

Linda Winter

"MANAGED" CAT COLONIES VS CAT REMOVAL EFFORTS

In 1997, American Bird Conservancy launched *Cats Indoors!*, *The Campaign for Safer Birds and Cats* to encourage cat owners to keep their cats indoors and to support the humane, permanent removal of domestic cats from important wildlife areas. This Power Point presentation will review the controversial issue of "managed" cat colonies, relevant policies and ordinances, and examples of successful cat removal efforts. Recommendations regarding free-roaming cat overpopulation issues for public land managers will be discussed, including the new Hawaii *Cats Indoors!* Campaign outreach materials.

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Brad Keitt

PROTECTING BIODIVERSITY BY CONSERVING ISLANDS: AN INTEGRATED REGIONAL APPROACH.

Introduced mammals are one of the greatest threats to island ecosystems. This is because most island ecosystems historically lacked mammal predators and herbivores and therefore the islands' flora and fauna lack the defenses necessary to defend against these invasions. Consequently, organizations that integrate key aspects of island conservation (applied research, priority setting, planning, public education, fund raising, non-native mammal removal, and protection against new introductions) can be powerful tools for seabird conservation. Removing introduced mammals from islands can protect seabirds, and we believe this can be done effectively by regional island conservation organizations that integrate: 1) applied research and priority setting; 2) public education and policy work; 3) capacity building; and, 4) conservation action. In Northwest Mexico we developed such an organization to protect the region's 230+ islands. These islands have 31 species of breeding seabirds and over 210 species and subspecies of endemic vertebrates. Non-native mammals have been introduced to at least 44 islands and are responsible for the probable extinction of 21 endemic vertebrate species and subspecies, including the world's largest storm petrel (*Oceanodroma macrodactyla*). Island Conservation and Conservación de Islas, along with the Universidad Nacional Autónoma de México, Centro de Investigaciones Biológicas del Noroeste, and the Mexican

National Protected Areas Department collaborated with local people and NGO's to remove one or more introduced mammals from each of 25 islands. This work was initiated in 1994 and has protected habitat for 188 colonies and 30 taxa of seabirds, 48 endemic taxa of terrestrial mammals, and 29 taxa of endemic plants.

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ECOLOGY OF FERAL CATS ON MAUNA KEA

Feral cats in the dry subalpine zone of Mauna Kea live in low densities and exhibit some of the largest home ranges reported in the literature. While 95% kernel home range estimates for 4 males ($\bar{x} = 1418$ ha) were nearly twice as large as 3 female home ranges ($\bar{x} = 772$ ha), one male maintained a home range of 2050 ha. Nighttime radio-telemetry observations showed 20-40% activity from 2200 hours until sunrise, but all observations showed activity from 2000 hours to 2200 hours, and 40-70% of observations showed activity during daylight hours. Despite the great abundance of mice in this environment, the largest diet components of feral cats were birds (78.8%), of which >44.1% were passerines, while insects were the second most common diet item (60.1%). This population exhibited high seroprevalence for the diseases toxoplasmosis (37.3%) and feline leukemia virus (FeLV; 15.9%) distributed among all age and sex classes. Feline immunodeficiency virus (FIV) occurred only in adult males comprising 8.7% of the overall population. While FeLV may strongly limit feral cat abundance, FIV and toxoplasmosis probably does not. Toxoplasmosis has caused mortality in several species of native birds and also poses a threat to marine mammals in coastal areas.

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OPTIMIZING CAPTURE AND DETECTION TECHNIQUES FOR MONGOUSES

Abundant animal prey, plant food items, and anthropogenic food sources have supported high densities of mongooses in Hawaii. Mongoose may have significant effects on ground nesting birds and removing them from areas is critical for some species. A wide variety of baits have been used to trap mongooses but the effectiveness of various baits is unknown. A recent field study evaluated a series of candidate food baits and commercial animal lures, and food scents in attracting mongooses to tracking stations and traps. In addition, we developed a tracking station that specifically is designed for mongoose. The goal was to identify the most effective methods to capture or detect mongooses in recently established or low population density locations where conventional baits and methods have not been very successful. Bait preference varied greatly among the candidate lures with food based baits being the most attractive. Field tests have also shown that these baits can be effective in detecting mongooses on Kauai.

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Fern P. Duvall II

CAPTURING THE CRYPTIC VEILED CHAMELEON *CHAMAELEO CALYPTRATUS* ON MAUI: STRATEGY, MANPOWER AND EFFECTIVENESS.

Between March 2002 and September 2004 a total of 155 Veiled Chameleons *Chamaeleo calyptratus* (Dumeril and Dumeril) have been collected from less than three acres (1.2 ha) in Makawao, Maui. Veiled Chameleons in their native range are known to feed on insects, small mammals and birds, and are believed to pose a threat to Hawaii's native insect and small bird fauna due to the fact that this 18" – 24" long lizard can occupy a wide range of habitats ranging from sea level to over 9,000' elevation. It is capable of rapid population growth with females becoming mature at 4 months of age and capable of laying multiple clutches of eggs, with usually 30-40 eggs per clutch.

