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(Pinniger 2001)
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Integrated Pest Management (IPM)

• What makes a pest a pest? When it causes:
  – Measurable Economic Loss
  – Aesthetic loss
  – Physical Health Issues (Disease, respiratory issues)
  – Mental Health Issues (Fear, stress, mental anguish)
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History of Pest Management

- World War II introduced new organic compounds
  - Carbamates
  - Organophosphates
  - Organochlorines (DDT)
A Reliance on Chemicals
Late 1940’s to Mid 1960’s

• The discovery of synthetic organic compounds was considered a major advancement of mankind.

• Crop Production on a large scale, with little or no pest damage was possible

• Pesticides were cheap, effective, persistent over time and killed a broad spectrum of insects
A Voice of Reason

- In 1962, under constant criticism from agricultural leaders and chemical manufacturers, Rachel Carson wrote the book, Silent Spring.
- This eventually lead to the formation of the EPA in 1970.
IPM = Combining Cultural, Physical, Biological and Chemical tools to prevent or reduce pest activity.
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How Can We Implement IPM at Our Museum??

• Let’s start with the pieces of the IPM puzzle
IPM Puzzle

Administrative Support
Choose a Team Leader

• Manager must have:
  – Budget
  – Authority
  – Some Expertise

• Team must understand:
  – Methods
  – Benefits
  – Acceptable Threshold for Institution
Assign Gate Keepers
Education, Education, Education
Start With The Insects

- Pest Identification
- Knowledge of tools
- Knowledge of collection materials
Museums are Part of Their Environment
Urban Environment
Forest & Grass Environments

[Images of ants, a ladybug, a brown stinkbug, and a black bug on wood and leaves]
Monitoring for Pests
Focus on Riskiest Items

- Fur
- Feathers
- Wool
- Silk
- Insect Specimens
- Parchment & Velum
- Papier Mache
- Animal Skins
- Books composed of these materials
- Dried Plants and Seeds
- Sapwood
- Any Damp Organic Material
Pay Special Attention to **Museum Stores** and **Restaurants**
Exclusion

- Integrity of building (excluding pests)
A ¼ inch gap is all a mouse needs to enter a structure

Illustration by J. Crocker
Sealing Doors
Block pathways into the building
Sanitation

- Good house-keeping/Sanitation: producing an environment inhospitable to pests
Sanitation

– Scheduled Cleaning

– Look for and Recognize Signs of Pest Activity

– People Issues
Look at Sanitation at a Micro-Level
Look at Sanitation at a Micro-Level
Accumulation in Vents
Exterior Building Lights
Landscaping
IPM Program Components

• Identification & Documentation -
Treating for Pests
Treatment Options

• Disposal of Infested Material
• Freeze “em or Fry “em
• Anoxia (O₂ Scavengers or Nitrogen)
• CO₂
• Traditional Fumigants – In some situations
• Other
Better pest management doesn't mean more chemicals.

In the past, pest management in museums and other collection holding institutions often involved regular applications of toxic chemicals to collection areas and actual collections. Health and safety concerns have led institutions to move away from this approach in favor of preventative and protective measures that are not based on chemicals. This strategy involves numerous measures used in combination and is commonly termed "integrated pest management" or IPM. The main elements of an IPM program involve:

- **PREVENTION** - Preventing access to pests
- **MONITORING** - Monitoring pest populations
- **IDENTIFICATION** - Identifying potential pest threats
- **TREATMENT** - Treating outbreaks in the safest manner possible
- **RESOURCES** - Additional resources pertaining to IPM
- **ABOUT US** - MuseumPests.net explained

The site presents information on invertebrate, vertebrate, and mold pests.
Finally
Be Creative in Your Approach

• Don’t be afraid to change the program to better suite the needs of your institution
• Make it Fun - when possible
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