



Communication and Marketing Department
Isebe loThungelwano neNtengiso
Kommunikasie en Bemerkingsdepartement

Private Bag X3, Rondebosch 7701, South Africa
La Grotto House, Glendarrach Rd, Rondebosch, Cape Town
Tel: +27 (0) 21 650-3733/2, Fax: +27 (0) 21 650-5682
Internet: www.uct.ac.za

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UCT biologists' find is named one of Top 10 New Species for 2011

Jumping cockroach leaps onto global list

When you discover the world's only known jumping cockroach, as UCT's Professor Mike Picker and former student Dr Jonathan Colville did, you naturally spend much time thinking of catchy headlines – such as the one above – to mark the event.

And it's time well spent, as this small cockroach certainly has been making headlines: this week it leapt into the Top 10 New Species for 2011, a much-vaunted list compiled by the International Institute for Species Exploration at Arizona State University in the US (<http://species.asu.edu/Top10>).

On that pick of new species, the leaping cockroach – or "Leaproach", as Picker and Colville have named it – joins a leech with enormous teeth, an iron-oxide consuming bacterium discovered on a rusticle from the RMS *Titanic*, a flat-as-a-pancake batfish that appears to hop along the ocean floor, and a 1.8m-long fruit-eating lizard. The list highlights the most exciting species described taxonomically in the previous year.

Picker, of UCT's Department of Zoology, and Colville, now with the South African National Biodiversity Institute, discovered the cockroach by chance in 2006, while using a net to sweep vegetation for long-tongue flies in sedge meadows of the Silvermine Nature Reserve in Cape Town.

From the moment they laid eyes on the funny-looking insect in their nets, the two knew they were onto something special. Measuring in at a modest one centimetre, the creature appeared to be a cross between a cockroach, a cricket and a grasshopper. "Superficially it looked a bit like a cricket, but not quite," recalled Colville.

A careful microscopic examination back at their lab confirmed that the insect was in fact a cockroach. It boasted the broad, flattened body, the small head covered by the pronotal

shield (or head shield), and very large leg bases that are typical of cockroaches. But it's easy to see why an untrained eye might confuse the insect for a grasshopper.

The jumping cockroach has distinctive, grasshopper-like features, many of which are likely adaptations for jumping. These include the enlarged, muscular hind legs, the round, bulging eyes that allow for a wider view, rough-padded "toes" for improved grip before and after jumping, and an especially strengthened base for the antennae, which stabilises the insect during jumping.

It belongs to the same family as the common household German cockroach – although, unlike the German cockroach, it is active by day, during which it lives side by side with grasshoppers on grass stems.

Four years after their initial finding, Picker and Colville penned their first article on the jumping cockroach in a 2010 paper in the journal *Arthropod Systematics & Phylogeny*. There they officially named it *Saltoblattella montistabularis*. *Saltoblattella* is Latin for "jumping small cockroach", while *montistabularis* refers to the site where it was first spotted, viz the Table Mountain National Park, to which Silvermine belongs.

"Thus far, it is only known from that single locality, adding to the impressive biodiversity profile of this World Heritage site," says Picker.

The two have also submitted a second paper, with colleague Malcolm Burrows from Cambridge University, which details the jump mechanics of the Leaproach. It bears no resemblance to the only other assumed jumping cockroach ever found, the Late-Jurassic *Skok svaba*, whose 160 million year-old fossil was first described in 2007. In their paper, Picker and Colville argue that the two insects' jumping adaptations most likely developed independently, especially since *Skok* was a stem "roachoid" – insects vaguely related to the cockroach and with a roach-like appearance – not on the main evolutionary line that gave rise to modern cockroaches.

There may well be other jumping cockroaches in the Cape or, for that matter, in other poorly bio-prospected parts of the world. But Picker and Colville agreed that their discovery pointed to how little is known about the Cape fauna, which could even trump the plant riches of the celebrated Cape Floral Kingdom for scale and diversity.

"The Cape has a very spectacular and distinctive Cape insect fauna, which has, up till now, been underappreciated," said Picker.

Colville and Picker also discovered an entirely new order of insect, known as *Mantophasmatodea* (or Heelwalkers), in South Africa in 2002.

Caption to accompany attached photo: The leaping cockroach – or "Leaproach" -- has been named one of the Top 10 New Species for 2011.

ENDS

Patricia Lucas

Tel: (021) 650 5428 Fax (021) 650 5628

Cell: 076 292 8047

E-mail: pat.lucas@uct.ac.za

La Grotto House, Glendarrach Road

University of Cape Town

Rondebosch

Website: www.uct.ac.za