For office use only	
Date Received	Permit No.

CANADIAN WILDLIFE SERVICE PERMIT APPLICATION

NOTE TO RESEARCHERS

Without exception, all research within the NWT and Nunavut must be licensed. This includes work in indigenous knowledge as well as in physical, social, and biological sciences. For information on licensing for your project within the NWT, please refer to the Aurora Research Institute's Web site at http://www.nwtresearch.com. For Nunavut, visit the Nunavut Research Institute Web site at http://www.nri.nu.ca.

For Scientific Permits: Prior to issuing a Scientific Permit to Take, Salvage or Disturb Migratory Birds, CWS requires a copy of either an NWT or Nunavut Wildlife Research Permit; or an Aurora Research Permit/Nunavut Research Permit. Include a copy of either permit with this application or forward a copy to CWS upon receipt of it, or your CWS permit will not be issued.

Nunavut: In Nunavut your project will have to undergo screening by the Nunavut Impact Review Board. One of their requirements is that you obtain a conformity report from the Nunavut Planning Commission. Please ensure that you have done so.

To be completed by all applicants:

- ☒ New application
- ☒ Amendment/extension of existing permit

  Existing permit no. NUN-SCI-13-04

Territory:

- ☐ NWT
- ☒ Nunavut

Anticipated project start date: May 20th 2014

Anticipated project end date: August 31st 2017

Type of permit applied for:

- ☐ Bird Sanctuary permit
- ☐ National Wildlife Area entry permit
- ☒ Scientific permit to take salvage or disturb migratory birds

Period of permit requested:

- ☐ 1 year
- ☐ 2 year
- ☒ 3 year

Please indicate by checkbox if your project is receiving federal government funding:

- ☐ No
- ☒ Polar Continental Shelf Project
- ☒ Yes/Other (please list)

Please indicate by checkbox if your project requires approvals/permits by any of the following regulators:

- ☐ DFO
- ☐ NRCAN
- ☐ INAC
- ☐ Parks Canada
- ☒ NWT or Nunavut Water Board
- ☐ NEB

1. CONTACT INFORMATION

Applicant name and mailing address Nicolas Lecomte, Department of Biology, Pavillon Rémi-Rossignol 18, Antonine-Maillet Université de Moncton Moncton, NB Canada E1A 3E9		**Fax** 506-858-4541 **Phone** 506-858-4291
Field supervisor Nicolas Lecomte	**E-mail address** nicolas.lecomte@umoncton.ca	**Phone** 506-227-4040

Total number of personnel covered by application: max of 8

2. SUMMARY PROJECT INFORMATION

Project title:

Ecosystem monitoring in the Igloolik area

Project objective: (concise statement of purpose and goals)

The general objective of this project is to document direct and indirect impacts of climate change on tundra ecosystems, and forecast future impacts on these populations and the Arctic landscapes in which they occur. The project will focus on shorebirds, but will also involve monitoring of trends in arthropods, avian and terrestrial predators, small mammals, and plants. The work on shorebirds was specifically designed to better understand the general decline in most shorebirds species across North-America, by monitoring abundance, survival, and migratory patterns.

Project description: (non-technical summary; 300 words or less; describe purpose, nature and occasion of all activities; include the anticipated intensity of vehicle use)

We will monitor the abundance and distribution of shorebirds, arthropods, small herbivores, avian and terrestrial predators, as well as plants functional groups in the Igloolik area. As shorebirds are an important component of the tundra ecosystem (prey to most predators using the tundra) and that they are currently declining due in part to habitat loss in temperate habitats, we need reliable estimate of their population size on arctic breeding grounds and monitoring of their migratory paths. That will involve marking approximately 60 shorebirds (max 100) with standard bands (metal ring from the Canadian Wildlife service together with very small, plastic rings), and approximately 45 of those will have geolocators in addition (tiny devices weighting less than 2% of shorebirds mass). The methods have been tested for a long time to refine them and have no detrimental effects on the studied birds. The birds will be handled with great care by trained people. The protocols were reviewed by animal care committees last year, and are currently reviewed again this year. The project will be conducted on Igloolik Island (northeast of Igloolik Island, Nunavut, Canada). The field crew will be led by Nicolas Lecomte (holder of the Canada Research Chair in Polar and Boreal Ecology, Université de Moncton) and Marie-Andrée Giroux (Research associate, Université de Moncton) that will work closely with Mike Qrunnut (community member from Igloolik), Marie-Christine Frenette (undergraduate student, Université du Québec à Rimouski), Myriam Trottier-Paquet (undergraduate student, Université du Québec à Rimouski), and if funding is granted, we will hire another member of the Igloolik community and offer a 2 weeks training to 2 students of the Ataguttaaluk High School in Igloolik. The project will run

