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**Analysis of mist net capture data for Song Sparrows
on Triangle Island**

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Abstract

Triangle Island, British Columbia (an ecological reserve) supports a resident population of Song Sparrows (*Melospiza melodia*) as well as serving as a probable layover site for a transient population migrating south along the coast during the month of September. The current study of the passerine populations on the island was undertaken by the SFU Wildlife Ecology Research Chair and resulted in the banding of 381 Song Sparrows: 60 adult (AHY- after hatch year) and 312 juveniles (HY- hatch year) individuals. The age of nine individuals that were captured in late September and October could not be definitively classified. The adults showed greater local survivorship; (defined as a measure of recapture predictability), than juveniles though their visible fat class did not vary significantly. Fat scores on average declined throughout the course of the study from August to October. The higher fat scores between locally surviving juvenile birds and those that disappeared showed an increased fat class did confer significantly greater local survivability, but the visible fat class could not be correlated to the birds size-independent nutrient reserve mass (condition index; Piersma & Davidson, 1991). The condition index of those considered to have survived locally was significantly higher than the other birds captured in the first five weeks (August). During week 7 (mid-September) of the study a large influx of apparently transient juveniles occurred which had significantly higher stores of fat, indicative of birds that are not able to depend on a stable food source (see Rogers and Smith, 1993) or need large energy reserves for their increased activity, however their condition index did not differ significantly from other birds captured in September.

Introduction

Song Sparrows have been intensely studied throughout North America and on the British Columbia coast. Study of a Song Sparrow population on the island of Mandarte beginning in 1960 (Tompa, 1964) has led to an increased understanding of Song Sparrow habits,

variation, and pressures affecting population numbers. This paper uses the findings from Mandarte populations and insights discovered by numerous researchers; (Arcese 1989, Hochachka & Smith & Arcese 1989, Rogers & Smith 1993, Rogers et. al. 1991, Smith & Zach 1979) as a comparison and an indicator of the unique characteristics of the population on Triangle Island.

Triangle Island (50°52'N, 129°05'W) is located 46 km northwest of Cape Scott on the northern tip of Vancouver Island and is the farthest northwest in the Scott group of islands. It is roughly 1.5 km long and has steep craggy shorelines rising to a maximum elevation of 200m. The island is a major breeding ground for sea birds and is the largest sea bird colony in British Columbia, having 40% of the worlds population of Cassin's Auklet (Vermeer, 1976). In addition to the alcids, the island supports a number of passerines species dominated by Fox Sparrows, Song Sparrows, migrating Savannah Sparrows and Orange-crowned Warblers (in order of abundance).

The island vegetation is dominated by shrubs, specifically Salmonberry (*Rubus spectabilis*) and has no trees of substantial height. A more in depth description of the island flora, fauna, and history can be found in (Vermeer 1976, Vermeer et. al. 1979, Vermeer & Sealy 1984).

Mandarte Island (48°38'N, 123°17'W) is similar in that it is an island of the coast of Vancouver Island (25km north of Victoria in the Haro Strait), is approximately 700m long and has steep rocky cliffs. Vegetation is similarly dominated by shrubbery but the island does contain some Douglas Fir and Arbutus trees. See Tompa (1964) and Smith & Zach (1979) for further details.

Methods

Eight standard mist nets (7 -being 42 feet long, 1 - being 30 feet long) were erected around the field station on the island in a level sheltered area covered with thickets of Sambuca⁴⁵ shrubs half an hour before sunrise for at least six hours per day from August 1, 1994 to October 19, 1994 unless excessive amounts of precipitation made operation impossible. The area chosen for the nets also contained a source of spring water and had suitable vegetation to fulfil some of the foraging needs of the song birds.

Birds were carefully measured for six morphological characters and aged according

to gape, plumage and moult characteristics or degree of skull ossification (Pyle et al. 1987). The birds were then fitted with numbered aluminium leg bands and released. Local survivorship was difficult to gauge in the short duration of the study thus far. Those birds that were initially captured in August and were captured again in the last three weeks (October) of the 12 weeks of banding were considered to have locally survived. This is not a measure of mortality rates but an aid to determine resident status and predictability of recapture. Those that had either only one recorded capture or had not been seen after the month of August were deemed to have perished, emigrated from the island, or dispersed to another part of the island. Assigning resident or transient status to the birds proved difficult and the accuracy of those assignments won't become evident until 1995 when the banding resumes. Those birds that had captures over a span of at least five weeks were considered likely residents, (thus only birds captured in the first seven weeks of the 12 week study could be deemed residents with any certainty). Likely transients were those birds with only a single capture and were initially banded in September. Birds outside these two grouping were considered of uncertain residency. Recapture rate is determined by the number of recaptures (after the initial week of banding), over the twelve week study. True and accurate estimates of individual local survival will not be able to be made until several years of banding data has been amassed.

Results

Song Sparrows were abundant on the island, with only four days passing in which not one individual was netted. The incidence of recaptures for the adults was greater than the juveniles; 49.1% of all adults in the first 11 weeks were recaptured and only 24.6% of the juveniles in the same period being netted again. The highest number of adults caught in one day was five, this occurring in early August. Juveniles were more numerous but were less likely to be recaptured. The highest daily capture of juveniles was 25 on August 1, 1995. Not surprisingly, there was a general decline in the number of new birds captured daily during the course of the banding. There were 42 birds deemed residents with 14 being adults. Transients numbered 75 with only eight adults. This could be due to all of

the residents being eventually banded and the influx of suspected transient numbers dwindling, residents emigrating prior to being banded, birds may have begun avoiding net area, or birds perishing. Figure 1 shows the incidence of captures and graphically displays this decline and the influx of transient birds in week 7.

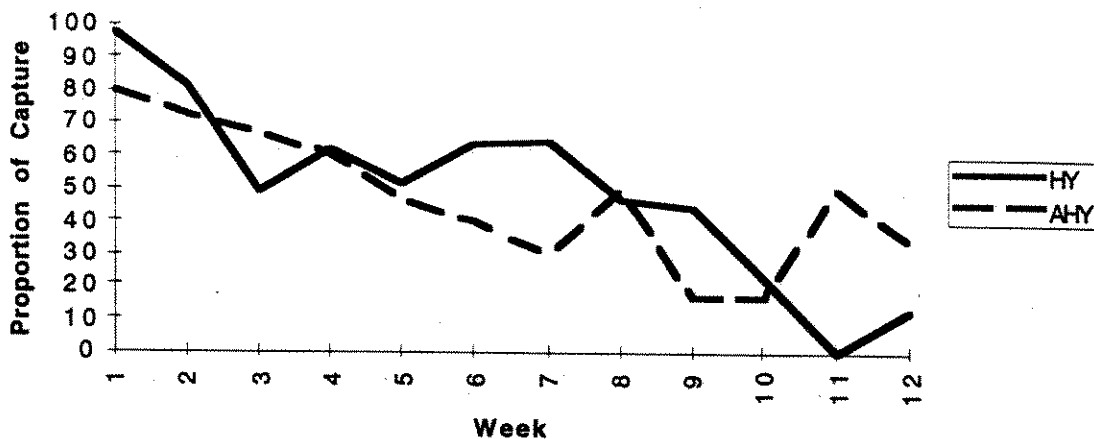


Figure 1: Incidence of new bird captures of each age class as a proportion of the weekly capture totals.

Of the birds captured in the first five weeks (Jul. 29- Sept 1) 95 of 212 or 44.8% were recaptured after the week of their initial banding. This drastically differs from the period of September 9 to September 26 when none of the newly banded birds were subsequently recaptured. Only 7% of all birds captured between September 3 - October 13 (weeks 6-11 inclusive) were netted again (see Figure 1a). During week 7 (Sept 9 - 15 inclusive) there were 32 new juveniles captured, none being seen again. The first few weeks of the banding seemed to be more successful in capturing likely residents as the recapture rates for these birds was higher. The adults were more likely to remain on site as 83.3% of those captured in the first three weeks were caught again. The juveniles fared worse with only 34.3% (67 of 195) being recorded again. Of all birds captured in the first five weeks (Jul 29 - Sept 1) only 7.1% (19 of 268) of these were to be recaptured in the last three weeks of this years banding (Oct 1- Oct 19). This is much lower than any estimates of true local survival from Mandarte, thus should be deemed highly suspect due to the possibilities of

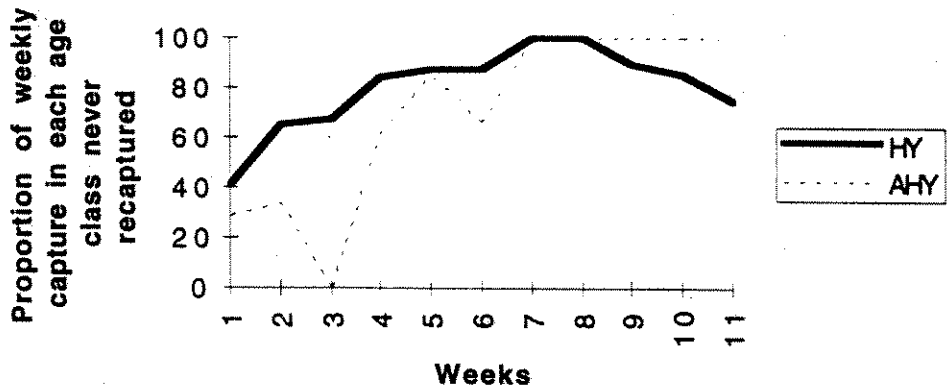


Figure 1a: Proportion of the weekly captured that was never reencountered in later banding episodes after their initial capture. Note that week twelve was omitted since the banding lasted only 12 weeks and those birds initially captured in the final week had no opportunity for recapture.

net avoidance, dispersal, and emigration.

The Song Sparrow population on Triangle Island differed in all measured characters from the birds on Mandarte (see Table 1). This is not surprising as Smith and Zach (1979)

Table 1: Main characters of Song Sparrow populations on Mandarte and Triangle Islands for comparison

	Mandarte		Triangle		
	Mean	S.E	Mean	S.E	
mass	24.258	0.126	25.375	0.103	**
wing length	66.691	0.073	68.497	0.328	*
bill depth	19.955	0.023	23.899	0.1	*
tarsus length	6.288	0.016	6.323	0.024	*
culmen length	11.918	0.047	

Mandarte data from sexes pooled with a weighted average
 ** p < .005 * p < .001

found that the Mandarte population is relatively isolated from other populations and shows significant heritable variation in bill depth, length and width, and tarsus length, and that the population showed enough genetic variation to allow natural selection to change these phenotypes, thus supporting the first steps of microevolutionary theory. To what degree Triangle Island populations are isolated from gene flow is unknown as data on the successful immigration into the population not available. However, it is likely that the

Triangle Is. population is just as isolated as the Mandarte Is. population.

Within the Triangle Island population adults and juveniles varied significantly in mass ($p < .001$) with the mean of the adults being 1.2 grams greater at 26.1g. However the two age classes did not vary significantly in wing length ($p > .2$) or any of the other characters measured.

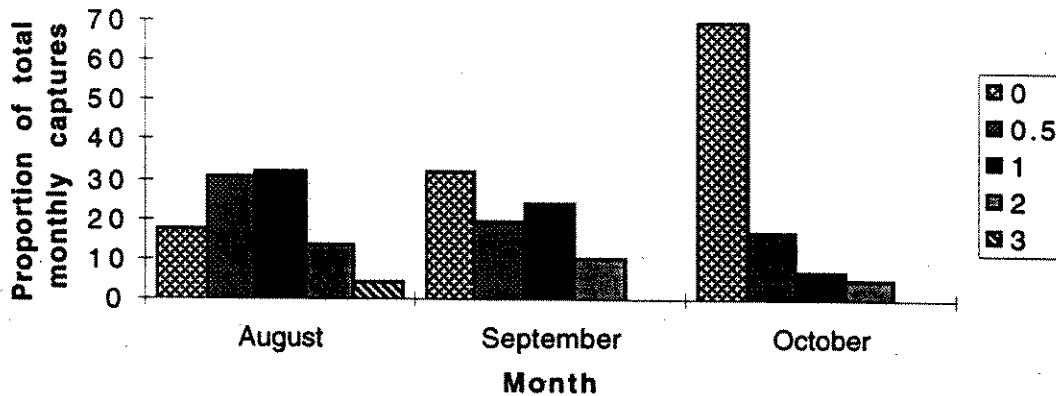
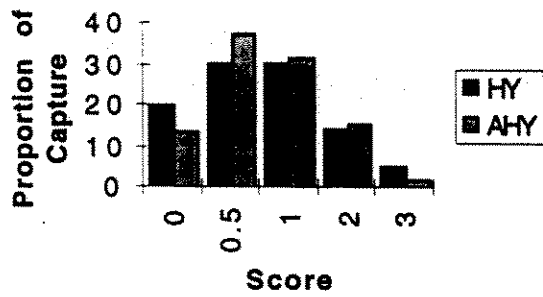


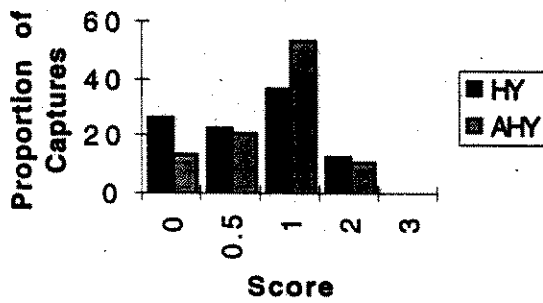
Figure 2: Proportion of all captures by month and their respective fat class score.

