

P. David Polly

Lifetime Publication List

⊕ undergraduate student coauthor; ✧ graduate student coauthor; ⚡ postdoc coauthor

PDFs of publications available at: <https://pollylab.indiana.edu/publications/>

Citation data available at: <http://scholar.google.com/citations?hl=en&user=aPOrK60AAAAJ>

Peer-Reviewed Articles

113. ✧ Zimmerman, A. N., C. C. Johnson, and **P. D. Polly. Accepted.** Analyzing morphological change of Pennsylvanian conodonts in the Illinois Basin. *Paleobiology*.
112. Vermillion, W. A., **P. D. Polly**, J. J. Head, J. T. Eronen, and A. M. Lawing. **Accepted.** Ecometrics: a trait-based approach to paleoclimate and paleoenvironment reconstruction. In: D.A. Croft, S.W. Simpson, and D.F. Su (eds.), *Methods in Paleoecology: Reconstructing Cenozoic Terrestrial Environments and Ecological Communities*. Springer, Dordrecht.
111. Searle, J. B., J. Zima, and **P. D. Polly. Accepted.** Shrews, chromosomes, and speciation. Pp. XX-XX in J. B. Searle, J. Zima, and P. D. Polly (eds.), *Shrews, Chromosomes and Speciation*. Cambridge University Press: Cambridge, United Kingdom.
110. **Polly, P. D. Accepted.** Climate, diversification, and refugia in the common shrew: evidence from the fossil record. Pp. XX-XX in J. B. Searle, J. Zima, and P. D. Polly (eds.), *Shrews, Chromosomes and Speciation*. Cambridge University Press: Cambridge, United Kingdom.
109. **Polly, P.D.** and J. M. Wojcik. **Accepted.** Morphological divergence between chromosome races. Pp. XX-XX in J. B. Searle, J. Zima, and P. D. Polly (eds.), *Shrews, Chromosomes and Speciation*. Cambridge University Press: Cambridge, United Kingdom.
108. **Polly, P. D. Accepted.** Kangaroos hop to a different beat: late response of tooth evolution to global aridification. *Science*.
107. Jones, K. E., K. D. Angielczyk, **P. D. Polly**, J. J. Head, V. Fernandez, J. Longmus, B. Rubidge, R. Smith. S. Tulga, and S. E. Pierce. **Accepted.** Fossils reveal the complex evolutionary history of the mammalian regionalized spine. *Science*.
106. ✧ Parzer, H., **P. D. Polly**, and A. P. Moczek. **2018.** The evolution of trait size and shape: insights from the genitalia of dung beetles. *Development, Genes, and Evolution*, **228**: 83-93. (doi: 10.1007/s00427-018-0602-2).
105. **Polly, P. D.** and O. B. Mock. **2018.** Heritability: the link between development and the microevolution of molar tooth form. *Historical Biology*, **30**: 53-63. (doi 10.1080/08912963.2017.1337760).

