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NUNAVUT IMALIRIYIN KATIMAYINGI
NUNAVUT WATER BOARD
OFFICE DES EAUX DU NUNAVUT

WATER LICENCE
APPLICATION FORM

Application for: (check one)

☒ **New** ☐ **Renewal** ☐ **Amendment** ☐ **Assignment** ☐ **Cancellation**

LICENCE NO:
(for NWB use only)

1. NAME AND MAILING ADDRESS OF APPLICANT/LICENSEE	2. ADDRESS OF CORPORATE OFFICE IN CANADA (if applicable)
Dr. Lynn J. Gillespie Phone: 613-364-4075 Fax: 613-364-4027 e-mail: lgillespie@mus-nature.ca	n/a Phone: _____ Fax: _____ e-mail: _____

3. LOCATION OF UNDERTAKING (describe and attach a topographical map, indicating the main components of the Undertaking)

This project takes place in four localities on Victoria Island:
Austin Bay, near Oterkvik Point: 68 32N, 112 30W, NTS map 087A, 1:250000
Johansen Bay: 68 35N, 111 07W, NTS map 077B, 1:250000
Sinclair Creek: 68 44N, 108 58W, NTS map 077B, 1:250000
and near Cambridge Bay: 68 06N, 105 03 10W, NTS map 077D, 1:250000

Latitude: (68°32' " N) Longitude: (112°30' " W)
NTS Map Sheet No. 087A Scale: 1:250000

4. DESCRIPTION OF UNDERTAKING (attach plans and drawings)

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.

5. **TYPE OF PRIMARY UNDERTAKING** (A supplementary questionnaire **must** be submitted with the application for undertakings listed in **"bold"**)

- ☐ **Industrial**
- ☐ **Mining and Milling**(includes exploration/drilling)
- ☐ **Municipal** (includes camps/lodges)
- ☐ Power
- ☐ Agricultural
- ☐ **Conservation**
- ☐ Recreational
- ☒ **Miscellaneous** (describe below):

Research

See Schedule II of *Northwest Territories Waters Regulations* for Description of Undertakings

6. WATER USE

☒ To obtain water
☒ To cross a watercourse
☐ To modify the bed or bank of a watercourse
☐ Flood control
☐ To divert a watercourse
☐ To alter the flow of , or store, water

☒ Other (describe): We anticipate household use of water only. We will be using water for personal drinking, cooking, and washing. During day hikes, we will also occasionally cross small watercourses by foot.

7. QUANTITY OF WATER INVOLVED (cubic metres per day including both quantity to be used and quality to be returned to source)

Water use ☒ $100m^3$/day or less
☐ Greater than $100m^3$/day; if greater, indicate quantities to be used for each purpose (camp, drilling, etc.)

Water returned to source
0 m^3/day

8. WASTE (for each type of waste describe: composition, quantity (cubic metres per day), methods of treatment and disposal, etc.)

☒ Sewage
☒ Solid Waste
☐ Hazardous
☐ Bulky Items/Scrap Metal
☐ Waste oil
☐ Greywater
☐ Sludges
☐ Other describe):

Sewage: Minimal, for four persons. Will be buried.
Solid waste: Burnables, including toilet paper, which will be burned at site. Non-flammables will be carried out.

9. OTHER PERSONS OR PROPERTIES AFFECTED BY THIS UNDERTAKING (give name, mailing address and location; attach if necessary)

Land Use Permit

DIAND	☐ Yes	☒ No	If no, date expected _____
Regional Inuit Association	☒ Yes	☐ No	If no, date expected June 27, 2008
Commissioner	☐ Yes	☒ No	If no, date expected _____

10. PREDICTED ENVIRONMENTAL IMPACTS OF UNDERTAKING AND PROPOSED MITIGATION MEASURES (direct, indirect, cumulative impacts, etc.)

NIRB Screening ☐ Yes ☒ No If no, date expected _____

11. INUIT WATER RIGHTS

Will the project or activity substantially affect the quality, quantity, or flow of water flowing through Inuit Owned Lands and the rights of Inuit under Article 20 of the Nunavut Land Claims Agreement?
NO

If yes, has the applicant entered into an agreement with the Designated Inuit organization to pay compensation for any loss or damage that may be caused by the alteration. If no compensation agreement has been made, how will compensation be determined?

