

# **CURRICULLUM VITAE**

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Xavier Benito Granell

Date: 30/4/2023

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## 0. BACKGROUND INFORMATION

### i. Summary of CV

I got a PhD in aquatic ecology (2016) from Aquatic Ecosystems-IRTA and University Rovira and Virgili (Spain) and held two international research stays (Poland and US). My postdoctoral works had been funded through competitive calls, including two US NSF-funded postdoctoral fellowships (2016-2020), and the Beatriu de Pinós-Marie Curie COFUND postdoctoral fellowship (2021-2024). These positions have allowed me to establish my research program revolving around 1) the development and application of biological proxies for tracking global change impacts in sentinel ecosystems (i.e., mountain lakes and river deltas), and 2) testing ecological theory through sedimentary records.

The productivity (2.5 papers/year), quantity (21 JCR publications; 80% in Q1 + Q2, first author of 11, 4 without my PhD and postdoc supervisors), impact (312 citations; h-index of 11; 19 citations per year and article in Google Scholar) seem outstanding regarding my career stage. I have published five papers in top-ranked journals (IF>8 or first decile of the area). I participated in 8 R+D competitive research projects funded by public entities, and lead as a PI/co-PI 7 (5 funded by international agencies, 2 R+D non-competitive national contracts; >250k €). I have been invited to give 5 talks, including 1 keynote presentation and 3 guest lectures. Overall, I presented my research findings at 21 regular national and international conferences (19 oral talks and 2 posters).

I created the working group on past socio-environmental systems, a joint venture of Past Global Changes (PAGES) and the International Union for Quaternary Research (INQUA). This allowed me to gain research independence (e.g., leading two database research projects as a co-PI and publishing no-JCR articles about data sharing practices) and international reputation (e.g., editorial activity serving as an associate editor of Marine and Freshwater Research, IF=2.36; guest editor of PAGES Magazine). My teaching experiences combine undergraduate and graduate courses in aquatic (paleo)ecology in the US and Spain; the latter as an adjunct professor at the University of Barcelona with more than 650h of official BSc and MSc courses. I have co-mentored 1 PhD thesis (University of Nebraska-Lincoln, US), and supervised several undergraduate internship students (University of Barcelona and University of Girona).

My status as an early-career leader is further demonstrated by i) a well-established global network of collaborators (i.e., >60 researchers from 20 different countries in 4 continents), ii) management (e.g., convener of 9 special sessions and workshops in international conferences), iii) networking (e.g., creation and management of ISDR' Young Diatomists section, and the PAGES Early-Career Network), and iv) recognition (NEON ASLO-SFS Early-Career Scholar award). I am serving as leader of the tropical South American Diatom Database constituent for Neotoma, the largest community-curated paleoecological database. I have been widely involved in science communication, including interviews in local newspapers and television, and talks to schools. I am co-editing the blog post "Diatom of the Month" which has been publishing monthly outreach posts for 5 years in a row. I am an active member of the Gender and Science group of the Iberian Association of Limnology (AIL) by coordinating the world exhibit "Women in Limnology", and publishing peer-reviewed papers and popular magazines.

**Keywords:** *Biological indicators; environmental change; aquatic ecosystems; quantitative time series modeling; ecological resilience; diatoms; foraminifera; lakes, deltas*

**ii. Personal data**

Full name: Xavier Benito Granell

Nationality: Spanish

Birth data: 29/11/1985, Tortosa (Spain)

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Github: <https://github.com/xbenitogranell>

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**iii. Academic data**

February 2016. **PhD Aquatic Ecology**. University Rovira and Virgili and Aquatic Ecosystems Program (IRTA, Spain). **Thesis:** *“Benthic diatoms and foraminifera as indicators of coastal wetland habitats: application to palaeoenvironmental reconstruction of a Mediterranean Delta”*. Excellent cum laude, International doctorate mention. Supervisors: Dr Carles Ibàñez, Dr Rosa Trobajo, and Prof Manola Brunet. Dissertation committee members: Dr. Manel Leira (University of Lisboa), Dr. Santiago Giralt (“Jaume Almera” Institute of Earth Sciences, CSIC, Spain), and Prof Gerhard Schmiedl (University of Hamburg, Germany).

June 2012. **MSc Physical Geography** (University Rovira & Virgili, Spain) **Ms Thesis:** *“Predictive modelling of wetland habitats in a Mediterranean delta with a GIS approach”* Mark: Matricula de Honor (Maximum score with Honours). Supervisor: Dr Carles Ibàñez, Dr Rosa Trobajo.

June 2011. **BSc Biology**, University of Girona (Spain).

June 2007. **BSc Environmental Sciences**, University of Girona (Spain).

**iv. Languages**

Catalan: mother tongue

Spanish: Medium / High level

English: High level

**v. Employment history**

*Note: PI: Principal Investigator.*

2021–. **Adjunct Assistant professor**. Department of Evolutive Biology, Ecology and Environmental Sciences. University of Barcelona.

2021–. **Postdoctoral fellow**. Beatriu de Pinós-Marie Curie COFUND fellowship. Marine and Continental Waters Programme, IRTA, Spain. Project: *Shifts, baselines and non-linearities: quantifying past human influences in a Mediterranean delta using a combined limnological-paleolimnological approach (DELTA8K)*. Ref: 2019-BP00138 [94K EUR; salary + research funds]. **PI: Xavier Benito**.

2020–2021. **Diatom analyst**. Phytolab Control, l’Hospitalet de Llobregat, Spain.

2018–2020. **Postdoctoral fellow**. National Socio-Environmental Synthesis Center (SESYNC), University of Maryland (USA). Project: *“Regime shifts in Andean socio-ecological systems”* [120K]

USD; salary + research funds]. PI: **Xavier Benito**

2016–2018. **Postdoctoral research associate**. Department of Earth and Atmospheric Sciences, University of Nebraska-Lincoln (USA). Postdoc at Sheri Fritz Lab within the US National Science Foundation Project “The Role of Mountains, Landscapes, and Climate in the Distribution and Generation of Biodiversity in the Amazon/Andean Forest”. PI: Paul Baker (Duke University).

