

# JULIA SCHAP

PhD Student  
School of Biological Sciences  
Georgia Institute of Technology

Email: jschap3@gatech.edu  
310 Ferst Drive  
Atlanta, Georgia

## EDUCATION

- Ph.D. Georgia Institute of Technology**  
August 2019 – present  
School of Biological Sciences  
Ph.D. Advisor: Dr. Jenny McGuire
- M.S. East Tennessee State University**  
August 2017 – May 2019  
Department of Geosciences, Paleontology concentration  
Masters Advisor: Dr. Joshua X. Samuels  
Thesis: Ecometric Estimation of Present and Past Climate of North America Using Crown Heights of Rodents and Lagomorphs: With Application to the Middle Miocene Climatic Optimum
- B.S. University of Florida**  
August 2013 – May 2016  
Major: Integrative Biology, Minor: Anthropology

## ACADEMIC EXPERIENCE

### Graduate Assistantship

Georgia Institute of Technology, Atlanta GA

Research Assistant Summer 2020-present  
Assisted Dr. Jenny McGuire with research involving small mammal community responses to climate change.

Lab Instructor, *Honors Biological Principles* (BIOL 1511) Fall 2019  
Led students through a semester long service learning project in partner with the Atlanta Botanical Gardens on Orchid Conservation.

Lab Instructor, *Honors Organismal Biology* (BIOL 1521) Spring 2020  
Led students through a semester long service learning project in partner with Piedmont Park on toxicology related to plant and animal species due to park maintenance.

### Adjunct Professor

East Tennessee State University, Johnson City, TN

Lecture and Lab Instructor, *Earth Through Time* (GEOL 1050/1051)

### Graduate Assistantship

East Tennessee State University, Johnson City, TN  
 Lab Instructor, *Earth Through Time* (GEOL 1051) 2018 – 2019  
 Teach weekly specimen-based laboratory sections on a range of introductory geological and biological topics, hold office hours, and exam reviews.

Research Assistant 2017 – 2018  
 Assisted Dr. Joshua X. Samuels on data collection and analysis of small mammal research projects.

## GRANTS & HONORS

**Presidential Fellowship (\$22,000)** 2019 – 2023  
 Awarded by: Georgia Institute of Technology

**Publication Award (\$100)** 2019  
 Awarded by: ETSU Department of Geosciences

**Outstanding Graduate Student in the Geosciences** 2019  
 Awarded by: ETSU Department of Graduate Studies

**Outstanding Graduate Student in Paleontology (\$100)** 2019  
 Awarded by: ETSU Department of Geosciences

**Research Travel Grant (\$350)** 2018  
 Awarded by: Don Sundquist Center of Excellence in Paleontology

**Outstanding New Paleontology Graduate Student (\$100)** 2018  
 Awarded by: Don Sundquist Center of Excellence in Paleontology

**Southern Scholarship Foundation Scholar** 2012 - 2016

## MUSEUM EXPERIENCE

**The Gray Fossil Site and Museum** Gray, TN  
 Collections Unit Intern May 2019 – Aug 2019  
 Picked and identified microfossils, including rodents, lagomorphs, anurans, serpentes, and urodela, and rehoused into the collections unit.

Summer Field Crew and Collections Unit Intern May 2018 – July 2018  
 Screenwashed sediment and excavated at the Gray Fossil Site.  
 Helped rehouse and organize specimens in the collections unit.

**Museum of Arts and Sciences** Daytona Beach, FL  
 Summer Learning Institute Instructor May 2017 – Aug 2017  
 Instructed 7-9 year old classes on paleontology and ecology of Florida.  
 Created lesson plans incorporating hands on activities.

Education Intern 2016 – 2017  
 Held STEM outreach events at local elementary schools and middle schools.  
 Led tours of the fossil hall containing Pleistocene megafauna from Florida.  
 Collaborated on enhancing Fossil Hall exhibits and the Children’s Education Hall.  
 Collaborated with a local ecological society to teach students about fossils from local marine environments and how communities have changed over time.

**The Mammoth Site** Hot Springs, SD  
 Intern May 2016 – August 2016

Led public tours of the bonebed site informing about the environment and diversity of species at the site.  
Excavated, mapped, screenwashed, prepped, and screen picked fossils and sediment.  
Instructed classes on fossil excavation techniques and ancient hunting skills for children and adults.

**Florida Museum of Natural History** Gainesville, FL  
Student Researcher 2014 – 2016  
Conducted research on sexual dimorphism in the giant ground sloth, *Megalonyx leptostomus*.  
Participated in new exhibit events and STEM outreach events.  
Aided in the Vertebrate Paleontology department during Natural History festivals and events.  
Volunteered in the Vertebrate Paleontology collections unit and preparation lab assisting in microfossil identification and over 10 hours a week of prep work.

