Summary from the authors: Dispersal limitations and historical factors determine the biogeography of specialized terrestrial protists

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The diversity and geographical distribution of plants and animals are well documented and this information was essential to understand the factors that generate biodiversity, the most famous example being Darwin and Wallace's theory of evolution. However, we know much less about microbial diversity and distribution, and hence it is unclear if the same factors drive the diversity of large and small organisms.

Hyalosphenia papilio from Le Cachot Bog, Swiss Jura Mountains. Picture by Prof. Daniel Lahr.

Using molecular tools, we studied the distribution and diversity of a species complex of the testate (shell-producing) amoeba species *Hyalosphenia papilio*, a microorganism restricted to *Sphagnum* peatland of Eurasia and North America. *H. papilio* is a complex of 14 distinct molecular lineages. Based on the DNA sequences, we inferred how, where and when this diversity evolved.

Our results suggest that *H. papilio* evolved in western North America and subsequently colonized other regions of Eurasia and North America during interglacial periods. Colonization of Eurasia occurred most recently, possibly after the last glaciation.

The patterns we observed for *H. papilio* are consistent with those commonly observed for macroscopic plants and animals. This in turn suggests that microbial diversity may be much higher than currently thought and may include "relict" taxa with restricted distributions, as commonly found among macroscopic plants and animals.

Read the full article: Singer D, Mitchell EAD, Payne RJ, etal. Dispersal limitations and historical factors determine thebiogeography of specialized terrestrial protists. Mol Ecol. 2019;28:3089–3100. https://doi.org/10.1111/mec.15117