

Diet study of Arctic wolves in Sirius Passet, Greenland

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Abstract

In the Arctic, terrestrial wolves are an important top predator to prey on a variety of animals from small rodents and birds to large ungulates. Although wolves have been studied well, we have few information in high Arctic areas. To investigate the diet of high Arctic wolves, we collected 13 fecal samples in Sirius Passet in North Greenland for three years from 2016 to 2018. By analyzing the fecal components with a microscope, we determined the diet composition of the wolves. We found that a majority of prey was lemmings (54.2% of occurrence) and the second was birds (33.3%). We also detected hairs and bones of muskoxen (8.3%) and Arctic hares (4.2%). These results are not in accordance with the one in a previous study in early 1990s in the same site that the main food sources were muskoxen. Our findings suggest that wolves are highly dependent on lemmings and birds in this area and the diet compositions may have changed with the limited ungulate population.



Fig 1. Our study site is located on the east shore of J. P. Koch Fjord at the southwestern end of Siriuspasset, at altitudes of 0-300 m a.s.l., and here a well-vegetated area, from Lee 2018 (DOFT).



Fig 2. Sampling of 13 fresh wolf scats in July and August from 2016 to 2018 near the camping site



Fig 3. Prey candidates from wolf scats using microscope (×6)

Table 1. Detected prey items from 13 wolf scats

	gs1	gs2	gs3	gs4	gs5	gs6	dl	dl1	dl2	dl3	w1	w2	w3
Avian feather		✓		✓		✓				✓			
Lemming hair						✓	✓			✓		✓	
Muskox hair													✓
Arctic hare hair	✓												
Arctic hare bone										✓			
Lemming bone	✓						✓			✓		✓	
Muskox bone													✓

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Diet study of Arctic wolves in Sirius Passet, North Greenland ecosystem

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In the Arctic, terrestrial wolves are an important top predator to prey on a variety of animals from small rodents and birds to large ungulates. Although wolves have been studied well, we have few information in high Arctic areas. To investigate the diet of high Arctic wolves, we collected 13 fecal samples in Sirius Passet in North Greenland for three years from 2016 to 2018. By analyzing the fecal components with a microscope, we determined the diet composition of the wolves. We found that a majority of prey was lemmings (54.2% of occurrence) and the second was birds (33.3%). We also detected hairs and bones of muskoxen (8.3%) and Arctic hares (4.2%). These results are not in accordance with the one in a previous study in early 1990s in the same site that the main food sources were muskoxen. Our findings suggest that wolves are highly dependent on lemmings and birds in this area and the diet compositions may have changed with the limited ungulate population.

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