

# Aurore CANOVILLE, PhD

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## EDUCATION

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**2010 - Ph.D.**, University Pierre and Marie Curie & Research Center of Paleobiodiversity and Paleoenvironments, National Museum of Natural History, Paris, France

- Doctoral grant from the French Ministry of Research
- '*Microanatomical and histological tetrapod long bone diversity and paleoecological inferences*'
- Adviser: M. LAURIN, PhD

**2007 - MASTER'S II Systematic, Evolution and Paleontology**, University Pierre and Marie Curie & National Museum of Natural History (Paris, France)

- Scholarship on academic criteria
- '*Bone microstructure, lifestyle and conquest of land by vertebrates*'
- Adviser: M. LAURIN, PhD

**2006 - MASTER'S I Populations and Ecosystems Biology**, University Pierre and Marie Curie & National Museum of Natural History (Paris, France)

- '*Taxonomic and Phylogenetic Studies of the genus Hildoceras Hyatt, 1867 (Ammonitina, - Hildoceratidae Hyatt, 1867)*'
- Advisers: I. ROUGET, PhD & F. CECCA, PhD.

**2005 - LICENCE of Life Sciences (eq. 3<sup>rd</sup> year BSc.)**, University Pierre and Marie Curie, Paris, France

**2004 - DEUG of Life Sciences (eq. 1<sup>st</sup> and 2<sup>nd</sup> year BSc.)**, University Cergy-Pontoise, France

## PROFESSIONAL APPOINTMENTS

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**2021 - Present: Post-doctoral fellow**, Friedenstein Schloss Foundation, Gotha & Museum für Naturkunde, Berlin, Germany

- Funding from the German Federal Ministry of Education and Research
- '*Physiological inferences of the terrestrial vertebrates of the Bromacker by means of bone paleohistology*'
- Adviser: T. HÜBNER, PhD

**2020 - 2021: Interim Lecturer**, Department of Biological Sciences, NC State University, Raleigh NC, USA

**2016 - 2021: Post-doctoral fellow**, Department of Biological Sciences, NC State University; Paleontology Research Lab, NC Museum of Natural Sciences

- NSF award # 1552328 & Brimley Postdoctoral Fellowship
- '*Microstructural and histochemical characterization of medullary bone in birds and non-avian dinosaurs*'
- Advisers: L.E. ZANNO, PhD & M.H. SCHWEITZER, PhD

**2014 - 2016: Post-doctoral fellow**, University of Bonn, Steinmann Institute for Geology, Mineralogy and Paleontology, Bonn, Germany

- Maria von Linden Fellowship (1st August - 31st October 2016)
- Alexander von Humboldt Foundation Fellowship (1st June 2014 - 31st May 2016)
- '*Paleobiology of coeval Permian tetrapods of Russia and South Africa: a comparative assessment of ecology and growth strategies using bone microstructure*'

- Adviser: P.M. SANDER, PhD

**2011 - 2013: Post-doctoral fellow**, University of Cape Town, Paleobiology Research Group, Cape Town, South Africa

- Claude Leon Foundation Postdoctoral Fellowship (January 2011- December 2012)
- Biological Sciences Departmental Fellowship (January 2013- June 2013)
- '*Habitat use and paleobiology of the Karoo tetrapod fauna across the Permo-Triassic extinction event: contributions of bone microanatomy and histology*'
- Adviser: A. CHINSAMY-TURAN, PhD

## PUBLICATIONS

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	<i>Google Scholar</i>	<i>Scopus</i>
Citations	<b>1036</b>	<b>854</b>
<i>h</i> index	<b>18</b>	<b>16</b>

### Refereed Journal Articles

- **Canoville A**, Chinsamy A, Angst D. 2022. New comparative data on the long bone microstructure of large extant and extinct flightless birds. *Diversity* 14:298.
- Chinzorig T, Beguesse KA, **Canoville A**, Phillips G, Zanno LE. 2022. Chronic fracture and osteomyelitis in a large-bodied ornithomimosaur with implications for the identification of unusual endosteal bone in the fossil record. *The Anatomical Record*, online version.
- **Canoville A**, Zanno LE, Zheng M, Schweitzer M. 2021. Keratan sulfate as a marker for medullary bone. *Journal of Anatomy* 238:1296-1311.
- Wiersma-Weyand K, **Canoville A**, Siber HJ, Sander PM. 2021. Testing hypotheses of skeletal unity using bone histology: The case of the sauropod remains from the Howe-Stephens and Howe Scott quarries (Morrison Formation, Wyoming). *Palaeontologia Electronica* 24(1):a03.
- **Canoville A**, Schweitzer MH, Zanno LE. 2020. Identifying medullary bone in extinct avemetatarsalians: challenges, implications and perspectives. *Philosophical Transactions of the Royal Society B* 375:20190133.
- Chinsamy A, Angst D, **Canoville A**, Göhlich UB. 2020. Bone histology yields insights into the biology of the extinct elephant birds (Aepyornithidae) from Madagascar. *Biological Journal of the Linnean Society* 130(2):268-295.
- **Canoville A**, Schweitzer MH, Zanno LE. 2019. Systemic distribution of medullary bone in the avian skeleton: ground truthing criteria for the identification of reproductive tissues in extinct Avemetatarsalia. *BMC Evolutionary Biology* 19:71.
- Zanno LE, Tucker RT, **Canoville A**, Avrahami HM, Gates TA, Makovicky PJ. 2019. Diminutive fleet-footed tyrannosauroid narrows the 70-million-year gap in the North American fossil record. *Communications Biology* 2:64.
- Klein N, **Canoville A**, Houssaye A. 2019. Microstructure of vertebrae, ribs, and gastralia of Triassic sauropterygians – New insights into the microanatomical processes involved in aquatic adaptations of marine reptiles. *The Anatomical Record*. Early view online.
- **Canoville A**, Laurin M, Buffrénil V de. 2018. Quantitative data on bone vascular supply in lissamphibians: comparative and phylogenetic aspects. *Zoological Journal of the Linnean Society* 182:1.
- **Canoville A**, Chinsamy A. 2017. Paleocological implications of the bone microstructure of pareiasaurs (Parareptilia) from the Karoo Basin, South Africa. *The Anatomical Record* 300(6):1039-1066.