In an attempt to eradicate this incipient population of reptiles, a total of 40 people have performed over 700 hours of actual night searches. The numbers, sex-ratio, and size-classes of chameleons collected on the 25 successful search sessions, indicate that this "harvesting" of Veiled Chameleons has not detectably reduced the population. We

found 0.22 animals are detected and collected per search hour; the effectiveness of the technique, based on manpower requirements per successful capture will not lead to eradication. A critical look at the control strategy and manpower requirements necessary to eradicate this chameleon is needed.

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HAWAII PREDATOR CONTROL - PAST, PRESENT, FUTURE

Small mammals have historically caused significant agricultural, human health, and ecological impacts to the Hawaiian Islands. Small introduced mammalian predators, such as roof rats (*Rattus rattus*), Norway rats (*Rattus norvegicus*), Polynesian rats (*Rattus exulans*), house mice (*Mus musculus*), mongoose (*Herpestes javanicus*), and feral cats (*Felis catus*) have had, and continue to have, detrimental affects on flora and fauna of this State through predation, competition, and disease transmission. This presentation will briefly review past and present efforts related to predator control in the State of Hawaii. Emphasis during this presentation will be focused on recent lessons learned here and abroad related to proper planning and implementation of predator control efforts, the need for proper monitoring of target and non-target effects, public education, and the development of new techniques and technologies.

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Catherine E. Swift

BAIT STATION USE FOR MAXIMUM EFFECTIVENESS

Government conservation agencies in Hawaii, primarily the U.S. Fish and Wildlife Service and the State Division of Forestry and Wildlife, maintain rodenticide labels in cooperation with the product manufacturers, the State Department of Agriculture and the U.S. EPA, that allow three rodenticide products to be used in bait stations for the protection of native species from rat, mouse, and mongoose predation. These labels, which represent State and federal pesticide regulations, have been carefully written to ensure that the rodenticides are used safely and effectively. The label content will be reviewed in detail to ensure that users have an in-depth understanding of both the biology and legal framework upon which the labels are based. Relevant research on rodent foraging behavior in Hawaii and elsewhere will be presented to enhance the user's ability to design and implement effective baiting programs.

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James Anderson

THE PESTICIDE LABEL AND HOW TO COMPLY

The US Environmental Protection Agency is mainly concerned with the manufacture, registration and labeling of pesticides. The Hawaii State Department of Agriculture is mainly concerned with the sale, distribution and use of pesticides. The pesticide label is a legal document and must be followed. If the applicator follows the pesticide label, there should be less pesticide poisoning and less harm to the environment.

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Linda A. Haller

HUMANE ANIMAL TREATMENT

Discussion will include a brief history on humane attitudes and treatment of animals, how the attitudes have changed through scientific research documented by the American Veterinary Medical Association. Related Humane Society policy statements will be discussed and why humane euthanasia of animals should always be practiced.

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Chris Swenson

LEHUA ISLAND ECOSYSTEM RESTORATION PROJECT

Planning is underway to remove introduced rats and rabbits from Lehua Island. Removal of these species will allow natural re-colonization of Lehua by seabirds and native plants. Selective weed control and re-introduction of some plants is also planned. Baseline biological surveys have been completed and we are currently working on completing environmental compliance documents, obtaining permits, and locating funding. This project is part of a statewide effort to inventory and restore selected offshore islets and is sponsored by the Offshore Islet Restoration Committee (OIRC). OIRC is made up of state and federal agencies, the University of Hawaii, Nature Conservancy and other groups committed to conserving biodiversity on Hawaii's offshore islets.

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WEST NILE VIRUS

The issue of West Nile Virus, with its impacts on both humans and birds, has brought together the concerns of resource management and public health. Wetlands, and surrounding environs, are perceived to be areas capable of harboring large numbers of mosquito vectors. In order to prevent possible mosquito-borne disease outbreaks, the Department of Health, Vector Control Branch, has developed a plan for mosquito control. However, because of limited staff and funding, it will be helpful for other agencies and landowners to assist in these efforts by doing surveillance and implementing preventative measures on the lands they manage. Though management responses to public health crises are sometimes in conflict with natural resources concerns, by beginning to openly address these differences and seek solutions, it is hoped that a stronger collaboration can be forged for the future.

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Jose M.V. Fragoso

WILDLIFE MANAGEMENT IN PEOPLED LANDSCAPES

Wildlife management in practice involves dealing with people just as often as it involves influencing animal population dynamics. Wildlife managers and biologists, however, are rarely trained in effective methods for working with those members of the public who are concerned with wildlife management activities. To achieve wildlife management objectives and related conservation goals, almost as much effort must be directed at understanding public and private stakeholders as in understanding and managing animal populations. Involving local people in management efforts is also a key to success, but such involvement can only come about by fostering trust between managers and stakeholders. I will discuss examples of how this can be achieved and pitfalls to be avoided.

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