

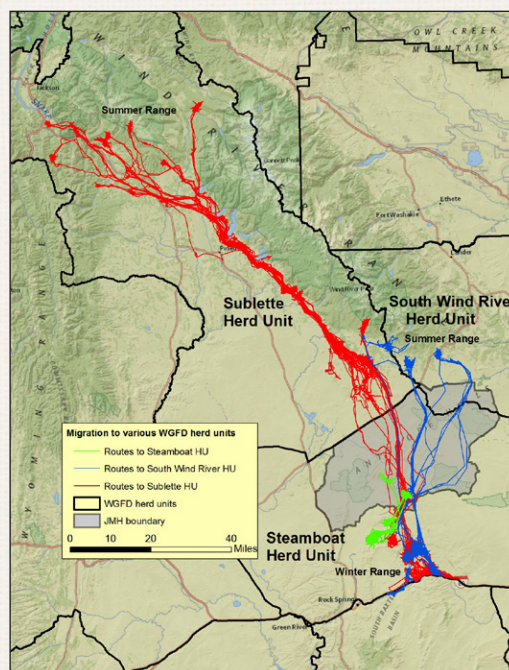
## UNDERSTANDING MULE DEER MIGRATION Fact Sheet #12

### OVERVIEW

The ability to migrate is essential for mule deer to travel to, and access, important seasonal habitats. Throughout the range of mule deer, migrations occur in the fall and spring as animals travel between winter and summer ranges. Migration allows mule deer to avoid deep snow and other harsh conditions during winter and take advantage of high quality forage during summer. Because migration corridors serve as the critical link between summer and winter ranges, they must be unimpeded by physical barriers (e.g., game-proof fences, roads, etc.) and protected from various forms of development and human disturbance (e.g., housing and energy development).

### CONSIDERATIONS

Recent advances in Global Positioning System (GPS) technology have allowed wildlife researchers to obtain frequent and detailed movement data to identify migration routes of individual mule deer. Individual routes are combined to identify “migration corridors” for mule deer populations. This detailed information has highlighted the complexities of migratory populations and the importance of conserving the key migration corridors that connect winter and summer ranges. For example, managers learned migrating mule deer may spend 2–4 months migrating and most of that time is spent in distinct “stopover” areas where mule deer follow the vegetation “green-up” and maximize use of nutritious vegetation. Also, migrating mule deer may move greater than 150 miles, across diverse landscapes, and encounter a variety of obstacles and challenges along their journey. Because migratory mule deer far outnumber non-migratory deer, maintaining these migrations is critical to sustaining mule deer numbers throughout much of their range. By observing movements of individual deer over time, researchers determined mule deer use the same route year after year. This consistent use of the same routes annually highlights the importance of conserving migratory corridors. Not all mule deer populations migrate along



well-defined corridors. There are many instances where deer move along many different and scattered routes between seasonal ranges, making the conservation of each of those routes more difficult.

### POTENTIAL RISKS TO MIGRATING DEER AND THEIR CORRIDORS

**Energy Development** - Recent mule deer research indicated energy development affects migratory patterns of mule deer. Specifically, mule deer move more quickly through developed gas fields and sometimes attempt to detour around them. When mule deer have to speed up their migration, they may not be able to track the vegetation “green-up” or access critical “stopover” sites. Also, once mule deer arrive on winter ranges with developed gas fields they avoid infrastructure (e.g., roads and well pads), which effectively reduces the size of usable winter range and could result in population decline.



A common misperception is mule deer “acclimate” or “habituate” to energy development, but long-term studies show deer continue to avoid infrastructure more than 10 years after development.



**Vehicle Collisions** - Vehicle collisions can be a major source of mortality for migrating mule deer and a hazard for motorists. Tall (8-foot) fencing can be used to keep deer off roadways and eliminate road crossings, but such fencing also blocks migration routes. Road crossing structures (e.g., underpasses and overpasses) have been constructed to maintain and reestablish migration corridors in many areas of the West. Underpasses and overpasses constructed in Wyoming are used by thousands of deer each year, allowing them to reach important seasonal habitats and improving highway safety for motorists.

**Fences** - Fences that block migration corridors are a source of mortality to migrating mule deer. Removing or modifying fences to accommodate deer crossing can be an effective means to offset such impacts.

**Rural and Urban Expansion** – As people continue to expand into rural settings, impacts to mule deer migration corridors and seasonal habitats will increase. With the expansion of residential development, comes more fencing, higher levels of human disturbance, and an assortment of and other obstacles mule deer must avoid or cope with. In some cases, residential development has been so extensive and restrictive that mule deer have simply stopped migrating through those areas.



## CONCLUSIONS

Efforts to conserve migration corridors are an important component of overall conservation of mule deer in the West because the largest and most productive mule deer herds are migratory. As awareness of the importance of migration corridors grows, conservation efforts to maintain these corridors and incorporate them into land-use planning processes are imperative. Similar to critical winter ranges, migration corridors need to be considered in local, state, and federal land-use planning in order to sustain current mule deer populations. Common sources of risk to migrating mule deer and their corridors include fences, road crossings, energy development, and residential development. With specific maps of migration routes now available, we can identify and prioritize where conservation efforts should be focused to reduce risks to migrating mule deer and migration corridors. Effective conservation measures may include road crossing structures, fence alterations or removal, modifications to proposed industrial developments, conservation easements, leasing stipulations, and state, provincial, or federal protections available through land-use planning. Mule deer migration corridors are essential to the long-term conservation of this iconic species. Many corridors are more than 100 miles in length and cross through many different land ownerships and agency jurisdictions. This situation complicates conservation efforts and requires people work together to develop site-specific measures to ensure migrations continue into the future.

**More information on mule deer can be found at [www.muledeerworkinggroup.com](http://www.muledeerworkinggroup.com)**