CATALOG OF DATA FILES FOR CARIBOU COLLECTIONS (MORPHOLOGIC MEASUREMENTS, PARASITOLOGY, CONTAMINANTS)

ANNE GUNN, JOHN LEE and BRETT ELKIN

DEPARTMENT OF RESOURCES, WILDLIFE
AND ECONOMIC DEVELOPMENT

GOVERNMENT OF THE NORTHWEST TERRITORIES

YELLOWKNIFE, NWT

2005

Manuscript Report No.160

ABSTRACT

In the Northwest Territories and Nunavut, caribou have been collected and sampled for a number of different programs since the 1960s. Much of the original field data has been used to build databases, however as these databases were revised and changed mistakes have developed. To provide accountability and accurate documentation for the data and to encourage their use in meta-analyses such as the Canadian Wildlife Service's circumpolar assessment of caribou condition, we verified file names, field names and sample numbers relative to the original field sheets for collections that originated out of RWED Yellowknife programs 1980-2002.

TABLE OF CONTENTS

INTRODUCTION

Over the years, GNWT, Department of Resources, Wildlife and Economic Development (RWED) staff have undertaken a variety of caribou collections on herds across the Northwest Territories and Nunavut. Each collection, or series of collections had different objectives, including examining environmental contaminants, exposure, health status (disease and parasites), body condition, etc. While some attempts were made to standardize the data collected, the specific information and samples collected were focused on the specific project objective. The data from these collections has also been added to a North American caribou database. In 2001, the Canadian Wildlife Service (CWS) began to integrate baseline data across North America (Russell and Daniel 2003). The North American database is a step in assessing impacts of climate change and industrial development.

The Canadian Wildlife Service project is in effect a meta-analysis of caribou condition. Meta-analyses depend on appropriately pooling data, specifying the basis for selecting and coding data, including all available studies and documenting how data were classified and coded. These factors depend on accurate documentation of the data bases. Caribou data have been collected by an array of individuals over four decades and inevitably information has been lost. In this report, we have listed why data were collected and where, when known, the original data are filed. As the data have been used they have been passed as data files between individuals and with each passage acquired different file names and changes to the data fields and entries. To the extent that is possible, we have tracked those changes and recorded them in this report.

In the 1990s, Ray Bethke (RWED, Yellowknife, NWT) entered and/or converted contaminant data for most of the collections involving the Caribou Health and Assessment Program into a SAS database. He received the data in various digital and printed forms from the analyzing labs. Only basic animal information was entered with the contaminant data (e.g. sex, date, location, tissue). The database was stored on Brett Elkin's computer in Yellowknife, NWT, however the hard drive on that machine failed and the database was lost. Fortunately, the data was still stored on 5-inch and 3.5-inch floppy disks used as a back up. Because the contaminant data was already analyzed and published, the database as such was never rebuilt. At a later date, Pippa McNeil from CWS Whitehorse, Yukon entered much of the morphological and condition data from the field data sheets for the North American caribou database.

STRUCTURE OF THIS REPORT

In January 2003 we received 9 Excel caribou data files on a CD from Brett Elkin (RWED, Yellowknife), and 14 via email from Pippa McNeil (CWS, Whitehorse). These files are listed in Table 1. There is some repetition among the files, where some files contain the same data from the same animals, or are combinations of other data files. The data files in the first 6 rows of Table 1 contain data from the same animals.

Table 1.Caribou Files from RWED Yellowknife and CWS Yukon.

Data files received from RWED Yellowknife	Data files received from CWS Yukon
Beverly caribou collection 1994.XLS	Beverly caribou collection 1994.XLS
Bluenose East caribou 1997 & 1998.XLS	Eastern Bluenose_BP.XLS
Bluenose East caribou collection 1997.XLS	Bluenose East caribou collection 1997.XLS
Bluenose East caribou collection 1998.XLS	Bluenose East caribou collection 1998.XLS
Cape Bathurst collection 1994.XLS	Cape Bathurst collection 1994.XLS
Nonacho Lake caribou collection 2000.XLS	Nonacho Lake caribou collection 2000.XLS
Caribou collection data - Pippa McNeil.XLS	Baffin_BE.XLS P
Nonacho Lake 2000 teeth ages.XLS	BEV_BAF_TD.XLS
Nonacho Lake Jaw Measurements 2001.XLS	Boothia_BE.XLS
	BTH95_BE.XLS
	D-U Viccarbc - Anne Gunn.XLS
	DU_BE.XLS
	Heard fixed.XLS
	Pelly Bay disease harvest March 1999.XLS

In addition to the files listed in Table 1., we located several field sheets containing measurements and biological information for collections conducted in collaboration with other project leaders. This data is not available in digital format unless otherwise stated, and has not been entered in a database. Table 2, includes

the sample numbers, a brief description of where the data came from, and the type of data available. Contact Brett Elkin, Disease/Contaminant Specialist, RWED for data sheets, permission to use data may be required by the project leader.

Table 2. Data from Field Sheets

ACCNO:C's LH-93-01 to LH-93-34, April 1993, Lake Harbour Samples sent to Brett Elkin for lab testing for disease. Data Use: contact Mike Ferguson, Wildlife Biologist, Government of Nunavut, Pond Inlet, Nunavut.
ACCNO:C's PB-91-01 to PB-91-39, Pelly Bay, April 1991. Data from a snow machine survey to investigate a community report of a disease outbreak. Study description: Appendix A. Data type: Sex/age class; marrow fat.
ACCNO: PB87/1–24 Pelly Bay, April 1987 Collection of 24 caribou taken by Joe Ashevak and Ted Leighton to investigate brucellosis. Study description: Appendix A. Data Type: sex/age class; pregnancy; warble counts; back fat.
ACCNO: April 1994. Collection taken during a commercial harvest of the Bathurst herd. Harvest description Appendix B. Data Type: kidney weights; kidney fat; sex and age.
ACCNO:C's: 559 to 597, July 1992 and Sep 1992 Greenstockings Lake Collection of the Bathurst herd conducted by Mark Williams and/or Doug Heard. Study Description: Appendix C. Data Type: contaminant data.
Q1 to Q13, Arviat sample numbers June 1992 A collection out of Arviat (Nunavut) by Regional Biologist R. Mulders. Ten samples were sent to Brett Elkin for contaminant testing. Data Type: contaminant data (hard copies and digital [SAS])

DESCRIPTION OF INDIVIDUAL EXCEL FILES

In the following sections, details are provided about the excel files listed in Table 1.

The following abbreviations are used in the excel file names:

K = Kimmirut[1] LH = Lake Harbour PI = Pond Inlet

CD = Cape Dorset T = Taloyoak CB = Cambridge Bay

B = Bathurst Herd

TD = T. Dauphine, Canadian Wildlife Service, Ottawa

BE = Brett Elkin, Disease/Contaminant Specialist, RWED, Yellowknife, NT

BP = Brent Patterson, Kitikmeot Regional Biologist, Gov. of Nunavut, Kugluktuk, NU.

1. Excel File: Baffin_BE.xls

Excel file name	**BAFFIN_BE.XLS**
File title	
Page title	
Size	65.5kb
Worksheets	1. K-99 -SE Baffin, Mar 1999 (19 records) 2. LH-92 -S Baffin, Apr 1992 (15 records) 3. PI-93 -NE Baffin, Apr 1993 (23 records) 4. CD-92 -S Baffin, Apr 1992 (15 records) The above worksheets also appear in the composite file called "Caribou collection data - Pippa McNeil.xls"
Create date	28 Oct 2002
Microsoft Author	Pippa McNeil, CWS, Pacific and Yukon Region, Whitehorse, Yukon
Dates	March 1999, April 1992, April 1993, April 1992

CWS database name:
Baffin_BE.xls

Collection location:
K-99 – 15 miles NW of Lake Harbour, Nunavut.

[1] Kimmirut (K) and Lake Harbour (LH) are the same town.

LH-92 – Survival Carin, Lat 6310 Long 7040, Nunavut.
CD-92 – Tellik Bay, Lat 6421 Long 7637, Nunavut.
PI-93 – Tunuiaqtalik Pt, Lat 7234 Long 7823, Nunavut.

Collection dates:
K-99 – March 1999
LH-92 – April 1992
CD-92 – April 1992
PI-93 – April 1993

Herd identity:
K-99, CD-92, LH-92. Baffin South, Nunavut.
PI-93 Baffin NE, Nunavut.

Basis for herd identity:
Mike Ferguson, Wildlife Biologist, Government of Nunavut, Pond Inlet, Nunavut

RWED project name:
Caribou Health And Contaminant Assessment

RWED project leader:
Brett Elkin, Disease/Contaminant Specialist, RWED, Yellowknife, NWT.
Mike Ferguson, Wildlife Biologist, Government of Nunavut, Pond Inlet, Nunavut.

Project objectives (rationale for collection):
- To asses the exposure of free-ranging caribou in the NWT to organochlorine, heavy metals and radionuclide contamination
- To establish baseline levels and spatial trends of organochlorine, heavy metals and radionuclide contamination in several caribou tissues
- To identify specific contaminants or geographical locations that warrant further study in caribou.
- To provide data for use in surveys of contaminants in country food species and for use by the arctic Monitoring and Assessment Program
- To collect morphological and caribou diet information

Availability of database
Brett Elkin, Disease/Contaminant Specialist, RWED, Yellowknife, NWT
Pippa McNeil, CWS, Pacific and Yukon Region, Whitehorse, Yukon

Who/when entered the datasheets as a database:

Various individuals: Brett Elkin, Pippa McNeil, Ray Bethke.

Database validation:

Proofed on entry and analysis. Ray Bethke converted contaminant data which arrived in various digital and paper forms from the analyzing labs into a SAS data base.

Location of original field sheets:

Contact Brett Elkin, RWED, Yellowknife for field data sheets and hard copies of contaminant data.

Data releases and reporting:

Morphologic and condition data was provided to Don Thomas, CWS Pacific and Northern Region. See also Literature Cited: reference numbers: 1, 2, 3, 4, 5, 6, 8, 10, 11, 12, 15, 17, and 19.

Comments:

The 4 worksheets in this file also form part of the data in the excel data file: "*Caribou collection data - Pippa McNeil.xls*".

Listing of data fields appearing in each worksheet.

K-99	LH-92	PI-93	CD-92
ID	ID	ID	ID
Date	Date	Date	Date
Location	Location	Location	Location
Lat	Lat	Lat	Lat
Long	Long	Long	Long
Sampler	Sampler 1	Collector 1	Collector 1
	Sampler 2	Collector 2	Collector 2
Hunter 1	Hunter 1	Hunter 1	Hunter 1
Hunter 2	Hunter 2	Hunter 2	Hunter 2
Sex	Sex	Sex	Sex
Age	Age	Age	Age
Pregnancy	Pregnancy	Pregnancy	Pregnancy
Antlers	Antlers	Antlers	Antlers
Udder	Udder	Udder	Udder
Body Weight	Dorsal Length (cm)	Dorsal Length (cm)	Dorsal Length (cm)
Body Length (cm)	Tail (cm)	Shoulder Height (cm)	Shoulder Height (cm)
Chest Girth (cm)	Shoulder Height (cm)	Foreleg Length (cm)	Foreleg Length (cm)
Shoulder Height (cm)	Foreleg Length (cm)	Rump Fat Depth (cm)	Rump Fat Depth (cm)

K-99	LH-92	PI-93	CD-92
Foreleg Length (cm)	Rump Fat Depth (cm)	Chest Girth (cm)	Chest Girth (cm)
Forefoot Length (cm)	Chest Girth (cm)	Back Length (cm)	Forefoot Length (cm)
Backfat (mm)	Forefoot Length (cm)	Forefoot Length (cm)	Carcass Wt (lb)
Warbles	Carcass Wt (lb)	Carcass Wt (lb)	Warbles
Nosebots	Warbles	Warbles	Nosebots
Besnoitia	Nosebots	Nosebots	Besnoitia
Kidney + fat		Besnoitia	
Kidney only		Liver Wt (kg)	
Metatarsus		Heart Wt (kg)	
Tibia		Kidney + fat	
Gastroc+Sup. Dig. Flexor		Kidney only	
Gastroc only			

2. Excel File: BEV_BAF_TD.xls

Excel file name	BEV_BAF_TD.xls
File title	
Page title	
Size	29.5kb
Worksheets	1. Original data. 46 records from Beverly, 46 records from Baffin Island
Create date	21 June 2002
Modified date	9 Jan 2003
Saved by	Pippa McNeil, CWS, Pacific and Yukon Region, Whitehorse, Yukon
Microsoft Author	Pippa McNeil, CWS, Pacific and Yukon Region, Whitehorse, Yukon
Dates	Beverly: 7-12 Jul 1968 Baffin: July/Aug 1965

CWS database name:
Bev_Baf_TD.xls

Collection location:
Beverly--Aberdeen lake area (Lat 6442 Long 9951), Nunavut
Baffin--central Baffin Island (Lat 6836 Long 7315), Nunavut

Collection dates:
Beverly 7-12 Jul 1968
Baffin July/Aug 1965

Herd identity:
Beverly
Baffin Island South

Basis for herd identity:
Known range

Project name:

Project leader:
Beverly – T.C. Dauphiné. CWS, Ottawa
Baffin – Andrew Macpherson. CWS, Ottawa

Project objectives (rationale for collection):
Herd survey

Availability of database
Pippa McNeil, CWS, Pacific and Yukon Region, Whitehorse, Yukon

Who/when entered the datasheets as a database:
Pippa McNeil, CWS, Pacific and Yukon Region, Whitehorse, Yukon. 2002/2003

Database validation:
Pippa McNeil, CWS, Pacific and Yukon Region, Whitehorse, Yukon. 2002/2003

Location of original field sheets:
Beverly: Pippa McNeil, CWS, Pacific and Yukon Region, Whitehorse, Yukon
Baffin: unknown

Data releases and reporting:
Unknown

Comments:
None

Listing of data fields that appear in each worksheet

Original data
Specimen No.
Sex
Date collected
Coordinates
Age
Locality
Lat/Long
Latitude
Longitude
Weight
Total Length
Tail
Hind Foot
Ear
Reproductive Status
Herd

3. Excel File: Beverly caribou collection 1994.XLS

Excel file name	Beverly caribou collection 1994.XLS
File title	Caribou Health And Contaminant Assessment
Page title	Beverly Caribou (Sparks & Doran Lakes) - Health & Contaminant Assessment.
Size	78.5kb
Worksheets	1. Body & Condition (25 records) Measurements, reproductive data, and condition indices 2. Disease & Parasite (25 records) Disease and parasite data 3. Metals (25 records) Metal data for kidney, liver & blood 4. Radionuclides (25 records) Radionuclides data for kidney, liver & blood
Create date	Aug 31 2000
Last save date	12 Feb 2002
Saved by	Brett Elkin, Disease/Contaminant Specialist, RWED, Yellowknife, NWT
Microsoft Author	Brett Elkin, Disease/Contaminant Specialist, RWED, Yellowknife, NWT
Dates	April 13-15, 1994

CWS database name:
Beverly Caribou Collection 1994.xls RWED

Collection location:
Sparks and Doran Lakes, approx 200km south of Ft. Reliance, NWT

Collection dates:
April 13,14,15. 1994

Herd identity:
Beverly

Basis for herd identity:
Known range and time of year

RWED project name:
Caribou Health and Contaminant Assessment.

