



AMERICAN  
INSTITUTE FOR  
CONSERVATION  
OF HISTORIC AND  
ARTISTIC WORKS

---

Article: Bitten by the bug: The Integrated Pest Management Working Group's collaborative approach to providing IPM resources for the museum community

Author(s): Rachael Perkins Arenstein, Neil Duncan, Lisa Elkin, Richard Monk, and Chris Norris

Source: *Objects Specialty Group Postprints, Volume Fifteen, 2008*

Pages: 69-84

Compilers: Howard Wellman, Christine Del Re, Patricia Griffin, Emily Hamilton, Kari Kipper, and Carolyn Riccardelli

© 2008 by The American Institute for Conservation of Historic & Artistic Works, 1156 15<sup>th</sup> Street NW, Suite 320, Washington, DC 20005. (202) 452-9545

[www.conservation-us.org](http://www.conservation-us.org)

Under a licensing agreement, individual authors retain copyright to their work and extend publications rights to the American Institute for Conservation.

Objects Specialty Group Postprints is published annually by the Objects Specialty Group (OSG) of the American Institute for Conservation of Historic & Artistic Works (AIC). A membership benefit of the Objects Specialty Group, *Objects Specialty Group Postprints* is mainly comprised of papers presented at OSG sessions at AIC Annual Meetings and is intended to inform and educate conservation-related disciplines.

Papers presented in *Objects Specialty Group Postprints, Volume Fifteen, 2008* have been edited for clarity and content but have not undergone a formal process of peer review. This publication is primarily intended for the members of the Objects Specialty Group of the American Institute for Conservation of Historic & Artistic Works. Responsibility for the methods and materials described herein rests solely with the authors, whose articles should not be considered official statements of the OSG or the AIC. The OSG is an approved division of the AIC but does not necessarily represent the AIC policy or opinions.



# **BITTEN BY THE BUG: THE INTEGRATED PEST MANAGEMENT WORKING GROUP'S COLLABORATIVE APPROACH TO PROVIDING IPM RESOURCES FOR THE MUSEUM COMMUNITY**

RACHAEL PERKINS ARENSTEIN, NEIL DUNCAN,  
LISA ELKIN, RICHARD MONK, AND CHRIS NORRIS

---

## **ABSTRACT**

An effective integrated pest management program requires the involvement of staff throughout an institution, including conservators, collection managers, facilities staff, and administrators. These individuals all have important roles to play but due to other priorities they may not have the time necessary to fully implement and operate their integrated pest management program. This was the guiding principle behind the formation of the Integrated Pest Management Working Group, an ad hoc collaboration of conservators, collection managers, pest management professionals, and others from the United States and abroad.

This group does not teach integrated pest management, as participants are expected to already be familiar with general integrated pest management principles. Instead, the Integrated Pest Management Working Group focuses on providing resources to make it easier for the broader museum community to develop and implement their own integrated pest management programs. The goal of the Group is to promote and facilitate good integrated pest management practices and collaboration at the personal and institutional levels through the development and online distribution of training materials and other resources.

A brief history will be presented on the creation of the group, from a simple collaboration on a single computer program by two institutions, to a large group with over 60 members from the United States, Canada, and Europe, and an annual meeting that attracts 25-30 participants each year. This presentation will describe some of the initiatives being pursued by the group and available on the website [www.museumpests.net](http://www.museumpests.net), including the developing online resources for collections care personnel to use in identifying real or potential threats to their collections; assessing the need for integrated pest management databases; developing training resources, both printed and electronic, for museum staff with pest management responsibilities; and compiling best practices documents and information regarding various treatment methods.

Additionally, the paper will also examine the challenges created by the loose, ad hoc organizational structure, the distance between collaborators, and the lack of dedicated staff time in keeping such collaboration moving forward so that each institution need not "reinvent the wheel."

## **1. INTRODUCTION**

Heritage Preservation's Heritage Health Index 2005 survey found that the most urgent preservation need at US collecting institutions is environmental control which, for the purposes of their project, encompassed temperature, relative humidity, light, pollutants, and pest control. In a breakdown that examined the needs of museum and historical societies that together account for 22% of the 4.8 billion collections items in the United States, approximately 75% of these institutions require an integrated pest management program with 20% of that being an urgent need.

Those numbers aren't all that surprising. Anyone who has tried to implement or carry out an integrated pest management program is aware that it is a time consuming task and therefore easy to switch to a back burner in favor of more pressing or easily accomplished projects. What is surprising is that, as a profession, conservators have not yet adequately helped address this need better. Rather than addressing challenges in discipline specific groups like objects, paintings, and paper, as is done at the American Institute for Conservation annual meeting, the Heritage Health Index survey confirmed that the best way to protect collections is by focusing on

preventive conservation which benefits from cross-discipline collaboration. This is particularly true with projects such as environmental and pest monitoring, which often must be done institution-wide to maximize their efficiency and efficacy. These types of projects require collaboration that must be creatively conceived and executed.

The ongoing effort of the Integrated Pest Management Working Group, known as the IPM-WG, to collaboratively address the needs of collection holding institutions' integrated pest management projects is examined here with the goals of: introducing AIC members to the resources currently available on the group's website, [www.museumpests.net](http://www.museumpests.net), convincing conservators to join the group and loan their time and talents to the cause, and presenting the IPM-WG's efforts as a model for other cross-discipline preservation projects.

## 2. WHAT IS INTEGRATED PEST MANAGEMENT (IPM)?

IPM is a strategy that emphasizes prevention and minimizes the use of toxic chemicals to manage and eliminate pests. A functional IPM plan works to reduce the possibility of pests accessing collections, monitors levels of pest activity, and, if necessary, deals with remedial treatment. The downside to IPM is that it is time consuming and, like some other preventive care projects, it can be hard to put a price tag on the benefits of the time expenditures. However, as pesticides and fumigants are increasingly limited for institutional use, a reasonable IPM plan is really the only viable option for preventing infestations in collections.

