



Evaluating Success for an Intramountain Range Transplant of Bighorn Sheep in Southwestern Montana

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ABSTRACT: Montana Fish, Wildlife and Parks (MFWP) performed three bighorn sheep transplants within the Madison Mountains of southwest Montana to repopulate a historic, but unoccupied, winter range. The existing (source) herd had endured and recovered from several all-age die-offs and numbered approximately 200 animals prior to the start of transplants. An unoccupied winter range approximately 14 miles north was chosen as the release site due to a combination of biological and social factors. MFWP and Montana State University captured bighorn sheep using a drop net, and moved 52, 22, and 23 bighorn sheep in wintertime 2015, 2016, and 2018 (total = 97 bighorn sheep). The drop net enabled selection of social and family groups for transplant. We transplanted 16 lambs, 57 ewes, 23 rams, and 1 unclassified sheep. Older rams (>3.5) were avoided in transplant to prevent them from injuring lambs or smaller sheep in the trailer during transport. A sample of released bighorn ewes were fitted with LOTTEK Lifecycle GPS collars at each transplant (10 in 2015, 6 in 2016, and 11 in 2018), which provided location data daily for up to 3 years. Mortalities included 4 predations, 2 injuries, and 1 unknown cause of death. Mortalities can be compared to non-transplanted, collared study animals from the source herd (8 mortalities across 32 VHF and GPS collars on ewes 2012-2018). Transplant success, defined by the percentage of bighorn sheep which remained in the transplant area after 1 year (i.e., did not return to the capture site) varied from approximately 20% in 2015 to approximately 80% in 2016, with 2018 still underway. Released bighorn sheep did not necessarily stay together in groups and individual movements varied across an area of approximately 625 km². Results suggest managers can use intramountain range captures and transplants to achieve success in expanding occupiable winter ranges and establishing a



desirable metapopulation structure. Intramountain transplants have advantages of using local animals familiar to the ecological landscape and local predator suite, and with common movement behaviors (i.e., migratory or non-migratory strategies) and pathogen communities. Managers may have to capture and release for several years to see success.

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