

MINASKUAT PROJECT NO. M50

**GRAY JAY (*Perisoreus canadensis*)
2003 FALL BANDING PROGRAM
FINAL REPORT**

14 January, 2004



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FINAL REPORT ON

**GRAY JAY (*Perisoreus canadensis*)
2003 FALL BANDING PROGRAM**

PREPARED FOR

**INSTITUTE FOR ENVIRONMENTAL MONITORING AND RESEARCH
P.O. BOX 1859, STN. "B"
114 HAMILTON RIVER RD.
GOOSE BAY, LABRADOR A0P 1E0**

PREPARED BY

**MINASKUAT LIMITED PARTNERSHIP
P.O. BOX 482, STATION "C"
BUILDING 412, LAHR BLVD
GOOSE BAY, LABRADOR A0P 1C0
Tel: (709) 896-5860
Fax: (709) 896-5863**

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1.0 BACKGROUND

In March 2003, Minaskuat Limited Partnership was contracted by the Institute for Environmental Monitoring and Research (IEMR) to conduct research on how noise disturbance during take-off and landing of military aircraft affects the behavior of nesting Gray Jays. The first field investigation took place in April and May 2003 and is described in a report submitted to the IEMR (Minaskuat 2003). Based on this experience, and in anticipation of the continuation of the Gray Jay study in 2004, it was determined that individuals would need to be captured, banded and sexed during Fall 2003 (the period when sexes are distinguishable by weight). Specifically, if monitoring of nesting activity during the 2004 military training season is to be carried out, females must first be distinguished from males to assist in the efficient location of nest sites. As a result, a proposal was submitted and approved by the IEMR to conduct a Fall banding program. This report summarizes the results of the Fall field program.