104. **Polly P.D. 2017.** Morphometrics and evolution: the challenge of crossing rugged phenotypic landscapes with straight paths. *Vavilovskii Zhurnal Genetiki i Seleksii (=Vavilov Journal of Genetics and Breeding)*, 21: 452-461. (doi 10.18699/VJ17.264)
103. **Polly, P. D.** and G. J. Motz. **2017.** Patterns and processes in morphospace: geometric morphometrics of three-dimensional objects. In: L. Tapanila and I. Rahman (eds.), *Virtual Paleontology*. The Paleontological Society Papers 22: 71-99. Cambridge University Press, Cambridge, United Kingdom.
102. Barnosky, A. D., E. A. Hadly, P. Gonzalez, J. J. Head, **P. D. Polly**, A. M. Lawing, J. T. Eronen, D. Ackerly, K. Alex, E. Biber, J. Blois, J. Brashares, G. Ceballos, E. Davis, G. Dietl, R. Dirzo, H. Doremus, M. Fortelius, H. Greene, J. Hellmann, T. Hickler, S. T. Jackson, M. Kemp, P. Koch, C. Kremen, E. Lindsey, C. Looy, C. R. Marshall, C. Mendenhall, A. Mulch, A. Mychajliw, C. Nowak, U. Ramakrishnan, J. Schnitzler, K. Das Shrestha, K. Solari, L. Stegner, M. A. Stegner, N. C. Stenseth, M. H. Wake, and Z. Zhang. **2017.** Merging paleontology with conservation biology to guide the future of terrestrial ecosystems. *Science*, **355**: eaah4787. (doi: 10.1126/science.aah4787)
101. Schnitzler, J., C. Theis, **P. D. Polly**, and J. T. Eronen. **2017.** Fossils matter - understanding modes and rates of trait evolution in Musteloidea (Carnivora). *Evolutionary Ecology Research*, **18**: 187-200.
100. ✧ **Polly, P. D.**, J. Fuentes-Gonzales, A. M. Lawing, A. K. Bormet, and R. G. Dundas. **2017.** Clade sorting has a greater effect than local adaptation on ecometric patterns in Carnivora. *Evolutionary Ecology Research*, **18**: 61-95.
99. Gómez-Robles, A., J. B. Smaers, R. L. Holloway, **P. D. Polly**, and B. Wood. **2017.** Brain enlargement and dental reduction were not linked in hominin evolution. *PNAS*, 114: 468-473. (doi: 10.1073/pnas.1608798114).
98. Lawing, A. M., **P. D. Polly**, D. K. Hews, and E. P. Martins. **2016.** Including fossils in phylogenetic climate reconstructions: a deep time perspective on the climatic niche evolution and diversification of Spiny Lizards (*Sceloporus*). *American Naturalist*, **188**: 133-148. (doi: 10.1086/687202).
97. Goswami, A., M. Randau, **P. D. Polly**, V. Weisbecker, C. V. Bennett, L. Hautier, and M. R. Sánchez-Villagra. **2016.** Do developmental constraints and high integration limit the evolution of the marsupial oral apparatus? *Integrative and Comparative Biology*, **56**: 369-372 (doi: 10.1093/icb/icw039).
96. Lawing, A. M., J. T. Eronen, J. L. Blois, C. Graham, and **P. D. Polly**. **2016.** Community functional trait composition and the effects of non-ecological processes. *Ecography*, **39**: 1-13. (doi: 10.1111/ecog.01986).
95. **Polly, P. D. 2016.** Quantitative genetics provides predictive power for paleontological studies of morphological evolution. *PNAS*, **113**: 9142-9144. (doi: 10.1073/pnas.1610454113)
94. **Polly, P. D.**, C. T. Stayton, E. R. Dumont, S. E. Pierce, E. J. Rayfield, and K. Angielczyk. **2016.** Combining geometric morphometrics and finite element analysis with evolutionary modeling: towards a synthesis. *Journal of Vertebrate Paleontology*, e1111225: 1-29. (doi: 10.1080/02724634.2016.1111225).

