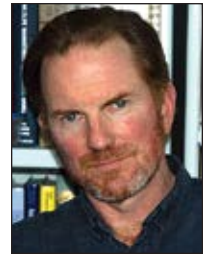


STUDYING MULE DEER IN OREGON

SCIENCE BLASTS



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Wildlife managers, hunters, and other conservationists have long been concerned about the decline in mule deer populations throughout the West. Is it predation? Is it hunting? Is it habitat? Is it human land uses? Is it poaching? There has been a lot of speculation as to the causes and remedies, and fortunately, many agencies are investing in science in order to unravel the mysteries surrounding the decline. The Oregon Department of Fish and Wildlife (ODFW) conducted a 7-year study from 2005 to 2012 to look at habitat use and survival of mule deer in eastern and south-central Oregon. Agency researchers radio-collared 621 mule deer as part of this study. Graduate student Lizz Schuyler and assistant unit leader Dr. Katie Dugger of the USGS Oregon Cooperative Fish and Wildlife Research Unit, in collaboration with DeWaine Jackson of ODFW, used the radio-telemetry data to estimate the survival rates and describe causes of mortality of the collared mule deer. They also looked at how seasonal distribution, movements, and environmental factors such as climate and weather patterns influenced survival. Their study revealed some fascinating insights that I'll describe in brief below.

Lizz and Katie were able to determine the fate of 408 adult female radio-collared mule deer, and these data formed the basis for their estimates of monthly survival rates and the factors that affected survival. The factors that best explained variation

in survival were related to migration and precipitation on winter ranges. Female mule deer that migrated between winter and summer ranges had significantly higher annual survival rates than those that did not, although both groups suffered lower survival during the October/November fall migration period. Precipitation during winter on individual winter ranges correlated with survival—more precipitation, higher survival.

Lizz and Katie separated males from females in their analyses of causes of mule deer mortality. Not surprisingly, the highest mortality risk for males was harvest (approximately 32 percent), followed by predation (approximately 12 percent). For females, the highest mortality risks were associated with predation (approximately 7 percent), human (non-hunting) causes (approximately 5 percent), and illegal harvest (approximately 4 percent).

The higher survival of migrant mule deer across all months suggests the benefits gained by moving to better forage areas outweighs the costs associated with risks and energy expenditure incurred during migration. An ongoing study in Wyoming by Dr. Matt Kaufmann, leader of the USGS Wyoming Cooperative Fish and Wildlife Research Unit has shown mule deer migrations in the Greater Yellowstone Ecosystem in effect “surf the green wave”—meaning the migrations are timed so that foraging is optimized throughout the migration route. Moving from lower elevations to higher elevations allows the Wyoming deer to intercept

plants in the spring at their most nutritious stage. Whether this phenomenon is at play or not in Oregon requires a closer look, but it is likely.

Another possible explanation for the lower survival of the resident non-migratory deer is that their year-round ranges may have poorer food and greater human disturbances. The positive effects of winter precipitation could be due to an increase in winter food quality and quantity. The relative importance of illegal harvest as a mortality factor for female deer, even though it was only 4 percent, is disturbing.

What we learned from this study is that more than twice as many male mule deer in south-central Oregon were killed by a hunter than by a predator (cougar or coyote), while an equal number of female mule deer were killed by a predator as by a fence or vehicle or a poacher. We also see evidence of the importance of migration corridors to mule deer survival. Identifying these corridors on the landscape and ensuring these habitats maintain their integrity will go a long ways to helping conserve mule deer.

Drought is a serious problem in the West, and

although there were no significant drought episodes during this study, the relationship of winter precipitation to survival suggests that drought could significantly affect survival. It is possible some mule deer will elect not to migrate to summer ranges during drought periods because the likelihood of better forage will be diminished.

This study by Lizz Schuyler, Dr. Katie Dugger, and ODFW has given us some significant pieces of the puzzle associated with the decline of mule deer populations in the West. This, combined with other studies of this iconic species will help wildlife managers piece together a clearer picture of management actions needed to ensure future generations will be able to experience the excitement one feels when seeing a herd stotting across the landscape. ■



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