1020-92-83     **John Gordon Alford*** (`jalford@shsu.edu`), Department of Mathematics, Box 2206, Sam Houston State University, Huntsville, TX 77340, and **Robert Matlock**, Department of Biology, City University of New York, Staten Island, NY 10314. *A Reaction-Diffusion Model for Eradication of the Screwworm Fly by Sterile Fly Release Method.* Preliminary report.

The screwworm fly is a parasite that causes myiasis (larval infestations in tissues) in wounded mammals. It was eradicated from the United States, Mexico and parts of Central America by the sterile insect release method (SIRM). A permanent sterile barrier zone is now maintained in Panama to prevent renewed invasion into eradicated territory. We have modeled SIRM control of the screwworm fly with a system of reaction-diffusion equations. Our results suggest that the barrier zone could be shortened substantially, reducing costs without risk of screwworm reinvasion. (Received August 16, 2006)