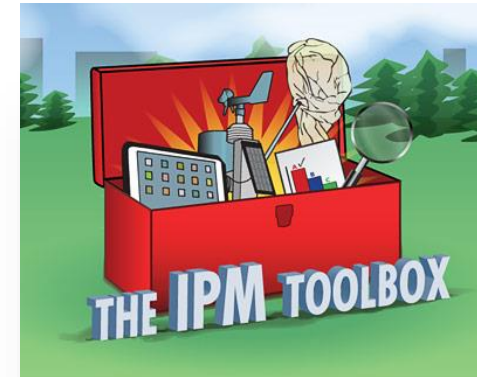


Cultural Heritage IPM: Working with Museums, Historic Houses, Libraries and Archives

Rachael Arenstein
A.M. Art Conservation, LLC
Co-Chair of the MuseumPests Working Group



Northeastern
IPM
Center

October 26 , 2023



United States
Department of
Agriculture

National Institute
of Food and
Agriculture

Webinar Details



Live Transcription



A recording of this webinar will be available within a week at



<http://www.neipmc.org/go/ipmtoolbox>

We Welcome Your Questions

Please submit a question at any time using the Q&A feature to your right at any time

If you'd like to ask a question anonymously, please indicate that at the beginning of your query.

Webinar Presenter

Rachael Arenstein

A.M. Art Conservation, LLC

Co-Chair of the MuseumPests
Working Group



Some Questions for You





Cultural Heritage IPM: Working with Museums, Historic Houses, Libraries and Archives

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Co-Chair of the MuseumPests Working Group

Land Acknowledgement



Timema chumash

<https://www.gbif.org/occurrence/3314363462>



What is Cultural Heritage?



What Is Cultural Heritage?





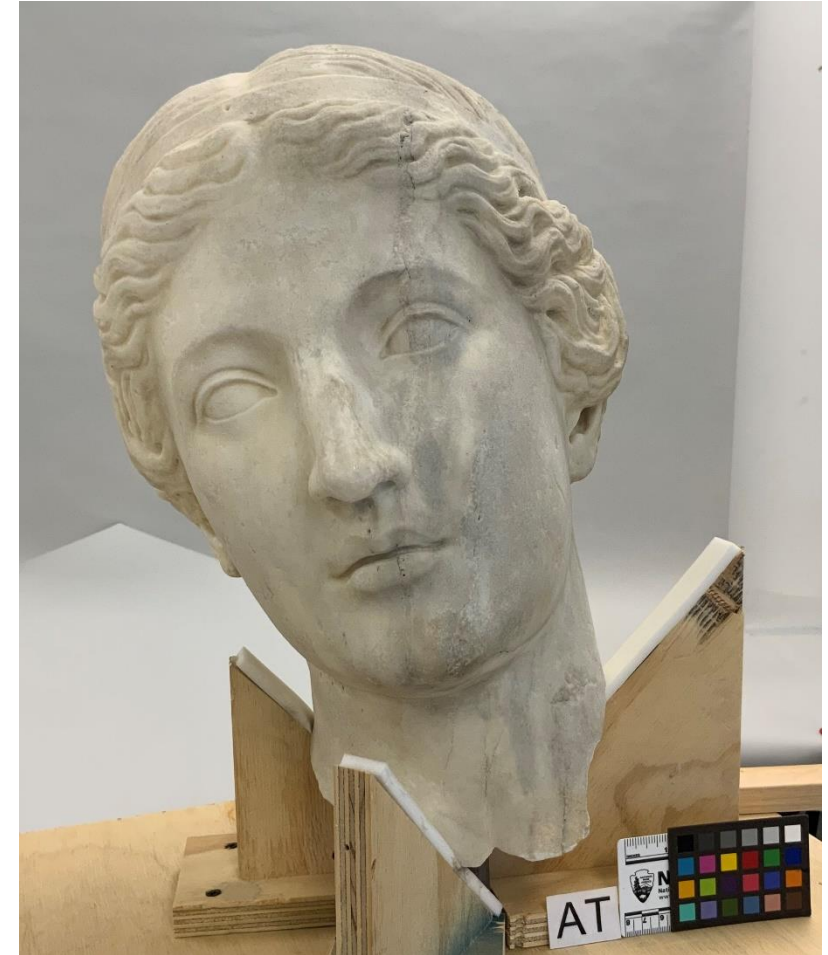
Remedial Treatment



Before



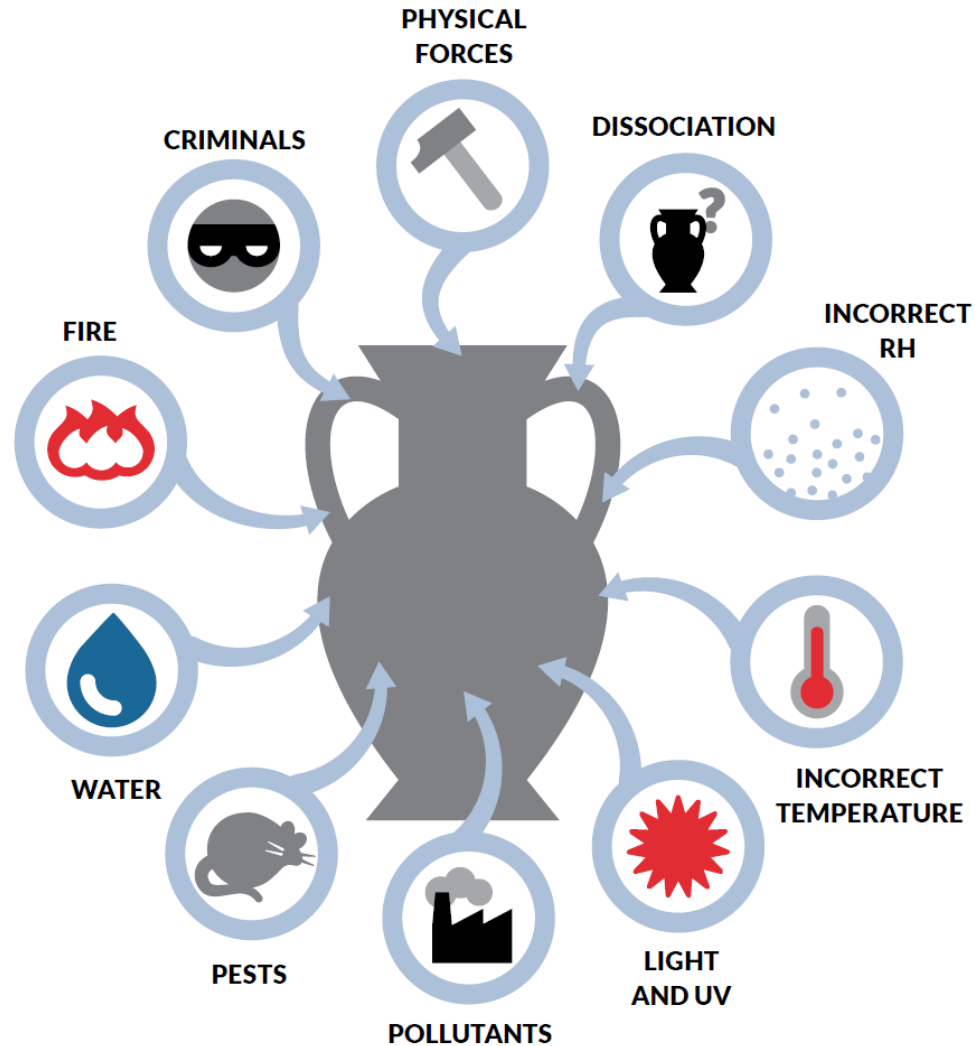
During

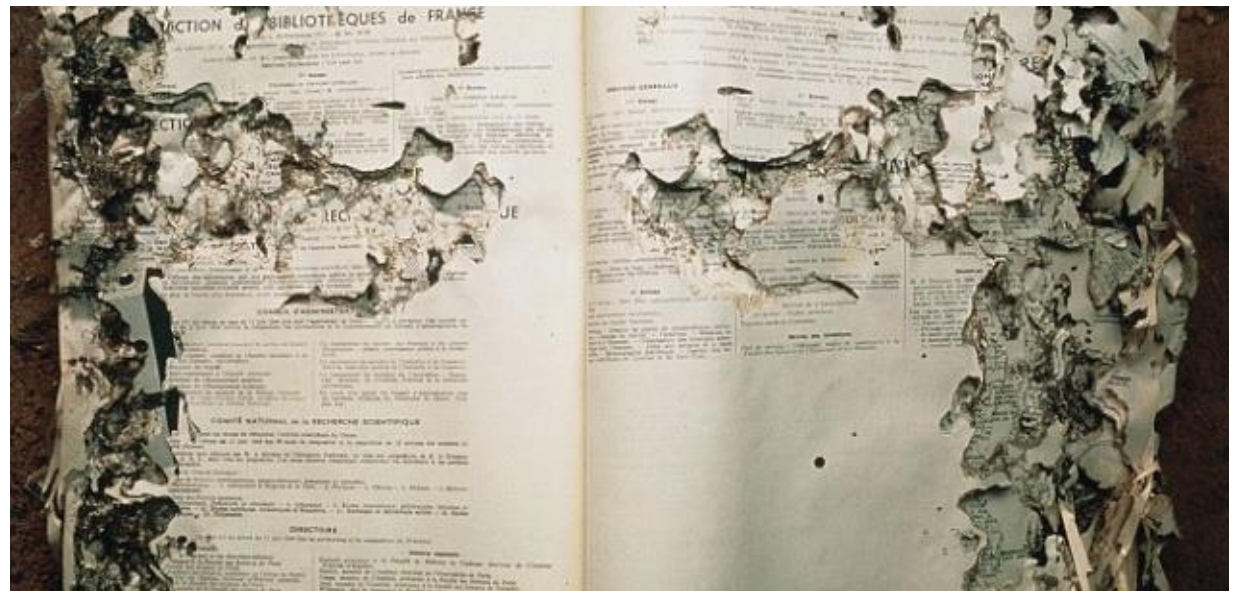


After

Preventive Conservation

Agents of Deterioration



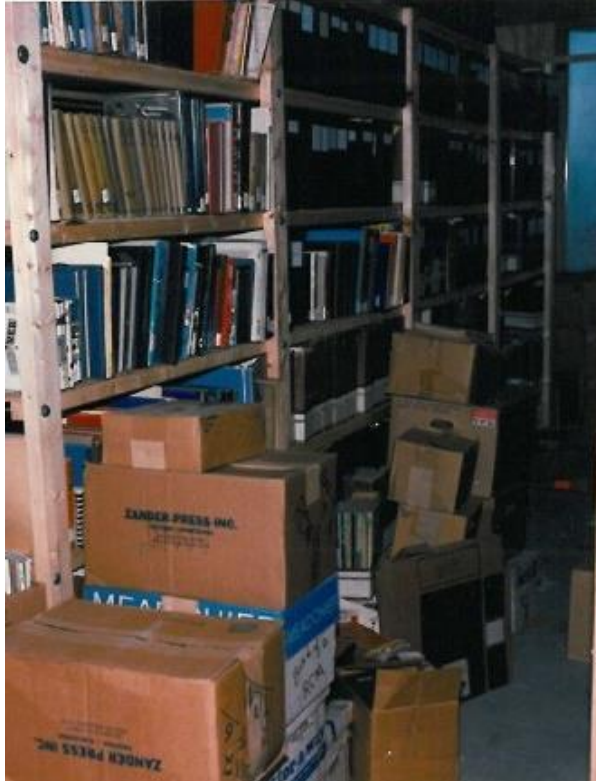




What is Cultural Heritage?



Collections..In Reality



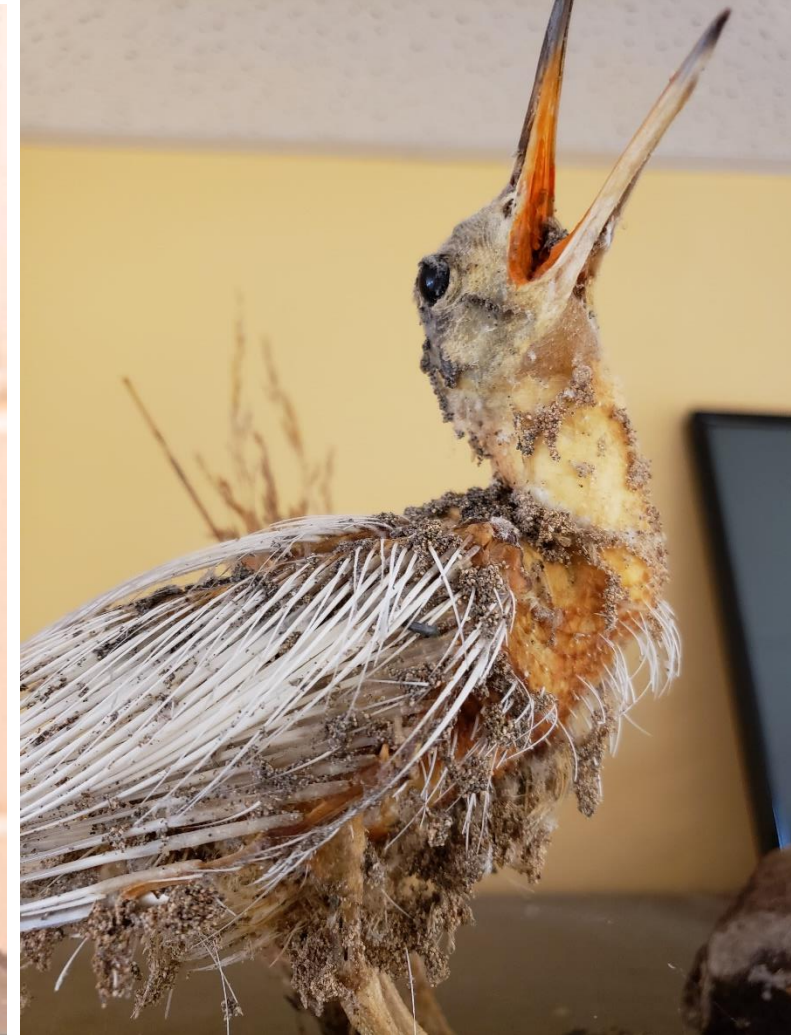
Insect Power



Left: <https://www.nhm.ac.uk/our-science/collections/entomology-collections/historical-collections.html>

Right: UCL Grant Museum, <https://natsca.blog/tag/day-in-the-life/>

Insect Power



Left: https://www.cmnh.org/CMNH/media/CMNH_Media/Images/Blog/Spectacled-Bear-Skull-Dermestids.jpg

Right: Courtesy Fran Ritche

Historical IPM





History of Cultural Heritage IPM

Rolling a cotton swab on a bird specimen for an Arsenic Spot Test at the Muséum National d'Histoire Naturelle, Paris.

