**Project Title:** Reassessing survival, movements, habitat selection, and aerial survey of pronghorn in northwestern South Dakota.

**Need:** Knowledge of pronghorn behavior is essential to effective management of pronghorn populations. Of particular interest is determining summer and winter home ranges of pronghorns, timing of seasonal movements, and survival and cause-specific mortality rates of pronghorn populations. Home range size, seasonal movements, and survival of pronghorns were documented in Harding and Fall River counties (Jacques and Jenks 2007, Jacques et al. 2007, Jacques et al. 2009a); however, significant change in habitat availability could occur in the near future with increased energy exploitation on the Cedar Creek Anticline, which underlies Harding and Butte counties, South Dakota. Such activities in adjacent states have been associated with reduction in pronghorn populations due to increased mortality from vehicle traffic, reduced habitat availability via established energy production pads as well as human activity around production pads, and water extraction infrastructure activity in support of energy extraction (Sawyer et al. 2002, Naugle 2011). These activities could result in significant change to documented survival and recruitment in pronghorn populations inhabiting the region. In addition, previous research on pronghorn in South Dakota (Jacques and Jenks 2007, Jacques et al. 2007, Jacques et al. 2009a) was completed via field studies in 2002-2005, during a time when anecdotal information indicated that coyote (*Canis latrans*) populations were reduced by high rates of sarcoptic mange and/or lethal control. Anecdotal evidence indicates that coyote populations have rebounded, and previous literature has shown coyote predation to be a significant mortality factor for pronghorn (O’Gara and Yoakum 2004). Present survival rates of pronghorn may be lower than previously reported, due to predation or other factors, which will substantially impact the ability of South Dakota Department of Game, Fish and Parks (SDGFP) to accurately model pronghorn populations. SDGFP is currently evaluating whether aerial pronghorn surveys must be completed annually, and updated adult and fawn survival rates are critical components of population models needed for this assessment.

Results from this study will provide information on population dynamics of pronghorn within the eastern extension of sage-brush-steppe habitat. This region accommodates a high density of pronghorn and no population dynamics data have been collected on this species since the early 2000’s. As a result, potential effects of climate change, predator densities, and habitat
modifications likely have impacted this population. Furthermore, this region of South Dakota will likely be impacted by oil and gas development, which could negatively affect the species in the near future.

**Objectives:**

1. To determine seasonal movements and estimate home ranges for individual pronghorn antelope in Harding and Butte counties.

2. To determine annual survival and cause-specific mortality rates of adult and fawn pronghorn in Harding and Butte counties.

3. To document seasonal habitat selection patterns of pronghorn in Harding and Butte counties.

4. To revise sightability coefficients for estimating population size from aerial flights.

5. Determine an annual rate change (λ) for pronghorn populations occupying Harding and Butte counties.

**Study Location:** Harding and Butte counties, South Dakota

**Expected Completion:** June 2017

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