- Amiot R, Angst D, Legendre S, Buffetaut E, Fourel F, Adolfssen J, André A, Voica Bojar A, **Canoville A**, Barral A, Goedert J, Halas S, Kusuhashi N, Pestchevitskaya E, Rey K, Royer A, Alamo Feitosa Saraiva A, Savary-Sismondini B, Siméon J-L, Touzeau A, Zhou Z, Lécuyer C. 2017. Oxygen isotope fractionation between bird bone phosphate and drinking water. *The Science of Nature* 104(5-6), 47.
- Amson E, Arnold P, van Heteren AH, **Canoville A**, Nyakatura JA. 2017. Trabecular architecture in the forelimb epiphyses of extant xenarthrans (Mammalia). *Frontiers in Zoology* 14, 52.
- **Canoville A**, Buffrénil V de, Laurin M. 2016. Microanatomical diversity of amniote ribs: an exploratory quantitative study. *Biological Journal of the Linnean Society*, early view at doi: 10.1111/bij.12779.
- Buffrénil V de, Clarac F, **Canoville A**, Laurin M. 2016. Comparative data on the differentiation and growth of bone ornamentation in gnathostomes (Chordata: Vertebrata). *Journal of Morphology*, early view at doi: 10.1002/jmor.20525.
- Organ C, Struble M, **Canoville A**, Buffrénil V de, Laurin M. 2016. Macroevolution of Genome Size in Sarcopterygians During the Water-Land Transition. *Comptes Rendus Palevol*, 15(1-2): 65–73.
- Laurin M, **Canoville A**, Struble M, Organ C, Buffrénil V de. 2016. Early genome size increase in urodeles. *Comptes Rendus Palevol*, 15(1-2): 74–82.
- **Canoville A**, Chinsamy A. 2015. Bone microstructure of the stereospondyl *Lydekkerina huxleyi* reveals adaptive strategies to the harsh post Permian-extinction environment. *The Anatomical Record* 298(7): 1237–1254.
- Buffrénil V de, **Canoville A**, Evans SE, Laurin M. 2015. Histological study of karaurids, the oldest known (stem) urodeles. *Historical Biology* 27(1): 109–114.
- Chinsamy A, Buffetaut E, **Canoville A**, Angst D. 2014. Insight into the growth dynamics and systematic affinities of the Late Cretaceous *Gargantuavis* from bone microstructure. *Naturwissenschaften* 101(5): 447–452.
- **Canoville A**, Thomas DB, Chinsamy A. 2014. Insights into the habitat of Middle Permian pareiasaurs (Parareptilia) from preliminary isotopic analyses. *Lethaia* 47(2): 266–274.
- Nasterlack T, **Canoville A**, Chinsamy A. 2012. New insights into the biology of the Permian genus *Cistecephalus* (Therapsida, Dicynodontia). *Journal of Vertebrate Paleontology* 32(6): 1396–1410.
- Laurin M, **Canoville A**, Germain D. 2011. Bone microanatomy and lifestyle: A descriptive approach. *Comptes Rendus Palevol* 10(5-6): 381–402.
- Organ CL, **Canoville A**, Reisz RR, Laurin M. 2011. Paleogenomic data suggest mammal-like genome size in the ancestral amniote and derived large genome size in amphibians. *Journal of Evolutionary Biology* 24(2): 372–380.
- Buffrénil V de, **Canoville A**, d’Anastasio R, Domning DP. 2010. Evolution of sirenian pachyosteosclerosis, a model-case for the study of bone structure in aquatic tetrapods. *Journal of Mammalian Evolution* 17(2): 101–120.
- **Canoville A**, Laurin M. 2010. Evolution of humeral microanatomy and lifestyle in amniotes, and some comments on paleobiological inferences. *Biological Journal of the Linnean Society*, 100(2): 384–406.
- **Canoville A**, Laurin M. 2009. Microanatomical diversity of the humerus and lifestyle in lissamphibians. *Acta Zoologica* 90(2): 110–122.
- Laurin M, **Canoville A**, Quilhac A. 2009. Use of paleontological and molecular data in supertrees for comparative studies: the example of lissamphibian femoral microanatomy. *Journal of Anatomy* 215(2): 110–123.