## 3. HISTORY OF THE IPM-WG

### 3.1 INITIAL COLLABORATION

The seeds of the IPM-WG began out of straightforward bi-institutional collaboration based on a desire not to reinvent the wheel while working on integrated pest management issues for the Move Project at the National Museum of the American Indian (NMAI) in 2001. During the Move Project, as well as now, the institution had a firm commitment to good pest management practices. However, the purpose of the work in the NMAI's Bronx Research Branch (RB) facility was to move the collection out, so while preventive measures such as pest or environmental monitoring were conducted, it was with an eye on the clock, as every staff hour spent on those tasks were ones not spent on the core mission (fig. 1). The collection assistant who carried out the pest monitoring had already moved from a paper based recording system for tracking her pest data to an Excel spreadsheet. But, other than a statistical breakdown of pests each month, there was little she could do with the data (fig. 2). NMAI staff members remembered that colleagues at the American Museum of Natural History (AMNH) had created a particularly good Access database that not only allowed them to record their pest captures and present the data in graphical form (fig. 3), but also to map them on a floor plan, giving them a visual perspective that was particularly useful in identifying hotspots of pest activity in the building (fig. 4).

In a meeting with the creators of the AMNH Pest Manager Database, Neil Duncan, Chris Norris, Lisa Kronthal Elkin, and George Ramos, NMAI Research Branch staff offered to supply information on how to use bar codes and scanning technology to speed data entry if AMNH would share their database and allow it to be modified for NMAI's needs (fig. 5). There was a steep learning curve in adapting their program but, several months after the first meeting, NMAI was able to use the database at the RB facility.

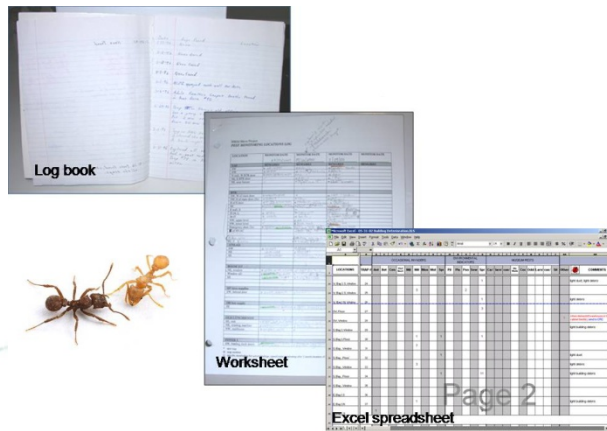


Fig. 2. Evolution of data recording during the NMAI move  
(Photograph by Rachael Perkins Arenstein)

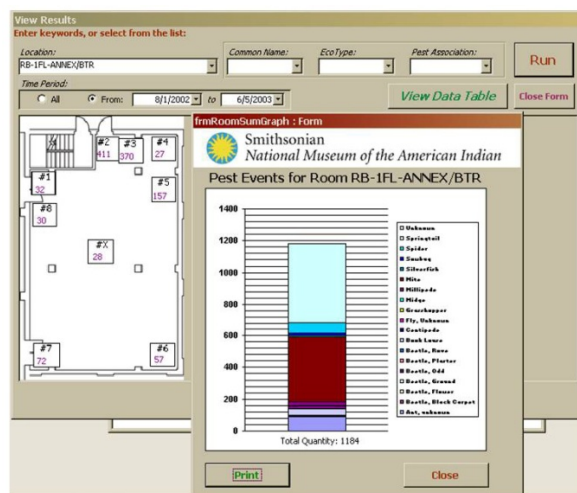


Fig. 4. Screen captures of floor plan and graphical outputs from the AMNH Pest Manager Database

### Bar code labels for sticky traps



Fig. 5. Barcodes and scanners in use at NMAI to speed data entry on pest names and trap numbers  
(Photograph by Rachael Perkins Arenstein)

Ultimately, though, the question was, did using the Pest Manager Database save time in completing pest-monitoring tasks? Discounting the time spent setting up the program and researching the contribution of scannable barcodes (not inconsequential expenditures), using the program was found to save time, dropping bimonthly monitoring times to from 19 to 16 hours. Once scannable barcode labels for the insect traps were introduced, monitoring times dropped to about 10 hours. Use of the program also increased the quality of the data and so the project was considered a success (fig. 6).

## Monitoring Times

- **19 hours** without database (bimonthly collection)
- **16 hours** with database (bimonthly collection)
- **10 hours** with database and scanning (monthly collection)



Fig. 6. Identification of pests at NMAI (Photograph by Rachael Perkins Arenstein)

### 3.2 WIDENING THE COLLABORATIVE SCOPE

During one of the AMNH-NMAI meetings, the idea of having an IPM “think tank” was discussed. The goal was to begin communication with some of the other colleagues known to be working in this area, such as Richard Monk, a collection manager at the Museum of Texas Tech University and Tom Strang of the Canadian Conservation Institute (CCI). In 2002, the AMNH staff arranged the first meeting with staff from all these institutions present and one important addition – Leon Zak of Zak Software. Leon is the lead programmer for the Rochester Institute of Technology’s (RIT) Image Permanence Institute’s (IPI) Climate Notebook software and his presence was supported by IPI after their director Jim Reilly was convinced of the relationship between environmental conditions and pest activity.

Discussion during this initial meeting focused on development of databases with potential for mapping pest activity, identification of essential data fields for databases, and the need to survey the community regarding IPM activities and needs. Shortly after this one-day meeting the group’s first product was created, courtesy of Leon: a listserve for IPM related topics now known as the Pestlist. At its conception the list was a way for the 11 members present at that first meeting to communicate. Now, six years later, this e-mail list has over 600 subscribers and serves as a venue for discussion of IPM, pest treatment and insect identification issues. This gives people immediate access to experts like David Pinniger or the staff of Insect Limited to help with their issues.

It is important to point out that at this initial meeting, only three of the 11 members were conservators. The rest were collection managers, administrators, a conservation scientist, and the programmer. This was an essential element of the group’s success, as it is for the success of an



effective integrated pest management program, which requires the involvement of staff throughout an institution.