RWED project leader:
Brett Elkin, Disease/Contaminant Specialist, RWED, Yellowknife, NWT

Project objectives (rationale for collection):

- To assess the exposure of free-ranging caribou in the NWT to organochlorine, heavy metals and radionuclide contamination
- To establish baseline levels and spatial trends of organochlorine, heavy metals and radionuclide contamination in several caribou tissues
- To identify specific contaminants or geographical locations that warrant further study in caribou.
- To provide data for use in surveys of contaminants in country food species and for use by the arctic Monitoring and Assessment Programme
- To establish base line levels of disease and parasites

Availability of database
Brett Elkin, Disease/Contaminant Specialist, RWED, Yellowknife, NWT
Pippa McNeil, CWS, Pacific and Yukon Region, Whitehorse, Yukon

Who/when entered the datasheets as a database:
Various individuals: Pippa McNeil, field data; Brett Elkin, Ray Bethke contaminants.

Database validation:
Proofed on entry and analysis. R. Bethke converted contaminant data, which arrived in various digital forms from the analyzing labs into a SAS database

Location of original field sheets:
Contact Brett Elkin, RWED Yellowknife for field data sheets and hard copies of contaminant data.

Data releases and reporting:
Morphologic and condition data was provided to Don Thomas, CWS, Pacific and Northern Region. See also Literature Cited, reference number 10.

Comments:
Some dates in the digital file do not match the dates on data sheets, e.g. date for animal BV-94-01 is 11 April 94 on the data sheet and is 13 Apr 94 in the digital file.

Listing of data fields appearing in each worksheet

Body & Condition		Disease & Parasite		Metals		Radionuclides	
ANIMAL INFORMATION	ID	ANIMAL INFORMATION	ID	ANIMAL INFORMATION	ID	ANIMAL INFORMATION	ID
	Kill Date		Kill Date		Kill Date		Kill Date
	Sex		Sex		Sex		Sex
	Est. Age		Est. Age		Est. Age		Est. Age
	Jaw Age		Jaw age		Jaw age		Jaw age
	Tooth Age	DISEASE	Warbles	METALS IN LIVER	Aluminum	RADIONUCLIDES IN LIVER	$Cesium^{137}$
BODY MEASUREMENTS	Body Wt (lb)		Nose Bots		Cadmium		$Lead^{210}$
	Rumen Wt (lb)		Besnoitia		Chromium		$Polonium^{210}$
	Body Length (cm)		*Teania* cysts (liver)		Copper		$Potassium^{40}$
	Girth (cm)		*T. krabbe*i (muscle)		Iron		Ra^{226}
	Back Fat (mm)		Brucellosis		Lead		Th^{232}
REPRODUCTIVE DATA	Lactating?	PARASITES	Fecal - TSTRONG		Manganese		$Uranium^{235}$
	Pregnant?		Fecal - Eimeria		Total Mercury	RADIONUCLIDES IN KIDNEY	$Cesium^{137}$
	Fetus Sex		Baermann - DS Larvae		Nickel		$Lead^{210}$
	Uterus Wt (gm)		RT Lung		Zinc		$Polonium^{210}$
	Fetus Wt (gm)		LT Lung	METALS IN KIDNEY	Aluminum		$Potassium^{40}$
	Fetal C-R Length (cm)		Abomasum		Cadmium		Ra^{226}
ORGAN MEASUREMENTS	Liver Wt (gm)	COMMENTS			Chromium		Th^{232}
	Heart Wt (gm)				Copper		$Uranium^{235}$
	R. kidney + fat (g)				Iron	RADIONUCLIDES IN BONE	$Cesium^{137}$

Body & Condition		Disease & Parasite		Metals		Radionuclides	
	R. kidney only (g)				Lead		$Lead^{210}$
	R. fat only (g)				Manganese		$Polonium^{210}$
	L. kidney + fat (g)				Total Mercury		$Potassium^{40}$
	L. kidney only (g)				Nickel		Ra^{226}
	L. fat only (g)				Zinc		Th^{232}
	Riney Index			METALS IN BLOOD, PPM's	Copper		$Uranium^{235}$
TOTAL BODY DISSECTIBLE FAT	Predictive Equation Listed Below				Iron		
MUSCLES	Gastroc + SD Flexor (g)				Magnesium		
	Peroneus (g)				Manganese		
	Taenia Cysts (#)				Molybdenum		
FEMUR	Length (cm)				Zinc		
	Marrow - Wet (g)						
	Marrow - Dry (g)						
	Marrow Fat %						
METATARSUS	Length (cm)						
JAW (Left)	Length (cm)						
ANTLERS	Right (g)						
	Left (g)						

4. Excel File: Bluenose East caribou collection 1997.XLS

Excel file name	**Bluenose East caribou collection 1997.XLS**
File title	Caribou health and contaminant assessment
Page title	Bluenose east caribou (Cox lake)
Size	79.5kb
Worksheets	1. Body & Condition (27 records) Measurements, reproductive data, and condition indices 2. Disease & Parasite (27 records) Data for disease and parasite 3. Metals (27 records) Data for kidney, liver & blood 4. Radionuclides (27 records) Data for kidney, liver & blood
Create date	Aug 31, 2000
Last save date	Dec 4 2001
Last saved by	Brett Elkin, Disease/Contaminant Specialist, RWED, Yellowknife, NWT
Microsoft Author	Damian Panayi, Kitikmeot Region, Government of Nunavut, Kugluktuk, Nunavut
Dates	7 November 1997

CWS database name:
Bluenose East Caribou Collection 1997.xls RWED

Collection location:
Cox Lake

Collection dates:
7 November 1997

Herd identity:
Bluenose East

Basis for herd identity:
Brett Elkin, Disease/Contaminant Specialist, RWED, Yellowknife, NWT
John Nagy, Senior Wildlife Researcher, RWED, Inuvik, NWT
Telemetry and nuclear DNA analysis

RWED project name:
Caribou Health And Contaminant Assessment
Community-Based Monitoring Of Abnormalities In Wildlife

RWED project leader:
Brett Elkin, Disease/Contaminant Specialist, RWED, Yellowknife, NWT

Project objectives (rationale for collection):

- To assess the exposure of free-ranging caribou in the NWT to organochlorine, heavy metals and radionuclide contamination
- To establish baseline levels and spatial trends of organochlorine, heavy metals and radionuclide contamination in several caribou tissues
- To identify specific contaminants or geographical locations that warrant further study in caribou.
- To provide data for use in surveys of contaminants in country food species and for use by the arctic Monitoring and Assessment Program
- To establish base line levels of disease and parasites
- To develop a community-based monitoring program in which harvesters can document and communicate observations of changes in wildlife in a systematic and useful way.
- To provide an early warning system@ to detect changes or patterns in wildlife health at an ecosystem level. This systematic monitoring may identify areas requiring further study and aid in hypothesis development.
- To integrate scientific and traditional ecological knowledge to increase general understanding of changes in the health status of wildlife.
- To allow communities to participate and build local capacity to identify, investigate and respond to changes in the wildlife resources they harvest.

Availability of database
Brett Elkin, Disease/Contaminant Specialist, RWED, Yellowknife, NT
Brent Patterson, Kitikmeot Regional Biologist, Government of Nunavut, Kugluktuk, NU.

Who/when entered the datasheets as a database:
Brett Elkin, Disease/Contaminant Specialist, RWED, Yellowknife, NT
Pippa McNeil, CWS, Pacific and Yukon Region, Whitehorse, YT
Brent Patterson, Kitikmeot Regional Biologist, Government of Nunavut, Kugluktuk, NU.
Collin McDonald, Northern Environmental Consulting, XXXXX entered contaminant data and did statistical analysis

Database validation:
On entry and analysis: Brett Elkin, Brent Patterson, C. McDonald

Location of original field sheets:
Contact Brett Elkin, RWED, Yellowknife for field sheets, hard copies of contaminant data, and digital copies (SAS) of data.

Data releases and reporting:
Morphologic and condition data was provided to Don Thomas, CWS Pacific and Northern Region. See also Literature Cited, reference numbers: 14, 15, 16, 17, 18, 19, 20.

Comments:
None

Listing of data fields appearing in each worksheet

Body & Condition.		**Disease & Parasite**		**Metals**		**Radionuclides**
ANIMAL INFORMATION	ID	ANIMAL INFORMATION	ID	ANIMAL INFORMATION	ID	ID
	Kill Date		Kill Date		Kill Date	Kill Date
	Sex		Sex		Sex	Sex
	Jaw age		Jaw age		Jaw age	Est. Age
BODY MEASUREMENTS	Body Wt (lb)	DISEASE	Warbles	METALS IN LVER	Aluminum	Jaw age
	Carcass Wt (lb)		Nose Bots		Cadmium	$Cesium^{13}$
	Rumen Weight (lb)		Besnoitia		Chromium	$Lead^{210}$
	Body Length (cm)		Sarcocystis		Copper	$Polonium^{210}$
	Girth (cm)		*Teania* cysts (liver)		Iron	$Potassium^{40}$
	Back Fat (mm)		*T. krabbe*i (muscle)		Lead	Ra^{226}
REPRODUCTIVE DATA	Lactating?		Brucellosis serology		Manganese	Th^{232}
	Pregnant?	PARASITES	Fecal – Nematodirus		Total Mercury	$Uranium^{235}$
ORGAN MEASUREMENTS	Liver Wt (gm)		Fecal – Eimeria		Nickel	$Cesium^{137}$
	Heart Wt (gm)		Baermann - Proto Larvae		Zinc	$Lead^{210}$
INITIAL WEIGHT	Right Kidney (g)		RT Lung	Metals in kidney	Aluminum	$Polonium^{210}$
TRIMMED (RINEY)	R. kidney + fat (g)		LT Lung		Cadmium	$Potassium^{40}$
	R. kidney only (g)		Abomasum		Chromium	Ra^{226}
	R. fat only (g)	COMMENTS	COMMENTS		Copper	Th^{232}
	Riney Index				Iron	$Uranium^{235}$
BONE MARROW	Metatarsus				Lead	$Cesium^{137}$

ANALYSIS	length (cm)					
	Marrow - Wet (g)				Manganese	Lead^{210}
	Marrow - Dry (g)				Total Mercury	Polonium^{210}
	Marrow Fat %				Nickel	Potassium^{40}
TOTAL BODY DISSECIBLE FAT	Predictive Equation Listed Below				Zinc	Ra^{226}
GASTROCNEMIUS	Gastroc + SD Flexor (g)			METALS IN BLOOD (PPM's)	Copper	Th^{232}
	Gastroc (g)				Iron	Uranium^{235}
TOTAL BODY MUSCLE WEIGHT	Predictive Equation Listed Below				Magnesium	
JAW (right side) MEASUREMENTS	DL				Manganese	
	DH				Molybdenum	
	DW				Zinc	
	NH					
	TL					

5. Excel File: Bluenose East caribou collection 1998.XLS

Excel file name	Bluenose East caribou collection 1998.XLS
File title	Caribou Health And Contaminant Assessment
Page title	Bluenose East caribou (Hope Lake)
Size	76.5kb
Worksheets	1. Body & Condition (26 records) Measurements, reproductive data, and condition indices 2. Disease & Parasite (26 records) Disease and parasite data 3. Metals (26 records) Metal data for kidney, liver & blood 4. Radionuclides (26 records) Radionuclides data for kidney, liver & blood
Create date	Aug 31, 2000
Last save date	Dec 4 2001
Saved by	Brett Elkin, Disease/Contaminant Specialist, RWED, Yellowknife, NT
Microsoft Author	Brett Elkin, Disease/Contaminant Specialist, RWED, Yellowknife, NT
Dates	20, 21 March 1998

CWS database name:
Bluenose East Caribou Collection 1998.xls RWED

Collection location:
Hope Lake

Collection dates:
20, 21 March 1998

Herd identity:
Bluenose East

Basis for herd identity:
John Nagy, Senior Wildlife Researcher, RWED, Inuvik, NT
Telemetry and nuclear DNA analysis

RWED project name:
Caribou Health And Contaminant Assessment
Community-Based Monitoring Of Abnormalities In Wildlife

RWED project leader:
Brett Elkin, Disease/Contaminant Specialist, RWED, Yellowknife, NT

Project objectives (rationale for collection):
See data file summary for *Bluenose East Caribou Collection 1997.xls*

Who/when entered the datasheets as a database:
Brett Elkin, Disease/Contaminant Specialist, RWED, Yellowknife, NT

Pippa McNeil, CWS, Pacific and Yukon Region, Whitehorse, YT
Brent Patterson, Kitikmeot Regional Biologist, Government of Nunavut, Kugluktuk, NU.
Damian Panayi, Kitikmeot Region, Government of Nunavut, Kugluktuk, NU
Collin McDonald, Northern Environmental Consulting, entered contaminant data and did statistical analysis

Database validation:
On entry and analysis: Brett Elkin, Brent Patterson, Colin McDonald

Location original field sheets:
Contact Brett Elkin, RWED, Yellowknife for field sheets, hard copies of contaminant data, and digital copies (SAS) of data.

