

THE ANT HUNTER



They may look like alien monsters, but they are some of the most successful life forms on Earth. They have been around for over 100 million years, surviving extinction events like the one that killed off the dinosaurs, and they have colonised every landmass except Antarctica. They are found in every garden, and many homes. They are the ants.

Ants are incredibly varied – they can be as small as a pinhead or as large as a golf ball – and incredibly numerous. One hectare of land in the Amazon rain forest can contain up to 10 million ants. Globally, there could be as many as a thousand trillion ants. Together, they outweigh all of the humans on the planet.

American entomologist Brian Fisher, curator of entomology at the California Academy of Sciences, has spent over two decades travelling the

world, finding, collecting and identifying ants. Out of the estimated 12,000 species of ants known so far, Fisher has discovered no fewer than 1,000. His dedication is the stuff of fiction: he has been known to hitchhike into some of the world's remotest areas, spending weeks at a time living out of a rucksack. During ant expeditions to Africa, Fisher contracted malaria and leishmaniasis; was caught in the middle of a civil war; and had to persuade an airline to let him board a



flight to Europe with neither a ticket nor a passport.

Even though ants are one of the great success stories in the history of life on Earth – for example, they turn more topsoil than earthworms – there

could still be several thousand undiscovered species. So Fisher has set up a website called 'AntWeb', which makes detailed photographs and information available at the click of a mouse. Fisher says AntWeb is a haven for 'backyard naturalists' – anyone can add what they believe may be a new ant species to the 4,500 already on the website.

But what persuaded Brian Fisher to devote his career to discovering new species of ants? A year in Panama working as a botanist, he says: "You go to the tropics and insects are literally raining down on you. At that point, I decided to switch from being a great botanical explorer to becoming an ant finder."

Fisher's ant expeditions are legendary. He once went to Costa Rica with an industrial vacuum cleaner and sucked up half a million Army ants. After persuading an airline to transport them back to California, Fisher released them into a vast display case, where they entertained adults and children alike for years.



Fisher's favourite collecting ground is the island of Madagascar, which contains 5% of all known animal and plant life on Earth:

"It is a living laboratory for understanding the world's ecosystems," he says. During six years, Fisher collected over a million insect specimens, including most of his new ant species. It was on Madagascar that Fisher came to realise the importance of ants:

"You can remove all the birds and still have a forest," he says, "but you can't have a forest without invertebrates. It won't function anymore. Ants are the glue that holds it all together."

Some of the ant species that Fisher discovered are truly bizarre. On Madagascar, he found and named the 'Dracula Ant' because the adults of the species chew into the colony's larvae and suck the blood out of



them. Apparently, this 'nondestructive cannibalism' produces no ill effects on their offspring.

In Costa Rica, Fisher discovered the 'trap-jaw ant', named because its jaws shut on attackers or prey at an astonishing 230 kph, making it an animal record-breaker:



Dracula ant (C004/9753)

"It's the fastest self-powered strike on record, faster than a cheetah," says Fisher.

For the past few years, Fisher has been constructing a 'tree of life' for ants as well as working on AntWeb. By using modern technology like genetic

information and Google Earth – which has proved so useful in allowing contributors to rapidly locate species that Fisher has actually named one 'Google Ant' – Fisher hopes that AntWeb will eventually include every known ant species, and not just for academic reasons. Fisher believes that ants could become a pharmaceutical resource in the same way that plant species have become, especially as a source of new antibiotics:

"Imagine the storehouse of evolutionary information in thousands of species living in dark, wet soil, having to keep fungi and bacteria off themselves and their young," he says. "They produce antifungal and antibacterial agents. Ants are chemical factories."

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Box: Five Fascinating Ants

Army ants



Army ant (genus: *Eciton*) soldiers have fearsome fangs and as a group, they are

more than capable enough to rip a small creature apart. The nomadic colony moves along the forest floor as one giant killing, eating machine – hence the name. When they do rest, they form a nest out of their own bodies and get captured ants from other nests to work as slaves.

Bullet ants



Bullet ants (*Paraponera clavata*) have the most painful sting in the world. The entomologist Justin O. Schmidt allowed himself to be stung by a number of hymenopterans but described the pain of a bullet ant sting as: "Pure, intense, brilliant pain. Like fire-walking over flaming charcoal with a 3-inch rusty nail in your heel." Some tribes in Brazil use the sting of the bullet ant as an initiation rite to become a warrior.

Gliding ants



Ants from the genus *Cephalotes* have developed the unusual skill of gliding mid-air. Being the tree-dwelling type of ant means that falling off a branch is an everyday hazard. By steering and gliding in the air, the ants are able to land on the ground as close to the tree trunk as possible. Soldier *Cephalotes* ants have huge armoured

heads, which they use as ramparts to block the nest entrance whenever they are attacked. Even a marauding troop of army ants have difficulty getting past these barriers.

Jumping ants



Some ant species have developed the ability to jump. The big-eyed *Gigantiops destructor* jumps when attacked,

but the fearsome looking Jerdon's jumping ant (*Harpegnathos saltator*) can actually leap in the air to catch flying insects with its long pincer-like mandibles – the only ant in the world known to do this.

Leafcutter ants

Worker ants from the species *Atta* spend their entire lives snipping at leaves from the branches of trees and bringing those leaf segments back to their nest. The reason? To cultivate their elaborate fungi gardens. The fungi that the ants



nurture and grow can only survive within the controlled atmosphere of the leaf-cutter ants' nest deep underground. The fungus is used as food for the ant larvae, while the adults feed from the leaf sap. Leaf cutter ant nests can be huge – up to eight million individuals, and together, they can strip a tree of all its leaves within 24 hours.

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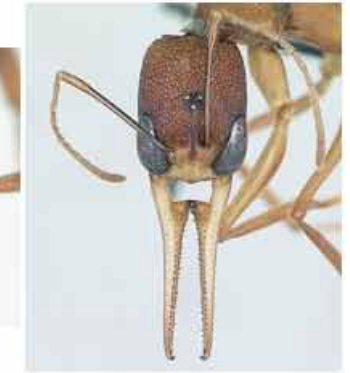
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