# Keegan R. Selig, PhD

(he/him/his)

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#### **Current Employment:**

Assistant Professor, Department of Anthropology, Texas A&M University, 2025-Present

#### **Past Employment:**

Assistant Research Professor, Department of Evolutionary Anthropology, Duke University, 2022-2025

**Kalbfleisch Postdoctoral Fellow**, Richard Gilder Graduate School, Division of Paleontology, American Museum of Natural History, 2021-2022

#### **Education:**

PhD, Anthropology, University of Toronto- 2021
Master of Arts, Anthropology, University of Toronto- 2017
Bachelor of Arts, First class honors, anthropology major, sociology minor, University of Alberta- 2015

#### **Peer-Reviewed Publications:**

- 26. K.R. Selig, R.L. Poutre, S.B.G. Chester, E.J. Sargis, D.M. Boyer. Additional morphological evidence for taxonomic diversity in the Pen-Tailed Treeshrew (*Ptilocercus*, Scandentia). <u>2025</u>. *Journal of Mammalogy*. <u>https://doi.org/10.1093/jmammal/gyaf022</u>
- 25. K.R. Selig, P.E. Morse, J.D. Pampush, R.F. Kay. Dental wear and its effect on molar pulp volume reduction in *Macaca fascicularis*. <u>2025</u>. *American Journal of Biological Anthropology*. <u>https://doi.org/10.1002/ajpa.70035</u>
- A.H. Meares, K.R. Selig. <u>2025.</u> Molar development and loss of the hypoconulid in treeshrews (Scandentia). *Journal of Mammalian Evolution*. <u>https://doi.org/10.1007/s10914-025-09748-5</u>.
- 23. K.R. Selig, S. López-Torres, A.M. Burrows, M.T. Silcox. <u>2024</u>. Dental topographic analysis of living and fossil lorisoids: investigations into markers of exudate feeding in lorises and galagos. *International Journal of Primatology*. https://doi.org/10.1007/s10764-024-00433-7

- K.R. Selig, S. López-Torres, A.M. Burrows, M.T. Silcox, J. Meng. <u>2024</u>. Dental caries in living and extinct strepsirrhines with insight into diet and health. *The Anatomical Record*. https://doi.org/10.1002/ar.25420
- 21. M.T. Silcox, K.R. Selig, T.E. Williamson, M.A. Schillaci. <u>In Review</u>. A new genus and species of notharctine (Adapoidea, Primates) from the early Eocene of the San Juan Basin, New Mexico. *Journal of Human Evolution*.
- K.R. Selig. <u>2024</u>. Hypoconulid loss in cercopithecins: Functional and developmental considerations. *Journal of Human Evolution*. 184, 103479.
- K.R. Selig, M.S. Ramsay, R. Lahosky, L. Schroeder, M.T. Silcox. <u>2024</u>. Variation in dental morphology as a signal for dietary breadth in primates and their kin. *Journal of Mammalogy*. https://doi.org/10.1093/jmammal/gyae015
- 18. **K.R. Selig**. <u>2023</u>. Form, function, and tissue proportions of the mustelid carnassial molar. *Mammal Research*. 68, 637–646.
- 17. **K.R. Selig,** M.T. Silcox. <u>2022</u>. Measuring Molarization: Change through time in premolar function in an extinct stem primate lineage. *Journal of Mammalian Evolution*. https://doi.org/10.1007/s10914-022-09623-7.
- 16. R.K. Sehgal, A.P. Singh, C.C. Gilbert, B. A. Patel, C.J. Campisano, K.R. Selig, R. Patnaik, N. P. Singh. <u>2022</u>. A new treeshrew and other micromammals from the middle Miocene hominoid locality of Ramnagar, Udhampur Ddistrict, Jammu and Kashmir, India. *Journal of Paleontology*.
- K.R. Selig, L. Schroeder, M.T. Silcox. <u>2021</u>. Intraspecific variation of the molar topography of the Early Eocene stem primate *Microsyops latidens* (Mammalia, ?Primates). *Journal of Vertebrate Palaeontology*. e1995738.
- K.R. Selig, M.T. Silcox. <u>2021</u>. The largest and earliest known sample of dental caries in an extinct mammal (Mammalia, Euarchonta, *Microsyops latidens*) and its ecological implications. *Scientific Reports*. 11, 15920.
- K.R. Selig, A. E. Chew, M.T. Silcox. <u>2021</u>. Dietary shifts in a group of Early Eocene euarchontans (Microsyopidae) in association with climatic change. *Palaeontology*. 64, 609-628.
- 12. **K.R. Selig**, W. Khalid, M.T. Silcox. <u>2021</u>. Mammalian molar complexity follows simple, predictable patterns. *Proceedings of the National Academy of Sciences*. 118 (1) e2008850118.
- K.R. Selig, K. Kupczik, M.T. Silcox. <u>2021</u>. Brief Communication: The effect of high wear diets on the relative pulp volume of the lower molars. *American Journal of Physical Anthropology*. 174:804–811.
- M.T. Silcox, K.R. Selig, T.M. Bown, A.E. Chew, K.D. Rose. <u>2021</u>. Cladogenesis and replacement in the fossil record of Microsyopidae (?Primates) from the southern Bighorn Basin, Wyoming. *Biology Letters*. 17: 20200824.
- 9. **K.R. Selig**, E.J. Sargis, S.G.B. Chester, and M.T. Silcox. <u>2020</u>. Using three-dimensional geometric morphometric and dental topographic analyses to reconstruct the systematics

