Temperature niche differentiation of plants predicts multi-species phylogenetic and functional trait space but not taxonomic composition in human-dominated landscapes

Tobias Roth * 1,2 Eric Allan 3 Peter B. Pearman 4,5 Valentin Amrhein 1

```
<sup>1</sup>University of Basel, Zoological Institute, Vesalgasse 1, 4051 Basel, Switzerland
 8
    <sup>2</sup>Hintermann & Weber AG, Austrasse 2a, 4153 Reinach, Switzerland
 9
10
    <sup>3</sup>University of Bern Institute of Plant Sciences, 3013 Bern, Switzerland
11
12
    <sup>4</sup>Department of Plant Biology and Ecology, Faculty of Sciences and Technology, University of the Basque Country,
13
    UPV/EHU, Apdo. 644, 48940 Leioa, Spain
14
15
    <sup>5</sup>IKERBASQUE, Basque Foundation for Science, 48011 Bilbao, Spain
16
17
      corresponding\ author:\ t.roth@unibas.ch
```

Null models play an important role in community assembly. SDM could be used as a dynamic way to construct Null models. We aim to infer community assembly along the elevational gradient in human dominated landscape.

22 Keywords: functional ecology, species distribution models

5

23 INTRODUCTION

24	Das	ist	ein	Test (Roth	et al	2014)	
24	Das	150	em	Test 1	10001	et ar.	2014)	

25 METHODS

26 Study Area

We worked in a **beautiful** place with lots of trees, like *Quercus suber* and *Laurus nobilis*.

28 Data collection and analysis

We used the statistical language R.

30 RESULTS

- Trees in forest A grew taller than those in forest B (mean height: 25 versus 13 m). And many more
- 32 cool results that get updated dynamically.

33 DISCUSSION

Discuss.

35 ACKNOWLEDGEMENTS

36 REFERENCES

Roth, T., M. Plattner, and V. Amrhein. 2014. Plants, birds and butterflies: Short-term responses of

species communities to climate warming vary by taxon and with altitude. PLoS ONE 9:e82490.

39 List of Tables	
-------------------	--

1 Results of HOF models			5
-------------------------	--	--	---

Table 1: Results of HOF models.

Species group Scale	Scale	Number of species	Prob I	Prob II	Prob I Prob II Prob III		Prob V	Prob VI	Prob IV Prob V Prob VI Prob VII
Plants	local	999	0.003	0.045	0.140	0.380	0.255	0.078	0.099
Plants	landscape	999	0.000	0.060	0.165	0.291	0.317	0.051	0.116
Butterflies	landscape	114	0.000	0.061	0.061	0.395	0.316	0.026	0.140
Birds	landscape	98	0.012	0.128	0.163	0.267	0.291	0.058	0.081

41 See https://github.com/TobiasRoth/FD-SDM/blob/master/R/apply_eHOF.R for R-Code that runs the HOF-models.

42 See https://github.com/TobiasRoth/FD-SDM/blob/master/R/Table_results_eHOF.R for R-Code to produce the table.

43	\mathbf{List}	of	Figures

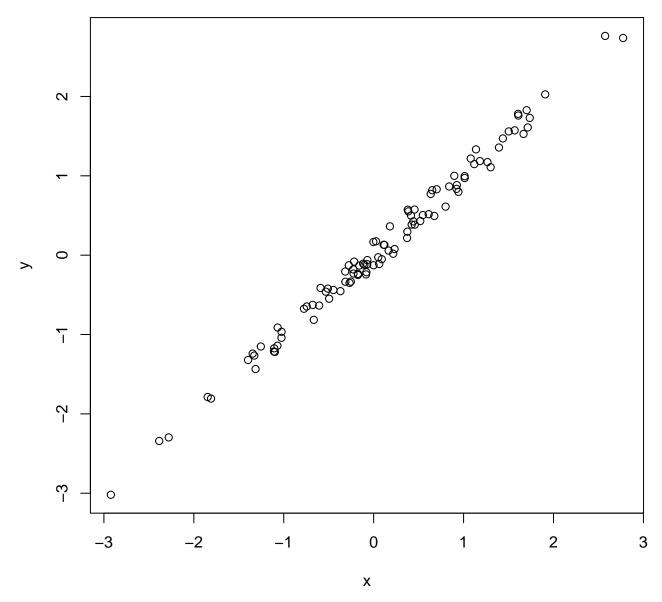


Figure 1: Just my first figure with a very fantastic caption.

45 See for R-Code to produce the figure.

```
46 R version 3.5.0 (2018-04-23)
47 Platform: x86_64-apple-darwin15.6.0 (64-bit)
48 Running under: macOS High Sierra 10.13.2
50 Matrix products: default
51 BLAS: /Library/Frameworks/R.framework/Versions/3.5/Resources/lib/libRblas.0.dylib
52 LAPACK: /Library/Frameworks/R.framework/Versions/3.5/Resources/lib/libRlapack.dylib
53
54 locale:
55 [1] de_CH.UTF-8/de_CH.UTF-8/de_CH.UTF-8/C/de_CH.UTF-8/de_CH.UTF-8
56
57 attached base packages:
58 [1] stats graphics grDevices utils datasets methods base
59
60 other attached packages:
                       lattice_0.20-35 mgcv_1.8-23
61
    [1] eHOF_1.8
                       forcats_0.3.0
62 [4] nlme_3.1-137
                                         stringr_1.3.1
63 [7] dplyr_0.7.5 purrr_0.2.4 readr_1.1.1
64 [10] tidyr_0.8.1 tibble_1.4.2 ggplot2_2.2.1.9000
65 [13] tidyverse_1.2.1 knitr_1.20
66
67 loaded via a namespace (and not attached):
    [1] tidyselect_0.2.4 reshape2_1.4.3 haven_1.1.1
68
                                                      colorspace_1.3-2
    [5] htmltools_0.3.6 yaml_2.1.19 rlang_0.2.1
69
                                                       pillar_1.2.3
    [9] foreign_0.8-70 glue_1.2.0 withr_2.1.2
70
                                                       modelr_0.1.2
71 [13] readxl_1.1.0 bindrcpp_0.2.2 bindr_0.1.1
                                                        plyr_1.8.4
72 [17] munsell_0.4.3 gtable_0.2.0 cellranger_1.1.0 rvest_0.3.2
73 [21] psych_1.8.4
                        evaluate_0.10.1 parallel_3.5.0 highr_0.6
74 [25] broom_0.4.4 Rcpp_0.12.17 scales_0.5.0 backports_1.1.2
75 [29] jsonlite_1.5 mnormt_1.5-5 hms_0.4.2
                                                      digest_0.6.15
76 [33] stringi_1.2.2 grid_3.5.0 rprojroot_1.3-2 cli_1.0.0
77 [37] tools_3.5.0 magrittr_1.5 lazyeval_0.2.1 crayon_1.3.4
78 [41] pkgconfig_2.0.1 Matrix_1.2-14 xml2_1.2.0
                                                        lubridate_1.7.4
79 [45] assertthat_0.2.0 rmarkdown_1.10 httr_1.3.1
                                                       rstudioapi_0.7
80 [49] R6_2.2.2
                       compiler_3.5.0
```