

Curriculum Vitae

Personal info

Name: Miquel **Surnames:** De Cáceres Ainsa

ID: 46.141.902-S

Gender: Male

Date of birth: 08/Dec/1976

Current position: Senior researcher (I3 programme) at the *Forest Science and Technology Centre of Catalonia* (CTFC) in Catalonia (Spain). Date started: 25/11/2018.

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ResearcherID: I-1279-2016

Short biography

Bsc degree in Biology (1998) and Ph. D. in Biology (2005) at University of Barcelona. Assistant professor in Biostatistics at University of Barcelona (2006-2008). Postdoc at Université de Montréal (Canada, 2006-2009). Postdoc (2009-2013) and Ramon y Cajal researcher (2013-2018) at the Forest Science and Technology Center of Catalonia (CTFC). Associate researcher (since 2013) at the Center for Ecological Research and Forestry Applications (CREAF).

Research interests

I work at the junction between biological sciences, environmental sciences, statistics and computational sciences. I am mostly interested in the development of quantitative approaches for the study of the structure and functioning of terrestrial plant communities at scales ranging from the forest stand to landscapes and regions. My work can be divided into two broad research areas, *ecological statistics* and *ecological modeling*.

Regarding *ecological statistics*, I am interested in improving the quantitative frameworks used to describe, summarize and analyze the structure, composition and dynamics of plant communities. My most relevant contributions have been on the development and comparison of statistical frameworks to study plant beta diversity, to assess the indicator value of species occurrences and, more recently, to describe the temporal dynamics of forests. With the aim to promote their use, all of these methods have been implemented and documented in packages for the R statistical environment.

My longterm goal in *ecological modeling* is to develop and use modeling frameworks to better understand and anticipate the response of Mediterranean forest ecosystems to global change drivers at the local to regional scales. My past contributions in this area include the development and application of spatially-explicit landscape simulation models and the incorporation of dispersal, population dynamics and biotic interactions on species distribution models. Nowadays, my work in this area focuses on the development of both empirical and process-based modelling platforms to predict the functional and structural responses of trees, forest stands, and forested watersheds to climatic changes, with a strong interest on drought impacts and including the effect of forest management. To this aim, I work in close collaboration with leading experts in forest hydrology, tree physiology, forest dynamics. I also work closely with the forest administration to promote the application of these tools both for the day-to-day monitoring of drought impacts as well as for the evaluation of scenarios, with the aim to provide information useful for forest planning at local to regional scales.

Bibliometrics and keywords

Number of SCI publications: 61

Number of citations: 4006 (Google Scholar) / 1981 (ResearcherID) / 2080 (Publons)

H-factor: 30 (Google Scholar) / 19 (ResearcherID) / 21 (Publons)

Average citations per article: 48.32 (ResearcherID) / 42.5 (Publons)

UNESCO codes: 241713 (Plant Ecology), 240401 (Biostatistics), 241719 (Plant physiology)

Keywords: community ecology, ecological informatics, ecological statistics, ecohydrological modelling, environmental modelling, forest dynamics, landscape dynamics, vegetation classification.

ORCID: 0000-0001-7132-2080

Academic training

1998. B.Sc. in Biology. University of Barcelona (UB). Average score (0-4): 2.42.

2005. Ph.D. in Biology. University of Barcelona. Title: '**Numerical classification of vegetation on the basis of floristic species composition**'. Advisors: Xavier Font (Plant Biology, UB) and Francesc Oliva (Statistics, UB).

2006-2008. Two courses of Bsc in Mathematics, at the "Universidad Nacional de Educación a Distancia" (UNED).

Attended courses

2016. **Title:** Inventory and modelling in complex forests. **Venue:** ETS Ingenierías Agrarias Campus de Palencia (Universidad de Valladolid). **Dates:** June 6-8, 2016. **Duration:** 21h.

2011. **Title:** Introduction to WinBUGS for ecologists. **Venue:** Natural History Museum of Barcelona. **Dates:** December 12-16, 2011. **Duration:** 35h.

2010. **Title:** Introducción a los modelos de ecuaciones estructurales aplicados a la ecología. **Venue:** Campus de Leioa, Universidad del País Vasco. **Dates:** December 15-17, 2010. **Duration:** 20h.

Previous positions

2013-2018. Senior researcher (Ramon y Cajal fellowship RYC-2012-11109) at the *Forest Science and Technology Centre of Catalonia* (CTFC) in Catalonia (Spain).

2010-2012. Postdoctoral researcher (fellowship 2009 BP-B 00342) at the *Biodiversity and Landscape Ecology Laboratory, Centre Tecnològic Forestal de Catalunya* (Catalonia, Spain) under the supervision of Lluís Brotons.

2006-2009. Postdoctoral researcher at the *Département de sciences biologiques, Université de Montréal* (Québec, Canada) under the supervision of Prof. Pierre Legendre.

2006-2008. Assistant professor at the Statistics Department, University of Barcelona.

2000-2004. Ph.D. student at the Plant Biology Department, University of Barcelona.

1999. Ph.D. student at the Biomedical Informatics department, Institut Municipal d'Investigacions Mèdiques (IMIM).

Awards and fellowships

2018. Mobility Fund. **Entity:** Ecoinformatics Working Group, International Association for Vegetation Science. **Title:** Advancing Veg-X as an exchange standard for vegetation plot data. **Cost:** 3000 €

2013-2018. Ramón y Cajal fellowship. **Entity:** Spanish Government. **Programme:** Ramón y Cajal. **Fellowship code:** RYC-2012-11109. **Cost:** 308.600 €

2011. New Zealand International Mobility Fund. **Entity:** New Zealand Government. **Title:** “Advancing Veg-X as an exchange standard for vegetation plot data”. **Cost:** 5000 €.

2010-2012. Post-doctoral fellowship. **Entity:** Catalan Government. **Programme:** Beatriu de Pinós (BP-B). **Fellowship code:** 2009 BP-B 00342.

2009. First prize award for Oral Presentation in International Association of Vegetation Science (IAVS) meeting: Miquel De Cáceres Ainsa. University of Montreal, Canada. Improving diagnostic species analyses by considering combinations of groups. (Co-authors: M. Moretti, P. Legendre)

2001-2004. Pre-doctoral fellowship. **Entity:** Catalan government. **Programme:** Programa de Formació de Personal Investigador. **Fellowship code:** 2001FI 00269.

2000. Fellowship for collaborating in research projects. **Entity:** Universitat de Barcelona. **Project code:** CPI-47.

1999. Pre-doctoral fellowship. **Entity:** Institut Municipal d’Investigacions Mèdiques (IMIM-IMAS).

1998. Scholarship for the first year of Biology degree coming from excellence in college marks.

Publications

Articles with Science Citation Index (SCI)

[The ten most relevant publications are highlighted in yellow, include a brief statement of significance and citation metrics (google scholar 08/03/2019)]

61. Duane A, Aquilué N, Canelles Q, Morán-Ordóñez A, **De Cáceres M**, Brotons L (2019) Adapting prescribed burns to future climate change in Mediterranean landscapes. *Sci Total Environ* 677:68–83. (doi: [10.1016/j.scitotenv.2019.04.348](https://doi.org/10.1016/j.scitotenv.2019.04.348)).

60. **De Cáceres M**, Martín-Alcón S, González-Olabarria JR, Coll L (2019) A general method for the classification of forest stands using species composition and vertical and horizontal structure. *Annals of Forest Science* 76:40 (doi: [10.1007/s13595-019-0824-0](https://doi.org/10.1007/s13595-019-0824-0)).

59. Yao J, Zhang C, **De Cáceres M**, Legendre P, Zhao X (2019) Variation in compositional and structural components of community assemblage and its determinants. *Journal of Vegetation Science* 30(2): 257–268 (doi: [10.1111/jvs.12708](https://doi.org/10.1111/jvs.12708); ISSN: 1654-1103; IF 2017 2.658).

58. Batllori E, **De Cáceres M**, Brotons L, Ackerly DD, Moritz MA, Lloret F (2019) Compound fire-drought regimes promote ecosystem transitions in Mediterranean ecosystems. *Journal of Ecology* 107(3): 1187–1198. (doi: [10.1111/1365-2745.13115](https://doi.org/10.1111/1365-2745.13115); ISSN: 1365-2745; IF 2017 5.17).

