

frontiers



Dr Michael Gillett gets up close with a giant beetle. Brigitte Howarth / Emirates Natural History Group

A love affair with the giant beetle and all things in the natural world

The UAE's indigenous *Anthracocentrus arabica* – the giant longhorn beetle – is the second largest beetle in the world. Not exactly an affectionate creature, it has gained the fascination and respect of the Emirates Natural History Group. **Jeffrey Todd reports**

Late one night, Dr Michael Gillett ran into a friend's home carrying a glass oven dish. He raced into the living room and set it on the coffee table, around which eight scientists waited with anticipation.

In the dish were two insects, known as *Anthracocentrus arabicus*, or the giant longhorn beetle of the UAE desert, he had trapped at the base of a tree.

"If you disturb them they have an active defence posture," Dr Gillett said, a biochemist and the world's premier authority on the beetle. "They have these amazing jaws, or mandibles, and they can swivel to face their enemy. It can be quite frightening."

That night in the living room of Dr Gillett's friend, the group of scientists huddled on the couch to observe the tense captives. Of the 350,000 species in the world, these UAE giants are second only to species found in Brazil's rainforest. The nocturnal insects can measure up to 11cm in length, with sharp spines running down their shoulders for protection. And while males tend to be smaller than females, they are very aggressive when pitted against another of their sex.

Dr Gillett had caught two males.

The scientists watched as the beetles spread their jaws, each agitated by the other's presence. Before long the two insects lunged at each other. Dr Gillett, in the interest of preserv-

ing his specimens, reached in to separate the duelling giants.

"I was bitten on the finger and it bled," he said. "And it hurt. It really hurt."

Dr Gillett's reaction to the bite sent the dish flying to the ground where it promptly shattered. It was, in the end, just another episode in the history of the Emirates Natural History Group, a national organisation that boasts hundreds of members. With chapters in Abu Dhabi, Dubai and Al Ain, the group has held regular seminars, hosted guest speakers, planned field trips and conducted research since it was founded in 1977. Comprising both scientists and laymen, membership is open to anyone with an interest in the natural world. Each chapter publishes a monthly newsletter, and the Abu Dhabi group produces a reputable biannual scientific journal titled *Tribulus*, to which all members can contribute.

Most recently, Dr Gillett, who had previously worked at UAE University for more than 13 years, travelled to the Emirates from Birmingham, UK to help classify and catalogue the thousands of insects currently in the Natural History Group's possession. Meanwhile, he held a series of lectures about the giant beetles.

The son of a fly fisherman, Dr Gillett's interest began when he was just four years old. He recalls catching moths at night on the front porch, and keeping them in shoeboxes. He



Jaws open wide in self-defence. Brigitte Howarth / Emirates Natural History Group

admired their intricate beauty, and has had trouble putting them down ever since. But giant beetles are now Dr Gillett's passion.

Until recently these beetles were considered extremely rare. They came to Dr Gillett's attention in the 1990s when two specimens, both dead, were found in the desert near Al Ain. It was not until 2003 that the first live specimen was captured.

Dr Brigitte Howarth, an assistant professor in the Department of

Natural Science and Public Health at Zayed University, was the scientist who made the discovery.

"What is interesting is they are barely known in the UAE," she said. "They are a great rarity. But that is changing. We now know where and how to look for them."

Research into the giant longhorn beetles has revealed the insect is exclusively associated with ghaaf woodlands, or desert trees common in the Emirates. These trees are known for

their long roots, which stretch between 30 and 60 metres. It is here, underground, that the beetles grow as larvae for up to five years, feeding on the roots. When they emerge from the ground, the beetles are already full size. They never feed. Instead, the giants live off the fat and nutrients they built up underground. Males outnumber females by six to one, and live for about one month. Females live only a couple of days. But the short life span of the female, combined with the predominance of males, ensures efficient breeding. After the female is impregnated, it extends a 3cm tube from its abdomen and plants it in the ground. Through this tube it lays several eggs the size of a grain of rice. The giant beetles grow, live and die in the shade of a desert tree.

To catch the beetle, Dr Gillett sets up wooden boards along the base of a ghaaf tree. The insects love enclosures, and at night, they can often be found under them.

For years Dr Gillett and Dr Howarth have studied the intimate link between the giant longhorn beetle and Ghaaf trees. They have discovered these beetles are not only vital to the health and ecological balance of these desert woodlands, but artificially planted trees and those surrounded by building developments are barren of the insects. And as more trees are cut down or transplanted to make way for ceaseless

development, scientists fear the bond between the giant beetle and ghaaf trees will be broken. This disruption, scientists warn, could have a drastic effect on other animals.

Ghaaf woodlands are a hub of desert life. Moths, ants, spiders, owls, scorpions, mice and gerbils are just a few of the animals who depend on the trees.

"This habitat is under serious threat from development in the UAE," Dr Gillett said. "And the beetle could help us to evaluate the value and conservation potential for desert sites in Abu Dhabi and Dubai emirates and further afield."

Dr Gillett's research on ghaaf trees and the giant UAE beetle has been conducted in two phases. The first stage involved studying the beetle population at close range in the desert just outside Al Ain. During this time he has mapped out their behavioural patterns and relationship with the surrounding environment. The second phase, now underway, aims to widen the area of research to assess their environmental significance.

Dr Gillett and Dr Howarth hope to prove the ecological importance of these beetle giants. To them, insects are animals that must be protected.

"Most people think it is OK to step on an ant," Dr Howarth said. "But it is not."

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