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XOAQUÍN MOREIRA TOMÉ

Education

2008-2010 PhD, University of Vigo, Spain
2006-2007 M.Sc., University of Vigo, Spain
2001-2005 B.S. in Forestry, University of Santiago de Compostela, Spain

Academic & Research Appointments

2021-present Senior researcher (Científico Titular), Biological Mission of Galicia (CSIC), Pontevedra, Spain
2015-2021 Ramon y Cajal researcher, Biological Mission of Galicia (CSIC), Pontevedra, Spain
2014-2015 Postdoctoral researcher, University of Neuchâtel, Dep. Evolutionary Entomology, Switzerland
2012-2014 Fulbright postdoc, University of California, Dep. Ecology & Evolutionary Biology, Irvine USA
2010-2012 Postdoctoral researcher, Biological Mission of Galicia-CSIC, Dep. Forestry, Pontevedra, Spain
2006-2010 Predoctoral researcher, Forestry Research Centre of Lourizán, Dep. Ecology, Pontevedra, Spain

Publications

Peer-reviewed papers

- [126] **Moreira X**, Abdala-Roberts L, Gols R, Lago-Núñez B, Rasmann S, Röder G, Soengas P, Vázquez-González C, Cartea ME (2024) Insect herbivory but not plant pathogen infection drive floral volatile-mediated indirect effects on pollinators and plant fitness in *Brassica rapa*. *Journal of Ecology*. Impact Factor: 5.5 (22/169 Ecology) (28/238 Plant Sciences).
- [125] Quijano-Medina T, Interian-Aguiñaga J, Solís-Rodríguez U, Mamin M, Clancy M, Ye W, Bustos-Segura C, Francisco M, Ramos-Zapata JA, Turlings TCJ, **Moreira X***, Abdala-Roberts L* (2024) Aphid and caterpillar feeding drive similar patterns of induced defences and resistance to subsequent herbivory in wild cotton. *Both authors share the senior authorship. *Planta*. Impact Factor: 4.3 (47/238 Plant Sciences).
- [124] Robinson ML et al. (Herbvar Network, including **Moreira X**) (2023) Plant size, latitude, and phylogeny explain variability in global herbivory. *Science*. Impact Factor: 56.9 (2/73 Multidisciplinary Sciences).
- [123] **Moreira X**, Abdala-Roberts L, Núñez-Lago B, Cao A, De Pauw K, De Ro A, Gasperini C, Hedwall P.-O., Iacopetti G, Lenoir J, Meeussen C, Plue J, Sanczuk P, Selvi F, Spicher F, Vanden Broeck A, De Frenne P (2023) Effects of experimental warming at the microhabitat scale on oak leaf traits and insect herbivory across a contrasting environmental gradient. *Oikos*. Impact Factor: 3.4 (58/169 Ecology).
- [122] Costa-Silva VM, Calixto ES, **Moreira X**, Del-Claro K (2023) Effects of dominant ant species on ant community structure and ant-hemipteran interactions. *Oikos*. Impact Factor: 3.4 (58/169 Ecology).
- [121] Vicente-Díez I, **Moreira X**, Pastor V, Vilanova M, Pou A, Campos-Herrera R (2023) Control of post-harvest gray mold (*Botrytis cinerea*) on grape (*Vitis vinifera*) and tomato (*Solanum lycopersicum*) using volatile organic compounds produced by *Xenorhabdus nematophila* and *Photorhabdus laumondii* subsp. *laumondii*. *BioControl* 68:549–563. Impact Factor: 2.5 (19/100 Entomology).

- [120] Martín-Cacheda L, Vázquez-González C, Rasmann S, Röder G, Abdala-Roberts L, **Moreira X** (2023) Volatile-mediated signalling between potato plants in response to insect herbivory is not contingent on soil nutrients. *Journal of Chemical Ecology*. Impact Factor: 2.3 (93/169 Ecology).
- [119] Abdala-Roberts L, Pérez-Niño B, Cristóbal-Alejo J, Reyes-Novelo E, Vázquez-González C, **Moreira X**. Effects of tree species diversity and conspecific seedling density on insect herbivory and pathogen infection on big-leaf mahogany seedlings. *Oikos* 2023:e10093. Impact Factor: 3.4 (58/169 Ecology).
- [118] Quiroga G, Aguiño-Domínguez N, Piperakis N, Martín-Cacheda L, Abdala-Roberts L, **Moreira X** (2023) Variation in the outcome of plant-mediated pathogen interactions in potato: effects of initial infections on conspecific vs. heterospecific subsequent infections. *Journal of Chemical Ecology* 49:465-473. Impact Factor: 2.3 (93/169 Ecology).
- [117] Abdala-Roberts L, Berny-Mier y Teran JC, Vázquez-González C, Cohuo A, León J, Valle L, Mooney KA, Reyes-Novelo E, **Moreira X** (2023) Effects of seedling conspecific density and heterospecific frequency on insect herbivory in a tropical dry forest. *Agricultural and Forest Entomology* 25:549–557. Impact Factor: 1.6 (42/100 Entomology).
- [116] Martins-Noguerol R, Matías L, Pérez-Ramos IM, **Moreira X**, Francisco M, Pedroche J, De Andrés-Gil C, Gutiérrez E, Salas JJ, Moreno-Pérez AJ, Davy AJ, Figueroa MA, Cambrollé J (2023) Soil physicochemical properties associated with the yield and phytochemical composition of the edible halophyte *Crithmum maritimum*. *Science of the Total Environment* 869:161806. Impact Factor: 9.8 (26/274 Environmental Sciences).
- [115] Vázquez-González C, Quiroga V, Martín-Cacheda L, Rasmann S, Röder G, Abdala-Roberts L, **Moreira X** (2023) Effect of herbivore load on VOC-mediated plant communication in potato. *Planta* 257:42. Impact Factor: 4.3 (47/238 Plant Sciences).
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- [113] García-Verdugo C, Douthe C, Francisco M, Ribas-Carbó M, Flexas J, **Moreira X** (2023) Does insular adaptation to subtropical conditions promote loss of plasticity over time? *Perspectives in Plant Ecology, Evolution and Systematics* 58:125713. Impact Factor: 3.6 (66/238 Plant Sciences) (53/169 Ecology).
- [112] **Moreira X**, Abdala-Roberts L (2023) Linking herbivory and ecosystem services in urban forests. *Trends in Plant Sciences* 28:139-141. Impact Factor: 20.5 (3/238 Plant Sciences).
- [111] Gaytán A, Abdelfattah A, Faticov M, **Moreira X**, Castagneyrol B, Van Halder I, De Frenne P, Meeussen C, Timmermans BGH, Ten Hoopen JPJG, Rasmussen PU, Bos N, Jaatinen R, Pulkkinen P, Söderlund S, Gotthard K, Pawlowski K, Tack AJM (2022) Changes in the foliar fungal community between oak leaf flushes along a latitudinal gradient in Europe. *Journal of Biogeography* 49:2269-2280. Impact Factor: 3.9 (46/169 Ecology) (9/50 Geography, Physical).
- [110] Vázquez-González C, Pombo-Salinas L, Martín-Cacheda L, Rasmann S, Röder G, Abdala-Roberts L, Mooney KA, **Moreira X** (2022) Effect of water availability on volatile-mediated communication between potato plants in response to insect herbivory. *Functional Ecology* 36:2763–2773. Impact Factor: 5.2 (25/169 Ecology).
- [109] Fyllas N, Chrysafi D, Avtzis D, **Moreira X** (2022) Photosynthetic and defensive responses of two Mediterranean oaks to insect leaf herbivory. *Tree Physiology* 42:2282–2293. Impact Factor: 4.0 (7/69 Forestry).

