

CURRICULUM VITAE

Mathias Kuemmerlen Heinrich

Research Interests

- Distribution patterns of freshwater biodiversity and its drivers
- Impacts of anthropogenic disturbance on freshwater ecosystems
- Applications of species distribution modeling in conservation & management
- Biological processes as functional indicators of ecosystem integrity

Education

- 2010 – 2014 PhD **Freshwater Ecology**. [Goethe University](#), Frankfurt am Main, Germany; research at [Biodiversity and Climate Research Centre \(BiK-F\)](#) & [Senckenberg Research Institute and Natural History Museum Frankfurt](#), Dept. of River Ecology and Conservation. Thesis title: “Small scale, catchment-based species distribution models to assess climate and land use change effects on stream macroinvertebrates”. Graded as *magna cum laude*
- 2006 – 2008 M.Sc. **Environmental and Resource Management**. [Brandenburg Technical University](#), Cottbus, Germany, Chair of Freshwater Conservation. Thesis title: “Effects of leaf leachates on the activity of the microbial community associated to leaf litter in streams” Graded as 1.0 (highest mark in Germany)
- 2003 – 2005 B.Sc. **Biology**. [Latina University of Costa Rica](#), San Pedro, Costa Rica
- 2000 – 2004 B.A. **Business with Finance**. [Interamerican University](#), Heredia, Costa Rica
- 1988 – 1999 **Primary & Secondary Education**. Colegio Humboldt Schule, San José, Costa Rica

Professional Experience

- 2017 – 2019 **Postdoc**. EU-funded project “[AQUACROSS](#)” at Eawag in Dübendorf, Switzerland. Dept. Systems Analysis, Integrated Assessment and Modelling (SIAM)
- 2014 – 2016 **Postdoc**. EU-funded project “[EU BON](#) - Building the European Biodiversity Observation Network” at Senckenberg in Gelnhausen, Germany. Dept. of River Ecology and Conservation
- 2013 – 2014 **Postdoc** (50%). BiK-F-funded project “[ECOWATER](#) - Global-scale Assessment of Changed Discharge Regime Effects on the Occurrence of Stream Macroinvertebrates” at Senckenberg in Gelnhausen, Germany. Dept. of River Ecology and Conservation
- 2013 – 2014 **Postdoc** (50%). FWF-funded project “[Drusus](#)”. Dept. [Aquatic Evolutionary Ecology](#), Senckenberg BiK-F, in Frankfurt, Germany. Group Aquatic Evolutionary Ecology
- 2010 – 2013 **Doctoral Student**. DFG-funded project “Land Use and Water Resources Management under Changing Environmental Conditions in the Poyang Lake area, China” at Senckenberg in Gelnhausen, Germany. Dept. of River Ecology and Conservation
- 2009 – 2010 **Independent Environmental Consultant**. San José, Costa Rica
- 2009 **Field Assistant**. Las Cruces Biological Station, San Vito, Costa Rica. Project: “Bird and bat Populations in Agricultural Landscapes” of the Center for Conservation Biology, Stanford University
- 2007 **Visiting student**, [Dept. of Zoology](#), at Coimbra University, in Coimbra, Portugal
- 2006 – 2008 **Scientific Assistant**. [Dept. of Freshwater Conservation](#), at Brandenburg Technical University, in Cottbus, Germany
- 2006 **Environmental Consultant**. [CEGESTI](#), in San José Costa Rica
- 2005 – 2010 **Ad honorem Curator**: Order Dermaptera. [National Biodiversity Institute](#) (INBio), in Heredia, Costa Rica
- 2000 – 2003 **Apprentice Business with Finance, dual Education**. Siemens in San José, Costa Rica

Awards & Funding

- 2015 [Schwoerbel-Benndorf Nachwuchspreis](#) / Young scientist award **DGL**
- 2015 **DAAD** Travel grant to attend the SFS Meeting in USA
- 2014 **DGL** Travel grant to attend the SFS Meeting in USA
- 2013 Student Conference Registration Fee Awards **IALE** 2013 European Congress
- 2013 [Petersen Fund](#), **SFS** grant to attend the SFS Meeting in USA
- 2012 **DGL** Travel grant to attend the SFS Meeting in USA
- 2009 Best Master's thesis, [Faculty 4](#), **BTU** Cottbus, Germany. Grade 1.0

