

RESEARCH PROJECT SUMMARY

Project Title: An evaluation of the impacts of energy development on life history parameters and management of white-tailed deer in the Cedar Creek Anticline of southwestern North Dakota and northwestern South Dakota.

Need: Oil and gas exploration is anticipated in the Cedar Creek Anticline, which represents the lower extension of the Williston Basin Geological Formation that occurs in the western Dakotas. In the central portion of Williston Basin, we speculate significant mortality of mule deer has likely occurred due to exploration (W. Jensen, NDGF, personal communication). Mortality is assumed to be related to road development and use (e.g., 200,000 trucks travel Route 85 per month in this region) as well as habitat destruction, illegal harvest by employees of oil and gas exploration companies, and potentially, predation on neonate and adult deer displaced or occupying substandard habitat. Despite these potential effects, no research projects have been conducted in this region of North Dakota to quantify these effects. Recently, however, a project was begun on mule deer but negative effects on the resource have been ongoing over the past few years limiting the ability to document full impacts of energy exploration and extraction on this resource.

White-tailed deer and mule deer populations in the Dakotas provide both benefits and costs. In addition to the intrinsic values of the presence of deer, (1) deer licenses generate annual income via licenses sales, and (2) deer hunters spend significant dollars annually on gas, food, lodging, and equipment during hunting trips; much of that money is spent in small rural communities that rely on this economic stimulus. Potential population reductions due to oil and gas development could significantly reduce deer yields available for harvest and thus, reduce licenses available for hunters.

- Objectives:**
1. Determine the impacts of oil and gas energy development and disturbance on movements and survival rates of white-tailed deer in the Cedar Creek Anticline of North and South Dakota.
 2. Determine habitat selection and critical deer seasonal habitats and concentration areas in the Cedar Creek Anticline of North and South Dakota.
 3. Determine cause-specific mortality factors on both radio-collared adults and neonate fawns.

4. Determine an annual rate change (λ) for white-tailed deer populations in the Cedar Creek Anticline of North and South Dakota.

Study Location: Perkins County, South Dakota

Expected Completion: December 2016

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