- [108] Gaytán A, **Moreira X**, Castagneyrol B, Van Halder I, De Frenne P, Meeussen C, Timmermans BGH, Ten Hoopen JPJG, Rasmussen PU, Bos N, Jaatinen R, Pulkkinen P, Söderlund S, Covelo F, Gotthard K, Tack AJM (2022) The co-existence of multiple oak leaf flushes contributes to the large within-tree variation in chemistry, insect attack and pathogen infection. *New Phytologist* 235:1615-1628. Impact Factor: 9.4 (11/238 Plant Sciences).
- [107] Castillo JM, Mancilla-Leytón JM, Martins-Noguerol R, **Moreira X**, Moreno-Pérez AJ, Muñoz-Vallés S, Pedroche J, Figueroa ME, García-González A, Salas JJ, Millán-Linares MC, Francisco M, Cambrollé J (2022) Interactive effects between salinity and nutrient deficiency on biomass production and bio-active compounds accumulation in the halophyte *Crithmum maritimum*. *Scientia Horticulturae* 301:111136. Impact Factor: 4.3 (5/36 Horticulturae).
- [106] Valdés-Correcher E, Popova A, Galmán A, Prinzing A, Selikhovkin AV, Howe AG, Mrazova A, Dulaurent A-M, Hampe A, Tack AJM, Bouget C, Lupaştean D, Harvey D, Musolin DL, Lövei GL, Centenaro G, van Halder I, Hagge J, Dobrosavljević J, Pitkänen J-M, Koricheva J, Sam K, Barbaro L, Branco M, Ferrante M, Faticov M, Tahadlová M, Gossner M, Cauchoix M, Bogdziewicz M, Duduman M-L, Kozlov MV, Bjoern MC, Mamaev NA, Fernandez-Conradi P, Thomas RL, Wetherbee R, Green S, Milanović S, **Moreira X**, Kadiri Y, Castagneyrol B (2022) Effects of impervious surface, local tree cover, and insect feeding guild. *Ecology and Evolution* 12:e8709. Impact Factor: 2.6 (87/169 Ecology).
- [105] Martins-Noguerol R, Pérez-Ramos IM, Matías L, **Moreira X**, Francisco M, García-González A, Troncoso-Ponce MA, Thomasset B, Martínez-Force E, Moreno-Pérez AJ, Cambrollé J (2022) *Crithmum maritimum* seeds, a potential source for high-quality oil and phenolic compounds in soils with no agronomical relevance. *Journal of Food Composition and Analysis* 108:104413. Impact Factor: 4.3 (44/142 Food Science & Technology).
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- [101] Martins-Noguerol R, Matías L, Pérez-Ramos IM, **Moreira X**, Muñoz-Vallés S, Mancilla-Leytón JM, Francisco M, García-González A, De Andrés-Gil C, Martínez-Force E, Millán-Linares MC, Pedroche J, Figueroa ME, Moreno-Pérez AJ, Cambrollé J (2022) Differences in nutrient composition of sea fennel (*Crithmum maritimum*) grown in different habitats and optimally controlled growing conditions. *Journal of Food Composition and Analysis* 106:104266. Impact Factor: 4.3 (44/142 Food Science & Technology).
- [100] van Dijk LJA, **Moreira X**, Barr AE, Abdala-Roberts L, Castagneyrol B, Faticov M, Hardwick B, ten Hoopen JPJG, de la Mata R, Pires RM, Roslin T, Schigel DS, Timmermans BGH, Tack AJM (2022) Urbanization affects oak-pathogen interactions across spatial scales. *Ecography* 2022:e06091. Impact Factor: 5.9 (7/65 Biodiversity Conservation) (19/169 Ecology).
- [99] **Moreira X**, Abdala-Roberts L (2022) A roadmap for future research on insularity effects on plant-herbivore interactions. *Global Ecology and Biogeography* 31:602–610. Impact Factor: 6.4 (14/169 Ecology) (3/48 Geography, Physical).

