

# **INTEGRATED PEST MANAGEMENT FOR CULTURAL INSTITUTIONS**

November 14—15, 2018

Atlanta, GA

**Presented by**



**ARCS**

ASSOCIATION OF REGISTRARS  
AND COLLECTIONS SPECIALISTS

**CONSERVATION  
CENTER**

*for Art & Historic Artifacts*

**Hosted by**

Michael C. Carlos Museum  
Emory University

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## INTRODUCTION

Integrated Pest Management Plans are an integral, and oftentimes overlooked, core collection policy. The Association of Registrars and Collections Specialists (ARCS) and the Conservation Center for Art & Historic Artifacts (CCAHA) are pleased to offer a day and a half workshop of presentations and practical exercises, where speakers will discuss the elements of an integrated pest management plan, present tools for identifying common pests and the best monitoring strategies, introduce types of treatments appropriate for collections objects, and summarize common hazards staff may come in contact with when dealing with pests in their collection.

*Integrated Pest Management in Cultural Institutions* is generously hosted by the Michael C. Carlos Museum of Emory University.

We are grateful to Laura Fedynyszyn, Sarah Giffin, Chelle Hartzler, and Elise LeCompte, for their commitment to this program from the development stage to their presentations here.

Association of Registrars and Collections Specialists  
Conservation Center for Art & Historic Artifacts

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Conservation Staff, Michael C. Carlos Museum, Emory University

#### Closing Remarks

*Robin Bauer Kilgo*, Communications & Member Services Manager, ARCS/Contract Registrar

#### Optional tour of Carlos Museum

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## **SPEAKERS LIST**

### **PROGRAM SPEAKERS**

Laura Fedynyszyn, Andrew W. Mellon Conservation Fellow, University of Miami Libraries

Sarah Giffin, Assistant Conservator, Rosa Lowinger & Associates

Chelle Hartzler, Orkin Technical Services Manager, Rollins Inc.

Robin Bauer Kilgo, Communications & Member Services Manager, ARCS/Contract Registrar

Elise LeCompte, Registrar and Coordinator for Museum Health and Safety for the Florida Museum of Natural History

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## **INTRODUCTIONS**

Robin Bauer Kilgo, Communications & Member Services Manager, ARCS/Contract Registrar

Samantha Forsko, Preservation Specialist, Conservation Center for Art & Historic Artifacts

Todd Lamkin, Director of Collections Services, Michael C. Carlos Museum, Emory University

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ARCSINFO.ORG  
INFO@ARCSINFO.ORG  
FACEBOOK: ARCS4ALL  
TWITTER: @ARCS4ALL

- Professional Development
- Recognition of Excellence in the Field
- Promoting Ethical & Professional Standards
- Networking
- Access to Professional Resources

# THE CONSERVATION CENTER FOR ART & HISTORIC ARTIFACTS

## CONSERVATION TREATMENT

works of art on paper, photographs, books,  
parchment, three-dimensional objects

## HOUSING & FRAMING

custom folders, boxes, housing solutions,  
framing, CCAHA's innovative sealed package

## DIGITAL IMAGING

digitization of fragile materials, digital  
restoration, precise facsimiles

## FUNDRAISING ASSISTANCE

guidance for nonprofit institutions in identifying  
and applying for funding

## CUSTOM EDUCATION PROGRAMS

preservation, preventive conservation, and  
collections care programs

## PROJECT MANAGEMENT

assistance in planning large-scale treatment  
projects, from grantwriting to shipping

## PRESERVATION CONSULTATION

expertise in preventive conservation, ensuring  
long-term protection of collections

## COLLECTIONS ASSESSMENTS

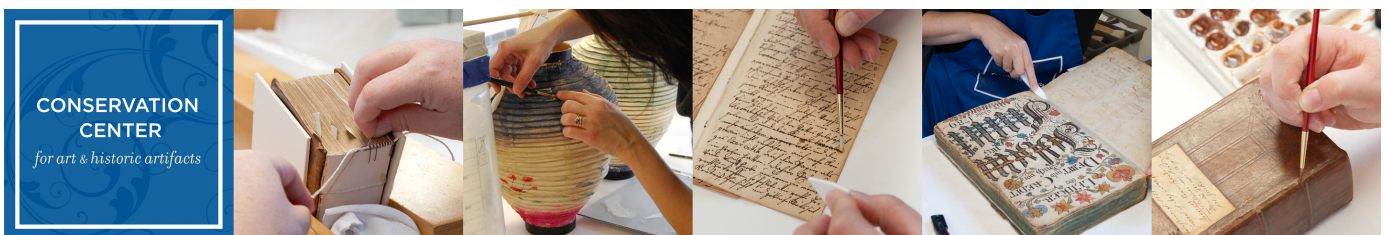
collections assessments for preservation and  
conservation needs

## RISK ASSESSMENTS & EMERGENCY PLANNING

assistance estimating risk and developing  
disaster plans

## DISASTER ASSISTANCE

help salvaging, triaging, and treating water- and  
fire-damaged materials





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## AREA RESTAURANTS

### At the Carlos

Ebrik Coffee Room, located on Level 3, serves coffee, pastries, and snacks.

### On Campus

Campus visitors are welcome in the university's dining facilities.

### Emory Village

Walking distance from main campus, and available by shuttle to Clairmont and Briarcliff campuses.

Chipotle Mexican Grill  
1401 Oxford Road NE  
404.855.4990

rise-n-dine  
1565 N. Decatur Road  
404.377.4407

Dave's Cosmic Subs  
1540 N. Decatur Road,  
404.373.6250

Romeo's New York Pizza  
1401 Oxford Road NE  
404.373.6199

Doc Chey's Dragon Bowl  
1556 N. Decatur Road  
404.378.8188

Saba  
1451 Oxford Road  
404.377.7786

Domino's Pizza  
1439 Oxford Road  
404.370.3030

Starbucks Coffee  
1569 N. Decatur Road  
404.371.0606

Double Zero  
1577 N. Decatur Road  
404.991.3666

Wagaya  
1579 N. Decatur Road  
678.949.9278

Falafel King  
1405 Oxford Road  
404.377.1716

Zoe's Kitchen  
1385 Oxford Road NE  
404.373.9048

Panera Bread  
1545 N. Decatur Road  
404.373.4240

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## DAY ONE AGENDA

- 10:00 – 10:30 Registration
- 10:30 – 10:45 *Opening Remarks*  
Samantha Forsko, Preservation Specialist, Conservation Center for Art & Historic Artifacts  
  
