List of publications

1. Fortuna et al. (2019). Coevolutionary dynamics shape the structure of bacteria-phage infection networks. Evolution, 73:1001-1011.

   This is the first time that the influence of coevolutionary dynamics (i.e., arms race dynamics versus fluctuating selection) on the architecture of an ecological network is quantified in an experimental host-parasite system. This study is the starting point towards integrating coevolution into ecological network approaches.

2. Fortuna et al.(2017). Non-adaptive origins of evolutionary innovations increase network complexity in interacting digital organisms. Philosophical Transactions of the Royal Society B., 372:20160431.

   This was the first study on webs of self-replicating and coevolving computer programs (i.e., digital organisms) aimed at disentangling the ecological and evolutionary mechanisms shaping species interaction networks. I found that host resistance traits arising as exaptations increase the complexity of host-parasite networks.

3. Fortuna et al. (2010). Nestedness versus modularity in ecological networks: two sides of the same coin? Journal of Animal Ecology, 79:811-817.

   This paper was published at a time when researchers thought that the two most pervasive structural properties of species interaction networks, nestedness and modularity, were opposed to each other. I showed that only when the complexity of the network is large enough, network structure can be either modular or nested.

4. Fortuna et al. (2009). Networks of spatial genetic variation across species. Proceedings of the National Academy of Sciences, USA, 106:19044-19049.

   In this paper I explored the consequences of habitat fragmentation for the maintenance of genetic variation. It was the first time that the structure of genetic variation across different species inhabiting the same landscape was compared, opening new research paths in landscape genetics.

5. Fortuna Bascompte. (2006). Habitat loss and the structure of plant-animal mutualistic networks. Ecology Letters, 9:281-286.

   I developed here the first spatially-implicit model to describe the dynamics of mutualistic metacommunities interacting in realistic ways. This study paved the way toward studying the biogeography of species interactions.

List of relevant projects

1. Name of the project: An eco-evolutionary network of biotic interactions. Entity where project took place: Scientific Research Network (WOG) City of entity: Brussels, Belgium Name principal investigator (PI, Co-PI....): Dries Bonte; Luc Brendonck; Erik Matthysen; Hans Jacquemyn; Filip Volckaert; Lander Baeten; An Martel; Frederik Hendrickx; Ellen Decaestecker; Frederik De Laender; Nicolas Schtickzelle; David G. Angeler; Florian Altermatt; Rampal S. Etienne; Rosemary Gillespie; Mark Urban; Erik Svensson; Mathew A. Leibold; Joel White; Alison Duncan; Miguel A. Fortuna; Kerstin Johannesson; Steven Declerck; Michael Begon; Justin Travis. N^{o} of researchers: 25 Funding entity or bodies: Research Foundation Flanders (FWO) Start-End date: 01/01/2016 - 31/12/2020 Total amount: 62.500

2. Name of the project: Dinámica espacio-temporal de redes de flujo génico: unidades de conservación y propagación de enfermedades de anfibios (RNM-8147) Entity where project took place: Estación Biológica de Doñana (EBD-CSIC) City of entity: Seville, Spain Name principal investigator (PI, Co-PI....): Jordi Bascompte; Andrew P. Dobson; Miguel A. Fortuna; Jaime Bosch N^{o} of researchers:4 Funding entity or bodies: Proyecto de Investigación de Excelencia, Junta de Andalucia Start-End date: 01/02/2013 - 31/01/2016 Total amount: 134.242