

INSTRUCTION VERSUS PRACTICE: WHERE CAN WE IMPROVE UPON IPM?

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Abstract

Mismanagement of pests in museums, collections and archives represents one of the most important threats for the conservation of cultural heritage. Despite the introduction and widespread uptake of Integrated Pest Management (IPM) in the past two decades, IPM instruction seems to stay the same. We query whether there are common issues that could be addressed within general guidance to further assist individuals running IPM schemes. Therefore, our paper seeks to highlight common challenges faced by those practicing IPM, hoping to inspire further improvements in IPM instruction. To gain some insight, we conducted interviews with ten IPM professionals from a variety of heritage roles, backgrounds and organisations. Once interviewed, we analysed the responses, coded those deemed 'negative perceptions' and explored these for common themes and issues. Four areas of concern were found: 1. Impressions of IPM; 2. Limited resources; 3. Human error; 4. Data collection, analysis and communication. In this paper, we highlight where there might be a disconnect between standard IPM instruction and actual practice, by comparing these comments to British Standardisation Institute's instructions (BSI 2016). We concluded that participants struggle the most with limited resources and human error, suggesting that these areas could benefit from further consideration in instructions.

Keywords

IPM instruction, IPM British standards, human error, limited resources, staff engagement

Introduction

Classified as an agent of deterioration by the Canadian Conservation Institute, pests are one of the primary threats to cultural heritage (Michalski 1990). As such, over the last twenty years, Integrated Pest Management (IPM) has become a staple in preventive conservation practice in heritage establishments (Staniforth 2013). However, alongside all innovations and discussions surrounding the topic, IPM instructions do not seem to reflect the evolution seen elsewhere. As exemplified in Table 1, there is a very clear similarity between IPM described in Pinniger and Winsor's popular 1998 publication and the British Standard Instructions (BSI 2016) almost twenty years later.

<INSERT Table 1 HERE>

Generally, the method seeks to avoid, block, detect, respond and recover, which encourages heritage institutions to adapt the scheme to fit their own individual contexts (Strang and Kigawa 2009). This allows for a lot of flexibility and avoids a prescriptive approach, although, as with any collective human endeavour, it is still subject to some issues. We query whether these can be somewhat negated through adaptations to instructions.

Therefore, this paper seeks to identify common issues found by those leading IPM programmes. Through interviews with 10 heritage professionals, we have identified four areas of concern: 1. Impressions of IPM; 2. Limited resources; 3. Human error; 4. Data collection, analysis and communication. Explored in

depth, we highlight where instruction and practice clash to inspire further research into improving IPM guidance.

Methodology

Interviews were performed during summer 2019, through face-to-face or phone meetings. Participants were selected through snowball sampling (Noy 2008).

Semi-structured interviews were conducted to allow interviewees to speak freely on guided topics, where both closed and open-ended questions were used to generate qualitative and quantitative data while providing an environment where 'digression can be very productive' (DiCicco-Bloom and Crabtree 2006: 315), (Tables 2-3). Thus, interviews averaged 30-45 minutes each, producing very in-depth answers.

For the sample size, our initial goal was to interview 20-30 participants based on Baker and Edward's (2012) 'medium-sized' group, however, we noted that 10 participants were enough to 'penetrate beyond a very small number of people without imposing the hardship of endless data gathering' (Adler and Adler, cited in Baker and Edward 2012: 9).

<INSERT Table 2 HERE>

<INSERT Table 3 HERE>

Finally, we used the British Standardisation Institute's instructions (BSI 2016) as a comparison. To maintain confidentiality, participants were grouped into job categories and referred to as intern, IPM lead or IPM consultant.

Results

The results have been separated into four areas of concern, with added subcategories to display common themes where needed.

1. Impressions of IPM

At the core of IPM instruction, there is the desire to minimize intervention by accepting and monitoring low pest levels (BSI 2016: 5). Unfortunately, with the past popularity of quick, chemical solutions, IPM can be perceived as too gentle in its approach. As one participant explained, 'pests are seen as a dirty thing, and so chemicals are a quicker way to kill them.' Consultants who commented, suggested that this IPM misconception appears in two ways: pest presence represents either a personal failure or a failure of IPM.