- Krilloff A, Germain D, **Canoville A**, Vincent P, Sache M, Laurin M. 2008. Evolution of bone micranatomy of the tetrapod tibia and its use in paleobiological inference. *Journal of Evolutionary Biology* 21(3): 807–826.

### Refereed Academic Book Chapters

- **Canoville A**, Yang TR. *In press*. 5.2. Reproduction. *In* Zanno LE, Arbour V, Holtz T, eds. *The Complete Dinosaur, 3rd Edition*.
- **Canoville A**, Laurin M, Ricqlès A de. Early amniotes and their close relatives. 2021. *In* Buffrénil V de, Padian K, Zylberberg L, Ricqlès A de, eds. *Vertebrate Skeletal Histology and Paleohistology*. CRC Press, pp. 363-384.
- **Canoville A**, Buffrénil V de, Laurin M. Bone microanatomy and lifestyle in tetrapods. 2021. *In* Buffrénil V de, Padian K, Zylberberg L, Ricqlès A de, eds. *Vertebrate Skeletal Histology and Paleohistology*. CRC Press, pp. 724-743.
- Houssaye A, Davesne D, **Canoville A**. 2021. A methodological renaissance to advance perennial issues in vertebrate paleohistology. *In* Buffrénil V de, Padian K, Zylberberg L, Ricqlès A de, eds. *Vertebrate Skeletal Histology and Paleohistology*. CRC Press, pp. 793-798.
- Yang TR, **Canoville A**. 2021. Fossilization of Reproduction-Related Hard and Soft Tissues and Structures in Non-Avian Dinosaurs and Birds. *In* Gee CT, McCoy VE, Sander PM, eds. *Fossilization: Understanding the Material Nature of Ancient Plants and Animals*. JHU Press, pp. 55-72.

### Special Invited Volume

- Zanno LE, Tucker RT, **Canoville A**, Avrahami HM, Gates TA, Makovicky PJ. 2022. *Moros intrepidus*: a tiny “tyrant king” fills a royal gap in the fossil record. *JFundamental!* 34, 1–54.

### Edited conference abstract book

- Beata P, Ahmed S, **Canoville A**. 2019. Program and Abstract Book. *8<sup>th</sup> Annual NC State University Postdoctoral Research Symposium*. May 31, 2019, Raleigh, USA.
- **Canoville A**, Mitchell J, Stein K, Konietzko-Meier D, Teschner E, v. Heteren A, Sander PM. 2015. Program and Abstract Book. *3rd International Symposium on Paleohistology*. July 2-5, 2015. Bonn, Germany. University of Bonn, <http://bonn2015.isph.org/wp-content/uploads/2015/06/ISPH-PROGRAM-and-ABSTRACT-BOOK.pdf>

### Data repositories

- **Canoville A**, Zanno LE, Zheng W, Schweitzer MH. 2020. Keratan sulfate as a marker for medullary bone in fossil vertebrates. MorphoSource repository, project # P1053. <https://www.morphosource.org/projects/0000c1053#about>
  - **Canoville A**, Schweitzer MH, Zanno LE. 2019. Data from: Identifying medullary bone in extinct avemetatarsalians: challenges, implications, and perspectives. MorphoSource repository, project # P873. <https://www.morphosource.org/projects/00000C873#about>
  - **Canoville A**, Schweitzer MH, Zanno LE. 2018. Data from: Systemic distribution of medullary bone in the avian skeleton: ground truthing criteria for the identification of reproductive tissues in extinct Avemetatarsalia. MorphoSource repository, project # P640. <https://www.morphosource.org/projects/00000C640#about>
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## AWARDS

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### 2020

- NCSU Analytical Instrumentation Facility's Best Paper Award (for Canoville et al., 2020)
- Eighteenth International Award in Palaeontological Research - Paleontology 20 (for Zanno et al., 2019)

### 2019

- American Ornithological Society Student and Postdoctoral Research Awards (1666 USD)
- American Ornithological Society Travel Award (250 USD)

### 2018

- NCSU Professional Development Award for Postdocs (900 USD)
- NCSU Travel Award for Postdocs and House Officers from the Office of Postdoctoral Affairs and the Graduate School (500 USD)

2013 - Transmitting Science Grant (250 €)

2012 - UCT and Claude Leon Foundation Travel Grant (15 300 ZAR)

2011 - UCT Conference and Travel Grant (19 650 ZAR)

## GRANT & FELLOWSHIPS

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2022 - 12x8h shifts of beam time at the European Synchrotron Radiation Facility (ESRF); Project # LS-3176: '*A synchrotron-based multidisciplinary approach to investigate the origin and early evolution of fossoriality*' (PI Canoville A, co-PIs Fröbisch J, Marchetti L, MacsDougall M, Jannel A)

2020 & 2021 - Beam time at the Stanford Synchrotron Radiation Lightsource (SSRL); Project #5643: '*Testing New Approaches to Clearly Characterized Medullary Bone in Birds and Unambiguously Diagnose Reproductive Bone Tissue in Dinosaurs*' (estimated financial equivalent 2X \$480,000; PIs Anne J, Canoville A, w/Co-PIs Zanno L, Schweitzer M, Edwards N, and Van Veelen A)

