

CURRICULUM VITAE ABREVIADO (CVA)

IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.

Part A. PERSONAL INFORMATION

First name	Juan José		
Family name	Soler Cruz		
Gender (*)	Male	Birth date (dd/mm/yyyy)	03/09/1963
ID number	24207183M		
e-mail	jsoler@eeza.csic.es	URL Web: http://www.eeza.csic.es/eeza/personales/jsoler.aspx	
Open Researcher and Contributor ID (ORCID) (*)	0000-0003-2990-1489		

(*) Mandatory

A.1. Current position

Position	Research Professor		
Initial date	22 / 04 / 2009		
Institution	Estación Experimental de Zonas Áridas (CSIC)		
Department/Center	Functional and Evolutionary Ecology		
Country	Spain	Teleph. number	(34) 950281045 - 317
Key words	Behavioural Ecology, Birds, Evolutionary Biology, Functional Ecology; Microbial Ecology; Parasitic interactions; symbiotic interactions		

A.2. Previous positions (research activity interruptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
06/06/2007-31/03/2009	Scientific Research / EEZA-CSIC / promote to Professor
01/09/2000-06/06/07	Tenured researcher / EEZA-CSIC / promote to Sic Res
14/10/1999-31/08/2000	Associated Professor /Univ Granada / new position CSIC
01/01/99-13/10/99	Postdoct contract/Univ Granada/ new position UGR
01/04/97-31/07/98	Postdoct contract/Univ Granada/ new position UGR
26/02/96-25/02/97	Postdoct Marie-Curie /contract/Univ Granada/ new position
01/08/93-30/09/94	Postdoct Marie-Curie /contract/Univ Upssala/ new position

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD (Biological Sciences)	Granada University	1990
Licenced (Biology)	Granada University	1988

Part B. CV SUMMARY (max. 5000 characters, including spaces)

My research lines have been focussed on host-parasite interactions, signalling, and phenotypic characteristics that function in contexts of sexual and parent-offspring communication.

Studies on host-parasite interactions were centred in detecting costs of parasitism for hosts and in the evolution of antiparasitic defences and counter-defences for hosts and parasites, respectively. Our studies on brood parasitism were pioneer pointing out host defences and parasite counter-defences in geographic contexts of coevolution. We, for the first time, demonstrated the use by great spotted cuckoos of sexual signals of their magpie hosts to choose the nest for parasitism, a pattern which latter was detected in some others brood parasitic systems. We also demonstrated mafia behaviour in great spotted cuckoos and plastic antiparasitic defences in magpies, intermittent coevolutionary patterns, and highlighted

the importance of the geographic population structure in the coevolutionary interactions between magpies and great spotted cuckoos. Recently, we have also demonstrated for the first time the use of olfactory cues by a host of brood parasites (magpie) to detect parasitic eggs in their nests.

I have also worked on explaining the evolution of immune responses by using comparative and experimental approaches. Perhaps, our main finding was the detection of a trade-off between growth and developing immune system. My research line on sexual selection is mainly focussed on scenarios of post-mating sexual selection that imply differential investment in reproduction. I published pioneer papers demonstrating the sexual component of nest building behaviour that was later detected not only in different species of birds, but also in some other taxa. We also demonstrated a sexual component of avian egg colouration. With respect to parent-offspring communication, we have demonstrated energetic costs of begging behaviour of nestlings, pointed out the importance of mouth colouration as signals of phenotypic quality of nestlings and, thanks to the a novel experimental approach manipulating the hunger level of nestlings, we experimentally demonstrated fitness advantages of dishonest signalling.

During the last two decades, my research lines have converged into the study of the role of microorganisms in different evolutionary and ecological contexts including brood parasitism, defences against microparasites, and sexual signalling. Our research group is pioneer in this kind of research in wild birds and we have for instance described symbiotic associations between hoopoes and bacteria that grow in their uropygial gland, highlighting the importance of microorganisms in the evolution of life history strategies, brood parasitism and sexual selection. We have also detected associations between microbial environments and characteristics of the uropygial gland. In contexts of antibacterial defences, we have proposed and experimentally demonstrated beneficial effects of feathers and green plants preventing bacterial infections of eggs and nestlings.