- [98] **Moreira X**, Vázquez-González C, Abdala-Roberts L (2021) Proximate drivers of population inter-annual variation in seed output for a masting conifer species. *Forest Ecology and Management* 498:119562. Impact Factor: 4.384 (6/70 Forestry).
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- [95] **Moreira X**, Granjel RR, de la Fuente M, Fernández-Conradi P, Pasch V, Soengas P, Turlings TCJ, Vázquez-González C, Abdala-Roberts L, Rasmann S (2021) Apparent inhibition of induced plant volatiles by a fungal pathogen prevents airborne communication between potato plants. *Plant, Cell and Environment* 44:1192-1201. Impact Factor: 7.947 (31/239 Plant Sciences).
- [94] Valdés-Correcher E, **Moreira X**, Augusto L, Barbaro L, Bouget C, Bouriaud O, Branco M, Centenaro G, Csóka G, Damestoy T, Dobrosavljević J, Duduman M-L, Dulaurent A-M, Eötvös CB, Faticov M, Ferrante M, Fürjes-Mikó A, Galmán A, Gossner MM, Hampe A, Harvey D, Gordon Howe A, Kadiri Y, Kaennel-Dobbertin M, Koricheva J, Kozel A, Kozlov MV, Lövei GL, Lupaştean D, Milanović S, Mrazova A, Opgennoorth L, Pitkänen J-M, Popova A, Popović M, Prinzing A, Queloz V, Roslin T, Sallé A, Sam K, Scherer-Lorenzen M, Schuldt A, Selikhovkin A, Suominen L, Tack AJM, Tahadlova M, Thomas R, Castagneyrol B (2021) Search for top-down and bottom-up drivers of latitudinal trends in insect herbivory in oak trees in Europe. *Global Ecology and Biogeography* 30:651–665. Impact Factor: 6.909 (16/174 Ecology) (3/48 Geography, Physical).
- [93] Jactel H, **Moreira X**, Castagneyrol B (2021) Tree diversity and forest resistance to insect pests: patterns, mechanisms and prospects. *Annual Review of Entomology* 66:277-296. Impact Factor: 22.682 (1/100 Entomology).
- [92] Galmán A, Abdala-Roberts L, Wartalska P, Covelo F, Röder G, Szenteczki M, **Moreira X***, Rasmann S* (2021) Elevational gradients in constitutive and induced oak defences based on individual traits and their correlated expression patterns. *Both authors share the senior authorship. *Oikos* 130:396-407. Impact Factor: 4.254 (53/174 Ecology).
- [91] Sanczuk P, Govaert S, Meeussen C, De Pauw K, Vanneste T, Depauw L, **Moreira X**, Schoelynck J, De Boevre M, De Saeger S, Bollmann K, Brunet J, Cousins SAO, Plue J, Diekmann M, Graae BJ, Hedwall P-O, Iacopetti G, Lenoir J, Orczewska A, Ponette Q, Selvi F, Spicher F, Vermeir P, Calders K, Verbeek H, Verheyen K, Vangansbeke P, De Frenne P (2021) Small scale environmental variation modulates plant defence syndromes of understorey plants in deciduous forests of Europe. *Global Ecology and Biogeography* 30:205-219. Impact Factor: 6.909 (16/174 Ecology) (3/48 Geography, Physical).
- [90] Poeydebat C, Jactel H, **Moreira X**, Koricheva J, Barsoum N, Bauhus J, Eisenhauer N, Ferlian O, Francisco M, Gottschall F, Gravel D, Mason B, Muiruri E, Muys B, Nock C, Paquette A, Ponette Q, Scherer-Lorenzen M, Stokes V, Staab M, Verheyen K, Castagneyrol B (2021) Climate affects neighbour-induced changes in leaf chemical defences and tree diversity-herbivory relationships. *Functional Ecology* 35:67-81. Impact Factor: 6.28 (24/174 Ecology).
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abundance across three trophic levels in the perennial shrub *Buddleja cordata*. *Entomologia, Experimentalis et Applicata* 167:950–956. Impact Factor: 1.696 (32/101 Entomology).

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- [72] **Moreira X**, Castagneyrol B, de la Mata R, Fyllas NM, Galmán A, García-Verdugo C, Larrinaga AR, Abdala-Roberts L (2019) Effects of insularity on insect leaf herbivory and chemical defences in a Mediterranean oak species. *Journal of Biogeography* 46:1226–1233. Impact Factor: 3.723 (35/169 Ecology) (12/50 Geography, Physical).
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past and current reproduction in oaks. *American Journal of Botany* 106:51-60. Impact Factor: 3.038 (48/234 Plant Sciences).

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Book chapters

- [7] Abdala-Roberts L, **Moreira X**. Introduction: Ecology and evolution of plant-herbivore interactions on islands. In: Moreira X, Abdala-Roberts L (eds) *Ecology and evolution of plant-herbivore interactions on islands*. Springer.
- [6] **Moreira X**, Vázquez-González C, Lago-Núñez B, Abdala-Roberts L. Island features and abiotic factors as drivers of insect leaf herbivory on islands. In: Moreira X, Abdala-Roberts L (eds) *Ecology and evolution of plant-herbivore interactions on islands*. Springer.

- [5] García-Verdugo C, **Moreira X**, Caujapé-Castells J, Flexas J. Leaf traits linked to herbivory in lineages with Mediterranean- Macaronesian distributions: does an island syndrome in plant defence exist? In: Moreira X, Abdala-Roberts L (eds) *Ecology and evolution of plant-herbivore interactions on islands*. Springer.
- [4] **Moreira X**, Abdala-Roberts L. Ecological and evolutionary links between plant defences and life history traits. In: Segoli M, Wajnberg E (eds) *Life history evolution: traits, interactions, and applied aspects*. Springer.
- [3] **Moreira X**, Abdala-Roberts L. Sources of variation in defensive traits in *Quercus* species: insights gained from research spanning individuals to communities and local- to broad-scale factors (2020) In: Merillon JM, Ramawat KG (eds) *Plant defence: Biological control*. Progress in Biological Control, second edition, vol. 22, 81-97. Springer Netherlands.
- [2] Carmona D, **Moreira X**, Abdala-Roberts L (2020) Latitudinal and elevational gradients in plant defences and herbivory in temperate trees: recent findings, underlying factors, and an evolutionary perspective using genomic tools. In: Núñez-Farfán J, Valverde P (eds) *Evolutionary ecology of plant-herbivore interaction*. Springer Nature Switzerland, 343-368.
- [1] **Moreira X**, Zas R, Sampedro L. Methyl jasmonate as chemical elicitor of induced responses and anti-herbivory resistance in young conifer trees (2012) In: Merillon JM, Ramawat KG (eds) *Plant defence: Biological control*. Progress in Biological Control, first edition, Volume 12, 345-362. Springer Netherlands.

