Predator phylogenetic diversity decreases predation rate via antagonistic interactions

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## Introduction

We test three related hypotheses:

1. *species co-occurance*: 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.

## Methods

## Results

### metabolic capacity and phylogenetic distance

Predators which are closer in the phylogeny are not more likely to occur in the same bromeliads (F1,89=0.7031,P=0.404).

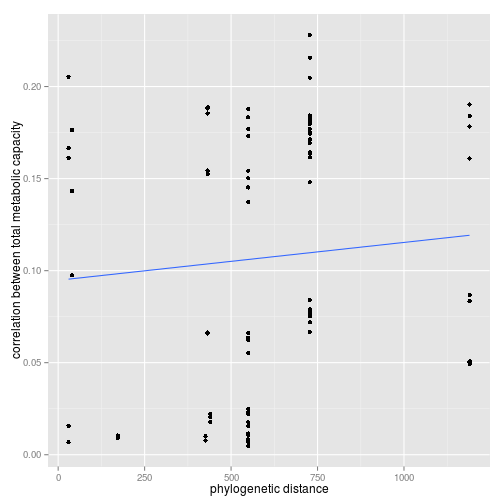
### diet similarity and phylogenetic distance

All predators showed a very generalist diet breadth. However, more phylogenetically distinct predators preferred slightly more distant prey, as measured by euclidian distance between feeding trial outcomes (F1,19=4.6038,P=0.045) Regression was weighted by the number of trials conducted.

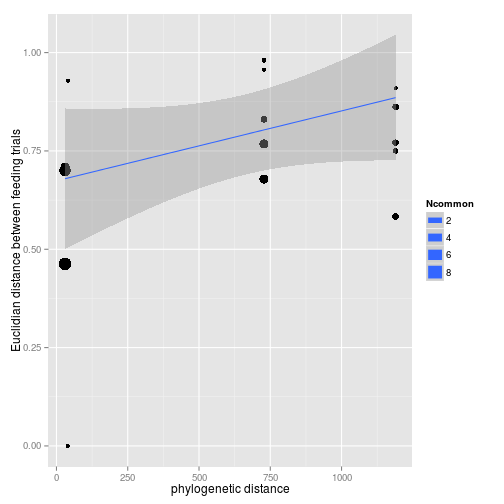
### Ecosystem-level effects and phylogenetic distance

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

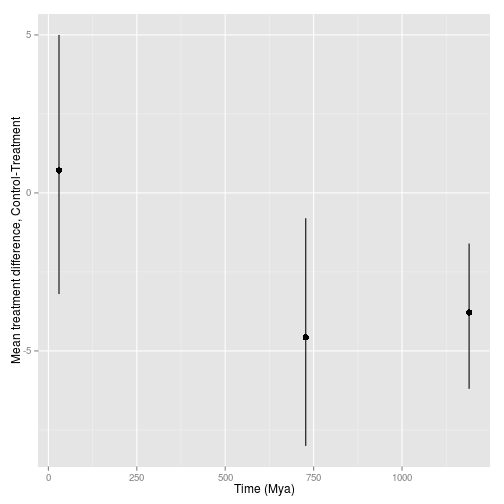
### Figures



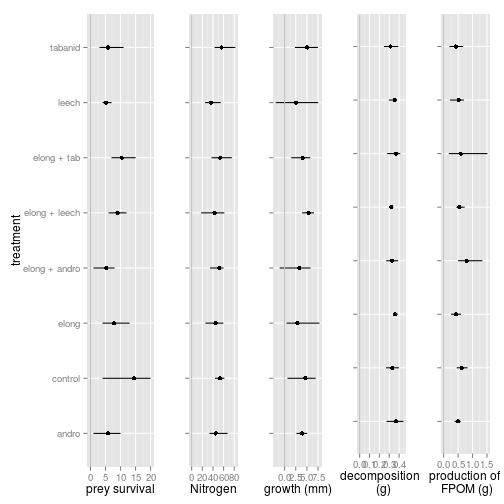
FALSE



FALSE



FALSE



FALSE

## Discussion

## Works Cited