



Conference Abstract

The place of Carabidae in the biosphere - a network approach

Gabor Pozsgai[‡], Ibtissem Ben Fekih[‡], Gabor Lovei[§]

[‡] Fujian Agriculture and Forestry University, Fuzhou, China

[§] AARHUS UNIVERSITY, Slagelse, Denmark

Corresponding author: Gabor Pozsgai (pozsgaig@coleoptera.hu)

Received: 29 Aug 2019 | Published: 02 Sep 2019

Citation: Pozsgai G, Ben Fekih I, Lovei G (2019) The place of Carabidae in the biosphere – a network approach.

ARPHA Conference Abstracts 2: e39532. <https://doi.org/10.3897/aca.2.e39532>

Abstract

Whereas they are of high ecological, conservation, and agricultural importance, ground beetles (Coleoptera: Carabidae) are amongst the organisms declining rapidly as a result of human activities. Since they are part of a complex ecological network –in which other taxa's survival may depend on them, or they may depend on other taxa –in the case of their, hypothetical, extinction these connections would be impaired. In order to gain insight how different taxa would be affected by the extinction of carabids, and thus, how ecosystem functions would be altered, we conceptualised a network between ground beetles and all other organisms they are directly connected with. We used published literature data in building our network, thus interaction occurrences are likely to be skewed by research interest. Based on a single database search, we found 238 carabid species interacting with 395 other species, including plants (72), fungi (53), animals (286), and 7 other Eucaryota. Of the 817 described interactions, in 235 cases, carabids were prey, mostly for birds and mammals. Hosting ectoparasites was the second most frequent relationship, with 144 connections. Most of these connections were to Laboulbeniales fungi. Further, detailed searches on carabid – fungus relationships yielded over 700 different interactions. Carabids were listed to consume 88 other taxa, including many plants; an additional 200 records refer to seed predation by ground beetles, mostly from the Zabryini and Harpalini tribes. The specificity of seed dispersal, and therefore assessing the extent plant species depend on carabids was not possible from this database. Carabids also visit flowers and even pollinate them in 12 cases. *Amara*, *Harpalus* and *Cicindela*

genera had the most records of interactions with other species. Although this list of interactions between Carabidae and other taxa is incomplete, it shows that many other organisms can depend on ground beetles, and some (mostly fungi) have specific relationship with them. The apparent information gaps on symbiotic and competitive interactions, and the geographical bias towards Europe and North America open doors for further research in these areas.

Keywords

Carabidae, biotic interaction, ecological network, importance

Presenting author

Gabor Pozsgai

Presented at

19thECM oral communication

Acknowledgements

We thank Professor Min-Sheng You from the Fujian Agriculture and Forestry University for allocating the necessary funds for this conference.

Author contributions

GP conceived the idea, collected part of data, did the data analysis and part of the writing up. IBF collected all the data related to Fungus - Carabid interactions, and GL helped forming the idea, finalizing the abstract, and the preparation of the presentatio

Conflicts of interest

The authors claim no conflict of interest.