

# Batrachochytrium salamandrivorans (Bsal)

This leaflet can be used to recognize Bsal in the amphibian host. Important: the symptoms are variable and can be difficult to detect at an early infection stage. It is often that lesions become evident at a relatively late stage of infection with Bsal.

## Symptoms

The fungus has not yet been seen to be able to infect larvae. It may infect frogs and toads, but these hosts are not susceptible to disease, hence they don't get sick, but will act as vectors and transmit the fungus as to salamanders and newts.

Metamorphosed salamanders and newts often show multifocal superficial erosions (holes in the skin) and extensive epidermal ulcerations (ulcers on the skin) all over the body. The animal may also suffer from anorexia (stop eating) and ataxia (muscle spasms) and show excessive shedding of the skin. Ultimately the animal dies.

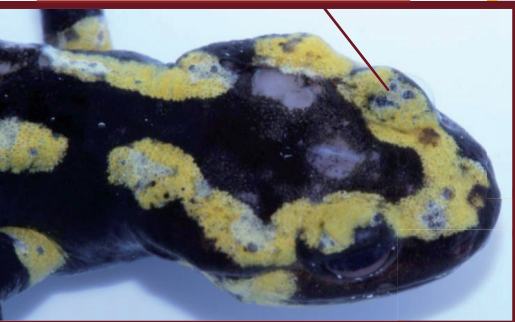


This fire salamander suffers extensive shedding of the skin



In this heavily infected fire salamander, the erosions and shedding is clearly visible

This fire salamander died due to Bsal and the ulceration and skin erosion is evident



This alpine newt is severely infected and shows skin erosions and apathy



The erosion of the skin is obvious in this fire salamander

A suspicious mass mortality event of fire salamanders in a forest



# Amphibian diseases

Diseases and death are part of the circle of life. However, currently there are some emerging infectious diseases that pose an existential threat to European amphibians. Here we describe chytridiomycosis caused by *Batrachochytrium salamandrivoran* (Bsal), and answer the most frequently asked questions.



## What do I do?

You are in the field and encounter sick or dead amphibians. Now what?

- take as many photos as you can,
- note down the location (or write on a map)
- note the time and date
- the species and number of animals
- your own contact information

If you are allowed to, bring as many dead animals as you can. Place them in separate plastic bags and store them frozen or in ethanol. Make sure you label all individuals separately.

## Who do I contact?

Contact your local research institute for advice and help. You can find their addresses on this website: [www.BsalEurope.com](http://www.BsalEurope.com)

For captive animals you can also contact your veterinarian. They can advise you on the proper treatment. Please report cases of Bsal in captive collections to the research institutes!

## Captive collection?

If you have a captive collection, make sure that when you are introducing new animals to your collection they have a health certificate. Implement a quarantine period of at least 6 weeks before you place your new animal with others. Report diseases to your vet and local research institute.

Do not deposit your waste water in the environment, but pour it directly into a drain connected to the sewerage system.

## Is monitoring safe?

Monitoring and studying amphibians is and remains important. You can still go out into the field and collect your data, but please be alert and implement a disinfection protocol to be sure you're not transferring pathogens from one site to another.

## Disinfection protocol

It is strongly advised to disinfect your field gear (boots, buckets, dipnets etc) to prevent the spread of pathogens to yet naïve populations. Site managers are also advised to disinfect large machinery between sites.

The website [www.BsalEurope.com](http://www.BsalEurope.com) provides information that will help you with this!

