

DRAMA IN REAL LIFE



NATURE'S DEADLY VENOM

With a long weekend fast approaching, and a camping trip to pack for, one false move almost cost Adrian Main more than just his holiday

BY *Diane Godley*

PHOTOS: COURTESY HORNSBY SHIRE COUNCIL



Tall eucalypt forests and bushland north of Sydney are home to a variety of fauna

For the Thursday before an Easter long weekend in 2016, it was unseasonably hot. By mid-afternoon the sun was beating down and the clear blue skies showed no signs of the forecast rain. Adrian Main was doing what he loved, working outside in the rugged bushland that surrounds the leafy suburbs on the northern outskirts of Sydney.

Guided by a love of mountain bike riding, Adrian founded Synergy Trails, a construction company specialising in installing narrow, winding, dirt bike trails in bushland for weekend and competition riders. It was dusty, dirty work at times, but with the trees providing a canopy of shade and only the noise of his team and the local birds nearby, there wasn't any place he'd rather be.

Over the years, the 40-year-old sub-floor carpenter had encountered many local fauna hazards while digging around in soil, including venomous arachnids and snakes, but he knew how to identify the mild from the wild ones. Adrian was also trained in first aid, though he never seriously thought he or anyone working for him would ever be bitten.

With the clock ticking down towards the start of the four-day long weekend, Adrian had some light digging left to do. His shovel was in his vehicle, parked some 50 metres away. He considered getting it, but the job

was small, and just needed a light dig to get beneath the shallow soil and leaf litter. So he used his hands instead.

But just as his fingers slid under the pile of leaf litter, he felt a sharp deep pain in his left hand. He quickly lifted out his hand to see a spider wrapped around his left index finger. The five-centimetre-long glossy black creature had its fangs firmly embedded, piercing through to his knuckle. The pain felt as if a nail was being hammered into his finger.

But that wasn't the worst of it. He knew straight away that the spider was a Sydney funnel-web (*Atrax robustus*) and here he was with it wrapped firmly around his finger. Adrian frantically flicked his hand up and down to remove the spider, but it didn't come off. He persisted, shaking his hand even harder and, after three or four seconds, it finally let go of its grip and dropped to the ground at Adrian's feet.

He looked down just in time to

quickly double-check the spider's identity before it buried itself back under the leaf litter. It was a fully grown male Sydney funnel-web, the deadliest spider in Australia.

After 15 years working in the bush, encountering different types of spiders and snakes, Adrian never thought he'd ever get bitten. But all it took was one brief moment when he was trying to do a simple job quickly, and he became a victim.

He called out to his crew mate, Phil, who was working close by. Phil dropped his shovel and ran over. The pair calmly walked to the four-wheel-drive while Adrian pinched down hard at the base of his knuckle to slow the spread of venom into his blood stream. They both knew a bite like this could cause death within an hour if left untreated.

Fortunately for Adrian, the trail where they'd been working was only a short distance from Hornsby Kuring-gai Hospital. Regardless, Phil raced through the off-road terrain, jostling them about inside the cab. Once they reached the suburban streets, he mounted a footpath to take a shortcut onto the main road

to get his boss to hospital as fast as he could.

Adrian walked into the emergency department with blood still streaming down his finger. He calmly told the triage nurse at reception that he'd been bitten by a funnel-web, and was quickly moved to a bed.

He felt lightheaded and strange, as if he was going to pass out at any minute, but he was coherent enough to

talk with the nurses, who had hooked him up to an array of monitors to start assessing his vital signs.

During summer, the emergency care unit (ECU) at the hospital treats patients with spider bites about once a week, but only rarely do patients have symptoms of envenomation, what we know as venom poisoning. Still, they waited and watched.

"About ten minutes after arriving at hospital, Adrian suddenly became incoherent and couldn't finish his sentences," says Dr Clare Skinner, director of emergency medicine at Hornsby Kuring-gai Hospital. Then his face and tongue started twitching, he felt nauseous, and he started sweating and drooling. Dr Skinner explained to Adrian that his system



Funnel-webs digs burrows in the shape of a funnel and line it with their silk webbing

was starting to react to the funnel-web venom – the envenomation process was taking hold. It was time to give him the first of two vials of antivenom. If his symptoms and signs didn't improve, the emergency staff were ready with two more vials to repeat the procedure.

ABOUT AN HOUR north of Hornsby Ku-ring-gai Hospital is the Australian Reptile Park (ARP) – one of Sydney's major tourist attractions. But behind closed doors, the staff at ARP are doing very important work, a service that keeps individuals safe from death's door if they find themselves, like Adrian, unlucky enough to be bitten by a male funnel-web spider.

Since the 1980s, the ARP has been milking Sydney funnel-webs and sending the venom to BioCSL in Victoria, where the spiders' poison is turned into antivenom.

Milking the spiders is not for the faint-hearted – many people go weak at the knees and scream at the sight of a harmless huntsman spider crawling across their bedroom walls, let alone a killing machine like the Sydney funnel-web.

