

Dr. Lucas J. Legendre
Research Associate

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[GitHub](#)

My research focuses on inferring the paleobiology and ecology of terrestrial vertebrates through the microstructure of biomineralized tissues, such as bone, cartilage, and eggshells. I apply histology, microscopy, and X-ray computed tomography techniques to visualize and quantify morphoanatomical traits in these tissues, and use cutting-edge phylogenetic comparative statistics to assess their functional interactions and macroevolutionary history.

Professional appointments

- Since 2023: **Research Associate.** Head of lab: Prof. Julia Clarke
Department of Earth and Planetary Sciences, The University of Texas at Austin, United States
Project on the evolution of eggshell calcium content and incubation strategies in dinosaurs including birds
- 2018 – 2023: **Postdoctoral Scholar.** Head of lab: Prof. Julia Clarke
Jackson School of Geosciences, The University of Texas at Austin, United States
Projects on (1) the evolution of reptile eggshell microstructure, and (2) the morphology and evolution of the syrinx in birds
- 2016 – 2018: **Postdoctoral Researcher.** Head of department: Dr. Jennifer Botha
Palaeontology Department, National Museum, Bloemfontein, South Africa
Project on the link between bone microstructure and fossoriality in mammals

Education

- 2011 – 2014: **Ph.D., Paleontology.** Advisor: Prof. Jorge Cubo
Dissertation: “Did crocodiles become secondarily ectothermic? A paleohistological approach”
Institute of Earth Sciences, Sorbonne University, Paris, France
- 2009 – 2011: **M.S., Paleontology and Evolution** (Systematics, Evolution, Paleontology). Advisor: Prof. Jorge Cubo
Thesis: “Phylogenetic signal in bone histology of ratites (Aves, Palaeognathae)”
Sorbonne University/National Museum of Natural History, Paris, France
- 2006 – 2009: **B.S., Biology** (Science and Technology: Life Sciences)
Sorbonne University, Paris, France

(Mentorship: * graduate student; ** undergraduate student)

