

BASICS

Dermatophilosis, also known as rain rot, rain scald, lumpy wool disease, and streptotrichosis, is a skin infection caused by the Gram-positive bacteria *Dermatophilus congolensis*. The bacterium has two morphologic forms (zoospores and hyphae) in a life cycle that resembles that of a fungus.

ALL MAMMALS, including humans, are susceptible to infection by *D. congolensis*. Domestic animals commonly affected include cattle, sheep, goats, and horses. Wild animals affected include deer, rabbits, rodents, woodchucks, striped skunks, raccoons, and carnivores, such as foxes and a captive polar bear.

CLINICAL SIGNS include raised, matted tufts of hair that resemble paint brushes, crusts, and hair loss ranging from discrete areas to large patches to the entire skin being affected.

Lesions typically occur on parts of the body that are chronically wet or subject to cuts and abrasions, such as the back, face, ears, and legs.

Zoospores are **TRANSMITTED** by direct contact and mechanically by arthropods, such as ticks and biting flies. Wet skin, cuts, and abrasions favor infection by the zoospores.

DIAGNOSIS of dermatophilosis can be made by microscopic examination of stained skin crusts and identification of the classic morphology of rows of Gram-positive bacteria in hypha-like arrangements. Definitive diagnosis can be made by culturing the bacteria from lesions.

Most affected animals recover without **TREATMENT** within three weeks; dry weather speeds healing. Although dermatophilosis can be treated with antibiotics, the location of the bacteria within avascular skin crusts limits access by both topical and parenteral delivery.

Infections in people are usually self-limiting, although immunocompromised people may suffer more severe infections.



**ZOONOTIC
RISK**

**DIRECT
CONTACT AND
ARTHROPOD
VECTORS**

MAMMALS

ALERT

HOW

WHO

DETAILS

Dermatophilus (from the Latin words for skin and loving) *congolensis* was first identified in 1915 from cattle in Zaire, the former Belgian Congo, giving its name. The bacterium was first isolated in the US in 1961 from white-tailed deer and horses in New York and cattle in Texas.

Dormant bacterial zoospores remain on the skin, hair, and dried crusts of animals with healed infections. With the right amount of warmth and moisture, the zoospores develop flagella and become motile in fluid on an animal enabling transfer to new hosts or reinfection of the same host. Eventually, the bacteria sprout long tubes which subdivide into individual bacterial cells in parallel rows resembling railroad tracks or fungal hyphae. The life cycle is complete when these cells become zoospores. Zoospores can persist for months on skin, hair, and dried crusts on animals; recovery of infective zoospores from the environment has not been reported.

Dermatophilosis occurs **WORLDWIDE** (except Antarctica) although it is more common in tropical and subtropical regions. Cases increase in rainy seasons, because wet skin facilitates transmission and infection.

SPECIES All mammals, especially young and immunocompromised animals, are susceptible to infection.

Infections have also been documented in lizards, including Australian bearded dragons and marble lizards.

Crocodiles, alligators, turtles, and tortoises can be infected by a related species, *D. chelonae*.

CLINICAL SIGNS Infections vary from subclinical to severe. Animals with subclinical infections may act as carriers of the bacteria transmitting it to other animals. Severely affected animals may become emaciated and die.

As the bacteria invade the skin, proliferation of skin cells, exudation, and inflammation result. Crusts of exudate and shed skin cells accumulate trapping hair. When crusts drop off, the underlying skin is red, inflamed, and often bleeding.

In lizards, infection with *D. congolensis* results in subcutaneous abscesses.

Infections with *D. chelonae* in reptiles are known as brown spot disease and result in multiple, small, brown lesions on the skin with or without subcutaneous nodules. Animals may become weak and emaciated.

TREATMENT of wildlife with dermatophilosis is generally not done; infections are typically self-limiting.

SIGNIFICANCE Dermatophilosis does not have significant impacts on wildlife populations. It is economically significant to leather and wool industries, because it affects the quality of these products from infected animals.

PREVENTION AND PRECAUTIONS Dermatophilosis can be transmitted to people through direct contact with an infected animal. Gloves and thorough handwashing can limit transmission.

Below: Male white-tailed deer fawn with dermatophilosis on its back. Fawns often succumb to dermatophilosis infection.

Right: Adult female white-tailed deer harvested during hunting season and submitted for examination upon finding crusty lesions across its ears, face, and legs; diagnosis dermatophilosis.

Photos provided by the DEC Wildlife Health Unit

