

INVASIVE SPECIES ALERT!

SALAMANDER CHYTRID DISEASE

(Batrachochytrium salamandrivorans)

REPORT INVASIVE SPECIES
www.reportinvasives.ca

NATIVE RANGE

Bsal is believed to be endemic to Asia.

DESCRIPTION

Bsal...

- Affects salamanders and newts
- Causes reddening, ulcerations, and excessive shedding on salamander and newt skin
- Can lead to skin lesions, anorexia, lethargic, ataxia, and eventual mortality

WHY SHOULD WE CARE?

- There are nine species of salamanders and newts that live in BC, four of which are listed under the Species at Risk Act as endangered, threatened or special concern
- Research has shown that species of pacific North American salamanders and newts are at high risk of contracting Bsal, as it could establish in the province
- A decline in salamanders and newts could greatly alter ecosystem dynamics because:
 - Salamanders and newts are predators of insects and other arthropods and may contribute to regulating population numbers of these groups
 - Salamanders and newts are prey for other species, thus playing an important role within the food chain
- Salamander skin contains complex antibacterial and antifungal compounds and toxins that could one day provide benefits to humans that scientists are simply unaware of at this time
- Salamanders are believed to be an excellent indicator species for scientists to monitor ecosystem health

BIOLOGY & SPREAD

The spread of Bsal to salamanders and newts occurs through direct contact with an infected individual or with water or organic material that an infected individual previously contacted. The Bsal fungus reproduces asexually by forming motile spores that disperse in water. Bsal thrives at temperatures between 10-15°C and can continue to grow at temperatures as low as 5°C. Bsal's abilities to be spread by different sources and tolerate low temperatures could increase its likelihood of establishment in B.C.

FIRE SALAMANDER WITH BSAL ULCERATIONS



PHOTO: F. PASMANS, WIKIMEDIA COMMONS

PRIMARY IMPACT: Bsal is a fungus that causes Salamander Chytridiomycosis, a disease that has been causing mass declines in Fire Salamander (*Salamandra salamandra*) populations in Europe.

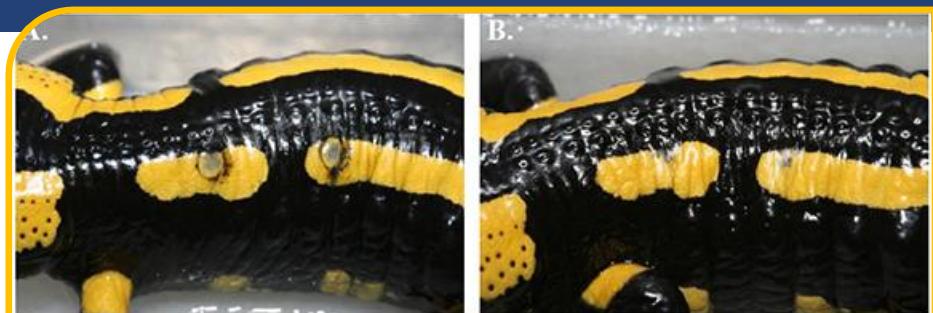
DID YOU KNOW?

Members of the public (including boaters, fishers, and other recreational users) and researchers that enter into Bsal infected or potentially infected sites are urged to follow proper hygiene protocols; including *cleaning* and *disinfecting* all gear and equipment that enters the site. This is particularly important if you move from one water body to another, as you could transfer Bsal unknowingly. Refer to the hygiene links on page 2 for more information

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BIOLOGY & SPREAD (CONT'D)

It appears that infected salamanders in Europe contracted Bsal by pet traded salamanders from Asia. The concern in B.C. is that Bsal-infected salamanders and newts from Europe or Asia could be introduced by means of the pet trade. If infected amphibians are released into the wild or water from their aquaria is disposed of in nearby waterbodies, there is a chance of infecting native species. There is further concern, that Bsal could be spread by water from ornamental fish aquariums that are imported from Asia where the disease is believed to originate.



B SAL ULCERATIONS - PHOTO: MARK BOOI

HABITAT

Bsal can be found on the skin of salamanders and newts, but can also survive outside of a host for several weeks in water or on moist organic material.

IS IT HERE YET?

Unknown. To date, there have been no detections of Bsal in B.C. salamanders and newts; therefore it is assumed that Bsal is not present in B.C.

HOW CAN WE STOP IT?

- Do **not** release pet or captive salamanders or newts into the wild
- Do **not** dispose of aquarium water into natural water bodies, to avoid the transmission of Bsal
- Do **not** touch wild salamanders or collect them for use as pets
- Follow appropriate hygiene practices :
 - Hygiene practices for General Public/ Pet Shop Owners
<http://www.salamanderfungus.org/wp-content/uploads/2016/04/General-public-Pet-Shop-Owners.pdf>
 - Hygiene practices for Scientific Community
http://www.cwhc-rccs.ca/docs/fact_sheets/Scientific%20community.pdf
 - BC Government Hygiene Protocol for Field Staff
<http://www.env.gov.bc.ca/bcparks/partnerships/item/docs/protocols/wetland/BC-DisinfectionProtocol-AquaticFieldResearchers-2008.pdf>

WHAT SHOULD I DO IF I FIND IT?

- Contact the BC **Wildlife Health Program**, Ministry of Environment (250 751-3234) if you observe dead or sick salamanders or newts.

Take close-up photographs of the amphibian(s) and send them to Purnima.Govindarajulu@gov.bc.ca.

FOR MORE INFORMATION:

- Canadian Wildlife Health Cooperative
<http://www.cwhc-rccs.ca/bsal.php>
- The Amphibian Survival Alliance and Amphibian Specialist Group
www.amphibians.org
- The Chytrid disease website
www.salamanderfungus.org/about-bsal
- The Chytrid disease Facebook Page
<https://www.facebook.com/salamanderfungus>
- Salamander Fungus Task Force
<http://www.salamanderfungus.org/task-force/>