2.0 INTRODUCTION

2.1 Study Team

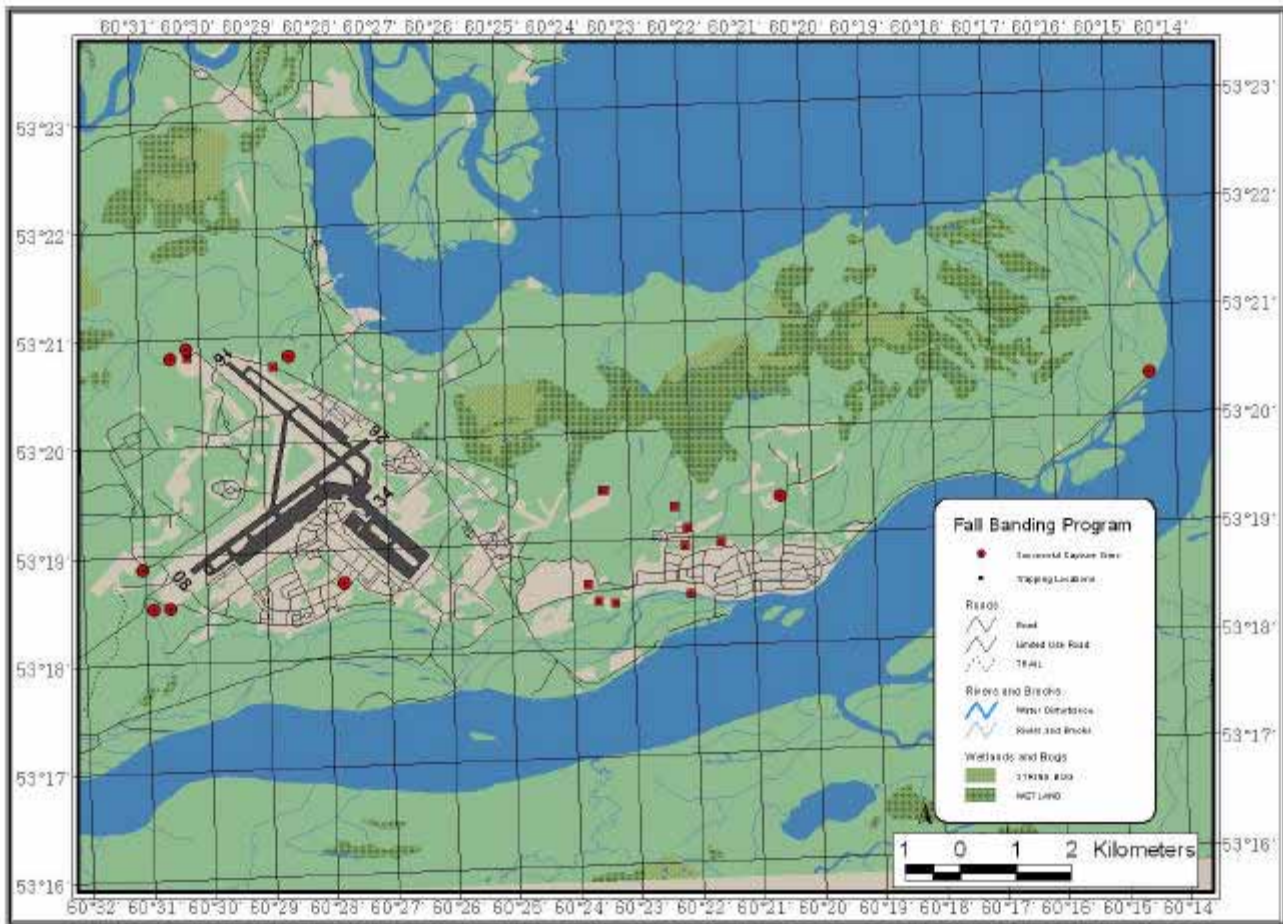
Mr. Perry Trimper (JWEL) was the project manager for this study, holder of the banding permit (# 10693) and was responsible for quality control. Ms. Karen Gosse (Minaskuat) led the field program with assistance from Mr. Trimper and Ms. Kathy Knox (JWEL). Aboriginal and non-aboriginal assistants participated in the field study, including Ms. Caroline Hong, Mr. Corey Cooney, Ms. Mary Ann Aylward, and Ms. Shirley Hill (Minaskuat). Ms. Alison Goodyear, and the commander of the German Forces at 5 Wing Goose Bay, OTL Helmut Röhrig and Ms. Gudrun Röhrig also participated in field surveys on several occasions. Maps were produced by Mr. Tony Parr (IEMR). Mr. Dan Strickland (Research Biologist, Algonquin Park) continued to provide expertise and guidance during the program.

2.2 Study Area

The study area (Figure 2.1) focused on Gray Jay habitat (i.e. black spruce dominant forests) within 2 km of the end of the two runways and in areas where adult pairs were observed during spring 2003 surveys (Minaskuat 2003). However, control trapping sites were moved to black spruce habitat within the Valley portion of the community.



Figure 2.1 Fall Banding Program Study Area



3.0 METHODOLOGY

Surveys for Gray Jays commenced on 12 November in areas where 2003 surveys indicated resident pairs. At prospective trapping locations, Potter Traps[®] (Boreal King Supply Co. Ltd.), baited with suet and/or bread, were set and positioned so that food in either end was easily accessible. Six traps were used and rotated between trapping sites (Figure 3.1). Traps were attended by the field crew or monitored periodically (approximately every 30 to 45 minutes) over 1 to 2 hour time periods.

Captured birds were carefully removed from the trap and placed in cloth handling bags for processing. All birds were weighed on one or more occasions (weights of recaptured birds were recorded and an average value calculated) using a 100g hand-held precision spring scale (Pesola[®]). Individuals were banded using celluloid (Type X3, Avinet Inc.) leg bands, color-coded to distinguish the male and female of a particular family group (if identified). Numbered metal leg bands (United States Fish and Wildlife Service) were also attached. All aspects (measurements, behavior, weather) of the approximate 1 to 5 minute handling time were recorded. In addition, the field crew recorded general biological information, such as the number of adults present at a site, antagonistic interactions between individuals (e.g. aerial pursuits, bill snapping), feeding behavior (selection and storage), and any indications of territorial defence.