annually from May 20th to July 31st and during 3 more days in mid-August. Before snowmelt, the crew will travel with snowmobiles from the community of Igloolik to the study area at the northeast of Igloolik Island and set up a camp (3 canvas tents) that will be closed at the end of July (the team will use a fly camp during the 3 days of field work in August). When the snowmelt will be completed, the crew will use ATVs mainly to travel between the camp site and the community (buy food, returning in Igloolik during week-ends for local staff).

NOTE: *A full project description should accompany this application.*

Activities related to project proposal: (check as many as apply)

☒ Scientific research	☒ Ground surveys	☐ Storage of fuel
☐ Tourism, non-commercial	☐ Aerial surveys	☐ Camp construction
☐ Tourism, commercial	☐ Winter road	☒ Use of firearms
☐ Use of boats	☐ Commercial harvest	☐ Use of explosives
☐ Use of aircraft	☐ Cruise ship	☐ Seismic exploration
☒ Use of off-road vehicles	☐ Drilling activities	☐ Mining activities
☐ Other (please specify):		

Are you applying to kill, salvage or otherwise interfere with migratory birds (e.g. take blood, transmitter implant, etc.)?

☒ Yes ☐ No

If yes, provide details, including specie(s) of bird, number and method. Indicate whether the approval of an animal care committee has been received and include the name of the committee.

FOCAL SPECIES: Shorebirds (Amercian golden plover, semipalmated sandpiper, Baird's sandpiper, white-rumped sandpiper, red phalarope)

SPECIES FOR WHICH DATA WILL BE COLLECTED OPPORTUNISTICALLY:
Other shorebirds species (nest monitoring only: pectoral sandpiper, black-bellied plovers, ruddy turnstone)
Avian predators species (nest monitoring only: glaucous gull, herring gull, raven, long-tailed jaegers, parasitic jaegers, snowy owls)

1. Shorebirds monitoring
As shorebirds are an important component of the tundra ecosystem (prey to most predators using the tundra) and that they are currently declining due in part to habitat loss in temperate habitats, we need to obtain reliable estimate of their population size on arctic breeding grounds and to monitor their migratory paths. That will involve marking approximately 60 shorebirds (max 100/year) with standard bands (metal ring from the Canadian Wildlife service together with very small, plastic rings), collecting blood and feather samples to these 60 shorebirds (max 100/year), and a maximum of 45 of those marked birds will have geolocators in addition (tiny devices weighting less than 2% of shorebirds mass, which use the position of the sun to record migratory paths of birds). We will also monitor a maximum of 100 shorebirds nests. The methods have been tested for a long time to refine them and have no detrimental effects on the studied birds. The birds will be handled with great care by trained people. The protocols were reviewed by animal care committees last year (Université du Québec à Rimouski and Mount Allison University; see attached files) and the renewal of the animal care committee permit is currently

being processed (Université de Moncton).

