

Dr. Eduard Szöcs

Personal

Date of birth 16.06.1987
Nationality german
Marital Status single
Languages German (native), English (fluent), Romanian (good)

Education

- 04.2014 – 01.2017 **Ph.D. Environmental Sciences**, *University of Koblenz-Landau*, Landau.
Thesis: "Statistical Eco(toxico-)logy - Improving the Utilisation of Data for Environmental Risk Assessment". Thesis available from <http://uni-ko-ld.de/gd>
- 04.2012 – 03.2014 **M. Sc. Ecotoxicology**, *University of Koblenz-Landau*, Landau.
Thesis: "Analysing mesocosm experiments: Principal Response Curves vs. Multivariate Generalized Linear Models." Available from <http://uni-ko-ld.de/ge>
- 11.2011 **B. Sc. Umweltwissenschaften**, *University of Koblenz-Landau*, Landau.
Thesis: "Effects of salinity and pesticides on community structure of macroinvertebrates in Australian streams." Available from <http://uni-ko-ld.de/gf>
- 09.2007 – 11.2011 **Dipl. Umweltwissenschaften**, *University of Koblenz-Landau*, Landau.

Work and Teaching Experience

- 03.2017 – present **Manager Biostatistics**, *BASF SE*, Ludwigshafen.
- 02.2016 – 01.2017 **Research Assistant**, *University of Koblenz-Landau*, Landau.
Field Study in Romania, Data analyses, maintenance of databases and servers, PhD research.
- 11.2015 – 02.2017 **Freelance Scientist & Consultant**.
Data sourcing, cleaning and analysis with specialization in Environmental & Ecological data. Courses in ecological statistics with the software "R".
- 04.2015 – 01.2016 **Research Assistant**, *University of Koblenz-Landau*, Landau.
"PSM in Kleingewässern". A project funded by the German Environment Agency (FKZ 3714674040/1). Building, maintaining and analysing a nation-wide german pesticide monitoring database.
- 2014 – 2016 **Teaching Assistant**, *University of Koblenz-Landau*, Landau.
Advanced Geographic Information System (GIS) Course, supervision of student projects.
- 05.2014 – 04.2015 **Research Assistant**, *University of Koblenz-Landau*, Landau.
Data analyses, maintenance of databases and servers, PhD research.

- 12.2013 **Research Assistant**, *University of Koblenz-Landau*, Landau.
Development of a PostgreSQL-database of german physico-chemical data.
- 12.2012 **Research Assistant**, *Department System Ecotoxicology, UFZ – Helmholtz Centre for Environmental Research*, Leipzig.
Development of rspear R-package.
- 05.2012 – 07.2012 **Internship**, *Dr. M. Liess, Department System Ecotoxicology, UFZ – Helmholtz Centre for Environmental Research*, Leipzig.
Field Study on the effects of pesticides on macroinvertebrates.
- 2011 – 2015 **Teaching Assistant**, *University of Koblenz-Landau*, Landau.
Multivariate Statistics Course.
- 07.2010 **Teaching Assistant**, *University of Koblenz-Landau*, Landau.
Aquatic Ecology Field Course.
- 06.2006 – 07.2007 **Voluntary Year of Environmental Service / Civil Service.**, *Landschaftspflegeverband Südpfalz e. V.*, Landau.
Biological sampling, biotope conservation, data preparation.

Programming Skills

Expert R

Intermediate \LaTeX , git, shiny, PostgreSQL, GrassGIS, PostGIS, shell, regex, xpath, cloud computing, linux server administration

Beginner Python, C++, CDK, RDKit, openbabel, NetLogo

(Beginner = "I know the basics and can get the job done"; Intermediate = "I can effectively apply these tools"; Expert = "I can develop and expand these tools.")

Software

I have developed or contributed to the following open source software for the R statistical computing environment, available from github (<https://github.com/EDiLD>) or The Comprehensive R Archive Network (CRAN):

- **webchem**: An R package to retrieve chemical information from the web (author).
- **taxize**: An R package for taxonomic search, retrieval and handling in R (co-author).
- **vegan**: Multivariate Statistics, ordination methods, diversity analysis and other functions for community and vegetation ecologists (co-author).
- **shiny apps**:
 - Calculate statistical power for one factorial designs (available at <http://uni-ko-ld.de/gc>).
 - Teaching tool for Generalised Linear Models (available at <http://uni-ko-ld.de/g3>)
- **rspear**: Calculate $\text{SPEAR}_{\text{pesticides}}$ in R (deprecated, author).
- Various other R packages and functions related to eco(toxico-)logy and environmental sciences.

