



© Ian Freeman

Moose: Jasper to Grande Cache, Alberta, Canada

Migration Description

In Alberta, moose distribution is dominant in the northern boreal and Rocky Mountain foothills, with an expanding population in southern parkland and grassland ecoregions. Moose thrive in areas characterized by a mosaic of younger plant communities that they use for forage and older forests where they seek thermal cover and safety. Moose are partially migratory, meaning some individuals migrate and others remain resident year round. Many moose migrate from the foothills of the central Canadian Rockies to higher elevation summer ranges. Their migrations are driven by the accessible elevational gradients (ranging from 650–1880m) and the associated habitat diversity. On average, moose migrations were 24 km long and strongly influenced by topographical gradients. In winter, individuals mainly forage along the valley bottoms and in the foothills, which are widely affected by anthropogenic changes, including clear-cuts and oil and gas development. In spring, migratory individuals move along steep elevational gradients to arrive at the higher elevation summer ranges. In the fall, with the onset of colder weather, migratory animals return to the low elevation areas. In many cases, they traverse nearly identical migratory paths as in spring. Trembling aspen, lodgepole pine, white and black spruce and other pine species characterize the low elevation habitats, while lodgepole pine and Engelmann spruce characterize the alpine ecosystem.

Threats to Migration

Moose in west-central Alberta may benefit from some forms of human landscape alteration. A forest management regime that fosters a combination of old and young forests with sufficient cover, while minimizing roads, offers moose ample forage opportunity and a relatively connected habitat. Regardless, extensive exploitation activities for forestry, extraction of coal and aggregates, as well as oil and gas, overlap with moose migrations in the region. Besides a risk of vehicle collisions for moose, roads favor increased hunting access and facilitate the movement of predators. Importantly, climate change is expected to alter moose migrations through shifting precipitation regimes. A warming climate may exacerbate the negative effects associated with broad scale landscape alteration by humans. Milder temperatures have also been associated with increased tick loads. Moose population declines of 40 percent have been observed in the adjacent farmland areas to the north under severe tick-related events.

Within the ecosystem, moose provide the main prey for large carnivores, driving apparent competition between moose and woodland caribou – a threatened species under Alberta’s Wildlife Act and Canada’s Species at Risk Act. Moose migration patterns may affect these predator-prey dynamics. The ecosystem implications of partial migration by moose and its role in the recovery of threatened woodland caribou may merit further research.

