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Encounters Between Wolves, Humans, and Their Dogs in West and North Greenland

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ABSTRACT. This study investigates encounters between sled dogs (*Canis lupus familiaris*), humans, and Arctic wolves (*Canis lupus arctos*) in West and North Greenland. Using qualitative data from extensive interviews conducted in North Greenlandic, Polar Inuit, and Kalaallisut dialects, as well as a comprehensive review of relevant literature, this research aims to elucidate the spatial, temporal, and situational contexts of these interactions. Early accounts from European and American explorers, and observations made by local residents, complemented by Indigenous Kalaallit and Inughuit oral traditions, reveal the adaptive behaviors of wolves and their significant effects on human activities. Evidence of wolves in Greenland dates back to Saqqaq Culture (2400–1400 BC) and the Norse settlements (985–1450 AD) and continues into contemporary times. Greenlandic myths depict wolves as both feared and respected creatures, highlighting their profound cultural significance. Recent increases in wolf sightings near settlements in Avanersuaq have raised concerns about their impact on local fauna and human safety, prompting wildlife management measures. The study finds that Arctic wolves, humans, and sled dogs have interacted across various regions of North and West Greenland, with these interactions affecting both ecological dynamics and human practices. This research underscores the complex and evolving relationships between sled dogs, humans, and Arctic wolves, advocating for balanced conservation strategies that integrate scientific research with traditional knowledge. The findings contribute to the broader discourse on wildlife management in extreme environments, providing insights into the resilience of wolves and their enduring influence on human communities in the High Arctic and West Greenland.

Keywords: Arctic wolf; amaroq; *Canis lupus*; qimmeq, *Canis lupus familiaris*; sled dog; history; local and Indigenous Inughuit/Kalaallit/Greenlander's knowledge; conservation

RÉSUMÉ. La présente étude porte sur les interactions entre les chiens de traîneau (*Canis lupus familiaris*), les humains et les loups arctiques (*Canis lupus arctos*) dans l'ouest et le nord du Groenland. S'appuyant sur des données qualitatives issues d'entretiens exhaustifs menés en langues nord-groenlandaise, inuite polaire et kalaallisut, ainsi que sur l'analyse exhaustive de la littérature pertinente, cette étude cherche à connaître les contextes spatiaux, temporels et situationnels de ces interactions. Des récits anciens d'explorateurs européens et américains, des observations réalisées par les habitants de la région ainsi que des traditions orales autochtones des Kalaallits et des Inughuits montrent comment les loups s'adaptent à leur environnement de même que leurs impacts importants sur les activités humaines. Les loups du Groenland ont fait l'objet d'observations depuis l'époque de la culture de Saqqaq (entre 2400 et 1400 ans avant l'ère commune) et les établissements norrois (entre 985 et 1450 de l'ère commune). Ils sont encore présents à l'ère actuelle. Les mythes groenlandais les décrivent comme des êtres à la fois redoutés et respectés, ce qui témoigne de leur grande importance culturelle. La hausse récente des observations de loups près de communautés d'Avanersuaq a suscité des inquiétudes quant à leur impact sur la faune locale et la sécurité des personnes. En réponse à ces préoccupations, des mesures de gestion de la faune ont été mises en place. Cette étude a révélé que les loups arctiques, les humains et les chiens de traîneau interagissent dans diverses régions du nord et de l'ouest du Groenland. Ces interactions ont un effet sur la dynamique écologique et les pratiques humaines. Cette recherche met en évidence les relations complexes et en constante évolution entre les chiens de traîneau, les humains et les loups arctiques. Elle revendique aussi des stratégies de conservation équilibrées tenant compte à la fois de la recherche scientifique et du savoir traditionnel. Nos constatations s'inscrivent dans un discours plus large sur la gestion de la faune dans les environnements extrêmes. Elles permettent d'en apprendre davantage sur la résilience des loups et sur leur influence durable sur les communautés humaines de l'Extrême-Arctique et de l'ouest du Groenland.

Mots-clés : loup arctique; amaroq; *Canis lupus;* qimmeq, *Canis lupus familiaris;* chien de traîneau; histoire; savoir local et autochtone inughuit, kalaallit et groenlandais; conservation

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NAALISAGAQ. Kalaallit Nunaata Kitaani aamma Avannaani qimmit qimuttut (Canis lupus familiaris), inuit amaqqullu qaqortat (Canis lupus arctos) naapinnerat misissuinermi matumani sammineqarpoq. Piviusunik tunngaveqarluni misissuineq ingerlanneqarpoq, ilaatigut Kalaallit Nunaata Avannaani/inughuit oqaasii aamma kalaallit oqaasii atorlugit apersuinernit paasisat tunngavigalugit, kiisalu atuagassiat allallu uppernarsaatit atuarlugit. Europamiut Amerikamiullu paasisassarsiortut siulliit allataat, najukkani najugaqartut ilisimasaat, kiisalu inuiaqatigiit Kalaallit/Inughuit oqaluttuatoqaasa takutippaat amaroq qanoq inunnut naleqqussarsimanersoq taakkulu inuuniarnerannut qanoq sunniuteqarsimanersoq.

Kalaallit Nunaanni qanga saqqaq kulturip nalaanili (2400–1400 Kr. siorn.) amaroqarsimasoq uppernarsaatissaqarpoq, aamma qallunaatsiaat nalaanni (985–1450 Kr. kingorn.) tamanna uppernarsaatissaqarluni, ullorlu manna tikillugu suli amaroqarpoq. Amaqqut ersigineqarlutillu ataqqineqartarsimasut kalaallit oqaluttuatoqaasa takutippaat, ersersinneqarluni kulturimut qanoq pingaartigisumik sunniuteqarsimanersut. Ullumikkut Avanersuarmi nunaqarfinnut qanittumi amaqqut takussaajuaannalersimapput, tamannalu inuuniarnermut uumasunullu ernumanarsinnaasunik kinguneqarpoq, aammalu piniarnermik nakkutilliinermut atatillugu iliuuseqartoqalersimalluni.

