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Cleaning, packing and moving a 115 year old taxidermied adult male orang-utan, stuck in a very fragile old nest of leaves in a tree with other nests

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Abstract

For many years the Cambridge University Museum of Zoology has had on display a taxidermy specimen of an adult male orangutan sitting on a 'nest' it had made. This was still situated within the original branches and these also held two other orangutan nests. The orang-utan, branches and nests were at least 115 years old, making the leaves, twigs and branches very fragile indeed. Unfortunately, as part of a major refurbishment project, the specimen unavoidably had to be cleaned, packed-up and moved into temporary accommodation elsewhere on site. The cleaning of the fragile nests had to involve as little contact as possible so as not to damage the leaves or interfere with their arrangement, and precautions had to be taken in case the specimen had been treated with pesticides historically. The orangutan, branches and fragile nests all had to be packed securely so that they would not get damaged when decanted to the new store. No advice was found in existing literature so suitable methods were devised including: the use of a 'puffer' camera lens cleaner to blow dust off the specimens; wrapping the nests in acid-free tissue and Tyvek; and holding the branches and orang-utan in place with batons lined appropriately with Plastazote foam and secured to the sides of a bespoke wooden crate.

Keywords: Orangutan; Taxidermy; Conservation; Cleaning; Packing; Moving

Introduction

A taxidermy specimen of an adult male Bornean orangutan (*Pongo pygmaeus* [Linnaeus, 1760]; museum number E.7107.H; accessioned in 1899) has been on display in the Cambridge University Museum of Zoology for decades. The specimen sits on a nest of bent branches and leaves of a small tree that also contains two other (empty) orangutan nests (Figs 1 and 2). The museum's documentation states that the nest in which the Orangutan sits is thought to have been made by it to offer some protection against the wind according to the donor, Dr C. Hose.

It is believed that this is the only specimen on display in the UK of an orangutan sitting on a nest it has made. There used to be one at the Natural History Museum in London but it now sits only on a branch and is used for temporary exhibitions (pers. comm. Roberto Portela Miguez, 2015).

As the leaves and branches of the nests are at least 115 years old they are extremely delicate, brittle and fragile and crumble easily. Any cleaning of the orangutan specimen, the nests or the tree should be undertaken extremely carefully and minimally, if at all.

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Fig. 1. The orangutan (museum number E.7107.H) sitting on its nest within the branches, with two more nests below. Front view, behind display case glass.

Fig. 2. The orangutan (museum number E.7107.H) sitting on its nest within the branches, with two more nests below. Side view.

Not just because the material is very old, very fragile and very difficult to replace but also because it is covered lightly in a black powder that may well be a historical pesticide such as arsenic (samples of the dark black powder were kept for possible analysis at a later date). Similarly, the whole specimen should not be moved at all unless absolutely necessary because: it is top heavy with the orangutan sitting on the topmost nest (it cannot be removed as it is attached firmly to the upright pole that supports the tree and it would have to be taken apart to find out how it is attached) making it awkward and more prone to damage if moved; moving it anyway would risk damaging the specimen even if it was not top heavy; and because before the moving process could begin the specimen would have to be cleaned before any packing, to reduce the chances of pesticides being inhaled, ingested or absorbed - and cleaning the specimen, as already stated, would itself pose a risk of damaging the specimen.

However, in 2013 museum staff had to begin preparations to decant all the museum's c.4,000,000 specimens to new stores on site – including all the material on display – as the whole building in which the museum was located was to become a construction site. Not only did the six-storey 1960's building badly need complete refurbishment, the area it occupied was to become the new 'Cambridge Conservation Initiative', a unique collaboration between the University of Cambridge and the Cambridge-based cluster of leading conservation organisations as well as the Museum of Zoology. The incidental and unavoidable complete refurbishment of the Museum of Zoology meant that exciting new displays could be planned as well as the re-interpretation of all the old favourite beasts, with the opening planned for the Autumn of 2016. However, this construction project did mean that all the display specimens – including the orangutan – would indeed have to be packed up and moved into temporary accommodation due to the extreme nature of the work required on site. The specimen in theory only needed to be moved a few hundred yards but this would have to happen twice (there and back again) and methods had to be devised to clean, pack and move the fragile specimen without inflicting any damage at all, and leave it in temporary storage for about two years.

Cleaning the specimen

The orangutan, branches and leaves were all lightly covered in an unusual very fine black dust, as well as the more normal brown and grey museum dust and fluff. As the specimen was accessioned in 1899 and had no conservation notes on file as to what treatment it had received in the past to prevent pest infestation the safest course was to assume that this was a pesticide powder. In the past many museum specimens were directly sprayed or dusted with insecticides such as Lindane or dichlorodiphenyltrichloroethane (DDT) and mammal skins in particular had arsenic applied (Carter & Walker, 1999). In fact this was happening until quite recently (Hawks & Williams, 1986; Knapp, 2000). Even if

Fig. 3. Close-up of the empty nest to the specimen's left.

the suspicious looking dark dust had not been spotted on this specimen, it would have been cleaned while wearing disposable gloves and dust-masks as a matter of course to avoid the inhalation or absorption of the pesticides, which must be assumed to have been used on this specimen in the past. Extra precautions were taken, however, to make sure that the dust did not spread during the cleaning process. A vacuum cleaner with a good (HEPA) filter was used continuously to tidy up scrupulously, and no-one else was working nearby. Also, the glass doors to the display cabinet were kept shut unless work was underway.