2018-2019 - Brimley Postdoctoral Fellowship, North Carolina Museum of Natural Sciences, Raleigh NC

2016-2020 - National Science Foundation EAGER grant # 1552328, USA (postdoctoral fellowship)

2016 - Stipendium Maria-von-Linden, University of Bonn, Germany (4500 €)

2014-2016 - Postdoctoral fellowship from the Alexander von Humboldt Foundation (63 600 € + 19200 € for travel and research equipment)

2014 - Language fellowship from the Alexander von Humboldt Foundation (1220 €)

2013 - Postdoctoral fellowship from the Biological Sciences Department, University of Cape Town, South Africa (60 000 ZAR)

2011-2012 - Postdoctoral fellowship from the Claude Leon Foundation (350 000 ZAR)

2007-2010 - Doctoral Grant from the French Ministry of Research (57 600 €)

2006-2007 - Scholarship on academic criteria to support Masters studies (CNOUS-CROUS, 4000 €).

## TEACHING EXPERIENCES

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### Humboldt University & Museum für Naturkunde, Berlin, Germany

- *Short Course on bone (Paleo)histology* - Principal Instructor (05/2022 & 02/2023 - postgrad students; faculty)

## **NC State University and NC Museum of Natural Sciences, Raleigh NC, USA**

- *BIO 181 Introductory Biology: Ecology, Evolution & Biodiversity* – Principal Instructor (Fall 2020-Spring & Summer 2021 – undergrad students).
- *Archosaurian Anatomy* - Guest Lecturer on *Bone Tissues* (2020 – under/postgrad students)
- *Short Course on bone (Paleo)histology & Workshop on Petrographic thin-sections* - Principal Instructor (2019 - under/postgrad students; faculty)

## **University of Bonn, Germany**

- *Short Course on bone (Paleo)histology: Bone microanatomy, secondary aquatic adaptations, non-destructive techniques to study bone tissues (micro-CT, synchrotron)* - Principal Instructor (2016 – postgrads)
- *Vertebrate Paleontology I: Origin and diversification of amniotes / marine reptiles (OEP 35)*- Principal Instructor (2015, 2014 – postgrads)
- *Vertebrate Paleontology I: Non-mammalian synapsids (Pelycosauria, Therapsida) (OEP 35)*- Principal Instructor (2015 – postgrads)
- *Vertebrate Paleontology: Early amniotes (M60)* - Principal Instructor (2015 – postgrads)
- *Fossil Hard Tissue Histology: Bone microanatomy and paleobiological inferences/ new techniques used in paleohistology (micro-CT, synchrotron) (M63)* - Principal Instructor (2015 – postgrads)

## **University of Cape Town, South Africa**

- *Honours Palaeobiology Module (BIO 4000W)* – Co-Principal Instructor (2011-2013 – Honours)
- *Cell Biology Practical (BIO 1000F)* – Teaching Assistant (2013 – undergrads)

## **OUTREACH EXPERIENCES**

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### **Stiftung Schloss Friedenstein Gotha, Gotha, Germany**

- *Science Live: 'Sampling 290 Myo-specimens from the Bromacker Locality'* – (02/2022)
- Official opening event of the exhibit: *'Bromacker Lab – Discovering Prehistoric Times'*

### **NC Museum of Natural Sciences, Raleigh NC, USA**

- *Girls in Science* – Guest Speaker: *'The Life of a Paleontologist'* (2021)
- *Adult Nights: Wild Love* (2020)
- *Girls in Science* - Guest Speaker: *'The Life of a Paleontologist'* (2018)
- *Adult Nights: Throwback Thursday 90's* (2017)

### **NC State University, Raleigh NC, USA**

- *State of the Sciences: Live!* at the Library (2018, 2017)
- *Postdoc Pop Talks* - visually immersive research talk (2018)

### **North Carolina, USA**

- Invited speaker for Chapel Hill Bird Club: *'Can we determine the sex of dinosaurs by looking into their bones?'* (2017, Chapel Hill)
- *STEM goes RED* (2017, SAS Executive Briefing Center, Cary)

### **South Africa**

- Public lecture at West Coast Fossil Park: *'Origin and evolution of birds (living dinosaurs – the deep origins of birds'* (2013, Langebaan)
  - Public Lecture for Cape Bird Club courses: *'Origin and evolution of birds (living dinosaurs – the deep origins of birds'* (2012, Cape Town)
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## STUDENT SUPERVISION & MENTORING

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### Professional development

- **2020 – present:** Mentoring of Rebekah RHODES, PhD Student of *Paleo3 Research Group*, NCSU (as part of the joint *Paleosciences Peer Mentoring Program*, NC State University, USA & Stellenbosch University, South Africa).
- **2021 – 2022:** Mentoring of Silvia KOLOMAZNIK Masters Student, Friedrich Schiller University of Jena (on bone (paleo)histological techniques).
- **Since 2011:** Training of students and colleagues on thin-sectioning protocols and bone histological interpretations.

