

# Watch Out for *Bsal*: It's Not Just Another Government Acronym!



Department of Defense (DoD) installations are home to an impressive diversity of salamander species. The fungus *Batrachochytrium salamandrivorans*, otherwise known as *Bsal* or salamander chytrid fungus, has caused die-offs of salamanders throughout Europe. Although it has not yet been documented in the U.S., experts believe *Bsal* poses a serious threat to native salamanders, and represents one of the most significant potential disease threats to U.S. wildlife since the discovery of white-nose syndrome in bats.



Spotted Salamander—Seth Berry



Hellbender—Paul Block

**What is *Bsal*?** *Bsal* is a pathogenic fungus that infects the skin of certain salamander species. Infected salamanders may display severe lethargy, as well as large open skin lesions. *Bsal* disrupts metabolic pathways on the skin that, if severe enough, can result in morbidity or mortality. *Bsal* is thought to have originated in Asia, is believed to have spread through Europe via the pet trade, and is transmitted via direct contact between salamanders or via motile aquatic zoospores.

**What is the Concern?** Because *Bsal* can be transmitted in the environment, and little is known about how it spreads, there is concern that it will be accidentally introduced into the U.S. through the salamander pet trade. According to Yap et al. (2015), almost 99% of salamander imports to the U.S. pass through or come from Asia. If an infected individual was released into the wild, the fungus could spread to native salamanders which could result in population declines and die-offs. DoD installations are home to approximately 90 species of salamanders, some of which are listed as endangered or threatened by the Endangered Species Act (ESA). Salamander declines could result in more species being listed under the ESA, which could increase mission-related restrictions.

**What is the Current Response Effort?** To help prevent this deadly fungus from killing native salamanders, the U.S. Fish and Wildlife Service published an interim rule to list 201 species of salamanders as “Injurious Wildlife” under the Lacey Act. The Lacey Act prohibits the importation and interstate travel of listed species, making it illegal to travel across state lines with a pet salamander that is listed under the Lacey Act. Special importation or transportation permits may be granted for specimens of injurious wildlife for scientific, medical, educational or zoological purposes. Owners of pet salamanders that are listed as injurious are allowed to keep them under this rule. For more information about this rule, see <http://www.fws.gov/injuriouswildlife/salamanders.html>.



Marbled Salamander—Mundy Hackett

**What Can You Do?** 1) Follow all current prohibitions and permit requirements for listed salamanders, including their tissues or parts; 2) Do not release pet salamanders (or any pets) to the wild; 3) Do not transport and/or release any wild salamanders among field sites; 4) Adopt basic biosecurity measures when performing field work in amphibian habitats; and 5) Report salamander die-offs to your appropriate chains of commands.

## Did You Know?

As of January 28, 2016, it may be illegal to import or travel interstate with your pet salamanders. Check the list to see if your pet is included: <http://www.fws.gov/injuriouswildlife/>

For additional information on DoD PARC, contact: [chris.petersen@navy.mil](mailto:chris.petersen@navy.mil)

## Sites to visit for additional information on *Bsal*:

- ◆ <http://www.parcplace.org>
- ◆ <http://www.salamanderfungus.org>
- ◆ <http://amphibiaweb.org/chytrid/Bsal.html>
- ◆ state and federal fish and wildlife agency web-sites