GLOBAL JOURNAL OF SCIENCE FRONTIER RESEARCH: C
BIOLOGICAL SCIENCE
Volume 14 Issue 2 Version 1.0 Year 2014
Type : Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-4626 & Print ISSN: 0975-5896

Strategies of Rodent Control Methods at Airports

By Abd El-Aleem Saad Soliman Desoky
Sohag University, Egypt

Abstract- Rodent populations at airports can cause human safety issues by attracting raptors ... be, expended to reduce of rodent populations at an airport may decrease birds population in the area and therefore, reduce the risk that raptors pose to aircraft. Rodent populations can be reduced by population management (i.e., use of rodenticides) or by habitat management (i.e., vegetation management, barriers, and land uses) that reduces the area's carrying capacity for rodents. We discuss potential approaches to reduce rodent populations at airports within the context of an integrated pest management strategy.

Keywords: aircraft, habitat management, integrated pest, management strategy, raptors, rodent, rodenticides, vole, wildlife damage.

GJSFR-C Classification : FOR Code: 779904p

Strictly as per the compliance and regulations of :

years. Raptors may be attracted to areas such as airports during the "highs" of these population cycles (Baker and Brooks 1981). Even when vole populations "crash", those that survive in grassy "refugia" are able to quickly reproduce and re-invade formerly occupied areas **(e.g., Edge *et al.*, 1995, Wolff *et al.*, 1997).**

Clearly, it is important to know which rodent species occur at the airport and to have a good understanding of their biology, population dynamics, and ecology along with their relationships to damage, land uses, and human activities.

pests, there has been considerable progress in recent decades. Rodenticide application, causing rapid and large-scale population reduction, continues to be an important tool in rodent damage management. These reductions, however, are short-term and there is a growing concern with the environmental hazards and safety issues associated with rodenticide use. Great strides have been made to better understand the nature of rodent populations, why damage occurs, how damage can be predicted and reduced by non-lethal approaches (physical, chemical, behavioral, and cultural), and how to apply ecologically based rodent management strategies **(e.g., Singleton *et al.*, 1999).**

Strategies of Rodent Control Methods at Airports

The general equipment, methods, and strategies used to manage rodents, including rodenticides, have been presented in detail by **Buckle and Smith (1994) and Hygnstrom *et al.*, (1994).** Many new approaches (use of disease agents and fertility control) have proven ineffective or ill-conceived for vertebrates in the preliminary testing phases.

The strategies adopted for Managing Rodent Pests (MRP) varies from agro ecosystems to the other such as desert and semi-desert ecosystems. However, the present work was initiated to through a beam of light on the Management Strategies of Rodents (MSR) within different Ecosystems. The conclusion that has been achieved from the conducted experiments could be summarized in the following points: (1)survey and population density of rodent species in the area (2) The differences in species composition of rodents depending on locality, habitat type and preferred food.(3-)The rodent species preferred the vegetable baits in the traps. This can be useful to prepare rodent baits to capture rodents.(4) The control of rodents depends upon the locality, neighboring and available food.(5)-Mechanical, biological and chemical control methods can be used effectively in an Integrated Pest Management Approach (IPMA) for the regulation of the rodents population density (**Desokey, 2007**).

We can develop an effective IPM strategy for rodent population and damage management that involves rodent population management, habitat management, and people management (Table 1). Although we seek a relatively easy and long-term solution to the problem, these often do not exist. Therefore, continual, diligent efforts using multiple methods are required. Once an IPM strategy is applied, it is important to monitor the results and to adjust activities as necessary (i.e., incorporate a feedback loop and practice adaptive management).

Table 1: Potential approaches to the management of lower populations of rodents at airports

classes of oral rodenticides. Acute rodenticides (including zinc phosphide and strychnine) usually kill with a single feeding. In contrast, chronic or multiple-feeding rodenticides (including warfarin, diphacinone, and chlorophacinone) usually require a period (days) of feeding before killing. The distinction has become somewhat blurred because the anticoagulant group includes first generation (examples given) and second generation (bromadiolone, brodifacoum, difethialone) anticoagulants. Second generation anticoagulants are very toxic and can usually kill within several days of a single feeding. These materials are generally not available for field application. Use patterns generally allow rodents to feed continuously at bait stations or on bait blocks, however, so that second generation materials offer no practical advantage in many situations. An additional group of rodent toxicants includes the fumigants (e.g., gas cartridges, aluminum phosphide, methyl bromide) which are used in building fumigation or in burrow systems that are closed after application.

Broadcast baiting with zinc phosphide (ZP; 2% active ingredient) on oats or wheat has worked well for vole (and other small rodent) control at some airports **(e.g., Witmer 1999)**. The bait should be applied early in the year, during a dry period, and pre-baiting with "clean" oats (or wheat) should be done to get good bait acceptance and to avoid the development of "bait shyness" (whereby rodents don't consume a lethal dose, become sick, and won't touch the bait again). ZP does pose a primary hazard to any animal that consumes it so it should be used carefully. On the other

rodent population, as determined by the population monitoring protocol.

Other methods of rodent population reduction are not practical or may be counter-productive in an airport setting (e.g., enhancing natural predation) or are not yet registered for field application (introduction of rodent disease agents or parasites, use of fertility control materials).

VII. Conclusions

Dealing with rodent problems, especially in complex settings with many constraints such as airports, may be difficult. Multiple approaches are available and possible, however, and should be woven into a rodent IPM strategy (Table 1). In some cases, it will be necessary to experiment with approaches on a small scale to see which will be most effective and practical in a specific setting. In general, vegetation, overall setting, and land uses of the airport and adjacent properties should be managed so as to be less supportive of rodents, hence attracting less activity by raptors. The rodent population should be carefully monitored with a standardized protocol so that direct population control can be quickly implemented, if necessary. Hopefully, research will continue to provide a better understanding of rodent populations and access to new or improved methods of population and damage reduction.

References Références Referencias

1. Allen, J. K. (1998). Small mammal abundance and raptor presence on John F. Kennedy International

Airport. M. S. Thesis. Montclair State University, Montclair, N.J. USA

17. Hygnstrom, S. E.; R. M. Timm, and G.E. Larson (1994). Prevention and Control of Wildlife Damage