

CHRISTOPHER C. WIRTH
Curriculum Vitae

Department of Entomology
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EDUCATION

Purdue University (relocated from Northern Arizona University, Fall 2019)

Ph.D. in Entomology, in progress, expected May 2022

My research focuses on **1**) reconstructing a robust phylogeny for and testing evolutionary hypotheses (e.g. effect of flight loss upon clade diversity) in the darkling beetle tribe Edrotini (55 genera), **2**) implementing a phylogenetically-informed genus-level edrotine classification, and **3**) revising taxonomically-impeded edrotine genera, funded, in part, by NSF project ARTS: Uncovering the Desert Darkling Beetles (Tenebrionidae: Pimeliinae): Phylogenomics, phenomics, and biogeography in a megadiverse global radiation (DEB #1754630; PI: Aaron D. Smith).

Major Advisor: Aaron D. Smith

Randolph-Macon College

B.S. in Biology, June 2013. *Cum Laude*, Phi Beta Kappa, with Honors

Minors: Chemistry and Classical Studies

RESEARCH INTERESTS

Insect Biodiversity, Coleoptera Systematics and Ecology, Conservation, History of Entomology

RESEARCH EXPERIENCE

Purdue University

Research Assistant, Fall 2019–Fall 2020

Graduate Collections Assistant, Spring 2021– present

Northern Arizona University

Research Assistant, Summer 2017, Summer 2018– Summer 2019

Associate Curator of Coleoptera, Fall 2017–Summer 2019 (volunteer)

Parsons Corporation

Wildlife Biologist, April 2015–August 2015 (contract)

Randolph-Macon College

Museum Assistant, Biology Department, September 2009–May 2013

Dr. C.B. Knisley, Randolph-Macon College

Field Research Assistant, July 2006–2013

Virginia Department of Conservation and Recreation, Natural Heritage Program

Volunteer, May 2006–July 2009

TEACHING INTERESTS

General Entomology, Insect Taxonomy, Phylogenetics, Biogeography, Field and Laboratory Techniques, Photography and Digital Illustration for Scientific Publications

TEACHING EXPERIENCE

Northern Arizona University

Co-Instructor, Wildlife Biology Techniques (new course, co-designed), Summer 2018

Teaching Assistant, Unity of Life II: Lives of Multicellular Organisms, Spring 2017–2018

Teaching Assistant, Phylogenetics, Spring 2016

Laboratory Instructor, General Entomology, Fall 2015–2017

Randolph-Macon College

Latin Tutor, Classics Department, June 2011–January 2013

STUDENT MENTORSHIP (12)

Isabelle Gilchrist (BSc), Fall 2021–present

Steven Richardson (BSc), Fall 2021–present

Cassie Jackson (BSc), Fall 2021–present

Sol Carolina Parra Santos (BSc), Summer 2021

Isabella Sirit (BSc), Spring 2021, Fall 2021–present

Jessica Newton (BSc), Spring 2021

Samantha N. Hershauer (BSc), Fall 2018–Summer 2019

Angela Rincon (BSc), Fall 2017–Spring 2018

Kali L. Swichtenberg (BSc), Spring 2017

Mark Ecker (BSc), Spring 2017

Anyia N. Metcalfe (MSc), Fall 2016–Spring 2017

Jenica Knaupp: (BSc), Fall 2015–Spring 2016

PUBLICATIONS

9. Kamiński, M.J., Gearner, O.M., Raś, M., Hunsinger, E.T., Smith, A.L., Mas-Peinado, P., Girón, J.C., Bilska, A.G., **Wirth, C.C.**, Kanda, K., Swichtenberg, K., and A.D. Smith. Submitted. Evaluating informativeness of female terminalia morphology for reconstructing tok-tok beetle (Tenebrionidae: Sepidiini) phylogenies. *Cladistics*
8. Kamiński, M.J., Kanda, K., Lumen, R., Ulmer, J.M., **Wirth, C.C.**, Bouchard, P., Aalbu, R.L., Mal, N., and A.D. Smith. A catalogue of the tribe Sepidiini Eschscholtz, 1829 (Tenebrionidae: Pimeliinae) of the world. 2019. *Zookeys* 844: 1–121. <https://doi.org/10.3897/zookeys.844.34241>

