

Research Studies Related to the Woodland Caribou Range Assessment Process



Background

Boreal woodland caribou (woodland caribou) have been designated as threatened under the federal Species at Risk Act (SARA), and a national recovery strategy has been developed by Environment Canada. Saskatchewan is responsible for managing woodland caribou and their habitats on provincial lands. In order to support a woodland caribou range assessment and subsequent planning in relation to habitat management, the ministry has partnered with a number of researchers to collect information. This will increase our understanding of woodland caribou populations and their interactions with their environment, and lead to better decisions concerning habitat management and the promotion of self-sustaining populations.

Research Studies

The following section provides a brief summary of the major research studies being conducted in the Boreal Plain and Boreal Shield portions of the provincial caribou range.

Woodland caribou population genetic analysis

Fecal pellets are collected at sites the caribou have been recently using in order to obtain DNA to determine how closely individuals of a band are related and how closely different bands are related to each other across Saskatchewan and neighbouring populations in Alberta, Manitoba and the North West Territories (see map).

These connectivity measures can be used to assess the state of genetic diversity within and among populations, trace family histories including birth of calves over time, and assess the potential for replenishing a declining population. In addition, the fecal pellets may be analyzed for a number of biological parameters including parasites.

The pellet collection occurs in the winter using helicopters to gain access to areas where the caribou have bedded down or spent a significant amount of time, thereby increasing the likelihood of finding samples. Results of these studies will help us to measure the continuity of our caribou distribution within Saskatchewan, identify the emergence of distinct local populations, and determine if any groups of caribou are isolated from other parts of the provincial population. The collections will continue for a number of years. This information is used to understand and monitor the long-term health of Saskatchewan's woodland caribou population. These studies are being primarily led by Dr. Micheline Manseau at the University of Manitoba and Dr. Paul Wilson at Trent University in Ontario.

Woodland caribou population dynamics and habitat use

The high levels of fire disturbance in the Boreal Shield make this landscape unique as caribou habitat in Canada. It was recognized in the federal recovery strategy that the status of this population was unknown, and that further information is necessary to better understand the population dynamics and habitat use in this region (see map). Woodland caribou and their predators will be radio-collared so that their movements and survival can be tracked, and their population status and habitat use can be determined. These studies are being led by Dr. Phil McLoughlin at the University of Saskatchewan.

Effects of disturbance by fires and human activity on woodland caribou habitat

Fire is the main disturbance of boreal ecosystems. Studies will be undertaken to better understand forest succession after fire and relate this to caribou habitat availability. This will focus on many aspects of habitat value, such as food availability and protection from predators. This work will also result in mapping of forest ecosystems to allow better understanding of habitat availability across the Boreal Shield. Landscape dynamics of caribou habitat will be modelled in response to fire and climate change as a means to predict future availability of habitat. These studies are being led by Dr. Jill Johnstone at the University of Saskatchewan.

In addition, the Ministry of Environment is undertaking work to improve the quality of historical fire mapping and anthropogenic (human-caused) disturbance mapping. The results will more accurately capture the actual footprint of fires to aid in our understanding of how much habitat remains unburned after a fire passes through an area. We also need to know how much disturbance has occurred on the provincial caribou range in recent years as a result of developments and recreation, and how long these disturbances continue to impact caribou populations.

Aboriginal traditional knowledge

Aboriginal traditional knowledge will play a role in characterizing the range and enriching knowledge of caribou population trends and habitat use. Working with First Nation and Métis communities to record and incorporate traditional knowledge is a long-term goal of the range assessment program. Dr. Ryan Brook with the University of Saskatchewan is leading a research project with communities to gather current and historical knowledge across the caribou range.

Saskatchewan Woodland Caribou Research Sites