Todd Lamkin, Director of Collections Services, Michael C. Carlos Museum, Emory University
- 10:45 – 11:15 *Cultural Institutions IPM Overview*  
Robin Bauer Kilgo, Communications & Member Services Manager, ARCS/Contract Registrar
- 11:15 – 12:15 *Stored Product Pests: How to Identify and Implement an Integrated Pest Management Plan*  
Chelle Hartzler, Orkin Technical Services Manager, Rollins Inc.
- 12:15 – 1:45 Lunch (See list of nearby restaurants)
- 1:45 – 2:45 *Monitoring Sites and Collections for Pest Activity*  
Laura Fedynyszyn, Andrew W. Mellon Conservation Fellow, University of Miami Libraries
- 2:45 – 3:00 *Break/Networking*
- 3:00 – 4:00 *Buggin' Out: Addressing and Eliminating Pest Infestations in Museum Collections*  
Sarah Giffin, Assistant Conservator, Rosa Lowinger & Associates
- 4:00 – 4:15 *Closing Remarks*  
Robin Bauer Kilgo, Communications & Member Services Manager, ARCS/Contract Registrar
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November 14th  
10:30 AM —10:45 AM

Title: Opening Remarks

Speakers: Samantha Forsko, Preservation Specialist, Conservation Center for Art & Historic Artifacts

Todd Lamkin, Director of Collections Services, Michael C. Carlos Museum,  
Emory University

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#### ABOUT THE SPEAKERS

**Samantha Forsko** is the Preservation Specialist at the Conservation Center for Art & Historic Artifacts (CCAHA), where she primarily works with institutions and their collections. She conducts on-site preservation needs and risk assessments and assists with preservation and emergency planning. She also develops and presents educational programs and provides technical information to libraries, archives, museums, historic sites, and other cultural institutions.

Before joining CCAHA, Samantha worked at the Los Angeles County Museum of Art as a collections manager. In addition to providing long-term care for the nearly 200,000 permanent collection objects owned by LACMA, she also served on the Emergency Preparedness Committee, responsible for writing, updating, and training the 300 member staff on the implementation of the institution's Emergency Preparedness and Response Plan. She has previously worked as a conservation technician for the Regional Arts and Culture Council and Cascadia Art Conservation Center, both in Portland, Oregon, primarily providing preventive maintenance and care for outdoor public art collections. Samantha received her MA in Arts Management with a focus on Archival and Museum Studies from Claremont Graduate University, in Claremont, California, writing her master's thesis on Emergency Preparedness in Cultural Institutions.

**Todd Lamkin** has served as Director of Collections Services and Chief Registrar at the Michael C. Carlos Museum of Emory University since 2011. He facilitates meetings and workflow for the museum's collections management team of conservators, preparators, and registrars and directly supervises the museum's Collections Services Office which cares for the museum's artwork collection of more than 25,000 objects, its collection's records, artwork imaging, rights and reproduction, CMS databases, and virtual exhibits platforms. Todd manages legal and logistics for the museum's collections and exhibitions including insurance and indemnity, contracts, packing and crating design, transportation, and customs. Todd was previously Registrar at the Henry Morrison Flagler Museum in Palm Beach, Florida from 1998-2000 and Curatorial Assistant at the Maxwell Museum of Anthropology, University of New Mexico, from 1996-1998. He received his MA in Anthropology from the University of New Mexico and his BA in International Studies from American University.

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November 14th

10:45 AM — 11:15 AM

Title: Cultural Institutions IPM Overview

Speaker: Robin Bauer Kilgo, Communications & Member Services Manager, ARCS/Contract Registrar

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#### ABOUT THE SPEAKER

**Robin Bauer Kilgo** holds a BA in Anthropology and an MA in History from Florida State University, as well as a graduate certificate in Museum Studies, specializing in Collections Management and Collections Care, from George Washington University. From 2005-2012 she worked as Registrar, then as Collections Officer for the Seminole Tribe of Florida's Ah-Tah-Thi-Ki Museum. Among other duties, she developed and maintained collections management policies and emergency plans, including the execution of all disaster preparation and recovery operations. During her time at the Tribe's museum she was an integral member of the team who gained accreditation by the American Alliance of Museums-the first tribally owned museum to gain this distinction.

Since 2012 Robin has lived in the Florida Keys, where she assists institutions in collections management, emergency planning and social media needs. She has presented several sessions on collections policies and emergency planning at state, regional and national conferences. Besides working with various museums on collections management projects and emergency planning, Robin is the Communications and Member Services Manager for the Association of Registrars and Collections Specialists (ARCS). Robin is a member of the National Heritage Responders (NHR), Alliance for Response-Miami, an AAM Museums Assessment Program (MAP) reviewer, and the Florida Representative to the Southeastern Registrars Association.



1. History of IPM

- a. Prior to WWII chemicals with heavy metal compounds (lead, mercury, arsenic) used to preserve collections.
- b. Rise of nerve gasses during WWII led to rise of organic compounds used for pest management. Exp. DDT
- c. Users soon found themselves using larger amounts of the compounds as insects became resistant to. Soon led to a chemical crisis culminating in the formation of the EPA in 1970.
- d. From Museumspests.net:
  - i. The term Integrated Pest Management was first used in agriculture beginning in the 1970's in response to growing knowledge about the negative side-effects of pesticide overuse. The approach emphasized the integration of pest biology and cultural practices in controlling insect pests in crops.

2. What is Integrated Pest Management? There are many different definitions of just what IPM is.

- a. From Things Great and Small: Collections Management Policies by John Simmons:
  - i. Integrated Pest Management requires the museum to commit staff time and resources to prevent pests from reaching the collection, monitor the collection for the presence of pests, and use non—toxic means to control pests when possible.
- b. From Museum Registration Methods 5th Edition edited by Rebecca A. Buck & Jean Allman Gilmore: Chapter 6F by Albert Greene and Nancy L. Breish:
  - i. Modern pest control has evolved into a complex, specialized discipline that is often termed IPM. Those responsible for Modern pest control has evolved into a complex, specialized discipline that is often termed IPM. Those responsible for implementing this process should be aware of three principal objectives:1. Protection of Property 2. Protection of Health and Safety 3. Legal compliance
- c. From Wikipedia:
  - i. Museum integrated pest management is the practice of monitoring and managing pest and environmental information with pest control methods to prevent pest damage to collections and cultural heritage.  
[https://en.wikipedia.org/wiki/Museum\\_integrated\\_pest\\_management](https://en.wikipedia.org/wiki/Museum_integrated_pest_management)
- d. @crossman\_AmyL
  - i. #PrevCon18 1 Integrated Pest Management (IPM) is common practice in cultural heritage organisations http://worldwide.It is a safe, ethical&co-ordinated approach to preventing insect pest damage to collections the basic principles can be applied across collection types (10/29/18)

3. Pest Control and Cultural Institutions

- a. Prevention-Strive to minimize or eliminate the resources that pests need to enter or live in a particular area.
- b. Monitoring- Builds awareness of what pests are present in your building, understanding trends, and tracking where pests tend to congregate.
- c. Identification-By identifying pests you can solve problems that invaders have caused to your collections.
- d. Treatment/Solution-How to treat infestation will depend on identifying the pests and just how large the infestation has become (storage area vs. artifact). Commonly done by professionals but good to know what your options are.

e. Hazards-Can vary from old types of pesticides used to making sure modern treatment options won't harm the artifacts or us.

f. @crossman\_AmyL

#PrevCon18 7 The IPM Circle

All of these elements combined result in a best practice approach to IPM and be built upon & tailored to the individual needs of the organisation, collections & building types. Co-ordination by the IPM Manager is essential. (10/29/18)



5:45 AM - 29 Oct 2018

#### 4. Resources

- <https://museumpests.net/>
- <https://www.canada.ca/en/conservation-institute/services/agents-deterioration/pests.html>
- <http://members.efn.org/~ipmpa/ipmintro.html#IPM%20is>
- <https://www.canada.ca/en/conservation-institute/services/agents-deterioration/pests.html>
- [https://en.wikipedia.org/wiki/Museum\\_integrated\\_pest\\_management](https://en.wikipedia.org/wiki/Museum_integrated_pest_management) - Check the references on this one!!