7. Aalbu, R.L. and C.C. **Wirth**. 2019. The status of *Triorophus punctatus* LeConte (Coleoptera: Tenebrionidae: Pimeliinae: Edrotini). *Zootaxa* 4604(1): 198–200. <http://dx.doi.org/10.11646/zootaxa.4604.1.11>
6. **Wirth, C.C.** 2018. Determining type locality habitat and historic land use at current sites of the Miami tiger beetle, *Cicindelidia floridana* (Cartwright) (Coleoptera: Carabidae: Cicindelinae). *The Coleopterists Bulletin*, 72(3): 427–432. <https://doi.org/10.1649/0010-065X-72.3.427>
5. Knisley, C.B., Gowan, C., and C.C. **Wirth**. 2018. Effects of soil moisture, vegetation and food on adult activity, oviposition and larval development in the tiger beetle, *Cicindela albissima* Rumpff. *Journal of Insect Conservation*, 22(3–4): 443–449. <https://doi.org/10.1007/s10841-018-0072-x>
4. **Wirth, C.C.** and A.D. Smith. 2017. Review of the genus *Trichiotes* Casey (Coleoptera: Tenebrionidae: Pimeliinae: Edrotini), with the description of a new species and a preliminary checklist of the Tenebrionidae from Cuatrociénegas, Mexico. *Zootaxa* 4347(3): 533–542. <http://dx.doi.org/10.11646/zootaxa.4347.3.6>
3. Smith, A.D. and C.C. **Wirth**. 2016. A new genus and species of stridulating Edrotini (Coleoptera: Tenebrionidae: Pimeliinae) from West Texas, with notes on stridulation within the tribe. *Annales Zoologici*, 66(4): 577–587. <https://doi.org/10.3161/00034541ANZ2016.66.4.011>
2. Knisley, C.B. and C.C. **Wirth**. 2013. Biological Studies of the Florida Tiger Beetle, *Cicindelidia floridana*, 2011–2013: Final Report. Report to the U.S. Fish and Wildlife Service, South Florida Ecological Services Office. 13pp.
1. Gibson, J.D. and C.C. **Wirth**. 2006. Field Notes: *Eumeces fasciatus* (Five-lined Skink). *Catesbeiana*. 26(1): 24–26. <https://www.virginiaherpetologicalsociety.com/catesbeiana-pdf/cat26n1/cates26n1.pdf>

FIRST-AUTHOR MANUSCRIPTS IN PREPARATION

- Wirth, C.C.** and A.D. Smith. A revision of the genus *Edrotes* LeConte (Coleoptera: Tenebrionidae: Pimeliinae). Target journal: *Zoological Journal of the Linnean Society*.
- Wirth, C.C.** An annotated type catalog of the Coleoptera, Hemiptera, and Orthoptera described by Willis Stanley Blatchley (1859–1940). Target journal: *Coleopterists Society Monographs*.
- Wirth, C.C.** and L.M. MacCabe. A History of entomology at Northern Arizona University: Personnel, research, and a list of type specimens in the Colorado Plateau Museum of Arthropod Biodiversity. Target journal: *American Entomologist*.
- Wirth, C.C.** and C. Gowan. Description of the third instar larvae of *Cicindelidia abdominalis* F., *C. floridana* Cartwright, *C. highlandensis* Choate, and *C. scabrosa* Schaupp (Coleoptera: Carabidae: Cicindelinae). Target journal: *Coleopterists Bulletin*.