2006 Fellow 38th International Course: “Integrated Land-Use Management” [CIPSEM-UNEP](#), Dresden Technical University, Dresden, Germany

Teaching Experience

2015 Field course: **Freshwater Ecology**; topic “**Species Distribution Modelling in Freshwater Ecosystems**”. Goethe Universität Frankfurt. MSc level.

2014 Field course: **Freshwater Ecology**; topic “**Species Distribution Modelling in Freshwater Ecosystems**”. Freie Universität Berlin. MSc level.

2011 – 2012 Field course: **Freshwater Ecology**, topic: “**Stream Hydrology**”. Goethe Universität Frankfurt. MSc level.

2009 – 2010 Semester Course: **Watershed Management**. Latina University of Costa Rica, at San Pedro. BSc. level.

2004 **Language Instructor**. Berlitz. Santa Ana, San José, Costa Rica. Languages taught: Spanish, English, German

Student Supervision

Ph.D. Katie Irving, IGB Berlin, co-supervised 2015 - 2019. Main supervisor Dr. Sonja Jähnig, Dept. Ecosystem Research, Global Change Effects on River Ecosystems.

M.Sc. Fernando L. Palacios Duarte, Stuttgart University of Applied Sciences, co-supervised 2017. Main supervisor: Prof. Dr. Dietrich Schröder, Department of Geomatics, Computer Science and Mathematics.

M.Sc. Diana Michler, Universität Duisburg-Essen, co-supervised 2017. Main supervisor: Prof. Dr. Florian Leese, Faculty of Biology, Dept. Aquatic Ecosystem Research.

Services to the scientific community

Regional coordinator Founding member of the Freshwater Biodiversity Observation Network (FW BON). Currently co-leading recruiting efforts in the region South & Central America and setting up a cooperation agenda.

Guest editor Special Issue “Freshwater Ecosystem Models” in the journal Fundamental and Applied Limnology; 2015, Volume 186, Nr. 1-2.

Reviewer Aquatic Sciences, Biological Conservation, Biological Invasions, Diversity and Distributions, Ecological Indicators, Ecological Modelling, Freshwater Biology, Freshwater Science, Global Change Biology, Hydrobiologia, Journal of Environmental Management, Journal of Insect Conservation, Nature Conservation, Philosophical Transactions B, PlosONE, Revista de Biología Tropical

Selection Committee 2013: [GO-IN Goethe International Post-Doc Programme](#), Goethe University, Frankfurt am Main, Germany

Organizer & Moderator 2018 Special session at the **SFS** Meeting, Detroit, MI, USA: SS09: Spatial aspects of freshwater ecology: understanding, managing, predicting”

2017 Special session at the **DGL** Meeting in Cottbus, Germany: S15, “Modellierung zur Analyse von Veränderungen in Ökosystemen”

2017 Special session at the **SEFS** Meeting, Olomouc, Czech Republic: SS04, “Ecological modelling of freshwater ecosystems: populations, communities and species distribution”.

2016 Special session at the **SFS** Meeting, Sacramento, CA, USA: SS25, “Modeling Environmental Change in Freshwater Ecosystems”.

2015 Special session at the **SFS** Meeting, Milwaukee, WI, USA: “Freshwater species distribution models: contributions to conservation”.

2015 Special session at the **SEFS** Meeting, Geneva Germany: SS08, “Modelling in Freshwater Ecosystems”.

2014 Special session at the **JASM** Meeting, Portland, OR, USA: [I043](#), “Distributions in aquatic ecosystems: predictors, models & communities”.

2013 Special session at the **SEFS** Meeting, Münster Germany: [SS11](#), “Models of Freshwater Ecosystems: advances, challenges and new applications”.

2013 Special session at the **SFS** Meeting, Jacksonville, FL, USA: [S11](#), “Modelling approaches in freshwater ecosystem science and management”.