Kalaallit Nunaata Avannaani Kitaanilu sumiiffinni assigiinngitsuni amaroq, inuit qimuttullu naapittarsimasut, naapinnerillu taakku inuuniarnermut kulturimullu sunniuteqarsimasut misissuinerup matuma takutissavaa. Misissuinerup takutippaa pissutsit pillugit qaammarsaaneq pingaaruteqartoq, pinngortitami allanngorartumi inuuniarnermi ataatsimoortumik qaammarsaasoqartariaqartoq, ilisimatusarnikkut ilisimatuussutsikkullu paasissutissanik ingerlatitseqqiinissaq taamatullu ilisimasanik kingornussanik ilanngussinissaq qitiutinneqartariaqartoq.

Oqaatsit pingaarnerit: Amaroq; *Canis lupus*; qimmeq; *Canis lupus familiaris*; qimmit qimuttut; oqaluttuarisaanermi ilisimatusarneq; inuiaqatigiit Kalaallinit/Inughuarnit/Qallunaatsiaanit ilisimasat; pinngortitami nakkutilliineq

INTRODUCTION

The High Arctic and West Greenland are regions of extreme environmental conditions and rich cultural history, where the interplay between humans and wildlife has shaped the landscape and societal practices for centuries. Among the diverse fauna inhabiting these regions, Arctic wolves (amaroq*, Canis lupus arctos*) have played a significant role in the ecological balance and cultural narratives of Indigenous communities, researchers, and explorers alike (Fig. 1). The presence of these apex predators has influenced hunting practices, ecological dynamics, and cultural beliefs, making them a critical species for study in the context of human–wildlife interactions.

One of my earliest recollections of Arctic wolves (amaroq) comes from a story I heard as a child in the 1980s, narrated by the renowned Inughuaq hunter Sekuvsuna Mitek (1919–2004) based in Qaanaaq. Sekuvsuna recounted how he embarked on long dogsled journeys to Canada, hunting with his cousin Kaigungnak' K'issuk (1925–90). His oral account described two wolves trailing their sled tracks as they returned to Avanersuaq, with the wolves appearing to intend to prey on them. As the wolves continued to follow, Sekuvsuna decided to kill one. He was surprised at how light the wolf was. He was able to lift it with one hand. This anecdote illustrates encounters between wolves and hunters traveling with sled dogs. Wolves have been observed by humans in the far north of Greenland and Ellesmere Island, are known to migrate from Ellesmere Island, and have been sighted in Avanersuaq until recent years.

Early European and American explorers, along with Indigenous Kalaallit and Inughuit hunters, have documented numerous encounters with Arctic wolves, providing valuable historical insights into their behavior and distribution (Fig. 2). These accounts reveal wolves' adaptive strategies, such as following human sled tracks and hunting in close proximity to human settlements, which have led to both conflict and co-existence. Greenlandic

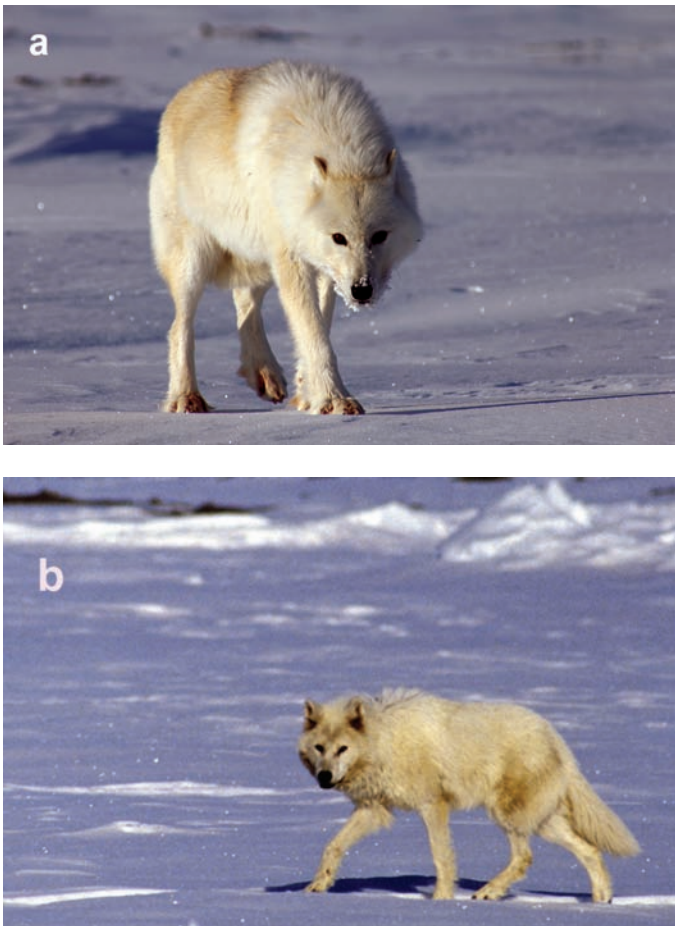

FIG. 1. Arctic wolf (A: front view and B: side view) photographed near Daneborg, Northwest Greenland in 2013. Photo credits: Morten Petersen (A) and Kaj Strandby Thomsen (B).