November 14th

11:15 AM — 12:15 PM

Title: Stored Product Pests: How to Identify and Implement an Integrated Pest Management Plan

Speaker: Chelle Hartzler, Orkin Technical Services Manager, Rollins Inc.

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#### SESSION ABSTRACT

Pests can be a major threat to museum collections and storage spaces. Stored product pests in particular are often an issue and are important to monitor and plan for in all these spaces. These pests can damage many types of materials if not addressed and remedied by a robust Integrated Pest Management (IPM) plan.

Stored product pests can be challenging to manage and can be especially detrimental to a museum's historical artifacts. Identifying these pests that could be plaguing your storage spaces will help identify the preventive measures to implement and help keep their presence to a minimum. Learn how to identify and help prevent a stored product pest problem.

#### ABOUT THE SPEAKER

**Chelle Hartzler** is Technical Services Manager for Orkin. She is a board-certified entomologist and provides technical support and guidance across all Rollins brands in the areas of operations, marketing and training. For more information, email [mhartzler@rollins.com](mailto:mhartzler@rollins.com) or visit [www.orkincommercial.com](http://www.orkincommercial.com).

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November 14th  
1:45 PM — 2:45 PM

Title: Monitoring Sites and Collections for Pest Activity

Speaker: Laura Fedynyszyn, Andrew W. Mellon Conservation Fellow, University of Miami Libraries

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SESSION ABSTRACT

This session will teach participants how to monitor their collections and sites for pests. Topics will include how to properly survey sites, how to identify pest damage and activity, and how to record and track the data. Participants will have an opportunity to handle different types of traps and learn how to select traps that will best suit the needs of their collections. Case studies will be presented from a number of different types of institutions including libraries, art galleries and museums.

ABOUT THE SPEAKERS

**Laura Fedynyszyn** is a graduate of Fleming College's Cultural Heritage Conservation and Management Program. After graduation she completed internships in the Conservation Departments of The Canadian Museum of Nature, The City of Ottawa Archives, and The McMichael Canadian Art Collection. She has also worked as an Assistant Conservator in the rare book collection of University of Toronto's Kelly Library and as a Conservation Technician at Library and Archives Canada. While she specializes in Book and Paper Conservation, Fedynyszyn also began the Preventive Conservation program at Cambridge Galleries in Cambridge, Ontario, and in 2017 managed the Conservation Program for the City of Toronto's Public Outdoor Art division. She is currently completing an Andrew W. Mellon Conservation Fellowship at the University of Miami Libraries in Miami, Florida.

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## Monitoring Sites and Collections for Pest Activity

Laura Fedynyszyn (Laurafedy@gmail.com)  
Andrew W. Mellon Conservation Fellow  
University of Miami Libraries

November 14<sup>th</sup>, 2018  
ARCS, 2018 IPM for Cultural Institutions Workshop  
Michael C. Carlos Museum, Atlanta, Georgia

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### Why monitor?

- Helps keep your collections safe!
- Prevention is key
  - Saves money
  - Some insect damage severely impacts the integrity of heritage objects
  - Keeps an infestation from spreading
  - Builds awareness in staff of overall collections care

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### Where to start?

- Writing an IPM policy with guidelines for monitoring
- It will take a while to figure out what is normal for your site
- Consider the first year as your baseline
- Start with a weekly monitoring program (esp. during summer months), can be backed off to bi-monthly if low insect activity is consistently noted

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### Insects Gain Access...

- Through:
  - Doors
  - Windows
  - Gaps in walls
  - Holes
- Come in with:
  - People
  - Artefacts
  - Plants / Flowers
  - Packing materials
  - Storage materials

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### Where to look

### How to look

### What to look for

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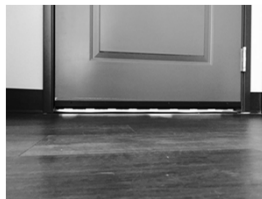
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- If you're just starting your IPM program start with a survey of your building from the top down

Check for any small entry points or holes in:

- The roof
- Window sills
- Door frames
- Degraded weather-stripping
- The base of exterior walls



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Concentrate on dark, undisturbed places

- Back / underside of exhibit cases
- Undisturbed storage boxes for high risk artifacts (natural fibers, textiles, furs, wool, and leather)
- Inside artifacts i.e., wooden furniture

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- Check the base of the hairs on taxidermy and fur



*Insect damaged taxidermy from the Brighton Museum, U.K.*

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**Case Study:** Pest activity at Cambridge Galleries



Angelika Werth. *Ode to Isobel Stanley and Hayley Wickenheiser*. 2003. Collection of Cambridge Galleries, Canada

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**Case Study: Pest Activity at Cambridge Galleries**



Cambridge Galleries Fine Art Vault

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**Check Catchment Areas**

- Windowsills
- Ductwork
- Air conditioning filters



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**Evidence of Pest Activity**

- Live / dead insects
- Casings, insect parts
- Frass (it can look like the material they were eating i.e., wood boring insect frass can look like sawdust)
- Webbing
- New bore holes / exit holes
- Greasy marks (can be evidence of rodents)
- Shredded materials used in rodent nests

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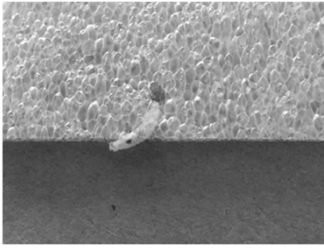
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Webbing clothes moth casing in ethafoam tray liner from the American Museum of Natural History

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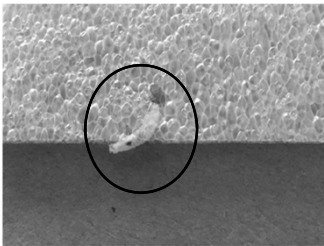
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Webbing clothes moth casing in ethafoam tray liner from the American Museum of Natural History

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Furniture beetle frass and exit holes

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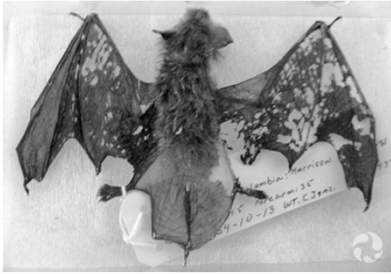
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Insect damaged study specimen from the Canadian Museum of Nature

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Insect damaged study specimens and labels from the Canadian Museum of Nature

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### Good Housekeeping...

