

Current Affiliation

Postdoctoral researcher Juan de la Cierva-Formación 2016 MINECO at the Basque Centre for Climate Change (BC3).

Previous jobs

2015-2018 Postdoctoral researcher. Basque Centre for Climate Change (BC3). Optibarn Project. Ref: **ERA44-OPTIBARN-BC3**.

10/2010-10/2014. Predoctoral researcher. Departament d'Història i Institucions Econòmiques, Facultat d'Economia i Empresa, Universitat de Barcelona. Formació de Personal Investigador (**BES-2010-035947**)

12/2008 - 07/2010. Main researcher for the monograph of the journal Opcions-Opciones. Centre de Recerca i Informació en Consum. (www.opcions.org)

09/2008 - 06/2009. Administrative officer. Ecologist Association.

11/2008 - 12/2008. Researcher for the technical report of the "Llei de Biodiversitat i Patrimoni Natural de Catalunya". Observatori del Deute de la Globalització (ODG) càtedra de sostenibilitat de la UNESCO.

Education and training

10/2010-2/2015 PhD. Economic History. PhD. Thesis: Socio-Ecological Transition of organic agricultures in Catalonia (late 19th-20th century) Supervisor: Enric Tello. Departament d'Història i Institucions Econòmiques, Facultat d'Economia i Empresa, Universitat de Barcelona

9/2007-09/2008. MSC. Master in Environmental Studies. Master thesis: From water to Energy: the virtual water content and water footprint of biofuel consumption in Spain. Supervisors: Esther Velázquez and Vicent Alcántara. Institut de Ciència i Tecnologia Ambiental (ICTA). Universitat Autònoma de Barcelona (UAB).

9/2002-07/2007 Graduate Environmental Sciences. Graduate thesis: Water tanks as ecosystems (with Ariza A and Serrano T). Supervisor: Victoria Reyes and Joan Martínez-Alier. Universitat Autònoma de Barcelona (UAB).

Research

Research projects

2015-2018. OPTIBARN .Optimized animal-specific barn climatization facing temperature rise and increased climate variability (EU ERANET+, EU FACCE JPI.) Ref: **ERA44-OPTIBARN-BC3**. **Financing administration:** Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria (INIA). **Main researcher:** Agustín del Prado. **Amount:** 150.000 €. Team member.

2012-2017. Sustainable farm systems: long-term socio-ecological metabolism in western agriculture. **Financing administration:** SSHC - Social Sciences and Humanities Research Council of Canada. Ref: 895-2011-1020. **Main researcher:** Enrique Tello Aragay. **Amount:** 352.114,10€. Team member.

2013-2015. Sistemas agrarios sostenibles y transiciones en el metabolismo social: desigualdad y cambio institucional en España. **Financing administration:** MCOC - Ministerio de Economía y Competitividad. Ref: HAR2012-38920-C02-02. **Main researcher:** Enrique Tello Aragay. **Amount:** 85.000,00€. Team member.

2009-2013. Història i Desenvolupament Econòmic (Indústria, Empresa i Sostenibilitat). PIGC - Projectes de recerca per potenciar els grups de recerca consolidats. **Financing administration:** AGAU - Agència de Gestió d'Ajuts Universitaris i de Recerca. Generalitat de Catalunya. AGAUR. Ref: 2009SGR153. **Main researcher:** Carlos Sudrià. **Amount:** 44.800,00€. Team member.

2010-2012. Historia ambiental de los paisajes agrarios del Mediterráneo: orígenes, fuerzas económicas motoras, agentes sociales rectores e impactos ecológicos de la transformación del territorio. **Financing Firm/administration:** MCNN - Ministerio de Ciencia e Innovación. Ref: HAR2009-13748-C03-01. **Main researcher:** Enrique Tello Aragay. **Amount:** 65.500,00€. Team member.