During the banding, the visible fat class was scored using five grades from 0 to 3 (0,0.5,1,2,3). The two age classes did not differ significantly over the course of the study ($p > .05$). Figure 2 represents the proportion of each class having the defined fat stores in each month. Both Figure 2 and figure 3 show how the fat stores of the Song Sparrows declined throughout the course of the study. August fat scores were significantly higher than September ($\chi^2 = 13.926$, $p < .01$), which were significantly higher than October scores ($\chi^2 = 19.32$, $p < .001$). Fat scores were not recorded until August 5, therefore there are insufficient data on the initial fat stores of the adult population to draw any conclusions on survival benefit. Eleven juveniles captured in August that survived at least until October 1 had a mean fat score of 1.45 as compared to the juvenile average in August of 0.89, which was significant ($t = 2.41$, $p < .05$). In week 8 there is a large increase in the proportion of individuals with out any fat stores (fat class= 0). This is just after the influx of juveniles with increased fat stores was captured the week prior. Also, note that week 7 had the lowest proportion of individuals with no fat stores.

August Fat Scores



September Fat Scores



October Fat Scores

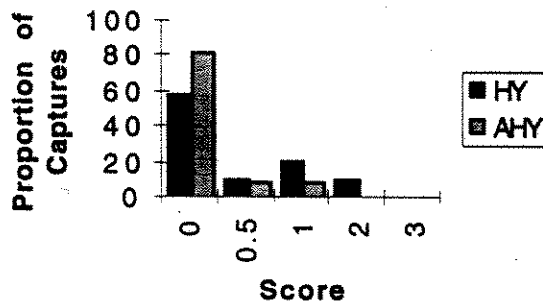


Figure 3: Histograms of the monthly fat scores recorded for each age class.

Figure 4 shows the weekly variation in the fat scores of the two age classes.

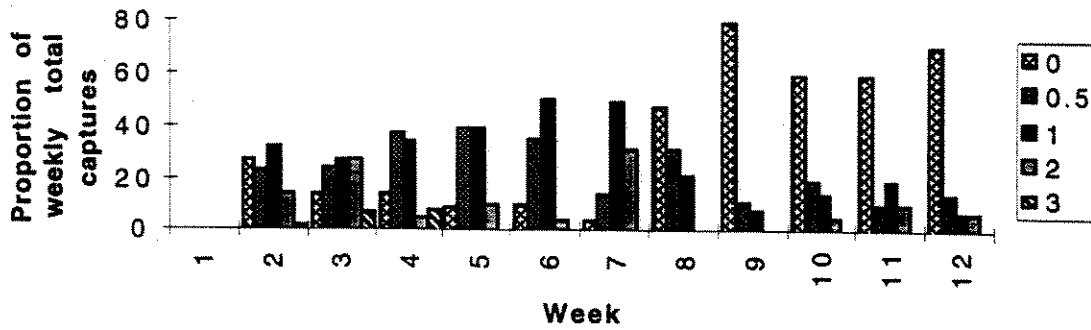


Figure 4: Weekly variation in the fat scores recorded for the two age classes throughout the course of the banding in 1994. Note there were no fat scores taken in the first week.

By plotting mass of the bird on tarsus length and drawing a regression line the graph gave residuals for each bird that reflects the size-independent nutrient reserve mass

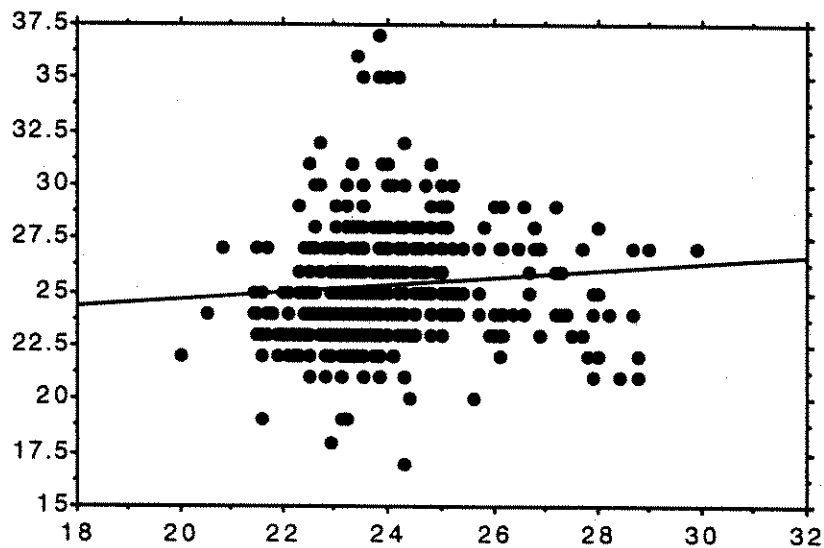


Figure 5: Plotted regression line of mass of bird on tarsus to give residuals equal the size-independent nutrient reserve mass (condition index) for each bird.

or an estimate of the condition of the bird (Figure 5). No correlation was found between the birds condition index and visible fat class ($r^2 = .002$), (see Figure 6). Better condition (higher condition index) did not have any bearing on the probability of the individual disappearing. One individual captured in early August had a size - independent nutrient reserve mass of 12 and had been captured in a total of 5 different weeks, but had not been seen after week 9. The average index of those considered to have locally survived was 1.16

g/mm, and this was greater ($p < .05$) than the other birds caught in August that were not seen after October 1. The average index of the juveniles in week 7 was .288 g/mm,

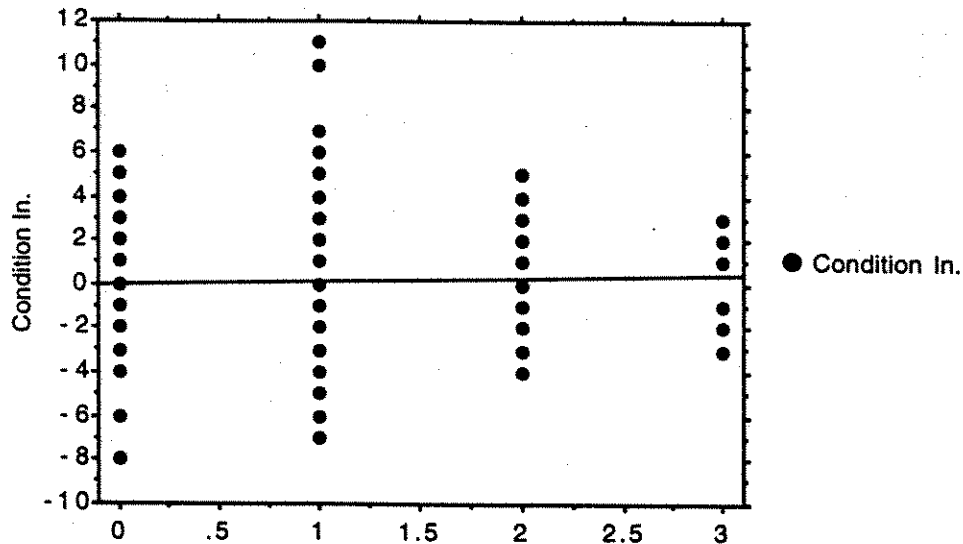


Figure 6: Regression of Condition index (rounded to nearest whole number) on fat class score showing no correlation between the two values.

and this is not significantly different from the other 104 captures in the month of September which had a mean condition index of .25 g/mm.

No banding was undertaken during the months from November to March when the importance of the higher fat stores or higher condition index could be the difference in local survival when the possibilities of harsh winter weather storms and snowfall are present.

Discussion

Song Sparrows are migratory in their northern ranges but in areas that are climatically more favorable they may reside year round. Sparrows can be sedentary in the non-breeding season thus occupying the same territory for extended periods of time (Hochachka et al., 1989). Nice (1937) estimated that the effective population size in his Ohio study as 150 adults. Halliburton & Mewaldt (1976) found the local population on the coast of California to have low dispersal distances and the effective population size to be at most 150 adults. Mandarte Is. populations have in the past fluctuated mildly (with the some exceptions due to unusual winter mortality) but in general have remained near 30 - 40 breeding pairs (Tompa 1964, Smith and Zach 1979, Hochachka et al 1989). In the first year of the Tompa study 55 adults and 99 fledglings were banded during the summer of 1960, which

is very similar to the numbers recorded by this study given that Tompa did not conduct banding past mid-August which is perhaps the main period of transient stopover on Triangle Is..

Dispersal of the young occurs upon leaving the nest at 25-30 days of age, with distance of dispersal being greater for females thus it has been linked to the risks of inbreeding (Arcese, 1989). Tompa (1964) believes that this dispersal is a mechanism which will intensify with increases in population density, and that the primary means of regulation for population numbers is by juvenile mortality and dispersal. On Mandarte Is. Tompa (1964) found that juvenile dispersal activity could be categorized into three distinct types. The first occurs from the time the young birds leave the nest, until the end of August and early September, this is exploratory and does not result in the permanent establishment of territories. The second type is spacing dispersal which Tompa witnessed taking place from autumn to spring the following year, and brought on an increase in aggressive or territorial behavior. Those juveniles that were of the lowest status or were least able to withstand the pressures of these new stressors would emigrate, with the females leaving a couple of weeks before the majority of the males (Arcese, 1989). Correspondingly there was a sharp decline in the juvenile population after these exoduses. Arcese (1989) also found a disappearance of a large portion of the juvenile population on Mandarte in 1980 - 1984. He found that the largest exodus occurred during the two week period between August 16 - 30. Tompa (1964) also noted that these juveniles would reappear in the spring. The number returning from the previous year ranged from 50% in 1961 to 77.8% in 1963. The behaviors of the juveniles of Triangle Is. was not cataloged but it seems logical that similar factors influenced the departure or disappearance of large numbers of juveniles that had been recorded early in August. When considering emigration of juveniles on Triangle Is. it is difficult to determine either the destination or the source of the transients. Perhaps the influx in September is the result of juveniles dispersing from other areas of the island to the banding site and likewise the disappearance of individuals from the test site does not necessarily mean that they had left the island altogether but may have moved to some another area on the island. Of course, dispersal off the island is still a possibility. When banding resumes in the spring of 1995 it will be interesting to see if the juveniles that left in autumn do return as expected.

True emigration or immigration in the Mandarte Is. population was rarely documented. Arcese (1989) recorded only four individuals that had been born on Mandarte but had settled elsewhere. In every year of the Arcese study an influx of numerous transient birds occurred in the fall but only one of these birds stayed and finally successfully bred in 1986. Similar transient groups were experienced on Triangle Is and it

is suspected that the main period of influx was evident by the large numbers of recorded juveniles in September that were netted only once. Census results from the central coast of California (Taylor et al., 1994) showed that juveniles were 9 times more likely to be captured than adult, and that the numbers captured in autumn had no bearing on the number netted the following spring. Taylor's study also found that the birds that were permanent residents (such as Song Sparrows) had an autumn influx with a higher juvenile: adult ratio than the non-resident birds. This is consistent with the fact that young migrants tend to migrate along coastal routes rather than inland routes thus skewing the age ratio of coastal banding sites. Also, similar to his study Triangle Island had the influx of juveniles earlier than the adults that were suspected migrants (see Figure 1a).

Tompa found 1% of the breeding population to be composed of immigrants. Combining data from Tompa and Arcese, Hochachka & Smith & Arcese (1989) found a total of 12 immigrants or 5% of the population over the course of eleven years of study and only two had become successful breeders.

Dispersal of juveniles makes survival calculations for the young near impossible to make accurately as they may not even reappear in the year following their disappearance, but in subsequent years (Halliburton & Mewaldt 1976). Previous studies did not calculate survival statistics until the following year had passed when more complete data was available. Triangle Is. survival estimates will be a few years incoming.

All of the studies show similar results in their survival estimates with averages in the range of 40 -50% and highs up near 80%. Tompa (1964) estimated a low of .46 in 1961-62 to a high of .81 in 1962-63 for adult survival. Juveniles had approximately a 50% survival from fledging to a mid-August census but after that they fared poorly. Halliburton & Mewaldt (1976), found adult rates between 39 - 58% with a mean of 45 % and the juveniles ranging from 16 to 32% with a mean of 21% for the four year study. If the data for recaptures rates (49.1% and 24.6% respectively) on Triangle could be extrapolated to be considered as survival rates they would fall within similar limits set by the other studies.