The leaves and twigs of the nests (Fig 3) had to be cleaned as they were. They could not be removed and cleaned individually as not only would this disrupt their order and the integrity of the nest but the leaves were far too fragile to touch as they would crumble so easily. In fact they had to be cleaned without being touched, not even by a brush. A vacuum cleaner could not do the job, even a gentle museum vac would destroy the leaves instantly if it was held close enough to remove the dust on its own. The solution was to deploy a rubber 'puffer' such as used to clean camera lenses (Fig 4). The bulb of the puffer was squeezed to produce a gentle jet of air in a controlled manner and this blew the dust off the individual leaves as required. The twigs, branches, upright supporting pole and the plinth were also brushed gently with a very soft artist's brush at the same time as using the puffer, as was the orangutan. In retrospect, cleaning the orangutan itself could have been undertaken with a low-suction museum vacuum cleaner although the hoses of these tend to be relatively short and the specimen sits high up on the branches so this could have been awkward. Also, using the puffer was a more gentle method. The process of cleaning using the puffer started at the top of the specimen, the orangutan's head, and worked downwards. At all times a vacuum cleaner was held nearby, close enough to catch all the dust that was blown towards it but not so close that its suction presented a danger to even the smallest of the fragile leaves.

Packing the specimen

Once the specimen had been cleaned as much as practicable, the process could begin to give it adequate support so that everything stayed in place when it was moved. At the time of packing, it was not clear where the specimen was going to be stored so it was packed to cover all eventualities, even robustly enough to survive road transport if need be. The intention was that no branch would sway or vibrate, and no leaves would be disturbed. This could only be achieved by making a bespoke wooden crate that completely enclosed the specimen, with wooden batons running from side to side within the crate holding the branches in place securely so that they could not move as the case was being moved to the new store. This would mean that the top-heavy specimen would not sway like an upside-down pendulum and that the nests would not be disturbed. Where the wooden batons were close to the specimen they were lined with white Plastazote foam (a chemically inert, low density, closed cell, cross-linked polyethylene foam of archival quality) tied or screwed securely into position, holding the specimen gently but securely in place (Figs 5 and 6). For further protection, and if road transport was intended, an even less abrasive material than Plastazote foam could be used between the branches and the foam such as acid-free tissue, PTFE film or Tyvek (pure spun-bonded polyethylene olefin fibres).

It would have been preferable to remove the orangutan from the tree and treat it separately but it had been very well secured to the upright supporting pole and how to remove it could not be identified. It would also have greatly disturbed the very fragile nest material it was sitting on. It was there-

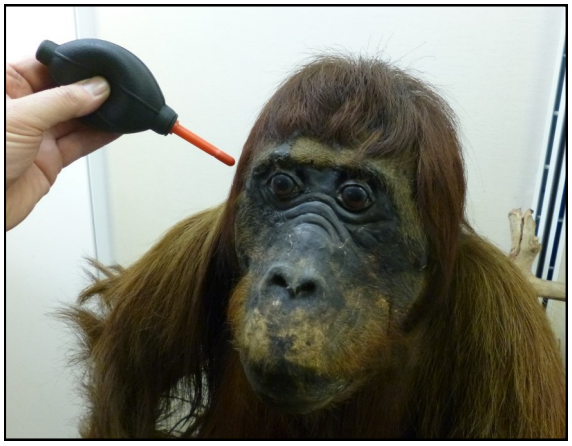

Fig. 4. The puffer used to clean the orangutan (this was posed for the photograph, and gloves were not worn).

fore decided that less damage would be inflicted if the orangutan remained sitting in the nest as long as the whole specimen was moved extremely carefully.

As the branches presented quite an unusual off-centre three dimensional shape a plumb-bob was used to work out exactly the size of the crate required. This would be just slightly bigger than the specimen whilst bearing in mind that it would have to move through several doorways and up a ramp, whatever its final route was. It was so tall (the external dimensions of the crate were 1590mm cm long, 940mm wide and 1870mm tall) that fitting it through doorways was going to be an issue, as it would also have to be on suitable wheels.

The crate was made from 8 sheets (1220mm x 2440mm) of sturdy 12mm think plywood and 23m of batons (35mm x 45mm) including several batons underneath the crate so that fingers could get underneath to move it. Once the base, rear and one side of the crate had been made elsewhere in the room, away from the specimen to reduce the chance of accidents, it was slid very carefully into place so that the specimen was inside. Then two more sides (that had been pre-made) were carefully screwed on. The front and top were left open so that access could be gained to screw the wooden batons in place along with the Plastazote foam. These were positioned to hold the branches in place securely from all sides and also positioned under the nests, so that nothing could move independently when the whole crate was being moved.