On the side of personal failure, one consultant talked about times they have had to joke 'I hope you're not losing sleep over this' or convince staff 'to learn to live with it - it's just the way it is.' Despite being well trained, accurate trackers, the participant found that their staff still needed such reminders.

Conversely, another consultant found that IPM's policy of minimal intervention can be misinterpreted as ineffective because of its failure to remove all pests. In an anecdote, they noted the reluctance of overseas clients to conform to European Standard IPM policy: 'for them that was so hard; they wanted a standard that said 'we don't want any [pests]', 0%', explaining that cultural perceptions of pest control can be a major obstacle to IPM. The main takeaway for this participant was that with 'IPM is not just the image 'it's better for you, it's cleaner and non-toxic', but it's also a paradigm shift.'

2. Limited resources

2.1 Initial investment

IPM 'should also be achievable in terms of human, financial, and logistic resources' (BSI 2016: 8). However, participants suggested that it can be hard to convince people of the initial investment.

As one participant explained, 'it takes several years of data before you start to get a real picture.' Another concluded that 'people don't want to put money into preventive conservation and in the end, it becomes much more expensive'. Therefore, it seems that the first hurdle to IPM involves convincing people to commit to the investment.

2.2 Staff

Another scarce resource sighted was staff time and training, as a well-integrated scheme requires staff participation and inclusion. Starting with training, instructions suggest that it can be delivered in many ways: 'oral presentations and/or hand-outs, for example explanatory posters with pest images. Follow-up training shall be carried out at regular intervals' (BSI 2016: 10). These seem reasonably achievable, however, several participants suggested that refresher training can end up being resource intensive. One participant reported that 'it [training] is continual,' rather than at regular intervals as suggested, due to 'high turnover' in the heritage sector: 'People come and go, new staff come in, you've got to train them... and just when you think 'right, I've finished, I can go off and help that-', no, they leave.' Being an in-house consultant, they reflected that training was not particularly costly for their establishment, but that the lack of it could result in much higher costs to maintain a good level of IPM understanding amongst staff: '[without training]

you're going to rely upon external courses and consultants'. These could be indicative of poor management on the side of establishments but was mentioned often enough to perhaps warrant further instruction on the topic in general IPM guidelines.

Offering another perspective, an IPM lead stressed that 'it's very resource intensive in terms of the collection care assistant's time.' Looking again at the British Standards, it seems very straightforward to instruct that 'The IPM policy is [should be] built on a framework, which defines all roles and responsibilities' (BSI 2016: 11). While this is manageable when there are adequate staff numbers, they noted that 'It's a major drawback when we don't have collections assistants in post; we recently recruited someone, but the post has been vacant during this process'. Therefore, with staff as an unpredictable factor, IPM becomes increasingly difficult.

3. Human Error

As a natural follow up to staffing problems, the 'human error' category includes issues of misunderstandings, poor identification and a lack of engagement. These errors lead to the real or perceived inflation of pest count data, through negligence or poor reporting.

3.1 Misunderstandings

Within the 'misunderstandings' category, participants spoke of well-meaning staff, who were misguided in their IPM efforts. For example, one IPM lead noted that after working to 'boost the profile of IPM', staff members were then 'putting down too many traps and failing to understand that if you put down

more traps you will catch more pests, but it doesn't necessarily mean that you've got a bigger problem.'

Another IPM lead told a similar tale of misguided enthusiasm, where due to health conditions volunteers could not follow trap protocol: 'the only place they [volunteers] could distribute traps was in the middle of the floor.' This participant surmised: 'people want to do it, they want to buy traps. How well they do it? Well, I think there's a bit of a gap.'

3.2 Poor Identification

Identification of pest and non-pest insects was also noted as an issue.

Participants suggested that 'people are less good at identifying pests than they think they are.' This was interesting as 'identification' was voted as the easiest step in IPM instructions when participants were to rank the six-steps (Table 1, Pinniger and Winsor, 1998) in difficulty order (Table 3: 18). However, several participants gave examples of how challenging correct identification and damage tracking can be. An IPM lead reported receiving regular queries about non-pests insects:

'I've got people emailing me often with insects that are not pests... So, like ladybirds, or flies, they're not deemed pests because they don't pose an actual risk or threat.'

