

英語長文プラス記述式トレーニング問題集-問題編

愛知教育大学 692語 ※40分



次の英文を読み、設問に答えなさい。

Scientists studying the behavior of certain African ants in Ivory Coast have found that they act like paramedics or emergency medical technicians, examining and treating the wounds of their injured members. Ants are often thought to live in systems where the life or death of an individual worker does not matter much. That is because many ant species live in giant colonies whose workers usually have very short life spans relative to the queen, and because the queen can lay eggs for new workers at a fast rate. According to the scientists, the benefit from helping injured ants in this scenario is small because (1) replacing them should be easier. At the same time, if injuries were mainly fatal, the benefit of a rescue behavior focused on injured individuals would again be marginal.

That is not necessarily the case for ants like *Megaponera analis*, which go out in raiding* parties of 200 to 600 individuals, attack termites* and carry their unfortunate prey back home. The hard-headed termites do not go without a fight, though. Many invading ants lose legs or end up with termite mandibles* dug into their bodies. Surprisingly, the returning ants do not abandon all their victims. Before returning home they look for their injured fellows, which send out a " (2) distress signal." Within 24 hours of being taken back to the nest and treated, damaged ants can switch to a four-legged or five-legged walk that lets them run almost as fast as their six-legged fellows. Because these injured ants can still do almost the same things as their healthy members, it makes sense to bring them home and treat them.

Gravely injured ones, however, are usually left behind. Actually, open wounds from severed legs could easily become infected and spread disease in the ant nest, given that there is a lot of interaction and very low diversity within a single colony. So the scientists want to learn how the ants providing medical aid make decisions about which wounded ants to save or whether it is their decision to make at all. (3) While the benefit for the colony of leaving behind fatally injured ants is clear, the mechanism that regulates this behavior remains unknown. Is the decision made by the helper or by the fatally injured ant?

To find out, the researchers tracked 208 ant raids of sixteen *Megaponera* analis colonies in a humid savanna woodland in northern Ivory Coast. The colony sizes ranged from about 900 to 2,300 ants. The scientists found that it was the injured ants, rather than the paramedics, that determined whether they would be carried home or left to die. That is because the wounded ants behaved differently depending on their physical state. The ants with less serious injuries walked more slowly and stumbled* more often when their mates were nearby. They also curled up in a pupae*-like position when another ant felt them with her antennae* — probably this made the injured ant easier to carry.

The scientists are not sure why the ants with relatively minor injuries slow down. But if the raiding party passed them by, they would quickly speed up and follow the group home. So you may guess the reason to some extent. The gravely injured ants, on the other hand, struggled wildly, making it very difficult for potential rescuers to pick them up and take them home. After a few attempts, the helping ant would give up and move on. In this way, (4) they may possibly keep their fellow ants from wasting any efforts on them.

At the nest, the paramedic ants pulled any tenacious* termites off the injured insects' bodies and cleaned open wounds by licking them intensely, sometimes for several minutes in one sitting. The researchers think that the insects may have antimicrobial* agents in their saliva* that might help stop infection. Whatever the reason, their "emergent medical aid" worked: only 10% of the ants that got treatment died. Without that attention, 80% of those ants would die. "These results are in line with earlier studies concerning rescue behavior and support the hypothesis for the evolution of pro-social behavior without the necessity of empathy or cognition," the scientists say.

*raiding「襲撃」 termite「シロアリ」 mandible「大領」 stumble「よろめく」 pupae「さなぎ」 antennae「触角」 tenacious「しつこい」 antimicrobial「殺菌性の」 saliva「唾液」

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