Publications and Conference contributions

Articles

- [1] L. Lagadic, R. B. Schäfer, M. Roucaute, E. **Szöcs**, S. Chouin, J. de Maupeou, C. Duchet, E. Franquet, B. Le Hunsec, C. Bertrand, S. Fayolle, B. Francés, Y. Rozier, R. Foussadier, J.-B. Santoni, and C. Lagneau (2016). "No association between the use of Bti for mosquito control and the dynamics of non-target aquatic invertebrates in French coastal and continental wetlands". en. *Science of The Total Environment* 553, 486–494.
- [2] V. C. Schreiner, E. **Szöcs**, A. K. Bhowmik, M. G. Vijver, and R. B. Schäfer (2016). "Pesticide mixtures in streams of several European countries and the USA". *Science of The Total Environment* 573, 680–689.
- [3] E. **Szöcs** and R. B. Schäfer (2016). "Statistical hypothesis testing—To transform or not to transform?" en. *Integrated Environmental Assessment and Management* 12 (2), 398–400.
- [4] J. G. Mbaka, E. **Szöcs**, and R. B. Schäfer (2015). "Meta-analysis on the responses of traits of different taxonomic groups to global and local stressors". *Acta Oecologica* 69, 65–70.
- [5] E. **Szöcs**, P. J. v. d. Brink, L. Lagadic, T. Caquet, M. Roucaute, A. Auber, Y. Bayona, M. Liess, P. Ebke, A. Ippolito, C. J. F. t. Braak, T. C. M. Brock, and R. B. Schäfer (2015). "Analysing chemical-induced changes in macroinvertebrate communities in aquatic mesocosm experiments: a comparison of methods". *Ecotoxicology* 24 (4), 760–769.
- [6] E. **Szöcs** and R. B. Schäfer (2015). "Ecotoxicology is not normal: A comparison of statistical approaches for analysis of count and proportion data in ecotoxicology". en. *Environmental Science and Pollution Research* 22 (18), 13990–13999.
- [7] E. **Szöcs**, E. Coring, J. Bäche, and R. B. Schäfer (2014). "Effects of anthropogenic salinization on biological traits and community composition of stream macroinvertebrates". *Science of The Total Environment* 468–469, 943–949.
- [8] S. A. Chamberlain and E. **Szöcs** (2013). "taxize: taxonomic search and retrieval in R". *F1000Research* 2 (191).
- [9] R. B. Schäfer, M. Bundschuh, D. A. Rouch, E. **Szöcs**, P. C. von der Ohe, V. Pettigrove, R. Schulz, D. Nuggeoda, and B. J. Kefford (2012). "Effects of pesticide toxicity, salinity and other environmental variables on selected ecosystem functions in streams and the relevance for ecosystem services". *Science of the Total Environment* 415 (1), 69–78.
- [10] E. **Szöcs**, B. J. Kefford, and R. B. Schäfer (2012). "Is there an interaction of the effects of salinity and pesticides on the community structure of macroinvertebrates?" *Science of the Total Environment* 437 (1), 121–126.
- [11] E. **Szöcs**, M. Brinke, B. Karaoglan, and R. B. Schäfer (submitted, 2016). "Large scale risks from pesticides in small streams". *Environmental Science & Technology*. preprint available at: <http://uni-ko-ld.de/ga>.
- [12] E. **Szöcs** and R. B. Schäfer (accepted, 2016). "webchem: An R Package to Retrieve Chemical Information from the Web". *Journal of Statistical Software*. preprint available at: <http://uni-ko-ld.de/g9>.
- [13] M. V. Wiczorek, N. Bakanov, D. Bilancia, E. **Szöcs**, S. Stehle, M. Bundschuh, and R. Schulz (submitted, 2016). "Structural and functional effects of a short-term pyrethroid pulse exposure on invertebrates in outdoor stream mesocosms". *Environmental Pollution*.

Poster presentations

- [1] E. **Szöcs** and R. B. Schäfer (2015). "Ecotoxicology is not normal." Poster. SETAC Europe; Barcelona.
- [2] E. **Szöcs** and S. A. Chamberlain (2014). "taxize: taxonomic search and retrieval in R". Poster. International Statistical Ecology Conference 2014; Montpellier.
- [3] E. **Szöcs**, B. J. Kefford, V. Pettigrove, and R. B. Schäfer (2011). "Einfluss von Pestiziden und Salinität auf Makroinvertebratengemeinschaften". Poster. SETAC GLB; Landau.

As a service to the scientific community I performed a total of 5 reviews for the journals *Proceedings of the Royal Society B*, *PhytoKeys*, *Zookeys*, *Environmental Toxicology and Chemistry* and *Methods in Ecology and Evolution*.

Workshops held

- 07.2015 **Data analysis in freshwater ecology using R**, *9th Symposium for European Freshwater Sciences*, Geneva.
Workshop held together with Dr. Ralf B. Schäfer and Dr. Avit K. Bhowmik.
Workshop homepage: https://github.com/EDiLD/sefs9_Rworkshop
- 11.2015 **Data Visualization with ggplot2**, *Workshop held at Young Academics Conference 2015 - Land-Water-Interactions*, Klingenmünster.
Workshop homepage: https://github.com/EDiLD/r_landau_2015

Miscellaneous

- Hobbies Traditional Climbing, Hiking, Boardgames
- Voluntary activities Board member of the local climbers association "Vereinigung der Pfälzer Kletterer e.V."

Neustadt a.d. Weinstraße, April 12, 2017