Peer-reviewed articles and book chapters

26. Ellins, K.K., **L.J. Legendre**, A.S. Papendieck, and J.A. Clarke. 2024. Geoscience ambassadors: An extracurricular college-level program for transforming relationships to the geosciences through student-crafted stories. *Journal of Geoscience Education*. <https://doi.org/10.1080/10899995.2024.2328376>
25. **Legendre, L.J.**, C.A. Rodríguez-Saltos, C.M. Eliason, and J.A. Clarke. 2024. Evolution of the syrinx of Apodiformes including the vocal-learning Trochilidae (Aves: Strisores). *Zoological Journal of the Linnean Society*. <https://doi.org/10.1093/zoolinnean/zlae001>
24. **Chiappone, M., C. Rodríguez-Saltos, **L.J. Legendre**, Z. Li, and J. Clarke. 2024. Ostrich (*Struthio camelus*) syrinx morphology and vocal repertoire across postnatal ontogeny and sex: implications for understanding vocal evolution in birds. *Journal of Anatomy* 244:541–556. <https://doi.org/10.1111/joa.13992>
23. **Urban, C.A., **L.J. Legendre**, and J.A. Clarke. 2023. Description of natal down of the ostrich (*Struthio camelus*) and comparison with common quail (*Coturnix coturnix*): developmental and evolutionary implications. *Journal of Anatomy* 243:1007–1023. <https://doi.org/10.1111/joa.13936>
22. Greal, A., G.H. Miller, M. Phillips, S.J. Clarke, M. Fogel, D. Patalwala, P. Rigby, A. Hubbard, B. Demarchi, M. Collins, M. Mackie, J. Sakalauskaite, J. Stiller, J.A. Clarke, **L.J. Legendre**, K. Douglass, J. Hansford, J. Haile, and M. Bunce. 2023. Molecular exploration of fossil eggshell uncovers hidden lineage of giant extinct bird. *Nature Communications* 14:914. <https://doi.org/10.1038/s41467-023-36405-3>
21. Choi, S., M.E. Hauber, **L.J. Legendre**, N.-H. Kim, Y.-N. Lee, and D.J. Varricchio. 2023. Microstructural and crystallographic evolution of palaeognath (Aves) eggshells. *eLife* 11:e81092. <https://doi.org/10.7554/eLife.81092>
20. Demarchi, B., J. Stiller, A. Greal, M. Mackie, Y. Deng, T. Gilbert, J. Clarke, **L.J. Legendre**, R. Boano, T. Sicheritz-Pontén, J. Magee, G. Zhang, M. Bunce, M.J. Collins, and G. Miller. 2022. Ancient proteins resolve controversy over the identity of *Genyornis* eggshell. *Proceedings of the National Academy of Sciences* 119:e2109326119. <https://doi.org/10.1073/pnas.2109326119>
19. **Legendre, L.J.**, S. Choi, and J.A. Clarke. 2022. The diverse terminology of reptile eggshell microstructure and its effect on phylogenetic comparative analyses. *Journal of Anatomy* 241:641–666. <https://doi.org/10.1111/joa.13723>
18. Cubo, J., A.D. Buscalioni, **L.J. Legendre**, E. Bourdon, J.L. Sanz, and A. de Ricqlès. 2022. Palaeohistological inferences of resting metabolic rates in *Concornis* and *Iberomesornis* (Enantiornithes, Ornithothoraces) from the Lower Cretaceous of Las Hoyas (Spain). *Palaeontology* 65:e12583. <https://doi.org/10.1111/pala.12583>
17. Cubo, J., A. Huttenlocker, **L.J. Legendre**, C. Olivier, and A. de Ricqlès. 2021. Bone histology and thermal physiology. In: V. de Buffrénil, A.J. de Ricqlès, L. Zylberberg, and K. Padian (eds.) *Vertebrate skeletal histology and paleohistology*. CRC Press, Boca Raton, 757–773. <https://doi.org/10.1201/9781351189590-37>
16. Cubo, J., **L.J. Legendre**, and M. Laurin. 2021. Phylogenetic signal in bone histology. In: V. de Buffrénil, A.J. de Ricqlès, L. Zylberberg, and K. Padian (eds.) *Vertebrate skeletal histology and paleohistology*. CRC Press, Boca Raton, 617–625. <https://doi.org/10.1201/9781351189590-30>