Two years later Richard Monk moved from Texas Tech to take up the position of curatorial associate of mammalogy at AMNH and revived the idea of the pest group. Invitations were sent to the preservation community via the Conservation DistList and the Natural History Collections listserve, NHCOLL-L, and in February 2005, with 19 people in attendance, the second meeting was begun with a self-imposed mandate to assist the museum community with IPM issues. Participants were present from the following institutions: American Museum of Natural History; Smithsonian Institution - National Museum of the American Indian; Museum of Fine Arts, Boston; Peabody Museum of Archaeology and Ethnology, Harvard University; Yale Peabody Museum of Natural History; Milwaukee Public Museum; Canadian Conservation Institute; Swedish Museum of Natural History; Insects Limited; and Zak Software.

There were several things done during this second meeting that set the stage for a constructive process to follow. First, while the meeting was open to the public, it was made clear from the beginning that the agenda would not include teaching basic IPM principles. Early participants were people who had existing IPM programs or pest management experience and were willing to help the broader community develop and implement their own IPM programs. The impetus for most of these people, other than altruism, was a desire to gain from what others had already done and hopefully achieve a product that would be impossible alone.

One of the first orders of business was to determine what we hoped to accomplish. After bandying around many ideas, a basic mission statement was agreed upon.

*The goal of the group is to promote and facilitate good IPM practices and collaboration between staff and institutions through development and online distribution of training materials and other resources.*

The AMNH staff who arranged the meeting had put a lot of thought into coming up with ideas – but, from the beginning, most decisions were made democratically. The group discussed a ‘starter’ list of possible topics to which additions and refinements were made. The list included the following topics:

- Software for Mapping and Monitoring
- Data Collection
- Rapid Processing
- Identification Aids
- Standards & Best Practices
- Treatment
- Education/Dissemination
- IPM Website

Participants then listed their first three choices of topics for discussion. The top three choices based on the votes were Standards & Best Practices, Data Collection, and Identification Aids. These formed the initial subgroups. Each subgroup broke out and met to establish goals, and members of the group left with short, medium, and long-term assignments.

There was a discussion at the end of the meeting about allying with an established preservation organization, but there was consensus that it was best at this point to remain an unaffiliated, ad hoc group. The AMNH Division of Vertebrate Zoology, however, did give a

commitment to host a yearly meeting of the working group, and so a meeting date for 2006 was set.

Shortly after this second meeting, three new products were completed. The first was the formation of a website, [www.museumpests.net](http://www.museumpests.net), as a place to make the Working Group's information available to each other and to the wider community (fig. 7).

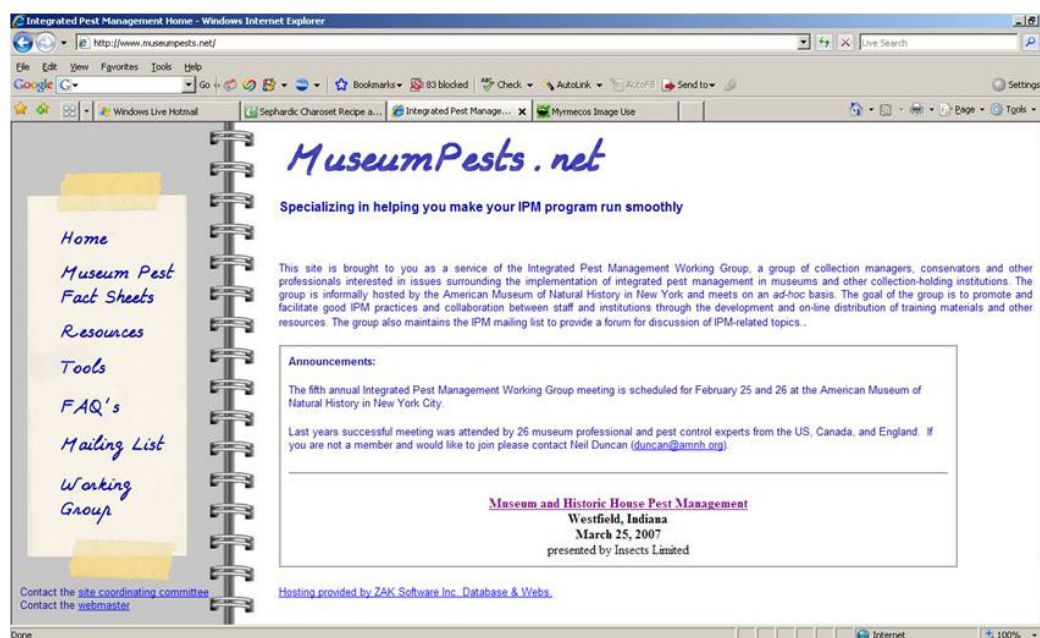


Fig. 7. Screen capture of [www.museumpests.net](http://www.museumpests.net) homepage as of May, 2008

The second was a release of a pest management database called Zpest, developed by Leon Zak. This free, downloadable program organizes pest observation data and presents it in graph and/or report format. The format is based on the basic field suggestions created by the Data Collection group. This program is basic but can be used by institutions of all sizes that are looking to do more than just record pest monitoring captures on a spreadsheet (fig. 8).

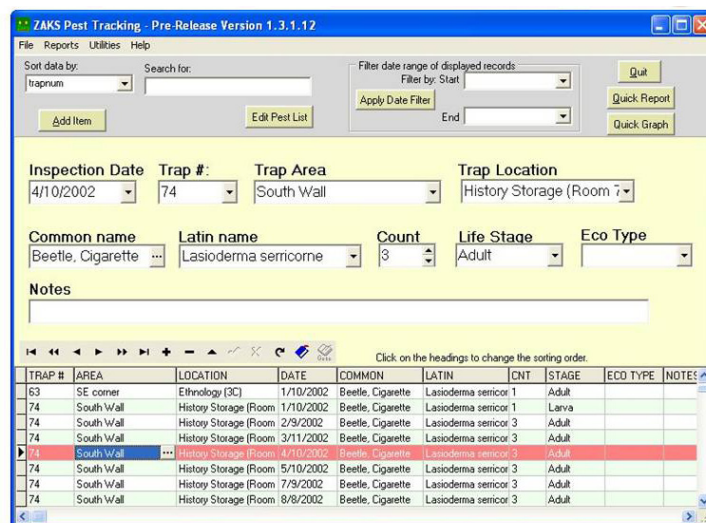


Fig. 8. Screen capture of Z-Pest database developed by the Zak Software and the Integrated Pest Management Working Group available on [www.museumpests.net](http://www.museumpests.net)



The third product was the IPM Questionnaire, which was used to survey the preservation/museum community to learn more about what others' concerns were. The 30 questions covered information on the respondents and their institutions, and their current monitoring, pest identification, and data analysis needs. Since then, the data from the approximately 100 respondents has been used to ensure that the work of the IPM-WG subgroups is addressing the needs of the community (fig. 9).

