

Parte A. DATOS PERSONALES**Fecha del CVA**

20/01/2019

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|--------------------------------------|--------------------------|------------------------|----|
| Nombre y apellidos | Isabel Sanmartín Bastida | | |
| DNI/NIE/pasaporte | 50845386E | Edad | 48 |
| Núm. identificación del investigador | Researcher ID | G-3131-2015 | |
| | Author ID | 55890488900/6603318912 | |
| | Código ORCID | 0000-0001-6104-9658 | |

A.1. Situación profesional actual

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|-----------------------|---|--------------------|--|
| Organismo | Real Jardín Botánico, CSIC | | |
| Dpto./Centro | Biodiversity and Conservation | | |
| Dirección | Plaza de Murillo 2, Madrid 28014 | | |
| Teléfono | +34 914203017 | Correo electrónico | isanmartin@rjb.csic.es |
| Categoría profesional | Científico Titular | Fecha inicio | 16/08/2008 |
| Código UNESCO | 2401, 2416, 2417, 241720, 241703, 250501 | | |
| Palabras clave | Biogeography, Phylogenetics, Evolution, Systematics | | |

A.2. Formación académica (título, institución, fecha)

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|------------------------------|--|------|
| Licenciatura/Grado/Doctorado | Universidad | Año |
| PhD Biological Sciences | Universidad Complutense de Madrid, Spain | 1998 |
| BSc | Universidad Complutense de Madrid | 1993 |

A.3. Indicadores generales de calidad de la producción científica (véanse instrucciones)

Nº Sexenios: 3 (último 19-Junio-2017)

Publications: 57 (Web of Knowledge, Core Collection), 70 (Google Scholar, GS, includes book chapters and non-indexed journals not compiled by WOS Core Collection).

Total Citations: 4059 (WOS Core), 6027 (GS)

H-index = 24 (WOS Core), 31 (GS), h-i10 index (GS)= 43

Average citations/article = 70.91 (WOS Core); average citations/year (2015-2018): 488 (GS)

Publicaciones totales en primer cuartil (Q1): 43 (> 70%)

Doctoral theses: 7.

<https://scholar.google.com/citations?user=HNhEAN8AAAAJ&hl=en>https://www.researchgate.net/profile/Isabel_Sanmartin**Parte B. RESUMEN LIBRE DEL CURRÍCULUM (máximo 3500 caracteres)**

I am an evolutionary biologist interested in the theory and methods of biogeographical inference. My research focuses on the analysis of macroevolutionary patterns of distributions across a diverse array of organisms (plants, animals, fungi), and the development of new analytical tools, especially Bayesian inferential methods, for unravelling the processes underlying species distributions. My latest research tackles the integration of phylogenomic, macroevolutionary models, and external sources of evidence (fossil record, niche models, abiotic data) to understand the link between deep-time climate change, geographic migration, and large-scale extinction. After obtaining my PhD in December 1998 (Universidad Complutense Madrid), I went to work with Prof. Fredrik Ronquist (Uppsala University, Sweden) as postdoc and Marie Curie Fellow (1999-2003), and later as Assistant Professor (2003-2006). In 2007 I returned to Spain as Ramon y Cajal Research Fellow. In 2008, I was appointed CSIC Senior Research Scientist at the Real Jardín Botánico (Madrid, Spain). Together with F. Ronquist, I pioneered the development of statistical approaches in biogeography based on process models, with emphasis on Bayesian probabilistic models. Applied to metabases of phylogenetic data, these methods offered new insights into the formation of biomes, like the importance of transoceanic dispersal for plants or the different role played by geography and environment in plant and animal patterns. I have published articles in top-tier, cross-disciplinary journals such as *Proc. Nat. Acad. Sci. USA*, *Science*, *Annual Review of Ecology Systematics* and *Evolution*, and *Ecology Letters*, and in 10% top-tier specialist journals *Systematic Biology*, *Evolution*, *Journal of Biogeography*, or *Molecular Ecology*. These studies have had a profound influence in the field of biogeography:

