



Amphibiocystidium Parasitic Disease

Agent

Amphibiocystidium is a genus of single-celled parasitic organisms which are sometimes referred to as *Dermocystidium*, although this latter term is increasingly restricted to similar parasites that infect fish.

Species affected

Amphibiocystidium parasitic disease has been reported in a range of amphibians, including frogs, toads, newts and salamanders. There is evidence that some species may be more susceptible to infection than others, but all amphibians should be considered at risk.

Signs of disease

Infection with *Amphibiocystidium* parasites can cause a range of disease outcomes. Most often, infection results in the development of nodular skin lesions that are visible to the naked eye. These vary from small blisters to large tumour-like lesions, which can become red and ulcerated. *Amphibiocystidium* skin lesions can occur anywhere on the body, including the head, tail and legs (see Figures 1 and 2). Sometimes, the lesions are clustered around the vent, or cloaca, of the animals. Additionally, the parasite can infect the liver, in which it forms tumour-like lesions of varying sizes.

The effect of *Amphibiocystidium* infection on individual animals ranges from mild disease with recovery, to death.



Figure 1. Alpine newt (*Ichthyosaura alpestris*) infected with *Amphibiocystidium*. Long black arrows – ulcerative lesions on back. Short white arrows – coalescent blisters at base of tail. Photo credit: Zoological Society of London.



Figure 2. Palmate newt (*Lissotriton helveticus*) infected with *Amphibiocystidium*. Long black arrows – single blisters on body and tail. Short white arrows – coalescent blisters in body). Photo credit: Shaun Denney.

Disease transmission

The lifecycle of *Amphibiocystidium* parasites is virtually unknown. How the parasite is transmitted from one animal to another is also unknown.

Distribution

Disease consistent with *Amphibiocystidium* infection was first described in Europe in the beginning of the 20th Century in frogs and newts. Since then it has also been found in North America. There has been an increase in the

numbers of reports of amphibians infected with *Amphibiocystidium* in recent years in Great Britain and elsewhere in Europe, but this might be because of a large increase in the number of people who are studying amphibian diseases.

In Great Britain *Amphibiocystidium* parasitic disease has been found in both native and introduced species of newts in multiple sites across the country.

Risk to human health

Amphibiocystidium parasites are only known to infect amphibians. There is no known risk to human health.

Risk to domestic animals

Amphibiocystidium parasites are only known to infect amphibians. As such, pet amphibians should be regarded as being susceptible to infection.

Diagnosis

A tentative diagnosis of *Amphibiocystidium* parasitic disease can often be made based on the appearance of the lesions found in affected amphibians. A definitive diagnosis can only be made, however, using specialist laboratory tests.

If you wish to report finding a dead amphibian, or signs of disease in amphibians, please visit www.gardenwildlifehealth.org. Alternatively, if you have further queries or have no internet access, please call the **Garden Wildlife Health** vets on **0207 449 6685**.

Control and prevention

There are no known effective treatments for *Amphibiocystidium* parasitic disease. The movement of infected animals should be avoided to help prevent the unintentional spread of the parasite to new areas.

Further information

More advice on amphibians in your garden can be found on the Garden Wildlife Health website www.gardenwildlifehealth.org.

Scientific publications

Pascolini, R., Daszak, P., Cunningham, A.A., Tei, S., Vagnetti, D., Bucci, S., Fagotti, A. and Di Rosa, I. (2003) Parasitism by *Dermocystidium ranae* in a population of *Rana esculenta* complex in Central Italy and description of *Amphibiocystidium* n. gen. *Diseases of Aquatic Organisms* **56(1)**: 65-74. [Doi: 10.3354/dao056065](https://doi.org/10.3354/dao056065).

Raffel, T. R., Bommarito, T., Barry, D.S., Witiak, S.M., and Shackelton, L.A. (2008) Widespread infection of the Eastern red-spotted newt (*Notophthalmus viridescens*) by a new species of *Amphibiocystidium*, a genus of fungus-like mesomycetozoon parasites not previously reported in North America. *Parasitology* **135(2)**: 203–215. [doi:10.1017/S0031182007003708](https://doi.org/10.1017/S0031182007003708).

Duffus, A.L.J. and Cunningham, A.A. (2010) Major disease threats to European amphibians. *The Herpetological Journal* **20(3)**: 117–127. <http://www.ingentaconnect.com/content/bhs/thj/2010/0000020/0000003/art00002>.

González-Hernández, M., Denoël, M., Duffus, A.J.L., Garner, T.W.J., Cunningham, A.A. and Acevedo-Whitehouse, K. (2010) Dermocystid infection and associated skin lesions in free-living palmate newts (*Lissotriton helveticus*) from Southern France. *Parasitology International* **59(3)**: 344–350. [doi:10.1016/j.parint.2010.04.006](https://doi.org/10.1016/j.parint.2010.04.006).

Disclaimer

This fact sheet was produced by Garden Wildlife Health (GWH) for information purposes only. The GWH will not be liable for any loss, damage, cost or expense incurred in or arising by reason of any person relying on information in this fact sheet.