The major events that affect survivorship tend to occur during the winter months, whether it be the catastrophic climatic events that occurred in the winter of 1962-63 (Tompa, 1964), and 1988-89 (Rogers et al., 1991), or mortality during the juvenile dispersals discussed earlier. It seems the most dramatic are the climatic events which bring snowfall for some period of time that covers the ground and food source of the ground foraging Song Sparrows. These documented events wiped out 43% and 90% of the song sparrows alive on Mandarte respectively. Study of the survival of birds through the extreme weather of the 1988-89 winter by Rogers et al. (1991), attempted to show whether

greater fat reserves conferred any survival advantage however mortality was too high to obtain statistically valuable information. The authors did note that the Fox Sparrows on the island did survive better which was probably due to their larger size and the fact they have generally greater fat reserves than Song Sparrows.

Data for fat stores was taken on Triangle Island but did not prove that effective in explaining local survival relationships, at least not in the short term of the study so far. Passerines are known to increase fat stores in response to the proximate temperatures (Rogers, 1988). The data collected does compare favorably to that in Rogers et al. 1991 study. Mean fat scores on Mandarte ranged from .7-.9 in the fall of 1988 (Sept 5 - Nov 15), where as Triangle birds had a mean of .89. With regards to the increased fat levels found in the new juveniles in week 7, Rogers & Smith (1993) state resource predictability can influence winter fat reserves of birds without regard for the effects of phylogenetic, nutritional, or energetic factors. It seems logical that this statement could be extended to birds during migratory flight that can't depend on the intermittent food resources between their summer and winter ranges. A bird must balance the costs and benefits of extra fat stores during migration and no study has stated whether the costs of these extra stores would outweigh the benefits. Rogers et al.(1991) note that questions of the validity or accuracy of the fat store estimates have been made and that they rely heavily on the experience of the researcher but fat scoring is still quite valid and that accuracy does increase with more experienced field workers. Perhaps the relationship between the fat class and the size-independent nutrient reserve mass (condition index) will correlate to some degree with the continuation of the study and the increase in banding experience obtained by the researchers.

Conclusion

The banding of song birds on Triangle Island has shown there is substantial population of mostly resident Song Sparrows. The population of Song Sparrows on the island seems quite similar in many aspects to the much studied population on Mandarte Is., however the Triangle population is larger in measured morphological characters. Possibly there is selection for the larger, more robust individuals on this harsher, more isolated island. This study tried to use visual fat class and the size-independent nutrient reserve mass to judge any survival advantage but results were not conclusive in light of the preliminary nature of the survival estimates. There is definitely movement of individuals on the island but whether this movement represents dispersal within the island, emigration off the island or migrants passing through is yet to be determined.

Further Investigations

Further study of the Triangle Is. population at different times and for a longer portion of the year could advance the hypothesis of whether greater fat reserves can confer increased survivability despite the absence of severe climatic stress in the summer and fall months. In addition, when the meteorological data becomes available, it will be interesting to see if certain weather patterns affect the movements of the apparent transient population. Do they fly in or on some particular weather front? Do they leave only when the winds are favorable for them to continue south? If these birds are indeed transients migrating down the coast one would expect them to appear again sometime in the spring briefly. Does this occur? These questions could be able to help predict when the influx of song birds could be expected on the islands. Another question that arises when considering the common aspects shared by Mandarte and Triangle populations, is how are the Song Sparrows on Triangle affected during the heavy influx of breeding seabirds which is not experienced by the Mandarte population. Does their behavior change? Do they become less active or more secretive?

Data on the sexes could also be interesting as it may be able to strengthen the comparison between the two populations. Do the females depart before the males in fall as on Mandarte?

Finally, though it may be outside the scope of the present project, it would be interesting to make brief surveys to see if any of the other islands in the Scott group receive any of the dispersing juveniles or migrating song birds. Perhaps Triangle Island is not the most important in the group when it comes to habitat conservation for the passerine populations of the Pacific coast.

Appendix

Capture Matrix and Raw data set

capture matrix

record	initial_date	prefix	number	age	1	2	3	4	5	6	7	8	9	10	11	12
2	29-Jul-94	1401	70553	AHY	1	1										
5	29-Jul-94	1401	70555		1				1	1	1			1		
14	1-Aug-94	1401	70561		1		1	1		1						
16	1-Aug-94	1401	70562		1											1
17	1-Aug-94	1401	70563	AHY	1									1		
18	1-Aug-94	1401	70564	AHY	1											
24	2-Aug-94	1401	70568		1											
25	2-Aug-94	1401	70569		1	1										
27	2-Aug-94	1401	70571		1	1										1
28	2-Aug-94	1401	70572		1	1							1			
32	2-Aug-94	1401	70576		1			1								
34	2-Aug-94	1401	70577		1			1								
35	2-Aug-94	1401	70578	AHY	1	1		1			1		1			
36	2-Aug-94	1401	70579		1				1							
40	2-Aug-94	1401	70581		1											
41	2-Aug-94	1401	70582		1	1	1		1				1			1
42	2-Aug-94	1401	70583		1											
44	2-Aug-94	1401	70585		1	1										
45	2-Aug-94	1401	70586	AHY	1									1		1
46	2-Aug-94	1401	70587	AHY	1							1				
48	2-Aug-94	1401	70589		1	1			1		1					
51	2-Aug-94	1401	70591		1	1										
53	2-Aug-94	1401	70592		1	1	1									
54	2-Aug-94	1401	70593		1		1		1							
55	2-Aug-94	1401	70594		1											
56	2-Aug-94	1401	70595		1		1									
57	2-Aug-94	1401	70596	AHY	1										1	
58	2-Aug-94	1401	70598		1											
59	2-Aug-94	1401	70599		1											
62	2-Aug-94	1401	70502		1											
64	2-Aug-94	1401	70504	AHY	1								1			1
69	2-Aug-94	1401	70508		1											
82	2-Aug-94	1401	70515		1											
90	2-Aug-94	1401	70518		1											
91	2-Aug-94	1401	70519		1				1							
93	3-Aug-94	1401	70520		1											
98	3-Aug-94	1401	70523	AHY	1								1			
100	3-Aug-94	1401	70525	AHY	1			1	1			1				
111	3-Aug-94	1401	70528		1		1				1					
123	3-Aug-94	1401	70536		1				1							
125	3-Aug-94	1401	70537	AHY	1			1								
129	3-Aug-94	1401	70539		1											
130	3-Aug-94	1401	70540		1			1			1					
138	4-Aug-94	1401	70541		1											
140	4-Aug-94	1401	70543		1											
142	4-Aug-94	1401	70545		1											
148	4-Aug-94	1401	70548		1											
151	4-Aug-94	1401	70549		1											
161	4-Aug-94	1451	58404	AHY	1											
166	4-Aug-94	1451	58405		1	1										
167	4-Aug-94	8051	97702		1											
168	4-Aug-94	1451	58406		1											
171	4-Aug-94	1451	58408		1			1								
172	4-Aug-94	1451	58407	AHY	1		1	1	1					1		
174	5-Aug-94	1451	58409		1											
175	5-Aug-94	1451	58410	AHY	1											
177	5-Aug-94	1451	58411		1	1										
178	5-Aug-94	1451	58412		1											
179	5-Aug-94	1451	58413		1			1								
180	5-Aug-94	1451	58414			1										

capture matrix

181	5-Aug-94	1451	58415			1							
182	5-Aug-94	1451	58416			1							
188	5-Aug-94	1451	58417			1							
190	5-Aug-94	1451	58418			1							
191	5-Aug-94	1451	58419			1							
192	5-Aug-94	1451	58420			1	1		1			1	
195	5-Aug-94	1451	58421			1							
200	5-Aug-94	1451	58422			1							
203	5-Aug-94	1451	58423			1	1						
206	5-Aug-94	1451	58424			1							
210	5-Aug-94	1451	58425			1							
215	5-Aug-94	1451	58426			1							
218	5-Aug-94	1451	58431			1							
221	6-Aug-94	1451	58430			1	1						
224	6-Aug-94	1451	58429			1							
229	6-Aug-94	1451	58428			1							
234	6-Aug-94	1451	58427			1							1
236	6-Aug-94	1451	58432			1				1			
245	6-Aug-94	1451	58433			1	1		1				
252	6-Aug-94	1451	58434			1							
253	6-Aug-94	1451	58435			1	1						
260	7-Aug-94	1451	58436			1							
261	7-Aug-94	1451	58437			1							
265	7-Aug-94	1451	58438			1							
266	7-Aug-94	1451	58439			1							
267	7-Aug-94	1451	58440			1			1			1	
271	7-Aug-94	1451	58441			1					1		1
273	7-Aug-94	1451	58442			1	1						
282	7-Aug-94	1451	58443			1	1			1			
285	8-Aug-94	1451	58444			1						1	
287	8-Aug-94	1451	58445			1							
291	8-Aug-94	1451	58446			1	1						1
298	8-Aug-94	1451	58447			1							
299	8-Aug-94	1451	58448			1							
302	8-Aug-94	1451	58449			1							
304	8-Aug-94	1451	58450			1							
308	8-Aug-94	1451	58451			1							
310	8-Aug-94	1451	58452			1	1						
311	8-Aug-94	1451	58453			1							
319	8-Aug-94	1451	58454			1			1	1			
330	8-Aug-94	1415	58455			1							
334	8-Aug-94	1451	58456			1							
339	8-Aug-94	1451	58457	AHY		1			1				
340	8-Aug-94	1451	58458			1							
341	8-Aug-94	1451	58459			1							
352	9-Aug-94	1451	58460	AHY		1	1		1			1	
353	9-Aug-94	1451	58461			1							
356	9-Aug-94	1451	58462	AHY		1			1				
357	9-Aug-94	1451	58463			1							
358	9-Aug-94	1451	58464			1	1						
360	9-Aug-94	1451	58465			1							
363	9-Aug-94	1451	58466			1							
364	9-Aug-94	1451	58467			1							
365	9-Aug-94	1451	58468			1	1						
366	9-Aug-94	1451	58469			1							
	9-Aug-94	1451	58470			1							1
379	9-Aug-94	1451	58471			1	1		1				
380	9-Aug-94	1451	58472			1						1	
381	9-Aug-94	1451	58473			1				1		1	
382	9-Aug-94	1451	58474			1							
383	9-Aug-94	1451	58475			1							

capture matrix

385	9-Aug-94	1451	58476		1														
389	9-Aug-94	1451	58477		1														
395	9-Aug-94	1451	58478		1	1													
396	9-Aug-94	1451	58479		1														
403	10-Aug-94	1451	58480		1														
416	10-Aug-94	1451	58481		1	1	1												
404	10-Aug-94	1451	58482		1														
405	10-Aug-94	1451	58483		1													1	
407	10-Aug-94	1451	58484		1														
408	10-Aug-94	1451	58485		1		1											1	
412	10-Aug-94	1451	58486		1														
419	10-Aug-94	1451	58487	AHY	1														
420	10-Aug-94	1451	58488		1	1		1											
434	10-Aug-94	1451	58489		1														
501	12-Aug-94	1451	58490		1														
440	11-Aug-94	8051	97769		1		1												
442	11-Aug-94	1451	58492		1														
446	11-Aug-94	8051	97770		1		1												
449	11-Aug-94	8051	97772		1														
452	11-Aug-94	8051	97773		1														
460	11-Aug-94	1451	58493	AHY	1														1
463	11-Aug-94	1451	58494		1														
467	11-Aug-94	1451	58495	AHY	1														1
473	11-Aug-94	1451	58496		1														
487	12-Aug-94	1451	58497	AHY			1											1	
488	12-Aug-94	1451	58498	AHY			1	1											
495	12-Aug-94	1451	58499				1												
496	12-Aug-94	1451	58500				1												
502	12-Aug-94	1451	58501	AHY			1	1	1	1									
505	12-Aug-94	1451	58502				1												
506	12-Aug-94	1451	58503	AHY			1			1	1								
508	12-Aug-94	1451	58504				1												1
509	12-Aug-94	1451	58505				1												
512	13-Aug-94	1451	58506				1												
515	13-Aug-94	1451	58507				1												
521	13-Aug-94	1451	58508				1												
525	13-Aug-94	1451	58509				1			1									
526	13-Aug-94	1451	58510				1												
531	13-Aug-94	1451	58511				1												
532	13-Aug-94	1451	58512				1												
545	13-Aug-94	1451	58514				1												1
547	13-Aug-94	1451	58515				1												
550	13-Aug-94	1451	58516				1												
553	13-Aug-94	1451	58517				1	1										1	
557	14-Aug-94	1451	58518				1	1										1	
561	14-Aug-94	1451	58519				1												
562	14-Aug-94	1451	58520				1												
563	14-Aug-94	1451	58521				1												
570	14-Aug-94	1451	58522				1	1											
572	14-Aug-94	1451	58523				1											1	1
584	15-Aug-94	1451	58524				1											1	
592	15-Aug-94	1451	58525				1												
598	15-Aug-94	1451	58526				1												
600	15-Aug-94	1451	58527				1												
601	15-Aug-94	1451	58528				1											1	
607	16-Aug-94	1451	58529				1												
614	16-Aug-94	1451	58530				1												1
615	16-Aug-94	1451	58531				1												
616	16-Aug-94	1451	58532				1												
617	16-Aug-94	1451	58533				1												
631	16-Aug-94	1451	58534				1	1											