IPM Questionnaire - Microsoft Internet Explorer

Address: <http://www.museumpests.net/questionnaire/questionnaire.asp>

☐ Other (PLEASE ELABORATE)

**Needs**

29. What would you like to see in a museum community-wide IPM initiative? (Choose up to three from the following list.)

- ☐ Training and specialist workshops
- ☐ Best practices
- ☐ Database development
- ☐ On-line ID resources
- ☐ Hard-copy ID resources
- ☐ Regional ID resources
- ☐ Web-based discussion forum
- ☐ E-mail list-server
- ☐ On-line references for supplies and products
- ☐ On-line list of specialists
- ☐ Case studies that support the economics of IPM
- ☐ Development of IPM standards
- ☐ Other - please describe

30. Are you finished completing all the questions in this questionnaire?

YES -

NO -

Choose this option to save your work and come back later.

Fig. 9. Screen capture of the IPM-WG Questionnaire used to guide the group's work

In February 2006, the third meeting of the IPM-WG was held and was attended by 25 individuals representing the following institutions: American Museum of Natural History; Smithsonian Institution - The National Museum of the American Indian; National Museum of Natural History; Museum Support Center; Historic New England - Society for the Preservation of New England Antiquities; Peabody Museum of Archaeology and Ethnology, Harvard University; Yale Peabody Museum of Natural History; U.S. Army Heritage and Education Center; Canadian Museum of Nature; Museum of Fine Arts, Boston; Natural History Museum, London; Insects Limited; Steritech; and Zak Software.

Obviously, not everyone from the 2005 meeting was able to attend, but there were enough returning members to ensure continuity and new members to bring energy. In addition to the various institutions, participants came from Insects Limited and Steritech, pest control companies that serve the museum community and were interested in learning more about museum IPM needs. The IPM-WG has been particularly grateful for the continued support of Insects Limited, where general manager Pat Kelley has not only been an active member of the IPM-WG but has also donated demo materials and some funds to cover coffee breaks for the annual meetings.

In 2006, two additional subgroups were added: Treatments and Web Resources. The format of the two-day meetings was, by now, established. The group would meet as a whole for introductions, a review of past activities, and the goals for the present meeting. Then participants would break out into subgroup sessions. The groups would reconvene at the end of the day to review accomplishments and assignments as a whole. Because some participants were only able

to get travel funding if they ‘presented’ their work, people were encouraged to give presentations during the coffee breaks over the two days to describe efforts in their home institutions (fig. 10).

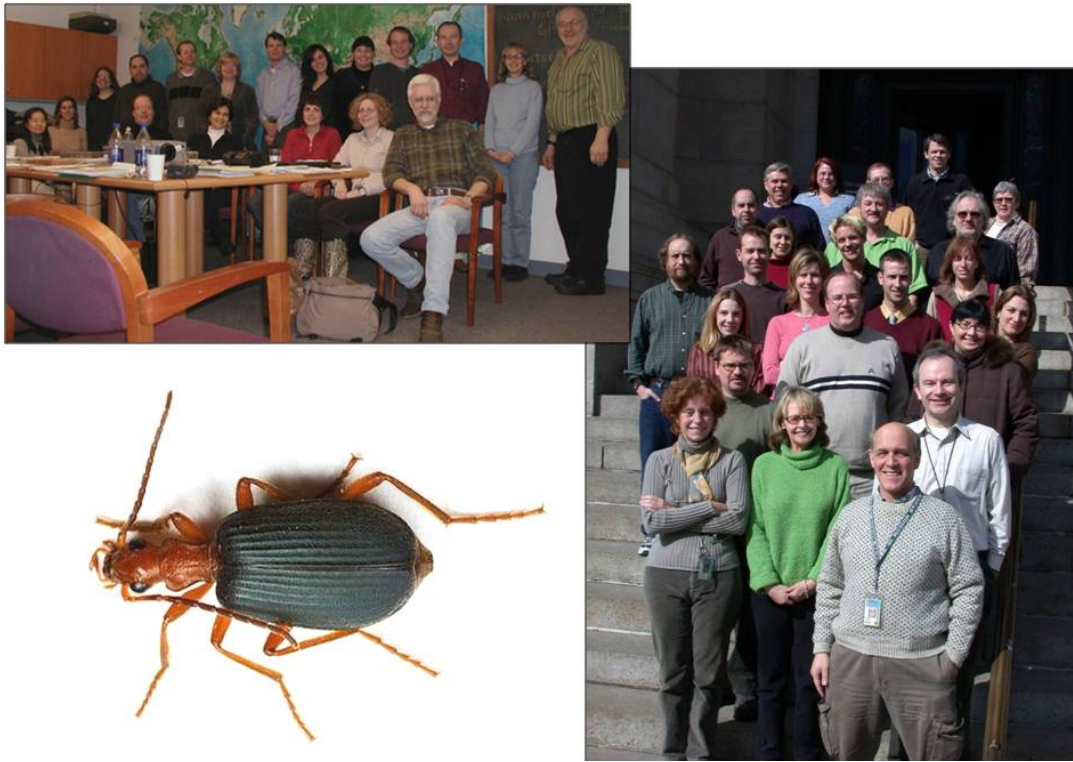


Fig. 10. Participants at the 2005 and 2006 IPM-WG meetings held at the American Museum of Natural History (Photographs by Richard Monk)

The Web Resources group was the only one that included everyone to ensure coordination across subgroups and because, ultimately, the website was the vehicle for all of the groups’ work. At this time, a portion of the website was password-protected so that WG participants could post documents in progress. Wiki pages were added to the Working Group’s password-protected portion of the site. Wiki pages (like those on Wikipedia) allow people to add, remove, edit, and change content in an accessible format. This was designed as a tool to allow subgroup members to communicate efficiently. Some groups used them effectively; others preferred to communicate the old fashioned way - using e-mail.

