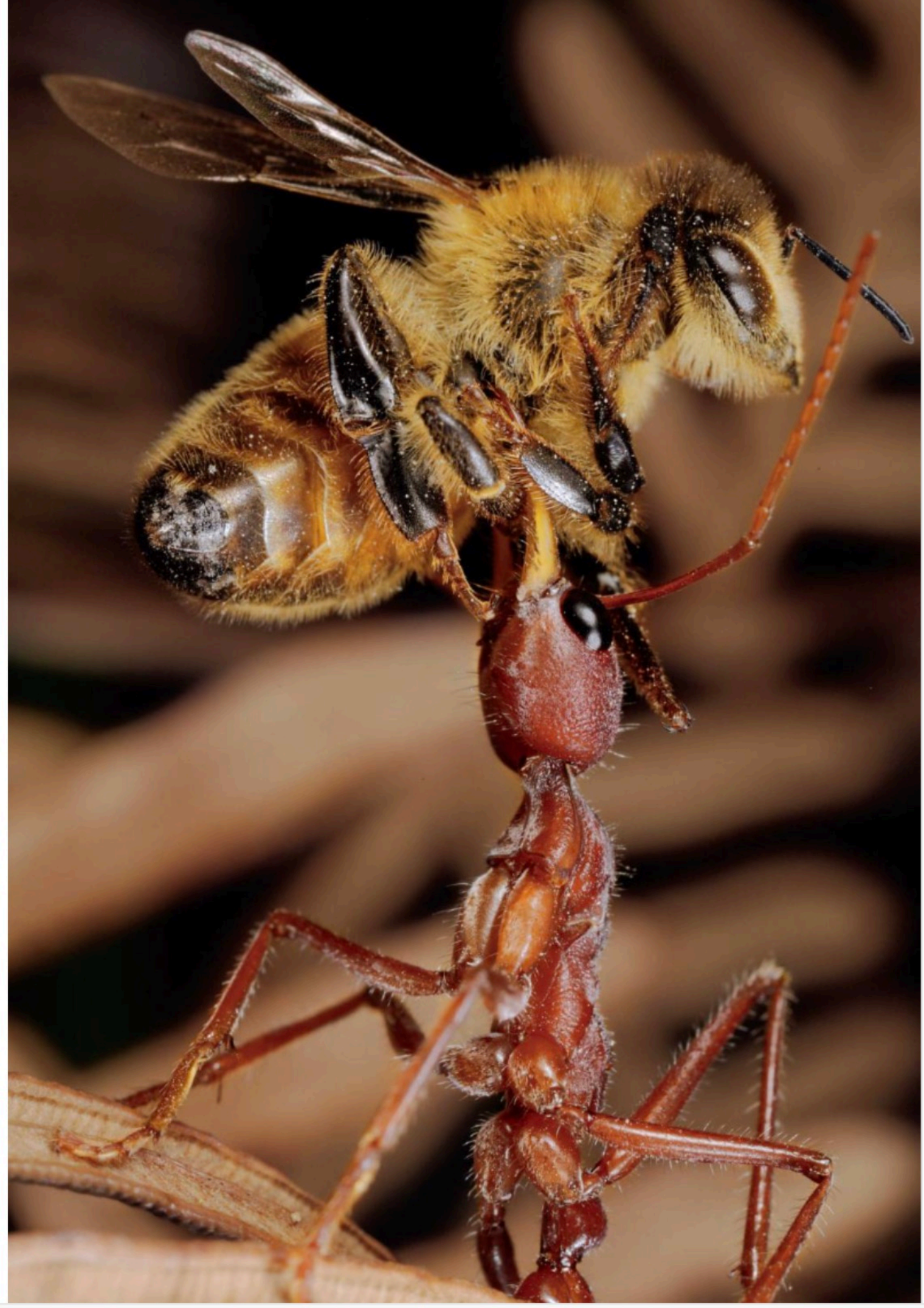



Text and photographs by **Mark W. Moffett**

LONE HUNTRESS

The Bulldog Ant

Fearless and belligerent, the inch-long bulldog ant of Australia uses her sharp vision and venomous stinger to track and subdue formidable prey. In a month of observing red bulldogs (*Myrmecia gulosa*), entomologist Robert Taylor and I discovered that these solitary predators often lie in wait near a blossom to ambush honeybees, sometimes snatching them clean out of the air.

