



# Studies of physical parameters of Indigenous artefacts; collecting and preserving the relating oral stories

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# Indigenous Elders and Knowledge Keepers

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## **Pelican Narrows**

Adam Highway

Annie Sewap

Caroline Merasty

Clara Linklater

David Custer

Gilbert Linklater

Madonna Ballentyne

Mary Ann Custer

Mildred Ratt

Sophie Anna Custer

## **Sturgeon Lake**

Eric Bird

Frank Ermine

Garry Turner

Joseph Naytowhow

Leonard Ermine

Mike Daniels

Norma Rabbitskin

Rose Daniels

Terry Daniels

Willie Ermine, Community Coordinator

Yvonne Seesequasis



# Team Members

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Dr. Arzu Sardarli, Principal Investigator, Project Manager (First Nations University of Canada)

Dr. Evelyn Siegfried, Investigator (Royal Saskatchewan Museum)

Prof. Ida Swan, Investigator (First Nations University of Canada)

Dr. Leta Kingfisher, Investigator (First Nations University of Canada)

Dr. Bill Patterson, Investigator (University of Saskatchewan)

Dr. Sandra Timsic, Investigator (University of Saskatchewan)

Dr. Tim Panas, Archaeology Consultant (Program/Policy Officer III for Parks Canada)

Dr. Lynn Wells, Investigator (First Nations University of Canada)

Dr. Andrei Volodin, Investigator (University of Regina)

Dr. Mauricio Barbi, Investigator (University of Regina)



## Team Members (cont.)

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Allan Asapass, English-Cree interpreter

Lisette Tillman, Editor, English-French interpreter

Margaret Brass, Community Coordinator

Grace McLeod, Community Coordinator

Jennifer Cooper, Interview Facilitator

Alyse Custer, Research Assistant

Ann Marie Dorion, Research Assistant

Jyotsnamani Mohanta, Research Assistant

Khaysa Osmanli, Research Assistant

Marah Mattison, Research Assistant

Margo Jobb, Research Assistant

Skylar Wall, Research Assistant



# Indigenous Artefacts

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- For many years, the Indigenous artefacts have been objects of interests for museums and private collectors
- More recently, researchers found out that the ageing artefacts can help to get the information on Aboriginal trade routes and exchanges from hundreds of years ago
- Our days' lab technologies allow us to make precise non-destructive measurements of physical parameters of artefact



# Project Summary

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This project was conducted by scholars from the First Nations University of Canada, Royal Saskatchewan Museum, University of Regina and University of Saskatchewan in collaboration with Sturgeon Lake and Pelican Narrows First Nations communities in Canada. The objectives of the project were

- (i) to develop a research ethics protocol for collecting, studying and preserving Indigenous artifacts
- (ii) to determine physical parameters of artifacts from communities and Royal Saskatchewan Museum collections
- (iii) to collect oral stories in communities. Within the project, we managed consultations with Elders and Indigenous Knowledge Keepers.