### Research projects

**2022 – present** – Saskia NIEKE, Masters student (Humboldt University of Berlin, Germany).

- *'Paleobiological and biomechanical investigations of the first hypothesized arboreal anomodont Suminia getmanovi (Upper Permian of Russia) by means of bone microstructural analysis'*

**2022 – present** – Rebecca LELLAU, Masters student (Friedrich Schiller University of Jena, Germany).

- In co-supervision with P. FRENZEL, PhD.
- *'Isotopic and chemical analyses of the bones of different tetrapods recovered from the Early Permian Bromacker Locality of Germany'*

**2015** – Kayleigh WIERSMA, Masters student (University of Bonn, Germany).

- In co-supervision with M. SANDER, PhD.
- *'Histology of the sauropod long bones from the Howe-Stephens Quarry (Morrison Formation, Wyoming): testing hypotheses of skeletal unity'* (Wiersma-Weyand et al., 2021)

**2013** – Vidushi DABEE, 4<sup>th</sup> year Honours student (Biological Sciences Department, University of Cape Town, South Africa).

- In co-supervision with A. CHINSAMY-TURAN, PhD.
- *'Biological interpretations from long bone microstructure of marine birds'*

**2011** – Tobias NASTERLACK, 4<sup>th</sup> year Honours student (Biological Sciences Department, University of Cape Town, South Africa)

- In co-supervision with A. CHINSAMY-TURAN, PhD.
- *'New insights into the biology of the Permian genus Cistecephalus (Therapsida, Dicynodontia)'* (Nasterlack et al., 2012)

## FIELD EXPERIENCES

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**2022** – Excavation of Early Permian plant, invertebrate, and vertebrate remains from the Bromacker Locality, Tambach Formation (Thüringia, Germany)

**2019** - Fieldwork in the Upper Cretaceous of the Hell Creek Formation (Montana, USA)

**2018** - Excavation of Cretaceous vertebrates from the Moreno Hill and Menefee Formations (New Mexico, USA)

**2017** - Excavation of a Triassic dicynodont (North Carolina, USA)

- Excavation of *Falcarius* specimens from the Cretaceous Cedar Mountain Formation (Utah, USA)
- Excavation of Cretaceous vertebrates from the Moreno Hill and Menefee Formations (New Mexico, USA)

**2015** - Excavation of Triassic marine reptiles from the Favret Formation (Nevada, USA)

**2011** - Excavation of Lower Cretaceous dinosaur remains from the Kirkwood Formation (Eastern Cape, South Africa)

**2006** - Excavation of an Upper Cretaceous *Ampelosaurus atacis* skeleton from the Marnes Rouges Inférieures Formation (Campagne sur Aude, France)



**2005-2006** - Excavation of Upper Jurassic pterosaur, theropod, and crocodylian trackways (La Plage aux Ptérosaures, Crayssac, Lot, France)

## CONGRESS PARTICIPATION

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### 2022

- **Canoville A.** Preliminary paleohistological investigation of *Dimetrodon teutonis* from the Bromacker Locality of Germany. *82nd Annual Meeting of the Society of Vertebrate Paleontology* (November 2-5, Toronto, Canada). **Oral Communication**
- **Canoville A.** First bone microstructural observations of *Dimetrodon teutonis* from the Bromacker Locality of Germany. *6th International Symposium on Paleohistology* (March 22-24, Virtual). **Oral Communication**

### 2021

- **Canoville A,** Schweitzer MH, Zanno LE. Reevaluating purported medullary bone in select non-avian dinosaurs. *81th Annual Meeting of the Society of Vertebrate Paleontology* (November 1-5, Virtual). **Oral Communication**
- Beguesse KA, **Canoville A,** Hyland E, Walker C, Zanno, LE. A novel approach for discriminating medullary from pathologic bone in extant and extinct archosaurs. *81th Annual Meeting of the Society of Vertebrate Paleontology* (November 1-5, Virtual). **Oral Communication**

### 2020

- **Canoville A,** Zheng W, Zanno LE, Schweitzer MH. Can keratan sulfate be used to discriminate medullary bone in non-avian dinosaurs? *80th Annual Meeting of the Society of Vertebrate Paleontology* (October 12-16, Virtual). **Oral Communication**

### 2019

- **Canoville A,** Schweitzer M, Zanno L. Do female penguins resort to medullary bone as a source of calcium for the eggshell? *79th Annual Meeting of the Society of Vertebrate Paleontology* (October 9-12, Brisbane, Australia). **Oral Communication**
- Beguesse KA, **Canoville A,** Herzog LL, Zanno L. Bone pathologies in the early Cretaceous therizinosaurian *Falcarius utahensis*. *79th Annual Meeting of the Society of Vertebrate Paleontology* (October 9-12, Brisbane, Australia). **Poster**
- **Canoville A,** Schweitzer M, Zanno L. Identifying medullary bone in extinct Avemetatarsalia: implications, challenges, and perspectives. *VIII International Symposium on Dinosaur Eggs & Babies* (August 17-22, Shiyang City, China). **Keynote Presentation**
- **Canoville A,** Schweitzer M, Zanno L. Skeletal distribution of medullary bone in Neornithes - implications for the identification of reproductive tissues in extinct Avemetatarsalia. *International Symposium of Palaeohistology* (July 31-August 1, Cape Town, South Africa). **Oral Communication**
- **Canoville A,** Schweitzer M, Zanno L. Do female penguins deposit medullary bone? *International Symposium of Palaeohistology* (July 31-August 1, Cape Town, South Africa). **Oral Communication**
- **Canoville A,** Schweitzer M, Zanno L. Skeletal distribution of medullary bone in Neornithes - implications for the identification of reproductive tissues in extinct Avemetatarsalia. *International Congress of Vertebrate Morphology* (July 21-25, Prague, Czech Republic). **Poster**
- **Canoville A,** Schweitzer M, Zanno L. Do female penguins deposit medullary bone? *International Congress of Vertebrate Morphology* (July 21-25, Prague, Czech Republic). **Oral Communication**
- **Canoville A,** Schweitzer M, Zanno L. Skeletal distribution of medullary bone in Neornithes - implications for the identification of reproductive tissues in non-avian dinosaurs. *AOS 2019 Annual Conference* (June 24-28, Anchorage, Alaska, USA). **Oral Communication**