Local Population Facts

Migration



Threats



Species Facts

Common name: Moose

Species name: *Alces alces*

Range: Boreal forests of the northern hemisphere

Diet: Browser of deciduous shrubs

Global population: Exceeding 1.5 million

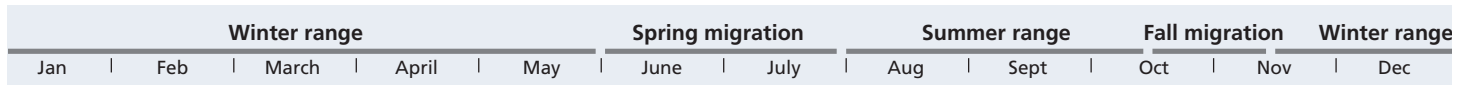
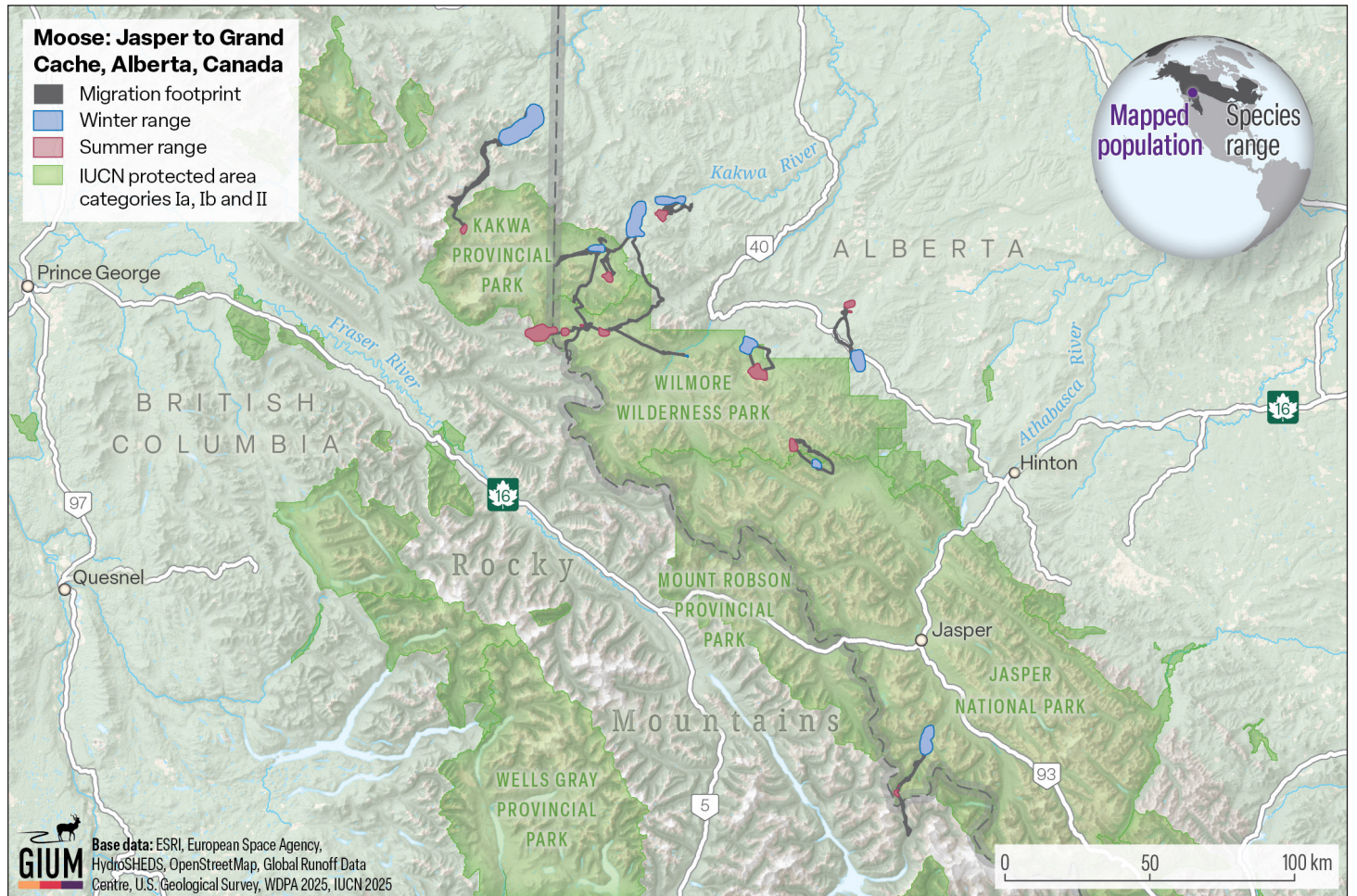
IUCN Conservation Status

LC Least concern

CMS Status

Not listed

Moose Migration



Study Information

Sample size

9 individuals

Relocation frequency

2 to 4 hours

Project duration

3 years, between 2008–2010

Data Analysis

Delineation of migration periods

Net squared displacement to delineate migration between winter and summer ranges

Models derived from

Line buffer (1km width)

Route Summary

Migration start and end date (median)

- Spring: June 05–July 19
- Fall: October 29–November 01

Average number of days migrating

- Spring: 27.8 ±22.9 days
- Fall: 22.4 ±13.3 days

Migration route length

- Min: 7.0 km
- Mean: 22.4 km
- Max: 58.7 km

Data Providers

Data for this project were collected through the efforts of Mark Hebblewhite with the University of Montana, Wibke Peters, now with the Bavarian State Institute of Forestry, Wildlife Biology and Wildlife Management Unit, and the University of Calgary.

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

Peters, W., and M. Hebblewhite. 2025. Moose: Jasper, Canada. Global Initiative on Ungulate Migration, editors. *Atlas of Ungulate Migration*. Convention on the Conservation of Migratory Species of Wild Animals.