

This Dryad submission contains the data, computer code and document files for the article:

Moen, D. S., E. Cabrera-Guzmán, I. W. Caviedes-Solis, E. González-Bernal, and A. R. Hanna. 2022. Phylogenetic analysis of adaptation in comparative physiology and biomechanics: overview and a case study of thermal physiology in treefrogs. *Journal of Experimental Biology*.

Comments and requests should be addressed to Daniel Moen (daniel.moen@okstate.edu). All material is free of use, but I would appreciate you notifying me if you publish a paper that includes these data.

*Files included on Dryad:*

**Appendix S1:** The full intraspecific phenotypic dataset for jumping performance (both MS Excel file and '.CSV', the former with a tab of metadata, which is also reproduced below this file list)

**Appendix S2:** Interspecific species values, including various summary statistics of thermal performance curves and CTmin (both MS Excel file and '.CSV', the former with a tab of metadata, which is also reproduced below this file list)

**Appendix S3:** 12-species maximum clade credibility tree, generated by summarizing the posterior distribution of Jetz and Pyron (2018) and used for all phylogenetic comparative analyses.

**Appendix S7:** Data for our first R Markdown tutorial, on general analysis of the Hansen model (using the OU process)

**Appendix S11:** Data for our second R Markdown tutorial, on parametric bootstrapping of the Hansen model

*Hosted on Zenodo:*

**Appendix S4:** Complete R code for all empirical results in our paper, including generation of tables and most figures (i.e. those that were generated principally in R)

**Appendix S5:** Custom R functions we wrote for our paper

**Appendix S6:** Custom R functions we wrote for our R Markdown tutorials

**Appendix S8:** R code for our first R Markdown tutorial, on general analysis of the Hansen model (using the OU process), to more easily work through the tutorial

**Appendix S9:** Original R Markdown code for generating our first R Markdown tutorial, on general analysis of the Hansen model (using the OU process)

**Appendix S10:** Resulting PDF of our first R Markdown tutorial, on general analysis of the Hansen model (using the OU process)

**Appendix S12:** R code for our second R Markdown tutorial, on parametric bootstrapping of the Hansen model

**Appendix S13:** Original R Markdown code for generating our second R Markdown tutorial, on parametric bootstrapping of the Hansen model

**Appendix S14:** Resulting PDF of our second R Markdown tutorial, on parametric bootstrapping of the Hansen model

*References:*

Jetz, W. and R. A. Pyron. 2018. The interplay of past diversification and evolutionary isolation with present imperilment across the amphibian tree of life. *Nat. Ecol. Evol.* 2:850–858. doi:10.1038/s41559-018-0515-5

*Metadata for Appendix S1:*

column	accepted values	units	detail
filename	arbitrary	NA	Name of video file from which these data came
species	Binomial species names	NA	Species name, according to AmphibiaWeb on 7 July 2021
region	temperate, tropical	NA	Temperate or tropical
ID	Numeric	NA	Individual identification number
eTb	Numeric	Degrees Celsius	Expected body temperature (intended test temperature). Used only for calculating species means for each test temperature.
Tb	Numeric	Degrees Celsius	Body temperature (observed). Used as data for generating species' thermal performance curves.
vel	Numeric	Meters per second	Peak velocity achieved in video.
sv	Numeric	NA	Standardized velocity. For each individual, all peak velocity values were divided by the peak velocity that individual reached across all temperatures. These data were used in analyses.
plot_temps	Logical	NA	Whether data were used for plotting species means. See plotting code for additional detail.

*Metadata for Appendix S2:*

column	accepted values	units	detail
species	Binomial species names	NA	Species name, according to AmphibiaWeb on 7 July 2021
species_phylo	Binomial species names with underscore	NA	Same as previous column, but with underscore to allow analysis with phylogeny in R
region	temperate, tropical	NA	Biogeographic region in which species occurs
elevation	temperate, lowland, highland	NA	Elevational variable that splits tropical species and retains previous variable's classification for temperate species
CTmin	Numeric	Degrees Celsius	Species mean value of critical thermal minimum
CTmin_SE	Numeric	Degrees Celsius	Standard error of the species mean value of critical thermal minimum
L70	Numeric	Degrees Celsius	Lower 70% of peak jumping performance limit for species
L80	Numeric	Degrees Celsius	Lower 80% of peak jumping performance limit for species
L90	Numeric	Degrees Celsius	Lower 90% of peak jumping performance limit for species
peak.temp	Numeric	Degrees Celsius	Mean temperature at which individuals of a species achieved their peak jumping performance
breadth	Numeric	Degrees Celsius	Difference between columns "peak.temp" and "L80"