## 2018

- **Canoville A**, Schweitzer M, Zanno L. New data on the skeletal distribution of medullary bone in Neornithes – paleobiological implications. *78th Annual Meeting of the Society of Vertebrate Paleontology* (October 17-20, Albuquerque, USA). **Oral Communication**
- Kosch JC, **Canoville A**, Zanno LE. Assessing methodological biases on tooth-age and dentin deposition rate estimates in extinct taxa: a study on *Alligator mississippiensis*. *78th Annual Meeting of the Society of Vertebrate Paleontology* (October 17-20, Albuquerque, USA). **Poster**
- Zanno L, Gates TA, **Canoville A**, Tucker A, Avrahami HM, Makovicky PJ. A diminutive tyrannosauroid from the dawn of the Late Cretaceous in North America. *78th Annual Meeting of the Society of Vertebrate Paleontology* (October 17-20, Albuquerque, USA). **Poster**
- **Canoville A**, Zanno L, Schweitzer M. New data on avian medullary bone – implications for the identification of homologous tissues in extinct archosaurs. *GeoBonn* (September 2-6, Bonn, Germany). **Oral Communication**
- **Canoville A**, Schweitzer M, Zanno L. Microstructure, chemistry, and skeletal distribution of medullary bone in Neornithes. *II Joint Congress on Evolutionary Biology* (August 19-22, Montpellier, France). **Poster**
- **Canoville A**, Zanno L, Zheng W, Schweitzer M. New data on the skeletal distribution, microstructure, and chemistry of medullary bone in Neornithes – Paleobiological implications. *5th International Palaeontological Congress* (July 9-13, Paris, France). **Oral Communication**
- Houssaye A, **Canoville A**, Klein N. Uncommon vertebral histological and microanatomical features in sauropterygians. *5th International Palaeontological Congress* (July 9-13, Paris, France).
- **Canoville A**. New data on avian medullary bone – paleobiological implications. *Postdoctoral Research Symposium* (May 25, NCSU Raleigh, NC, USA). **Poster**
- Klein N, **Canoville A**, Houssaye A. Osteosclerotic rib and vertebral microanatomy of Triassic Sauropterygia. *Arbeitskreis Wirbeltierpaläontologie* (2018, Germany). **Poster**

## 2017

- **Canoville A**, Schweitzer Mary H, Zanno L. Microstructural and chemical characterization of medullary bone across the bird phylogeny. *The Palaeontological Association 61st Annual Meeting* (December 17 – 19, London, United Kingdom). **Poster**
- **Canoville A**, Yang T-R, Zanno L, Zheng W, Schweitzer Mary H. Paleohistology of a gravid oviraptorosaurian dinosaur from the Upper Cretaceous Nanxiong Formation, China, with an enigmatic endosteal tissue. *77th Annual Meeting of the Society of Vertebrate Paleontology* (August 23 – 26, Calgary, Canada). **Oral Communication**
- Amson E, Arnold P, Van Heteren AH, **Canoville A**, Nyakatura JA. Trabecular architecture in the xenarthran (Mammalia) forelimb epiphyses. *4th International Symposium on Paleohistology* (July 10-12, Trenton, New Jersey, USA). **Oral Communication**

## 2016

- Wiersma K, **Canoville A**, Siber H, Tschopp E, Sander MP. Testing hypotheses of skeletal unity in sauropod remains from the Howe-Stephens Quarry (Morrison Formation, Wyoming, USA) using long bone histology. *76th Annual Meeting of the Society of Vertebrate Paleontology* (October 26 – 29, Salt Lake City, USA). **Poster**
- Chinsamy A, Angst D, **Canoville A**, Göhlich UB. Bone histology and biology of the giant insular extinct bird, *Aepyornis maximus*. *9th International Meeting of the Society of Avian Paleontology and Evolution* (August 1 – 5, Diamante, Argentina). **Oral Communication**
- **Canoville A**, Chinsamy A. Palaeobiological implications of the bone microstructure of pareiasaurs (Parareptilia) from the Karoo Basin, South Africa. *19th biennial meeting of the Palaeontological Society of Southern Africa* (July 4 – 9, Stellenbosch, South Africa). **Oral Communication**
- **Canoville A**, de Buffrénil V, Laurin M. Microanatomical diversity of amniote ribs. *19th biennial meeting of the Palaeontological Society of Southern Africa* (July 4 – 9, Stellenbosch, South Africa). **Poster**

