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INTEGRATED PEST MANAGEMENT FOR ACADEMIC LIBRARIES

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Abstract

Pests constitute a general problem to human safety. Over the years, man has relied on routine application of pesticides which have often yielded unsatisfactory results. Libraries, archive and museums have also had more than a fair share of the ordeals caused by pests. Not only does pest infestion cause damage to stored materials, it scares users away. IPM is an approach that involves steps aimed at tackling the situation in terms of the environmental and climatic conditions, the local circumstances of pest infestion and the nature of the pest in question.

Introduction

The nature of libraries as conservers of printed or written materials in all formats make preservation an important art of collection management. Regardless of the nature of the collection, libraries have become an essential part of the academic institution. The educational process relies heavily on them as resources for the intellectual development of students and researchers. It provides the tools needed to support the classroom instruction of the curriculum of the institution. As pointed by Plume (1964)

"Librarians and booklovers in tropical and sub-tropical countries must protect books from the ravages of insects, rodents, microfungi, dampness, dust, desiccation, violent rainstorms and sandstorms."

Academic libraries usually house a larger variety of study and research materials as well as cater for a variety of interests and needs of its clientele. They are repositories of information materials for the purpose of promoting study, teaching and research. Pest management for Academic libraries is therefore an issue of concern in the area of preservation of materials for effective collection management.

Integrated Pest Management (IPM)

Through the centuries, pests, and insects have always been of nuisance to man because of their nature and the enormous rate at which they multiply and their strong will to survive, solutions to them have always been temporary. IPM is a systematic approach to reducing the damage caused by pests and insects to tolerable levels through a variety of techniques and strategies. IPM was originally developed for agricultural and urban pest management with the idea only recently introduced to libraries, archives and museums. IPM basically targets the source of the problem by concentrating on excluding pests. In libraries, it can either be chemical or non-chemical control, although in most cases, chemical control is considered a last resort when other treatments are not feasible.

The Nature and Types of Pests

Pests and insects by definition refer to a category of biological agents. the most common of which are insect pests, mould. mildew, fungi and animal pests, especially rodents, all of which are a major cause of deterioration anywhere.

"A pest is considered in its general sense, to mean birds, rodents, mites, insects. nematodes, fungi, bacteria, viruses and vectors. All so-called pest organisms have their own natural place in the world's ecosystem and any organism may potentially develop into a pest. (Zadoks, 1993).

All insects go through a chrysalis or metamorphosis in their life cycle, these stages include – egg, larva, pupa and nymph. For many insects, the larva stage is the most damaging because this is where feeding takes place (Lindblom Patkus. 1999). Climatic and socio-cultural circumstances-are- considerable factors for pest infestation and developing countries suffer the most because many species of insects thrive in these areas.

The most common types of pests found in the library include cockroaches. silverfish. booklice, rates, mice, bookworms moulds, carpet beetles, termites. etc. These feed mainly on paper sizing, starches and adhesives thereby damaging bookbinding.

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Pests by nature prefer dark humid places which enables them to breed easily. Also cracks and crevices in walls and foundations, and broken pipes can provide access for infestation. A brief insight into the activities of some of these pests would be more illuminating:

i. Booklice: These feed on microspic moulds growing on paper, and are attracted to dark humid places.

ii. Silver fish chew holes on paper especially glossy paper. They damage bookbinding and feed on the adhesives underneath.

iii. Cockroaches gain entrance to the library through others, broken pipes, rubbish heaps, remains of food wastes. They not only chew book pages, they can also stain materials with their secretions.

iv. Carpet beetles/Bookworms are attracted by leather, wood and rugs, they also feed on nectar from flowering plants.

v. Moulds are a form of microorganisms having a symbiotic relationship with nature and objects made of natural materials e.g. Fungi.

vi. Rodents are other forms of pests. These belong to the vertebrate species and can constitute a great nuisance to library materials.