Data releases and reporting:
Morphologic and condition data was provided to Don Thomas, CWS Pacific and Northern Region. See also Literature Cited reference numbers: 14, 15, 16, 17, 18, 19, 20

Comments:
None

Listing of data fields appearing in each worksheet

Body & Condition		Disease & Parasite		Metals		Radionuclides	
ANIMAL INFORMATION	ID	ANIMAL INFORMATION	ID	ANIMAL INFORMATION	ID		ID
	Kill Date		Kill Date		Kill date		Kill Date
	Sex		Sex		Sex		Sex
	Est. Age		Est. Age		Est. Age		Est. Age
	Jaw age		Jaw age		Jaw age		Jaw age
BODY MEASUREMENTS	Body Wt (lb)	DISEASE	Warbles	METALS IN LIVER	Aluminum	RADIONUCLIDES IN LIVER	$Cesium^{137}$
	Carcass Wt (lb)		Nose Bots		Cadmium		$Lead^{210}$
	Rumen Weight (lb)		Besnoitia		Chromium		$Polonium^{210}$
	Body Length (cm)		Sarcosystis		Copper		$Potassium^{40}$
	Girth (cm)		*Teania* cysts (liver)		Iron		Ra^{226}
	Back Fat (mm)		*T. krabbe*i (muscle)		Lead		Th^{232}
REPRODUCTIVE DATA	Lactating?		Brucellosis serology		Manganese		$Uranium^{235}$
	Pregnant?	PARASITES	Fecal - TSTRONG		Total Mercury	RADIONUCLIDES IN KIDNEY	$Cesium^{137}$
ORGAN MEASUREMENTS	Liver Wt (gm)		Fecal - Moniezia		Nickel		$Lead^{210}$
	Heart Wt (gm)		Fecal - Eimeria		Zinc		$Polonium^{210}$
	R. kidney + fat (g)		Baermann - Proto Larvae	METALS IN KIDNEY	Aluminum		$Potassium^{40}$
	R. kidney only (g)		RT Lung		Cadmium		Ra^{226}

Body & Condition		Disease & Parasite		Metals		Radionuclides	
	R. fat only		LT Lung		Chromium		Th^{232}
	RineyIndex		Abomasum		Copper		$Uranium^{235}$
BONE MARROW ANALYSIS (metacarpus)	Marrow - Wet (g)	COMMENTS	COMMENTS		Iron	RADIONUCLIDES IN BONE	$Cesium^{137}$
	Marrow - Dry (g)				Lead		$Lead^{210}$
	Marrow Fat %				Manganese		$Polonium^{210}$
TOTAL BODY DISSECIBLE FAT	Predictive Equation				Total Mercury		$Potassium^{40}$
GASTROCNEMIUS	Gastroc + SD Flexor (g)				Nickel		Ra^{226}
	Gastroc (g)				Zinc		Th^{232}
TOTAL BODY MUSCLE WEIGHT	Predictive Equation			METALS IN BLOOD, PPM	Copper		$Uranium^{235}$
					Iron		
					Magnesium		
					Manganese		
					Molybdenum		
					Zinc		

6. Excel File: Bluenose East Caribou 1997&1998.xls

Excel file name	Bluenose East Caribou 1997&1998.xls
File title	Disease Monitoring Data
Page title	Community Based Monitoring of Abnormalities in Wildlife
Size	98kb
Worksheets	1. Condition & Disease Data (53 records) Carcass measurements, condition indices, and fecal analysis for 1997 and 1998 2. Parasite Data (27 records) Carcass measurements, condition indices, and fecal analysis for 1997 only) 3. Jaw & Teeth Data (52 records) for 1997 and 1998
Create date	Dec 3 2001
Save date	Dec 3 2001
Last saved by	Brett Elkin, Disease/Contaminant Specialist, RWED, Yellowknife, NT
Microsoft Author	Damian Panayi, Kitikmeot Region, Government of Nunavut, Kugluktuk, NU
Dates	7 Nov 1997; 20-21 March 1998

CWS database name:
Bluenose East Caribou 1997 - 1998.xls RWED

Collection location:
1997 Cox Lake, West of Kugluktuk
1998 Hope Lake**,** South of Kugluktuk

Collection dates:
7 Nov 1997 and 20-21 March 1998

Herd identity:
Bluenose East

Basis for herd identity:
John Nagy, Senior Wildlife Researcher, RWED, Inuvik, NT
Telemetry and DNA analysis

RWED project name:
Community Based Monitoring of Abnormalities in Wildlife
Caribou Health And Contaminant Assessment

RWED project leader:
Brett Elkin, Disease/Contaminant Specialist, RWED, Yellowknife, NT

Project objectives (rationale for collection):
See summary for data files *"Bluenose East Caribou Collection 1997"* and "*Bluenose East Caribou Collection 1998".*

Availability of database
See summary for data files "*Bluenose East Caribou Collection 1997*" and "*Bluenose East Caribou Collection 1998".*

Who/when entered the datasheets as a database:
See summary for data files *"Bluenose East Caribou Collection 1997"* and *"Bluenose East Caribou Collection 1998".*

Database validation:
See summary for data file *"Bluenose East Caribou Collection 1997"* and *"Bluenose East Caribou Collection 1998".*

Location of original field sheets:
See summary for data file *"Bluenose East Caribou Collection 1997"* an *"Bluenose East Caribou Collection 1998".*

Data releases and reporting:
See summary for data file *"Bluenose East Caribou Collection 1997"* and *"Bluenose East Caribou Collection 1998".*

Comments:
This file is a combination of the data from both 1997 and 1998. The first worksheet contains information from both years while the second worksheet contains most of the same data fields, but only for 1997. The third worksheet contains data for both years. Note: The dates for the 1998 collection are given as March 1997, but the sample numbers are 1998 numbers, perhaps indicating some kind of formatting error.

Listing data fields appearing in each worksheet

t

Condition & Disease Data.		Parasite Data		Jaw & Teeth Data
GENERAL	ID	GENERAL	ID	ID#
	Kill Date		Kill Date	AGE
	Sex		Sex	CLASS
	Est. Age		Est. Age	LI1
	Jaw age		Jaw age	LI2
	Carcass Wt (kg)		Carcass Wt (kg)	LI3
	Length (cm)		Length (cm)	LC1
	Girth (cm)		Girth (cm)	LP2
	Lactating?		Lactating?	LP3
	Pregnant?		Pregnant?	LP4
	BF (cm)		BF (cm)	LM1
	Warbles		Warbles	LM2
	Nose Bots		Nose Bots	LM3
	Besnoitia		Besnoitia	RI1
	Rumen Wt (kg)		Rumen Wt (kg)	RI2
KIDNEYS	Total (g)	KIDNEYS	Total (g)	RI3
	Trimmed (g)		Trimmed (g)	RC1
	Kidney (g)		Kidney (g)	RP2
	Trimmed fat		Riney Index	RP3
	Riney Index	GASTROCNEMUS	Both (g)	RP4
GASTROCNEMUS	Both (g)		Gastroc (g)	RM1
	Gastroc (g)		Taenia	RM2
	Taenia	METATARSUS	Bone	RM3
BONE MARROW	Bone		Length (cm)	LI1BRK
	Length (cm)		Wet (g)	LI2BRK
	Wet (g)		Dry (g)	LI3BRK
	Dry (g)		%	LC1BRK
	%	FECAL	Pellets	RI1BRK
FECAL	Pellets		Wet wt (g)	RI2BRK
	Wet wt (g)		Dry wt (g)	RI3BRK
	Dry wt (g)		L1	RC1BRK
	L1		L1/Pellet	LDL
	L1/Pellet		L1/gram	LDH
	L1/gram		Vial#	LDW
	Vial#		RT Lung	LNH
	RT Lung		LT Lung	LTL
	LT Lung		Abomasum	RDL
	Abomasum		Fecal	RDH
	Fecal		Comments	RDW
	Comments			RNH
				RTL

7. Excel File: Cape Bathurst collection 1994.xls

Excel file name	**CAPE BATHURST COLLECTION 1994.XLS**
file title	Caribou Health And Contaminant Assessment
Page title	Cape Bathurst - Health & Contaminant Assessment
Size	87kb
Worksheets	1. Body & Condition (16 records) Measurements, reproductive data, and condition indices 2. Bone, jaw antler (16 records) Bone, jaw and antler measurements 3. Disease & parasite (16 records) Disease and parasite data 4. Metals (16 records) Metal data for kidney, liver 5. Radionuclides (16 records) Radionuclides data for kidney and liver 6. Organochlorines (16 records) Organochlorine data for fat, liver & muscle
Create date	31 Aug 2000
Modified date	12 Feb 2002
Saved by	Brett Elkin, Disease/Contaminant Specialist, RWED, Yellowknife, NT
Microsoft Author	Brett Elkin, Disease/Contaminant Specialist, RWED, Yellowknife, NT
Dates	16, 17 and 20 March 1994

CWS database name:
Cape Bathurst Collection 1994.xls RWED

Collection location:
Cape Bathurst

Collection dates:
16, 17 and 20 March 1994

Herd identity:
Cape Bathurst (a division of former Bluenose)

Basis for herd identity:
John Nagy, Senior Wildlife Researcher, RWED, Inuvik, NT
Telemetry and DNA analysis

RWED project name:
Caribou Health And Contaminant Assessment

RWED project leader:
Brett Elkin, Disease/Contaminant Specialist, RWED, Yellowknife, NT

Project objectives (rationale for collection):

- To assess the exposure of free-ranging caribou in the NWT to organochlorine, heavy metals and radionuclide contamination
- To establish baseline levels and spatial trends of organochlorine, heavy metals and radionuclide contamination in several caribou tissues
- To identify specific contaminants or geographical locations that warrant further study in caribou.
- To provide data for use in surveys of contaminants in country food species and for use by the arctic Monitoring and Assessment Programme
- To establish base line levels of disease and parasites

Availability of database
Brett Elkin, Disease/Contaminant Specialist, RWED, Yellowknife, NT
Pippa McNeil, CWS, Pacific and Yukon Region, Whitehorse, YT

Who/when entered the datasheets as a database:
Pippa McNeil: morphologic and condition data.
Ray Bethke: contaminants.

Database validation:
On entry and analysis

Location of original field sheets:
Contact Brett Elkin, RWED, Yellowknife for field sheets, hard copies of contaminant data, and digital copies (SAS) of data.

Data release and reporting:
Morphologic and condition data was provided to Don Thomas, CWS Pacific and Northern Region. See also Literature Cited, reference numbers: 10, 11, 12, 13.

Comments:
Also referred to as Inuvik 1994 (I-94) in Brett Elkin's hard copy files. Samples from wolves were collected in the same area the same year. Brett Elkin has that contaminant data in the SAS database in his Yellowknife office and Peter Clarkson, Biologist in Inuvik at that time collected wolf morphologic and condition measurements. The objective of that study was to examine contaminant transfer in the lichen/caribou/wolf food chain. See Literature Cited.

Listing of data fields appearing in each worksheet

Body & Condition		Bone, Jaw Antler		Disease & Parasite	
ANIMAL INFORMATION	ID	ANIMAL INFORMATION	ID	ANIMAL INFORMATION	ID
	Kill Date		Kill Date		Kill Date
	Sex		Sex		Sex
	Est. Age		Est. Age		Est. Age
	Tooth age		Tooth age		Tooth age
BODY MEASUREMENTS	Body Wt (lb)	FEMUR	Weight (g)	DISEASE	Warbles
	Body Length (cm)		Length (cm)		Nose Bots
	Girth (cm)		Marrow - Wet (g)		Besnoitia
	Back Fat (mm)		Marrow - Dry (g)		*Teania* cysts (liver)
REPRODUCTIVE DATA	Lactating?		Marrow Fat %		*T. krabbe*i (muscle)
	Pregnant?	TIBIA	Weight (g)		Brucellosis
ORGAN MEASUREMENTS	Liver Wt (gm)		Length (cm)	PARASITES	Fecal - TSTRONG
	Heart Wt (gm)	METATARSUS	Weight (g)		Fecal - Eimeria
	R. kidney + fat (g)		Length (cm)		Baermann - DS Larvae
	R. kidney only (g)	JAW	Length (cm)		RT Lung
	L. kidney + fat (g)		Height (cm)		LT Lung
	L. kidney only (g)		Diastema Length (cm)		Abomasum
	Riney Index		Incisor Arcade Length (cm)		
TOTAL BODY DISSECIBLE FAT	Predictive Equation Listed Below		Mandibular Tooth Row (cm)		
GASTROCNEMIUS	Gastroc + SD Flexor (g)	ANTLERS	Right (g)		

Body & Condition		Bone, Jaw Antler		Disease & Parasite	
	Gastroc (g)		Left (g)		
	Taenia Cysts (#)	TOTAL BODY BONE WEIGHT	(Predictive equation below)		
TOTAL BODY MUSCLE WEIGHT	Predictive Equation Listed Below				

Metals		Radionuclides		Organochlorines	
ANIMAL INFORMATION	ID	ANIMAL INFORMATION	ID	ANIMAL INFORMATION	ID
	Kill Date		Kill Date		Kill Date
	Sex		Sex		Sex
	Est. Age		Est. Age		Est. Age
	Tooth age		Tooth age		Tooth age
METALS IN LIVER	% Water	RADIONUCLIDES IN LIVER	$Cesium^{137}$	ORG CHLOR IN FAT[1]	% lipid
	Aluminum		$Lead^{210}$		% water
	Cadmium		$Polonium^{210}$		HCB
	Chromium		$Potassium^{40}$		a-HCH
	Copper		Ra^{226}		b-HCH
	Iron		Th^{232}		g-HCH
	Lead		$Uranium^{235}$		OCS
	Manganese	RADIONUCLIDES IN KIDNEY	$Cesium^{137}$		Oxychlordane
	Total Mercury		$Lead^{210}$		HC Epoxide
	Nickel		$Polonium^{210}$		Dieldrin
	Zinc		$Potassium^{40}$		Mirex
METALS IN KIDNEY	% Water		Ra^{226}		QCB
	Aluminum		Th^{232}		PCB 99
	Cadmium		$Uranium^{235}$		PCB 105
	Chromium	RADIONUCLIDES IN BONE	$Cesium^{137}$		PCB 118
	Copper		$Lead^{210}$		PCB 138
	Iron		$Polonium^{210}$		PCB 153
	Lead		$Potassium^{40}$		PCB 180
	Manganese		Ra^{226}	Arochlor	1254:1260
	Total Mercury		Th^{232}	Arochlor	1260.00
	Nickel		$Uranium^{235}$	ORG CHLOR	% lipid

Metals		Radionuclides		Organochlorines	
				IN LIVER[1]	
	Zinc				% water
					HCB
					a-HCH
					b-HCH
					g-HCH
					OCS
					Oxychlordane
					HC Epoxide
					Dieldrin
					Mirex
					QCB
					PCB 99
					PCB 105
					PCB 118
					PCB 138
					PCB 153
					PCB 180
				Arochlor	1254:1260
				Arochlor	1260.00
				ORG CHLOR IN MUSCLE[1]	% lipid
					% water
					HCB
					a-HCH
					b-HCH
					g-HCH
					OCS
					Oxychlordane
					HC Epoxide
					Dieldrin
					Mirex
					QCB
					PCB 99
					PCB 105
					PCB 118
					PCB 138
					PCB 153
					PCB 180
				Arochlor	1254:1260
				Arochlor	1260.00