Publications

Papers in peer-reviewed journals

Hempel S., Menz C., Pinto S., **Galán E.**, Janke D., Estellés F., Müschner-Siemens T., Wang X., Heinicke J., Zhang G., Amon B., del Prado A., Amon, T. (2019). Heat stress risk in European dairy cattle husbandry under different climate change scenarios—uncertainties and potential impacts. *Earth System Dynamics*, 10(4), 859-884. Doi:10.5194/esd-10-859-2019

Galán, E. (2019) Reseñas de Libros: Eva Fraňková, Willi Haas, Simron J. Singh (Eds.): Socio-Metabolic Perspectives on the Sustainability of Local Food Systems. *Insights for Science, Policy and Practice Historia Agraria* 79, 59-60. doi.org/10.26882/histagrar.079r08b

Galán, E., Llonch, P., Villagrà, A., Levit, H., Pinto, S., del Prado, A., 2018. A systematic review of non-productivity-related animal-based indicators of heat stress resilience in dairy cattle. *PLOS ONE* 13, e0206520. doi.org/10.1371/journal.pone.0206520

Galán E (2017) Feeding soils: nutrient balance in the northeast of the Iberian Peninsula c.1920. *Historia Agraria*, 72, 107-134. ISSN 1139-1472

Sanz-Cobena A, Lassaletta L, Aguilera E, del Prado A, Garnier J, Billen G, Iglesias A, Sánchez B, Guardia G, Abalos D, Plaza-Bonilla D, Puigdueta-Bartolomé I, Moral R, **Galán E**, Arriaga H, Merino P, Infante-Amate J, Meijide A, Pardo, G., Álvaro-Fuentes, J., Gilsanz, C., Báez, D., Doltra, J., González-Ubierna, S., Cayuela, M.L., Menéndez S, Díaz-Pinés E, Le-Noë J, Quemada M, Estellés F, Calvet S, van Grinsven HJM, Westhoek H, Sanz MJ, Gimeno BS, Vallejo A, Smith P (2017) Strategies for greenhouse gas emissions mitigation in Mediterranean agriculture: A review. *Agriculture, Ecosystems & Environment*. 238:5–24. doi:10.1016/j.agee.2016.09.038.

Galán E, Sanchis E, Estellés F, Calvet S, del Prado A (2016) Heat stress effects in milk yield and milk traits at farm scale. *Advances in Animal Biosciences*, 7(3), 238-239. doi:10.1017/S2040470016000261

Galán E, Padró R, Marco I, Tello E, Cunfer G, Guzmán GI, de Molina MG, Krausmann F, Gingrich S, Sacristán V, Moreno-Delgado D (2016) Widening the analysis of Energy Return on Investment (EROI) in agro-ecosystems: Socio-ecological transitions to industrialized farm systems (the Vallès

County, Catalonia, c. 1860 and 1999). *Ecological Modelling* 336, 13–25.
doi:10.1016/j.ecolmodel.2016.05.012

Tello E, **Galán E**, Sacristán V, Cunfer G, Guzmán GI, González de Molina M, Krausmann F, Gingrich S, Padró R, Marco I, Moreno-Delgado D (2016.) Opening the black box of energy throughputs in agroecosystems: a decomposition analysis of final EROI into its internal and external returns (the Vallès county, Catalonia c. 1860 and 1999). *Ecological Economics* 121, 160–174.
doi:10.1016/j.ecolecon.2015.11.012

Tello E, Garrabou R, Cussó X, Olarieta JR, **Galán E** (2012). Fertilizing methods and nutrient balance at the end of traditional organic agriculture in the Mediterranean bioregion: Catalonia (Spain) in the 1860s. *Human Ecology* 40(3), 369-383. DOI:10.1007/s10745-012-9485-4

Reyes-García V, Ariza-Montobbio P, Aubriot O, **Galán-del-Castillo E**, Serrano-Tovar T, Martínez-Alier J (2011) Local perception and use of the multifunctionality of water tanks in two villages of Tamil Nadu, South India. *Society & Natural Resources* 24 (5) 485-499. DOI: 10.1080/08941920802506240

