

Crowdfunding for Chytrid 2.0 (*Batrachochytrium salamandrivorans*) in Belgium

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That amphibians are the most imperilled group of terrestrial vertebrates is a fact we are all well aware of in the amphibian conservation community. Over 40% of all species are endangered in their existence and one of the greatest threats are emerging infectious diseases (1). The single celled fungus *Batrachochytrium dendrobatidis* (*Bd*) causes the disease chytridiomycosis and has already affected over 500 species (www.bd-maps.net). High elevation species in Central America and Australia, but also in various other locations, have been particularly hard hit by this disease (2). Vredenburg *et al.*, noted: "The effect of chytridiomycosis on amphibians has been described as the greatest loss of vertebrate biodiversity attributable to disease in recorded history" (3). Recently we learned that *Bd* is not alone. In 2013 a new chytrid species called *B. salamandrivorans* (*Bsal*) has been described, originating from Asia and has entered Europe via the pet trade and caused the near extinction of a population of Fire Salamanders (*Salamandra salamandra terrestris*) in the Netherlands (4). Not long after *Bsal* was identified in the Netherlands it was found in two Fire Salamander populations in Belgium causing mortalities and population declines. *Bsal* has also been confirmed in Alpine Newts (*Ichthyosaura alpestris*) in Belgium where it has caused mortality in one population of Alpine Newts. A study published in 2014 showed that all European salamanders and newts were highly susceptible to *Bsal* in the laboratory and died soon after infection, as do some North American species (5). In Europe we could lose up to 44 species and even more in the Americas (more than 300)! This is no longer a problem limited to just the Netherlands and Belgium but could become a global problem very soon! A recently published paper by Yap (*et al.*,) warning about the potential biodiversity crisis if *Bsal* is introduced in North America highlights this very real threat (6).

Can the fungus be stopped or halted? We think that with the results of a study we'd like to perform in the Belgian province of Wallonia we will have a better understanding of the ecology of this disease in the wild. This study will attempt to find out where *Bsal* occurs, how fast it spreads, how it spreads, which host species are affected and how it impacts salamander populations. The results of this study can then be applied to other locations when and where outbreaks occur in the future. Wallonia is a very important place



Tariq Stark and Carlijn Laurijssens swabbing a Fire Salamander (*Salamandra salamandra terrestris*). Photo: Peter de Koning.

to study this fungus for it is the gateway to large fire salamander populations (and other species) in France, Germany and Luxembourg. We plan to collect non-invasive skin samples in the field from salamanders in locations where *Bsal* has not been documented yet or is suspected to be. The swab samples will be sent to Ghent University in Belgium for analysis. The scientists that originally discovered the fungus, Dr. An Martel and Dr. Frank Pasmans, will perform the analysis.

Unfortunately very little funds are available for this study and this is where you can help! Amphibian Survival Alliance (ASA) partner The Wandering Herpetologist initiated a crowdfunding campaign in order to raise money for this much needed study! Our campaign can be found on crowdfunding page and ASA partner WorthWild. You can make a "pledge" or follow our campaign by subscribing. Lots of updates will be uploaded in the next few weeks including a brand new video! We have yet to go live but making a pledge makes all the difference in the world and shows that the amphibian conservation community supports this initiative! No donation is too little or too much, all is welcome! Questions about this campaign? Please email Tariq Stark and Sara Viernum (wanderingherpetologist@gmail.com) or take a look on our website www.wanderingherpetologist.com. You can find our campaign at: <http://www.worthwild.com/prelaunches/17>. This campaign is supported by Ghent University, Nature conservation organization Natagora (Belgium), Reptile, Amphibian and Fish Conservation the Netherlands (RAVON) and the ASA. By donating you actively contribute to this study and salamander conservation in Europe. Thank you!



How we like to see them: a healthy and gorgeous Fire Salamander found in Wallonia! But for how long? Photo: Tariq Stark.

References:

1. Stuart *et al.*, Science 306, 1783-1786 (2004).
2. Berger *et al.*, PNAS 95, 9031-9036 (1998).
3. V.T. Vredenburg, R.A. Knapp, T. Tunstall, C.J. Briggs, PNAS 107, 9689-9694 (2010).
4. Martel *et al.*, PNAS 110, 15325-15329 (2013).
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6. T.A. Yap, M.K. Koo, R.F. Ambrose, D.B. Wake, V.T. Vredenburg, Science, 349, 481-482 (2015).
7. <http://www.bd-maps.net/surveillance/default.asp>