4.0 RESULTS

4.1 Captures

Twenty-two Gray Jays were captured and banded between 17 November and 1 December 2003, including seven recaptures from the Spring program (Figure 2.1, Table 4.1). Seven of the 22 captures were recaptured on one or more occasion during the Fall program (Table 4.1). Conservatively, the study team estimates that 2 birds remained unbanded in the experimental and 5 in the control areas.

4.2 Weight and sex

Male Gray Jays resident in Algonquin Park, ON, mainland Quebec, and on Anticosti Island in the Gulf of St. Lawrence, weigh an average of 75.8g (n=139), 76.0g (n=32), and 83.3g (n=41) respectively, and females weigh, on average, 67.5g (n=145), 69.7g (n=30), and 74.9g (n=35), though weights of light males and heavy females do overlap (D. Strickland pers. comm.). Based on these observations, birds weighing > 76 g were considered male, birds < 70 g were considered female, and the sex of those with weights falling in between these values was recorded as unknown.

Weights ranged between 58 g and 79 g (Tables 4.1 and 4.2). Of the 22 birds captured, eight characterized as female, five as male, and nine were considered unknown (Table 4.2). Two birds (band numbers 1383-61765 and 1383-61766) were observed together in the absence of any other Gray Jays and were presumed to be a pair. Weights of this male and female differed by 10 g (78 g and 68.5 g, respectively), as suggested in the literature as the range of difference in weights between male and female Gray Jays (Strickland and Ouellet 1993). Weights of all presumed males and females fall within the 70 to 79 g and 60 to 69 g ranges respectively generally observed by D. Strickland (D. Strickland pers. comm.).



Table 4.1 Summary of Gray Jay captures near 5 Wing Goose Bay, Labrador, 17 November to 1 December 2003

Band No. (right leg)	Band color		Trap site	UTM easting northing	Date(s)	Weight (g)	Mean Weight (g)	Probable Sex	Comments
	Left Leg	Right Leg							
1383-61752	- Red	- Metal	1a	668976 5908750	17 Nov/03 20 Nov/03	no data 73	73	Unknown	
1383-61753	- Blue	- Metal	1a	668976 5908750	17 Nov/03 18 Nov/03 19 Nov/03 20 Nov/03	no data 66 no data 64	65	Female	
1383-61754	Blue Red	- Metal	1a	668976 5908750	18 Nov/03	66	66	Female	Recapture from Spring 2003 (148.459)*; bands still intact
1383-61755	- White	- Metal	1c	669470 5908054	18 Nov/03	76	76	Unknown	More aggressive than others
1383-61756	- Orange	- Metal	3b 3c	669745 5912721 669461 5912555	18 Nov/03 24 Nov/03	78 73.5	75.75	Unknown	
1383-61757	- Green	- Metal	1a	668976 5908750	19 Nov/03	68	68	Female	Recapture from Spring 2003 (148.390/148.371); bands still intact
1383-61758	- Yellow	- Metal	1b	669181 5908038	19 Nov/03	70.5	70.5	Unknown	
1383-61759	White Red	- Metal	1c	669470 5908054	19 Nov/03	67.5	67.5	Female	
1383-61761	Orange Red	- Metal	3b 3c	669745 5912721 669461 5912555	19 Nov/03 24 Nov/03	63 62.5	62.75	Female	
1383-61762	Orange Blue	- Metal	3b	669745 5912721	20 Nov/03	75	75	Unknown	Recapture from Spring 2003 (148.745); bands still intact
1383-61763	White White	- Metal	3b 3c	669745 5912721 669461 5912555	19 Nov/03 20 Nov/03 24 Nov/03	74 73.5 73	73.5	Unknown	Recapture from Spring 2003 (148.875); bands still intact
1383-61764	Green Red	- Metal	3c	669461 5912555	20 Nov/03	74	74	Unknown	Recapture from Spring 2003 (no transmitter); bands still intact
1383-61765	Yellow Red	- Metal	Lahr Blvd.		24 Nov/03	78	78	Male	Suspected mate of 1383-61766
1383-61766	Yellow White	- Metal	Lahr Blvd.		24 Nov/03	68.5	68.5	Female	Suspected mate of 1383-61765
1383-61767	White Blue	- Metal	Mud Lake Rd.	687074 5912357	25 Nov/03	58	58	Female	
1383-61768	Yellow Blue	- Metal	Corte Real Rd.	680430 5910105	25 Nov/03	77	77	Male	
1383-61769	Green Blue	- Metal	Corte Real Rd.	680430 5910105	26 Nov/03	79	79	Male	
1383-61770	Green White	- Metal	3a	671304 5912414	27 Nov/03	70.5	70.5	Unknown	
1383-61771	- Blue	Red Metal	Nest2	671597 5912614	28 Nov/03 01 Dec/03	71.5 75.5	73.5	Unknown	Recapture from Spring 2003 (presumed male from monitored nest); bands still intact
1383-61772	- Orange	Yellow Metal	Nest1	671394 5912652	28 Nov/03	66.5	66.5	Female	Recapture from Spring 2003 (no transmitter); bands still intact
1383-61773	Orange White	- Metal	Nest1	671394 5912652	01 Dec/03	77.5	77.5	Male	
1383-61774	Orange Blue	- Metal	Corte Real Rd.	680430 5910105	01 Dec/03	78.5	78.5	Male	

