



SALAMANDER CHYTRIDIOMYCOSIS

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BACKGROUND

Salamander chytridiomycosis is an infectious disease caused by the fungus *Batrachochytrium salamandrivorans*. The fungus is a close relative of *B. dendrobatidis*, which was described more than two decades ago and is responsible for the decline or extinction of over 200 species of frogs and toads. Salamander chytridiomycosis, and the fungus that causes it, were only recently discovered. The first cases occurred in The Netherlands, as outbreaks in native fire salamanders, *Salamandra salamandra*. Further work discovered that the fungus is present in Thailand, Vietnam and Japan, and can infect native Eastern Asian salamanders without causing significant disease. Evidence suggests that the fungus was introduced to Europe in the last decade or so, probably through imported exotic salamanders that can act as carriers. Once introduced the fungus is capable of surviving in the environment, amongst the leaf litter and in small water bodies, even in the absence of salamanders. It thrives at temperatures between 10-15°C, with some growth in temperatures as low as 5°C and death at 25°C. *B. salamandrivorans* has not, so far, been reported in North America.

The disease is not present in North America, but an introduction of the fungus into native salamander populations could have devastating effects. In Europe, the fire salamander population where the disease was first discovered is at the brink of extirpation, with over 96% mortality recorded during outbreaks. Little is known about the susceptibility of most North American salamanders but, based on experimental trials, at least two species, the Eastern newt (*Notophthalmus viridescens*) and the rough-skinned newt (*Taricha granulosa*), are highly susceptible to the fungus and could experience similar high mortalities. If *B. salamandrivorans* is introduced into North America, it will likely become permanently established and, based on experience with frog chytridiomycosis, impossible to eradicate.

Based on experimental infections conducted on selected species of each of the three amphibian orders, *B. salamandrivorans* seems incapable of establishing an infection in the skin of frogs (order Anura) and caecilians (order Caecilian), while it is deadly to the majority of species of salamanders and newts in which experimental infections have been performed. Three species of Asian salamanders have been proposed as potential reservoirs: the blue-tailed fire-bellied newt (*Cynops cyanurus*), Japanese newt (*Cynops pyrrhogaster*) and Tam Dao salamander (*Paramesotriton deloustali*).

RESOURCES

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Batrachochytrium salamandrivorans:
A Threat
Assessment of
Salamander
Chytrid Disease



ENGLISH

Chytridiomycosis
fact sheet



ENGLISH

Salamander
chytridiomycosis
fact sheet



ENGLISH

Fact sheet -
General public
and pet shop
owners

 ENGLISH
 FRANÇAIS

Fact sheet -
Scientific
community

 ENGLISH
 FRANÇAIS

BC disinfection
protocol
(ecosystems
branch, ministry
of environment,
British Columbia)



ENGLISH

Decontamination
protocol for field
work with
amphibians and
reptiles in
Canada

 ENGLISH
 FRANÇAIS

Prepared by the
Canadian
Herpetofauna
Health Working
Group (Last
updated June,
2017)

SUGGESTED READING

[BACK TO TOP](#)[Amphibians.org](https://amphibians.org)[Partners in Amphibian and Reptile Conservation \(PARC\)](#)[Convention on the conservation of European wildlife and natural habitats](#)

(The Standing Committee to the Convention on the Conservation of European Wildlife and Natural Habitats, acting under the terms of Article 14 of the Convention, has adopted Recommendation No. 176 (2015) of the Standing Committee on the prevention and control of the *Batrachochytrium salamandrivorans* chytrid fungus)

Martel A, Spitzen-van der Sluijs A, Blooi M, Bert W, Ducatelle R, Fisher MC, Woeltjes A, Bosman W, Chiers K, Bossuyt F, Pasmans F (2013): *Batrachochytrium salamandrivorans* sp. nov. causes lethal chytridiomycosis in amphibians. [Proceedings of the National Academy of Sciences 110\(38\): 15325-9.](#)

Grey MJ, Duffus ALJ, Haman KH, Harris RN, Allender MC, Thompson TA, Christman MR, Sacerdote-Velat A, Sprague LA, Williams JM, Miller DL (2017): Pathogen surveillance in herpetofaunal populations: guidance on study design, sample collection, biosecurity, and intervention strategies. [Herpetological Review 48: In Press.](#)