# Quarantine requirements for members of the order Caudata (salamanders and newts)

This guide provides information on the requirements for quarantine procedures for members of the order Caudata (salamanders and newts) following their importation into Great Britain (GB) for England and Wales. This guide also provides advice on appropriate establishments and biosecurity risk mitigation to prevent the spread of *Batrachochytrium salamandrivorans* (Bsal). An appropriate establishment (AE) is an establishment suitable for quarantine purposes that must be registered with the FHI before use, apply to register an AE by completing a BSAL1 form and submitting it to the FHI along with a completed quarantine and biosecurity measures plan (refer to Annex 1, 2 and 3 of this guidance).

**Background and Legislation**

*Batrachochytrium salamandrivorans* (Bsal), is a pathogenic chytrid fungus that affects members of the order Caudata (salamanders and newts). Bsal is lethal to certain species of salamander and newt and affects kept and wild populations. Bsal can cause significant morbidity and mortality. However, some species have been shown to be fully or partly resistant to Bsal infection and may be considered a vector and therefore act as a reservoir for the source of infection for other susceptible species.

Commission Implementing Decision (EU) 2018/320 on certain animal health protection measures for intra-Union trade in salamanders and the introduction into the Union of such animals in relation to the fungus *Batrachochytrium salamandrivorans* was published by the European Commission and came into force on 28th February 2018. Following EU-exit Commission Decision 2018/320 was retained and transferred into UK law by The Import of, and Trade in, Animals and Animal Products (Miscellaneous Amendments) (EU Exit) Regulations 2020, as amended in Part 3, Regulation 67.

Decision 2018/320 as retained and amended, requires that all members of the order Caudata (salamanders and newts) that are imported into Great Britain must be held post importation in an appropriate establishment and subject to quarantine, under the supervision of the competent authority. In England and Wales, the competent authority is the Fish Health Inspectorate (FHI) at Cefas.

There are four quarantine options that can be applied depending on the number of animals in the consignment (refer to Annex 1).

Quarantine, treatment, and mortality records must be kept and maintained available for inspection by the FHI, along with a record of the date of introduction of the salamanders into GB (refer to Annex 3).

**Annex 1 - Quarantine Options**

The quarantine options are:

**Option 1 (for consignments of 62 or more salamanders only).**

*Testing* – During the fifth week of quarantine following the date of their entry, the quarantined consignment of salamanders is tested using skin swabs. This is done using an appropriate diagnostic test under the supervision of the FHI. The sample sizes needed for testing are set out in table 1. The appropriate diagnostic tests used for Bsal prevalence in the quarantined population is a real-time quantitative polymerase chain reaction (qPCR). The real time quantitative polymerase chain reaction contains species-specific primers (STerF and STerR). The species-specific primers will detect the presence of Bsal DNA in the samples. Testing costs £40 per animal at Cefas.

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| **Size of epidemiological unit** | 62 | 186 | 200 | 250 | 300 | 350 | 400 | 450 |
| **Sample size** | 62 | 96 | 98 | 102 | 106 | 108 | 110 | 111 |

Table 1: Reference table of the sample sizes needed for salamander populations for prevalence of infection of Bsal in the quarantined salamander population. The sample size is chosen to ensure the detection, with 95% confidence, of a 3% prevalence of Bsal in the test population, based on an assumption that test sensitivity is 80%.

**Option 2**

*Heat treatment* – After importation, the salamanders must be kept in isolation from others in a registered appropriate establishment at a temperature of 25 °C for 12 days.

**Option 3**

*Treatment* – After importation, the salamanders must be kept in isolation from others in a registered appropriate establishment at a temperature of 20 °C for 10 days. This treatment must be combined with a treatment of polymyxin E submersion baths (2000 IU/ml) for 10 minutes twice per day, followed by applying voriconazole sprays (12,5 μg/ml).

**Option 4**

*Other treatment* – Other available treatments will be considered if they have been shown to have comparable results in eliminating Bsal and must be carried out at a registered appropriate establishment. They must also be reported in a peer-reviewed article that is published in a scientific journal and must be approved for use in advance by the FHI.

**Annex 2 - Appropriate Establishments**

Minimum conditions for an appropriate establishment:

1. The appropriate establishment of destination:

(a) has a system that ensures adequate surveillance of the salamanders.

(b) is under the control of an official or approved veterinarian (the Fish Health Inspectorate, Cefas).

(c) is cleaned and disinfected in accordance with instructions by the competent authority (the FHI, Cefas).

2. The operator of the appropriate establishment ensures that:

(a) cleaning and disinfection of the tanks, crates or other fomites used for the transport of the salamanders is carried out unless those are destroyed, in a way to prevent the spread of Bsal.

(b) waste material and wastewater are collected regularly, stored, and subsequently treated in a way to prevent the spread of Bsal.

(c) carcases of quarantined salamanders are examined in a laboratory indicated by the competent authority.

(d) the necessary tests and treatments of salamanders are carried out in consultation with and under the control of the official or approved veterinarian.

3. The operator of the appropriate establishments of destination informs the official or approved veterinarian of diseases and deaths of salamanders during the quarantine.

4. The operator of the appropriate establishments of destination keeps a record of:

(a) the date, number and species of salamanders entering and leaving for each consignment.

(b) copies of the animal health certificates and the common health entry documents accompanying the consignment of salamanders.

(c) cases of illness and the number of deaths daily.

(d) dates and results of testing.

(e) types and dates of treatment and the number of animals subjected to it.

