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At-A-Glance Reports for IPM Data

Good afternoon everyone, and thank you for attending today's talks. And thank you to Rachael and Matt for spearheading this and to all the other esteemed speakers taking part today.

My name is Morgan Nau and I am an associate conservator and the IPM coordinator at the Peabody Museum of Archaeology & Ethnology at Harvard University.

Today I will be presenting on the new at-a-glance IPM reporting that has been evolving during my time here and where it currently stands.

History & Background

- Founded in 1866
- Multipurpose building:
  - Museum
  - Classrooms
  - Admin offices
- Part of Harvard University
  - Competition for funds
  - Wide variety of stakeholders.

Image: thisgaudygildedstage.com

Several important factors impact IPM and pose particular challenges based on the history and background of the museum.

One of these factors is the age of the building. Founded in 1866, the museum has never known another address. Over the decades, the building has experienced myriad renovations, including the blocking of fireplaces and old entry points, which can add additional areas of risk in an already old building envelope.

The building is also multipurpose. In just the section that the Peabody occupies space is shared with multiple academic departments (and their faculty, students, and kitchens), classrooms, and administrative offices.

Another important bit of background information is that as part of a university, we have to quote-unquote compete for money for capital projects. With data collected across seven floors and multiple buildings, it became crucial to make it accessible to a wide variety of stakeholders.

Early Reports

- lengthy
- text heavy
- copious amounts of data

- Pros: thorough, useful for future statistical analysis
- Cons: no one wants to read them

When I joined the museum in 2017 it was the first time that conservation had been directly responsible for IPM, and I initially began by following the previous report template on file. However, given how our IPM efforts had ramped up following a webbing clothes moth outbreak, I found that the reports were getting longer and potentially lugubrious for some. So while the vast amount of data present could be useful in the future for reference, it was not doing a whole lot of good in the present if people weren't actually reading it.

New At-A-Glance Reports

list of pests found in museum, broken up by type

percentage breakdown of pest types

bulleted highlights and alerts

trap density overview

Given that the sheaf of black and white text didn't seem to be doing it for a lot of people, I pulled back and thought about different ways to get the necessary information across in an easy to understand and accessible way (hopefully).

What you see here is the single page summary report for the museum as a whole, with much of the text and tables condensed into color coded "bite-size" chunks.

In the top left you have the full list of pests found in the museum during the period. The pests are separated by the category of risk they are - such as dermestids, or damp indicators.

To the right are the totals for each pest grouping, as well as a pie chart to show the percentage breakdown of pests in the museum.

On the bottom left is a text box featuring the most notable findings from the period. Information includes pest increases or decreases, possible outbreak locations, new or particularly worrisome pests, and any other important information relevant to the cycle.

Finally pest densities are described in the bottom right corner.

Pest Type Breakdown

PMAE: Pest Types & Totals		
Moths & Other Mjr Risks	cimicid	1
Dermestids (& Activity)	black carpet beetle	1
	dermestid - unidentified	5
	odd beetle	57
	varied carpet beetle	5
Silverfish/Firebrat	firebrat	12
	silverfish	293
Damp indicators	duff millipede	8
	minute brown scavenger beetle	38
	mite - indicator	7
	psocid	585
	springtail	30
Predators	gray cellar spider	5
	hacklemesh weaver spider	2
	house centipede	1
	long bodied cellar spider	9
	mite - predator	72
	spider	25
	spitting spider	4
	stone centipede	1
	woodlouse hunter spider	1
Nuisance	ant	28
	cockroach	3
Other/ Unidentified	unidentified - damaged/ other	5
Accidental Visitors	ground beetle	3
		1201

- Intentional color coding
- Conditionally formatted data bars

- Recent updates (not shown):
  - Streamlining of predators
  - Previous cycle's total below current total for easy comparison

Here is a close-up view of the breakdown of pests found, categorized by type. Colors for the corresponding pest groups were chosen carefully and in a way to hopefully seem intuitive to the largest range of viewers - such as red for the most worrisome finds and blue for pests that act as damp indicators.

The vertical bar with the totals has been conditionally formatted to also help draw the eye to what pests have been found the most in a current cycle. As you can see here - booklice and barklice make up nearly half of all pests found in that cycle, followed by silverfish.

