

Project Summary
Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Exploring Linkages Between West Nile Virus Vectors And Sage Grouse In Coal Bed Methane (CBM) Development in Northeast Wyoming
Type of Project: Research
Funding Agency: BLM
Effective Dates: April 15, 2004 to December 30, 2006
Funding Amount: \$37,817.00
Investigators and Agency Representative: Dr. Greg Johnson, Montana State University, Bozeman. Mont., gdj@montana.edu , 406.994.3861 Dr. Ed Schmidtman, USDA ARS ABADRL, Laramie, Wyo. Dr. Todd Cornish, University of Wyoming, Laramie, Wyo Dr. Cecilia Kato, USDA ARS ABADRL, Laramie, Wyo.
Project Abstract: We hypothesized that horizontal transmission (i.e., mosquito to bird) of WNV in the Powder River Basin is primarily associated with populations of <i>Culex tarsalis</i> , but also may involve other species. As a test of this hypothesis, we designed a sentinel bird study to determine which species of hematophagous insects (i.e., blood feeding) are attracted to and feed on a grouse-surrogate host. These data will provide information as to the species of hematophagous insects likely to feed on sage grouse. It also will help to determine vector species and WNV infection rates, and thus give a better understanding of which species transmit WNV among avian and mammalian species common to the sagebrush steppe community. A total of 44 hen pheasants were used in this study for 145 bird nights. Thirty seven of these birds were placed in the mosquito traps and seven were control birds (i.e., not exposed to biting insects). During the course of the study, mosquito traps were located at seven different sites. These sites were adjacent to ponded water produced from coal bed methane development (Horse Camp, Hoblit, Site 18, and Odegard), sage brush habitat (Horse Camp and Hoblit) and non-CBM water (Red Draw). The highest number of mosquitoes captured in the traps came from those traps adjacent to Horse Camp and Odegard ponds in July and August. The fewest mosquitoes were collected during the September 7 – 9 exposure period. Mosquitoes identified from collections were <i>Culex tarsalis</i> , <i>Anopheles</i> , and <i>Culiseta</i> . Processing of samples should be complete in early 2005. Blood samples taken from birds following a three-week post exposure holding period were frozen at the Wyoming State Veterinary Lab and are in the process of being assayed for WNV. Assays should be complete in early 2005.
Outcomes with completion dates (reports, publications, workshops, videos, etc.): Project still in progress.
Keywords: West Nile virus, sage grouse, sentinel birds, coal bed methane
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