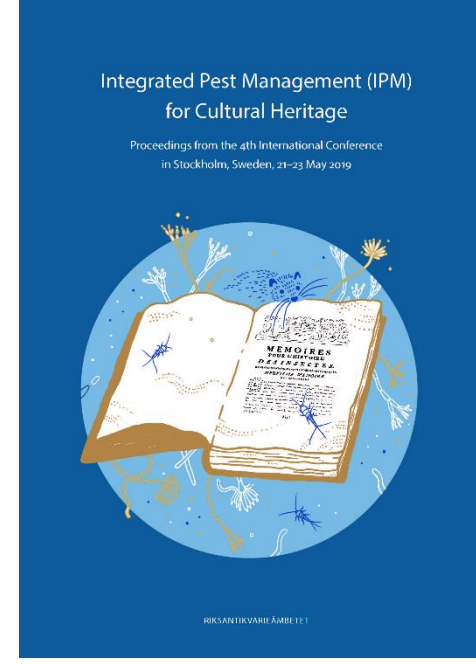
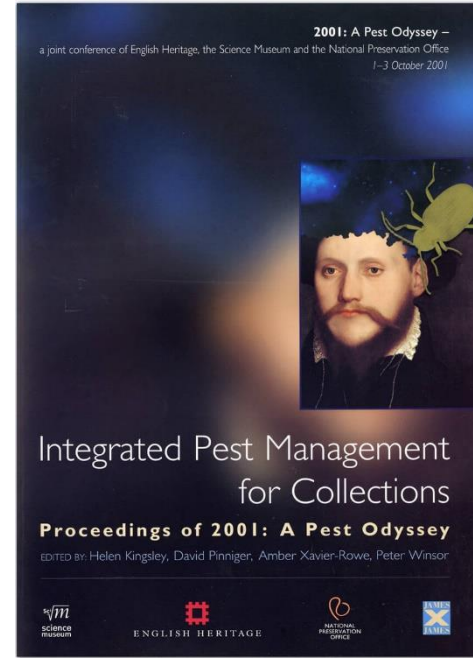
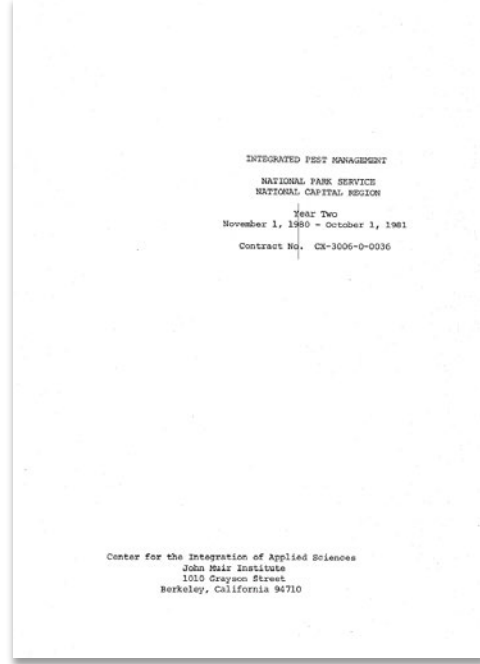
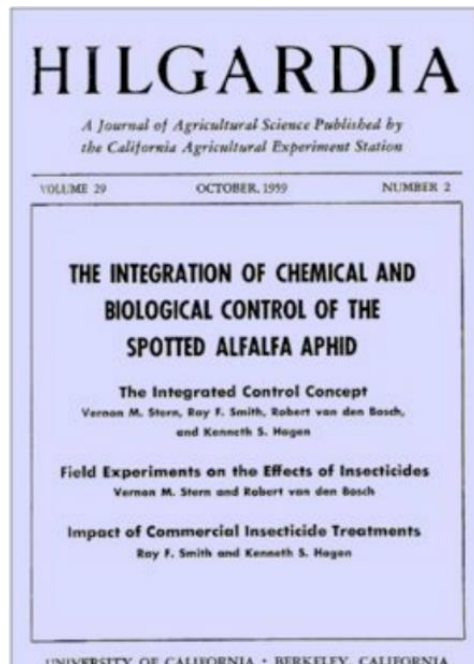
F. Marte, Amandine Péquignot, D. V. Endt, 2006.
Arsenic In Taxidermy Collections: History, Detection, And Management



Contaminated Collections



Cultural Heritage IPM Literature



Questions



Integrated Pest Management



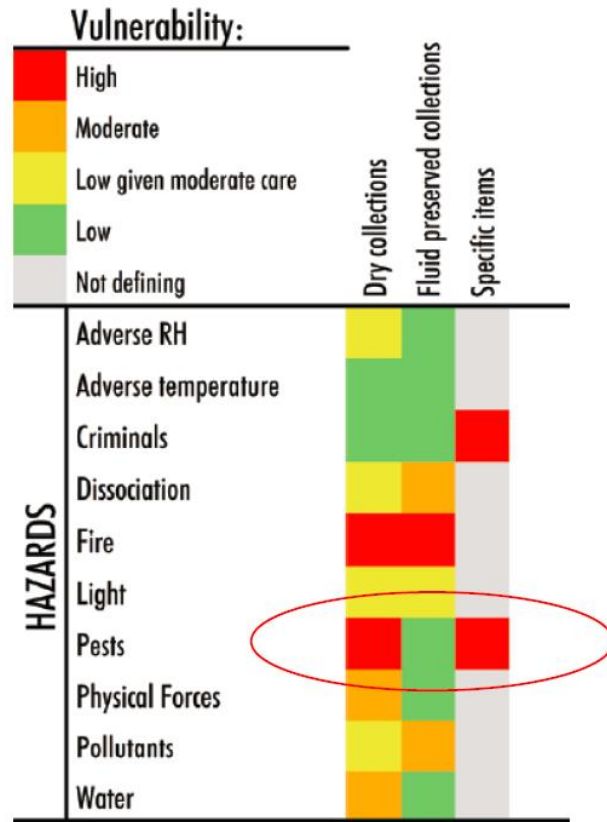
***FUNDamentals of Museum IPM* by Christa Deacy-Quinn**

<https://www.spurlock.illinois.edu/blog/p/emfundamentals-of-museum/327>

Risk Assessment



Hazard Vulnerability Fingerprint CHITIN



Connecting to Collections Care Online Course: Keeping Collections Safe in Storage
October – November 2022

Preventive Conservation: Collection Storage available on the American Institute for Conservation website
<https://store.culturalheritage.org/site/index.php?app=ecom&ns=prodshow&ref=AIC-31>

Risk Assessment

FABRIC / TEXTILE



Black carpet beetle adult
Black carpet beetle larva
Attagenus unicolor



Furniture carpet beetle
Anthrenus flavipes



Varied carpet beetle adult
Varied carpet beetle larva
Anthrenus verbasci



Webbing clothes moth damage



Webbing clothes moth adult
Webbing clothes moth larva
Tineola bisselliella



Casemaking clothes moth adult
Casemaking clothes moth larva
Tinea pellionella

WOOD / FURNITURE



Furniture beetle adult
Anobium punctatum



Furniture beetle damage



Drywood termite adult
Incisitermes sp., or
Reticulitermes sp.



Old house borer
Hylotrupes bajulus



True powderpost beetle adult
Lyctus sp.



True powderpost beetle damage

FUR / FEATHERS / HIDE



Odd beetle adult male
Thyodrias contractus



Odd beetle adult female
Thyodrias contractus



Odd beetle larva
Thyodrias contractus



Brown house moth
Hofmannophila pseudospretella

SCAVENGERS / PAPER



Larder beetle adult
Dermestes lardarius



Firebrat
Thermobia domestica















Silverfish
Lepisma saccharina



Booklice
Liposcelis sp.

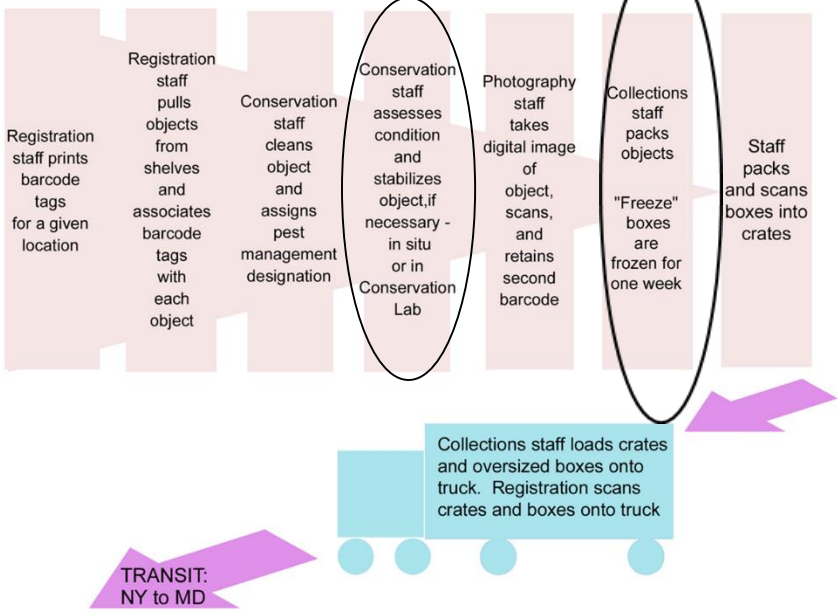
The dirty dozen of museum pests

By Insects Limited

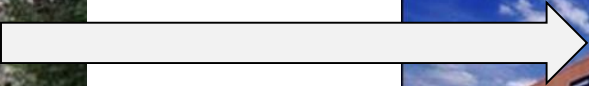
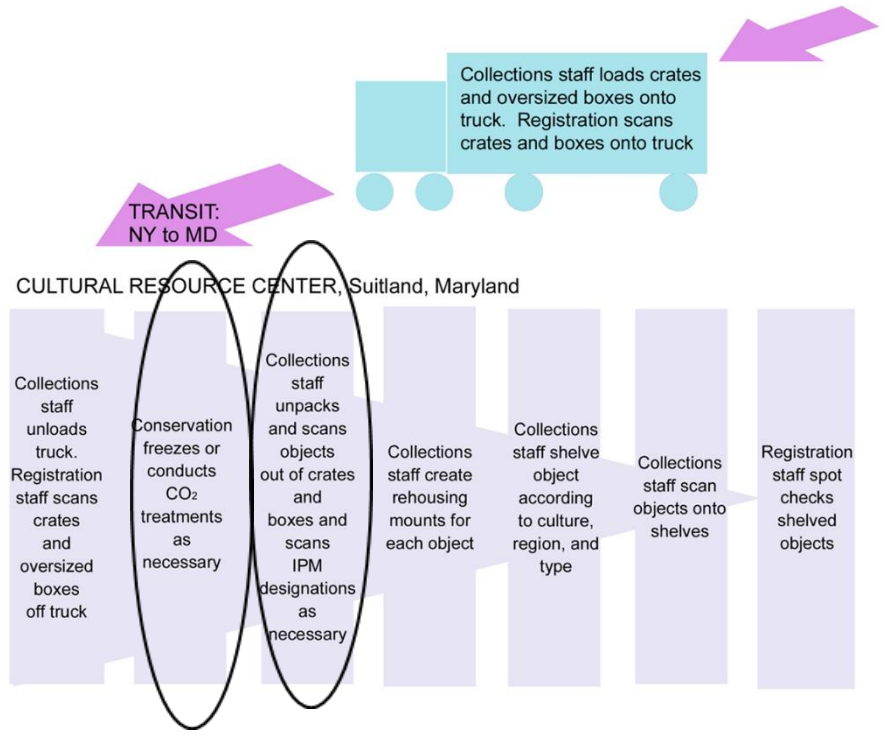
<p><i>Tineola bisselliella</i>, Webbing Clothes Moth</p> 	<p><i>Tineola pellionella</i>, Case-making clothes moth</p> 	<p><i>Anthrenus verbasci</i> Varied carpet beetle</p> 
<p><i>Attagenus spp.</i>, Black Carpet beetle</p> 	<p><i>Dermestes maculatus</i> & <i>Dermestes Lardarius</i>, Hide Beetle and Larder Beetle</p> 	<p><i>Trogoderma spp.</i> Warehouse/cabinet beetle</p> 
<p><i>Lasioderma serricorne</i> and <i>Stegobium paniceum</i>, cigarette beetle and drugstore beetle</p> 	<p><i>Lepisma saccharina</i> and <i>Thermobia domestica</i>, Silverfish and Firebrats</p> 	<p><i>Psocoptera</i>, psocids or booklouse</p> 
<p><i>Anobium punctatum</i> Wood Boring Pest or Powderpost beetle</p> 	<p><i>Blattella germanica</i> and <i>Periplaneta americana</i>, Cockroaches</p> 	<p><i>Mus musculus</i>, House Mouse</p> 

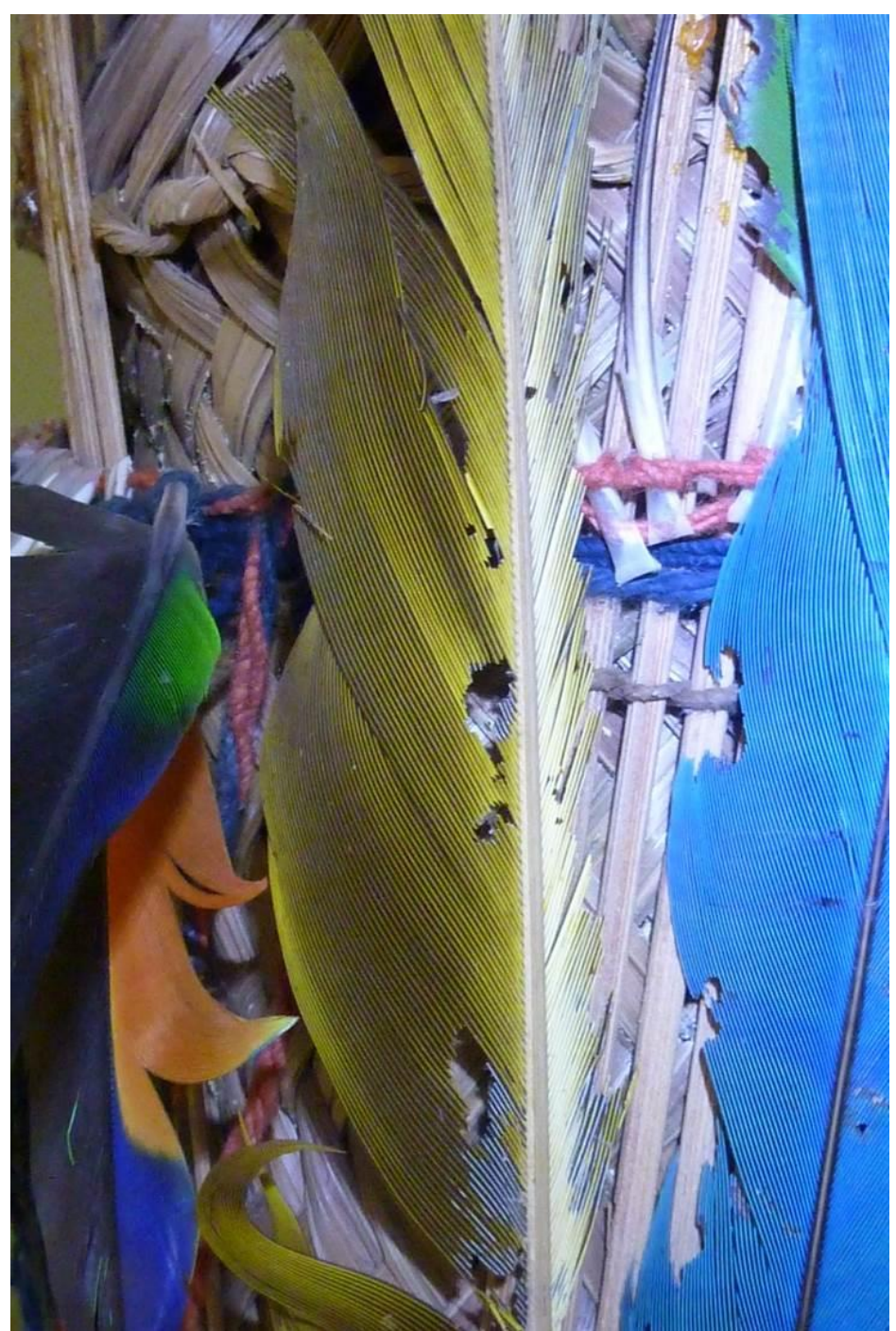
Overview of the move process: New York to Maryland – 450 km