2011–2015. **PhD student**. Aquatic Ecosystems Program (IRTA, Spain) and Centre for Climate Change (University Rovira & Virgili, Spain). IRTA-URV predoctoral fellowship [48K EUR; salary].

2008. **Assistant research support**. Institute of Limnology “Raul A. Ringuelet”. Sponsorship: Banco Bilbao Vizcaya Argentaria [2000 EUR]. Global Changes in Fluvial Systems: effects on the trophic web, biodiversity and functional aspects FUNDACIÓN BANCO BILBAO-VIZCAYA. 2008-2010. PI: Sergi Sabater (University of Girona).

## A. SCIENTIFIC AND TECHNOLOGICAL CONTRIBUTIONS

### A.1 Publications I: scientific papers

**Table 1.** Summary of the publications’ metrics (based on Web of Science; access date: 24/04/2023).

Metric	Value
Number of scientific papers	21
h-index	10
Yearly h-index productivity since PhD defense	10/6=1.7
Citations	189
Papers published in Q1	14
Ratio Q1 papers/total indexed papers	14/21=0.7
Papers as first author	11
Papers of PhD students as first author supervised by me	1
Papers by invitation	1
Papers published in Open Access	2

Publications indexed in Journal Citations Report = JCR / *Publicaciones indexadas en JCR*

Legend:

\* Q1 journals referred to the publication year status

IF = Impact factor of the publication year except for publications from 2022 (IF used = 2021)

21\*. Ibáñez, C., Caiola, N., Barquín, J., Belmar, O., **Benito, X.**, Casals, F., Fennessy, S., Hughes, J., Palmer, M., Peñuelas, J., Romero, E., Sardans, J., & Williams, M. (2023). Ecosystem-level effects of re-oligotrophication and N:P imbalances in rivers and estuaries on a global scale. *Global Change Biology* 29 (5): 1248-1266. <https://doi.org/10.1111/gcb.16520> IF=13.2

20\*. Catalán, N., Anton-Pardo, M., Freixa, A., Rodríguez-Lozano, P., Bartrons, M., Bernal, S., Genua-Olmedo, A., Mendoza-Lera, C., Onandía, G., **Benito, X.**, Sánchez-Montoya, M. M., Cañedo-Argüelles Iglesias, M., Pastor, A., & Lupon, A. (2022). Women in limnology: From a historical perspective to a present-day evaluation. *WIREs Water*, e1616. <https://doi.org/10.1002/wat2.1616> IF=7.4

19. Luethje, M., **Benito, X.**, Schneider, T., Mosquera, P. V., Baker, P., & Fritz, S. C. (2023). Paleolimnological responses of Ecuadorian páramo lakes to local and regional stressors over the last two millennia. *Journal of Paleolimnology*. <https://doi.org/10.1007/s10933-022-00274-5> IF=2.1
- 18\*. **Benito, X.**, Luethje, M., Carrevedo M.L., Velez, M.I., Escobar, J., Tapia, P. Steinitz-Kannan, M. & Fritz, S.C. Tropical South American Diatom Database: a tool for studying the macroecology of microorganisms. *Diatom Research*. *in press*. DOI: 10.1080/0269249X.2022.2078429. IF=1.2
- 17\*. **Benito, X.**, Benito, B., Schneider, T., Velez, M.I., Salgado, J., Giosan, L., Nascimiento, M. Human practices behind the aquatic and terrestrial ecological decoupling to climate change in the tropical Andes. 2022. *Science of the Total Environment*. DOI: <https://doi.org/10.1016/j.scitotenv.2022.154115>. IF=7.9
- 16\*. **Benito, X.**, Luethje, M., Schneider, T., Fritz, S.C., Baker, P., Pedersen, E., Gauzere, P., Nascimiento, M., Bush, M., Ruhi, A. Ecological resilience in tropical Andean lakes: a paleolimnological perspective. 2022. *Limnology & Oceanography*. DOI: <https://doi.org/10.1002/lno.11747> . IF=4.8
- 15\*. **Benito, X.**, Vilmi, A., Feitl, M., Carrevedo M.L., Lindholm, M. & Fritz, S.C. Spatial and temporal ecological uniqueness of Andean diatom communities are correlated with climate, geo-diversity and long-term limnological change. 2020. *Frontiers in Ecology and Evolution*. DOI: 10.3389/fevo.2020.00260. IF=4.5
- 14\*. Nascimiento, M., Mosblech, N.A., Raczka, M.F., Baskin, S., Manrique, K.E., Wilger, J., Giosan, L., **Benito, X.** & Bush, M.B. 2020. The adoption of agropastoralism and increased ENSO frequency in the Andes. *Quaternary Science Reviews* 243, 106471. IF=4.6
- 13\*. **Benito, X.**, Feitl, M., Fritz, S.C., Mosquera, P.V., Schneider, T., Hampel, H., Quevedo, L. & Steinitz-Kannan, M. Identifying temporal and spatial patterns of diatom community change in the tropical Andes over the last c. 150 years. 2019. *Journal of Biogeography* 43: 1889-1900. IF=3.7
- 12\*. Ibáñez, C., Alcaraz, C., Caiola, N., Prado, P., Trobajo, R., **Benito, X.**, Reyes, E., Day., J.W. & Syvitski, J.P.M. Basin-scale land use impacts on world deltas: human vs natural forcings. 2019. *Global Planetary Change* 173: 24-32. IF=5.1
- 11\*. Prado, P., Alcaraz, C., **Benito, X.**, Caiola, N. & Ibáñez, C. Pristine vs. human-altered Mediterranean deltaic wetlands display contrasting resilience to RSLR. 2019. *Science of the Total Environment* 655: 1376-1386. IF=7.9
10. Fritz, S.C., **Benito, X.** & Steinitz-Kannan, M. 2019. Long-term and regional perspectives on recent change in lacustrine diatom communities in the tropical Andes. *Journal of Paleolimnology* 61: 251-262. IF=1.9
9. **Benito, X.**, Fritz, S.C., Steinitz-Kannan, M. Velez, M.I. & McGlue, M.M. 2018. Lake regionalization and diatom metacommunity structuring in tropical South America. *Ecology and Evolution* 8(6): 7865-7878. IF=2.9
- 8\*. **Benito, X.**, Fritz, S.C., Steinitz-Kannan, M., Tapia, P.M., Kelly, M.A & Lowell, T.V. 2018. Geoclimatic factors drive diatom community responses in tropical South American freshwaters. *Journal of Ecology* 106: 1660–1672. IF=5.8
7. Velez, M.I., Jaramillo, C., Salazar-Rios, F., **Benito, X.**, Fritz, S.C., Tapia, P.M., Lubiniecki, D., Kar, N. & Escobar, J. 2018. Aquatic ecosystems in a newly formed ecospace: Early Pliocene lakes in the Central Andean Altiplano. *Palaeoecology, Palaeoclimatology, Palaeogeography* 490: 218–226. IF=3.7
- 6\*. Carballeira, R., Trobajo, R., Leira, M., **Benito, X.**, Sato, S. & Mann, D.G. 2017. A combined morphological and molecular approach to *Nitzschia varelae* sp. nov. with discussion of symmetry in Bacillariaceae. *European Journal of Phycology* 52: 342–359. IF=2.8