The nests presented a unique problem. So fragile that they could hardly be touched, they needed to be held in place so that the leaves did not shift and fall out when the crate was being moved. The solution was to use a combination of acid-free tissue, 6mm wide cotton conservation tying tape, masking tape and Tyvek. Sheets of acid-free tissue were cut to size and placed gently in the concavity of the empty nests and then sheets of acid-free tissue were crumpled and placed gently on top until they made a convex pile within the nest. Then sheets of acid-free tissue were carefully wrapped around the nest, held in place with small pieces of masking tape. Tyvek sheets were then cut to size and wrapped around the nests and were tied gently but securely in place with cotton conservation tape looped around the bundle in all directions. This meant that the leaves within the nests could not move and the nests were also tied to the wooden batons – and had wooden batons and Plastazote foam underneath them – so that they could not move. Completely wrapping the nests to the point where they could not been seen while the specimen was moved was of some concern but if they were not contained the leaves would have moved. Also, the undersides of the nests could not be 'wrapped' on their own without wrapping the top side as otherwise there would not be anything safe on the top side to secure the materials used for the underside. Only by wrapping up and over can you get the packing materials to stay in place. The same procedures were used for the orangutan and the nest it sat in (Fig 6).

Moving the specimen

The front of the crate was left off so that the specimen inside could be watched whilst it was being moved. If there was any swaying or vibration the process could be slowed down or stopped and the

Fig. 5. The base of the branches, showing Plastazote foam tied in place so that the branches do not rub against the wooden batons.

Fig. 6. The cleaned and packed specimen ready for removal to the stores, but with the top and front of the crate not yet screwed on.

method of transport changed. The crate and its contents were carefully lowered from the display case onto wheeled dollies using a manual stacker with forks. The shallowest dollies were used as there was not much clearance (in the end, less than 1cm) between the top of the crate and the lintels of the lowest doorways. Several people were required to slowly push the crate, steer, hold open doors and watch the doorway lintels. The move appeared to go well and there was no obvious vibration or swaying of the specimen. However, this was a decant project and the specimen is still in storage and will not be unwrapped until it is moved back in to the museum for redisplay. When the specimen was placed in its temporary location in the new museum stores, the front panel of the crate was screwed back on and a label attached warning people not to move it without the specific permission of the collections manager.

Discussion

Whilst there are some interesting and detailed articles available describing how orangutans have been taxidermied and put on display (e.g. Ritchie, 2012), there is no record in the conservation literature of how to approach cleaning and moving such a specimen when it is situated within an ancient nest of leaves within branches, with other fragile nests nearby. Therefore it is worth recording the system devised during this project as it seemed to work well.

Specimen records were checked for previous treatments including the use of pesticides but none were listed. However, the assumption had to be made that both the orangutan and the leaves of the nests – and possibly also the branches - had been treated at some point in the past with some sort of pesticide. Therefore a mask was worn when cleaning the specimen and disposable gloves were worn when handling the material and hands, arms and face were washed immediately afterwards each time. Care was taken to clean the whole area around the specimen after work was undertaken. The specimen was labelled with signs to warn people of the risks of contamination with pesticides when unpacking the material in a couple of year's time. This risk was also noted on the specimen's database records.

To reduce any risk of back injury a mechanical stacker on wheels was used to lift the partially assembled wooden crate to the right height beside the specimen so it could be slid into the crate easily. This was a two-person job, for safety's sake. The specimen did not have to be lifted, just gently manoeuvred. The stacker was later used to lower the packed and crated specimen onto the wheeled dollies.

The following are approximate amounts of materials used for the project:

For the crate: eight sheets of 12mm thick plywood (1220mm x 1440mm); 23m of 35 x 45mm batons; and approximately 110 screws.

For cleaning and packing-up the specimen: a camera lens 'puffer' cleaner; 11m of assorted wooden batons; 80 sheets (500 x 750 mm) of acid-free tissue paper; 1.5 sqm of white LD24 Plastazote foam 10mm thick plus various thicknesses of old offcuts; approx. 25m of Tyvek sheet at 1m wide; 32m of unbleached cotton tying tape 6mm wide; and some masking tape to hold the sheets of acid-free tissue and Tyvek in place whilst they were tied with cotton tape.

The whole project from start to finish took approximately five working days. The technique of using a hand-operated puffer to gently clean very fragile material might be of use to other natural history conservators who do not wish to touch a specimen but it will only remove loose dust, dirt, fluff and hairs etc rather than provide a deep clean. It is preferable to using a compressor as it is more subtly controllable, it does not involve hoses that might interfere with and damage a specimen, and there is less potential for disaster as a compressor could be used on the wrong setting.

Conclusions

This was an unusual task (one of many within the wider decanting project) with no precedence in the published conservation literature. It would have been made much easier if the taxidermy specimen could have been removed and treated separately. There might be other ways the project could have been undertaken but the system devised had to cover all possible eventualities and seems to have worked well.

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