capture matrix

632	16-Aug-94	1451	58535			1						
649	17-Aug-94	1451	58538	AHY		1	1		1			
654	17-Aug-94	1451	58537			1	1					
656	17-Aug-94	1451	58538			1						
675	18-Aug-94	1451	58539			1						
680	19-Aug-94	1451	58540				1					
691	19-Aug-94	1451	58541	AHY			1					
695	19-Aug-94	1451	58542				1					
700	19-Aug-94	1451	58543				1					
714	19-Aug-94	1451	58544				1					
723	19-Aug-94	1451	58545				1					
727	19-Aug-94	1451	58546				1					
738	20-Aug-94	1451	58547				1					
739	20-Aug-94	1451	58548				1					
745	20-Aug-94	1451	58549				1					
746	20-Aug-94	1451	58550				1					
755	20-Aug-94	1451	58551				1					
756	20-Aug-94	1451	58552	AHY			1					
758	20-Aug-94	1451	58553	AHY			1	1	1	1		
759	20-Aug-94	1451	58554	AHY			1					
767	20-Aug-94	1451	58555				1					
776	20-Aug-94	1451	58556	AHY			1					
784	21-Aug-94	1451	58557				1					
797	21-Aug-94	1451	58558				1					
799	21-Aug-94	1451	58559	AHY			1					
804	21-Aug-94	1451	58560				1					1
807	22-Aug-94	1451	58561				1					
811	22-Aug-94	1451	58562				1					
812	22-Aug-94	1451	58563	AHY			1	1				
816	22-Aug-94	1451	58565				1					
817	22-Aug-94	1451	58566				1					
818	22-Aug-94	1451	58567	AHY			1	1				
826	22-Aug-94	1451	58568				1					
827	22-Aug-94	1451	58569				1					
832	22-Aug-94	1451	58570				1	1				
836	23-Aug-94	1451	58571				1					
837	23-Aug-94	1451	58572	AHY			1					
840	23-Aug-94	1451	58573				1	1				
841	23-Aug-94	1451	58574				1					
842	23-Aug-94	1451	58575				1					
843	23-Aug-94	1451	58576				1	1				
850	23-Aug-94	1451	58577				1	1				
851	23-Aug-94	1451	58578				1					
856	23-Aug-94	1451	58579	AHY			1	1				
858	23-Aug-94	1451	58580				1					
859	23-Aug-94	1451	58581	AHY			1		1	1		
864	24-Aug-94	1451	58582				1					
866	24-Aug-94	1451	58583	AHY			1	1				
867	24-Aug-94	1451	58584				1					
868	24-Aug-94	1451	58585				1					
879	24-Aug-94	1451	58586				1					
884	24-Aug-94	1451	58587				1					
886	24-Aug-94	1451	58588	AHY			1					
892	24-Aug-94	1451	58589				1					
894	24-Aug-94	1451	58590	AHY			1					
895	24-Aug-94	1451	58591				1					
896	24-Aug-94	1451	58592	AHY			1					
901	25-Aug-94	1451	58593				1					
906	25-Aug-94	1451	58594				1		1			
910	25-Aug-94	1451	58595				1					
911	25-Aug-94	1451	58596				1					

capture matrix

912	25-Aug-94	1451	58597						1											
915	25-Aug-94	1451	58598						1											
920	26-Aug-94	1451	58599																	
926	26-Aug-94	1451	58600							1										
949	27-Aug-94	940	33908	AHY						1										
958	27-Aug-94	940	33910	AHY						1										
964	28-Aug-94	940	33907	AHY						1							1			
981	28-Aug-94	940	33911							1										
987	28-Aug-94	940	33912							1										
988	28-Aug-94	940	33905	AHY						1										
989	28-Aug-94	940	33906							1										
993	28-Aug-94	940	33909							1										
994	28-Aug-94	940	33913							1										
995	28-Aug-94	940	33914	AHY						1										
997	30-Aug-94	940	33915	AHY						1										
1011	30-Aug-94	940	33916							1									1	
1012	30-Aug-94	940	33917							1										
1014	30-Aug-94	940	33918							1										
1017	30-Aug-94	940	33919							1										
1018	30-Aug-94	940	33920							1										
1034	31-Aug-94	940	33922							1										
1045	1-Sep-94	940	33924	AHY						1							1			
1047	1-Sep-94	940	33925							1										
1049	1-Sep-94	940	33927							1										
1050	1-Sep-94	940	33928							1										
1057	3-Sep-94	940	33929																	
1070	4-Sep-94	1401	70654																	
1074	4-Sep-94	1401	70655	AHY																
1083	4-Sep-94	1401	70656																	
1084	4-Sep-94	1401	70657																	
1085	4-Sep-94	1401	70658																	
1090	4-Sep-94	1401	70659																	
1091	4-Sep-94	1401	70660	AHY																
1109	6-Sep-94	1401	70661																	
1116	6-Sep-94	1401	70662	AHY																
1121	7-Sep-94	1401	70663																	
1126	7-Sep-94	1401	70664																	
1127	7-Sep-94	1401	70665																	
1138	7-Sep-94	1401	70666																	
1146	7-Sep-94	1401	70667	AHY																
1147	7-Sep-94	1401	70668																	
1148	7-Sep-94	1401	70669																	
1150	7-Sep-94	1401	70670																	
1152	7-Sep-94	1401	70671	AHY																
1164	7-Sep-94	1401	70672																	
1165	7-Sep-94	1401	70673																	
1171	8-Sep-94	1401	70674																	
1172	8-Sep-94	1401	70675																	
1174	8-Sep-94	1401	70676																	
1177	8-Sep-94	1401	70677																	
1191	8-Sep-94	1401	70679																	
1192	8-Sep-94	1401	70678																	
1205	8-Sep-94	1401	70680																	
1208	8-Sep-94	1401	70681																	
1213	9-Sep-94	1401	70682																	
1224	9-Sep-94	1401	70683																	
1231	9-Sep-94	1401	70684																	
1232	9-Sep-94	1401	70685																	
1242	9-Sep-94	1401	70686																	
1243	9-Sep-94	1401	70687																	
1259	9-Sep-94	1401	70688	AHY																

capture matrix

1260	9-Sep-94	1401	70689	ANY						1									
1269	10-Sep-94	1401	70690							1									
1271	10-Sep-94	1401	70691							1									
1272	10-Sep-94	1401	70692							1									
1277	10-Sep-94	1401	70693							1									
1280	10-Sep-94	1401	70694							1									
1281	10-Sep-94	1401	70695							1									
1287	10-Sep-94	1401	70696							1									
1290	10-Sep-94	1401	70697							1									
1292	10-Sep-94	1401	70698							1									
1295	10-Sep-94	1401	70699							1									
1300	11-Sep-94	1401	70700							1									
1301	11-Sep-94	1401	70712							1									
1302	11-Sep-94	1401	70713							1									
1311	11-Sep-94	1401	70714							1									
1312	11-Sep-94	1401	70715							1									
1322	11-Sep-94	1401	70716							1									
1323	11-Sep-94	1401	70717							1									
1330	11-Sep-94	1401	70718							1									
1332	12-Sep-94	1401	70719							1									
1333	12-Sep-94	1401	70720							1									
1339	13-Sep-94	1401	70721							1									
1342	13-Sep-94	1401	70723							1									
1346	13-Sep-94	1401	70724	ANY						1									
1357	14-Sep-94	1401	70725							1									
1367	17-Sep-94	1401	70730								1								
1378	18-Sep-94	1401	70733	ANY							1								
1381	18-Sep-94	1401	70735								1								
1390	18-Sep-94	1401	70739								1								
1394	19-Sep-94	1451	32701								1								
1395	19-Sep-94	1451	32702								1								
1415	21-Sep-94	1451	32705								1								
1416	21-Sep-94	1451	32706								1								
1418	21-Sep-94	1451	32707								1								
1424	21-Sep-94	1451	32710								1								
1437	22-Sep-94	1451	32716								1								
1441	22-Sep-94	1451	32719								1								
1442	22-Sep-94	1451	32720								1								
1443	22-Sep-94	1451	32721								1								
1444	22-Sep-94	1451	32722								1								
1450	24-Sep-94	1451	32724									1							
1460	25-Sep-94	1451	32728									1							
1463	25-Sep-94	1451	32730									1							
1468	25-Sep-94	1451	32731									1							
1473	26-Sep-94	1451	32734									1							
1474	26-Sep-94	1451	32735									1							
1476	26-Sep-94	1451	32737									1							
1479	26-Sep-94	1451	32738									1							
1481	26-Sep-94	1451	32739									1							
1498	26-Sep-94	1451	32746	ANY								1							
1524	28-Sep-94	1451	32751									1						1	
1619	1-Oct-94	1201	34008															1	
1620	1-Oct-94	1201	34009															1	
1628	2-Oct-94	1451	32768															1	
1658	3-Oct-94	1451	32769															1	
1665	3-Oct-94	1451	32770															1	
1667	3-Oct-94	1451	32771															1	
1684	4-Oct-94	1451	32772	ANY														1	
1721	6-Oct-94	1451	32774															1	1
1757	7-Oct-94	1451	32777															1	
1763	7-Oct-94	1451	32779															1	1

capture matrix

1818	10-Oct-94	1451	32788													1	
1831	13-Oct-94	1451	32790	AHY												1	
1832	13-Oct-94	1451	32791													1	
1841	14-Oct-94	1451	32792														1
1849	15-Oct-94	1451	32793														1
1871	17-Oct-94	2151	46768	AHY													1
1882	18-Oct-94	1451	32795														1

	date	week	prefix	number	retr...	mass	wing	tarsus	culmen	bill ...	age	fat	skull	Condition...
1	29-Jul-94	1	1401	70553	N	•	•	•	•	•	•	•	•	•
2	29-Jul-94	1	1401	70555	N	30	71	25.0	11.6	6.7	HY	•	•	4
3	1-Aug-94	1	1401	70561	N	25	78	23.8	11.5	6.4	HY	•	•	0
4	1-Aug-94	1	1401	70562	N	25	68	24.6	12.0	6.0	HY	•	•	0
5	1-Aug-94	1	1401	70563	N	28	76	23.7	12.5	7.1	ANY	•	•	3
6	1-Aug-94	1	1401	70564	N	25	63	22.4	13.0	6.4	ANY	•	•	0
7	2-Aug-94	1	1401	70568	N	25	73	23.5	11.1	6.2	HY	•	•	0
8	2-Aug-94	1	1401	70569	N	24	76	22.9	11.0	6.1	HY	•	•	-1
9	2-Aug-94	1	1401	70571	N	25	71	23.5	12.4	6.6	HY	•	•	0
10	2-Aug-94	1	1401	70572	N	26	71	23.9	11.3	6.1	HY	•	•	1
11	2-Aug-94	1	1401	70576	N	23	76	23.2	10.8	5.9	HY	•	•	-2
12	2-Aug-94	1	1401	70577	N	24	76	23.3	11.7	6.6	HY	•	•	-1
13	2-Aug-94	1	1401	70578	N	37	69	23.8	13.3	6.5	ANY	•	•	12
14	2-Aug-94	1	1401	70579	N	21	65	24.3	11.9	6.4	HY	•	•	-4
15	2-Aug-94	1	1401	70581	N	25	68	25.7	11.4	6.1	HY	•	•	-1
16	2-Aug-94	1	1401	70582	N	25	71	25.1	11.2	6.2	HY	•	•	-1
17	2-Aug-94	1	1401	70583	N	24	69	25.1	10.8	6.4	HY	•	•	-2
18	2-Aug-94	1	1401	70585	N	27	63	24.5	11.0	6.7	HY	•	•	2
19	2-Aug-94	1	1401	70586	N	26	69	25.0	11.7	6.7	ANY	•	•	0
20	2-Aug-94	1	1401	70587	N	22	65	23.7	12.9	6.4	ANY	•	•	-3
21	2-Aug-94	1	1401	70589	N	26	68	24.2	11.7	6.2	HY	•	•	1
22	2-Aug-94	1	1401	70591	N	25	69	24.8	12.4	6.4	HY	•	•	0
23	2-Aug-94	1	1401	70592	N	23	74	23.5	19.9	5.6	HY	•	•	-2
24	2-Aug-94	1	1401	70593	N	32	72	24.3	11.9	6.6	HY	•	•	7
25	2-Aug-94	1	1401	70594	N	21	76	22.8	11.7	6.3	HY	•	•	-4
26	2-Aug-94	1	1401	70595	N	26	70	25.0	11.3	6.8	HY	•	•	0
27	2-Aug-94	1	1401	70596	N	25	68	23.5	12.8	6.6	ANY	•	•	0
28	2-Aug-94	1	1401	70598	N	23	68	24.0	11.3	6.2	HY	•	•	-2
29	2-Aug-94	1	1401	70599	N	25	70	25.4	12.1	6.5	HY	•	•	-1
30	2-Aug-94	1	1401	70502	N	23	63	24.4	11.1	6.2	HY	•	•	-2
31	2-Aug-94	1	1401	70504	N	26	68	24.0	13.4	6.7	ANY	•	•	1
32	2-Aug-94	1	1401	70500	N	21	66	23.1	11.3	6.4	HY	•	•	-4
33	2-Aug-94	1	1401	70515	N	26	70	24.6	13.6	6.9	HY	•	•	1
34	2-Aug-94	1	1401	70518	N	24	70	23.8	12.9	6.1	HY	•	•	-1
35	2-Aug-94	1	1401	70519	N	29	72	24.8	12.8	7.4	HY	•	•	4
36	3-Aug-94	1	1401	70520	N	23	63	22.5	11.5	6.3	HY	•	•	-2
37	3-Aug-94	1	1401	70523	N	25	70	23.2	12.8	6.3	ANY	•	•	0
38	3-Aug-94	1	1401	70525	N	27	69	23.4	12.6	6.7	ANY	•	•	2
39	3-Aug-94	1	1401	70528	N	23	66	23.7	11.9	6.3	HY	•	•	-2
40	3-Aug-94	1	1401	70536	N	24	61	23.4	11.6	6.4	HY	•	•	-1
41	3-Aug-94	1	1401	70537	N	30	66	24.0	11.4	6.5	ANY	•	•	5
42	3-Aug-94	1	1401	70539	N	23	67	23.0	11.2	6.4	HY	•	•	-2
43	3-Aug-94	1	1401	70540	N	24	67	22.6	11.3	6.6	HY	•	•	-1
44	4-Aug-94	1	1401	70541	N	23	64	23.1	12.0	6.2	HY	•	•	-2
45	4-Aug-94	1	1401	70543	N	25	71	24.7	12.4	6.7	HY	•	•	0
46	4-Aug-94	1	1401	70545	N	26	66	23.8	12.8	6.6	HY	•	•	1
47	4-Aug-94	1	1401	70578	R	26	•	23.8	•	•	ANY	•	•	1
48	4-Aug-94	1	1401	70548	N	23	72	23.4	12.2	6.7	HY	•	•	-2
49	4-Aug-94	1	1401	70563	R	•	•	23.7	•	•	ANY	•	•	•
50	4-Aug-94	1	1401	70549	N	25	68	23.4	12.3	6.5	HY	•	•	0
51	4-Aug-94	1	1451	58404	N	25	67	23.2	12.6	6.8	ANY	•	•	0
52	4-Aug-94	1	1401	70577	R	24	•	23.3	•	•	HY	•	•	-1
53	4-Aug-94	1	1451	58405	N	22	66	23.4	12.4	•	HY	•	•	-3
54	4-Aug-94	1	8051	97702	N	29	•	•	•	•	HY	•	•	•
55	4-Aug-94	1	1451	58406	N	22	62	22.5	11.5	•	HY	•	•	-3
56	4-Aug-94	1	1451	70592	R	24	•	23.5	•	•	HY	•	•	-1
57	4-Aug-94	1	1451	58408	N	23	66	21.5	10.1	•	HY	•	•	-2
58	4-Aug-94	1	1451	58407	N	31	66	24.8	12.8	•	ANY	0	•	6
59	5-Aug-94	1	1451	58409	N	21	65	22.5	11.4	•	HY	2	•	-4
60	5-Aug-94	1	1451	58410	N	24	68	23.0	12.1	•	ANY	2	•	-1
61	5-Aug-94	1	1451	58411	N	25	87	23.8	10.9	•	HY	2	•	0
62	5-Aug-94	1	1451	58412	N	25	68	23.2	11.8	•	HY	1	•	0
63	5-Aug-94	1	1451	58413	N	24	69	24.5	10.7	•	HY	1	•	-1