Research Grants

Principal Investigator

2023-2025 Spanish Ministry of Science and Innovation (Ref: EUR2023-143463): “Tritrophic interactions as drivers of insularity effects on insect herbivory and plant defences” (PI: Xoaquín Moreira; €100,000).

2023-2026 Spanish Ministry of Science and Innovation (Ref: PID2022-141761OB-I00): “Understanding insularity effects on plant-herbivore interactions to promote insular biodiversity conservation” (PI: Xoaquín Moreira; €150,000).

2023-2024 Consell Insular de Menorca (Ref: 0915/2022/000001): “Effects of rabbits on defences, pollination, reproduction and viability of the endemic flora in Menorca” (PI: Xoaquín Moreira; €5,000).

2022-2024 LINGGLOBAL (CSIC) (Ref: INCGL20004): “Effects of global change drivers on Latin-American tropical dry forests: integrating research perspectives towards a more robust understanding and mitigation of impacts” (PI: Xoaquín Moreira, Luis Abdala-Roberts, Rubens M. Santos; €30,000).

2022-2023 i-COOP+ (CSIC) (Ref: COOPA20477): “Investigating plant-plant signaling via volatile organic compounds as a tool for sustainable management of cotton plantations in Mexico” (PI: Xoaquín Moreira, Luis Abdala-Roberts; €24,000).

2019-2022 Spanish Ministry of Science, Innovation and Universities (Ref: RTI2018-099322-B-I00): “Use of plant-plant communication through volatile organic compounds as a strategy for biological control of pests and diseases in potato plants” (PI: Xoaquín Moreira; €84,700).

2018-2019 i-LINK+ (CSIC) (Ref: I-LINK1221): “Unravelling the mechanisms behind elevational gradients in plant-herbivore interactions” (PI: Xoaquín Moreira, Arndt Hampe; €10,200).

2016-2020 Galician Innovation Agency (Ref: IN607D2016/001): “Factors influencing the direction and magnitude of altitudinal gradients in oak defensive strategies and herbivory” (PI: Xoaquín Moreira €100,000).

2016-2018 Spanish Ministry of Economy and Competition (Ref: AGL2015-70748-R): “Factors determining the existence of defense syndromes in *Quercus* sps. in the Iberian Peninsula: consequences for the conservation of endangered species” (PI: Xoaquín Moreira €42,350).

2016-2017 i-COOP+ (CSIC) (Ref: COOPB20158): “Mechanisms explaining tree species diversity effects on associated arthropod communities: patterns of insect herbivore dispersal and expression of plant chemical defenses” (PI: Xoaquín Moreira, Luis Abdala-Roberts; €7,250).

2013-2014 UC-MEXUS-CONACyT (Ref: UCM-55592): “Integrating predators to current theory of plant anti-herbivore defenses” (PI: Kailen Mooney, Víctor Parra-Tabla, Xoaquín Moreira, Luis Abdala-Roberts; \$25,000).

2013 UC-MEXUS-CONACyT (Ref: UCM-101443): “Plant genotype diversity effects on anti-herbivore defenses” (PI: Xoaquín Moreira; \$1,500).

2012 Spanish Association of Terrestrial Ecology: “Consequences of host-plant specific diversity on the ant-aphid mutualism and the structure of arthropod community” (PI: Xoaquín Moreira; €2,000).

Participant

2021-2025 Galician Innovation Agency (Ref: IN607A): “Sustainability and Productivity of Agroforestry Crops” (PI: Elena Cartea; €332,000; Participant: Xoaquín Moreira; €47,429).

2020-2022 BNP Paribas Foundation: “Tree Bodyguards” (PI: Bastien Castagneyrol; €235,000; Participant: Xoaquín Moreira; €7,500).

2016-2019 Consejo Nacional de Ciencia y Tecnología (CONACyT) (Ref: 250925): “Evaluation of the ecological role of defensive compounds in trees and insectivorous birds in a mixed forest plantation” (PI: Víctor Parra-Tabla, Luis Abdala-Roberts; €80,000).

2013-2015 Spanish Ministry of Economy and Competition (Ref: AGL2012-40151): “Tolerance and resistance against herbivores as driver of life history traits in Mediterranean pine species” (PI: Rafael Zas; €150,000).

2012-2013 European Union-Spanish Ministry of Science and Innovation (Integrative Action Spain-Portugal) (Ref: PRI-AIBPT-2011-1152): “Exploring new aspects of pine resistance to the Pine Nematode Wilt Disease (*Bursaphelenchus xylophilus*): intra-specific genetic variation and role of induced defences” (PI: Rafael Zas; €5,990).

2011-2012 Spanish Ministry of Education and Science (Ref: AGL2010-18724): “Trade-offs between growth and constitutive and induced resistance in the genus *Pinus*: Within and across species variation and implications for breeding programs” (PI: Rafael Zas; €131,890).

2011-2013 Galician Ministry of Education (Ref: 10MRU29107PR): “Patterns of *Pinus pinaster* and *P. radiata* resistance against forest pests: Insights from forest management in a changeable climate” (PI: María José Lombardero; €68,000).

2008-2010 Spanish Ministry of Science and Innovation (Ref: RTA2007-00100-C02-00): “Maternal effects in *Pinus pinaster*: effect of nutritional and sanitary status of mother trees in the vigour and herbivore resistance of progeny. Insights from tree breeding programs” (PI: Rafael Zas; €88,228).