15. **Legendre, L.J.**, and J.A. Clarke. 2021. Shifts in eggshell thickness are related to changes in locomotor ecology in dinosaurs. *Evolution* 75:1415–1430. <https://doi.org/10.1111/evo.14245>
14. Benoit, J., **L.J. Legendre**, A.A. Farke, J.M. Neenan, B. Mennecart, L. Costeur, S. Merigeaud, and P.R. Manger. 2020. A test of the lateral semicircular canal correlation to head posture, diet and other biological traits in “ungulate” mammals. *Scientific Reports* 10:19602. <https://doi.org/10.1038/s41598-020-76757-0>
13. **Legendre, L.J.**, D. Rubilar-Rogers, G.M. Musser, S.N. Davis, R. Otero, A.O. Vargas, and J.A. Clarke. 2020. A giant soft-shelled egg from the Late Cretaceous of Antarctica. *Nature* 583:411–414. <https://doi.org/10.1038/s41586-020-2377-7>
12. **Legendre, L.J.**, and D. Davesne. 2020. The evolution of mechanisms involved in vertebrate endothermy. *Philosophical Transactions of the Royal Society B: Biological Sciences* 375:20190136. <https://doi.org/10.1098/rstb.2019.0136>
11. Benoit, J., **L.J. Legendre**, R. Tabuce, T. Obada, V. Maraescul, and P. Manger. 2019. Brain evolution in Proboscidea (Mammalia, Afrotheria) across the Cenozoic. *Scientific Reports* 9:9323. <https://doi.org/10.1038/s41598-019-45888-4>
10. **Legendre, L.J.**, and J. Botha-Brink. 2018. Digging the compromise: investigating the link between limb bone histology and fossoriality in the armadillo (*Orycteropus afer*). *PeerJ* 6:e5216. <https://doi.org/10.7717/peerj.5216>
09. Mitchell, J., **L.J. Legendre**, C. Lefèvre, and J. Cubo. 2017. Bone histological correlates of soaring and high-frequency flapping flight in the furculae of birds. *Zoology* 122:90–99. <https://doi.org/10.1016/j.zool.2017.03.004>
08. **Legendre, L.J.**, G. Guénard, J. Botha-Brink, and J. Cubo. 2016. Palaeohistological evidence for ancestral high metabolic rate in archosaurs. *Systematic Biology* 65:989–996. <https://doi.org/10.1093/sysbio/syw033>
07. De Ricqlès, A., E. Bourdon, **L.J. Legendre**, and J. Cubo. 2016. Preliminary assessment of bone histology in the extinct elephant bird *Aepyornis* (Aves, Palaeognathae) from Madagascar. *Comptes Rendus Palevol* 15:205–216. <https://doi.org/10.1016/j.crpv.2015.01.003>
06. Meunier, F.J., **L.J. Legendre**, J. Cubo, and A. de Ricqlès. 2016. History of the research group “Formations squelettiques” at the Paris-7 University (1968–2008). *Comptes Rendus Palevol* 15:9–22. <https://doi.org/10.1016/j.crpv.2015.02.002>
05. **Legendre, L.J.**, E. Bourdon, R.P. Scofield, A.J.D. Tennyson, H. Lamrous, A. de Ricqlès, and J. Cubo. 2014. Bone histology, phylogeny, and palaeognathous birds (Aves, Palaeognathae). *Biological Journal of the Linnean Society* 112:688–700. <https://doi.org/10.1111/bij.12312>
04. Cubo, J., *J. Baudin, **L.J. Legendre**, A. Quilhac, and V. de Buffrénil. 2014. Geometric and metabolic constraints on bone vascular supply in diapsids. *Biological Journal of the Linnean Society* 112:668–677. <https://doi.org/10.1111/bij.12331>
03. **Legendre, L.J.**, L. Segalen, and J. Cubo. 2013. Evidence for high bone growth rate in *Euparkeria* obtained using a new paleohistological inference model for the humerus. *Journal of Vertebrate Paleontology* 33:1343–1350. <https://doi.org/10.1080/02724634.2013.780060>
02. **Legendre, L.**, N. Le Roy, C. Martinez-Maza, L. Montes, M. Laurin, and J. Cubo. 2013. Phylogenetic signal in bone histology of amniotes revisited. *Zoologica Scripta* 42:44–53. <https://doi.org/10.1111/j.1463-6409.2012.00564.x>
01. Laurin, M., S.W.S. Gusssekloo, D. Marjanović, **L. Legendre**, and J. Cubo. 2012. Testing gradual and speciation models of evolution in extant taxa: the example of ratites. *Journal of Evolutionary Biology* 25:293–303. <https://doi.org/10.1111/j.1420-9101.2011.02422.x>

Other publications

- Legendre, L.** 2022. Phylogénétique comparative. *Géochronique* 161:47–49. (Popular science magazine article in a special issue on phylogenetics, in French)
- Clarke, J., N. Crouch, C. Eliason, **L. Legendre**, C. Rodriguez, and A. Papendieck. 2021. Curiosity to Question Instructional Modules for GEO 391/371T Research Design, Data Analysis and Visualization. <https://doi.org/10.18738/T8/30VNW9>, Texas Data Repository, V2 (Course implementation modules for instructors)
- Legendre, L.J.**, D. Rubilar-Rogers, A.O. Vargas, and J.A. Clarke. 2020. The first dinosaur egg remains a mystery. *bioRxiv*. <https://doi.org/10.1101/2020.12.10.406678>
- Legendre, L.**, D. Rubilar-Rogers, J. Clarke, and A. Vargas. 2020. Behind the Paper: A giant soft-shelled egg from the Late Cretaceous of Antarctica. *Nature Portfolio Ecology and Evolution Community*. (Short online presentation of the Nature paper of the same name)
- Legendre, L.** 2018. Introduction pratique aux modèles linéaires phylogénétiques. *Biosystema* 21:43–58. (Teaching note in a special volume on phylogenetic comparative methods, aimed primarily at graduate students and high school teachers, in French)
- Legendre, L.J.** 2014. Did crocodiles become secondarily ectothermic? A paleohistological approach. *PhD thesis, Sorbonne University, Paris, France*. <https://tel.archives-ouvertes.fr/tel-01205158>