and paleoecology of fossil treeshrews (Scandentia). *Journal of Paleontology*. DOI: 10.1017/jpa.2020.36

- S. López-Torres, K.R. Selig, A.M. Burrows, M.T. Silcox. <u>2020</u>. The toothcomb of *Karanisia clarki* – Was this species an exudate-feeder? In: Evolution, Ecology, and Conservation of Lorises and Pottos (K.A.I. Nekaris and A.M. Burrows, Eds.) pp 67—75. Cambridge University Press.
- A.M Burrows, L.T. Nash, A. Hartstone-Rose, K.R. Selig, M.T. Silcox, S. López-Torres. 2020. What role did gum-feeding play in the evolution of the lorises? In: Evolution, Ecology, and Conservation of Lorises and Pottos (K.A.I. Nekaris and A.M. Burrows, Eds.) pp. 153—161. Cambridge University Press.
- K.R. Selig, E.J. Sargis, M.T. Silcox. <u>2019</u>. The frugivorous insectivores? Functional morphological analysis of molar topography for inferring diet in extant treeshrews (Scandentia). *Journal of Mammalogy*. 100(6):1901–1917.
- K.R. Selig, S. López-Torres, A. Hartstone-Rose, L.T. Nash, A.M. Burrows, M.T. Silcox. 2019. A novel method for assessing enamel thickness distribution in the anterior dentition as a signal for gouging and other extractive foraging behaviors in gummivorous mammals. *Folia Primatologica*. 91:365–384.
- 4. **K.R. Selig**, E.J. Sargis, M.T. Silcox. <u>2019</u>. Three-dimensional geometric morphometric analysis of treeshrew (Scandentia) lower molars: Insight into dental variation and systematics. *The Anatomical Record*. 302: 1154–1168.
- A.M. Burrows, L.T. Nash, A. Hartstone-Rose, M.T. Silcox, S. López-Torres, K.R. Selig. 2019. Dental signatures for exudativory in living primates, with comparisons to other gouging mammals. *The Anatomical Record*. 303:265–281.
- K.R. Selig, S. López-Torres, E.J. Sargis, M.T. Silcox. <u>2019</u>. First 3D dental topographic analysis of the enamel-dentine junction in non-primate euarchontans: Contribution of the enamel-dentine junction to molar morphology. *Journal of Mammalian Evolution*. 26: 587–598.
- 1. S. López-Torres, **K.R. Selig**, K.A. Prufrock, M.T. Silcox. <u>2018</u>. Dental topographic analysis of paromomyid (Plesiadapiformes, Primates) cheek teeth: More than 15 million years of changing surfaces and shifting ecologies. *Historical Biology*. 30:76–88.

## **Publications in Preparation:**

1. K.R. Selig, S. López-Torres, C.J. Law, A.M. Burrows, M.T. Silcox. The evolution and development of molar size among exudate-feeding lorises and galagos.

## **Presentations:**

1. **K.R. Selig\***, G.S. Yapuncich, P. Lemelin, D.M. Boyer. <u>2025</u>. Developmental bias in the evolution of primate molar and phalanx proportions. Poster presentation presented at the 2025 American Association of Biological Anthropologists meeting, Baltimore, MD.

