

mi<sup>2</sup>). Traditional surveillance data composed <10% of the sample – public referrals of suspiciously acting wildlife and road kills. We analyzed 215 rabid skunk locations and dates together with GIS hydrology and land use information. Hypothetical barriers were modeled using potential synergisms formed among restricted habitat, depopulation, and vaccine (if one had been available), combined with the natural epizootiology of this rabies strain with high virulence. Two dates for barrier locations were identified that may have halted the spreading epizootic: 1) before April 1989, when the rabies epizootic might have been limited to Polecat and Sage Creeks, and 2) June 1989, when the epizootic may have been stopped before it entered the majority of SRB including the larger population centers of Byron, Powell, and Cody.

## **Hair Identification: The Mammalian Fingerprint**

E. SANTANA, *Auburn University School of Forestry & Wildlife Sciences, Auburn, AL, USA*

Microscopic hair identification has been used as an analysis tool in a broad range of biological studies and has diverse applications in the fields of wildlife biology, anthropology, forensics, and natural resource management. Examining differences in cortex patterns, medulla characteristics, cuticular scale anatomy, shape, size, and color can be used to reliably identify mammalian guard hairs. Microscopic hair identification provides a diagnostic tool for identifying mammalian hair and has broad applications in the field of wildlife damage management. Hair collected from scent stations can provide presence confirmation and population density estimates on carnivores and ungulates, while hairs extracted from scats and owl pellets can be used to determine prey composition and consumption of terrestrial predators and raptors, and material collected from the site of a depredation event can be used to identify the culprit of livestock attacks. Hair identification is an inexpensive, non-intrusive method of collecting data and can be utilized by virtually anyone. The purpose of this project is to give a brief history of the field of mammalian hair identification, outline some of the basic techniques in examining individual hairs, provide a case study on a current food habits project involving hair identification, and discuss the benefits and drawbacks of utilizing this technique.

## **Investigations into Earthworm Control on Airports**

T. SEAMANS, G. BERNHARDT, AND D. STEYER, *USDA, APHIS, Wildlife Services, National Wildlife Research Center, Ohio Field Station, Sandusky, OH, USA*

Earthworms, though generally considered beneficial for soil conditioning, can become a hazard at airports. When found in large numbers on runways or taxiways after heavy rainfall, they create slippery conditions for aircraft rolling over them. Additionally, earthworms attract birds, especially gulls, thereby increasing the risk of bird strikes to aircraft that are landing or taking off. For example, during a 35-minute period on 3 September 2004 at Calgary International Airport (YYC), a B737 of Westjet and an A319 of Air Canada aborted takeoffs after multiple strikes with gulls attracted to the runways to feed on earthworms. The B737 had strikes and damage to both engines and the A319 had damage (apparently an uncontained failure) to one engine. In the Netherlands, they build concrete moats to keep worms off of runways. There are