- 5\*. **Benito, X.**, Cearreta, A., Trobajo, R. & Ibáñez, C. 2016. Benthic foraminifera as indicators of habitat in a Mediterranean delta: implications for ecological and palaeoenvironmental studies. *Estuarine, Coastal and Shelf Science* 180: 97–113. IF=3.0
4. Cearreta, A., **Benito, X.**, Trobajo, R., Ibáñez, C. & Giosan, L. 2016. Holocene palaeoenvironmental evolution of the Ebro Delta (Western Mediterranean Sea): an early formation based on the benthic foraminiferal record. *The Holocene* 26(9): 1438–1456. IF=2.6
- 3\*. **Benito, X.**, Cearreta, A., Trobajo, R., Ibáñez, C. & Brunet, M. 2015. Benthic foraminifera as indicators of habitat change in anthropogenically impacted coastal wetlands of the Ebro Delta (NE Iberian Peninsula). *Marine Pollution Bulletin* 101: 163–173. IF=5.6
2. **Benito, X.**, Trobajo, R. & Ibáñez, C. 2015. Benthic diatoms in a Mediterranean delta: ecological indicators and a conductivity transfer function for paleoenvironmental studies. *Journal of Paleolimnology* 54: 171-188. IF=2.1
1. **Benito, X.**, Trobajo, R. & Ibáñez, C. 2014. Modelling habitat distribution of Mediterranean coastal wetlands: the Ebro Delta as case study. *Wetlands* 34: 775–785. IF=2.2

#### A.2 Publications II: book chapters

2. **Benito, X.**, Fritz, S.C. *Diatom diversity and biogeography across tropical South America* (2020). In: Rull, V. & Carnaval, A.C. (Eds), *Neotropical Diversification*. Springer. ([invitation](#))
1. **Benito, X.** *Benthic foraminifera and diatoms as ecological indicators* (2020) In: Cristobal, G. Blanco, S. Bueno, G. (Eds). *Modern Trends in Diatom Identification: Fundamentals and Applications*. Springer ([invitation](#))

#### A.3 Other products (reports, datasets, non-peer reviewed publications)

**Benito X**, Fritz, S.C., Feitl, M., Steinitz-Kannan, M., Tapia, P.M., Velez, M.I., McGlue, M.M. and others. Leader of the database constituent for [Neotoma](#) “*Tropical South American Diatom Database*”[Github: <https://github.com/xbenitogranell/diatoms-biogeography-southamerica>]

**Benito X**, Jara I.A., Camperio G, Charqueño F, Davies K, Adamu Isa A, Ferrario F, Klamt A-M, Mariani M, Merino V & Orijemie E (2021) Virtual Past Socio-Environmental Systems: An interdisciplinary ECR workshop. *Past Global Changes Magazine* 29(1)

Alexandroff, S., **Benito, X.**, Bonk, A., Mette, M., Schafstall, N., Trofimova, T. 2020. PAGES ECN develops clusters: a new structure to support global networking. *Past Global Changes Magazine*, 28(2), 65

Koch, A., K.C. Glover, K.C., Zambri, B., Thomas, E.K., **Benito, X.** & J.Z. Yang, J.Z. 2018. Open data practices and challenges among early career paleo-researchers. *Past Global Changes Magazine*, vol. 26(2), 54-55.

**Benito, X.**, Fritz, S.C, Steinitz-Kannan, M., Tapia, P.M., Kelly, M.A. & Lowell, T. 2018. Data from: Geoclimatic factors drive diatom community distribution in tropical South American freshwaters. *Dryad Digital Repository*. DOI: <https://doi.org/10.5061/dryad.ck7pt> [downloaded 58 times]

**Benito, X.**, Fritz, S.C, Steinitz-Kannan, M., Velez, M.I. & McGlue, M.M. 2018. Data from: Lake regionalization and diatom metacommunity structuring in tropical South America. *Dryad Digital Repository*. DOI: <https://doi.org/10.5061/dryad.6jk8h77> [downloaded 26 times]

**Benito, X.**, Alexandroff, S. 2017. It is important to create a PAGES early-career researchers working

group? What should be its remit? *Past Global Changes Magazine*, 25: 102-103

#### A.4 Contributions to national and international conferences

**Table 2.** Summary of contributions. Oral: oral presentation; Poster: poster presentation; Student: contributions of PhD students supervised by me as first authors; 1<sup>ST</sup> Author: contributions as first author and/or presenter; Keynote: oral contributions in international conferences as keynote speaker; International: International conferences; National: National conferences.