The fourth meeting in 2007 involved participants from two institutions (Denver Museum of Nature and Science and the Lower East Side Tenement Museum) in addition to the returning 2006 participants. Several former participants who were not able to attend the meeting continued to contribute remotely or by designating someone else from their institution. The authors of this paper continued to organize the meeting and the website, but in an effort to emphasize the non-hierarchical nature of the organization, adopted the term “local organizing committee” rather than “leadership.” While these individuals were initially the chairs for the all the subgroups, by 2007 the positions had been turned over to others and other volunteers were sought as new subgroups were created. The goal was not only to avoid burnout and spread the workload, but also to empower the group. Chairs were told to use the questionnaire to guide their work but were given full authority to decide with their members their own goals and assignments. It was explicitly stated that subgroup chairs would have enough to do in delegating and organizing the

workload, and should not feel that they had to produce product as well. It was emphasized that the tasks of the IPM-WG would fall low on the “To Do” list when people returned to their institutions, and that some deadlines would be missed. When that happened, the subgroup chairs would have to reassess, reassign tasks if necessary, and keep the local group informed on their progress.

By this time it was clearer who in the group would actually complete their promised contributions, and when tasks would have to be revised or reassigned. The local group also became a bit more realistic about what work would be actually completed during the year. Assignments that people could do on their own, e.g. writing case studies, collecting documents, and creating bibliographies were often successfully completed, but collaborative efforts, such as vetting products, were best done face to face at the meetings. By this point, the established subgroups spent less time in determining what products they wanted to work on, and the meeting’s schedule was reformatted to provide the groups time to actually sit and carry out some of the necessary work then and there.

The group at the 2008 meeting included an even wider range of institutions, adding libraries and archives as well as smaller historical societies. Participants represented the following institutions: American Museum of Natural History; Smithsonian Institution - National Museum of the American Indian; Smithsonian Institution - Museum Support Center; Harvard University Herbaria; Sterling Memorial Library, Yale University; U.S. Army Heritage and Education Center; Historic New England - Society for the Preservation of New England Antiquities; Canadian Museum of Nature; Natural History Museum, London; Denver Museum of Nature and Science; Lower East Side Tenement Museum; Museum of Fine Arts, Boston; Baltimore Museum of Art; Upstate History Alliance; Insects Limited; and Zak Software. The presence of the libraries and smaller institutions forced the group to think about broadening the goals and focus so that the website could serve the needs of a wider audience if it is made more appealing and accessible.

#### 4. THE SUBGROUPS AND PROJECT STATUS

What follows is an overview of the goals of each IPM-WG subgroup and a status report as of Fall 2008.

##### 4.1 IDENTIFICATION AIDS SUBGROUP

The number one desire from our questionnaire respondents was for online identification resources. So the ID Aids subgroup’s medium-term goal, which is rapidly nearing completion, is a series of printable fact sheets. The group first developed a template, and since then has begun to collect data and images on the top offenders as voted on by respondents to our questionnaire. Those pests include:

- American Cockroach *Periplaneta americana*
- Black Larder Beetle *Dermestes ater*
- Brownbanded Cockroach *Supella longipalpa*
- Casemaking Clothes Moth *Tinea pellionella*
- Cigarette Beetle *Lasioderma serricorne*
- Drugstore Beetle *Stegobium paniceum*
- Firebrat *Thermobia domestica*
- German Cockroach *Blattella germanica*

- Hide Beetle *Dermestes maculatus*
- Larder Beetle *Dermestes lardarius*
- Odd Beetle *Thylosidrias contractus*
- Oriental Cockroach *Blatta orientalis*
- Silverfish *Lepisma saccharina*
- Vodka Beetle *Attagenus smirnovi*
- Warehouse Beetle *Trogoderma variabile*
- Webbing Clothes Moth *Tineola bisselliella*
- White Shouldered House Moth *Endrosis sarcitrella*

The first series of these sheets should be available in the fall of 2008, but prototypes are currently on the website (fig. 11). The long-term goal is a searchable, text and image database for identification available through the website. The subgroup is still seeking high quality images of pests on traps as well as damage from specific pests, and if there is anyone who is willing to share their images they can contact the subgroup chair whose contact information is available on [www.museumpests.net](http://www.museumpests.net). In a recent, exciting collaboration, Gregory Smith, who teaches the preventive conservation class at the Buffalo State College Art Conservation program, has assigned students to complete research for some of the unassigned pests. Their work will be vetted by the IPM-WG's entomologists. This has provided the students with a practical academic exercise and hopefully provided the IPM-WG with enthusiastic foot soldiers with access to extensive library resources.