Some stats (source: WOS (Core Collection) Date 21/01/2025): Scientific career 1991-): published articles: 208, citations: 8086, average article citations: 89.9, H index = 46. **Ten last years:** Published articles: 80, citations 2676, average article citations: 30.9, H index = 18. Sexenios: 5 (last 2013-2018). Defended PhD during the last 10 years: años: 5.

My research has continually received funding from the European Union (Marie-Curie postdoc Fellow) (1993-1997) and the Spanish and Andalusian Governments (2001-) acting as Principal Research in all of them. During this period, I have supervised 11 PhD students and 9 postdocs, most of them are currently working in the academy. I have also participated in international congresses and workshops, and give talks and write articles for the non-specialist public in journals as Quercus. Several magazines and newspapers have published articles with our scientific results. I have been working as associated editor in international journals as Functional Ecology (2005-2011), Journal Evolutionary Biology (2008-2020) and Biology (2020-).

Part C. RELEVANT MERITS (sorted by typology)

C.1. Publications (see instructions)

Bacteria and signaling

1. Scientific Journal article: Martínez-Renau, E.; Martín-Platero, A.; Barón, M.D.; García-Núñez, A.J.; Martínez-Bueno, M.; Ruiz-Castellano, C.; Tomás, G. & **Soler J.J. 2024**. Colouration of begging related traits in starling nestlings: a possible role of bacteria in parent-offspring communication. **Proceedings of the Royal Society B**, 291(2035): 20241857. doi:10.1098/rspb.2024.1857.

2. Scientific Journal article: Mazorra-Alonso, M.; Peralta-Sánchez, J.M.; Heeb, P.; Jacob, S.; Martín-Vivaldi, M.; Martínez-Bueno, M.; Núñez-Gómez, R.; Sacristán-Soriano, O & **Soler J.J. 2024**. Microbiota and the volatile profile of avian nests associate with each other and with the intensity of parasitism. **FEMS Microbiology Ecology**, 00(10), fae106. doi:10.1093/femsec/fae106.

3. Scientific Journal article: **Soler J.J.**; Martínez-Renau, E.; Azcárate-García, M.; Ruiz-Castellano, C.; Martín, J. & Martín-Vivaldi 2022. Made-up mouths with preen oil reveal genetic and phenotypic conditions of starling nestlings. **Behavioural Ecology**, 33: 494-503, 2022. Doi: 10.1093/beheco/arac024.

Bacteria and antimicrobial defences

4. Scientific Journal article: Martínez-Renau, E.; Martín-Platero, A.M.; Bodawatta, K.H.; Martín-Vivaldi, M.; Martínez-Bueno, M.; Poulsen, M. & **Soler J.J.** 2024. The social environment influences the microbiota and pathogenic bacterial communities on the skin of developing birds. **Animal Microbiome**, 6(1), 47. doi:10.1186/s42523-024-00327-2.

5. Scientific Journal article: Martínez-Renau, E.; Mazorra-Alonso M.; Ruiz-Castellano, C.; Martín-Vivaldi, M.; Martín-Platero, A.M.; Barón, M.D.; & **Soler J.J.** 2022. Microbial infection risk predicts antimicrobial potential of avian symbionts. **Frontiers in Microbiology**, 13:1010961. Doi: 10.3389/fmicb.2022.1010961.

6. Scientific Journal article: Lee C.Y., Peralta-Sánchez J.M., Martínez-Bueno M., Møller A.P., Rabelo-Ruiz M., Zamora-Muñoz, C. & **Soler J.J.** 2020. The gut microbiota of brood parasite and host nestlings reared within the same environment: Disentangling genetic and environmental effects. **ISME Journal**, 14:2691-2702. Doi: 10.1038/s41396-020-0719-y.

7. Scientific Journal article: Ruiz-Castellano, C.; Ruiz-Rodríguez, M.; Tomás, G. & **Soler J.J.** 2019. Antimicrobial activity of nest-lining feathers is enhanced by breeding activity in avian nests. **FEMS Microbiology Ecology**, 95(5): fiz052, doi.org/10.1093/femsec/fiz052.

