

Ants can jump farther, faster than others

BY ALDEMARO ROMERO
AND TANJA MCKAY
SPECIAL TO THE SUN

Next time you see a Superman movie or television rerun and hear the phrase "faster than a speeding bullet," you can start thinking about ants.

In an article recently published in the Proceedings of the National Academy of Sciences of the United States, researchers have revealed that the trap-jaw ants living in Central and South America can jump 40 times their own length sideways or eight times their own length upward.

They achieve that by snapping their jaws 2,300 times faster than a blink of an eye, which lasts a little more than one-tenth of a millisecond. The speed in which they close their jaws is 137 kilometers (85 miles) per hour, making it the fastest moving part of any animal species recorded so far.

The researchers who published the article are from the Department of Integrative Biology of the University of California at Berkeley and the Departments of Entomology and Animal Biology at the University of Illinois at Urbana.

These ants use their jaws to capture termites and other ants, but by clapping them so fast, they can propel themselves into the air to escape being eaten by spiders, frogs and lizards.

The jaws are powered by large muscles in the head,

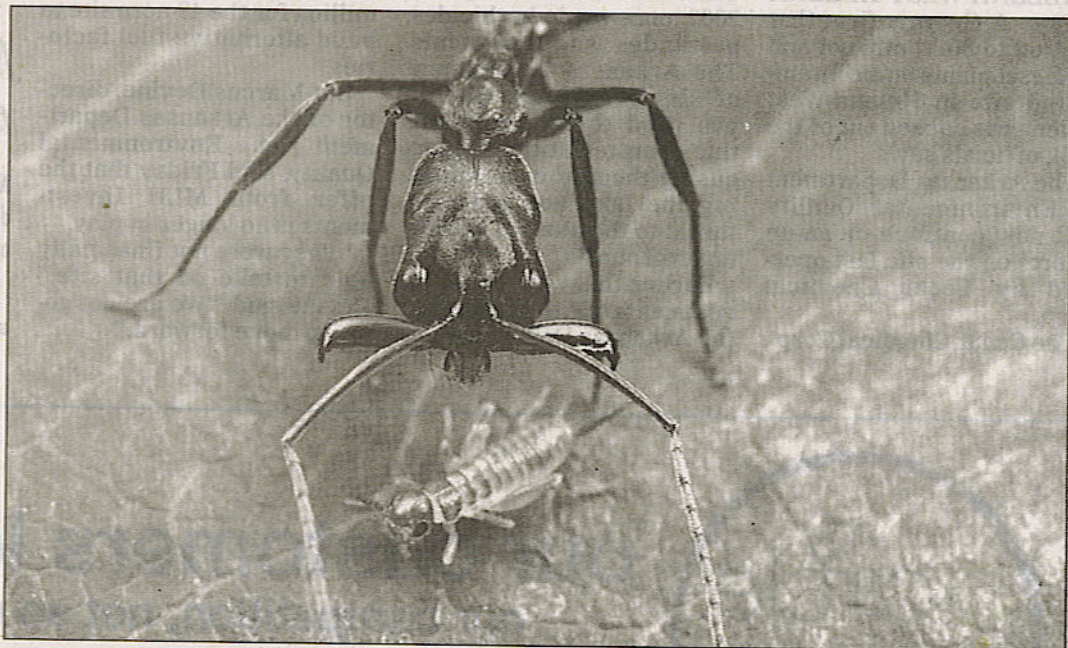


Photo courtesy of Alex Wild | myrmecos.net

Odontomachus bauri, the trap-jaw ant.

and the clapping is so violent that these ants have internal mechanisms in their head to dampen the effect of the blow.

These powerful jaws allow them to attack any potential predator and jump away from it almost simultaneously. The jump can take them away 40 centimeters (16 inches), an enormous distance for such small animals. If the potential predator is too big, the ant just jumps away. These jumps produce accelerations equivalent to 300 times the ant's weight.

To be able to film this behavior, the researchers had to use movie cameras capable of shooting 250,000 frames per second (a conventional

movie camera uses only 24 frames per second). If you want to watch the video, you can go to: http://www.berkeley.edu/news/media/releases/2006/08/21_ant_video.shtm and download it.

There are 8,800 described species of ants with Arkansas having approximately 88 different species. Many more species of ants have yet been described, especially those found in the tropics.

One of us (TM) from the Department of Biological Sciences and Dr. Carolyn Dowling of the Department of Chemistry and Physics at Arkansas State University have been examining the effects of poultry litter application on ground-dwelling in-

vertebrates, including ants. Poultry litter is commonly used as a fertilizer on agricultural fields.

Since poultry litter contains many metals that are released into the environment, a series of experiments are being conducted to establish whether or not plants and arthropods (insects such as ants as well as spiders) are affected by the accumulation of metals in the soils.

For more information contact the ASU Department of Biological Sciences at biology@astate.edu.

Dr. Romero is chairman and professor and Dr. McKay is an assistant professor of biology at Arkansas State University.