Teaching experience

Postdoctoral Fellow/Research Associate, Co-instructor (The University of Texas at Austin, since 2018)

Curiosity to Question: research design, data analysis and visualization, HHMI-sponsored program. Four guest lectures/workshops per semester, individual meetings with students. 12–16 graduate/undergraduate students. The ‘CtQ’ course teaches students from undergraduate to PhD level how to design a research project from start to finish – identifying a research question, assembling and analyzing a dataset, and writing a research paper ready for submission. Co-authored syllabi, slideshows, exercises, and R scripts. Led classes on data analysis in R, scientific writing, and figure design. Designed and co-wrote instructional modules for teachers to implement this course in other institutions, which will be made available on CUREnet as a teaching resource.

Life Through Time. Four guest lectures. 30 undergraduate students. Introductory lectures on evolutionary biology, paleontology, population genetics, and history of evolutionary theory, with discussions and quiz sessions.

Graduate Student Instructor (Sorbonne University, 2011–2014)

Integrative ecology: basics and applications, 1 semester. Five weeks, 1-hour sessions. Led weekly discussion sections of 20–30 undergraduate students. Emphasis on general ecology and the link between scientific articles and their counterparts in science journalism.

Diversity of life, 2 semesters. Twelve-week classroom (2-hour sessions) and lab-based (3-hour sessions) course of 25–30 undergraduate students. Led weekly discussion and lab sections, designed new exercises on phylogenetics (including an HTML-based interactive phylogenetic tree). Emphasis on zoology, comparative anatomy, and evolutionary biology (introduction to phylogenetics).

Paleohistology (guest lectures for J. Cubo, 2013–2014, remotely in 2020–2021). 20 graduate students, 2-hour sessions. Lectures on the history of bone histology and the use of phylogenetic comparative methods in bone histology.

Additional mentorship experience

Since 2018: Main facilitator – [Geoscience Ambassadors Program](#)

Hosted yearly with Prof. Julia Clarke, Dr. Kathy Ellins, and Dr. Adam Papendieck (UT Austin).

Geoscience-oriented outreach program for students from historically underrepresented communities at the Jackson School of Geosciences. *Twenty weeks, semi-monthly 3-hour sessions, 10-15 students (hosted as a series of workshops since 2023). Co-organized and led discussion sections with students to help them design a compelling narrative of their journey as aspiring geoscientists through reflective storytelling. Students crafted such narrative outputs to showcase their journey in written and video format and gave outreach seminars at high schools and/or scientific associations.*

2019: Co-instructor – Research experience for undergraduates, hosted by Profs. Julia Clarke (UT Austin) and Scott Edwards (Harvard University)

HHMI Interdisciplinary Summer Research Program. Genome Size Evolution: Integrating fossil and extant data. *Twelve weeks, 20 hours/week, 5 undergraduate students. Collected and formatted the main dataset and bibliography; designed and gave lectures on bone histology, vertebrate metabolism, and genome size evolution; supervised data collection and workshops on data crunching, use of ImageJ, and phylogenetic comparative methods in R; led weekly discussions with students and other instructors, went with them to Harvard to present our results to the whole team.*

Mentorship of research projects led by graduate (*) and undergraduate (**) students

(Advised on design of research hypotheses and protocols; data collection, analysis, and presentation; scientific writing for theses and peer-reviewed journal articles; conference presentations)

