CMS GIUM

Global Initiative on Ungulate Migration

FACT SHEET

Moose: Haparanda-Kalix Archipelago, Sweden

Migration Description

Following a population bottleneck due to overhunting in the early 1900s, moose populations have rebounded across Sweden. Sweden is now home to the densest population of moose in the world. Moose in Sweden are partially migratory, with some animals remaining resident year round and others making migrations up to 200 km long. Their migration distance and duration vary in response to weather conditions, forage availability and the latitudinal or east-west gradients they travel across. The onset of spring migration is typically consistent across individuals in the same area, whereas fall migration is a more protracted process with moose leaving summer ranges at different times.

Along Sweden's northern archipelago, moose swim among small islands in the Baltic Sea. Most moose remain residents, while the migratory animals fall into two groups – one that utilizes different islands and parts of the mainland during different times of the year and a second one that migrates from the mainland along the coastline in winter north into the interior during summer. Migration routes are typically specific to the individual and are relatively predictable from year to year. The archipelago is characterized by forested habitats that are separated by water and a distinct human footprint (i.e. infrastructure, wind power, recreational activity). A fenced highway with designated openings for wildlife along the coastline is a semi-permeable barrier for migratory moose living south of the road that migrate north into the interior.

Threats to Migration

In Sweden, moose encounter anthropogenic disturbance across their range (e.g. forestry, roads, energy development and recreational activities). Busy roads and major railways can affect migration routes and cause collisions with moose. Fenced high speed railways form a significant barrier. In the Haparanda archipelago, the fenced highway with designated openings for wildlife running along the coastline is a semi-permeable barrier for migratory moose living south of the road. The Swedish forest landscape is increasingly cleared for wind energy infrastructure. So far, whether wind parks affect moose movement and their habitat utilization is not well studied. Climate change may also threaten moose migrations by altering precipitation patterns, temperature, and plant growth in moose habitat. Changing ice layers on rivers and along the Baltic Sea may influence moose migration timing and routes. More research is needed to understand how these changes may affect moose migration patterns and whether these cumulative shifts may alter the benefits of migrating. Hunting may also impact migratory behavior. Moose management adjusts harvest quotas across management units with migratory moose, using knowledge generated by research on area-specific proportion of migrants, average migration distance and dominant migration direction. Though the harvest targets both resident and migratory individuals, more research is needed to understand how harvest influences the ratio of these two strategies.

Local Population Facts

Migration

Seasonal

Short *11 km (avg.)*

Threats

Climate change; Energy dev.; Urban sprawl; Linear barriers; Agriculture; Livestock; Illegal killing; Other