Spokesman Ph.D. Students Senckenberg Institute & BiK-F, Germany, 2012

B.Sc. Biology Students, Latina University, San Pedro, Costa Rica, 2004

Invited Talks

- 11.2016 at the Dept. of Inland Waters, German Ministry of the Environment, “*Wie beeinträchtigen Barrieren die Verbreitung von Süßwasserfischen? - Eine Untersuchung mittels Arealmodellen*”
- 09.2016 at the 8th Offenbach Climate Protection Conference (Offenbacher Klimaschutzkonferenz des Amtes für Umwelt, Energie und Klimaschutz), Offenbach am Main, “*Fließgewässer und globale Umweltveränderungen: eine Perspektive*”
- 04.2016 at the Dept. Biology, University of Costa Rica, “*Aplicación de Modelos de Distribución de Especies a Ecosistemas Dulceacuicolas lóticos*”

Recent Talks

- 2018 “Assessing the state of freshwater ecosystems at the catchment scale to support the environmental management of rivers” at the Society for Freshwater Science (**SFS**) Annual Meeting, Detroit, USA
- 2017 “Räumliche Kriterien zur ökologischen Beurteilung von Flussnetzwerken und deren Anwendung im Fließgewässermanagement” at the Deutsche Gesellschaft für Limnologie (**DGL**) Meeting in Cottbus, Germany
- 2017 “Which traits can induce vulnerability to climate change? An approach using distribution predictions for Drusinae (Trichoptera) under future scenarios” at the Symposium of European Freshwater Sciences (**SEFS**) in Olomouc, Czech Republic
- 2016 “Freshwater fish distribution modelling under consideration of structural impairments to dispersal” at the **DGL** Meeting in Vienna, Austria
- 2016 “Applications of long-term monitoring freshwater biodiversity data in species distribution modeling” at the GEO-BON Meeting in Leipzig, Germany
- 2016 “How many are too many barriers for freshwater fish?” at the Society for Freshwater Science (**SFS**) Annual Meeting, Sacramento, USA.
- 2015 “Predicting stream macroinvertebrate distributions in the LTER-site Rhine-Main-Observatory: Long-term monitoring data meets high-resolution, catchment-based SDMs” at the **SEFS**, Geneva, Switzerland.
- 2015 “Predicting stream macroinvertebrate distributions in the LTER-site Rhine-Main-Observatory: Long-term monitoring data meets high-resolution, catchment-based SDMs” at the **SFS** Annual Meeting, Milwaukee, USA.
- 2015 “Predicting stream macroinvertebrate distributions in the LTER-site Rhine-Main-Observatory: Long-term monitoring data meets high-resolution, catchment-based SDMs” at the **LTER-D** Meeting, Halle, Germany.

Languages

- Native: German & Spanish [conversation, reading & writing]
Native-level: English [C2, conversation, reading & writing]
Proefficient: Portuguese [C1; conversation, reading & writing]
Basic: French [A1, conversation, reading & writing]

Professional memberships

- DGL [Deutsche Gesellschaft für Limnologie](#) / *German Limnological Society*
SFS [Society for Freshwater Science](#) / *former NABS*
AOCR [Asociación Ornitológica de Costa Rica](#) / *Costarican Ornithological Society*

Skills

Field Mist netting (birds & bats), banding (birds), stream sampling (benthic macroinvertebrates), spawning bed monitoring (fish), diverse terrestrial arthropod sampling techniques, point and transect counts, tree and epiphyte inventories, hydrologic measurements.

Laboratory Software Set-up of freshwater experiments, measurements of diverse abiotic and biotic parameters. MS Office package, ArcGIS, Q GIS, R programming (diverse packages), ImageJ, The GIMP, Maxent, SPSS, Statistica, Zotero.

Other

Certifications European First Aid Certificate, Samaritan International; PADI Open Water Diver;
Football (Soccer) Coach

Photography Amateur 1st Prize “Guillermo Carreras” 2008. ACOPROT, Costa Rica. [web](#)