RESEARCH BRANCH, Bronx, New York



CULTURAL RESOURCE CENTER, Suitland, Maryland





Low-Temperature and CO2 Controlled Atmosphere treatments





MuseumPests.net

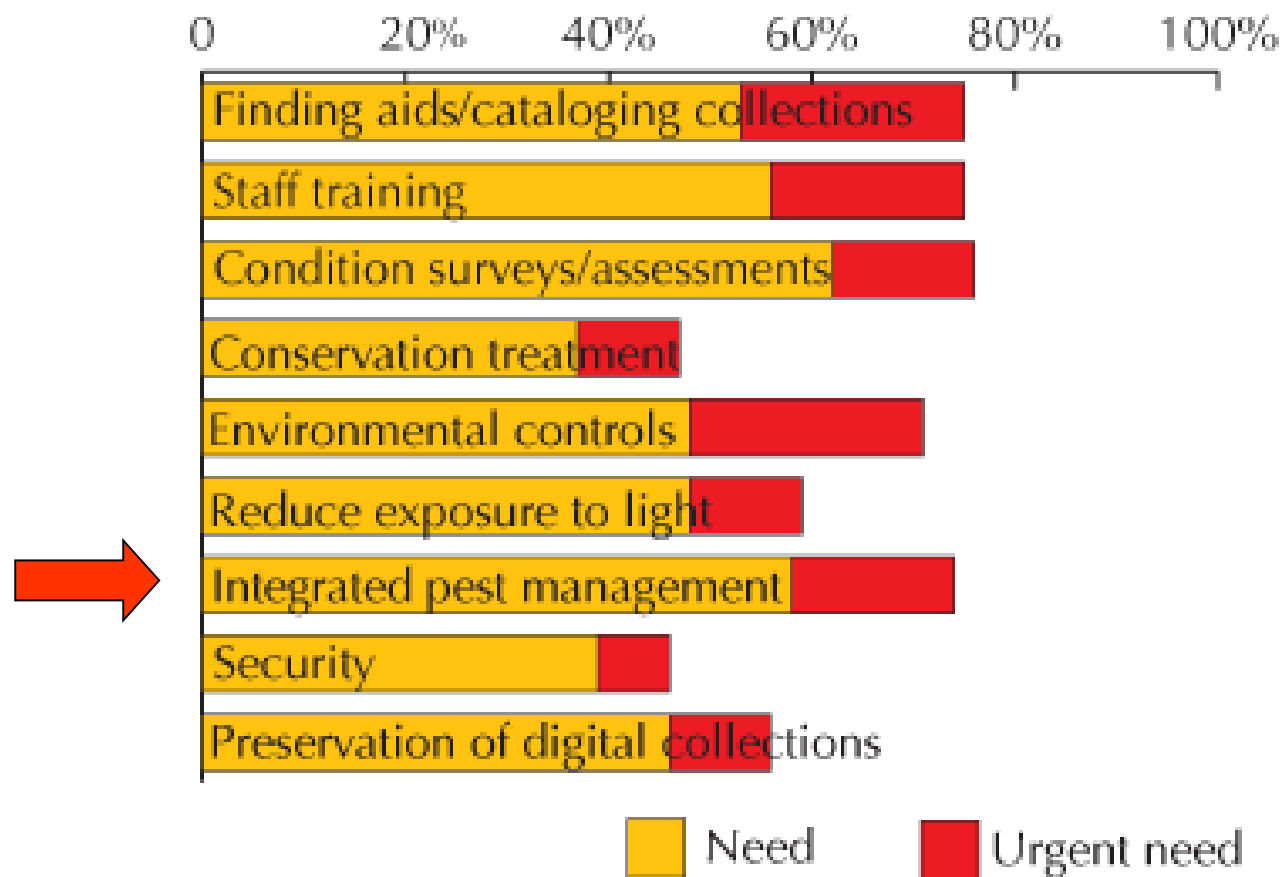
Integrated Pest Management for Cultural Heritage

A PUBLIC TRUST AT RISK:



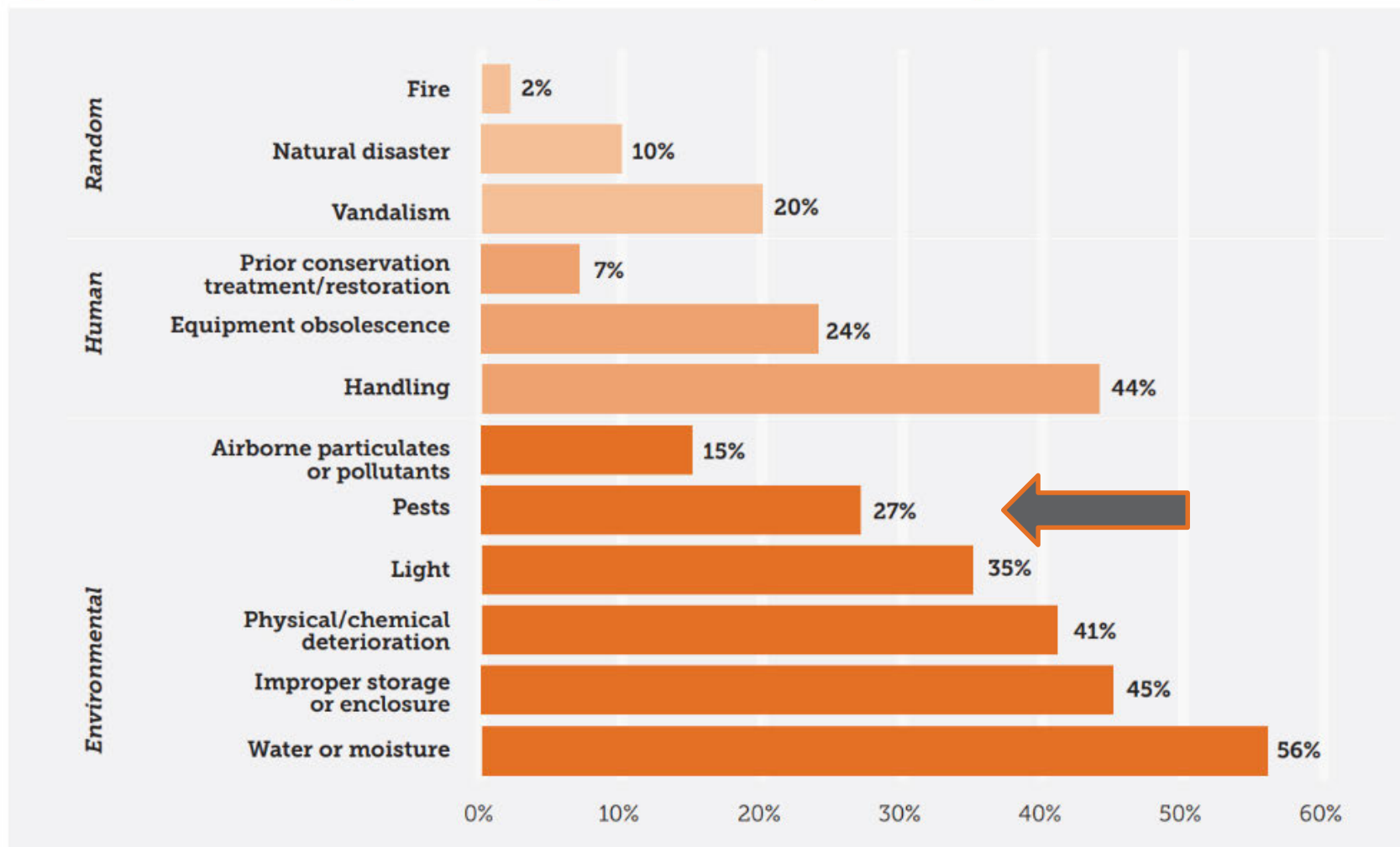
THE HERITAGE HEALTH INDEX REPORT ON THE STATE OF AMERICA'S COLLECTIONS

A Project of Heritage Preservation with the Institute of Museum and Library Services



Museums and Historical Societies Conservation/Preservation Needs

Figure 4. Sources of Damage or Loss among Institutions that Reported Damage or Loss in the Past Two Years



CAUSE	ALL INST.	ARCHIVE	HISTORICAL SOCIETY	MUSEUM	SCIENTIFIC COLLECTION	LIBRARY
Pests	27%	4%*	23%*	35%*	54%*	12%*

Survey, 2019

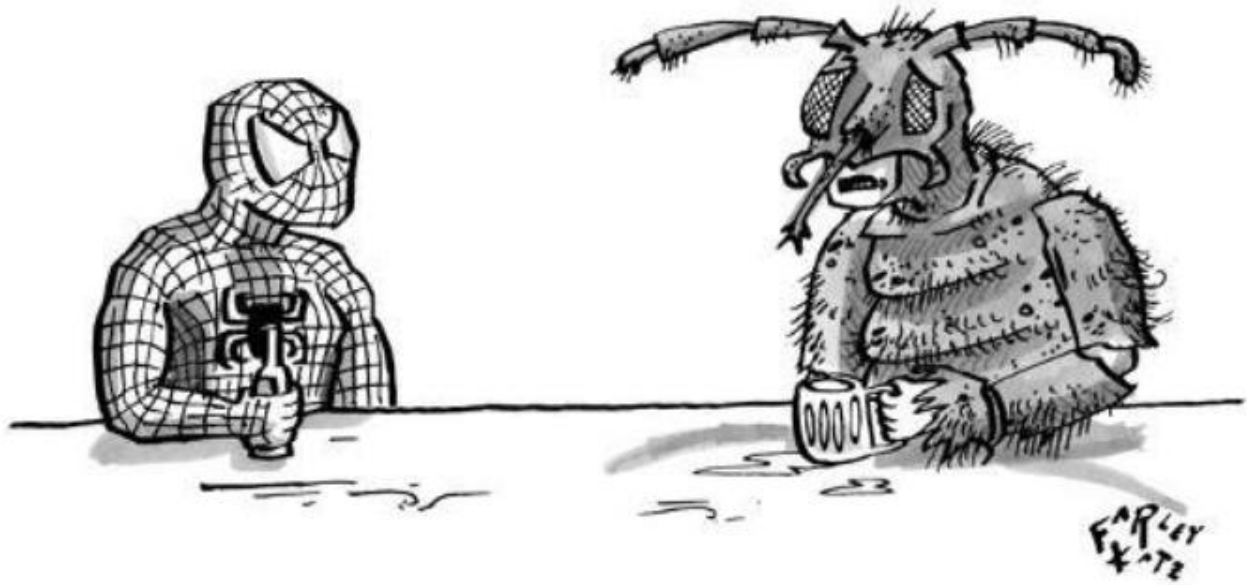
MuseumPests.net

Integrated Pest Management for Cultural Heritage

2019 SURVEY DATA

Lisa Goldberg, Eric Breitung, Zoe Hughes, Suzanne Ryder, Julie Unruh, Joel Voron





"Nobody wants to hang out with Bedbug Man."

Overall acceptance of the necessity of pest management as part of good collection management practice

Questions



Benefits of Working With Cultural Heritage Institutions



PRO - Sanitation Housekeeping



Annual staff Deep-Clean in oversized object storage

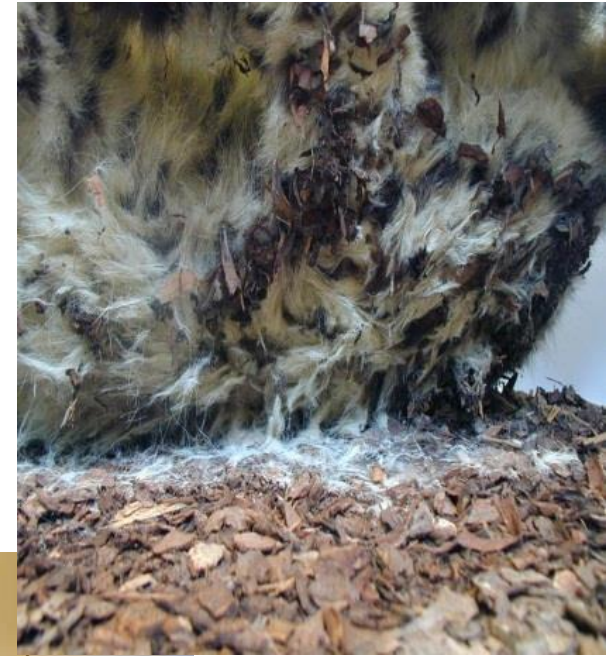


Trails: The Mammal Corridor



Monitoring showed high levels of *Tineola bisselliella* and damage could be seen on the specimens.

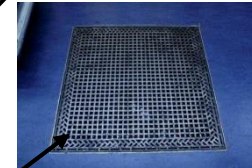
The cats were frozen several times.



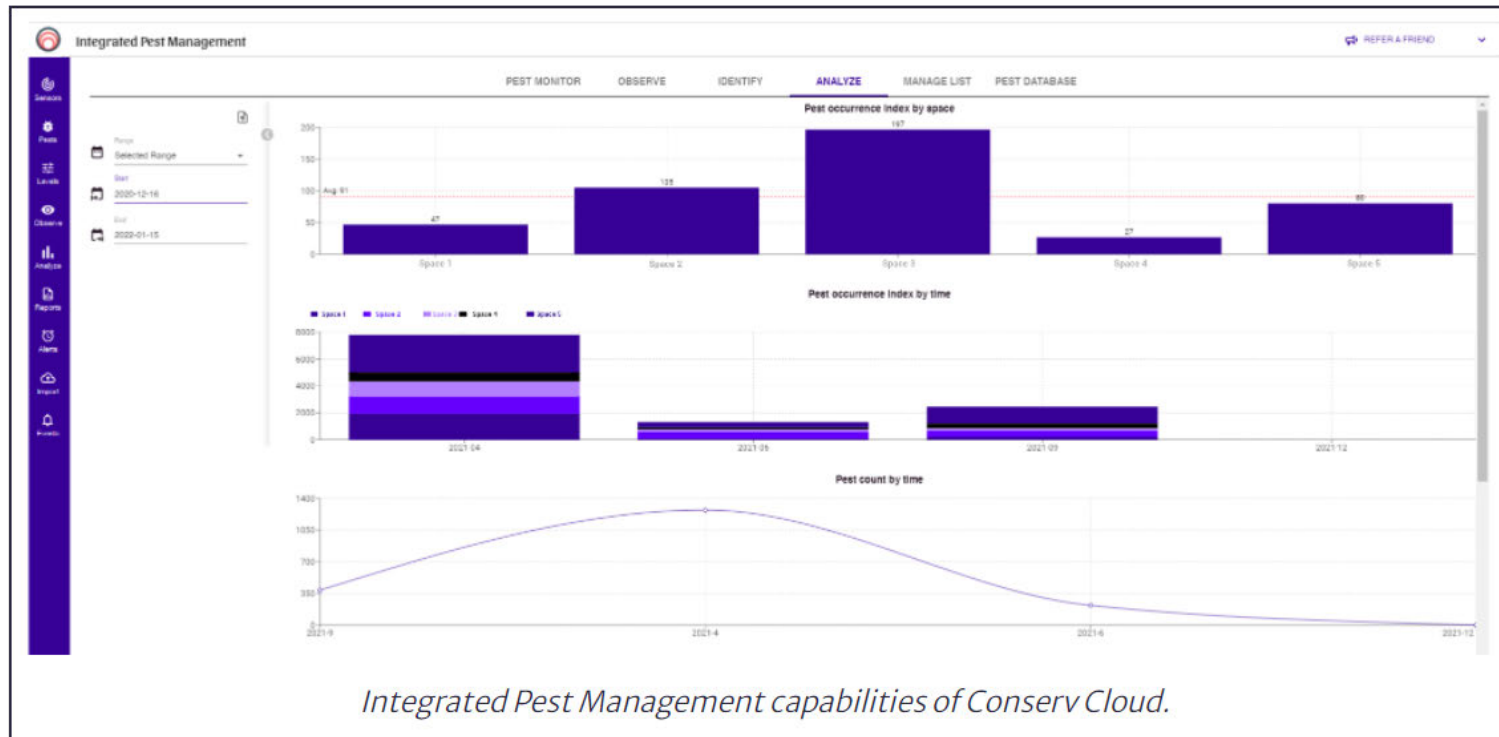
Finding the source of the problem



NHM staff found housekeeping issues but the age and design of the display cases make this space difficult to pest proof



PRO – We Like Data



The screenshot shows the 'Select Pests' interface. The search bar contains 'grey silverfish'. The results display the following information:

- Common Name:** Gray Silverfish
- Scientific Name:** *Ctenolepisma longicaudata*
- Lifecycle Stage:** Adult

A photograph of a gray silverfish is shown below the text. The interface also includes a filter for 'Lifecycle stage' set to 'Adult' and a 'Refer a Friend' button in the top right corner.