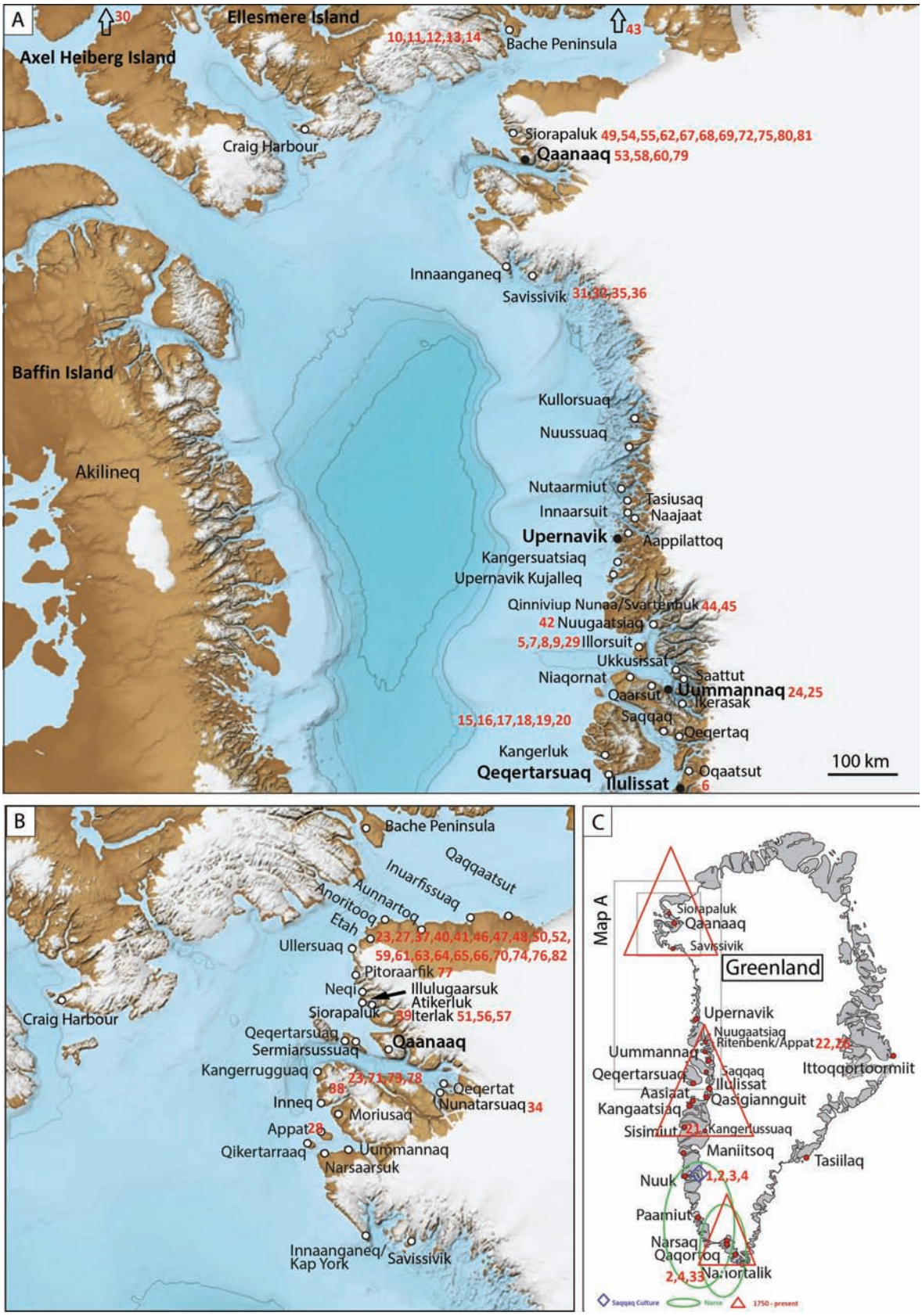

FIG. 2. Map of localities of historic and archaeological observations mentioned in the text. Numbers correspond to the localities listed in Appendix 1. A) Northwest Greenland and Northeast Canada. B) Ellesmere Island and Avanersuaq/Thule District in Northern Greenland. C) Greenland with towns and selected settlements. The base maps are produced by GEUS (Geological Survey of Denmark and Greenland), with A and B derived from the General Bathymetric Chart of the Oceans, downloaded from the Greenland Mineral Resources Portal (2023). The Greenland base map in C is sourced from the GEUS 1:500,000 scale geological map of Greenland (Kokfelt et al., 2013). Figure credit: Majken D. Poulsen.

myths and legends further emphasize the complex relationship between humans and wolves, portraying wolves as both feared and respected creatures.

In recent decades, changing environmental conditions and human activities have led to an increase in wolf sightings near settlements in Avanersuaq, raising concerns about their impact on local fauna and human safety. This resurgence has prompted subsistence hunters and local authorities to implement measures to manage wolf populations, reflecting the ongoing challenges of balancing conservation with human interests.

Despite the rich historical and contemporary documentation of wolves in the High Arctic and West Greenland, there remains a need for a comprehensive understanding of their ecological roles and behavioral patterns, and of the sociocultural implications of their interactions with humans. This study aims to address this need by examining the historical context surrounding wolf-human interactions, cultural perspectives on these, and modern encounters with Arctic wolves, contributing to the broader discourse on wildlife management in extreme environments.

The study addresses the following research questions: How have historical interactions, cultural narratives, and contemporary encounters with Arctic wolves in the High Arctic and West Greenland influenced human–wildlife dynamics? What are the implications of these interactions for contemporary wildlife management and conservation strategies in these regions? The research also seeks to elucidate the spatial, temporal, and situational contexts in which encounters between Arctic wolves, Greenland sled dogs, and humans have occurred across these regions.

METHODS

To explore the research questions, I employed thematic analysis using an inductive research approach to develop descriptions directly from the data. This approach is grounded in social constructivism, which acknowledges the role of subjectivity in the construction and interpretation of data (Braun and Clarke, 2006, 2012). I also incorporated a literature review to draw on pre-existing theories and research findings.

Literature Review

I conducted a comprehensive review of both academic and grey literature to gain a thorough understanding of the subject. Academic literature was identified through keyword searches in Google Scholar and Scopus. Grey literature was sourced from various institutions, focusing on historical and contextual information about wolves in Avanersuaq. Documents from the Ministry of Fisheries and Hunting provided valuable insights gathered from local hunters, offering traditional ecological knowledge on wolf populations and behaviors in the region (Departement for Fiskeri og Fangst, 2020). Extensive research was also conducted at Ilimmarfimmi Atuagaateqarfik (Greenland University library) and Groenlandica (Central Public Library of Greenland), focusing on narratives from Arctic travelers, scientists, explorers, local residents, Greenlandic newspapers, government documents, and church records. The literature reviews covered archaeological, biological, historical studies, and wildlife descriptions, with a particular focus on wolf encounters.

