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## NatSCA News

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sessions at that year's Museums Association Conference. Since 1995, the team at CMN have certainly worked hard to refine and improve the workshop, working on presentation style, timings and incentives. I also came away with some ideas for keeping participants attention during what was an intensive day.

For institutions setting out to plan long term collection care and development, this workshop is an invaluable tool at all stages of project development and implementation, from making the case to ensuring that money is spent where it is needed. It would also be a great vehicle for team building and establishing a cross-disciplinary baseline of understanding. Although developed initially on Natural Science collections, it is applicable and has been used successfully across all museum disciplines. In Britain it can also be used to rank and prioritise the multiplicity of recommendations that an assessment using Benchmarks in Collections Care results in.

This workshop provides the means to turn an instinct into a quantified and ranked argument, it deserves to be presented more often in the UK.

### **Integrated Pest Management Workshop**

**- Wendy Atkinson, Assistant Curator, Botany Section, World Museum Liverpool**

It was when the Botany collections moved to an off-site store during the building works at Liverpool Museum (now World Museum Liverpool - WML), that I first became involved in our IPM group as the Botany section representative. I wanted to attend the SPNHC IPM workshop as I have not been to anything like this before, what I know about IPM I have picked up along the way from other colleagues. So, this was an opportunity not to be missed for me. I wasn't really sure what to expect from the day, but hoped to hear about other institutions' experiences, their IPM strategies and hopefully get to do some pest identification work.

Of course, the day turned out to be all of that and more. We had quite a programme laid on for us – seven talks were presented in all, covering risk zones, trapping, and different treatment methods, amongst others. There was also a fairly large practical aspect to the workshop too. This took the form of an insect pest identification session and also a gallery assessment. Here are a few of my highlights from the day.

The day began with a talk from Monika Akerlund, entitled “*Freezing – Standards for Treatment*” where she described investigating the effectiveness of freezing several different species of insect pest at -20°C when placed inside well-insulated objects. As we had just bought a new freezer at Liverpool, this talk seemed very timely. Three experiments were carried out with insects being placed:

- 1) Inside a wooden block
- 2) In a package of woollen blankets at depths of 2, 4, 8 and 16cms from the surface
- 3) Inside a wooden block, wrapped in woollen blankets

It was interesting to note that in experiment 2, the temperature stabilized after 30hrs at -16°C, even after five weeks of freezing, and the temperature under the package reached only -8°C. Placing the package onto a 6cm high wooden frame, which allowed the air to circulate, alleviated this.

In her conclusion, it was stated “*larvae and adults of selected museum pests are killed after exposure to -20°C for 72 hours, provided that adequate air circulation is ensured during freezing*”. It was pointed out that the RH didn't go over 35% and that maybe an increase in RH would have had an effect on the freezing times. Also, the insects used had been laboratory bred and this may have had an effect on the freezing times. *Stegobium paniceum* –the Biscuit or Herbarium beetle, (one I'm obviously interested in) had not been used in these experiments, so later I asked about freezing times for them. Dave Pinniger advised me to carry on freezing at -20°C for a week to kill them all off.

The next talk, entitled “*Thermo Lignum controlled heat treatment*” proved very interesting. This high temperature regime for pest eradication was new to me. Like many, I presume, I'm definitely more used to low-temperature methods than high ones.

The Thermo Lignum® process works on the basis of maintaining RH within a pre-set narrow limit of  $\pm 5\%$  as the temperature rises. A surrogate object such as a block of wood, which has a density closely matching that of the objects under treatment, is placed in the treatment chamber. This avoids the need for invasive

monitoring of the objects themselves. The system constantly monitors both RH and temperature of the atmosphere in the chamber and the core temperature of the surrogate object. The core temperature is raised to ca. 52°C, held there for three hours and then control cooled back down to the starting temperature. By combining both parameters during the heating phase there is no change in the object under treatment, studies have shown that even an objects DNA is not damaged, if the RH is kept within a 10% boundary.

I was amazed and quite envious, to hear that the total turnaround including loading, treatment, unloading etc) takes only 23hours and found myself comparing it to the mammoth freezing task we embarked on at WML. Obviously there are different issues to consider such as the cost of using Thermo Lignum® process, and I didn't find out how much that would be. However, considering the staff time and cost of materials – polythene, tape etc. used for our collections, it could be worth considering in the future.

In his talk on “**Risk zones – value and implementation**” Adrian Doyle highlighted the strategies which the Natural History Museum are putting in place to minimise risk to the collections through insect pest damage. The whole of the Museum including collection storage, galleries, office areas, staff rooms, laboratories etc has been surveyed and assigned a risk category from A (high risk, red) to D (little or no risk, green). High risk areas include collection areas and low risk areas are the non-collection areas. It became clear that not all areas of the museum are at equal risk from pest damage. Each area has been ‘zoned’ according to its use and the associated risk. The coloured zones are mapped onto plans of the building and these help identify routes through the museum using the colour coding. Each coloured area has a set of associated protocols – a list of do's and don'ts whilst in that particular area. The signage is soon to appear on cupboards and internal doors. And a summary sheet indicating individual personal responsibilities has been produced so that all staff are aware of the new system. It's worth noting that the zoning for rodent pests is different to that of insect pests as they are attracted to different things. So, one area may be a zone A for insect pests but a zone C or D for rodents. Training is given to all staff on how important it is to be more aware of insect pests and the damage they can cause.

