

The Western Front

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CURRENT PROJECTS

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Adopting Integrated Pest Management and Training Opportunities for Future Mosquito and Vector Control Professionals at a Utah State Prison and an Alternative High School in Wyoming

Center Priority Areas: Biological Control of Pests; IPM for Indigenous, Insular and Isolated People; Urban Pest Management

Project Director: Dr. Michele Rehbein, Salt Lake City Mosquito Abatement District

Project Director State: Utah

Cooperating States: Wyoming

Summary: This project will focus on two populations: an underserved community (an incarcerated population) located at the newly built Utah State Correctional Facility, which is surrounded by rural wetland habitats near the Great Salt Lake in Utah, and an alternative high school, Summit Innovations School, in Jackson, Wyoming. Through this project, the Salt Lake City Mosquito Abatement District and Teton County Weed and Pest Control District aim to increase the adoption of integrated pest management, primarily targeting mosquitoes, by educating students, inmates and correctional staff about IPM. An educational program within the prison will educate inmates and staff about mosquitoes, mosquito-borne pathogens, IPM and the wetland habitats (ecology, biology, environmental

science) surrounding the facility. A fish-rearing program for the biological control of mosquitoes around the prison will also be implemented. Vocational skills and supplemental training will be given to inmates to attempt to increase future career opportunities post-release. At Summit Innovations School, an education program for students will grow young professionals interested in biology, entomology, public health, mosquitoes and vectors, the environment and other science-related fields and increase the professional workforce in mosquito and vector control through training and teaching. The final objective of this project is to develop IPM best management practices that can be used nationally at other locations with similar problems.

Adapting Attract-and-Kill Methodology to Improve Mosquito IPM

Center Priority Areas: IPM for Pest-Resistance Management; New Technologies to Manage Pests; Urban Pest Management

Project Director: Dr. Gregory White, Salt Lake City Mosquito Abatement District

Project Director State: Utah

Cooperating States: Wyoming

Summary: Mosquito-borne diseases that used to be major problems, like yellow fever and malaria, have been eliminated from the United States through IPM but new challenges have appeared and new pathogens have arrived. IPM strategies for mosquitoes target different life stages of these insects, with many techniques focusing on eliminating juveniles. This strategy has been proven to reduce mosquitoes and diseases they carry, however, there are many instances where additional methods are needed to control adult mosquitoes. As flying insects, adult mosquitoes are harder to target than larval mosquitoes and adult mosquito suppression is a weak link in mosquito IPM due to limited pesticide application methods, few classes of active ingredients, rising insecticide resistance, cultural changes, the regulatory climate and environmental barriers. Attract-and-kill strategies have been widely successful in the IPM of other insect pests including ants, cockroaches, beetles and filth flies and we propose to adapt the attract-and-kill strategy by using persistent, stationary devices to lure in mosquitoes through attractants and then expose them to different classes of insecticides not currently compatible with existing adult mosquito management. Previous studies in our lab on potential active ingredients have found three excellent candidates and the top one will be used in trials. Evaluations will be conducted in Utah and Wyoming, states that have different situations where new mosquito control methods are needed. Data from these attract-and-kill device trials will be shared with mosquito abatement districts widely, particularly those lacking manpower in their operations.