highlighted in *Faculty of 1000* and *Science Editor's Choice*, and included in *Essential Science Indicators* as "*Highly-Cited Papers*" (receiving enough citations to place it in the top 1% of its academic field). My work has also been cited in classic textbooks such as *Historical Biogeography* (Harvard Univ. Press, 2003); *Biogeography* (Sinauer, 2006, 2010); *Evolutionary Biogeography* (Columbia Univ. Press, 2009), *Biogeography: An Ecological and Evolutionary approach* (Wiley, 2005, 2010, 2016, 2019), and popular science books (*The Monkey's voyage*, 2014). From 2007-2009, I formed part of an international panel funded by NSF to develop analytical methods in biogeography, which resulted in two highly-cited papers (Sanmartín et al. 2008; Ree & Sanmartín, 2009). From 2012- 2015, funded by French ANR, I teamed up with other international experts to develop theoretical approaches to study community assembly on islands (Warren et al. 2015, *Essential Science Indicators*). In 2015, I was elected member of the *Council Board of the Society of Systematic Biologists* for significant contributions to the field of evolutionary biology. I have been invited as keynote and plenary speaker at more than 30 international meetings, and I regularly lecture workshops in Spain, Europe and South America. I teach analytical techniques on biogeography as professor of the "Master of Tropical Biodiversity and Conservation" (UIMP-CSIC). Other professional activities include > 20 invited seminars at European and American universities, evaluation of projects for international private or public research agencies, member of international academic search committees in Europe, and examiner for PhD evaluation committees at European and foreign universities. Since 2018, I collaborate with the Spanish State Research Agency and the Danish Research Agency as scientific advisor for the evaluation and monitoring of research programs in the field of Natural Sciences.

C.1. Ten most relevant publications (last 10 years)

1. Culshaw, V.M., Stadler, T. & **Sanmartín, I. 2019**. Exploring the power of Bayesian Skyline Birth-Death models to detect mass extinction events from phylogenies with only extant taxa. *Evolution*, Published 24 April 2019, <https://doi.org/10.1111/evo.13753>.
2. Villaverde, T., et al. **Sanmartín, I. 2018**. Bridging the micro- and macroevolutionary levels on phylogenomics: Hyb-Seq solves relationships from populations to species and above. *New Phytologist* 220: 636-650.
3. Condamine, F., Rolland, J., Hoehna, S. Sperling, F. **Sanmartín, I. 2018**. Testing the role of the Red Queen and Court Jester as drivers of the macroevolution of the Apollo butterflies. *Systematic Biology*. 67:940–964.
4. Meseguer, A.S. Lobo, J.M., Cournault, J., Beerling, D., Rufhel, B, Davis, C., Josselin, E. & **Sanmartín, I. 2018**. Reconstructing deep-time paleoclimate legacies in the clusioid Malpighiales unveils their role in the evolution and extinction of the boreotropical flora. *Global Biogeography and Ecology* 7 (5), 616-628.
5. **Sanmartín, I. & Meseguer, A.S. 2016**. Extinction in Phylogenetics and Biogeography: From timetrees to patterns of biotic assemblage. *Frontiers in Genetics*, 7:35.
6. Warren, B., et al. **2015** (17/23). Islands as model systems in ecology and evolution: progress and prospects fifty years after MacArthur-Wilson. *Ecology Letters*, 18: 200–217.
7. Mairal, M., Pokorny, L., Aldasoro, J.J., Alarcón, M., **Sanmartín, I. 2015**. Ancient vicariance and climate-driven extinction explain continental-wide disjunctions in Africa: the case of the Rand Flora genus *Canarina* (Campanulaceae). *Molecular Ecology* 24: 1335–1354.
8. Meseguer, AS Lobo, JM. Beerling, D. Ree, R., **Sanmartín, I. 2015**. Integrating fossils, phylogenies, and niche models into biogeography to reveal ancient evolutionary history: the case of *Hypericum* (Hypericaceae). *Systematic Biology*, 64:215–232.
9. Ronquist, F. & **Sanmartín, I. 2011**. Phylogenetic methods in biogeography. *Annual Review of Ecology, Evolution, and Systematics* 42: 441–464.
10. Antonelli, A. & **Sanmartín I. 2011**. Mass extinction, gradual cooling, or rapid radiation? Reconstructing the spatio-temporal evolution of the ancient angiosperm genus *Hedyosmum* (Chloranthaceae) using empirical and simulated approaches. *Systematic Biology* 60: 596-615.

Publications included in Thompson Essential Science Indicators "*Highly-Cited Papers*". 1. Hoorn et al. (2010), *Science*. 779 (WOK)/1120 (GS) citations 2. Sanmartín & Ronquist (2004), *Syst. Biol.* [*Science Editor's Choice*, *Faculty of 1000*], 573/762 citations. 3.