Antimicrobial defences mediated by nest lining feathers

8. Scientific Journal article: Peralta-Sánchez, J.M.; Martín-Platero, A.; Parfrey, L.;; Knight, Rob & **Soler J.J.** 2018. Bacterial density rather than diversity correlates with hatching success across different avian species. **FEMS Microbiology Ecology**, 4, fiy022. doi: 10.1093/femsec/fiy022.

9. Scientific Journal article: Peralta-Sánchez, J.M., Møller, A.P., Martín-Platero, A.M., & **Soler, J.J.** (2010). Number and colour composition of nest lining feathers predict eggshell bacterial community in barn swallow nests: an experimental study. **Functional Ecology**, 24, 426-433. doi: 10.1111/j.1365-2435.2009.01669.x.

10. Scientific Journal article: Ruiz-Castellano, C., Tomás, G., Ruiz-Rodríguez, M., Martín-Gálvez, D., & **Soler, J.J.** (2010). Nest material shapes eggs bacterial environment.. **PLoS ONE**, 1, e0148894. doi: 10.1371/journal.pone.0148894

C.2. Congress, indicating the modality of their participation (invited conference, oral presentation, poster).

1 Authors: Ester Martínez-Renau, Kasun H. Bodawatta, Antonio M. Martín-Platero, **Juan J. Soler**. Title: Bacterial communities of avian symbionts are predicted by risk of pathogenic infection associated with nesting habits. **Oral communication. Congress**: Congress of the European Society of Behaviour (Behaviour 2023), Bielefeld, 14-20 AUGUST 2023.

2 Authors: Mónica Mazorra-Alonso, Juan Manuel Peralta-Sánchez, Manuel Martín-Vivaldi, ... and **Juan José Soler**. Title: Associations between volatiles of bacterial origin and ectoparasitism and fledging success of hoopoes. **Poster communication. Congress**: Congress of the European Society for Evolutionary Biology (ESEB 2022), Prague, 14-19 AUGUST 2022.

3. Authors: Ester Martínez-Renau, Cristina Ruiz-Castellano, María Dolores Barón-Rodríguez, Manuel Martín-Vivaldi, **Juan José Soler**. Title: Is natural selection driving antimicrobial properties of animal bacterial symbionts? Oral communication. **Congress**: Congress of the European Society for Evolutionary Biology (ESEB 2022), Prague, 14-19 AUGUST 2022.

4. Authors: Ester Martínez Renau; Cristina Ruiz Castellano; **Juan José Soler**
Title: Genetic and environmental components of the colour of mouth, flanges and skin in

spotless starling (*Sturnus unicolor*). **Poster. Congress:** VII Biennial Congress of the Spanish Society for Evolutionary Biology (SESBE), SEVILLE, 5-7 FEBRUARY 2020.

5. **Authors:** Manuel Azcárate-García, Magdalena Ruiz-Rodríguez, Silvia Díaz-Lora, Cristina Ruiz-Castellano, Manuel Martín-Vivaldi, Juan José Soler. **Title:** Nest bacterial environment affects development and survival of spotless starling nestlings. **Poster. Congress:** 16th international meeting of the European Society of Evolutionary Biology (ESEB 2017). Groningen, Netherland. Fecha: 20-25 Agosto, 2017

6 **Authors:** Silvia Díaz-Lora, Natalia Juárez García-Pelayo, Manuel Azcárate García, Manuel Martínez Bueno, **Juan José Soler Cruz & Manuel Martín-Vivaldi.** **Title:** Experimental old nest material affects hoopoe (*Upupa epops*) microbial and ecto-parasitic loads increasing breeding success. **Poster. Congress:** 16th international meeting of the European Society of Evolutionary Biology (ESEB 2017). Groningen, Netherland. Fecha: 20-25 Agosto, 2017

C.3. Research projects, indicating your personal contribution. In the case of young researchers, indicate lines of research for which they have been responsible.