57. **De Cáceres M**, Coll L, Legendre P, Allen RB, Wisner SK, Fortin MJ, Condit R, Hubbell S (2019) Trajectory analysis in community ecology. *Ecological Monographs* 89(2): e01350.(doi: [10.1002/ecm.1350](https://doi.org/10.1002/ecm.1350); ISSN: 1557-7015; IF 2017 7.828).

Significance: A novel framework to study community dynamics based on the geometry of their trajectories in multivariate spaces. Our approach allows the estimation of similarity in dynamics and quantify the amount of variation of community dynamics across space. Citations: 1.

56. **De Cáceres M**, Martin-StPaul N, Turco M, Cabon A, Granda V (2018) Estimating daily meteorological data and downscaling climate models over landscapes. *Environmental Modelling & Software* 108: 186–196 (doi: [10.1016/j.envsoft.2018.08.003](https://doi.org/10.1016/j.envsoft.2018.08.003); ISSN: 1364-8152; IF 2017: 4.177).

Significance: An R package to facilitate obtaining daily meteorological input for climate impact studies, either from interpolation of historical weather records and from the bias correction of climate projections obtained with climate models. Complements [40]. Citations: 4.

55. Cabon A, Martínez-Vilalta J, Martínez-de-Aragón J, **De Cáceres M** (2018) Applying the eco-hydrological equilibrium hypothesis to model root distribution in water-limited forests. *Ecohydrology* 11: e2015 (doi: [10.1002/eco.2015](https://doi.org/10.1002/eco.2015); ISSN: 1936-0592; IF 2017: 2.755).

54. Roces-Díaz JV, Vayreda J, Banqué-Casanovas M, Cusó M, Anton M, Bonet JA, Brotons L, **De Cáceres M**, Herrando S, Martínez de Aragón J, de-Miguel S, Martínez-Vilalta J (2018) Assessing the distribution of forest ecosystem services in a highly populated Mediterranean region. *Ecological Indicators* 93: 986-997 (doi: [10.1016/j.ecolind.2018.05.076](https://doi.org/10.1016/j.ecolind.2018.05.076); ISSN: 1470-160X; IF 2017: 3.983).
53. **De Cáceres M**, Franklin SB, Hunter JT, Landucci F, Dengler J, Roberts DW (2018) Global overview of plot-based vegetation classification approaches. *Phytocoenologia* 48: 101-112. (doi:[10.1127/phyto/2018/0256](https://doi.org/10.1127/phyto/2018/0256); ISSN: 0340-269X; IF 2017: 1.721).
52. **De Cáceres M** (2018) Sobre el intercambio de datos de vegetación: el estándar 'Veg-X' y el paquete de R 'VegX'. *Ecosistemas* 27: 128-129 (doi:[10.7818/ECOS.1570](https://doi.org/10.7818/ECOS.1570)).
51. Wiser SK, **De Cáceres M** (2018) New Zealand's plot-based classification of vegetation. *Phytocoenologia* 48: 153-161 (doi:[10.1127/phyto/2017/0180](https://doi.org/10.1127/phyto/2017/0180); ISSN: 0340-269X; IF 2017: 1.721).
50. Affeld K, Wiser SK, Payton I, **De Cáceres M** (2018) Using classification assignment rules to assess land-use change impacts on forest biodiversity at local to national scales. *Forest Ecosystems* 5: 13 (doi: [10.1186/s40663-017-0121-z](https://doi.org/10.1186/s40663-017-0121-z); ISSN: 2197-5620).
49. Karavani A, **De Cáceres M**, Martínez de Aragón J, Bonet JA, de-Miguel S (2018) Effect of climatic and soil moisture on mushroom productivity and related ecosystem services in Mediterranean pine stands facing climate change. *Agricultural and Forest Meteorology* 248: 432-440 (doi: [10.1016/j.agrformet.2017.10.024](https://doi.org/10.1016/j.agrformet.2017.10.024); ISSN: 0168-1923; IF 2017: 4.039).
48. Batllori E, **De Cáceres M**, Brotons L, Ackerly DD, Moritz MA, Lloret F (2017) Cumulative effects of fire and drought in Mediterranean ecosystems. *Ecosphere* 8 (8): e01906 (doi: [10.1002/ecs2.1906](https://doi.org/10.1002/ecs2.1906); ISSN: 2150-8925; IF: 2.671).
47. Ameztegui A, Cabon A, **De Cáceres M**, Coll L (2017) Managing stand density to enhance the adaptability of Scots pine stands to climate change: A modelling approach. *Ecological Modelling* 356: 141-150 (doi: [10.1016/j.ecolmodel.2017.04.006](https://doi.org/10.1016/j.ecolmodel.2017.04.006); ISSN: 0304-3800; IF: 2.507).
46. Aquilué N, **De Cáceres M**, Fortin MJ, Fall A, Brotons L (2017) A spatial allocation procedure to model land-use/land-cover changes: Accounting for occurrence and spread processes. *Ecological Modelling* 344: 73-86 (doi: [10.1016/j.ecolmodel.2016.11.005](https://doi.org/10.1016/j.ecolmodel.2016.11.005); ISSN: 0304-3800; IF: 2.507).
45. Vall-llosera M, Llimona F, **De Cáceres M**, Sales S, Sol D (2016) Competition, niche opportunities and the successful invasion of natural habitats. *Biological Invasions* 18 (12): 3535-3546. (doi: [10.1007/s10530-016-1246-7](https://doi.org/10.1007/s10530-016-1246-7); ISSN: 1387.3547).
44. Franklin SB, Hunter JT, **De Cáceres M**, Dengler J, Landucci F, Krestov P (2016) Introducing the IAVS Vegetation Classification Working Group. *Phytocoenologia* 46: 5-8 (doi: [10.1127/phyto/2016/0116](https://doi.org/10.1127/phyto/2016/0116); ISSN: 0340-269X).
43. Gil-Tena A, Aquilué N, Duane A, **De Cáceres M**, Brotons L (2016) Mediterranean fire regime effects on pine-oak forest landscape mosaics under global change in NE Spain. *European Journal of Forest Research* 135(2): 403-416 (doi:[10.1007/s10342-016-0943-1](https://doi.org/10.1007/s10342-016-0943-1); ISSN: 1612-4669; IF: 2.017).
42. Sánchez-Pinillos M, Coll L, **De Cáceres M**, Ameztegui A (2016) Assessing the persistence capacity of communities facing natural disturbances on the basis of species response traits. *Ecological Indicators* 66: 76-85 (doi:[10.1016/j.ecolind.2016.01.024](https://doi.org/10.1016/j.ecolind.2016.01.024); ISSN: 1470-160X).
41. Wiser SK, Thomson FJ, **De Cáceres M** (2016) Expanding an existing classification of New Zealand vegetation to include non-forested vegetation. *New Zealand Journal of Ecology* 40(1): 160-178 (doi:[10.20417/nzjcol.40.18](https://doi.org/10.20417/nzjcol.40.18);ISSN: 0110-6465; IF: 1.704).
40. **De Cáceres M**, Martínez-Vilalta J, Coll L, Llorens P, Casals P, Poyatos R, Pausas JG, Brotons L (2015) Coupling a water balance model with forest inventory data to predict drought stress: the role of forest structural changes vs. climate changes. *Agricultural and Forest Meteorology* 213: 77-90 (doi:[10.1016/j.agrformet.2015.06.012](https://doi.org/10.1016/j.agrformet.2015.06.012); ISSN: 0168-1923).
- Significance: Suggestion to couple forest ecosystem models, normally run at the local level, with forest inventory data, to obtain assessments of forest functioning at large scales. The first of the modelling research line that I have been working on since then. Citations: 33.*
39. **De Cáceres M**, Chytrý M, Agrillo E, Attorre F, Botta-Dukát Z, Capelo J, Czúcz B, Dengler J, Ewald J, Faber-Langendoen D, Feoli E, Franklin SB, Gavilán R, Gillet F, Jansen F, Jiménez-Alfaro B, Krestov P, Landucci F, Lengyel A, Loidi J, Mucina L, Peet RK, Roberts DW, Roleček J, Schaminée J,

Schmidtlein S, Theurillat JP, Tichý L, Walker DA, Wildi O, Willner W, Wiser SK (2015) A comparative framework for broad-scale plot-based vegetation classification. *Applied Vegetation Science* 18: 543-560 (doi:[10.1111/avsc.12179](https://doi.org/10.1111/avsc.12179); ISSN: 1654-109X; IF 2017 2.331).

