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# Moose: Central 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.


In the country's central interior, long snowy winters (Nov.-April) and short summers (June-Aug.) characterize the moose's migratory range. Here, about half of the population is migratory. Except for one large river, the habitat is relatively homogenous. Migration routes are typically specific to the individual and are relatively predictable from year to year, and travel directions vary. This area is characterized by rotation forestry, mires, lakes, rivers, and the presence of both brown bears (*Ursus arctos*) and wolves (*Canis lupus*). Predation, particularly predation by a dense bear population on moose calves, shapes their population dynamics. Their movements have also been influenced by a major wildfire that burned about 9,000 ha in 2018, creating a large continuous area of young successional forests next to an actively managed rotation forestry.

## Threats to Migration

In Sweden, moose encounter anthropogenic disturbance across their range, including forestry, roads, energy development and recreational activities. Busy roads can affect migration routes and cause vehicle-moose collisions. Climate change may also threaten moose migrations by altering precipitation patterns, temperature, and plant growth in moose habitat, particularly in mountainous environments, though the extent of these impacts is yet unknown. Additionally, forests are increasingly cleared for wind energy infrastructure, including larger wind parks. However, more research is needed to determine if and how wind parks affect moose movement and their habitat utilization. Hunting may also impact migratory behavior. Browsing on Scots pine in winter generates conflicts with forest management, resulting in higher harvest quotas in areas with high browsing levels. Migratory moose usually return to their winter range once the annual hunt has concluded, adding to the number of animals using coniferous forest as winter range. To compensate for this, 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 13 km (avg.)

### Threats



## 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

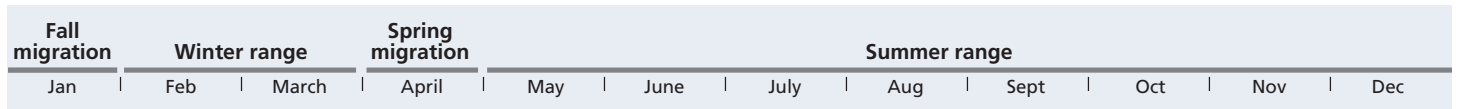
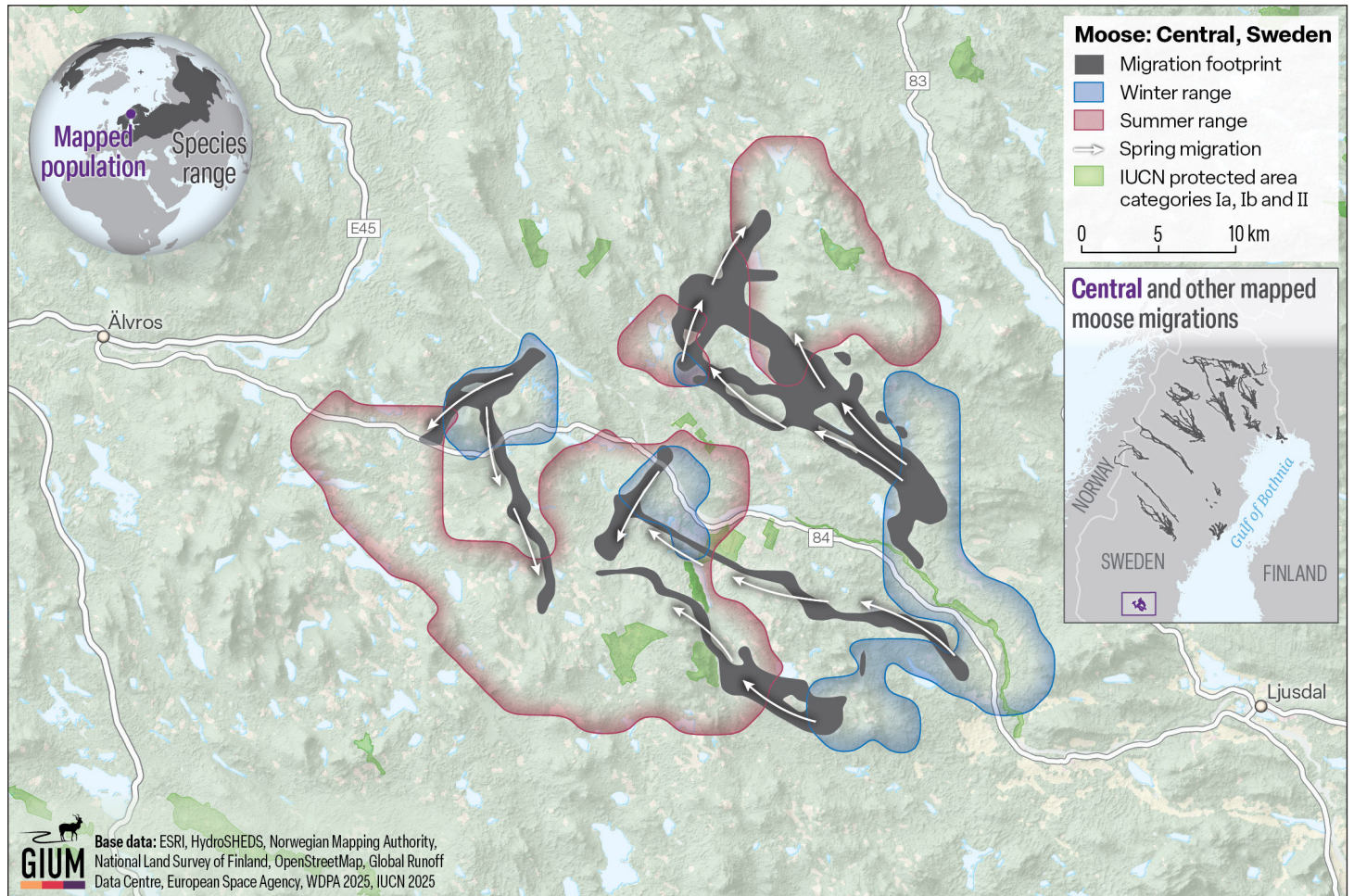
### IUCN Conservation Status

**LC** Least concern

### CMS Status

Not listed

# Moose Migration



## Study Information

### Relocation frequency

3 hour

### Project duration

2020–2026

## Data Analysis

### Migratory Individuals Mapped

10

### 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: 5 days
- Fall: 23 days

### Average number of days migrating

- Spring: April 16–April 21
- Fall: January 1–January 23

### Migration route length

- Min: 5 km
- Mean: 13 km
- Max: 23 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 Sveaskog, the County Administrative Board of Gävleborg, Kopparfors Skogar, and the Swedish Association for Hunting and Wildlife Management.

### In partnership with:



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.



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: Central Sweden. Global Initiative on Ungulate Migration, editors. *Atlas of Ungulate Migration*. Convention on the Conservation of Migratory Species of Wild Animals.