



CURRICULUM VITAE (CVA)

Part A. PERSONAL INFORMATION

CV date

25/11/2021

First name	ROBERT JOHN		
Family name	WILSON		
Gender (*)	Male	Birth date	16/11/1971
ID number	NIE: X4929722V		
e-mail	rjwilson@mncn.csic.es	URL Web: https://www.mncn.csic.es/es/quienes_somos/wilson-robert-j	
Open Researcher and Contributor ID (ORCID) (*)	0000-0003-4477-7068		

(*) *Mandatory*

A.1. Current position

Position	CIENTÍFICO TITULAR		
Initial date	01/08/2018		
Institution	MUSEO NACIONAL DE CIENCIAS NATURALES (MNCN-CSIC)		
Department/Center	BIOGEOGRAPHY AND GLOBAL CHANGE		
Country	SPAIN	Telephone number	914111328 extn 443673
Key words	Climate change, conservation biology, elevation range shifts, Lepidoptera, metapopulations, microclimate, species distributions		

A.2. Previous positions (research activity interruptions, art. 14.2.b))

Period	Position/Institution/Country/Interruption cause
2010-2018	Senior Lecturer in Conservation Biology, University of Exeter, Exeter (UK)
2007-2010	Lecturer in Conservation Biology, University of Exeter, Exeter (UK)
2003-2007	Ramón y Cajal Research Fellow, Universidad Rey Juan Carlos, Madrid
2000-2003	Postdoctoral Research Associate, University of Leeds, Leeds (UK)

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PGCert, Academic Practice	University of Exeter (Exeter, UK)	2010
PhD, Ecology	University of Leeds (Leeds, UK)	2000
BA (Hons), Biological Sciences	University of Oxford (Oxford, UK)	1994

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

I research global change effects on biodiversity to gain evidence and understanding for conservation. In 25 years I have participated in 20 competitively funded projects, publishing 75 ISI Web of Science articles (6010 citations, h-index 34) including 62 in Q1 journals.

I test how colonization and local extinction influence species range dynamics. During my PhD and first post-doc (1995-2003; Univ Leeds) I researched ecological and evolutionary processes at high-latitude range margins in Lepidoptera (Thomas et al *Nature* 2001). My second postdoc used butterfly atlas data to show spatial signatures of colonization and extinction in species distributions, of use for biodiversity assessment (Wilson et al *Nature* 2004). In my first permanent job (2007-18; Univ Exeter) I gained funding to test how climate change, microclimate and habitat availability influence species range expansion (Bennie et al *Ecol Lett* 2013).

During my Ramón y Cajal fellowship at Univ Rey Juan Carlos in 2003-07 I began work on elevation gradients as models for the effects of climate change. I obtained funds for field



research showing that butterfly species ranges contracted at low-elevation limits after 35 years of warming (Wilson et al *Ecol Lett* 2005). Uphill shifts by these species combined to drive shifts in richness and composition (Wilson et al *Global Change Biol* 2007). This system has shown how biotic and abiotic factors govern range margins (Merrill et al *J Anim Ecol* 2006; Gutiérrez et al *Global Ecol Biogeogr* 2016), and the effects of climate on abundance and phenology (Stewart et al *Ecology* 2020; Gutiérrez & Wilson *J Anim Ecol* 2021). I have disseminated the results in presentations and reports to conservation practitioners and the public (e.g. Wilson et al. 2015, eds Zavala & Herrero). I have also collaborated on effects of global change on the elevation ranges of orchids in the Alps (Geppert et al *Nature Comms* 2020).

My work on species range limits shows that microclimatic variation caused by topography influences warming rates and population dynamics. This has prompted a research programme on the role for conservation of microclimatic refugia from climate change. Working with Ilya Maclean and Jon Bennie (Univ Exeter) alongside UK policymakers we showed that microclimatic variation buffered species in England against extirpation risk (Suggitt et al *Nature Climate Change* 2018). Maclean and Bennie both obtained lectureships after postdoctoral contracts under my supervision, and we have collaborated since 2010, holding seven joint grants, co-supervising three PhDs to completion, and co-authoring 25 articles.

I became a permanent scientist at the Museo Nacional de Ciencias Naturales (MNCN-CSIC) in August 2018. Here I am assessing ecological vulnerability to climate change and the scope to adapt conservation. In 2019 I obtained the project *Identifying climate change refugia using Iberian mountain butterflies* (RTI2018-096739-B-C21) to test climate change and butterfly distribution shifts in four Spanish mountain ranges using new and historical field data. We have shown that regions of high topographic variation have buffered changes in butterfly communities against recent warming (Mingarro et al *Insect Conserv Divers* 2021).

My interest in effects of global change on conservation led to a report on threats to invertebrates for the Bern Convention Group of Experts on Biodiversity & Climate Change (2012), and to a review of insect responses to global change (Wilson & Fox *Ecol Entomol* 2021). In 2009-12, I directed meta-analyses of evidence for extinction risk from climate change, finding that observed increases in extinction risk were as fast as those predicted by bioclimate models (Maclean & Wilson *Proc Natl Acad Sci* 2011). My broader research in insect conservation has addressed the validity of the IUCN Red List for insect assessment (Fox et al *J Insect Conserv* 2019) and the implications of open access data for citizen scientists (Fox et al *Biodiv Conserv* 2020).