93. **Polly, P. D. 2016.** Quantitative genetics and macroevolution. *In* R. M. Kliman (ed.), *Encyclopedia of Evolutionary Biology*. Elsevier/Academic Press, Amsterdam. Pp. 409-417.
92. **Polly, P. D.**, J. T. Eronen, A. M. Lawing, and J. Schnitzler. **2016.** Processes of ecometric patterning: modelling functional traits, environments, and clade dynamics in deep time. *Biological Journal of the Linnean Society*, **118**: 39-63. (doi: 10.1111/bij.12716)
91. Aguilar-Medrano, R., H. Reyes-Bonilla, and **P. D. Polly**. **2015.** Adaptive radiation of damselfish (Perciformes, Pomacentridae) in the eastern Pacific. *Marine Biology*, **162**: 2291-2303.
90. **Polly, P. D.** and J. J. Head. **2015.** Measuring Earth-life transitions: ecometric analysis of functional traits from late Cenozoic vertebrates. *In* P. D. Polly, J. J. Head, and D. L. Fox (eds.), *Earth-Life Transitions: Paleobiology in the Context of Earth System Evolution. The Paleontological Society Papers* **21**: 21-46. Yale Press, New Haven, CT.
89. **Polly, P. D.**, A. Cardini, E. B. Davis, and S. Steppan. **2015.** Marmot evolution and global change in the past 10 million years. Pp. 246-276 *in* P. G. Cox and L. Hautier (eds.), *Evolution of the Rodents: Advances in Phylogeny, Palaeontology and Functional Morphology*. Cambridge University Press, Cambridge.
88. Ksepka, D. T., J. F. Parham, J. F. Allman, M. J. Benton, M. T. Carrano, K. A. Cranston, P. C. J. Donoghue, J. J. Head, E. J. Hermesen, R. B. Irmis, W. G. Joyce, M. Kohli, K. S. Lamm, D. Leehr, J. S. L. Patané, **P. D. Polly**, M. J. Phillips, N. A. Smith, N. D. Smith, M. Van Tuinen, J.L. Ware, and R.C.M. Warnock. **2015.** The Fossil Calibration Database, a new resource for divergence dating. *Systematic Biology*, **64**: 853-859.
87. **Polly, P.D. 2015.** Gene networks, occlusal clocks, and functional patches: new understanding of pattern and process in the evolution of the dentition. *Odontology*, **103**: 117-125. (doi: 10.1007/s10266-015-0208-3)
86. Cardini, A., **P.D. Polly**, R. Dawson, and N. Milne. **2015.** Why the long face? Kangaroos and wallabies follow the same 'rule' of cranial evolutionary allometry (CREA) as placentals. *Evolutionary Biology*, **42**: 169-176. (doi:10.1007/s11692-015-9308-9)
85. Head, J. J. and **P. D. Polly**. **2015.** Evolution of the snake body form reveals homoplasy in amniote *Hox* gene function. *Nature*, **520**: 86-89. (doi:10.1038/nature14042)
84. Goswami, A., J. B. Smaers, C. Soligo, and **P. D. Polly**. **2014.** The macroevolutionary consequences of phenotypic integration: from development to deep time. *Philosophical Transactions of the Royal Society B*, **369**: 20130254. (doi: 10.1098/rstb.2013.0254)
83. **Polly, P.D.** and S. Sarwar. **2014.** Extinction, extirpation, and exotics: effects on the correlation between traits and environment at the continental level. *Annales Zoologici Fennici*, **51**: 209-226.

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81. **Polly, P. D. 2014.** Issues in Paleobiology. *In*: M. Sánchez-Villagra and N. MacLeod (eds), *Issues in Paleobiology*. Scidinge Hall Verlag: Zürich, Switzerland.
80. Gómez-Robles, A., J. M. Bermúdez de Castro, J.-L. Arsuaga, E. Carbonell, and **P. D. Polly. 2013.** No known hominin species matches the expected dental morphology of the last common ancestor of Neanderthals and modern humans. *Proceedings of the National Academy of Sciences, USA*, **110**: 18196-18201. (doi:10.1073/pnas.1302653110)
79. ✧ Rödder, D., A.M. Lawing, M. Flecks, F. Ahmadzadeh, J. Dambach, J. O. Engler, J. C. Habel, T. Hartmann, D. Hörnes, F. Ihlow, K. Schidelko, D. Stiels, and **P.D. Polly. 2013.** Evaluating the significance of paleophylogeographic species distribution models in reconstructing Quaternary range-shifts of nearctic chelonians. *PLoS One*, **8(10)**: e72855. (doi:10.1371/journal.pone.0072855).
78. ✧ Grossnickle, D. and **P.D. Polly. 2013.** Mammal diversity decreases during the Cretaceous angiosperm radiation. *Proceedings of the Royal Society B*, **280**: 20132110 (doi: 10.1098/rspb.2013.2110).
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76. **Polly, P.D.**, A.V. Polyakov, V.B. Ilyashenko, S.S. Onischenko, T.A. White, N.A. Shchipanov, N.S. Bulatova, S. Pavlova, P.M. Borodin, and J.B. Searle. **2013.** Phenotypic variation across chromosomal hybrid zones of the Common shrew (*Sorex araneus*) indicates reduced gene flow. *PLoS One*, **8(7)**: e67455. (doi:10.1371/journal.pone.0067455).
75. ✧ ✧ **Polly, P. D.**, A. M. Lawing, A.-C. Fabre, and A. Goswami. **2013.** Phylogenetic principal components analysis and geometric morphometrics. *Hystrix*, **24**: 33-41.
74. ✧ Smith, M.R. and **P.D. Polly. 2013.** A reevaluation of the Harrodsburg Crevice Fauna (Late Pleistocene of Indiana, USA) and the climatic implication of its mammals. *Journal of Vertebrate Paleontology*, **33**: 410-420.
73. Uhen, M.D., A.D. Barnosky, B. Bills, J. Blois, M.T. Carrano, M.A. Carrasco, G.M. Erickson, J.T. Eronen, M. Fortelius, R.W. Graham, E.C. Grimm, M.A. O’Leary, A. Mast, W.H. Piel, **P.D. Polly**, and L.K. Säilä. **2013.** From card catalogs to computers: databases in vertebrate paleontology. *Journal of Vertebrate Paleontology*, **33**: 13-28.
72. **Polly, P. D. 2013.** Evolution: Stuck between the teeth. *Nature*, **497**: 325–326. (doi:10.1038/nature12099)

