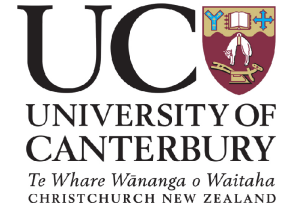Biomathematics Research Centre
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20 November 2015

Important, Unique, Central: on Species' Relevance in Food Webs
Dalla Riva and Priebe

Prof. Timothy Coulson
Editor-in-Chief, Ecology Letters
Department of Zoology
South Parks Road
University of Oxford
Oxford, OX1 3PS, UK

Dear Prof. Coulson:

We are happy to inform you of our decision to submit our manuscript titled *Important, Unique, Central: on Species' Relevance in Food Webs* for publication as a Letter in *Ecology Letters* .

We believe that our manuscript will be of strong interest to the readership of *Ecology Letters* as it elucidates a novel connection between the species' functional diversity, ecological centrality and evolutionary distinctiveness in a complex ecosystem. Therefore, we believe that the methods we introduce and the results we obtain in the manuscript are relevant for the researchers in the three disciplines.

Faced with increasing environmental threats, such as climate change, that permeate across entire ecosystems, we can hardly overestimate the importance of understanding how different species contribute to a food web stability (importance), functioning (centrality) and diversity (uniqueness). However, identifying phenotypic traits with a functional role across a whole food web is ambitious and collecting enough data is laborious; moreover, the available graph theoretical measures were defined on rigid, deterministic graph models and thus the insights they provide may be limited. Additionally, we miss an integrated framework in which to combine the manifold components of species' ecological relevance.

In our manuscript we define and measure at once the species' importance, centrality and uniqueness in the Serengeti National Park food web under a fully stochastic complex net-

work model. Estimating the species' foraging and vulnerability abstract functional traits directly from the interaction data, we provide a bridge between the network and the functional-traits analysis of food webs. The results we obtain—and validate on five large food webs—highlight the necessity of explicitly considering both the evolutionary and ecological originality of species for the purpose of conservation prioritization and planning.

We believe that the following researchers would represent ideal editors

- Arne Mooers
  Simon Fraser University, Canada
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and that the following researchers would provide excellent reviewers of this work:

- Owen Petchey
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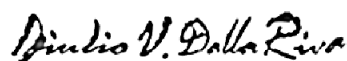 **E-mail:** anna.eklof@liu.se

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No part of this manuscript has been published elsewhere or is under consideration by another journal. All authors have approved the manuscript and agree with submission to *Ecology Letters* . The study was partially supported by the Allan Wilson Centre for Molecular Ecology and Evolution. The authors have no conflict of interest to declare.

Thank you for your consideration of our manuscript.

Regards,

Giulio V. Dalla Riva