

# Trapdoor spider species that stay local put themselves at risk

April 5 2019, by Jeremy Dean Wilson

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A palisade trapdoor spider of the new species *E. turrificus* walks across the rainforest floor near Maleny, Queensland. Credit: Jeremy Wilson, Author provided

Several new species of trapdoor spiders found in Queensland are finally described in an article published this month in [Invertebrate Systematics](#).

But each of the [new species](#) occurs in only its own single, isolated patch of rainforest in southeastern Queensland, and nowhere else.

Because these [species](#) have such tiny natural distributions, they are especially vulnerable to extinction.

## Unique spider burrows

These newly described spiders have been given the common name palisade [trapdoor spiders](#) because of the strange and unique burrows they construct. The entrance to the burrow projects out from the surrounding soil like a miniature turret.

Not only that, but each of the four new palisade [trapdoor spider species](#) constructs its own unique type of burrow.

One species, found in national parkland near Gympie and known scientifically as *Euoplos crenatus*, constructs a particularly elaborate burrow. The hinged door that covers the burrow entrance is adorned with several rounded lobes which project from the door's circumference.

This marvel of natural architecture is constructed by the [spider](#) using silk and soil. No other spider species in the world constructs something similar.



The remarkable palisade burrows constructed by two different species of palisade trapdoor spider. The burrow entrances project from the surrounding soil. Credit: Jeremy Wilson (left), Michael Rix (right)

This species was originally discovered by local naturalists Kelvin and Amelia Nielsen in 1999, who then guided researchers back to the discovery location in 2016 to collect specimens so the species could be formally named.

Another species, *Euoplos thynnearum*, constructs a burrow entrance with a thick lip within which the burrow door sits. It's found in the [Mary Cairncross Scenic Reserve](#), a 55-hectare patch of subtropical rainforest popular with visitors to the Sunshine Coast hinterland.

This species is named after Elizabeth, Mabel and Mary Thynne, who originally donated the reserve land to the local council in 1941 to honour their mother Mary Thynne (née Cairncross). Currently, this species is known to occur only within the reserve and in other rainforest patches in the immediate vicinity.





The remarkable palisade burrows constructed by two different species of palisade trapdoor spider. The burrow entrances project from the surrounding soil. Credit: Jeremy Wilson (left), Michael Rix (right)

### **Short-range species at risk**

Species that only occur in a very small area, like these new palisade trapdoor spider species, are known as short-range endemic species.

Although scientists are naming new species at a [faster rate than ever before](#), estimates of the total number of species on Earth still suggest that most animal species have not been formally named. With so much work still to do, some scientists have chosen to prioritise work on particular types of animals that are especially vulnerable to extinction.

In 2002, Mark Harvey, an arachnologist from the Western Australian Museum, [proposed](#) that scientists should prioritise the discovery and description of short-range endemic species.



Burrow entrances of the new palisade trapdoor spider species *Euoplos thynnearum*. This species is largely restricted to a single rainforest patch, occurring within Mary Cairncross Scenic Reserve near Maleny. Credit: Michael Rix

He reasoned that the small ranges of these species make them inherently vulnerable to extinction, and that identifying, naming and studying them is the first step to protecting them.

## **Staying local**

For trapdoor spiders, short-range endemism is the rule, not the



exception. These spiders live their entire lives in a burrow. Juvenile spiders walk only short distances from their mother's burrow, before constructing a burrow of their own.

Usually, these spiders will then remain in the same burrow for the remainder of their lives, enlarging it as they grow.



The strange burrows of the trapdoor spider species *Euoplos crenatus* project out from between the roots and leaf-litter on the bank of a creek in a rainforest patch near Gympie, Queensland. Credit: Jeremy Wilson

Adult male trapdoor spiders will also leave their burrow to breed, but will only travel relatively short distances. Over time, this extremely limited dispersal ability has led to the evolution of many different

trapdoor spider species, each of which occurs in only a very small area.

Since 2012, a research team, led by Queensland Museum researcher Michael Rix, has been trying to discover and name all species of [spiny trapdoor spider](#) - this group includes the palisade trapdoor spiders, as well as other strange trapdoor spider species such as the [shield-backed trapdoor spiders](#) of Western Australia.

So far, this project has led to the description of more than 100 new species from throughout Australia, some of which are already classified as threatened by federal and state governments.

The most iconic of these is *Idiosoma nigrum* (also a shield-backed trapdoor spider), which is a [listed threatened species](#).





Examples of different trapdoor spider species from eastern Australia. Top left, *Arbanitis longipes*; top right, *Heteromigas* sp.; bottom left, *Cataxia* sp.; bottom right, *Namea* sp. Credit: Jeremy Wilson

The discovery of all these weird and wonderful spider species should remind us that Australia has some of the most remarkable invertebrate species in the world, and new species are waiting to be discovered in the [national parks](#) and reserves which occur around, and even within, our towns and cities—under our noses.

Next time you visit a national park, or drive past a patch of forest while commuting along Australia's east coast, think to yourself, what might be



living in there? Do those species occur anywhere else? And above all, if we lose that forest remnant, what unique species might disappear along with it?



A shield-backed trapdoor spider from Western Australia, showing the distinctive hardened disk on its abdomen which the spider uses to ‘plug’ its burrow as a protection from predators. Credit: Mark Harvey

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