71. ✧ Topalov, K., A. Schimmelmann, **P.D. Polly**, P.E. Sauer, and M. Lowry. **2013**. Environmental, trophic, and ecological factors influencing bone collagen $\delta^2\text{H}$. *Geochimica et Cosmochimica Acta*, **111**: 88-104. doi:10.1016/j.gca.2012.11.017
70. ✧ Topalov, K., A. Schimmelmann, **P.D. Polly**, and P.E. Sauer. **2012**. Stable isotopes applications in bone collagen, with emphasis on deuterium/hydrogen ratios. Pp. 141-162 in C.J.R. Verbeek (ed), *Products and Applications of Biopolymers*. InTech: Rijeka, Croatia.
69. ✧ Goswami, A., **P.D. Polly**, O.B. Mock, and M.R. Sánchez Villagra. **2012**. Shape, variance, and integration during craniogenesis: contrasting marsupial and placental mammals. *Journal of Evolutionary Biology*, **25**: 862-872. (doi: 10.1111/j.1420-9101.2012.02477.x).
68. ✧ Lawing, A. M., J. M. Meik, and **P.D. Polly**. **2012**. Climate and competition shape species borders: a study of Panamint (*Crotalus stephensi*) and Speckled (*Crotalus mitchellii*) Rattlesnakes. *ISRN Zoology*, **528745**: 1-6.
67. ✧ Lawing, A.M., J.J. Head, and **P.D. Polly**. **2012**. The ecology of morphology: the ecometrics of locomotion and macroenvironment in North American snakes. Pp. 117-146 in J. Louys (ed), *Paleontology in Ecology and Conservation*. Springer-Verlag, Berlin and Heidelberg (doi: 10.1007/978-3-642-25038-5_7).
66. ✧ Gómez-Robles, A. and **P.D. Polly**. **2012**. Morphological integration in the hominin dentition: evolutionary, developmental, and functional factors. *Evolution*, **66**: 1024-1043. doi: 10.1111/j.1558-5646.2011.01508.x
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62. ✧ Bose, R., C.L. Schneider, L.R. Leighton, and **P.D. Polly**. **2011**. Influence of atrypid morphological shape on Devonian episkeletobiont assemblages from the Lower Genshaw Formation of the Traverse Group of Michigan: a geometric morphometric approach. *Palaeogeography, Palaeoclimatology, Palaeoecology*, **310**: 427-441. doi: 10.1016/j.palaeo.2011.08.004.
61. Johnson, L.J., J.A. Cotton, C.P. Lichtenstein, G.S. Elgar, R.A. Nichols, **P.D. Polly**, and S.C. Le Comber. **2011**. Stops making sense: translational trade-offs and stop codon reassignment. *BMC Evolutionary Biology*, **11**: 227. doi: 10.1186/1471-2148-11-227
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59. **Polly, P.D.** and J.T. Eronen. **2011**. Mammal associations in the Pleistocene of Britain: implications of ecological niche modelling and a method for reconstructing palaeoclimate. *In* N. Ashton, S. Lewis, and C. Stringer (eds.), *The Ancient Human Occupation of Britain. Developments in Quaternary Science*, **14**: 279-304. ISBN 978-0-444-53597-9
58. **Polly, P.D.**, J.T. Eronen, M. Fred, G. P. Dietl, V. Mosbrugger, C. Scheidegger, D.C. Frank, J. Damuth, N.C. Stenseth, and M. Fortelius. **2011**. History matters: Ecometrics and Integrative Climate Change Biology. *Proceedings of the Royal Society, B*, **278**: 1121-1130. doi:10.1098/rspb.2010.2233