1. **Title:** Defensas físicas, químicas y comportamentales de las aves frente al contagio de embriones por bacterias patógenas en un contexto ecológico-evolutivo. **Grant Number:** CGL2007-61251. **Funding:** MEC. **Period:** 01/10/ 2007 – 30/09/2010. **IP:** Juan José Soler; **Number of researchers:** 7. **Budget:** 275,880.00 €

2. **Title:** Biodiversidad y mecanismos de adquisición de la comunidad bacteriana de la glándula uropigial de abubillas (*Upupa epops*). **Grant Number:** P09-RNM-4557. **Funding:** Junta de Andalucía (Proyectos de Excelencia). **Period:** 02/02/ 2010 – 03/02/2014. **IP:** Juan José Soler; **Number of researchers:** 8. **Budget:** 234,545.68 €

3. **Title:** Nidos, ectoparásitos y bacterias. Material del nidos y parásitos como factores que influyen las comunidades bacterianas de los nidos de aves. **Grant Number:** CGL2010-19233-C03-01. **Funding:** Ministerio de Ciencia e Innovación. **Period:** 01/01/ 2011 – 31/12/2014. **IP:** Juan José Soler; **Number of researchers:** 8. **Budget:** 166,980.00 €

4. **Title:** Funciones múltiples de señales sociales: el sexo, la edad y ambiente bacteriano promueven las diferencias. **Grant Number:** CGL2013-48193-C3-1-P. **Funding:** Ministerio de Economía y Competitividad. **Period:** 01/01/ 2014 – 31/12/2017. **IP:** Juan José Soler; **Number of researchers:** 3. **Budget:** 139,150.00 €

5. **Title:** Funciones de la glándula uropigial en contextos de comunicación social y parasitismo en aves. **Grant Number:** CGL2017-83103-P. **Funding:** Ministerio de Economía, Industria y Competitividad. **Period:** 01/01/ 2018 – 31/12/2020. **IP:** Juan José Soler; **Number of researchers:** 3. **Budget:** 232,320.00 €

6. **Title:** Variación geográfica en la simbiosis mutualista de la abubilla con enterococos de la glándula uropigial productores de bacteriocinas. **Grant Number:** A-RNM-495-UGR18. **Funding:** Consejería de Economía, Conocimiento, Empresas y Universidad, Junta de Andalucía. **Period:** 01/01/ 2020 – 31/12/2022. **IPs:** Manuel Martín-Vivaldi & Juan José Soler; **Number of researchers:** 3. **Budget:** 24,565.90 €

7. **Title:** Variación geográfica en la simbiosis mutualista de la abubilla con bacterias de la glándula uropigial productoras de antibióticos. ¿Sucede una asociación similar en los calaos? **Grant Number:** PY18-FR-2215. **Funding:** Consejería de Economía, Conocimiento, Empresas y Universidad, Junta de Andalucía. **Period:** 01/01/ 2020 – 31/12/2023. **IPs:** Manuel Martín-Vivaldi & Juan José Soler; **Number of researchers:** 3. **Budget:** 99,800.00 €

8. **Title:** Microbiota intestinal y respuestas plásticas de aves frente a parásitos y depredadore. **Grant Number:** PID2020-117429GB-C21. **Funding:** Ministerio de Ciencia e Innovación. **Period:** 1/09/2021 – 31/08/2025. **IPs:** Juan José Soler, Gustavo Tomás, (ColP). **Budget:** 177,991.00 €

C.4. Contracts, technological or transfer merits,

CURRICULUM VITAE ABREVIADO (CVA)

Part A. PERSONAL INFORMATION

First name	Gustavo		
Family name	Tomás		
Gender	Male	Birth date	30/10/1977
ID number	73098151B		
e-mail	gtomas@eeza.csic.es	URL Web: https://www.researchgate.net/profile/Gustavo-Tomas-2	
Open Researcher and Contributor ID (ORCID)		0000-0001-6701-2055	

A.1. Current position

Position	Tenured scientist		
Initial date	21/12/2023		
Institution	Estación Experimental de Zonas Áridas (EEZA-CSIC)		
Department/Center	Functional and Evolutionary Ecology		
Country	Spain	Teleph. number	0034 950281045
Key words	Host-parasite interactions, ecological immunology, sexual selection in birds, reproductive trade-offs and costs, nest building behaviours, reproductive strategies in birds		

