dead body's failure to respond to his advances. The impact made not the slightest audible dent in the engine's roar. There was only a pitiful puff of feathers which trailed alongside and swirled madly in the following air stream as the truck sped on. A brief break in traffic permitted me to pick up the first dead male, but I could find no trace of the second one's body. I found the third body in two horribly mutilated parts, still warm; it had been a female.

It was not a pretty experience nor was it at all an uncommon one if we remember to count the dead birds we found even on New Brunswick's Highway #8 alone. In making that count we must remember, too, that ravens and crows scavenge behind the motor vehicles almost as gulls scavenge behind the fishing boats at sea - and, at night, skunks, foxes and raccoons tidy up the roadways for the next day's slaughter.

In spite of the commonness of dead Evening Grosbeaks on the roadways near Astle local discussion of the topic almost always turned to Clearwater Hill. We took time off on June 20 to investigate. We found Clearwater Hill on Highway #8 about $7\frac{1}{2}$ miles west of our banding site. The grade was moderately steep and about midway between top and bottom of the hill the road curved rather abruptly. In the winter large amounts of salt are used on this curve to improve traffic safety. Below the curve, and more or less hidden from downhill traffic, wide shoulders and an unpaved driveway supply copious amounts of heavily salted gravel. This situation set the stage for what we found at Clearwater Hill - 82 mutilated Evening Grosbeak bodies near that driveway entrance lying on an area of pavement no larger than an ordinary 9x12 livingroom rug. And

let us not forget, please, that the scavengers cleaned up yesterday's mess last night. We examined every one of the legs we could find. None wore a band.

This species' slaughter by motor vehicles seems to be the result of several contributing factors: (1) Primarily, there is the high speed of the vehicle which prevents the driver from avoiding any object which appears suddenly in its path; (2) the birds' inclination to gather in flocks wherever salty gravel is found - unpaved roads, driveways, unpaved shoulders bordering paved highways; (3) this species' lack of fear diminishes its alertness and moving vehicles are not associated with danger until they have approached very closely; (4) once recognized as danger the vehicle's very rapid approach causes panic and results in haphazard flight which may also be impeded by other members of the same compact group (It seems to be the loud noise from the vehicle rather than the visual stimulus of its approach that finally disturbs these birds into flight); (5) Evening Grosbeaks are strong flyers, but they fly blindly and clumsily, especially after they have been frightened; (6) normal individuals exhibit a very strong impulse to approach closely any dead or injured members of their species regardless of sex.

Highway #8 and its speeding traffic combined to bring 8 of our Astle bands back to us after an altogether too brief flight from our banding kit. Table IV tells the story of these recoveries:

TABLE IV. AUTHORS' BANDS KILLED BY MOTOR VEHICLES.

Band No.	Age	Sex	Banded (1966)	THIS BIRD WAS RECOVERED:		
				Date (1966)	By	At
62-109006	A	M	June 14	June 24	Calvin Martin	Astle, N.B.*
010	A	M	" "	" "	Karen Gibson	" " *
029	S	M	" "	" 15	James Hunter	" " *
060	A	M	" "	July --	L. Scott	" " *
111	A	M	" 15	June 29	Eddie Hunter	" " *
155	S	M	" "	July 1	Dr. C.D. Fowle	Astle Station,*
327	A	M	" 17	June 18	Dr. J.C. Medcof**	Astle, N.B./N.B.
404	A	M	" 19	" 24	Eddie Hunter	" " *

*These bands were recovered at points along Highway #8 ranging from 1 mile to 5½ miles west of our banding site.

**Dr. J.C. Medcof is Assistant Director of the Provincial Biological Research Station at St. Andrews, N.B. He stopped at our banding site on June 18 and returned the dead bird's body to us with our band still intact.

We also handled 8 "foreign" bands, each one of which reflects the agony of still another Evening Grosbeak struck down by a speeding motor vehicle. See Table V, which follows.

TABLE V. "FOREIGN" EVENING GROSBEEKS KILLED BY MOTOR VEHICLES ON HIGHWAY #8.

THIS BIRD WAS RECOVERED:					THIS BIRD WAS BANNED:		
Band No.	Age	Sex	Date		Date	By	At
			(1966)	At			
57-144501			Jun.29	Astle	Jan. 9/64	A. McAlister	Canaan N.H.
62-152200	A	F	" 23	"	Feb. 24/62	Pmill Nat. Res.	Crisp, Pa.
63-100976			" 30	"	" 15/64	M. Wood, State Coll., Pa.	
64-145968	A	F	" 20	Blissfield	Jan. 30/64	G. Loery	Morris, Conn.
64-153452	U	M	" 16	Astle	" 15/66	R.P. Yunick	Schenectady NY
68-109281			" --	"	Dec. 12/65	Mrs. G. Metcalf	Plainfield Vt.
69-107100			" --	"	Jan. 8/66	R.W. Lawrence	Merrimack NH
69-169228*	A	M	" 18	Boiestown	Feb. 11/66	F.R. Scott	Richmond, Va.

