

ተ>ቍጠኈቍ ዄዾትጜዀዾሁታኈጋና FUTURE STUDIES

There are still many unknowns about the ecology of Arctic foxes. For example, we know that they can move large distances over the tundra or the sea ice. But how far do foxes move from their natal den before settling in a new area? Does a given fox use the same den every year? How separate are their summer and winter ranges? How far from their den do foxes hunt when they are feeding cubs? In the next years, scientists and their Mittimatalik collaborators will try to answer some of these questions. Ecological knowledge is critical to the management and protection of tundra ecosystems. Sustained interest in animal and plant life is also one way to bridge generations and help Youth to remember their important cultural heritage.

$$\label{eq:approximation} \begin{split} & \mathsf{A}\Gamma\mathcal{A}\mathsf{e}\mathsf{c} \ \ \mathcal{A}\mathsf{c} \ \ \mathcal{A} \$$

Acknowledgements ムーちュナタマ

ቴኦኦኣናቃኦዲና ፊኦዲንንኖርኦንና ኦժፊነህ (ቴናጋፈበጋና በበናኦዮጎዮና ሬድናጋዮና): ኦፌር୮ ኦንንኦቴበሶና ጳንዮንላሪኦውና, ኦፌር୮ ቴኦኦኣኖስና ፊነትዳሶዮላ, ኦፌር୮ ኦሬዲዮኤዮላኛ, (/ሩ-ኣማኦ ጎነ୮ፅሮፅቴራታፉ ሣዞ ኋህ የየቴራፑዋዮኔታዋ ኦ୮၉ ኋህ አጎህበዮየ የበ ኋዋኦ በየቴሌሊዮኋታጋታዋኦዐ ኦሏልጎሪና ኦንኦቴሶዮኑና Γናበደርተፑ ኦሬዲናዲባስነትዮና, ኦፌር୮ ቴኦኦኣኖስቲኢና ኦስደኦዮና ኦፌር୮, ኦፌር୮ ቴናኣኦጵራኤትሪኛ, ኦቦኦኦኖሮን୮ ኦሬዲታና አንግታት ኦሬትዮናና (ፈዳሮዮሔሎታሪ ኤሬር୮), ኦዮኦኖሮን୮ ቴኦኦኣኖታና ፊሬሮፕ ቀብናቡችና (ፊድሮኡእንቼላና ኤሬር୮), ወልሮና ኦሬዲታላት የሆኑንና ኦሬፈሮ Γናህሏለግልተላዮና ዮረ፡ፈላር ኦዮኦሮን୮ና፥ ኦሬትዮናና, ዓዜታዮዮናትሪ ፊሮ୮ የርዮቴ à ይታርጉዮኋር, ህላህ ሁኖቴዮዮኦሮስና ሬደሎታሪ የሆኑንና

We thank the Elders and Hunters who participated in the Inuit Knowledge project: Matthew Akomalik, Timothy Aksarjuq, Ham Kadloo, Angootainook Jokepee Katsak, Ishmael Katsak, Gamalial Kilukishak, Moses Koonark, Brian Koonoo, Joseph Koonoo, Rhoda Koonoo, Alan Mucktar, Theresa Mucktar, Cornelius Nutarak, Thomas Nutarariaq, Elisapee Ootoova, Elijah Panipakoocho, Jayko Peterlossie, Paingut Annie Peterlossie, Mathias Qaunaq, Paniloo Sangoya, Ruth Sangoya. We thank Gilles Gauthier for initiating fox studies on Bylot Island in 1993, and Aaron Pitseolak, Ernest Merkosak, and Jimmy Pitseolak for help with fieldwork on Bylot. Thanks to Elisha Pewatoalook, Isidore Quasa, Lucy Quasa, Shelly Elverum and Lorna Ootova for translation and/or assistance. Carey Elverum and the Sirmilik NPC staff deserve warm thanks for facilitating this project.

Studies are supported by (alphabetical order): Canada Foundation for Innovation, Canada Research Chairs, Canadian Wildlife Service, Fonds québécois de la recherche sur la nature et les technologies, Mittimatalik Hunters and Trappers Organization, Natural Sciences and Engineering Research Council of Canada, Network of Centres of Excellence of Canada ArcticNet, Northern Ecosystem Initiative (Environment Canada), Northern Scientific Training Program (Indian and Northern Afriairs Canada), Nunavut Wildlife Management Board, Parks Canada, Polar Continental Shelf Project, Université du Québec à Rimouski, and Université Laval.