Sanmartín et al. 2001. *Biol. J. Linn. Soc.* (380/502) **4**. Nylander et al. (2008), *Syst. Biol.* 270/324 citations. **5**. Antonelli et al. (2009), *Proc. Nat. Acad. Sci. USA* [Science Editor's Choice], 257/408 c. **6**. Antonelli & Sanmartín. *Taxon*, 2011, 168/272 citations c. **7**. Warren et al. *Ecology Letters*, 2015, 98/141.

Selected Book Chapters and Educational Outreach: 1. **Sanmartín** (2007) *Biogeography in a Changing World* (Systematics Association). 2. **Sanmartín** (2009) *McGraw-Hill Yearbook of Science and Technology*. 3. **Sanmartín** (2012) *Biogeography: Evolution in Space and Time* (Evolution: Education and Outreach). 4. **Sanmartín** (2014) *The Tree of Life* (Sinauer). **5**. **Sanmartín** et al. (2016). *Investigación y Ciencia*. **6**. **Sanmartín** (2016): *Biogeografía de America do Sul: analisando espaço, tempo e forma* (Editorial Paya). **7**. **Sanmartín** (2010, 2016, 2019 editions) *Biogeography: An Ecological and Evolutionary Approach* (Wiley).

C.2. Research Projects (last five years)

As Principal Investigator (PI)

- *La euphorbia y el tartaguero: Hacia un enfoque genómico en biología de la conservación comparando especies invasoras y amenazadas (EUGEN) (2017-2019)*. Funding: Foundation Bank BBVA. Co-PI: Dr. R. Riina. 99.642, 21 €.
- *BAYESLAND (2017-2019)* Marie Curie Actions People, H20H20, co-PI (Dr. B. Emerson, IPNA-CSIC), Early Stage Researcher, ESR (Dr. Josselin Cornuault). 158.122 €.
- *BAYESNEXT (2016-2018)* Development and Application of NGS and Bayesian Inference tools to detect the phylogenetic signature of extinction at different evolutionary scales (CGL2015-64789-P). Ministerio de Economía y Competitividad 225.302 €.
- *Biodiversity over Microevolutionary and Macroevolutionary scales: Evolutionary and Ecological determinants revisited*. (PIOF-GA-627684-BIOMME). (2015 - 2017) Marie Curie Actions People, 7th Framework Programme. co-PI: Felix Sperling. 244.233,30 €.
- *The assembly of the African Flora from lineages to populations: effect of climate-related extinction and species ecology*. (CGL2012-40129-C02-01). (2013 - 2015) Ministerio de Economía y Competitividad. 391.570 € (Coordinator: I. Sanmartín).

As Participant:

- *SYNTHESYS+ (2019-2021)*. H2020-INFRAIA-2018-2020/H2020-INFRAIA-2018-1. Co-PI/Deputy Leader ES-TAF for RJB. 134.431,31 €.
- *FAGUS (2016-2018)*, Funding: Austrian Science Fund (FWF Austria). PI: Prof. P. Schönschwetter, Univ. Innsbruck. 349 839.0 €.
- *Bayesian biodiversity analysis using phylogenomic data*. (VR: 2014-31033-115953-18). (2015 - 2018) Funding: Swedish National Research Council. PI: Prof. Fredrik Ronquist (NRM, Stockholm). 726.540 €.
- *Origin and diversification of steppe flora and fauna in South Tyrol and other inner-Alpine dry valleys* (FWF, P25955-B16). (2014 - 2016) Funding: Austrian Science Research. PI: Dr. Peter Schönschwetter (Univ Innsbruck, Austria). 345.000 €.
- *Community Assembly on Remote Islands: Does Equilibrium Theory Apply?* (FRB 2011 - ISLANDS). (2012 - 2015) Funding: CESAB, French Foundation for Research on Biodiversity. PI: Dr. Christophe Thebaud (Univ. Toulouse, France). 200.000 €.
- *RevBayes, a computational environment for Bayesian phylogenetic and evolutionary analysis*. (VR: 2011-31033-88735-29). (2012 - 2015) Funding: Swedish National Research Council. PI: Prof. Fredrik Ronquist (NRM, Stockholm). 380.000 €.

C.3. Other merits (last five years)

Boards and other professional activities:

- Elected scientific advisor of the Spanish State Research Agency (AEI) in the area of Biodiversity (2018-2021).
- Elected member of Independent Research Fund Council (IRFD), Danish Research Council (2017-2021).

