

Playing dead is no game for ant survival

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Pretending to be dead is an effective self-defense strategy adopted by young fire ant workers under attack from neighboring colonies. This tactic makes them four times more likely to survive aggression than older workers who fight back.

As a result, these young workers are able to contribute to brood care and colony growth to ensure the survival and fitness of their queen. These findings by Dr. Deby Cassill from the Biology Department at USF Petersburg in Florida and her team from USF Tampa in Florida, have just been reported online in *Naturwissenschaften*, a Springer publication.

Feigning death is a method of self-defense used by a wide range of species - mammals, birds, amphibians, lizards, dragonflies, and beetles - in response to threats by predators. Cassill and colleagues studied the death feigning behavior of the highly territorial fire ant, *Solenopsis invicta*, during attacks by ants from neighboring colonies in the laboratory.

They showed that the age of the victims was a significant predictor of their response to their aggressors. Days-old workers responded to the attacks by pretending to be dead. Weeks-old workers responded by fleeing and months-old workers fought back. By feigning death, young workers were four times more likely to survive the attack than were the older workers who ran away or fought back. The researchers also found that sustained movement from the victims was necessary to trigger a physical attack – known as a kinetic cue.

The authors offer two possible explanations for the death feigning behavior of the young fire ants. The external skeleton of days-old workers is relatively soft. Not only are these young workers prone to injury, they are ineffective in battle as their mandibles and stingers are not sufficiently hardened to penetrate the external skeleton of their aggressors. It may be that young workers pretend to be dead to avoid physical aggression at a time when they are vulnerable to injury and certain to fail. Another explanation is that by feigning death, young valuable workers are spared, allowing them to increase colony growth, which is essential to the survival and fitness of the colony queen.

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