## VOLUNTEERING AND OUTREACH

**Georgia Tech** Fall 2020-present  
Reviewed biological sciences PURA (President's Undergraduate Research Award) applications for quality of ideas and practicality of research proposed.

**Georgia Tech Spatial Ecology and Paleontology Lab** August 2019-Present  
Led, organized, and assisted with identifications for a citizen science weekly event, Fossil Friday, where students and the Atlanta community can sort through microfossil material from Natural Trap Cave, WY.

**The Gray Fossil Site and Museum** August 2017 – May 2019  
Assisted with outreach events including National Fossil Day, Darwin Day, Archaeology Day, and Fossil ID Nights.

**ETSU Department of Geosciences** 2019  
Tabled at ETSU Open House and provided information to high school students about the Geoscience department.

**ETSU Museum of Natural History** 2017  
Assisted at Roan Mountain Geology Day teaching families how to cast and mold fossils.

**Florida Museum of Natural History** 2014 – 2016  
Participated in new exhibit events and STEM outreach events.  
Aided in the Vertebrate Paleontology department during Natural History festivals and events.  
Volunteered in the Vertebrate Paleontology collections unit and preparation lab assisting in microfossil identification and over 10 hours a week of prep work.

## FIELD EXPERIENCE

**Natural Trap Cave, Wyoming** 2021

Excavated late Pleistocene and Holocene microfossil material. Assisted in setting up the grid system and marking elevation. Natural Trap Cave is a Pleistocene and Holocene 80-foot deep karst-sinkhole housing abundant megafaunal and microfaunal material. Megafauna remains date back approximately 130,000 years and microfaunal material dates back approximately 30,000 years. Megafauna are believed to have fallen into the cave, while microfauna remains are collected from packrat middens.

**Gray Fossil Site, Tennessee** 2018

Field crew member assisting in the summer field session excavation of tapir and mastodon material. Learned methods of surveying of the site. The Gray Fossil Site is a Pliocene aged forested sinkhole site with diverse flora and fauna, including numerous species of amphibians, reptiles, mammals, and birds.

**The Mammoth Site, South Dakota** 2016

Excavated the bonebed during the summer helping to uncover additional mammoth material as well as assisted in mapping and surveying the arrangement of bones discovered throughout the summer season. The Mammoth Site is a late Pleistocene age sinkhole which houses the world's largest concentration of mammoth bones and is now an in-situ excavation site where over 10,000 vertebrate and invertebrate fossils have been discovered.

**Thomas Farm, Florida** 2016

Participated in overnight trips to excavate a variety of Early Miocene aged fossils, assisted in mapping plots to identify where fossils were located, and created plaster jackets for select fossils. This site has fossils of over 100 vertebrate species including reptiles, amphibians, and mammals.

**Montbrook, Florida** 2015 – 2016

Assisted in digs and fossil identification throughout the first field season of the site to uncover more about what type of environment the site once was 5 million years ago. Montbrook is a 5-5.5 million years old (Latest Miocene – Earliest Pliocene) river system near the Atlantic Coast where so far 30,000 fossil specimens have been collected.

## TECHNICAL SKILLS

Experience with Microsoft Office Suite, SPSS statistical analysis software, R, tps geometric morphometrics software, Rediscovery Proficio Database, File-Maker Pro Software, ImageJ, Dino-Lite USB Microscopes, Photoshop CS5 and CC 2018, Adobe Illustrator CC 2018, ESRI ArcMap, GeoDa, ArcGIS, and Trimble GPS. Pallet jack experience moving cabinets in a collection's unit. Field skills include plaster jacketing and flipping those jackets with either small trowels or shovels in addition to rotating jackets large enough to require crane assistance. Extensive experience wet and dry screening fossils and sediments. Preparation experience includes over 500 hours of using dental picks, small and large brushes, acetone, and paraloid B-72. Fossil identification of marine microfauna, anurans, aves, amphibians, reptiles, and an emphasis on small mammals from North America. Experience caving in multiple caves in Tennessee which required maneuvering through tight spaces and careful fossil collection of microfossils.

Cave experience in Wyoming involved rappelling 80 feet into the cave as well as navigating smaller spaces. Field ecology experience using transects and quadrats to survey plant growth in heavily trafficked areas compared to more forested areas. Assistance with seining nets to observe biodiversity of estuaries on the Florida Coast.