	date	week	prefix	number	retr...	mass	wing	tarsus	culmen	bill ...	age	fat	skull	Condition...
127	9-Aug-94	2	1451	58461	N	23	71	23.7	12.3	6.7	HY	1	•	-2
128	9-Aug-94	2	1451	58427	R	•	•	23.4	•	•	HY	•	•	•
129	9-Aug-94	2	1451	58462	N	24	69	23.2	12.2	6.6	RHY	1	•	-1
130	9-Aug-94	2	1451	58463	N	27	70	24.5	12.3	6.6	HY	0	•	2
131	9-Aug-94	2	1451	58464	N	26	68	25.0	12.5	6.5	HY	0	•	0
132	9-Aug-94	2	1451	58465	N	22	66	22.1	12.6	6.6	HY	1	•	-3
133	9-Aug-94	2	1451	58466	N	24	68	23.1	11.8	6.9	HY	0	•	-1
134	9-Aug-94	2	1451	58467	N	24	64	22.4	12.8	6.4	HY	1	•	-1
135	9-Aug-94	2	1451	58468	N	24	65	23.5	11.8	6.7	HY	0	•	-1
136	9-Aug-94	2	1451	58469	N	23	68	23.3	11.8	6.6	HY	0	•	-2
137	9-Aug-94	2	1401	70571	R	•	•	23.5	•	•	HY	•	•	•
138	9-Aug-94	2	1451	58470	N	28	68	23.5	12.0	6.4	HY	0	•	3
139	9-Aug-94	2	1451	58429	R	23	•	23.2	•	•	HY	•	•	-2
140	9-Aug-94	2	1451	58471	N	26	69	22.7	12.3	6.5	HY	0	•	1
141	9-Aug-94	2	1451	58472	N	23	68	22.3	12.4	6.9	HY	1	•	-2
142	9-Aug-94	2	1451	58473	N	27	65	22.9	11.2	•	•	0	•	2
143	9-Aug-94	2	1451	58474	N	26	72	23.8	11.8	•	HY	0	•	1
144	9-Aug-94	2	1451	58475	N	25	66	23.2	12.1	•	HY	0	•	0
145	9-Aug-94	2	1451	58476	N	23	66	23.0	11.7	•	HY	0	•	-2
146	9-Aug-94	2	1451	58477	N	24	69	23.8	11.6	•	HY	0	•	-1
147	9-Aug-94	2	1401	70585	R	28	•	24.5	•	•	HY	•	•	3
148	9-Aug-94	2	1401	70582	R	•	•	25.1	•	•	HY	•	•	•
149	9-Aug-94	2	1451	58478	N	26	70	24.5	11.5	•	HY	1	•	1
150	9-Aug-94	2	1451	58479	N	26	70	23.2	12.1	•	HY	1	•	1
151	9-Aug-94	2	1401	70592	R	•	•	23.5	•	•	HY	2	•	•
152	10-Aug-94	2	1451	58480	N	23	65	24.3	12.3	•	HY	1	•	-2
153	10-Aug-94	2	1451	58482	N	22	63	22.3	12.8	•	HY	0	•	-3
154	10-Aug-94	2	1451	58483	N	25	70	23.3	10.2	•	HY	1	•	0
155	10-Aug-94	2	1451	58484	N	26	68	24.6	10.5	•	HY	1	•	1
156	10-Aug-94	2	1451	58485	N	23	64	24.5	10.3	•	HY	1	•	-2
157	10-Aug-94	2	1451	58486	N	26	70	24.9	10.7	6.7	HY	1	•	0
158	10-Aug-94	2	1451	58481	N	23	67	23.7	11.5	6.4	HY	•	•	-2
159	10-Aug-94	2	1451	58487	N	27	65	22.8	11.5	6.4	RHY	1	•	2
160	10-Aug-94	2	1451	58488	N	30	68	24.7	9.9	6.4	HY	2	•	5
161	10-Aug-94	2	1451	58444	R	•	•	24.3	•	•	HY	1	•	•
162	10-Aug-94	2	1451	58447	R	•	•	22.2	•	•	•	•	•	•
163	10-Aug-94	2	1451	58489	N	24	69	22.7	11.8	•	HY	0	•	-1
164	11-Aug-94	2	8051	97769	N	22	68	23.3	12.2	•	HY	1	•	-3
165	11-Aug-94	2	1451	59492	N	23	70	24.8	10.8	6.8	HY	1	•	-2
166	11-Aug-94	2	8051	97770	N	24	67	23.2	12.2	5.9	HY	1	•	-1
167	11-Aug-94	2	1451	58478	R	•	•	24.5	•	•	HY	•	•	•
168	11-Aug-94	2	8051	97772	N	26	71	24.7	12.7	6.2	HY	1	•	1
169	11-Aug-94	2	8051	97773	N	23	65	23.3	12.1	6.3	HY	1	•	-2
170	11-Aug-94	2	1401	70585	R	28	•	24.5	•	•	HY	•	•	3
171	11-Aug-94	2	1451	58430	R	•	•	24.6	•	•	HY	•	•	•
172	11-Aug-94	2	1451	58493	N	28	68	22.6	12.9	6.5	RHY	•	•	3
173	11-Aug-94	2	1451	58494	N	27	71	23.1	12.5	6.5	HY	1	•	2
174	11-Aug-94	2	1451	58495	N	27	68	23.4	12.4	6.4	RHY	0	•	2
175	11-Aug-94	2	1451	58496	N	27	68	22.6	12.5	6.2	HY	1	•	2
176	12-Aug-94	2	1451	58442	R	25	•	24.8	•	•	HY	•	•	0
177	12-Aug-94	2	1451	58433	R	27	•	23.5	•	•	HY	1	•	2
178	12-Aug-94	2	1451	58435	R	26	•	24.0	•	•	HY	2	•	1
179	12-Aug-94	2	1451	58478	R	25	•	24.5	•	•	HY	0	•	0
180	12-Aug-94	2	1451	58460	R	27	•	23.0	•	•	RHY	2	•	2
181	12-Aug-94	2	1451	58443	R	26	•	24.0	•	•	HY	0	•	1
182	12-Aug-94	2	1451	58497	N	26	61	23.4	11.4	6.3	RHY	2	•	1
183	12-Aug-94	2	1451	58498	N	28	71	23.4	12.3	6.3	RHY	•	•	3
184	12-Aug-94	2	1451	58481	R	24	•	23.7	•	•	HY	2	•	-1
185	12-Aug-94	2	1451	58468	R	•	•	23.5	•	•	HY	•	•	•
186	12-Aug-94	2	1451	58488	R	•	•	24.7	•	•	HY	•	•	•
187	12-Aug-94	2	1451	58499	N	24	68	23.3	10.8	6.1	HY	3	•	-1
188	12-Aug-94	2	1451	58500	N	25	66	24.5	11.4	6.5	HY	2	•	0
189	12-Aug-94	2	1451	58420	R	25	•	24.2	•	•	HY	2	•	0