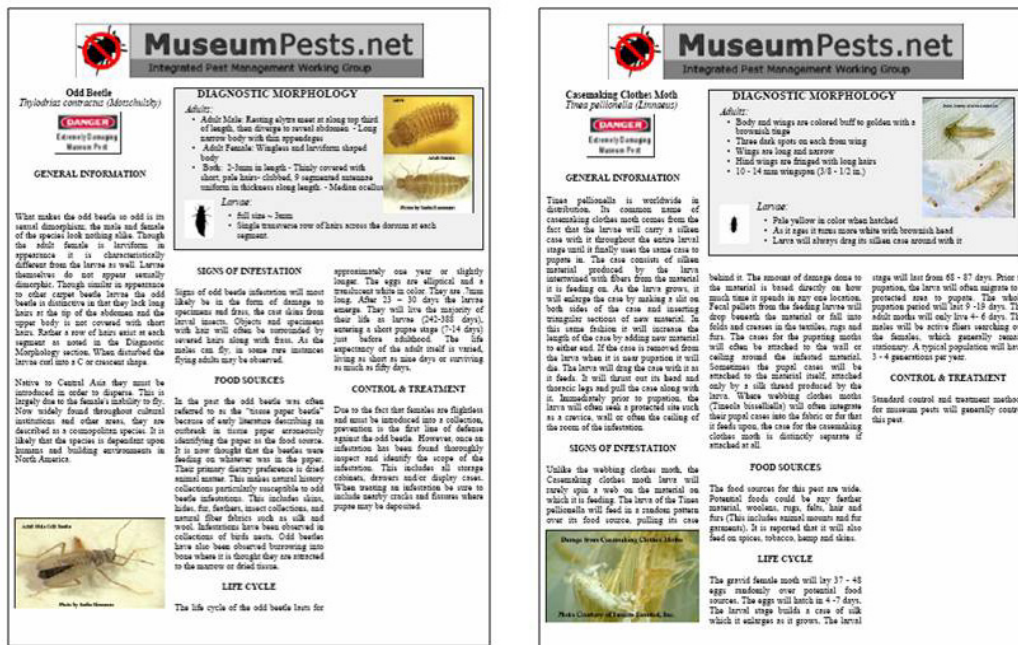


Fig. 11. Pest Identification sheets developed by the IPM-WG and available on [www.museumpests.net](http://www.museumpests.net)



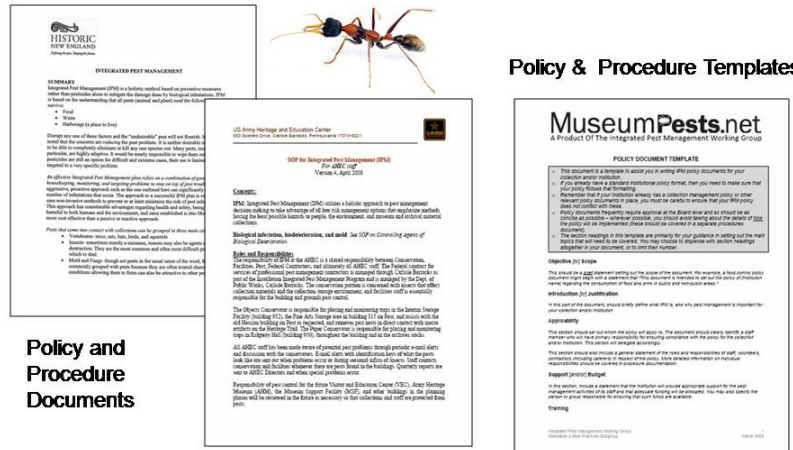


Fig. 12. Documents created by IPM-WG participants for the Standards & Best Practices subgroup and available on [www.museumpests.net](http://www.museumpests.net)

## 4.2 STANDARDS AND BEST PRACTICES SUBGROUP

The Standards and Best Practices subgroup focused in on two main goals. First, to collect, vet and post IPM-related material that the group thought exemplified best practices. Over 40 examples of policies, procedures, and other related documents were chosen for placement on the [www.museumpests.net](http://www.museumpests.net) Resources page (fig. 12). 2008 saw the completion of the next stage, production of templates for developing policy and procedure documents. The templates contain lists of headers and information or questions that the institution should address for each section. The goal is for institutions to write their own policy and procedure documents using the templates as a guide and the other documents as examples. Another useful tool on the website is the 'grid' which is helpful in understanding what arguments might effectively make the case for IPM at different levels within an institution (fig. 13).

<h1 style="text-align: center;">MuseumPests.net</h1> <p style="text-align: center;">A Product Of The Integrated Pest Management Working Group</p>			
Standards & Best Practices Grid			
<p>This document is a matrix mechanism to help people developing IPM plans target information to the "super-groups" involved in the funding and execution of these plans. On the vertical axis, the grid identifies the categories of people within an institution who have to be influenced in order for a plan to be successfully implemented. Along the horizontal axis are examples of the responsibilities of each of these groups, and the sort of arguments and incentives that can be deployed in each case to ensure their cooperation.</p>			
Super-Group	What should they do for Collections IPM?	What is their incentive?	What tools/arguments can we use to affect this incentive?
Administration	<p>Identify IPM as an institutional priority; this should get up to the level of trustees and then to all staff</p> <p>Ties to city government could be effective through local sanitation and health regulations.</p> <p>Allocate funding to get IPM on capital plans for infrastructure/repair, monitoring services, education</p> <p>Reinforce primary IPM nature of custodial work</p> <p>Recognize hidden IPM threat and subsequent costs in events &amp; construction</p>	<p>Allocation of funds to support an essential and effective IPM program with measurable results should convince them that this will save them money and meet</p> <p>Convince them that they're preserving collections value &amp; saving staff time (triage)</p> <p>Improve staff health by reduction in pesticide use, allergen exposure, pest borne disease.</p> <p>Recognize public relations issues with infestation such as passing pests on to other institutions, health audits, and accreditation.</p>	<p>Examples of successful studies</p> <p>Cost Analysis of IPM activities.</p> <p>Risk Assessment</p> <p>Quantity: IPM time allocation, hazards learned from trapping and inspections, history and extent of damage to collection by pests, remediation costs.</p>
Building Management (custodial, HVAC, construction, grounds, shipping)	<p>Custodial Services (this is the primary line of defense) – reporting pest sightings (with basic training), identify frequency of</p>	<p>Elevated status for custodial in eyes of administration.</p> <p>Construction leaves institutions</p>	<p>Training packages showing what is needed from building management for effective IPM. This is what could happen if we don't get it. How IPM</p>

Fig. 13. The Standards & Best Practices subgroup Grid document that identifies the various institutional stakeholders in an IPM plan and available on [www.museumpests.net](http://www.museumpests.net)



### 4.3 DATA COLLECTION SUBGROUP

The goals of the Data Collection subgroup are to help institutions organize their IPM data, and, if possible, speed data entry. In addition to the ZPest database program mentioned above, there is an annotated list of IPM database fields for people interested in developing their own database. Also available on the site is a forum where people can share their database with others and evaluate the pros and cons of different programs (fig. 14).

