

Eberle Project Description for Nunavut Water Board:

Based upon fossils discovered in rocks and sediments of the Margaret Formation on Ellesmere Island, the ancient Arctic (~53 million years ago) was once covered in forests inhabited by alligators, turtles, and a variety of mammals, including cousins to today's primates, rodents, and tapirs. This was a unique environment, combining a warm climate with a typical Arctic light regime of light summers and dark winters. By collecting fossils and sediment samples, as well as mapping and studying the rocks in the field, we hope to provide a better understanding of this ancient Arctic fauna and its environment and climate.

For two weeks in July of 2010, we propose to collect fossils, sediment samples, and study the rocks near Bay and Strathcona Fiords on central Ellesmere Island. We will camp for a week at each of two sites – Bay Fiord/Clinker Airport (N78° 46'; W82° 20'), and a site along the southern side of Strathcona Fiord (N 78°37'; W 82°50'). Our 7-person field team will study and measure the thickness of the rocks (stratigraphy), search for fossils and determine the relative ages of fossil sites, and collect small samples of wood and sediment for laboratory study to help understand ancient Arctic climate. The fossils are used to estimate the relative age of the rocks and help to identify the animals that lived millions of years ago on Ellesmere Island. Based upon our previous fieldwork on Ellesmere Island (summer 2001, 2002), the fossils that we find will probably be quite small (just a few centimeters or smaller), and most will be found on the surface of the ground, with little to no digging below the surface. Consequently, our environmental impacts should be small. Fossil localities that we find will be marked on a map and airphoto, the latitude and longitude will be determined by way of GPS, and the rocks which contain the fossils will be studied in order to better understand the ancient environment. We will be transported to and from sites on Ellesmere Island by helicopter and twin otter provided by the Polar Continental Shelf Project (PCSP). Our camping gear (tents, camp stove, and radio) will also be provided by the PCSP. We do not require any heavy equipment or ATVs (once at the site, we go everywhere on foot), and no fuel will be cached at the sites.

Our small research team is made up of scientists with many years of experience doing fieldwork in the Arctic. I have spent seven field seasons in the Arctic, conducting field research on Ellesmere and Axel Heiberg Islands (1997 – 2002), Devon Island (2003) and Banks Island (2004) in the western Arctic. Other team members include Howard Hutchison, Bill Hagopian, and Hope Jahren, all of whom have several summers' field experience working in the Arctic.

Our research has provided numerous opportunities for public education and outreach, including radio and newspaper interviews and presentations at elementary schools in Iqaluit, Apex, and Pangnirtung (May 2008). We welcome the opportunity to present our scientific research to members of Nunavut communities.

