

Predator phylogenetic diversity decreases predation rate via antagonistic interactions

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Introduction

We test three related hypotheses:

1. *species co-occurrence*: closely-related predators occur together more frequently than less-related predators, due to their similar habitat requirements. Additionally, very closely related species never co-occur because they are too similar.
2. *diet similarity*: similarity in diet (as measured by feeding trials) decreases with phylogenetic distance.
3. *ecosystem-level effects*: similarity in the effect of predators on whole ecosystems declines with phylogenetic distance. Additionally, the non-additive effect of predators will have a greater absolute value when their phylogenetic diversity is larger.

14 **Methods**

15 **Results**

16 **metabolic capacity and phylogenetic distance**

17 Predators which are closer in the phylogeny are not more likely to occur in the same bromeliads
18 ($F_{1,89}=0.7031, P=0.404$).

19 **diet similarity and phylogenetic distance**

20 All predators showed a very generalist diet breadth. However, more phylogenetically distinct
21 predators preferred slightly more distant prey, as measured by euclidian distance between
22 feeding trial outcomes ($F_{1,19}=4.6038, P=0.045$) Regression was weighted by the number of
23 trials conducted.

24 **Ecosystem-level effects and phylogenetic distance**

25 All increases in predator phylogenetic diversity beyond damselflies resulted in a reduction of
26 prey mortality.

27 **Figures**

28 **Discussion**

29 **Works Cited**

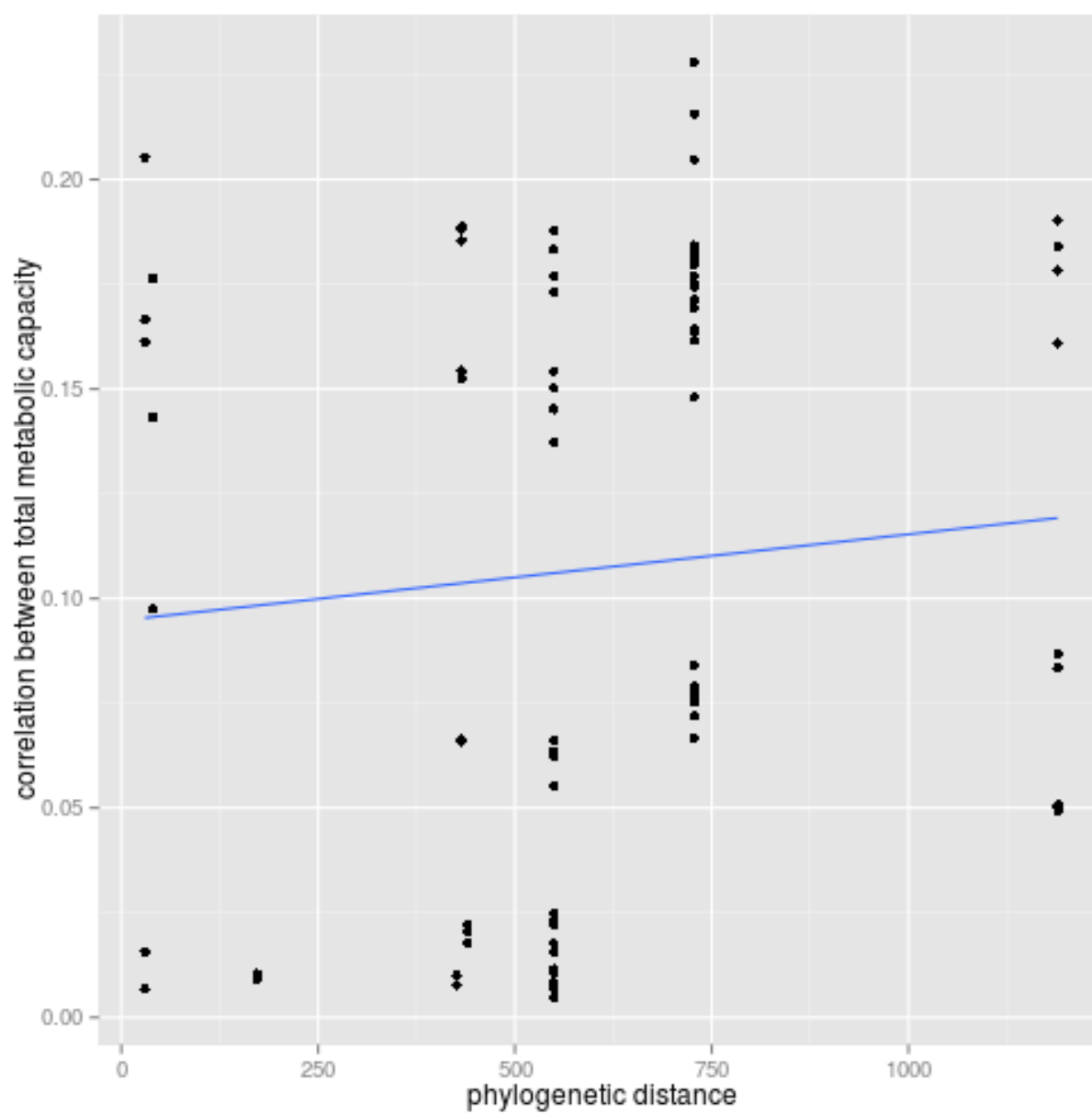


Figure 1: FALSE

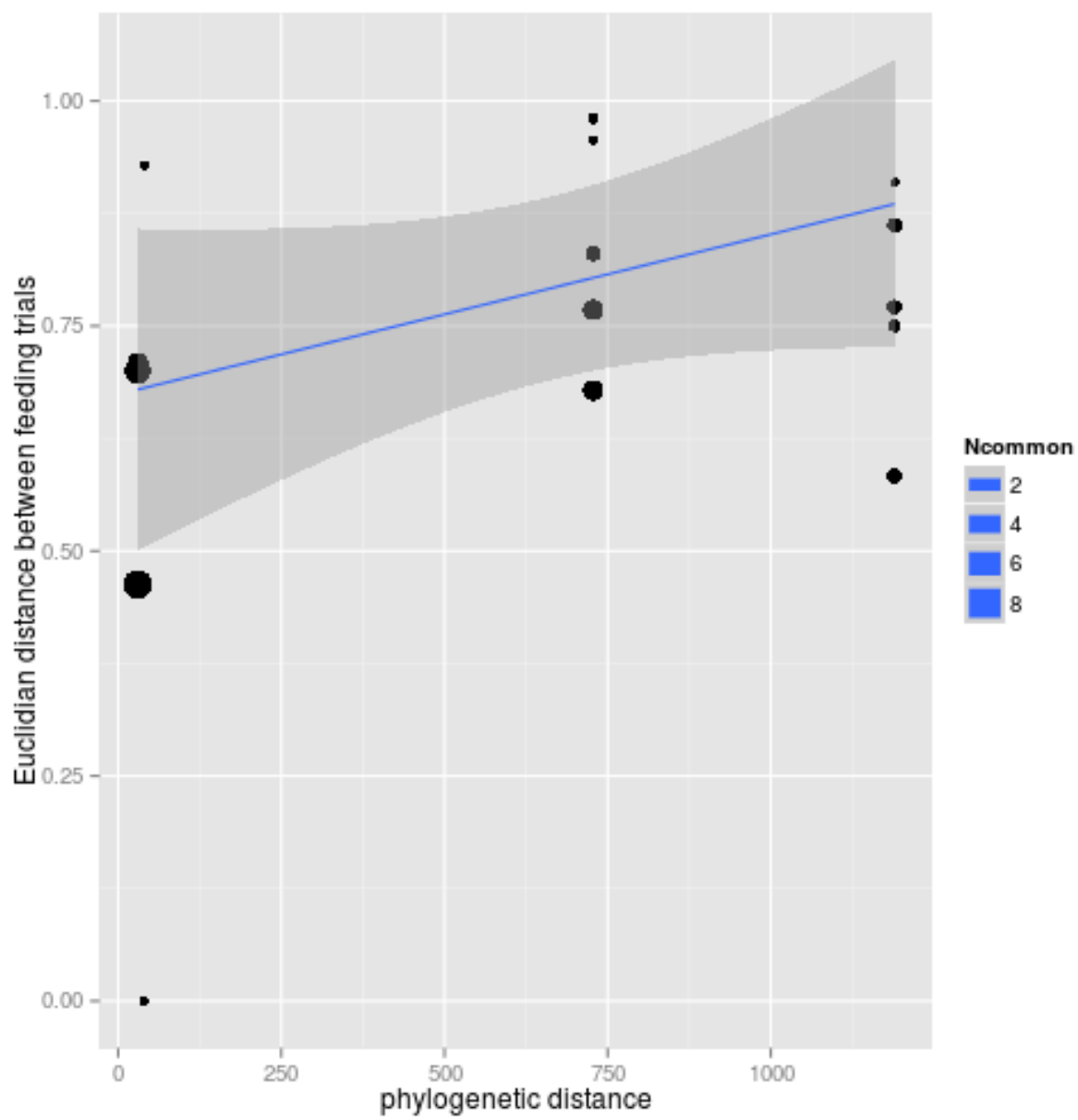


Figure 2: FALSE

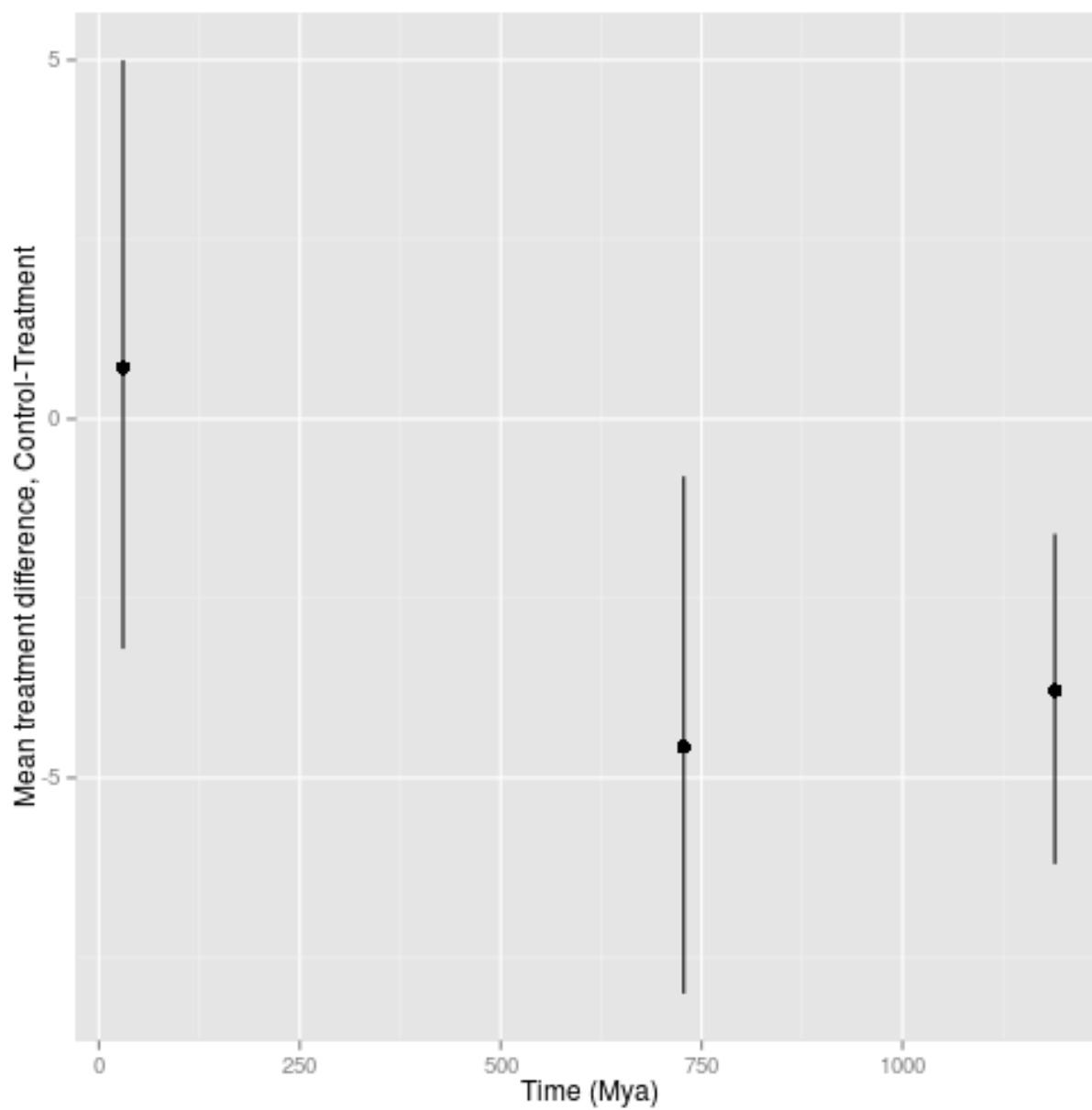


Figure 3: FALSE

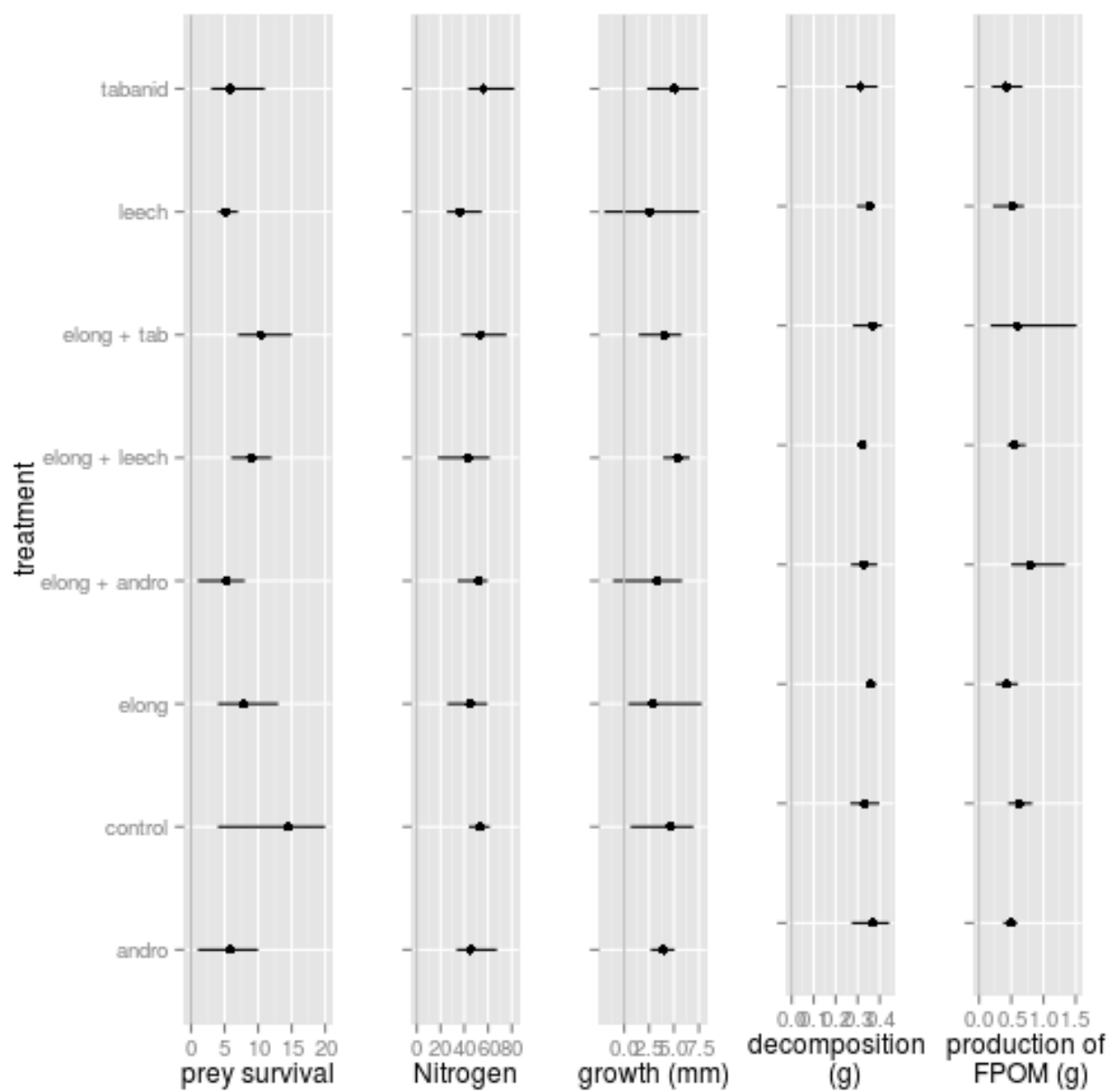


Figure 4: FALSE