Interviews and Image Gathering

I conducted 43 qualitative, semi-structured interviews with 36 participants between November 2017 and December 2023. Each of these interviews was carried out in North Greenlandic dialects, Inuktun and kalaallisut. My fieldwork took place in the Avanersuaq district, specifically in Qaanaaq, Savissivik, and Siorapaluk. The 22 participants from Avanersuaq were hunters or related to hunters (18 men and 4 women). Additional fieldwork in West Greenland involved 13 participants, all of whom were dogsled owners, hunters, or fishers, and one participant from South Greenland with no direct connection to sled dogs or hunting culture (11 men and 3 women in total).

Face-to-face interviews were conducted in Nuuk, Qaanaaq, Qasigiannguit, Saattut, Savissivik, Siorapaluk, Sisimiut, and Uummannaq. Telephone interviews were conducted with individuals from Siorapaluk, Sisimiut, Qaanaaq, and Qaqortoq. Face-to-face interviews were also conducted with participants from Aasiaat, Ilimanaq, Nuugaatsiaq, Nuussuaq, and Qikertat/Qeqertat. Additional interviews were conducted via email and Messenger. The interviews were transcribed and translated from Inuktun and Kalaallisut into Danish and English, then proofread.

To gather visual data for this study, I employed a multifaceted approach. Initially, I posted requests for photos of wolves and wolf footprints on my private Facebook page and the community page for Qaanaaq, Allagarsiivik Qaanaami. As a result, three individuals responded and contributed photos, each accompanied by a brief description.

In addition to public postings, I personally reached out to three individuals to request specific photographs of wolf traps (Fig. 3 (a–d). Further, I conducted a comprehensive search within the archives of the Danish Arctic Institute to locate both historical and contemporary images of wolves. I analyzed the visual materials I obtained, along with their detailed descriptions, in order to provide valuable insights. Appendix Table A1 incorporates these additional descriptions, and Figure 2 situates the data points geographically. However, it is important to note that no images of wolves from West Greenland were discovered during this research.

Ethics

Informed consent was obtained from all participants to use their shared local knowledge in scientific papers and

FIG. 3. Wolf traps: A) is from Saqqaa, located in Tasikuluuliup Qeqertaasaa on the Vietnahverfi Peninsula, photographed by Arnaq Bjerge Petersen; B) is from Sissarluttoq/Dalr, photographed by Arnaq Bjerge Petersen. C) is from Silliup Kitaani near Qassiarsuk, photographed by Aká Simonsen; and D) is from Silliup Timaa near Qassiarsuk, photographed by Aká Simonsen.

to cite their names in publications. Protocols for citing Indigenous elders and knowledge keepers were strictly adhered to (MacLeod, 2021), ensuring respectful and accurate representation of their contributions.

Written consent was obtained from individuals who provided photographs for inclusion in this research paper. This consent was secured following a comprehensive explanation of the research objectives, the specific use of the images, and the individuals' rights concerning the use of their photographs. Katrine Randrup provided the image of an Arctic wolf, photographed by Morten Petersen (Fig. 1), with permission to use granted on the condition that the photographer would be credited.

RESULTS

The Arctic wolf is a subspecies native to the remote regions of Ellesmere Island and North and Northeast Greenland (Vibe, 1981; Dawes, et al., 1986; Marquard-Petersen, 2022, 2012). The Greenland sled dog (qimmeq, *Canis lupus familiaris*) is the only sled dog breed found north of the Arctic Circle in North and West Greenland. It is also present in East Greenland (Rosing, 1975; Vibe, 1981; MacRury, 1991; Ameen et al., 2019; Gjerløff, 2020).

Wolves in the High Arctic

Historical Context and Expeditions: European and American explorers undertook numerous sled dog expeditions into Northern Greenland and Arctic wolf territories, often involving Inughuit expedition members. The Inughuit traditionally hunted muskox on their ancestral lands on Ellesmere Island and Axel Heiberg Island every year in April and May (Rasmussen, 1921). These annual hunts often coincided with polar bear hunting in March to secure skins for nanut (polar bear pants) (Dick, 2001). Muskox hunts ceased in 1921, while polar bear hunts continued until the 1970s (Lauritzen, 1983).

Observations and Interactions with Wolves: Early twentieth-century explorers and scientists frequently reported sightings of Arctic wolves during their journeys to Ellesmere Island and beyond (Degerbøl and Freuchen, 1935; Haig-Thomas, 1939). It was noted that wolves sometimes followed muskox hunters' sled tracks back to North Greenland (Rasmussen, 1915; MacMillan, 1927;

Vibe, 1948, 1981). Hans Nielsen, who worked at the North Star trading station in Uummannaq, observed numerous wolves around Olrik Fjord and Inglefield Land between 1920 and 1932, including a pack of five wolves (Vibe, 1946). Individual wolves were also noted near Saunders Island in 1944 and Inuarfissuaq in 1937 (Vibe, 1944).

Encounters and Behavioral Descriptions: Ornithologist David Haig-Thomas documented detailed encounters between wolves and sled dogs while traveling with hunter and sled dog driver Nukagpiánguak Imerârssuk on Ellesmere Island. He gives some of the best and most detailed descriptions of behavioral interaction between dogs and wolves, including one encounter on Ellesmere Island (Haig-Thomas 1939:205):

> Two wolves now approached within a few feet from the dogs, which stopped howling. They remained nose to nose, like strange dogs that meet in the street. Then the hairs on the wolves' back stood erect, their lips drew back to show their teeth and next moment they leapt. […] Nookap (Nukagpiánguak) slid a cartridge into the chamber and fired at one of the wolves, which was standing by watching. What was happening in the fight I was unable to see. The dogs and wolves were so mixed up one couldn't tell which was which.

Wolves' aggressiveness towards dogs meant they were feared by both humans and animals. Ilánguak Qaerngâq (pers. comm. 2018) recounted that, in Canada, wolves were known to follow sled tracks and were considered dangerous. Explorer Otto Sverdrup experienced a member of his expedition being attacked by wolves while he was skiing, and Peter Freuchen documented incidents where wolves attacked sled dogs and ate them (Sverdrup, 1903; Freuchen, 1920). Members of the Denmark Expedition also witnessed wolves killing sled dogs (Friis, 1909; Manniche, 1909), and Donald B. MacMillan referred to similar attacks experienced by the Sverdrup expedition (MacMillan, 1918).

