

NUNAVUT WILDLIFE RESEARCH PERMIT **APPLICATION**



APPLICANT: Dr. Ray Alisauskas

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SPONSOR(S): Environment Canada

FUNDING SOURCES: Polar Continental Shelf Project, Environment Canada, Central
& Mississippi Flyway Councils

ADDITIONAL LICENCES REQUIRED: Aboriginal Affairs and Northern Development
Canada Land Use Permit (N2008N0028), Nunavut Water Board (3BC-KAR0812),
Environment Canada Permit to Conduct Activities in a Migratory Bird Sanctuary and to
Conduct Scientific Research on Migratory Birds (permit numbers to be determined),
Canadian Council on Animal Care (19990029). Some permit numbers may change as
licenses are issued prior to 2014 field work.

PROJECT TITLE AND RATIONALE: Foraging Behaviours and Population Dynamics
of Arctic Foxes (please see attached Progress Report: Introduction)

TIME PERIOD: 1 May to 31 July 2014

LOCATION: Karrak Lake, Nunavut (67°14'N, 100°15'W)

SPECIES: Arctic fox

PROJECT LEADERS: Ray Alisauskas

PROJECT PERSONNEL: Gustaf Samelius, Stacey Elmore, Dana Kellett

OBJECTIVES: (Key expected results & Management implications)

Examine vital rates (e.g., annual survival), population dynamics, and prevalence of parasites in arctic foxes, particularly in relation to superabundant but seasonally available food (migratory birds and their eggs) (please see attached Progress Report).

METHODS: (i.e. Details of capture, handling, and disposition – be SPECIFIC)

Field personnel are housed at Karrak Lake Research Station (est. 1991), and will travel to and from Cambridge Bay in May by twin otter. Personnel will use a snow machine to travel within the study area. Water use and wastes are managed and disposed of according to permits issued by Aboriginal Affairs and Northern Development Canada Land Use Permit (N2008N0028) and Nunavut Water Board (3BC-KAR0812).

Adult arctic foxes will be captured by using box-traps and leghold-traps (Soft Catch no. 1) baited with sardines. Box traps will be checked at least twice daily whereas leghold-traps will be under continuous observation. Adult foxes will be immobilized with 15 mg of Telazol (which consist of equal parts of tiletamine and zolazepam) to reduce stress to animals and to provide safe handling (see Samelius et al. 2003). Foxes will be ear-tagged (plastic ear-tags by Dalton ID Systems Ltd. that are 1x3.5 cm in size – these tags are permanent and remain on foxes throughout their life) for individual identification for mark-recapture studies. Individuals will be weighed, sexed, and length of the right hind foot will be measured. A blood sample will be extracted from the cephalic or jugular vein of each individual for a maximum of 30 individuals; samples will be exported to Saskatchewan for analysis. If feces are excreted during handling, samples will be exported to Saskatchewan for analysis for prevalence of parasites. Scat will also be collected opportunistically from den and loitering sites.

Arctic fox pups will be captured by using box-traps baited with sardines. Box traps will be under continuous observation when capturing pups. We will not anaesthetise pups, as they are generally very calm during handling. Pups will be ear-tagged for individual identification (same tags as for adults described above) and we will weigh, sex, and take a blood sample from the cephalic vein from a maximum of 30 pups. Blood samples will be exported to Saskatchewan for analysis as will fecal samples if excreted during handling. Capturing and marking of arctic fox pups is a common technique in arctic fox studies worldwide with no reports of ill effects to foxes (e.g. Meijer et al. 2011 in Sweden, Eide et al. 2012 on Svalbard in Norway, Giroux et al. 2012 on Bylot Island in Nunavut, and Norén et al. 2012 in Sweden, Iceland, Svalbard, and at Karrak Lake – see attached Progress Report for complete references).

A maximum of 60 blood (30 from adult foxes and 30 from fox pups) and 200 fecal samples are expected for export purposes. For more information, please see attached Progress Report.