PRO – Creative Visualizations

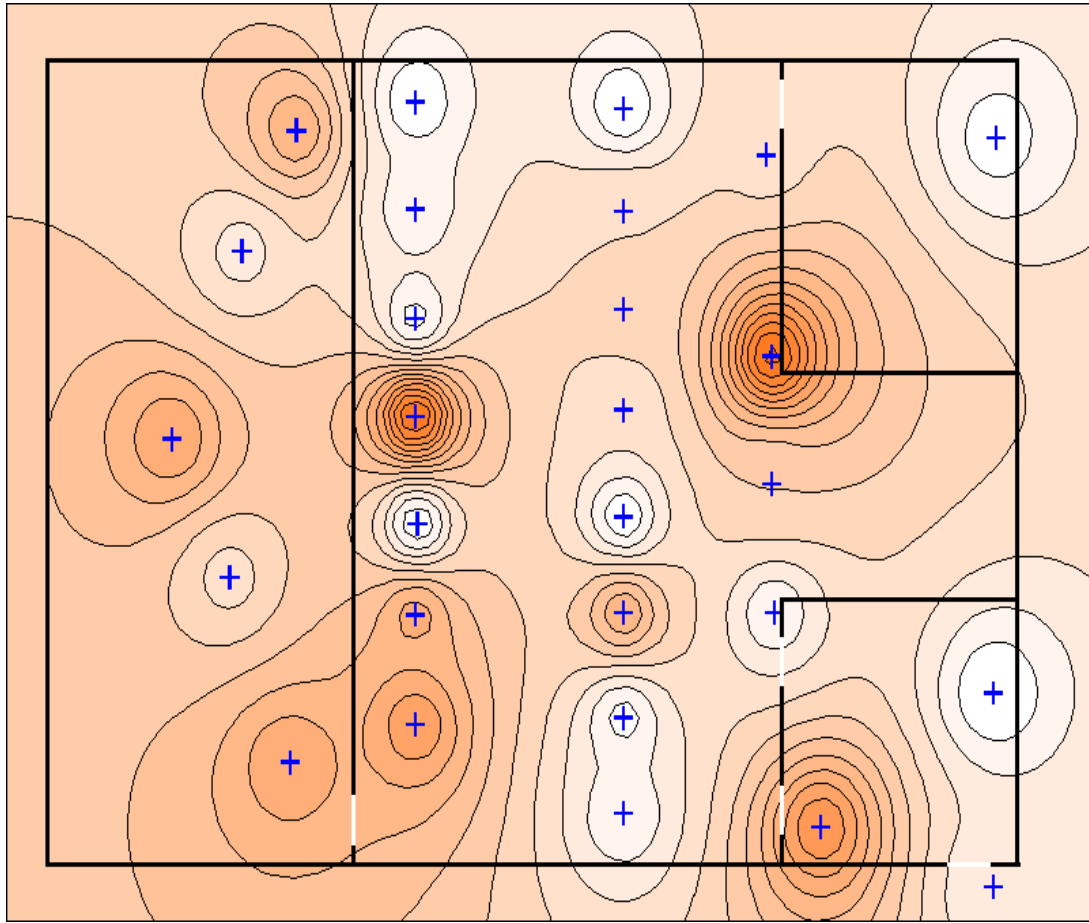
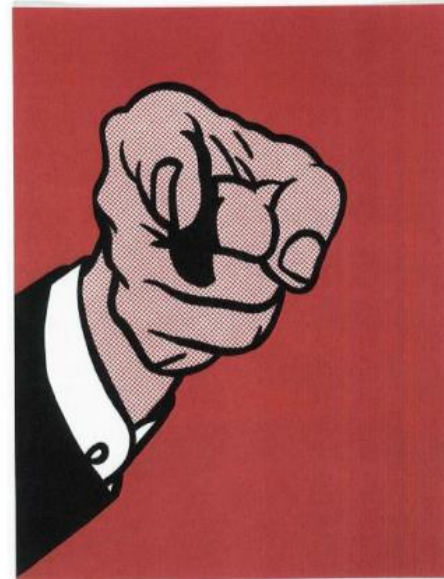
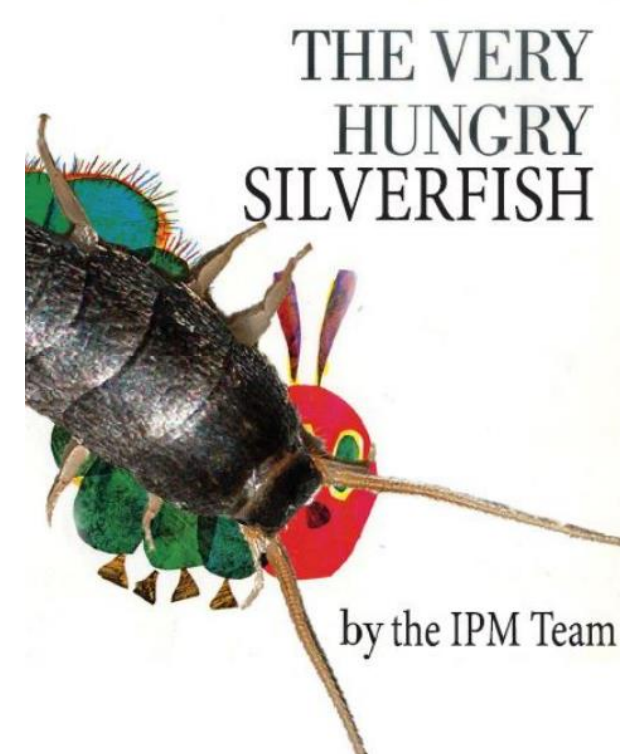


Image: Laura Smyk © Canadian Museum of Nature

PRO – Creativity in Training



SEE IT, SQUISH IT



Challenges of Cultural Heritage IPM



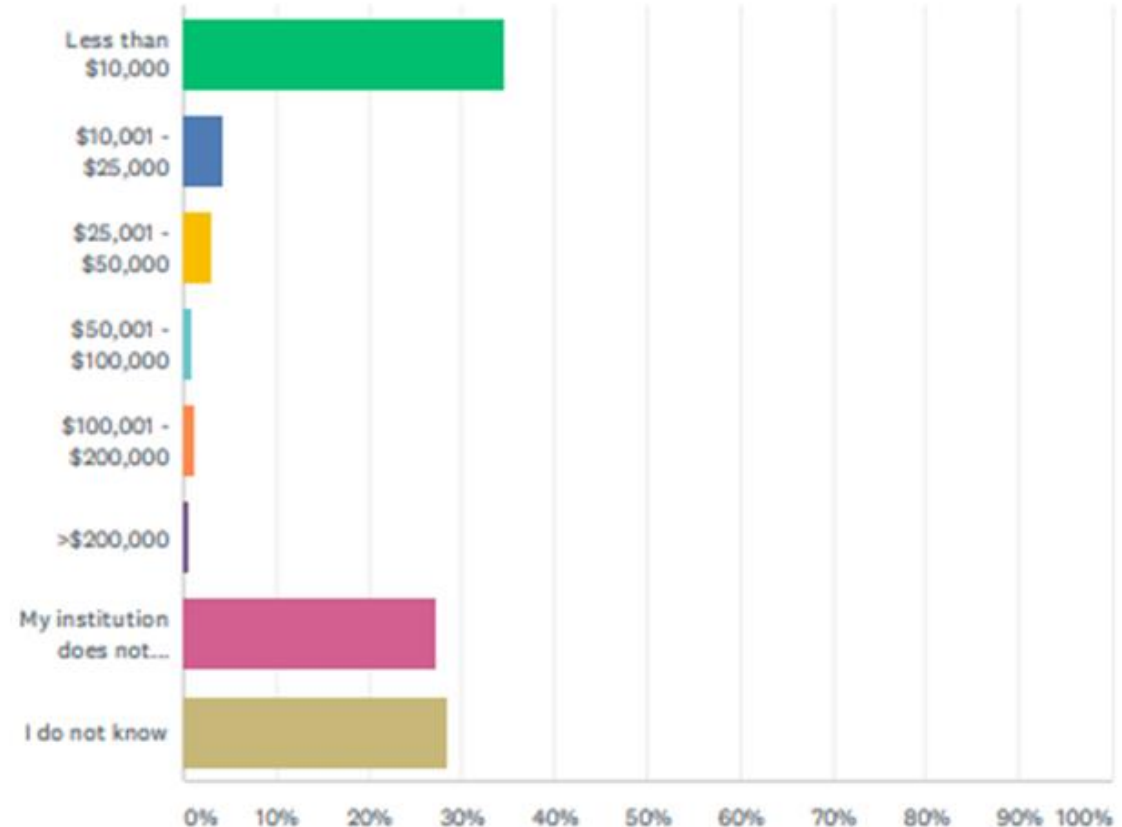
CHALLENGE - Underresourced

Q5 How much funding is dedicated to contractual PM services, on-demand service and/or on-site IPM/PM staff?(If you do not know, and can provide an estimate, we would be appreciative of this information)

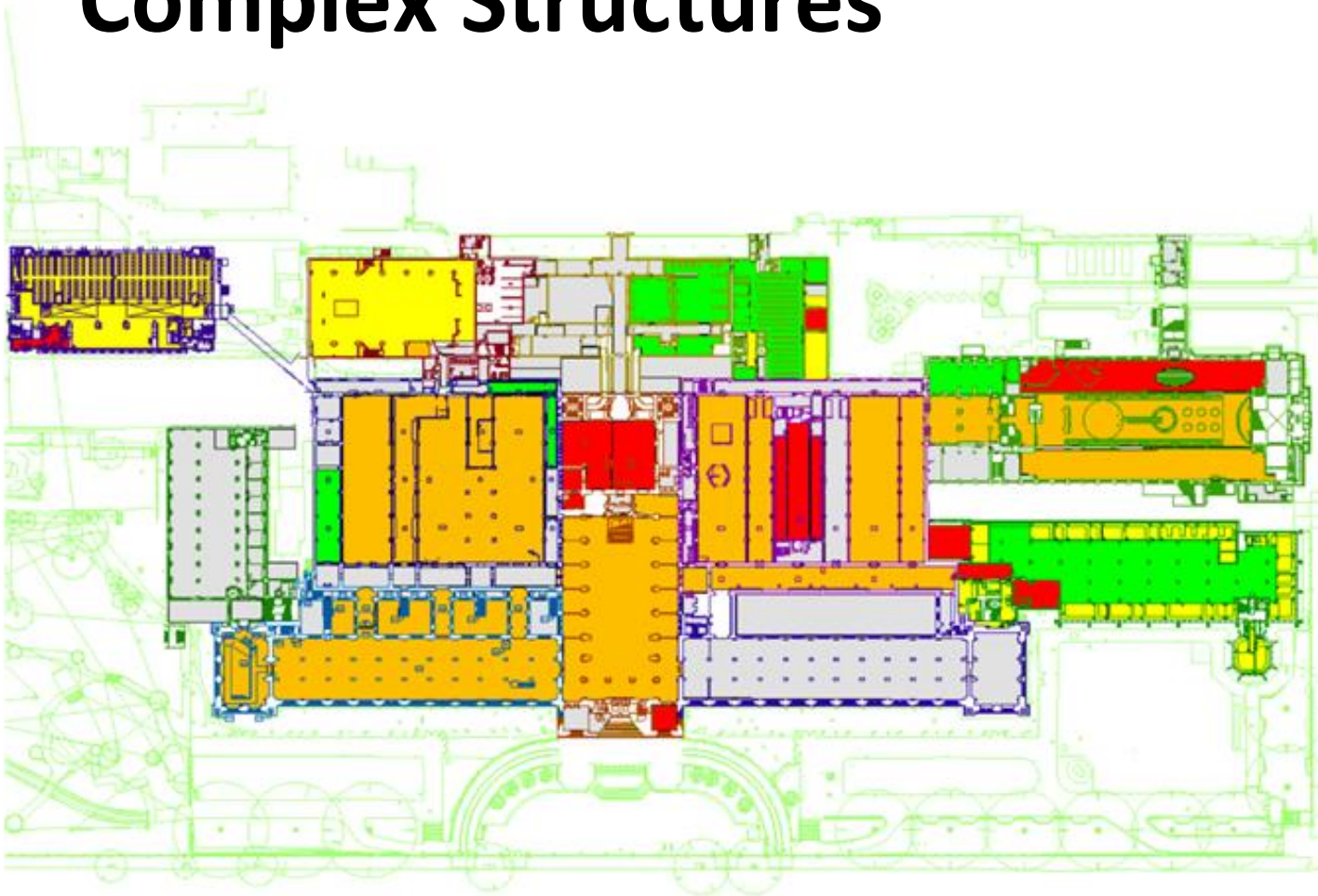
Answered: 333 Skipped: 39



“If we pull this off, we’ll eat like kings.”



CHALLENGE - Historic and/or Complex Structures



Integrated Pest Management Risk Zone

This collection storage area (with or without workstation) holds material very vulnerable to INSECT damage.

Insect A



Insect D



Help keep pests out:

- **Do not** conduct any maintenance or special cleaning in this area without first getting authorisation from the local curation team.
- **Plan** routes of transport of material to avoid different IPM risk zones.
- **Do not** bring any material (including fresh identification material and new accessions, pot plants and cut flowers) into or through this area without IPM treatment, sealed plastic bagging or inspection by curation staff beforehand.
- **Avoid** opening windows and doors unless pest proofed. Instead, use air coolers or fans.
- **Keep** all cabinet and storeroom doors closed.
- **Eat only** in designated areas.
- **Keep** all vulnerable collection material in overnight collection storage or keep covered.
- **Keep** and transport food in sealed containers.
- **Keep** all packaging and disposable materials in sealed containers where possible and dispose of elsewhere.
- **Keep** area tidy. Special cleaning protocols apply.
- **If you see** any evidence of **insects** please notify the local curation team immediately.
- **If you see** any evidence of **rodents** (droppings, holes, gnaw marks or sightings) please notify your IPM representative AND the Estates Help Desk (6000) immediately.