2005-2007 Spanish Ministry of Science and Innovation (Ref: RTA2005-00173-00-00): “Phosphorus use efficiency in fast-growing conifers as alternative to fertilization: Genetic variation, tree breeding and phytosanitary repercussions” (PI: Rafael Zas; €69,350).

National and International meetings

Oral presentations

- Vicente-Díez I, Carpennero E, **Moreira X**, Pastor V, Vilanova M, Pou A, Campos-Herrera R (2023) Promising future for *Botrytis cinerea* (Helotiales: Sclerotiniaceae) management using strategies based on *Xenorhabdus* and *Photorhabdus* (Morganellaceae) in vineyards. Meeting of the IOBC-WPRS WG Integrated Protection in Viticulture. Logroño (Spain)
- Muñoz-Vallés S, Cambrollé J, Mancilla-Leytón JM, Castillo JM, **Moreira X**, Martín-García AI, Guzmán JL, Zarazaga LA, Bejarano I, Pedroche J, López-Herrera M, Delgado-Pertíñez M (2023) Evaluación de la leguminosa costera *Retama monosperma* (retama blanca) como recurso endógeno prometedor para alimentación animal: el proyecto RETFEED. 5ª Reunión Ibérica de Pastos y Forrajes. Huelva-Loulé (Spain)
- Valdés-Correcher E, Galmán A, Hampe A, Bourdin A, Castagnyrol B, González-Martínez SC, **Moreira X** (2022) Herbivory in novel native oak stands: Disentangling the effects of landscape context, leaf defences and tree genotype. XXVI International Congress of Entomology. Helsinki (Finland)
- Moreira X**, García-Verdugo C, Castagnyrol B, Abdala-Roberts L (2021) Insularity effects on plant-herbivore interactions. ESA 2021 Annual Meeting. Denver (CO, United States of America)
- García-Verdugo C, **Moreira X**, Illera JC (2021) Biogeografía funcional en sistemas insulares: una oportunidad para abordar patrones de biodiversidad complejos. XV Congreso Nacional de la AEET. Plasencia (Spain)
- Matías L, Homet P, **Moreira X**, Pérez-Ramos IM, Godoy O, Gómez-Aparicio L (2021) Carbon allocation strategies to cope with different global change drivers in Mediterranean trees. XV Congreso Nacional de la AEET. Plasencia (Spain)
- García-Verdugo C, **Moreira X** (2019) Loss of defenses on island plants: from theory to evidence. Island Biology Meeting. University of La Réunion in Saint-Denis. Isla Reunión (France)
- Abdala-Roberts L, Quijano-Medina T, **Moreira X** (2019) Factores bióticos y abióticos asociados a variación geográfica en herbivoría por insectos en algodón silvestre (*Gossypium hirsutum*). VII Congreso Mexicano de Ecología. Querétaro (México)
- Castagnyrol B, Jactel H, **Moreira X** (2018) Interactive effects of climate and plant neighbors on phytochemistry: Do herbivores care? 103rd ESA Annual Meeting. New Orleans (LO, United States of America)
- Poeydebat C, Jactel H, **Moreira X**, Koricheva J, Barsoum N, Bauhus J, Eisenhauer N, Ferlian O, Francisco M, Gottschall F, Gravel D, Mason B, Muiruri E, Muys B, Nock C, Paquette A, Ponette Q, Scherer-Lorenzen M, Stokes V, Staab M, Verheyen K, Castagnyrol B (2018) Insect herbivory on trees: untying the effects of tree diversity, leaf traits and climate. International Conference on Ecological Sciences – Sfécologie. Rennes (France)
- Damestoy T, Brachi B, **Moreira X**, Jactel H, Plomion C, Castagnyrol B (2018) Oak genotype and chemical defences as drivers of the performance of two insect herbivores. International Conference on Ecological Sciences – Sfécologie. Rennes (France)
- Rosado-Sánchez S, Abdala-Roberts L, Parra-Tabla V, Betancur-Ancona D, **Moreira X** (2017) Effects of tree species diversity on insect herbivory and leaf defences in *Cordia dodecandra*. 54th Annual Meeting of the Association for Tropical Biology and Conservation. “Ecological and social dimensions of tropical biodiversity conservation”. Mérida (Mexico)
- Sampedro L, **Moreira X**, Zas R (2015) General patterns of early within plant allocation of chemical defences and defensive strategies in Palearctic and Nearctic pines (subgenus *Pinus*). 5th International Workshop on the Genetics of Tree-Parasite Interactions. Orleans (France)
- Quijano-Medina T, **Moreira X**, Benrey B (2015) El efecto de la domesticación en semillas de frijol Lima y su capacidad de ser atractivas a brúquidos y sus parasitoides. V Congreso Mexicano de Ecología. San Luis Potosí (Mexico)
- Mooney KA, Petry WK, Abdala-Roberts L, **Moreira X** (2012) Consequences of monarch damage and plant genotype for ant-aphid interactions on the common milkweed *Asclepias syriaca*. ESA Annual Meeting. Portland (Oregon, USA)