Prevalence of vector-borne diseases will be investigated in this system. Previous studies showed evidence that vector borne pathogens exist at low levels in this arctic fox population (see Mascarelli et al. 2013). Therefore, fleas will be collected in arctic fox

dens by using the flagging technique (McGee et al. 2006): a white flannel cloth will be attached to the end of a plumber's snake and extended into burrow for 30 sec to maximum of 4m. The cloth will be placed in a plastic bag and the fleas killed with halothane or by freezing/thawing/freezing method. The species of flea will be identified using a dissecting microscope. Any ticks found in the dens will also be collected. Fleas and ticks will be preserved in ethanol, and exported to Saskatchewan to test for presence of pathogens. Dead foxes encountered opportunistically will also be sampled for fleas and ticks.

Field personnel use crack cartridges and pepper spray to deter bears. In addition, shotguns are present at the Research Station, and are occasionally used as a noise deterrent.

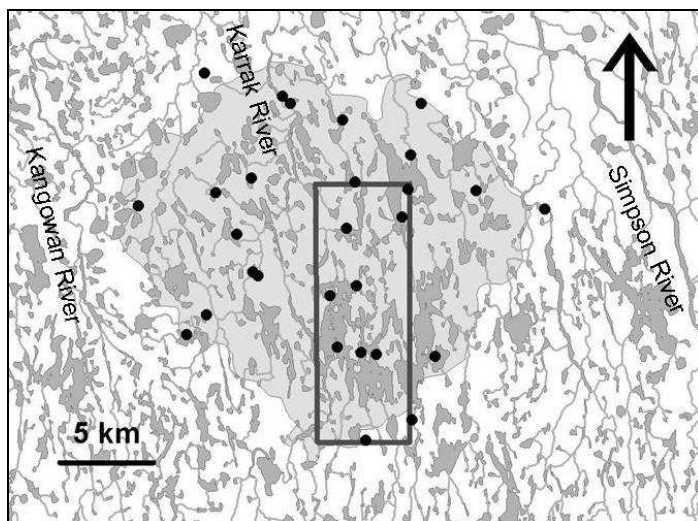


Figure 1. Extent of the goose colony (light grey) and location of the fox trapping area (grey square) at Karrak Lake goose colony (67° 14' N, 100° 15' W) in the Queen Maud Gulf Bird Sanctuary, Nunavut. Fox dens are indicated by black dots.

COMMUNITY CONSULTATION PLAN: Nunavut Impact Review Board Screening, slide presentation in Ikaluktutiak, reports, 3 posters disseminated. Residents are encouraged to visit <http://www.usask.ca/biology/fox> for more information.

PROPOSED USE OF LOCAL KNOWLEDGE: Frequent interaction and communication with residents of Cambridge Bay (see also next item).

OPPORTUNITIES FOR LOCAL PARTICIPATION : One person (likely from Cambridge Bay or Taloyoak) will be hired as an assistant during 2014.

TERMS & CONDITIONS:

This application is submitted and will be evaluated prior to issuance of a Research Permit or Collection Licence, as issued by the Department of Environment – Wildlife Management Division, Nunavut Territory.

All submitted applications become the property of the Department of Environment– Wildlife Division and may not be returned to the applicant.

The application review process requires that copies be distributed to a number of reviewers. The contents of this application form may be subject to access under the Freedom of Information and Protection of Privacy Act.

Principal Researcher's signature

Date

Additional Investigator's signature

Date

Additional Investigator's signature

Date

RABIES ADVISORY:

Rabies is naturally occurring disease that is endemic to wildlife, particularly canids, in Nunavut. Rabies can infect human beings, and if left untreated can cause death. All persons who may be exposed to rabies are strongly encouraged to obtain and keep updated a pre-exposure vaccination.

All applications for Wildlife Research Permits should be submitted to:

Wildlife Research Section
Department of Environment
Box 209, Igloolik, NU, X0A 0L0

Tel: (867) 934-2178
Fax: (867) 934-2190
Email: wildlife_research@gov.nu.ca