Oral	Poster	Student	1st author	Keynote	International	National	Total
21	3	3	17	2	14	5	25

**Benito, X.** Feitl M, Carrevedo M., Velez M. I., Escobar J., Tapia P.M., Steinitz-Sannan M. Fritz S.C. Towards an inclusive and community-driven Iberoamerican geo-limnology science: the tropical South American diatom data base. Joint IPA-IAL Meeting, 27 November – 1 December 2022 (Argentina) [Oral presentation]

**Benito, X.**, Vilà, M., Alcaraz, C. Shifts, baselines, and nonlinearities: quantifying coastal ecological resilience using a combined limnological-paleolimnological approach. SIBECOL/AIL Meeting 3-8 July 2022, Aveiro, Portugal [Oral presentation]

Núria Catalán, Maria Anton-Pardo, Anna Freixa, Pablo Rodríguez-Lozano, Mireia Bartrons, Susana Bernal, Ana Genua-Olmedo, Clara Mendoza-Lera, Gabriela Onandía, **Xavier Benito**, María Mar Sánchez-Montoya, Miguel Cañedo-Argüelles Iglesias, Ada Pastor, Anna Lupon. Women in Limnology: from a historical perspective to a present-day evaluation. SIBECOL/AIL Meeting 3-8 July 2022, Aveiro, Portugal [Oral presentation]

Gender and Science AIL group (Núria Catalán, Isabel Fernandes, María Mar Sánchez-Montoya, Silvia Poblador, Anna Lupon, **Xavier Benito**). SIBECOL/AIL Meeting 3-8 July 2022, Aveiro, Portugal. **Keynote talk.**

**Benito, X.**, Núria Catalán, Maria Anton-Pardo, Isabel Fernandes, Anna Freixa, Pablo Rodríguez-Lozano, Mireia Bartrons, Susana Bernal, Ana Genua-Olmedo, Clara Mendoza-Lera, María Mar Sánchez-Montoya, Miguel Cañedo-Argüelles Iglesias, Ada Pastor, Anna Lupon. Gender LimnoEDU: Teaching resources to include women's scientific contributions in our lectures. SIBECOL/AIL Meeting 3-8 July 2022, Aveiro, Portugal [Oral presentation]

**Benito, X.**, Jara, I., Kulkarni, C. Building a synthesis database of past socio-environmental systems in the Global South. 6th PAGES OSM OSM 16-20 May 2022 (online) [Oral presentation]

Schafstall, N., **Benito, X.**, Brugger, S., Pla-Rabes, S., Davis, A., Ellis, E. Ten simple tips for publishing your research outside the prefix “paleo” 6th PAGES OSM 16-20 May 2022 (online) [Poster presentation]

**Benito, X** Shifts, baselines and non-linearities: quantifying paleolimnological resilience using diatoms. International Diatom Symposium [online] 24 August 2021. **Keynote talk.**

**Benito, X.**, Luethje, M., Schneider, T., Fritz, S.C., Baker, P., Pedersen, E., Gauzere, P., Nascimento, M., Bush, M., Ruhi, A. Developing diatom-based quantitative approaches to identify paleolimnological resilience. 69th British Phycological Society Congress, 4-8 January 2021 (online)



[Oral presentation]

**Benito, X.**, Luethje, M., Schneider, T., Fritz, S.C., Baker, P., Pedersen, E., Gauzere, P., Nascimiento, M., Bush, M., Ruhi, A. Abrupt, gradual or elastic? Combining ecology and paleolimnology to identify community responses to long-term human and climatic changes. ASLO Aquatic Sciences Meeting (online) 22-27 June 2021 [Poster presentation]

**Benito, X.** (*on behalf of the Gender and Science AIL group*). Women in Limnology: the exhibition tour. XX Congress of the Iberian Association of Limnology (online) July 2020 [Oral presentation]

**Benito, X.**, Feitl, M., Schneider, T., Fritz, S., Simpson, G. & Ruhi, A. Identifying lake ecological resilience across the tropical Andes. INQUA Conference. 25-31 July 2019. Dublin (Ireland) [Oral presentation]

Feitl M, **Benito X**, Fritz SC, Mosquera PV, Schneider T, Baker PA (2019) Paleolimnological response of Laguna Fondococha (Cajas National Park, Ecuador) and Laguna de Piñan (Cotacachi Cayapas Reserve, Ecuador) to local and regional stressors. GSA Annual Meeting. [Oral Presentation]

Feitl M., **Benito X**, Fritz SC, Steinitz-Kannan M, Mosquera PV (2019) Comparing Andean and Interandean lakes at decadal and centennial scales. GSA Joint South Central/North-Central/Rocky Mountain Meeting [Poster presentation]

**Benito, X.**, Schneider, T., Feitl, M., Fritz, S.C. & Ruhi, A. A palaeoecological perspective of resilience in Andean lakes. ASLO Aquatic Sciences Meeting. 24 Feb - 1 March 2019. Puerto Rico (USA) [Oral presentation]

**Benito, X.** & Ruhi, A. Palaeoecological-scale resilience in Andean socio-environmental systems. AGU Fall Meeting 2018, Washington DC, 10-14 December 2018 [Oral presentation]

**Benito, X.**, Feitl, M., Fritz, S., Schneider, T., Mosquera, P., Hampel, H., Quevedo, L., Steinitz-Kannan, M. Analyzing diatom metacommunities across space and time. Society for Freshwater Sciences Annual Meeting. 20-24 May 2018, Detroit (MI) [Oral presentation]

Feitl M, Fritz SC, **Benito X**, Steinitz-Kannan M. Characterizing short-term (1970-present) lake change in the high-mountain tropics and Amazon of Ecuador. GSA North-Central Section Meeting, 2018. [Poster presentation]

**Benito, X.**, Fritz, S. Diatom biogeography in tropical South America: importance of climatic and spatial factors. PAGES Young Science Meeting, 7-9 May 2017 (Spain) [Oral presentation]

**Benito, X.**, Fritz, S., Steinitz-Kannan, M, Velez, M.I. & McGlue, M.M. Diatom metacommunity structure of lake districts in tropical South America. North American Diatom Symposium. 30-4 September 2017, Ohio (USA) [Oral presentation]

