

Dr. Simon Ripperger

Curriculum vitae



17.05.1982
Augsburg



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Academic career & education

Post-doctoral researcher

since
05/2016

Smithsonian Tropical Research Institute, Gamboa, Panama

- Member of the Gamboa Bat Lab, supervised by Rachel Page (PhD)

since
05/2014

Museum für Naturkunde, Leibniz Institute for Evolution and Biodiversity Science (Berlin)

- Leading the biological subproject in DFG research unit FOR 1508 (www.for-bats.de)
 - Development of a tracking sensor network in a highly interdisciplinary team
 - Automated collection of animal social network data focussing on bats
 - Organisation of field work in Germany and Panama (including project coordination, logistics, permits and supervision of assistants)

PhD-student

01/2014
03/2010

University of Ulm

- Thesis: Effects of habitat fragmentation on movement patterns and population genetics in frugivorous bats; grade: 1.0 (magna cum laude); supervised by Prof. E. Kalko (deceased), Prof. M. Tschapka & Prof. M. Ayasse
 - Organisation of field work in Costa Rica (14 months; including project coordination, logistics, permits and supervision of assistants)
 - Molecular genetic analyses in cooperation with Dr. Frieder Mayer at MfN Berlin
- Elected representative of the doctoral students (20 months)

2010
2008

Research assistant

Biodiversity Exploratories

- Local Management
- Core Project Vertebrates (Acoustic monitoring of bats, monitoring of small mammals, food choice experiments in wild resident birds, exclusion experiments on insectivores)
- Pools and fluxes related studies: Long-Term Monitoring of Dead Wood

Student of biology (Diploma)

07/2008
09/2002

University of Ulm




- Diploma in biology; major: ecology, minors: endocrinology & microbiology; grade 1.1
- Diploma thesis: Bat community structure and fruit choice of frugivorous bats and tamarins in the Peruvian Amazon; grade 1.0
 - Field work & data collection in the Peruvian Amazon (3 months)
 - Cooperation with Prof. Eckhard Heymann at the German Primate Center (DPZ)
- Study abroad: 2 semesters at the University of Costa Rica

Abitur, grade 2.8 (qualification for university entrance)



07/2001
09/1992

Gymnasium bei St. Anna, Augsburg

Selection of activities

-  Ripperger et al. 2016. Automated proximity sensing in small vertebrates: design of miniaturized sensor nodes and first field tests in bats. *Ecology & Evolution* 6:2179-2189
- Dressler, Ripperger et al. 2015. From Radio Telemetry to Ultra-Low Power Sensor Networks - Tracking Bats in the Wild. *IEEE Communications Magazine* 54:129-135
-  Ripperger, Dechmann, Yovel. 2016. Special session: Next Generation Bat Tracking. 17th International Bat Research Conference (IBRC), Durban, South Africa
-  BATS: a next generation tracking system for automated observations of behavior in small vertebrates. Smithsonian Tropical Research Institute (STRI), Panama City, Panama
- Miniaturized proximity sensors for the study of social networks in BATS. 17th International Bat Research Conference, Durban, South Africa


Scholarships, grants & awards

-  Smithsonian Institution Scholarly Studies Awards: Joint proposal of Rachel Page (PI), G Carter, S Ripperger, F Mayer (Co-Investigators); Tracking and manipulating cooperative relationships in vampire bats.
- National Geographic Grant: Joint proposal of Gerald Carter (PI), R Page, S Ripperger, F Mayer (Co-Investigators); Food-sharing vampire bats: manipulating and tracking cooperative relationships in the lab and field.
- DFG Research Unit 1508, Analysis of foraging and social behavior of bats using sensor systems (sub-project); Frieder Mayer (PI), S Ripperger (contributing to the writing process); 3 years of funding
- MfN Innovation fund 2015 (Start up funds at Museum für Naturkunde Berlin): Social information transfer and group decision making in Neotropical bats, Simon Ripperger (PI)
- MfN Innovation fund 2014: Using miniaturized sensors for analyzing social interactions among fringe-lipped bats (*Trachops cirrhosus*), Simon Ripperger (PI)
- DAAD doctoral scholarship for fieldwork in Costa Rica (2010/2011, 12 months)
- DAAD scholarship for fieldwork for the Diploma thesis in Peru (2007, 3 months)
- DAAD scholarship for study abroad at the Universidad de Costa Rica (2005/06, 2 semesters)
-  Best Paper Award: Hierold, Ripperger, et al. 2015. Low-Weight Wireless Sensor Network for Encounter Detection of Bats. *IEEE WiSNet*.
- Best Paper Award: Cassens, Ripperger, et al. 2016. Automated Encounter Detection for Animal-Borne Sensor Nodes. *EWSN*

