



# TULAREMIA

In Interior Alaska, most cases of tularemia (pronounced "tool-uh-ream-ee-uh") are transmitted to people from dogs or cats rather than directly from hares. Traditionally, people who use snowshoe hares for food or trappers were most at risk from the blood and body fluids contacted during skinning/gutting. In the past decade however, pet owners are getting tularemia from their pets saliva if the pet has picked up a sick hare or itself is sick and bites or scratches the owner.

Tularemia is transmitted from one hare to another by means of ticks. The native hare and squirrel ticks have always been common on wildlife during summer in Alaska but only occasionally attach to dogs or cats and very rarely are found on people. Thus, many Alaskans are unaware that we have wildlife ticks in our state. Additionally, Alaska has two species of dog ticks (Brown Dog Tick and American Dog Tick) that were introduced dog traveling to the state and have become established around major cities and towns. Both dog tick species can transmit tularemia and other disease such as Rocky Mountain Spotted Fever and Q fever. Other ticks from the Lower 48 and Europe have been intercepted on dogs coming into the state, including Lyme disease carrying species.

Ticks spend the winter months buried in leaf litter on the forest floor. As warm weather arrives, the ticks become active and attach to hares. In Interior Alaska, they are quite common on hares by late April or early May and are present all summer. As cold weather approaches, they drop off of the hares to complete another stage of their annual life cycle. This usually occurs by late August or early September. Most of the hares that were infected with tularemia prior to that time will die as a result of infection.

The species of ticks that attaches to hares almost never attaches to humans but are reported every year attaching to dogs and cats. Humans and pets more often become infected with the Tularemia bacteria by direct exposure to fluids and tissues of an infected hare. Hares with tularemia are less wary and less apt to flee from an approaching threat; therefore, it is easy for a dog or cat to catch and kill an infected hare. Pets are exposed to the disease when they bite or consume the internal organs of an infected hare. People can then become infected by the saliva of an infected pet if the saliva gets into a cut or scratch. Most reports of hares, pets, or people diagnosed with tularemia in Alaska occur between Memorial Day and late August and are almost exclusively in the Interior (Fairbanks North Star Borough).

There are internal signs of tularemia in the hare that might be helpful in identifying the disease. The bacteria that cause tularemia localize in the liver and/or spleen and can multiply to high levels. The most reliable indication of infection is an enlarged spleen. The spleen is found just below the stomach and is the same color as the liver. The spleen from a healthy hare is about 1 1/2 inches long × 1/2 inch wide × 1/4 inch thick. The spleen from an infected hare may be 4–5 inches long. It may be swollen to such a degree that it is almost round and up to 1 inch in diameter. The second most reliable sign of infection is an enlarged liver. The third most reliable sign is white spots on the

spleen and/or liver. These spots may be pinhead to pinpoint in size. These signs of disease are not 100% reliable, i.e., not all hares that have tularemia will exhibit these signs. In addition, there are other diseases that can produce signs that resemble the signs of tularemia. However, these signs are a good "rule of thumb" and can help people recognize infected hares.

Humans don't have to eat infected hares in order to catch tularemia. Rather, people are most often exposed when they "gut" or "clean" an infected hare. When a human reaches into the body cavity to remove the organs, he/she comes into contact with the bacteria that cause the disease. These bacteria can enter the body through a scratch or small break in the skin. The best method to prevent infection is to wear rubber gloves when gutting a hare. The gloves may be awkward or uncomfortable, but they provide protection. Also wear gloves if handling a dead hare that you or your pet found.

Tularemia in humans may range from a mild, unapparent infection to a severe disease. Signs of the disease may include headache, alternating fever and chills, nausea, vomiting, and/or general body aches. These symptoms usually appear within 3–5 days after exposure. Anyone who experiences these symptoms should contact a physician. It would be appropriate to mention to the doctor that you have been handling or eating hares, or if your pet was diagnosed with tularemia if that is the case. The fatality rate in untreated cases is very low (approximately 5%) but with antibiotics, it can be easily cured.

Pets develop fever, general stiffness, fatigue, depression, increased breathing rate, coughing, and/or diarrhea. A pet with such signs should be taken to a veterinarian without delay and mention the potential contact with hares.

People ask if the meat from an infected hare is safe to eat. The answer is "Yes, but...." Cooking the meat until it is "well done" will kill bacteria in the meat. However, as mentioned above, the majority of human exposures occur when handling an infected hare. Therefore, people should avoid hunting or eating hares during spring/summer. If you encounter a hare that you suspect has tularemia, the safest procedure is to burn it, bury it, or put it in a plastic bag and bring it to an ADF&G office to be sent to Fairbanks for examination.

*Compiled by Randy Zarnke, Wildlife Disease Specialist [retired]. Updated in 2016 by Dr. Kimberlee B Beckmen, Wildlife Veterinarian. For more specific information on this or other wildlife diseases, call the Wildlife Disease Surveillance line (907)328-8354 or email [dfg.dwc.vet@alaska.gov](mailto:dfg.dwc.vet@alaska.gov)*

**Additional info:**

"A Field Guide to Common Wildlife Diseases and Parasites in Alaska" by Elkin and Zarnke (2001). Hard copies available at ADF&G/Wildlife Conservation, Pouch 1148, Nome, AK 99762 or website <http://www.wildlife.alaska.gov/index.cfm?adfg=disease.main> (Accessed 19 May 2010).