

mi²). 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

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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

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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

no pesticides registered for earthworm control. Consequently any application of a pesticide to kill worms would be illegal. Researchers in England, Oregon, and Washington found that incorporating abrasive material into soil reduced the number of worms coming to the surface. We are conducting trials at the USDA's National Wildlife Research Center Ohio Field Station to develop simple procedures to reduce earthworm numbers on runways and taxiways. In lab trials, night crawlers (*Lumbricus terrestris*) have been initially repelled from areas containing phosphate fertilizer, high nitrate fertilizer or a mustard byproduct. Ground mustard mixed with diatomaceous earth also shows promise in reducing the number of earthworms in treated plots. Additionally, when placed on recycled coal slag, the worms have not burrowed into the material but tried to leave the test site. We anticipate field trials to investigate an integrated approach involving products that present both chemical and physical irritants. If a successful combination of products is determined, the number of earthworms crawling onto taxiways and runways could be significantly reduced.

Removal of Feral Cat Colonies from John F. Kennedy International Airport: Operational, Biological and Social Challenges

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Feral cats (*Felis catus*) have been present at John F. Kennedy International Airport (JFK) for approximately five years. Feral cats pose several zoonotic health risks, impact native wildlife, and interfere with airport operations. At the request of airport staff, U.S. Department of Agriculture, Animal Plant and Health Inspection Service, Wildlife Services conducted a cat-trapping effort between November 2007 and December 2008. Cats were live-trapped and surrendered to local animal control services where they were vaccinated, micro-chipped, and offered up for adoption. Due to the history of the colony, local cat advocacy groups expressed discontent with the removal efforts. The controversial removals draw attention to the need to provide safe travel and work environments while being mindful of public image. Based on the needs and sensitivity of the issue we review viable options for conducting similar removal efforts.