

# **The Case of the Missing Model: The Modernisation of Multivariate Analysis in Ecology**

David Warton  
University of New South Wales  
david.warton@unsw.edu.au  
+61 2 9385 7123

For the best part of four decades, multivariate analysis in ecology has diverged substantially from mainstream statistics, perhaps because state-of-the-art in 1980's statistics was not capable of handling the complexity frequently seen in multivariate abundance data simultaneously collected across many species. But the methods developed in the ecological literature, still widely used today, have some serious shortcomings that suggest they are fast approaching their use-by date.

The statistical literature appears to be "catching up" with ecology, in part through technologies to fit quite flexible hierarchical models capable of accommodating key data structure. There is a significant movement now to reunify multivariate analysis in ecology with modern statistical practices. Some key developments on this front will be reviewed, and some immediate challenges identified.