**Project Summary**
**Rocky Mountains Cooperative Ecosystem Studies Unit**

**Task Agreement #:** G20AC00060
**Project Title:** Modeling and Decision Analysis for Plague in Prairie Dog Colonies

**Discipline:** Natural
**Type of Project:** Technical Assistance/Research
**Funding Agency:** United States Geological Survey
**Other Partners/Cooperators:** COLORADO STATE UNIVERSITY
**Student Participation:** No
**Effective Dates:** 02/15/2020 to 02/14/2021
**Funding Amount:** $47,000.00

**Investigators and Agency Representative:**
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**Project Abstract:**
Project objectives: The objectives of this research are as follows:
1) Extend the survival analysis conducted to date to include the effect of serological stage on survival, as well as to incorporate spatial mark-recapture models of survival as a function of bait uptake
2) Use and refine models of transmission, vaccine and dusting effects, and survival, and description of remaining sources of uncertainty, to develop a decision model under an adaptive management framework, which (a) considers a set of candidate portfolios of actions including vaccination and dusting at different scales, (b) develop models to predict the consequences of each candidate portfolio, and (c) includes assessing scenarios of extreme weather events such as drought on plague dynamics and the effects of different plague mitigation portfolios.
3) Recommend a monitoring approach to evaluate the effectiveness of implemented mitigation actions and (a) reduce uncertainty sources described above and (b) inform the next mitigation decision.