



# Pest Management

A Handbook  
for Cultural Heritage



David Pinniger

# **Pest Management**

## **A Handbook for Cultural Heritage**



-LOOKING FOR  
UNEXPECTED BEETLES  
OR SOMETHING-

# **Pest Management**

## **A Handbook for Cultural Heritage**

David Pinniger  
with Adrian Meyer and Pascal Querner

*Illustrated by Annette Townsend*

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## Preface and Acknowledgements

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This book has its origin in course notes written for Summer School courses taught at the Institute of Archaeology in London. These formed the basis of the first edition of *Insect Pests in Museums*, published in 1989 (second edition 1994). Much of this material was then incorporated into *Pest Management in Museums, Archives and Historic Houses* (Archetype Publications 2001), which also included a chapter on rodents and birds written by Adrian Meyer, an acknowledged world expert in the field, and specially commissioned drawings by Annette Townsend. In 2015, the book was completely revised with coloured illustrations and new developments and was retitled *Integrated Pest Management in Cultural Heritage*. Since then, there have been many developments in integrated pest management (IPM) in the heritage sector. A major influence for change has been continued concerns about the effects of pesticides on objects, staff and the environment and many pesticides have been withdrawn or banned in the last 10 years. A large number of institutions have now adopted physical methods for the treatment of objects, and IPM in museums, archives and historic houses is now recognised as being not only safer but also more cost-effective. This new book incorporates much of the material previously published in *Integrated Pest Management in Cultural Heritage*, with additional information on new pest species and detection and control methods. Adrian Meyer has also revised the chapters on rodents and birds with new information on control methods and legislation. The book has been expanded to include a new chapter on biological control written by Pascal Querner, who has a wide experience of new developments in IPM in Austria and other countries. I welcome any information from readers that will help to improve the coverage of pests and IPM methods for any future edition.

I would like to thank all my friends and colleagues in museums, universities and historic houses in many towns and countries as much of the information in this book has been based on practical experience gained with their help and support. I would particularly like to thank the late Bob Child for sharing his extensive knowledge and bad jokes: he is sadly missed by us all. Thanks are also due to Amy Crossman for her invaluable help with compiling all the references, and Jane Thompson Webb for her contributions to improve the text. David Loughlin of Historyonics has provided practical information on the use of pheromones and various control methods. I would also like to thank Annette Townsend for permission to use her beautiful drawings. Finally, thanks to Geoff Stansfield, who first gave me the idea for the book.

This book is dedicated to my father Edward Pinniger and Edwin Bezant, who in different ways both played their part in making me an entomologist.

*David Pinniger*  
October 2025



## Introduction

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Integrated pest management (IPM) has become a fundamental activity for heritage organisations. It is, therefore, remarkable to realise that it is a relatively short time since IPM was introduced to heritage in the United Kingdom – the first iteration of this text was published in 1989.

Integrated pest management has seen a shift from a dependence on chemical treatments (effective but damaging to people and the environment) to a more considered approach with a reliance on monitoring and prevention. Treatment is now focused specifically on infested spaces or objects, and the presumption is that treatments will only use chemicals as the last resort; any chemicals used will be safe for the staff using them and the environment.

This shift has been driven by the sharing of knowledge through IPM conferences, training courses, the development of websites such as [www.whatseatingyourcollection.com](http://www.whatseatingyourcollection.com) and [museumpests.net](http://museumpests.net) and IPM texts like this one.

This book, and its preceding volumes, acts as a guide to the world of IPM. Not only will it provide information on how to carry out IPM, it will also guide the reader through treatment options, managing birds and rodents and, most importantly, help the reader identify the many invertebrates that will be found on blunder traps and determine whether action is needed.

My own journey in IPM has taken me from a time when I had to ask what “IPM” meant to chairing the UK-based Pest Odyssey group and being invited to make a contribution to the latest version of this invaluable text. It has been a journey of wonder and great beauty – insects are amazing things. These texts and the knowledgeable and generous author have been a large part of that journey.

For those who are already undertaking IPM, this book will be a useful refresher and will provide much information not covered in previous editions. For those who are taking their first steps, this book will be a guide and friend.

*Jane Thompson Webb*  
*Conservation Manager, Birmingham Museums Trust*  
*June 2025*



## Illustration credits

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## **Chapter 1**

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# Introduction to integrated pest management in cultural heritage

## **Introduction**

Pests come into conflict with humans because they compete with humans for resources. Ever since humans first started to store food or make clothing and other artefacts, they have had to battle with pests. Increasing affluence and the creation of religious and artistic objects added another area of conflict with pests. In addition to the destruction of property, some pests, such as flies, mosquitoes, rats and mice, have carried diseases that have wiped out millions of people.

