



SARCOPTIC MANGE

Other names: *Sarcoptes scabiei*, Mange



CAUSE

Sarcoptes scabiei is a highly variable, microscopic species of burrowing mite (Class Arachnida, Family Sarcoptidae) that parasitizes the superficial skin of domestic and wild mammals. In North America, mange predominantly occurs in wild canids (red foxes, coyotes, wolves) though it is also seen in other species including skunks, porcupines, and black bears. There are many different variants of *S. scabiei*, each of which tends to cause the most severe disease in the particular family of mammals to which it is adapted. For example, *S. scabiei* var. *canis* primarily infects family Canidae which includes red foxes, wolves, coyotes, and domestic dogs. *S. scabiei* variants infecting host species to which they are not adapted typically cause less severe, transient infections.

SIGNIFICANCE

Mange is a wide spread disease and is endemic in many wild populations where it has little significant effect on the species as a whole. However, when *S. scabiei* is introduced to isolated, naïve populations (e.g. those found in island ecosystems), the impact on the population may be devastating with up to 80 to 90% mortality. This is particularly significant in isolated populations of endangered species.

RISK TO HUMAN AND DOMESTIC ANIMAL HEALTH

Sarcoptes scabiei var. *canis* can cause significant disease in dogs, and it can cause transient mild infections in non-host adapted species including humans. Both humans and dogs can become infected through close contact with infected wildlife or via contact with contaminated sites such as wildlife denning or sleeping areas. Symptoms in dogs are similar to those in wild canids (severe itching, hair loss, red or thickened skin). If mange is suspected in a domestic pet, a veterinarian should be consulted who can provide appropriate treatment. Treatment of mange in domestic dogs usually results in complete recovery. In humans, individuals who are likely to contract this disease include members of the public in close contact with wildlife (e.g. hunters, trappers), conservation officers, and biologists. Symptoms in people are localized to the skin and include marked itching, reddening, and rash. In healthy people mange is a transient infection which typically resolves on its own once infected pets in the household are treated. In individuals with a compromised immune system, infection may be prolonged and difficult to treat. Any person concerned they may have contracted mange should consult a medical doctor immediately. Mange in humans is not to be confused with the similar but different disease known as “scabies”, which is caused by *Sarcoptes scabiei* var. *hominis* and is not contracted through contact with mangy wildlife.

TRANSMISSION

Transmission occurs via direct contact between hosts or potentially their bedding, and so it is spread most effectively in dense populations. *S. scabiei* mites are obligate parasites and spend their entire life cycle on a single host. Mites may survive off the host up to several weeks depending on the environmental conditions.

CLINICAL SIGNS

Adult male and female mites burrow through the superficial layers of the skin, creating complex networks of burrows in which they defecate, mate, and lay their eggs. The burrowing mites and their biological products are extremely irritating to the host and result in hypersensitivity reactions that cause inflammation and pruritus (itching). The resultant scratching causes significant trauma to the skin which develops thick grey, foul smelling crusts with extensive hair loss. In red foxes, hair loss begins around the elbows, hocks, and tail base, and subsequently spreads to the ventral abdomen, neck and face. The extreme discomfort and hair loss caused by this disease over weeks to months leads to the death of the animal due to a combination of starvation and exposure to the elements (particularly in the winter).

MANAGEMENT AND PREVENTION

Mange has no long term effect on stable populations, and so outbreaks are typically allowed to run their course. In isolated populations of endangered species, it may be advisable to capture and treat individuals or groups. Treatment with full recovery is possible, but reintroduction of the recovered individuals to groups of infected conspecifics can result in reinfection of those treated individuals.

- Report any sick or dead animals to the Canadian Wildlife Health Cooperative. Find your closest regional centre at: <http://www.cwhc-rcsf.ca/>

SUGGESTED READING

- Bornstein S, Mörner T, Samuel WM (2008): *Sarcoptes scabiei* and Sarcoptic Mange. In: Samuel WM, Pybus MJ, Kocan AA, eds. **Parasitic Diseases of Wild Mammals, 2nd Edition.** Iowa State University Press: 107-119.
- Pence DB, Ueckermann E (2002): Sarcoptic mange in wildlife. **Rev. Sci. Tech. Off. Int. Epiz. 21 (2): 385-398.**
- Centers for Disease Control and Prevention: **Scabies**
- CWHC Blog Article: **Red Fox Mange**



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