

## **Abstract**

Colorado is a popular destination for elk hunters. Despite ample opportunities, success rates for elk hunters in Colorado are often low – the combined success rate for all 2016 Colorado elk hunting seasons was only 18 percent. Many variables seem likely to have an impact on hunter success; one possibility is terrain ruggedness. The main research question of this study is whether more rugged topography is correlated with hunter success rates. Such a finding could benefit hunters by showing which areas have higher harvest success rates. Furthermore, this study could benefit wildlife management communities by illustrating which areas need an increase or decrease in hunting licenses in addition to changes in season structure.

Since location of elk harvests are not consistently mapped, regression analysis was utilized to explain spatial patterns. Using ArcMap, this study examines the correlation between terrain ruggedness and hunter success for the 93 Game Management Units (GMU) that offer over-the-counter (OTC) second and third rifle season hunting licenses. The 2012 to 2016 seasons were analyzed in order to account for variation in weather patterns and differences in the number of hunting licenses issued. Average annual GMU success rate was the dependent variable while average elk density, terrain ruggedness, average hunter density, percent of public land, and road density were the exploratory variables. Terrain ruggedness was not a significant variable. Average elk density and public land percentage were the only two significant variables. Future studies should analyze each year separately, analyze public land hunters that hunted OTC rifle seasons, and consider weather variables.