

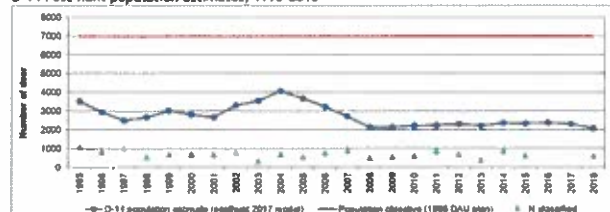
A Quick Guide to the Importance of Seasonal Trail Closures



Photo Credit: Peak to Creek Films

- Wildlife detect human presence on the landscape through sound, sight and smell. Human activity and recreation, whether motorized or non-motorized, often inflicts a "flight" response from wildlife.
- Flight responses result in behavioral changes that include increased stress levels, and abandonment of critical areas for foraging, calving and fawning, and shelter. These changes ultimately can lead to decreased productivity and death.
- Different species of wildlife have different tolerances for proximity to human presence and disturbance. Elk, for example, have been documented to create distances of separation up to **800 meters** or more to avoid human recreation.⁽¹⁾⁽⁵⁾
- Mule deer have a **50% chance of fleeing** if they are within 200 meters of a trail if a hiker or biker is detected.⁷
- Trail-based recreation can create a buffer of **200 meters** that is potentially unsuitable for wildlife when humans are present.⁷
- Research has shown that the addition of 10 disturbances during calving season produced a **population growth rate of 0%**, and more than 10 disturbances produced a **negative population growth rate**.⁶
- Deer and Elk in winter are in a consistent state of nutrient deprivation, so they rely on their protein and fat stores to account for lack of forage quality and availability, regulation of body temperature in cold weather, and for energy expenditure from predator avoidance, human avoidance, and more.
- Ordinary winters have been associated with up to a **20% percent loss of total body weight** in Mule Deer.⁴ Elk commonly **lose 1-1.5 pounds per day** during the winter.³ Increased winter severity and human disturbance can exacerbate loss of body weight in deer and elk, which decreases their chance of surviving the winter and spring.
- The health and survival of calves and fawns is highly dependent upon the health of the cow or doe during pregnancy.
- During calving and fawning season, deer and elk rely on solitary areas with abundant food and shelter so they can successfully give birth, and so the fawns and calves can successfully feed and avoid predation. Increased human disturbance in these areas can reduce reproductive success and reduce survivability of the fawns and calves.
- Nutritional status and predation are the primary causes of mortality for fawns and calves.² Studies in CO have found mean **winter survival rates of only 44%** for fawns.⁸
- The dynamics of nature (weather, predators, disease, etc.) alone make it hard enough for wildlife to survive. Combine those factors with human development and recreation, and it makes survival that much more difficult.
- **CPW strongly encourages people engaged in all types of recreation to know the regulations before they go recreate, and to respect all seasonal trail closures. If you do come across wildlife while recreating, please give wildlife the space and peace they require to survive during critical times of the year. Thank you!**

D-14 Post-hunt population estimates, 1995-2018



E-16 Calf ratio

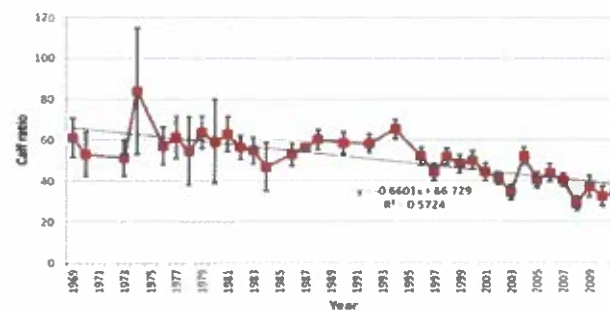


Figure 1. Graphs to help indicate current and former population objectives in local deer herd (D-14), and to show decline in cow to calf ratios in local elk herd (E-16).

