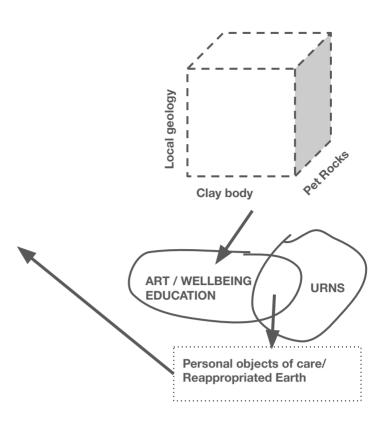
Sphecidae (Mud Wasp) Nest







Article

Nest Ecology and Prey Preference of the Mud Dauber Wasp *Sceliphron formosum* (Hymenoptera: Sphecidae)

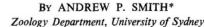
David Yuan 1,*0, Juliey Beckman 2, Jaime Florez Fernandez 1 and Juanita Rodriguez 1

- Australian National Insect Collection, CSIRO National Research Collections Australian, Canberra, ACT 2601, Australia
- Research School of Biology, Australian National University, Canberra, ACT 2601, Australia
- * Correspondence: david.yuan@csiro.au

Simple Summary: Mud dauber wasps, *Sceliphron formosum*, are native to Australia and commonly found in urban areas where they build mud nests on human constructions. Mud nests serve as brooding rooms for their larvae, in which paralysed spiders are provided as food. In this study, over 650 mud nests of *S. formosum* were collected, analysed and examined. We first identified the spider taxa that were provided as larval food and then reared the nests that contained larvae, prepupal larvae and pupae of *S. formosum* and unknown insects. By identifying the insects that emerged as adults, we were able to establish the interspecific interactions and reveal that not only do *S. formosum* larvae use the nests, but parasitoids and any opportunistic insects also utilize the empty nests as shelters. Overall, we documented the prey preference of *S. formosum*, as well as 16 families and 23 species of insects from Hymenoptera, Diptera and Coleoptera that are associated with this mud nest life, suggesting a complicated role these mud nests play in an ecosystem.



AN INVESTIGATION OF THE MECHANISMS UNDERLYING NEST CONSTRUCTION IN THE MUD WASP *PARALASTOR* SP. (HYMENOPTERA: EUMENIDAE)





Abstract. A series of experiments, involving the manipulations of mud nests during construction, has been carried out to investigate the mechanisms of nest construction by an Australian Eumenid mud wasp *Paralastor* sp. It was found that the nest is built in a number of distinct stages. Each stage is characterized by a different form of constructional behaviour, and is triggered by a specific stimulus. Nest construction occurs as a stimulus response chain sequence of events in which the completion of one stage provides the stimulus for commencement of the next. This is not a one-way reaction, as wasps can be made to omit or repeat certain sections in the sequence.

Wasps are renowned for the complexity of their instinctive behaviour. Much of this complexity was revealed by early investigators of wasp behaviour such as Fabre (1879–1907) and Peckham & Peckham (1898) who recorded the

construction occurs as a chain sequence with each new element of the chain being triggered by the presence of new stimuli appearing as a result of work already completed in the chain. In this latter situation the bird has no image

Tags: clay; body; death; interrelationships; kin; potter; care for what comes after.

"What's this project about"
"I don't know... thinking with parameters?"

In some ways locating a symbolic representation of the intersection between two thoughts is a relatively easy task. Think of something. Define two variables that it has. Think of another thing that shares those variables. Add a third variable specific to this new thing.

My first something was an urn, with two variables of particle size and firing temperature. My second something that shared these variables was a pet rock. The pet rock gave a third variable of petness.

This is a thought model that has three dimensions. It is a kind of thinking is that venn diagrams are also good at: defining simple (or complex) connections. What makes it a more interesting process is when the conceptual framework of those two thoughts hinges on change and metamorphosis.

This rock has lipstick. For a while it is precious, then forgotten. The lippy fades. It is a rock until it is soil. This urn was clay. Now it holds grandma. She was once so much. She is now ashes until she is soil.

How can one objectify something that won't stay still?

Within a theoretical model, things don't decay. In theory there is stasis. In theory we can hold onto something as long as memory persists. We might argue that we can avoid decay by archival processes such as documentation or digitisation. These processes rely on external technologies that capture what might be fleeting and store it somewhere else. It is a landscape painting of a lively ecosystem, a simulacrum that aims to hold onto a moment bound for change. Take for instance the growing tech-startup market dealing in death, offering such produces as immersive VR experiences so you can always visit your dead grandmothers kitchen even after you have sold the house and divvied up money. Such promises of immortality neglect the material conditions that underpin them. Hard Drives degrade, wires wear, photos fade, and the technology market itself is obsessively innovative so as to plan obsolescence. All things are subject to change. Sometimes we think of something as permanent because we cannot grasp its lifespan.

The myth of stasis is attached to the myth of the object. An object is defined within its boundaries: it is because it is not something else. However, if looked at long enough, every object loses its permanent state. We generally develop object permanence between birth and twenty-four months old. After this development we hold onto things long after they are physically present. However, what if this psychological disposition is just a mortal convenience? If so, and object permanence is more of a convenient thought model than it is a reality, should we then challenge the assumption of permanence in object.

To summarise my two somethings, held by their variables, in a few words they might be: care; body; elemental cycling; something become something else.

The object must be subjective. It must be allowed to change. So it did.

At first, it was a clay nest of a mud-wasp. I like to think of these nests as inverted urns- a cocoon that holds the paralyzed bodies of spiders so that when the eggs hatch, they have something to nibble on. Death = life. Trite but true.

From this came the thought of metabolism- that becoming involves the consumption and reappropriate of something else. You are what you eat

Again, trite but true. I might as well just sing a full rendition of the circle of life and be done with it.

When I was having this thought of metabolism I was in NSW and someone handed me a loaf of freshly baked bread. This became my new object. It shared the same variable: petness (the cared for sourdough culture), firing temperature (baked at 220*C) and particle size (flour and clay having a similar particle size). It was also tantalisingly close to Grace and Adelphie's objects. I ate half the loaf but the other half was left a bit long and became stale. I held onto it and when I returned home to Tasmania I fed it to my chickens, but not before casting the bread with a clay mould: a sort of death mask for the bread- an open urn. Also a terrific bowl.

Later I killed some of my chickens (the roosters) to eat them. I preserved the feet, knowing that some of the bread was now housed in the chicken.

Thus what this sculpture is is a memory of bread. A symbolic representation of elements reappropriated to become something else. Pet become food becoming pet becoming food.

This will become something else eventually. For now, it looks remarkably like an object. Firing the clay and salting and drying the feet prolong decay, give it the illusion of stasis. Just long enough for people to look at it and consider why the fuck they go to galleries.