- 2022–: *Paul Byrne – *Origin and variation of postcranial skeletal pneumaticity in Ornithodira* (PhD thesis). Main supervisors: Prof. David Bottjer, Prof. Adam Huttenlocker (University of Southern California), Dr. Luis Chiappe, Prof. Nathan Smith (Natural History Museum of Los Angeles County).
- 2022–: *Jessica Valdés – *Ostrich eggshells as markers of human occupation and migrations* (provisional title; PhD thesis). Main supervisor: Prof. Julia Clarke (UT Austin).
- 2022–: **Bradley Ibarra – *Comparative morphology of the syrinx in New World vultures (Aves: Cathartidae)* (provisional title). Main supervisor: Prof. Julia Clarke (UT Austin).
- 2020–2022: *Janna Muhammad – *Elucidating the evolution of the parrot vocal organ and links to bioacoustics traits* (Master's thesis). Main supervisor: Prof. Julia Clarke (UT Austin); co-mentorship with Dr. Carlos Rodríguez-Saltos.
- 2020–2022: **Carmen Urban – *Description and comparison of ostrich and common quail natal down: developmental implications*. Published in *Journal of Anatomy*. Main supervisor: Prof. Julia Clarke (UT Austin); co-mentorship with Dr. Sarah Davis.
- 2020–2022: **Michael Chiappone – *Ostrich syrinx morphology and vocal repertoire: variation across postnatal ontogeny and sex*. Published in *Journal of Anatomy*. Main supervisor: Prof. Julia Clarke (UT Austin); co-mentorship with Dr. Carlos Rodríguez-Saltos.
- 2012–2013: *Jéromine Baudin – *Geometric and metabolic constraints on bone vascular supply in diapsids* (Master's thesis). Published in *Biological Journal of the Linnean Society*. Main supervisor: Prof. Jorge Cubo (Sorbonne University).

Invited seminars and symposium talks

7. **Legendre, L.J.** 2023. A (short) diary of international mobility in academia: thoughts from a paleontologist. *Jackson School of Geosciences Around the World seminar series, The University of Texas at Austin, TX (USA)*.
6. **Legendre, L.J.** 2020. The bone cathedral: what framework to infer paleophysiology from bone microstructure? *PaleoLunch Seminar, Department of Biology, University of Washington, Seattle, WA (USA)*.
5. **Legendre, L.J.** 2019. The thin giant: a look at the evolution of reptile eggshells. *Seminar, Center for Health Sciences, Oklahoma State University, Tulsa, OK (USA)*.
4. **Legendre, L.J.** 2019. Digging the unlikely: the biomechanics and physiology of aardvark bone microstructure. *UT Paleontology Seminar, Jackson School of Geosciences, University of Texas at Austin, TX (USA)*.
3. **Legendre, L.J.** 2018. Phylogenetic comparative methods and paleobiological inference of physiological traits: an example using bone histology. *'Vertebrate Paleophysiology' Symposium (Organizers: J. Cubo, A. Huttenlocker). International Palaeontological Congress, Paris, France*.
2. **Legendre, L.J.** 2017. Birds, bones, and statistics: a practical introduction to phylogenetic comparative analysis. *Opening Talk, French Society for Systematics Annual Meeting, Banyuls-sur-Mer, France*.
1. **Legendre, L.J., G. Guénard, J. Botha-Brink, and J. Cubo.** 2016. Endothermic archosaurs? The use of bone histology in phylogenetic retrodictions. *Symposium 'Recent Advances in Understanding the Origins and Evolution of Tetrapod Endothermy' (Organizers: J. Botha, C.G. Farmer, A. Huttenlocker). Society of Vertebrate Paleontology Annual Meeting, Salt Lake City, UT (USA)*.

