

1       **Long-term monitoring of an amphibian community after a**  
2               **climate change- and infectious disease-driven species**  
3                       **extirpation**

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5       **Running head:** amphibian monitoring and global change

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17       **Keywords:** wildlife diseases, chytridiomycosis, climate change, global amphibian  
18       declines, amphibian monitoring

19       **Paper type:** primary research article

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21 **Abstract**

22 Infectious disease and climate change are considered major threats to biodiversity and  
23 act as drivers behind the global amphibian decline. This is to a large extent based on  
24 short term studies that are designed to detect the immediate and strongest biodiversity  
25 responses to a threatening process. What few long term studies are available, although  
26 typically focussed on single species, report outcomes that often diverge significantly  
27 from the short term species responses. Here we report the results of an 18 year survey of  
28 an amphibian community exposed to both climate warming and the emergence of lethal  
29 chytridiomycosis. Our study shows that the impacts of infectious disease is ongoing but  
30 restricted to two out of nine species that form the community, despite the fact all species  
31 can become infected with the fungus. Climate warming appears to be affecting four out  
32 of the nine species, but the response of three of these is an increase in abundance. Our  
33 study supports a decreasing role of infectious disease on the community, and an  
34 increasing and currently positive effect of climate warming. We caution that if the  
35 warming trends continue, the net positive effect will turn negative as amphibian  
36 breeding habitat becomes unavailable as water bodies dry, a pattern that already may be  
37 underway.