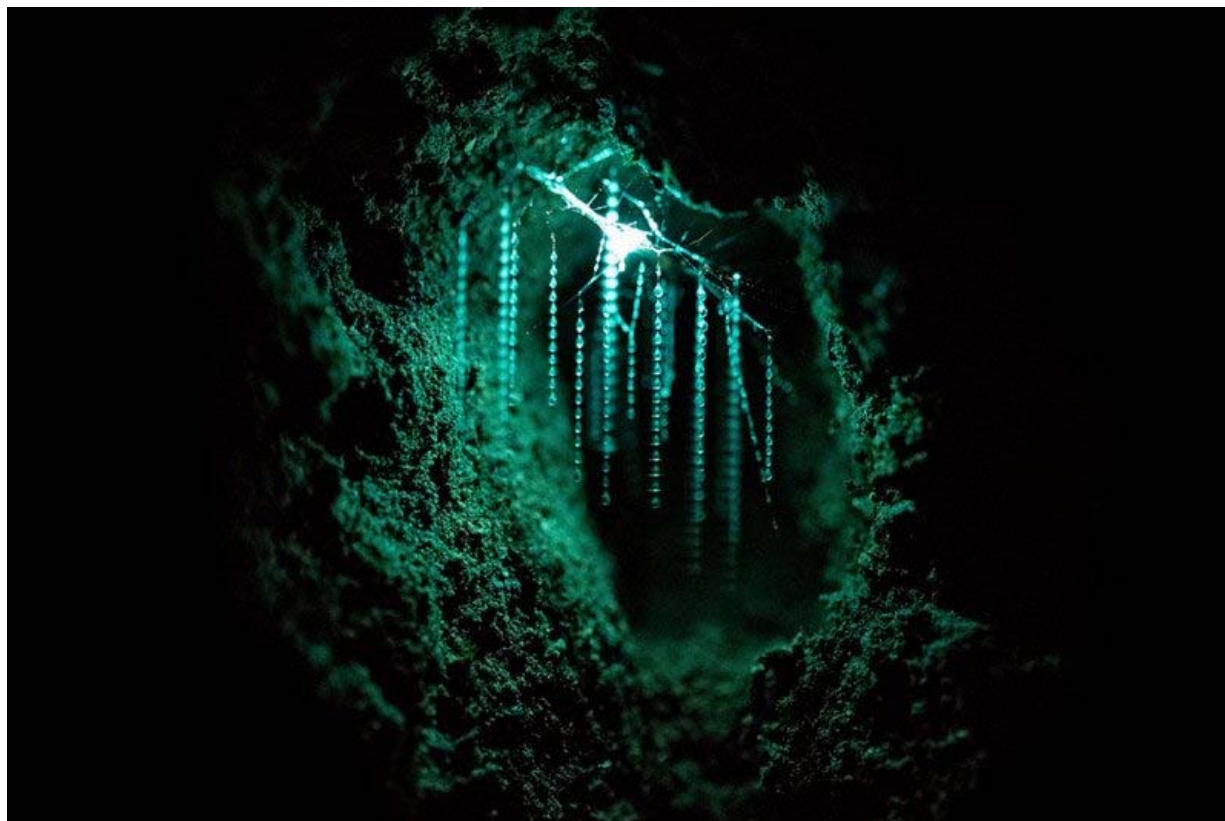


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Cave glow-worms vomit long sticky urine threads to catch prey

Zoologger is our weekly column highlighting extraordinary animals – and occasionally other organisms – from around the world.



Light lures

Markus Thomenius/Alamy Stock Photo

By **Alice Klein**

Species: New Zealand glow-worm (*Arachnocampa luminosa*)

Habitat: Damp caves in New Zealand

Water and wee. That's what New Zealand glow-worms use to build sticky traps to ensnare their prey.

Arachnocampa luminosa lives in wet caves, spending about nine months as a larva, before growing wings and turning into a fungus gnat that survives for just a few days, during which time it mates.

In the larval form, the glow-worm builds a mucous tube up to 40 centimetres long along the cave ceiling. It then shuttles back and forth along the tube, spewing dozens of long silk threads from its mouth that it leaves dangling from the tube.

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traps were unknown.

To address this, Janek von Byern at the University of Vienna, Austria, and his colleagues analysed droplet samples from two glow-worm caves in Waitomo on the north island of New Zealand.

The droplets were found to be composed of 99 per cent water and 1 per cent glue. The glue was made of urea and a yet-to-be-identified peptide.

Glow-worm urine is the most likely source of this urea, von Byern says. Urea is a common waste product in insect urine, and is also used in several industrial glues.

The next step will be to confirm that urea from urine can travel from the gut up to the mouth and be secreted onto the threads, von Byern says.

The stickiness of the water droplets may be due to the urea itself or to its effect on the surface tension of the water, says David Merritt at the University of Queensland, Australia, who was also involved in the study. "The droplets appear to have lower surface tension. When insects hit them, the water rapidly spreads over them," he says.

A previous theory was that the droplets contained oxalic acid to poison the prey, but no traces of this substance was found.

"The research definitely contributes to our understanding of how glow-worms catch food," says Miriam Sharpe at the University of Otago in New Zealand. However, she says that the complete composition of the glow-worm glue – including the mystery peptide – must be determined before its mechanism can be fully elucidated.

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