

Assembling a database of host susceptibility for the amphibian pathogen Batrachochytrium salamandrivorans (Bsal)

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## Background

Batrachochytrium salamandrivorans (Bsal) is a chytrid fungal pathogen affecting amphibian populations in Asia and Europe<sup>10</sup>, and remains a threat to global biodiversity<sup>3</sup>.

Which amphibian species have tested positive via PCR for Batrachochytrium salamandrivorans?



already tested

positive are

pets within the

trade.

Around half tested are potential

- There are 1053 possible pet trade amphibians, creating urgent need to understand which species can act as vectors for *Bsal*<sup>3</sup>.
- Tolerant and resistant pet trade species act as potential vectors for *Bsal's* spread into North American<sup>10</sup>. Exposure experiments use these traits to identify carriers<sup>10</sup>.
- Species found to be Bsal positive via field studies need future exposure assessments.
- This database identifies these experiments using big data techniques to order the informative into easily accessible material to keep up with the rapid pace of *Bsal* research.

**Bsal** database created using Excel. Tabs split between *Bsal* positive PCR or exposure to *Bsal*.

Methods  $\infty$  Formulate Questions How lethal was infection to Bsal positive amphibians?

Which PCR positive species within the pet trade could act as potential vectors?



Results

carriers. Family Salamandridae populations at highest risk of lethal infections.

Remaining families acting as victims and vectors.

Compile relevant papers, grouping them by <i>Bsal</i> positive PCR or exposure to <i>Bsal</i> in Zotero	Refine experimental norms, identify questions and repeat.
1 Split information between <i>Bsal</i> positive PCR or exposure to <i>Bsal</i> tabs.	5 4 Resistant and tolerant species identified as carriers.
Commo breed an species against lis species suscep	on captive d imported compared st of known for their tibility to

Plethodon glutinosus	Caudata	Plethodontidae	Slimy Salamander	Positive	Resistant	Yes	
en intermedia	Caudata	Sirenidae	Lesser Siren	Positive	Tolerant	Yes	
Bombina variegata	Anura	Bombinatoridae	Albino Yellow Bellied Toad	Positive	Resistant	Yes	

Table lists species known to be common within the pet trade that tested positive in the field for Bsal or underwent exposure trials. Then they were listed as either carriers(resistant; tolerant) or noncarriers(lethal). <sup>1,2,4,5,7</sup>,8,9,10,11,12,13,14,15

Species	Order	Experiment duration	Source	Source Location	Age	N	Susceptibility	Doses	IUCN Listing	Other treatme
Bombina variegata	Anura	>4 weeks	captive	no data	> 1 year	4	Resistant	1:5000Z :24h	LC	immunohistoch cal staining a 10000Z for 24
Ambystoma opacum	Caudata	> 4 weeks	wild	United states	< 1 year	5	Resistant	1:5000Z :24h	LC	immunohistoch cal staining a 10000Z for 24
Ichthyosaura alpestris	Caudata	>4 weeks	captive	no data	< 1 year	5	Lethal	1:5000Z :24h	LC	immunohistoch cal staining a 10000Z for 24 histopatholog
Siren intermedia	Caudata	>4 weeks	captive	no data	> 1 year	3	Tolerant	1:5000Z :24h	LC	immunohistoch cal staining a 10000Z for 24
Taricha granulosa	Caudata	>4 weeks	captive	no data	< 1 year	4	Lethal	1:5000Z :24h	LC	immunohistoch cal staining a 10000Z for 24 histopatholog
Plethodon glutinosus	Caudata	> 4 weeks	wild	United states	> 1 year	5	Resistant	1:5000Z :24h	LC	immunohistoch cal staining a 10000Z for 24
Neurergus crocatus	Caudata	>4 weeks	captive	no data	> 1 year	5	Lethal	1:5000Z :24h	VU	immunohistoch cal staining a 10000Z for 24 histopatholog

A sample of the database; Family, Genus, and Native Range were omitted. 1,2,4,5,7,8,9,10,11,12,13,14,15



Further exposure Provide data to experiments on North American pet trade Bsal Task Force, amphibians and disseminate assessing information to potential threat public to protect level as vectors. their pets.

> Request amphibian swab samples for qPCR from private collectors, and border checkpoints for population assessment.

> > Submission ID: 224

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Bsal.

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