

Project title: Flora of the Canadian Arctic: diversity and change

Researcher: Lynn Gillespie, Canadian Museum of Nature

Project Location: SW Victoria Island and adjacent mainland, various localities

Timeframe: July 2008

Project Description:

This project focuses on the diversity, distribution and evolution of Canadian arctic plants. Our goals are to document knowledge of arctic plants and understand how climate change may impact them. The research builds on our previous extensive studies on the arctic flora, including our 2007 publication "Flora of the Canadian Arctic Archipelago."

Our long term goal is to produce a complete guide to plants of the Canadian Arctic. We aim to 1) document plants, including information concerning new species, range extensions, conservation status, ecology, distribution, and population variation; 2) explore areas that are botanically unknown or poorly known; and 3) obtain complete plant inventories of selected areas for long term monitoring. Our second study focuses on the systematics and evolution of arctic grasses. Alkali grasses and bluegrasses are the largest arctic grass genera and are ecologically important as a major food of herbivores (geese, etc.) and as primary colonizers in remediation projects. Our objectives are to use DNA data and morphology to define species boundaries, identify and describe new species, and trace the origin and evolution of arctic grass species.

Transportation to field camps and study sites will be provided by PCSP (twin otter and helicopter); transportation in the vicinity of camp will be by foot. We plan to have 3 camps, each for a period of about one week; additional sites will be visited for <1day. Accommodation will be in small backpacking tents. No permanent or large temporary structures will be erected; thus impact will be minimal. All items associated with the project will be removed at the end of each camp stay.

Methodology and Data:

In 2008, we plan to focus our field activities on south-west Victoria Island; plants of this region are poorly known and documented, yet this area is significant as one of the more species-diverse areas of the arctic islands and, given its close proximity to the mainland, as a potential migration route for plants spreading north due to global warming. At each site we will make observations on the distribution, abundance and ecology of each plant species. Collections will be made of 1-3 plants of each species. Each plant will be pressed, dried, and deposited as a voucher research specimen in the Canadian Museum of Nature. Leaves of each plant will be preserved for DNA analysis. DNA results will be submitted to GenBank, a public database. Vouchered plants will be photographed for the CMN plant photo collection. Research will result in scientific publications, and will be communicated to the public via the CMN website, publications and presentations.