

CLIMATE CHANGE THREATS AND CONSERVATION CHALLENGES FOR THE ENDANGERED JAPANESE GIANT SALAMANDER (*Andrias japonicus*)

Clément DURET^{1*}, Tiphane BARTET¹, Alain HAMBUCKERS², Osamu KISHIDA³, Sumio OKADA⁴, Yuki TAGUCHI⁵, Mizuki K. TAKAHASHI^{4,6} and Mathieu DENOËL¹

¹ Laboratory of Ecology and Conservation of Amphibians (LECA), Freshwater and Oceanic science Unit of reSearch (FOCUS), University of Liège, 4000, Liège, Belgium

² Unit of Research SPHERES, University of Liège, 4000, Liège, Belgium

³ Wakayama Experimental Forest, Field Science Center for Northern Biosphere, Hokkaido University, Sapporo, 001, Hokkaido, Japan

⁴ The Hanzaki Research Institute of Japan, Asago, 652-0000, Hyogo, Japan

⁵ Asahi Hanzaki Research Association, 730-0000, Hiroshima, Japan

⁶ Department of Biology, Bucknell University, 17837, Lewisburg, Pennsylvania, USA

***Presenting author, clement.duret@uliege.be**

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Giant salamanders are the world's largest species of amphibians and play a key role as large predators in riverine environments. Like many other amphibians, they are experiencing population declines and are particularly vulnerable to various threats. Identifying environmental variables influencing their distribution is crucial for their conservation, and predicting the impacts of climate change on their future distribution is essential for making informed and appropriate conservation decisions. This study assesses the current habitat suitability and distribution of the Japanese giant salamander (*Andrias japonicus*) and predicts changes under future climate scenarios. Using species distribution models including a large number of occurrence data points and multiple environmental predictors, we projected habitat suitability maps, identified key contributing variables, and calculated shifts in suitable areas for three future time periods under projected climate conditions. Climatic variables were the dominant factors influencing salamander distribution, with preferences for areas with moderate precipitation and mild summer temperatures. Local topography also influenced their distribution, while land cover had less influence. Our results highlight the serious risks posed by climate change, which is predicted to significantly reduce suitable habitat for giant salamanders. By identifying the variables that influence species distribution and examining the effects of climate change, we expose the global threats facing this species. These results provide important insights for future conservation strategies, helping to delineate priority areas that are less vulnerable to climate change and emphasizing the urgent need for further research on local habitat disturbances to better protect giant salamanders.

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Contact: UMONS.Zoology.2024@gmail.com

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