I know our senior registrar, who was at the conference and caught Adrian's talk on the Wednesday, is very keen to implement some of the ideas at WML. I'm pleased to say that we do have an IPM strategy in place at World Museum Liverpool and that the Botany section does already follow most of the guidelines set out, such as monitoring with sticky traps, RH and temp control and good quarantine procedures but there's always room for improvement. Last year we had an infestation of *Stegobium paniceum* in botany. Fortunately it was traced relatively easily to a packet of dried fungi and did not spread too far through the collection – a big concern with our open shelving style roller racking! In fact, it was the routine checking of the traps that first alerted us to the problem. After this talk I now feel completely justified in us banning biscuits from meetings in the Botany meeting room as it does hold our rare books and plant model collections. Also it's a mere hop skip and a jump (or fly) down the corridor to the herbarium – and we don't want to open up any new entry routes that way.

Linking in with ‘Risk zones’ was David Pinniger's talk “**New Pests for Old – The Spread of New Pest Species**” He told us of the spread of pests (possibly by the loaning of specimens between institutions) how new species are becoming pests and to look outside collection areas for sources of infestation. The Guernsey carpet beetle *Anthrenus sarnicus* was found in South Kensington in 1963. It has now spread to the Natural History Museum, Liverpool, Cambridge, Oxford and Edinburgh, and is confirmed as the major pest species at the NHM replacing the varied carpet beetle *A. verbasci*. The Brown carpet beetle or Vodka beetle – *Attagenus smirnovi* was first found in a flat in South Kensington in 1978. In 1989 it was reported in the Science Museum where the infestation was traced to cattle food pellets used in an agricultural display. The most recent pest introduction to the UK is the Cabinet beetle – *Trogoderma angustum*. First recorded in 1998 in National Museums Scotland, Edinburgh and established at the Royal Botanic Garden Edinburgh too. Other species such as *Lasioderma serricorne* the Cigarette beetle has recently been found in the herbaria at Kew and NHM. It is the most serious pest of herbaria in hot countries and is not normally found in the UK. Quite a warning then. Many new species may become serious pests in museums especially in light of climate change and so we must use quarantine, get insects correctly identified, record the results and exchange information between us.

When it came to the insect identification practical, I struggled a bit at first. I'm no entomologist but I did enjoy this exercise, and I really do know that the elytra scales on *Anthrenus sarnicus* are triangular as opposed to being shield shaped on *A. verbasci* because I got to look at them under a microscope. It was all very interesting and very handy to be able to compare such a range of insect pests at one time. Just to make

doubly sure we'd seen every one, David also put each specimen under the video microscope for us to get a better look.

The final part of the workshop was a gallery assessment, which we had to carry out on Bird gallery 40. We were split into two groups and were asked to consider key issues such as:

- Collection type and risk
- Collection display cases and furniture
- Gallery environment
- Gallery uses
- Security

Putting into practice everything we'd learnt that day, we then had to assess the area and assign a risk zone.

Walking around the gallery we noted many points. There were mounted birds, eggs and skeletal material on display. The display cases were old, probably Victorian and were mostly unsealed. Many had false bases to them and others were very tall – too high to clean. There were drainpipes inside the gallery and under floor ducting covered with grills, all could harbour pests. The gallery was very warm and humid there seemed to be no environmental control there. Based on these factors we decided that it was a high risk (red) zone A. However, just when we thought we'd cracked it, we were told that because it was not a storage area, the risk is slightly reduced and the gallery should have been assigned zone B (orange). Interesting that both groups assigned zone A to the gallery. We know better now!

We left the workshop armed with IPM articles, copies of published papers, two posters and a copy of David Pinniger's book 'Pest Management in Museums, Archives and Historic Houses'. I thought it was a great day, well organised, friendly, relaxed and very interesting.

### **Some posters and snippets of information from the SPNHC, NatSCA Conference 2005** - Simon Moore

This year's bringing together of SPNHC and NatSCA for a first, and I hope not last, joint conference produced an amazing coalescence of research and knowledge. My only regret was having so short a time to view the posters before they were rather prematurely taken down.

In these days of shrinking budgets and quickly snapped-up grant-aid, the problem of having to assimilate such a wealth of knowledge over a few days has now become the norm which gives rise to having all these wonderful ideas but not enough time to put them into practice due to pressure of work after the few days away.

The poster session enabled many to put their latest ideas in conservation and curation technology up to scrutiny and many of these are pushing forward our knowledge of conservation technology.

Amandine Péquignot from the Smithsonian has been using her knowledge of biochemistry to investigate both the effects of tanning and fluid fixation on skins as well as presenting a poster about spot testing for Arsenic salts on taxidermy specimens. With her varying partners in these projects, ably tutored I suspect, by David von Endt she has updated some of the old tests and shown how they take care of the hazard.

In palaeontology conservation Lisa Kronthal, Christina Bisulca and Amy Davidson, also from the USA, have been testing consolidants with good penetration for fragmentary dinosaur bone. They used a product known as Conservare® OH 100 (ProSoCo Inc.) well-known as a flaky stone consolidant (since 2000), which due to low viscosity is an excellent penetrant. It contains tetra-ethoxy silane monomer, which polymerises *in situ* and has been found combine strength with long-term stability even outdoors. Although this application is still in its testing stage it looks good so far, as a future consolidant.

Many will know that Haselmere Museum has recently re-opened its natural history galleries to great acclaim. Julia Tanner, the curator, presented a poster showing the new galleries and some of the specimens including the previously mothballed Moa skeleton.