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## Poster Session 1 – Population Dynamics

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### **61 Impacts of non-monotonic interactions on population and community dynamics**

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Species interaction is often assumed to be monotonically-related to population density, but in nature species interaction is often non-monotonic, e.g., in seed-rodent dispersal system, rodents impose both positive and negative impacts on plant seeds, largely depending upon the seed and rodent abundances. Yet the impacts of non-monotonic interactions on population and community dynamics are largely unknown. This presentation will briefly review previous studies on this subject, and present our recent modeling results. We demonstrate that for four kinds of non-monotonous interactions shift signs to negative or neutral interactions at high population density stabilizes ecological networks, while non-monotonous interactions shift signs to positive interactions at high population density destabilize networks. Further analyses showed that dome-shaped non-monotonic interactions performed better in maintaining both high persistence and biomass or biomass flow in more complex networks, but resulted in larger variations of species biomass. These results suggest cooperation or mutualism among antagonists may be important in maintaining stable and complex ecological networks.

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Jens Jacob, Jana Eccard (Editors)

6<sup>th</sup> International Conference of Rodent  
Biology and Management  
and  
16<sup>th</sup> Rodens et Spatium

Potsdam, Germany, 3-7 September 2018

Book of Abstracts



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**Bibliografische Information der Deutschen Nationalbibliothek**

Die Deutsche Nationalbibliothek verzeichnet diese Publikation

In der Deutschen Nationalbibliografie: detaillierte bibliografische

Daten sind im Internet über <http://dnb.d-nb.de> abrufbar.

ISSN 1868-9892

ISBN 978-3-95547-059-3

DOI 10.5073/jka.2018.459.000



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