In the University of Jos Library for example, rodents and mice are the most common types of pests. Characteristically, they are problematic because they have an incredible ability to survive and procreate, they are extremely compatible with human behaviour and needs, resilient and difficult to eliminate. Books made from either paper, leather, cloth, starch or glue are an appetizing source of food for them. Damage caused by them are often irreparable as they gnaw on books, plastics, soft metals and wiring (i.e Fibre Optic cables and Telephone wires) which they use to make nest materials. Insects also, specifically cockroaches, spiders, termites, booklice and beetles are a menace to the Library. Action is usually promptly taken at the earliest signs of pest/insect infestation. The University of Jos Library has consistently adopted a strategy of constantly disturbing possible habitats of rodents and insects by regular cleaning and tidying of infested areas and ensuring proper refuse disposal within and outside the Library. The use of chemical insecticides and poisons has often depended on the severity of the problem.

Integrated Pest Management (IPM) Strategies for Nigerian Academic Libraries

Strategies and solutions to pest infestation would most often depend on the local circumstances of the library, which may include the following climate conditions in the library, space, environmental factors, etc. Most academic libraries in Nigerian institutions are characterized by lack of space, poor or substandard architectural design, old and worn-out materials and unavailability of facilities for effective maintenance. It would be imperative to consider these problems in order to address them through IPM.

1. Climatic conditions: Being in a tropical climate, Nigeria academic libraries should be properly aired through the provision of fans or good air conditioning systems in this way air can circulate through the stacks keeping books dried as an aid in controlling infestation. Moisture levels of between 50-60% should be maintained at all times.
2. Good lighting would ensure that insects or pests do not hide in crevices and holes.
3. The architectural designs of most academic libraries do not ensure space for proper storage of materials thereby resulting to congestion. Also termites eat up wood, ensure that window frames and other fittings are made either of metal or pressure treated wood.
4. Environmental conditions: Surroundings of the library should be well kept, constant screening of all entries from the exterior i.e. windows, roofings and doors should be done regularly to prevent ingress of adult beetles, cockroaches and rats.
   - (ii) Proper guttering and grading should be done to carry water away from the building, making it less conducive for termite invasion.
   - (iii) Plantings of shrubbery should not include plants whose flowers contain high amounts of pollen. Also dried flower arrangements import eggs and travel into the library and should therefore be avoided.

(iv) Storage and display of botanical collections should be avoided in the library to prevent beetles from attacking the specimen. If necessary such collections should be disinfested by heating to 130° for 3 hours

(v) Use of good disposal systems should be encouraged to avoid heaps of rubbish thereby attracting -- cockroaches.

5. Food in the Library: Eating of food and beverages should be completely avoided in the library. Food spills attract rats, mice, cockroaches – these pests literally chew up books and their feaces can pose a very significant health hazard to library users and staff. Without food and drinks, pests would not survive.

6. Preventive measures can also be included in the binding process, for example, it is possible to mix a pesticide with glue as damaged books are being re-bound. This prevents beetles from inflicting damage on the book.

7. Also regular inspection of the book stacks with a flashlight would reveal areas of pest infestation.

8. User awareness is an aspect that cannot be underestimated as this would generally have a far-reaching effect on the attitude of users. This could be included in the user orientation programme for in-coming students.

Conclusion

Pests are a part of the general eco-system and to eradicate them totally would be a herculean impossibility, as pointed by McNew (1972)

"...the harsh reality of the situation is that we must live with pests – be they insects, mites, snails, worms, fungi, bacteria, viruses epiphytic plants, allergens, or weeds. Rarely do we eradicate them; the best we can do is to co-exist with them. We and they are a part of a giant ecosystem..."

No collection, however, whether cultural, personal or academic is safe where pests are concerned. Their ability to inflict devastating damage to library collection demands that the most appropriate and effective measures be taken to destroy them. Chemical controls of pests should at best be avoided and where absolutely necessary expert advice should be sought, reliance should rather be placed on IPM programme which incorporate environmental control, good house-keeping and monitoring to detect the presence of pests. It is in view of this that academic libraries in Nigerian institutions are encouraged to initiate IPM programmes, in fact, it is imperative that IPM should be included in the library`s preservation policy.

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