

ECOLOGY AND MANAGEMENT OF SYLVATIC PLAGUE IN PHILLIPS COUNTY, MONTANA^{TWS}

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Sylvatic plague is a disease that was introduced into North America ~1900 and has since become well-established in native rodent populations in the western United States. The etiologic agent of plague is the bacterium *Yersinia pestis*, and most transmission between hosts occurs indirectly through the bite of an infected flea. Susceptibility to the disease varies widely among taxa. Aside from human cases, concern over plague in the U.S. has centered around effects on prairie dogs, which are uniformly susceptible to the disease. Efforts to restore populations of black-tailed prairie dogs in Montana have centered in Phillips County where ongoing efforts to reintroduce black-footed ferrets are ongoing. Currently, wildlife managers have few tools with which to manage or mitigate the effects of plague. One commonly used tool is the application of insecticides to prairie dog burrows to reduce flea abundance. We present an overview of plague ecology and the results of a dusting trial. We used a before-after control-impact design to test the effects of DeltaDust (0.05% Deltamethrin) on flea abundance in prairie dog burrows, on prairie dogs, and on associated small mammals. This and previous studies demonstrate that dusting prairie dog burrows is an effective way to reduce flea abundance in burrows and on prairie dogs. In addition, this study shows that flea abundance is also reduced on sympatric small mammal species that may act as reservoir hosts for *Y. pestis*.