**Benito, X.**, Trobajo, R., Cearreta, A. & Giosan, L. Benthic foraminifera as bioindicators of present and past Mediterranean deltaic habitats. XVIII Conference of the Iberian Association of Limnology. 4-8 July 2016. Tortosa (Spain) [Oral presentation]

**Benito, X.**, Cearreta, A., Trobajo, R., Ibáñez, C & Brunet, M. Natural and anthropogenic changes in a Mediterranean delta using diatoms and foraminifera. International Estuarine, Coastal and Shelf Sciences Association conference. 4-7 September 2015. London (UK) [Oral presentation]

**Benito, X.**, Cearreta, A., Trobajo, R., Ibáñez, C & Brunet, M. Natural and anthropogenic changes in a Mediterranean delta as reconstructed from foraminiferal assemblages. ASLO Aquatic Sciences

Meeting. 10-14 March 2015. Granada (Spain) [Poster presentation]

**Benito, X.**, Trobajo, R., Ibáñez, C. Modelling habitat distribution of Mediterranean coastal wetlands: the Ebro Delta as case study. 17-21 September 2014 International Wetlands Conference, Huesca (Spain) [Oral presentation]

**Benito, X.**, Trobajo, R., Ibáñez, C. Benthic diatoms as ecological indicators of Mediterranean wetland habitats: implications for paleoecological reconstructions. XVII Conference of the Iberian Association of Limnology. 4-8 July 2014. Santander (Spain) [Oral presentation]

#### A.5 Invited talks

Reconstructing past environments from diatoms: opportunities and challenges for combined paleoecological databases. Boost European Pollen Database workshop. University of Göttingen. 30-31 March 2023.

Diatomeas, bases de datos, y ciencia abierta. Curso Sistemática, Ecología y Biogeografía de diatomeas de agua dulce. National University of La Plata (Argentina). 2 December 2022

Coupled or not coupled: nonlinear rate of change analyses in multivariate paleoecological time series. PalaeoSIG Data Manipulation & Statistical Analyses in Paleoecology. 3 November 2022.

Diatom Web Academy. Diatoms of North America. *Is everything everywhere? Diatom community ecology meets biogeography* [online] 22 June 2021 ([recording link](#))

PAGES Human Traces Working Group Online Meeting. *Thinking large scale and nonlinear: quantifying anthropogenic impacts through the paleoecology of resilience* [online] 7 June 2021 ([recording link](#))

University of California, Berkeley (ESPM 174A) *Generalized Additive Models: an overview for time-series analyses*. 14 January 2021. Guest lecture

Stroud Water Research Center (Avondale, PA). *A paleolimnological scale resilience of lakes to recent warming*. 12 December 2019.

University of California, Berkeley (Freshwater Ecology lab seminar series). *Continental-scale lake diatom regime shifts*. 23 April 2019.

Yachay University (San Miguel de Urcoquí, Ecuador). *Diatom diversity and biogeography in tropical South America*. 10 February 2017.

Lakeside Laboratory, Phycological Consortium Research, Iowa, USA. *Do microbes have biogeography? Diatoms as a model system*. 29 September 2017.

Ebro Delta Natural Park (Spain): *The environmental evolution of the Ebro Delta: a 8000 years' record*. 4 December 2015.

#### A.6 Technology and knowledge transfer

Since 2022. Development of natural resilience indicators within the pilot program of the [UN-Habitat](#) coordinated by the Catalan Government. **External advisor.**

July 2022 – February 2023. Synthesis of the ecological status of the Ebro Delta coastal lagoons. Contract between the Ebro Delta Natural Park authority and Institute of Agrifood and Technology Research (IRTA). **PI: Xavier Benito** [12,000 EUR]

2022–. Resilience and climate change adaptation of the Ebro Delta: Bombita farm as a study system. Collaborative agreement between the Spanish Ministry of Ecological Transition and Demographic Challenge (Coastal and Marine General Directorate) and Institute of Agrifood and Technology Research (IRTA). **Coordinator: Xavier Benito.**

2022–2025. Sustainability routes and pilot study for the maintainiace off the Ebro Delta coast. Universitat Politècnica de Catalunya. PI: Prof Agustín Sanchez-Arcilla [35,200 EUR]. **Role: Project participant**

2020–2021. River biomonitoring and diatom analyses of Llobregat and Ter river watersheds. Phytolab control, Spain. Project manager: Pepita Nolla [45,000 EUR]. **Role: Diatom analyst**

## B. INTERNAZIONALIZATION

### B.1 Participation in I+D projects

**Table 3.** Summary of participation in I+D projects and secured budget.

International funding – research team member	6
International funding – collaborator	2
National funding - Public agencies	3
<b>TOTAL NUMBER OF PROJECTS</b>	<b>8</b>
<b>TOTAL BUDGET OF PROJECTS (EUR)</b>	<b>4,537,000</b>

**Project investigator.** *An integrated approach to characterize the human health risks of ciguatoxins in fish in Europe – EUROCIQUA 2.* Funded by the European Food Security Agency. 2023–2027. PI: Dr Jorge Diogene, IRTA-La Ràpita [IRTA Award 175,000 EUR].

**Project participant.** *Conservación de la biodiversidad acuática en los Parques Nacionales de las Islas Canarias en un contexto de estrés hídrico y especies invasoras (CONACAN).* 2023-2026. Funded by the Spanish Ministry of Ecological Transition and Demographic Challenge. PI Miguel Cañedo-Argüelles (IDAEA-CSIC) and Nuria Cid (IRTA) [128,000 EUR].

**Collaborator.** *The Iberian River Observatory IberRios.* 2022–2025. Funded by La Caixa Junior Retaining Fellowship and Spanish Ministry of Science and Innovation (Juan de la Cierva-incorporación programme). PI: Dr Cayetano Gutiérrez-Cánovas, EBD-CISC [32,000 EUR].

**Collaborator.** *Quantifying and discerning the origin of PYrenean environmental Changes: Abrupt Climate and HUMAN impact (PYCACHU).* 2020–2023. Funded by the Spanish Ministry of Science and Innovation. PI Drs Anna Moreno and Penelope Gonzalez Samperiz, IPE-CSIC [130,000 EUR].