I combine research with teaching, training and administration. I have been Associate Editor for *Proc R Soc B* since 2014 and *Ecol Entomol* since 2018. I review research grants including in UK, USA and Spain, where I assessed Ramón y Cajal applications in 2019. I have supervised 6 PhDs to completion, the theses leading to 20 journal articles with the student as first author, and I currently supervise three PhDs. At Exeter (2007-18) I taught modules in ecology, conservation and environmental change, and was chair of the Biosciences Equality, Diversity and Inclusivity committee (2014-2018), monitoring and implementing actions to improve gender equality. At MNCN-CSIC I am a member of the Equality Commission, and the *Vicedirector de Formación Científica y Profesional* (since 2021). In this role I am developing events and courses to promote research, development and wellbeing among >100 pre- and post-doctoral researchers.

Part C. RELEVANT MERITS (sorted by typology)

C.1. Publications (see instructions)

(*Corresponding authors where >8 authors)

1. Mingarro, M., Cancela, J.P., Burón-Ugarte, A., García-Barros, E., Munguira, M.L., Romo, H., **Wilson, R.J.** (2021) Butterfly communities track climatic variation over space but not time in the Iberian Peninsula. *Insect Conservation and Diversity* 14, 647-660.
2. Stewart, J.E., Maclean, I.M.D., Edney, A.J., Bridle, J., **Wilson, R.J.** (2021) Microclimate and resource quality determine resource use in a range-expanding herbivore. *Biology Letters* 17(8), 20210175.
3. Gutiérrez, D., **Wilson, R.J.** (2021) Intra- and interspecific variation in the responses of insect phenology to climate. *Journal of Animal Ecology* 90, 248-259.



4. Geppert, C., Perazza, G., **Wilson, R.J.**, Bertolli, A., Prosser, F., Melchiori, G., Marini, L. (2020) Consistent population declines but idiosyncratic range shifts in Alpine orchids under global change. *Nature Communications* 11, 5835.
5. Stewart, J.E., Gutiérrez Illán, J., Richards, S.A., Gutiérrez, D., **Wilson, R.J.** (2020) Linking inter-annual variation in environment, phenology, and abundance for a montane butterfly community. *Ecology* 101, e02906.
6. Suggitt, A.J.*, **Wilson, R.J.*** (author 2/15), Isaac, N.J.B ... Maclean, I.M.D.* (2018) Extinction risk from climate change is reduced by microclimatic buffering. *Nature Climate Change* 8, 713–717.
7. Maclean, I.M.D., Suggitt, A.J., **Wilson, R.J.**, Duffy, J.P., Bennie, J.J. (2017) Fine-scale climate change: modelling spatial variation in biologically meaningful rates of warming. *Global Change Biology* 23, 256-268.
8. Gutiérrez, D., Vila, R., **Wilson, R.J.** (2016) Asymmetric constraints on limits to species ranges influence consumer-resource richness over an environmental gradient. *Global Ecology and Biogeography* 25, 1477-1488.
9. Maclean, I.M.D., Hopkins, J.J., Bennie, J., Lawson, C.R., **Wilson, R.J.** (2015) Microclimates buffer the responses of plant communities to climate change. *Global Ecology and Biogeography* 24, 1340-1350.
10. Bennie, J., Hodgson, J.A., Lawson, C.R., Holloway, C.T.R., Roy, D.B., Brereton, T., Thomas, C.D., **Wilson, R.J.** (2013) Range expansion through fragmented landscapes under a variable climate. *Ecology Letters* 16, 921-929.