GRANTS AND FELLOWSHIPS (\$25,245 TO DATE)

9. Bilsland Dissertation Fellowship. ~\$10,000. Purdue University Graduate School. 2021
8. Student Collections Study Award. \$970. Natural History Museum of Los Angeles County. 2019
7. Graduate Student Research Enhancement Award. \$5000. Coleopterists Society. 2019
6. Theodore Roosevelt Memorial Fund. \$1695. American Museum of Natural History. 2019
5. Travel Award. \$330. Monte L. Bean Life Science Museum, Brigham Young University. 2018
4. Student Travel Award. \$450. Graduate Student Government, Northern Arizona University. 2017

3. William Neal Cunningham Memorial Fund. \$2750. Biology Department, Randolph-Macon College 2013
2. Schapiro Undergraduate Research Fellowship. \$3500. Randolph-Macon College. 2010
1. Youth Incentive Award. \$550. Coleopterists Society. 2006

PRESENTATIONS

- Wirth, C.C.** 2021. Preserving insects for entomological collections. Research and Extension Experiences for Undergraduates program, Division of Natural Sciences, Indiana Wesleyan University. (Invited oral presentation)
- Kergoat, G.J., Kanda, K., Soldati, L., Jourdan, H., Clamens, A.-L., Aalbu, R.L., Abbate, J.L., Bouchard, P., Flores G.E., Iwan, D., Johnston, M.J., Kamiński, M.J., Li, X.-M., Mas-Peinado, P., Merkl, O., Purchart, L., Ren, G.-D., Soldati, F. **Wirth, C.C.**, Zikri, G., Smith, A.D., and F.L. Condamine. 2021. Tackling the historical biogeography and evolution of a speciose family of Coleoptera. International Tenebrionoidea Virtual Symposium VI. (Oral presentation)
- Smith, A.D., Kamiński, M.J., Kanda, K., Gearner O.M., Swichtenberg, K.L., **Wirth, C.C.**, Lumen, R., Bouchard, P., Flores G.E., Kergoat, G.J., Condamine, F.L., Aalbu, R.L., Lamb, T., and L. Purchart. 2021. Phylogeny of Pimeliinae: progress and surprises. International Tenebrionoidea Virtual Symposium VI. (Oral presentation)
- Wirth, C.C.**, Swichtenberg, K.L., Gearner, O.M., and A.D. Smith. 2021. Tenebrionidae Research in the Smith Insect Biodiversity Lab. International Tenebrionoidea Virtual Symposium VI. (Oral presentation)
- Kamiński, M.J., Gearner, O.M., Raś, M., Hunsinger, E.T., Smith, A.L., Mas-Peinado, P., Girón, J.C., Bilska, A.G., Strümpher, W.P., **Wirth, C.C.**, Kanda, K., Swichtenberg, K.L., Iwan, D. and A.D. Smith. 2021. Evaluating informativeness of female terminalia morphology for reconstructing tok-tok beetle (Tenebrionidae: Sepidiini) phylogenies. International Tenebrionoidea Virtual Symposium VI. (Oral presentation)
- Wirth, C.C.**, Kanda, K., and A.D. Smith. 2021. Tribal relationships in the edrotine and tentyrine clades (Tenebrionidae: Pimeliinae): Preliminary findings from morphology and targeted enrichment sequencing. International Tenebrionoidea Virtual Symposium VI. (Oral presentation)
- Wirth, C.C.** 2021. Revitalizing an overlooked collection of South American Coleoptera and other insects made by Willis Stanley Blatchley. Encontro de Coleoptera. (Oral presentation)
- Smith, A.D., Kaminski, M.J., Kanda, K., Gearner, O.M., Swichtenberg, K., **Wirth, C.C.**, and R. Lumen. 2020. Phylogeny of the desert darkling beetles (Coleoptera: Tenebrionidae: Pimeliinae) and its implications for biogeography and taxonomy within the subfamily. Annual Meeting, Entomological Society of America. (Oral presentation)
- Wirth, C.C.**, and A.D. Smith. 2020. Darkling beetles in a new light: Redefining tribal and generic concepts for the Edrotini (Coleoptera: Tenebrionidae: Pimeliinae). Annual Meeting, Entomological Society of America. (Oral presentation)
- Wirth, C.C.** 2020. A virtual tour of the Purdue Entomological Research Collection. Annual Meeting, Entomological Collections Network. (Oral presentation)
- Wirth, C.C.** 2020. The W.S. Blatchley Collection: History, status, and progress towards a catalog of type specimens. Annual Meeting, Entomological Collections Network. (Oral presentation)