Additional local restrictions may apply. For more information on what to do in this IPM zone please contact your IPM representative:

IPM Representative Telephone	<input type="text"/>
Curation Team Contact Telephone	<input type="text"/>
Local Manager Telephone	<input type="text"/>

CHALLENGE – Lots of Stakeholders

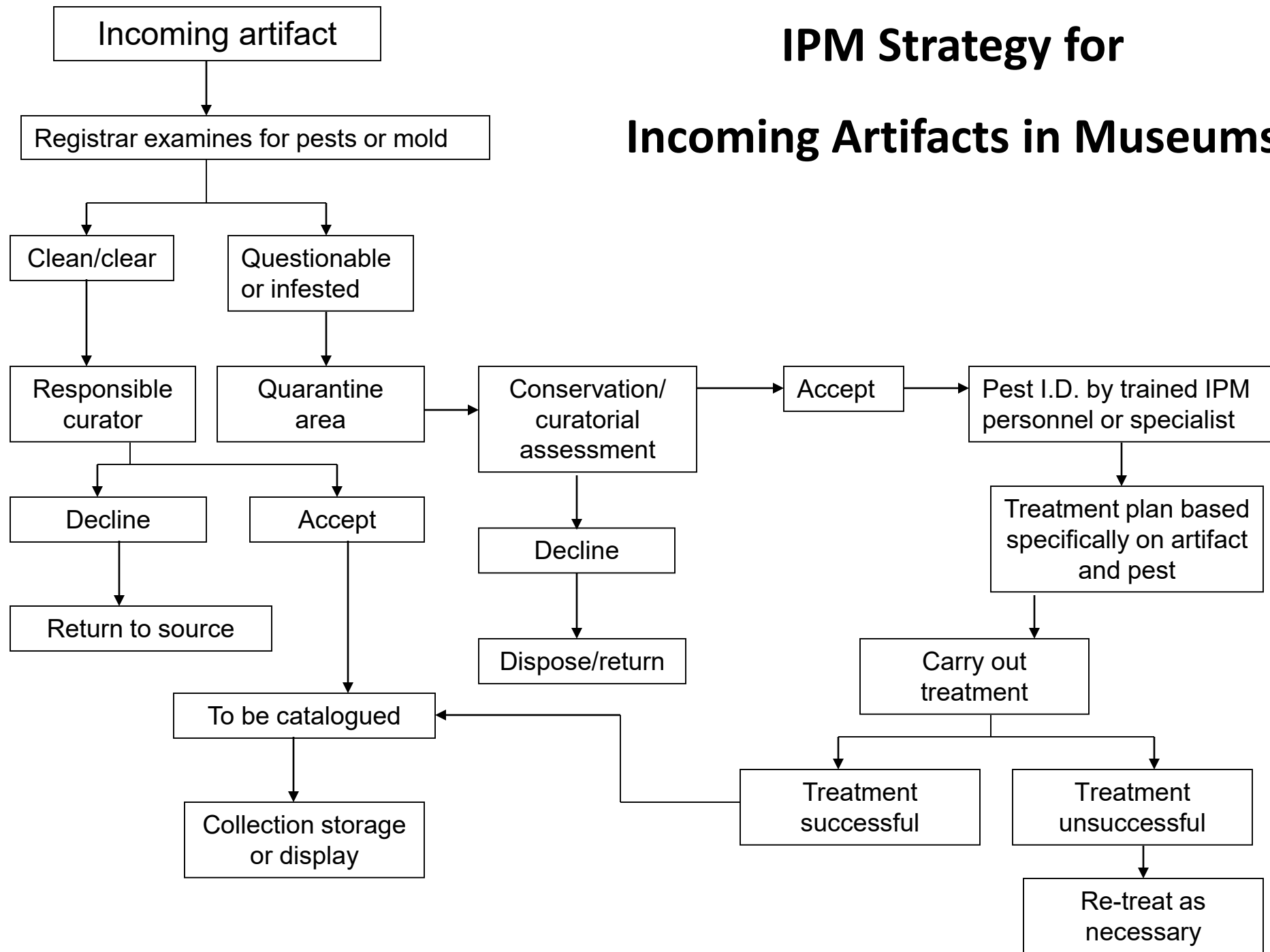


CHALLENGE – DIFFERENT SPACE PROFILES

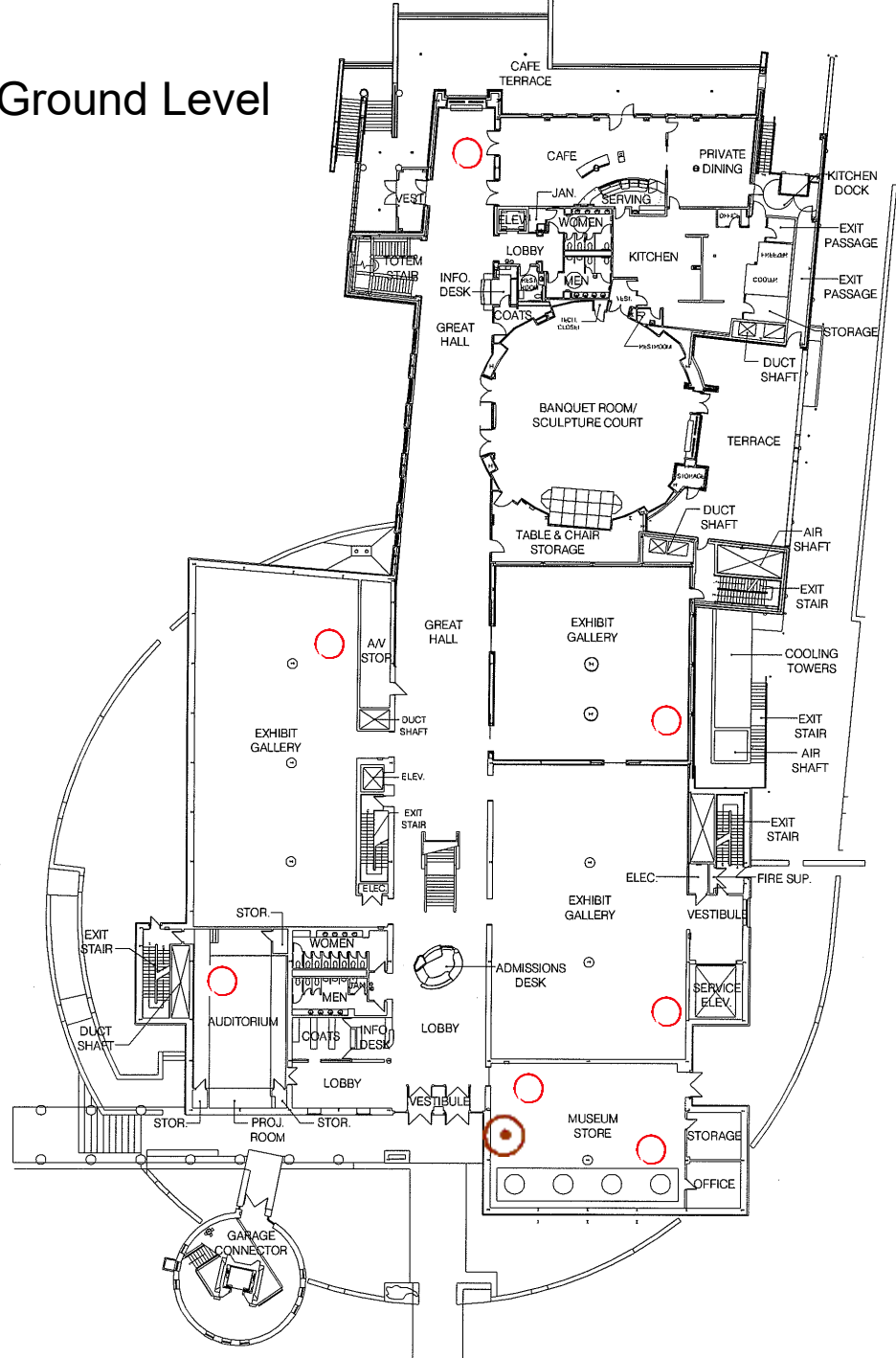
- Galleries
- Labs
- Storage
- Offices
- Food Services
- Events
- Mechanical



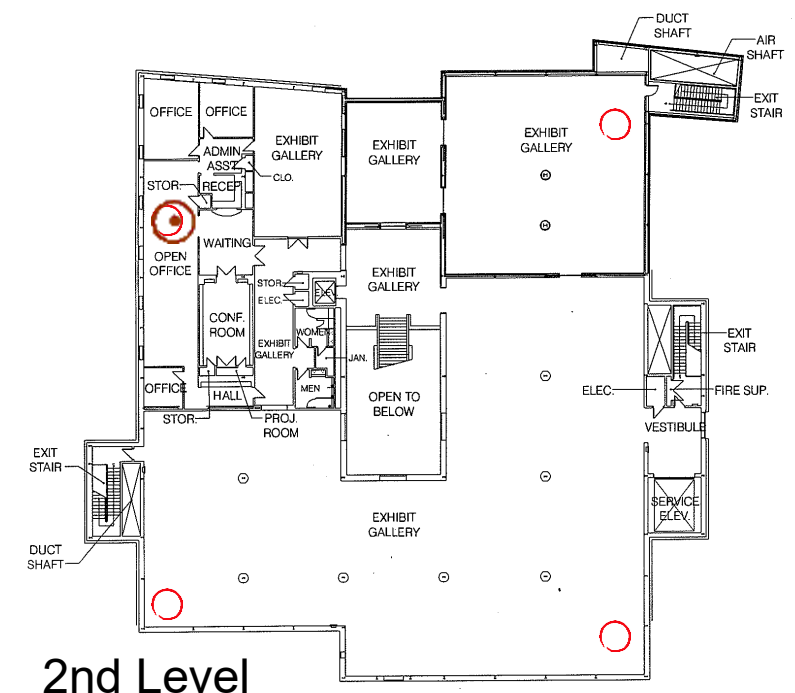
IPM Strategy for Incoming Artifacts in Museums



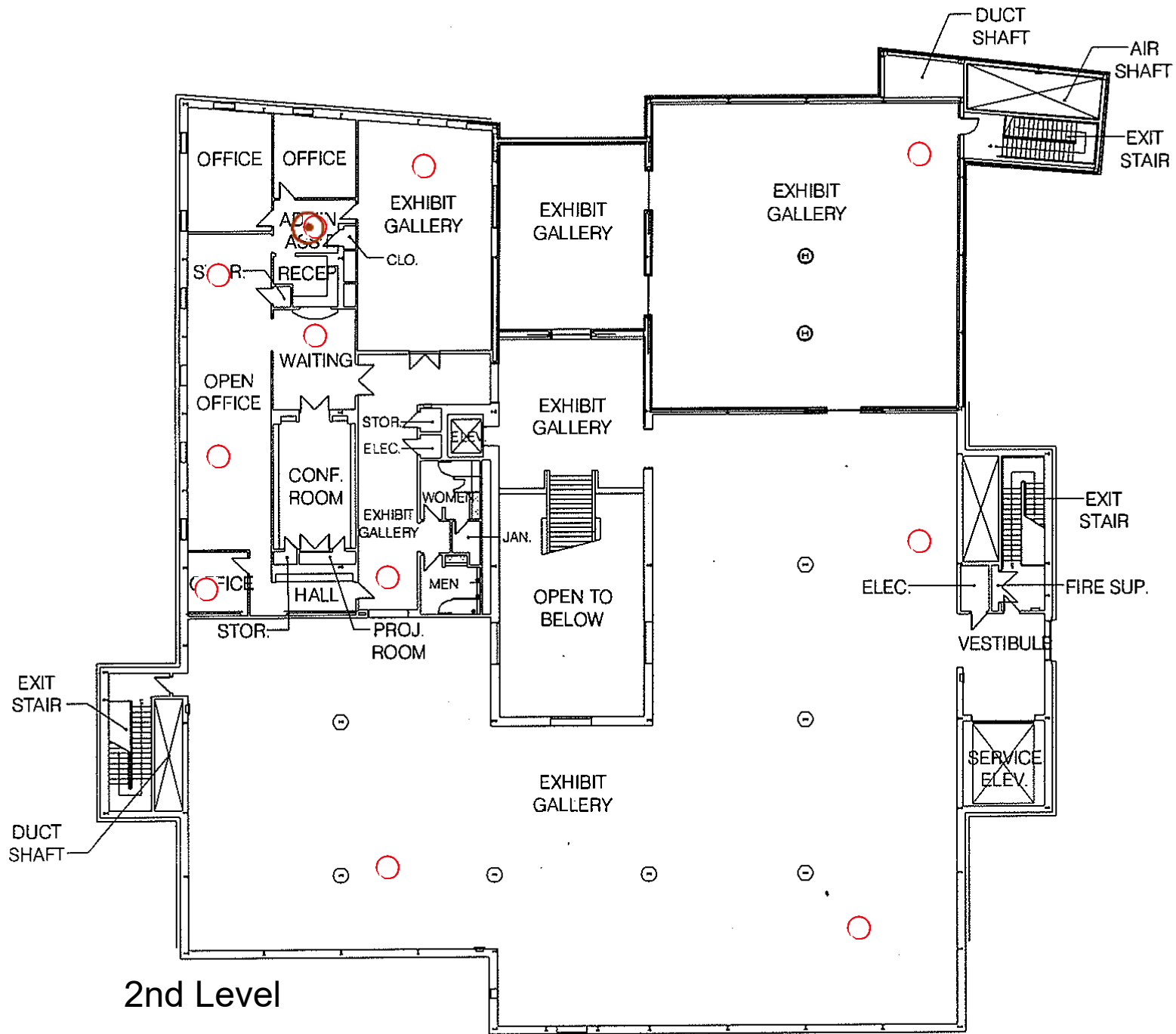
Ground Level



Case Study – Lasioderma Pheromone

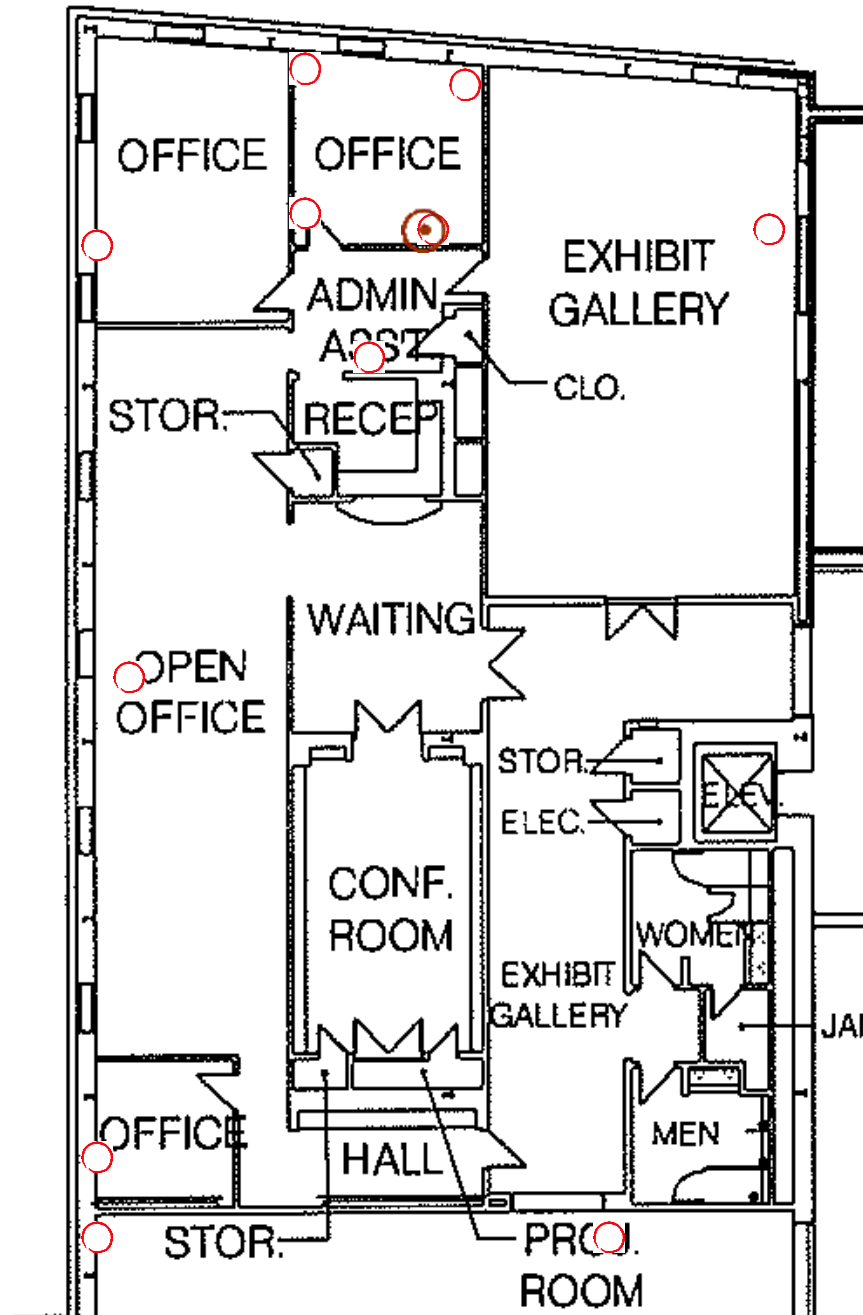


2nd Level



2nd Level

2nd Level



Patrick Kelley,
Insects Limited, Inc.

