

RESEARCH PROJECT SUMMARY

- Project Title:** The development of a SQL Server database and R software package to model deer populations in South Dakota.
- Need:** White-tailed deer (*Odocoileus virginianus*) and mule deer (*O. hemionus*) provide more recreational opportunity in South Dakota than all other big game species combined. In 2012, even after several years of declining participation, deer hunting provided over 570,000 days of recreation. Deer hunters also provide an important revenue source for the South Dakota Department of Game, Fish, and Parks (SDGFP) and conservation providing approximately \$5,000,000 in license revenue in 2012. Deer populations reached record highs in the mid-2000s in South Dakota, exceeding social tolerances in almost every management unit. Record harvests, severe winters, predation, disease, and drought all likely contributed in reducing deer populations across the state by 2010. Deer populations are now below management objectives in most units. Through previous completed research and management projects substantial information pertaining to population dynamics of deer in South Dakota has been obtained. Recruitment, survival, harvest, population densities, and other population vital rates can vary tremendously temporally or spatially, or both, which has been well documented. The development of a database to compile and gather annual regional data, and a statistics software package to combine and utilize both research and management data to project population estimates and rates of change would be beneficial to managers and biologists in South Dakota. By compiling and utilizing all available data the best population model can be developed and more informed decisions made with regards to deer management in the state.
- Objectives:**
1. Compile, evaluate, and analyze deer population data needed for population modeling.
 2. Develop SQL database for all applicable deer population data.
 3. Design appropriate level deer “data analyses units”.
 4. Develop Program R population model and user-friendly interface.
 5. Complete cost: benefit analyses for additional deer data inputs.
- Study Location:** Statewide, South Dakota
- Expected Completion:** June 2016

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