There have been a couple recent updates to this section of the report, such as streamlining all the various spiders into just "spiders" (which has the happy side effect of also being slightly less traumatizing for staff).
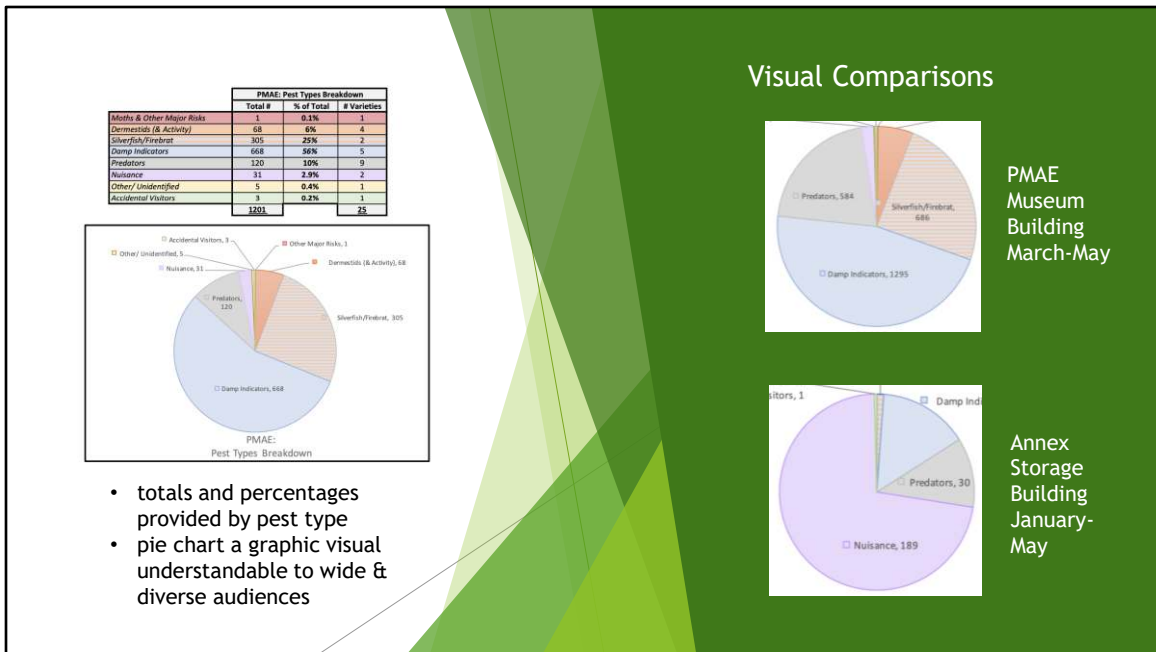
So far one of the most useful changes has been the addition of pie charts to illustrate the percentage composition of pests within the building. Given that pie charts are understood by diverse and wide audiences, requiring little explanation, it seemed like a good option for this situation.

Again, the colors are the same as in the previous section of the report, so you can clearly see that damp indicators were found in the highest amounts during this cycle. The pie charts also serve as convenient comparative tools since, for many, it is easier to take a glance at two charts side by side as opposed to comparing numbers in spreadsheets.

On the top right, you can see how in the next cycle that while both predator and damp indicating pests increased, predators notably now made up a far higher percentage of the total pests.

The lower right pie chart is from a storage building that houses primarily ceramic, stone, and plaster materials. And here the pie chart is completely different showing that the vast majority of pests found here were nuisance pests (ants in this case).

Pest Densities

- Provides information for:
  - whole museum
  - full floors
  - problematic spaces
- Darker gradient -> higher risk areas

PMAE Pest Density (pests/ trap)				Color Key
Floor	Avg. per trap	Problem Room	Avg. per trap	
Basement	11.5	B8	32.75	highest density
		Kitchen	21.8	
		B1	14	
		B4	14	
1st	3	n/a		
2nd	0.9	n/a		
3rd	3.7	35A	7	
4th	2	n/a		
5th	0.75	n/a		lowest density
6th	1.6	602	8	
		cons lib	5.3	

PMAE Overall Pest Density		
Total Traps	Total Pests	Avg./ Trap
282	1201	4.3

The bottom right segment of the report details density findings. In this case, how many bugs on average were found in a trap in a given space. Breakdowns are provided for the whole building, entire floors, and problematic locations.

Color is again used here, with the darker the gradient of the red, the higher the pest density and associated risk.

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THANK YOU!

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Image: pestbusters.com.ph

And with that, I thank you! Please feel free to contact me via the email displayed if you have any questions, comments, or recommendations. Thank you again!