An appropriate establishment must be registered with the FHI before use. The operator will not incur a charge from the FHI for this service, but all costs associated with the housing, treatments, tests, and supervision of the quarantine procedure by the FHI are borne by the operator responsible for the appropriate establishment. The FHI charge for the supervision of the quarantine process will start at £250 per consignment monitored. This fee includes staff time & travel and issuing of written authorisation that the quarantine period has been completed to the satisfactory standard.

The appropriate establishment must be suitable and biosecure to hold members of the order Caudata (salamanders and newts) for a period of successful quarantine, testing and/ or treatment. The appropriate establishment may require the facility to quarantine several consignments of imported salamanders and newts at the same time. The operator must adhere to strict biosecurity procedures and be able to show a distinct separation between the consignments, to limit the risk of contamination between quarantined consignments of salamanders and newts.

Operators of registered appropriate establishment may choose to provide a commercial quarantine service for other operators within England and Wales. This will only be agreed if the registered appropriate establishment can show adherence to an FHI approved quarantine plan. By providing a commercial quarantine service for other operators within England and Wales, the operator can request to be included in a FHI listing scheme, this will be used to provide a point of contact for those seeking assistance in this area.

An importer of salamanders and newts does not have to set up their own appropriate establishment. They can opt to use a third party’s registered appropriate establishment. However, using another registered appropriate establishment must be confirmed in writing prior to the introduction of the animals. The confirmation must come from the operator responsible for the registered appropriate establishment, stating that they agree to accept the consignment and will be responsible for the quarantine procedure. Once the quarantine procedure has been completed to the satisfaction of the FHI, the animals will be released.

**Annex 3 - Quarantine plan and biosecurity measures**

Once an appropriate establishment is registered with the FHI it is a requirement of the registration to operate in accordance with the approved quarantine plan. When documenting the quarantine plan operators must identify and consider the following:

* How many epidemiological units will need to be created.
* How the unit(s) will be biosecure.
* How the routine inspections of the quarantined animals will be done.
* How will the epidemiological units be disinfected between batches of animals.
* Draw up a site plan to identify the units used for the quarantine plan.
* How each epidemiological unit can be isolated from each other.
* How packaging materials will be collected, disinfected and/ or safely disposed of after use.
* How waste materials will be collected, disinfected and/ or safely disposed of
* How staff will be trained to adhere to the quarantine procedures.
* Staff training in amphibian health and welfare management and disease recognition.
* How staff and equipment will be designated to avoid cross contamination (Bsal spores remain transmittable in water, on tank surfaces, on enrichment items in the holding facilities for long periods and will require careful disinfection and disposal of all items in contact with the quarantined animals). Options for this can include clear signage, zoning of the epidemiological units within the appropriate establishment, colour coding of epidemiological units and the items used within each.
* Many animals are transported below 20 °C and will need time in the epidemiological unit prior to the commencement of the measures while the animals acclimatise to the higher temperatures required.
* Installation of temperature logs for each epidemiological unit to evidence compliance for treatments.
* Accurate record keeping for the movement of animals for traceability, quarantine period and procedure and/or treatment used and period.
* Procedure for reacting to suspicion of disease or mortality.
* Contingency plans for example, reaction to disease, failure of equipment that may affect the treatment and the animal’s health and welfare.
* Keep a record of all visitors to the appropriate establishment and ensure all visitors are aware of the quarantine and biosecurity procedures.

**Personnel**

It is advisable to appoint a quarantine manager. The quarantine manager is responsible for producing and implementing the quarantine plan, as well as demonstrating its effectiveness through use of good record keeping. Additional responsibilities include training staff and ensuring visitors are aware of measures that apply to them. It is also advisable to appoint a deputy if the manager is unavailable. It is advised that the quarantine manager should identify a veterinarian or, where appropriate, consultant with specialised knowledge of amphibian health issues.

**Identifying risks**

An important requirement when identifying risks to your business is an awareness of the following:

* Diseases that can affect your stock.
* Unknown stock status
* Clinical signs of disease
* Host susceptibility
* The range of environmental parameters that could precipitate clinical outbreaks.
* Appropriate staff training and periodic refresher courses that will provide better disease recognition skills and information.

**Contingency planning**

The purpose of a contingency plan is to be prepared and have a procedure in place for any unforeseeable events that may jeopardise the health and welfare of the animals in the registered appropriate establishment. It is a condition of registration that the operator informs the FHI of an increased or unexplained mortality event.

**Confirmation of *Batrachochytrium salamandrivorans* (Bsal**)

In the event of confirmation of Bsal the following measures must be taken by the operator under instruction from the FHI:

* All susceptible species belonging to the order Caudata (salamanders and newts) in the same epidemiological unit must either be:

(i) Treated to the satisfaction of the FHI against Bsal stated in the options section of this document; or

(ii) Killed and disposed of as animal by-products in accordance with Article 12 of Regulation (EC)

No1069/2009, as amended by The Animals, Aquatic Animal Health, Invasive Alien Species, Plant Propagating Material and Seeds (Amendment) (EU Exit) Regulations 2020, part 3, chapter 3, Regulation 12, following the disinfection of the epidemiological unit to the satisfaction of the FHI.

**Further information on amphibian diseases**

Information on amphibian diseases can be found from a variety of sources:

Ornamental Aquatic Trade Association (OATA) [**www.ornamentalfish.org**](http://www.ornamentalfish.org/)

Reptile and Exotic Pet Trade Association (REPTA)

World Organisation for Animal Health (OIE)[**www.oie.int**](http://www.oie.int)

British Veterinary Association (BVA) **www.bva.co.uk**