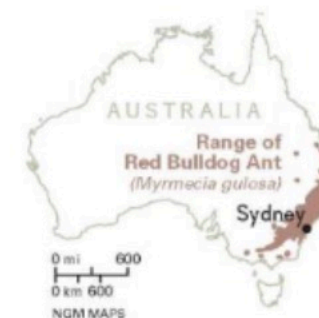




Bulldog ants can spot an intruder two yards away and give chase. It is best not to get caught. The mind-numbing pain from their stings can last for hours. I approached this nest cautiously, holding my camera in outstretched arms and keeping the rest of my body at a distance so the ants wouldn't notice me. No luck: They exploded from their nest and jumped up onto my lens. While I snapped pictures, Bob Taylor frantically flicked away the ants climbing over the camera and up my arms.



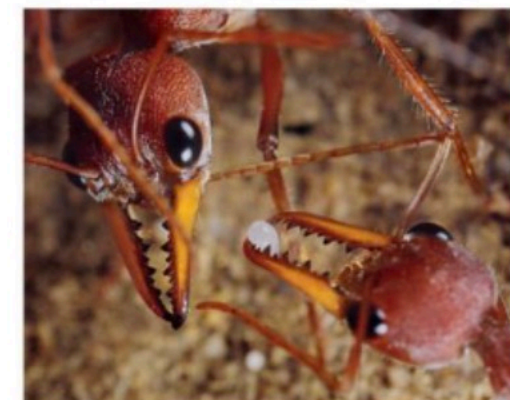
ABOVE: RED BULLDOG ANT, ACTUAL SIZE



PICTURE A WASP with its wings ripped off, and you'll have a good approximation of a bulldog ant. The resemblance is no coincidence: Ants are believed to have evolved from wasplike ancestors some 140 million years ago. The bulldog ant has long been considered one of the oldest ant lineages. But some recent studies suggest that bulldogs appeared no earlier than 100 million years ago, along with an explosion of other ant species that may have accompanied the rise of flowering plants. Nevertheless, they exemplify the anatomy and behavior experts believe the archetypal ancestor of all ants possessed: a big body with long legs, keen vision, venom-laced stingers, and relatively solitary habits.

While fossilized specimens reveal that bulldog ants were once widespread across the globe, today they are found only in Australia. Bulldog expert Bob Taylor brought me to a eucalyptus woodland near Nowra, a town south of Sydney, to track red bulldog ants, which nest there in sandy ground. We found them preying on bees and other ant species, especially carpenter ants. This is dangerous quarry, because more "advanced" ants such as carpenters can quickly recruit aid by sending chemical signals to their nestmates—an ability bulldogs lack. With her superior vision, however, a bulldog hunter can race around a carpenter ant, leap onto its back, and thrust in her stinger before her bewildered victim has a chance to marshal a counter-attack. Primitive, perhaps. But she gets the job done.

To capture images of bulldog life below ground, Taylor and I had to set up a life-size artificial nest and populate it with a colony taken from the wild, including its queen. We blew carbon dioxide into the nest entrance to put the ants to sleep, and started digging like mad, gathering ants as we went. Here and there stashes of larvae and pupae lay in flat-bottomed chambers, and we collected those too. But the queen in a bulldog colony dives to the farthest extremity of a nest at the slightest disturbance. By the time we finally bagged her two yards beneath the surface, the ants had awakened, and our bodies were quivering from repeated stings. After letting the colony settle in to the artificial nest for a couple of days, I spent the next few weeks observing the more tender side of this ferocious insect. —M.M.



Unable to eat solid food, adult bulldog ants can do no more than lick juices from the insects they kill. The meat of the prey is fed to the colony's larvae. The workers' liquid staples include their own shell-less infertile eggs, which they commonly feed to the queen or to each other, but occasionally eat themselves. Above, a worker slings her black-tipped abdomen beneath her body and extrudes an egg. At right, she offers the liquid dollop to her queen.



Bulldogs act alone outside the nest, and even inside it keep their distance from each other more than most ant species do. But behavior within a colony is still guided by the indefatigable altruism that characterizes all ants. Adult workers lavish attention on their fat, legless younger siblings still in larval stage, segregating them by age and size, and feeding the insatiably hungry brood with insects and food eggs (below). When a larva is full-grown, workers gently cover it with sand grains (above), which the larva uses as a scaffolding to spin a silken case around itself. A few days later, workers unearth the cocoon with its pupa growing inside. When the newly formed adult struggles to break out several weeks later, a sister scissors through the cocoon with her long mandibles, serrated like pinkish shears, and helps pull her free (left).





Adult ants do not grow at all, so an individual's size is determined entirely by how large it grew in its larval stage. While there are no clear-cut distinctions, larger bulldog adults typically leave the nest to hunt, while smaller ones normally stay behind and care for the young. □

🐜 **A Mean Sting** "It's like having hypodermic needles stuck in your back," says author Mark Moffett of the bulldog ants that attacked him. Read more about his ordeal in Field Notes at ngm.com/0705.