



Bizarre **worm** puzzles scientists

A tiny nematode from a previously undescribed genus has been identified as the cause of an unusual muscle-wasting disease in two people living in Australia. Authorities are hoping the infections are isolated cases, but scientists are baffled by the strange morphology and unknown origin of the species.

The nematode belongs to the super-family Muspiceoidea. According to Dr Dave Spratt, a parasitologist at CSIRO Wildlife and Ecology, this is an odd assortment of worms that turns up in some very strange places.

One species has only been found in the eye of a single crow and the brain of a single falcon. One genus, *Lappnema*, has only been detected in the skin of the ears of reindeer. Other species have been found in mice, bats and a range of Australian marsupials but, until now, none has been known to cross over into humans.

Caption correction

A caption on page 7 of *Ecos 97* incorrectly attributed the development of an aerial survey technique for counting kangaroos to CSIRO Wildlife and Ecology technician David Grice. The technique was in fact developed by Grice's former supervisor, the late Dr Graeme Caughley, one of Australia's most respected ecologists.

The new species will be named officially in a paper to be published in *Systematic Parasitology*. It first came to light when a middle-aged fireman complained that he could no longer climb into his fire engine because of muscle weakness in his arms and legs. After months of fruitless tests, a biopsy revealed nematodes about half a millimetre long, inhabiting – and killing – skeletal muscle fibres. Spratt and his colleagues later identified the worm as a new species, also linking it with a previously undiagnosed case involving a British field botanist.

Spratt says that while all species in Muspiceoidea exhibit some bizarre characteristics, the new nematode is particularly unusual. One of its features is a large amorphous 'cell' in the rectal region of mature and gravid females that contains a granule-filled, gourd-shaped reservoir.

'We've seen it, we've drawn it, but we haven't a clue what it is,' Spratt says.

Unusually, too, the female incubates only 8-10 eggs, about one hundredth the number produced by related species. She probably wouldn't want any more: after developing to larvae in her uterus they kill her by bursting out through the top of her head. Just as puzzling is the obscure origin of the species. The only thing its victims had in common was that they both lived recently in Tasmania.

Inset: A histological section showing a female nematode in human muscle.

Main picture: A female nematode with four developing eggs in one uterus. Once the eggs develop into larvae, they will kill the mother by bursting out through the top of her head.

Since the two patients made a full recovery after treatment, Spratt says the nematode is likely to remain an enigma – barring a more alarming outbreak of infections.

'Nematodes occur in every biosphere on earth except the air,' he says 'We believe this bizarre and little-known group of parasitic nematodes of vertebrates stems from predaceous soil-dwelling or plant-parasitic forms adapted to piercing and feeding on tissues. Their closest relatives are parasites of terrestrial, especially larval, insects.

'Consequently, the causative agent of our perplexing zoonosis may have come from vertebrates, invertebrates, plants or soil. Even if someone came to us with a fistful of research dollars, we have little idea where to start looking for the beast.'

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