- Smith, A.D., Kanda, K., **Wirth, C.C.**, Kaminski, M.J., Ulmer, J., Seltsmann and I. Mikó. 2019. Preliminary phylogeny of the desert darkling beetles (Coleoptera: Tenebrionidae: Pimeliinae) using targeted enrichment, and the evolution of background matching through pruinescence. Annual Meeting, Entomological Society of America. St. Louis, MO, USA (Invited oral presentation)
- Wirth, C.C.**, and A.D. Smith. 2019. New generic concepts in Edrotini (Coleoptera: Tenebrionidae: Pimeliinae): Synthesizing targeted enrichment and morphological data. Annual Meeting, Entomological Society of America. St. Louis, MO. (Oral presentation)
- Wirth, C.C.**, Kanda, K., Aalbu, R.L., and A.D. Smith. 2018. Generic delimitation and phylogeny of Edrotini (Coleoptera: Tenebrionidae): Preliminary findings from targeted enrichment sequencing and morphology. Annual Meeting, Entomological Society of America. Vancouver, BC, Canada. (Oral presentation)
- Wirth, C.C.** and A.D. Smith. 2018. Towards a revision of *Edrotes* (Coleoptera: Tenebrionidae). Fifth International Tenebrionioidea Symposium. Prague, Czech Republic. (Oral presentation)
- Aalbu, R.L. and **C.C. Wirth**. 2018. Assessing the current status of the Edrotini, Fifth International Tenebrionioidea Symposium. Prague, Czech Republic. (Oral presentation)
- Wirth, C.C.** and A.D. Smith. 2017. A preliminary phylogeny of the Edrotini (Coleoptera: Tenebrionidae). Annual Meeting, Entomological Society of America. Denver, CO. (Invited oral presentation)
- Beresic-Perrins, R.K., Boothroyd, J., **Wirth, C.C.**, Whitely, K., Greenawalt, T.L., Bain, B.A., Govedich, F.R., Wells, S.A., Heyborne, W.H., Shuster, S.M. Collection and identification of Macroinvertebrates in and around Montezuma Well. 2017. Society for Freshwater Science Annual Meeting. Raleigh, North Carolina. (Poster)
- Wirth, C.C.** 2017. Photographing Terrestrial Arthropods. Flagstaff Photography Club. Flagstaff, AZ. (Invited oral presentation)
- Wirth, C.C.** and A.D. Smith. 2016. A preliminary phylogeny of *Edrotes* LeConte (Coleoptera: Tenebrionidae). International Congress of Entomology. Orlando, FL (Poster)
- Wirth, C.C.** and C. Gowan. 2013. Description of the third instar larvae of the *Cicindelidia abdominalis* complex. Biology Department Research Colloquium, Randolph-Macon College. Ashland, VA (Oral presentation)
- Wirth, C.C.** and Knisley, C.B. 2012. Microhabitat preference and larval development in the Coral Pink Sand Dunes Tiger Beetle. Chi Beta Phi National Conference. Davis and Elkins College, Elkins, WV (Oral presentation)
- Wirth, C.C.** and Knisley, C.B. 2010. Preliminary results: larval development in the Coral Pink Sand Dunes Tiger Beetle. Schapiro Undergraduate Research Fellowship Symposium, Randolph-Macon College. Ashland, VA (Poster)

WORKSHOPS AND CONFERENCES ATTENDED

- International Tenebrionioidea Virtual Symposium VI. May 21–22, 2021
- North American Tenebrionidae identification and classification virtual workshop. May 17–19, 2021
- Encontro de Coleoptera. March 15–19, 2021 (virtual)
- Entomological Society of America, Virtual Annual Meeting. November 11–25, 2020
- Entomological Collections Network Annual Meeting. November 9–11, 2020 (virtual)
- Coleopterists Society Annual Meeting. St. Louis, MO. November 19, 2019