FOR MORE INFORMATION SPr1 46 _____

<u>Contact シP/^イベタイイを * Co</u> Dominique Berteaux (L σ⁺ ジンジ (<u>dominique_berteaux@ugar.qc.ca</u>) or Catherine Gagnon トイペン・ケィー レイン (<u>Catherine-Alexandra.Gagnon@ugar.qc.ca</u>), ba.(「 もわトムやハートス イヤアハロ・ゴ トクトン (Catherine-Alexandra.Gagnon@ugar.qc.ca), ba.(「 もわトムやハートス イヤアハロ・ゴ トクトン (Catherine-Alexandra.Gagnon@ugar.qc.ca), ba.(「 もわトムやハートス イヤアハロ・ゴ トクトン (Catherine-Alexandra.Gagnon@ugar.qc.ca), ba.(「 もわトムや イゼudes nordiques, Université du Québec à Rimouski 300 allée des Ursulines, Rimouski (Québec) G5L 3A1 Canada (<u>http://www.ugar.qc.ca/chiredb</u>) <u>Visit もわトイヤア かつへ http://www.cen.ulaval.ca/bylot/</u> በሊႱσላ'σ^ና ኄኦኦኣ'ኇኦኇላኈን» ለ'Γσʰ ቴ፯ርΓ <u>Γ'ኄህ∆ለ'ል∿</u>

FOX STUDIES SIRMILIK NATIONAL PARK OF CANADA _____



ሥትና ዄዾትት፨ርቅቦላዄ፨ይና በሒኒታላና ዾየዾ፨ር፨ጋΓ? WHY STUDYING ARCTIC FOX? Arctic fox are studied for several reasons.

They are the main predator of the tundra and an essential component of the health of this ecosystem. Changes in climate, wildlife exploitation, rate of visitation by humans, or the arrival of new species to the North can all potentially disturb the tundra ecosystem and affect its health. Monitoring fox populations at Sirmilik National Park is one way to ensure that any drastic change to this ecosystem would be quickly detected.

Arctic foxes feed on goose eggs and goslings in summer. Managing goose populations requires a good understanding of goose reproduction, which in part depends on arctic fox predation. Thus arctic fox studies also contribute to the management of goose populations.

Arctic foxes in other countries such as Norway or Sweden used to be abundant, as in Nunavut, but have now nearly disappeared. Some suggest that the spread of red foxes to Northern latitudes during the twentieth century may have contributed to this decline. Red foxes also arrived recently to Sirmilik and this is an additional reason to closely study arctic fox populations and their relations with red foxes.

Finally, arctic fox used to be vital to the economy of northern communities, and still play an important role in Inuit culture and memories. This also is an important reason to study arctic fox, so that younger generations do not forget this important cultural heritage, and continue to learn about this arctic species.

 $\mathsf{PPP}^{\mathsf{G}}\mathsf{C}^{\mathsf{G}}\mathsf{D}\mathsf{T} \quad \mathsf{A}_{\mathsf{G}}\mathsf{D}^{\mathsf{G}} \quad \mathsf{A}_{\mathsf{G$

 $PL + (Pb + c^* c^*) > c _ a = 4 + _ o + (P + c^* c) + 4 + (P + c^* c) + (P + c) + (P +$

ϷየϷ[%]ር[®]ጋ୮ በሊႱσϤ σሊ^ረ ቴህΔ L^{*}σ^{*}/^{*}σ Ϥ^L ϤϷϷ⁺δ⁻ ቴህላና[%]ንቼ^{(®}ንበ^{*}. ϤΓ²/σ^{*}/^{*}σ ϤϷϲ⁻(በ^{*}በϤና/Ϥ^{*}σ⁴^{*}σ ቴህ^{*}σ^{*} ንየ/ כ^{*} የ/ 4σ ቼ^{*}/^{*} σ^{*}/^{*} σ^{*}/^{*} σ^{*} δ^{*}/^{*} σ^{*}/^{*} σ^{*}/^{*}

ርΔL፦, ৮ϞΔና LPL[>]ϞርϷʹϧናር∠Ϸ[°]ϧϓL¹LC ϷΡϷ[°]([°])Γ, Δ[°]_α⁻ ィー ϤϽ[°](Ϸ<[°])[°] Δ[°]ϧϷL¹Ϸ^cΠ⁴)Π³. (L[°]_α Λ¹L_αϷ⁻δ¹L²[°] ϷΡϷ[°]([°])Γ Π_αυσ⁴, Δ[°]Δ^{*}Δ[°]Δ[°]Δ[°]Δ[°]δ¹Ενδ¹C Λ[°]σ¹L²σ^{*}, Δ⁻JCϷ¹δ⁻ ϷΡϷ[°]([°])Γ σ¹¹Π³δ(Ϸ¹L²).

We study arctic fox through scientific research and Inuit traditional knowledge. We conduct scientific studies on Bylot Island, and collect Inuit traditional knowledge mostly at Mittimatalik (Pond Inlet). In 2005 we performed over 40 hours of interviews with 23 Elders and/or hunters to collect traditional knowledge on fox history and ecology.