Therm
Nutrition Facts
Total Fat 14g
Sodium 100mg
Total Crap 100g
Serving Size 1 bag
Amount Per Serving
Calories 210
% Daily Value
Total Fat 14g 28%
Sodium 100mg 20%
Total Crap 100g 100%
DISTRIBUTED BY
Coca-Cola Bottling Co.
Atlanta, GA

Lipton
Soothing Moments
HERBAL TEA
Cinnamon Apple
CAFFEINE FREE
24 Tea Bags 100% Natural NET WT. 1.5 OZ. (51.0g)

Sparco
STANDARD STAPLES

CELESTIAL SEASONINGS
Celebrating Tea Time

ELMER'S GLUE-ALL


Insects Limited
INCORPORATED
Patrick J. Kelley



230

230

117075 6

427

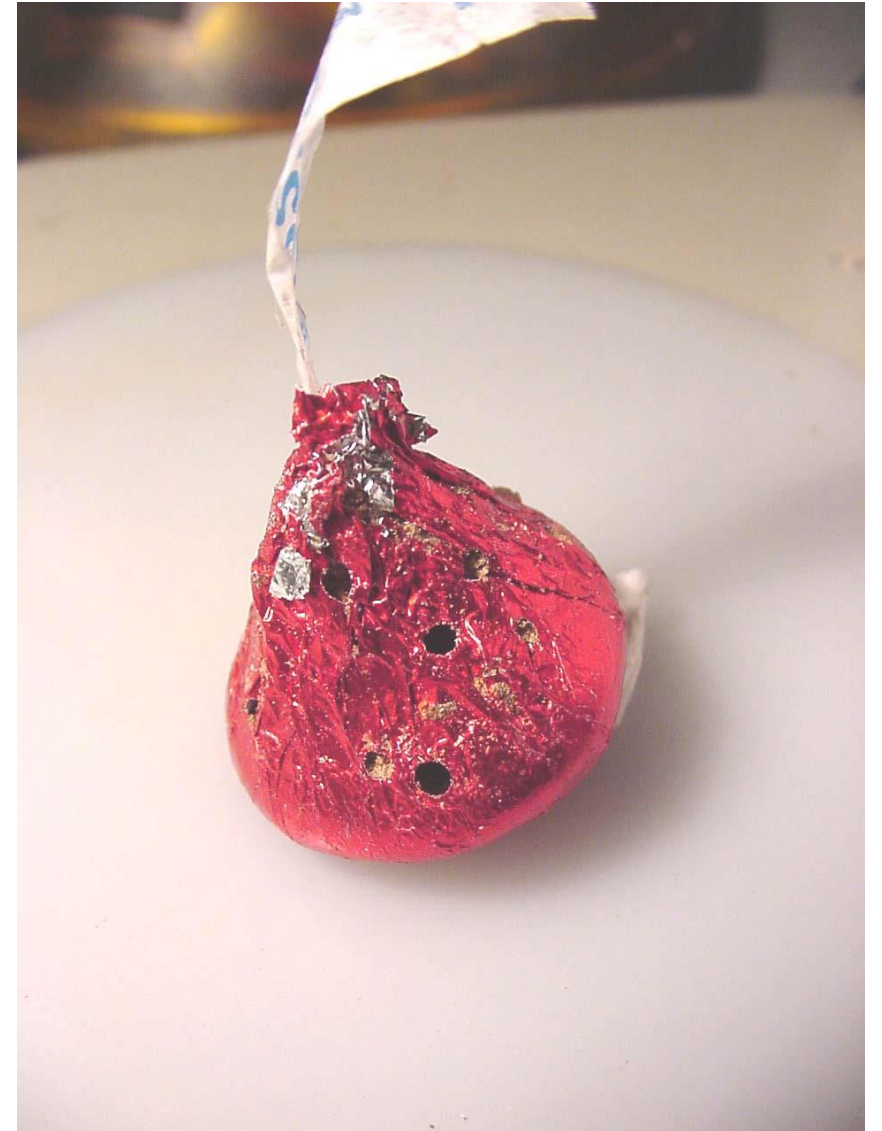
INDUSTRIAL
UNLIMITED, INC.



Insects Limited
INCORPORATED

Patrick J. Kelley

A Single Piece of Chocolate accounted for more than 30 adult cigarette beetle in the museum



Pandemic Change

IPM at The Met During the Covid-19 Lockdown

Michael Millican, IPM Program Administrator

Michael.Millican@metmuseum.org

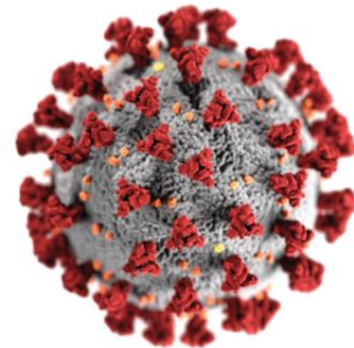
mailto:Michael.Millican@metmuseum.org

org

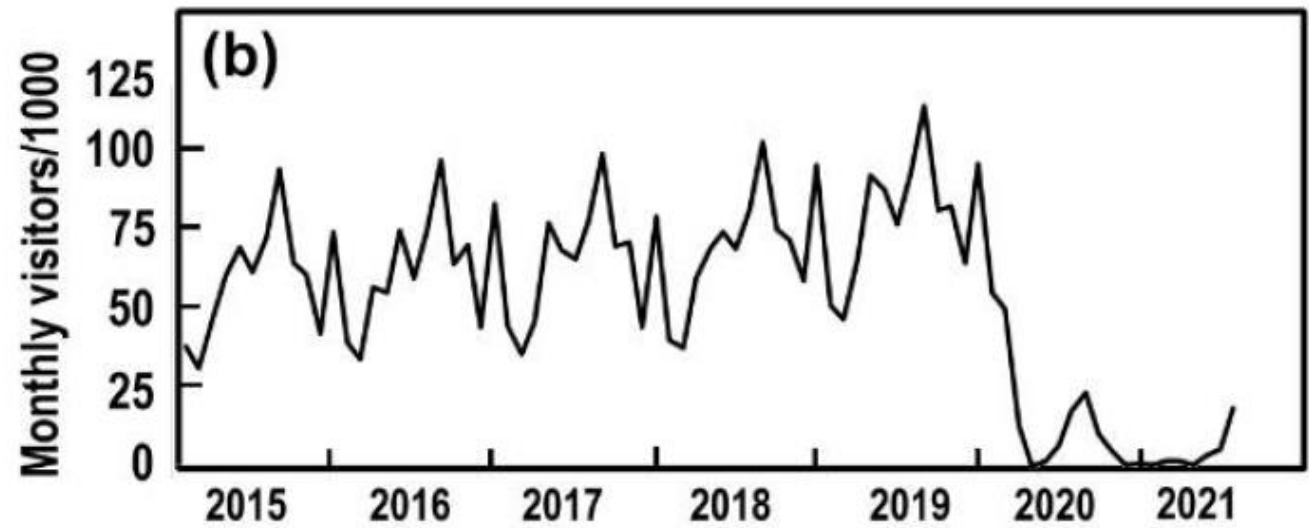
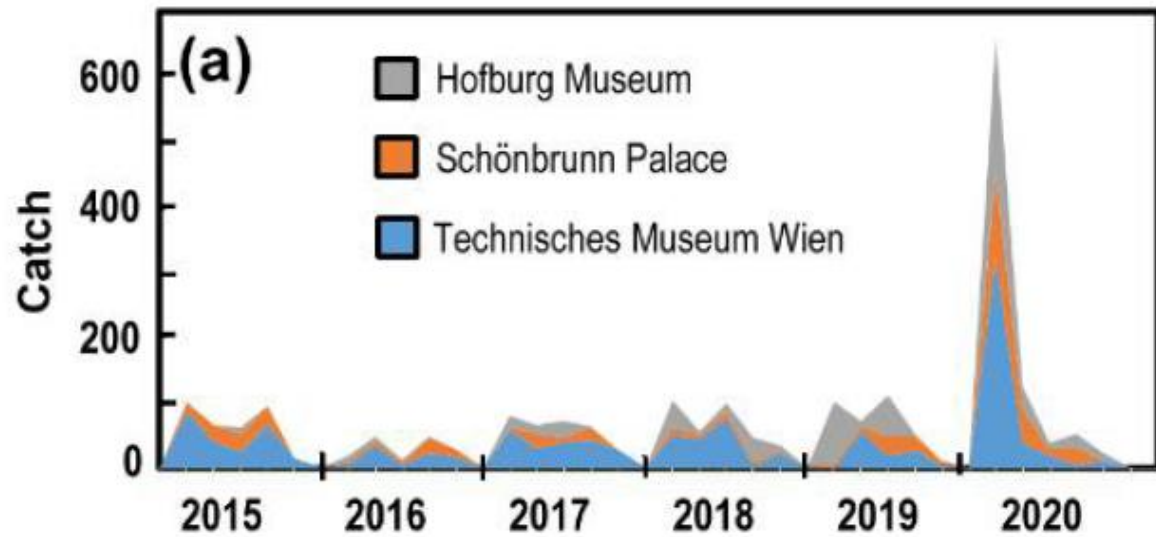
Ctrl+Click to follow link



- Essential staff
- Unprecedented opportunity to conduct deep cleaning
- Change in human activity resulted in changes in pest activity



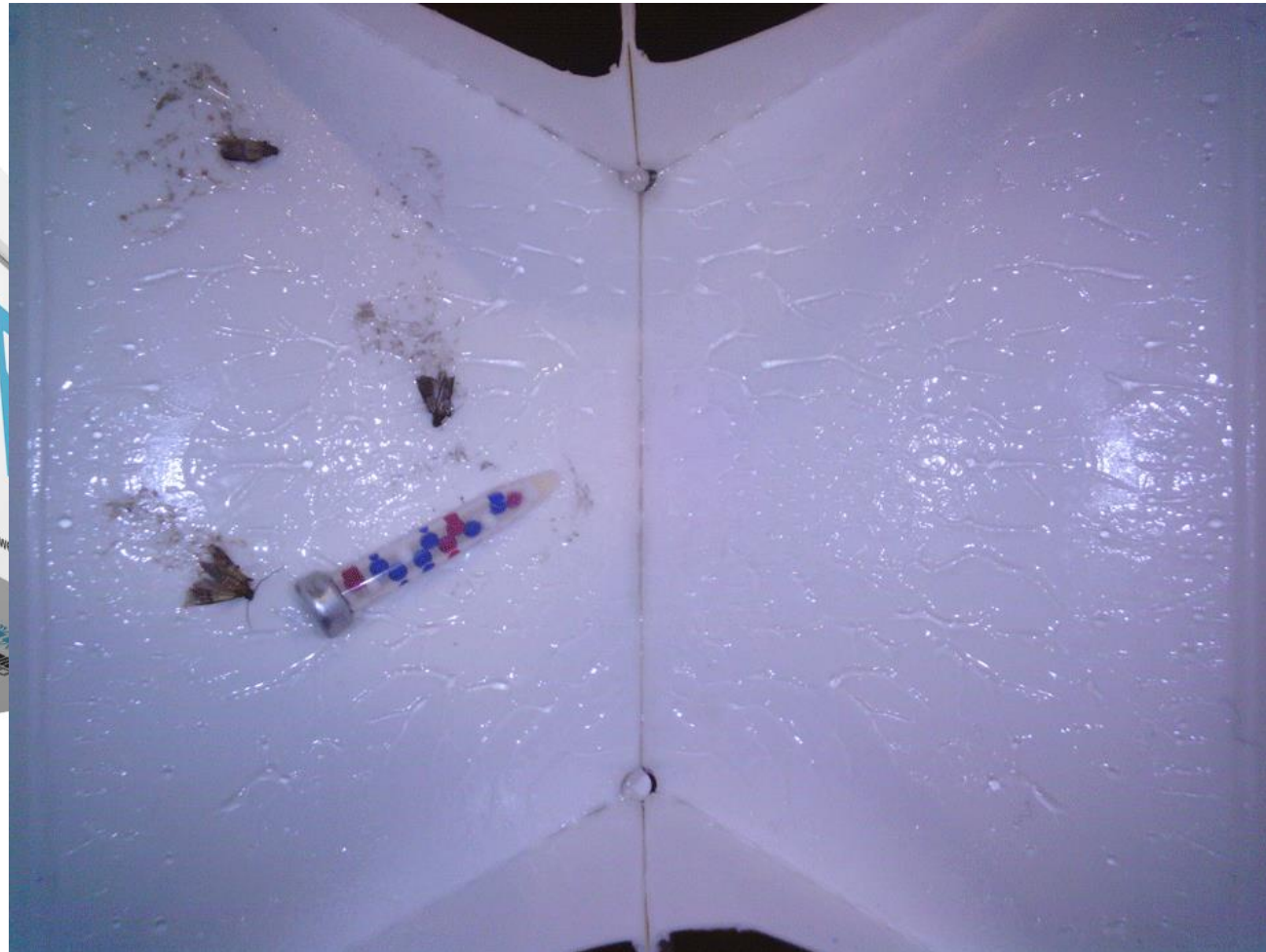
Pandemic Change



Questions



TRENDS – REMOTE MONITORING



History

Initial set-up 12/18/2020

Lure replaced 12/18/2020

[DOWNLOAD](#)

Placement

Where is SightTrap?

Warehouse 1A

This SightTrap is located in the rejections area between isle 14 and isle 15. It is attached to the support beam with the fire extinguisher.