Cultural and Mythological Perspectives: North Greenlandic mythology often portrays wolves as dangerous and mystical creatures, deeply intertwined with both the natural and spiritual worlds. These myths not only reflect the harsh realities of life in the high Arctic, but also offer insights into the complex relationship between humans and animals in Greenlandic culture. One such myth, recorded by linguist and archaeologist Erik Holtved and shared by the woman named Amaunalik, is about a girl who had children with her dog-husband. Faced with starvation, she made the desperate decision to send her children away on small boats crafted from her own seal skin boot soles, commanding two of them to become wolves, dangerous and wild beings, thus transforming two into creatures that would be feared by humans (Holtved, 1951). This tale highlights the cultural perception of wolves as born out of extreme circumstances, symbolizing both the survival instincts and unpredictable dangers of the Arctic environment.

Holtved also documented another significant oral history by Amaunalik called "Man Sells a Knife to Wolves," which further explores the enigmatic nature of wolves. In this story, a man carrying a knife encounters a wolf in human appearing as a woman. When the man offers the knife as a gift, the wolf is pleased and hides the man from her wolf-children, whom she fears will devour him. Later, when she-wolf's husband returns home, the wolf-husband is initially suspicious of a human presence but is ultimately pacified by the gift of the knife. The man is allowed to leave, provided with reindeer meat, and warned by the she-wolf not to allow anyone else to visit, as her children would not spare them.

However, one of the man's companions, intrigued by the story, disregards the warning and follows the man's tracks back to the wolves' house. Unlike the first encounter, this visit ends in tragedy, as the wolves drag the intruder inside and consume him, illustrating the peril of ignoring supernatural warnings and the dangers wolves represent in these narratives (Holtved, 1951).

These stories depict wolves as creatures of both respect and fear, capable of interacting with humans on both physical and spiritual levels. The transformation of the girl's children into wolves through her command and the dangerous allure of the wolves in the "Man Sells a Knife to Wolves" narrative both underscore the cultural significance of wolves in Greenlandic mythology. They are not merely animals, but symbolic entities that embody the unpredictable and often perilous relationship between humans and the natural world. Through these myths, North Greenlandic culture conveys moral lessons about the consequences of human actions and the importance of respecting the forces of nature.

Integration Attempts and Hybridization: Historically, attempts to integrate wolves into human activities were largely unsuccessful. Zoologist Christian Vibe recounted how Inughuit adopted a wolf pup on Axel Heiberg Island, but it failed to become a useful sled dog and was eventually found dead. The wolf was not a draft animal (Vibe, 1948, 1981). Peter Freuchen imported a female wolf-dog to Avanersuaq in 1916, but it was useless as a sled dog, was not accepted by the male sled dogs as a potential mate, and ended up roaming with wild wolves before being shot (Degerbøl and Freuchen, 1935). Instances of wolves mating with sled dogs were recorded, resulting in hybrid offspring that were considered dangerous and consequently killed (Degerbøl and Freuchen, 1935; E.S. Simigaq, pers. comm. 2018).

Modern Encounters and Issues: In recent years, Arctic wolves have been observed more frequently around settlements in Avanersuaq (Platou, 2015; Søndergaard, 2016; Avike, 2018; Daorana, 2018; Jeremiassen, 2018; Kristiansen, 2018; A. Qaerngâq, 2018; I. Qaerngâq, 2018; A. Simigaq, 2018; N. Hendriksen, 2019; P. Hendriksen, 2019; Nielsen, 2018; Oshima, 2019) (Table 1). Their presence close to humans and sled dogs has caused significant unrest (Fig. 4). For instance, Patdloq Hendriksen

Table 1. Greenlandic community members interviewed: their backgrounds, locations, and the topics they addressed.

Community interviewees	Background, community, and topics addressed
Rasmus Avike	Inuk, Inughuaq, Greenlander, from Savissivik. Lives in Qaanaaq. Discussed Greenland sled dog (Qimmeq) and wolf interactions.
Panigpak Daorana	Inuk, Inughuaq, Greenlander, from Savissivik. Lives in Qaanaaq. Discussed Greenland sled dog (Qimmeq) and wolf interactions.
Nukagpiánguak Hendriksen	Inuk, Inughuaq, Greenlander, from Siorapaluk. Lives in Siorapaluk. Discussed Greenland sled dog (Qimmeq) and wolf interactions.
Patdloq Hendriksen	Inuk, Inughuaq, Greenlander, from Qeqertarsuaq (Herbert Island). Lives in Siorapaluk. Discussed Greenland sled dog (Qimmeq) and wolf interactions.
Mamarut Kristiansen	Inuk, Inughuaq, Greenlander, from Moriusaq. Lives in Qaanaaq. Discussed Greenland sled dog (Qimmeq) and wolf interactions.
Pavia Nielsen	Kalaaleq, Greenlander, from Qaarsut. Lives in Uummannaq. Discussed Greenland sled dog (Qimmeq) and wolf interactions.
Ikou Oshima	Japanese, from Tokyo. Lives in Siorapaluk. Discussed Greenland sled dog (Qimmeq) and wolf interactions.
Ârqiúnguaq Qaerngâq	Inuk, Inughuaq, Greenlander, from Qeqertarsuaq (Herbert Island). Lives in Qaanaaq. Discussed Greenland sled dog (Qimmeq) and wolf interactions.
Ilánguak Qaerngâq	Inuk, Inughuaq, Greenlander, from Qeqertarsuaq (Herbert Island). Lives in Qaanaaq. Discussed Greenland sled dog (Qimmeq) and wolf interactions.
Edvard Samuelsen	Kalaaleq, Greenlander, from Nuugaatsiaq. Lives in Saattut. Discussed Greenland sled dog (Qimmeq) and wolf interactions.
Aipilánguaq Simigaq	Inuk, Inughuaq, Greenlander, from Siorapaluk. Lives in Qaanaaq. Discussed Greenland sled dog (Qimmeq) and wolf interactions.
Eqilana Sadorana Simigaq	Inuk, Inughuaq, Greenlander, from Qikertat. Lives in Qaanaaq. Discussed Greenland sled dog (Qimmeq) and polar bear interactions.
Aká Simonsen	Kalaaleq, Greenlander, from Qaqortoq. Lives in Qaqortoq. Discussed wolf traps in Norse sites and in Avanersuaq.