8. Excel File: Caribou collection data – Pippa McNeil.xls

Excel file name	CARIBOU COLLECTION DATA – PIPPA MCNEIL.XLS
File title	
Page title	
Size	182kb
Worksheets	1 K-99 -Baffin S, Mar 1999 (19 records) 2 LH-92 -Baffin S, Apr 1992 (15 records) 3. PI-93 -Baffin NE, Apr 1993 (23 records) 4. CD-92 -Baffin S, Apr 1992 (15 records) 5. T-93 -Taloyoak, Sep 1993 (12 records) 6. CB-93 -Cambridge Bay, Nov 1993 (16 records) 7. B-95 -Mid Gordon Lake, Mar 1995 (18 records) 8. Final -combination of samples from worksheets sheets 1-7. Some additional calculations and fields. Some problems evident in appending process 9. Datasheet -combination of samples from sheets 1-7. Some additional calculations and fields. Some problems evident in appending process
Create date	Oct 28, 2002
Modified date	Nov 19, 2002
Saved by	Brett Elkin
Microsoft Author	Pippa McNeil, CWS, Pacific and Yukon Region, Whitehorse, YT
Dates	1992 to 1999

CWS database name:
Caribou Collection Data – Pippa McNeil.xls RWED

Collection locations:
K-99 – 15 miles NW of Lake Harbour
LH-92 – Survival Carin, Lat 6310 Long 7040
CD-92 – Tellik Bay, Lat 6421 Long 7637
PI-93 – Tunuiaqtalik Pt, Lat 7234 Long 7823
T-93 – Middle Lake, west of Taloyoak
CB-93 – Trap Point, NE tip of Kent Peninsula
B-95 – Gordon Lake, NE of Yellowknife

Collection dates:
See worksheet listing above

Herd identity:
K-99, LH-92, and CD-92; Baffin South
PI-93; Baffin NE
CB-93; Dolphin-Union
T-93; Boothia East
B-95; Bathurst

Basis for herd identity:
Baffin - South local identification
Baffin NE - local identification
Dolphin-Union – location, followed across the ice from Victoria Island.
Boothia East - local identification
Bathurst - known range and time of year

RWED project name:
Caribou Health And Contaminant Assessment

RWED project leader:
Brett Elkin, Disease/Contaminant Specialist RWED, Yellowknife, NT

Project objectives (rationale for collection):
- To assess the exposure of free-ranging caribou in the NWT to organochlorine, heavy metals and radionuclide contamination
- To establish baseline levels and spatial trends of organochlorine, heavy metals and radionuclide contamination in several caribou tissues
- To identify specific contaminants or geographical locations that warrant further study in caribou.
- To provide data for use in surveys of contaminants in country food species and for use by the arctic Monitoring and Assessment Programme
- To establish base line levels of disease and parasites

Availability of database
Brett Elkin, Disease/Contaminant Specialist, RWED, Yellowknife, NT
Pippa McNeil, CWS, Pacific and Yukon Region, Whitehorse, YT

Who/when entered the datasheets as a database:
Brett Elkin, Disease/Contaminant Specialist RWED, Yellowknife, NT
Ray Bethke, RWED, Yellowknife, NT
Pippa McNeil, CWS, Pacific and Yukon Region, Whitehorse, YT also created this composite data file.

Database validation:
On entry and analysis

Location of original field sheets:
Contact Brett Elkin, RWED, Yellowknife for field sheets, hard copies of contaminant data, and digital copies (SAS) of data.

Data releases and reporting:
Morphologic and condition data was provided to Don Thomas, CWS Pacific and Yukon Region. See also Literature Cited, reference numbers: 2, 3, 4, 5, 6, 8, 11, 12, 13, 15.

Comments:
This data file contains 9 worksheets the first 7 of which contain sampling records from different locations. The last 2 worksheets appear to be a compilation of the first 7.

The worksheets K-99, LH-92, PI-93 and CD-92 also appear in the data file "*Baffin_BE.xls*".
The worksheet T-93 is also in the data file *"Boothia_BE.xls".*
The worksheet B-95 is also in the data file *"BTH95_BE.xls"*

Samples from wolves were collected in the same area during the same year for CB-93 and B-95. Wolf contaminants data for both collections is in the SAS database along with morphological data for the CB-93 collection, contact Brett Elkin RWED Yellowknife for data. The objective was to examine contaminant transfer in the lichen/caribou/wolf food chain. See Literature Cited.

Listing of data fields appearing in each worksheet.

K-99	LH-92	PI-93	CD-92	T-93	CB-93	B-95	Final	Datasheet
ID	ID	ID	ID	ID	ID	ID	Code	Code
Date	Date	Date	Date	Date	Date	Date	Herd	Herd
Location	Location	Location	Location	Location	Location	Location	Researcher	Researcher
Lat	Lat	Lat	Lat	Sex	Sex	Sex	ID	ID
Long	Long	Long	Long	Age	Age	Age	Date	Date
Sampler	Sampler 1	Collector 1	Collector1	Body Weight	Body Length (cm)	Body Length (cm)	Year	Year
Hunter 1	Sampler 2	Collector 2	Collector2	Body Length cm	Chest Girth (cm)	Chest Girth (cm)	Month	Month
Hunter 2	Hunter 1	Hunter 1	Hunter 1	Chest Girth (cm)	Lactation	Lactation	Sex	Sex
Sex	Hunter 2	Hunter 2	Hunter 2	Lactation	Pregnancy	Pregnancy	Ageyrs	Ageyrs
Age	Sex	Sex	Sex	Pregnancy	Backfat (mm)	Backfat (mm)	Age	Age
Pregnancy	Age	Age	Age	Backfat (mm)	Warbles	Warbles	BW	BW
Antlers	Pregnancy	Pregnancy	Pregnancy	Warbles	Nosebots	Nosebots	Bodleng	Bodleng
Udder	Antlers	Antlers	Antlers	Nosebots	Besnoitia	Besnoitia	Chest	Chest
Body Weight	Udder	Udder	Udder	Besnoitia	KID+FAT		Lact	Lact
Body Length (cm)	Dorsal Length (cm)	Dorsal Length (cm)	Dorsal Length (cm)	KID+FAT	KID ONLY		Pregnant	Pregnant
Chest Girth (cm)	Tail (cm)	Shoulder Height (cm)	Shoulder Height (cm)	KID ONLY	Jaw length (cm)		FetusSex	FetusSex
Shoulder Height (cm)	Shoulder Height (cm)	Foreleg Length (cm)	Foreleg Length (cm)	Jaw length (cm)	Femur length (cm)		Fetuswt	Fetuswt

K-99	LH-92	PI-93	CD-92	T-93	CB-93	B-95	Final	Datasheet
Foreleg Length (cm)	Foreleg Length (cm)	Rump Fat Depth (cm)	Rump Fat Depth (cm)	Femur length (cm)	Femur Weight (g)		Backfat	Backfat
Forefoot Length (cm)	Rump Fat Depth (cm)	Chest Girth (cm)	Chest Girth (cm)	Femur Weight (g)	Marrow Condition (1-3)		Warbles	Warbles
Backfat (mm)	Chest Girth (cm)	Back Length (cm)	Forefoot Length (cm)	Marrow Condition (1-3)	Tray Wt		Rumenwt	Rumenwt
Warbles	Forefoot Length (cm)	Forefoot Length (cm)	Carcass Wt (lb)	Tray Wt	Marrow Wt 1		Heart	Heart
Nosebots	Carcass Wt (lb)	Carcass Wt (lb)	Warbles	Marrow Wt 1	2		LKID	LKID
Besnoitia	Warbles	Warbles	Nosebots	2	3		RKID	RKID
Age	Nosebots	Nosebots	Besnoitia	3	4		TOTKID	TOTKID
KID+FAT	Age	Besnoitia	Age	4	5		LKIDFAT	LKIDFAT
KID ONLY		Liver Wt (kg)		5	6		RKIDFAT	RKIDFAT
Metatarsus		Heart Wt (kg)		Water Wt	7		TOTKIDFAT	TOTKIDFAT
Tibia		KID+FAT		Age	Water Wt		LRiney	LRiney
Gastroc+Sup. Dig. Flexor		KID ONLY			Age		RRiney	RRiney
Gastroc only		Age					TOTRiney	TOTRiney
							Gastroc	Gastroc
							Metleng	Metleng
							Femleng	Femleng
							Metmarfat	Metmarfat
							Femmarfat	Femmarfat
							Tibmarfat	Tibmarfat
							Disfat	Disfat

K-99	LH-92	PI-93	CD-92	T-93	CB-93	B-95	Final	Datasheet
							BodyFat	BodyFat
							Bodyprot	Bodyprot
							Fat (KG)	Fat (KG)
							CondScore	CondScore
							Extra data:	
							ID	

9. Excel File: D-U Viccarbc- Anne Gunn.xls

Excel file name	D–U Viccarbc–Anne Gunn.xls
File title	
Page title	
Size	47.0 kb
Worksheets	1. Viccarbc (121 records)
Create date	6 Apr 2000
Modified date	15 Jan 2002
Saved by	Pippa McNeil, CWS, Pacific and Yukon Region, Whitehorse, YT
Microsoft Author	Pippa McNeil, CWS, Pacific and Yukon Region, Whitehorse, YT
Sample dates	April 1987, 1988, 1989, 1990, 1991. Nov 1992

CWS database name:
D–U Viccarbc–Anne Gunn.xls

Collection location:
Southeast coast Victoria Island

Collection dates :
1) five annual collections April 1987–1991
2) one November 1992 collection (sample numbers 1208, 1215–1232)
3) satellite–collared cows (sample numbers 7760, 7762–69) April May 1989[2]

Herd identity:
Dolphin and Union herd

Basis for herd identity:
Dolphin and Union herd based on movements of satellite–collared caribou[1] and local knowledge

RWED project name:
Victoria Island caribou collections

[2] Calving history and collection locations, dates Appendix 1 in A. Gunn and B. Fournier. 2000. Caribou herd delimitation and seasonal movements based on satellite telemetry on Victoria Island 1987-89. Northwest Territories Department of Resources, Wildlife and Economic Development. File Rep. No. 125. 104pp

RWED project leader:
Anne Gunn RWED

Project objectives (rationale for collection):
Collection (1)

- To determine taxonomic status from skull measurements and transferring analysis
- To determine annual variation in body fat reserves, lean body mass and prevalence of parasites (warbles, besnoitia and cystocercus).

Collection (2)

- Comparison of gastro–intestinal tract anatomy and body condition for caribou and muskoxen (Project with Hans Staaland and Jan Adamczewski)

Collection (3)

- Incidental collection to seasonal movements project (retrieval of satellite collars by collecting the collared cows – community request)**.**

Availability of database
Brett Elkin, Disease/Contaminant Specialist, RWED, Yellowknife, NT
Pippa McNeil CWS Pacific and Yukon Region Whitehorse

Who/when entered the datasheets as a database:
Initially (1991) Anne Gunn entered data (DBASEIII) for body condition data. Skull measurements were entered on separate sheets and rumen plant fragment analysis has not been entered (2003).

Database validation:
Anne Gunn for 1987–1992.

Location of original field sheets:
Contact Anne Gunn, RWED, Yellowknife for field sheets, lab book and field books.

Data releases and reporting:
The database was provided to Brent Patterson, Kitikmeot Regional Biologist, Government of Nunavut, Kugluktuk, NU in about 1999 (use unknown but who converted it to EXCEL) and to Steve Albon (2001) for a graduate student.

The body condition data were analyzed (Mika Sutherland, 1991) but not reported. The methods for the collection followed Thomas 1988 for the Beverly caribou herd collection. Hoof and tooth measurements are available from Anne Gunn, RWED Yellowknife.

Skull measurements were analyzed and reported in:
Gunn, A. and B. Fournier. 1996. Skull and dental measurements from adult female caribou collected from Victoria Island and Pelly Bay, NWT, 1987-1990. Northwest

Territories Department of Resources, Wildlife and Economic Development. Manuscript Rep. No. 85. 28 pp.

The November 1992 data were partially reported in:

Staaland, H., J.Z. Adamczewski and A. Gunn. 1997. A comparison of digestive tract morphology in muskoxen and caribou from Victoria Island, Northwest Territories, Canada. Rangifer 17 (1):17-19.

The parasite data were reported in:

Gunn, A., T. Leighton and G. Wobeser. 1991. Wildlife diseases and parasites in the Kitikmeot Region, 1984-1990. Northwest Territories Department of Renewable Resources File Report No. 104. 51 pp.

Comments:

1) The first (April 1987) collection was the first winter that caribou had moved back into the area west of Cambridge Bay (Augustus Hills) since probably before the 1920s (David Kaomayok pers. comm.). Subsequently the caribou wintered in the same area until about 1990–92 when the caribou used the area in the fall but then more and more caribou were crossing to the mainland for the winter.

2) The serum samples were held by Brett Elkin and tested for brucella. Contact Brett Elkin, RWED Yellowknife for hard copy results.

3) Serum for transferrin analysis was provided to Knut Roed (Norway) published as:

Røed, K. H., H. Staaland, E. Broughton and D. C. Thomas. 1986. Transferrin variation in caribou (*Rangifer tarandus* L.) on the Canadian Arctic Islands. Canadian Journal of Zoology 64: 94-98.

Listing of data fields appearing in the worksheet

VICCARBC
YEAR
AGE
BODYWT
ANTWT
WARBLES
BACKFAT
FETSEX
FETWT
FETLEN
KIDWT
KIDFAT
GASTWT
FEMFAT

VICCARBC
FEMWT
FEMLEN
CARCWT
CARPAL
BASAL
ORBITAL
NASALL
PSTNARES
MXTEETH
MXDIAST
OCCPIT
NASALW
CANINE
INFOR
MAST
ROSTRL
ZYGOM
MANDL
MANDDIST
CONBASAL
PMLEN
M1LEN
M1HT
DAM
MANDHT
MANDTH

10. Excel File: Eastern Bluenose_BP.xls

Excel file name	EASTERN BLUENOSE_BP.XLS
File title	Community Based Monitoring of Abnormalities in Wildlife
Page title	
Size	105kb
Worksheets	1. Data2 (53 records; 27 from 1997 and 26 from 1998) Carcass measurements, condition indices, and fecal analysis 2. Data (27 records) 1997 Carcass measurements, condition indices, and fecal analysis 3. Jaws (52 records; 27 from 1997 and *2*5 from 1998)
Create date	25 Feb 2002
Saved by	Pippa McNeil, CWS, Pacific and Yukon Region, Whitehorse, YT
Microsoft Author	Damian Panayi, Kitikmeot Region, Government of Nunavut, Kugluktuk, NU
Dates	Nov 1997 March 1998 **note:** date in file says March 1997 but sample numbers are 1998 numbers

CWS database name:
Eastern Bluenose_BP.xls
This is an amalgamation of East Bluenose caribou sampling from 1997 and 1998

Collection location:
Cox Lake 1997
Hope Lake 1998

Collection dates:
November 1997
March 1998

Herd identity:
East Bluenose

Basis for herd identity:
John Nagy, Senior Wildlife Researcher, RWED, Inuvik, NT
Telemetry and DNA analysis

RWED project name:
Community Based Monitoring of Abnormalities in Wildlife
Caribou Health And Contaminant Assessment

RWED project leader:
Brett Elkin, Disease/Contaminant Specialist RWED, Yellowknife, NT
Brent Patterson, Kitikmeot Regional Biologist, Government of Nunavut, Kugluktuk, NU.

