IMPACT OF HUMAN RECREATION NEAR BIGHORN SHEEP LAMBING AREA

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Abstract: Bighorn sheep (*Ovis canadensis*) occupy low elevation habitat in western North Dakota and persist within small, fragmented sub-populations. From 2001 to 2011, we monitored habitat use by bighorn ewes (n = 143) to identify core-use areas. We documented abandonment of lambing habitat used by the Chateau herd that was associated with a recreational hiking trail. The Chateau herd's fidelity to lambing areas was 54.6% (SE = 15.8, P = 0.016) compared to 100% for all other sub-populations (n = 14). Chateau ewes travelled a greater maximum distance between patches of lambing habitat (6.6 km) than the mean (4.1 km); however, it was not the maximum distance observed (8.3 km). Although lamb recruitment by Chateau ewes was lower ($\overline{x}$ = 0.21, SE = 0.06) than herds with 100% fidelity to lambing areas ($\overline{x}$ = 0.30, SE = 0.02), it was not significant (P = 0.156). Bighorn are sensitive to human disturbance, particularly during the lambing season. Therefore, minimizing human disturbance near lambing areas is essential to preventing habitat abandonment and consequent lower lamb survival. Human disturbance near lambing areas likely has a greater impact on small metapopulations due to a limited quantity of suitable lambing habitat.

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