

**Phylogeny and morphology determine vulnerability to global warming in *Pristimantis*
frogs**

Pamela González-del-Pliego^{a,b,*}, Robert P. Freckleton^a, Brett R. Scheffers^c, Edmund W.

Basham^{c,d}, Andrés R. Acosta-Galvis^e, Claudia A. Medina Uribe^e, Torbjørn Haugaasen^f, David
P. Edwards^a

^aEcology and Evolutionary Biology, School of Biosciences, University of Sheffield, S10 2TN,
UK. ^bRui Nabeiro Biodiversity Chair, MED Institute, Universidade de Évora, Évora, Portugal

^cDepartment of Wildlife Ecology & Conservation, Newins-Ziegler Hall, University of
Florida/IFAS, Gainesville, FL 32611, USA. ^dDepartment of Geography, University of Sheffield,
S10 2TN, UK. ^eInstituto de Investigación de Recursos Biológicos Alexander von Humboldt,
Bogotá Calle 28A # 15-09, Colombia. ^fFaculty of Environmental Sciences and Natural
Resource Management, Norwegian University of Life Sciences, 1432 Ås, Norway.

*pgonzalezdelpliego@gmail.com

This supplement contains:

Supplementary Table S1 – S2

Table S1. Total number of individuals collected per species and habitat type. CP: cattle pasture; YSF: young secondary forest; OSF: old secondary forest; PF: primary forest. Asterisks indicate the species used in the main manuscript.

| | CP | YSF | OSF | PF |
|-----------------------------|----|-----|-----|-----|
| <i>P. achatinus</i> * | 13 | 0 | 0 | 0 |
| <i>P. baiotis</i> | 0 | 0 | 1 | 0 |
| <i>P. brevifrons</i> | 0 | 0 | 1 | 2 |
| <i>P. calcaratus</i> * | 0 | 0 | 0 | 15 |
| <i>P. erythropleura</i> * | 6 | 12 | 1 | 0 |
| <i>P. juanchoi</i> * | 0 | 0 | 4 | 7 |
| <i>P. kelephus</i> | 0 | 0 | 0 | 6 |
| <i>P. myops</i> | 0 | 0 | 1 | 1 |
| <i>P. orpacobates</i> * | 0 | 20 | 13 | 21 |
| <i>P. ptochus</i> | 0 | 0 | 1 | 5 |
| <i>P. quantus</i> * | 0 | 0 | 8 | 32 |
| <i>P. zophus</i> * | 0 | 3 | 8 | 41 |
| Total number of individuals | 19 | 35 | 38 | 130 |

Table S2. Summary of linear mixed effect model of environmental and phylogenetic factors on CT_{max} variation with full dataset (12 species of frogs and 222 individuals; see Table S1).

| | | value (se) | z | p |
|--------|--------------------------------|-----------------|-------|------------------|
| Fixed | Cattle pasture | 20.43 (4.45) | 4.59 | <0.001 |
| | (Intercept) | | | |
| | Young secondary forest | 0.19 (0.76) | 0.25 | 0.80 |
| | Old secondary forest | 0.62 (1.04) | 0.60 | 0.55 |
| | Primary forest | 0.78 (1.08) | 0.73 | 0.47 |
| | Elevation | -0.0007 (0.001) | -0.44 | 0.66 |
| | Max temperature | 0.019 (0.11) | 0.17 | 0.87 |
| | Climatic niche breadth | 0.045 (0.11) | 0.39 | 0.70 |
| | SVL (body size) | 1.39 (0.27) | 5.08 | <0.001 |
| | | | | |
| Random | | | Std | Variance |
| | | | Dev | |
| | Phylogenetic signal (V) | | 0.62 | 0.38 |
| | Variation in species means (S) | | 0.19 | 0.037 |
| | Error variance (I) | | 0.22 | 0.04 |