Conference presentations

(Mentorship: * graduate student; ** undergraduate student)

29. *Byrne, P., **L.J. Legendre**, N. Smith, E. Schachner, D. Bottjer, R. Irmis, and A. Huttenlocker. 2024. Using vertebral morphology and histologic correlates to elucidate diverging patterns of cardiopulmonary system evolution in terrestrial vs. secondarily aquatic archosaurs. *North American Paleontological Convention, Ann Arbor, MI (USA)*.
28. **Legendre, L.J.**, C.A. Rodríguez-Saltos, C.E. Eliason, and J.A. Clarke. 2024. Evolution of the syrinx in swifts and hummingbirds (Aves: Strisores). *Society for Integrative and Comparative Biology Annual Meeting, Seattle, WA (USA)*.
27. *Byrne, P.J., **L.J. Legendre**, N. Smith, R. Irmis, S. Echols, C.G. Farmer, Y.-H. Wu, and A. Huttenlocker. 2023. Integrating histology and vertebral anatomy to reconstruct cardiopulmonary evolution near the divergence of Avemetatarsalia and Pseudosuchia. *International Congress of Vertebrate Morphology, Cairns, Australia*.
26. Papendieck, A., F.S. Azevedo, **L.J. Legendre**, K.K. Ellins, and J.A. Clarke. 2023. The narrative construction of transformational science identities. *International Society of the Learning Sciences Annual Meeting, Montréal, QC (Canada)*.
25. **Urban, C.A., **L.J. Legendre**, and J.A. Clarke. 2023. Description and comparison of ostrich and common quail natal down: developmental implications. *Society of Avian Paleontology and Evolution International Meeting, Málaga, Spain*.
24. Cubo, J., A.D. Buscalioni, **L.J. Legendre**, E. Bourdon, J.L. Sanz, and A. de Ricqlès. 2023. Were *Concornis* and *Iberomesornis* (Enantiornithes, Ornithothoraces) warm-blooded? A palaeohistological analysis suggests endothermy. *Society of Avian Paleontology and Evolution International Meeting, Málaga, Spain*.

23. **Legendre, L.J.**, and J.A. Clarke. 2023. Shifts in avian eggshell thickness are related to acquisition of flight in non-avian dinosaurs. *Society of Avian Paleontology and Evolution International Meeting, Málaga, Spain*.
22. **Chiappone, M., C. Rodríguez-Saltos, **L. Legendre**, Z. Li, and J. Clarke. 2023. Ostrich syrinx morphology and vocal repertoire: variation across postnatal ontogeny and sex. *Society for Integrative and Comparative Biology Annual Meeting, Austin, TX (USA)*.
21. Papendieck, A., K.K. Ellins, **L. Legendre**, and J. Clarke. 2022. Cultivating transformational science identities in a Geoscience Ambassadors program. *American Geophysical Union Fall Meeting, Chicago, IL (USA)*.
20. **Legendre, L.J.**, S. Choi, and J.A. Clarke. 2022. Walking on eggshells: reevaluating the 'hard/soft' dichotomy of reptile eggshell microstructure in a phylogenetic context. *Society of Vertebrate Paleontology Annual Meeting, Toronto, ON (Canada)*.
19. *Byrne, P.J., **L.J. Legendre**, S. Echols, C.G. Farmer, J.D. Gardner, Y.-H. Wu, and A.K. Huttenlocker. 2022. Elevated aerobic capacity in Triassic archosaurs supported by modeled reductions in red blood cell sizes. *Society of Vertebrate Paleontology Annual Meeting, Toronto, ON (Canada)*.
18. **Legendre, L.J.**, and J.A. Clarke. 2022. Shifts in dinosaur eggshell thickness are related to changes in locomotor ecology. *Society for Integrative and Comparative Biology Annual Meeting, Phoenix, AZ (USA)*.
17. Rodríguez-Saltos, C.A., **L.J. Legendre**, and J.A. Clarke. 2022. Intrinsic muscles in the syrinx do not correlate with higher trill rates in Strisores. *Society for Integrative and Comparative Biology Annual Meeting, Phoenix, AZ (USA)*.
16. **Legendre, L.J.**, D. Rubilar Rogers, A.O. Vargas, and J.A. Clarke. 2019. Microstructure of a giant soft-shelled egg from the Late Cretaceous of Antarctica. *International Symposium on Paleohistology, Cape Town, South Africa*.
15. **Legendre, L.J.**, D. Rubilar Rogers, A.O. Vargas, and J.A. Clarke. 2019. A giant soft-shelled egg from the Late Cretaceous of Antarctica, and the evolution of squamate eggshells. *International Congress of Vertebrate Morphology, Prague, Czech Republic*.
14. **Legendre, L.J.**, and J. Botha-Brink. 2017. Digging the compromise: the long bone histology of the aardvark. *International Symposium on Paleohistology, Trenton, NJ (USA)*.
13. **Legendre, L.J.**, G. Guénard, J. Botha-Brink, and J. Cubo. 2016. Paleohistological evidence for ancestral high metabolic rate in archosaurs. *Palaeontological Society of South Africa Biennial Meeting, Stellenbosch, South Africa*.
12. **Legendre, L.J.**, G. Guénard, J. Botha-Brink, and J. Cubo. 2015. Paleohistological evidence for ancestral endothermy in archosaurs. *International Symposium on Paleohistology, Bonn, Germany*.
11. **Legendre, L.J.**, G. Guénard, J. Botha-Brink, and J. Cubo. 2014. Paleohistological evidence for ancestral endothermy in archosaurs. *French Society for Systematics Annual Meeting, Paris, France*.
10. Casinos, A., **L.J. Legendre**, and J. Cubo. 2014. Phylogenetic comparative methods and history of sciences: Revisiting Geoffroy St Hilaire's "loi du balancement". *Modern phylogenetic comparative methods and their application in evolutionary biology: A scientific conference, Seville, Spain*.
9. **Legendre, L.J.**, G. Guénard, J. Botha-Brink, and J. Cubo. 2014. Paleohistological evidence for ancestral endothermy in archosaurs. *Modern phylogenetic comparative methods and their application in evolutionary biology: A scientific conference, Seville, Spain*.