- Lundborg L, **Moreira X**, Zas R, Sampedro L, Björklund N, Hellqvist C, Nordlander G, Borg-Karlson A-K (2012) Chemical analysis of methyl jasmonate treated Scots pine *Pinus sylvestris* using GC-MS and LC-MS. 28th Annual Meeting of the International Society of Chemical Ecology. Vilnius (Lithuania)
- Solla A, Vivas M, Cubera E, Sampedro L, **Moreira X**, Merlo E, de la Mata R, Zas R (2011) Cross-resistance against diseases and insects in a breeding population of *Pinus pinaster*. Fourth International Workshop on the Genetics of Host-Parasite Interactions in Forestry. Oregon (United States of America)
- Zas R, Solla A, **Moreira X**, Sampedro L (2011) The potential of breeding for enhanced inducibility in *Pinus pinaster* and *Pinus radiata*. Fourth International Workshop on the Genetics of Host-Parasite Interactions in Forestry. Oregon (United States of America)
- Sampedro L, **Moreira X**, Zas R (2011) Trade-offs between induced and constitutive resistance in two pine species: secondary chemistry, effective antiherbivore-resistance and effect of nutrient availability. Fourth International Workshop on the Genetics of Host-Parasite Interactions in Forestry. Oregon (United States of America)
- Sampedro L, **Moreira X**, Zas R (2011) Crecer o defenderse: un conflicto permanente en pinos. Bosques del Futuro. Maceda (Spain)
- Zas R, Solla A, Vivas M, Cubera E, **Moreira X**, Merlo E, Lombardero MJ, de la Mata R, Sampedro L (2011) Atacados por todos los flancos: defensas cruzadas de los pinos frente a sus múltiples enemigos. Bosques del Futuro. Maceda (Spain)
- Sampedro L, **Moreira X**, Zas R (2009) Pine tree chemical defensive strategies and the evolutionary trade-off between induced and constitutive defenses. IOBC Working Group “Induced resistance in plants against insects and diseases“. Granada (Spain)
- Sampedro L, **Moreira X**, Martíns M, Zas R (2008) Experimental evidences of a genetic trade-off between induce and constitutive defenses in a pine species: secondary chemistry and effectiveness on the realized damage. The evolutionary ecology of plant-animal interactions: from genes to communities (Symposium of the Spanish Association of Terrestrial Ecology). Mallorca (Spain)
- Moreira X**, Ramos MA, Sampedro L, Zas R, Solla A (2007) Densidad y disposición de canales resiníferos en *Pinus pinaster* ante tratamientos de fertilización y el ataque de *Hylobius abietis* (Coleoptera:Curculionidae). I Reunión Científica del Grupo de Trabajo de Sanidad Forestal de la Sociedad Española de Ciencias Forestales. Palencia (Spain)
- Martíns M, **Moreira X**, Zas R, Sampedro L, Solla A (2007) Variación genética y efecto de la fertilización en la susceptibilidad de *Pinus pinaster* a *Fusarium oxysporum*. I Reunión Científica del Grupo de Trabajo de Sanidad Forestal de la Sociedad Española de Ciencias Forestales. Palencia (Spain)

Posters

- Vázquez-González C, Abdala-Roberts L, Lago-Núñez B, Dean L, Capó M, de la Mata R, Tack AJM, Stenberg JA, Covelo F, Cao A, Cursach J, Hernández-Serrano A, Hansen F, Mooney KA, **Moreira X** (2023) Test of mainland island differences in insect herbivory in oaks: assessing the contribution of bird predation and leaf traits. 15th Gordon Research Conference on Plant-Herbivore Interactions. Ventura (CA, United States of America)
- Martins-Noguerol R, Matías L, Pérez-Ramos IM, **Moreira X**, Mancilla-Leytón JM, Francisco M, Pedroche J, Rivas-Domínguez A, Bermúdez B, Martínez-López L, Orta ML, Davy AJ, Figueroa ME, Moreno-Pérez AJ, Muñoz-Vallés S, Cambrollé J (2022) Assessing the potential of coastal plant species for industrial applications through the study of plant-soil interactions. British Ecological Society Annual Meeting. Edinburgh (United Kingdom)
- Martins-Noguerol R, Matías L, Pérez-Ramos IM, **Moreira X**, Moreno-Pérez AJ, Pedroche J, De Andrés-Gil C, Francisco M, García-González A, Millán-Linares MC, Millán F, Cambrollé J (2021) Efecto de la variabilidad de las propiedades físico-químicas del suelo en el rendimiento de la halófito costera *Crithmum maritimum* L. XV Congreso Nacional de la AEET. Plasencia (Spain)
- Quijano-Medina T, Turlings TCJ, Francisco M, Ramos-Zapata J, **Moreira X**, Abdala-Roberts L (2021) Aphid and caterpillar feeding drive similar levels of induced defences and resistance in wild cotton. SIP21–17th Symposium on Insect-Plant Interactions. Leiden (The Netherlands).
- Galmán A, Abdala-Roberts L, Wartalska P, Covelo F, Röder G, Szenteczki M, **Moreira X**, Rasmann S (2021) Elevational gradients in constitutive and induced oak defences based on individual traits and their