**Project investigator.** *Ecological status assessment of the Ebro River, estuary, and delta.* 2021–2022. Contract between the Catalan Water Agency and Institute of Agrifood and Technology Research (IRTA). PI: Dr. Nuria Cid, IRTA-La Ràpita [9,000 EUR].

**Project investigator.** *A global analysis of oligotrophication trends in rivers and their ecological consequences – RIVERSHIFT.* 2020–2021. Funded by SESYNC (Socio-Environmental Synthesis Center) supported by the National Science Foundation (DBI-1052875). PI: Carles Ibáñez (IRTA) [12,000 USD].

**Project investigator** (postdoc contract). *The Role of Mountains, Landscapes, and Climate in the Distribution and Generation of Biodiversity in the Amazon/Andean Forest'* 2013–2018. PI: Profs

Paul Baker (Duke University) and Sheri Fritz (University of Nebraska-Lincoln). [UNL Award 379,000 USD].

**Collaborator.** *RISES-AM- Responses to coastal climate change: Innovative Strategies for High End Scenarios – Adaptation and Mitigation*. Funded by European Commission (Contract FP7-ENV-2013-two-stage-603396). 2014-2016. PI: Dr. Carles Ibáñez [1,5M EUR]

**Project participant.** *Habitat restoration and management in two coastal lagoons of the Ebro Delta*. Funded by European Commission (LIFE 09 NAT/ES/000520). 2012–2015. PI: Dr. Carles Ibáñez [2,3M EUR].

### B.2 Experience in national and international research centers

**Adjunct Assistant professor.** Department of Evolutive Biology, Ecology and Environmental Sciences. University of Barcelona. Since September 2021.

**Postdoctoral researcher.** Freshwater Ecology, Hydrology, and Management group (FEHM). Joint venture of IRTA, UB, and IDAEA-CSIC Consolidate Research Groups by the Catalan Government

**Visiting postdoc.** Department of Environmental Science, Policy, and Management, University of California, Berkeley (USA). Albert Ruhi's lab. April 2019–November 2019.

**Short research stay.** Paleolimnology group, University of Bern (Switzerland). Prof Martin Grosjean's lab June 2018–July 2018.

**Research stay to obtain the international mention of the doctorate.** Paleoceanology unit, University of Szczecin (Poland) Andrej Witkowski's lab. September 2013 – December 2013

**Short research stay.** Department of Geology and Stratigraphy, University of Basque Country, Spain. Alejandro Cearreta's lab (Spain) February 2014–April 2014.

**Undergraduate internship.** Institute of Limnology "Raul A. Ringuelet", Universidad Nacional de la Plata (Argentina) February 2010 – June 2010.

### B.3 Field research expeditions

Organized and carried out 5-week fieldwork in lakes of the Ecuadorian Andes and Amazonia with the project '*Long-term Perspectives on Recent Limnological Change in Lakes of the Ecuadorian Andes*'. Funded by National Geographic Society (CP-R006-17). Involving two undergraduate Geology students (Maria Emilia Arteaga and Kevrin Choez) from Yachay University.

## C. LEADERSHIP

### C.1 Principal investigator of research projects

**Table 4.** Summary of leadership in I+D projects. \* = one project is being co-funded by EU funding.

International funding	5
National funding	3*
<b>TOTAL NUMBER OF PROJECTS</b>	8
<b>TOTAL BUDGET OF PROJECTS (EUR)</b>	280,000

**Co-Principal investigator.** ‘OLIGOTREND: a large database for anticipating non-linear changes across aquatic ecosystems in response to oligotrophication trends’. 2023-2025. Advanced ECR grant funded by the Iberian Ecological Society (SIBECOL) [4,000 EUR].

**Principal investigator.** Synthesis of the ecological status of the Ebro Delta coastal lagoons. Contract between the Ebro Delta Natural Park authority and Institute of Agrifood and Technology Research (IRTA) [12,000 EUR].

**Principal investigator.** ‘*The whole is not the sum of the parts: building a synthesis database of past human-environmental systems in the Global South (pSESYNTH)*’. 2022–2025. Funded by the International Union for Quaternary Research, INQUA [13,000 EUR].

**Principal investigator.** Beatriu de Pinós-Marie Curie COFUND fellowship. Marine and Continental Waters Programme, Institute of Agrifood and Technology Research (IRTA), Spain. Project: *Shifts, baselines and non-linearities: quantifying past human influences in a Mediterranean delta using a combined limnological-paleolimnological approach (DELTA8K)*. Ref: 2019-BP00138 [94,000 EUR; salary + research funds]. Note: *European co-funding. Nota: Co-financiación con fondos europeos.*

**Co-Principal investigator.** ‘*Improving tropical forest resilience to human-climate pressures: learning from the past to guide the future (FOREPAST)*’. 2022–2023. Funded by U21 Researcher Resilience Fund [5,000 USD]. [www.forepast.com](http://www.forepast.com)

**Co-Principal investigator.** ‘*Creating a unified approach to evaluate regime shift detection methods*’. Synthesis Working Group Funded by Canadian Institute of Ecology and Evolution. Co-PI with Dr Eric J Pedersen (Concordia University, Canada). 2019-2022 [12,000 USD].

**Principal investigator.** Postdoctoral Fellowship awardee. National Socio-Environmental Synthesis Center (SESYNC), University of Maryland (USA). “Regime shifts in tropical Andean lakes”. 2018–2020. [120,000 USD; salary + research funds].

**Co-Principal investigator.** ‘*Long-term Perspectives on Recent Limnological Change in Lakes of the Ecuadorian Andes*’. 2016-2018. Funded by National Geographic Society (CP-R006-17). Co-PI with Prof. Sherilyn C Fritz (University of Nebraska-Lincoln) [20,000 USD].

### C.2 Coordination of groups, projects or networks

Since 2021. **Steering committee member** of the pilot initiative to build an international network of Spanish-speaking diatomists (academics, practitioners, and technicians).

