

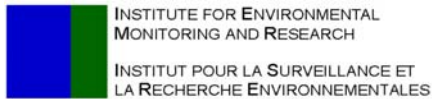
SMALL MAMMAL DATA COMPILATION PROJECT PROGRESS REPORT

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Prepared for:

**Government of Newfoundland Labrador – Wildlife Division,
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Institute for Environmental Monitoring and Research**



INTRODUCTION

The focus of the small mammal data compilation project is to compile all information and data sources on small mammal studies completed in Newfoundland and Labrador from 1960 to 2005. The species of interest include voles, shrews, mice, moles, chipmunks, squirrels, lemmings, rats, and snowshoe hare. The project involves a partnership between the Government of Newfoundland and Labrador Wildlife Division, Atlantic Canada Conservation Data Centre, Institute for Environmental Monitoring and Research, with support from Minaskuat Limited Partnership, Nunatsiavut Government, Innu Nation, and Metis Nation.

The rationale behind this project is that small mammals play a significant role in northern ecosystems. Their populations are linked to climatic changes, habitat alteration, and natural disturbances, and they are vectors of disease and parasites. More information is also required to clarify their status in Newfoundland and Labrador, which can also be linked to other groups such as furbearers. For these reasons, it is important to gather all of the data sources into one location for the use of interest groups and the public, and to help identify knowledge gaps and possibly reconstruct historic distribution and population trends of species found in Newfoundland and Labrador.

This mid-contract progress report details how elements of the small mammal data compilation project have been addressed to date. This contract began in August 2007 and will continue until the end of March 2008. Each element of the contract and anticipated result has been outlined in a detailed workplan (see Table 1 in Appendix I), and therefore the details will follow the same format below.

DATA ACQUISITION

Through extensive literature searches and contacting many people and organizations, I have acquired 67 references. 50% of these are peer reviewed publications, 30% are theses, and 20% are technical/internal/information reports. Online journal searches were used to find many of these, however many times only the reference was given, therefore more in depth searching was completed which included contacting many referenced people and related organizations. The organizations contacted include: Canadian Forest Service(CFS), Dept. of Natural Resources in both Newfoundland and Labrador(DNR), Wildlife Division, Institute for Environmental Monitoring and Research(IEMR), Western Newfoundland Model Forest, Animal Health Division, Minaskuat Limited Partnership, Salmonier Nature Park(SNP), Terra Nova National Park(TNNP), Gros Morne National Park(GMNP), Protected Areas Association(PAA), The Rooms, Centre for Newfoundland Studies at MUN, and Acadia University.

Database

The Newfoundland and Labrador Small Mammal Studies Database was developed using Reference Manager software. This database includes records of each study along with reference information and brief details about each study. This format was discussed with members of the Steering Committee. Forty out of 67 study references have been entered into this database so far. This will eventually be an online searchable database that will be

accessible to the public. Only the reference information and details will be available to the public, not the actual study. Also, this will be read-only online and will be accessible for updates only from within the Wildlife Division. This online database has been developed, however details are currently being worked out with the Office of the Chief Information Officer(OCIO) before posting on the government website.

Interactive map

An interactive map will eventually be developed by Atlantic Canada Conservation Data Centre(AC CDC) that will allow the public to click on an ecoregion of Newfoundland and Labrador and have the small mammal studies that have been completed in that area show up. Ecoregions associated with each study are also currently being added to each study record in the database.

Creation of hardcopy reference library

References were acquired in both hardcopy and digital forms. Hard copies were made of any digital references, and all hardcopy references were scanned into digital form.

LITERATURE REVIEW AND PERSONAL INTERVIEWS

Literature searches have been completed (with details described above), as well as brief reviews of each reference to gather information for the database and annotated bibliography. However a more detailed review of each study is ongoing. Table 2 (see Appendix I) shows brief details of each small mammal study completed in Newfoundland and Labrador. These details are separated based on species focused on in each study and include the year, topic/focus, author, region, and source of each study

Annotated bibliography

An annotated bibliography is being completed as a feature of the Reference Manager database. After the references have been all entered into the database, they will be reformatted into annotated bibliography form. A draft of this has been completed and has been reviewed with members of the steering committee.

Interviews and meetings

Interviews have been completed with persons from Dept. of Natural Resources, The Rooms, and Animal Health, and future meeting are planned with persons from Salmonier Nature Park and Terra Nova National Park.

REGULAR PROJECT UPDATES

According to the detailed workplan, updates are to be made to IEMR monthly, however these updates require Scientific Research Committee (SRC) approval before posting on the IEMR website. Thus, the submission of the updates coincides with planned SRC

meetings every 6-8 weeks. So far, updates have been submitted in September and November, and were posted on the website in December.

ASSIST CURRENT SMALL MAMMAL NETWORK

The Small Mammal Monitoring Network(SMMN) is a series of small mammal trapping sites set up across Newfoundland and Labrador that will be run annually. The data collected will help determine small mammal population and distribution information.

I completed 4 days of small mammal trapping as part of the SMMN. I also assisted in the processing of the small mammal trapped as part of the network in Newfoundland and in Labrador as part of a small mammal identification workshop.

As part of my trapping days, Bruce Rodrigues and I completed some additional trapping along the Bay D'Espoir Highway in addition to the SMMN. This was helpful in gathering a better understanding of the distribution of the red-backed vole (*Clethrionomys gapperi*), which up until our trapping date had not been reported east of Badger, but have now been reported 25km south along the Bay D'Espoir Highway.

DATA ENTRY

Not required at this time.