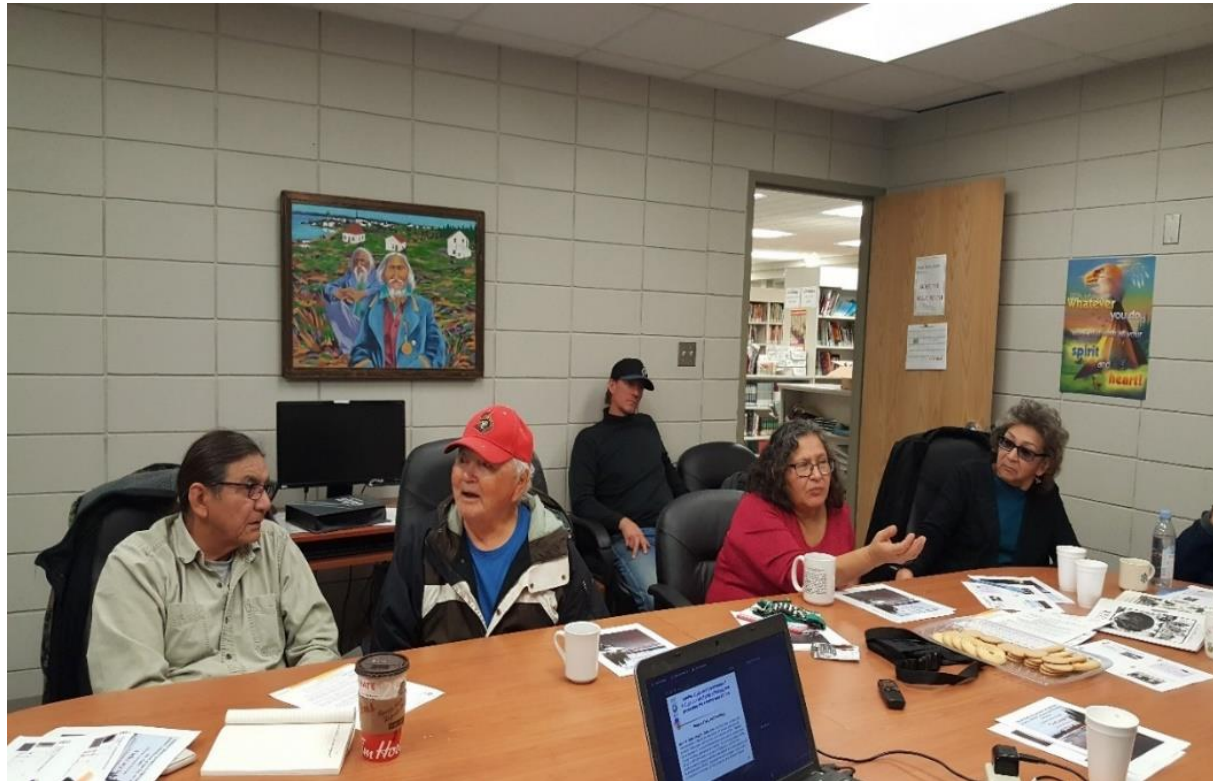
## Project Summary (cont.)

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Two workshops were organized in the communities. Indigenous students were trained to work in the communities. The laboratory measurements were carried out at the Scanning Electron Microscope Laboratory of the University of Alberta, the Saskatchewan Isotope Laboratory of the University of Saskatchewan and the André E. Lalonde Accelerator Mass Spectrometry Laboratory of the University of Ottawa. We analyzed the data obtained from the measurements of physical parameters of artifacts collected in these communities and selected from the Royal Saskatchewan Museum collections. The purpose of the statistical analysis was to determine the similarities of artifacts with respect to their chemical compositions.



# Pelican Narrows Workshop







# Sturgeon Lake Workshop





# Basics of Archaeology Training

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- Basic background in the field of archaeology
- Methods used in obtaining calendar (or absolute) dates for archaeological artifacts
- The general types of artifacts found in Saskatchewan (lithic, bone, ceramics, etc.)
- The history of the landscape of Saskatchewan, from the last Ice Age to today
- The presently understood archaeological history of the province
- The different types of archaeological objects and site types found in Saskatchewan, including artifacts, tipi rings, medicine wheels, effigies, rock art, and cellar depressions
- Field survey methodologies, note-taking in the field, and the operation of hand-held global positioning systems (GPS)

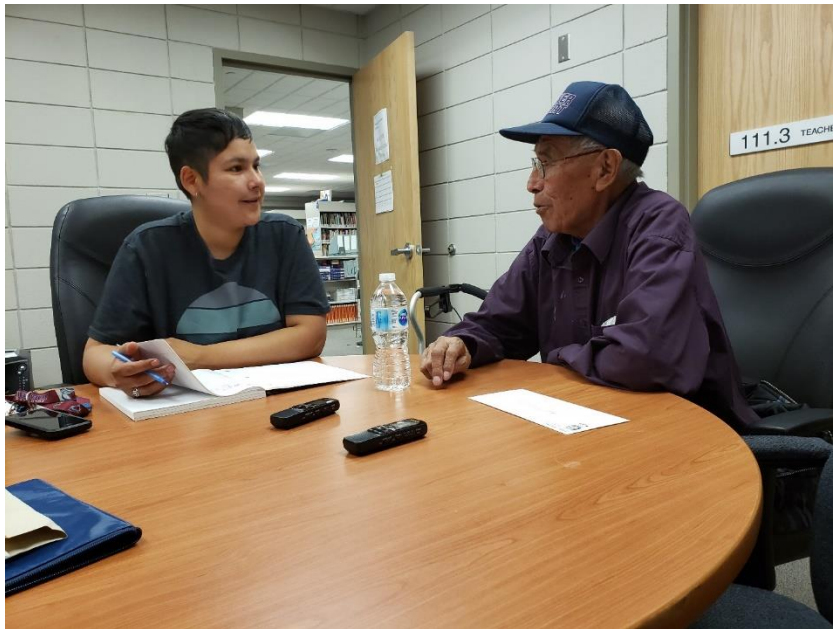
# Basics of Archaeology Training (cont.)

