

Marsupial lion's primate-like forearms made it a unique predator

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

Fearsome predator

Jason Edwards/Getty

By **Emily Benson**

Species: *Thylacoleo carnifex*

Habitat: Prehistoric Australia

Kangaroos in prehistoric Australia faced a fearsome threat. The marsupial lion had sharp teeth, crushing jaws – and manoeuvrable, primate-like forearms that could have allowed it to slash at prey with large, retractable thumb claws.

The creature, *Thylacoleo carnifex*, lived during the Pleistocene – which began about 2.6 million years ago – and clocked in at around 100 to 160 kilograms until it went extinct around 30,000 years ago.

It probably looked like a cross between a small bear and a wombat, says Stephen Wroe at the University of New England in Armidale, Australia. Its cheek teeth – the dental hallmark of a hunter – mark it as a fierce predator.

“In a real, card-carrying, no-bullshit mammalian carnivore, what you see are very large, vertically slicing blades,” says Wroe – like the ones in the marsupial lion’s jaws. “These are the teeth that are used to slice through thick, fibrous flesh and skin.”

The marsupial lion was capable of taking down herbivores much larger than itself, including prehistoric kangaroos. The big question is how the animal did it.

Unique behaviour

The lion’s forelimbs were probably involved, according to a new analysis led by Borja Figueirido at the University of Malaga in Spain. Figueirido and his colleagues compared the shape of the elbows of three *Thylacoleo carnifex* skeletons with the elbows of 78 species that are still living today.

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The team expected the marsupial lion’s elbow to look like that of modern predatory cats – but it didn’t. Instead, it was more similar to the elbow of tree-living animals with extremely

manoeuvrable forearms, like primates and sloths.

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“This guy was totally different from any known living carnivore,” says Figueirido. “This is an example of a totally unique behaviour in predators that is not seen today in the living world.”

Instead of using that manoeuvrability to swing themselves through the trees, the lions probably used their forelimbs when slaughtering their prey, the researchers say, though the details are still murky.

Jaws, or claws?

“It would have got a very, very strong grip,” says Chris Johnson at the University of Tasmania in Hobart, Australia. Perhaps the creature used its forelimbs the way a leopard uses its jaws — to clamp down on a victim’s throat until it dies, Johnson speculates.

But marsupial lions also had strong jaw muscles. They might have grasped their prey with their teeth, then dealt the final, killing blow with the large claws on their semi-opposable thumbs, say Figueirido and his colleagues.

“We think that this guy immobilised the prey with the powerful jaws, but killed the prey with the claw,” he says.

But Wroe says the claws were probably too small to slay large animals. “Imagine trying to take out a water buffalo with an inch-long knife,” he says. “It doesn’t work.”

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It’s possible that the beasts dispatched their quarry by crushing them with their massive jaws — after wrestling them to the ground using their claws as grappling hooks, Wroe says.

“Once you had those claws hung into your flesh, it would be hard to get away.”

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