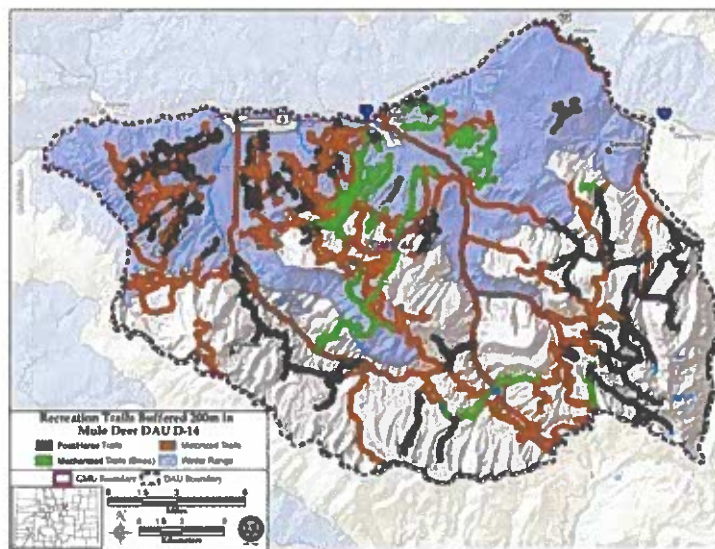


Figure 2. Recreation trails and roads in mule deer DAU D-14, depicted with a 200-meter buffer zone of human disturbance. When deer are 200 m from a trail, there is an estimated 50% chance that the deer will flee if they encounter a hiker or biker (Taylor and Knight 2003). In addition, trails and roads divide once-continuous wildlife habitat into smaller, disconnected fragments.



Bibliography

Layton Stutsman, District Wildlife Manager, Edwards

¹Dertien JS, Larson CL, Reed SE (2021) Recreation effects on wildlife: a review of potential quantitative thresholds. *Nature Conservation* 44: 51–68. <https://doi.org/10.3897/natureconservation.44.69270>

²Forrester, T.D. and Wittmer, H.U. (2013), Population dynamics of mule deer and black-tailed deer, *Mammal Review*, 43: 292-308. <https://doi.org/10.1111/mam.12002>

³James E. Knight, Elk Management for Montana Landowners, Montana State University https://animalrangesextension.montana.edu/wildlife/private_land_wildlife_mgmt/elk-mgmt.html

⁴Kenneth I. Ferguson, Mule Deer (*Odocoileus hemionus*), National Resources Conservation Service, Fish and Wildlife management Leaflet, Number 28

⁵Michael J. Wisdom, Haiganoush K. Preisler, Keslie M. Naylor, Robert G. Anthony, Bruce K. Johnson, Mary M. Rowland, Elk responses to trail-based recreation on public forests, *Forest Ecology and Management*, Volume 411, 2018, Pages 223-233, ISSN 0378-1127, <https://doi.org/10.1016/j.foreco.2018.01.032>

⁶Phillips, Gregory E., and A. William Alldredge. Reproductive Success of Elk Following Disturbance by Humans During Carving Season. *The Journal of Wildlife Management*, vol. 64, no. 2, 2000, pp. 521–30. JSTOR, <https://doi.org/10.2307/3803250>.

⁷Taylor, A.R. and Knight, R.L. (2003), WILDLIFE RESPONSES TO RECREATION AND ASSOCIATED VISITOR PERCEPTIONS. *Ecological Applications*, 13: 951-963. [https://doi.org/10.1890/1051-0761\(2003\)13\[951:WRTAA\]2.0.CO;2](https://doi.org/10.1890/1051-0761(2003)13[951:WRTAA]2.0.CO;2)

Unsworth, James W., et al. "Mule Deer Survival in Colorado, Idaho, and Montana." *The Journal of Wildlife Management*, vol. 63, no. 1, 1999, pp. 315–26. JSTOR, <https://doi.org/10.2307/3802515>. Accessed 9 Jun. 2022.

Photo Credit: Mike Duplan