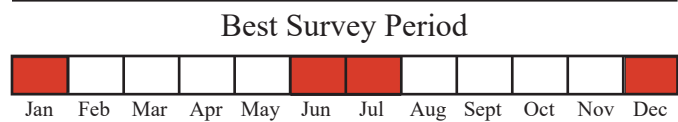
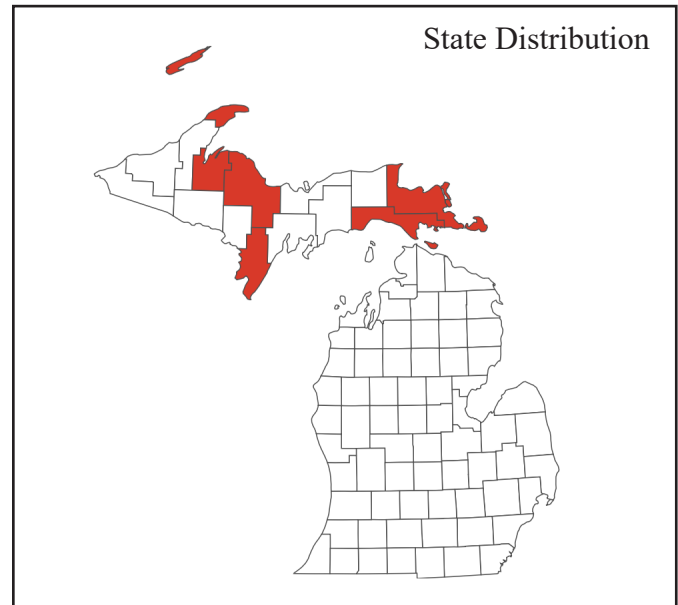




Photo by Jesse Lincoln, MNFI



Status: State special concern

Global Rank: G5

State Rank (Michigan): S4

Family: Cervidae

Total Range: According to Franzmann and Schwartz (2007), moose (*Alces alces*) have a circumpolar distribution wherever suitable habitat occurs. In North America, moose range from Alaska to Newfoundland, with southern populations extending into the contiguous United States. Moose are relatively recent colonists of several western states, becoming established in Montana and Idaho during the mid-1800s and subsequently expanding into Colorado, Wyoming, Utah, and Washington, where populations continue to expand. In the Midwest, moose occur in northeastern Minnesota, Michigan's Upper Peninsula, and northern Wisconsin. In the Northeast, moose occur in portions of northern New York, Vermont, New Hampshire, and throughout most of Maine (Franzmann and Schwartz 2007; Timmermann 2003).

State Distribution: Moose currently occur

throughout portions of Michigan's Upper Peninsula and have been extirpated from the Lower Peninsula since the late 1800s. Moose are regularly documented in Marquette, Baraga, Iron, Alger, Schoolcraft, Luce, and Chippewa counties. Moose are common on Isle Royale, which is administratively part of Keweenaw County; however, moose are not currently reported from the mainland portion of Keweenaw County. In 2025 MDNR surveys documented approximately 300 moose in the Upper Peninsula and approximately 500 animals on Isle Royal (Michigan Department of Natural Resources 2026).

Recognition: Moose are readily recognized by their massive size and are the largest living member of the Cervidae family. Pelage ranges from brown to straw-colored and becomes grayer during the winter months (Peterson 1955). Newly grown spring pelage appears nearly black. Adult bulls in Alaska may exceed 800 kg (1,800 lbs.), whereas bulls throughout most of the remainder of the species' range typically weigh between 450 and 590 kg (1,000–1,300 lbs). Shoulder height ranges from 1.5–1.9 m (60–75 in), with cows being smaller than bulls (Peterson 1955).



Best Survey Time: Traditionally, aerial moose surveys have been conducted during January, when snow cover and reduced deciduous foliage maximize detectability from aircraft (Minnesota Department of Natural Resources 2026). This survey methodology continues to be used in Michigan. However, recent camera-trap research suggests that the optimal periods for estimating relative moose abundance are June–July and December–January (Boone et al. 2025).

Habitat: Franzmann and Schwartz (2007) described moose as selective habitat generalists that prefer landscapes containing a mosaic of early and mid-successional forests interspersed with wetlands supporting abundant aquatic vegetation. However, moose also occupy landscapes where aquatic habitats are scarce or absent. Riparian corridors influenced by periodic disturbance and boreal forests maintained by wildfire create diverse successional stages that provide high-quality moose habitat. Conversely, extensive commercial clearcutting has been associated with reduced moose occupancy (Franzmann and Schwartz 2007). Moose in Michigan are associated with second growth upland forests, boreal forest, cedar swamps, and various wetlands communities near lakes, rivers, and streams.

Biology: Moose are primarily crepuscular, although nocturnal activity is common. During daylight hours they typically rest and ruminate (Peterson 1955). They are generally solitary except for cow-calf groups, although winter yarding behavior has occasionally been observed, and females may congregate around bulls during the breeding season in tundra populations (Franzmann and Schwartz 2007).

Home-range size varies considerably with sex, age, season, and habitat quality. Estimates range from approximately 2 square miles to more than 100 square miles (5.2–259 km²) when seasonal movements are included (Franzmann and Schwartz 2007).

Male moose of about six years old enter the rut

(i.e., breeding season) during September and October in Michigan, and cows typically give birth to one or two calves during May and June. Cows reach sexual maturity at about three years old. Calves remain with their mothers until the following spring (Franzmann and Schwartz 2007). Breeding strategies differ between taiga (boreal forest) and tundra populations. Taiga populations typically exhibit serial pair mating, whereas tundra populations exhibit harem mating. These differences are thought to reflect climatic constraints, as both breeding and calving seasons are shorter in tundra environments, limiting the prolonged courtship observed farther south (Franzmann and Schwartz 2007).

Moose are browsers whose diet consists primarily of leaves, twigs, and aquatic vegetation. Although more than 200 plant species have been documented in their diet, they show strong preferences for aspen, willow, and aquatic plants. During winter they rely heavily on conifer foliage and twigs from willow and aspen (Peterson 1955; Franzmann and Schwartz 2007).

Conservation and Management: Moose conservation in Michigan began with an unsuccessful reintroduction attempt during the 1930s. A second reintroduction conducted during the 1980s proved successful, and descendants of those animals now comprise the Upper Peninsula population (Dodge et al. 2004). The most recent Michigan Department of Natural Resources survey estimated approximately 300 moose distributed across the Upper Peninsula (Michigan Department of Natural Resources 2026). The most recent Isle Royale moose survey estimated 524 individuals, down 38% from 2024 (Hoy et al. 2026).

According to Franzmann and Schwartz (2007), research in Canada indicates that boreal forest fires create successional stages that provide ideal habitat for moose. The mosaic of successional stages created by fire moving through a landscape are not mimicked by large-scale commercial logging operations and make areas unsuitable for moose. Moose in Michigan are threatened by large-scale clearcutting



operations that make no attempt to emulate natural succession of forests after natural disturbances from major windthrow and ice damage events and wildfires.

Research Needs: Understanding factors limiting population growth following successful reintroduction remains an important research priority. Dodge et al. (2004) suggested that because Michigan represents the southern edge of the species' range, available forage may not provide sufficient nutritional quality to support the rates of population growth originally anticipated following reintroduction.

Ruprecht et al. (2016) examined reproduction in **Shiras moose** in Colorado and found a strong relationship between winter rump-fat reserves and subsequent calving success. Females with inadequate fat reserves were substantially less likely to produce calves. Together, these studies suggest that nutritional condition and forage quality are likely important factors influencing population growth in Michigan's moose population.

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