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Antonio Salvadori

Richard Frank

David Lamble

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Notes on the Common Redpoll (*Carduelis flammea*) Incursion During the 2007/2008 Winter

Antonio Salvadori
17 Colborn Street
Guelph, ON N1G 2M4
Corresponding Author:
Salvadori@rogers.com

Richard Frank
Third Line
Eramosa, ON N0B 2K0

David Lamble
845 Guelph Street
Fergus, ON N1M 2X5

ABSTRACT

An irruption of the Common Redpoll, *Carduelis flammea*, which occurred in southern Ontario during the winter of 2007/2008 is discussed.

INTRODUCTION

Common Redpolls are a circumpolar Arctic and Subarctic species distributed across the northern latitudes (Mullarney et al., 1999; Godfrey 1986; Sibley 2000.) They winter from their southern breeding range south to all Canadian provinces, northern California, Nevada, Colorado, Kansas, Ohio, West Virginia and northern Virginia. In every second year they appear on their wintering grounds in numbers, and in some years, they irrupt and may be found in very large numbers in their wintering range. The winter of 2007/2008 was such an irruptive year. In Ontario we saw the largest invasion we have seen since the two previous high population appearances in 1998 and 1978. The first bird was trapped on 15 Nov 2007 and the last on 5 May 2008. During this time we operated five banding stations as shown in Table 1.

METHODS

GU (Guelph, ON) is a city backyard location and birds were attracted using four tube feeders baited

with nyjer seed. Three mist nets were used from daylight to dusk on alternate days when weather conditions were suitable. CO (Colwyn Farm, Fergus, ON) is mainly a horse farm approximately 20 km north of GU where a similar set of feeders and nets were used. However, trapping only took place once a week. FH (Frog Hollow, Eramosa, ON) is also a rural location. Trapping was performed using a set of Potter traps baited with a variety of mixed seeds on platforms. DL (Hughes Farm near Ennotville, ON) and JB (Burgers near Orton, ON) are also rural properties. Mist nets were used at DL, while a variety of confusion traps were used at JB. Neither GU nor CO stations were in operation from 9 Feb to 19 Mar; FH was not in operation from 12 to 26 Feb.

All of the birds were aged by:

1. examining the tapering of the outer rectrices (Pyle 1997);
2. the growth bars on the tail (Dunn);
3. the extent and coloring of the breast feathers (Gahbauer 2007);
4. the pattern of the longest undertail covert (for relevant figures see Pyle 1997).

Sex was determined by the color of the breast feathering. If the breast was a deep red, then a designation of Male was given—more often than

Table 1. The five banding locations and numbers trapped/retrapped at each station.

Location	Latitude	Longitude	# Banded	# Retrapped
Guelph, ON (GU)	43°31' N	080°13' W	827	144
Colwyn farm near Fergus, ON (CO)	43°41' N	080°18' W	1047	350
Frog Hollow near Eramosa, ON (FH)	43°40' N	080°15' W	78	9
Hughes Farm near Ennotville, ON (DL)	43°40' N	080°20' W	390	86
Burgers near Orton, ON (JB)	43°40' N	080°11' W	353	23

not ASY. If the breast feathering had a pinkish tinge with no bright red feathers at all—then a designation of Female was given. In all other cases, we blew into the breast feathers and examined the vanes/roots of all the feathers carefully, which normally are invisible unless they are disturbed. If these feather roots had a definite red/bright pink coloring, a designation of Male was given; if the roots showed a pinkish wash or color, then a designation of Female was given. If no evidence of color was visible, then the birds were designated as Unknown.

The banding effort and numbers caught are summarized in Figures 1a and 1b.

