

A Cat-Borne Threat to Monk Seals

Mauka to Makai: How *Toxoplasma gondii* Makes Its Way from Mountains to Ocean

A Microscopic Parasite

Toxoplasma gondii (*T. gondii*) is a parasite that causes the disease toxoplasmosis.



T. gondii



Develops in the Guts of Cats

T. gondii can infect any warm-blooded animal (including humans, birds, and seals), but it only reproduces in the digestive system of a cat.

Spreads Via Cat Feces

Millions of *T. gondii* eggs can be spread into the environment—surviving for many months—via the feces of just one cat. These eggs are the source of *T. gondii* infection in monk seals. It only takes one egg to cause an infection.



Contaminates Natural Resources

T. gondii eggs contaminate water and soil, along with the plants that grow in it. Wildlife and livestock can consume the eggs and become infected. Even people can get infected by accidentally ingesting cat litter/fecal particles or consuming under-cooked meat or unwashed produce.

Travels Through Waterways

Rainwater and runoff transport the eggs to the ocean through streams and gutters.

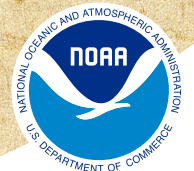


Exacerbated by Human Behavior

People unintentionally contribute to the spread of *T. gondii* by allowing pet cats to roam outdoors, abandoning unwanted cats, and not controlling feral cat populations.

Impacts Marine Environment

Hawaiian monk seals become infected with *T. gondii* by consuming contaminated water or prey.



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Hawaiian Monk Seals and Toxoplasmosis

Why is toxoplasmosis a major threat to monk seals?

Toxoplasmosis is a leading cause of Hawaiian monk seal mortality and a growing concern for the species in the populated main Hawaiian Islands. Eradicating toxoplasmosis requires dealing with the threat at the source—free-roaming cats.

Difficult to Treat

A seal suffering from toxoplasmosis is difficult to detect and treatment options are extremely limited. Once a seal becomes sick with toxoplasmosis, it often dies rapidly.

No Vaccination

There is no preventative vaccine for toxoplasmosis in monk seals.

What is the outlook?

The continued growth of outdoor cat populations in Hawai'i (estimated in the hundreds of thousands) increases the number of infectious eggs being spread in the environment. This increases the risk of monk seals being exposed. NOAA Fisheries and its partners continue to study the relationship of seals and *T. gondii*. The lack of treatment options for infected seals and other species means that solving this problem requires multiple approaches aimed at preventing cat feces from contaminating Hawai'i—mauka to makai (mountains to ocean).

Where can you go for more information?

- Centers for Disease Control and Prevention: www.cdc.gov/parasites/toxoplasmosis/
- Toxoplasmosis and Its Effects on Hawai'i Marine Wildlife: <https://www.fisheries.noaa.gov/pacific-islands/endangered-species-conservation/toxoplasmosis-and-its-effects-hawaii-marine>
- Hawai'i Veterinary Medical Association: <https://hawaiiivetmed.org/pono-pet-parent/>

How can you help?

You can prevent toxoplasmosis from affecting monk seals and other wild animals by doing your part to reduce the spread of infectious eggs from the *Toxoplasma gondii* parasite.

- Keep cats exclusively indoors to prevent the spread of toxoplasmosis to Hawaiian monk seals and native birds. This also protects native birds from cat predation while increasing your pet's lifespan.
- Spay and neuter your cats to prevent contributing to the free-roaming cat populations across Hawai'i.
- Surrender your cat to a local animal shelter for adoption if you are no longer able to care for your pet.
- Properly dispose of cat feces and litter in the trash—and not into the environment.
- Do not feed feral cats. This may perpetuate colony growth and poor quality of life for these free-roaming cats, and put precious island resources at risk.



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