Galán-del-Castillo E, Velazquez E (2010) From water to energy: The virtual water content and water footprint of biofuel consumption in Spain. *Energy Policy* 38(3): 1345-1352. DOI: 10.1016/j.enpol.2009.11.015

Chapters in books

Tello, Enric; Marco, Inés; Padró, Roc; Caravaca, Jonathan; Gómez, Laura; Cattaneo, Claudio; Marull, Joan; Coll, Francesc; Garrabou, Ramon; Cussó, Xavier; Sacristán, Vera; Font, Carme; **Galán del Castillo, Elena**; Olarieta, José Ramon (2017), "Sinèrgies ente fluxos d'energia i de materials agràris, i l'estat ecològic del territori: l'exemple del Vallès (1860-1999)". A: Cuadros Vila, Ignasi, i Fort Marrugat, Oriol, dirs., *Recursos i territori. Perspectiva històrica i nous equilibris. Actes del X Congrés de la CCEPC (Manresa, 21 i 22 d'octubre de 2016)*. Coordinadira de Centres d'Estudi de Parla Catalana-Institut Ramon Muntaner/Centre d'Estudis del Bages/Cossetània Edicions, Valls, pp. 13-37. ISBN 978-84-9034-670-9, Dipòsit Legal DL T 1362-2017, 702 pp.

Ariza P, **Galán E**, Serrano T, Reyes-García V (2012) Chapter 11: Water tanks as ecosystems. Local perception and management of water tanks in Tamil Nadu, South India. In : Aubriot, O. (Ed.), *Tank and Well Irrigation Crisis: Spatial and Social Challenges of Tank and Well Irrigation in Puducherry and Villupuram Districts (South India)*, 303-327. Concept Publishing House in Delhi .ISBN: 9788180697869

Membership to expert Pannels

EIP-AGRI Workshop "Small is smart" - Innovative solutions for small agricultural and forestry holdings 29-30 Octubre Bucarest (Rumania)

Dissemination

Galán E. (2019) Revisión sistemática de los efectos del paso a un ordeño al día en pequeños rumiantes. BC3 Working Paper Series, 2019-01

Galán E, Sanchís E, Estellés F, Calvet S, del Prado A. (2018) La adaptación del vacuno de leche al cambio climático. *Mundo Ganadero*, 285, 36-39. ISSN: 0214-9192

Tello E, Galán del Castillo E (2013) Sistemas agrarios sustentables y transiciones en el metabolismo agrario: desigualdad social, cambios institucionales y transformaciones del paisaje en Catalunya (1850-2010). *Historia Ambiental Latinoamericana y Caribeña (HALAC)*, 2 (2):267-378. ISSN: 2237-2717

Galán E, Tello E, Garrabou R, Cussó X, Olarieta JR (2013) Métodos de fertilización y balance de nutrientes en la agricultura orgánica tradicional de la biorregión mediterránea: Cataluña (España) en la década de 1860. *Revista de Historia*, 1, 65-99.

Olarieta JR, Galán del Castillo E, Cussó X, Garrabou R, Tello E (2012) Balanços energètics i de nutrients a l'agricultura i ús del territori. Una comparació entre mitjans del segle XIX i finals del segle XX a la comarca del Vallès. *Agrocultura*, 48:22-26.

Ariza P, Galán E, Serrano T (2007) "Water tanks as ecosystems. Local ecosystemic perception for integral management of water tanks in Tamil Nadu, South India." *Periferia. Revista d'investigació i formació en antropologia*, 7. Available at: <http://revistes.uab.cat/periferia/article/view/178>.