Significance: Publication issued from an international workshop. Continuing [19], it provides concepts and definitions in vegetation classification, with the aim to facilitate comparisons between approaches and homogenize the presentation of new ones. Citations: 56.

38. Gil-Tena A, **De Cáceres M**, Ernoult A, Butet A, Brotons L, Burel F (2015) Agricultural landscape composition as a driver of farmland bird diversity in Brittany (NW France). *Agriculture, Ecosystems & Environment* 205(1): 79-89 (doi:[10.1016/j.agee.2015.03.013](https://doi.org/10.1016/j.agee.2015.03.013); ISSN: 0167-8809; IF:).

37. Martín-Alcón S, Coll L, **De Cáceres M**, Guitart L, Cabré M, Just A, González-Olabarría JR (2015) Combining aerial LiDAR and multi-spectral imagery to assess post-fire regeneration types in a Mediterranean forest. *Canadian Journal of Forest Research* 45: 856-866 (doi:[10.1139/cjfr-2014-0430](https://doi.org/10.1139/cjfr-2014-0430); ISSN: 0045-5067; IF:).

36. Cardador L, **De Cáceres M**, Giralt D, Bota G, Aquilué N, Arroyo B, Mougeot F, Cantero-Martínez C, Viladomiu L, Rosell J, Casas F, Estrada A, Álvaro-Fuentes J, Brotons L (2015) Tools for exploring habitat suitability for steppe birds under land use change scenarios. *Agriculture, Ecosystems & Environment* 200: 119-125 (doi:[10.1016/j.agee.2014.11.013](https://doi.org/10.1016/j.agee.2014.11.013); ISSN: 0167-8809).

35. Regos A, Aquilué N, Retana J, **De Cáceres M**, Brotons L (2014) Using unplanned fires to help suppressing future large fires in Mediterranean forests. *PLoS ONE* 9(4): e94906 (doi:[10.1371/journal.pone.0094906](https://doi.org/10.1371/journal.pone.0094906); ISSN: 1932-6203).

34. Navarro E, Muñoz S, Korkaric M, Wagner B, **de Cáceres M**, Behra, R (2014) Ultraviolet radiation dose calculation for algal suspensions using UVA and UVB extinction coefficients. *Journal of Photochemistry and Photobiology B: Biology* 132: 94-101 (doi: [10.1016/j.jphotobiol.2014.02.005](https://doi.org/10.1016/j.jphotobiol.2014.02.005); ISSN: 1011-1344).

33. Cardador L, **De Cáceres M**, Bota G, Giralt D, Casas F, Arroyo B, Mougeot F, Cantero-Martínez C, Moncunill J, Butler SJ, Brotons L (2014) A resource-based modelling framework to assess habitat suitability for steppe birds in semiarid Mediterranean agricultural systems. *PLoS ONE* 9(3): e92790 (doi: [10.1371/journal.pone.0092790](https://doi.org/10.1371/journal.pone.0092790); ISSN: 1932-6203).

32. Bachand M, Pellerin A, Côté S, Moretti M, **De Cáceres M**, Brousseau PM, Cloutier C, Hébert C, Cardinal E, Martin JL, Poulin M (2014) Species indicators of large herbivore density: comparing taxa and testing species combinations. *Ecological Indicators* 38: 12-19 (doi: [10.1016/j.ecolind.2013.10.018](https://doi.org/10.1016/j.ecolind.2013.10.018); ISSN: 1470-160X; IF 2012: 2.890).

31. **De Cáceres M**, Legendre P, He F (2013) Dissimilarity measurements and the size structure of ecological communities. *Methods in Ecology and Evolution* 4 (12): 1167-1177 (doi: [10.1111/2041-210X.12116](https://doi.org/10.1111/2041-210X.12116); ISSN: 2041-210X; IF 2012: 5.924).

Significance: Extension of multivariate dissimilarity indices commonly used in community ecology to account for differences in the distribution of sizes of individuals. Opened the way to [57], [59] and [60]. Citations: 23.

30. **De Cáceres M**, Brotons L, Aquilué N, Fortin, MJ (2013) The combined effects of land use legacies and novel fire regimes on bird distributions in the Mediterranean. *Journal of Biogeography* 40(8): 1535-1547 (doi:[10.1111/jbi.12111](https://doi.org/10.1111/jbi.12111); ISSN: 0305-0270; IF 2012: 4.863).

29. Legendre P, **De Cáceres M** (2013) Beta diversity as the variance of community data: dissimilarity coefficients and partitioning. *Ecology Letters* 16: 951-963 (doi: [10.1111/ele.12141](https://doi.org/10.1111/ele.12141); ISSN: 1461-023X; IF 2012: 17.949).

Significance: Statistical framework for the assessment of beta diversity in community ecology, including a comparison of dissimilarity coefficients for this purpose and the possibility to estimate the contribution of sampling units. Citations: 330.

28. Brotons L, Aquilué N, **De Cáceres M**, Fortin MJ, Fall A (2013) How previous fire history, suppression and climate change determine dynamic and wildfire regimes in Mediterranean landscapes. *PLoS ONE* 8 (5): e62392 (doi: [10.1371/journal.pone.0062392](https://doi.org/10.1371/journal.pone.0062392); ISSN: 1932-6203).

27. Wiser SK, **De Cáceres M** (2013) Updating dynamic vegetation classifications: An example with New Zealand's woody vegetation. *Journal of Vegetation Science* 24(1): 80-93 (doi: [10.1111/j.1654-1103.2012.01450.x](https://doi.org/10.1111/j.1654-1103.2012.01450.x); ISSN: 1654-1103; IF 2011: 2.770).

26. Vilches B, **De Cáceres M**, Sánchez-Mata D, Gavilán RG (2013) Indicator species of broad-leaved oak forests in the eastern Iberian Peninsula. *Ecological Indicators* 26: 44-48 (doi: [10.1016/j.ecolind.2012.10.022](https://doi.org/10.1016/j.ecolind.2012.10.022); ISSN: 1470-160X; IF 2011: 2.625).

25. **De Cáceres M**, Legendre P, Wisser SK, Brotons L (2012) Using species combinations in indicator value analyses. *Methods in Ecology and Evolution* 3(6): 973-982 (doi: [10.1111/j.2041-210X.2012.00246.x](https://doi.org/10.1111/j.2041-210X.2012.00246.x); ISSN: 2041-210X; IF 2011: 5.093).

24. **De Cáceres M**, Legendre P, Valencia R, Cao M, Chang LW, Chuyong G, Condit R, Hao Z, Hsieh CF, Hubbell S, Kenfack D, Ma K, Mi X, Supardi Noor N, Kassim AR, Ren H, Su SH, Sun IF, Thomas D, Ye W, He F (2012) The variation of tree beta diversity across a global network of forest plots. *Global Ecology and Biogeography* 21(12): 1191-1202 (doi: [10.1111/j.1466-8238.2012.00770.x](https://doi.org/10.1111/j.1466-8238.2012.00770.x); e-ISSN: 1466-8238; IF 2011: 5.145).

Significance: One of the first global analyses of forest beta diversity patterns using data from a global network of stem-mapped forest plots with the aim to understand why some forests exhibit higher beta diversity than others. Citations: **107**.

23. Roura-Pascual N, Brotons L, García D, Zamora R, **De Cáceres M** (2012) Local and landscape-scale biotic correlates of mistletoe distribution in Mediterranean pine forests. *Forest Systems* 21(2): 179-188 (doi: [10.5424/fs/2012212-02155](https://doi.org/10.5424/fs/2012212-02155); e-ISSN: 2171-9845; IF 2011: 0.333).