12. CONTRACTORS AND SUB-CONTRACTORS (name, address and functions)

13. STUDIES UNDERTAKEN TO DATE (list and attach copies of studies, reports, research, etc.)

Research publications:

Gillespie, L.J., R.J. Soreng, R. Bull, S. W.L. Jacobs, and N.F. Refulio-Rodriguez. In press. Phylogenetic relationships in subtribe Poinae (Poaceae, Poeae) based on nuclear ITS and chloroplast trnT-trnF sequences. Botany.

Consaul, L.L., L.J. Gillespie, and M. J. Waterway. In press Systematics of three North American polyploid arctic alkaligrasses (Puccinellia, Poaceae): Morphology, ploidy, and AFLP markers. Botany

Consaul, L.L., L.J. Gillespie, and M. J. Waterway. Systematics of North American arctic diploid Puccinellia (Poaceae): Morphology, DNA content, and AFLP markers. Systematic Botany 33: 251-261.

Consaul, L.L., L.J. Gillespie, and M. J. Waterway. 2008. A new species of Alkaligrass (Puccinellia, Poaceae) from the western North American Arctic. Novon 18: 16-20.

Aiken, S.G., M.J. Dallwitz, L.L. Consaul, C.L McJannet, L.J. Gillespie, R.L. Boles, G.W. Argus, J.M. Gillett, P.J. Scott, R. Elven, M.C. LeBlanc. 2007. Flora of the Canadian Arctic Archipelago. NRC Press, Ottawa. (CD-Rom)

Gillespie, L. J., A. Archambault, & R. J. Soreng. 2007. Phylogeny of Poa (Poaceae) based on trnT-trnF sequence data: major clades and basal relationships. In J.T. Columbus, E. A. Friar, J.M. Porter, L.M. Prince, and M.G. Simpson (editors), Monocots: comparative biology and evolution-Poales. Rancho Santa Ana Botanic Garden, Claremont, California, Aliso. 23: 420-434.

Consaul, L.L., L.J. Gillespie, and K.I. MacInnes. 2005 (published 2007). Addition to the Flora of Canada? A specimen from the Arctic Archipelago, Northwest Territories Links Two Allopatric Species of Alkali Grass (Puccinellia). Canadian Field-Naturalist 119(4): 497-506.

Gillespie, L.J. and R.J. Soreng. 2005. A phylogenetic analysis of the Bluegrass genus Poa L. (Poaceae) based on cpDNA restriction site data. Systematic Botany 30: 84-105.

Healy, C. and L.J. Gillespie. 2004 (published 2005). A systematic analysis of the Saxifraga nivalis complex (Saxifragaceae) in the Canadian Arctic using morphology and chloroplast DNA data. Canadian Field-Naturalist 118: 326-340.

Gillespie, L.J. and R. Boles. 2001. Phylogenetic relationships and infraspecific variation in Canadian Arctic Poa based on chloroplast DNA restriction site data. Canadian Journal of Botany 79: 679-701.

Consaul, L.L. and L.J. Gillespie. 2001. A re-evaluation of species limits in Canadian Arctic Island Puccinellia (Poaceae): resolving key characters. Canadian Journal of Botany 79: 927-956.

14. THE FOLLOWING DOCUMENTS MUST BE INCLUDED WITH THE APPLICATION FOR THE REGULATORY PROCESS TO BEGIN

Supplementary Questionnaire (where applicable: see section 5) ☐ Yes ☐ No If no, date expected _____

Inuktitut and/or Inuinnaqtun/English Summary of Project ☒ Yes ☐ No If no, date expected _____

Application fee of $30.00 (Payee Receiver General for Canada) ☐ Yes ☒ No If no, date expected _____

Water Use fee of $30.00 (unless otherwise indicated in Section 9 of the *NWT Waters Regulations;* Payee Receiver General for Canada)

☐ Yes ☐ No If no, date expected _____

15. PROPOSED TIME SCHEDULE (unless otherwise indicated, the NWB will consider the application for a five (5) year term)

☐ one year or less (or) ☐ Multi Year

Start Date: _____Completion Date: _____

Lynn Gillespie	Research Scientist		June 24, 2008
Name (Print)	Title (Print)	Signature	Date

For Nunavut Water Board office use only

APPLICATION FEE **Amount: $_____** **Pay ID No.: _____**

WATER USE DEPOSIT **Amount: $_____** **Pay ID No.: _____**