Outside of the time required to respond, these queries are mostly harmless and even show a level of IPM engagement. However, the poor identification becomes an issue when it starts to affect monitoring data. On reviewing pest data with staff, one IPM lead noted that 'people say 'ooh, we've got quite a lot of silverfish', [and] I nearly always go back to 'have you noticed any damage?' And

they say 'no'.' Similarly, a consultant found that even well-trained staff can struggle with identifying new species: 'I [explained] the difference between a booklouse and a winged booklouse, because winged booklice aren't actually a pest... and the difference the year after, when you compare the booklice caught... the numbers just drop.'

Without these interventions, the incorrect data could have led to an incorrect allocation of resources to solve non-existent problems.

3.3 Lack of staff engagement

Finally, being a scheme that requires integration, lack staff engagement can be problematic. One IPM lead remembered the pushback they had faced when implementing risk zones. According to guidance, 'eating and drinking shall be forbidden in storage areas and, if possible, limited in other areas housing cultural heritage' (BSI 2016: 12). However, this participant noted: 'people are resistant to change, so if you try to change their little break-out space (their eating space), they get really precious and... tend to lash out.' While the IPM lead put time into fun engagement activities, they found that with some changes '[staff] can be resentful.' It is not to say that this is the fault of IPM instruction, but is an issue that came up regularly when participants talked about integrating staff into the scheme. This could suggest that heritage professionals dealing with IPM are looking for more suggestions on how to engage general staff in something they may feel has little to do with them.

One consultant found that sometimes the largest barrier to engaging staff in IPM is the management itself: 'When we want to gather all of the staff... I get emails saying 'oh we're busy', 'does everybody need to come', 'could just the

people involved come?” Though a recurrent issue, to tackle this somewhat the participant noted that ‘I always start with management and talk about money... and that makes it much easier.’

4. Data Collection, Analysis and Communication

Issues concerning large volumes of data collected were also raised by IPM leads. One noted how time-intensive data analysis can be, expressing their desire to automate the activity: ‘There's no way to automate it either ... It's not like environmental monitoring where you can set something up to automatically do your reports ... it does take that human element to carry out the activities.’

Another described the process of collating the data sent to them as extremely time consuming because ‘it's literally me with a spreadsheet of email addresses.’ They explained, ‘Although I've been doing this for several years now, there are still people that don't email me the returns.’ Like the IPM lead mentioned above, they saw the solution in the automation of tasks: ‘If we had more money this would be easily resolved with a simple database, [where people] would upload their figures.’ Differing from the earlier idea, the barrier to automation here is resources. Nevertheless, there is a shared desire to automate tasks to improve the efficiency of analysing IPM data.

Finally, a consultant spoke of the need to do more with collected data than just solving infestation problems. The British Standard shares that view, suggesting that ‘analysis, assessments and results concerning IPM, shall be an integral part of the organisation's documentation system, for reference and in order to continuously revise and improve IPM’ (BSI, 2016: 14). Unfortunately, in practice the participant reported that ‘people did monitoring but they didn't always act on

their monitoring data.’ As such, though the pests were taken care of, the full potential of the data was not reached. Instead, they proposed that data should be used to educate staff, otherwise ‘while [institutions] may be able to improve a particular environment to keep pests at bay, the lack of shared data means that there is no change in terms of people’s practice and habit.’

Conclusion

Interviews with heritage professionals pointed towards four areas of concern, classified here as ‘Impressions of IPM’, ‘Limited resources’, ‘Human error’ and ‘Data collection, analysis and communication’. The largest and most talked about sections involved limited resources and human error, suggesting that these IPM relating areas can be challenging.

Additionally, it is important to mention the constant discourse on general staff and their involvement in IPM. As an integrated scheme, IPM stresses the importance staff involvement and their awareness. However, their lack of understanding or half-hearted commitment appears in every area of concern. In ‘Impressions of IPM’, the lack of understanding among those new to and experienced with IPM affected their interpretation of the scheme. ‘Limited resources’ acknowledged the need for constant training and its stress on limited resources. ‘Human error’ gave the strongest case for improving areas of staff involvement, providing examples of misunderstandings, poor identification and a lack of engagement. Finally, ‘Data collection, analysis and communication’ appears as an area that could be further explored to increase staff awareness

on wider data applications. From this, the main concern is the need for additional instruction when it comes to managing those interacting with IPM schemes.

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