[EDIT](#)

Environment

Most Recent Temperature 73.4°

30-Day Average 72°

60-Day Average 72°

Most Recent Humidity 22%

30-Day Average 20%

60-Day Average 20%

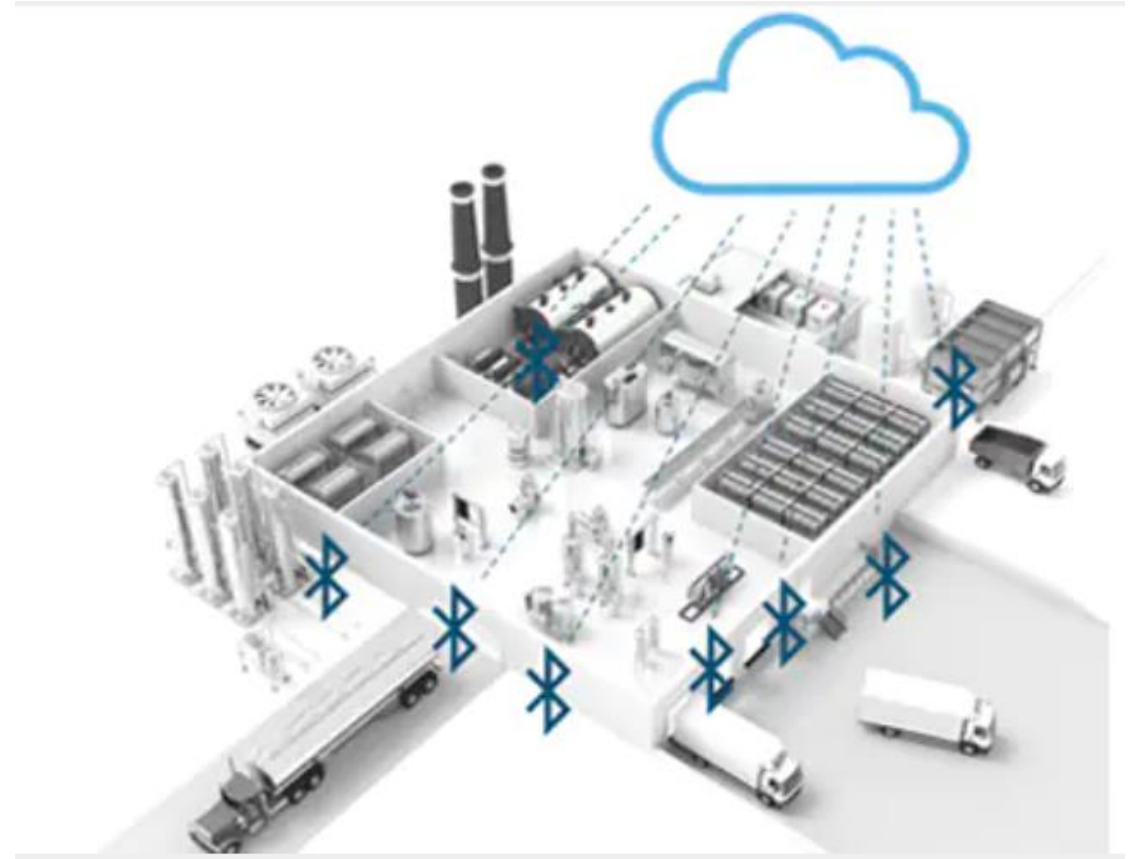
The graph shows cumulative data for temperature and humidity. The x-axis represents time, with markers for 12/18 and 12/27. The y-axis represents temperature and humidity. The temperature line shows a peak around 12/27, while the humidity line remains relatively flat.

TRENDS – REMOTE MONITORING



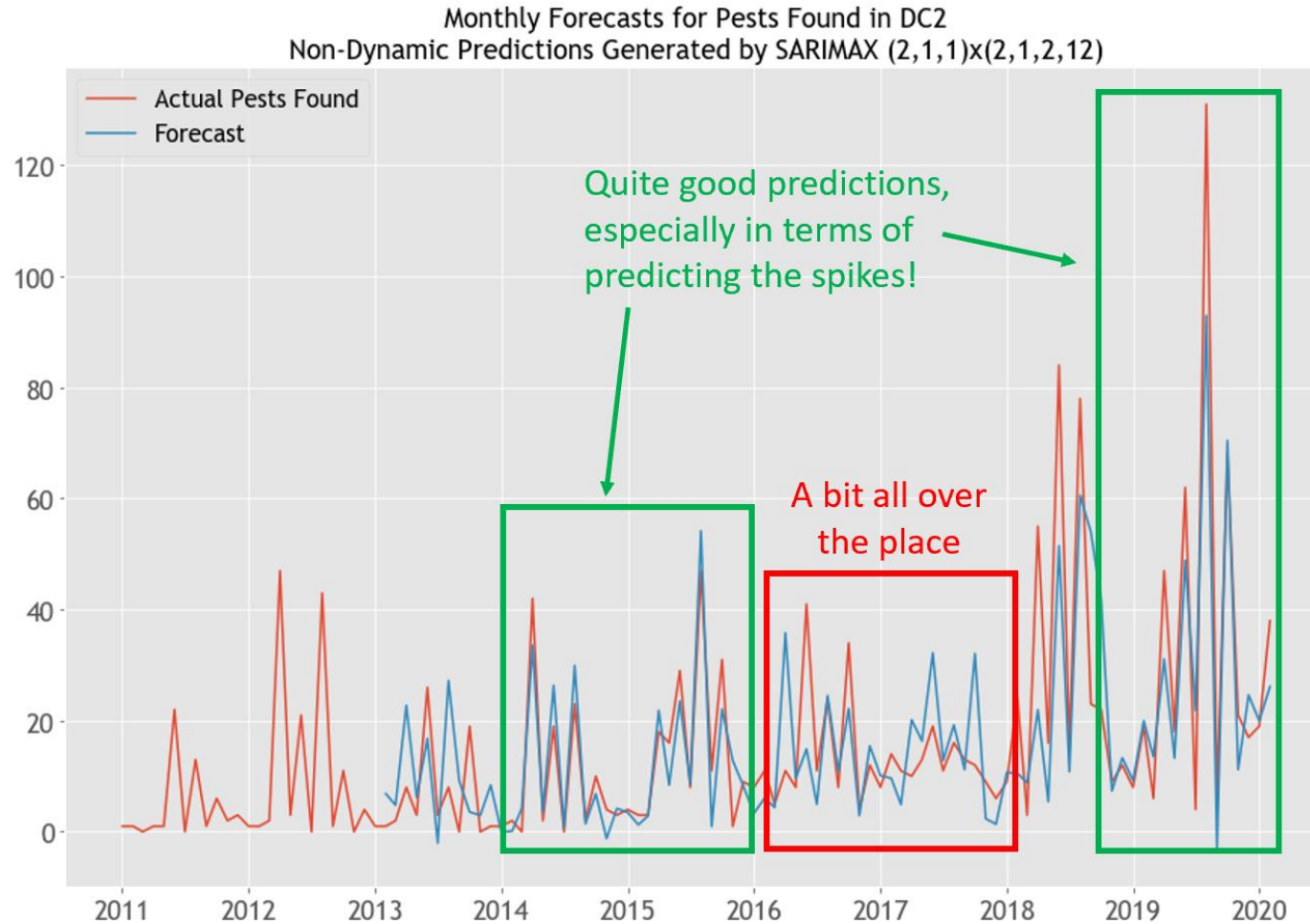
FIGURE 2.1 & 2.2. Rodent Monitoring System, manufactured and provided by Bayer Environmental Science. Photo: Julia Sybalsky.

FIGURE 4.1 & 4.2. ActiveSense AIR₁ Beta, manufactured and provided by Corteva Agriscience. Photo: Julia Sybalsky.



<https://www.ecolab.com/offerings/commercial-rodent-elimination-services/intelligent-rodent-monitoring-system>

TRENDS – Artificial Intelligence



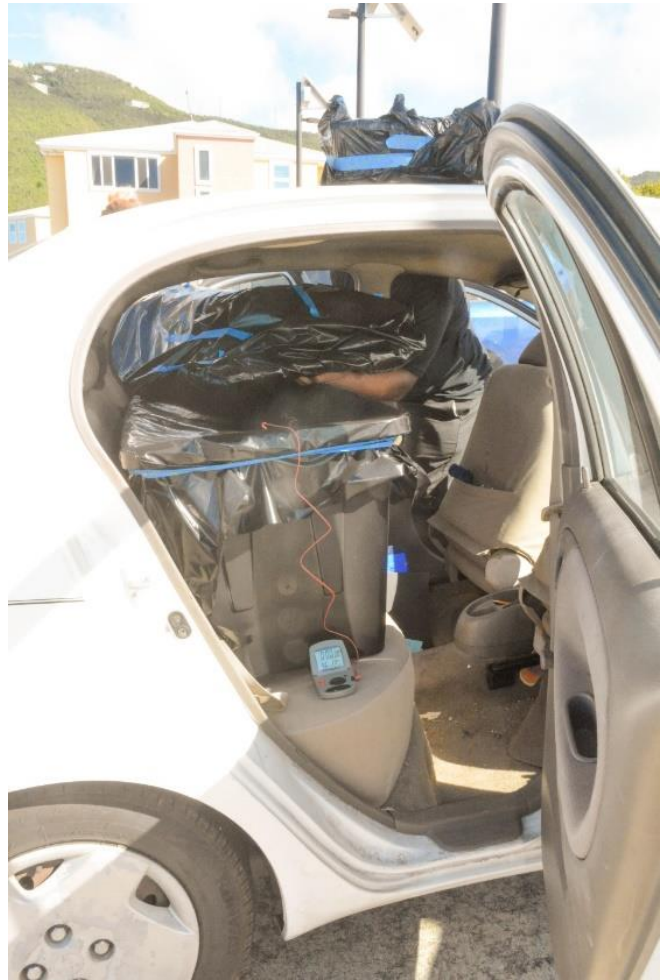
Hinton, Koller and Mendez, 2022

TRENDS – More Sustainable Treatments

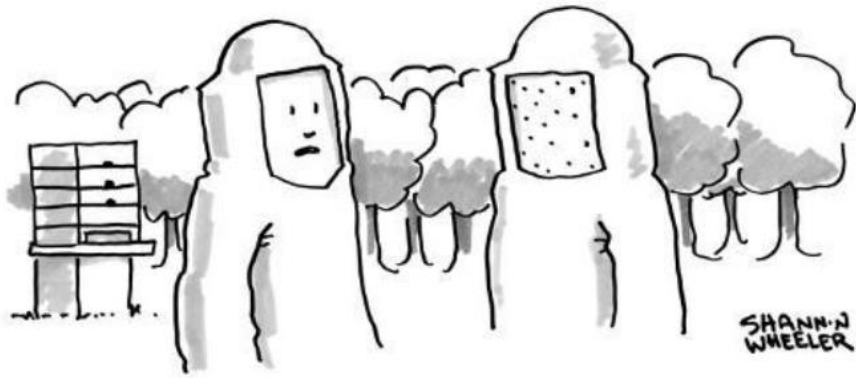


Osgood, Kelley, Feston and Smith, 2022

TRENDS – Low tech treatment based on recent research



TRENDS – Emphasis on Health & Safety



"John, the bees go on the outside."

- Decrease in liquid insecticides
- Increase in species specific baits with restrictions on use
- Insect growth regulators
- Increase pheromone use
- Expanded use of biological control

Resources

- Connecting to Collections Care - Stressed About Pests (Part 1)

<https://connectingtocollections.org/ipmpart1>

- What's Eating Your Collection?

<https://www.whatseatingyourcollection.com/>

- MuseumPests.net & PestList

<https://museumpests.net/>



Connecting to Collections Care

Webinars Courses Community Resources About

Stressed About Pests? Prevention, Monitoring, & Identification

Insect and rodent pests inflict irreparable damage to museum objects every single day. This webinar covered the history and concepts of Integrated Pest Management (IPM) and how one can incorporate IPM within museum environments to prevent pest damage. A few of the many topics that were covered were monitoring, exclusion of pests, and pest identification.

Recorded: Thursday, August 20, 2014
Duration: Approximately 60 minutes

Featured Speaker: Patrick Kelley, Vice President, Insects Limited, Inc. & Identification Group Subchair, IPM Working Group

Featured Resources:

- PowerPoint Presentation
- <http://museumpests.net/> Make sure to check out all the fantastic presentations from the 2014 MuseumPests Conference at Colonial Williamsburg.

Recording

ACCESS SESSION RECORDING

For closed captions, please access this via this link.

Upcoming Events (All times in Eastern Time - New York, NY)

- March 30, 2022, 1:00 pm - Approaching Collections That Evoke Trauma
- April 26, 2022, 1:00 pm - Collections Intake in a Remote Work Environment

Past Webinars

- Flag Rolling and Storage November 18, 2011
- Care and Preservation of Historic Motorized Vehicles October 27, 2011
- Live Question and Answer Session on Housekeeping for Historic Sites October 13, 2011
- Handling and Exhibition of Potentially Hazardous Artifacts in Museum Collections

Oh No! I've got a pest infestation

MuseumPests.net

Integrated Pest Management for Cultural Heritage

Home Prevention Monitoring Identification Solutions Resources Conferences Blog FAQ About Us Contact Us

History of IPM Join the PestList About Us Blog FAQ MuseumPests.net Fundraising appeal

Our goal is to be the most comprehensive source of information and support for those implementing integrated pest management policies and procedures in collections-holding and cultural heritage institutions.

Up to 54% of collections have reported damage from pests. **Integrated Pest Management (IPM)** is a proactive preventive approach that dramatically reduces pests in your building and increases safety to staff and visitors by reducing the use of pesticides, which saves your institution money in the long-term.

Tips for Use

The site's first four sections (prevention, monitoring, identification, solutions) cover sites in developing, implementing, and managing an IPM plan for your institution - whatever your collection type. Each element is explained with detailed information, samples of documents and forms, and links that you can follow to access even more resources.

ANNOUNCEMENTS:

SUPPORT MuseumPests.net and the PestList!
MuseumPests is an all volunteer effort. But we raise funds when major upgrades to this site are needed. Our Webmaster/Programmer Leon Zak has kept us running for 19 years. Your online donation or purchase of MuseumPests swag will support the site, keeping resources freely available for the cultural heritage IPM community. [Read more about our fundraising campaign.](#)

MuseumPests 2022 Virtual Meeting

The Working Group conducted its 19th meeting March 1-3, 2022 virtually for the second year. The second **MuseumPests Present! Session** of short presentations was well attended. View the presentation slides from our Conferences page or access the videos from our YouTube channel or MuseumPests Facebook page.

Noteworthy

Did you know that between 30-50 people meet every year to update MuseumPests and develop new resources? Read more about the group on the **About Us** section of the site and our **Blog**. Since its inception, the group behind the site called itself the **Integrated Pest Management Working Group (IPM-WG)**. In 2019 we officially changed our name to the **MuseumPests Working Group (MPWG)**. We aren't just for the benefit of museums but it is a catchier name than the Museum, Library, Archive, Historic House and Collection-holding IPM Working Group (MLAHHCIPM-WG). Mostly the change in name means that we don't have to specify that we are the group behind MuseumPests.net!

- **PREVENTION** - Implementing IPM & preventing pest access
- **MONITORING** - Monitoring & tracking pest populations
- **IDENTIFICATION** - Identifying potential pest threats
- **SOLUTIONS** - Treating outbreaks in the safest manner possible
- **RESOURCES** - Additional resources pertaining to IPM
- **CONFERENCES** - Content from major IPM conferences
- **BLOG** - Updates on MuseumPests Working Group activities
- **FAQ** - Answers to common questions
- **ABOUT US** - Learn about the group behind MuseumPests.net

What's Eating Your Collection?

About Identify and Solve Pest Recording IPM References Additional Info

Search Search

What's Eating Your Collection is a website to help you understand what integrated pest management is, how to carry it out and how it can help you in your museum.

It will also help you to identify the insects that you find and show you if you need to take action.

Identify and Solve

Use this interactive tool to find information about everything related to Integrated Pest Management.

Pest Recording

The Pest Recording Database contains verified records of insect pests found by heritage organisations.

Useful Resources

Including the Database of IPM References

This database was compiled by Amy Crossman and David Pinniger.

Collections Trust

Birmingham Museums

Museums Galleries Scotland

Supporting Scotland's Museums

Register Login

Resources - PestList



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[History of IPM](#) [Resources - Other Resources](#) [Resources - Bibliography](#) [Health & Safety for Monitoring](#)

About the PestList

The PestList is an e-mail distribution list for discussion of IPM-related topics. This forum allows members to ask questions and receive answers from members of the museum, library, archive, preservation, and pest control community. The PestList currently has over 700 subscribers worldwide. The PestList is a non-moderated Listserv provided by the Integrated Pest Management Working Group and Zak Software. Responsible web etiquette is required and any inappropriate use will result in removal from the list.

