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SPINSTER BIGHORN EWE GROUPS IN THE ARKANSAS RIVER CANYON, CANON CITY, COLORADO

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Abstract: A bighorn sheep (Ovis canadensis canadensis) habitat study using GIS (Geographical Information System) technologies has been conducted on a sheep range about 13 km long north of the Arkansas River between Parkdale and Echo Canyon in Colorado. Counts and observations indicated approximately 50-60 ewes in 2-7 subgroups with no signs of parturiency, nor any lambs, during spring, summer, and fall of 1991. No yearling or older rams have been observed in the area north of the river since the 1990 hunting season when two 1/2 curl rams were harvested. This contrasts markedly with the situation south of the river (across a narrow corridor of the Denver and Rio Grande Western railroad, Arkansas River, and U.S. Highway 50) where a more "normal" sex-age class has been consistently observed during the same period: the area south of the river had a lamb:ewe ratio of about 90:100 excluding females younger than 3. The difference in lamb:ewe ratios in these adjacent areas has led us to question the hypothesis that the river does not act as a barrier to sheep movement (ewes on the north consistently cross the railroad tracks for forage and water, and some cross the highway from the south as indicated by 2 road-kills during the summer of 1991). Failure to breed, however, represents the most plausible explanation for the absence of lambs. Other hypotheses, such as those involving habitat "sinks" and the role of reproductive disease, merit examination. A proximate solution to the problem has been tried by transplanting three 2-year old rams into the area north of the Arkansas River. Two of the 3 rams initially socialized with ewe groups north of the river and some late breeding (later than 21 Jan 92) may have occurred. By 28 and 38 days post-release, however, these 2 rams had left the ewes north of the river, crossed the river and highway, and joined other ewes south of the river. Whether they will rejoin ewe groups on the north remains equivocal. Long-term management should include assessing roles of hunting and non-hunting mortality on rams in this population.