Academic services

- Grant reviewing: National Geographics
- Journal reviewing: *Biological Journal of the Linnean Society*, *Biological Conservation*, *Biotropica*, *Biodiversitas*, *Ecography*, *Ecotropica*, *Folia Zoologica*, *Forests*, *International Journal of Biodiversity and Conservation*, *Mammalia*, *PlosOne*, *Tropical Conservation Science*

Languages skills

 German
Mother tongue

 English
Fluent

 Spanish
Fluent



Peer-reviewed paper

- 2016 ● Cassens B, **Ripperger SP**, Hierold M, Mayer F, Kapitza R. Automated Encounter Detection for Animal-Borne Sensor Nodes. Proceedings of the 2016 International Conference on Embedded Wireless Systems and Networks (EWSN), pp 120-131.
- Ripperger SP**, Josić D, Hierold M, Koelpin A, Weigel R, Hartmann M, Page R, Mayer F. Automated proximity sensing in small vertebrates: design of miniaturized sensor nodes and first field tests in bats. *Ecology & Evolution* 6:2179-2189
- Nkrumah EE, Vallo P, Klose SM, **Ripperger SP**, Badu EK, Gloza-Rausch F, Drosten C, Kalko EKV, Tschapka M, Oppong SK. Foraging Behavior and Habitat Selection of Noack's Round-Leaf Bat (*Hipposideros aff. ruber*) and Conservation Implications. *Tropical Conservation Science*, *accepted*
- Nkrumah EE, Vallo P, Klose SM, **Ripperger SP**, Badu EK, Drosten C, Kalko EKV, Tschapka M, Oppong SK. Home Range of Noack's Round-Leaf Bat (*Hipposideros aff. ruber*) in an Agricultural Landscape of Central Ghana. *Acta Chiropterologica* 18:239-247
- Dressler F, Mutschlechner M, Li B, Kapitza R, **Ripperger SP**, Eibel C, Herzog B, Hönig T, Schröder-Preikschat W. Monitoring Bats in the Wild: On Using Erasure Codes for Energy-Efficient Wireless Sensor Networks. *ACM Transactions on Sensor Networks* 12:1-29
- Hierold M, Hartmann M, **Ripperger SP**, Mayer F, Heuberger A, Weigel R, Koelpin A. Low-weight Wireless Sensor Node for Animal Encounter Detection and Dual-band Localization. Proceedings of the IEEE Topical Conference on Wireless Sensors and Sensor Networks (WiSNet), pp 21-23
- 2015 ● Dressler F, **Ripperger S**, Hierold M, Nowak T, Eibel C, Cassens B, Mayer F, Meyer-Wegener K, Koelpin A. From Radio Telemetry to Ultra-Low Power Sensor Networks - Tracking Bats in the Wild. *IEEE Communications Magazine* 54:129-135
- Ripperger SP**, Kalko EKV, Rodríguez-Herrera B, Mayer F, Tschapka M. Frugivorous bats maintain functional habitat connectivity in agricultural landscapes but rely strongly on natural forest fragments. *PLoS ONE* 10:e0120535
- Ripperger SP**, Heymann EW, Tschapka M, Kalko EKV. Fruit characteristics associated with fruit preferences in frugivorous bats and saddle-back tamarins in Perú. *Ecotropica* 20:53-64
- Hierold M, **Ripperger SP**, Mayer F, Weigel R, Koelpin A. System Design for Encounter Detection of Distributed Wireless Sensors. German Microwave Conference, pp 382-385
- Hierold M, **Ripperger SP**, Josic D, Mayer F, Weigel R, Koelpin A. Low-weight wireless sensor network for encounter detection of bats. Proceedings of the IEEE Topical Conference on Wireless Sensors and Sensor Networks (WiSNet), pp 11-13
- 2014 ● **Ripperger SP**, Tschapka M, Kalko EKV, Rodríguez-Herrera B, Mayer F. Resisting habitat fragmentation: high genetic connectivity among populations of the frugivorous bat *Carollia castanea* in an agricultural landscape. *Agriculture, Ecosystems & Environment* 185:9-15
- Rödel M-O, Demtröder S, Fuchs C, Petrich D, Pfisterer F, Richter A, Stolpe C, Voß R, **Ripperger SP**, Mayer F, Dittrich C & Thein J. Does intraspecific and intersexual attraction influence newt abundance estimates based on fish funnel trap records? *Amphibia-Reptilia* 35:141-144
- 2013 ● **Ripperger SP**, Tschapka M, Kalko EKV, Rodríguez-Herrera B, Mayer F. Life in a mosaic landscape: anthropogenic habitat fragmentation affects genetic population structure in a frugivorous bat species. *Conservation Genetics* 14:925-934
- 2011 ● **Ripperger SP** Seeds of Amazonian Plants. Review. *Ecotropica* 17:103-105

