



Mule Deer Working Group Fact Sheet

MULE DEER AND WATER DEVELOPMENT Fact Sheet #25

OVERVIEW

Water is essential to all life on Earth, and it strongly influences natural patterns and processes. For terrestrial wildlife, water can be obtained from metabolic processes, through consumption of forage, or via drinking. The availability of drinking water can influence population dynamics, habitat use, and distribution of species including mule deer, but the relative importance of drinking water varies across geographic regions and season of the year. Where mule deer occur in arid regions, they drink regularly and prefer habitats near water sources. Wildlife managers have increased availability of drinking water through development of natural water sources and by construction of wildlife water developments (commonly referred to as guzzlers). Managers should consider the goals, costs (including maintenance), and anticipated benefits to mule deer for any water project and ensure wildlife water developments are located and constructed properly in order to maximize their effectiveness.



CONSIDERATIONS

Mule deer obtain water in three ways. First, some physiological processes such as burning fat release water molecules. Second, mule deer also get water as moisture available in plants they eat. Third, mule deer drink water when necessary to meet their needs. The availability of water from plants varies across plant species, season, and year. When moisture levels in plants are high and temperatures are low (e.g., winter or spring in much of western North America), mule deer obtain adequate water from their forage to meet most of their physiological needs. But,



when moisture content of plants is low and temperatures are high, such as during summer in many desert habitats, mule deer drink regularly. Need for water is also influenced by reproduction; females with nursing young, for example, need more water than females without fawns.

Mule deer in arid environments select habitats near water and visit these water sources every 1-3 days during dry seasons. Most visits to water sources by mule deer occur at night or during morning or evening periods. Other than during the breeding season, males and females typically select for and use different habitats so they may use different sources of water.

WILDLIFE WATER DEVELOPMENTS

Techniques to improve availability of drinking water include modification or improvement of existing springs, enlargement of natural collection areas, wells, and construction of guzzlers. Guzzlers capture precipitation, store it, and then make this stored water available for drinking to mule deer and other wildlife during dry periods. These developments can be expensive in both initial construction fees and regular maintenance costs, but forming partnerships with ranchers, permittees, volunteers, and conservation organizations is an effective strategy to reduce costs. Managers should ensure continued maintenance of existing water developments to provide consistent benefit to mule deer.

Collaboration among federal and state agencies along with outside partnerships is often necessary to develop a successful project. In some areas, water rights may need to be clarified or secured.



To maximize benefits to mule deer, wildlife water developments should only be placed in areas of suitable habitat. If other native ungulates, such as elk, will be using the water source, it is important to design developments with sufficient storage capacity. Fencing may be needed if abundant cattle, horses and donkeys are outcompeting mule deer at a water development. Any such fencing, however, must provide unimpaired access by mule deer. Some evidence suggests that fencing of a relatively small area around water sources may limit use by mule deer even though the fence is designed to allow access. Well-spaced water sources can distribute deer more evenly through their habitat, thereby allowing them to occupy otherwise unused areas, effectively increasing the overall carrying capacity of the habitat. In arid environments, mule deer move from 1 to 2 miles in order to access drinking water so water developments should be spaced accordingly.



The availability of water allows deer to use a greater variety of foods, including very dry forage. If this scenario results in a better overall nutritional intake for deer, their health and survival could be improved over deer with less access to drinking water. Some concerns have been raised about potential negative consequences of adding water sources to deer habitat, but peer-reviewed studies at the population level are lacking.

CONCLUSIONS

Increased use of groundwater resources, climate change, and extended drought may reduce the availability of moisture in plants or water in naturally occurring springs and seeps. In these areas, maintenance of existing wildlife water developments and addition of new water sources can benefit mule deer. Some states, such as Arizona and Nevada, have increased the abundance and allowed for year-round occupancy of mule deer in areas with an active

water development program. In many areas of western North America, however, adding water sources may not yield increased abundance or distribution of mule deer.

As with all habitat improvement efforts, evaluation of existing conditions and needs should guide large-scale plans.

More information on mule deer can be found at www.muledeerworkinggroup.com

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