



# Porcupine dermatophytosis

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Of 44 wild or captive porcupine biopsy or necropsy submissions to the NHVDL from 2010-2017, 28 had significant dermatologic lesions; 12 of these were positive by culture or histopathology for dermatophytes (ring worm). The primary clinical differential was mange (*Notoedres douglas*), which is another common disease in this species. No mites were seen clinically or at necropsy. The degree of hyperkeratosis in this case is comparable to what we have seen in the 5 cases of mange in our collection, but the paws and face tend to be more dramatically affected in cases of mange than dermatophytosis. None of the 12 porcupines with dermatophytosis in our series had concurrent mange. All of the affected animals were found in New England. None of them appeared to be able to fight off the infection. There is currently no information about potential population-level effects of this disease.

Culture of several recent cases at the NHVDL showed the predominant fungal isolate to be consistent with *Trichophyton* sp. Molecular analysis of culture isolates at the Department of Population Medicine and Diagnostic Sciences at Cornell University College of Veterinary Medicine identified the predominant dermatophyte to be *Arthroderma benhamiae*, which is the teleomorph of *Trichophyton mentagrophytes* (*T. interdigitale*). This dermatophyte is adapted to animal hosts (zoophilic), specifically rodents (sylvatic). The lesions are unique to ringworm amongst mammals, as there is a diffuse distribution, mild inflammatory response, dramatic hyperkeratosis, and debilitating to fatal clinical disease in porcupines infected with these fungi.

Using novel molecular techniques, Dr. Laura Goodman, Nicholas Marra and others at the section of molecular diagnostics at Cornell AHDC were able to identify *Trichophyton* spp. DNA in archived formalin-fixed paraffin embedded tissues from some of the historical cases in this study. A manuscript reporting this unique disease phenotype due to a fungal pathogen in wild porcupines and the novel advanced molecular testing modalities used to examine archived tissues is nearing completion, with submission for publication anticipated in 2019.

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## Participating Organizations

New York State Animal Health Diagnostic Center

(<http://ahdc.vet.cornell.edu>)

New Hampshire Veterinary Diagnostic Laboratory

(<https://nhvdl.unh.edu/>)

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*The NWDC mission is bring together regional stakeholders for the protection of wildlife as well as domestic animals and humans, because the health of all species is inextricably linked.*

Additional Wildlife Health Resources

Cornell Wildlife Health Lab (<https://cwhl.vet.cornell.edu/>)

Canadian Wildlife Health Cooperative (<http://www.cwhc-rccsf.ca/>)

Southeastern Cooperative Wildlife Disease Study (<http://www.vet.uga.edu/scwds>)

USGS National Wildlife Health Center (<http://www.nwhc.usgs.gov/>)

([https://www.facebook.com/Northeast-Wildlife-Disease-Cooperative-](https://www.facebook.com/Northeast-Wildlife-Disease-Cooperative-331283736927124/)

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