Invited talks

- 2017 ● University of Amsterdam, Institute of Ecological Sciences. Tracking bats using BATS: sensor networks for the automated observation of behavior in small vertebrates.
- 2016 ● University of Ulm, Biological Colloquium. Wireless sensor networks for the automated study of (social) behavior in bats.
- DFG Graduate Training Group BioMove, invited expert at summer school „Animal tracking methods and advanced data analyses“, Gülpe, Germany. BATS: a next generation tracking system for automated observations of behavior in small vertebrates.
- DFG Graduate Training Group BioMove, invited expert at summer school „Animal tracking methods and advanced data analyses“, Gülpe, Germany. WSNs in wildlife tracking.
- University of Greifswald, Institute for Applied Zoology and Conservation. Tracking bats using BATS: sensor networks for automated observations of behavior in small vertebrates.
- Conference of the workgroup bats Saxony-Anhalt, Mansfeld. Hightech für die Fledermausforschung: das BATS-Sensornetz für automatisierte Fledermaustelemetrie.
- Smithsonian Tropical Research Institute, Behavior Discussion Group, Panama City. BATS: a next generation tracking system for automated observations of behavior in small vertebrates.
- 25th anniversary of the bavarian bats coordination centre, Munich. Hightech made in Bavaria: das BATS-Trackingsystem für automatisierte Telemetrie von Fledermäusen.
- 2015 ● Max Planck Institut for Ornithology, Radolfzell. BATS: an automated tracking system to study small vertebrates at high resolution.
- Smithsonian Tropical Research Institute, Bambi Talk, Barro Colorado Island, Panama. Life in a mosaic landscape: effects of habitat fragmentation on movement patterns and population genetics in Neotropical bats.
- 2010 ● Universidad de Costa Rica (UCR), San José, Costa Rica. Efectos de síndromes de frutas y ecología de nutrientes en murciélagos y Tamarinos.
- 2007 ● Universidad Nacional de la Amazonía Peruana (UNAP), Iquitos, Peru. Ecología de los murciélagos neotropicales.

Teaching

- 2017 ● Museum für Naturkunde, Berlin. Co-supervision of the BSc thesis of Hanna Wieser. Roosting ecology of common noctule bats (*Nyctalus noctula*)
- 2016 ● DFG Graduate Training Group BioMove. Invited expert at summer school on "Animal tracking methods and advanced data analyses".
- 2015 ● Humboldt University Berlin, Organismic Biology and Evolution, MSc module Biodiversity and Evolution. Supervision of exercises.
- 2013 ● Museum für Naturkunde, Berlin. Co-supervision of the MSc thesis of Darija Josić. Foraging and roosting patterns of a bat community in northern Bavaria.

Conference contributions



Chaired conference sessions

- 2016 ● Ripperger SP, Dechmann DKN, Yovel Y. Special Session: Next Generation Bat Tracking. 17th International Bat Research Conference (IBRC), Durban, South Africa
- 2015 ● Thieleke J, Ripperger SP. Special Session: DFG BATS. German Microwave Conference (GeMiC), Nuremberg, Germany



