



# The Bug Room

BY BEN FENWICK



**Y**ou've seen them on the roadside; an unfortunate armadillo or possum, given by nature a superb ability to adapt and survive for what appears to be millions of years, but unable to compete head-to-head with the modern automobile. Smack! And there the critter lies until it is gone.

But where does it go? Laurie Vitt, associate director of collections and research at the Sam Noble Oklahoma Museum of Natural History, knows.

"The world would be deep in rotting animal carcasses if not for the Dermestids," Vitt says. "They really are neat organisms that reprocess biological material."

At SNOMNH, the curators use beetle larva to clean bones. That's right, the Dermestid beetle, a bug whose larvae spawn around rotting animals and eat the flesh from the dead creatures' bones. Every nasty, smelly scrap of decaying tissue is polished from the bones by these opportunists, and the museum staff knows them well.

Bones brought into the collection must be de-fleshed. Bones that are not always smell like . . . well, something that has died. No matter how exotic or rare a mounted specimen is, if it is not cleaned, it will stink to high heaven, a condition not conducive to study or display. So, specimens are first brought to the bug room.

"What we've done with bug rooms is to take advantage of that particular part of the decaying process," Vitt says. "The person running the bug room has to have their act together, by collecting the right size Dermestids and getting them hungry enough, but then remove the skeletons before they (the Dermestids) walk off with the bones."

For some museums, the bug facility has been a shed stuck out in a field somewhere, like a tin-covered chicken coop. Prior to constructing the new museum, OU's was like this.

"The days of bug rooms like that are mostly gone," Vitt says. "While many museums may not have the bug room as part of the museum like ours, these days most of them are very well controlled operations."

The SNOMNH bug room is actually attached to the building—without sharing the same air system. Nor does the bug room have any opening that accesses the rest of the museum. Instead, one must walk outside the museum, then through an exterior door to enter the specialized unit.

Museum preparator Angelia Tupica manages the bug room, charged with cleaning the specimens for induction into the museum collections. Tupica's office is air-conditioned, but the bug room proper, which contains several large mesh-topped, aquarium-style boxes, is kept in high humidity and at a temperature around 80 degrees.

Bones from would-be specimens are set into the boxes with the beetle larvae. The bugs immediately go to work. Once the larvae have had their day, the bones still need to be disinfected and polished.

The Dermestid beetles the museum uses are the same kind as one would find on typical Oklahoma road kill, but perhaps larger, fatter, and happier due to being museum-pampered. Nevertheless, they would be that much happier and fatter if only they could find more places to live and breed, more organic matter to eat, and room to grow—like in museum collections. The museum staff is ever vigilant to keep them out.

"If the Dermestid beetles got into a museum collection, they could wreak havoc," says ornithology curator Gary Schnell. "If they'd get into a bird collection, in just a month or two, they'd have a devastating effect. They could destroy specimens that have been here a hundred years—just like that. They go inside (the bird) and eat the ends off the feathers, and then one day the feathers all fall off."

Vitt explains that traps are set throughout the museum and monitored regularly. "We built the museum with pest management in mind," he says.



The museum also has a decontamination room. Next to the loading dock back of the building, just behind a large sliding door, is a warehouse-size room where specimens or exhibits with organic origins are brought

## It's a tough job, but one that has to be done to protect priceless museum collections.

before entering the museum. The items are carefully examined for signs of Dermestid infestation.

Suspicious items, and even some that appear clean, are put into a large, sealed, inflatable, plastic "room" filled with a mixture of carbon dioxide and oxygen—like our air, but much more suffocating. Schnell calls the apparatus a CO<sub>2</sub> tent. The air in the whole room surrounding the tent is stuffy and hot.

"We keep it at about 80 degrees," Schnell says. "We pump in 60 percent carbon dioxide. Insects stay active but then actually die from lack of oxygen. At 100 percent carbon dioxide, they go into an inactive state, and it doesn't kill them. But if you fool them, they keep breathing until they suffocate."

The decontamination chamber is environmentally friendly compared to older methods, some of which are still occasionally employed in drastic cases.

"We used to use chemicals to kill them, but we found that although it wasn't healthy for bugs, it wasn't so good for people either," Schnell says. "Instead we try as often as possible to use (the CO<sub>2</sub> tent), or freeze them to prevent contamination."

Perhaps this entire behind-the-scenes bug dealing is not a subject for contemplation while viewing the Hall of Natural Wonders or the Sutton bird collection. But knowing these procedures have been in place since the first collection entered SNOMNH is a great comfort to those who treasure this museum.