A.2. Previous positions (research activity interruptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
2023-	Tenured Scientist: EEZA-CSIC, Almería, Spain.
2023-2023	Hired Research Staff: EEZA-CSIC, Almería, Spain.
2015-2023 (paternity leave: january-april 2022)	Hired Research Staff (Ramón y Cajal): EEZA-CSIC, Almería, Spain
2014-2015	Prometeo Researcher, category 1: (UTPL), Loja, Ecuador.
2009-2012	Hired Research Staff (Juan de la Cierva): EEZA- CSIC, Almería, Spain.
2008-2009	Post-doc Fellow (UNAM). México.
2006-2008	Post-doc Fellow (MEC): NIOO, The Netherlands.
2002-2005	Pre-doc Fellow (FPI). MNCN – CSIC, Madrid, Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
BsC in Biology	Universitat de València	2000
PhD in Biology	Universitat de València	2005

Part B. CV SUMMARY (max. 5000 characters, including spaces)

I began to acquire research skills when studying my BSc in Biology at Univ of Valencia, when I was granted a research fellowship at the 'Cavanilles' Institute for Biodivers & Evol Biol to conduct a research project and present my first scientific results at an international meeting. In 2001, I moved to the Museo Nacional de Ciencias Naturales (MNCN, Madrid) for my PhD, where I investigated the interrelations among immunity, parasitism and stress in wild birds. I completed my PhD thesis in 2005 (excellent cum laude, extraordinary award), with a stay in the US in Tom Martin's lab, and with chapters in J Anim Ecol, Anim Behav, and Funct Ecol among others. Postdoctoral training was achieved through an I3P postdoctoral position at the MNCN, and international positions in the Netherlands Institute of Ecology (NIOO, 2 y), and in the Univ Nacional Autónoma de México (UNAM, 1 y), where I studied several aspects of the functional significance of nests, and of sexually selected traits, in relation to parasitism. I returned to Spain with a Juan de la Cierva contract, in the Estación Experimental de Zonas Áridas (EEZA, Almería). There, I included bacteria in the study of the relations between nest features and parasitism. Later, I moved to Univ Técnica Particular de Loja (Ecuador) to study avian parasitism in dry forests. In 2015, I started a Ramón y Cajal contract in the EEZA, where I got a permanent position as tenured scientist in 2023.

The study of host-parasite interactions has been a main research avenue of my career, where I have discovered many interesting patterns and mechanisms at the overlapping levels of physiology, immunology, ecology, and behaviour. Among other results, my research has shown that immune response is a good predictor of individual survival, has pointed out the importance of host stress responses to cope with parasitism, has given support to the trade-off between reproductive effort and immune defence, and has shed light on the evolutionary significance of the link between parasitism, immunity, life-history decisions and fitness. My results have been the first to show a long-term cost of haemoparasites on survival of birds, and a hitherto unnoticed effect of ectoparasitism increasing bacterial abundance in nests. By switching the point of view between hosts and parasites, I have taken novel approaches to show a suite of behavioural strategies performed by hosts to minimize damage inflicted by parasites, and by parasites to overcome host defences, researching also on the mechanisms involved in host location.

I have also broad interests in evolution and maintenance of secondary sexual characters, and in a more general sense, in the evolution of signals and their information content. My research has focused mainly on female sexually selected traits, a neglected issue within the sexual selection framework, focusing on two female characters most relevant for understanding female signalling: I have been actively involved in a research line exploring for the first time the role of avian egg colour as a female signal to males, and I have researched on the functional significance of nests and nest building behaviours as sexually selected signals, with emphasis on bird species with female nest construction. Rooted on sexual selection theory, I have researched on different aspects related to individual quality of organisms, and how it relates to reproductive trade-offs, mate choice, predation avoidance, habitat selection decisions, or anthropogenic disturbance.

I have 24 years of scientific research experience. I have supervised several undergraduate students and one PhD student (one more in progress). I have authored 88 scientific publications of which 78 are in peer-reviewed SCI journals and 10 in popular science journals (6) and books (4). Over 56 % of these SCI publications (44) are in journals ranked within the Q1 of their discipline fields. The average impact factor (IF) of my SCI publications is 3.3, with 43 papers in journals with an IF > 3, and 13 papers in journals with an IF > 5. I have been interviewed by journalists from foreign public media, which have covered several of my SCI papers in many countries. The average citations per article (articles in SCI journals excluding 2022 onwards to allow for time lag between publication and citation) is 55. Overall, my publications have received over 4000 citations, and I have been included in the ISI Highly cited researchers list (Thomson Reuters) in the field of Animal & Plant Sciences, which lists the top 1% of scientists in each field. My h-index is 39.