2. Avian predators monitoring
These data will be used to index the abundance and activity level of potential predators at each study site and will be used in analyses to determine the relationship between predator numbers, and the survivorship of shorebirds adults and nests. We will conduct predator surveys once a week. Each predator survey will last 10-minute and will be conducted at a minimum of 10 different locations within the study area (spaced at least 200m apart). Predators will be identified using binoculars or spotting scope. In addition, if nests of avian predators are found, they will be monitored during the nesting period to estimate reproductive success. Rejection pellets of avian predators will be collected if found on nests to estimate diet of predators.
In addition, to estimate the source of nutrients used by avian predators to fuel reproduction and growth, the following samples will be collected opportunistically only if animal carcasses or abandoned eggs are found on the study area:
- Tissues of shorebirds (Amercian golden plover, semipalmated sandpiper, Baird's sandpiper, white-rumped sandpiper, red phalarope, pectoral sandpiper, black-bellied plovers, ruddy turnstone), and of avian predators species (glaucous gull, herring gull, raven, long-tailed jaegers, parasitic jaegers, snowy owls). These tissues will be preserved in a freezer shortly after collection and brought back at Université de Moncton for analyses.
- Abandonned eggs of shorebirds (Amercian golden plover, semipalmated sandpiper, Baird's sandpiper, white-rumped sandpiper, red phalarope, pectoral sandpiper, black-bellied plovers, ruddy turnstone) and other birds species (glaucous gull, herring gull, raven, long-tailed jaegers, parasitic jaegers, snowy owls).

In parallel to the monitoring of birds abundance, distribution and trophic interactions, we will lay the foundations of a field research training program. We have requested funding to organize and implement this field research training school in summer 2015. In the meantime, if a pending funding request is successful, we will test our approach in summer 2014 by offering training to two high school students from the Ataguttaaluk for a period of 2 weeks. The short-term objectives will be to stimulate the interest of students in ecological research, introduce them to ecosystem monitoring, and identify the individuals who can pursue college-level studies. Over the long-term, we are aiming at offering opportunities and accompanying Igloolik youth while getting the training necessary to be hired in key positions within local organizations that conduct wildlife research and management in Nunavut. The field-based training program that we are aiming to implement on Igloolik Island is one step in this long-term process. Over the next five years, if we could manage to motivate one or more young Iglulingmiut to pursue education that would lead them to take an active role in wildlife research and management in Nunavut, our goal would be reached.

Do you plan to carry firearms?

☒ Yes ☐ No

If yes, please describe number, type and purpose of firearms.

3 shotguns will be used to repell polar bears (if encountered) with cracker shells and rubber slugs. Bear bangers will be our preferred tool to repell bears.

3. PROJECT LOCATION

Geographic place names and coordinates: (be as specific as possible; enter multiple coordinates for activities occurring over large area(s))

Location	Geographic Coordinates
Igloolik Island	N69.3988 W81.5413 (Camp site; see map for the delineation of the study area)

NOTE: *A map document delineating activity centres and travel corridors, etc. is required and should accompany this application. Please submit shapefiles if available.*

Status of land upon which project will occur:

- ☐ Federal crown
- ☐ Inuit-owned or other private
- ☒ Territorial (commissioner's land)

4. OPERATIONAL AND ENVIRONMENTAL CONSIDERATIONS

Provide a summary of potential environmental impacts and proposed restoration plans and activities: (describe the effects of the proposed activities on land, water, flora, fauna; attach separate pages as necessary)

No potential environmental impacts are expected, because 1- the camp will be located on a small gravelly plateau, 2- we will regularly burn garbage and bring back ashes and non-inflammable garbage back to the community every 2-weeks, 3- we will use canoe barels as toilets and we will bring them back to the community for sewage servicing, and 4- we will not modify the landscape in any way.

List of equipment and fuel to be used: (include aircraft, vehicles, boats, generators, large tent structures, various types of fuel, etc; indicate proposed containment strategies for all fuels; attach separate pages as necessary)

Equipment / Fuel	Size / Amount	Proposed use / Containment
2 snowmobiles, 2 ATVs, and 1 generator / gasoline	200 L	Travel from Igloolik to study area and recharging electrical equipment / Max of 3 jerry cans (60L) of gasoline will be stored at camp site. Those jerry cans will be refueled from our fuel drum stored at the GN garage every week or 2 weeks.
3 wall tents (1 Longhouse: 12' X 10' / 1 Mount Logan: 8' X 10'/ 1 circular wall tent: diameter of 10')	130 L	Camp for the field crew
1 heater / propane	40L	Heating in the Longhouse tent (warming up the field crew and drying up fiel equipment during rainy or colder days). Max of 1 small propane tank (20L) will be stored at the camp site, and a back-up 20L tank will be stored at the GN garage.
1 Coleman stove / White gas	70L	Max of 2 jerry cans (40L) of white gas will be stored at camp site.