* Bracketed number refers to transmitter frequency used during Spring 2003 surveys



Table 4.2 Summary of Gray Jay Weight Data by Probable Sex, Collected Near 5 Wing Goose Bay, Labrador, 17 November to 1 December 2003¹

	Male	Female	Uncertain	Total
Sample size	5	8	9	22
Weight range (g)	77 – 79	58 – 68.5	73 – 76	58 – 79
Mean weight (g)	78	65.3	73.5	71.5

¹data were separated based on known weight ranges of Gray Jays in Ontario, Quebec, and on Anticosti Island (D. Strickland, pers. comm.)



5.0 SUMMARY

Based on communications with D. Strickland and information reported in the literature, the majority of captured Gray Jays were identified as male or female by using weights in combination with field observations. The study team was able to identify eight presumed female and five male Gray Jays from the control (n=8) and experimental (n=4) study areas – sufficient numbers to continue the Gray Jay monitoring program in 2004.



6.0 FUTURE RESEARCH

The study team is prepared to continue the Gray Jay monitoring program with the relocation and identification of banded pairs and/or individual birds prior to the start of nest building in Spring 2004. Once birds are identified, nesting material (i.e. cotton batting) will be offered to breeding pairs and an attempt will be made to follow the birds to their nest. Nest building generally begins 3 to 4 weeks prior to clutch initiation, and is complete several days before the laying of the first egg (Strickland and Ouellet 1993). Given the influence of winter weather conditions on these dates (D. Strickland, Per. Comm.), studies on Gray Jays in the Goose Bay area of Labrador should commence by 20 March. If finding nest locations by offering nesting material is unsuccessful, beginning the 2004 program at this conservative date will allow sufficient time before incubation commences to re-capture Gray Jays and deploy transmitters on known females and/or mates (determined through field observation) of known males. Alternatively, transmitters and the offering of nesting material can be used simultaneously at the start of the Spring field season. Once located, active nests will be monitored during military aircraft events and during periods of no jet activity to examine reactions of Gray Jays to noise disturbances.



7.0 REFERENCES

7.1 Personal Communications

Strickland, D. 2003. Research Biologist, Algonquin Park, Ontario.

7.2 Literature Cited

Minaskuat Limited Partnership. 2003. Nesting behavior of Gray Jays (*Perisoreus canadensis*) during military aircraft noise events. Report prepared for the Institute for Environmental Monitoring and Research. Happy Valley – Goose Bay, Newfoundland and Labrador.