FIG. 4. Wolf footprint with human foot for scale. Photograph taken close to the airport in Qaanaaq. Photo credit: Arrutaq Kujaukitsoq.

(pers. comm. 2019) reported seeing fresh wolf tracks near their home in Siorapaluk. Similarly, Ilánguak Qaerngâq (pers. comm. 2018) observed a wolf in Atikerluk showing interest in a child. Although there are no recent reports of direct conflicts between wolves and sled dogs, the animals communicate, as noted by Nukagpiánguak Hendriksen (pers. comm. 2019), who stated that dogs howl in response to wolves howling. In Siorapaluk, people's distress caused by the wolf's nearby presence led to permission being granted to kill the animal, which was subsequently shot in Iterlak (P. Hendriksen, pers. comm. 2019).

Eqilana Sadorana Simigaq recounted an incident from the summer of 2018 in Siorapaluk. From her house, she observed a group of people, including her daughters and other family members, encountering a wolf while harvesting mussels during low tide. Initially mistaken for a dog, the wolf followed the group. Despite their attempts to scare it away by throwing stones, the wolf persisted, particularly eyeing the smallest children. They then followed advice they received from qimmilerihoq. The qimmilerihoq, employed by the municipality, is responsible for managing loose dogs within the settlement; they have the authority to either order the owner to tether a loose dog or euthanize it if necessary. The qimmilerihoq had suggested throwing larger rocks. When the group did this, one managed to hit the wolf, causing it to flee from Siorapaluk (E.S. Simigaq, pers. comm. 2018).

Wolves have also impacted prey populations during hunting trips, with hunters noting a decrease in muskox calves and finding their skeletons, likely due to increased wolf predation (Avike, pers. comm. 2018). Rasmus Avike (pers. comm. 2018) said, "Now there are many wolves in Avanersuaq. When we were on a hunting trip in the north last year, we saw flocks of musk oxen with calves. However, this year, the hunters have not seen any calves. They have only seen the skeletons of calves, indicating that more wolves have arrived." These recent observations underscore the evolving interactions between humans, their sled dogs, and Arctic wolves in this region.

In 2020, subsistence hunters in Avanersuaq were granted permission to kill wolves. This decision was based on increased wolf activity affecting terrestrial prey and wolves coming too close to humans (Departementet for Fiskeri og Fangst, 2020; Grønlands Selvstyre, 2020).

My informants' knowledge provides previously unpublished insights into wolf occurrences and behavior. Since the late 2010s, Arctic wolves have increasingly approached settlements in the High North, particularly in the Avanersuaq districts. Wolves hunt and live near humans, with their tracks frequently seen near villages. In Siorapaluk, sled dogs are often heard howling in response to nearby wolves.

Wolves in West Greenland

Archaeological and Early Accounts: The presence of wolves in West Greenland has been documented through historical accounts, archaeological findings, and more recent encounters. Wolves are believed to have migrated from Baffin Island to West Greenland (Dawes, et al.,1986). The earliest evidence of wolves in West Greenland dates back to a canine tooth found during the excavation of the Saqqaq Culture site at Itinnera, near the head of Nuup Kangerlua (Nuuk Fjord) (Fleischer, 1977; J. Rosing, 2000). The Icelandic saga Konungs Skuggsjà (circa 1260) provides the first historical account, with Bishop Einar Gunnarsønn reporting sightings of wolves, hares, and caribou (Jónsson, 1926). The presence of wolves is further supported by the discovery of a wolf cranium and tooth at the Norse farm at Nipaatsok in Ameralik Fjord (Rosing and Andreassen, 1978; J. Rosing, 2000; Møhl, 1982; Vibe, 1967).

Norse Settlements: Indirect evidence from Norse colonies in Østerbygden and Vesterbygden includes large stone traps interpreted as wolf traps, which are smaller than bear traps but larger than fox traps (Bruun, 1895, 1905, 1915, 1917; Guldager et al., 2002; Simonsen, pers. comm. 2022). These traps suggest that wolves were a recognized threat to livestock, prompting efforts to control their population.

Zoologist Magnus Degerbøl identified remains of two distinct types of dogs: one group, similar in size and morphology to Icelandic sheepdogs, which were likely used for herding sheep, and a second group of significantly larger dogs. The latter, exhibiting morphological traits akin to modern greyhounds and Irish wolfhounds, are hypothesized to have been used as hunting aids, potentially in the pursuit of caribou or walrus (Degerbøl, 1936; Smiarowski, 2022). Additionally, although definitive evidence is lacking, I believe it is possible these larger dogs may have also functioned as livestock guardians, protecting herds from wolves.

Possible wolf remains have been identified as *Canid* sp. However, due to the potential size overlap between the larger Norse hunting dogs and wolves, some (Degerbøl, 1934, 1936; Smiarowski, 2022) consider the identification of wolf bones as inconclusive. This issue remains unresolved and should be approached as a case not proven until further verification through ancient DNA (aDNA) analysis (Degerbøl, 1934, 1936; Smiarowski, 2022).

Cultural and Mythological Perspectives: Oral stories from West Greenland provide a rich tapestry of cultural and mythological perspectives on wolves. Discussions of wolves often intertwine with themes of reindeer hunting, shape shifting, and the spiritual world. These narratives not only reflect the Indigenous understanding of wolves, but also their significance in the broader cultural and spiritual life of the region.