Part C. RELEVANT MERITS (sorted by typology)

C.1. Publications

1. García-Núñez, A.J., Soler, J.J., Martínez-Renau, E. & **Tomás, G.** 2024. Uropygial secretion changes mouth colouration in starling nestlings. *Biology Letters*, 20: 20240535
2. **Tomás, G.**, Zamora-Muñoz, C., Martín-Vivaldi, M., Barón, M.D., Ruiz-Castellano, C. & Soler, J.J. 2020. Effects of chemical and auditory cues of Hoopoes (*Upupa epops*) in repellence and attraction of blood-feeding flies. *Frontiers in Ecology & Evolution*, 8: 579667
3. Ruiz-Castellano, C., **Tomás, G.**, Ruiz-Rodríguez, M. & Soler, J.J. 2018. Nest material preferences by spotless starlings. *Behavioral Ecology*, 29: 137-144
4. **Tomás, G.**, Martín-Gálvez, D., Ruiz-Castellano, C., Ruiz-Rodríguez, M., Peralta-Sánchez, J.M., Martín-Vivaldi, M. & Soler, J.J. 2018. Ectoparasite activity during incubation increases microbial growth on avian eggs. *Microbial Ecology*, 76: 555-564
5. **Tomás, G.** & Soler, J.J. 2016. Begging and ectoparasite attraction. *Animal Behaviour*, 113: 93-98
6. **Tomás, G.** 2015. Hatching date vs laying date: what should we look at to study avian optimal timing of reproduction? *Journal of Avian Biology*, 46: 107-112
7. **Tomás, G.**, Merino, S., Martínez-de la Puente, J., Moreno, J., Morales, J. & Rivero-de Aguilar, J. 2013. Nest size and aromatic plants in the nest as sexually selected female traits in blue tits. *Behavioral Ecology*, 24: 926-934
8. Thomson, R.L., **Tomás, G.**, Forsman, J.T., Broggi, J., & Mönkkönen, M. 2010. Predator proximity as a stressor in breeding flycatchers: mass loss, stress protein induction, and elevated provisioning. *Ecology*, 91: 1832-1840
9. **Tomás, G.**, Merino, S., Martínez-de la Puente, J., Moreno, J., Morales, J. & Lobato, E. 2008. A simple trapping method to estimate abundances of blood-sucking flying insects in avian nests. *Animal Behaviour*, 75: 723-729
10. **Tomás, G.**, Merino, S., Moreno, J., Morales, J. & Martínez-de la Puente, J. 2007. Impact of blood parasites on immunoglobulin level and parental effort: a medication field experiment on a wild passerine. *Functional Ecology*, 21: 125-133

C.2. Research projects

- 1. Project title: Gut microbiota and physiological and behavioural plastic responses of avian hosts to parasites and predators. Ministerio de Ciencia e Innovación (PID2020-117429GB-C21). Length: 2021-2025. PI: Juan J. Soler & Gustavo Tomás. Amount awarded: 147100 €.
- 2. Project title: Sound as a host detection cue by ectoparasites. Ministerio de Economía, Industria y Competitividad. Programa Estatal de Fomento de la Investigación Científica y Técnica de Excelencia (CGL2017-89063-P). Length: 2018–2020. PI: Gustavo Tomás. Amount awarded: 39325 €.
- 3. Project title: The role of olfaction in the relationship between birds and their environment. Financial entity: Ministerio de Economía y Competitividad. Plan Estatal de Investigación Científica y Técnica y de Innovación 2013-2016 (CGL2014-58890-P). Length: 2015–2017. PI: Luisa Amo. Amount awarded: 68970 €.
- 4. Project title: Parasites and stress response in birds of dry forests in relation to forest type and degradation level. Financial entity: Universidad Técnica Particular de Loja (UTPL, Ecuador). Dirección General de Investigación y Transferencia de Tecnología (PROY_CCNN_1256). Length: 2014–2015. PI: Gustavo Tomás. Amount awarded: 29997 \$.

