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*Abstract*

## Ecological Aspects of Woodland Caribou in the Pedigree Area of Northwestern Alberta, 1991 to 1994

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*Abstract:* Nine woodland caribou were radio-collared in the Pedigree oil and gas exploration area of northwestern Alberta during December 1991. Movements and habitat use were analyzed for a three-year (36 month) period, December 1991 to November 1994. Population status was investigated from mortality of radio-collared individuals, and the available estimate of late-winter recruitment of calves. Spatial habitat requirements, range fidelity, and habitat use were also investigated. Habitat use was compared to availability based on a habitat map developed for the "core" Pedigree caribou range. Recruitment and adult mortality appear to be closely balanced; indicating that the population has been approximately stable. Causes of calf and adult mortality were not determined, although predation by wolves was identified as an important factor. Individual movement patterns of Pedigree caribou did not appear to be synchronous; there was no strong seasonality to movement patterns. Individual caribou exhibited different patterns of movement, and spatial habitat requirements varied year to year and season to season. Some caribou made seasonal shifts between winter and summer range, but not during every year. Some caribou showed fidelity to winter ranges, while others did not. There are no calving grounds in the Pedigree area used collectively by parturient caribou. Available evidence, however, suggests that some caribou return annually to familiar areas during calving. Similarly, there is no common rutting grounds for caribou in the Pedigree, although some caribou tended to be in the same part of their annual range during each rutting season. Spatial habitat needs among caribou varied greatly between years and among seasons. Overall, spatial needs shown by Pedigree caribou appear to be larger than reported for other non-migratory caribou herds in Alberta. The significance of this large variation in spatial requirements is not known, although it may reflect adaptive behavior both in response to predation, and including response to industrial activities. This monitoring program has not established a link between industrial activity and caribou behavior. A link would require closer integration of industrial developments with the caribou relocation database. On an annual basis, treed muskeg and scrub conifer forest were key caribou habitat components. Other habitat types that were selected for by caribou on an annual basis included treed muskeg complexed with upland pine, and herbaceous wetland areas. Habitat types by caribou changed on a seasonal basis; caribou during winter frequented less treed muskeg and scrub conifer habitat, while showing increased use of mixedwood, upland pine and spruce habitats. Weakness in the current database are acknowledged, and further information needs are discussed. On-going monitoring for conservation of Pedigree caribou is recommended. Integration of industrial activities and developments with the ecological database is also recommended.

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