NOTE: *Please submit a copy of a spill contingency plan, if available, with this application.*

Waste disposal: (describe any wastes that may be produced, e.g. garbage, grey water, sewage, hazardous waste, and proposed disposal methods; attach separate pages as necessary)

Type of waste	Approx. amount produced	Proposed disposal method
Garbage	Inflammable: 1 garbage bag / 2 days Non-Inflammable: 1 garbage bag / 2 weeks	Inflammable: will be burned every 2 days at camp site (in an empty fuel drum). Non-inflammable: we bill cleaned and stored in bear proof containers until disposal at the Igloolik dump (every week).
Grey water	max of 80 L / day	Grey water will be poured in a shallow pit. located at least 35 m away from the ordinary high water mark of any body of water. The pit will be filled in at the end of every field season.
Sewage	60 L / month	Kept in waterproof barrels and disposed at the end of the field season (serviced by the sewage trucks in Igloolik)

PLEASE NOTE:

- *You should consider species at risk legally listed on the Species at Risk Act (i.e. on Schedule 1) and those under consideration for legal listing, such as those designated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).*
- *Refer to species status reports and other information on the Species at Risk Registry at www.sararegistry.gc.ca for information on specific species.*

5. POTENTIAL ADVERSE EFFECTS TO SPECIES AT RISK

Identify Species at Risk found within your proposed project area.

Peregrine falcon anatum (can fly over the study area, but no nest on Igloolik Island)

List any potential adverse effects that your project may have on the species, its habitat and/or its residence. All direct, indirect and cumulative effects should be considered.

No effects anticipated

If potential adverse effects are identified, list mitigation to avoid or lessen those effects.

Do not apply

List monitoring measures to determine the effectiveness of mitigation and/or identify where further mitigation is required.

Do not apply

6. CONSULTATION

List local community representatives who have been contacted about your proposed activities: (include community groups, local businesses, schools, etc.; state how they are participating in your activity, if at all (e.g. providing advice, supplying goods, hired to assist you, etc.))

1. Representative name:	Mike Qrunnut
Name of group represented:	He is resident of Igloolik
Address / phone / fax:	No phone (can be contacted through Facebook / Postal address: General Delivery)
How contacted and date:	Discussion in Igloolik - Summer 2013
Participating?	☒ Yes ☐ No

If yes, how?

He will be hired as a field crew member.

2. Representative name:	Rebecca Mikki

Name of group represented:	Igloolik Hunters and Trappers Association
Address / phone / fax:	P.O. Box 89. Phone: 867-934-8807. Fax: 867-934-8067. Email: igloolik_hto@qinik.com or igloolikhto@gmail.com
How contacted and date:	As soon as we will receive the translation of the full project description, we will forward it to the Igloolik Hunters and Trappers Association and invite them to contact Nicolas Lecomte by email or by phone if they want to discuss any of the protocols (we will hire an interpreter if needed). Then, we will schedule an in-person consultation before the beginning of the field season (end of May 2014) to make sure that the members of this organization agree with the protocols of our study. For now, we prefer to proceed that way to avoid spending money for a plane ticket that could be much better used as additional funding to cover salary for local people.
Participating?	☐ Yes ☐ No
If yes, how?	

3. Representative name:	Lynda Orman
Name of group represented:	Department of Environment Government of Nunavut
Address / phone / fax:	Igloolik Research Station, PO Box 209, X0A 0L0 / Phone: 867.934.2183 / Fax: 867-934-2190 / LOrman@gov.nu.ca
How contacted and date:	Phone and email
Participating?	☒ Yes ☐ No
If yes, how?	
In-kind support (snowmobiles, ATV, camping equipment)	

Applicant Nicolas Lecomte
(Print Full Name)
Signature N Lecomte **Date** March, 4th 2014