22. **De Cáceres M**, Brotons L (2012) Calibration of hybrid species distribution models: the value of targeted vs. general-purpose monitoring data. *Diversity & Distributions* 18(10): 977-989 (doi: [10.1111/j.1472-4642.2012.00899.x](https://doi.org/10.1111/j.1472-4642.2012.00899.x); ISSN: 1472-4642; IF 2011: 4.830).

21. Dray S, Péliissier R, Couteron P, Fortin MJ, Legendre P, Peres-Neto P, Bellier E, Bivand R, Blanchet FG, **De Cáceres M**, Dufour B, Heegard E, Jombart T, Munoz F, Oksanen J, Thioulouse J, Wagner HH (2012) Multiscale multivariate analysis of community data to infer biological processes from observed spatial patterns. *Ecological Monographs* 82(3): 257-275 (doi: [10.1890/11-1183.1](https://doi.org/10.1890/11-1183.1); e-ISSN: 1557-7015; IF 2011: 7.433).

20. Brotons L, **De Cáceres M**, Fall A, Fortin, MJ (2012) Incorporating species dispersal and landscape dynamics to the modeling of bird species distribution changes in fire prone mediterranean landscapes. *Ecography* 35(5): 458-467 (doi: [10.1111/j.1600-0587.2011.06878.x](https://doi.org/10.1111/j.1600-0587.2011.06878.x); e-ISSN: 1600-0587; IF 2011: 4.188).

19. **De Cáceres M**, Wisser S (2012) Towards consistency in vegetation classification. *Journal of Vegetation Science* 23 (2): 387-393 (doi: [10.1111/j.1654-1103.2011.01354.x](https://doi.org/10.1111/j.1654-1103.2011.01354.x); e-ISSN: 1654-1103; IF 2011: 2.770).

Significance: Forum paper about the need to perform assignments of new samples to vegetation classifications in accordance with how vegetation types were originally defined. Citations: **65**.

18. Dengler J, Jansen F, Glöckler F, Chytrý M, **De Cáceres M**, Ewald J, Oldeland J, Peet RK, Finckh M, Mucina L, Schaminée J, Spencer N (2011) The Global Index of Vegetation-Plot Databases (GIVD): a new resource for vegetation science. *Journal of Vegetation Science* 22(4): 582-597. (doi: [10.1111/j.1654-1103.2011.01265.x](https://doi.org/10.1111/j.1654-1103.2011.01265.x); e-ISSN: 1654-1103; IF: 2.770).

17. Wisser S, Spencer N, **De Cáceres M**, Kleikamp M, Boyle B, Peet RK (2011) Veg-X – An exchange standard for plot-based vegetation data. *Journal of Vegetation Science* 22(4): 598-609 (doi: [10.1111/j.1654-1103.2010.01245.x](https://doi.org/10.1111/j.1654-1103.2010.01245.x); e-ISSN: 1654-1103; IF: 2.770).

16. Sharma S, Legendre P, **De Cáceres M**, Boisclair D (2011) The role of environmental processes in structuring native and non-native fish communities across thousands of lakes. *Ecography* 34(5): 762-771 (doi: [10.1111/j.1600-0587.2010.06811.x](https://doi.org/10.1111/j.1600-0587.2010.06811.x); e-ISSN: 1600-0587; IF: 4.188).

15. **De Cáceres M**, Sol D, Lapiedra O, Legendre P (2011) A framework for estimating niche metrics using the resemblance between qualitative resources. *Oikos* 120 (9): 1341-1350. (doi: [10.1111/j.1600-0706.2011.19679.x](https://doi.org/10.1111/j.1600-0706.2011.19679.x); e-ISSN: 1600-0706; IF: 3.061).

14. Gaya E, Redelings BD, Navarro-Rosinés P, Llimona X, **De Cáceres M**, Lutzoni F (2011) Align or not to align? Resolving species complexes within the *Caloplaca saxicola* group as a case study. *Mycologia* 103(2): 10-120 (doi: [10.3852/10-120](https://doi.org/10.3852/10-120); ISSN: 0027-5514; IF: 2.031).

13. **De Cáceres M**, Font X, Oliva F (2010) The management of numerical vegetation classifications with fuzzy clustering methods. *Journal of Vegetation Science* 21(6): 1138-1151 (doi: [10.1111/j.1654-1103.2010.01211.x](https://doi.org/10.1111/j.1654-1103.2010.01211.x); e-ISSN: 1654-1103; IF: 2.457).

12. Moretti M, **De Cáceres M**, Pradella C, Obrist MK, Wermelinger B, Legendre P, Duelli P (2010) Fire-induced taxonomic and functional changes in saproxylic beetle communities in fire sensitive regions. *Ecography* 33(4): 760-771 (doi: [10.1111/j.1600-0587.2009.06172.x](https://doi.org/10.1111/j.1600-0587.2009.06172.x); e-ISSN: 1600-0587; IF: 4.417).

11. **De Cáceres M**, Legendre P, Moretti M (2010) Improving indicator species analysis by combining groups of sites. *Oikos* 119(10): 1674-1684 (doi: [10.1111/j.1600-0706.2010.18334.x](https://doi.org/10.1111/j.1600-0706.2010.18334.x); e-ISSN: 1600-0706; IF: 3.393).

Significance: Extension of indicator species analysis framework [9] to evaluate the preference of species for combinations of habitats, to better account for the breadth of species ecological niches. Citations: 462.

10. Legendre P, **De Cáceres M**, Borcard D (2010) Community surveys through space and time: testing space-time interaction in the absence of replication. *Ecology* 91(1): 262-272 (doi: [10.1890/09-0199.1](https://doi.org/10.1890/09-0199.1); e-ISSN: 1939-9170; IF: 5.073).

9. **De Cáceres M**, Legendre P (2009) Associations between species and groups of sites: indices and statistical inference. *Ecology* 90(12): 3566-3574 (doi: [10.1890/08-1823.1](https://doi.org/10.1890/08-1823.1); e-ISSN: 1939-9170; IF: 4.411).

Significance: Synthesis paper of the different variants of indicator species analysis and the situations where one or the other should be preferred. This statistical technique is frequently employed in several subfields of ecology, microbiology and beyond. Citations: 940.

8. Pino J, Font X, **De Cáceres M**, Molowny-Horas R (2009) Floristic homogenization by native ruderal and alien plants in NE of Spain: the effect of environmental differences on a regional scale. *Global Ecology and Biogeography* 18: 563-574 (doi: [10.1111/j.1466-8238.2009.00458.x](https://doi.org/10.1111/j.1466-8238.2009.00458.x); e-ISSN: 1466-8238; IF: 5.913).

7. **De Cáceres M**, Font X, Vicente P, Oliva F (2009) Numerical reproduction of traditional classifications and automated vegetation identification. *Journal of Vegetation Science* 20 (4): 620-628 (doi: [10.1111/j.1654-1103.2009.01081.x](https://doi.org/10.1111/j.1654-1103.2009.01081.x); e-ISSN: 1654-1103; IF: 2.376).

6. **De Cáceres M**, Font X, Oliva F (2008) Assessing diagnostic species value in large data sets: a comparison between phi-coefficient and Ochiai index. *Journal of Vegetation Science* 19 (6): 779-788 (doi: [10.3170/2008-8-18446](https://doi.org/10.3170/2008-8-18446); e-ISSN: 1654-1103; IF: 2.037).

5. **De Cáceres M**, Legendre P (2008) Beals smoothing revisited. *Oecologia* 156 (3): 657-669 (doi: [10.1007/s00442-008-1017-y](https://doi.org/10.1007/s00442-008-1017-y); ISSN: 0029-8549; IF: 3.008).

4. Carnicer J, Brotons L, Sol D, **De Cáceres M** (2008) Random sampling, abundance-extinction dynamics and niche-filtering immigration constraints explain the generation of species richness gradients. *Global Ecology and Biogeography* 17 (3): 352-362 (doi: [10.1111/j.1466-8238.2007.00380.x](https://doi.org/10.1111/j.1466-8238.2007.00380.x); e-ISSN: 1466-8238; IF: 5.304).