C.3. Contracts awarded

- 1. Project title: An integrated approach to understand ecology and evolution of host-parasite interactions. Financial entity: Ministerio de Economía y Competitividad (MINECO) (RYC-2013-13040). Length: 2015-2020. PI: Gustavo Tomás. Affiliation entity: Estación Experimental de Zonas Áridas (EEZA-CSIC), Almería, Spain. Amount awarded: 208600 €.
- 2. Project title: Characterization of the parasite fauna in avian communities in relation to altitudinal and degradation gradients in forests of Ecuador. Financial entity: Secretaría de Educación Superior, Ciencia, Tecnología e Innovación (SENESCYT), Programa Prometeo (acta Prometeo-CEB-007-2014). Length: 2014-2015. PI: Gustavo Tomás. Affiliation entity: Universidad Técnica Particular de Loja (UTPL), Loja, Ecuador. Amount awarded: 84500 \$.
- 3. Project title: Nest characteristics and parasitism by insect vectors. Financial entity: Programa Juan de la Cierva (MICINN-Fondo Social Europeo) (JCI-2008-02045). Length: 2009-2012. PI: Gustavo Tomás. Affiliation entity: Estación Experimental de Zonas Áridas (EEZA-CSIC), Almería, Spain. Amount awarded: 100980 €.

C.4. Contracts supervised

- 1. Technician contract. “Estimación de niveles de testosterona y corticosterona en aves”. Employee: Cristina Ruiz-Castellano. 16/02/2025-15/03/2025. Estación Experimental de Zonas Áridas (EEZA-CSIC), Spain.
- 2. Postdoctoral contract. “El sonido como señal de detección de hospedadores por ectoparásitos”. Employee: Ana S. Roldán. 16/04/2019-31/08/2019. Estación Experimental de Zonas Áridas (EEZA-CSIC), Spain.
- 3. Research grant: “Caracterización y variación estacional en la fauna de parásitos sanguíneos en aves de los bosques secos del suroccidente de Ecuador”. Employee: María Fernanda Burneo Ordóñez. 09/02/2015-09/08/2015. Univ. Técnica Particular de Loja (UTPL), Ecuador.
- 4. Research grant: “Estimación de prevalencia e intensidad de infección por parásitos sanguíneos en aves de los bosques secos de Zapotillo, suroccidente de Ecuador”. Employee: María Fernanda Burneo Ordóñez. 07/09/2015-07/03/2016. Univ. Técnica Particular de Loja (UTPL), Ecuador.

C.5. Thesis supervised

- 1. PhD Thesis: “Gut microbiota and plastic responses to parasitism and predation. Experimental approaches in the spotless starling”, Antonio García-Núñez. Supervisors: Juan J. Soler & Gustavo Tomás. In progress, scheduled in 2026. Univ. Granada, Spain.
- 2. Master Thesis: “Emergencia de ectoparásitos aviarios. Importancia de las condiciones ambientales de los lugares de nidificación de aves trogloditas durante la época no reproductora”, Antonio García-Núñez. Supervisors: Carmen Zamora-Muñoz & Gustavo Tomás. 2020. Univ. Granada, Spain.
- 3. PhD Thesis: “Plumas, plantas y bacterias en nidos de estornino negro (*Sturnus unicolor*) y sus efectos en la reproducción”. Cristina Ruiz-Castellano. Supervisors: Juan J. Soler & Gustavo Tomás. 2016. Univ. Granada.
- 4. BsC Thesis: “Caracterización de la fauna de ectoparásitos en comunidades de aves del bosque seco en el Suroccidente del Ecuador”. Wilson R. Iñiguez Ordoñez. Supervisor: Gustavo Tomás & Carlos I. Espinosa. 2015-2016. Univ. Técnica Particular de Loja (UTPL), Ecuador.
- 5. BsC Thesis: “Significado funcional de la variabilidad de los patrones de moteado de los huevos del *Parus major* en Buunderkamp, Países Bajos”. Allison I. Recalde Rodríguez. Supervisor: Gustavo Tomás & Carlos I. Espinosa. 2015-2016. Univ. Técnica Particular de Loja (UTPL), Ecuador.

- 6. BsC Thesis: “Análisis de la dimensión fractal del moteado de los huevos de una población de Carbonero Común (*Parus major*) criando en un bosque pobre en calcio”. Ana M. Guevara Betancur. Supervisor: Gustavo Tomás & Leonardo Ordóñez. 2015-2016. Univ. Técnica Particular de Loja (UTPL), Ecuador.