- 2. **K.R. Selig\***, P.E. Morse, J.D. Pampush, R.F. Kay. <u>2024</u>. Tooth wear has a greater effect on molar pulp volume reduction than aging in *Macaca fascicularis*. Podium presented at the 2024 American Association of Biological Anthropologists meeting, Los Angeles, CA.
- 3. **K.R. Selig\*,** P.E. Morse, J.D. Pampush, R.F. Kay. <u>2023</u>. The effect of wear and age on molar pulp volume in primates. Podium presented at the 2023 International Primatological Society Congress, Kuching, Malaysia, Online.
- M.T. Silcox\*, K.R. Selig, T.E. Williamson, M.A. Schillaci. <u>2023</u>. A new genus and species of notharctine (Adapoidea, Primates) from the early Eocene of the San Juan Basin, New Mexico. Podium presented at the 2023 Society of Vertebrate Paleontologists meeting, Cincinnati, OH.
- M.T. Silcox\*, K.R. Selig, T.E. Williamson, M.A. Schillaci. <u>2023</u>. A new genus and species of notharctine (Adapoidea, Primates) from the early Eocene of the San Juan Basin, New Mexico. Podium presented at the 2023 Paleoanthropology Society of Canada, Online.
- A.M. Burrows\*, C. Law, S. López-Torres, K.R. Selig, M.T. Silcox. <u>2023</u>. Strepsirrhine gum-feeders have short skulls: searching for the evolutionary morphology of gummivory. Podium presentation to be given at the 2023 American Association of Biological Anthropologists meeting, Reno, NV.
- 7. **K.R. Selig**\*, K.R.K. Jäger, B.M. Davis, J. Meng. <u>2022</u>. The development of molar complexity and the evolution of the tribosphenic molar. Poster presented at the 2022 Society of Vertebrate Paleontologists meeting, Toronto, ON.
- 8. A.M. Burrows\*, S. López-Torres, **K.R. Selig**, M.T. Silcox. <u>2022</u>. Lemuroid Teeth vs. Lorisoid Teeth: Different Ways to go for Gums. Poster presentation given at the 2022 American Association of Biological Anthropologists meeting, Denver, CO.
- 9. **K.R. Selig\***, S. López-Torres, A.M. Burrows, M.T. Silcox. <u>2021</u>. Dental topographic analysis of living and fossil lorisoids: a new signal for exudate feeding in lorises and galagos. Podium presented at the 2021 Society of Vertebrate Paleontologists meeting, online.
- 10. **K.R. Selig\***, K. Kupczik, M.T. Silcox. <u>2021</u>. The effect of high wear diets on the relative pulp volume of the lower molars in anthropoid primates. Poster presented at the American Association of Physical Anthropologists meeting, online.
- 11. K.R. Selig\*, S. López-Torres, A.M. Burrows, M.T. Silcox. <u>2022</u>. Diet and molar topography of Lorisoidea: Implications of exudate feeding and for reconstructing the evolutionary history of lorises and galagos. Invited podium presented at the International Primatological Society Congress, Quito, Ecuador, online.
- 12. S. López-Torres\*, K.R. Selig, D.M. Boyer, A.M. Burrows, S.G.B. Chester, T. Smith, M.T. Silcox. <u>2022</u>. Gouging behaviour in stem primates: insights from the distribution of enamel thickness in plesiadapiform incisors. Invited podium presented at the International Primatological Society Congress, Quito, Ecuador, online.

- 13. K.R. Selig\*, M.T. Silcox. <u>2020.</u> Patterns of intraspecific variation in the diet of *Microsyops latidens* (Mammalia, Primates) over time: Insight into ecological and climatic change using dental topographic analysis. Podium presented at the 2020 Society of Vertebrate Paleontologists meeting, online.
- K.R. Selig\*, M.T. Silcox. <u>2020</u>. Identification and Implications of Carious Lesions in a Large Sample of Early Eocene Stem Primates from the Bighorn Basin of Wyoming. Poster presented at the 2020 American Association of Physical Anthropologists meeting, online.
- 15. **K.R. Selig\***, W. Khalid, M.T. Silcox. <u>2019</u>. Complexity of the lower molar row is explained by the inhibitory cascade model and diet within Euarchonta. Podium presented at the 2019 Society of Vertebrate Paleontologists meeting, Brisbane, Australia.
- K.R. Selig\*, M.S. Ramsay, M.T. Silcox. <u>2019</u>. Investigating variation in euarchontan dental topography as a signal of dietary breadth. Podium presented at the 2019 American Association of Physical Anthropologists meeting, Cleveland, OH.
- A.M. Burrows\*, A. Hartstone-Rose, L.T. Nash, M.T. Silcox, K.R. Selig, S. López-Torres. <u>2019</u>. Disappearing enamel and molars – the evolution of a dietary niche focused on gums. Poster presented at the 2019 American Association of Anatomists meeting, Orlando, FL.
- A.M. Burrows\*, A. Hartstone-Rose, L.T. Nash, M.T. Silcox, K.R. Selig, S. López-Torres. <u>2019</u>. The uncertainty of the potto and exudate-feeding in Lorisidae. Podium presented at the 2019 American Association of Physical Anthropologists meeting, Cleveland, OH.
- K.R. Selig, M.T. Silcox\*. <u>2018</u>. Using Three-Dimensional Dental Topographic Analysis to Examine Dietary Change in an Early Group of Eocene Primates; the Microsyopine Microsyopids. Invited Podium Presented at the 2018 Canadian Association for Physical Anthropology, London ON.
- 20. K.R. Selig\*, E.J. Sargis, S.B.G. Chester, M.T. Silcox. <u>2018</u>. Three-Dimensional Geometric Morphometric Analysis of Treeshrew Lower Molars: dental morphology of the extinct *Prodendrogale yunnanica* (Scandentia, Tupaiidae). Poster presented at the Annual Society of Vertebrate Paleontology Meeting, Albuquerque, NM.
- 21. K.R. Selig\*, S. López-Torres, A. Hartstone-Rose, A.M. Burrows, M.T. Silcox. <u>2018</u>. Differential Enamel Thickness in the Anterior Dentition as a Signal for Gouging Behavior. Poster presented at the 2018 American Association of Physical Anthropologists, Austin, TX.
- 22. L. Nagendran\*, G.A. San Martin Flores, M.G.I. Atell, O.B. Bertrand, R. Bhagat, M.M. Lang, S. López-Torres, K.R. Selig, D.L. Ward, B. Viola, M.T. Silcox. <u>2018</u>. New perspectives on cranial form in Euarchontoglires: A geometric morphometric study of primates and their kin. Poster presented at the 2018 American Association of Physical Anthropologists, Austin, TX.