## PUBLICATIONS

- Samuels, J. X., **J. Schap**. 2021. Early Pliocene Leporids from the Gray Fossil Site of Tennessee. *Eastern Paleontologist*.
- Schap, J. A.**, Samuels, J. X., & Joyner, T. A. 2021. Ecometric estimation of present and past climate of North America using crown heights of rodents and lagomorphs. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 562, 110144.
- Schap, J. A.**, & Samuels, J. X. 2020. Mesowear Analysis of the *Tapirus polkensis* population from the Gray Fossil Site, Tennessee, USA. *Palaeontologia Electronica*, 23(2).

## ONGOING RESEARCH

- Samuels, J. X., **J. Schap**. In Revision. Regional topography and climate influence the nature and timing of changes in the structure of rodent and lagomorph communities through the Cenozoic of North America. In preparation for *Evolution of Cenozoic Land Mammal Faunas and Ecosystems. 25 years of the NOW database of fossil mammals*.
- Schap, J. A.**, Meachen, J. A., McGuire, J. L. In Revision. Microfaunal Community Shifts Through Time at Natural Trap Cave, Wyoming. In Preparation for *Quaternary International*.
- Schap, J.**, J. X., Samuels. In Preparation. Mephitids from the Gray Fossil Site of Tennessee, the earliest skunks in Eastern North America. In preparation for *Journal of Paleontology*.
- McGuire J., Woodruff, A., Iacono, J., Sethna, J., **Schap, J. A.**, Redman, C., and Meachen, J. A. Submitted. Evaluating the taphonomic consistency of microvertebrate assemblages at Natural Trap Cave, Wyoming, USA. In Preparation for *Quaternary International*.

## CONFERENCE ABSTRACTS

### Poster Presentations

- Schap, J.**, J. X. Samuels. 2018. Varied responses of mammals to the Middle Miocene Climatic Optimum, non-uniform shifts in crown heights of rodents, lagomorphs, and ungulates. Society of Vertebrate Paleontology.

**Schap, J., J. X. Samuels.** 2018 Population Mesowear analysis of *Tapirus Polkensis* from The Gray Fossil Site, Tennessee. Southeastern GSA Section Meeting. DOI: 10.1130/abs/2018SE-313075.

**Schap, J., J. X. Samuels.** 2018 Leporids of the Early Pliocene age Gray Fossil Site of Tennessee. Southeastern Association of Vertebrate Paleontology.

### Oral Presentations

**Schap, J., J. X. Samuels.** 2020. Ecometric Estimation of Present and Past Climate of North America Using Crown Heights of Rodents and Lagomorphs. Society of Vertebrate Paleontology. Virtual.

**Schap, J., J. X. Samuels.** 2019. Ecometric Estimation of Present and Past Climate of North America Using Crown Heights of Rodents and Lagomorphs: With Application to the Middle Miocene Climatic Optimum. Appalachian Student Research Forum. Johnson City, TN.

Samuels, J. X., **J. Schap.** 2018. The structure of rodent and lagomorph communities across the Cenozoic of North America: the importance of regional topography and climatic differences. Society of Vertebrate Paleontology. Albuquerque, NM.

Samuels, J. X., **J. Schap.** 2018. The structure of rodent and lagomorph communities across the Cenozoic of North America: the importance of regional topography and climatic differences. International Palaeontological Congress. Paris, France.

Samuels, J. X., **J. Schap,** E. Bogner. 2018. Mammalian community structure of the Early Pliocene age Gray Fossil Site in Tennessee. Southeastern Association of Vertebrate Paleontology. Aurora, NC.

Samuels, J. X., R. J. Zakrzewski, K. E. Bredehoeft, C. Crowe, D. Oberg, **J. Schap,** B. W. Schubert, S. C. Wallace, C. C. Widga. 2018. New Mammals from The Gray Fossil site in Tennessee; Paleoecological implications and a refined age estimate for the site. Southeastern GSA Section Meeting. Knoxville, TN. DOI: 10.1130/abs/2018SE-312839

### PROFESSIONAL REFERENCES

#### **Jenny McGuire**

Assistant Professor

Spatial Ecology and Paleontology Lab (SEPL)

School of Biological Sciences

School of Earth and Atmospheric Sciences

Georgia Institute of Technology

310 Ferst Dr NW

Atlanta, GA 30332

Phone: 404-894-0497

Email: [jenny.mcguire@biology.gatech.edu](mailto:jenny.mcguire@biology.gatech.edu)

**Joshua X. Samuels**

Assistant Professor/Graduate Coordinator

Department of Geosciences

East Tennessee State University

Curator, Museum of Natural History & Gray Fossil Site

PO Box 70357

Johnson City, TN 37614-1709

Phone: 423-439-7515

Email: [samuelsjx@etsu.edu](mailto:samuelsjx@etsu.edu)