The second stage of the training took place in Humboldt at the site of the Humboldt Telegraph station. During this stage, students acquired hands-on experience in identifying artifacts in the field, how to conduct successful field surveys of large areas of land, and how to record archaeological information in the field.



# Oral Stories

The names of five interviewees (Elders and Knowledge Keepers) from each, Pelican Narrows and Sturgeon Lake First Nations were suggested by the Community Consultants. The interviewees were scheduled and organized by Community Consultants and the Community Coordinator. The interviews were held in the Opawikoscikan School Library of Pelican Narrows and at the Adult Education Centre of Sturgeon Lake.





# Archaeological Survey

The areas chosen for archaeological survey (Pelican Narrows and Sturgeon Lake) were determined by Community Consultants. In the first days of surveys, the Community Research Assistants were supervised by Dr. Timothy Panas. Surveys then continued with the Community Research Assistants and Principal Investigator. On occasion, the Community Consultants participated in the surveys.



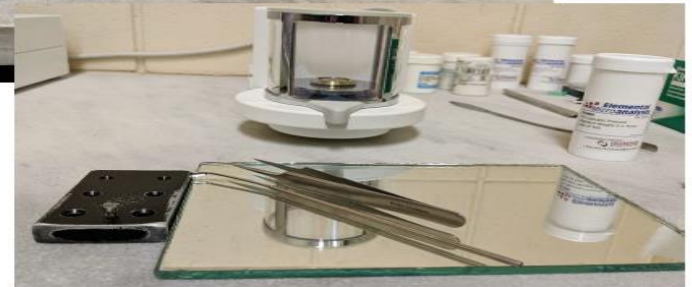
# Laboratory Measurements

We obtained twelve bone, nineteen lithic and six metal artifacts from the Royal Saskatchewan Museum (selected by Dr. Evelyn Siegfried, Curator of Indigenous Studies, RSM), Pelican Narrows (nine artifacts) and Sturgeon Lake (two artifacts)

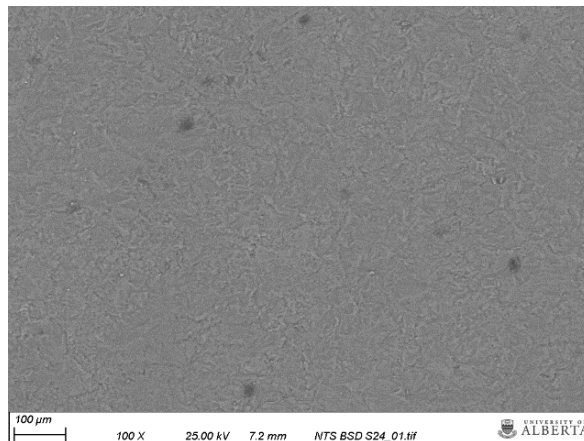
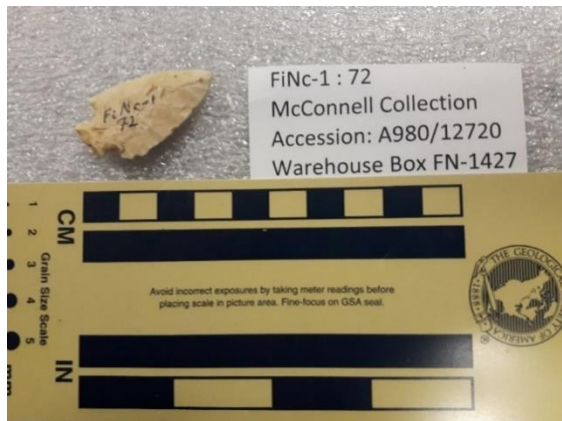