3. **De Cáceres M**, Oliva F, Font X (2006) On relational possibilistic clustering. *Pattern Recognition* 39, 2010-2024 (doi: [10.1016/j.patcog.2006.04.008](https://doi.org/10.1016/j.patcog.2006.04.008); ISSN: 0031-3203; IF: 3.725).

2. Rodrigo J, Barbany M, Gutiérrez-de-Terán H, Centeno NB, **De Cáceres M**, Dezi C, Fontaine F, Lozano JJ, Pastor M, Villà J, Sanz F (2002) Comparison of biomolecules on the basis of Molecular Interaction Potentials. *Journal of the Brazilian Chemical Society* 13 (6): 795-799. (doi: [10.1590/S0103-50532002000600010](https://doi.org/10.1590/S0103-50532002000600010); ISSN: 0103-5053; IF: 1.521).

1. **De Cáceres M**, Villà J, Lozano JJ, Sanz F (2000) MIPSIM: Similarity analysis of Molecular Interaction Potentials. *Bioinformatics* 16 (6): 568-569 (doi: [10.1093/bioinformatics/16.6.568](https://doi.org/10.1093/bioinformatics/16.6.568); ISSN: 1367-4803; IF: 6.481).

Non-SCI articles

4. Jansen F, Glöckler F, Chytrý M, **De Cáceres M**, Ewald J, Finckh M, Lopez-Gonzalez G, Oldeland J, Peet RK, Schaminée JHJ, Dengler J (2012). News from the Global Index of Vegetation-Plot Databases (GIVD): the metadata platform, available data, and their properties. – In: Dengler J, Oldeland J., Jansen F, Chytrý M, Ewald J, Finckh M, Glöckler F, Lopez-Gonzalez G, Peet RK, Schaminée JHJ [Eds.]: Vegetation databases for the 21st century. – *Biodiversity & Ecology* 4: 77–82. Biocentre Klein Flottbek and Botanical Garden, Hamburg.

3. **De Cáceres M**, Oliva F, Font X, Vives S. (2007). GINKGO, a program for non-standard multivariate fuzzy analysis. *Advances in Fuzzy Sets and Systems* 2 (1), 41-56.

2. Sáez L, Galbany M, **De Cáceres M** (2003). Evaluación taxonómica de la variabilidad intraespecífica de *Galium brockmannii* briq. (Rubiaceae). *Acta Botanica Barcinonensia* 49: 7-18.

1. Font X., **De Cáceres M**, Quadrada R (2000). La biodiversitat de catalunya consultable via internet. *L'Atzavara* 9: 57-58.

Contract reports

2. **De Cáceres**, Trasobares A (2019). Ajuste y evaluación de modelos para la simulación de la dinámica forestal. Forest Science and Technology Center of Catalonia (Contract by Instituto Nacional de Investigaciones Agrarias – INIA).

1. Wiser, S, **De Cáceres M** (2015). Sensitivity of a NZ woody classification to specific analytical choices. Department of Conservation. P.O. Box 10-420, Wellington, NZ. (Landcare research contract LC 2249).

Online publications

1. **De Cáceres, M.** “Vegetation Classification.” In *Oxford Bibliographies in Ecology*. Ed. David Gibson. New York: Oxford University Press.

Reviewing/editing experience

Between autumn 2011 and spring 2018, I have been an Associated Editor for *Journal of Vegetation Science* (JVS), an official journal of the International Association for Vegetation Science (IAVS). Currently, I am member of the Editorial Board of *JVS* and *Phytocoenologia*.

I have reviewed manuscripts for the following scientific journals: *Acta Oecologica*, *Applied Vegetation Science*, *BMC Bioinformatics*, *Biological Invasions*, *Botany (NRC)*, *Community Ecology*, *Computational Statistics and Data Analysis*, *Diversity and Distributions*, *Ecography*, *Ecology*, *Ecology Letters*, *Ecological Monographs*, *Environmental Modelling and Software*, *European Journal of Soil Biology*, *FEMS Microbiology Ecology*, *Folia Geobotanica*, *International Journal of Approximate Reasoning*, *Journal of Environmental Management*, *Journal of Plant Ecology*, *Journal of Vegetation Science*, *Methods in Ecology and Evolution*, *Oikos*, *Pattern Recognition*, *Plant Ecology*, *PloS ONE*, *Proceedings of the Royal Society B*, *South African Journal of Botany*, *Wiley Interdisciplinary Reviews: Climate Change*.

Reviewer metrics at Publons: <https://publons.com/researcher/1220283/miquel-de-caceres/>

Participation in international scientific workshops

Climate change impacts in the Mediterranean region – International Mistrals workshop. Agropolis, Montpellier (France) October 16-18th, 2017.

Plot-based vegetation data exchange standard. Funded by the Australian Research Council and Landcare Research (New Zealand). Two workshops held at NESCent (Durham, NC, USA), during April 2007 and June 2008.

SEDAR'08. Spatial ecological analysis with R. Workshop held at Université de Lyon 1, Lyon, France during May 25-28th, 2008.

International research stays

2018. Collaborative (invited) research stay (one month) at Lincoln (New Zealand) with Susan K. Wiser (*Landcare Research*), funded by the International Association for Vegetation Science (IAVS). Aim: Development of Veg-X package. Period: 10/01/2018-10/02/2018.

2013. Collaborative research stay (one month) at Masaryk University, Brno, Czech Republic with Milan Chytrý, funded by Masaryk University. Aim: Classification methods. Period: 15/10/2013-14/11/2013.

2012. Collaborative research stay (three weeks) at School of Life Sciences, Sun Yat-sen University, Guangzhou, China with Pierre Legendre and Fangliang He (*Joint Lab for Biodiversity Conservation, Sun Yat-sen University – University of Alberta*). Period: 02/07/2012-22/07/2012.

2011. Collaborative research stay (2 months) at Lincoln (New Zealand) with Susan K. Wisser (*Landcare Research*), funded by a bilateral mobility research project. Aim: Numerical classification of forests in New Zealand. Period: 26/01/2011-26/03/2011.

2006-09. Postdoctoral stay in Montréal (Québec, Canada), at Prof. Pierre Legendre's lab, in *Departement de Sciences Biologiques* from *Université de Montréal* (UdeM). Periods: 01/09/2006-21/1/2007; 01/07/2007-31/01/2008; 01/07/2008-31/07/2009.

2002. Predoctoral stay (3 months) in Montreal (Québec, Canada) at Prof. Pierre Legendre's lab, in *Departement de Sciences Biologiques* from *Université de Montréal* (UdeM).

1999/2000. Two-month predoctoral stay in Los Angeles (California, USA) at the *University of Southern California* (USC). Aim: Developing tools for visualizing molecular properties and implementing the Langevin Dipols technology to the computer program MIPSIM.

1999. Predoctoral stay of two months in Perugia (Umbria, Italy) hired by the *Università di Perugia*. Aim: Programming user interfaces in C language for the 3D visualisation of biomolecules.

Participation in research projects

11. **Title:** Modeling plant water use and drought resistance strategies across scales. **Financial Entity:** Ministerio de Economía y Competitividad (CGL2017-89149-C2-2-R) (93.170 €) **Duration from:** 01/01/2018 **to:** 31/12/2021. **Principal Investigator:** Dr. Miquel De Cáceres (Centre Tecnològic Forestal de Catalunya). **Participation:** PI.

10. **Title:** Forest management promotion for climate change mitigation through the design of a local market of climatic credits (LIFE CLIMARK) (1.212.883 €) **Financial Entity:** European Commission. LIFE. **Entities:** CPF, Generalitat de Catalunya, Oficina de Canvi Climàtic, Consiglio Nazionale delle Ricerche-Istituto per i sistemi Agricoli e Forestali del Mediterraneo, CTFC. **Duration from:** 01/01/2017 **to:** 31/12/2021. **Principal Investigator:** Dr. Pere Casals (subproject). **Participation:** Researcher team.

9. **Title:** Cambio climático y adaptación de los bosques pirenaicos (CANOPEE) (926.693 €) **Financial Entity:** European Commission. POCTEFA. FEDER. **Entities:** GEIE Forespir, Hazi, CPF, CTFC, CNPF, IPE CSIC, ONF. **Duration from:** 01/01/2016 **to:** 31/12/2020. **Principal Investigator:** Dr. Lluís Coll (subproject). **Participation:** Researcher team.