(Ed. Note: Names of persons who recovered the birds were omitted from the table for space considerations. They are, in order: E. Hunter, C. Hunter, B. Munn, M. Matchett, K. Hunter, G. Green, J. Hunter, and A. Green.)

*The recovery of 69-169228 is sufficiently unique to justify the telling of its story: On June 18 a pulpwood truck stopped at our cabin and its driver handed the band to me. Then he said, "I was driving along near Boiestown and a bird flew against my truck. When I got home I dug his body out of the radiator grill and this band was on one of his legs".

We are indebted to Dr. C.D. Fowle for additional evidence of the deplorable slaughter of Evening Grosbeaks by motor vehicles. Dr. Fowle recovered the following bands while travelling Highway #8 during the course of his investigation into the effects of sprayed pesticides on birdlife for the Canadian Wildlife Service. Table VI summarizes the information that he has so generously contributed.

TABLE VI. MORE "FOREIGN" EVENING GROSBEEKS KILLED BY MOTOR VEHICLES ON HIGHWAY #8.

THIS BIRD WAS RECOVERED:					THIS BIRD WAS BANNED:		
Band No.	Age	Sex	Date		Date	By	At
			(1966)	At (N.B.)			
52-177759	A	F	Jul. 5	Blissfield	Mar. 14/63	L.A. Gray	Pte. Claire, Que.
56-124605	A	F	Jun. 29	Blackville	Nov. 26/61	P.K. Garland	Wilton, N.Y.
58-181560	U	M	Jun. --	Blissfield	Mar. 17/63	Nat. Orn. Soc.	Mansfield, Conn.
59-127574	A	U	Jul. 4	"	Mar. 17/61	F.A. Clinch	Watertown, N.Y.
59-160874	A	M	" 5	Doaktown	Jan. 19/66	R.L. Butts	Parker, Pa.
64-198290	A	M	" 3	Ludlow	Mar. 15/64	D.H. Wilkins	Ballston Spa NY
65-172296	A	F	" 1	Blissfield	Feb. 8/64	C.A. Neel	Saybrook Pa.
66-157566	U	F	" 4	"	Feb. 3/66	V.E. Unger	Federalburg Md.
67-166160	A	M	" 5	"	Feb. 20/65	R.P. Potter	Enfield, Me.

(Ed. Note: Again, names of persons recovering the birds were omitted. Dr. C.D. Fowle is shown beside each bird in the author's table except 56-124605, recovered by Wm. Crawford.)

Let us close this unpleasant part of our story with a brief anecdote. Late in the afternoon of June 17 a local resident stopped by to watch our banding. "Why do the folks in Washington, D.C. send these birds here?" he inquired; "They are pests and they are dangerous when they fly against our cars while we are driving along". Surprised, I asked him why he believed the birds were sent there from Washington. His reply was, "I have picked up some of the dead ones that had a metal ring on one leg and the Washington address was right there on that metal ring".

Some Behavior Patterns. (1) One thing that had puzzled us at the time of our 1965 visit was a sudden refusal of the birds to stop at, and our sudden inability to attract them into, our traps after six days of successful all-day trapping. We feel certain now that the very hot weather which accompanied that change in behavior was its principal cause. Although the temperature during our '66 study did not, at any time, approach that 1965 "hot spell" it did become so warm on June 17 that by mid-morning the driveway became empty of birds, although their calls could be clearly heard in the forested areas nearby. The birds did not return to the sun-drenched driveway until the mid-afternoon had brought cloudiness and a cooling breeze. Similar weather on June 18 and 19 was accompanied by repetitions of this new behavior. It was very apparent that the birds retreated into the coolness of the shady woods during that part of the day when the sun was brightest and hottest.