Entomological Society of America. St. Louis, MO. November 17–20, 2019
Entomological Collections Network Annual Meeting. St. Louis, MO. November 16–17, 2019
Coleopterists Society Annual Meeting. Vancouver, BC, Canada. November 13, 2018
Entomological Society of America. Vancouver, BC, Canada. November 11–14, 2018
Entomological Collections Network Annual Meeting. Vancouver, BC, Canada. November 10–11, 2018
5th International Tenebrionidea Symposium. Prague, Czech Republic. March 5–6, 2018
Coleopterists Society Annual Meeting. Denver, CO. November 7, 2017
Entomological Society of America. Denver, CO. November 5–8, 2017
Entomological Collections Network Annual Meeting. Denver, CO. November 4–5, 2017
Coleopterists Society Annual Meeting. Orlando, FL. September 27, 2016
International Congress of Entomology. Orlando, FL. September 25–30, 2016
Entomological Collections Network Annual Meeting. Orlando, FL. September 23–24, 2016
4th Bozeman Invitational Beetle Families Workshop. Bozeman, MT. June 12–21, 2016
Coleopterists Society Annual Meeting. Minneapolis, MN. November 16, 2015
Entomological Society of America. Minneapolis, MN. November 15–18, 2015
Entomological Collections Network Annual Meeting. Minneapolis, MN. November 14–15, 2015
Eastern Branch Annual Meeting, Entomological Society of America. Charlottesville, VA. March 13, 2006

SERVICE AND OUTREACH

Manuscript review: Anais da Academia Brasileira de Ciências, Annales Zoologici, PeerJ, Proceedings of the Entomological Society of Washington, The Coleopterists Bulletin, The Pan-Pacific Entomologist, Zootaxa
Judge, Indiana 4-H Insect Collection Competition, Indiana State Fair. August 1, 2021
Presenter (17-year periodical cicadas), Insect Biology Day, Purdue University. June 4, 2021
Interviewed for and featured in the Purdue Exponent's front-page story on 17-year periodical cicadas. June 1, 2021
Course assistant, North American Tenebrionidae identification and classification virtual workshop. May 17–19, 2021
Presenter ("Tour of the Purdue Entomological Research Collection" and "How to Pin an Insect"), 30th Annual Bug Bowl (virtual), Purdue Department of Entomology. April 12–17, 2021.
Pro-bono consulting on endangered and threatened insect species for Miami-Dade-area non-profit organizations. September–October 2020; September 2021
Proctor, Indiana 4-H Entomology Career Development Event, Purdue University. December 14, 2019
Organizer and moderator, Member Symposium: Systematics and Diversity of the Tenebrionoidea, Entomological Society of America Annual Meeting. November 20, 2019
Judge, Student Oral Presentation Competition, Entomological Society of America Annual Meeting. November 18, 2019
Presenter (live arthropods), Purdue Entomology booth, Indiana State Fair. August 9, 2019
Judge, Student Poster Competition, Entomological Society of America Annual Meeting. November 12, 2018
Presenter (live local arthropods), Montessori School of Flagstaff (Preschool–K). April 6, 2018
Officer, Biology Graduate Student Association, Northern Arizona University. 2018–2019
Youth Incentive Award Committee Member, Coleopterists Society. November 2017–present

Presenter (booth and photograph display), Arizona Insect Festival, University of Arizona. October 1, 2017; October 21, 2018

Presenter (booth), Colorado Plateau Museum of Arthropod Biodiversity, Northern Arizona University Science and Engineering Day. October 1, 2016

Graduate Program Committee Representative, Biology Graduate Student Association, Northern Arizona University. 2016–2017

Graduate Student Selection Committee Representative, Biology Graduate Student Association, Northern Arizona University. 2016–2018

Judge, Annual Science Fair, Marshall Elementary School. February 13, 2016; February 13, 2017; March 4, 2019

Photographer, significant contributions to *Beetles of Eastern North America* (2014), *The Book of Beetles* (2014), *Beetles of Western North America* (2021); images in scientific articles, museum displays, field guides, and popular publications.

