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Screwworms and Florida's Key Deer

The New World screwworm (*Cochliomyia hominivorax*) is a parasitic maggot that infests livestock, pets, wild warm-blooded animals, and, on rare occasions, humans. By burrowing into wounds or orifices and consuming the living flesh of their hosts, screwworms can cause serious tissue damage, secondary infections and, depending on the severity of the infestation, death. Although native to the Americas, ranging from the southern USA to Argentina, the screwworm was effectively eradicated from the U.S. mainland by 1982, and an active surveillance program has been in place since that time to prevent reinfestation from other countries. In September 2016, however, screwworms were discovered to have re-established a population in southern Florida, infesting the endangered Key deer on the islands of No Name Key and Big Pine Key. Since the discovery of this infestation, nearly 10 percent of the deer population had suffered injuries so extensive that euthanasia of these rare native animals was required. The continued presence of screwworms in the Florida Keys puts at risk pets, wildlife and people in the immediate vicinity and poses an imminent threat to wild and domesticated animals throughout the southern USA if the infestation moves to the mainland.

How and when screwworms were reintroduced to the USA is not yet known but efforts have been implemented to contain this infestation to the Florida Keys and eliminate it, treating all infested animals and using the historically successful method of sterile insect release to eradicate the population. In addition, the screwworms themselves are being screened for molecular genetic markers that can be used to determine the geographic origin of this infestation and prevent new introductions.

The chemical-free technique of sterile insect release, now routinely used to eradicate or suppress a variety of insect pests, was actually developed by the U.S. Department of Agriculture over a 30-year period in the mid-20th century expressly for eradicating the screwworm fly. Prior to the adoption of the program, screwworm flies caused losses of millions of dollars annually to the U.S. livestock industry. For screwworm eradication, flies are mass-reared in special facilities and adult males are irradiated, rendering them sterile. These sterile males are released to mate with wild females; because female screwworm flies mate only once, mating with sterile males prevents them from reproducing. After Sterile Insect Technique (SIT) was used successfully to eradicate screwworms from the USA, the USDA collaborated with nations throughout Central America south to Panama to carry out eradication programs, both to render assistance throughout the region and to minimize risks of reinfestation at home.

Millions of screwworms are presently being reared, sterilized, and released in order to control screwworm populations throughout the Americas. Rearing takes place at the mass rearing facility of the Panama-U.S. Commission for Eradication and Prevention of Screwworms. This facility was the source of the tens of millions of sterile flies that have been released in the National Key Deer Refuge since October 11; plans are in place to continue to release millions of flies until this screwworm population, the first reported in the continental United States in more than three decades, is eliminated. Despite the large numbers of releases, screwworm flies rarely fly long distances and thus are unlikely to be noticed by residents outside the wildlife refuge. Entomologists are also monitoring the islands with bait traps designed to capture flies and are asking local residents to report maggot infestations in pets, livestock, or other wildlife species.

Members of the Entomological Society of America are available to answer questions and to provide assistance in this effort.

The Entomological Society of America is the largest organization in the world serving the professional and scientific needs of entomologists and people in related disciplines. Founded in 1889, ESA today has approximately 7,000 members affiliated with educational institutions, health agencies, private industry, and government. Members are researchers, teachers, extension service personnel, administrators, marketing representatives, research technicians, consultants, students, and hobbyists. The Society stands ready as a scientific and educational resource for all insect-related topics. For more information, visit http://www.entsoc.org.