

What is integrated pest management?

Integrated pest management uses a range of preventive measures to control pests. It significantly reduces the need to use chemicals while providing the same, if not better, level of protection for collections. Research indicates that commonly used chemicals produce adverse effects on archive materials and the people who use them. This knowledge, combined with chemical resistance in pests and environmental concerns, has led to a move away from chemical intervention to control rodent or insect infestation.

How it works

Integrated pest management is based on the knowledge of what pests need to survive. Pests are controlled by making the environment around and within the archives hostile to their life cycle. This approach is not pest-specific, as many aspects of the program provide protection against a range of biological hazards, eg good housekeeping can be as effective against mould as it is against rats. In a well-run institution many components of an integrated pest management program will already be in place. Chemical treatments are used only in a crisis situation threatening rapid losses or when pests fail to succumb to more conservative methods.

Pests likely to affect archives

Rats, mice, silverfish and cockroaches are the most common problems but termites, birds and possums may also be encountered. Moths, ants and spiders are not likely to damage a paper collection but may attract other pests that do.

Rodents and silverfish pose the biggest threat to records. Rodents are more visible but silverfish are more insidious as they can produce considerable damage in a short period of time and are only noticeable when an item is retrieved or their habitat disturbed.

Implementation of integrated pest management

Risk assessment

Undertake a thorough inspection of the premises and records to identify any current activity, what it is and where it is located. Local museum or university entomology departments or commercial pest control companies will help you identify any unfamiliar pests. Look for possible entry sites and map the location. Review cleaning procedures and identify any problem areas.

Also examine staff habits and procedures. Do people eat at their desks or store food in offices? Are there flowers or pot plants in collection areas? Make sure your building maintenance procedures are adequate and kept up to date. Monitor the climate and make sure standards are maintained (20°C temperature, 50% relative humidity). Examine records that are entering the collection for possible infestation.

Once the information is collated it should be possible to identify factors causing or contributing to infestation and take remedial action.

Reporting and inspection

A reporting structure with one person taking responsibility for collating the results, disseminating the information and coordinating action when required is imperative.

There should be routine annual or six-monthly inspections of the building and grounds with written reports that feed into the maintenance program. A book for logging stray sightings, maintenance problems and so on should be kept up to date. Spot checks on records should be made on receipt and when retrieved.

Active intervention

Monitoring

It is important to know if pests enter your building. Traps can be used to determine what pests you have, where they are and the size of their population. Mark plans of the building with trap locations, and establish reporting structures.

Blunder traps, sticky board and box traps are readily available through commercial outlets and can be used by non-licensed personnel. These are effective against small rodents and crawling insects including cockroaches. Some are available with food or pheromones that are insect-specific – these traps are useful if monitoring or trapping a known insect problem. Such traps tend to be very expensive and would not be used for initial surveys. When using traps it is important to follow placement guidelines. Traps should be checked weekly and the catch identified and removed, as full traps are not effective. Increases in activity or changes in species should be noted and followed up to identify the cause and allow remedial action. Traps and lures are also available for flying insects and can be suspended or wall mounted.

Mechanical traps and cages are more suitable for larger rodents, possums and problem birds. These should be checked regularly, and if the population is small they can act as a control as well as a monitoring mechanism.

What to do if insects are found

If insects are found, identify the source and extent of the problem by using traps and bait stations. Determine whether collection material is at risk or infected and to what extent. If the infestation is collection-based, seal the infected items and remove them to a clean area. Thoroughly clean and remove all debris from the infected site.

- Establish whether infested material is to be kept permanently. If not, consider the cost of treatment in relation to the time the records are needed. If you consider that it would be

cost effective to destroy the records, approach the National Archives to discuss the possibility of disposal authorisation.

- Determine the route of entry and/or cause of the infestation and institute remedial action, such as fixing fly screens, repairing window frames and so on.
- Treat the infected records or area. Depending on the volume of material and type of pest this can be done in house or by a contracted pest control company. It is important to keep records of actions taken, including details of material treated and chemicals used.

Silverfish

Silverfish are not affected by knock-down pyrethrum sprays because they are inaccessible inside boxes and files. For small outbreaks in collection materials, clean and repack the material and destroy all old packing and debris removed from the records. If there is a chance that insects or eggs could remain in the cleaning area use a barrier spray or use a room 'bomb' or powder containing a pyrethrum-based active ingredient. A thorough cleaning of the storage area should also take place. The records should be checked at frequent intervals for the next 8 to 10 weeks.

For large-scale silverfish infestations, it is recommended that a pest control company carry out fumigation.

Cockroaches

Most cockroach outbreaks can be controlled by improved hygiene and housekeeping. The use of powders in cracks and crevices, and improved garden maintenance will also help. Baits and sticky traps can also be used to control the problem.

What to do with a rodent problem

The initial response should be similar to that for insects. Identify the location, size and scope of the infestation using mechanical or sticky traps and bait stations. Using fine powder, such as talcum powder, locate the pathways within the building, and place traps or baits accordingly. Determine the route of entry and/or the cause and institute remedial action to prevent further infestation.

Treatment of records

Cleaning, repairs and/or copying of records will solve the problem of rodent activity because rodents do not leave eggs and larvae behind to reinfest material.

For insects there is a wide range of treatment options including a range of low-toxicity chemicals and chemical-free treatments.

Low mammalian toxicity pesticides, incorporating compounds referred to as insect growth regulators, are available. These chemicals interfere with the development of the insect and produce a more effective and long-lasting kill rate when combined with low-toxicity sprays, powders and fumigants.

Freezing is very effective against mould, borer, moths and silverfish, and modified atmospheres are successful in relation to most museum pests with the exception of silverfish. Please seek further advice from National Archives preservation staff.

Contracting a pest control company

When entering into a pest control contract of any type, identify the risks and determine which areas are to be serviced. Check out which chemicals or products are recommended for your problem, investigate all options and ensure that a complete treatment program can be implemented. Determine the frequency of the service – frequent servicing is purely a habit, not a need. If in doubt seek advice on risk assessment and appropriate action from preservation staff at the National Archives or other large cultural institutions.

Check with professional bodies to ensure the pest control companies you are considering are accredited members, and ask for personal recommendations from similar agencies or institutions.

Produce a written specification for the service required, including reporting procedures, control over reagents used and provision of material safety data sheets on all products proposed.

Compile written guides on expected behaviour within and around collection areas. Tour the prospective contractors through the site to ascertain their attitudes, practices, reporting mechanisms and so on.

Further information

Contact the Agency Service Centre <<http://www.naa.gov.au/records-management/help/index.aspx>> if you need further advice on integrated pest management.