Burying beetles hatch survival plan to source food, study shows

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Adult burying beetle -- *Nicrophorus vespilloides* -- with larva. Credit: Per Smiseth

Young beetles pick up sensory signals from adult insects to increase their chances of being fed - and shorten the odds of being killed instead.

A study of burying beetles has shown that chemical cues allow larvae to distinguish between adults likely to provide food and those that will ignore or attack them.

Beetle larvae have an in-built ability to identify different adults based on distinct chemicals found on the outside of their shells and adjust their begging behaviour accordingly, researchers say.

Adult beetles bury and feed upon the carcasses of small birds and rodents to provide their young with food. They regurgitate the pre-digested flesh for larvae when they beg to be fed.

The research by the University of Edinburgh shows that larvae can distinguish between breeding and non-breeding adults. They beg from breeding beetles but avoid non-breeding adults, as these tend to view the larvae as potential competition for their own unhatched young and kill them.

The study of a species called *Nicrophorus vespilloides* also reveals larvae do not discriminate between male and female parents when they beg for food as both adults will feed their young if prompted.

The team found that larvae opt to beg for food from unfamiliar beetles over familiar ones. Researchers say larvae may instinctively beg more from adults unknown to them, which could benefit young beetles by increasing the amount of resources they receive as they grow.

Mature burying beetles are known to distinguish between adults based on the chemical make-up of their shells. The team's evidence is the first to show that larvae share the same ability.

Maarit Mäenpää, of the University of Edinburgh's School of Biological Sciences, who conducted the study, said: "Our results show that larvae

have the ability to recognise their parents, and they use it selectively to their advantage. It is an exciting result shedding more light on the mechanisms behind the complex behaviours exhibited by these beetles."

The study is published in the journal *Ethology*.

Provided by University of Edinburgh