Z-Pest Database

#### Database Field List

Fig. 14. Screen capture and documents of products created by IPM-WG participants for the Data Collection subgroup available on [www.museumpests.net](http://www.museumpests.net)

### 4.4 TREATMENT SUBGROUP

The work of the Treatment subgroup has focused on creating summary fact sheets with a standardized format so museum staff can determine whether physical, chemical or modified atmosphere treatments would be right for their collections. These are further illustrated by case studies written by participants. These, too, have a standardized format allowing for easy comparison (fig. 15).

Treatment fact sheets and case studies

Fig. 15. Screen capture and documents of products created by IPM-WG participants for the Treatment subgroup available on [www.museumpests.net](http://www.museumpests.net)

## 4.5 VISUALIZATION SUBGROUP

In 2007, due to popular demand, the Visualization subgroup was started. The group is tasked with identifying programs such as geographical information systems, or GIS, that allow for mapping and visualization of pest activity. Some institutions have found this an invaluable resource for identifying pest problems in their buildings. Ultimately, the work of this subgroup will be combined with the work of the Data Collection group (fig. 16).

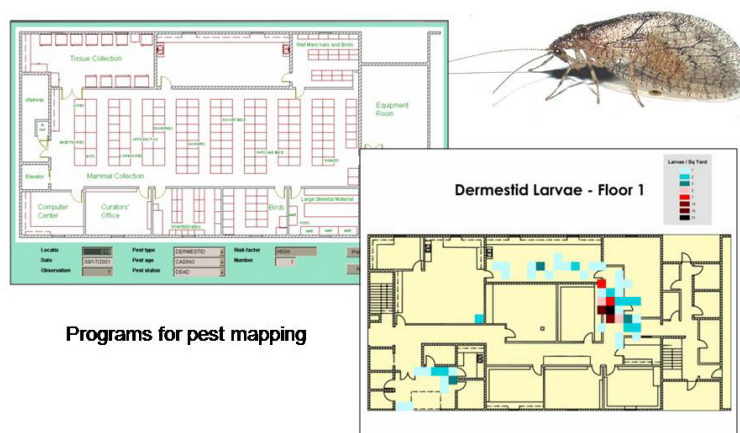


Fig. 16. Screen captures of products created by IPM-WG participants for the Visualization subgroup available on [www.museumpests.net](http://www.museumpests.net)

## 4.6 WEB RESOURCES SUBGROUP

The goal of the Web Resources subgroup is to help make [www.museumpests.net](http://www.museumpests.net) the best entry portal for IPM information on the Internet. On the site's Resources page there is a comprehensive bibliography, as well as links to various IPM-related web resources that members have found useful (fig. 17). There are training PowerPoint presentations for download and announcements of other useful IPM-related classes and activities (fig. 18). Collaborations have begun with the ICOM Ethnographic Group Pesticide Project. For the most part, the groups have completed or are nearing completion on their medium-term goals, and are closing in on their long-term ones.

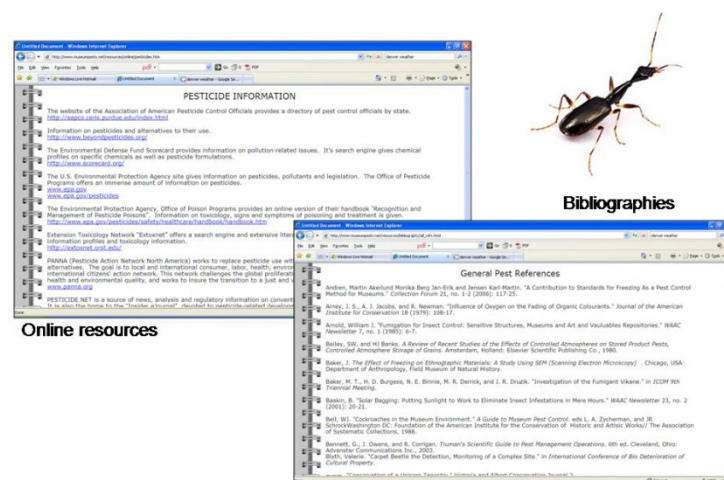


Fig. 17. Screen captures of products created by IPM-WG participants for the Data Collection subgroup available on [www.museumpests.net](http://www.museumpests.net)

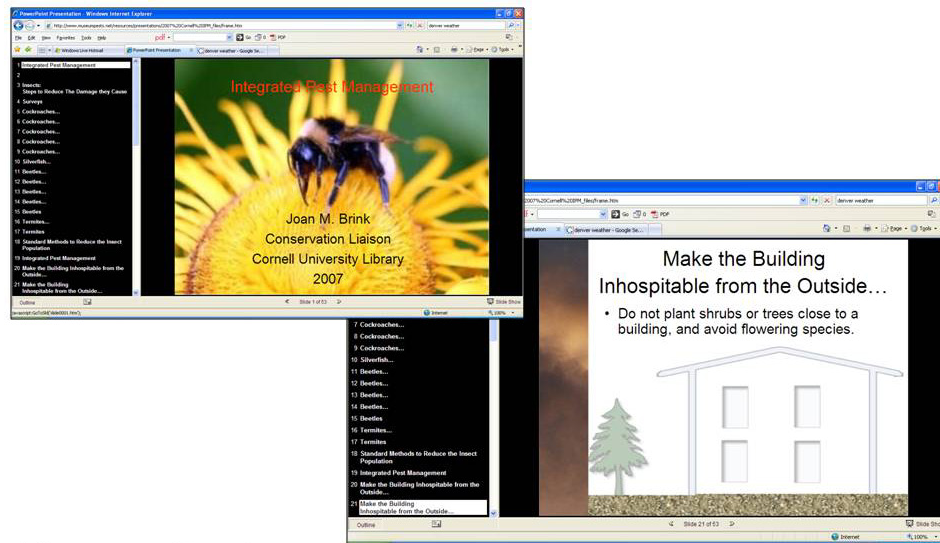


Fig. 18. PowerPoint training presentations available on [www.museumpests.net](http://www.museumpests.net)

## 5. TIPS

Participants in the IPM-WG eventually started to see this group as a model for cross-institutional and cross-discipline collaboration, and this paper was presented with the hope that some of these suggestions might be helpful to other groups or projects.