Project objectives (rationale for collection):
See data file summary for *Bluenose East Caribou Collection 1997.xls*

Availability of database
See data file summary for *Bluenose East Caribou Collection 1997.xls*

Who/when entered the datasheets as a database:
See data file summary for *Bluenose East Caribou Collection 1997.xls*

Database validation:
See data file summary for *Bluenose East Caribou Collection 1997.xls*

Location of original field sheets:
See data file summary for *Bluenose East Caribou Collection 1997.xls*

Data releases and reporting:
See data file summary for *Bluenose East Caribou Collection 1997.xls*

Comments:
Pippa McNeil acquired the Bluenose east caribou collection (1997 and 1998) files from Brett Elkin. Don Thomas already had the Eastern Bluenose from Bruce Patterson. Pippa McNeil subsequently noticed that although these are the same animals there were some discrepancies between the datasets. Some proofing against the original data sheet may be required.

This data file is an amalgamation of the data appearing in the “Bluenose East Caribou Collections” from 1997 and 1998. Jaw and tooth data has been added. This data file is essentially the same as the file called “RWED Bluenose East Caribou 1997 & 1998.xls”

Listing of data fields appearing in each worksheet

Data2 Carcass measurements, condition indices, and fecal analysis		**Data** Carcass measurements, condition indices, and fecal analysis		**Jaws**
GENERAL	ID	GENERAL	ID	TAG#
	Kill Date		Kill Date	ID#
	Sex		Sex	AGE
	Est. Age		Est. Age	CLASS
	Jaw age		Jaw age	LI1
	Carcass Wt (kg)		Carcass Wt (kg)	LI2
	Length (cm)		Length (cm)	LI3
	Girth (cm)		Girth (cm)	LC1
	Lactating?		Lactating?	LP2
	Pregnant?		Pregnant?	LP3
	BF (mm)		BF (cm)	LP4
	Warbles		Warbles	LM1
	Nose Bots		Nose Bots	LM2
	Besnoitia		Besnoitia	LM3
	Rumen Wt (kg)		Rumen Wt (kg)	RI1
KIDNEYS	Total (g)	KIDNEYS	Total (g)	RI2
	Trimmed (g)		Trimmed (g)	RI3
	Kidney (g)		Kidney (g)	RC1
	Trimmed fat		Riney Index	RP2
	Riney Index	GASTROCNEMUS	Both (g)	RP3
GASTROCNEMUS	Both (g)		Gastroc (g)	RP4
	Gastroc (g)		Taenia	RM1
	Taenia	METATARSUS	Bone	RM2
Bone Marrow	Bone		Length (cm)	RM3
	Length (cm)		Wet (g)	LI1BRK
	Dish wt.(g)		Dry (g)	LI2BRK
	Wet (g)		%	LI3BRK
	Dry (g)	FECAL	Pellets	LC1BRK
	%		Wet wt (g)	RI1BRK
FECAL	Pellets		Dry wt (g)	RI2BRK
	Wet wt (g)		L1	RI3BRK
	Dry wt (g)		L1/Pellet	RC1BRK
	L1		L1/gram	LDL
	L1/Pellet		Vial#	LDH
	L1/gram		RT Lung	LDW
	Vial#		LT Lung	LNH
	RT Lung		Abomasum	LTL
	LT Lung		Fecal	RDL
	Abomasum			RDH
	Fecal			RDW
				RNH
				RTL

11. Excel File: Heard fixed.xls

File Name	HEARD FIXED.XLS	
File title		
Page title		
Size	654kb	
Worksheets	1. Sheet 1: 394 records: 176 records from Bathurst caribou 218 records from Southampton Island caribou 2. Sheet 2: 395 records: 177 records from Bathurst caribou 218 records from Southampton Island caribou 3. Fixed: 394 records: 176 records from Bathurst caribou 218 records from Southampton Island caribou	
Create date	6 Aug 2002	
Saved by	Pippa McNeil, CWS, Pacific and Yukon Region, Whitehorse, YT	
Microsoft Author	Unknown	
Dates	Bathurst caribou: 1987 - Oct 1990 - Feb, Mar 1991 - Feb, Mar, May to Sep, Dec 1992 - Jan, Mar, May	Southampton Island caribou 1986 – Oct 1987 – Apr 1988 – May 1989 – May 1990 – May, Nov 1991 – May, Nov

CWS database name:
Heard Fixed.xls

Collection location:
Bathurst caribou: Brown Lake and MacKay Lake
Southampton Island

Collection dates:
Bathurst Caribou: Oct 1987; Feb, Mar 1990; Feb, Mar, May to Sep, Dec 1991; Jan, Mar, May 1992

Southampton Island Caribou: Oct 1986; Apr 1987;May 1988; May 1989; May, Nov 1990; May, Nov 1991

Herd identity:
Bathurst

Southampton Island

Basis for herd identity:
Bathurst - known range and time of year
Southampton Island - assumed because of island location

RWED project name:
Unknown

RWED project leader:
Doug Heard and Mark Williams

Project objectives (rationale for collection):
- November 1991:to collect contaminant samples consistent with the objectives of *Caribou Health And Contaminant Assessment program*
- To collect thesis data for J. P. Oulette

Bathurst Herd: The 1990–91 data were to determine the applicability of using urine samples to assess the condition of caribou. The 1991 and 1992 summer data were collected during a project to evaluate nutrition during migration (Appendix B). The objective for the October 1987 collection is unrecorded. In addition, there was a further collection of 51 caribou in April 1994 from an experimental commercial harvest. Those 1994 data are not included in the databases listed and the only summary available appears to be what is included as Appendix C.

Availability of database
Contact Brett Elkin, RWED Yellowknife for Southampton Island November 1991 contaminant data, and Bathurst morphological and condition data.
Pippa McNeil, CWS Whitehorse, also has the Bathurst morphological and condition data.

Who/when entered the datasheets as a database:
Unknown except for Contaminant data Nov 1991 Southampton Island - Ray Bethke

Database validation:
unknown

Location of original field sheets:
Contact Brett Elkin, RWED Yellowknife for:
Field sheet for ACCNO:C's: 419 to 443, Nov 1991, from Southampton Island;
numbers 444 to 453, Dec 1991 from the Bathurst herd;
numbers 454 to 464, Jan 1992 Bathurst herd.
The contaminant data for all Bathurst sample are in the SAS database (see note in the introduction) along with hard copy.

Brett Elkin also has field sheets for ACCNO:C's 559 to 597 from Greenstockings Lake (July and Sep 1992) but the data is **not** in the this digital file, *Heard Fixed.xls*. The contaminant data for these animals is in the SAS database and on hard copy printouts.

The field data sheets 330–349 – May/June 1991; 365–384 – July 1991; 390–409 September 1991; 539 – 558 May 1992 and 598–862 May 1994 are all in Brett Elkin's filing cabinet.

Data releases and reporting:
Morphologic and condition data was provided to Don Thomas, CWS Pacific and Northern Region. See also Literature Cited, reference numbers: 1, 2, 4, 5, 6, 7, 8, 9, 11, 12, 13.
The 1990–92 winter data are reported in:
Case, R.L. 1994. Adaptations of northern ungulates to seasonal cycles in nitrogen intake. Ph.D. Thesis. University of Alberta. Edmonton, Alberta. 128 pp.

The 1991–92 summer data are summarised in Appendix C and were published as:
Heard, D C., T.M. Williams and D.A. Melton. 1996. The relationship between food intake and predation risk in migratory caribou and implications to caribou and wolf population dynamics. *Rangifer Special Issue* No. 9: 37-44.

Comments:
This data set was originally converted to Microsoft Excel from a SAS data set. There were errors in the conversion, resulting in much of the data being shifted one column to the right.

Listing of data fields appearing in the worksheet "Sheet1". There were no column headings in the worksheet called "Sheet2". The data was incomplete and appeared to part of that from "Sheet 1".

Sheet 1	
Herd	LOC
Research	
ID	ACCNO
Date	SASDATE
Year	
Month	
Sex	SEX
Ageyrs	AGE
Age	
BW	BODYWT
Bodleng	BODYL
Chest	GIRTH
Lact	
Pregnant	
Fetus	
Fetuswt	

Sheet 1	
Backfat	
Warbles	WARBLES
Rumenwt	RUMENINJ
Heart	
LKID	KIDWT1M
RKID	KIDWT2M
TOTKID	Kidney
LKIDFAT	KIDFAT1
RKIDFAT	KIDFAT2
TOTFAT	Kidney Fat
Lriney	
Rriney	
TOTRiney	
Gastroc	GASTROC
Metleng	
Femleng	
Metperc	MetFat
Femmar	FemFat
Tibmarfat	
Disfat	
Fatper	
Bodyprot	
	INFREEWT
	FEMURWT
	METATWT
	METACL
	METACWT
	FETUSSEX
	KIDWT1
	KIDWT2
	PERONEUS
	FLEXOR
	KFI
	FKFI
	FMWT1
	FMWT2
	FMF
	MTMWT1
	MTMWT2
	MTMF
	MCMWT1
	MCMWT2
	MCMF
	FFMWT1
	FFMWT2
	FFMF

Listing of data fields appearing in the worksheet called “Fixed”

Fixed
LOC
ESTAGE
ACCNO
BODYWT
INFREEWT
BODYL
JAWL
FEMURL
FEMURWT
METATL
Fem/met
METATWT
METACL
METACWT
ANTLERS
ANTLERWT
FETUSSEX
FETUSWT
FETUSCRL
FETUSTL
FFEMURL
FFEMURWT
FHEARTWT
FKIDWT1
FKIDWT1M
FKIDWT2
FKIDWT2M
BLOOD
HEARTWT
LIVERWT
BACKFAT
KIDWT1
KIDWT1M
KIDWT2
KIDWT2M
XIPHOID
PERONEUS
GASTROC
FLEXOR
URINE

Fixed
OVARIES
WARBLES
LIVRFLK
NOSEBOTS
TAGE
ANTLRWTL
KFI
FKFI
ANTLRWTR
SEX
BODYWTLB
SASDATE
UTWT
IFUFWT
MCESIUM
RCESIUM
NITFEC
NITRUM
FMWT1
FMWT2
FMF
MTMWT1
MTMWT2
MTMF
MCMWT1
MCMWT2
MCMF
FFMWT1
FFMWT2
FFMF
GIRTH
RUMEN
M
Y
INJESTA
RUMENINJ
AGE
X

12. Excel File: Nonacho Lake caribou collection 2000.xls

Excel file name	NONACHO LAKE CARIBOU COLLECTION 2000.XLS
File title	Caribou health and contaminant assessment
Page title	Nonacho Lake Caribou - Health & Contaminant Assessment
Size	87kb
Worksheets	1. Body & Condition (25 records) Measurements, reproductive data, and condition indices 2. Bone, jaw antler (25 records) Bone, jaw and antler measurement 3. Disease & parasite (25 records) Disease and parasite data 4. Metals (25 records) Metal data for kidney, liver and blood 5. Radionuclides (25 records) Radionuclides data for kidney, liver and blood
Create date	31 Aug 2000
Modified date	3 Dec 2001
Saved by	Brett Elkin, Disease/Contaminant Specialist RWED, Yellowknife, NT
Microsoft Author	Brett Elkin, Disease/Contaminant Specialist RWED, Yellowknife, NT
Dates	April 1 and 2, 2000

CWS database name:
Nonacho Lake Caribou Collection 2000.xls RWED

Collection location:
Nonacho Lake, Southwest of Fort Reliance NWT

Collection dates:
April 1 and 2, 2000

Herd identity:
Beverly
Bathurst
Ahiak

Basis for herd identity:
DNA, Keri Zittlau University of Alberta

RWED project name:
Caribou Health & Contaminant Assessment

RWED project leader:
Brett Elkin, Disease/Contaminant Specialist RWED, Yellowknife, NT

Project objectives (rationale for collection):

- Follow up study to examine changes over time in contaminant load
- To assess the exposure of free-ranging caribou in the NWT to organochlorine, heavy metals and radionuclide contamination
- To establish baseline levels and spatial trends of organochlorine, heavy metals and radionuclide contamination in several caribou tissues
- To identify specific contaminants or geographical locations that warrant further study in caribou.
- To provide data for use in surveys of contaminants in country food species and for use by the arctic Monitoring and Assessment Programme
- To establish base line levels of disease and parasites

Availability of database

Brett Elkin, Disease/Contaminant Specialist RWED, Yellowknife, NT
Pippa McNeil, CWS, Pacific and Yukon Region, Whitehorse, YT

Who/when entered the datasheets as a database:

Brett Elkin, Disease/Contaminant Specialist RWED, Yellowknife, NT

Database validation:

On entry and analysis

Location of original field sheets:

Contact Brett Elkin, RWED, Yellowknife for field sheets. Hard copies of contaminant data and some parasite data that have not been entered into SAS database are also available.

Data releases and reporting:

Morphologic and condition data released to CWS Pacific and Yukon Region Whitehorse
No publications at present.

Comments:

Regarding DNA analysis of samples, an Oct 18 email from Keri Zittlau from University of Alberta to Anne Gunn RWED states:
Excluding Ahiak animals, DNA analysis of 24 animals indicated that the following 11 animals had a greater probability of being Beverly animals:

BV-00-01	BV-00-12	BV-00-22
BV-00-06	BV-00-13	
BV-00-07	BV-00-16	
BV-00-08	BV-00-17	
BV-00-11	BV-00-20	

The remaining animals were more likely Bathurst animals.

