

# MÁRIO SÉRGIO DAINEZ FILHO

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Doctorate in Ecology and Limnology of freshwater ecosystems. Very motivated to learn and share knowledge with people. Have experience in field sampling, experimentation, data wrangling, data analysis, and data visualization.

## General Information

### Education

2017 – 2021: **Doctorate in Ecology of Inland Water Ecosystems**

State University of Maringá, Maringá, PR, Brazil  
Graduate Program in Ecology of Inland Water Ecosystems  
Thesis supervisor: Dr. Sidinei Magela Thomaz

2015 – 2017: **Master's in Environmental Sciences**

State University of Maringá, Maringá, PR, Brazil  
Graduate Program in Ecology of Inland Water Ecosystems  
Completed in February 2017.  
Thesis supervisor: Dr. Sidinei Magela Thomaz

2011 – 2014: **Graduation in Biology**

State University of Maringá, Maringá, PR, Brazil  
Department of Biology  
Thesis supervisor: Dr. Henrique Ortêncio Filho

## Summary of my skills

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### My hard skills:

1. Advanced knowledge in R
  - a. Data manipulation and visualization using tidyverse libraries (<https://www.tidyverse.org/>). I am very familiar with:
    - i. Visualizations using ggplot2;
    - ii. Data wrangling;
    - iii. Reshaping data;

- iv. Filtering data;
- v. Joining tables and combining databases;
- vi. String processing (using Regular Expressions – REGEX);
- vii. Web scraping;
- viii. Development of functions;
- ix. Data interpretation.

**2. Writing skills**

- a. I am used to write technical and non-technical reports containing data interpretation.

**3. My Quantitative Background and Analytical Skill Set comprehend notions of:**

- a. Probability;
- b. Monte Carlo Simulations (Null Models);
- c. Linear models (e.g. ANOVA; linear regressions);
- d. Logistic Regression;
- e. Generalized linear models (GLMs).

**My soft skills:**

**1. Embrace new challenges**

- a. I constantly work as a reviewer of new manuscripts for different scientific journals (you can check my profile on [publons](#));
- b. I earned a scholarship to work at the University of Alberta for six months (2019-2020) to develop an international project from the scratch.
- c. After finishing my master's degree, I enrolled in a PhD position (my current job).
- d. I constantly supervise undergrad students in their projects. I give them attention as if the project was mine.

**2. Team spirit**

- a. I always help new students in my lab. Me and everybody need help. I believe kindness generates kindness and you learn a lot from it!
- b. In my research group we have the “ecological saying”: “Facilitation is better than competition”! Which means that

we identify ourselves as being stronger when we act in favor of the whole team, not only considering our own benefit. I believe that is why my research group (Nupélia) is one of the most relevant groups in aquatic ecology in the world.

### 3. Good self-learning skills

- a. I always seek courses to increase my skills. That was how I learned data wrangling and data visualization. I took the amazing course [HarvardX's Data Science Professional Certificate](#) (as an auditor) ministered by Prof. Rafael Irizarry from Harvard.

### 4. Good communication skills

- a. Since 2015 I've been teaching courses and giving lectures to undergrad students about the scientific method, ecology, and data wrangling (see teaching experience section). You can check one of my latest classes (in Portuguese) on [YouTube](#).
- b. I love science outreach. Go to public and talk about science made me a very good communicator. You can check my podcast (in Portuguese) [clicking here](#).
- c. During the development of a scientific project I must interact with people with different departments and levels of knowledge. During my publications (see Publication's section) I improve my skills to understand, respect, and extract the best of each member of my working team.