- 23. **K.R. Selig\***, M.T. Silcox. <u>2017</u>. First analysis of stem primate dental pathology: insight into dietary shifts and the frequency of dental caries. Poster presented at the 2017 Canadian Association for Physical Anthropology, Edmonton AB.
- K.R. Selig\*, M.T. Silcox. <u>2017</u>. Inferring diet in treeshrews (Scandentia) based on dental topographic metrics. Poster presented at the 2017 Animal Behaviour Society Meeting, Toronto ON.
- 25. M.S. Ramsay. **K.R. Selig\***, M.T. Silcox. <u>2017</u>. By the scan of our teeth: Using dental topographic analysis to inform behavioral ecology. Poster presented at the 2017 Animal Behaviour Society Meeting, Toronto ON.
- K.R. Selig\*, M.T. Silcox. <u>2017</u>. First 3D dental topographic analysis of the enameldentine junction in non-primate euarchontans: investigating development, diet, and taxonomy. American Journal of Physical Anthropology 162, Issue supplement S64: 353-354.
- S. López-Torres\*, K.A. Prufrock, K.R. Selig, M.T. Silcox. <u>2017</u>. Exploring taxonomic and dietary signals in Paromomyidae (Plesiadapiformes, Primates) using 3D dental topographic metrics. American Journal of Physical Anthropology 162, Issue supplement S64: 266-267.
- 28. S. López-Torres\*, K.A. Prufrock, K.R. Selig, M.T. Silcox. <u>2016</u>. Dental topographic analysis of paromomyid (Plesiadapiformes, Primates) cheek teeth: More than 15 million years of changing surfaces and shifting ecologies. Society of Vertebrate Paleontology 2016 Program and Abstracts: 177. Podium presentation at 2016 Society of Vertebrate Paleontology Meetings, Salt Lake City UT.

\*Denotes Presenting Author

## **Undergraduate Honors Theses:**

- A.M. Meares (2024-2025): *Beyond Traditional DNE: Unraveling the Complexity of Molar Curvature in Primates-* **Primary Advisor**
- J. Voss (2023-2024): *Taxonomy of <u>Australopithecus afarensis</u>: Variance of Diet and Dentition* **Thesis Committee Member**

## **Invited Talks:**

• October 2021— Dental Topographic Analysis of the Microsyopidae (Mammalia, *Plesiadapiformes): Evolution, Dietary Change, and Intraspecific Variation.* New York Consortium in Evolutionary Primatology (NYCEP).