57. **Polly, P.D.** and C.B. Stringer. **2011**. The Ancient Human Occupation of Britain (AHOB) Database. *In* R. Macchiarelli and G-C. Weniger (ed.) *Pleistocene Databases: Acquisition, Storing, Sharing. Wissenschaftliche Schriften des Neanderthal Museums*, 4: 51-60.
56. ✧ Ksepka, D.T., M.J. Benton, M.T. Carrano, M.A. Gandolfo, J.J. Head, E.J. Hermsen, W.G. Joyce, K.S. Lamm, J.S.L. Patané, M.J. Phillips, P.D. Polly, J.L. Ware, R.C.M. Warnock, M. van Tuinen, and J.F. Parham. **2011**. Synthesizing and databasing fossil calibrations: divergence dating and beyond. *Biology Letters*, **7**: 801-803. doi: 10.1098/rsbl.2011.0356.
55. ✧ Goswami, A. and **P.D. Polly**. **2010**. Methods for studying morphological integration, modularity and covariance evolution. Pp. 213-243 *in* J. Alroy and G. Hunt (eds.), *Quantitative Methods in Paleobiology*. Paleontological Society Short Course, October 30th, 2010. *The Paleontological Society Papers*, Volume 16.
54. ✧ Goswami, A. and **P. D. Polly**. **2010**. The influence of modularity on cranial morphological disparity in Carnivora and Primates (Mammalia). *PLoS One*, **5**, e9517: 1-8.
53. Poroshin, E.A., **P. D. Polly**, and J.M. Wójcik. **2010**. Climate and morphological change on decadal scales: Multiannual variation in the common shrew (*Sorex araneus* L.) in northeast Russia. *Acta Theriologica*, **55**: 193-202.
52. Cardini, A., S. Elton, J.A.F. Diniz-Filho, and **P. D. Polly**. **2010**. Spatial data analysis and ecomorphology using geometric morphometrics: clines in skull size and shape in a widespread African arboreal monkey. Pp. 191-217 *in* A.M.T. Elewa (ed), *Morphometrics for Nonmorphometricians, Lecture Notes in Earth Sciences*, Volume 124. Springer: Dordrecht, The Netherlands.
51. ✧ Bose, R., C. Schneider, **P. D. Polly**, and M. M. Yacobucci. **2010**. Ecological Interactions between *Rhipidomella* (Orthides, Brachiopoda) and its endoskeletobionts and predators in the Middle Devonian Dundee Formation of Ohio, USA. *Palaaios*, **25**: 196-208.
50. Eronen, J. T., **P. D. Polly**, M. Fred, J. Damuth, D. C. Frank, V. Mosbrugger, C. Scheidegger, N. C. Stenseth, and M. Fortelius. **2010**. Ecometrics: the traits that bind the past and present together. *Integrative Zoology*, **5**: 88-101.

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48. ✎ Goswami, A. and **P.D. Polly. 2010.** The influence of character correlations on phylogenetic analyses: a case study of the carnivoran cranium. Pp. 141-164 in A. Goswami and A. Friscia (eds.), *Carnivoran Evolution: New Views on Phylogeny, Form, and Function*. Cambridge University Press.
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45. ✎ Head, J.J., J.I. Bloch, A.K. Hastings, J.R. Bourque, E. Cadena, F. Herrera, **P.D. Polly**, and C.A. Jaramillo. **2009.** Giant boine snake from a Paleocene Neotropical rainforest indicates hotter past equatorial temperatures. *Nature*, **457**: 715-718. doi:10.1038/nature07671
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