If the Ahiak herd is included in the analysis, the following individuals assign to the Beverly herd:

BV-00-01 BV-00-12
BV-00-06 BV-00-13
BV-00-07 BV-00-17
BV-00-11 BV-00-22
i.e. 33% assign to Beverly and 67% to Bathurst/Ahiak

Listing of data fields appearing in each worksheet

Body & Condition		**Bone, jaw, antler**	
ANIMAL INFORMATION	ID	ANIMAL INFORMATION	ID
	Kill Date		Kill Date
	Sex		Sex
	Est. Age		Est. Age
	Tooth age		Tooth age
BODY MEASUREMENTS	Body Wt (lb)	FEMUR	Weight (g)
	Carcass Wt (lb)		Length (cm)
	Shoulder Wt (lb)		Marrow - Wet (g)
	Body Length (cm)		Marrow - Dry (g)
	Tail Length (cm)		Marrow Fat %
	Girth (cm)	TIBIA	Weight (g)
	Back Fat (mm)		Length (cm)
REPRODUCTIVE DATA	Lactating?	METATARSUS	Weight (g)
	Pregnant?		Length (cm)
	Fetus Sex	JAW (Left)	Length (cm)
	Fetus Wt (gm)		Height (cm)
	Fetal C-R Length (cm)		Diastema Length (cm)
ORGAN MEASUREMENTS	Liver Wt (gm)		Mandibular Tooth Row (cm)
	Heart Wt (gm)		Incisor Arcade Length (cm)
	R. kidney + fat (g)	ANTLERS	Right (g)
	R. kidney only (g)		Left (g)
	R. fat only (g)	TOTAL BODY BONE WEIGHT	(Predictive equation below)
	L. kidney + fat (g)		
	L. kidney only (g)		
	L. fat only (g)		
	Riney Index		
TOTAL BODY DISSECIBLE FAT	Predictive Equation Listed Below		
GASTROCNEMIUS	Gastroc + SD		

Body & Condition		Bone, jaw, antler	
	Flexor (g)		
	Gastroc (g)		
	Taenia Cysts (#)		
TOTAL BODY MUSCLE WEIGHT	Predictive Equation Listed Below		

Disease & parasite		Metals		Radionuclide	
ANIMAL INFORMATION	ID	ANIMAL INFORMATION	ID	ANIMAL INFORMATION	ID
	Kill Date		Kill Date		Kill Date
	Sex		Sex		Sex
	Est. Age		Est. Age		Est. Age
	Tooth age		Tooth age		Jaw age
DISEASE	Warbles	METALS IN LIVER	Aluminum	RADIONUCLIDES IN LIVER	$Cesium^{137}$
	Nose Bots		Cadmium		$Lead^{210}$
	Besnoitia		Chromium		$Polonium^{210}$
	Sarcosystis		Copper		$Potassium^{40}$
	Teania cysts (liver)		Iron		Ra^{226}
	*T. krabbe*i (muscle)		Lead		Th^{232}
	Brucellosis		Manganese		$Uranium^{235}$
	Trypanosomes		Total Mercury	RADIONUCLIDES IN KIDNEY	$Cesium^{137}$
PARASITES	Fecal - TSTRONG		Nickel		$Lead^{210}$
	Fecal - Eimeria		Zinc		$Polonium^{210}$
	Baermann - DS Larvae	METALS IN KIDNEY	Aluminum		$Potassium^{40}$
	RT Lung		Cadmium		Ra^{226}
	LT Lung		Chromium		Th^{232}
	Abomasum		Copper		$Uranium^{235}$
COMMENTS			Iron	RADIONUCLIDES IN BONE	$Cesium^{137}$
			Lead		$Lead^{210}$
			Manganes		$Polonium^{210}$

Disease & parasite		Metals		Radionuclide	
			e		
			Total Mercury		Potassium^{40}
			Nickel		Ra^{226}
			Zinc		Th^{232}
		METALS IN BLOOD (PPM's)	Copper		Uranium^{235}
			Iron		
			Magnesium		
			Manganese		
			Molybdenum		
			Zinc		

13. Excel File: Nonacho Lake Jaw Measurements 2001.xls

Excel file name	NONACHO LAKE JAW MEASUREMENTS 2001.XLS
File title	
Page title	Beverly Caribou Samples
Size	26kb
Worksheets	1. Sheet1 25 records
Create date	24 October 2001
Modified date	15 November 2001
Saved by	RWED
Microsoft Author	RWED
Dates	Collected April 1 and 2. 2000

CWS database name:
Nonacho Lake Jaw Measurements 2001.xls RWED

Collection location:
Nonacho Lake, Southwest of Fort Reliance NWT

Collection dates:
April 1 and 2, 2000

Herd identity:
See data file summary for *Nonacho Lake Caribou Collection 2000.xls*

Basis for herd identity:
See data file summary for *Nonacho Lake Caribou Collection 2000.xls*

RWED project name:
Health & Contaminant Assessment

RWED project leader:
Brett Elkin, Disease/Contaminant Specialist, RWED, Yellowknife, NT

Project objectives (rationale for collection):
See data file summary for *Nonacho Lake Caribou Collection 2000.xls*

Availability of database
See data file summary for *Nonacho Lake Caribou Collection 2000.xls*

Who/when entered the datasheets as a database:
Measurements performed November 2001 by Dallas Campbell, Wildlife Technician, Fort Smith. It is assumed the data was entered by the same individual.

Database validation:
See above

Location of original field sheets:
See data file summary for *Nonacho Lake Caribou Collection 2000.xls*

Data releases and reporting:
See data file summary for *Nonacho Lake Caribou Collection 2000.xls*

Comments:
The name of the excel file is “Nonacho Lake Jaw Measurements 2001”. These jaw measurements are for the Nonacho Lake samples of April 2000. The 2001 in the title indicates when the jaws were measured, i.e. Nov 2001.

Listing of data fields appearing in each worksheet

Data fields in worksheet 1		
	Sample	ID
	Incisor Arcade	Length
LEFT JAW MEASUREMENTS (cm)	Length	
	Height	
	Diastema	Length
	Mandibular	Tooth Row
RIGHT JAW MEASUREMENTS (cm)	Length	
	Height	
	Height	
	Diastema	Length
	Mandibular	Tooth Row

14. Excel File: Nonacho Lake 2000 teeth ages.xls

Excel file name	NONACHO LAKE 2000 TEETH AGES.XLS
File title	Age Report
Page title	
size	88kb
Worksheets	1. Cover page from Matson's Tooth ageing Lab 2. Age data 29 records: 25 Caribou and 4 Dall sheep
reate date	21 Dec 2000
Modified date	23 Oct 2002
Saved by	Brett Elkin, Disease/Contaminant Specialist RWED Yellowknife
Microsoft Author	Gary Matson
Dates	April 1 and 2 2000

CWS database name:
Nonacho Lake 2000 Teeth Ages.xls RWED

Collection location:
Nonacho Lake

Collection dates:
April 1 and 2, 2000

Herd identity:
See data file summary for *Nonacho Lake Caribou Collection 2000.xls*

Basis for herd identity:
See data file summary for *Nonacho Lake Caribou Collection 2000.xls*

RWED project name:
Health & Contaminant Assessment

RWED project leader:
Brett Elkin, Disease/Contaminant Specialist, RWED, Yellowknife, NT

Project objectives (rationale for collection):
See data file summary for *Nonacho Lake Caribou Collection 2000.xls*

Availability of database
See data file summary for *Nonacho Lake Caribou Collection 2000.xls*

Who/when entered the datasheets as a database:
Matson's Lab tooth ageing

Database validation:
Matson's Lab tooth ageing

Location of original field sheets:
See data file summary for *Nonacho Lake Caribou Collection 2000.xls*

Data releases and reporting:
See data file summary for *Nonacho Lake Caribou Collection 2000.xls*

Comments:
None.

Listing of data fields appearing in each worksheet

Cover Page	Age Data
Matson's cover page	Species
	Date
	Serial
	Tooth ID
	Age
	CC
	Notes

15. Excel File: Pelly Bay disease harvest March 1999.xls

Excel file name	PELLY BAY DISEASE HARVEST MARCH 1999.XLS
File title	Disease Monitoring data
Page title	Community Based Monitoring of Abnormalities in Wildlife. Pelly Bay
size	84.5kb
Worksheets	1. Data 2 (53 records: 27 from 1997 and 26 from 1998) Carcass measurements, condition indices, and fecal analysis from 1997/1998 Bluenose East collections. (see comment section below) 2. Data (26 records from 1999) Carcass measurements, condition indices, and fecal analysis from Pelly Bay 3. Jaws (21 records) Age and eruption data.
Create date	25 February 2002
Saved by	Pippa McNeil, CWS, Pacific and Yukon Region, Whitehorse, YT
Microsoft Author	Damian Panayi, Kitikmeot Region, Government of Nunavut, Kugluktuk, NU
Dates	Data2 Nov 1997 and March 1998. East Bluenose Data March 29 1999 Pelly Bay Jaws Unknown

CWS database name:
Pelly Bay Disease Harvest March 1999.xls

Collection location:
North of Pelly Bay

Collection dates:
Nov 1997, March 1998 and March 1999 (note: the date in worksheet “Data 2” says 1997 but the samples have 1998 sample numbers)

Herd identity:
Unknown

Basis for herd identity:
Local

RWED project name:
Community Based Monitoring of Abnormalities in Wildlife

RWED project leader:
Brent Patterson, Kitikmeot Regional Biologist, Government of Nunavut, Kugluktuk, NU.

Project objectives (rationale for collection):

- To develop a community-based monitoring program in which harvesters can document and communicate observations of changes in wildlife in a systematic and useful way.
- To provide an "early warning system" to detect changes or patterns in wildlife health at an ecosystem level. This systematic monitoring may identify areas requiring further study and aid in hypothesis development.
- To integrate scientific and traditional ecological knowledge to increase general understanding of changes in the health status of wildlife.
- To allow communities to participate and build local capacity to identify, investigate and respond to changes in the wildlife resources they harvest

Availability of database

Brett Elkin, Disease/Contaminant Specialist, RWED, Yellowknife, NT
Pippa McNeil, CWS, Pacific and Yukon Region, Whitehorse, YT
Kitikmeot Region Biologist, Kugluktuk, Nunavut (Brent Patterson, Kitikmeot Regional Biologist, Government of Nunavut, Kugluktuk, NU).

Who/when entered the datasheets as a database:

Damian Panayi, Kitikmeot Region, Government of Nunavut, Kugluktuk, NU.
Brent Patterson, Kitikmeot Regional Biologist, Government of Nunavut, Kugluktuk, NU.

Database validation:

Brent Patterson, Kitikmeot Regional Biologist, Government of Nunavut, Kugluktuk, NU.
Damian Panayi, Kitikmeot Region, Government of Nunavut, Kugluktuk, NU.

Location of original field sheets:

Kugluktuk

Data releases and reporting:

Data released to CWS Pacific and Yukon Region Whitehorse, YT

Comments:

This data file contains 3 worksheets the first of which is called "Data 2", and is actually the data from the Bluenose East Caribou Collections from 1997 and 1998. The second worksheet is the data from the Pelly Bay collection after which the whole data file is named. The 3rd worksheet is the jaw data from the Pelly Bay samples. No contaminant samples were collected.

Listing of data fields appearing in each worksheet

Data 2		Data		Jaws
GENERAL	ID	GENERAL	ID	TAG
	Kill Date		Kill Date	ID
	Sex		Sex	ID
	Est. Age		Est. Age	AGE_JAW
	Jaw age		Jaw age	CLASS
	Carcass Wt (kg)		Carcass Wt (kg)	LI1
	Length (cm)		Length (cm)	LI2
	Girth (cm)		Girth (cm)	LI3
	Lactating?		Lactating?	LC1
	Pregnant?		Pregnant?	LP2
	BF (cm)		BF (mm)	LP3
	Warbles		Warbles	LP4
	Nose Bots		Nose Bots	LM1
	Besnoitia		Besnoitia	LM2
	Rumen Wt (kg)		Rumen Wt (kg)	LM3
KIDNEYS	Total (g)	KIDNEYS	Ltkidney	RI1
	Trimmed (g)		Lkidney	RI2
	Kidney (g)		Lkfat	RI3
	Trimmed fat		Rtkidney	RC1
	Riney Index		Rkidney	RP2
GASTROCNEMUS	Both (g)		Rkfat	RP3
	Gastroc (g)		LRiney Index	RP4
	Taenia		RRiney Index	RM1
Bone Marrow	Bone	GASTROCNEMUS	Both (g)	RM2
	Length (cm)		Gastroc (g)	RM3
	Dish wt.(g)		Taenia	LI1BRK
	Wet (g)	METATARSUS	Bone	LI2BRK
	Dry (g)		Length (cm)	LI3BRK
	%		Wet (g)	LC1BRK
FECAL	Pellets		Dry (g)	RI1BRK
	Wet wt (g)		BMIndex	RI2BRK
	Dry wt (g)		%	RI3BRK
	L1	FECAL	Pellets	RC1BRK
	L1/Pellet		Wet wt (g)	LDL
	L1/gram		Dry wt (g)	LDH
	Vial#		L1	LDW
	RT Lung		L1/Pellet	LNH
	LT Lung		L1/gram	LTL
	Abomasum		Vial#	RDL
	Fecal		RT Lung	RDH
	Comments		LT Lung	RDW
			Abomasum	RNH
			Fecal	RTL

16. Excel File: Boothia_BE.xls

Excel file name	BOOTHIA_BE.XLS
File title	
size	16kb
Worksheets	1. Sheet 1 (see comments section below)
Create date	28 Oct 2002
Saved by	Pippa McNeil, CWS, Pacific and Yukon Region, Whitehorse, YT
Microsoft Author	Pippa McNeil, CWS, Pacific and Yukon Region, Whitehorse, YT
Dates	29 Sep 1993

CWS database name:
Boothia_BE.xls

Collection location:
Taloyoak, NU.

Collection dates:
29 Sep 1993

Herd identity:
Unknown

Basis for herd identity:
Local

RWED project name:
Caribou Health And Contaminant Assessment

RWED project leader:
Brett Elkin, Disease/Contaminant Specialist, RWED, Yellowknife, NT

Project objectives (rationale for collection):
See data file summary for the file "*Caribou Collection Data – Pippa McNeil.xls"*

Availability of database
See data file summary for the file *"Caribou Collection Data – Pippa McNeil.xls"*

Who/when entered the datasheets as a database:
P. McNeil. See data file summary for *"Caribou Collection Data – Pippa McNeil.xls"*

Database validation:
See data file summary for the file *"Caribou Collection Data – Pippa McNeil.xls"*
Location original field sheets:
See data file summary for the file *"Caribou Collection Data – Pippa McNeil.xls"*

Data releases and reporting:
See data file summary for the file *"Caribou Collection Data – Pippa McNeil.xls"*

Comments:
Data in this work sheet appears in the worksheet "T-93", in the data file called "*Caribou Collection Data – Pippa McNeil.xls*"

Listing of data fields that appear in the worksheet, "Sheet 1"

Sheet 1
ID
Date
Location
Sex
Age
Body Weight
Body Length (cm)
Chest Girth (cm)
Lactation
Pregnancy
Backfat (mm)
Warbles
Nosebots
Besnoitia
KID+FAT
KID ONLY
Jaw length (cm)
Femur length (cm)
Femur Weight (g)
Marrow Condition (1-3)
Tray Wt
Marrow Wt 1-4
Water Wt

17. Excel File: BTH95_BE.xls

Excel file name	BTH95_BE.xls
File title	
Size	21kb
Worksheets	1. Sheet 1. 18 records Body measurements and parasite data
Create date	28 Oct 2002
Saved by	Pippa McNeil, CWS, Pacific and Yukon Region, Whitehorse, YT
Microsoft Author	Pippa McNeil, CWS, Pacific and Yukon Region, Whitehorse, YT
Dates	March 1995

CWS database name:
BTH95_BE.xls

Collection location:
Gordon Lake, NE of Yellowknife, NT.

