

# Integrated Pest Management (IPM)

### Purpose

The purpose of Integrated Pest Management (IPM) is to control the ingress of pests into records storage areas and limit the use of fumigants and pesticides in the environment by using a range of integrated pest control strategies.

### Background

Common pests such as termites, timber borers, silverfish, cockroaches, rats and mice can destroy public records in all formats. An infestation can cause irreparable damage.

Fumigation is widely used to control pest infestations within buildings. The use of long-lasting or residual insecticides and fumigants was discontinued in cultural heritage and collecting institutions because of the damaging effect on records and staff. These were replaced by pyrethrum and synthetic pyrethroids, which have a short active life and low toxicity. Regular fumigations were then considered necessary to maintain a pest free environment.

It is now recognised that regular fumigation builds resistance into the pests. To counteract this resistance, IPM programs are increasingly being adopted in cultural heritage and collecting institutions.

IPM covers a range of preventive measures based on the pest's life cycle. It looks at providing an environment that is not conducive to the survival of pests. Fumigation with insecticide is only used as a last resort.

### IPM Strategies

The first step to establishing an IPM program is to nominate an IPM officer to ensure that correct procedures are followed and train all relevant staff. It is also important to gain management support to introduce and maintain a successful IPM program at your workplace.

The three parts to IPM are:

1. Environmental Strategies
2. Cultural Strategies
3. Biological/Chemical Control and Treatment Strategies.

#### 1. Environmental Strategies

Pests need moisture and high humidity to survive. Relative humidity levels of 60% to 80% will attract pests. By controlling temperature and keeping relative humidity down, you will help preserve your records and make the physical environment less attractive for insects.



## 2. Cultural Strategies

### 2.1 Inspections, reporting and recording

The most indicative method of uncovering an infestation is the use of 'blunder' traps. These have a sticky base to trap insects and are placed in areas where pests are likely to be found, (e.g. along skirting boards, behind cupboards, beside entrances and fire escapes). Pheromones designed to attract specific insects can be used with blunder traps. The pheromone is placed in the centre of the trap and the sticky adhesive surface catches the insect.

Blunder traps are better than those that don't trap the insect. Baited traps typically result in the insect ingesting the poison, then dying in a location distant from the trap. This does not allow you to determine the type, location and number of insects you have to deal with.

To complement blunder traps, regular inspections should also be undertaken by your IPM officer to ensure there are no other visual signs of pest infestations. In addition, the assistance of all staff should be requested to report sightings of any insects and vermin.

All evidence of pest and vermin activity should be logged by your IPM officer. This can be as simple as a notebook advising of the date of sighting/capture, the location of the sighting/capture, what type of pest, their number, danger to staff or records, and what action the relevant staff member or IPM office took.

Alternatively, you can download from the Museum Pests website a free database that allows you to enter the above information and produce graphical reports that may be useful for determining if an occurrence is linked to the time of the year, or a particular work activity. The database is available here: [www.museumpests.net/pestmanager.htm](http://www.museumpests.net/pestmanager.htm)

### 2.2. Incoming stationery and packaging material

All packaging and other materials coming in to your filing areas and storage facility should be inspected. Packaging material is a prime location for 'free-loading' insects coming in from storage environments not as clean or pest free as your own.

Avoid stock-piling previously used packaging materials. The cardboard and glues in these materials provide a haven and food source for unwelcome pests. This includes the environmentally friendly 'starch-based' fill material that has replaced Styrofoam® beads.

### 2.3. Incoming records

Inspect incoming records and returning records before they are filed or stored and report any pest sightings to your IPM officer.

### 2.4. Maintenance

A regular building maintenance program is also critical to an effective IPM plan. Sealing cracks and weather proofing doors and windows, will go a long way to stopping insects entering your facility.

### 2.5. Housekeeping

A regular cleaning program is essential to successful IPM. Undisturbed dust and debris provides a food source for insects and entices them to take up residence in your collection as well as providing an ideal hiding place.

## 2.6. Food sources

Indoor plants and dried flower arrangements should be avoided as they introduce food sources for insects that are 'enemies' of all record collections.

Food consumption should be restricted to designated eating areas, namely staff lunch rooms and canteens and associated outdoor areas.

If your organisation is serious about its IPM program, eating or drinking should be discouraged at desks outside these designated areas, except for water in sealed bottles. Also, food wrappings should only be disposed of in lunchroom/canteen waste bins.

## 3. Biological/Chemical Control and Treatment Strategies

### 3.1 Freezing

If records are infested and cleaning is not an option then non-chemical treatments should be used. For large quantities of records, freezing is the preferred option. Records are wrapped to avoid damage by condensation when thawing, then palletised and frozen. Freezing temperatures must be below -18°C for a minimum of 48 hours. The records are then slowly thawed to room temperature. The process is then repeated to ensure effectiveness.

### 3.2 Chemical strategies

Chemical treatment can be used as a last resort. It is important to remember that chemicals can present health problems to some staff as well as causing potential damage to records. Speak to your pest control provider and express any concerns you may have. Alternatively contact Preservation Services at the Queensland State Archives for advice before proceeding.

## 4. When Pests Are Found

**The following steps should be followed:**

- Collect the pest in whatever container you have available, (e.g. a pencil sharpener).
- Bring the pest to your IPM officer for identification, logging, inspection of the area and possible further action to determine if it is an isolated incident or an infestation.
- When identifying the pests, consider these questions:
  - Are they usually found indoors? If so, where are they concentrated?
  - Are they pests usually found outdoors? If so, how did they get in?
  - Do they place the records at risk?
  - Should the area be cleaned and all nearby records inspected?
- Monitor the environment to determine if temperature and humidity are aiding the infestation.
- The IPM officer records the incident in the log book or database and notes the remedial actions taken. This is useful for determining any reoccurring patterns.



## 5. Staff Support

The success of any IPM program depends on all who work in the building. Staff and management support is essential. If anyone sights any insect pests or vermin in the building or its surrounds they should immediately contact the IPM officer so that the appropriate steps can be taken.

## 6. Internet Resources

The most useful IPM resource on the internet is the MuseumPest.net site. From here you can gain access to the log or record database and find an extensive listing of online resources: [www.museumpests.net](http://www.museumpests.net) .

**For further information relating to this *Preservation Advice* please contact:**

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