

DYNAMICS OF A HARVESTED MOOSE POPULATION IN SOUTHWEST MONTANA

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Floodplain riparian habitat provides relatively stable and important wintering habitat for moose in the Rocky Mountains. The Centennial Valley (CV) in southwest Montana contains the largest wetland complex in the Greater Yellowstone Ecosystem, and the associated riparian habitat supports one of the largest and highest-density wintering Shiras moose (*Alces alces shirasi*) populations in the Northern Rocky Mountains. Most of this habitat is encompassed by Red Rock Lakes National Wildlife Refuge (Refuge), situated in the eastern extent of the valley and within Montana Fish, Wildlife and Parks hunting district 334 (HD 334). We utilized 4 decades of winter aerial survey (1966-2008) data from HD 334 to investigate relationships among winter moose abundance, snow pack, and hunter harvest of antlerless moose. Winter moose abundance steadily increased during the period 1966-2008 at an average annual rate of 2.2 percent (SE = 0.48%), but per capita productivity (calf: adult ratio) simultaneously declined. As predicted, winter snow pack was positively related to moose abundance on the survey area. Hunter harvest of antlerless moose negatively affected moose abundance, but the effect differed for the two age classes (calves vs. adults). Our results indicate that previous levels of hunter harvest were sustainable; however this occurred at a time when few other moose predators were present. Future harvest management will have to take into account increasing numbers of predators in southwestern Montana.