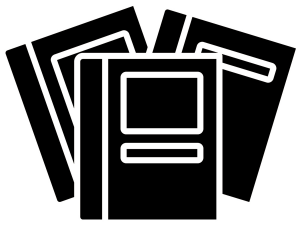
A Preliminary assessment of the literature on ecological complexity

Clarivate Web of Science™

TS = "Complexity" AND WC = ("Ecology" OR "Environmental Science")

→ N = 23 703 articles, including 71 reviews

B Examination of seminal references



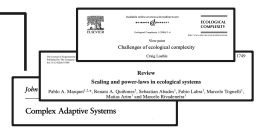
Papers, books, and book chapters

C Standardized literature search and full-text extraction

Clarivate Web of Science™

TI = "ecolog complex*" OR AK = "ecolog* complex*"*

Complexity articles
(N = 172)



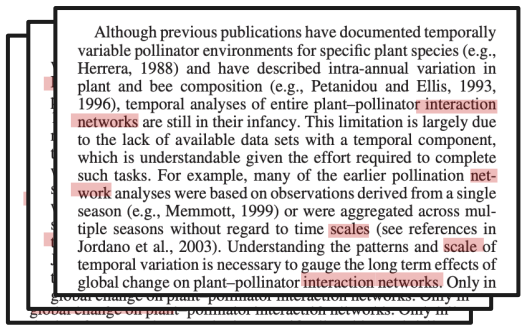
WC = "Ecology" NOT (TI = "ecolog complex*" OR AK = "ecolog* complex*"*

Control articles
(N = 180)

D

Identification of 23 *features* typical of complex systems

Text mining analysis
Frequency of features within each full-text



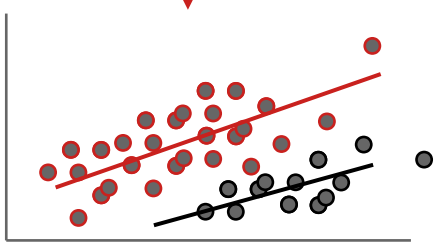
Although previous publications have documented temporally variable pollinator environments for specific plant species (e.g., Herrera, 1988) and have described intra-annual variation in plant and bee composition (e.g., Petanidou and Ellis, 1993, 1996), temporal analyses of entire plant–pollinator interaction networks are still in their infancy. This limitation is largely due to the lack of available data sets with a temporal component, which is understandable given the effort required to complete such tasks. For example, many of the earlier pollination network analyses were based on observations derived from a single season (e.g., Memmott, 1999) or were aggregated across multiple seasons without regard to time scales (see references in Jordano et al., 2003). Understanding the patterns and scale of temporal variation is necessary to gauge the long term effects of global change on plant–pollinator interaction networks. Only in

Approach validation
Topic modelling

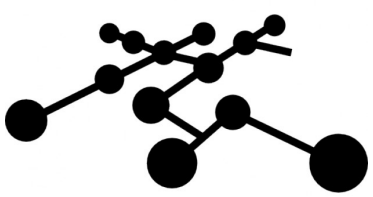
Identification of complexity features

E Analyses on complexity and control articles

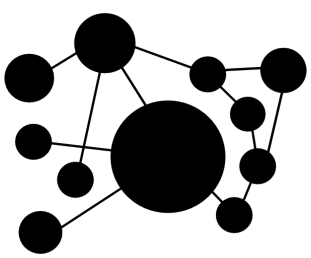
– *How is the field developing?*
Literature production in space and time



– *How is complexity literature within ecology distinguished?*
Comparison of *complexity* and *control* articles



– *How interconnected are complexity features?*
Exponential Random Graph Modelling



– *What are the seminal references in the field?*
Co-citation network and Louvain clustering