- correlated expression patterns. SIP21–17th Symposium on Insect-Plant Interactions. Leiden (The Netherlands).
- Martín-Cacheda L, Vázquez-González C, Abdala-Roberts L, **Moreira X** (2021) Plant-to-plant communication in response to insect herbivory is not specific to genetic relatedness between emitter and receiver *Solanum tuberosum* plants. SIP21–17th Symposium on Insect-Plant Interactions. Leiden (The Netherlands).
- Galmán A, Petry WK, Abdala-Roberts L, Butrón A, de la Fuente M, Francisco M, Kergunteuil A, Rasmann S, **Moreira X** (2019) The simultaneous expression of constitutive chemical defences and their inducibility is stronger at high elevations. 1st Meeting of the Iberian Ecological Society & XIV AEET Meeting. Barcelona (Spain)
- Moreira X**, Abdala-Roberts L, Parra-Tabla V, Mooney KA (2014) Latitudinal variation in herbivory: Influences of climatic drivers, herbivore identity and natural enemies. SIP15–15th International Symposium on Insect-Plant Relationships. Neuchâtel (Switzerland)
- Moreira X**, Mooney KA (2013) Influence of plant genetic diversity on interactions between higher trophic levels. 12th Gordon Research Conference on Plant-Herbivore Interactions. Ventura (CA, United States of America)
- Sampedro L, **Moreira X**, Zas R (2013) Genetic variation in inducibility in two Mediterranean Pines. 6th meeting of the IOBC-WPRS Working Group "Induced resistance in plants against insects and diseases". Avignon (France)
- Sampedro L, **Moreira X**, Zas R (2012) Nutrient re-allocation and increased fine root production as putative tolerance mechanisms inducible by herbivory in pine trees: looking for belowground microbial partners or moving resources away from herbivores? Workshop on plant-microbe-insect interactions: from molecular mechanisms to ecological implications. Baeza (Spain)
- Carrillo-Gavilán A, **Moreira X**, Zas R, Vilà M, Sampedro L (2012) Early resistance of alien and native pines against two native generalist insect herbivores: no support for the Natural Enemy Hypothesis. 7th European Conference on Invasive Alien Species, NEOBIOTA. Pontevedra (Spain)
- Moreira X**, Hernández A, Sampedro L, Zas R (2009) Optimal defense in pine trees: constitutive and induced allocation of resin and polyphenolics in *Pinus radiata*. IOBC Working Group "Induced resistance in plants against insects and diseases". Granada (Spain)
- Zas R, Sampedro L, **Moreira X** (2009) The role of induced defences in the success of an exotic pine: the importance of recognizing your enemies. IOBC Working Group "Induced resistance in plants against insects and diseases". Granada (Spain)
- Moreira X**, Sampedro L, Zas R (2009) Efecto de la disponibilidad de fósforo y de la variación genética en la expresión cuantitativa de defensas constitutivas e inducidas en juveniles de *Pinus pinaster*. IX Congreso Nacional de la Asociación Española de Ecología Terrestre. Úbeda (Spain)
- Moreira X**, Sampedro L, Llusia J, Peñuelas J, Zas R (2009) Fuerte control genético y débil modulación ambiental del contenido de terpenos foliares constitutivos e inducidos por metil jasmonato en plántulas de *Pinus pinaster*. IX Congreso Nacional de la Asociación Española de Ecología Terrestre. Úbeda (Spain)
- Zas R, **Moreira X**, Martíns M, Sampedro L (2008) Tolerance costs evidenced from comparing the impact of an herbivorous insect on a native and an exotic pine species. The evolutionary ecology of plant-animal interactions: from genes to communities (Symposium of the Spanish Association of Terrestrial Ecology). Mallorca (Spain)
- Moreira X**, Costas R, Zas R, Sampedro L (2007) Bioensayos de preferencia del curculiónido *Hylobius abietis* por diferentes calidades de recurso: variación debida a las defensas inducidas en juveniles de *Pinus pinaster* y comparación interespecífica con *Pinus radiata*. I Reunión Científica del Grupo de Trabajo de Sanidad Forestal de la Sociedad Española de Ciencias Forestales. Palencia (Spain)
- Moreira X**, Sampedro L, Zas R (2006) Herbivoría de corteza (*Hylobius abietis*: Curculionidae) en *Pinus pinaster*. Consecuencias sobre el desarrollo y la adjudicación de nutrientes en la planta. II Congreso Ibérico de Ecología: "Crisis de biodiversidad: conocimiento y acción". Lisboa (Portugal)
- Sampedro L, Zas R, **Moreira X** (2006) Influencia de la disponibilidad de nutrientes en la relación entre *Pinus pinaster* y su herbívoro *Hylobius abietis*. II Congreso Ibérico de Ecología: "Crisis de biodiversidad: conocimiento y acción". Lisboa (Portugal)

Organizer

XV National Meeting of the Spanish Association of Terrestrial Ecology (2021) Session ST.01/2 “Analysis of functional traits in isolated vulnerable ecosystems. Block 2: Islands”. Plasencia (Spain)

Mentoring

Postdocs

Gabriela Quiroga (2022-2024). Juan de la Cierva-Formación fellowship

Carla Vázquez-González (2021-2024). GAIN/Fulbright fellowship

Eduardo Calixto Soares (2020). Project contract

PhD students

Vítor Miguel Costa da Silva (2022-now). PhD dissertation at University of Sao Paulo (Brazil): “Ant-plant interactions mediated by extrafloral nectar in the Brazilian cerrado”.

Lucía Martín-Cacheda (2020-now). PhD dissertation at University of Coruña (Spain): “Use of plant-plant communication through volatile organic compounds as a strategy for biological control of pests and diseases in potato plants”

Teresa Quijano-Medina (2018-2022). PhD dissertation at Autonomous University of Yucatan (Mexico): "Context-dependency in the expression of defensive traits in wild cotton and its consequences for herbivores and neighboring plants"

Andrea Cortegoso Galmán (2017-2020). PhD dissertation at University of Santiago de Compostela (Spain): “Elevational gradients in oak defenses and herbivory”

Master students

Laura Pombo Salinas (2023). Master dissertation at the Catholic University of Avila (Spain): “Drought effect on volatile-mediated communication in response to herbivory in potato (*Solanum tuberosum*)”

Undergraduate students

Naila Aguiño Domínguez (2022). Bachelor thesis at University of Santiago de Compostela: “Specificity in induced chemical defenses in potato plants in response to foliar infection by two pathogens”. Qualification: 8.1/10

Violeta María Quiroga Álvarez (2021). Bachelor thesis at University of Santiago de Compostela: “Effect of herbivore density on VOC-mediated communication between potato plants”. Qualification: 10/10

Carla Pastoriza Touriño (2020). Bachelor thesis at University of Santiago de Compostela: “Phylogenetic distance to native oak species as a predictor of tritrophic interactions in exotic oak species”. Qualification: 9.8/10

Viviana Pasch (2019). Bachelor thesis at Ludwig-Maximilians-Universität München (Germany): “VOC-mediated plant-plant communication among potato plants infected by the fungal pathogen *Sclerotinia sclerotiorum*”. Qualification: 9.5/10

Diana Blanco Sobrino (2010). Bachelor thesis at University of Santiago de Compostela: “Optimal defence allocation in *Pinus* species: Constitutive and induced allocation of resin, total phenolics and condensed tannins”. Qualification: 9/10.

