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### Managing Moose: Listen to the Natives for Better Environmental Monitoring

*ScienceDaily* (Feb. 17, 2010) — Modern methods can answer a multitude of questions, but sometimes traditional techniques are superior. Authorities in northern Quebec, Canada, found this to their cost, when they relied upon statistical data to monitor moose populations.

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For many centuries the Cree, an indigenous group of people living in the James Bay region of northern Quebec (around 800km north of Montreal), have lived in harmony with their environment. They hunt a variety of animals including beaver, bear, and moose, killing just enough to feed and clothe themselves. By rotating the territories over which they hunt, and only killing adult animals, they ensure that the animal populations always remain stable.

Until the mid 1980s the James Bay region, at the southern end of Hudson Bay in Canada, was inaccessible to most, and the Cree were the only people who hunted in the region. However, in the mid 1980s, following pressure from sport-hunting and fishing groups, the

Canadian authorities granted access to the region (via a previously locked road, known as the James Bay highway, which had been constructed for a hydro-electric project).

Sport hunters travelled from far and wide, hoping to bag a few moose. "At the time wildlife managers were eager to open up access to this region, as they believed it would relieve the pressure on hunting grounds further south," said Colin Scott from McGill University, who led the team documenting these changes. To ensure that moose populations remained stable the Canadian authorities relied on aerial surveys to monitor moose numbers in hunting territories. In addition records were kept of the number of moose caught by each hunter, and the time it had taken to catch them.

By the late 1980s the Cree people became concerned about the moose numbers, particularly in 'Zone 17', one of the hunting territories in the James Bay region, covering an area of several thousand square kilometres. Using their system of monitoring moose populations (based on moose sightings, tracking and faeces) they detected a significant decline in numbers.

The Cree people alerted wildlife managers, but they were not taken seriously. Instead the authorities insisted that the moose population must be stable because the 'catch per unit effort' (average number of moose caught by hunters in a particular time period) had remained the same over the years.

But by the early 1990s the authorities were forced to concede that there was a problem in zone 17, as it became clear that a severe crash in population had occurred, with a drop of more than 50%. "Opening the road had opened up opportunities for the forestry sector as well, enabling them to clear cut the forest and leaving the moose with less cover to hide in," said Scott. The moose became easy targets and sport hunters became much more efficient. However, because the moose population was declining, their 'catch per unit effort' remained stable, lulling the authorities into a false sense of security.

In this instance the traditional methods of monitoring and



*A recent study found that traditional methods of monitoring and managing moose, used by the Cree hunters, was a better measure of moose population than modern statistical methods. (Credit: iStockphoto/Paul Tessier)*

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managing moose, used by the Cree hunters, was a better measure of moose population. "Their methods rely on more variables and have a greater complexity," said Scott, who presented his findings to the ESF BOREAS conference, which took place at the Arctic Centre in Rovaniemi, Finland.

Today the Canadian wildlife authorities have learned their lesson, and work closely with the Cree, listening to what they have to say, and respecting their intimate knowledge of the environment.

This study was part of a broad network of 38 individual research teams from Europe, Russia, Canada and the USA forming the European Science Foundation EUROCORES programme 'Histories from the North -- environments, movements, narratives' (BOREAS). This highly interdisciplinary initiative brought together scientists from a wide range of disciplines including humanities, social, medical, environmental and climate sciences.

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