

## The distribution and host range of the pandemic disease chytridiomycosis in Australia, spanning surveys from 1956–2007

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**Abstract.** Chytridiomycosis is the worst disease to affect vertebrate biodiversity on record. In Australia, it is thought to have caused the extinction of four frog species, and it threatens the survival of at least 10 more. We report the current distribution and host range of this invasive disease in Australia, which is essential knowledge for conservation management. We envisage that the data be used in a global and national context for predictive modeling, meta-analyses, and risk assessment. Our continent-wide data set comprises 821 sites in Australia and includes 10 183 records from >80 contributors spanning collection dates from 1956 to 2007. Sick and dead frogs from the field and apparently healthy frogs from museum collections were tested opportunistically for the presence of *Batrachochytrium dendrobatidis*, the fungal pathogen causing chytridiomycosis, and apparently healthy frogs and tadpoles found during surveys were tested purposively. The diagnostic tests used were histology of skin samples and quantitative PCR of skin swabs. Chytridiomycosis was found in all Australian states and the Australian Capital Territory, but not in the Northern Territory. Currently it appears to be confined to the relatively cool and wet areas of Australia, such as along the Great Dividing Range and adjacent coastal areas in the eastern mainland states of Queensland, New South Wales, and Victoria, eastern and central Tasmania, southern South Australia, and southwestern Western Australia. *Batrachochytrium dendrobatidis* may have been introduced into Australia via the port of Brisbane around 1978 and spread northward and southward. It did not appear to arrive in Western Australia until 1985. The earliest records from South Australia and Tasmania are from 1995 and 2004, respectively, although archival studies from these states are lacking. We also report negative findings showing that the disease does not currently occur in some areas that appear to be environmentally suitable, including Cape York Peninsula in Queensland and most of the World Heritage Area in western Tasmania. Infection with *B. dendrobatidis* has been recorded from 63 frog species in Australia to date, all belonging to the Hylidae, Limnodynastidae, and Myobatrachidae, with the exception of one individual of a species from the Microhylidae and the introduced cane toad of the family Bufonidae.

**Key words:** amphibian chytrid fungus; *Batrachochytrium dendrobatidis*; conservation; chytridiomycosis; distribution; extinction; frog; infectious disease; mapping; risk assessment.

The complete data sets corresponding to abstracts published in the Data Papers section of the journal are published electronically in *Ecological Archives* at (<http://esapubs.org/archive>). (The accession number for each Data Paper is given directly beneath the title.)

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