Alban Sagouis

Data Scientist

PERSONAL DETAILS

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PROFESSIONAL EXPERIENCE

Scientific programmer – Data manager   2019-present

iDiv – Biodiversity Synthesis Group

I aggregate, restructure and standardise heterogeneous data from the literature. As a scientific developer, I organize research projects, provide expert opinions on existing R programs, and promote reliable data management for improved reproducibility and archiving of scientific work. I collaborate with iDiv data repository project BioDivBank, with BioTIME and maintain various rOpenSci packages. Team leader: Jonathan Chase

Scientific assistant – Post-doc   2017-2019

FU Berlin – IGB Leibniz-Institut Berlin – AG Jeschke

In the framework of the INDYNET project, I lead analyses for a post-doc project studying fish responses following invasive species dynamics. This project aimed at using null models to assess critical abundances above which alien species had detrimental effects on diversity metrics. As a BIBS post-doc, I analysed taxonomic and functional diversity of aquatic invertebrate communities along a urbanisation gradient in Berlin and Brandenburg. I assisted post-docs and PhD students managing and analysing data and presenting their results. Team leader: Jonathan Jeschke

Post-doc   2018

IZW Leibniz-Institut Berlin, Ecological Dynamics Department

Short-term project aimed at conducting a meta-analysis of the effects of European and North-American beavers on terrestrial and aquatic plants, invertebrates, fish and amphibians. Supervisors: Dr. Stephanie Kramer-Schadt and Dr. Viktoriia Radchuk.

PhD student   2013-2017

Irstea, Aix en Provence

I analysed lake fish community responses to disturbances using diversity indices. Following this first metric assessment, eutrophication and non-native species effects on fish community assembly rules were analysed at the European scale thanks to null models and various taxonomic and functional metrics. MARS project tasks also included participating to a meta-analysis, workshops and report redaction. Under the supervision of Dr. Christine Argillier and Dr. Franck Jabot. Defended July 2017 in presence of Pr. Emili García-Berthou and Dr. Gaël Grenouillet as main committee members.

Master student   2013

EDB, Toulouse, MSc. research training

A large scale database of fish isotopic signature was aggregated thanks to a meta-analysis method and complementary environmental parameters were collected thanks to GIS tools. I then tested the effects of introduced species on fish trophic diversity in lakes and rivers worldwide thanks to linear mixed effect model selection. Supervisor: Dr. Julien Cucherousset.

Master student   2012

Irstea Lyon, MSc. research training

I analysed temporal and spatial dataset describing macroinvertebrate communities' responses to environmental conditions of temporary rivers in France. I retrieved and cleaned data from ONSET moisture loggers. Supervisor: Dr. Thibault Datry

EDUCATION

PhD. Community Ecology   2013-2017

University of Aix-Marseille

> *Assembly rules of lake fish communities: biotic and abiotic influences.*

PhD thesis supervisors: Dr. Christine Argillier and Dr. Franck Jabot.

PhD thesis reviewers: Pr. Emili García-Berthou and Dr. Gaël Grenouillet.

MSc. Ecosystem Modeling   2012-2013

University of Toulouse

> Comprehensive formation encompassing a wide array of modeling (including IBMs) procedures and statistical analyses based on multiple languages (C++, MATLAB, R and LaTeX).

MSc. Ecosystem Functioning   2011-2012

University of Toulouse

> Theoretical and applied courses covering energy and matter cycles, biodiversity function relations, ecotoxicology and risk assessment, global change and statistics (R).

BSc. Biology of Organisms, Populations and Ecosystems   2007-2010

University of Toulouse

> General formation on organism biology, taxonomy, evolution and ecology.

PUBLICATIONS

Blowes S. A., McGill B., Brambilla V., Chow C. F. Y., Engel T., Fontrodona-Eslava A., Martins I. S., McGlinn D., Moyes F., Sagouis A., Shimadzu H., van Klink R., Xu W., Gotelli N. J., Magurran A. E., Dornelas M. & Chase J. M. 2024. Synthesis reveals approximately balanced biotic differentiation and homogenization *Science Advances.* link

Martins I. S., Schrodt F., Blowes S. A., Bates A. E., Bjorkman A. D., Brambilla V., Carvajal Quintero J., Chow C. F. Y., Daskalova G. N., Edwards K., Eisenhauer N., Field R., Fontrodona-Eslava A., Henn J. J., van Klink R., Madin J. S., Magurran A. E., McWilliam M., Moyes F., Pugh B., Sagouis A., Trindade-Santos I., McGill B. J., Chase J. M. & Dornelas M. 2023. Widespread shifts in body size within populations and assemblages. *Science.* link

Xu W., Blowes S. A., Brambilla V., Chow C. F. Y., Fontrodona-Eslava A., Martins I. S., McGlinn D., Moyes, F., Sagouis A., Shimadzu H., van Klink R., Magurran A. E., Gotelli N. J., McGill B. J., Dornelas M. & Chase J. M. 2023. Regional occupancy increases for widespread species but decreases for narrowly distributed species in metacommunity time series. *Nature Communications.* link