To Subscribe please use this form:

This is not an automated sign-up. It may take a couple days for your email to be entered into the list. You will receive a welcome email once you have been added to the list.

Note: The email enter in this request form will become the address you must use to send to the list.

Your Name *

Your Insitution or Affiliation: *

Email *

Resources - Identification

MuseumPests.net Integrated Pest Management for Cultural Heritage

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[ID - Pest Fact Sheets](#) [ID - Image Gallery](#) [ID - Resources](#) [ID - Bibliography](#) [ID - Image Submissions](#)

The MuseumPests Image Gallery has a new look!

Our new Airtable gallery allows you to sort and filter images. Scroll in the page window or click in the bottom right corner to expand to a full screen view. Click on a specific entry to expand the view.

Customize cards Filter Sort

Image#	Image	Scientific Name	Common Name (EN)	Image Type	Taxonomy
Image#397		<i>Niditinea fuscella</i> (Linnaeus)	Brown-dotted Clothes Moth		Moth Pantry Moth
Image#400		<i>Niditinea fuscella</i> (Linnaeus), Att...	Brown-dotted Clothes Moth, Vo...		Moth Pantry Moth Beetle
Image#17		<i>Anthrenus scrophulariae</i> (Linnae...	Buffalo Carpet Beetle	Insect	Beetle Carpet Beetle Dermis
Image#18		<i>Anthrenus scrophulariae</i> (Linnae...	Buffalo Carpet Beetle	Insect	Beetle Carpet Beetle Dermis

MP Image Gallery-English Sign up Airtable

Customize cards Filter by Common Name (EN) Sort

Image#	Image	Scientific Name	Common Name (EN)	Image Type	Taxonomy	Life Stage	Priority Grouping	Geographic Area	Image Credit
Image#17		<i>Anthrenus scrophulariae</i> (Linnaeus)	Buffalo Carpet Beetle	Insect	Beetle Carpet Beetle Dermestid	Adult		North America Asia Europe	Image#17: Thumbnail image
Image#18		<i>Anthrenus scrophulariae</i> (Linnaeus)	Buffalo Carpet Beetle	Insect	Beetle Carpet Beetle Dermestid	Larva		North America Asia Europe	Image#18: Patrick J. Kelley, Insects Limited, Inc.
Image#19		<i>Anthrenus scrophulariae</i> (Linnaeus)	Buffalo Carpet Beetle	Insect	Beetle Carpet Beetle Dermestid	Adult		North America Asia Europe	Image#19: Natasha Wright, Florida Departme...

Resources - Identification

- English Heritage Poster 2009
- English Heritage Poster 2021
- Insects Limited Poster

FABRIC / TEXTILE

- Black carpet beetle adult: *Black carpet beetle larva* *Atrogaster antecator*
- Webbing clothes moth adult: *Webbing clothes moth larva* *Tineola bisselliella*
- Furniture carpet beetle: *Andrews carpet beetle*
- Varied carpet beetle adult: *Varied carpet beetle larva* *Anthrenus verbasci*
- Clothesmaking clothes moth adult: *Clothesmaking clothes moth larva* *Tinea pellionella*

FUR / FEATHERS / HIDE

- Hide beetle adult: *Hide beetle larva* *Dermeestes maculatus*
- Old beetle adult male: *Old beetle adult female* *Hydrophilus contractus*
- Old beetle larva: *Hydrophilus contractus*
- Brown house moth: *Brown house moth* *Aglossa opifera*

HERBARIA

- Cigarette beetle: *Cigarette beetle* *Lasioderma serricorne*
- Drugstore beetle: *Drugstore beetle* *Stegobium paniceum*

WOOD / FURNITURE

- Furniture beetle adult: *Furniture beetle* *Anobium punctatum*
- Furniture beetle damage
- Three powderpost beetle adult: *Three powderpost beetle* *Zyctus* sp.
- Old house borer: *Old house borer* *Hyloterpes buphalus*
- Three powderpost beetle damage

SCAVENGERS / PAPER

- Larder beetle adult: *Larder beetle larva* *Dermeestes lardarius*
- Silverfish: *Silverfish* *Hydrophilus domesticus*
- Silverfish: *Silverfish* *Agathidium saccarivae*
- Booklice: *Booklice* *Liposcelis* sp.
- Clothesmaking clothes moth adult: *Clothesmaking clothes moth larva* *Tinea pellionella*
- Clothesmaking clothes moth damage
- American cockroach: *American cockroach* *Periplaneta americana*
- Oriental cockroach: *Oriental cockroach* *Blattella orientalis*
- Cockroach damage

Common Insect Pests of Museums in North America

Insects Limited
www.insectslimited.com

ENGLISH HERITAGE

INSECT PESTS IN HISTORIC HOUSES AND MUSEUMS

1. PLASTER AND FINISHING BEETLES
Found on fungi in damp conditions

2. SILVERFISH
Adults and nymphs feed on damp paper, wood and wood

3. WOOD WEEVIL
Adults and nymphs live in very damp material

4. BOOKLouse
Larvae tunnel in wood. Adult beetles cause rot holes

5. LARDER AND HIDE BEETLES
Larvae tunnel in wood. Adult beetles cause rot holes

6. SPIDER BEETLES
Found in bird nests and blocked chimney flues, the larvae feed on dead insects, dried food and plant material

7. CARPET BEETLES
Larvae eat wool, silk, fur and feathers

8. BISCUIT BEETLE
Found in bird nests and blocked chimney flues, the larvae feed on dead insects, dried food and plant material

9. MEALWORMS
Found in all areas, but nests and chimney flues feeding on organic debris

10. LAZYBARDS
Adults tunnel in materials to form a network of tunnels

11. WOODLOUSE
Live in decaying wood and other organic matter and will not survive in dry indoor conditions

12. GRINDING BEETLES (CABANIGS)
Predatory insects which feed on other insects

13. CLUSTER FLY
Larvae cause rot in materials in winter months

14. CLOTHES MOTHER
Larvae eat wool, silk, fur and feathers

15. HOUSE MOTHS
Larvae tunnel through dried food and plant material with a high starch content

16. FEEDING MOTHS
Found in all areas, but nests and chimney flues feeding on organic debris

ENGLISH HERITAGE

Insect Pests found in Historic Houses and Museums

Many insects are found in buildings and it is important to distinguish those which are not pests and those that cause damage to objects or the building structure.

The illustrations are magnified and are much larger than life. The white symbol on each picture shows the actual body size of the insects.

A selection of the insects most commonly found in museums and historic houses in the UK are shown on this poster. Most damage is caused by insects: moths, beetles, other groups (silverfish, booklice and woodlice) or larvae (beetles and moths).

For further information on insect identification and Integrated Pest Management (IPM) go to www.collectionslink.org.uk

Collections Trust

Moths

- Webbing clothes moth: *Webbing clothes moth* *Tineola bisselliella*
- Case-bearing clothes moth: *Case-bearing clothes moth* *Tinea pellionella*
- Indian meal moth: *Indian meal moth* *Plodia interpunctella*
- Brown house moth: *Brown house moth* *Aglossa opifera*
- White-shouldered clothes moth: *White-shouldered clothes moth* *Tinea trichomya*

Other pests

- Silverfish: *Silverfish* *Hydrophilus domesticus*
- Common booklice: *Common booklice* *Liposcelis* sp.
- Woodlice: *Woodlice* *Sminthurus* sp.

Pest beetles

- Death watch beetle: *Death watch beetle* *Kambium reticulatum*
- Wood weevils: *Wood weevils* *Anobium punctatum*
- Brown carpet beetle or Vodka beetle: *Brown carpet beetle or Vodka beetle* *Anthrenus velutinus*
- Two-spot carpet beetle: *Two-spot carpet beetle* *Anthrenus pallens*
- Larder beetle: *Larder beetle* *Dermeestes lardarius*
- Cigarette beetle: *Cigarette beetle* *Lasioderma serricorne*
- Furniture beetle/woodworm: *Furniture beetle/woodworm* *Anobium punctatum*
- Biscuit beetle or drugstore beetle: *Biscuit beetle or drugstore beetle* *Stegobium paniceum*
- Australian spider beetle: *Australian spider beetle* *Pentaneura sp.*
- Golden spider beetle: *Golden spider beetle* *Agathidium sp.*
- Guernsey carpet beetle: *Guernsey carpet beetle* *Anthrenus sp.*
- Varied carpet beetle: *Varied carpet beetle* *Anthrenus verbasci*

Non-pest beetles

- Black ground beetle: *Black ground beetle* *Colella*
- Mealworm beetle: *Mealworm beetle* *Tenebrio molitor*
- Harlequin ladybird: *Harlequin ladybird* *Psephenus sp.*
- Fungus beetles and plaster beetles: *Fungus beetles and plaster beetles* *Platysphindus* sp.

Resources – for PMPs



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Solutions ▾ Solutions - Case Studies Solutions - Professional pest control societies Working with a Pest Management Professional
Health & Safety for Solutions Solutions - Bibliography ▾

Not every institution has the resources to meet all their pest prevention challenges in-house. Cultural Institutions often contract a Pest Management Professional (PMP) to provide or supplement IPM services. The resources here were developed by the IPM Working Group to help institutions develop effective, collaborative relationships with their PMPs.

- [Tips for Hiring A Pest Management Professional](#) will prove helpful for museums looking to hire a contractor that will be able to work effectively in a cultural heritage setting.
- Cultural heritage institutions present unique challenges and difficulties for even the most experienced Pest Management Professionals (PMPs). [IPM Guide for PMPs in Museums & Galleries](#) provides a general overview of working in a museum environment, and the challenges that cultural heritage institutions present for PMPs.
- [MuseumPest ID for PMPs](#) provides a reference guide to pests which are commonly found in cultural heritage settings, but which may not be as frequent in other commercial settings.

Resources – Exclusion Tip Sheet

MuseumPests.net

A Product of the Integrated Pest Management Working Group

Building Envelope Tip Sheet

The building envelope can be defined as the barrier that separates the exterior environment and the interior environment of a building. The physical components of a building envelope consist of the foundation, walls, roof, windows and doors.

The building envelope should be the primary protective barrier between pests and your collections. This sheet contains recommendations that, when implemented, may help protect your collection and building from pests. Of these recommendations, regular building maintenance and inspection are of utmost importance to ensure that pests are excluded.

A building's integrity directly affects pest activity. Ensuring that all holes, gaps and voids are closed and that all possible wall, floor, and roof penetrations are appropriately sealed is the number one method for excluding pests from museum buildings.

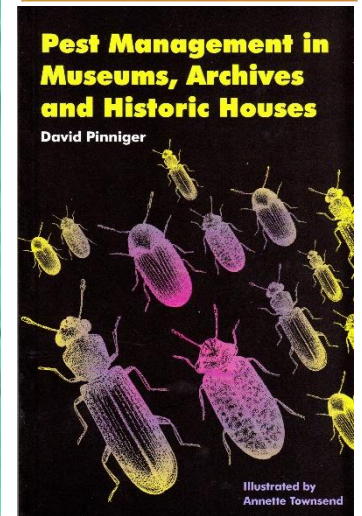
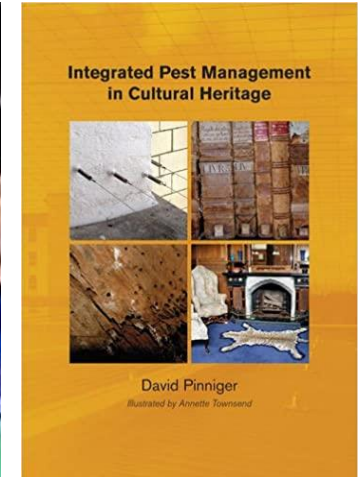
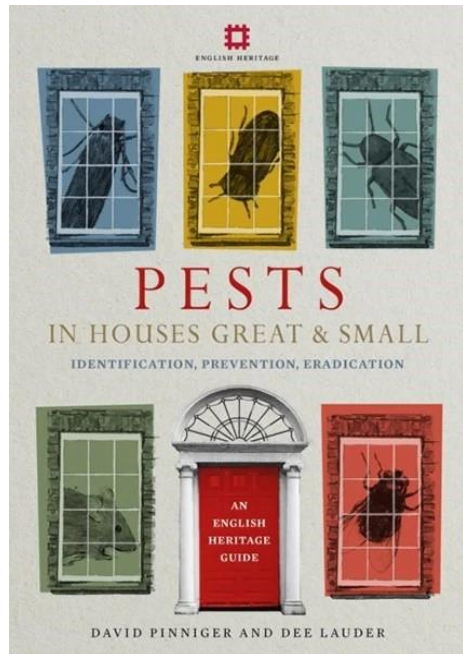
IPM Tips for the Physical Components of Building Envelopes:

Foundation/walls/roof:

- If your museum site is home to more than one building remember to inspect all outbuildings in the same manner as you would inspect the main building.
- Check the building exterior for holes, cracks, gaps, and crevices. Insects can enter through 0.5 mm cracks, while bats and rodents can gain access through anything larger than 5 mm. Rats can get through a space as small as 12 mm.
- Thoroughly caulk or seal all openings found in the building exterior to effectively block pest entry.
- Remember to seal around any areas where plumbing, electrical, or cable services enter the building. Gaps around conduit lines, piping, and ventilation ducts are all common ways for pests to enter buildings.
- Wall-mounted equipment and fixtures must be properly installed and tightly sealed upon installation.
- In addition to sealing any foundation gaps make sure to seal gaps at the roof level to prevent climbing animals from gaining access.
- Note any loose or damaged areas on walls, flashings, and visible roofing.
- Roofs should be in good condition and drain properly.
- Gutters should be clear of debris and drain freely. Remove any buildup of dirt and leaves from the roof and in gutters. Clogged gutters increase the chance of wood rot and water damage to exterior walls. When clogged they also fill with standing water.
- Painting the building exterior in light colors results in much easier visual inspections for pests.
- If fortunate enough to be involved in the planning of a new building it is best to avoid: recessed windows, flat ledges, flat roofs, roof edges, nooks, and columns. All provide excellent roosting and nesting sites for birds.



Resources - David Pinniger Books





Tips for Working with Museums

- Understand our needs
- Understand our processes
- Know our pests
- Help us implement IPM not just spray
- Understand our security issues
- Emphasize sanitation
- Provide documentation

THANK YOU

- MuseumPests Working Group participants
- Leon Zak, Zak Software
- Pat Kelley, Insects Limited
- Suzanne Ryder and Armando Mendez, Natural History Museum, London
- Jana Hexter, David Earl Lane and Dan Wixted, Cornell Cooperative Extension
- Pretty insect images courtesy of Alex Wild www.myrmecos.net



Questions



Some Questions for you



Upcoming Webinars

<https://www.northeastipm.org/ipm-in-action/the-ipm-toolbox/>



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Land Acknowledgment

The Northeastern IPM Center is based at Cornell University in Ithaca, New York.

Cornell University is located on the traditional homelands of the Gayogohó:nq' (the Cayuga Nation). The Gayogohó:nq' are members of the Haudenosaunee Confederacy, an alliance of six sovereign Nations with a historic and contemporary presence on this land. The Confederacy precedes the establishment of Cornell University, New York state, and the United States of America. We acknowledge the painful history of Gayogohó:nq' dispossession, and honor the ongoing connection of Gayogohó:nq' people, past and present, to these lands and waters.

This land acknowledgment has been reviewed and approved by the traditional Gayogohó:nq' leadership.



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