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Assessing the influence of climate on wildfire occurrences in Jasper National Park during the Late Holocene

Emma Davis, MSc Candidate
Carleton University Paleocology Laboratory

Introduction

Wildfires play a critical role in the natural functioning of boreal forest ecosystems. In order to address growing concerns surrounding the impacts of decades of fire suppression, it is essential to establish long-term baseline data that identifies the historical relationships between climate and fires. To accomplish this, a 2000-year chronology will be created using tree-ring analysis and paleolimnology for the area surrounding Little Trefoil Lake (Figure 1), located near the Jasper town site.

Methodology

A three-meter long sediment core (previously collected) will be used for macroscopic charcoal analysis (Figure 2). Changes in the amount and morphology of charcoal particles preserved in lake sediments provide evidence for fluctuations in the frequency and severity of wildfires over time.

Dendrochronology, the study of tree rings, will be used to gain a better understanding of the more recent fire history of the area, dating back several hundred of years. When completed in combination with charcoal analysis, researchers are able to achieve reliable and long-term records of changes in local to regional fire dynamics. This research will complement the extensive but short-term fire record that currently exists within Jasper National Park.

Ongoing Research

Presently, macroscopic charcoal analysis is ongoing at the Carleton University Paleocology Laboratory in Ottawa, Ontario. A site visit is proposed for the upcoming field season at which time tree-core and fire scar samples will be collected for further analysis. A full research report will be available in the summer of 2014.



Figure 1 Little Trefoil Lake, near Jasper, Alberta (July 2007)

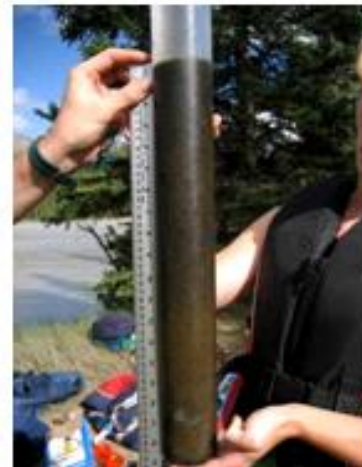


Figure 2 Sediment collection from Little Trefoil Lake (July 2007)