

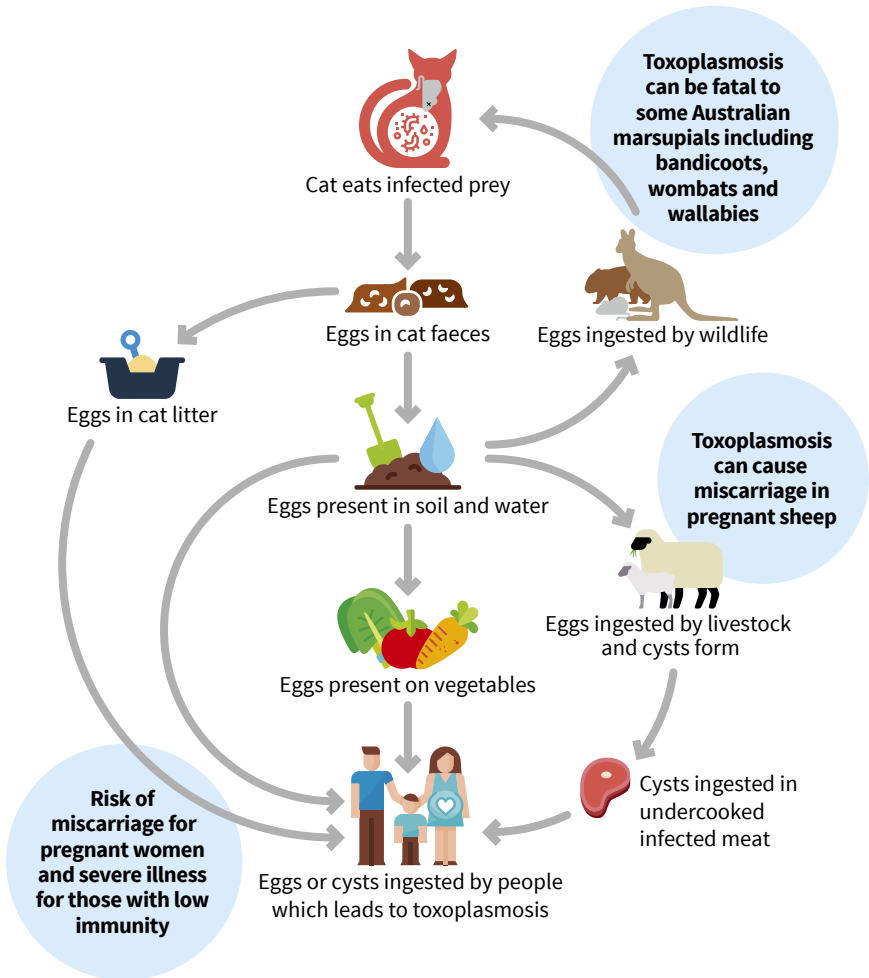
CAT-BORNE DISEASE

The impacts of toxoplasmosis
on wildlife and human health



What is toxoplasmosis?

Toxoplasmosis is an infection caused by a parasite known as *Toxoplasma gondii*, which is a common parasite found throughout the world. While *Toxoplasma* can infect most birds and mammals, including humans, the parasite is only able to sexually reproduce in the body of a cat. The occurrence of toxoplasmosis is therefore closely related to the distribution of cats around the world. The problems caused by toxoplasmosis for humans are often minor, but can occasionally result in serious health problems, while it can result in death for certain species of wildlife.



How does toxoplasmosis spread?

Because *Toxoplasma* is only able to mature and sexually reproduce in the cat's small intestine, cats are crucial to the spread and reproduction of the parasite.

Cats can be infected with the disease if they are allowed to hunt and eat infected prey, like rodents or birds. Once infected, the parasite will move to the small intestine of the cat, where it will produce oocysts or eggs. An infected cat will shed millions of eggs in their faeces for 2-3 weeks. The cat will then develop an immune response and stop shedding eggs. Young kittens can become quite sick from toxoplasmosis, but older cats generally do not show any symptoms. While toxoplasmosis is more common in stray and feral cats, all cats can contract the disease, especially if they roam and eat prey or scavenge. In one study, 84% of feral cats trapped in Tasmania were found to have had toxoplasmosis.¹ This is among the highest rates recorded in Australia, and significantly higher than most other countries.

Cats spread toxoplasmosis directly to wildlife and livestock through the eggs in their faeces. The eggs become infectious 1-5 days after being shed. Grazing animals can contract the diseases if they feed on pasture, hay or grain or drink water contaminated with cat faeces. In Tasmania's cool moist environment, the eggs can survive in the soil for up to 18 months. Once the parasite is ingested it will travel throughout the body of the host, developing small cysts in many organs including the nervous system and muscles. If an infected animal is eaten by a cat, the parasite's life cycle is completed and the process is ready to start again. Carnivorous animals can become infected with toxoplasmosis by ingesting parasite eggs from infected soil or water, or by eating an infected prey animal and consuming the cysts.