Presenter (importance of insects), Jamestown 4-H Educational Center. June 21, 2006

Presenter (photograph display), Public Outreach Program, Eastern Branch Annual Meeting, Entomological Society of America. Charlottesville, VA. March 13, 2006

Contributing editor for BugGuide.net. October 2005–present

PROFESSIONAL AFFILIATIONS

Pacific Coast Entomological Society (2020–present)

Entomological Society of America (2015–present)

Entomological Collections Network (2015–present)

Cicindela: A quarterly journal devoted to Cicindelidae (2008–present)

Coleopterists Society (2006–present)

SIGNIFICANT FIELD EXPERIENCE

*Indicates survey of candidate, threatened, or endangered tiger beetle species/subspecies

*Miami-Dade County, FL. September 9–11, 2021

General insect sampling for the Purdue University Entomological Research Collection, Tippecanoe County, Indiana. May 25, 26, and 31, 2021; June 4 and 16, 2021; July 6 and 24, 2021; malaise traps, serviced weekly from July 17, 2021–present

Pimeliinae (Coleoptera: Tenebrionidae) sampling, northern Namibia, December 31, 2018 – January 15, 2019

Myrmecocystus (Hymenoptera: Formicidae) colony excavation for the Museum of Northern Arizona. Coconino County, AZ. October 22 and 29–30, 2016, June 3–4, 2018.

Edrotini (Coleoptera: Tenebrionidae: Pimeliinae) sampling, western US: AZ, CA, CO, ID, MT, NM, NV, OR, UT. May–June 2016; July 6–8, 2017; August 3–10, 2017; July 1–10, 2018; September 24–October 1, 2018

Montezuma Well Centennial BioBlitz. May 21–22, 2016

General Entomology trips to Walnut Creek Center for Education and Research, Prescott, AZ. September 11–13, 2015; September 9–11, 2016; September 8–10, 2017; September 21–22, 2018

Coleoptera photography and vouchering, southeastern AZ. August 2013

Belmead Bioblitz, Powhatan, VA, May 18–19, 2013

*Miami-Dade County, FL. August 2010–2012, January 2013

Arthropoda inventory, Breaks Interstate Park, Breaks, VA. July 2008

*Bethel Beach Natural Area Preserve, Mathews County, VA. July 2008
Coleoptera inventory, First Landing State Park. July 2007
*Coral Pink Sand Dunes, Kanab, UT. May 2007, 2008, May 23 – June 17, 2010
*Assateague Island National Seashore. July 2006, 2008, 2010–2013
Potomac Gorge Bioblitz, Glen Echo, MD, June 24–25, 2006
*Calvert County, MD: June 2006, 2011–2013

ENTOMOLOGICAL COLLECTIONS VISITED (27)

California Academy of Sciences. San Francisco, CA
California State Collection of Arthropods. Sacramento, CA
Colorado Plateau Museum of Arthropod Biodiversity. Northern Arizona University, Flagstaff, AZ
Denver Museum of Nature and Science. Denver, CO
Dr. Antonio Gennaro Natural History Museum. Eastern New Mexico University, Portales, NM
Essig Museum of Entomology. University of California, Berkeley, CA
Field Museum of Natural History. Chicago, IL
Florida State Collection of Arthropods. Gainesville, FL
Frank M. Hasbrouck Insect Collection. Arizona State University, Tempe, AZ
Geier Collections and Research Center, Cincinnati Museum Center. Cincinnati, OH
Gobabeb Training and Research Center. Gobabeb, Namibia
Linnean Society. London, United Kingdom
Magyar Természettudományi Múzeum. Budapest, Hungary
Monte L. Bean Life Science Museum. Brigham Young University, Provo, UT
Museum für Naturkunde der Humboldt Universität. Berlin, Germany
Muséum National d'Histoire Naturelle. Paris, France
Museum of Northern Arizona. Flagstaff, AZ
Museum of Southwestern Biology. University of New Mexico, Albuquerque, NM
Namibian National Insect Collection, National Museum of Namibia. Windhoek, Namibia
National Museum of Natural History, Smithsonian Institution. Washington, D.C.
National Museum. Prague, Czech Republic
Naturhistorisches Museum. Basel, Switzerland
Oxford University Museum of Natural History. Oxford, United Kingdom
Purdue Entomological Research Collection, West Lafayette, IN
R.M. Bohart Museum of Entomology. University of California, Davis, CA
The Natural History Museum. London, United Kingdom
University of Arizona Insect Collection. Tuscan, AZ