	date	week	prefix	number	retr...	mass	wing	tarsus	culmen	bill ...	age	fat	skull	Condition...
253	17-Aug-94	3	1401	70520	R	24	•	23.7	•	•	HV	2	•	-1
254	18-Aug-94	3	1451	58534	R	18	•	22.9	•	•	HV	1	•	-7
255	18-Aug-94	3	1451	58508	R	30	•	25.2	•	•	HV	2	•	4
256	18-Aug-94	3	1451	58452	R	24	•	23.7	•	•	HV	1	•	-1
257	18-Aug-94	3	1451	58539	N	24	72	27.4	9.5	5.3	HV	0	•	-2
258	18-Aug-94	3	1451	58471	R	32	•	22.7	•	•	HV	1	•	7
259	19-Aug-94	4	1451	58540	N	25	70	23.0	12.5	6.8	HV	1	•	0
260	19-Aug-94	4	1451	58541	N	24	68	23.0	12.8	6.3	RHV	1	•	-1
261	19-Aug-94	4	1451	58542	N	27	70	23.3	12.4	6.5	HV	1	•	2
262	19-Aug-94	4	1451	58543	N	25	64	25.7	11.4	6.3	HV	1	•	-1
263	19-Aug-94	4	8051	97770	N	27	63	26.9	13.1	5.7	HV	1	•	1
264	19-Aug-94	4	8051	97769	R	23	•	23.3	•	•	HV	3	•	-2
265	19-Aug-94	4	1451	58544	N	27	69	24.6	12.8	6.7	HV	1	•	2
266	19-Aug-94	4	1451	58407	R	24	•	24.8	•	•	RHV	1	•	-1
267	19-Aug-94	4	1451	58545	N	24	69	25.7	10.2	7.2	HV	1	•	-2
268	19-Aug-94	4	1451	58546	N	22	66	26.1	10.3	6.9	HV	1	•	-4
269	20-Aug-94	4	1451	58457	R	25	•	23.2	•	•	HV	0	•	0
270	20-Aug-94	4	1451	58420	R	24	•	24.2	•	•	HV	2	•	-1
271	20-Aug-94	4	1451	58547	N	24	66	23.8	12.7	6.8	HV	1	•	-1
272	20-Aug-94	4	1451	58548	N	23	65	23.1	12.5	6.4	HV	3	•	-2
273	20-Aug-94	4	1401	70577	R	23	•	23.3	•	•	HV	1	•	-2
274	20-Aug-94	4	1451	58549	N	29	73	27.2	10.2	7.5	HV	1	•	3
275	20-Aug-94	4	1451	58550	N	23	64	26.2	12.3	7.7	HV	1	•	-3
276	20-Aug-94	4	1451	58485	R	23	•	24.5	•	•	HV	0	•	-2
277	20-Aug-94	4	1451	58408	R	24	•	21.5	•	•	HV	1	•	-1
278	20-Aug-94	4	1451	58517	R	23	•	23.8	•	•	HV	1	•	-2
279	20-Aug-94	4	1451	58551	N	27	69	23.8	12.4	6.4	HV	1	•	2
280	20-Aug-94	4	1451	58552	N	27	66	23.9	12.7	6.6	RHV	1	•	2
281	20-Aug-94	4	1451	58553	N	28	68	24.0	12.1	6.4	RHV	1	•	3
282	20-Aug-94	4	1451	58554	N	31	66	22.5	12.0	6.5	HV	1	•	6
283	20-Aug-94	4	1451	58552	R	25	•	23.9	•	•	RHV	1	•	0
284	20-Aug-94	4	1451	58413	R	28	•	24.5	•	•	RHV	2	•	3
285	20-Aug-94	4	1451	58407	R	24	•	24.8	•	•	RHV	1	•	-1
286	20-Aug-94	4	1451	58537	R	27	•	23.4	•	•	HV	3	•	2
287	20-Aug-94	4	1451	58555	N	27	67	26.8	12.5	6.3	RHV	3	•	1
288	20-Aug-94	4	1451	58522	R	28	•	•	•	•	HV	0	•	•
289	20-Aug-94	4	1451	58556	N	24	66	25.0	12.8	6.2	RHV	1	•	-2
290	20-Aug-94	4	1451	58501	R	27	•	23.3	•	•	HV	1	•	2
291	20-Aug-94	4	1451	58481	R	25	•	23.7	•	•	HV	1	•	0
292	21-Aug-94	4	1401	70561	R	27	•	23.8	•	•	HV	1	•	2
293	21-Aug-94	4	1451	58557	N	26	68	27.3	12.3	5.9	HV	0	•	0
294	21-Aug-94	4	1451	58558	N	24	66	26.4	•	•	HV	•	•	-2
295	21-Aug-94	4	1451	58559	N	24	66	25.3	12.3	•	RHV	1	•	-2
296	21-Aug-94	4	1451	58560	N	26	69	23.3	12.0	6.3	HV	2	•	1
297	22-Aug-94	4	1451	58522	R	27	•	•	•	•	HV	3	•	•
298	22-Aug-94	4	1451	58561	N	24	67	26.6	11.9	5.7	HV	1	•	-2
299	22-Aug-94	4	1451	58928	R	27	•	•	•	•	HV	1	•	•
300	22-Aug-94	4	1451	58562	N	27	69	24.0	12.1	6.6	HV	1	•	2
301	22-Aug-94	4	1451	58563	N	23	67	23.1	12.3	6.5	RHV	1	•	-2
302	22-Aug-94	4	1401	70577	R	26	•	23.3	•	•	HV	1	•	1
303	22-Aug-94	4	1451	58565	N	30	70	22.6	13.2	6.7	HV	1	•	5
304	22-Aug-94	4	1451	58566	N	23	67	23.6	12.4	6.7	HV	1	•	-2
305	22-Aug-94	4	1451	58567	N	28	70	24.6	12.5	6.2	RHV	0	•	3
306	22-Aug-94	4	1401	70540	R	27	•	22.6	•	•	HV	1	•	2
307	22-Aug-94	4	1451	58518	R	30	•	24.3	•	•	HV	1	•	5
308	22-Aug-94	4	1451	58568	N	24	63	23.6	12.4	6.1	HV	0	•	-1
309	22-Aug-94	4	1451	58569	N	25	66	23.1	11.8	5.7	HV	2	•	0
310	22-Aug-94	4	1451	58413	R	27	•	24.5	•	•	HV	1	•	2
311	22-Aug-94	4	1451	58570	N	30	67	23.2	12.7	6.8	HV	1	•	5
312	23-Aug-94	4	1451	58571	N	27	73	26.5	11.2	6.2	HV	0	•	1
313	23-Aug-94	4	1451	58572	N	27	68	24.6	12.6	6.8	RHV	1	•	2
314	23-Aug-94	4	1451	58534	R	25	•	22.9	•	•	HV	1	•	0
315	23-Aug-94	4	1451	58420	R	24	•	24.2	•	•	HV	3	•	-1

	date	week	prefix	number	retr...	mass	wing	tarsus	culmen	bill ...	age	fat	skull	Condition...
379	29-Aug-94	5	940	33909	N	25	66	23.0	12.7	5.7	HY	2	•	0
380	29-Aug-94	5	940	33913	N	31	70	23.9	13.1	6.4	HY	0	•	6
381	29-Aug-94	5	940	33914	N	27	68	26.8	18.8	5.5	ANY	1	•	1
382	30-Aug-94	5	1451	58570	R	26	•	23.2	•	•	HY	1	•	1
383	30-Aug-94	5	940	33915	N	25	66	23.1	12.2	6.1	ANY	1	•	0
384	30-Aug-94	5	1451	58573	R	22	•	23.7	•	•	HY	1	•	-3
385	30-Aug-94	5	1401	70589	R	26	•	24.2	•	•	HY	1	•	1
386	30-Aug-94	5	1451	58583	R	23	•	26.0	•	•	ANY	1	•	-3
387	30-Aug-94	5	1451	58567	R	26	•	24.6	•	•	ANY	1	•	1
388	30-Aug-94	5	940	33916	N	29	•	23.5	12.4	6.6	HY	1	•	4
389	30-Aug-94	5	940	33917	N	25	67	23.4	12.3	6.3	HY	1	•	0
390	30-Aug-94	5	1451	58577	R	29	•	26.0	•	•	HY	1	•	3
391	30-Aug-94	5	940	33918	N	26	68	22.7	12.7	6.5	HY	1	•	1
392	30-Aug-94	5	1401	70536	R	26	•	23.4	•	•	HY	0	•	1
393	30-Aug-94	5	940	33919	N	22	66	22.8	11.8	6.0	HY	1	•	-3
394	30-Aug-94	5	940	33920	N	27	68	23.0	12.9	6.3	HY	1	•	2
395	31-Aug-94	5	1451	58579	R	25	•	26.7	•	•	ANY	1	•	-1
396	31-Aug-94	5	1451	58954	R	31	•	•	•	•	HY	1	•	•
397	31-Aug-94	5	1451	58440	R	30	•	22.7	•	•	HY	2	•	5
398	31-Aug-94	5	940	33922	N	23	64	21.6	11.1	7.3	HY	2	•	-2
399	31-Aug-94	5	1401	70579	R	25	•	24.3	•	•	HY	2	•	0
400	31-Aug-94	5	940	33916	R	27	•	23.5	•	•	HY	1	•	2
401	1-Sep-94	5	940	33924	N	22	68	28.8	11.8	6.1	ANY	1	•	-4
402	1-Sep-94	5	940	33925	N	27	67	26.1	10.8	6.4	HY	1	•	1
403	1-Sep-94	5	940	33927	N	23	65	21.9	11.6	5.9	HY	1	•	-2
404	1-Sep-94	5	940	33928	N	27	72	25.0	11.4	6.4	HY	1	•	1
405	3-Sep-94	6	940	33929	N	26	70	22.7	11.3	6.4	HY	1	•	1
406	4-Sep-94	6	1401	70654	N	27	68	21.7	11.4	6.0	HY	1	•	2
407	4-Sep-94	6	1451	58473	R	26	•	22.9	•	•	HY	1	•	1
408	4-Sep-94	6	1401	70525	R	27	•	23.4	•	•	ANY	1	•	2
409	4-Sep-94	6	1401	70655	N	26	73	23.4	11.6	6.6	HY	1	•	1
410	4-Sep-94	6	1451	58503	R	25	•	23.7	•	•	ANY	1	•	0
411	4-Sep-94	6	1451	58581	R	27	•	23.5	•	•	ANY	1	•	2
412	4-Sep-94	6	1401	70656	N	22	68	20.0	11.0	6.3	HY	1	•	-3
413	4-Sep-94	6	1401	70657	N	24	62	27.2	11.6	5.6	HY	1	•	-2
414	4-Sep-94	6	1401	70658	N	24	63	26.1	10.8	6.2	HY	1	•	-2
415	4-Sep-94	6	1451	58501	R	26	•	23.3	•	•	HY	1	•	1
416	4-Sep-94	6	1401	70659	N	27	72	22.9	11.7	6.0	HY	1	•	2
417	4-Sep-94	6	1401	70660	N	25	67	21.4	11.4	6.1	ANY	1	•	0
418	6-Sep-94	6	1401	70661	N	26	68	22.5	10.9	5.9	HY	1	•	1
419	6-Sep-94	6	1451	58443	R	31	•	24.0	•	•	HY	1	•	6
420	6-Sep-94	6	1451	58443	R	30	•	24.0	•	•	HY	1	•	5
421	6-Sep-94	6	1401	70662	N	28	71	26.8	12.2	6.0	ANY	1	•	2
422	7-Sep-94	6	1451	58494	R	23	•	•	•	•	ANY	1	•	•
423	7-Sep-94	6	1401	70663	N	26	66	24.3	11.6	6.5	HY	2	•	1
424	7-Sep-94	6	1401	70662	R	27	•	26.8	•	•	ANY	1	•	1
425	7-Sep-94	6	1401	70664	N	27	71	25.7	10.8	5.8	HY	1	•	1
426	7-Sep-94	6	1401	70665	N	24	70	26.2	11.0	6.6	HY	0	•	-2
427	7-Sep-94	6	1451	58432	R	27	•	24.3	•	•	HY	1	•	0
428	7-Sep-94	6	1451	58503	R	25	•	23.7	•	•	HY	1	•	0
429	7-Sep-94	6	1451	58553	R	26	•	24.0	•	•	ANY	1	•	1
430	7-Sep-94	6	1401	70666	N	25	68	23.2	11.3	6.0	HY	1	•	0
431	7-Sep-94	6	1451	58509	R	28	•	23.9	•	•	HY	0	•	3
432	7-Sep-94	6	1401	70667	N	23	66	26.9	12.6	5.4	ANY	1	•	-3
433	7-Sep-94	6	1401	70668	N	22	66	28.0	10.2	7.8	HY	1	•	-4
434	7-Sep-94	6	1401	70669	N	24	70	27.3	11.8	5.8	HY	1	•	-2
435	7-Sep-94	6	1401	70670	N	21	68	28.8	12.3	6.0	HY	1	•	-5
436	7-Sep-94	6	1451	58420	R	26	•	24.2	•	•	HY	1	•	1
437	7-Sep-94	6	1401	70671	N	21	68	28.4	11.1	6.2	ANY	1	•	-5
438	7-Sep-94	6	1401	70661	R	25	•	22.5	•	•	HY	1	•	0
439	7-Sep-94	6	1451	58528	R	25	•	24.0	•	•	HY	0	•	0
440	7-Sep-94	6	1451	58501	R	26	•	23.5	•	•	ANY	1	•	1
441	7-Sep-94	6	1401	70672	N	25	68	23.7	11.3	7.3	HY	0	•	0

