Detailed Project Description

We are concerned about the populations of shorebirds that breed in the Arctic. Recently, studies that count these birds on their migration routes have found that numbers of most species are declining. No one is sure why this is happening, though some possible causes are: loss of habitat in countries where the birds spend the winter, human developments at their migration stopping points, climate change, and toxic substances on their wintering grounds.

Our knowledge of the size of shorebird populations is not very good, and some of the species that breed in the Arctic are difficult to monitor on their migration routes. We want to monitor the birds on their breeding grounds because we will get better estimates of their true population sizes. Canadian and American biologists have developed a method to monitor the population size of shorebird species that breed in the Arctic. We want to use this method to keep track of shorebird populations over the years, so we will know if they are increasing or decreasing. We can use this information to detect problems with the shorebird populations and then try to figure out what is causing the problem.

In June, there will be four field crews traveling to King William Island and Victoria Island to survey for shorebirds. There will be two crews for each island: a rapid survey crew and an intensive survey crew. On King William Island, the rapid crew will set up camp at the Gladman Point North Warning Site. The Intensive crew will set up camp approximately 1.5 km north of Malerualik Lake. On Victoria Island, the rapid crew will set up camp approximately 12 km north of Ferguson Lake and the intensive crew will set up camp 7 km east of Cape Enterprise. The rapid survey crews will be there 11-22 June. The intensive survey crews will remain longer until 14 July. All camps will be temporary tent camps and everything will be removed when we leave.

Rapid survey crews will have a helicopter and will do aerial surveys and ground surveys of plots in various locations on the islands and may also do surveys on Boothia and Adelaide Peninsulas. Surveyors will only be in the same area for 2-3 hours at a time and will not harass wildlife or leave garbage. To do ground surveys, 2 people walk 25 m apart back and forth over a 12 hectare area. They record the type and number of all birds seen. Aerial surveys for shorebirds will be done while flying from one plot to the next. Surveys will be flown at a speed of 80 - 90 kph at a height of about 30 m. If large mammals are spotted, we will fly higher to avoid disturbing them.

The intensive crew will do daily ground surveys of plots near their camps. To do a ground survey we walk around a 12 hectare area and record all the birds and nests we see and find while we are there. Our research has very little impact on the area as we only observe and record bird species present and will be present only for a short amount of time. At our camp at Gladman Point, we will be sharing with a group of scientists from the Virginia Polytechnic Institute. They are doing a study on Red Knots, a type of shorebird that breeds on King William Island and Victoria Island. They will be looking for Red Knots that were tagged with radio transmitters in Virginia, USA. When they find a bird that has a radio transmitter, they will look for its nest and tag the chicks with very small transmitters to track the movements of the chicks when they leave the nest. Tags

are glued onto the backs of the birds and will fall off when the bird grows its new feathers in the fall. The birds will also have plastic bands placed on their legs to identify them. These bands allow us to identify the bird using binoculars so that we do not have to recapture it to know which individual bird it is. One feather may be collected from each bird to find more information about the bird such as whether it is male or female and who it is related to. Taking one feather will not affect how the bird flies, and the bird will grow a new one in the fall. None of this work harms the bird and the people handling the birds have a lot of experience and have been trained to do this work.

We may also "float" eggs. When we find a shorebird nest we will place each egg in a jar of water. It tells us how when the nest was laid and when the eggs will hatch. Floating the eggs only takes a few seconds and it does not hurt them.

Where we would like to have one of our camps (intensive camp on Victoria Island) is located on Inuit Owned Land Parcel CB-37. Some of our survey plots on Victoria Island and King William Island may also be on Inuit Owned Lands (parcels CB-20 to 58, GH-17 to 19, GH-26 to 39, SB-8, and SB-12 to 26). We plan to hire one or two students from each community to assist with our surveys.

Travel to and from the camp sites will be by Twin Otter and then by helicopter. Research will be done on foot with helicopter support (helicopter support will only be for the rapid camps to transport people between plots). Each temporary tent camp will have two 9' x 12' kitchen or storage tents and a personal sleeping tent for each person. All garbage will be flown out of the camps. Human waste at the camps will be collected and removed with the camp. If people have to go to the bathroom while away from camp, they will bury their waste. Grey water will be strained and disposed of in a small pit which will be filled in when we leave. Camp personnel are skilled in the use of bear deterrents. The camp leader and other staff members are licensed to handle firearms and are given a detailed bear deterrent plan prior to the field season. Details of equipment, fuel and waste are presented below.

Equipment

Equipment type and number	Proposed use
Helicopter, 206 Long Ranger (2)	Slinging in/out camp equipment, aerial transects between plots, travel to study plots too far to walk to
Twin Otter (2)	Camp set up and take down (gear and people to/from tent camp site)

Fuel

Fuels	Number of Containers	Capacity of containers (gal & litre)
• Diesel	None.	
• Gasoline	None.	
• Aviation fuel	36 (1 cache of 4 drums, 1 cache of 8 drums, 1 cache of 18, 1 cache of 6)	250L

• Propane	25	20lb.
• Other	None.	
Hazardous material (please specify)		
• batteries	250 AAs	

Three of the fuel caches will be located on Crown Land; at Graham Gore Point on King William Island (4 drums), at the Jenny Lind Island airstrip (8 drums) and at the Gladman Point airstrip (18 drums). The fourth cache will be with the rapid crew north of Ferguson Lake. Drums will be stored in portable berms. Transfer will be by hand pump or helicopter pump. Empties will be removed. Helicopters will be equipped with emergency spill kits. Insta-Berms will be used at the Jenny Lind and Gladman Point airstrips. We have contacted the Department of National Defence and Nasittuq, for the appropriate permissions to cache fuel and visit the CAM1 (Jenny Lind) and CAM2 (Gladman Point) North Warning Sites.

Waste

Type of waste	Projected amount generated	Method of Disposal	Additional treatment procedures
Sewage	22 persons worth	Removed with camp or dug latrine	If latrine dug, covered so not visible
Greywater	22 persons worth	Small Pit	Environmentally friendly waste degrader added regularily.
Garbage	60 bags	Removed with camp	None.
Hazardous waste	250 AA batteries	Removed with camp	None.

The survey plots will have no record of our presence after we leave and all efforts will be taken to ensure the camp sites are left the same way.

This year we plan to employ 2-4 students from Cambridge Bay or Gjoa Haven to assist in the surveys. All food and supplies will be purchased in Cambridge Bay and Gjoa Haven.