

Project Summary
Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Extending USGS Plague Research: Disease Maintenance and Vector Control

Discipline: Natural
Type of Project: Research
Funding Agency: USGS
Other Partners/Cooperators: Colorado State University
Effective Dates: 9/30/2014 - 12/31/2017
Funding Amount: \$195,000 (FY15: \$75,000 FY14: \$120,000]

Investigators and Agency Representative:

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Project Abstract: The overall goal of this research is to 1) Conduct experiments to determine how *Y. pestis* persists in local habitats during enzootic periods, only to recrudesce in epizootic form when conditions are suitable for an outbreak. In particular, research is needed to investigate the potential role of flea larvae in moving *Y. pestis* to mammalian hosts, thereby re-initiating the host-flea disease cycle; and 2) Investigate the effectiveness of tools that are used to manage plague, such as deltamethrin, an insecticide that is increasingly used to kill fleas.

The objectives for this project are 1) Evaluate the role of flea larvae in serving as reservoirs of plague, and moving *Y. pestis* to mammal hosts and adult fleas. This research will represent the first empirical evaluation of new, relatively novel hypotheses; and 2) Evaluate the development of resistance to deltamethrin in flea populations.

Keywords: plague research, USGS, Colorado State University