8. **Legendre, L.J.**, E. Bourdon, H. Lamrous, R.P. Scofield, A.J.D. Tennyson, A. de Ricqlès, and J. Cubo. 2014. Bone histology, phylogeny, and palaeognathous birds. *Society of Vertebrate Paleontology Annual Meeting, Berlin, Germany*.
7. **Legendre, L.J.**, L. Segalen, and J. Cubo. 2013. Evidence for high bone growth rate in *Euparkeria* obtained using a new paleohistological inference model for the humerus. *International Symposium on Paleohistology, Bozeman, MT (USA)*.
6. Ricqlès, A. de, **L.J. Legendre**, E. Bourdon, and J. Cubo. 2013. Preliminary assessment of bone histology in the “elephant bird” *Aepyornis* from Madagascar. *International Symposium on Paleohistology, Bozeman, MT (USA)*.
5. **Legendre, L.J.**, E. Bourdon, H. Lamrous, R.P. Scofield, A.J.D. Tennyson, A. de Ricqlès, and J. Cubo. 2013. Phylogenetic signal in bone histology of extant and extinct ratites (Aves, Palaeognathae). *International Congress of Vertebrate Morphology, Barcelona, Spain*.
4. **Legendre, L.** 2012. De l’autre côté de la rue : l’équipe Tissus squelettiques de Paris VI. *Bureau des Doctorants et Étudiants du Muséum National d’Histoire Naturelle Annual Meeting, Paris, France*.
3. Laurin, M., S.W.S. Gussekloo, D. Marjanović, **L. Legendre**, and J. Cubo. 2012. Testing gradual and speciation models of evolution in extant taxa: the example of ratites. *Symposium FORM2012, Paris, France*.
2. **Legendre, L.**, N. Le Roy, C. Martinez-Maza, L. Montes, M. Laurin, and J. Cubo. 2012. Phylogenetic signal in bone histology of amniotes revisited. *French Society for Systematics Annual Meeting, Paris, France*.
1. **Legendre, L.**, E. Bourdon, A. de Ricqlès, and J. Cubo. 2011. Le signal phylogénétique dans la variation des traits ostéohistologiques chez les ratites (Aves, Palaeognathae). *French Society for Mineralized Tissue Biology Annual Meeting, Paris, France*.