Participation in congresses/conferences

Galán E, Garmendia E, Andondegí A, Aldezabal A, Barron LJ, del Prado A, Gamboa G, García O, Pardo G. Integration of ecological, socio-economic and food quality indicators of extensive sheep grazing systems in mountain marginal lands: the case of Cantabrian Mountain Range (Northern Spain). Poster Communication in Session: 20. Taking stock of transformative research and education on mountains. What future avenues? 17th Swiss Geoscience Meeting, 22nd-23rd November 2019. Fribourg (Switzerland)

Galán E, Sanchís E, Pardo G, Estellés F, Calvet S, del Prado A. Modelling the effects of heat stress of dairy cattle at farm scale. 68th Annual Meeting of the European Federation of Animal Science (EAAP), 28-1 September 2017 Tallin (Estonia)

Winiwarter V, Tello E, Padró R, Marco I, Caravaca J, Galán E. How the Green Revolution led to less eco-efficient agroecosystems, and to cultural landscapes less endowed with farm-associated biodiversity? Natures in between. Environments in areas of contact among states, economic systems, cultures and religions., European Society for Environmental History (ESEH), 28th-2nd July 2017. University of Zagreb, Zagreb (Croatia)

Galán E, Sanchís E, Pardo G, Estellés F, Calvet S, del Prado A. Modelling GHG mitigation co-benefits and trade-offs after implementing adaptation measures to adapt from heat stress in dairy farms. 3rd European Climate Change Adaptation (ECCA) Conference Our Climate Ready Future, 5-9 June 2017. Glasgow (United Kingdom)

Galán E, Sanchís E, Estellés F, Calvet S, del Prado A. Modelling the management of heat stress in permanently housed dairy farms. 67th Annual Meeting of the European Federation of Animal Science (EAAP), 28-1 September 2016 Belfast (UK)

Galán E, Sanchís E, Estellés F, Calvet S, del Prado A. Heat stress effects in milk yield and milk traits at farm scale. LiveMacsur 2016. Modelling Grassland-Livestock Systems under Climate Change, 15-16 June 2016. PIK, Potsdam (Germany)

Galán E, Tello E, Marco I, Marull J, Murray I, Domene E, Font C, Padró R. 'Drivers, Paths and Consequences of the End of Organic Farm Systems in Catalonia and Mallorca (Spain): An Energy Analysis Linked to Land-Use Changes from the mid-19th to mid-20th centuries.' *Second World Congress of Environmental History. Environmental History in the Making*, 8-12 July 2014 University of Minho, Guimaraes (Portugal).

Galán E, Padró R, Marco I. 'The importance of 'caganer'. Environmental History of Catalan agro-ecosystems', in 2nd Jornada d'Investigadors Predoctorals Interdisciplinària. 6 February 2014, Paraninfo, Universitat de Barcelona. Barcelona (España)

Tello E, Galán E. 'Socio-metabolic profiles of Catalan agricultural systems and the end of traditional organic management, 1850-1930' *Circulating natures. Water-Food-Energy. 7th Conference of the European Society for Environmental History*, 20-24 August 2013. Rachel Carson Center for Environment and Society, Munich (Germany)

Galán E. 'Sustainable farm systems and transitions in agricultural metabolism: the end of traditional organic agricultures in Mediterranean Spain'. *Jornada d'Investigadors Predoctorals Interdisciplinària*. 7 February 2013, Paraninfo, Universitat de Barcelona, Barcelona (Spain)

Galán E. 'Cómo usar el Manager of Energy and Nutrient Balances of Agricultural Systems. Teoría y metodología del Metabolismo Social. Una introducción'. Laboratorio de Historia de los Agroecosistemas de la Universidad Pablo de Olavide and Unidad Asociada UPO-EEHA 29 January 2013. Sevilla (Spain)

Galán E, Tello E. 'Balances de energía y nutrientes en los agrosistemas anteriores a la Revolución Verde' VI Simposio de la Sociedad Latinoamericana y Caribeña de Historia Ambiental (SOLCHA), 6-8 June 2012, in Villa de Leyva (Colombia).

