

Bighorn Sheep Distribution and Movement in the Nikanassin Range, of Alberta's Rocky Mountains

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Abstract: Reclamation after open pit coal mining in west-central Alberta has created new and vacant bighorn sheep habitat. Bighorn sheep (*Ovis canadensis*) have colonized the reclaimed land but also use these lands in conjunction with nearby alpine ranges. Bighorn sheep distribution, movement patterns, seasonal use and habitat use were examined in the Nikanassin Mountain Range of the Canadian Rocky Mountains. Nineteen VHF collars were placed on 12 rams and 7 ewes of all ages on the Luscar and Gregg River Mines from September 1992 to October 1993 covering different areas on the mines and different seasons. Additionally, ear tags were placed on 16 rams and 25 ewes from February 1992 to November 1994. Collared animals were visually located every two weeks from mid-September 1992 to December 30, 1994. Home range was analyzed using Program Home Range. Male home ranges (17-461 km²; 95% harmonic mean) were larger than females (40-140 km²). Core areas represented 20% to 40% of the area of the home range of individual sheep indicating the importance of these areas. 62% to 67% of observations for 15 of the sheep occurred in their core area while for four sheep, 44% to 58% of observations occurred in their core area. Bighorn sheep using the reclaimed lands consist of several home range groups of ewes and rams. Rams interacted with four and possibly five home range groups, while ewes interacted with three and possibly four home range groups. Ewe groups using the reclaimed lands belonged to two distinct subpopulations that were linked by emigration. Rams using the reclaimed lands interacted with 7 subpopulations, movements occurring more frequently during the spring, summer and rut. Rams used six rut ranges found on the reclaimed lands (2), adjacent mountain ranges (2), and nearby Jasper National Park (2). There was no evidence that bighorn sheep abandoned previously occupied range.

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