Conference talks

- 2017 ● Ripperger SP, Mayer F. Encounter-networks of bats revealed by miniaturized proximity sensors. German Bat Research Conference, Vallendar, Germany
- 2016 ● Ripperger SP, Miniaturized proximity sensors for the study of social networks in BATS. 17th International Bat Research Conference (IBRC), Durban, South Africa
- 2015 ● Ripperger SP, Mayer F. High-tech meets ethology: Sensor technology helps to describe the foraging and social behavior in a tropical bat species. 108th Annual Meeting of the German Zoological Society (DZG), Graz, Austria
 - Ripperger SP, Mayer F. Sensor networks in animal tracking: future perspectives on wildlife research. German Microwave Conference (GeMiC), Nuremberg, Germany
 - Ripperger SP, Mayer F & DFG Research Unit 1508. BATS: sensor technology for unraveling social networks in bats. 4th International Berlin Bat Meeting, Berlin, Germany
 - Ripperger SP, Kalko EKV, Ayasse M. Two is better than one: a ‚bird-fig‘ attracts bats by scent production at night. German Bat Research Conference, Olpe, Germany
- 2013 ● Ripperger SP, Rodríguez-Herrera B, Tschapka M, Kalko EKV, Mayer F. Genetic consequences of habitat fragmentation: Insights from two Phyllostomid bat species in Costa Rica. 16th International Bat Research Conference & 43rd North American Symposium on Bat Research, Alajuela, Costa Rica
 - Ripperger SP, Kalko EKV, Mayer F, Tschapka, M. Space use in fragmented habitats: responses of a frugivorous bat species to an anthropogenic landscape. Conference of the Society for Tropical Ecology, gtö, Vienna, Austria
 - Ripperger SP, Tschapka, M, Kalko EKV, Mayer F. Anthropogenic habitat fragmentation: genetic consequences in two frugivorous bat species. 3rd International Berlin Bat Meeting, Berlin, Germany
 - Ripperger SP, Tschapka, M, Kalko EKV, Mayer F. Differential effects of habitat fragmentation on population genetics in two frugivorous bat species. German Bat Research Conference, Rottenburg-Ergenzien, Germany
- 2012 ● Ripperger SP, Tschapka, M, Kalko EKV, Mayer F. Effects of habitat fragmentation on the genetic population structure of the frugivorous bat *Dermanura watsoni* (Phyllostomidae). Conference of the Society for Tropical Ecology, gtö, Erlangen, Germany

Conference contributions



Poster

- 2017 ● Ripperger SP, Mayer F. Hiding in the dark: social foraging networks of vampire bats cracked by miniaturized proximity sensors. 5th International Berlin Bat Meeting, Berlin, Germany
- 2016 ● Ripperger SP, Mayer F. Encounter-networks in bats revealed by miniaturized proximity sensors. GOEvol Symposium Networks in Biology, Göttingen, Germany
- Hierold M, Cassens B, Ripperger SP, Mayer F, Weigel R, Koelpin A. Enabling encounter detection for small vertebrates – dynamically reconfigurable sensor nodes for BATS. 17th International Bat Research Conference (IBRC), Durban, South Africa
- Hartmann M, Nowak T, Hierold M, Ripperger SP, Mayer F, Thielecke J, Heuberger A. High Spatial Resolution Tracking of BATS – a highly Automated Bat Tracking System. 17th International Bat Research Conference (IBRC), Durban, South Africa
- DFG Forschergruppe 1508. BATS: A novel embedded communicating sensor system for dynamically adaptive tracking of terrestrial vertebrates. 17th International Bat Research Conference (IBRC), Durban, South Africa
- 2015 ● Josic D, Ripperger SP, Mayer F. Habitat use of a bat community in northern Bavaria, Germany. 4th International Berlin Bat Meeting, Berlin, Germany
- 2014 ● Josic D, Ripperger SP, Mayer F. Foraging and roosting patterns of a bat community in northern Bavaria. European Bat Research Symposium (EBRS), Sibenik, Croatia
- 2013 ● DFG Forschergruppe 1508. BATS - Operating adaptive tracking sensor-systems. Research Institutes Platform at the European Microwave Week 2013 (EuMW), Nuremberg, Germany
- 2012 ● Vollstädt M, Graiff A, Ripperger SP, Renner S, Tschapka M. Habitatfragmentierung und Infektion von Regenwaldvögeln mit Blutparasiten (Sporozoa: Haemosporida) in Costa Rica. Conference of the German Ornithologists' Society, DO-G, Saarbrücken, Germany
- 2009 ● Ripperger SP, Tschapka M, Ganzhorn JU, Heymann EW, Kalko EKV. Fruit choice and nutritional ecology of bats and tamarins. German Bat Research Conference, Frauenwörth, Chiemsee, Germany

Trainings & workshops

- 2017 ● Social Network Analysis Workshop, MPI-O Radolfzell, Germany
- 2016 ● GOEvol V symposium, University of Göttingen, Germany: "Networks in Biology"
- 2015 ● Conférence universitaire de Suisse occidentale (CUSO) workshop, Arolla, Switzerland: "The costs and benefits of information acquisition and use in social interactions"
- Science Craft training, MfN Berlin, Germany: "Data visualization"
- 2014 ● Science Craft training, MfN Berlin, Germany: "Grant proposal writing"
- 2012 ● Summer school, Leibniz Institute for Zoo and Wildlife Research, Berlin, Germany: „Next generation data management in movement ecology“