Strickland, D. and Ouellet, H. 1993. Gray Jay. *In* A. Poole, P. Stettenheim, and F. Gill (Eds.). The Birds of North America, No. 40. The American Ornithologists' Union. Washington, D.C. The Academy of Natural Sciences. Philadelphia.



APPENDIX A

**Record of e-mail communications with
Mr. Dan Strickland, Research Biologist,
Algonquin Park, Ontario, 24 November – 3 December 2003**

From: Karen Gosse
To: strick@vianet.on.ca
Date: 11/24/03 5:09PM
Subject: Fall Banding Program

Hi Dan,

I've been trapping Jays for about 10 days now and have about 14 thus far. Today we captured a pair of Jays within 10 seconds of setting a trap and there was, as you mentioned, a 10 g difference in weights (68 vs. 78 g). In some other areas I've been trapping, there are groups of birds and it's often hard to distinguish pairs. I had thought about this before the start of the Fall banding program.... I hoped that after catching/banding/weighing 20 or so birds I'd be able to look back at the weights and separate males from females fairly easily. However, I did not find any clear pattern. So, I am just wondering how distinct are these weights? and what ranges have you observed for males/females?

As an example of the data that I have from two trapping stations:

station 1:

no. captures = 7

weights = 73; 65; 66; 68; 70.5; 76; 67.5

station 2:

no. captures = 5

weights = 78; 63; 75; 74; 73.5; 74

There are also a surprising number of recaptures already this season. We caught the same bird 3 times already this Fall - the same one we captured at least 3 times last spring. They are not easily turned away, are they...

How has your Fall season going? Are you out banding/weighing birds?

Hope all is going well,

Thanks in advance,

Karen

From: Strickland <strick@vianet.on.ca>
To: Karen Gosse <kgosse@jacqueswhitford.com>
Date: 11/25/03 9:40AM
Subject: Re: Fall Banding Program

Hi Karen,

In answer to your question I am attaching an Excel file that summarizes the distributions of male and female weights that I have observed both here and in Quebec. Generally, males weigh in the 70s of grams and females weigh in the 60s (except on Anticosti where males usually weigh in the 80s and females in the 70s). That said, light males and heavy females do overlap so, for any given bird in the low 70s or high 60s, one cannot be sure. (By the way, in the attached file, all the Quebec birds were sexed by DNA analysis at Trent University and all the Algonquin birds were sexed by observing their behavior in the breeding season (i.e. only females incubate). I sympathize with your problem of trying to sort out the sexes and territorial affiliations of 7 birds banded at the same spot. There is really no substitute for observing them in the breeding season, i.e. seeing who is nesting with whom and where. Only then will you be able to tell whether your 7 birds are; three breeding pairs with one extra; two breeding pairs which one has 2 extras and one pair has 1 extra; or some other possible combination. The best you can do in the meantime is make repeated contacts at the same and nearby places and hope that some pattern will emerge (e.g. maybe 3 of your 7 birds will consistently be seen together and more often in one particular direction from the original contact point). I would expect also that you should be able to tell which of a trio are the adults and which is the nonbreeder (more often a male) from their tail feathers ("truncated" in adults, "pointed" in first year birds).

Let me know if any of this is unclear.

Dan

From: Karen Gosse
To: Strickland
Date: 12/3/03 12:18PM
Subject: Re: Fall Banding Program

Hi Dan,

Thanks for sending along the summary of information you've collected over the past few years. Based on the information in these tables I attempted to separate out some of the individual birds I've been able to capture thus far into one of three categories: probable female (< 70 g), probable male (≥ 77 g) and unknown sex ($70 > 77$). I've attached an excel file that summarizes this data to date, for your interest. I have had limited success with making repeated observations on banded individuals (time, budget, weather constraints, luck in observing individuals, etc.) and with determining breeding/nonbreeding status. Bruce Rodriguez explained and showed to me feather patterns in adults vs. juveniles, but I am not confident using this method myself as an identifier as I have only limited experience in this area. However, practice makes perfect, right?

Thanks for all your helpful advice once again. I will keep you posted on our findings here in Labrador.

Cheers,
Karen