RESULTS and DISCUSSION

Age - Birds were aged twice: When they were first caught and then as a consistency check, Salvatori

re-aged all retraps after 28 Jan. Surprisingly, only 61% were found to be *identical* to the age at banding; i.e., HY, AHY, SY, ASY. Seven percent of the birds changed from SY to AHY and a full 14% changed from SY to ASY. These results are understandable as the rectrices get worn down and lose their pointedness, becoming more rounded and, hence, only by March is it safe to call a bird AHY rather than SY or ASY. In 16% of the cases, the age changed from HY/AHY to SY/ASY. This result is more difficult to understand but an interesting one. A possible explanation may be that when first examined the molt in the breast feathers was not evident, i.e., no red feathers or pinkish tinges were visible on the breast; however, when the bird was examined a month or so later these were visible. Finally, in 2% of the cases birds went from ASY to SY. This can be explained only by the limitation of the method or from genuine mistakes.

Figure 1a: Trapping days and numbers captured from 16 Nov to 31 Jan.

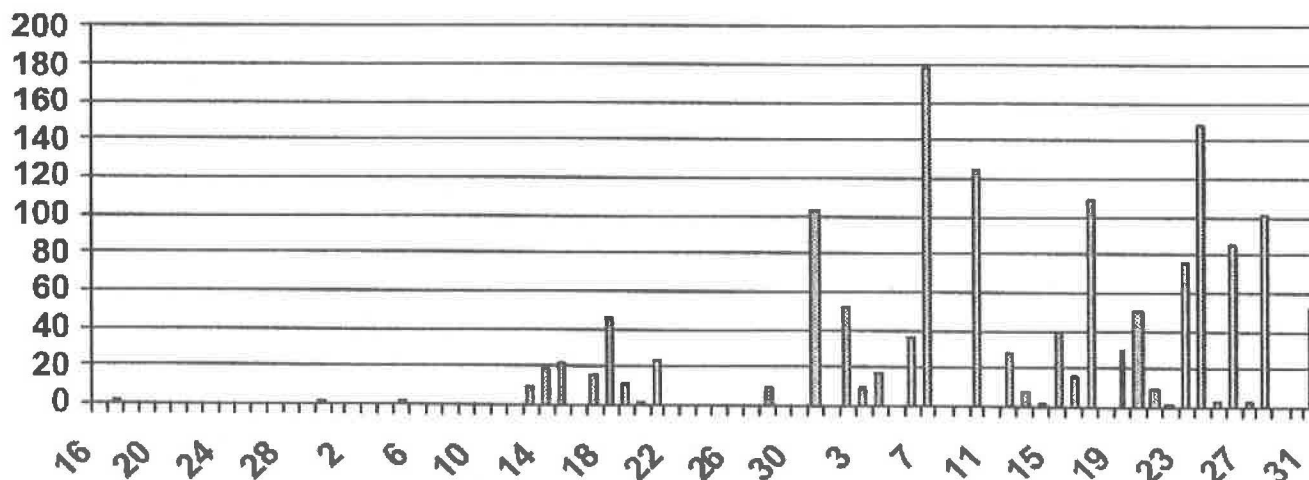
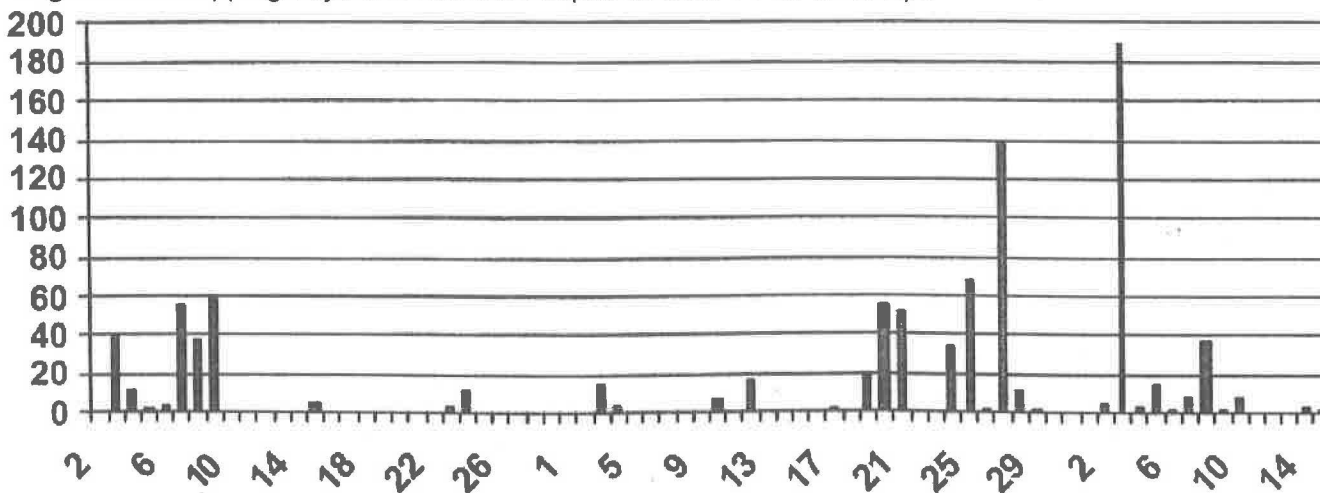