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## Publications

Louback-Franco, N., **Dainez-Filho, M.S.**, Souza, D.C. et al. A native species does not prevent the colonization success of an introduced submerged macrophyte, even at low propagule pressure. *Hydrobiologia* 847, 1619–1629 (2020). <https://doi.org/10.1007/s10750-019-04116-w>

**Dainez-Filho, M.S.**, Michelin, T. S., Louback-Franco, N., Sousa, D. C., Silva, E. G., Thomaz, S.M. (2019). Role of sediment structuring by detritus on colonization and interspecific competition of one native and one invasive submerged macrophyte. *Hydrobiologia*. 834: 63-64 <https://doi.org/10.1007/s10750-019-3909-8>

Pulzatto, M.M., Cunha, E.R., **Dainez-Filho, M.S.**, Thomaz, S.M., (2019). Association Between the Success of an Invasive Macrophyte, Environmental Variables and Abundance of a Competing Native Macrophyte. *Frontiers in Plant Science*. 10, 1–11. <https://doi.org/10.3389/fpls.2019.00514>

Oliveira, M. V., **Dainez-Filho, M. S.**, Bertoncin, A.P., Muniz, C., Meurer, T., Figueiredo, B., Thomaz, S.M., Fávoro, S., Mormul, R. P. (2019) Native snails choose an invasive over a native macrophyte as a food resource *Canadian Journal of Zoology*, 97(4): 362-367. [doi.org/10.1139/cjz-2018-0116](https://doi.org/10.1139/cjz-2018-0116)

Michelin, T. S., **Dainez Filho, M. S.**, Thomaz, S. M. (2018). Aquatic macrophyte mats as dispersers of one invasive plant species. *Brazilian Journal of Biology*, v. 78, p. 169-171

Souza, D.C., Cunha, E.R., Murillo, R.A., Silveira, M.J., Pulzatto, M.M., **Dainez-Filho, M. S.**, Lolis, L.A. & Thomaz, S.M. (2017). Species inventory of aquatic macrophytes in the last undammed stretch of the Upper Paraná River, Brazil. *Acta Limnologica Brasiliensia*, 29, e115. <http://dx.doi.org/10.1590/s2179-975x6017>

Pulzatto, M. M.; **Dainez Filho, M. S.**; De Santana, H. S.; Romagnolo, M. B.; Ortêncio-Filho, H.; Pastorini, L. H. (2018) Germination responses of four pioneer plant species after passage through the gut of a frugivorous Neotropical bat. *Studies On Neotropical Fauna and Environment* v. 53, p. 75-84

## Conferences

Campus talk

**Science, Scientific Method and Environment – The importance of science in the decision making.** Presented at the X Journey of Biology Studies (2018). Unicesumar University, Maringá-PR

Campus course

**Testing hypotheses in invasion ecology: How to use the hypothetico-deductive method on the study of invasive species.** Presented at the XVII Maringaense Meeting of Biology (2017). State University of Maringá, Maringá PR.

## **Participation:**

VI Conference on Limnological Studies in Subtropical Climate (2018) – Rio Grande – RS, Brazil.

3<sup>o</sup> International Symposium of Ecology (2018). Foz do Iguaçu – PR, Brazil. Poster title: **Ten years of invasion of a submerged macrophyte – spatial and temporal patterns.** XXX Maringá Biology Week (2017). State University of Maringá, Maringá - PR, Brazil

5<sup>o</sup> Symposium in Theoretical Ecology (2016). Gramado-RS, Brazil.

VI Conference on Limnological Studies in Subtropical Climate (2016) – Curitiba – PR, Brazil

XV Brazilian Congress of Limnology (2015). Maringá – PR, Brazil

## **Other events:**

VI Scientific Exhibition PELD/CNPQ (2018). Porto Rico – PR, Brazil

XXXII Debates in Freshwater Ecology (2018). Maringá – PR, Brazil

II Science in the Square (2018). Maringá – PR, Brazil

I Science in the Square (2017). Maringá – PR, Brazil

## **Teaching Experience**

**2020**      **Teacher on the course: “Introduction to Data Manipulation and visualization in R – Regular Expressions and Web scrapping”**  
(40 hours) State University of Maringá, Maringá-PR, Brazil  
Graduate Program in Ecology of Inland Water Ecosystems

**2019**      **Teacher on the course: “Introduction to Data Manipulation and visualization in R”** (14 hours)  
State University of Maringá, Maringá-PR, Brazil  
Graduate Program in Ecology of Inland Water Ecosystems

**2018**      **Teacher on the course “Ecology of Freshwater Environments”**  
(100 hours)  
Unicesumar University, Maringá-PR, Brazil  
Department of Biology  
Master and undergraduate students