## **Courses Taught:**

Duke University—

- EVANTH101(D).01: Introduction to Evolutionary Anthropology- Spring 2023
- EVANTH333L: The Human Body- Spring 2023, 2024, 2025
- EVANTH 334L.01/02: Human Osteology- Fall 2022, 2023, 2024

University of Toronto Scarborough-

- ANTA01: Introduction to Anthropology: Becoming Human, Online- Summer 2021, Fall 2020, Summer 2020 (two lecture sections)
- ANTA01: Introduction to Anthropology: Becoming Human- Fall 2019, Summer 2019
- ANTD40: Topics in Emerging Scholarship in Evolutionary Anthropology: Dental Evolution, Form, and Function- Fall, 2018

#### **Teaching Assistantships:**

University of Toronto Scarborough-

• ANTA01: Introduction to Anthropology: Becoming Human, ANTB14: Biological Anthropology: Beginnings, ANTC16: The Foundation and Theory of Human Origins, ANTC47: Human and Primate Comparative Osteology, ANTC48: Advanced Topics in Human Osteology, ANTC99: Primate Evolution

#### Fellowships, Awards, and Grants (from 2016 onwards):

- AABA Cobb Professional Development Grant: *The evolution of mammalian bilophodonty*, 2023- \$7,500 USD
- Duke University Arts & Sciences Faculty Research Fund: The evolution of mammalian bilophodonty, 2023- \$4,028.80 USD
- Kalbfleisch Postdoctoral Fellowship, American History Museum of Natural History: 2021—2023- \$119,304 USD (declined in 2<sup>nd</sup> year to take position at Duke University)
- Ontario Graduate Scholarship: 2019—2020, 2020—2021- \$15,000 each year
- Jackson School of Geosciences Student Travel Grant: 2019- \$600.00 USD, Society of Vertebrate Paleontology.
- SGS Research Travel Grant: 2019- \$1,683, University of Toronto, School of Graduate Studies
- C.G. Turner II-Cambridge University Press Award for Outstanding Poster Presentation: 2018- \$150, Dental Anthropology Association
- Pilot Research Grant: 2017- \$3,926, University of Toronto, Dept. of Anthropology
- Graduate Fellowship: From 2015—2019 \$17,500, University of Toronto, Dept. of Anthropology
- SGS Conference Travel Grant: 2017, \$580, University of Toronto, School of Graduate Studies
- UTSC Travel Grant: 2017, 2018, 2019 \$400.00, University of Toronto Scarborough
- Grant in Aid of Research: 2016, 2017- \$1,000; 2018- \$500, 2019- \$666, University of Toronto, Dept. of Anthropology

## Fieldwork:

• Big Horn Basin Field Season, Wyoming, 2017

• Archaeology Field School Student, University of Alberta, Department of Anthropology, 2014

## Committee and Extracurricular Memberships:

- College Advisor, Duke University; 2023—present
- Undergraduate Curriculum Committee, Department of Evolutionary Anthropology, Duke University: **Member**; 2023—present
- Skeletal Research and Teaching Collection Working Group, Department of Evolutionary Anthropology, Duke University: **Member**; 2023—present.
- Anthropology Graduate Student Union, University of Toronto: Social Coordinator; 2016—2018
- Graduate Programs Committee, Department of Anthropology, University of Alberta: **Member**; 2014—2015
- Undergraduate Programs and Teaching Committee, Department of Anthropology, University of Alberta: **Member**; 2014 2015
- Department of Anthropology Council, University of Alberta: Honors Student Representative; 2014 2015

## Select Media Coverage:

- Nature Research Highlights— A sweet tooth gave ancient primates a mouthful of woe. nature.com/articles/d41586-021-02475-w
- PHYS.org— *Prehistoric primates had a sweet tooth: Researchers discover cavities in 54million-year-old fossils.* phys.org/news/2021-09-prehistoric-primates-sweet-tooth.html
- Daily Mail—Prehistoric primates had a sweet tooth! Squirrel-sized species that lived 54 million years ago gorged on sugary fruits and had the first recorded cases of dental decay in mammals. dailymail.co.uk/sciencetech/article-9973643/Fossils-Squirrel-sized-species-54-million-years-ago-oldest-cases-tooth-decay-mammals.html
- University of Toronto Scarborough—*Oldest known mammal cavities discovered in 55million-year-old fossils suggests a sweet tooth for fruit.* utsc.utoronto.ca/newsevents/breaking-research/oldest-known-mammal-cavities-discovered-55-million-yearold-fossils-suggests

## Manuscripts Reviewed for:

Evolution (2022), Evolutionary Anthropology (2022), Journal of Human Evolution (2022, 2023), American Journal of Primatology (2022), Scientific Reports (2023), Journal of Mammalian Evolution (2023), Annales Zoologici Fennici (2024), PeerJ (2024), PLoS ONE (2024), Anatomical Record (2024), American Journal of Biological Anthropology (2024), Integrative and Comparative Biology (2024)

# **Specialized Training:**

• MicroCT1 Certification on the Nikon XT H 225 ST High Resolution X-ray CT Scanner at the Shared Materials Instrumentation Facility (SMIF) at Duke University, completed in August 2016.