Since 2020. **Co-chair** of the international working group “Past Socio-Environmental Systems” ([www.pases2020.com](http://www.pases2020.com)). Funded by Past Global Changes (PAGES) and INQUA [\$19,000].

2017–2021. **Steering committee member** of the Past Global Change Early-Career Network (PAGES ECN).

Since 2018. **Steering committee member** of the Young Diatomists of the International Society for Diatom Research (ISDR).

Since 2019. **Steering committee member** of the Gender and Science group of the Iberian Association of Limnology (AIL).

**Co-chair** of the US National Science Foundation-funded working group Geo-Genomics: synthesizing geologic and biotic data to tackle diversification questions in tropical South America. 2020–2021. (NSF EAR-1338694 grant). [Award working group 6,000 USD].

### C.3 Conference special sessions and workshops convened

**Member** of the local organizing committee. International Diatom Symposium (virtual). 23-25 August 2021.

**Organizer** of the Virtual PAGES-INQUA Early Career Workshop “Past Socio-Environmental Systems” (vPASES). 20–21 November 2020. 14 presenters, round table with 4 senior scientists, and >200 attendees <https://www.pases2020.com>.

**Co-chair** of the special session “Contextualising abrupt change using environmental big data at freshwater and marine ecosystems”. 2021 ASLO Aquatic Science Meeting (virtual).

**Co-chair** of the special session “Past Socio-Environmental Systems”. INQUA Conference, Dublin. July 2019. Co-organized with Ignacio Jara (CEAZA, Chile) and Nick Schafstall (Charles University, Czech Republic)

**Co-chair** of the special session “Perspectives on Open Data Practices”. AGU Fall Meeting 2019. Session co-organized with Alex Kock (University College of London, UK), Madelyn Mette (Uni Research Climate, Norway) and Caroline Quanbeck (University of Florida, USA). 10–14 December 2018. Washington DC, USA.

**Organizer** of the Ecology and Bioindication of Diatoms, 25th International Diatom Symposium. 25–30 June 2018. Berlin (Germany).

**Member** of the local organizing committee “Impacts of Sea Level Rise from past to present”. INQUA-PAGES Conference for Early-Career Researchers. 26-27 August 2018. Utrecht (Netherlands)

**Member** of the local organizing committee XVIII Congress of the Iberian Association of Limnology. 4-8 July 2017. Tortosa (Spain)

**Member** of the local organizing committee International Symposium CLIMATE-ES. 11-13 March 2015, Tortosa (Spain)

## D. TEACHING AND MENTORING

### D.1 Undergraduate level

2021-2023. 365095 *Biological oceanography* (6 ECTS). Degree in Marine Sciences. Department of Evolutive Biology, Ecology and Environmental Sciences. University of Barcelona (Spain)

2022-2023. Coordinator 361700 *Management of the coastal environment* (6 ECTS). Degree in Environmental Sciences. Department of Evolutive Biology, Ecology and Environmental Sciences. University of Barcelona (Spain).

2021-2023. 361700 *Management of the coastal environment* (6 ECTS). Degree in Environmental Sciences. Department of Evolutive Biology, Ecology and Environmental Sciences. University of Barcelona (Spain).

2021-2022. 361699 *Management of protected areas* (6 ECTS). Degree in Environmental Sciences. Department of Evolutive Biology, Ecology and Environmental Sciences. University of Barcelona (Spain)

2021-2022. 361658 *Communities and Ecosystems Ecology* (6 ECTS). Degree Biology. Department of Evolutive Biology, Ecology and Environmental Sciences. University of Barcelona (Spain).

2019-2020. Guest lecturer *ESPM174 Freshwater Ecology and Conservation*. Given lectures on Paleoecology and Time-Series analysis with GAM models, University of California, Berkeley (US) (12h)

2011-2012. Support as a substitute teacher in GIS lab. Degree in Geography. University Rovira and Virgili

### D.2 Master level

2022-2023. 573743 *Pollution of groundwater and surface waters* (6 ECTS). Master of Science and Water Management.

2022-2023. 573620 *Riverine Restoration and Management* (6 ECTS). Master of Ecology, Management, and Restoration.

2021-2022. Teaching support in the Water module of the *Challenge-driven Accessible Research-based Mobile Master (CHARM)*. International master jointly coordinated by University of Barcelona (Spain), University of Utrech (The Netherlands), Trinity College Dublin, University of Montpellier (France), and University of Budapest (Hungary).

### D.3 Supervision and mentoring

#### D.3.1 Supervision of PhD theses

2020. Melina Feitl. *Evaluating the Resilience of Andean Lakes to Climatic and Anthropogenic Impacts on Varying Temporal and Spatial*. PhD Geology. University of Nebraska. Supervisors: Sherilyn C Fritz and Xavier Benito.

### *D.3.2 Supervision of PhD funded projects of studentships*

2013. Anna Binczewska. The benthic foraminifera record of a Mediterranean delta. Co-supervisor master student from University of Poznan (Poland) at IRTA, co-supervised with Dr Rosa Trobajo (Spain).

### *D.3.3 Undergraduates supervision*

2023. Jan Penás. Undergraduate supervisor (*en curs*). Final degree project. Title: *Foraminífers bentònics com a indicadors d'hàbitats deltaics passats i presents*. University of Barcelona (Spain).

2021. Mar Català, Undergraduate supervisor, intern scholar from University of Girona at IRTA (Spain)

2015. Marta Gasel. Undergraduate supervisor, intern scholar from University of Barcelona at IRTA (Spain)

2014. Anna Navarro. Undergraduate supervisor, intern scholar from University of Barcelona at IRTA (Spain)

### D.4 PhD theses evaluation committee

2021. *Efecto ambiental y antropogénico en las metacomunidades de diatomeas en turberas de alta montaña*. PhD student: Fernanda Elisabeth Gonzalez Saldias. University of Barcelona (Spain).

2020. *Efecto del acelerado calentamiento global en las comunidades de diatomeas y cianobacterias en lagunas Alto-Andinas de Ecuador y de Antártida*. PhD student: Maria de Lourdes Guerra-Cabezas. University of Barcelona (Spain).