Professional services and outreach

- Ongoing: Reviewer for academic publications (*The Anatomical Record, Biological Journal of the Linnean Society, Biology Letters, Communications Biology, Current Biology, Frontiers in Earth Science, Geobios, Historical Biology, Integrative and Comparative Biology, Integrative Organismal Biology, Journal of Anatomy, Journal of Morphology, Molecular Biology and Evolution, Open Veterinary Journal, PeerJ, Philosophical Transactions of the Royal Society B: Biological Sciences, PLOS ONE, Royal Society Open Science, Science Advances, Scientific Reports, Zoological Journal of the Linnean Society*)
- Ongoing: Contributor/reviewer for popular science articles ([Popular Science](#), [New Scientist](#), [Chemical & Engineering News](#), [EarthDate](#))
- 2023: Reviewer, grant applications – DSI-NRF (Department of Science and Innovation – National Research Foundation), GENUS (Centre of Excellence in Palaeosciences), South Africa
- 2020: Lead author, popular science communication on the research paper ‘A giant soft-shelled egg from the Late Cretaceous of Antarctica’ (Legendre et al., *Nature*, 2020) Co-wrote and coordinated [a press release](#) in collaboration with scientific illustrators and staff writers at the University of Texas and Chilean National Museum of Natural History, and gave interviews to general-interest news media (e.g. [The New York Times](#), [National Geographic](#), [CNN](#), [Reuters](#), [AFP](#), [NPR](#), [Business Insider](#))
- 2018: Ad hoc reviewer, proposals – National Science Foundation (NSF), United States
- 2017: Member of the Scientific Committee/editorial board, workshop co-host, and invited speaker – French Society for Systematics Annual Meeting

2011: Member of the Organizing Committee – French Society for Mineralized Tissue Biology Annual Meeting

Technical skills

Statistical analysis – *Proficient R user and instructor, with a focus on packages designed for phylogenetic comparative methods (e.g. ‘ape’, ‘caper’, ‘evomap’, ‘geiger’, ‘ggtree’, ‘MPSEM’, ‘OUwie’, ‘phylolm’, ‘phyr’, ‘phytools’, ‘RRphylo’...)*

Phylogenetics software – *Mesquite, PAUP*, TNT, FigTree*

Graphic design, visualization, and office software – *ImageJ/Fiji, Avizo, Dragonfly, Adobe CC (Photoshop/Illustrator/Acrobat), CorelDRAW, NIS-Elements, ZEN, Microsoft OS, Canvas*

Histology (biological tissues/paleohistology) – *Processing, embedding, sectioning (precision saw, microtome, cryostat), grinding, light microscopy, and slide preparation techniques*

DiceCT (diffusible iodine-based contrast-enhanced computed tomography) – *sample preparation and staining, scan data collection and management*

Scanning electron microscopy, powder X-ray diffraction, energy-dispersive X-ray spectroscopy, electron backscatter diffraction, inductively coupled plasma mass spectrometry, ion milling – *Sampling, scanning, and imaging*

Languages – *French (native), English (full professional), German (elementary)*

Society memberships

International Society for Vertebrate Morphology

Society for Comparative and Integrative Biology

Society for the Study of Evolution

Society of Vertebrate Paleontology

Funding and awards

2018–2024: Postdoctoral Fellowship – *Howard Hughes Medical Institute, Science Education Program, with J. Clarke (GT10473 – total funding: \$340000)*

2016–2018: Postdoctoral Fellowship – *South Africa National Research Foundation, with J. Botha (100575S003865 – ZAR300000)*

2011–2014: PhD Fellowship – *FIRE – Federation Île-de-France for Research on the Environment (64111310 – €57600)*

2011: French Society for Mineralized Tissue Biology – *Best Poster Presentation Award (€500)*

Field work

2013 – Late Jurassic (Morrison Formation), O’Heir Sauropod Quarry, Livingstone, Montana, USA (supervised by J.R. Horner and D.C. Woodruff).

2011 – Early Permian (Autun formation), Muse, Burgundy, France (supervised by G. Gand and J.-S. Steyer)

2009 – CEREEP–Ecotron ÎleDeFrance research station, Seine-et-Marne, France (supervised by J.-F. Le Galliard and M. Mugabo)