- **Canoville A**, de Buffrénil V, Laurin M. Microanatomical diversity of amniote ribs: an exploratory quantitative study. *11<sup>th</sup> International Congress of Vertebrate Morphology* (June 29 – July 3, Washington DC, USA). **Oral Communication**
- **Canoville A**, de Buffrénil. Ontogenetic development and intraspecific variability of bone microstructure in the king penguin *Aptenodytes patagonicus*: considerations for paleoecological inferences in Sphenisciformes. For the Symposium *Functional (secondary) adaptation to an aquatic life in vertebrates*. *11<sup>th</sup> International Congress of Vertebrate Morphology* (June 29 – July 3, Washington DC, USA). **Poster**
- **Canoville A**, de Buffrénil V, Laurin M. Microanatomical diversity of amniote ribs, with considerations on the relevance of paleoecological inferences. *Arbeitskreis Wirbeltierpaläontologie* (March 11-13, Thallichtenberg, Germany). **Poster**
- **Canoville A**, de Buffrénil V. Ontogenetic development and intraspecific variability of bone microstructure in the king penguin *Aptenodytes patagonicus*, with considerations for paleoecological inferences. *3<sup>rd</sup> Young Natural History scientists Meeting* (February 2-6, Paris, France). **Oral Communication**
- **Canoville A**, de Buffrénil V, Laurin M. Microanatomical diversity of amniote ribs: an exploratory study. *3<sup>rd</sup> Young Natural History scientists Meeting* (February 2-6, Paris, France). **Poster**

## 2015

- **Canoville A**, de Buffrénil V. Ontogenetic development and intraspecific variability of bone microstructure in penguins, with considerations for paleoecological inferences. *Society of Vertebrate Paleontology 75th Annual Meeting* (October 14–17, Dallas, USA). **Poster**
- Laurin M, **Canoville A**, Struble M, Organ C, de Buffrénil V. Early genome size increase in urodeles. *13<sup>th</sup> Annual Meeting of the European Association of Vertebrate Palaeontologists* (July 8-12, Opole, Poland). **Oral Communication**.
- **Canoville A**, Buffrénil V de. Ontogenetic development of the king penguin *Aptenodytes patagonicus* bone microstructure in relation to its aquatic adaptation, and considerations for paleoecological inferences. *13<sup>th</sup> Annual Meeting of the European Association of Vertebrate Palaeontologists* (July 8-12, Opole, Poland). **Poster**
- **Canoville A**, Laurin M, Buffrénil V de. Microanatomical diversity of the ribs of amniotes and considerations for paleoecological inferences. *3<sup>rd</sup> International Symposium on Paleohistology* (July 2-5, University of Bonn, Germany). **Oral Communication**

## 2014

- **Canoville A**, Thomas DB, Chinsamy A. Insights into the paleobiology of Middle Permian pareiasaurs from stable isotope analysis and bone microstructure. *Society of Vertebrate Paleontology 74th Annual Meeting* (November 5–8, Berlin, Germany). **Poster**
- **Canoville A**, Thomas DB, Chinsamy A. 2014. Habitat preference of Middle Permian pareiasaurs inferred from preliminary isotopic analyses. *Third International Congress of Respiratory Science* (July 6–10, Bad Honnef, Germany). **Oral Communication**
- Buffrénil V de, **Canoville A**, Evans SE, Laurin M. 2014. Histologie des plus anciens urodèles connus: implications paléobiologiques. *Congrès Annuel de l'Association Paléontologique Française - APF* (May 14–17, Paris, France). **Oral Communication**

## 2013

- **Canoville A**, Chinsamy A. Paleobiology of the diverse Permian Pareiasaurs from the Karoo Basin, South Africa. *Biodiversity Southern Africa Conference* (December 2-7, University of Cape Town, South Africa). **Poster**
- **Canoville A**, Chinsamy A. Bone microstructure provides new evidence for terrestrial lifestyle adaptations for the Lower Triassic stereospondyl *Lydekkerina* (Tetrapoda: Temnospondyli). *Society of Vertebrate Paleontology 73rd Annual Meeting* (October 30- November 2, Los Angeles, USA). **Poster**
- **Canoville A**, Chinsamy A. Bone microstructure provides new evidence for terrestrial lifestyle adaptations for the Lower Triassic stereospondyl *Lydekkerina* (Tetrapoda: Temnospondyli). *11<sup>th</sup>*

*European Association of Vertebrate Palaeontologists meeting* (June 11 – 15, Villers-sur-Mer, France).