Species Facts

Common name: Moose

Species name: *Alces alces*

Range: Boreal forests of the northern hemisphere

Diet: Woody browse, broadleaf vegetation, herbaceous plants

Global population: Exceeding 1.5 million

IUCN Conservation Status

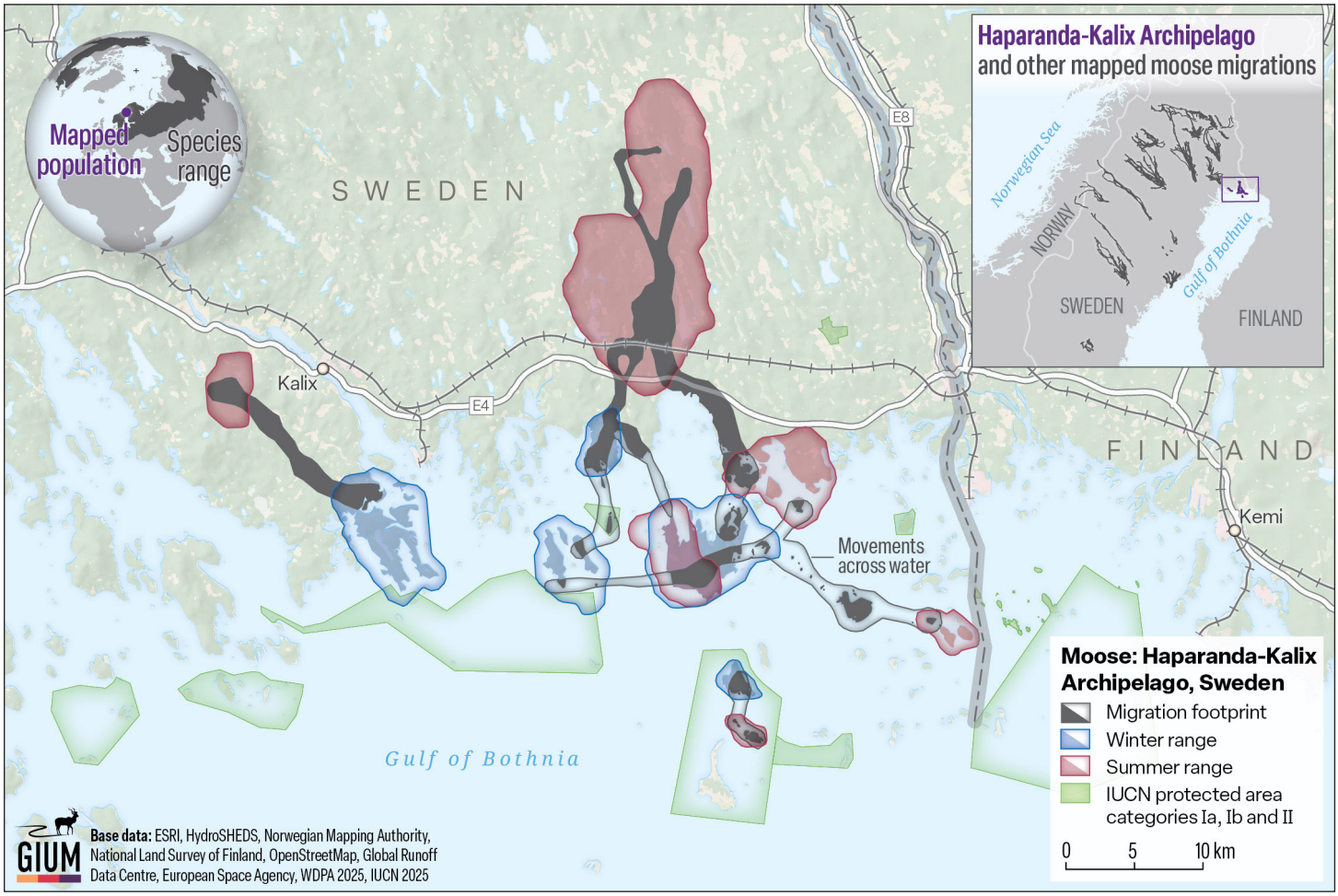
LC Least concern

CMS Status

Not listed

DRAFT: May 27, 2026

Moose Migration



Winter range			Spring migration	Summer range				Fall migration	Winter range		
Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec

Study Information

Relocation frequency
3 hour

Project duration
2016–2019

Data Analysis

Migratory Individuals Mapped
6

Delineation of migration periods
Net squared displacement to delineate migration between seasonal ranges.

Models derived from
Brownian Bridge Movement Model; Kernel densities used to derive winter and summer ranges.

Route Summary

Migration start and end date (median)
- Spring: 3 days
- Fall: 2 days

Average number of days migrating
- Spring: April 16–April 27
- Fall: September 21–September 23

Migration route length
- Min: 3.5 km
- Mean: 11 km
- Max: 20 km

Data Providers

Data were collected through the efforts of Göran Ericsson and Wiebke Neumann of the Swedish University of Agricultural Sciences. Data collection was funded by the Swedish County Administrative Board of Västerbotten, the Swedish Association for Hunting and Wildlife Management, and different landowners.

In partnership with:

SLU

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The Convention on the Conservation of Migratory Species of Wild Animals (CMS), also known as the Bonn Convention, is an environmental treaty of the United Nations that provides a global platform for the conservation and sustainable use of terrestrial, aquatic and avian migratory animals and their habitats.

GIUM www.cms.int/gium

The Global Initiative on Ungulate Migration (GIUM) was created in 2020 to work collaboratively to: 1) create a Global Atlas of Ungulate Migration using tracking data and expert knowledge; and 2) stimulate research on drivers, mechanisms, threats and conservation solutions common to ungulate migration worldwide.

View and Download Map Data from the GIUM Migration Atlas

Neumann, W. and G. Ericsson. 2026. Moose: VHaparanda-Kalix Archipelago Sweden. Global Initiative on Ungulate Migration, editors. *Atlas of Ungulate Migration*. Convention on the Conservation of Migratory Species of Wild Animals.