

**SEXUAL SEGREGATION AND USE OF WATER BY BIGHORN SHEEP:
IMPLICATIONS FOR CONSERVATION (TIMES NEW ROMAN FONT, SIZE 12, SMALL CAPS, BOLD,
CENTERED)**

**Jericho C. Whiting¹, R. Terry Bowyer¹, Jerran T. Flinders², Vernon C. Bleich¹,
John G. Kie¹ (Size 11, Bold, Centered)**

¹Department of Biological Sciences, Idaho State University, Pocatello, ID 83209 (Size 11, Centered)

²Department of Plant and Wildlife Sciences, Brigham Young University, Provo, UT 84602

Males and females of most dimorphic ruminants segregate outside the mating season, which may necessitate that conservation efforts focus on differential habitat used by the sexes. Bighorn sheep (*Ovis canadensis*) are one of the rarest ungulates in North America with some populations listed as endangered, and males and females of this species use habitat differently. Water sources are important for the persistence of populations of bighorns, especially in a changing climate. Understanding whether the sexes use different water sources could influence the conservation of these unique animals and the habitats they occupy; however, little research exists regarding this important topic. We tested hypotheses relating to use of water sources by reintroduced male and female bighorns in Utah, USA, from 2005 to 2006. We investigated whether use of this resource differed across seasons by sex, and if sexes used water more during drought compared with non-drought conditions. Bighorns used small, adjacent core areas during segregation, and males and females used different sources of water during that time. Males visited water sources used by females more during aggregation. Males and females used water sources more in summer, and males visited water sources more during rut than did females. Males and females did not use water sources more during drought compared with non-drought conditions; however, sexes visited water sources more during the season following drought than following non-drought conditions, indicating a time-lag in use of this resource. Our results highlight the importance of water sources used by sexes of bighorns, and indicate that the existing criterion for distance of bighorn reintroductions from water may be inadequate for successful establishment of populations. We recommend conservationists assess availability of water sources near habitat used by male and female ungulates prior to conserving and manipulating habitat, siting artificial sources of water, and reintroducing animals. (Size 11, 1.15sp between lines)

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