Galán E, Moreno D, Tello E. 'How to calculate and deal with different EROIs in agricultural systems using MENBAS' . 4th Workshop on Social Metabolism of Agricultural Systems 9-10 February 2012, Barcelona (Spain). member of the organizer committee.

Olarieta JR, Tello E, Garrabou R, Cussó X, Jover G, Galán del Castillo E. 'From traditional organic to the post green-revolution agricultural systems, and beyond: the North-West Mediterranean path (1850-2010)'. *Encounters of Sea and Land: 6th congress of the European Society for Environmental History (ESEH)*, 28 June-2 July 2011, Turku (Finland).

Tello E, Galán E. On the end of past organic agricultural systems: The first globalization in European socio-ecological transition (1870-1939). Esther Boserup Conference 2010, Social Ecology Vienna, Universität Klagenfurt, Wien, 15-18 november 2010

Seminars

Galán E., Padró R., Marco I., Tello E. 'Integration of social drivers with biophysical dimensions in the sustainability assessment of pasture-based livestock farming systems. First explorations' 8 November 2018, in departamento de Economía Aplicada II, Facultad de Economía y Empresa de Vitoria-Gasteiz, UPV/EHU (Spain).

Galán E. 'Decreasing or increasing the metabolic rift? Closing the nutrients gap at the end of organic agricultures in the Mediterranean Spain,' 28 May 2014, in Oxford Economic and Social History Graduate workshop series at Butler Room of Nuffield College. University of Oxford. (UK).

Galán E. 'Nutrient balances of cropland in Catalunya 1922' in the Seminar Series of PhD candidates of Economic History. 24 April, 2014, in Espai de Recerca en Economia, Aula 329, Universitat de Barcelona. (Spain)

Galán E, Corbacho B. 'Environmental History of Spanish Agro-Ecosystems', in the Seminar Series of the Department of History. 25th October 2013, University Club Red Room, University of Saskatchewan, Saskatoon (Canada).

Research stays abroad (longer than 30 days)

2013 (2.5 months). Canada. Saskatoon. University of Saskatchewan. Pre-Doctoral stage. Estancia Breve FPI(EEBB-I-13-06025 del proyecto HAR2009-13748-C03-01).

2007 (4 months). India. Pondicherry. Institut Français de Pondichéry. Objective: Collaboration with the Project of Social Water Management at the Social Sciences Department. Practicum agreement.

Refereeing

Regional Environmental Change, Ecological Economics, Revista Española de Estudios Agrosociales y Pesqueros, Environment, Development and Sustainability; Energy Policy, Archivos de Zootecnia

Teaching Experience

2012-2014. Desenvolupament Sostenible. Third course of Environmental Sciences Bachelor's degree. Facultat de Biologia. Universitat de Barcelona

2012. Societat i Medi Ambient. First course of Environmental Sciences Bachelor's degree. Facultat de Biologia. Universitat de Barcelona

2011-2013. Història Econòmica. Cursos d'introducció a la Història. First course of Business administration and management and Economy Bachelor's degrees. Facultat d'Economia i Empresa. Universitat de Barcelona.

Language skills

Spanish (mother tongue), Catalan (mother tongue), English (Excellent), German (Basic), Euskera (Basic).

Other

IX Award Historia Agraria 2014 de la Sociedad Española de Historia Agraria (SEHA)

8-12 July 2013. 8th LIPHE4 Summer School: Developing Toolkits for Analyzing the Nexus between Land, Water, Food, Energy and Population across Scales. Universitat Autònoma de Barcelona, Bellaterra Campus (Spain).

2012. WOOF 1 month stage in Edler dairy organic farm in Styria (Austria)

2018. WOOF 1 month stages in Aldabazahar, Pikunieta and Marengo dairy organic farms in the Basque Country and Navarra (Spain)