LITERATURE REVIEW OF HISTORIC FURBEARER TRAPPING RECORDS AND PERSONAL INTERVIEWS

Not required at this time.

FUTURE PLANS

More detailed review of each reference will be required to help identify population trends and gather distribution information for each species. This will also help to highlight data gaps, including dates and locations for which there is a lack of information. These trends will hopefully then be able to be linked to other groups such as furbearers.

I will also be attending the Exotic and Invasive Alien Species Workshop in January, which will be informative, as all but 1 small mammal have been introduced to insular Newfoundland.

As part of the plans for the remainder of the contract, I will continue with many of the ongoing elements such as entering references into the database, as well as identifying and entering the ecoregions associated with each study into the database for the interactive map, and IEMR website updates. I plan to meet with more people from organizations mentioned previously as well as additional organizations to help add to my current list of references and identify any information gaps. I will also continue with any lab work required for specimen processing as time permits.

APPENDIX I:

TABLES

Table 1 – Detailed workplan including each element of the small mammal data compilation project, the anticipated results, start and end date, and % of effort.

Activity	Anticipated Result	Start -End Date	% of effort
Data acquisition	Acquisition and entering into a database of available data from all sources. Previously digitized data will be entered as a priority. Hardcopy only data will be entered as time allows. If time is limited both or part of these tasks may be completed by an experienced data manager.	Aug 1/07- March 31/08	45%
	Creation of a hardcopy archive of all data and sources	Aug 1/07-Mar 31/08	10%
	<u>Progress report</u>	Dec 31/07	5%
Literature review and personal interviews on small mammals	Annotated bibliography of all small mammal data sources for Newfoundland and Labrador from 1960 to 2005, including collection of data and information kept outside of the province.	Aug 1/07- March 31/08	25%
	<u>Final report:</u> summarizing all findings, some analysis for presentation of trend and distributional information, identification of knowledge gaps, and recommendations for future research.	Mar 31/08	10%
Regular project updates	Provision of regular project updates and results to the Institute for Environmental Monitoring and Research (IEMR) for inclusion on their website and subsequent availability to partners and the public	Aug 1/07-Mar 31/08 (monthly)	5%
Assist current small mammal network	Lab processing of small mammals. Processing includes measuring, identification, sexing, preparing study skins, preparing specimens for shipment. Assist in running of field site	As time permits	TBD

	Data entry	As time permits	TBD
Literature review of historic furbearer trapping records and personal interviews	Reconstruction of historic small mammal population trends	As time permits	TBD

Table 2 – Details of references compiled on small mammal studies completed in Newfoundland and Labrador

Species	Total # of Studies	Year	Study Focus/Report Topic	Region of Study	Source (P=peer reviewed, N=non-reviewed, T=thesis, R=raw data)
Masked Shrew	8	1960	introduction (MacLeod)	NF	N
		1963	trapping procedures (MacLeod & Lethiecq)	NF	P
		1965	establishment and dispersal (Haines)	NF	N
		1970	introduction (Warren)	NF	N
		1971	island ecology (Folinsbee)	NF	T
		1996	masked shrew and prey distribution in clearcuts (Bassler)	NF	T
		1996	parasites (Parady)	NF	T
		1997	clearcutting and parasites (Harvey)	NF	T
Red Backed Vole	4	1992	parasites (Dwyer)	LAB	T
		1997	parasites (Dooley)	LAB	T
		2002	parasites (Moss)	NF & LAB	T
		2006	record (Hearn et al.)	NF	P
Meadow Vole	4	1971	ecology (Riewe)	NF	T
		1972	food habits (Riewe)	NF	P
		1973	distribution (Folinsbee et al.)	NF	P
		1998	parasites (Joy)	NF	T
Snowshoe Hare	9	1960	food competition and range (Dodds)	NF	P
		1961	parasites (Dodds & Mackiewicz)	NF	P
		1965	reproduction and productivity (Dodds)	NF	P
		1981	introduction to Ramea (Pitcher)	NF	N
		1982-83	interactions with lynx (Curnew)	NF	N
		1984	domestic harvest plan (Brunt)	NF	N
		2002	parasites (Bridger)	NF	T
		2005	parasites (Bennett et al.)	NF	P
		2005	effects of clearcutting (Newbury & Simon)	LAB	P
Red Squirrel	3	1976	introductions (Payne)	NF	P
		1994	density and home range (Reynolds)	NF	T
		1995	activity patterns (Bonnell)	NF	T

Deer Mouse	2	1969	record (Gould & Pruitt)	NF	P
		1988	report (Tucker et al.)	NF	P
Eastern Chipmunk	1	1974	record (Northcott et al.)	NF	P
Rock Vole	1	2005	range extension (Lansing)	LAB	P
Small Mammals (General)	13	1961	distribution and fleas (Gabbutt)	LAB	P
		1973	population estimates (Sarrazin & Bider)	NF	P
		1973	parasites (Smith & Threlfall)	NF	P
		1986	food and prey of marten (Bateman)	NF	P
		1988	effect of harvesting & significance to marten (Tucker)	NF	T
		1995	marten habitat suitability (Thompson & Curran)	NF	P
		1995	population ecology, response to clearcut & prescribed burn (Nichols)	NF	T
		1996	abundance in marten habitat (Sturtevant)	NF	T
		1996	biodiversity after fire (Simon)	LAB	T
		1998	distribution among forest types (Simon et al.)	LAB	P
		1999	density and marten diet (Simon et al.)	LAB	P
		2000	activity following clearcut (Forsey & Baggs)	NF	P
2002	abundance post fire and clearcut (Simon et al.)	LAB	P		