- 2018**      **Monitor of the discipline “Basic concepts to the usage of R”**  
State University of Maringá, Maringá-PR, Brazil  
Graduate Program in Ecology of Inland Water Ecosystems
- 2018**      **Co-orientation of undergraduate student in her research project**  
State University of Maringá, Maringá-PR, Brazil  
Department of Biology
- 2018**      **Evaluator of an undergraduate thesis presentation.**  
State University of Maringá, Maringá-PR, Brazil  
Department of Biology
- 2017**      **Teacher on the course “Testing hypotheses in invasion ecology: How to use the hypothetico-deductive method on the study of invasive species” XVII Maringaense Meeting of Biology (2017).** State University of Maringá, Maringá PR.

## **Research Experience and Previous Jobs**

### **Wagner Ecology Lab (2019 – 2020)**

University of Alberta – Edmonton CA  
PhD Invited Researcher

- Responsible for leading an international project with scientists from different countries in order to understand invasion patterns of aquatic plant species.
- Responsible for collecting data from multiple databases and standardizing it.
- Webscraping of botanical repository pages

### **PhD Researcher (2017 – 2021)**

Aquatic Macrophytes and Biological Invasions Lab, State University of Maringá, Maringá-PR, Brazil. Nupélia (Research group in limnology ichthyology and aquaculture)

- Responsible for organizing field works of the macrophytes monitoring program in Itaipu reservoir.
- Trained master and undergraduate students on sampling methods and help them to delineate and execute their projects.
- Collaborated with the Long-Term Ecological Monitoring Program (PELD) in the Upper Paraná River Floodplain.

- Provided courses to master and undergraduate students in order to help them with the scientific method.
- Collaborated with extension projects to spread the academic research through society.
- Worked as a reviewer for international journals (e.g. Hydrobiologia and Brazilian Journal of Biology).
- Currently working on PhD thesis modeling the occurrence of an invasive macrophyte to understand how the relative importance of the predictors of this species have changed since its invasion (ca. ten years ago).

### **Master's Researcher (2015 - 2017)**

Aquatic Macrophytes and Biological Invasions Lab, State University of Maringá, Maringá-PR, Brazil. Nupélia (Research group in limnology ichthyology and aquaculture)

- Received training on identifying aquatic macrophytes and sampling techniques in ecology and limnology of freshwater environments.
- Responsible for organizing a monitoring study at the Upper Paraná River Floodplain.
- Collaborated with the Itaipu Binational on the environmental monitoring program as researcher.
- Collaborated with the Long-Term Ecological Monitoring Program (PELD) in the Upper Paraná River Floodplain
- As a master's thesis, I researched the role of sediment structuring by detritus on colonization and interspecific competition of native and invasive macrophytes after an extreme water-drawdown in the Itaipu reservoir using in situ surveys and experiments to understand the effects in a short and long-term.

### **Undergraduate Researcher (2011 – 2014)**

Study Group on Mammalian Ecology and Environmental Education, State University of Maringá, Maringá-PR, Brazil.

- Received training on sampling and indentifying neotropical bats
- Assisted undergraduate and graduate students in fieldwork.
- Received two scholarships from the Brazilian government to support scientific initiation projects.
- Developed a research project regarding the partition of food resources between bats species in forest fragments of Maringá city.
- Developed a research project regarding the bat reproduction in forest fragments of Maringá city.

### **Worked as Reviewer for Scientific Journals**

Freshwater Science (2021)

Hydrobiologia (2020)

Limnology (2020)

Aquatic Ecology (2019)  
Hydrobiologia (2019)  
Hydrobiologia (2018)  
Hydrobiologia (2017)  
Brazilian Journal of Biology (2017)

## **Language**

- Has fluency in English, classified as “Vantage” (score of 547 points - B2) in the Common European Framework of Reference TOEFL ITP score.
- Native Portuguese.

## **Other skills**

- Proficient use of Microsoft Office (Word, Excel and PowerPoint).
- Easy in learning new techniques

## **References**

Dr. Sidinei Magela Thomaz (Previous supervisor)  
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