## **E. OTHER MERITS**

### E.1 Awards and mentions

2023. *Professor lector* distinction from the Catalan regulatory agency (AQU).

2022. Diversity and inclusion award. Iberian Association of Ecology (SIBECOL). Award received as a member of the Gender and Science AIL group.

2020. NEON ASLO-SFS Early-Career Scholar award. Joint ASLO-SFS Meeting Madison, Wisconsin (9-13 June 2020).

2017. Early-Career Researcher grant awardee, 3rd Young Scientists Meeting, Past Global Changes (PAGES). Morillo de Tou, Spain.

2016. PhD thesis international mention. University Rovira and Virgili.

2015. PhD student registration fee awardee, 13th International Paleolimnology Symposium (IPA), Lanzhou, China [*declined due to job incompatibility*]

2015. Travel grant awardee, Iberian Association of Limnology (AIL). Contribution at the Aquatic Sciences Meeting ASLO Granada, Spain [100€]



## E.2 Major academic services

January 2023. Associate editor of Marine and Freshwater Science. CSIRO Publishing

May 2023. Co-guest editor of the PAGES Magazine Special Issue "Past Socio-Environmental Systems" Special guest editors: Dr Ignacio A. Jara (University of Tarapaca, Chile), Giorgia Camperio (ETH Zurich, Switzerland), and Dr Estelle Razanatsoa (University of Cape Town, South Africa)

April 2021. Member of the organization team (role: webmaster and invited speaker) for the Eric Grimm memorial event ([Eric24h website](#)).

2021. Co-guest editor of the Water Special Issue "Approaches to investigate how aquatic ecosystems are impacted by and respond to environmental change". IF=3.103 (Q1 Environmental Sciences). Special guest editors: Dr Luca Marazzi (Thames 21, London, UK) and Dr Paul Julian (Sanibel-Captiva Conservation Foundation, USA).

2019. Review panel member for the SESYNC postdoctoral fellowships (University of Maryland, USA).

Since 2018. Webmaster of the American Quaternary Association ([AMQUA](#)).

2018. Review panel member for the Graduate Travels Awards Program (GTAP) Summer 2018, University of Nebraska-Lincoln, USA.

2017. Review panel member for the Undergraduate Creative Activities and Research Experience (UCARE), University of Nebraska-Lincoln.

2016. Review panel member for Assistant professorship in Geosciences at the Department of Earth and Atmospheric Sciences, University of Nebraska-Lincoln, USA.

## E.3 International review tasks

Since 2014. Reviewed manuscripts [[Publons](#) profile] (> 40 manuscripts): Scientific Reports, Estuaries and Coasts, Journal of Maps, Environmental Earth Sciences, Marine and Freshwater Research, Journal of Biogeography, Hydrobiologia, Ecological Applications, Quaternary Sciences Reviews, Freshwater Biology, Ecological Indicators (gold OA journal), Science of the Total Environment, Limnology & Oceanography, Quaternary International, Journal of Paleolimnology, Ecosphere, Ecography, Global Ecology and Biogeography, Aquatic Ecology, Journal of Ecology, Diatom Research, Ecology and Evolution, Frontiers in Ecology and Evolution (OA), Climate of the Past, Anthropocene.

2021. Reviewer of scientific proposals, Hungarian Research Council.

2018. Reviewer of scientific proposals, National Science Center of Poland (OSF).

## E.4 Professional societies membership

Iberian Association of Limnology, Iberian Association of Ecology (SIBECOL), American Society of Limnology & Oceanography (ASLO), Society for Freshwater Sciences (SFS), International Society of Diatom Research (ISDR), Past Global Changes (PAGES), International Union of Quaternary Research (INQUA).

## E.5 Outreach

Festa dels Menuts (*Child festivity*). 4 June 2022. Lead activities about the aquatic biodiversity in the Ebro Delta. Organized by Fundació Catalunya-La Pedrera.

Pint of Science. 10 May 2022. *El Delta de l'Ebre: una historia de microfossils*. Tortosa, Spain.

Biodiversity day at the Ebro Delta (IRTA-La Ràpita and Ebro Delta National Park). 28 April 2022. *Combinant ecologia i paleolimnologia per entendre la biodiversitat del Delta de l'Ebre: els microfòssils com a model d'estudi (invited talk)*.

2021. Science week (Elementary School of Paüls, Tarragona, Spain). Lead a series of talks for students about science.

2020. Science week (Elementary School of Horta de Sant Joan, Tarragona, Spain). Lead a series of talks for students about science.

2016–2017 Lead elementary school student's diversity by organizing activities at the University of Nebraska State Museum's "[Dinosaurs and Disasters](#)" event.

Since 2017. Co-editor of the blog post "[Diatom of the Month](#)" which has been publishing monthly posts for 5 years in a row—with a total of 71 posts, each post receiving 272 views on average.

Since 2019. Manager of the Twitter account of the Iberian Association of Limnology (@AIL\_limnologia, 1765 followers).

2017–2021. Manager of the Twitter account of the PAGES ECN (@PAGES\_ECN, 2121 followers).

2008–2011. Lead educational activities on natural history during summer camps in Girona, Spain.

### *E.5.1 Press and TV releases*

Catalan newspaper *Diari de Tarragona* ([link](#)).

Catalan Television TV3 "*The Ebro Delta is much older than previously thought*" ([link](#))

Introducing the International Symposium CLIMATE-ES, Spain (TV appearance; [link](#)).

Coverage by the municipality of Jesus, Tortosa (Spain) [link](#).

## E.6 Skills

Spatial processing and analysis with GIS libraries in R and ArcView.

Data processing, analysis and visualisation using R, including R Markdown.

Sharing data repositories using GitHub for control version and collaborative projects.

Web development with HTML, CSS, PHP and Javascript. Example: [www.xavierbenito.com](http://www.xavierbenito.com)

Advanced user in Content Management Systems (Wordpress and MODX). Examples: [www.pases2020.com](http://www.pases2020.com), [www.forepast.com](http://www.forepast.com), [www.amqua.org](http://www.amqua.org)