

ERADICATION PROGRAM IN THE SOUTHWESTERN UNITED STATES

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There are no longer any screwworms in the United States except for research colonies closely confined in cages at the USDA laboratory in Fargo, North Dakota. It was not always thus. For a history of the screwworm problem in the United States and a review of the research preceding and supporting eradication efforts see Bushland (1978).

Dr. Knipling has described the development of his eradication idea and Dr. Meadows has told us how elimination of screwworms from the Southeast was achieved. With the establishment of a quarantine line along the Mississippi River from Memphis to the Gulf, inspection and spray stations were operated at all of the bridges. Thus infested animals from the western U.S. were prevented from carrying the pest to the eradicated area.

Prior to the success of the Florida program we hadn't even dreamed of eradicating screwworms from the Southwest. It was unthinkable to attack the northern fringe of a population which extended over a front of 2400 kilometers from the Gulf of Mexico to the Pacific Ocean. We had meager knowledge of screwworm biology and ecology along the Mexico-U.S. border, but south of that border our ignorance was abysmal. All we knew was that screwworms probably existed throughout Mexico, Central America, and South America to the cool temperate zones. It seemed that throughout the vast range of varied environments, there could exist many biological races which had evolved to adapt to their peculiar circumstances. These might be vastly different from the flies of our limited acquaintance. After all, we had only studied and worked with a tiny ripple from a sea of screwworms that extended all the way from Mexico to Argentina.

Our attitude changed with developments in the Southeastern program. Fly production from our research pilot plant was inadequate to treat South Florida where flies survived the cold; so, as a gamble, sterile flies were spread at 200 per square mile per week over northern Florida to keep the new migrants from multiplying there. The strategy seemed successful inasmuch as screwworms did not make their usual spring migration into Georgia and Alabama. Hence, the idea arose that a barrier zone of sterile flies might protect Texas from warm weather invasion by Mexican flies if only Texas flies could first be eradicated.

E. F. Knipling, A. W. Lindquist and I dreamed up this hope in informal conversations, but no one drew up a formal proposal that might be evaluated by higher officials in USDA. Higher officials didn't know about our dreams until it was too late to squelch them. It all began, very innocently, in this way. We three were attending a livestock insects conference at Auburn, Alabama in the spring of 1959. I received a telephone call from Dr. M. E. Meadows saying that, at the invitation of the Florida Cattlemen's Association, a delegation of Texas cattlemen was coming next day to visit the Sebring plant. In response to his request for help in arranging a guided tour, I replied that I'd be happy to participate if I could be excused from the Auburn conference and would call him back in an hour. We three huddled briefly and agreed on two points: first, those Texas ranchers were coming to inquire whether sterile flies might work in the Southwest, and second, that I could tell them, though it was a much more complicated problem than Florida, that it seemed to us that eradication might be possible.

Fig. 1 is a map of screwworm distribution in the United States before Southeastern eradication. The upper line shows the usual limits of summer migration although screwworms, shipped via infested cattle, had caused outbreaks as far north as South Dakota, Illinois, and New Jersey. The areas south of the dotted lines in Florida, Texas, New Mexico, Arizona and California are the overwintering zones in average winters. Note that the overwintering area in Texas was about as large as that in Florida. Our plan for Texas was to treat the overwintering area with 1,000 sterile flies per