# Space Use, Movement, and Survival of Translocated Desert Bighorn Sheep in Sonora, Mexico

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**ABSTRACT:** Mountain sheep abundance across North America has declined >60% from historic times. In response, state and federal agencies have conducted >1,000 reintroduction projects, translocating >21,000 bighorn sheep. Despite these efforts, ~50% of reintroductions are considered unsuccessful, leading researchers to stress the importance of post-release monitoring on the overall success of future reintroductions. Our objectives were to quantify space use, movement, and survival of translocated Desert bighorn sheep (*Ovis canadensis mexicana*). We conducted our research in the Sierra El Alamo Mountains, ~45 km W of Caborca, in northwestern Sonora, Mexico. We captured and fitted 16 bighorn sheep (9 females, 7 male) with GPS collars, which collected 1 GPS fix every 3 hours starting in November 2023. We created monthly 95% Brownian bridge movement models (BBMM), calculated monthly distance travelled, and used the Kaplan-Meier methods to estimate survival. Monthly home range size for females was greatest in April (1,319 ha) and least in September (291 ha). Similarly, for males, home range size was greatest in February (1,533 ha) and least in October (513 ha). Cumulatively, movement was greatest from April through June (~49 km) for females and from February through April (~52 km) for males; movement was least in October and December for both sexes. Annual survival (November 2023 to November 2024) was 81% (13/16) for both sexes. Early post-monitoring data suggest the reintroduction effort was successful because annual survival was high, and reintroduced sheep joined herds with native sheep and settled into the study area quickly.

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