- Elected member of the Council Board of the *International Society of Systematic Biology* (SSB, 2015-2018) for significant contributions to the field of Evolutionary Biology.
- *Deputy Leader* ES-TAF for the 7th-framework EU project SYNTHESYS (2010-2017) and H2020 SYNTHESYS+ (2019-2021).
- Member of *Committee of Experts* of the Spanish Ministry of Science (since 2010).
- Panel member of research programs *Ramon y Cajal* and *Juan de la Cierva* (2009, 2017).
- Associate Editor of Q1 journals *Journal of Biogeography* (since 2015), *Evolution* (since 2017), and Q1 *International Journal of Plant Sciences* (since 2018); AE for Q2 *Plant Systematics and Evolution* (2010-2015). Offered position as Editor-in-Chief of 10% top-tier journal *Systematic Biology* (2018) (declined due to obligations with AEI).
- Hiring committee for tenured positions at CSIC (2010, 2011)
- Reviewer for national (ANEP, Agencia Andaluza Investigación, etc) and foreign research agencies (New Zealand Marsden Fund; Australian Antarctic Program, ANR France, CWO Netherlands, FCT Portugal, etc) and private foundations (BBVA, Barrie de la Maza, etc).
- International external evaluator for professorships at University of Vienna (2015), University of Stockholm (2016), and University of Montpellier (2017). Offered position as Full Professor at University of Vienna (2015, declined), and Research Director at Field Museum (Chicago, 2017, declined).
- External examiner for foreign PhDs (UK, France, Sweden, Portugal, Australia).
- Vice-president and organizer of *Jaques Monod Conference* "Molecules as documents of evolutionary history: 50 years after: ", together with Prof. Vincent Daubin (CNRS, 2016).
- Reviewer for scientific journals (*Science*, *TREE*, *Nature Communications*, *Systematic Biology*, *Evolution*, *Molecular Ecology*, *PNAS*, *Cladistics*, etc.).

Selected Keynote/Plenary Speaker at International Meetings (last five years):

- From gradual change to catastrophic events: new integrative models to disentangle what promotes spatial diversification. *XXXVII Hennig Meeting*. Barcelona (Spain), 16-21 September **(2018)**.
- Phylogenies in the spotlight: developing new statistical models to unravel the processes behind the long-term dynamics of insular biotas. *FloraMac2018*. University of Madeira (Funchal). 12-15th September **(2018)**.
- Bayesian biogeographic models and their application in macroevolution and macroecology: integration and partitioning of multiple sources of evidence. *XIX International Botanical Congress*. Shenzhen (China), 23-29th July **(2017)**.
- Integrating biogeography, paleoecology, and phylogenomics to reconstruct the evolutionary origins of the African Rand Flora. *Tropical Ecology*, 6-10th February **(2017)**.
- Parametric approaches for inferring the biogeographic history of Mediterranean lineages". *MEDECOS*, 31 January-4th February **(2017)**.
- Bayesian statistical approaches to island biogeography: progress and challenges". *Island Biology 2016*. Angra do Heroísmo, Terceira, Azores, Portugal, 18 July-22th July **(2016)**.
- Bayesian Markov Chain Monte Carlo models and their application in biogeography *Mathematical and Computational Evolutionary Biology Meeting*. Montpellier, France, 19-23th June **(2016)**.
- Spatiotemporal evolution of lineages and biotas using Bayesian approaches. "Molecules as documents of evolutionary history: 50 years after". *Jaques Monod Conferences*, Roscoff, France, May 9-13 **(2016)**.

Supervision of Early Stage Researchers (last five years)

PhDs: KAREN LOPEZ ESTRADA. Universidad Autónoma Madrid (Co-supervisor: Mario G. Paris, MNCN). Expected December 2021. MARIO RINCÓN BARRADO. Universidad Rey Juan Carlos. *Facultad de Biología*. Expected December 2020. VICTORIA CULSHAW. Universidad Autónoma de Madrid, *Facultad de Biología*. Expected November 2019. MARIO MAIRAL PISA. Universidad Rey Juan Carlos (co-supervisor J. J. Aldasoro), defended November 2015.



Postdocs: Fabien Condamine (2015, Univ. Montpellier), Veronica Theode (2016, Univ. Sao Paulo), Sanna Olsson (2016, Univ. Helsinki), Josselin Cornuault (2017-2019, Univ. Toulouse), Tamara Villaverde (2017-2020, Univ. Pablo de Olavide).