- Will make it much easier to detect a new problem vs. old frass / casings
- Will help deter pests as bugs LOVE dust
- Dead bugs can be food for live bugs

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## Monitoring Equipment/ Kit

- Pencil
- Clip board
- A method for capturing the information (notebook, laptop, tablet, etc.)
- Polyethylene bags
- PPE (nitrile gloves, dust mask, ventilator)
- Flash light
- Environmental monitors
- Traps...

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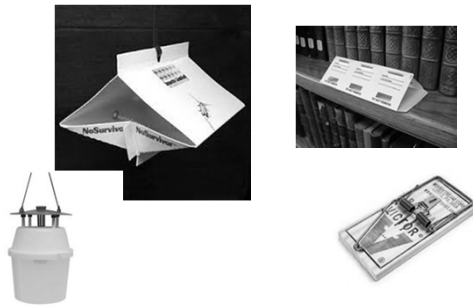
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## Selecting the right trap...



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## Blunder / Sticky Traps

- Great for institutions just starting their IPM program
- Will catch any insect that "blunders" in to it
- Should be replaced every two months (or before that if it's full) to ensure the glue hasn't dried out



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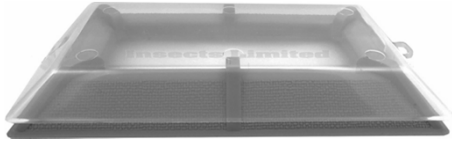
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### Pitfall and Funnel Traps

- Use gravity and a non-friction surface to trap crawling insects
- Used with a pheromone lure
- Great for dusty areas where blunder traps are ineffective



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### Hanging Traps

- Used with pheromone lure for moths and flying beetles



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### Bucket Traps

- Also hangs, uses lure to attract pests and slippery surface to prevent escape



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## Light Traps

- Stun / explode pests when they enter
- Destroys insect so you can't identify / track pests that are attracted to trap



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## Case Study: UV Light Traps at the Canadian Museum of Nature



*Photo courtesy of the Canadian Museum of Nature*

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## Rodent Traps



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### Pheromone Lures

**Pheromones**- chemicals released by insects to communicate behaviors i.e. mate attraction, foraging for food, and defense

- Pheromones are species specific



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### Pheromone Lures

- Come in a wide variety of forms i.e., on tapes, in vials, in flakes, in gels
- You get what you pay for!
- Delivery method must be similar to natural concentration and release rate of species
- Some insects will be repelled by too much pheromone

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### Pheromone Lures

To Use:

- Identify the bug you want to trap
- Find out if there is an available pheromone
- Try to keep entry points closed in the room you are monitoring
- Keep the lure at least 15 feet away from any regularly used doors

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## Pheromone Lures

To Use:

- Set up traps in grid pattern and adjust as you monitor to help pinpoint source
- Remove pheromone from packaging using tweezers and/or gloves (nitrile) and immediately place in trap, never in contact with a collection item, storage container, or display mount

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## Commercially Available Pheromone Lures

- **Moths**
  - Almond Moth, *Ephestia cautella*
  - Angoumois Grain Moth, *Sitotroga cerealella*
  - Brown House Moth, *Hofmannophila pseudospetella*
  - **Casemaking Clothes Moth**, *Tinea pellionella*
  - Indian Meal Moth, *Plodia interpunctella*
  - Mediterranean Flour Moth, *Ephestia kuehniella*
  - Tobacco Moth, *Ephestia elutella*
  - **Webbing Clothes Moth**, *Tineola bisselliella*
- **Beetles**
  - **Black Carpet Beetle**, *Attagenus unicolor*
  - **Brown Carpet Beetle**, *Attagenus elongatus*
  - **Cigarette Beetle**, *Lasioderma serricorne*
  - **Hide Beetle**, *Dermestes maculatus*
  - **Furniture Carpet Beetle**, *Anthrenus flavipes*
  - Guernsey Carpet Beetle, *Anthrenus sarnicus*
  - Larger Grain Borers, *Rhyzopertha dominica*
  - Lesser Grain Borer, *Prostephanus truncatus*
  - Red and Confused Flour Beetles, *Tribolium* spp.
  - **Varied Carpet Beetle**, *Anthrenus verbasci*
  - Warehouse Beetle, *Trogoderma* spp.

Source: Museumpests.net

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## Where to Buy Traps

- Hardware store (rodent traps, basic blunder traps)
- Museum / archival suppliers
- Specialty pest monitoring companies

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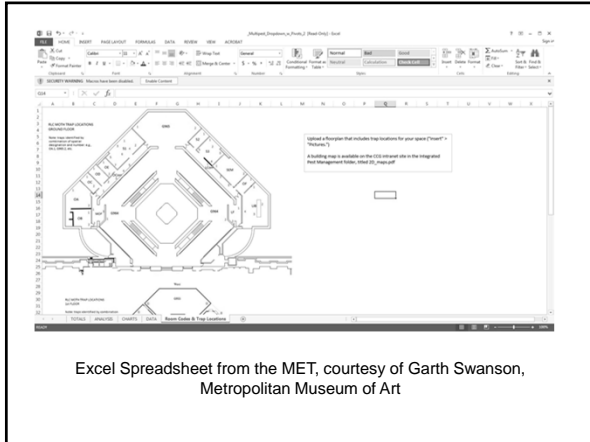
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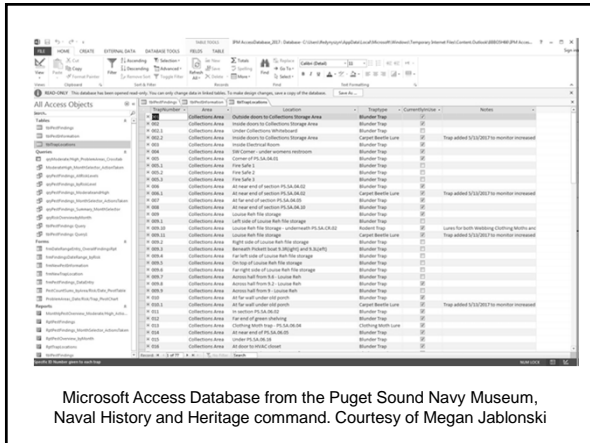
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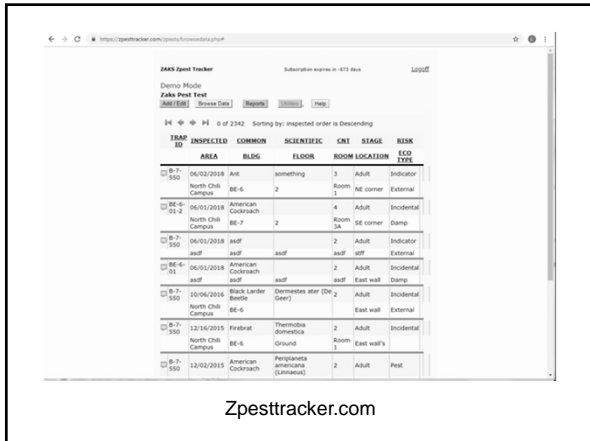