Figure 1b: Trapping days and numbers captured from 1 Feb to 15 Apr.



The age distribution of the flock is shown in Table 2.

Table 2. The number of birds caught broken down by age and sex.

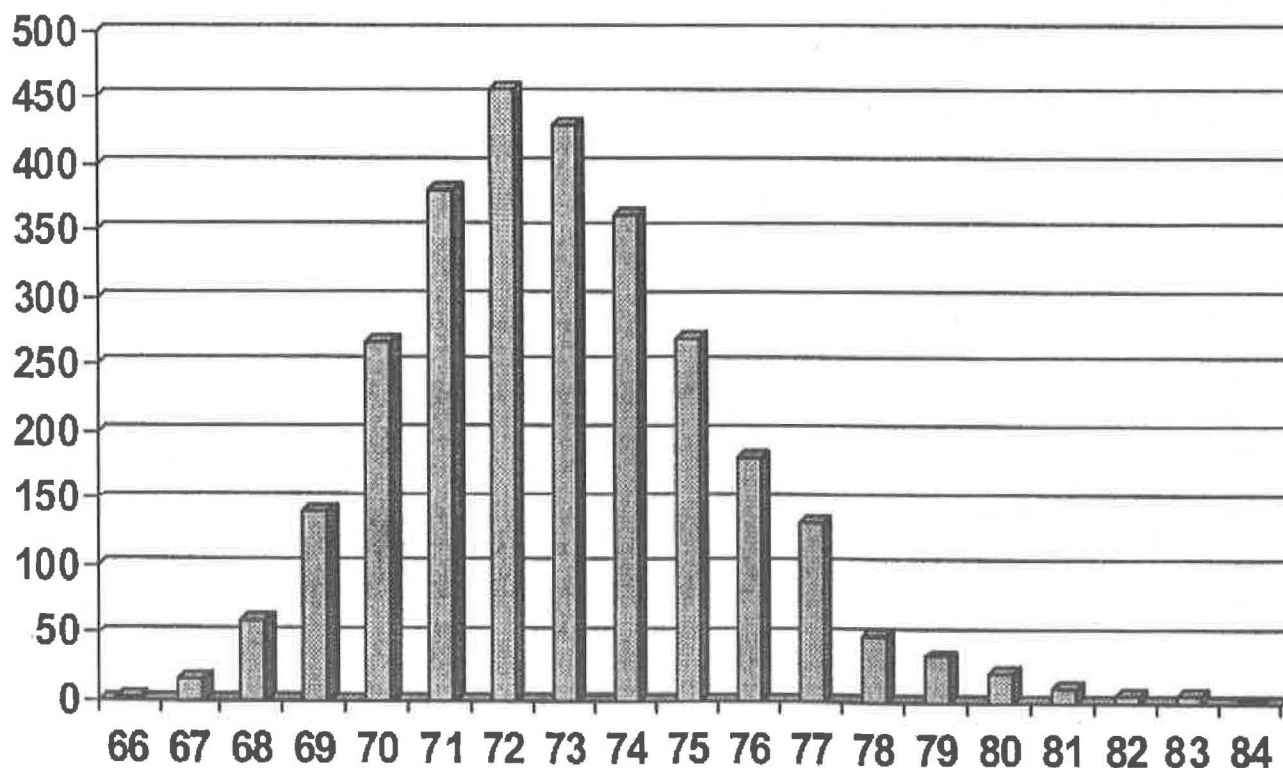
	Number	%	HY/SY	ASY	AHY
Male	853	30	384	407	61
Female	471	17	296	152	23
Unknown	1487	53	1013	43	430