# Laboratory Measurements (cont.)

The Radio-Carbon Dating of the bone samples was done at André E. Lalonde AMS Laboratory of the University of Ottawa. The ages of seven samples were determined. The Isotopic measurements were carried out at the Saskatchewan Isotope Laboratory of the University of Saskatchewan (bone-made samples and one metal-made sample) by the Laboratory Research Assistant under the supervision of Dr. Bill Patterson and Dr. Sandra Timsic.



# Laboratory Measurements (cont.)



Artifact name: Projectile Point

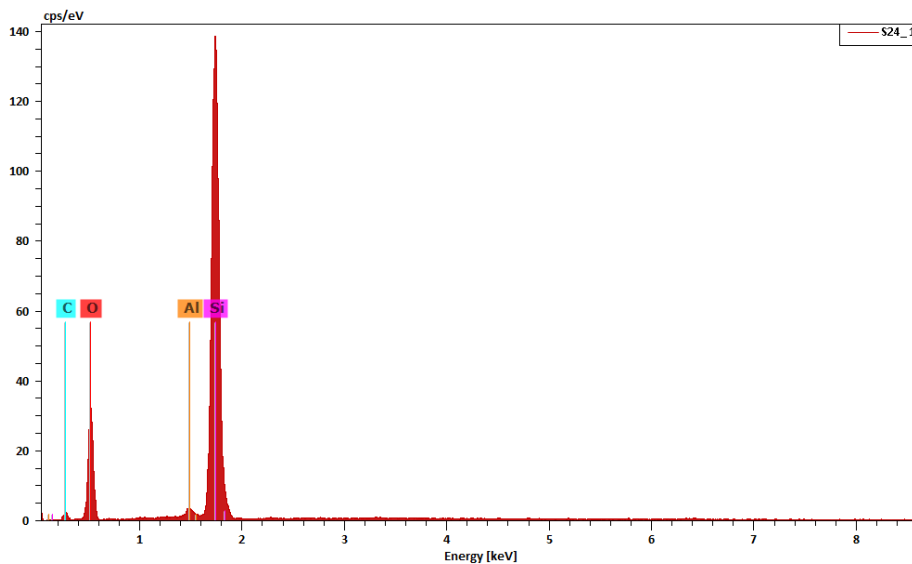
RSM Catalogue #: 72, A980/ 12720

Description: Projectile Point made in Pelican Lake style

Location found: Central Saskatchewan

Size: 4 cm

Age: 3600-2100 Years Ago

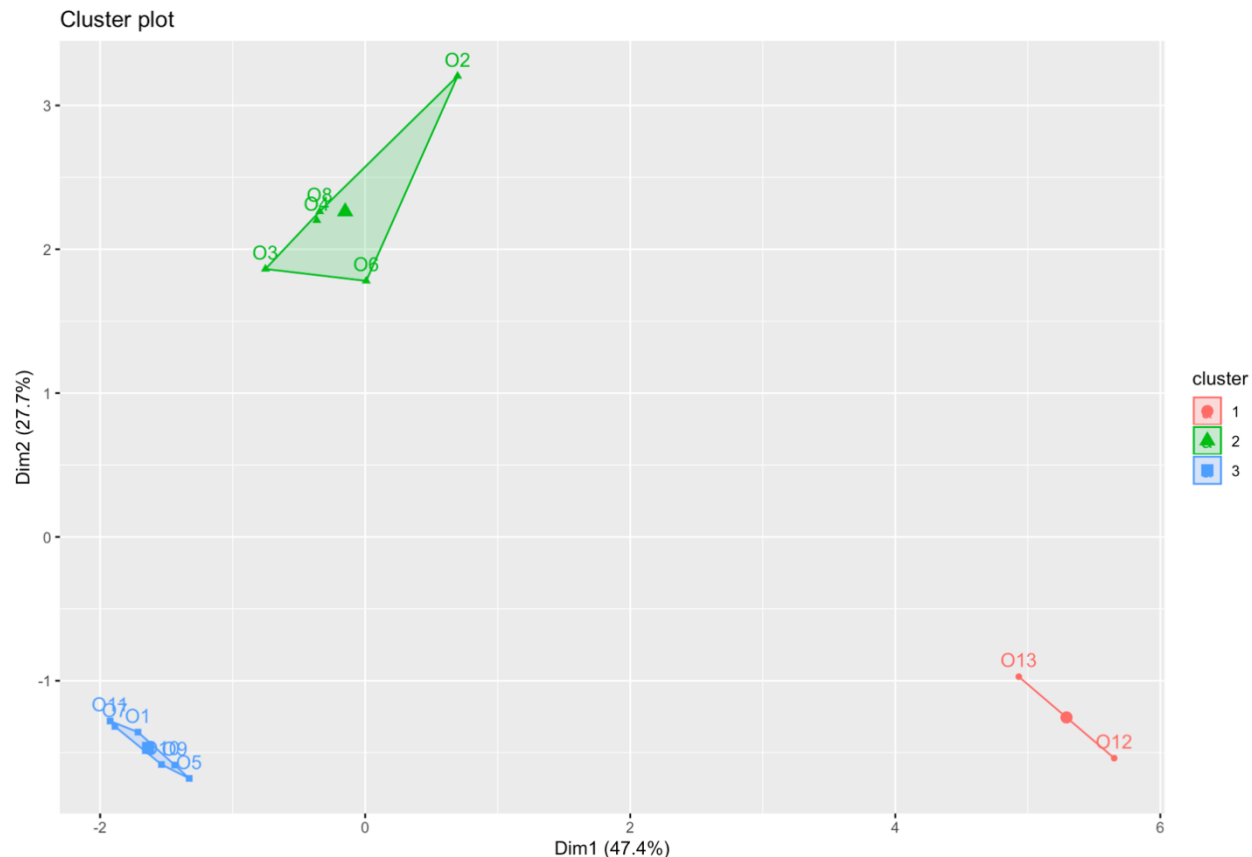






# Statistical Analysis

The purpose of the statistical analysis was to determine the level of similarities of artifacts with regard to their chemical compositions. We analyzed the amount of fifteen different chemical components: carbon, oxygen, fluorine, sodium, magnesium, aluminum, silicon, phosphorus, sulphur, chlorine, potassium, calcium, titanium, manganese, iron.





# Conclusions

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1. It is essential to start any research (including archeological) Project in Indigenous communities with detailed, informal and formal discussions with Elders, local administration and informal leaders.
2. Each Indigenous community may have its own individual research protocol. However, all community experts address their concern if the proposed research project would benefit their community.
3. Although all Elders consider the positive role of museums in preserving the Indigenous artifacts, there exist different opinions regarding the laboratory measurements on artifacts.