#### **Oral Communication**

- Chinsamy A, Buffetaut E, **Canoville A**, Angst D. Insight into the growth dynamics of the Late Cretaceous bird *Gargantuavis* from bone histology. *11<sup>th</sup> European Association of Vertebrate Palaeontologists meeting* (June 11 – 15, Villers-sur-Mer, France). **Oral communication**

#### **2012**

- **Canoville A**, Chinsamy A. Habitat use and paleobiology of the Karoo tetrapod fauna across the Permo-Triassic extinction event. *Health Sciences Postdoctoral Association – Postdoctoral Research Day* (November 2, University of Cape Town, South Africa). **Poster**
- **Canoville A**, Chinsamy A. Palaeobiology of the Lower Triassic stereospondyl *Lydekkerina* (Amphibia, Temnospondyli) inferred from long bone histology and microanatomy. *Palaeontological Society of Southern Africa, Biennial Conference* (September 5-8, University of Cape Town, South Africa). **Oral Communication**
- **Canoville A**, Chinsamy A, Buffrénil V de. Aquatic adaptations and long bone microanatomy and histology of marine birds. *Society of Avian Paleontology and Evolution, 8th International Meeting* (June 11-16, Vienna, Natural History Museum, Austria). **Oral Communication**

#### **2011**

- **Canoville A**, Chinsamy-Turan A. Paleobiology of Pareiasaurs (Parareptilia, Pareiasauridae) inferred from long bone histology and microanatomy. *First International Symposium of Paleohistology* (July 18–20, Institut Català de Paleontologia, Barcelona). **Oral Communication**
- **Canoville A**, Chinsamy-Turan A. Growth patterns and paleoecology of Pareiasaurs (Parareptilia, Pareiasauridae) inferred from long bone histology and microanatomy. *Society of Vertebrate Paleontology 71st Annual Meeting* (November 2–5, Las Vegas, NV, USA). **Poster**

#### **2010**

- **Canoville A**, de Buffrénil V. How sea cows acquired their skeletal ballast: pachyostosis and osteosclerosis in the evolutionary history of sirenians. *International Meeting, "Perspectives on Vertebrate Evolution: Topics and Problems", to celebrate the retirement of Pr. Armand de Ricqlès* (June 14–16, Collège de France, Paris, France). **Oral Communication**
- Laurin M, **Canoville A**. Bone microanatomy, habitat use in extant tetrapods, and the move onto land: a progress report. *International Meeting, "Perspectives on Vertebrate Evolution: Topics and Problems", to celebrate the retirement of Pr. Armand de Ricqlès* (June 14–16, Collège de France, Paris, France). **Oral Communication**
- **Canoville A**, Domning D, d'Anastasio R, Buffrénil V de. *How sea cows acquired their skeletal ballast: pachyostosis and osteosclerosis in the evolutionary history of sirenians. Third International Palaeontological Congress* (June 28– July 3, London, United Kingdom). **Poster**

### **SERVICE TO PROFESSION**

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#### **Local organization committee for international conferences**

**2019** - *8<sup>th</sup> Annual Postdoctoral Research Symposium* (NC State University, Raleigh, USA)

**2015** - *3<sup>rd</sup> International Symposium on Paleohistology* (University of Bonn, Germany) – **Co-chair organizer** (<http://bonn2015.isph.org>).

**2013** - *Biodiversity Southern Africa Conference* (University of Cape Town, South Africa)

**2012**- *Palaeontological Society of Southern Africa, Biennial Conference* (University of Cape Town, South Africa)

**2010** - *International Meeting, "Perspectives on Vertebrate Evolution: Topics and Problems", to celebrate the retirement of Pr. Armand de Ricqlès* (Collège de France, Paris, France)

**2007** - *8th International Congress of Vertebrate Morphology* (Paris, France)

**2004** - *First international phylogenetic nomenclature meeting* (Paris, France)

**Reviewer for Scientific journals:**

- Member of the editorial board of the *Comptes Rendus Palevol* since 2015
- Reviewer of several manuscripts per year since 2011

**Review board of two Master's theses:**

- Jasmina WIEMANN, University of Bonn, Germany, 2016 (*'From white to black: are staining Maillard reaction products the key to ancient protein preservation'*)
- Kayleigh WIERSMA, University of Bonn, Germany, 2015 (*'Histology of the sauropod long bones from the Howe-Stephens Quarry (Morrison Formation, Wyoming): testing hypotheses of skeletal unity'*)

**Reviewer from funding agencies:**

- The Swiss National Science Foundation
- The National Science Center, Poland

**UNIVERSITY SERVICES**

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**2018 – 2021** - Active member of the *Postdoctoral Association of the North Carolina State University*, Raleigh, USA (Chair of the Community Building Committee)

**ADDITIONAL INFORMATION & SKILLS**

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- **Languages:** French (mother tongue)  
English (fluent)  
German (B1 level)
- **Histological techniques:** Petrographic thin-sections, paraffin thin-sections, ultra thin-sections, microradiography, bone core drilling
- **Histochemical techniques:** chemical staining, immunohistochemistry (fluorescence and immunogold)
- **Proficiency in using micro/nano-CT scanners:** GEphoenix|X-rayv|tome|xs|240; Nikon XTH 225 ST; Zeiss Xradia 510 Versa microscope
- **Technical experience in:** photogrammetry, elemental analyses/chemical mapping (SEM-EDS; Synchrotron XRF & XAS)
- **Graphic, 3D reconstruction and other analytical software:** Adobe Photoshop, Adobe Illustrator, VG Studio Max, Avizo, Mesquite, ImageJ, and Bone Profiler
- **Scientific illustration:** Camera Lucida technique
- **Online learning platforms:** Moodle, Top Hat