Excel Spreadsheet from the MET, courtesy of Garth Swanson, Metropolitan Museum of Art



Microsoft Access Database from the Puget Sound Navy Museum, Naval History and Heritage command. Courtesy of Megan Jablonski



Zepstracker.com





### Environmental Monitoring

- Multiple environmental monitors are ideal
- If you notice a spike in RH complete a physical inspection of the room
- Wear PPE when necessary



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### Pest Activity and Light

- Some larvae shun light
- Some adults are attracted to it



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### Working with a Pest Management Professional (PMP)

- Useful for large sites lacking staff resources
- Resources for selecting and working with a PMP on [MuseumPests.net](http://MuseumPests.net)
- Make health and safety a priority - discourage the use of pesticides

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### When do you have a Problem?

- Record keeping allows you to pinpoint spikes in activity
- Finding a live insect on a museum object (although this could be a stray)
- Finding live larvae on an object

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### Staff Education

- Educate all staff and volunteers on your IPM program and their involvement (even non-collections care staff)
- Create easy system for insect notification

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### Vizcaya Museum and Gardens IP-P-M Case Study



Vizcaya Museum and Gardens, Miami, Florida

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Vizcaya Museum and Gardens Case Study



Vizcaya Museum and Gardens Interior with live plant Collections

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Vizcaya Museum and Gardens Case Study



Vials of pest evidence used for staff and volunteer education

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Laura Fedynyszyn (Laurafedy@gmail.com)  
Andrew W. Mellon Conservation Fellow  
University of Miami Libraries

With Thanks!



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## Monitoring Sites and Collections for Pest Activity

Laura Fedynyszyn, Andrew W. Mellon Conservaiton Fellow, University of Miami Libraries  
Laurafedy@gmail.com

### Bibliography

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Kigawa, Rlike. Strang, Tom. "Agent of Deterioration: Pests." Canadian Conservation Institute. 2018.  
<http://www.canada.ca/en/conservatoion-institute/services/agents-deterioration/pests.html>

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Quigley, Mike. "Responding to a Potential Disaster: Moths in the Ethnographic Collections at the American Museum of Natural History." Poster. 2017

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Strang, Tom. *Studies in Pest Control for Cultural Property*. Gothenburg: University of Gothenburg. 2012

Museumpests.net: A Product of the Integrated Pest Management Working Group.  
<http://www.museumpests.net>

- "Monitoring"
- Ryder, Suzanne. Kelly, Claire. Mendez, Armando. "*Tineola bisselliella* at the Natural History Museum, London." Presented at MuseumPests 2014
- "Tips for Hiring a Pest Management Professional."
- "IPM Guide for PMPs in Museums & Galleries"
- PestList- the Museumpests.net list serve

November 14th  
3:00 PM — 4:00 PM

Title: Buggin' Out: Addressing and Eliminating Pest Infestations in Museum Collections  
Speaker: Sarah Giffin, Assistant Conservator, Rosa Lowinger & Associates

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ABOUT THE SPEAKER

**Sarah Giffin** is the Assistant Conservator at the Los Angeles studio for RLA Conservation, Inc. Sarah graduated with an M.A. in Principle of Conservation from University College London (UCL) in 2014, and an M.Sc. in Conservation for Archaeology and Museums from UCL in 2016. In the past she has worked on historic and ethnographic objects for the National Park Service Collection Conservation Branch in Lowell, MA, and for the Horniman Museum in London. She currently works on the conservation of contemporary and modern sculpture in both public and private collections.

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# INTEGRATED PEST MANAGEMENT FOR CULTURAL INSTITUTIONS

*Presented by the Association of Registrars and Collections Specialists  
and Conservation Center for Art & Historic Artifacts*

November 14-15, 2018 — Atlanta, GA

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## DAY TWO AGENDA

- 9:30 – 9:45      *Recap/Welcome*  
Robin Bauer Kilgo, Communications & Member Services Manager, ARCS/  
Contract Registrar
- Todd Lamkin, Director of Collections Services, Michael C. Carlos Museum,  
Emory University
- 9:45 – 10:45      *Something Wicked This Way Comes: Hazardous Pesticides in Museums*  
Elise LeCompte, Registrar and Coordinator for Museum Health and  
Safety for the Florida Museum of Natural History
- 10:45 – 11:00      *Break/Networking*
- 11:00 – 12:00      *Practical Activity IPM: Case Files*  
Robin Bauer Kilgo, Communications & Member Services Manager, ARCS/  
Contract Registrar
- Conservation Staff, Michael C. Carlos Museum, Emory University
- 12:00 – 12:15      *Closing Remarks*  
Samantha Forsko, Preservation Specialist, Conservation Center for Art &  
Historic Artifacts & ARCS Board Member
- 12:30 — 1:30      *Optional tour of Carlos Museum*

November 15th  
9:30 AM—9:45 AM

Title: Recap & Welcome

Speaker: Robin Bauer Kilgo, Communications & Member Services Manager,  
ARCS/Contract Registrar

Todd Lamkin, Director of Collections Services, Michael C. Carlos Museum,  
Emory University

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ABOUT THE SPEAKERS

**Robin Bauer Kilgo** holds a BA in Anthropology and an MA in History from Florida State University, as well as a graduate certificate in Museum Studies, specializing in Collections Management and Collections Care, from George Washington University. From 2005-2012 she worked as Registrar, then as Collections Officer for the Seminole Tribe of Florida's Ah-Tah-Thi-Ki Museum. Among other duties, she developed and maintained collections management policies and emergency plans, including the execution of all disaster preparation and recovery operations. During her time at the Tribe's museum she was an integral member of the team who gained accreditation by the American Alliance of Museums-the first tribally owned museum to gain this distinction.

Since 2012 Robin has lived in the Florida Keys, where she assists institutions in collections management, emergency planning and social media needs. She has presented several sessions on collections policies and emergency planning at state, regional and national conferences. Besides working with various museums on collections management projects and emergency planning, Robin is the Communications and Member Services Manager for the Association of Registrars and Collections Specialists (ARCS). Robin is a member of the National Heritage Responders (NHR), Alliance for Response-Miami, an AAM Museums Assessment Program (MAP) reviewer, and the Florida Representative to the Southeastern Registrars Association.

