

Risk Zones as part of an IPM Strategy for Insect Pests

Why Risk Zones? Integrated Pest Management (IPM) is an evolving process which applies local intelligence and responds to changing needs and priorities. Implementing an IPM programme in a large museum or house can be a daunting task. It is therefore important to identify priorities and plan to manage IPM for the collection in achievable steps. Recognising priorities is a key to successful IPM.

Risk zones can enable staff to **identify high risk** areas and focus action, such as housekeeping and monitoring on key targets.

The Risk Zone Concept

The risk zone concept is a risk-based framework on which to base an organisational IPM strategy. It recognises that buildings will have a **resident insect pest population** and **pest prevention should be commensurate** with the determined level of risk. It is an effective method of breaking up a large building into manageable sections and targeting IPM measures at the appropriate level.

Key components of the system are:

- Recognition that most buildings and historic houses are always likely to have a resident population of pest insects.
- Evaluation of the vulnerability of the collections or objects to insect attack.
- Assessment of the risk of collections being attacked by pests.
- Assignment of each area in the building to one of three risk zones.
 - **High (red)**
 - **Medium (yellow)**
 - **Low (green)**
- Determination of appropriate protocols for monitoring and trapping, inspection, and cleaning for each zone.

Risk Mapping and Collection Vulnerability

Assessment of the vulnerability of the collections contained within the building in combination with baseline level of each species of insect pests within, will determine how risk zones are assigned across the building structure, establishing areas that are at high through to low risk of insect pest attack. A parallel system may be needed for assessing risk from rodent infestation as the parameters are very different from insects.

The level of risk to collections needs to be identified and each area assigned a colour code, based on a traffic light system, and should be indicated on building floor plans. The colour coding system relates to the level of risk to collections posed by insect pests, with red being the highest risk of damage, followed by yellow as moderate risk of damage, and green for areas that pose the least risk of damage. The three-tier traffic light system is recommended as it is universally recognised, easily understood and straightforward to implement and interpret.

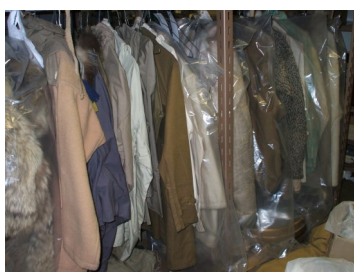
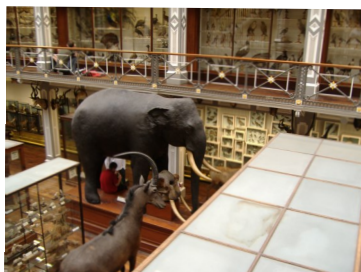


An example of risk zone designation for a museum building



The parameters for collection vulnerability to insect pest attack will depend on the organisation, building and collections held. The strategy must encompass all areas of the building, not just collections in storage or on display which may be more vulnerable to attack and should be prioritised to minimise damage to high-risk collections in a cost-effective way. Collection vulnerability to insect pest attack is determined by the type of collection material, whether it is on display, or in storage and the frequency of inspection.

Organic collections most likely be classified as at **high risk** include skins, feathers, textiles, wool, taxidermy, dried plant material and ethnography. Examples of collections at **moderate risk** include books, paper and wood. Collections **not at risk** from pest attack include metalwork, stone, ceramics and glass.



Other considerations that may influence the level of risk include; activities that take place, contents of cupboards in storage areas, doors, corridors and access routes, space adjacencies, potential zone boundaries and areas with shared ownership and responsibility.

Developing an IPM Strategy based on Risk Zoning

The risk zone concept is a method to prioritise and target resources in the most efficient and cost-effective manner. Protocols and procedures need to be established and adapted specific to each level of collection vulnerability, allowing for a proportionate response to be deployed in the event of an infestation. Working practices and procedures such as monitoring, inspection, and cleaning should be tied to damage vulnerability, concentrating effort where it is most needed.

The key to the successful implementation of an IPM strategy based on risk zones is organisation-wide collaboration and staff training and awareness. Staff involvement in risk zone designation will result in increased buy-in and co-operation and the concept will more likely be realised and embedded in daily work practice. In parallel, a programme of staff training is necessary to ensure staff at all levels are aware of the requirements of operating within each zone. Signage will need to be developed to alert staff to the risk zone they are in and to raise visibility of the concept.

An IPM strategy based on risk zones is a flexible concept that can be adapted in response to the changing priorities of the organisation and new emerging pest threats. When used in combination with other IPM measures, such as quarantine, inspection and monitoring and trapping, the risk zoning concept is a useful and cost-effective tool on which to base an organisational IPM strategy, mitigating against the risk of insect pest attack.

Key references and sources of information

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