Yolanda Magdalena Carrera (2009). Bachelor thesis at University of Santiago de Compostela: “Genetic variation in leaf phenolic content in *Pinus radiata* trees: Exogenous induction with methyl jasmonate and relationship with resistance against *Thaumtopoea pityocampa*”. Qualification: 8/10

María Clara Fernández Peña (2009). Bachelor thesis at University of Santiago de Compostela: “Resin content in *Pinus radiata* trees: Genetic variation and exogenous induction with methyl jasmonate and relationship with resistance against *Hyllobius abietis*”. Qualification: 9/10

Diana Blanco Sobrino (2007). Bachelor thesis at University of Santiago de Compostela: “Resin content in young *Pinus pinaster* trees: Effect of soil phosphorus availability on constitutive and jasmonic acid-induced defences”. Qualification: 9/10

Teaching

Undergraduate courses

“Vers une agriculture durable” (APP, M203, Bachelor in Biology, University of Neuchâtel, 120 hours in total) 2014-2015

Research stays

Postdoctoral stays

Department of Evolutionary Entomology at University of Neuchâtel (Neuchâtel, Switzerland). From May 2014 to May 2015 (12 months).

Department of Ecology and Evolutionary Biology at University of California (Irvine, USA). From January 2012 to February 2014 (24 months).

Department of Tropical Ecology at Autonomous University of Yucatan (Merida, Mexico). July 2013 (4 weeks).

Department of Chemical Ecology at Kungliga Tekniska Högskolan (Stockholm, Sweden). November-December 2011 (4 weeks).

Department of Ecology at University of Granada (Granada, Spain). From June 2011 to July 2011 (4 weeks).

Predoctoral Stays

Pacific Forestry Centre at Canadian Forest Service (Victoria, British Columbia, Canada). From May 2010 to July 2010 (12 weeks).

Outreach activities

Project funded by the BNP Paribas Foundation to use citizen science as a tool to understand tritrophic interactions between oaks, insect herbivores and predators: “Tree Bodyguards” (PI: Bastien Castagnérol; €235,000; Participant: Xoaquín Moreira; €7,500).

Appearance in newspapers (El País, Faro de Vigo, La Voz de Galicia, Diario de Pontevedra), radio (Efervescencia), TV (La Sexta, Televisión de Galicia)

Honors, Awards & Fellowships

2020 Spanish I3 Certification

2018 Publons Peer Review Awards 2018 in Environment Ecology

2012 PhD Thesis. Awarded by the Regional Government of Pontevedra as the best PhD Thesis in Science and Technology (€2,000)

2012-2013 University of California-Irvine, Department Ecology & Evolutionary Biology, Fulbright/Ministry of Education and Science postdoc (\$98,553)

2011 PhD Thesis. Awarded by the University of Vigo as Extraordinary Prize of Doctorate

2011 PhD Thesis. Awarded by the Spanish Society of Forest Science as the best Forest Science PhD Thesis (€3,000)

2008-2012 Forestry Research Centre of Lourizán, Department Ecology, Graduate Fellowship, Ministry of Education and Science (€48,000)

2006-2007 Forestry Research Centre of Lourizán, Department Ecology, Graduate Fellowship, Xunta de Galicia (€13,800)

Reviewer

Peer-reviewed papers

2023 – New Phytologist (2), Biotropica, Ecology

2022 – PNAS, Proceedings of the Royal Society B, Ecology Letters, Oikos

2021 – New Phytologist (2), Methods in Ecology and Evolution, Functional Ecology, Journal of Chemical Ecology, Ecological Applications, Journal of Ecology

2020 – Journal of Ecology, Annals of Botany, Journal of Chemical Ecology, Oikos, Plant Cell and Environment, New Phytologist, Journal of Evolutionary Biology, Journal of Animal Ecology, Scientific Reports

2019 – Ecology Letters, Oikos, Journal of Ecology (2), Biology Letters, New Phytologist, Journal of Biogeography, Ecology, Oecologia, Functional Ecology

2018 – New Phytologist (2), Functional Ecology (2), Ecology, The American Naturalist, Journal of Ecology (3), Oecologia, Plant Biology, American Journal of Botany, Annals of Botany, Proceedings of the Royal Society B

2017 – Ecology Letters, New Phytologist, Ecology (2), Functional Ecology, Proceedings of the Royal Society B (2), Frontiers in Plant Science, Ecology and Evolution, Journal of Applied Ecology, Tree Physiology, Ecological Entomology, Oecologia (2), Global Ecology and Biogeography, Molecular Ecology (2)

2016 – Ecology Letters, Oikos, Journal of Chemical Ecology, PLoS ONE (2), Trends in Ecology and Evolution, Scientific Reports, Oecologia (3), Ecosphere, Ecology and Evolution

2015 - New Phytologist, Functional Ecology, Global Ecology and Biogeography, Oecologia, PLoS ONE (2), Tree Physiology, Acta Oecologica, Forestry, Annals of Forest Science, Current Opinion in Insect Science

2014 – Ecology Letters, Global Change Biology, Functional Ecology, Oikos (2), PLoS ONE (2), Entomologia Experimentalis et Applicata (2), Plant Biology, BMC Ecology, Agricultural and Forest Entomology, Forest Ecology and Management, Silva Fennica

2013 - New Phytologist, Ecology, Journal of Ecology, Oecologia, Ecological Entomology

2012 - Scientia Agricola, Forest Systems

Projects

2023 – Spanish Ministry of Science and Innovation, Swedish Research Council (Prisma)

2022 – Swedish Research Council (Prisma)

2021 – Spanish Ministry of Science and Innovation, Swedish Research Council (Prisma)

2018 – Spanish Ministry of Economy and Competition

2016 – New Zealand's Marsden Fund Council, Czech Science Foundation

2015 – CONICYT-Chile

2013 – Netherlands Organization for Scientific Research

Editorial Board

2022–now Environmental Entomology

2021–now Arthropod-Plant Interactions

2019–2023 Scientific Reports

PhD committee

2020 – Alba Lázaro-González (University of Granada, Spain)

2019 – Daniela Weber. Swedish University of Agricultural Sciences (SLU, Alnarp, Sweden)

2017 – Pilar Fernández-Conradi. University of Bordeaux (France)