

Can a tropical water flea invade European lakes?

March 19 2013



This picture shows *Daphnia lumholtzi* displaying a unique ability to form spectacular helmets and tail spines to defend themselves when exposed to fish (left individual), but not in the absence of fish (right individual). Credit: Christian Laforsch

[*Daphnia*](#) is a genus of small, [planktonic crustaceans](#), commonly called 'water fleas' because of their jumpy swimming style and their size (between 0.2 and 5 mm). They live in various aquatic environments, ranging from acidic swamps to freshwater lakes, ponds, streams and rivers. Species of the genus *Daphnia* play a key role in freshwater food webs: they consume algae and are themselves an important food item for small fish.

[*Daphnia lumholtzi*](#) is a small subtropical and tropical representative, known as an invader in North America. It has never been found in Europe in the wild. [Laboratory experiments](#) were conducted by scientists from Ludwig-Maximilians-Universität München; [University of Bayreuth](#) ; and Technische Universität, München, to assess the possibilities of a potential invasion in Europe. The study was published in the open access journal *NeoBiota*.



This is a picture of one of the native European species, *Daphnia Hyalina*. Credit: Eva-Maria Harz

The experiments suggest that *D. lumholtzi* can invade European lakes and can cause substantial declines in the populations of native [water flea](#) species, e.g. *Daphnia hyalina* and *D. cucullata*. It was also shown that absence of predatory fish may ease establishment in European lakes. Surprisingly, the invasive [plankter](#) proved to be a strong competitor even at temperatures as low as 15°C, despite its tropical origin.



This is a picture of European hybrid of *D. hyalina* and *D. cucullata*. Credit: Eva-Maria Harz

"We still do not know whether *D. lumholtzi* will invade European lakes, but our experiments did not identify any obstacles. In contrast to some studies suggesting that it might be filling an empty niche in North America, the results of our experiments indicate that it may suppress the population growth or even outcompete some native European *Daphnia*" says the lead author Meike J. Wittmann.

More information: Meike J. Wittmann, Wilfried Gabriel, Eva-Maria Harz, Christian Laforsch, Jonathan M. Jeschke, Can *Daphnia lumholtzi* invade European lakes? *NeoBiota*: 16: 39, [doi: 10.3897/neobiota.16.3615](https://doi.org/10.3897/neobiota.16.3615)

Provided by Pensoft Publishers

Citation: Can a tropical water flea invade European lakes? (2013, March 19) retrieved 20 April 2024 from <https://phys.org/news/2013-03-tropical-flea-invade-european-lakes.html>

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