

EXPANDING GIS ANALYSES TO MONITOR AND ASSESS NORTH AMERICAN MOOSE DISTRIBUTION AND DENSITY¹

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ABSTRACT

Development of long-term geographic information system (GIS) databases of species densities and distributions, combined with biological, ecological, and management-related metrics, can help guide research and management strategies. Here we summarize 3 decades of North American moose (*Alces alces*) population and harvest densities collected at the management unit scale for the years 1980, 1990, 2000, and 2010. A summary analysis of these data indicates that moose have both expanded and contracted along their southern range boundary in recent decades - including the Prairie Provinces and states, and much of the northeastern United States. A narrow band of relatively stable and high-density moose populations extends from central Alaska across the Prairie Provinces, and east to the Maritime Provinces and upper New England states. Distributions in 2010 indicate that moose now occupy an area >9,492,000 km² in North America. We also identified that a core range of boreal habitat, only 30% of the occupied range across the continent, supports 89% of the estimated 1 million moose in North America. Time-series analyses can offer a simple and cost-effective approach to monitor the status of moose populations in North America, and might be particularly insightful given the current and predicted future influences of climate change on moose. Other analyses might address population dynamics, habitat, environmental constraints, and harvest management, among other issues. We encourage jurisdictions to cooperate strategically in implementing and coordinating GIS analyses to monitor, assess, and manage the North American moose population.

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