4. All Elders are against any kind of laboratory measurements (destructive and non-destructive) on artifacts having spiritual significance.
5. Some Elders find acceptable laboratory measurements on artifacts, which do not have any spiritual significance (such as, animal bones, tools).
6. Elders and Knowledge Keepers are pleased to share the oral stories relating to their families and communities. However, we did not observe statistically significant evidence of the correlation between oral stories and artifacts.



## Conclusions (cont.)

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7. Bone-based artifacts are the most useful for isotopic analysis. The ages of seven artifacts were determined using the radio-carbon dating analysis. The results of radio-carbon date analysis are in good agreement and confirm the results of earlier dating on bone artifacts that originated from the same archaeological site (the Broken Axle Site) that were dated in the 1980s. This earlier work was completed as part of the analysis and summary reporting for the site following excavation in the 1980s.

8. The bison bone femur found in Sturgeon Lake was investigated at the Saskatchewan Isotope Laboratory. Isotopic biogeochemistry of collagen found in the sample can be used in the construction of paleoecology and paleoenvironments, including climatic variables such as temperature and precipitation.

9. Within the Project, we used classical statistical analysis methods for determining the similarities of artifacts with respect to their chemical compositions. However, it is recommended to increase the number of samples and improve the accuracy of measurements for improving the reliability of statistical estimation in any future research.