

*Abstract.* Sexual segregation was studied in introduced California bighorn sheep (*Ovis canadensis californiana*) on Antelope Island State Park, in the southeastern region of Great Salt Lake, Utah. Individuals equipped with radio transmitters were tracked on foot with the use of radio telemetry and visually located with spotting equipment weekly from June-August 1999 to identify group location. Sex differences in elevation and habitat (rock or non-rock) use was examined. The summer ranges of male and female groups were identified using the Ranges V computer program to investigate the predator evasion and differential water requirements hypotheses. Potential predators included coyotes (*Canis latrans*), bobcats (*Lynx rufus*), and Golden Eagles (*Aquila chrysaetos*). Female and male bighorn sheep occupied two distinct ranges with some overlap. Since water is readily available throughout this area, yet separate ranges were utilized, the differential water hypothesis is not valid in this population. There was no difference in elevation use between groups. Females used rocks more than males, but the difference was not significant. Females used rocks more in June than in August. This study supports the predator evasion hypothesis. This strategy of predator avoidance may be a primary cause of sexual segregation, whereas other bighorn sheep activities proposed to explain the phenomenon may prove to be by-products of the segregation. Future research should incorporate other hypotheses into the predator evasion hypothesis.

*Key words:* ungulate, bighorn sheep, *Ovis canadensis*, segregation, home range, habitat use.