**Todd Lamkin** has served as Director of Collections Services and Chief Registrar at the Michael C. Carlos Museum of Emory University since 2011. He facilitates meetings and workflow for the museum's collections management team of conservators, preparators, and registrars and directly supervises the museum's Collections Services Office which cares for the museum's artwork collection of more than 25,000 objects, its collection's records, artwork imaging, rights and reproduction, CMS databases, and virtual exhibits platforms. Todd manages legal and logistics for the museum's collections and exhibitions including insurance and indemnity, contracts, packing and crating design, transportation, and customs. Todd was previously Registrar at the Henry Morrison Flagler Museum in Palm Beach, Florida from 1998-2000 and Curatorial Assistant at the Maxwell Museum of Anthropology, University of New Mexico, from 1996-1998. He received his MA in Anthropology from the University of New Mexico and his BA in International Studies from American University.

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November 15th  
9:45AM—10:45AM

Title: Something Wicked this Way Comes: Hazardous Pesticides in Museums

Speaker: Elise LeCompte, Registrar and Coordinator for Museum Health and Safety for the Florida Museum of Natural History

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#### SESSION ABSTRACT

This presentation will examine the history of pesticide treatments of museum collections, other uses of pesticides within museums, the safe handling and use of contaminated collections, and methods used to protect staff and visitors.

#### ABOUT THE SPEAKER

**Elise LeCompte** is Registrar and Coordinator for Museum Health and Safety for the Florida Museum of Natural History. Ms. LeCompte has served as collections manager, exhibit registrar, and conservation technician at museums in Florida, and consults on collections management, curation, exhibit design, and artifact treatment for museums throughout the southeast. She organizes workshops and does presentations on these topics as well. She has several publications on collections management and artifact conservation. Ms. LeCompte is a member of several international, national, regional, and state museum and conservation organizations. She serves as an accreditation and museum assessment program reviewer for the American Alliance of Museums, council member and coordinator of the Southeastern Museums Conference Career Center, Travel Grants Coordinator for the Society for the Preservation of Natural History Collections, and mentor for the Florida Association of Museums Connecting to Collections program. She is also an adjunct professor for the University of Florida Museum Studies program (teaching collections management and museum ethics), as well as the Johns Hopkins University Museum Studies Program (teaching collections management). Ms. LeCompte holds an M.A. in archaeology and chemistry from the University of Florida and a B.A. in anthropology from the Johns Hopkins University.

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## CCAHA/ARCS

### INTEGRATED PEST MANAGEMENT FOR CULTURAL INSTITUTIONS

#### *Something Wicked this Way Comes: Hazardous Pesticides in Museums* Presentation by Elise V. LeCompte, Day 2, Thursday, Nov. 15, 2018

#### Presentation Outline

##### I. Introduction

- a. Registrar and Coordinator of Health and Safety at the Florida Museum of Natural History.
- b. Background: Minor in chemistry. Familiarity with the nature of many hazardous chemicals, their effects on collections and humans, and their safe use, removal and disposal.
- c. The presentation will examine the history of pesticide treatments of museum collections, other uses of pesticides within museums, the safe handling and use of contaminated collections, and methods used to protect staff and visitors.

##### II. The History of Pesticide Use in Museums

- a. Why were pesticides used on museum collections?
  - i. Pests love organic materials (e.g., wood, leather, fiber, cloth) as a food source.
  - ii. As museum collections professionals, our number one priority is to protect our collections from harm.
  - iii. In the past the only option people thought was available was the use of chemical pesticides. Historically the knowledge of the effects of these pesticides on humans were not well known. People often did not connect the application of chemicals and the handling of contaminated items to their ill-effects (e.g. the “mad hatter” syndrome of hat makers in earlier centuries, cancers that occurred in later life).
  - iv. As our knowledge increased concerning the toxicity of many chemicals, federal regulations were imposed to protect people and the environment. Businesses, including museums, began to look for safer ways to provide pest control.
- b. Chemicals used
  - i. Including but not limited to: arsenic, mercuric chloride, strychnine, DDT, methyl bromide, ethylene oxide, vapona (e.g. Shell No-Pest strips), sulfuryl fluoride (e.g., Vikane), naphthalene (e.g., mothballs), paradichlorobenzene (e.g., mothballs).
- c. Toxicity of the chemicals used
  - i. Level of toxicity depends on:
    1. The nature of the chemical itself.
    2. The method of entry into the body
      - Ingestion
      - Absorption
      - Inhalation
    3. Exposure levels and time duration.
    4. The application process. (Discussed later in the application.)

- ii. Effects on collections and personnel (especially from arsenic and mercuric chloride poisoning).
- iii. Initial application.
  - 1. Some chemicals are only hazardous at the time of application.
  - 2. Toxicity levels depend on the application process, and the skill and training of the individual applying the pesticide.
- iv. Residue levels and strength over time.
  - 1. Some chemicals remain hazardous forever (!) (especially arsenic and mercuric chloride).
  - 2. Toxicity levels depend on prescribed techniques for labeling, handling and using the objects and specimens.
- d. Dates of use
  - i. From the eighteenth century until relatively recently (e.g., 1980s).
  - ii. Some products are still used today (e.g., Vikane).
- e. Application methods
  - i. Including but not limited to: dusting, spraying, aerosol bombs, fogging, gassing.

### III. Other Uses of Pesticides within Museums

- a. Building-wide applications (inside and outside)
- b. Effects on collections and personnel.

### IV. Testing

- a. Testing is often difficult and cannot be carried out by a museum collections staff member, unless they have certified training. Even simple tests require some knowledge of laboratory procedures, how to properly use toxic chemicals, and how to interpret the results. Trained conservators or analytical chemists often have to conduct the tests.
- b. Testing methods include, but are not limited to, the swab test, the spot test, commercially treated test papers, a screening kit, and analytical tests (e.g., X-ray spectroscopy, X-ray fluorescence, gas chromatography, gas chromatography/mass spectroscopy [GC/Mass Spec])
- c. The process of obtaining representative samples from an object or specimen is not easy.
- d. Sampling protocols must be developed that are appropriate to the nature of the material and the type of object being tested.
- e. Two kinds of questions should be asked:
  - i. What is the particular substance? (Qualitative)
  - ii. How much is present? (Quantitative)

### V. The Safe Storage of Contaminated Collections

- a. Labeling



- b. Isolation
- c. Education and training of staff.

## VI. The Safe Handling of Contaminated Collections

- a. Hands off!
- b. Protective Personnel Equipment (PPE).
  - i. What it is.
  - ii. How to wear/use it.
  - iii. How to remove it.
  - iv. How to dispose of it.
  - v. Use of respirators.
- c. Education and training of staff.