Field Work ለርዲሳሲዬናር የረጉሥት

Bylot Island is located off the northern tip of Baffin Island, Nunavut, Canada. Each summer, teams of 3-5 scientists, students, and collaborators from Mittimatalik observe and count foxes at dens, capture them using cage traps and leg hold traps, and record patiently their behaviour. Studies started in 1993 when goose biologists became interested in predation by foxes in goose colonies. Studies have intensified in 2003 and foxes are now studied on their own. More than 100 dens spread over a 600-km2 area are visited every summer to record fox abundance, reproduction, and behaviour. Fox numbers vary widely from year to year, following cycles in lemming abundance. In 2004, a high lemming year, we found 15 litters of arctic fox. We captured and tagged 7 adult and 42 juvenile arctic foxes. Some of these foxes were seen again in 2005 on Bylot, some were caught by trappers, and others were not re-observed.

Arctic fox and red fox ▷P▷[®]C[®]ンΓ ∩へしゅく しぇムニュ

రివర్తారం గోరెంట్ రిశ్వారం గో చిద్దినికిందా రెంటిల్ లాలినికి రాలినికి రెంటికి రెంటికి రెంటి రె

Red foxes are also present at Sirmilik National Park. Pelt records of the Hudson's Bay Company suggest that they colonized Southern Baffin around 1918 and reached Northern Baffin in the middle of the 20th century. Every year we observe a few red foxes on Bylot Island. We have never found more than one breeding den per year on Bylot.

Feeding habits ውዲቴርናዎትና

Arctic foxes use a great variety of food sources. Lemmings constitute the main component of their summer diet, but bird eggs and chicks are also used when available. In winter or spring, foxes can feed from seal carcasses or seal pups. As a result, foods eaten by arctic foxes are produced in the tundra (lemmings), in the tundra and in Southern ecosystems (migratory birds), or in the sea (seals). This shows the complexity of the relations between ecosystems. Using a technique called "stable isotopes", we can detect, from the analysis of just a few hairs, what food has been eaten by a fox.

History of exploitation በሲሀታላችርኦቴርናታዮና

ኦዮኦትርቅጋ፫ በሒႱσላና ፑዮቦላቅርኦቴናርትረቷና ፑናበደርሎፑ ኦዮኦኒኒኔታታ. ኦላናበላንሮ, በሒႱσላቴናርሬኦትረዚና ቴኔአናኦንጋል^{*}ሬቅበJ ፑዮቦላቱና ኦኦናኦና ላժታምዮጵ, ዮፖላσሮ Ľ^{*}ሬንኌኑ, ፑዮቦላትፖቴናርራትረዚና ምኦዮበJና ሬቲዮንቲብሮችታ. Δ^{*}ሬናና ላፖሬችበታ ላለችሥንር ጋዮፖሬኦትፖዚቲና በሒႱσላና ሶሬኦታሮኦንርኦቴናርሬኦትረዚና Δኔታሪና Δሬሶ^{*}ሬና 1920-^{*}ዮች በዮንJ 1970-¹ና, በሒႱσላናኦሪና ምኦንርኦቴናርሬኦት/ጊቲና ምኦልቶበነታ ና. ፑዮቦላትፖቴናርΔ^{*}ሬበ^{*} ጋና, Δሬ^{*}ዮና Δωδና ኦቴሬኦ^{*}ን (L^{*}d4 በሒႱσላና ለካዚቪኦሮና^{*}ኦንሪዮ^{*} ሶሬኦታሮኦንርኦኒር Δኔሪዮ^{*}

Arctic foxes have been trapped in the area of Pond Inlet for thousands of years. In the past, foxes were captured using various kinds of stone traps, but in recent history, trappers used mainly leg hold traps. Interviews with Elders and Hunters also revealed the great importance of arctic foxes as the main source of income for Inuit families from the 1920's to the 1970's, as pelts were sold to the local Hudson's Bay Company trading post. If the era of intensive fox trapping is past, some local experts believe the arctic fox is still important to younger generation as a potential complementary source of income.

Artctic fox and red fox PP>%C%DF Alor d btate

In the North Baffin area, the only available information on the red fox invasion was coming from the pelt records of the Hudson's Bay Company trading post in Mittimatalik. Elders and Hunters provided new evidence as to the timing and consequences of invasion of the area by red foxes. Some Elders remembered that a red fox was first caught in one of their traps in 1948. Some Elders indicated that abundance of arctic fox may have decreased in the 1950's when red fox arrived in the region.

Feeding behaviour ው ፍ ትርና ምሳ

Elders and Hunters provided information unknown to scientists working on Bylot. According to them, arctic foxes have two types of feeding strategies during winter. Some foxes remain inland most of winter, feeding on lemmings. These foxes have thick white fur. Other foxes live on the ice for most of the winter, feeding on carcasses of sea mammals. The neck of these foxes is stained by the fat of the sea mammals that they eat. In March and April, arctic foxes migrate to the ice to hunt newborn ringed seals.