Collection dates:
March 1995

Herd identity:
Bathurst Herd

Basis for herd identity:
See data file summary for the file "*Caribou Collection Data – Pippa McNeil.xls*"

RWED project name:
Caribou Health And Contaminant Assessment

RWED project leader:
Brett Elkin, Disease/Contaminant Specialist, RWED, Yellowknife, NT

Project objectives (rationale for collection):
See data file summary for the file *"Caribou Collection Data – Pippa McNeil.xls"*

Availability of database
See data file summary for the file *"Caribou Collection Data – Pippa McNeil.xls"*

Who/when entered the datasheets as a database:
Pippa McNeil, CWS Whitehorse. See data file summary for the file "*Caribou Collection Data – Pippa McNeil.xls"*

Database validation:
See data file summary for the file "*Caribou Collection Data – Pippa McNeil.xls"*

Location original field sheets:
See data file summary for the file "*Caribou Collection Data – Pippa McNeil.xls*"

Data releases and reporting:
See data file summary for the file "*Caribou Collection Data – Pippa McNeil.xls"*

Comments:
This data file appears as the worksheet B-95 in the data file *Caribou Collection Data – Pippa McNeil.xls*

Listing of data fields that appear in the worksheet "Sheet 1"

Sheet 1
ID
Date
Location
Sex
Age
Body Length (cm)
Chest Girth (cm)
Lactation
Pregnancy
Backfat (mm)
Warbles
Nosebots
Besnoitia

18. Excel File: DU_BE.xls

Excel file name	DU_BE.XLS
size	18kb
Worksheets	1. Sheet 16 records
Create date	28 Oct 2002
Saved by	Pippa McNeil, CWS, Pacific and Yukon Region, Whitehorse, YT
Microsoft Author	Pippa McNeil, CWS, Pacific and Yukon Region, Whitehorse, YT
Dates	17, 18 , 22 Nov 1993

CWS database name:
DU_BE.xls

Collection location:
Northeast end of Kent Peninsula, NU

Collection dates:
November 1993

Herd identity:
Dolphin-Union

Basis for herd identity:
Followed animals across the ice from Victoria Island

RWED project name:
Caribou Health And Contaminant Assessment

RWED project leader:
Brett Elkin, Disease/Contaminant Specialist, RWED, Yellowknife, NT

Project objectives (rationale for collection):
See data file summary for the file "*Caribou Collection Data – Pippa McNeil.xls*

Availability of database
See data file summary for the file "*Caribou Collection Data – Pippa McNeil.xls*

Who/when entered the datasheets as a database:
Pippa McNeil, CWS Whitehorse. See summary for the file "*Caribou Collection Data – Pippa McNeil.xls*

Database validation:
See data file summary for the file "*Caribou Collection Data – Pippa McNeil.xls*

Location original field sheets:
See data file summary for the file "*Caribou Collection Data – Pippa McNeil.xls*

Data releases and reporting:
See data file summary for the file "*Caribou Collection Data – Pippa McNeil.xls*

Comments:
This data file appears as a worksheet CB-93 in the data file "*Caribou Collection Data – Pippa McNeil.xls*

Table listing data fields that appear in each worksheet

Data fields in worksheet 1
ID
Date
Location
Sex
Age
Body Length (cm)
Chest Girth (cm)
Lactation
Pregnancy
Backfat (mm)
Warbles
Nosebots
Besnoitia
KID+FAT
KID ONLY
Jaw length (cm)
Femur length (cm)
Femur Weight (g)
Marrow Condition (1-3)
Tray Wt
Marrow Wt 1-6
Water Wt
Age

LITERATURE CITED

1. Braune, B., D. Muir, B. DeMarch, M. Gamberg, K. Poole, R. Currie, M. Dodd, W. Duschenko, J. Eamer, B. Elkin, M. Evans, S. Grundy, C. Hebert, R. Johnstone, K. Kidd, B. Koening, L. Lockhart, H. Marshall, K. Reimer, J. Sanderson and L. Shutt. 1991. Spatial and temporal trends of contaminants in Canadian Arctic freshwater and terrestrial ecosystems: a review. Science of the Total Environment, 230: 145-207.

2. Elkin, B.T. and R.W. Bethke. 1995. Environmental contaminants in caribou in the Northwest Territories, Canada. Science of the Total Environment, 160/161: 307-321.

3. Hebert, C.E., M. Gamberg, B.T. Elkin, M. Simon and R.J. Norstrom. 1996. Polychlorinated dibenzodioxins, dibenzofurans and non-ortho substituted polychlorinated biphenyls in caribou (*Rangifer tarandus*) from the Canadian Arctic. Science of the Total Environment 185: 195-204.

4. Macdonald, C.R., L.L. Ewing, B.T. Elkin and A.M. Wiewel. 1996. Regional variation in radionuclide concentrations and radiation dose in caribou (*Rangifer tarandus*) in the Canadian Arctic; 1992-94. Science of the Total Environment 182: 53-73.

5. Muir, D., B. Braune, B. DeMarch, R. Norstrom, R. Wagemann, M. Gamberg, K. Poole, R. Addison, D. Bright, M. Dodd, W. Duschenko, J. Eamer, M. Evans, B. Elkin, S. Grundy, B. Hargrave, C. Hebert, R. Johnstone, K. Kidd, B. Koenig, L. Lockhart, J. Payne, J. Peddle and K Reimer. 1996. Chapter 3. Ecosystem uptake and effects. In: Jensen, J., Adare, K. And Shearer, R. (Eds), *Canadian Arctic Contaminants Assessment Report*, Indian and Northern Affairs Canada, Ottawa 1997.

6. Elkin, B. 1993. Identification of baseline levels and spatial trends of organochlorine, heavy metal and radionuclide contaminants in caribou (*Rangifer tarandus*). Pp. 230-234. In: Synopsis of Research Conducted Under the 1992/93 Northern Contaminants Program. J.L. Murray and R.G. Shearer (eds.).Environmental Studies No. 70, Indian and Northern Affairs Canada. 285 pp.

7. Elkin, B. 1993. Organochlorine, heavy metal and radionuclide contaminant transfer through the lichen-caribou-wolf food chain. Pp. 235-237. In: Synopsis of Research Conducted Under the 1992/93 Northern Contaminants Program. J.L. Murray and R.G. Shearer (eds.).Environmental Studies No. 70, Indian and Northern Affairs Canada. 285 pp.

8. Elkin, B. 1994. Identification of baseline levels and spatial trends of organochlorine, heavy metal and radionuclide contaminants in caribou (*Rangifer tarandus*). Pp. 335-344. In: Synopsis of Research Conducted Under the 1993/94 Northern Contaminants Program. J.L. Murray and R.G. Shearer (eds.).Environmental Studies No. 72, Indian and Northern Affairs Canada. 459 pp

9. Elkin, B. 1994. Organochlorine, heavy metal and radionuclide contaminant transfer through the lichen-caribou-wolf food chain. Pp. 356-357. In: Synopsis of Research Conducted Under the 1993/94 Northern Contaminants Program. J.L. Murray and R.G. Shearer (eds.). Environmental Studies No. 72, Indian and Northern Affairs Canada. 459 pp.

10. Elkin, B. 1996. Identification of baseline levels and spatial trends of organochlorine, heavy metal and radionuclide contaminants in caribou (*Rangifer tarandus*). Pp. 235-246. In: Synopsis of Research Conducted Under the 1994/95 Northern Contaminants Program. J.L. Murray, R.G. Shearer and S.L. Han (eds.).Environmental Studies No. 73, Indian and Northern Affairs Canada. 379 pp

11. Elkin, B. 1996. Organochlorine, heavy metal and radionuclide contaminant transfer through the lichen-caribou-wolf food chain. Pp. 247-252. In: Synopsis of Research Conducted Under the 1994/95 Northern Contaminants Program. J.L. Murray and R.G. Shearer (eds.).Environmental Studies No. 73, Indian and Northern Affairs Canada. 379 pp.

12. Elkin, B. 1997. Identification of baseline levels and spatial trends of organochlorine, heavy metal and radionuclide contaminants in caribou (*Rangifer tarandus*). Pp. 161-168. In: Synopsis of Research Conducted Under the 1995-1997 Northern Contaminants Program. J. Jensen (ed.). Environmental Studies No. 74, Indian and Northern Affairs Canada. 399 pp.

13. Elkin, B. 1997. Organochlorine, heavy metal and radionuclide contaminant transfer through the lichen-caribou-wolf food chain. Pp. 169-172. In: Synopsis of Research Conducted Under the 1995-1997 Northern Contaminants Program. J. Jensen (ed.). Environmental Studies No. 74, Indian and Northern Affairs Canada. 399 pp.

14. Elkin, B.T. 1999. Community-based monitoring of abnormalities in wildlife. Pp. 123-126. In: Synopsis of Research Conducted Under the 1997/98 Northern Contaminants Program. J. Jensen (ed.). Environmental Studies No. 75, Indian and Northern Affairs Canada. 434 pp.

15. Elkin, B.T. 1999. Metal and radionuclide accumulation and effects in caribou (*Rangifer tarandus*). Pp. 127-130. In: Synopsis of Research Conducted Under the 1997/98 Northern Contaminants Program. J. Jensen (ed.). Environmental Studies No. 75, Indian and Northern Affairs Canada. 434 pp.

16. Elkin, B.T. 1999. Community-based monitoring of abnormalities in wildlife. Pp. 93-96. In: Synopsis of Research Conducted Under the 1998/99 Northern Contaminants Program. S. Kalhok (ed.). Indian and Northern Affairs Canada, Ottawa, Ontario. 367 pp.

17. Elkin, B.T. 1999. Metal and radionuclide accumulation and effects in caribou (*Rangifer tarandus*). Pp. 97-102. In: Synopsis of Research Conducted Under the 1998/99 Northern Contaminants Program. S. Kalhok (ed.). Indian and Northern Affairs Canada, Ottawa, Ontario. 367 pp.

18. Elkin, B. 2000. Community-based monitoring of abnormalities in wildlife. Pp. 163-166. In: Synopsis of Research Conducted Under the 1999-2000 Northern Contaminants Program. S. Kalhok (ed.). Indian and Northern Affairs Canada, Ottawa, Ontario. 339 pp.

19. Elkin, B. 2000. Metal and radionuclide accumulation and effects in caribou (Rangifer tarandus). Pp. 167-171. In: Synopsis of Research Conducted Under the 1999-2000 Northern Contaminants Program. S. Kalhok (ed.). Indian and Northern Affairs Canada, Ottawa, Ontario. 339 pp.

20. Elkin, B. 2001. Heavy metal and radionuclide contaminants in caribou. Pp. 169-173. In: Synopsis of Research Conducted Under the 2000-2001 Northern Contaminants Program. S. Kalhok (ed.). Indian and Northern Affairs Canada, Ottawa, Ontario. 371 pp.

21. Russell, D. and C. Daniel. 2003. A North American caribou database – a step in assessing impacts of climate change and industrial development. Abstract. Proceedings of the Ninth North American Caribou Workshop, Kuujjuaq, Quebec, Rangifer Special Issue 14;330.

APPENDIX A. Summary of findings from caribou found dead, Pelly Bay April 1991.

Brett Elkin and Ron Morrison (RRO, Taloyoak) investigated a report of a large number of dead caribou in the vicinity of Pelly Bay. A total of 39 carcasses were recorded: state of the carcass; sex and age information; a mandible and femur were collected and joints were examined for gross evidence of brucellosis.

Males – 35 (11 prime, 5 old; 5 sub–adult and 14 unknown)
Females – 2 and 2 carcasses unknown sex.

27 caribou had been shot, 6 caribou were wolf kills and 6 unknown causes.

Summary of caribou collection April 1988, Pelly Bay, Joe Ashevak and Ted Leighton (WCVM)

24 caribou were shot including 19 cows of which 10 were pregnant. Data available from field sheets (Brett Elkin) includes back fat, external body measurements (but not body mass), number of warbles . Skull measurements were reported in Gunn, A. and B. Fournier. 1996. Skull and dental measurements from adult female caribou collected from Victoria Island and Pelly Bay, NWT, 1987-1990. Northwest Territories Department of Resources, Wildlife and Economic Development. Manuscript Rep. No. 85. 28 pp.

APPENDIX B. Physical Condition of Bathurst Herd Caribou in April 1994

T. Mark Williams
WILDLIFE MANAGEMENT DIVISION
November 1994

The Bathurst Caribou Management Plan recognizes that at its estimated current size, the Bathurst caribou herd should be able to sustain an annual commercial harvest of 2,640 animals in addition to the harvest by holders of General Hunting Licences and Resident Sports Hunters. Consistent with the Renewable Resources Development Strategy that places increased emphasis on the Department of Renewable Resources identifying and supporting commercial use of caribou where domestic needs are being met and where such harvest is sustainable, the opportunity was identified for a commercial harvest of 500 caribou from the Bathurst herd in 1994. The Treaty 11 communities north of Great Slave Lake pooled the commercial tags allotted to them, and with the assistance of the Department of Economic and Tourism, organized a commercial harvest of 500 Bathurst herd caribou in April 1994.

The Department of Renewable Resources requested from Dr. Robert Sturm, the veterinarian in charge of carcass inspection to ensure compliance with Federal Department of Agriculture standards, that samples (one or both kidneys, jaw, metatarsus, and record of sex and whether pregnant) be obtained from as many carcasses as possible at the abbatoir without unduly hindering the inspection process.

Samples from April 1994 were compared to samples collected in late winter (February to April) from 1990 to 1992 by Ray Case and other personnel from the Department of Renewable Resources, with assistance from members of the Dettah Hunters' and Trappers' Association, as part of a Ph.D. program that evaluated the use of chemicals excreted in the urine of caribou and elk as indicators of physical condition.

Methods

Samples were obtained by Agriculture Canada personnel from caribou that had been shot by hunters, and dragged back to the portable abbatoir for processing and inspection. Samples were frozen at ambient temperatures and flown to Yellowknife with the processed meat.

Age was estimated by tooth eruption patterns for animals under 20 months, and visual estimation of tooth wear for older animals, after comparison with a reference collection of caribou jaws.

Kidney fat index was the weight of all fat adhering to the kidneys, divided by the weight of the kidneys.

Results and Discussion

At low fat levels there is little difference in kidney fat indices (kfi's) determined using the weight of fat adhering to kidneys trimmed according to Riney (1955) and in the total

weight of all fat adhering to kidneys. This is because of the tendency for fat to form "lobes" at the end of the kidneys with increasing fat levels (Monson et al. 1974). Because the Riney method involves trimming all fat off of the ends of the kidneys, kfi's calculated using the Riney method increasingly provide an underestimate of physical condition in animals with increasingly extensive fat reserves. Case (1994) trimmed the fat adhering to kidneys according to the Riney method, however, because other studies have consistently shown that caribou have relatively small fat deposits in late winter (Dauphine 1976 and Thomas and Kiliaan 1994), comparison of the kfi's determined using the different methods should still provide a meaningful indication of the physical condition of Bathurst caribou in April 1994 relative to late-winter collections between 1990 and 1992.