## VII. The Safe Use of Contaminated Collections

- a. Research
  - i. Education of staff and visiting researchers.
    - 1. If known, tell them what chemical residues contaminate the collections with which they will be working.
    - 2. Describe the possible health hazards of handling the objects and specimens.
  - ii. Train visiting researchers and staff
    - 1. To recognize the labeling that accompanies contaminated collections.
    - 2. How to protect themselves using the proper PPE.
      - a. What to wear, how to remove the PPE, and how to dispose of it.
      - b. How to use a respirator. The federal regulations associated with wearing a respirator.
      - c. How to take off a pair of gloves safely.
  - iii. Make sure staff and visiting researchers use prescribed, safe handling practices and PPE.
- b. Exhibit
  - i. Education of exhibits staff.
    - 1. If known, tell them what chemical residues contaminate the collections with which they will be working.
    - 2. Describe the possible health hazards of handling the objects and specimens.
  - ii. Train exhibits staff.
    - 1. To recognize the labeling that accompanies contaminated collections.
    - 2. How to protect themselves using the proper PPE.
      - a. What to wear, how to remove the PPE, and how to dispose of it.
      - b. How to use a respirator. The federal regulations associated with wearing a respirator.
      - c. How to take off a pair of gloves safely.
  - iii. Make sure exhibits staff use prescribed, safe handling practices and PPE.
- c. Teaching
  - i. Hands off!!
  - ii. Isolation from visitors.

- iii. Use another, non-contaminated object or specimen.

#### VIII. Decontamination of Contaminated Objects and Specimens

- a. There is often no good way to decontaminate objects and specimens contaminated with pesticide residues.
- b. Even if there were successful methods to remove the residues, the residues would be considered hazardous waste, would require special methods to dispose of them, and would have the capability to continue to contaminate people and the environment if not disposed of properly.

#### IX. Repatriation, Restitution and Contaminated Collections

- a. The potential return of contaminated collections raises concerns about the possible injury of those to whom the objects are being returned, as well as contamination of building spaces and the environment.
- b. Once an object or specimen “goes home,” the museum relinquishes control over what happens with that item (e.g., how it is stored, handled, displayed, and used).
- c. Accurate disclosure of the presence and risk of residual pesticides on repatriated/returned objects and specimens is the legal and ethical responsibility of the museum. However, it is often difficult to provide such information because the records regarding pesticide use are often vague or non-existent.
- d. When dealing with this situation, it often takes a team of diverse parties, including, but not limited to, tribal representatives (in the case of repatriation) or representatives of the individual or group to whom the item is being returned (in the case of restitution), museum collections professionals, conservators, chemists, medical toxicologists, industrial hygienists, and public health officials.

#### X. Conclusion

- a. Wide-spread pesticide use since the eighteenth century has left us with hazardous collections.
- b. Handling and use of objects and specimens contaminated with pesticides can be dangerous to staff, researchers and visitors.
- c. There are ways that we can deal safely with contaminated museum collections, including identification of the pesticide, the amount present and the toxicity level, use of proper labeling, storage, handling and exhibit techniques, and sometimes decontamination.
- d. There are safe methods to deal with contaminated collections, including using experts to help with chemical identification and testing, use of proper PPE, and prescribed policies and procedures for labeling, handling and using the objects and specimens.

XI. Bibliography

- a. See handout in participant's packet.

XII. Helpful Publications and Resources

- a. See handout in participant's packet.

Contact Information:

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## CCAHA/ARCS

### INTEGRATED PEST MANAGEMENT FOR CULTURAL INSTITUTIONS

***Something Wicked this Way Comes: Hazardous Pesticides in Museums***  
Presentation by Elise V. LeCompte, Day 2, Thursday, Nov. 15, 2018

#### Helpful Publications and Resources

##### **Publications:**

Canadian Conservation Institute (CCI), Notes, <https://www.canada.ca/en/conservation-institute/services/conservation-preservation-publications/canadian-conservation-institute-notes.html>

- N1/7, Mercury in Museum Collections
- N3/1 Preventing Infestations: Control Strategies and Detection Methods
- N3/2 Detecting Infestations: Facility Inspection Procedure and Checklist
- N3/3 Controlling Insect Pests with Low Temperature
- N3/4 Psocids or "Book Lice": a Warning of Dampness

CCI, Technical bulletins, <https://www.canada.ca/en/conservation-institute/services/conservation-preservation-publications/technical-bulletins.html>

*Combatting Pests of Cultural Property*, TB #29,  
[http://publications.gc.ca/collections/collection\\_2015/pc-ch/CH57-3-1-29-2009-eng.pdf](http://publications.gc.ca/collections/collection_2015/pc-ch/CH57-3-1-29-2009-eng.pdf)

*Solving Museum Insect Problems: Chemical Control*, TB #15,  
[http://publications.gc.ca/collections/collection\\_2016/pch/NM95-55-15-1992-eng.pdf](http://publications.gc.ca/collections/collection_2016/pch/NM95-55-15-1992-eng.pdf)

*Controlling Vertebrate Pests in Museums*, TB #13,  
[http://publications.gc.ca/collections/collection\\_2016/pch/NM95-55-13-1991-eng.pdf](http://publications.gc.ca/collections/collection_2016/pch/NM95-55-13-1991-eng.pdf)

Charola, A. Elena Charola and Robert J. Koestler (eds). 2010. *Pesticide Mitigation in Museum Collections: Science in Conservation Proceedings from the MCI Workshop Series*. Smithsonian Institution Scholarly Press: Washington, DC.  
[http://www.sil.si.edu/smithsoniancontributions/museumconservation/pdf\\_hi/scmc-0001.pdf](http://www.sil.si.edu/smithsoniancontributions/museumconservation/pdf_hi/scmc-0001.pdf)

Hawks, Catharine, Michael McCann, Kathryn Makos, Lisa Goldberg, David Hinkamp, Dennis Ertel, and Patricia Silence (eds). n.d. *Health and Safety for Museum Professionals*. AIC and SPNHC. <http://www.spnhc.org/30/reference-books>

National Park Service (NPS), Conserve O Grams,  
[https://www.nps.gov/museum/publications/conservoogram/cons\\_toc.html](https://www.nps.gov/museum/publications/conservoogram/cons_toc.html);  
[https://www.nps.gov/museum/publications/conservoogram/cons\\_toc.html#collectionpreservation](https://www.nps.gov/museum/publications/conservoogram/cons_toc.html#collectionpreservation)

- 2/1 Hazardous Materials Health and Safety Update
- 2/2 Ethylene Oxide Health and Safety Update
- 2/3 Arsenic Health and Safety Update
- 2/4 Dichlorvos (Vapona) Update
- 2/8 Hantavirus Disease Health and Safety Update
- 2/10 Hazardous Materials in Your Collections