8. **Title:** Forecasting of ecosystem services on forests: impacts and adaptation to extreme climate events. **Financial Entity:** Ministerio de Economía y Competitividad (CGL2014-59742-C2-2-R) (152.460 €) **Duration from:** 01/01/2015 **to:** 31/12/2017. **Principal Investigator:** Dr. Lluís Brotons i Alabau/ Dr. Miquel De Cáceres (Centre Tecnològic Forestal de Catalunya). **Participation:** Co-PI.

7. **Title:** Pasado, presente y futuro de los bosques de montaña: seguimiento y modelización de los efectos del cambio climático y la gestión sobre la dinámica forestal. **Financial Entity:** Ministerio de Agricultura, Alimentación y Medio Ambiente (Organismo Autónomo Parques Nacionales) (23.345 €). **Duration from:** 2014 **to:** 2016. **Principal Investigator:** Lluís Coll Mir (Centre Tecnològic Forestal de Catalunya). **Num. researchers:** 15. **Participation:** Researcher team.

6. **Title:** Development of statistical techniques to address emerging needs in vegetation classification (International mobility fund). **Financial Entity:** The Royal Society of New Zealand (SPN10-13)(NZ\$ 5000) **Duration from:** 26/01/2011 **to:** 26/03/2011. **Principal Investigators:** Drs. Susan K. Wisser (Landcare Research, New Zealand) and Miquel De Cáceres. **Participation:** Co-PI.

5. **Title:** Assessing the impact on biodiversity of uncertain and novel future landscapes under different drivers of global change in a Mediterranean region (BIONOVEL) **Financial Entity:** Ministerio de Economía y Competitividad (CGL2011-29539) (163.350 €) **Duration from:** 31/12/2011 **to:** 31/12/2014. **Principal Investigator:** Dr. Lluís Brotons i Alabau (Centre Tecnològic Forestal de Catalunya). **Participation:** Working team.

4. **Title:** Infraestructura Tecnológica de Almacenamiento de Datos Para El Ctf. **Financial Entity:** Ministerio de Ciencia e Innovación (CTFC10-4E-1255). (93.000 €) **Purpose:** Convocatoria de estructura Científico-Tecnológica. **Principal Investigator:** Dr. Lluís Brotons i Alabau (Centre Tecnològic Forestal de Catalunya). **Participation:** Researcher team.

3. **Title:** Steppe-land birds, agriculture practices and economic viability: towards the conservation of threatened species in humanised landscapes (STEPPE-AHEAD) **Financial Entity:** Fundación General CSIC (e31259dcf5d8631e0c452f1df27ec6d2) (213.969 €) **Duration from:** 1/12/2010 **to:** 31/11/2012.

Principal Investigator: Dr. Lluís Brotons i Alabau (Centre Tecnològic Forestal de Catalunya).
Participation: Researcher team.

2. **Title:** Integration of perturbation dynamics in the spatial prediction of biodiversity in Mediterranean ecosystems (BIOPRED) **Financial Entity:** Ministerio de Educación y Ciencia (CGL2008-06608/BOS) (115.400 €) **Duration from:** 1/1/2009 **to:** 31/12/2011. **Principal Investigator:** Dr. Lluís Brotons i Alabau (Centre Tecnològic Forestal de Catalunya). **Participation:** Working team.

1. **Title:** Spanish woodlands and global change: threats and opportunities (MONTES) **Financial Entity:** Ministerio de Educación y Ciencia (CONSOLIDER CSD2008-00040) (4.000.000 €, CTFC: 275.000 €) **Duration from:** 1/01/2009 **to:** 31/12/2012. **Principal Investigator:** Dr. Javier Retana, Dr. Lluís Brotons i Alabau acting as coordinator of CTFC and work package 5. **Participation:** Post-doc.

Participation in knowledge transfer contracts

2. **Title:** Modelización del crecimiento en volumen, biomasa y carbono de los sistemas forestales a escala nacional. **Contract type:** Licitación. **Financial Entity:** Instituto Nacional de Investigaciones Agrarias (INIA). **Administrative scope:** Spain. **Dedication:** 6 months, 2018. **Participation:** Design and execution. **Results:** Desarrollo de modelos de dinámica forestal y simulaciones de cambios en los estoc de carbono para el periodo 2020-2030 a escala nacional, bajo distintos escenarios de gestión forestal.

1. **Title:** Caracterització de matollars per a la elaboració del mapa de combustibles forestals de Catalunya. **Contract type:** Convenio. **Financial Entity:** Servicio de Prevención de Incendios Forestales, Generalitat de Catalunya. **Administrative scope:** Comunidad autónoma **Dedication:** 1 month/year 2016-2019. **Participation:** Investigador. **Results:** Mejora del mapa estático de combustible forestal añadiendo información precisa sobre la estructura de comunidades arbustivas de Cataluña.

Taught courses

Subject: Biostatistics. **Degree:** B.Sc. in Biology. **Institution:** University of Barcelona. **Academic years:** 2005/06, 2006/07 and 2007/08.

Subject: Experiment design and data analysis. **Degree:** B.Sc. in Biology. **Institution:** University of Barcelona. **Academic years:** 2006/07 and 2007/08.

Subject: 2º curso sobre métodos de análisis multivariante de aplicación en estudios de vegetación. **Institution:** Sociedad Española de Fitosociología (AEFA). **Location:** Facultat de Ciència y Tecnología de la Universidad del País Vasco, Vizcaya. **Dates:** 31/Jan/2006 - 02/Feb/2006. **Hours:** 24.

Subject: FU1:Biochemical Data Analysis. **Degree:** M.Sc. on Bioinformatics for Health Sciences, **Institution:** Universitat Pompeu Fabra. **Dates:** Nov/2006 - Jan/2007. **Hours:** 20.

Subject: Advanced Biology Fundamentals (FBA). **Degree:** B.Sc. Biology. **Institution:** University of Barcelona. **Dates:** 2001-2004. **Hours:** 60h.

Subject: Java programming language. **Institution:** Institut de Ciències de l'Educació (ICE). **Dates:** 2000-2001. **Hours:** 72h

Subject: Java programming language. **Institution:** Barcelona Jove Telecom (BJT). **Dates:** 2000-2001. **Hours:** 90h

Organized scientific events

Event: Workshop. **Title:** Taller de modelización forestal en la península Ibérica. **Venue:** CTFC. **Dates:** 29-30th April 2013. **Duration:** 2 days.

Event: Workshop. **Title:** Vegetation Classification Methods. **Venue:** Orto Botanico di Roma. **Dates:** 8th April 2013. **Duration:** 12h.

Event: Specialized course. **Title:** Spatial Statistics for Ecologists. **Instructor:** Marie-Josée Fortin (University of Toronto). **Venue:** Centre Tecnològic Forestal de Catalunya. **Dates:** 5th-6th June, 2012. **Duration:** 12h.

Student mentoring

Ongoing mentoring:

Student: Antoine Cabon. **Degree:** Ph.D. **Institution:** Universitat Autònoma de Barcelona. **Years:** 2016-2019.

Finished mentoring:

3. Student: Roger Vila. **Degree:** Msc. Ecology, Environmental Management and Restoration. **Title:** The relationship between drought stress and blue water in mediterranean forests at different spatial scales. **Institution:** Universitat de Barcelona. **Date:** 27/09/2018.

2. Student: Asaf Karavani. **Degree:** Msc. MEDfOR (Erasmus Mundus). **Title:** Effect of climatic and micro-climatic conditions on the provisioning of fungal-based ecosystem services in Mediterranean pine stands. **Institution:** Universitat de Lleida. **Date:** 07/2016.

1. Student: Mario Beltran i Barba. **Degree:** Máster de Recerca en Sistemes i Productes Forestals. **Title:** Vulnerability to crown fire of 1 forest structures and its relation with the severity of wildfire - The case of *Pinus halepensis* Mill. stands in Catalonia -. **Institution:** Universitat de Lleida. **Year:** 2012.

