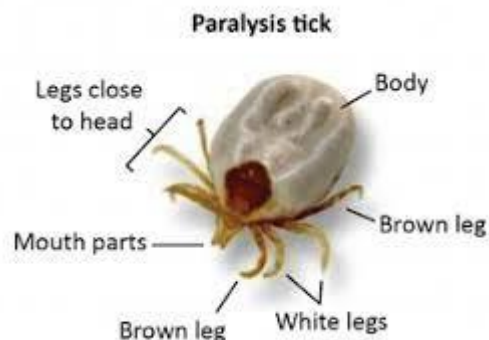


## Are paralysis ticks a threat to horses?

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The paralysis/scrub/blue tick/hardshell tick (*Ixodes holocyclus*) is specific to Australia: where coastal bushland and wildlife are around, ticks are around too. They are uninvited guests in our paddocks. It is handy to know about their life cycle and their effects on horses. Tick saliva contains a potent toxin that can paralyze and kill a horse (1 million times the bodyweight of the tick!).



### Where to find them?

Ticks are found along mainly coastal eastern Australia - from near Cooktown to Lakes Entrance in Victoria; in places, they exist more than 100 km inland, particularly in areas of moist escarpments and ranges. It is easy to find them in any bushland, paddocks and park area where wildlife is passing through and they thrive on low, leafy vegetation, where there is some shelter from direct sunlight. A paralysis tick is blind but can detect body heat and motion; they climb taller grasses, trees, posts, fences – often many metres to the very top - and drop down to their target.

### Three meals a year?

The paralysis tick is a blood feeder with a three-host life cycle, which means to develop through to the next cycle stage, it must obtain a blood meal. The larvae (which are hard to see with the naked eye) evolve to nymphs (8 legs, 1-3 mm long), then the adult population follows (4-5 mm long). It takes about a year for a life cycle. The natural blood donors (carriers) are native wildlife such as bandicoots, possums, koalas and macropods, but because of these animals constant exposure to ticks, they have acquired an immunity to the tick toxin; paralysis ticks will also occasionally attach to reptiles, birds, domestic mammals and even humans.

### When to find them?

The tropical North Queensland climate of 27C ambient temp, low rainfall and dry, warm weather in winter is ideal for ticks; the adult tick cycle overlaps with our dry season. Constant rain, cold (below 7 C) and the desiccating effect of wind or direct sunshine will reduce tick numbers.

### **What happens when they attach to our horses?**

A small amount of toxin exposure derived from a short period of attachment to the host animal (or from larvae or nymphs) helps build immunity to the toxin. However, the adult female will engorge herself with large amounts of blood for an average of 1-7 days if left on the animal, giving time for the toxin from its saliva to spread. The clinical signs of the animal being sick are often seen on days 3-4, with peak toxicity on days 5-6.

### **Where to look?**

It is of the utmost importance to look for ticks every day! Concentrate on the upper parts of the body, such as the lips, chin, around eyes, ears, back of the head, neck, front legs and, less



often, around the anus. The best way is to feel through with our fingers and look for something lumpy or unusual; if you find a tick, remove it (see below), but do not stop searching as often there is more than one tick! Ticks can also fall off the host animal before being noticed by their carer. Mostly the ticks will leave a severe allergic, localized skin reaction known as the crater with hardened, red, raised skin.

### **What to do if you find a tick?**

**DO:** immediately pull the tick off with your fingers or tweezers.

**DO NOT:** use irritant substances such as insect creams, turpentine, kerosene, fire, Vaseline, etc.; trying to kill the tick before removing will make it inject more toxin while dying; these methods will not make it easier to pull out. Chemicals or heat placed at the tick site will cause a nasty sore and unnecessary pain as this is an open wound.

### **Is it the paralysis tick?**

- You will usually only find 1 or 2 on the animals, rarely more
- Light silver colour
- Larger front/upper part of the body than the hind/lower
- The tick digs deep into the skin with severe local swelling
- 4 pairs of legs, bunched up at the front of the body
- The tick is sluggish moving after being pulled off

### **Effects of paralysis ticks**

Tick saliva is neuro and cardiotoxic; it affects both heart muscle and nervous system; however, not every animal will be paralyzed or get very sick. Animals acquire humoral and cellular immunity after small amounts of exposure to the toxin(s) (which can last for 6-24 months). The effects of the toxins can vary; it will depend on immunity acquired during the previous

season and the rate of loss. Young foals and small-sized horses are more prone to severe toxin effects as they have not yet developed sufficient skin and cellular immune resistance to tick attachment; their body weight is relatively smaller than an adult horse. Adult horses usually have immunity to the severe effects, although toxins resulting from a large quantity of tick attachment can still cause problems.

### **Symptoms of tick toxicity**

- Generally lethargic, off-colour
- Peripheral nerve dysfunction - lameness, dragging feet, weakness and wobbliness of hind or all legs, uncoordinated, reduced muscle tone, difficulty in getting up, cannot eat/chew
- Respiratory difficulty - slow, grunting respiration especially at the end of the breath, more abdominal movements
- Cardio-vascular affects – heart muscle dysfunction, general weakness, sweating
- Oesophageal dysfunction – regurgitating food from nose

The toxin is distributed in the body much faster with movement, exercise and hot weather conditions. Weight, age and immune competence counts, which means smaller and younger foals are more at risk.

### **Treatment?**

Sometimes animals recover with rest and support if they are only mildly affected and not wobbly. Wobbliness indicates a requirement for urgent veterinary help as any damage is reversible with the administration of tick anti-serum if administered in time.



Animals that have collapsed and cannot get up anymore still have some chance of recovery, but it is prolonged and guarded.

In laboratory studies, horses can develop immunity to tick paralysis if several ticks are allowed to engorge for short periods; after 2 to 3 months of gradually increasing exposure, horses and dogs can tolerate enormous numbers of ticks to full engorgement. The serum harvested from these animals prepared in this manner is commercially available to treat tick paralysis.

### **How to prevent tick infestation in paddocks?**

- Slashing tall grasses and tall weeds
- Removing leaf litter (shady hiding areas)
- Removing the noxious weed Lantana which seems to be a favourite site for ticks
- Don't place feeding/water stations under trees – good practice to reduce the chances of Hendra too!
- A “natural” alternative to chemical sprays is a mixture of chilli (cayenne powder), garlic and vinegar; after being left to brew for a few days, the mixture will discourage most pests when sprayed around the garden or paddocks.



**What can I do for my horse?**

- Keeping horses healthy and in good condition is essential to develop the immunity to fight off ticks successfully:
- Daily tick search, especially on foals and the removal of all small/large ticks
- Full clip long-haired animals
- Rug all year round
- Use a natural or chemical repellent; ticks are part of the spider (arachnid family) and are resistant to corresponding insecticides and treatment.

The only registered chemicals for horses are Permethrin and related substances. Many other products are available for horses off-label which means they are registered for other animals and not tested on horses.