Grenié M., Berti E., Carvajal Quintero J., Dädlow G. M. L., Sagouis A. & Winter M. 2023. Harmonizing taxon names in biodiversity data: A review of tools, databases and best practices. *Methods in Ecology and Evolution.* link

Blowes S. A., Daskalova G. N., Dornelas M., Engel T., Gotelli N. J., Magurran A. E., Martins I. S., McGill B., McGlinn D. J., Sagouis A., Shimadzu H., Supp, S. R. & Chase J. M. 2023. Local biodiversity change reflects interactions among changing abundance, evenness, and richness. *Ecology.* link

Musseau C., Onandia G., Sagouis A., Peterman J. & Jeschke J. M. 2022. Functional shifts of freshwater communities due to extreme drought events in an agriculture landscape. *Ecology and Evolution.*

Gooriah L., Blowes S. A., Sagouis A., Schrader A., Karger D. N., Kreft H., Chase J. M., Hui C. 2021. Synthesis reveals that island species–area relationships emerge from processes beyond passive sampling. *Global Ecology and Biogeography.* link

Birk, S., ..., Sagouis, A., ... & Hering, D., 2020, Impacts of multiple stressors on freshwater biota across spatial scales and ecosystems *Nature Ecology & Evolution*, **4**, 1060-1068. link

Chase, J. M., Liebergesell, M., Sagouis, A., May, F., Blowes, S. A., Berg, Å., ... & Ziv, Y., 2019, FragSAD: A database of diversity and species abundance distributions from habitat fragments. *Ecology.* link

Jarić, I., Heger, T., Castro-Monzon, F., Jeschke, J. M., Jones, C. G., McConkey, K. R., Pyšek, P., Sagouis, A. & Essl F., 2018, Crypticity in Biological Invasions, *Trends in*

Ecology & Evolution. link

Teichert N., Lepage M., Sagouis A., Borja Á., Chust G., Ferreira M.T., Pasquaud S., et al., 2017, Functional redundancy and sensitivity of fish assemblages in European rivers, lakes and estuarine ecosystems, *Scientific Reports*, **7**, 17611. link

Sagouis, A., Jabot F. & Argillier C., 2017, Taxonomic versus functional diversity metrics: how do fish communities respond to anthropogenic stressors in reservoirs? *Ecology of Freshwater Fish*, **226**, 621-635. link

Nõges, P., Argillier C., Borja Á., Garmendia J. M., Hanganu J., Kodeš V., Pletterbauer F., Sagouis A. & Birk S., 2016, Quantified biotic and abiotic responses to multiple stress in freshwater, marine and ground waters. *Science of The Total Environment*, **540**, 43–52. link

Blabolil, P., Logez M., Ricard D., Prchalová M., Říha M., Sagouis A., et al., 2016, An assessment of the ecological potential of Central and Western European reservoirs based on fish communities. *Fisheries Research*, **173**, 80–87. link

Vander Vorste, R., Corti R., Sagouis A. & Datry T., 2016, Invertebrate communities in gravel-bed, braided rivers are highly resilient to flow intermittence. *Freshwater Science*, **35**, 164–177. link

Sagouis, A., Cucherousset J., Villéger S., Santoul F. & Boulêtreau S., 2015, Non-native species modify the isotopic structure of freshwater fish communities across the globe. *Ecography*, **38**, 979–985. link

TECHNICAL REPORTS

Nõges, P., Argillier C., Borja Á., Garmendia J. M., Hanganu J., Kodeš V., Pletterbauer F., Sagouis A. & Birk S., 2015, MARS Deliverable 2.1: Four manuscripts on the multiple stressor framework. pdf

Argillier C., Teichert N., Sagouis A., Lepage M., Schinegger R., Palt M., Schmutz S., Segurado P., Ferreira M.T., Chust G., Uriarte A., Borja Á., 2015, MARS Deliverable 5.A: Report on the comparison of the sensitivity of fish metrics to multi-stressors in rivers, lakes and transitional waters. pdf

Teichert N., Argillier C., Lepage M., Sagouis A., Schinegger R., Palt M., Schmutz S., Segurado P., Ferreira M.T., Chust G., Borja Á., 2016, MARS Deliverable 5.1-5: Reports on stressor classification and effects at the European scale: New functional diversity indices allowing assessing vulnerability in abiotic multi-stressor context. pdf

SKILLS

Languages	French (mother tongue)
	English (fluent)
	Spanish (intermediate)
	German (beginner)
Reviewing	Hydrobiologia, Scientific Reports, Fish and Fisheries
Data extraction	R (pdftools, staplr, tabulapdf (formerly tabulizer), jsonlite, stringi, parzer)
Data wrangling	R (data.table, dplyr, tidyr)
Taxonomy	R (rgnparser, taxize)
Package building	R (devtools, covr, revdepcheck, codemetar)
Consolidating data and code	R (testthat, checkmate)
Spatial tools	R (sf, terra, geopshere, parzer, dggridR)
Reproducibility	R (renv)
Other programming languages	Basic knowledge of C++, Python and MATLAB
Other tools	git and gitHub
	RStudio and Visual Studio Code
	Jekyll, R Shiny, Markdown and LaTeX
	ArcGIS
	Office