(2) As we studied daily the arrival of birds at our trapping locale we noted that of each new flock that found the driveway unoccupied the first individuals settled on smooth areas where the ground appeared darker. At once upon alighting the birds began eating of the driveway floor. Having seen Evening Grosbeaks at winter feeding-trays pick up plump seeds between the tips of maxilla and mandible and peel out the meats with a few dextrous manipulations of the bill before deftly discarding the shucks we were greatly surprised when the binoculars revealed to us that these birds were not pecking at the ground at all. Instead, each one rotated the head almost 90 degrees to one side and spooned up the gravel using the edge, rather than the tip, of the bill. Close examination of the dark areas of ground revealed that they were damp. Apparently the salt that had impregnated the fine gravel was sufficiently hygroscopic to absorb enough water to keep the adjoining soil constantly moist. It was this fine, moist, salty gravel that the birds were spooning up with the sides of their bills. Later arrivals, by chance, or because the moist salty ground was already occupied, alighted on the areas of coarser gravel or nearer to that part of the salty ground that was hidden by our traps and sunflower seeds. After they had found the seeds accidentally and had recognized the bait as food they were lured readily enough into the traps. We are convinced that it was their desire for salt that brought the birds to the driveway in the first place.

(3) Not even one of the very few females in our flocks was observed to register interest in any male further than to accept from him a proffered seed-meat once in a while. The male that seemed to be her mate, however, was a picture of almost constant self-torture. His body held abnormally rigid, crest raised, body feathers fluffed, wings pointed sharply downward, and tail straight up, he challenged every other male within a 3-foot radius while she fed on, paying no attention to him or to any one of the other males. On June 17 one of these mated females was captured alone in a Potter trap. As I carried the trap to our "secretary's office" her mate danced along underfoot. Then he fluttered up onto the trap and rode along for a bit, then onto my shoulder for the remainder of the journey. Since he was unbanded I replaced the female, after having banded her, in the middle compartment of the 3-celled trap, set the two end compartments and returned the trap to its original location in the driveway. The male alighted almost at once nearby. Instead of being decoyed into the trap, however, he started a game of "King On The Hill" which he played so energetically that, for several minutes, he was the only bird within a 6-foot circular area of driveway centered by his trapped mate. We released her, the pair flew off into the woods together, and normal trapping procedure resumed.

(4) We have experienced bill-snapping as a threatening gesture among some of our common species, but, until last June 16, we had never encountered this behavior among Evening Grosbeaks. That morning we were treated to a "castanet solo" by a bill-snapping sub-adult male (62-109269), a rendition for which the featured performer in the percussion section of any Screech Owl "orchestra" would have been loudly applauded. We were particularly impressed by the strength and clarity of the sound and by the fact that the grosbeak's mandible moved so rapidly and for so short a distance that motion was barely perceptible.

A Word of Appreciation. We are deeply indebted to Chief Earl B. Baysinger and his Banding Laboratory personnel for their efficient cooperation and to the several banders who responded to our written requests for information. Lacking this cooperation much of our story must have gone untold. We extend our thanks, too, to Dr. C. David Fowle for sharing his band recovery data with us, and to Mrs. J.H. Hunter for collecting for us, from neighborhood children, bands which they had retrieved from birds which had been killed by motor vehicles on the local highway. Our special thanks go to Mr. and Mrs. Joseph Munn and their grandsons, Brian and Reginald, whose generous hospitality and cooperation contributed so very much to the success of our study.

Summary. June 14-21, 1966 marked the occasion of our second banding study of Evening Grosbeaks in the Miramichi watershed of New Brunswick. We found a heavy concentration of these birds (and of the spruce budworm) in an area cut diagonally by Highway #8 and extending along this road from Taymouth to Blackville, a distance of 60 miles. The Evening Grosbeak population exceeded greatly that which we had found there in 1965 even

though the region was being aeri-ally sprayed with DDT for the seventh consecutive spring. 500 Evening Grosbeaks were banded in seven and a fraction working days. Banding results showed a 22 to 1 preponderance of males over females, but careful observation magnified that preponderance greatly. For the second successive year a distinct east-to-west migratory movement was studied without discovering its cause. An appalling slaughter of the species by speeding motor vehicles was experienced. This slaughter was accentuated by the recovery, between June 15 and July 5, of 25 bands from Evening Grosbeaks which had been killed by motor vehicles along the region's main thoroughfare.

All clock references used in this paper have employed Atlantic Standard Time (which is coincident with Eastern Daylight Saving Time).



This picture shows Mr. Munn's driveway at sunrise as it looked from the front fender of our "secretary's office". 14 Evening Grosbeaks are perched on the overhead wires and about 70 others are feeding in and around our traps in the middle of the driveway near Mr. Munn's car. It was here the activities occurred which are reported in this paper. On occasion more than 100 of these birds perched simultaneously on the wires while at least that number also occupied the ground below. Highway #8 which plays a sinister role in our story passes by approximately 15 feet behind the camera.

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