

What is the Pennsylvania Game Commission doing in response to mange?

The Game Commission is conducting research to better understand the mite causing mange in Pennsylvania black bears, identify improved laboratory tests to diagnose mange in bears, and determine the survival and infectivity of the causative mite under varying environmental conditions. The information generated by this research will provide the basic framework for guiding future management efforts of mange in black bears both within Pennsylvania and beyond.

What can I do to prevent the spread of mange?

Mange is spread by animals having direct contact with infected animals, or through the use of common areas or objects. Minimize actions that cause bears (and other animals) to congregate. A major activity that encourages congregation of bears is supplemental feeding of wildlife, such as deer, small mammals, turkeys and other birds, which often attracts non-target species, such as bears.

Supplemental feeding should be discontinued if there is evidence that bears are being attracted to the area. Even if bears look healthy, it is important to stop feeding because individuals may be infected with the mites and showing subtle or no obvious signs of disease. Although feeding bears may enhance wildlife viewing, feeding black bears in Pennsylvania is illegal. Supplemental feeding increases disease risk, long-term habitat destruction, risk of vehicle collisions, and habituation to humans.

Another activity that can congregate bears is outdoor storage of garbage. If there is evidence that bears are attracted to garbage stored outside, the containers should be moved into a shed, garage or other inaccessible location.

Who do I call if I see a bear with mange?

If you see a bear with mange, please contact the Game Commission region office serving the county in which the bear is located. Please do not attempt to approach the animal, wild animals can be unpredictable and dangerous, even if they appear to be unaware of their surroundings.



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B L A C K B E A R S



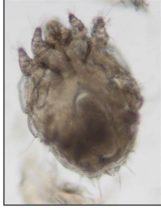
MANGE



What you need to know

Cause

Mange is a highly contagious skin disease of many wild and domestic mammals caused by a mite. The Game Commission is currently conducting research to better understand mange and the mite that is causing this disease in Pennsylvania bears. Results to date indicate that the most common cause of mange in Pennsylvania



bears is *Sarcoptes scabiei*. *Sarcoptes scabiei* is a microscopic mite that can only be seen with the assistance of a microscope.

There are different strains of *Sarcoptes scabiei* that infest a wide variety of mammals, including domestic and wild

canids, humans, swine and many others. The different strains of *S. scabiei* are thought to be adapted to a specific animal host. Although a specific strain of mite can infect other hosts (i.e. the bear-adapted strain can infect humans), the mite does not survive for long on the atypical host and infections are temporary and self-limiting. In all hosts, the mites burrow and form tunnels in the skin of the host. The mite reproduces within the skin and new mites can sustain the infection on the same host.

Significance

Sarcoptic mange mites are adapted to infect specific hosts, though they have been known to infect other species at least temporarily. There is a specific human-adapted variety of *Sarcoptes scabiei* that causes scabies in people. Occasionally, humans can become infected with animal varieties of *S. scabiei* and may develop a short-lived (10 to 14 days), self-limiting infection. Sarcoptic mange has been reported in more than 100 species of wild and domestic mammals.

Transmission

Currently, there are many unknowns relating to the spread and maintenance of mange in bears. Research efforts are underway to better define these processes. Mites can be transferred to a new host when it comes into direct physical contact with an infected host. In addition, mites that fall off an infected host can persist in the environment and infect a new animal that comes into contact with that environment.

Because bears are relatively solitary, the biggest risk for environmental transmission likely occurs under conditions where they congregate, either naturally (i.e. dens) or unnaturally (i.e. supplemental feeding). Existing information on *Sarcoptes scabiei* indicates that the mites can survive for variable periods of time (days to a few weeks), and the duration of survival is highly dependent on environmental conditions such as temperature and humidity. Currently, it is not known how long the bear-adapted mites survive in the environment and, more importantly, how long the mite remains infective for the next host. Research is underway to answer these questions and to identify conditions that may inactivate the mites, such as freezing.

Clinical Signs

The clinical signs of mange are a result of damage to the host's skin by the burrowing mite and the reaction of the host's body to the mite. Bears with mange are often itchy and observed continuously scratching their head or rubbing it against objects. Affected skin will have varying degrees of hair loss resulting in areas of thin fur or completely bald patches. The underlying skin is thickened, dry, covered by scabs or tan crusts, and often has a foul odor. The extent of these skin lesions is variable ranging from the ears and face in mild to moderate cases to lesions covering almost the entire body. Severely affected bears are typically emaciated, depressed and often found wandering apparently unaware of their surroundings.



Bear with mange



Bear with mange



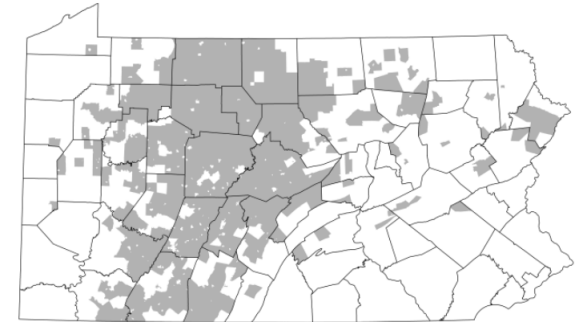
Bear without mange



Bear with mange

Mange in Pennsylvania Bears

Mange in black bears has historically been a sporadic problem involving individuals or low numbers of bears. In Pennsylvania, however, mange began to be observed more regularly in black bears during the early 1990s. During the past two decades, the disease has expanded throughout much of Pennsylvania.



Areas where mange has been documented in black bears during the past two decades

Although mange is a common cause of mortality in Pennsylvania black bears, there is no evidence that the disease is currently limiting populations in any part of the state.

Human Implications

The bear-adapted strain of *Sarcoptes scabiei* can infect humans that have direct contact with infected bears. The infection in humans results in an itchy skin rash. The rash is self-limiting and can last from days to several weeks. Infection in humans can be prevented by avoiding direct contact with bears that have evidence of mange. If a bear with mange must be handled, use gloves and long sleeves to reduce direct contact with the skin or fur of the bear. Thorough washing of hands and arms immediately after handling bears with mange will also greatly reduce potential exposure to the mite. If a skin rash does develop that you suspect is due to mange of bear origin, contact your health care provider.