C.6. Congresses

- 1. **Tomás, G.** Invited Master Talk: Ecología de las interacciones entre aves y parásitos. IV Congreso Internacional de Parasitología Neotropical (IV COPANEO) "Un Mundo, Una Salud: El Impacto Global de la Investigación en Parasitología". Lima (Perú), 11-16 May 2015. *The Biologist* (Lima), 2015, 13: 61

C.7. Teaching expertise

- Tutoring of 21 students from the BsC degrees in “Biology” and “Environmental Management Engineering” at Univ. Técnica Particular de Loja (UTPL, Ecuador) for different subjects (47 credits). 2014-2015

C.8. PhD Examination committees

- 1. Jessica Jiménez-Peñuela (vocal), Univ. Sevilla, 2021; • 2. Jesús Veiga (reserve) Univ. Granada, 2020; • 3. Daniel Fuentes (reserve) Univ. Rey J. Carlos, Madrid, 2020; • 4. Claudia Villanueva-García (vocal), Univ. Murcia, 2017; • 5. Sonia Rodríguez-Ruano (vocal), Univ. Granada, 2015; • 6. Vicente García-Navas (external examination committee), Univ. Castilla la Mancha, 2012; • 7. Miguel Á. Calero-Torralbo (reserve), Univ. Granada, 2011

C.9. Refereeing of manuscripts for Scientific Journals

- 1. About 100 manuscripts for 46 journals including *Biol Lett*, *Behav Ecol*, *Funct Ecol*, *J Anim Ecol*, *Anim Behav*, *Royal Soc Open Sci*, *Anim Biodivers Cons*, *Sci Tot Env*, *Front Eco Evo* and *Sci Rep*

C.10. Refereeing for National / International Grant applications

- 1. The COST Association (European Cooperation in Science and Technology), Rapporteur for final assessment of a COST Action, European Union, 2023
- 2. Ministerio para la Transición Ecológica y el Reto Demográfico. Proyectos de Investigación en la Red de Parques Nacionales, Spain, 2020
- 3. Czech Science Foundation, 2019
- 4. Ministerio de Ciencia, Innovación y Universidades. Agencia Estatal de Investigación, Spain, 2018, 2019, 2020
- 5. Junta de Extremadura. Ayudas para la contratación de Personal Investigador Doctor, 2024; Ayudas atracción y retorno de talento investigador I+D+i, Spain, 2018
- 6. National Geographic Society, USA, 2017
- 7. Secretaría de Educación Superior, Ciencia, Tecnología e Innovación (SENESCyT), Ecuador (Programme Prometeo and Programme Banco de Ideas), 2015
- 8. Dirección de Investigación de la Univ. Técnica Particular de Loja, Ecuador, 2015
- 9. Research Foundation Flanders, Belgium, 2013
- 10. Agencia Nacional de Promoción Científica y Tecnológica de la República Argentina-FONCyT, 2006, 2010

C.11. Membership of international panels or committees

- Review Panel Member for COST (European Cooperation in Science & Technology). Review Panel 3: Interdisciplinary networks for a sustainable future: a focus on life and environmental sciences (2x); Review Panel 2: Interdisciplinary approaches in food, agriculture and sustainable ecosystems; Review Panel 8: Our future: studying life, feeding people, sustaining the environment (active from 2015 to 2024; Calls of 2018, 2019, 2022 and 2023)

C.12. Membership of Editorial Boards

- 1. International Journal of Environmental Research & Public Health (section “Ecology & Environment”), from 2020;
- 2. *Birds*, from 2020; • 3. *Proceedings of Peerage of Science (ProcPoS)*, Editor (Ecology), 2014-2018; • 4. *Peerage of Science*, Founding Peer, 2011-2018; • 5. *The Open Ornithology Journal*, Advisory Editor, 2008-2020

C.13. Academic distinctions

- 1. Distinguished research trajectory according to the Spanish Programme I3 certification, 2019
- 2. Included in the “Highly cited researcher list” from Thomson Reuters, from 2013
- 3. PhD Extraordinary Award (Nature Sciences). Univ. Valencia, Spain, 2008