One such narrative was collected by geologist Hinrich Rink (1819–93) from an anonymous source in West Greenland. In this story, set in the Godthåb (Nuuk) fjord, a grieving man joins a group of hunters, who warn him of loud noises they had heard in Akulleq, prompting them to flee the area. Unperturbed by their warnings, the man, driven by his grief, decides to venture into the area with a relative. The relative cautions him about the supernatural dangers posed by wolves, which are believed to have the ability to perceive everything and even extract a person's soul. Despite these warnings, the grieving man proceeds, encountering five wolf pups playing with such speed and agility that they seem to multiply before his eyes. Disregarding the cautionary advice, the man kills the wolf pups, a careless action that terrifies his companion, who flees in fear. Shortly afterwards, the adult wolves return, each carrying a reindeer in its jaws. The male wolf, enraged upon discovering the death of its pups, retrieves a human figure, later revealed to be the mourner's soul, from a nearby lake and throws it to the ground. This act results in the mourner's death as the wolf exacts its revenge by claiming his soul. The story concludes with the wolves retreating, leaving the area of Akulleq free from wolves from that time forward (Rink, 1982).

Knud Rasmussen documented another set of stories, including a narrative related by Vítoralak from *Ìkamiut*, north of Maniitsoq. This tale centers on an elderly couple whose daughter mysteriously disappears after leaving to get snow. The father embarks on a search and eventually finds her living in a distant house with a small baby boy. Satisfied with her safety, he returns home to inform his wife. However, the daughter becomes curious about her new husband's method of hunting reindeer and follows him one day, only to witness him transform into a large wolf. Horrified by this revelation, she returns home, but the discovery sets off a series of events that leads her to flee with her son to her parent's summer campsite. Despite her husband's attempts to lure them back by promising reindeer fat and beautiful hides, the family successfully escapes by cutting their tether rope and retreating to a remote island. The narrative concludes with the family permanently settling on this distant island, too terrified to return to the mainland, and where their grave mounds were eventually erected (Rasmussen and Søby, 1981).

These stories reflect the deep cultural significance of wolves in West Greenlandic folklore, portraying them

not only as physical beings, but entities with supernatural abilities, capable of interacting with the spiritual world. They highlight the complex relationship between humans and wolves, where wolves are respected, feared, and often seen as guardians of the natural and spiritual order.

Documented Wolf Sightings: Documented wolf sightings in West Greenland have been rare over the last 250 years. Missionary Johan Christian Wilhelm Funch reported a wolf sighting in Uummannaq Fjord in 1836, where hunters mistook a wolf for a large dog-like creature that took off in the direction of a seal they had caught. The hunters fled and the wolf was not caught (Funch and Pedersen, 2015).

An incident related by Pavia Nielsen (2018) concerns a wolf shot in Illorsuit, possibly connected to a wolf pair seen near the village in 1868–69. These wolves frequented a shark-fishing spot to consume entrails. There, they killed dogs by biting and crushing their necks and spines without consuming them. Hunter Ittuumi eventually shot the male wolf in the spring of 1869, while the female was heard howling from the mountains (Kruse, 1992). It was probably a pregnant female, as the footprints of an adult wolf and cubs were later observed. The mounted remains of the male wolf are displayed at the Natural History Museum of Denmark (Reinhardt, 1875). At that time, dogs were not tethered in West Greenland (Nielsen, pers. comm. 2018).

In 1867, a man from Ilimanaq saw wolf tracks near Tasiusaq (Brown, 1868).

Morten Porsild documented several wolf sightings in the Disko Bay area (Porsild, 1916). While some observations were speculative, others, like those by local hunter Tobias Gabrielsen and expedition member Peter Hansen, seemed plausible.

Artist and author Jens Rosing mentioned a wolf shot in Uummannaq in 1926 and two or three wolves roaming the Appat/Ritenbenk region in 1932 (Schultz-Lorentzen, 1999). Another wolf was killed in Nuugaatsiaq in 1978 (Dawes, 1978; Fleischer, 1978; Dawes, et al., 1986; Samuelsen and Petersen, 2010; Samuelsen pers. comm. 2018).

In more recent years, wolves have continued to stray into Uummannaq Fjord and Disko Bay districts, occasionally breeding there. Encounters with people and sled dogs have usually resulted in wolves killing dogs, retreating, or being killed.

Edvard Samuelsen shared accounts of a wolf shot in Nuugaatsiaq before the early 1980s, likely the same wolf reported in 1978. A man mistook the wolf for a dog and placed a dog in heat nearby, hoping they would mate. Although the wolf approached the female dog, it remained shy and wouldn't let humans come close. When the man couldn't get near what he still though was a dog, they put it down, only realizing afterward that it was a wolf (Dawes, 1978; Fleischer, 1978; Dawes et al., 1986; Samuelsen, pers. comm. 2018). The wolf had been frequenting a fishing spot for fish entrails (Petersen, 2010).

In southwestern Greenland, around 1958, sheep farmers, including Aqqa Lund, observed a wolf believed to have arrived on drift sea ice from Northeast Greenland. The farmers wanted to put the wolf down, but it disappeared, and they never saw it again (Simonsen, pers. comm. 2022).

The presence of wolves in West Greenland, historically and in more recent times, highlights their adaptability and the ongoing potential for interbreeding with sled dogs. Despite rare sightings over the past few centuries, evidence suggests that wolves have periodically inhabited and even bred in the region, interacting with human populations and their animals. As wolves continue to venture into West Greenland, the potential for interbreeding with sled dogs and Norse sheepdogs remains a possibility.

DISCUSSION

Historical and contemporary interactions between wolves, humans, and their sled dogs in the High Arctic and West Greenland present a fascinating case study of wildlife–human relationships in extreme environments. This study highlights the complexity of these interactions, tracing their evolution over centuries and showing how they have been influenced by cultural, ecological, and socioeconomic factors.

Historical Context

The historical context provided by European and American explorers, along with Indigenous Kalaallit and Inughuit hunters, reveals frequent encounters with wolves during sled dog expeditions in Northern Greenland and Arctic wolf territories. These interactions were closely linked to the Inughuit's traditional hunting practices on Ellesmere Island and Axel Heiberg Island. Expeditions of the early twentieth century, documented by explorers such as Rasmussen (1915, 1921) and Haig-Thomas (1939), highlight frequent encounters with wolves during hunts for muskox and polar bears. These historical accounts illustrate the adaptive strategies of wolves, such as following sled tracks, which facilitated their movements and increased interactions with humans. They also detail how wolves displayed aggressive behavior towards humans and dogs, killed dogs, and sometimes consumed them.