	date	week	prefix	number	retr...	mass	wing	tarsus	culmen	bill ...	age	fat	skull	Condition...
505	13-Sep-94	7	1401	70724	N	26	69	22.3	12.1	5.9	AHV	1	•	1
506	14-Sep-94	7	1401	70589	R	35	•	24.2	•	•	HV	1	•	10
507	14-Sep-94	7	1401	70683	R	21	•	23.5	•	•	HV	2	•	-4
508	14-Sep-94	7	1401	70725	N	29	67	22.3	11.9	5.9	HV	2	•	4
509	14-Sep-94	7	1451	58553	R	26	•	24.8	•	•	AHV	1	•	1
510	16-Sep-94	8	1401	70631	R	27	•	25.4	•	•	HV	0	1	1
511	16-Sep-94	8	940	33922	R	25	•	21.6	•	•	HV	1	•	0
512	17-Sep-94	8	1401	70730	N	24	67	23.7	13.5	6.5	HV	0	2	-1
513	17-Sep-94	8	1451	58444	R	26	•	24.3	•	•	HV	0	2	1
514	17-Sep-94	8	1451	58497	R	22	•	23.4	•	•	HV	0	2	-3
515	17-Sep-94	8	1401	97055	R	26	•	23.9	•	•	HV	1	2	1
516	18-Sep-94	8	1401	70674	R	23	•	23.5	•	•	HV	0	2	-2
517	18-Sep-94	8	1401	70733	N	23	•	23.7	13.5	6.5	AHV	0	5	-2
518	18-Sep-94	8	1401	70735	N	23	64	22.7	12.7	6.6	HV	1	2	-2
519	18-Sep-94	8	1451	58440	R	24	•	22.7	•	•	HV	0	2	-1
520	18-Sep-94	8	1401	70739	N	27	72	23.9	13.4	•	HV	1	•	2
521	19-Sep-94	8	1451	32701	N	27	73	•	•	•	HV	•	•	•
522	19-Sep-94	8	1451	32702	N	29	68	•	•	•	HV	•	•	•
523	20-Sep-94	8	1401	70677	R	29	•	23.5	•	•	HV	•	•	4
524	20-Sep-94	8	1401	70587	R	23	•	23.7	•	•	AHV	•	•	-2
525	21-Sep-94	8	1401	70663	R	25	•	24.3	•	•	HV	•	•	0
526	21-Sep-94	8	1451	32705	N	24	71	•	•	•	•	•	•	•
527	21-Sep-94	8	1451	32706	N	24	70	•	•	•	•	•	•	•
528	21-Sep-94	8	1451	58530	R	25	•	23.7	•	•	HV	•	•	0
529	21-Sep-94	8	1451	32707	N	27	68	•	•	•	HV	•	•	•
530	21-Sep-94	8	1451	32701	R	26	•	•	•	•	HV	•	•	•
531	21-Sep-94	8	1401	70677	R	29	•	23.5	•	•	HV	1	•	4
532	21-Sep-94	8	1451	32710	N	26	70	23.8	12.1	6.3	HV	1	•	1
533	22-Sep-94	8	1451	58517	R	27	•	23.8	•	•	HV	1	2	2
534	22-Sep-94	8	1451	58523	R	22	•	23.1	•	•	HV	1	2	-3
535	22-Sep-94	8	1451	32716	N	27	69	23.4	13.0	7.0	HV	0	•	2
536	22-Sep-94	8	1451	32719	N	26	70	23.3	13.4	7.0	HV	0	2	1
537	22-Sep-94	8	1451	32720	N	23	64	22.3	12.7	6.9	HV	0	2	-2
538	22-Sep-94	8	1451	32721	N	27	71	20.8	13.3	6.8	HV	0	2	2
539	22-Sep-94	8	1451	32722	N	23	68	22.8	13.0	6.4	HV	1	•	-2
540	22-Sep-94	8	1401	70525	R	36	•	23.4	•	•	AHV	1	5	11
541	24-Sep-94	9	1451	32724	N	27	70	23.1	12.8	6.8	HV	0	2	2
542	24-Sep-94	9	1451	58524	R	24	•	24.8	•	•	HV	1	2	-1
543	25-Sep-94	9	940	33916	R	28	•	23.5	•	•	HV	0	•	3
544	25-Sep-94	9	1451	32728	N	27	72	22.5	13.5	7.5	HV	0	2	2
545	25-Sep-94	9	1451	32730	N	24	66	20.5	12.9	6.6	HV	0	1	-1
546	25-Sep-94	9	1401	70677	R	30	•	23.5	•	•	HV	0	•	5
547	25-Sep-94	9	1451	32731	N	24	63	22.1	13.3	6.9	HV	1	2	-1
548	25-Sep-94	9	1401	70523	R	25	•	23.2	•	•	AHV	0	•	0
549	26-Sep-94	9	1451	32734	N	22	63	21.9	13.3	6.9	HV	0	2	-3
550	26-Sep-94	9	1451	32735	N	25	69	22.5	13.6	6.6	HV	0	2	0
551	26-Sep-94	9	1451	32737	N	25	69	23.8	13.8	6.8	•	0	3	0
552	26-Sep-94	9	1451	58575	R	24	•	27.9	•	•	HV	0	1	-2
553	26-Sep-94	9	1451	32738	N	24	66	23.8	13.4	6.8	•	0	2	-1
554	26-Sep-94	9	1451	32739	N	25	66	23.0	13.4	7.1	HV	0	2	0
555	26-Sep-94	9	1401	70572	R	25	•	23.9	•	•	HV	0	2	0
556	26-Sep-94	9	1451	58483	R	24	•	23.3	•	•	HV	0	1	-1
557	26-Sep-94	9	1451	32746	N	24	68	24.1	13.3	7.1	AHV	0	5	-1
558	26-Sep-94	9	1401	70578	R	25	•	23.8	•	•	AHV	1	5	0
559	27-Sep-94	9	1451	58495	R	24	•	23.4	•	•	HV	0	2	-1
560	27-Sep-94	9	1401	70674	R	27	•	23.5	•	•	HV	0	•	2
561	27-Sep-94	9	1401	70504	R	27	•	24.0	•	•	AHV	1	2	2
562	28-Sep-94	9	1451	32751	N	22	65	24.1	13.3	6.4	HV	0	2	-3
563	28-Sep-94	9	1401	70582	R	25	•	25.1	•	•	HV	1	•	-1
564	28-Sep-94	9	1401	70662	R	28	•	26.8	•	•	AHV	•	•	2
565	29-Sep-94	9	1451	58485	R	24	•	24.5	•	•	HV	0	•	-1
566	29-Sep-94	9	940	33907	R	17	•	24.3	•	•	AHV	0	•	-0
567	1-Oct-94	10	1451	58407	R	24	•	24.8	•	•	AHV	1	•	-1

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Site Name: Triangle Island
Lat: 50'50"
Long: 129' 00"

Type of Banding: Mistnets
No. of Days Netting: 50
Dates: 6 Aug - 10 Oct
No. Net Hours: 276.75

Permit # 10201
Dr. Fred Cooke

Species	AHY	HY	UNK	Total
RSFL	0	0	1	2
WEFL	0	2	0	2
HAFL	0	2	0	2
NOCR	1	0	0	1
RECR	1	0	0	1
SAVS	61	132	2	195
WCSP	0	0	1	1
PSWS	0	1	0	1
WTSP	1	0	0	1
ORJU	1	0	0	1
SOSP	128	200	17	345
FOSP	66	154	24	244
RBGR	0	2	0	2
OCWA	34	17	8	59
TEWA	1	0	0	1
YWAR	2	6	0	8
AUWA	1	0	0	1
BLPW	1	1	0	2
TOWA	0	2	0	2
PRAW	0	1	0	1
NOWA	1	0	0	1
WAPI	1	0	0	1
WIWR	3	4	5	12
GCKI	1	0	1	2
HETH	4	0	0	4
VATH	1	1	0	2
Totals	309	525	59	894

WESTERN BIRD BANDING ASSOCIATION
BIRD BANDING SUMMARY FROM JANUARY 1 THROUGH DECEMBER 31, 1994

Name Fred Cooke Federal Permit Number 10201
 Address Dept of Biological Sciences, Simon Fraser University
Burnaby, B.C. ~~V5A 1S6~~ V5A 1S6

Area(s) covered (circle): AK AZ CA CO HI ID MT NM NV OR UT WA WY : AB (BC) YU NWT : MX

3068 TOTAL BIRDS BANDED 37 SPECIES (TAXA) TOTAL Did not band on this permit during 1994 _____

Please enter in the space to the left of each species the total number you and your subpermittees banded with USFWS or CWS bands in 1994. A comparable state/provincial or computer-generated report may be submitted. If you banded in more than one state/province, please use duplicate forms (available upon request), or, if relatively few, detail to the right of the species (e.g. _____ Mallard CA-16, OR-27). Numbers of indented subspecies banded must add up to numbers banded for that full species. For number of species banded, count indented subspecies, but then do not add full species to total.

Please return this report, prior to 30 April, 1995 to:
 COYOTE CREEK RIPARIAN STATION
 P. O. BOX 1027
 ALVISO, CA 95002

A summary of these reports will appear in the North American Bird Bander. Upon request, we will send you a computer-generated hard copy of the results. Your contribution is very important to ensure that published reports accurately reflect banding activity in Western North America

- | | | |
|---|---|--|
| <ul style="list-style-type: none"> _____ RED-THROATED LOON _____ ARTIC LOON _____ COMMON LOON _____ PIED-BILLED GREBE _____ HORNED GREBE _____ EARED GREBE _____ WESTERN GREBE _____ NORTHERN FULMAR _____ FORK-TAILED STORM-PETREL <u>101</u> _____ LEACH'S STORM-PETREL _____ ASHY STORM-PETREL _____ AMERICAN WHITE PELICAN _____ BROWN PELICAN _____ DOUBLE-CRESTED CORMORANT _____ BRANDT'S CORMORANT _____ PELAGIC CORMORANT _____ LEAST BITTERN _____ AMERICAN BITTERN _____ GREAT BLUE HERON _____ GREAT EGRET _____ SNOWY EGRET _____ GREEN-BACKED HERON _____ BLACK-CROWNED NIGHT-HERON _____ WHITE-FACED IBIS _____ FULVOUS WHISTLING-DUCK _____ BLACK-BELLIED WHISTLING-DUCK _____ WHISTLING SWAN _____ TRUMPETER SWAN _____ GREATER WH.-FRONTED GOOSE _____ LESSER WHITE-FRONTED GOOSE _____ LESSER SNOW GOOSE _____ GREATER SNOW GOOSE _____ ROSS' GOOSE _____ EMPEROR GOOSE _____ BLACK BRANT _____ CANADA GOOSE _____ WOOD DUCK _____ AMERICAN GREEN-WINGED TEAL _____ AMERICAN BLACK DUCK _____ MALLARD _____ NORTHERN PINTAIL _____ BLUE-WINGED TEAL _____ CINNAMON TEAL _____ NORTHERN SHOVELER _____ GADWALL _____ AMERICAN WIGEON _____ CANVASBACK _____ REDHEAD _____ RING-NECKED DUCK _____ GREATER SCAUP _____ LESSER SCAUP _____ STELLER'S EIDER _____ HARLEQUIN DUCK | <ul style="list-style-type: none"> _____ OLDSQUAW _____ BLACK SCOTER _____ SURF SCOUTER _____ WHITE-WINGED SCOTER _____ COMMON GOLDENEYE _____ BARROW'S GOLDENEYE _____ BUFFLEHEAD _____ HOODED MERGANSER _____ COMMON MERGANSER _____ RED-BREASTED MERGANSER _____ RUDDY DUCK _____ OSPREY _____ BLACK-SHOULDERED KITE _____ BALD EAGLE _____ NORTHERN HARRIER _____ SHARP-SHINNED HAWK _____ COOPER'S HAWK _____ NORTHERN GOSHAWK _____ HARRIS' HAWK _____ RED-SHOULDERED HAWK _____ BROAD-WINGED HAWK _____ SWAINSON'S HAWK _____ RED-TAILED HAWK _____ FERRUGINOUS HAWK _____ ROUGH-LEGGED HAWK _____ GOLDEN EAGLE <u>I</u> _____ AMERICAN KESTREL _____ MERLIN _____ PEREGRINE FALCON _____ GYRFALCON _____ PRAIRIE FALCON _____ CALIFORNIA QUAIL _____ BLACK RAIL _____ CLAPPER RAIL _____ VIRGINIA RAIL _____ SORA _____ COMMON MOORHEN _____ AMERICAN COOT _____ SANDHILL CRANE _____ WHOOPING CRANE _____ BLACK-BELLIED PLOVER _____ LESSER GOLDEN-PLOVER _____ SNOWY PLOVER _____ SEMIPALMATED PLOVER _____ KILLDEER _____ MOUNTAIN PLOVER _____ BLACK OYSTERCATCHER _____ BLACK-NECKED STILT _____ AMERICAN AVOCET _____ GREATER YELLOWLEGS _____ LESSER YELLOWLEGS _____ SOLITARY SANDPIPER _____ WILLET | <ul style="list-style-type: none"> <u>1</u> _____ WANDERING TATTLER _____ SPOTTED SANDPIPER _____ WHIMBREL _____ LONG-BILLED CURLEW _____ MARBLED GODWIT _____ RUDDY TURNSTONE _____ BLACK TURNSTONE _____ RED KNOT _____ SANDERLING _____ SEMIPALMATED SANDPIPER _____ WESTERN SANDPIPER _____ LEAST SANDPIPER _____ BAIRD'S SANDPIPER _____ PECTORAL SANDPIPER _____ SHARP-TAILED SANDPIPER _____ ROCK SANDPIPER _____ DUNLIN _____ STILT SANDPIPER _____ BUFF-BREASTED SANDPIPER _____ SHORT-BILLED DOWITCHER _____ LONG-BILLED DOWITCHER _____ COMMON SNIFE _____ WILSON'S PHALAROPE _____ RED-NECKED PHALAROPE _____ RED PHALAROPE _____ PARASITIC JAEGER _____ LONG-TAILED JAEGER _____ FRANKLIN'S GULL _____ BONAPARTE'S GULL _____ HEERMANN'S GULL _____ MEW GULL _____ RING-BILLED GULL _____ CALIFORNIA GULL _____ HERRING GULL _____ THAYER'S GULL _____ WESTERN GULL _____ GLAUCOUS-WINGED GULL _____ GLAUCOUS GULL _____ BLACK-LEGGED KITTIWAKE _____ RED-LEGGED KITTIWAKE _____ SABINE'S GULL _____ CASPIAN TERN _____ ROYAL TERN _____ ELEGANT TERN _____ COMMON TERN _____ ARCTIC TERN _____ FORSTER'S TERN _____ LEAST TERN _____ BLACK TERN _____ BLACK SKIMMER _____ COMMON MURRE _____ BLACK GUILLEMONT <u>48</u> _____ PIGEON GUILLEMONT |
|---|---|--|