But the staff at ARP are not like most people. They care about the


welfare of their spiders, similar to how we might care for a pet dog or cat. They ensure the spiders are kept in ideal conditions – moist, humid enclosures – and feed them crickets and cockroaches, because their ultimate goal is to keep people safe from harm.

Funnel-webs' natural habitats are rainforests and wet sclerophyll forests, but if your garden is shady and

well-vegetated, they are more than happy to share it with you. Funnel-webs dig burrows, which they line with their silk webbing in a funnel shape – hence their name – and which can reach up to 60 centimetres in length. Numerous thicker lines are anchored to nearby rocks and tree roots

and act as trip-lines, snaring any unfortunate insect that happens to stumble upon one.

OF ALL THE FUNNEL-WEB SPECIES, the Sydney funnel-web is the most aggressive and the only one that can cause fatalities in humans. Each year between 30-40 people are bitten by funnel-web spiders, which are found along the east coast of New South Wales, mostly between Newcastle and Wollongong. After a total of



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13 recorded deaths and years of research, an antivenom for the Sydney funnel-web was finally developed in 1981. If disturbed, a funnel-web spider will rear up in a defensive position, raising its front legs, ready to strike with its fangs. This is exactly the reaction needed for venom to be produced, and the stance required for ARP 'milkers' to extract the life-saving poison.

"What we do is gently tickle the spider with a pipette, which is a glass cylinder like a straw with a funnel on the end," says Tim Faulkner, general manager and head of conservation at ARP.

"It rears up, and venom starts to build up, producing a tiny droplet on each fang," he says. "At that point you put the funnel part of the pipette near the venom and it is sucked up."

Spiders are milked once a week. But to produce one vial of the funnel-web antivenom, such as the one that Dr Skinner gave Adrian, a spider needs to be milked between 50 to 100 times as each spider produces varying amounts. And this is where it gets complicated for Faulkner and his team at ARP.

The natural life expectancy of male funnel-web spiders is just four years, and they don't mature until they're at least three, which gives ARP, the sole supplier of funnel-web venom in the world, between six and 12 months to extract the spiders' venom. "We only milk mature male funnel-webs, because the male is six times more venomous than females. And the antivenom is made to combat male venom," says Faulkner.

It's when the mature males start looking to mate that those of us living in the right conditions might be unlucky enough to come across one. "They're out at night after rain, when it's nice and humid and wet and they go searching for females. That's when they turn up in your pool, in your house, in your shoes, in beach towels left out-



When funnel-webs rear up in defence, venom forms in droplets from each fang

side," says Faulkner.

And if an adult man needs at least two vials of antivenom to reverse the effects of a bite, that's a whole lot of spiders that need to be milked. A few years ago, a young boy on the Central Coast, not far from where ARP is located, was bitten and needed 12 vials of antivenom.

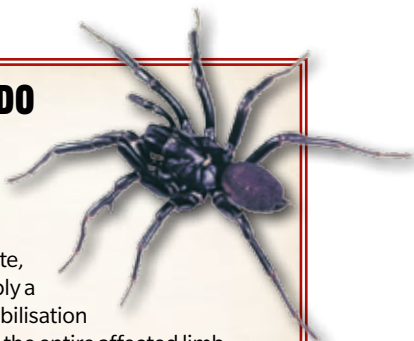
This is why Faulkner is always

looking for volunteers living between Newcastle and Wollongong to become collectors of male funnel-webs for his milking programme. They don't jump, as many people believe, nor do they run particularly fast, and according to Faulkner, they are easy to catch. "We rely on the community, the beneficiaries of the programme, to get spiders to us," he says. "We have tried over decades to send out teams to collect spiders." But, unlike the female spider, who spends her entire life underground, the male spider wanders above ground and so his whereabouts is more unpredictable.

AFTER BEING OBSERVED for 24 hours, Adrian was discharged from hospital and allowed to go home. The first thing he did was pack the car, so he and his family could set off on their Easter long weekend camping trip. Although pain is usually the main ongoing symptom from funnel-web bites, Adrian refused pain killers because they don't agree with him. Still, he felt

WHAT TO DO IF BITTEN

First aid for a funnel-web bite is the same as for a snake bite, you need to apply a pressure-immobilisation bandage. Wrap the entire affected limb firmly with a bandage and, if possible, restrict movement by using a splint. For first-aid tips on Australian venomous creatures, download the **Australian Bites & Stings** app.



nauseous and a little dozy, and it took another three weeks before his full strength returned.

So, wasn't taking a camping holiday away from civilisation a bit risky?

Not for an outdoor type like Adrian. "For me it wasn't a big issue," Adrian admits. "But I did take notice of where the closest hospital was."

Since being bitten, Adrian does a couple of things differently. He always uses a shovel when digging, and he and his team catch funnel-webs whenever they can and deliver them to the ARP. "That antivenom saved my life – and may save it again one day." **R**



Going Over the Limit

The world's first speeding ticket was written in 1896 in the village of Paddock Wood, England. The violator was caught driving eight mph through a two-mph zone and fined ten shillings.

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