

Parasite common in cats causes abortion in bighorn sheep

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A parasite believed to be present in more than 40 million people in the United States and often spread by domestic and wild cats could hamper ongoing conservation efforts in bighorn sheep.

A recent study led by Washington State University researchers at the Washington Animal Disease Diagnostic Laboratory found that *Toxoplasma gondii*, a parasite that infects most species of warm-blooded animals and causes the disease toxoplasmosis, is a cause of abortions, or pregnancy loss, as well as neonatal deaths in the [sheep](#). Researchers documented five cases in [bighorn sheep](#) in a [study published in the *Journal of Wildlife Diseases*](#), but additional studies are needed to determine the full scope of its impact, the authors said.

"We have seen *Toxoplasma* as a cause of fetal and neonate loss pretty commonly in [domestic sheep](#), but we hadn't seen [pregnancy loss](#) due to toxoplasmosis yet in bighorn sheep," said Elis Fisk, the lead author of the study. "Unfortunately, it does appear to be causing abortions and some level of death in young bighorn lambs."

Infected humans typically have no noticeable symptoms, although the parasite can cause serious health problems for pregnant women and people with compromised immune systems. The parasite can be spread by several methods, including through contact with cat feces that contain *Toxoplasma*.

Fisk, an anatomic pathology resident and doctoral student in WSU's veterinary microbiology and pathology department, said WADDL works with wildlife agencies and researchers to monitor causes of death in bighorn sheep, which led to the discovery of *Toxoplasma* in the species.

"Bighorn sheep are susceptible to disease from domestic sheep, so these agencies were routinely submitting samples to us to see how many they were losing due to other diseases," Fisk said. "Pregnancy losses from toxoplasmosis were discovered while processing these samples."

After the discovery, researchers performed autopsies, microscopic examinations of tissue and other testing to determine the cause of

abortion or death in eight fetal and neonatal bighorn lamb cadavers collected between March 2019 and May 2021 from Idaho, Montana, Nebraska and Washington. Five were found to be infected with toxoplasmosis.

"They were just riddled with these [parasites](#), so we were pretty certain that is the reason behind their death given how extensive the lesions were," Fisk said.

There is no treatment for the parasite, Fisk said, and there is some concern, though not yet definitive evidence, that infected lambs that survive may be weak and more susceptible to disease and predation.

"If you look at humans, for example, who have been infected with Toxoplasma in utero, sometimes they'll have blindness or other issues," Fisk said. "But we don't know yet if bighorn sheep suffer ongoing effects from in utero infections."

The researchers suspect the bighorn sheep are contracting the parasite from [domestic cats](#) or wildcats like bobcats and cougars, both of which have territories that overlap with bighorn sheep.

"It's unclear at this point how widespread of an issue this is because we only detected five positive ones, which in the grand scheme of things is a pretty small sample," Fisk said. "To learn more about how big of an issue this could be, or even where it's coming from definitively, we really need more studies."

Studies on the causes and rates of lamb mortality can be difficult, as such research has traditionally relied on visual observation. That can be complicated due to the [rugged terrain](#) where bighorn sheep give birth and raise their offspring, meaning abortions and [neonatal deaths](#) often go unobserved.

WSU collaborated with Idaho Fish and Game, Nebraska Game and Parks Commission, Montana Conservation Science Institute, and other agencies for the study.

More information: Abortion and neonatal mortality due to toxoplasma gondii in bighorn sheep (*Ovis canadensis*), *Journal of Wildlife Diseases* (2023). [DOI: 10.7589/JWD-D-22-00057](https://doi.org/10.7589/JWD-D-22-00057) , [meridian.allenpress.com/jwd/ar ... TY-DUE-TO-TOXOPLASMA](https://meridian.allenpress.com/jwd/article/53/1/100/6888888)

Provided by Washington State University

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