In addition, I have been informally involved in the tuition of several students at different levels: Albert Maceda (Ph.D., University of Barcelona, Spain), Beatriz Vilches de la Serna (Ph.D. Universidad Carlos III de Madrid, Spain), Fiona Thomson (Postdoc, Landcare Research, Christchurch, New Zealand), Martina Sánchez-Pinillos (Ph.D., University of Lleida, Spain); My involvement in the tuition of these students has been primarily focused on the development of their skills for statistical data analysis and manuscript correction.

Attended conferences

February 2019. 1st Meeting of the Iberian Ecological Society & XIV AEET Meeting. Barcelona (Spain) 4-7 february 2019.

June 2017. 60th International Symposium of the International Association for Vegetation Science (IAVS), Palermo (Italy), 20-24 june 2017.

June 2017. World Conference on Natural Resource Modelling, Barcelona (Spain), 5-9 june 2017.

February 2017. XIV MEDECOS & XIII AEET Meeting. Sevilla (Spain) 31 january – 4 february 2017.

July 2015. 58th International Symposium of the International Association for Vegetation Science (IAVS), Brno (Czech Republic), 19-24 july 2015.

June 2015. 4º Congreso Ibérico de Ecología. La Ecología y los Retos Sociales, Coimbra (Portugal), 16 – 19 June 2015.

September 2013. ClimTree 2013. Climate Change and Tree Responses in Central European Forests, Zurich (Switzerland), 1 – 5 September 2013.

June 2013. 56th International Symposium of the International Association for Vegetation Science (IAVS), Tartu (Estonia), 26-30 june 2013.

Septembre 2012. 23rd International Symposium of Phytosociology (XXIII Jornadas Internacionales de Fitosociología), Toledo (Spain), 19-21 september 2012.

August 2012. 97th Annual Meeting of the Ecological Society of America (ESA), Portland (Oregon, USA), 5-10 august 2012.

July 2012. 55th International Symposium of the International Association for Vegetation Science (IAVS), Mokpo (South Korea), 22-28 july 2012.

June 2011. 54th International Symposium of the International Association for Vegetation Science (IAVS), Lyon (France), 20-24 june 2011.

February 2010. 9th conference on vegetation databases, Hamburg (Germany), 24th-27th february 2010.

June 2009. 52 International Symposium of the International Association for Vegetation Science (IAVS), Crete (Greece), 30 may-4 june 2009.

May 2009. CSEE/SCEE & GSC/SGC conference 2009. Halifax (Canada), 14th-17th may 2009.

- May 2008. 17th International Workshop "European Vegetation Survey". Brno, Rep. Checa.
- July 2003. VII Congreso Nacional de la Asociación Española de Ecología Terrestre. Barcelona.
- June-july 2003. International Conference on Correspondence Analysis and Related Methods (CARME' 03). Barcelona.
- April 2003. XXVII Congreso Nacional de Estadística e Investigación Operativa. Lleida.
- November 2001. XXVI Congreso Nacional de Estadística e Investigación Operativa. Úbeda.
- April 2001. 10th International Workshop "European Vegetation Survey". Roma, Italia.
- July 2001. VI col.loqui internacional de botànica pirenaico-cantàbrica. Barruera.

Invited oral communications

3. De Cáceres M (2018). Applications derived from water balance modelling using daily meteorological data from the Catalan weather station network. *XXIV Jornades Eduard Fonserè. Cosmoaixa, Barcelona, december 2018.*
2. De Cáceres (2014). Numerical approaches for plot-based classification of vegetation: ideals and reality. *International Symposium: Advances in Geobotany. Madrid, june 2014.*
1. De Cáceres M (2012). Supervised and unsupervised classification of vegetation (Clasificación supervisada y no supervisada de la vegetación). *XXIII Jornadas Internacionales de Fitosociología. Toledo, september 2012.*

Oral communications in scientific congresses

23. **De Cáceres M**, Coll L, Legendre P, Allen RB, Wiser SK, Fortin MJ, Condit R, Hubbell S (2019) Trajectory analysis in community ecology. *1st Meeting of the Iberian Ecological Society & XIV AEET Meeting. Barcelona (Spain) 4-7 february 2019.*
21. **De Cáceres M**, Allen RB, Wiser SK, Martín-Alcón S, Coll L (2017) On the use of structural and compositional dissimilarity measures for the analysis of forest structure and dynamics. *60th International Symposium of the International Association for Vegetation Science (IAVS), Palermo (Italy), 20-24 june 2017.*
20. **De Cáceres M**, Cabon A, Martínez-Vilalta J (2017) Development of a modelling framework to monitor drought stress of forests at the regional level. *2017 World Conference on Natural Resource Modelling, Barcelona (Spain), 5-9 june 2017.*
19. **De Cáceres M**, Casals P, Álvarez A, Pausas JG, Vayreda J, Beltrán M (2017). The role of understory fuel characteristics in the fire hazard of Mediterranean forests. *XIV MEDECOS & XIII AEET Meeting. Sevilla (Spain) 31 january – 4 february 2017.*
18. **De Cáceres M**, Wiser SK, Martín-Alcón S, González-Olabarria JR, Coll L (2015) Classification of vegetation using both the structure and composition of plant communities. *58th International Symposium of the International Association for Vegetation Science (IAVS), Brno (Czech Republic), 19-24 july 2015.*
17. **De Cáceres M**, Martínez-Vilalta J, Pausas J, Brotons L (2013). Analyzing the response of Mediterranean forests to the combined effects of drought and fire regimes: insights from a landscape simulation model based on vital attributes. *ClimTree 2013. Climate Change and Tree Responses in Central European Forests, Zurich (Switzerland), 1 – 5 September 2013.*
16. **De Cáceres M**, Legendre P, He F (2013). Dissimilarity assessments and the vertical structure of plant communities. *56th International Symposium of the International Association for Vegetation Science (IAVS), Tartu (Estonia), 26-30 june 2013.*
15. **De Cáceres M**, Legendre P, Valencia R, Cao M, Chang LW, Chuyong G, Condit R, Hao Z, Hsieh CF, Hubbell S, Kenfack D, Ma K, Mi X, Supardi Noor N, Kassim AR, Ren H, Su SH, Sun IF, Thomas D, Ye W, He F (2012) The variation of tree beta diversity across a global network of forest plots. *97th Annual Meeting of the Ecological Society of America (ESA), Portland (Oregon, USA), 5-10 august 2012.*

14. **De Cáceres M**, Legendre P, Wiser SK, Brotons L (2012) Using species combinations in indicator value analyses. *55th International Symposium of the International Association of Vegetation Science (IAVS), Mokpo (South Korea), 22-28 July 2012.*
13. Vilches B, **De Cáceres M**, Sánchez-Mata D, Gavilán RG (2012) Indicator species at different scales. Improving the classification of forest communities. *21th International Workshop "European Vegetation Survey". Vienna (Austria), 24-27 May 2012.*
12. **De Cáceres M**, Wiser, S (2011) Classification of vegetation: concepts and pitfalls. *54th International Symposium of the International Association of Vegetation Science (IAVS), Lyon (France), 20-24 June 2011.*
11. **De Cáceres M**, Spencer N, Kleikamp M, Peet R, Wiser S, Boyle B (2010) Veg-X – An exchange standard for plot-based vegetation databases. *9th conference on vegetation databases: Vegetation databases & climate change. Hamburg (Germany) 23-26 February 2010.*[German Federal Agency for Nature Conservation (BfN)]
10. **De Cáceres M**, Legendre P, Moretti M (2009) Improving indicator species analysis by combining groups of sites. *52nd International Symposium of the International Association of Vegetation Science (IAVS), Crete (Greece), 30 May-4 June 2009.* Awarded with the IAVS prize of the best oral presentation among young scientists.
9. **De Cáceres M**, Legendre P, He F (2009) The role of topography and biotic processes in the origin and maintenance of forest beta diversity. *CSEE/SCEE & GSC/SGC conference 2009. Halifax (Canada), 14th-17th May 2009.*
8. **De Cáceres M**, Font X, Oliva F, Vicente P (2008): Reproduction of expert-based phytosociological classifications using a multivariate analysis approach. *17th International Workshop "European Vegetation Survey". Brno, Czech Republic, 1-4 May 2008.*
7. Nualart N, **De Cáceres M**, Quadrada RV, Font X (2005): Implementación de un sistema de cartografía potencial de taxones en el Banco de datos de biodiversidad de Cataluña. *II Congreso de Biología de Conservación de Plantas. Gijón, Septiembre 2005.*
6. **De Cáceres M**, Font X, García R, Oliva F (2003): VEGANA, un paquete de programas para la gestión y análisis de datos ecológicos. *VII Congreso Nacional de la Asociación Española de Ecología Terrestre. Barcelona. Juliol, 2003. pp 1484-1497.*
5. **De Cáceres M**, Oliva F, Font X. (2003): GINKGO: a multivariate analysis program oriented towards distance-based classifications. *International Conference on Correspondence Analysis and Related Methods (CARME' 03). Juny-juliol de 2003.*
4. **De Cáceres M**, Oliva F, Font X (2003) GINKGO, un programa de análisis multivariante orientado a la clasificación basada en distancias. *XXVII Congreso Nacional de Estadística e Investigación Operativa. Lleida, 8-11 April 2003.*
3. Oliva F, **De Cáceres M**, Font X, Cuadras CM (2001): Contribuciones desde una perspectiva basada en distancias al fuzzy k-means clustering. *XXVI Congreso Nacional de Estadística e Investigación Operativa. Úbeda, November 2001.*
2. Font X, **De Cáceres M**, Quadrada R (2001). El banco de datos de Biodiversidad de Cataluña, dos años de experiencia en internet. *VI col.loqui internacional de botànica pirenaico-cantàbrica. Barruera, Juliol 2001.*
1. Sanz F, **De Cáceres M**, Villà J (1999). Similarity analysis of molecular interaction potential distributions. The MIPSIM software. *Girona, July 1999.*