Sex - Applying the consistency check as outlined above, we found that *only* 60% of birds were consistently sexed when comparing banding with retrapping. However, as was expected, 26% were moulting from their original Unknown (U) designation to Male (17%) and Female (9%). Hence, between December/January and March/April, the birds underwent a molt of their breast feathers. It would be interesting to catch some of our birds in later years to see how correct our sexing was. Unfortunately, we have not retrapped in subsequent years any of the 4,034 birds that have been banded between 1971 and 2007.

In a further 8% of retraps, we were unsure of our previous sex designation and thereby changed these birds from F to U (7%) and M to U (1%). In the last remaining 6%, our sexing was inconsistent, which probably supports using one or two pink or red feathers to determine the bird's sex.

Wing - Figure 2 shows the wing chord distribution of all birds captured and the variation was very significant: from 66 mm to 84 mm. It was apparent that the Common Redpoll flock consisted of three distinct sub-species, *flammea*, *rostrata* and *holboellii*, as described in Godfrey (1986). Indeed, the large birds, *rostrata*, which breed on Baffin Island are very dark in coloration and can be seen in Figure 2 in the prolonged tail on the right of the graph. No males or females were identified with this large wing chord; i.e., none exhibited pink/red coloring/wash on the breast. The graph shows no prolonged tail on the right which seems to verify Godfrey's statement that '*holboellii* has doubtful validity', certainly as far as wing chord is concerned.

Figure 2: The wing distribution for 2,827 birds processed.



Weight - No weight measurements were taken because wintering birds show a weight variation dependent on food source and habits and a weight study has little validity.

Tail Asymmetry - After we had started capturing birds, we noticed that in a few birds the right and left tail feathers were of different lengths. This was puzzling, as we had never seen or read about these differences in any species before. As a result, we started to note the number of birds with this anomaly. We noted whether the left side was longer - LLR, or shorter - LSR, than the right side. The variation ranged from a couple of mm to 6.4 mm. Too many birds exhibited this variation for it to have resulted by accident. We found that 19/744 (2.6%) were LLR and 20/744 (2.6%) were LSR. Obviously no left or right preference existed but it was observed that in the numbers examined, the LSR and LLR were significantly the same.

Table 3. The distances between the banding stations in kilometers.

	GU	CO	FH	DL	JB
GU	0	19.4	15.9	28.2	22.7
CO	19.4	0	5.2	9.8	13.2
FH	15.9	5.2	0	10.2	9.3
DL	28.2	9.8	10.2	0	16.0
JB	22.7	13.2	9.3	16.0	0

Flock Feeding Range - Since starting banding in Guelph in 1971 we have caught and banded 18,305 American Goldfinches at several locations within a 20 km radius of the city and yet, during this whole time, only a handful of birds were retrapped at these sites. Hence, one of our objectives in this study was to ascertain whether we were dealing with transient flocks or *gypsy migrants*; i.e., a set of flocks that wander around from food source to food source.

