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# Generality in community ecology

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## Abstract

Session: Ecological explanation at different levels and scales (Stefan Linquist, Karl Cottenie, Jérôme Chave). In 1999, John H. Lawton wrote a hugely influential paper (with more than 700 citations) titled "Are there general laws in ecology." In it, he argued that general laws in community ecology are probably not possible because communities are extremely context dependent. This will make it extremely difficult to find common processes or even patterns prevalent across different systems, and, he argues, ecologists should focus instead on either populations or biogeography in search for generality. However, more than 10 years later, ecology has gone through a major shift by quantitatively synthesizing individual empirical studies through the statistical framework of a meta-analysis. At the same time, this quantitative synthesis also determines whether a pattern or process is general or not, and thus actually provides a quantitative test for Lawton's intuitive and philosophical argument. We used a recent compendium of meta-analyses in ecology collected and analyzed by Cadotte and co-authors to extract from each meta-analysis what type of ecology it studied (populations, communities, ecosystems, or biogeography), and whether the meta-analysis found evidence for generality. Contrary to Lawton's predictions, our meta-analysis of meta-analyses found considerable evidence for generality in community ecology. The levels of generality at this level were no less than for population ecology or biogeography. These results illustrate that ecology as a science has matured considerably since its roots in natural history, and provide guidelines on what specific research areas show promises in generating reliable predictions for applications such as conservation biology.

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