Poster contributions in scientific congresses

4. **De Cáceres M**, Martínez-Vilalta J, Coll L, Casals P, Poyatos R, Pausas JG, Brotons L. (2015) Coupling a water balance model with forest inventory data to evaluate plant drought stress at the regional level. *4º Congreso Ibérico de Ecología. La Ecología y los Retos Sociales, Coimbra (Portugal), 16 – 19 June 2015*
3. Font X, Quadrada RV, **De Cáceres M**, Vigo J (2005) Propuesta de sectorialización fitogeográfica de cuadrados UTM. *XX Jornadas de Fitosociología. Málaga. Septiembre 2005.*

2. De Cáceres M, Font X (2005) ARAUCARIA, un sistema de determinación de inventarios de vegetación en línea. *XX Jornadas de Fitosociología (FIP-AEFA)*. Málaga. Septiembre 2005.

1. Font X, De Cáceres M, García R, Oliva F (2003): VEGANA, un paquete de programas para la gestión y análisis de datos ecológicos. *Congreso Internacional de Fitosociología (FIP-AEFA)*. Universidad de La Laguna. Septiembre, 2003.

Invited oral communications in research seminars

2013 Analyzing the response of Mediterranean forests to the combined effects of drought and fire regimes: insights from a landscape simulation model based on vital attributes. Centre Tecnològic Forestal de Catalunya (CTFC). Solsona, Spain. December 8th. 2013.

2013 Indicator Species Analysis Extensions of the original method and examples of application. Institut de Ciències del Mar - CMIMA (CSIC). Barcelona, Spain. March 8th. 2013.

2013 De Cáceres M, Legendre P & He F. Dissimilarity assessments and the vertical structure of plant communities. Centre Tecnològic Forestal de Catalunya. Spain. February 27th 2013.

2013 Legendre, P. & M. De Cáceres. Diversité bêta, variance, indices de dissimilarité et partitionnement. Séminaire, Département de sciences biologiques, Université de Montréal. February 12th 2013.

2013. Indicator Species Analysis Extensions of the original method and examples of application. January 29th. 2013.

2012. The variation of tree beta diversity across a global network of forest plots. South China Botanical Garden. Chinese Academy of Sciences. Guangzhou, PR China.

2012. The variation of tree beta diversity across a global network of forest plots. Departament d'Ecologia. Universitat de Barcelona. Spain.

2011. The management of vegetation classifications with fuzzy clustering. Centre Tecnològic Forestal de Catalunya. Spain.

2011. The management of vegetation classifications with fuzzy clustering. Massey University. Auckland, New Zealand.

2010. Dynamic species distribution models: Integrating landscape dynamics with species distribution responses. Centre Tecnològic Forestal de Catalunya. Spain.

2010. The role of topography and biotic processes as sources of forest beta diversity. Centre Tecnològic Forestal de Catalunya. Spain.

2009. Espèces indicatrices: nouveaux développements et nouvelles applications. Département des Sciences Biologiques. Université de Montréal. Canada.

2009. Associations between species and groups of sites: theory and applications. Department of Biology. University of Toronto at Mississauga. Canada.

2008. La transformació de Beals per a matrius de dades de composició d'espècies. Departament d'Ecologia. Universitat de Barcelona.

2008. Évaluation de la valeur indicatrice des espèces dans un grand jeu de données: utilisation des coefficients de phi et de Occhiai. Département des Sciences Biologiques. Université de Montréal. Canada.

2006. Clustering partitivo de datos de microarrays con GINKGO. Journal Club de Microarrays. Facultat de Biologia, Universitat de Barcelona. Spain.

2005. Fuzzy Clustering in ecology. Centre d'Estudis Avançats de Blanes (CEAB). Spain.

2002. Reflexions al voltant dels mètodes de classificació en ecologia. Societat Catalana de Biologia. Facultat de Biologia, Universitat de Barcelona.

Programming skills and software development

Programming languages with experience: Qbasic, VisualBasic, Ansi C, C++, FORTRAN, PASCAL, R and Java.

Development of R packages

De Cáceres M, Cabon A., Martin-StPaul N, Granda V: **meteoland**. 2018. R package version 0.7.1. <https://CRAN.R-project.org/package=meteoland>

De Cáceres M: **medfate**. 2016. R package versión 0.2.2. <https://CRAN.R-project.org/package=medfate>

De Cáceres M: **vegclust**. 2018. R package version 1.7.4. <http://cran.r-project.org/web/packages/vegclust/index.html>

De Cáceres M, Jansen F. **indicspecies**. 2016. R package ver. 1.7.6 <http://cran.r-project.org/package=indicspecies>

Other R packages available as repositories in a GitHub account: <https://github.com/miquelcaceres>

- IFNdyn – Tree-based empirical models for projecting the dynamics of forest plots included in the Spanish National Forest Inventory.
- VegX – Functions to import, integrate, harmonize and export vegetation data using the VegX standard.
- medfuels – Functions to estimate fuel biomass and loading for Mediterranean shrublands.

Other software projects

1. Recodifying and extension of MIPSIM package (Molecular Interaction Potential SIMilarity analysis) using FORTRAN and Java. Developed at the Institut Municipal d'Investigacions Mèdiques (IMIM).

2. Main programmer of the VEGANA package (VEGETation edition ANALysis tools) in Java language. Developed at the Plant Biology Department of the Universitat de Barcelona (UB): <http://biodiver.bio.ub.es/vegana>.

3. Programmer of ARAUCARIA, a tool for the automatic classification of vegetation data (in Java). Developed at the Plant Biology Department of the Universitat de Barcelona (UB): <http://biodiver.bio.ub.es/vegana/araucaria>.

4. Java servlet programmer in project SCHIP: Statistics for Chromosome Interphase Positioning. A collaboration between the Departament d'Estadística of the Universitat de Barcelona and the University of California at San Francisco (UCSF): <http://cramer.stat.ub.es/schip/>.

5. Other web portals I've been involved as a Java applet programmer are:

- * Banc de Dades de Biodiversitat de Catalunya (BDBC): <http://biodiver.bio.ub.es/biocat>
- * Natura Digital (educational botany): <http://biodiver.bio.ub.es/naturdigit>
- * Sistema d'Informació Biodiversitat d'Andorra (SIBA): <http://biodiver.bio.ub.es/andorra/>
- * Sistema de Información de la Vegetación Ibérica (SIVIM): <http://www.sivim.info/sivi/>