- Draw on expertise of all stakeholders - One of the strengths of the IPM-WG is that it draws from the experiences and expertise of a wide range of individuals and institutions, and can truly be seen as a community led and supported process. The group has representatives of almost all the stakeholders involved, and participants with certain forms of expertise were actively recruited when necessary. The exception is that are no facility managers participating, which will hopefully be rectified in the future.
- Open to the community - While the group is open to all, making it clear that IPM wouldn't be "taught" and that participants would be leaving with assignments encouraged motivated participants. Interns or Fellows were allowed to participate with the understanding that assigned tasks could take up to 20 hours throughout the year, and that it was expected that supervisors be supportive and ultimately responsible for honoring those commitments. There is no cost to attending the meeting, but individuals and their institutions cover their own travel and accommodation expenses.
- Flexible organizational structure - Although AMNH has generously hosted the meetings, the IPM-WG is not affiliated with any particular institution or professional society, which has afforded it a flexible structure. The reality, though, is that the early organization of the group and continued work running the meetings has been facilitated by our cohesive core local committee.
- Transparent work process - Throughout the process, the group's goals have been practical – to develop tools and resources that can be downloaded and used by any institution. The

work is fairly transparent – documents are posted for comment and review on the IPM-WG Wiki site for all members, and comments from others are welcomed once documents are posted on the public portion of the site.

- Recruit good leadership - It is essential to assign leadership roles strategically. There were times when people were reasonably hesitant to take new assignments onto already heavily laden plates. Subgroup leadership has been excellent, in particular the contributions of Emily Kaplan of NMAI and Pat Kelley of Insects Limited.
- Set realistic goals and show progress - To keep people motivated, e-mail updates are used to publicize progress, when groups complete goals and assignments, and when new material is posted to the website. The repeated updating of our short and medium goals shows that participants are chipping away at long-term objectives and keeps the momentum going. There is no desire to be overly demanding of volunteers and it is recognized that group deadlines will be missed, but numerous missed deadlines without any comment leads participants to feel that the work wasn't really needed or necessary. Subgroup chairs occasionally need to be heavies to make sure that people know that their contributions are needed.
- Take good minutes - A final practical piece of advice is to take careful minutes at meetings. On a number of occasions when participants dropped out at the eleventh hour or when groups transitioned their leadership, having detailed and complete minutes allowed the local committee to guide the subgroups back on track and get new leaders up and running.

## 6. CONCLUSION

The main project for 2009 is to identify how funding can be secured to improve the website. Much is already asked of participants, so raising money through fees was thought inappropriate. Grant applications were considered unrealistic given the group's limited resources and the large amount of work for what was considered to be a small amount of money. At this point, the group has identified sponsorship of the website (not of the actual working group) as the most viable option for raising money. While advertising on the website is undesirable, it was hoped that a sponsorship page with links to supporting groups, institutions, and select commercial vendors whose interests align with the IPM-WG would be an option.

There have been many moments in this process when the local committee has thought of phasing out the project, but then something will happen; a mention by a colleague of how useful some of the materials are, or chancing upon an online link to [www.museumpests.net](http://www.museumpests.net) that gives us the boost needed to keep forging ahead. There has been planning, though, for an "exit strategy." It is hoped that most of the initial long-term goals will be completed in the next few years and so the question of what to do then is frequently revisited. At the point when the site is considered for the most part complete and only requires periodic updating, it should be handed off to an organization to host, but at this point it is not clear who that might be. Choosing organizations like the AIC would be seen as precluding non-conservators who make up the majority of the group. Choosing the Society for the Preservation of Natural History Collections (SPNHC) would seem to preclude art museums, libraries and archives, and the American

Association of Museums (AAM) seems to lack a place where this would fit in their structure. The reality is that as long as an organization will keep the site available, it wouldn't actually preclude use by anyone, but the perception that this is only for certain groups has been a problem for IPM-WG members. Determining what organization might best exemplify the IPM-WG's interdisciplinary approach and deal with the broadest concerns of all stakeholders at collecting institutions is in progress.

## ACKNOWLEDGEMENTS

The authors would like to thank the IPM-WG participants and their sponsoring institutions for their time, expertise and commitment to this endeavor. Pest images in accompanying illustrations courtesy of Alex Wild, [www.myrmecos.net](http://www.myrmecos.net).

RACHAEL PERKINS ARENSTEIN is an objects conservator with a specialty in preventive care. Prior to beginning her own practice in 2004, she was an objects conservator and the assistant manager for conservation for the National Museum of the American Indian Move Project at the Research Branch in the Bronx, from 2001 to 2004. She has also served as objects conservator at the Harvard Peabody Museum of Anthropology and Archaeology in Cambridge, Massachusetts and exhibits conservator at the American Museum of Natural History in New York. She received a BA in Archaeology and Near Eastern Studies from Cornell University and her conservation degree from the Institute of Archaeology at the University of London. Address: 1 Rectory Lane, Scarsdale, NY 10583; (917) 796-1764. E-mail: [rachael@amartconservation.com](mailto:rachael@amartconservation.com)

NEIL DUNCAN, Collections Specialist, Division of Vertebrate Zoology, American Museum of Natural History, Central Park West at 79<sup>th</sup> Street, New York, NY 10024. E-mail: [duncan@amnh.org](mailto:duncan@amnh.org)

LISA ELKIN, Director of Conservation, Natural Sciences Collections, American Museum of Natural History, Central Park West at 79<sup>th</sup> Street, New York, NY 10024

RICHARD MONK, Database and Web Administrator, Division of Vertebrate Zoology, American Museum of Natural History, Central Park West at 79<sup>th</sup> Street, New York, NY 10024

CHRISTOPHER NORRIS, Director of Collections & Archives, Division of Paleontology, American Museum of Natural History, Central Park West at 79<sup>th</sup> Street, New York, NY 10024