All too often, pest control is a reaction to the discovery of pest activity and damage. The aim of this book is to provide practical, safe and cost-effective advice on the prevention and control of pests. It explains the steps museums, libraries, archives, galleries and historic houses (collectively referred to as heritage) need to take in order to protect collections, furnishings and buildings from harm by pests, and describes the options for controlling infestations and strategies that will reduce the risks to collections.

## **What is integrated pest management?**

Integrated pest management (IPM) is a term that was adopted to describe the development of new pest control methods for fruit and crops which did not rely on continuous use of pesticides. We have successfully adapted the main IPM principles for use in museums and houses: monitoring for pests, targeting treatment only where it is needed and modifying the environment to discourage pest attack.

## **Why employ integrated pest management?**

The care of collections and historic buildings involves many different disciplines, including conservation and management. Major influences on deterioration include the environmental effects of light, humidity and the agents of decay such as insects and moulds, all of which are interrelated. Integrated pest management should aim to seek to deal with all pest problems using a holistic approach rather than a reaction to each individual crisis. The expertise in collections care in the museum world can be applied to the development of an IPM programme tailored to the specific needs of a collection or historic house. A well-planned and executed IPM programme will prevent both problems and crises occurring. In times of restricted budgets good IPM will make more effective use of limited human and cash resources.

## **Developing an integrated pest management strategy**

Integrated pest management should be relevant to the needs of the heritage building or collection, utilising as much local information and expertise as possible. It should be practical and achievable, as it is all too easy to devise an over-complex IPM scheme that then turns out to be unworkable. It should also be a process of evolution rather than revolution and encourage participation by different disciplines. The key stages include:

- Recognising and identifying priorities for action
- Identifying responsible staff
- Taking action on the high priorities
- Establishing procedures for forward planning, financing and review

In order to develop an IPM strategy it is important to understand and recognise some of the key components of successful pest control such as:

- Avoiding pests by keeping them out
- Preventing pests by denying them a safe haven
- Recognising the main species of pests and the damage they cause
- Assessing the problem by inspection and trapping
- Solving pest problems by improving the environment and carrying out appropriate treatments
- Reviewing IPM procedures periodically and amending them when necessary to improve the strategy

It is important to ensure that any IPM programme is manageable and achievable. For example, prioritising where traps are placed and how frequently they are checked can avoid overload. Using risk zones can be extremely helpful, and this is covered in detail later in the book.

## **Avoiding pests**

Most insect pest problems in collections are caused by beetles and moths although other insects such as termites, cluster flies, ants and silverfish can also cause damage and nuisance. Rodents will gnaw objects, and mice can be very damaging once they start to breed within a building. Bird droppings, particularly from pigeons, can result in fouling and deterioration, and birds' nests provide harbourage for many species of insect pests. Dead rodents and birds will in turn supply food for insects. A key to avoiding pests is an understanding of what makes them thrive. By denying pests food, warmth, humidity and harbourage, we can prevent them from becoming established and causing damage.

## **Keeping pests out**

Most heritage buildings will contain some pests, and the majority of practical IPM programmes will accept a low level of activity in some areas. However, many modern buildings have been successfully proofed to prevent the entry of pests and other insects. Keeping insects, birds and rodents out of older and historic buildings is often far more difficult because of the unacceptable appearance of some proofing systems, but simple methods – such as capping chimney flues, sealing windows, bristle strips on doors and wire mesh in eaves and downpipes – can dramatically reduce the risk of pests gaining entry.

## **Preventing pests**

It is rarely possible to completely exclude pests from a building, so it is important that they are denied a suitable environment if they do gain access. In addition to food, the four key conditions needed by pests are harbourage, warmth, water or humidity.

Because insects are small, they may find sufficient food in areas that may not be immediately obvious, therefore cleaning is the most important part of any IPM programme. Unused rooms and storage areas are often neglected, and dirt and debris will provide an ideal harbourage for insects. A lack of human food is usually the most important limiting factor for bird and rodent pests, so good hygiene and management of catering and refuse disposal are crucial to preventing problems.

Warm temperatures of 20°C and above will encourage insects to breed so cool conditions are recommended. Although it may be difficult to lower temperatures in public areas, storage areas should be maintained at as low a temperature as possible. Direct sunlight can cause localised hotspots, even in cool areas, and fluctuating temperatures may result in localised condensation.