2/13 Introduction to Respirator Use in Collections Management  
2/14 DDT Health and Safety Update  
2/16 Chronology of Pesticides Used on National Park Service Collections  
2/16 Additional Graph of Pesticide Chronology  
2/17 Physical Properties and Health Effects of Pesticides Used on National Park Service Collections  
2/19 Guidelines for the Handling of Pesticide Contaminated Collections  
3/6 An Insect Pest Control Procedure: The Freezing Process  
3/7 Monitoring Insect Pests with Sticky Traps  
3/8 Controlling Insect Pests: Alternatives to Pesticides  
3/9 Anoxic Microenvironments: A Treatment for Pest Control  
3/11 Identifying Museum Insect Pest Damage

NPS. 2014. Chapter 5: Biological Infestations. In: *The Museum Handbook Part I: Museum Collections*. pp. 5:1-5:87. <https://www.nps.gov/museum/publications/MHI/MHI.pdf>

NPS. 2003. Chapter 11: Curatorial Health and Safety. In: *The Museum Handbook Part I: Museum Collections*. pp. 11:1-11:33. <https://www.nps.gov/museum/publications/MHI/MHI.pdf>

NPS. 2000. Appendix H: Curatorial Health and Safety. In: *The Museum Handbook Part I: Museum Collections*. pp. H:1-H:5. <https://www.nps.gov/museum/publications/MHI/MHI.pdf>

NPS. 2003. "Safe Handling and Survey," *Curatorial Safety*, <https://www.nps.gov/museum/safety/pdfs/safe-handling-and-surveying.pdf>

Northeast Document Conservation Center (NEDCC). 1999. Preservation Leaflet #3.10 Integrated Pest Management, <https://www.nedcc.org/free-resources/preservation-leaflets/3.-emergency-management/3.10-integrated-pest-management>

Oedgaard, Nancy, Alyce Sadongei, and Associates. 2005. *Old Poisons, New Problems: A Museum Resource for Managing Contaminated Cultural Materials*. Altamira Press, a division of Rowman & Littlefield Publishers, Inc.: Lanham.

For helpful references, check this out:

Bibliography, pp. 109-118 (Lots of good references here if you wish to pursue this subject further.)

Pinniger, David. 2001. *Pest Management in Museums, Archives and Historic Houses*. London: Archetype Publications Ltd.

Rose, Carolyn L., Catharine A. Hawks, and Hugh H. Genoways (eds.). 1995. *Storage of Natural History Collections: A Preventative Approach*. SPNHC, York Graphics: York, PA.

"Pest Management," Wendy Claire Jessup, pp. 211-220

"Pest Monitoring Case Study," Jeremy F. Jacobs, pp. 221-232

"Health and Environmental Safety," Katherine A. Makos and Elizabeth C. Dietrich, pp. 233-252.

Society for the Preservation of Natural History Collections (SPNHC). *Collections Forum*. <http://www.spnhc.org/20/collection-forum>. The issues of this journal contain many good articles on pesticides used on museum collections, hazards of pesticides, testing for pesticides, and

methods of pest control. See the bibliography in Oedgaard, Nancy, Alyce Sadongei, and Associates. 2005. *Old Poisons, New Problems: A Museum Resource for Managing Contaminated Cultural Materials* for some examples.

SPNHC Leaflets, <http://www.spnhc.org/26/leaflets>

Leaflet #1: Anoxic Microenvironments: A Simple Guide. 1996

### **Resources:**

American Institute for Conservation of Historic and Artistic Works (AIC), Health and Safety, <http://www.conservation-us.org/specialty-topics/health-safety#.W9JUFOJReUk>

AIC. Health & Safety: Risk Management for Pesticide-Contaminated Collections, [http://www.conservation-wiki.com/wiki/Health\\_%26\\_Safety:\\_Risk\\_Management\\_for\\_Pesticide-Contaminated\\_Collections](http://www.conservation-wiki.com/wiki/Health_%26_Safety:_Risk_Management_for_Pesticide-Contaminated_Collections)

Canadian Conservation Institute (CCI), Preventive conservation guidelines for collections, <https://www.canada.ca/en/conservation-institute/services/preventive-conservation/guidelines-collections.html>

CCI, Care of objects and collections, <https://www.canada.ca/en/conservation-institute/services/care-objects.html>

CCI, Agents of deterioration: Pests, <https://www.canada.ca/en/conservation-institute/services/agents-deterioration/pests.html>

Museum Pest.net, <https://museumpests.net/>

Museum Pest.net. Solutions – Information on Pesticides, <https://museumpests.net/solutions-information-on-pesticides/>

Museum Pest.net. 2014 Conference – IPM Policy, Health, and Safety, <https://museumpests.net/conferences/museumpests-2014-conference/museumpests-2014-conference-ipm-policy-health-and-safety/>

Oedgaard, Nancy, Alyce Sadongei, and Associates. 2005. *Old Poisons, New Problems: A Museum Resource for Managing Contaminated Cultural Materials*. Altamira Press, a division of Rowman & Littlefield Publishers, Inc.: Lanham.

For helpful resources and information, check out:

Safety Equipment and Chemical Supplies Directory, pp. 91-92

Guide to Reading Material Safety Data Sheets, pp. 93-94

Health and Safety Information Resources, pp. 95-96

Agencies for Contacting Professionals and Consultants, pp. 97-99

Pesticide Information Websites, pp. 101-102

## CCAHA/ARCS

### INTEGRATED PEST MANAGEMENT FOR CULTURAL INSTITUTIONS

***Something Wicked this Way Comes: Hazardous Pesticides in Museums***  
Presentation by Elise V. LeCompte, Day 2, Thursday, Nov. 15, 2018

#### Bibliography

Canadian Conservation Institute (CCI). 2002. N1/7: Mercury in Museum Collections, *CCI Notes*, Minister of Public Works and Government Services, Canada.

<https://www.canada.ca/en/conservation-institute/services/conservation-preservation-publications/canadian-conservation-institute-notes/mercury-museum-collections.html>

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November 15th

11:00 AM — 12:00 PM

Title: Practical Activity IPM: Case Files

Speaker: Robin Bauer Kilgo, Communications & Member Services Manager,  
ARCS/Contract Registrar

Conservation Staff, Michael C. Carlos Museum, Emory University

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## ***IPM: CASE FILES***

Participants to the workshop will break up into groups to examine 5 IPM Case Files. For each case file you will need to identify the pests and answer the following questions:

## SUSPECTS

- House Mouse



- Bed Bug



- Silverfish



- German Cockroaches



## SUSPECTS

- Powderpost Beetle



- Subterranean Termite



- Carpenter Bee



- Webbing Clothes Moth



## **QUESTION #1**

How was the pest introduced into the Museum?  
(What were the indicators? How did you get to that decision?)

## **QUESTION #2**

How would you address or treat the infestation?

## **QUESTION #3**

How do you stop it from happening again?  
(What changes can you make to either procedures, your building, etc  
to stop this kind of infestation from happening again.)