There were no significant differences in kfi's among the adult and yearling age classes or among collection years for males (Table 1). Similarly, there were no significant differences in kfi's among the adult and yearling age classes for females, but a significant ($F=3.97$, $P=0.01$) difference amongst years for adult cows (Table 2). When yearling and adult age classes were pooled, females had consistently and significantly ($F=21.02$, $P=.0001$) higher kfi values than males, and there were significant differences in kfi's amongst years (Table 3 and Figure 1).

Comparison of kidney fat index values from Bathurst caribou in April 1994 to data from a collection of Beverly herd caribou at the same time indicated that adult cows (>1 year old) of both herds had significantly ($F=15.02$, $df=1$, $P=.0001$) greater kfi's than bulls, and that adult Beverly caribou (both cows and bulls) had significantly ($F=46.36$, $df=1$, $P=.0001$) greater kfi's than Bathurst caribou (Table 4 and Figure 2).

Literature Cited

Case, R.L. 1994. Adaptations of northern ungulates to seasonal cycles in nitrogen intake. Ph.D. Thesis. University of Alberta. Edmonton, Alberta. 128 pp.

Dauphine, T.C. Jr. 1976. Biology of the Kaminuriak population of barren-ground caribou. Part 4: Growth, reproduction and energy reserves. Canadian. Wildlife. Service. Report Ser. No. 38. 69 pp.

Monson, R.A., W.B. Stone, B.L. Weber and F.J. Spadaro. 1974. Comparison of Riney and total kidney fat techniques for evaluating the physical condition of white-tailed deer. New York Fish and Game Journal, 21(1):67-72.

Riney, T. 1955. Evaluating condition of free-ranging red deer (Cervus elaphus) with special reference to New Zealand. New Zealand Journal of Science and Technology. 36:429-463.

Thomas, D.C. and H.P.L. Kiliaan. 1994. Fire-caribou relationships: (I) Physical characteristics of the Beverly herd, 1980 through 1987. Canadian Wildlife Service Report. 178 pp.

Table 1. Comparison of Kidney Fat Indices of male adult and yearling Bathurst herd caribou collected between February and April, 1990-1994.

		Adults				Yearlings		
		1990	1991	1992	1994	1991	1992	1994
Kidney Fat Index	Mean	26.98	35.37	25.36	31.52	40.42	24.65	32.28
	STD	2.73	16.13	14.11	14.07	16.23	23.00	12.43
	N	3	19	29	43	2	3	8

Table 2. Comparison of Kidney Fat Indices of female adult and yearling caribou from the Bathurst herd, collected between February and April, 1990-1994.

		Adults				Yearlings		
		1990	1991	1992	1994	1991	1992	1994
Kidney Fat Index	Mean	70.51	44.80	34.36	40.38	30.91	47.25	43.78
	STD	31.95	20.34	26.15	14.25		23.60	23.29
	N	7	24	47	28	1	6	3

Table 3. Comparison of Kidney Fat Indices of adult caribou from the Bathurst herd, collected between February and April, 1990-1994.

		Females				Males			
		1990	1991	1992	1994	1990	1991	1992	1994
Kidney Fat Index	Mean	70.5	44.2	35.8	40.7	27.0	35.8	25.3	31.6
	STD	32.0	20.1	26.0	14.8	2.7	15.8	14.6	13.7
	N	7	25	53	31	3	21	32	51

Table 4. Comparison of Kidney Fat Indices from Adult Beverly and Bathurst herd caribou in April 1994.

		Females		Males	
		Beverly	Bathurst	Beverly	Bathurst
Kidney Fat Index	Mean	74.04	40.38	52.05	31.52
	STD	24.88	14.25	16.04	14.07
	N	11	28	10	43

Appendix B:

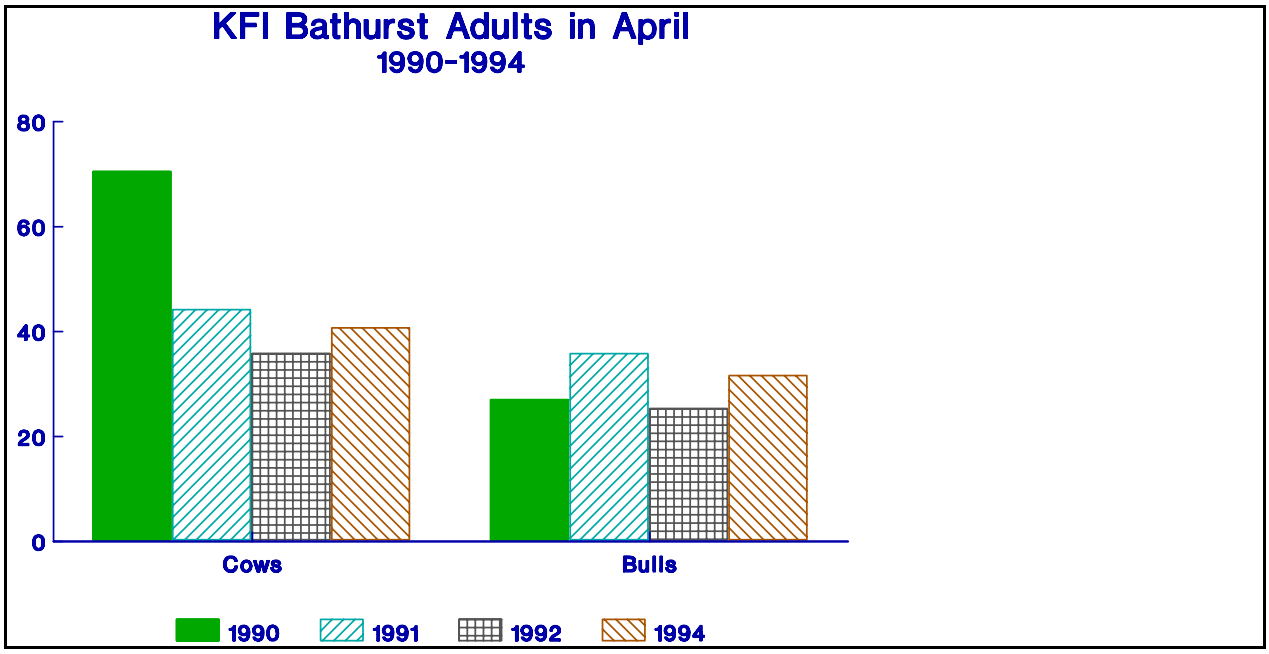

Figure 1.

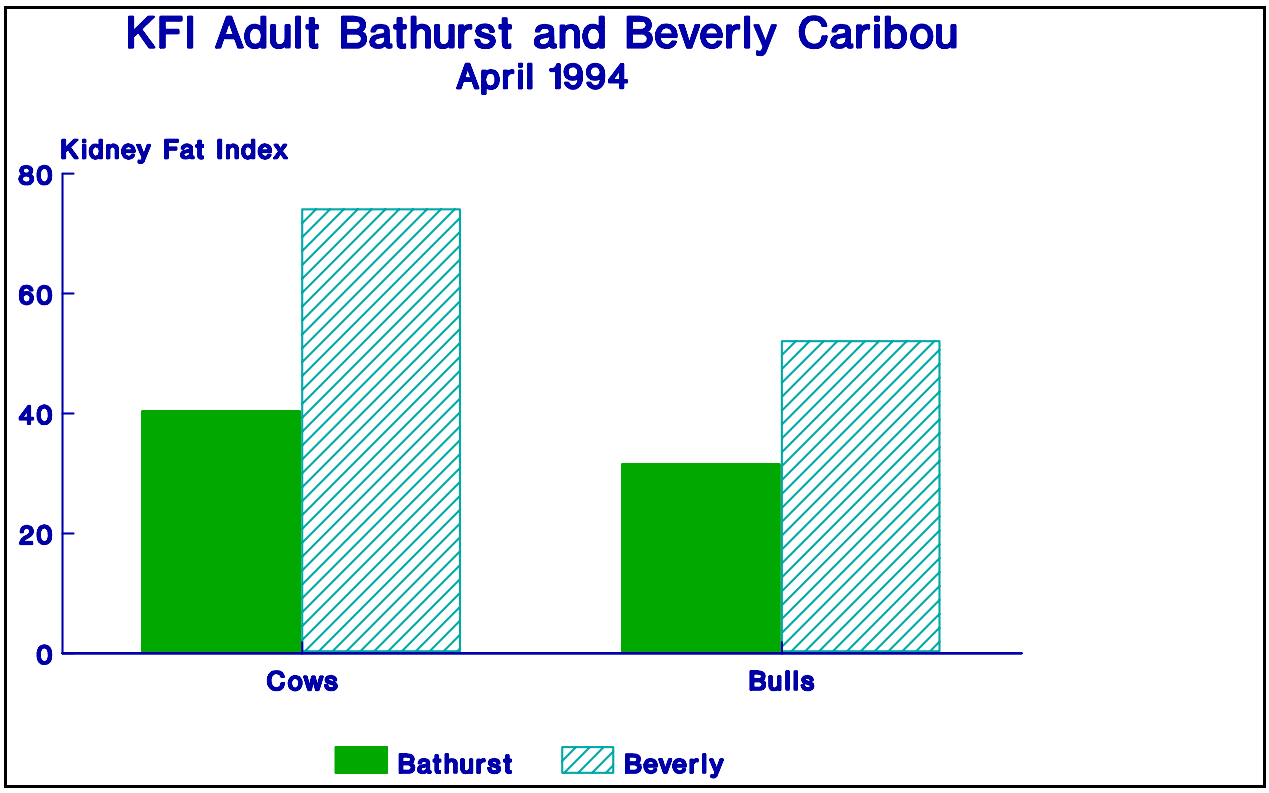

Figure 2.

APPENDIX C.Why Do Caribou Migrate to Calving Grounds? Summary of Studies of Summer Diet and Physical Condition of Caribou from the Bathurst Herd, 1990 to 1992

T. Mark Williams
Wildlife Management Division
Department of Renewable Resources
November 1994

Introduction

The most unique and dramatic life-history strategy characteristic of barren-ground caribou is the annual migration of bands of mainly breeding females from wintering grounds in the boreal forest to calving grounds on the tundra. Caribou researchers have proposed several reasons why the spring migration may play an important role in the population ecology of barren-ground caribou. One reason for the spring migration may be that caribou migrate to reduce the number of calves lost to wolves, because there are fewer wolves on calving grounds than elsewhere. Other researchers have suggested that caribou migrate to calving grounds to increase the quality and/or quantity of food available to the cows around calving time. To learn more about the importance of migration to barren-ground caribou, between 1990 and 1992 the Department of Renewable Resources conducted research into the summer diet and physical condition of caribou from the Bathurst herd.

Methods

In May and June 1990, 1991 and 1992 we documented the general movements of bulls and pregnant cows in the Bathurst herd during flights in Cessna 185 and Bell 206B aircraft. In May and June 1990 we collected feces from the surface of the snow both on the calving grounds and from areas occupied by bulls. In 1991 and 1992 we shot about 10 bulls and 10 cows in each of 3 periods; May-June (28 May to 6 June), late-July (27-29 July) and early September (3-8 September). We estimated the total weight of muscle and fat based on equations that allow calculation of total muscle and fat based on the weight of an indicator muscle, and the depth of backfat and weight of fat surrounding the kidneys.

Diet was determined from analysis of plant fragments in rumen and fecal samples. The concentration of Nitrogen in the rumen and fecal samples served as a measure of diet quality. The weight (biomass) of living vegetation was determined at sample sites in areas occupied by bulls and cows in late May-June, July and September 1990 and served as a measure of the quantity of forage available.

As part of a calving ground survey to estimate the number of breeding females on the Bathurst herd's calving ground in June 1990, we also obtained a measure of the density of wolves on the calving ground (wolves observed per hour of survey flown), and the number of calves that had been killed by wolves (based on the proportion of cows that had lost calves, and the proportion of calf carcasses examined where we could determine if the calf had been killed by wolves).

Results and Discussion

Spring and summer movements of both bulls and cows in the Bathurst herd were similar in 1990, 1991 and 1992. In late May and early June each year, all pregnant cows were on the calving ground near Bathurst Inlet and the bulls were near treeline between 200 and 300 km further south. After calving, cows moved southwest off of the calving grounds, so that by late June the cows had almost met with the most northerly bulls, which had been moving north throughout May and June. Cows and bulls occupied the same general areas in July (tundra north of treeline) and in September (treeline).

In early June of each year the concentration of Nitrogen in feces was consistently higher in rumen and fecal samples from bulls at treeline than in cows on the calving grounds, but there were no differences after late June when the bulls and cows occupied the same general areas. Sedges are the first plants to produce new spring growth after snowmelt and they were either the first or second most common food item in the diet of both sexes in late May and early June. In June the biomass of live sedges was higher in treeline areas occupied by bulls than on the calving grounds. Biomass of live sedges was highest in July.

There were no differences in fat levels of bulls or cows between years in May, indicating that females and males had similar levels of fat and muscle reserves at the end of winter. Fat and muscle reserves decreased in both sexes from May to July over the period when forage quality and quantity were greatest. Loss of condition over that period suggests that caribou are not able to take advantage of the good quality forage available to improve condition, possibly due to the influence of insect harassment on forage intake and activity levels. The condition of both bulls and cows increased from July to September in both years. Both cows and bulls had more fat in July 1992 than in July 1991, but the physical condition at the end of summer varied, as females were fatter and had relatively more muscle mass than males in September 1991 but males were fatter with relatively more muscle mass in 1992.

Wolf densities on calving grounds averaged on 22% of densities on caribou winter and spring ranges (areas occupied by caribou in March and April). Those results were consistent with previous studies of the movements of wolves that have shown that while wolves follow caribou over most of the year, most wolves den at treeline, and do not follow the bands of breeding cows to the calving grounds. Despite the lower density of wolves on the calving grounds, by one week after the peak of calving 11.4% of all calves born in June 1990 had died, and 8% of those calves had been killed by wolves.

Summary

Our data suggest that by migrating to calving grounds, the quality and quantity of food available to pregnant cows was lower than for bulls and other caribou that lagged far behind during spring migration. However, by going to calving grounds, the cows reduced the risk of losing newborn calves to wolf predation. Although food in July is abundant and nutritious, insect harassment prevents efficient feeding, so that body fat and muscle reserves in both sexes decline to almost zero by mid-July, the lowest level

of the year. Insect numbers declined in August and body fat levels increased to the highest level of the year by early September.