¹ Fancourt, B. & Jackson, R. 2014. Regional seroprevalence of *Toxoplasma gondii* antibodies in feral and stray cats (*Felis catus*) from Tasmania. *Australian Journal of Zoology* 62, 272–283.



How does toxoplasmosis impact on wildlife?

In many animals the infection with *Toxoplasma* rarely causes any symptoms. Healthy animals develop an immune response that keeps the parasite under control. The parasite eventually produces small cysts, and while the cysts stay with the animal for the rest of their life, they rarely cause a problem. However, some species are more susceptible to the disease and toxoplasmosis can be fatal to a number of Australian marsupials including bandicoots, wombats, possums, pademelons and wallabies. The disease can cause a range of symptoms including fatigue, poor coordination, disorientation, loss of appetite, unnatural daytime activity, blindness, breathing difficulties, fever and miscarriage. Some of these symptoms can kill the host directly, while others make the host more susceptible to predation. The Eastern Barred Bandicoot typically dies within 2-3 weeks of infection.

Toxoplasmosis has also been found in marine mammals (including dolphins and whales) and is thought to enter the marine food chain from cat faeces washed from land through sewerage or stormwater systems, or from cats living near estuaries.

Cats are a significant threat to Tasmanian wildlife.

Not only have they contributed to the extinction and decline of a number of small native Australian mammal species due to direct predation, they also transmit this potentially deadly disease. How we manage our domestic cats can make a big difference to our wildlife.



How does toxoplasmosis impact on livestock?

Toxoplasmosis is also common in livestock and causes miscarriage, stillbirths and mortality of newborns in sheep, goats and pigs. In Tasmania, miscarriages caused by *Toxoplasma* infection are particularly common in sheep. Toxoplasmosis is estimated to cost the Tasmanian agricultural sector approximately \$1.7 million annually. See our *Cat-Borne Diseases and Agriculture* factsheet for more information at www.tassiecat.com.



Ensuring your cat is kept safe at home will reduce the chances of it being able to contract and spread toxoplasmosis.

How do humans get toxoplasmosis?

Humans can develop toxoplasmosis when they ingest the eggs of the parasite or the cysts that have developed in infected animals. This can occur by eating raw or undercooked infected meat, by drinking water contaminated with *Toxoplasma*, accidentally ingesting contaminated soil (e.g. not washing hands after gardening or eating unwashed vegetables from your garden), by playing in an infected sand pit or by handling kitty litter. *Toxoplasma* can also be spread from a mother to her foetus through the placenta.

How does toxoplasmosis impact on humans?

A CSIRO study found that 50 – 62 % of Tasmanians have been infected with the parasite, compared with 23 – 35 % on the Australian mainland. Most people who become infected with *Toxoplasma* are not aware of it because they have no symptoms at all. For most, the disease is dormant and may only cause minor flu like symptoms. However, it can pose a serious risk for pregnant women and those with a weak immune system, especially people undergoing chemotherapy or with AIDS.

If a previously uninfected woman is infected during pregnancy, the disease can potentially cause miscarriage, and a small percentage of newborns may develop abnormalities such as blindness and brain damage. For those with low immunity there is also a risk of severe illness, including brain inflammation and damage to the eyes, possibly resulting in blindness.



How to prevent toxoplasmosis

There are several steps you can take to reduce your chances of becoming infected with *Toxoplasma*.



Do not eat raw or undercooked meat.



Do not drink unpasteurised milk or its products.



Wash all fruit and vegetables and your hands before eating.



Thoroughly wash hands, food preparation surfaces and utensils after handling raw meat.



Wash hands after gardening or touching soil/sand and consider wearing gloves when gardening.



Cover sandpits when not in use to stop cats defecating in them.



Keep your cat contained inside or to an enclosure, as hunting increases their chances of contracting the disease.



Avoid feeding your cat raw meat, so it can't accidentally become infected.



Clean cat litter trays at least once a day. The *Toxoplasma* eggs do not become infectious until 1-5 days after they are shed in the cat's faeces.



If you are pregnant or have low immunity, avoid changing cat litter if possible or wear disposable gloves and wash your hands thoroughly afterwards.



Make sure your cat is desexed. Desexing prevents unwanted litters of kittens. Fewer cats in the environment will reduce the spread of toxoplasmosis.



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For more info visit:
www.tassiecat.com

Credits:

Thanks to Bruce Jackson, Kingborough Council, Department of Primary Industries, Parks, Water and Environment and *Cats in Australia* (2019) by Woinarski, Legge & Dickman for providing information on the impacts of toxoplasmosis on wildlife and human health.



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