(The term gypsy migrant was coined by the late Arnold McGill to describe the wanderings of Australian birds.) Using this definition, American Goldfinches are gypsy migrants. So what did we observe with the Common Redpolls? Are they also gypsy migrants in winter or are they a stationary population that tends to winter/summer in the same location. Soon we discovered that the birds were indeed a stationary population, wintering in the general region and feeding at all five locations. Table 3 shows the line-of-sight distances between the various locations. In Table 4 we summarize the number of birds exchanged between the stations. The intersection of a row and column shows how many birds went from the row location to the column location. For example, six birds went from GU to CO, representing 0.72% of the birds banded at GU; only two birds went from CO to GU representing, 0.19% of the birds banded at CO; 145 birds were retrapped at GU, representing 17.5% of the birds banded at GU.

We were surprised by the large number of birds (65) that went from location to location. One bird from FH was retrapped 19 days later at CO and eight days later at DL. The numbers show that most of the birds wandered locally within a 5 to 10 km radius, but a small percentage did wander up to 20 km.

To date we have had no foreign recovery.

Common/Hoary Controversy - Do Hoary Redpolls, *Carduelis hornemanni*, really exist? or are they a subspecies of *Carduelis flammea*? Many readers will be shocked at this question. Sibley and Monroe (1990) certainly think that two species exist. However, a recent publication by Kerr et al. (2007) suggest that they are conspecific. After handling 4,034 live birds, one of us (AS) cannot comment on the species controversy, although he

Table 4. The number of birds and percentages exchanged between stations.

	GU		CO		FH		DL		JB	
GU	145	17.5	6	0.72	0	0	0	0	0	0
CO	2	0.19	349	33.3	0	0	0	0	4	0.39
FH	0	0	10	11.5	9	11.5	2	2.6	0	0
DL	2	0.51	28	7.14	0	0	53	13.5	0	0
JB	3	0.64	4	0.86	0	0	0	0	45	9.6

tends to agree with Kerr et al. (2007), but what he can definitely say is that the species are almost indistinguishable in the field. Most sight records are probably incorrect. These records are mostly the very pale subspecies of *flammea* and not *hornemanni*. Our banding operations have only produced, after careful measurements, seven Hoary Redpolls or 0.17% of the redpoll flocks.

Abnormal/Injured Birds - During these banding operations we kept track of any abnormalities that occurred. Of the 2,811 Common Redpolls processed during this irruption, we found only eight (0.28%) birds with the following abnormalities: Two were blind in one eye; two had half grown tails, suggesting escapes from near-predation events; one had a big lump on its right foot; one had white nails showing a partial amelanism (Davies, 2007); one had an (old) injured right leg; and one was totally missing a right foot.

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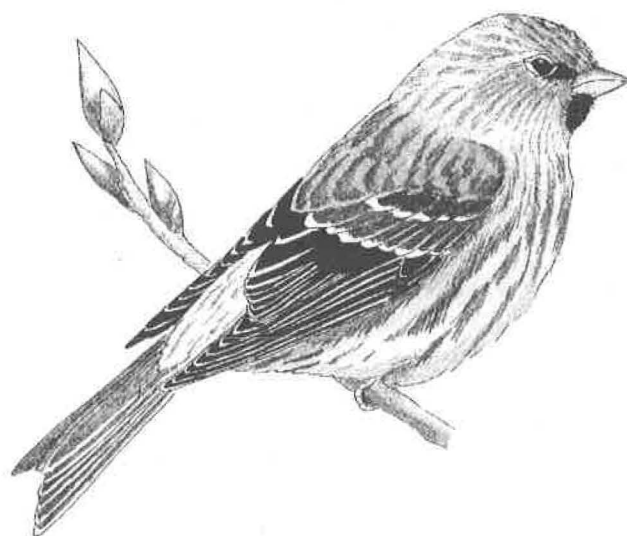
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Common Redpoll
by George West