_____ ANCIENT MURRELET
 _____ MARBLED MURRELET
 _____ XANTUS' MURRELET
55 _____ CASSIN'S AUKLET
 _____ LEAST AUKLET
82 _____ RHINOCEROS AUKLET
16 _____ TUFTED PUFFIN
 _____ HORNED PUFFIN
1 _____ BAND-TAILED PIGEON
 _____ RINGED TURTLE-DOVE
 _____ SPOTTED DOVE
 _____ WHITE-WINGED DOVE
 _____ MOURNING DOVE
 _____ INCA DOVE
 _____ COMMON GROUND-DOVE
 _____ BLACK-BILLED CUCKOO
 _____ YELLOW-BILLED CUCKOO
 _____ GREATER ROADRUNNER
 _____ BARN OWL
 _____ FLAMMULATED OWL
 _____ WESTERN SCREECH-OWL
 _____ GREAT HORNED OWL
 _____ SNOWY OWL
 _____ NORTHERN HAWK-OWL
 _____ NORTHERN PYGMY-OWL
 _____ ELF OWL
 _____ BURROWING OWL
 _____ SPOTTED OWL
 _____ BARRED OWL
 _____ GREAT GRAY OWL
 _____ LONG-EARED OWL
 _____ SHORT-EARED OWL
 _____ BOREAL OWL
 _____ NORTHERN SAW-WHET OWL
 _____ LESSER NIGHTHAWK
 _____ COMMON NIGHTHAWK
 _____ COMMON POOR WILL
 _____ BLACK SWIFT
 _____ VAUX'S SWIFT
 _____ WHITE-THROATED SWIFT
 _____ BROAD-BILLED HUMMINGBIRD
 _____ BERYLLINE HUMMINGBIRD
 _____ MAGNIFICENT HUMMINGBIRD
 _____ BLACK-CHINNED HUMMINGBIRD
 _____ ANNA'S HUMMINGBIRD
 _____ COSTA'S HUMMINGBIRD
 _____ CALLIOPE HUMMINGBIRD
 _____ BROAD-TAILED HUMMINGBIRD
1 _____ RUFIOUS HUMMINGBIRD
 _____ ALLEN'S HUMMINGBIRD
1 _____ ELEGANT TROGON
 _____ BELTED KINGFISHER
 _____ GREEN KINGFISHER
 _____ LEWIS' WOODPECKER
 _____ RED-HEADED WOODPECKER
 _____ ACORN WOODPECKER
 _____ GILA WOODPECKER
 _____ YELLOW-BELLIED SAPSUCKER
2 _____ RED-NAPED SAPSUCKER
 _____ RED-BREADED SAPSUCKER
 _____ WILLIAMSON'S SAPSUCKER
 _____ LADDER-BACKED WOODPECKER
 _____ NUTTALL'S WOODPECKER
 _____ DOWNY WOODPECKER
 _____ HAIRY WOODPECKER
 _____ STRICKLAND'S WOODPECKER
 _____ WHITE-HEADED WOODPECKER
3 _____ BLACK-BACKED WOODPECKER
 _____ NORTHERN FLICKER
 _____ YELLOW-SHAFTED FLICKER
 _____ RED-SHAFTED FLICKER
3 _____ FLICKER INTERGRADE
 _____ GILDED FLICKER
 _____ PILEATED WOODPECKER
 _____ OLIVE-SIDED FLYCATCHER
 _____ WESTERN WOOD-PEWEE
 _____ YELLOW-BELLIED FLYCATCHER
 _____ ALDER FLYCATCHER
 _____ WILLOW FLYCATCHER
 _____ LEAST FLYCATCHER
 _____ HAMMOND'S FLYCATCHER

_____ DUSKY FLYCATCHER
 _____ GRAY FLYCATCHER
 _____ WESTERN FLYCATCHER
 _____ BUFF-BREADED FLYCATCHER
 _____ BLACK PHOEBE
 _____ EASTERN PHOEBE
 _____ SAY'S PHOEBE
 _____ VERMILION FLYCATCHER
 _____ ASH-THROATED FLYCATCHER
 _____ GREAT CRESTED FLYCATCHER
 _____ BROWN-CRESTED FLYCATCHER
 _____ TROPICAL KINGBIRD
 _____ CASSIN'S KINGBIRD
 _____ WESTERN KINGBIRD
 _____ EASTERN KINGBIRD
 _____ HORNED LARK
 _____ PURPLE MARTIN
 _____ TREE SWALLOW
 _____ VIOLET-GREEN SWALLOW
 _____ NORTH. ROUGH-WINGED SWALLOW
 _____ BANK SWALLOW
 _____ CLIFF SWALLOW
 _____ CAVE SWALLOW
 _____ BARN SWALLOW
 _____ GRAY JAY
 _____ STELLER'S JAY
 _____ BLUE JAY
 _____ SCRUB JAY
 _____ GRAY-BREADED JAY
 _____ PINYON JAY
 _____ CLARK'S NUTCRACKER
 _____ BLACK-BILLED MAGPIE
 _____ YELLOW-BILLED MAGPIE
1 _____ AMERICAN CROW
 _____ NORTHWESTERN CROW
 _____ CHIHUAHUA RAVEN
 _____ COMMON RAVEN
 _____ BLACK-CAPPED CHICKADEE
 _____ MOUNTAIN CHICKADEE
 _____ BOREAL CHICKADEE
 _____ CHESTNUT-BACKED CHICKADEE
 _____ BRIDLED TITMOUSE
 _____ PLAIN TITMOUSE
 _____ VERDIN
 _____ COMMON BUSHTIT
8 _____ RED-BREADED NUTHATCH
 _____ WHITE-BREADED NUTHATCH
 _____ PYGMY NUTHATCH
 _____ BROWN CREEPER
 _____ CACTUS WREN
 _____ ROCK WREN
 _____ CANYON WREN
 _____ BEWICK'S WREN
 _____ HOUSE WREN
20 _____ WINTER WREN
26 _____ AMERICAN DIPPER
 _____ GOLDEN-CROWNED KINGLET
 _____ RUBY-CROWNED KINGLET
 _____ BLUE-GRAY GNATCATCHER
 _____ BLACK-TAILED GNATCATCHER
 _____ EASTERN BLUEBIRD
 _____ WESTERN BLUEBIRD
 _____ MOUNTAIN BLUEBIRD
 _____ TOWNSEND'S SOLITARE
 _____ VEERY
 _____ GRAY CHEECHED THRUSH
6 _____ SWAINSON'S THRUSH
8 _____ HERMIT THRUSH
1 _____ AMERICAN ROBIN
12 _____ VARIED THRUSH
 _____ WRENTIT
 _____ GRAY CATBIRD
 _____ NORTHERN MOCKINGBIRD
 _____ SAGE THRASHER
 _____ BROWN THRASHER
 _____ BENDIRE'S THRASHER
 _____ CURVE-BILLED THRASHER
 _____ CALIFORNIA THRASHER
 _____ CRISSAL THRASHER
 _____ LE CONTE'S THRASHER
 _____ YELLOW WAGTAIL

1 _____ WATER PIPIT
 _____ BOHEMIAN WAXWING
 _____ CEDAR WAXWING
 _____ PHAINOPEPLA
 _____ NORTHERN SHRIKE
 _____ LOGGERHEAD SHRIKE
 _____ EUROPEAN STARLING
 _____ BELL'S VIREO
 _____ GRAY VIREO
 _____ SOLITARY VIREO
 _____ HUTTON'S VIREO
3 _____ WARBLING VIREO
 _____ PHILADELPHIA VIREO
 _____ RED-EYED VIREO
 _____ TENNESSEE WARBLER
110 _____ ORANGE-CROWNED WARBLER
 _____ NASHVILLE WARBLER
 _____ VIRGINIA'S WARBLER
 _____ LUCY'S WARBLER
 _____ NORTHERN PARULA
3 _____ YELLOW WARBLER
 _____ CHESTNUT-SIDED WARBLER
 _____ MAGNOLIA WARBLER
 _____ CAPE MAY WARBLER
 _____ BLACK-THROATED BLUE WARBLER
 _____ YELLOW-RUMPED WARBLER
 _____ MYRTLE WARBLER
 _____ AUDUBON'S WARBLER
 _____ BLACK-THROATED GRAY WARBLER
7 _____ TOWNSEND'S WARBLER
 _____ HERMIT WARBLER
 _____ BLK.-THROATED GREEN WARBLER
 _____ BLACKBURNIAN WARBLER
 _____ GRACE'S WARBLER
 _____ PRAIRIE WARBLER
 _____ WESTERN PALM WARBLER
 _____ BAY-BREADED WARBLER
 _____ BLACKPOLL WARBLER
 _____ CERULEAN WARBLER
 _____ BLACK-AND-WHITE WARBLER
 _____ PROTHONOTARY WARBLER
 _____ WORM-EATING WARBLER
 _____ OVENBIRD
 _____ NORTHERN WATERTHRUSH
 _____ LOUISIANA WATERTHRUSH
 _____ KENTUCKY WARBLER
 _____ CONNECTICUT WARBLER
 _____ MOURNING WARBLER
 _____ MAC GILLIVRAYS WARBLER
 _____ COMMON YELLOWTHROAT
1 _____ HOODED WARBLER
 _____ WILSON'S WARBLER
 _____ CANADA WARBLER
 _____ RED-FACED-WARBLER
 _____ AMERICAN REDSTART
 _____ PAINTED REDSTART
 _____ YELLOW-BREADED CHAT
 _____ HEPATIC Tanager
 _____ SUMMER Tanager
 _____ SCARLET Tanager
 _____ WESTERN Tanager
 _____ NORTHERN CARDINAL
 _____ PYRRHULOXIA
 _____ ROSE-BREADED GROSBEAK
 _____ BLACK-HEADED GROSBEAK
 _____ BLUE GROSBEAK
 _____ LAZULI BUNTING
 _____ INDIGO BUNTING
 _____ PAINTED BUNTING
 _____ DICKCISSEL
 _____ GREEN-TAILED TOWHEE
 _____ RUFIOUS-SIDED TOWHEE
 _____ RUFIOUS-SIDED TOWHEE
 _____ SPOTTED TOWHEE
 _____ BROWN TOWHEE
 _____ ABERT'S TOWHEE
 _____ BOTTER'S SPARROW
 _____ CASSIN'S SPARROW
 _____ RUFIOUS-WINGED SPARROW
 _____ RUFIOUS-CROWNED SPARROW
 _____ AMERICAN TREE SPARROW

- 3 CHIPPING SPARROW
- CLAY-COLORED SPARROW
- ____ BREWER'S SPARROW
- ____ BLACK-CHINNED SPARROW
- ____ VESPER SPARROW
- ____ LARK SPARROW
- ____ BLACK-THROATED SPARROW
- ____ SAGE SPARROW
- 138 SAVANNAH SPARROW
- ____ GRASSHOPPER SPARROW
- ____ LE CONTE'S SPARROW
- ____ SHARP-TAILED SPARROW
- 384 FOX SPARROW
- 373 SONG SPARROW
- ____ LINCOLN'S SPARROW
- 1 SWAMP SPARROW
- 1 WHITE-THROATED SPARROW
- 4 GOLDEN-CROWNED SPARROW
- 3 WHITE-CROWNED SPARROW
- ____ GAMBEL'S WH.-CR. SPARROW
- ____ MOUNTAIN WH.-CR. SPARROW
- ____ PUGET SND. WH.-CR. SPARROW
- ____ NUTTALL'S WH.-CR. SPARROW
- ____ HARRIS' SPARROW

- 4 WHITE-WINGED JUNCO
- DARK-EYED JUNCO
- ____ SLATE-COLORED JUNCO
- 1 OREGON JUNCO
- ____ GRAY-HEADED JUNCO
- 3 UNIDENT. DARK-EYED JUNCO
- ____ YELLOW-EYED JUNCO
- ____ MC COWN'S LONGSPUR
- ____ LAPLAND LONGSPUR
- ____ CHESTNUT-COLLARED LONGSPUR
- ____ SNOW BUNTING
- ____ MC KAY'S BUNTING
- ____ BOBOLINK
- ____ RED-WINGED BLACKBIRD
- ____ TRICOLORED BLACKBIRD
- ____ EASTERN MEADOWLARK
- ____ WESTERN MEADOWLARK
- ____ YELLOW-HEADED BLACKBIRD
- ____ RUSTY BLACKBIRD
- ____ BREWER'S BLACKBIRD
- ____ GREAT-TAILED GRACKLE
- ____ COMMON GRACKLE
- ____ BRONZED COWBIRD
- 3 BROWN-HEADED COWBIRD

- ____ ORCHARD ORIOLE
- ____ HOODED ORIOLE
- ____ NORTHERN ORIOLE
- ____ BALTIMORE ORIOLE
- ____ BULLOCK'S ORIOLE
- ____ SCOTT'S ORIOLE
- ____ ROSY FINCH
- ____ GRAY-CROWNED ROSY-FINCH
- ____ BROWN-CAPPED ROSY-FINCH
- ____ BLACK ROSY-FINCH
- ____ PINE GROSBEAK
- ____ PURPLE FINCH
- ____ CASSIN'S FINCH
- ____ HOUSE FINCH
- ____ RED CROSSBILL
- ____ WHITE-WINGED CROSSBILL
- ____ COMMON REDPOLL
- ____ HOARY REDPOLL
- 5 PINE SISKIN
- ____ LESSER GOLDFINCH
- ____ LAWRENCE'S GOLDFINCH
- ____ AMERICAN GOLDFINCH
- ____ EVENING GROSBEAK
- ____ HOUSE SPARROW

ADDITIONAL SPECIES