Behavioral interactions between wolves and sled dogs, meticulously recorded by explorers like Haig-Thomas, reveal a complex dynamic of curiosity, aggression, and territoriality. Detailed descriptions of wolf attacks on sled dogs underscore the natural predatory instincts of wolves and the consequent fear they instilled in both humans and their animals. Such interactions often led to violent confrontations, as wolves were perceived as a significant threat to the livelihood and safety of expedition members and their sled dogs.

Cultural and mythological perspectives on wolves in Greenlandic oral traditions reflect a profound connection between nature and spirituality in North and West Greenlandic communities. Wolves are depicted not merely

as animals, but as complex beings that embody both danger and protection. They serve as symbols of the unpredictable forces of nature, representing the thin line between survival and peril.

In North Greenland, narratives like those recorded by Holtved (1951) highlight wolves as creatures born from extreme circumstances, symbolizing desperation and the harsh realities of the Arctic environment. The story of Amaunalik, where children born from a dog-husband are transformed into wolves, underscores the wolves' role as embodiments of natural forces that humans must navigate with caution.

West Greenlandic stories, such as the one documented by Rink (1982), further emphasize the supernatural abilities of wolves. These narratives intertwine themes of grief, revenge, and spiritual retribution, portraying wolves as agents of moral and spiritual balance. Rasmussen's (1981) accounts add another layer, depicting wolves as shape-shifters capable of deception, reinforcing the idea that wolves are not just physical beings, but also powerful spiritual entities that demand respect and distance.

Efforts to integrate wolves into human activities, such as using them as sled dogs, were largely unsuccessful. The accounts of Vibe (1948), Degerbøl and Freuchen (1935) and E.S. Simigaq (pers. comm. 2018) illustrate the inherent challenges in domesticating wolves and their hybrids. Wolves' natural behaviors and instincts made them unsuitable for sled work, and hybrid offspring were considered dangerous and often culled. These failed attempts underscore the biological and behavioral differences between wolves and sled dogs, highlighting the complexities of hybridization.

Modern Encounters

In recent decades, there has been a notable increase in wolf sightings and encounters near human settlements in Avanersuaq. This resurgence can be attributed to several factors, including changes in prey availability, environmental conditions, and possibly reduced hunting pressure on wolves. The close proximity of wolves to human habitations has led to increased tensions, as evidenced by recent accounts of wolves following children and causing unrest among local populations. The increased wolf activity has also impacted prey populations, notably muskox calves, indicating a shift in local ecological dynamics. The decision to grant subsistence hunters permission to kill wolves in 2020 reflects ongoing concerns about the impact of wolves on traditional hunting practices and human safety.

Wolves in West Greenland

The historical presence of wolves in West Greenland, documented through archaeological finds and historical records, indicates that wolves have been sporadic but persistent inhabitants of the region. Evidence from Norse settlements and subsequent sightings suggests that wolves were recognized as a threat to livestock, requiring control measures, such as large stone traps designed to capture them. The rare but periodic sightings of wolves in the nineteenth and twentieth centuries, coupled with more recent encounters, highlight their resilience and adaptability. Despite the relatively rare sightings, the potential for interbreeding between wolves and sled dogs, as well as Norse and modern farmers' dogs, remains, given that wolves have also been encountered in South Greenland.

Ecological and Conservation Implications

The ecological implications of wolf presence in these regions are significant. Wolves play a crucial role as apex predators, influencing prey populations and ecosystem dynamics. The reported decrease in muskox calves due to increased wolf predation is a clear example of their impact on local fauna. As human–wolf encounters become more frequent, there is a need for balanced conservation strategies that protect both human interests and the ecological integrity of the region.

Looking forward, it is essential to continue monitoring wolf populations and their interactions with humans and other wildlife. The potential for hybridization between wolves and sled dogs or sheepdogs remains a concern, as it can lead to unpredictable changes in behavior and genetics. Additionally, the cultural perspectives and traditional knowledge of Indigenous communities should be integrated into wildlife management plans to ensure culturally sensitive and effective strategies. The historical and contemporary dynamics between wolves, humans, and their environments in the High Arctic and West Greenland underscore the complexity of wildlife management in extreme environments. Balancing the ecological roles of wolves with the safety and livelihoods of local human populations requires a nuanced and informed approach, guided by both scientific research and traditional knowledge.

CONCLUSION

Interactions between wolves, humans, and their dogs in the High Arctic and West Greenland have evolved over centuries, reflecting the complex dynamics of wildlife–human relationships in extreme environments. Historical accounts from explorers, kalaallit, and Indigenous Inughuit hunters provide a rich narrative of these interactions, highlighting the adaptive behaviors of Arctic wolves and their impact on human activities. The persistent presence of wolves, despite various efforts to control or integrate them, underscores their resilience and adaptability.

Cultural and mythological perspectives from Greenlandic traditions reveal a deep-seated fear and respect for wolves, shaping social norms and cautionary practices. These cultural narratives, combined with the practical challenges of hybridization and failed domestication

attempts, illustrate the inherent differences between wolves and domestic dogs.

In recent decades, increased wolf sightings near human settlements in Avanersuaq have led to heightened tensions and concerns about safety and prey populations. The ecological role of wolves as apex predators has significant implications for local fauna, particularly muskox calves, highlighting the need for balanced, conservation strategies.

The historical and contemporary presence of wolves in West Greenland, evidenced through archaeological finds and documented sightings, indicates their sporadic but persistent habitation of the region. These findings emphasize the importance of ongoing monitoring and research to understand the dynamics of wolf populations and their interactions with humans and other wildlife.

Future wildlife management in these regions must integrate scientific research with traditional knowledge to develop culturally sensitive and effective strategies. Balancing the ecological roles of wolves with the safety and livelihoods of local human populations requires a nuanced and informed approach, ensuring the conservation of both natural and human communities in the High Arctic and West Greenland.

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