C.2. Congresses

1. **Invited keynote presentation: Wilson, R.J.** *Detecting refugia from climate change based on colonization, local extinction and changes to community composition.* Frontiers in E3 7th Annual Meeting, Centre for Ecology, Evolution and Environmental Changes cE3c (Lisbon, Portugal), 10/21.
2. **Invited presentation: Wilson, R.J.**, Stewart, J.E., Maclean, I.M.D., Bridle, J.R. *Climate-driven variation in the quality and phenology of novel hosts presents a variable window of opportunity for a range-expanding herbivore.* Evolution of Species Ranges webinar, Centre for Marine Evolutionary Biology – CeMEB (Gothenburg, Sweden), 03/21.
3. **Invited plenary presentation: Wilson, R.J.** *Making mountains out of molehills: how microclimate, colonization and local extinction influence biodiversity in a changing climate.* IV Jornadas Científicas del Museo Nacional de Ciencias Naturales, MNCN-CSIC (Madrid), 02/20.
4. **Oral presentation: Wilson, R.J.**, Cancela, J.P., Bassett, L., Mingarro, M., Bennie, J. *Effects of colonization, extinction and detectability on the elevation ranges of mountain butterflies.* British Ecological Society Annual Meeting – Celebrating Global Ecology, Belfast (UK), 12/19.
5. **Invited presentation: Wilson, R.J.** *Lepidópteros diurnos: aprendiendo sobre el cambio global con las mariposas. Aplicación del conocimiento a la conservación de los lepidópteros.* IX seminario de seguimiento a largo plazo en la red de Parques Nacionales CENEAM (Valsaín), 09/19.
6. **Invited plenary presentation: Wilson, R.J.** *Butterflies and climate change: from mountains to molehills.* UK Butterfly Recorders' Meeting. Birmingham (UK), 03/19.
7. **Oral presentation: Wilson, R.J.** *Changes to the climatic associations of butterfly communities over a mountain elevation gradient between 2004/05 and 2017.* Butterfly Conservation International Symposium, Southampton (UK), 04/18.
8. **Invited presentation: Wilson, R.J.** *Topography, microclimate and population persistence in a changing climate.* 7th International Conference on the Biology of Butterflies, Turku (Finland), 08/14.
9. **Invited presentation: Wilson, R.J.** *How have butterfly populations responded to climate change at the geographic margins of species distributions?* Symposium on Biodiversity and climate change: current and future species distribution patterns. Nicosia (Cyprus), 09/13.
10. **Invited keynote presentation: Wilson, R.J.** *Spatial heterogeneity, climate change and conservation.* European Symposium on Butterfly Conservation III, Wageningen (Netherlands), 03/12.

C.3. Research projects

1. NE/W006618/1 - *Predicting sudden and widespread biodiversity loss on a rapidly warming planet - when and where does biology change things?* Natural Environment Research Council (NERC UK) Research Grant. Pigot, A.L., Bridle, J.R., Gregory, R.I. (University College London, UK), Maclean, I.M.D., Merow, C. & **Wilson, R.J.** Project Partner. (*Funding decision pending, £791,400 requested*).
2. RTI2018-096739-B-C21 - *Identifying climate change refugia using Iberian mountain butterflies*; Programa Estatal de I+D+i Orientada a los Retos de la Sociedad. **Wilson, R.J.** 01/19-12/21. Principal Investigator - €121,000.00.
3. 2016-T3/AMB-1073 - *The role of fine resolution topographic heterogeneity in providing refugia from climate change: distribution and conservation of the butterflies of the Sierra de Guadarrama*; Comunidad de Madrid Convocatoria De Ayudas Para La Atracción Talento Investigador 2016 Modalidad 3: Programa Cátedras De Excelencia. **Wilson, R.J.** 04/17-09/17. Principal Investigator – €50,000.00.
4. NE/N00857X/1 - *Effects of habitat and climate change on conservation of the Lulworth Skipper butterfly*; Natural Environment Research Council (NERC UK) Directed Training Grant (DTG). **Wilson, R.J.**, I.M.D. Maclean & Bourn, N.A.D. 09/16-08/23. Principal Investigator – £86,676.00.
5. NE/M021599/1 - *Mitigating present and future climate risks to winemaking*; Natural Environment Research Council (NERC UK) Research Grant, Innovation. Maclean, I.M.D. & **Wilson, R.J.** 05/15-04/16. Principal Investigator – £124,445.00.
6. NE/L00268X/1 - *Using microclimate to adapt conservation to climate change*; Natural Environment Research Council (NERC UK) Research Grant, Knowledge Exchange. **Wilson, R.J.** & Maclean, I.M.D. 10/13-09/14. Principal Investigator – £113,986.00.
7. 24799 - *Research into Potential Climate Change Refugia for Wild Species in England*; Natural England. Maclean, I.M.D. & **Wilson, R.J.** 11/12-07/13. Principal Investigator – £79,747.40.
8. 883976 - *Palaeoecological evidence to inform identification of potential climate change refugia*; Maclean, I.M.D., Caseldine, C., Jones, R., **Wilson, R.J.** & Fulton, A. 01/13-07/13. Co-Investigator - £48,420.45.
9. JP100522 - *Climate change and metapopulation dynamics at a contracting range margin*; Royal Society International Joint Project. **Wilson, R.J.** & Gutiérrez, D. 02/11-02/13. Principal Investigator - £11,987.00.
10. NE/G006296/1 - *Metapopulation dynamics and climate change in a model system: the silver-spotted skipper*; Natural Environment Research Council (NERC UK) Research Grant. **Wilson, R.J.** & Thomas, C.D. 03/09-11/12. Principal Investigator - £247,331.94.

C.4. Contracts, technological or transfer merits

1. *Associate Editor for Proceedings of the Royal Society of London Series B (Biological Sciences)*, 01/14-present.
2. *Associate Editor for Ecological Entomology*, 01/18-present.
3. *Conservation report: Wilson, R.J.*, Gutiérrez Illán, J., Gutiérrez, D. (2015) Cambios experimentados por los lepidópteros de la Sierra de Guadarrama entre los periodos 1967-1973 y 2004-2005. in: *Impactos, Vulnerabilidad y Adaptación de los Bosques y la Biodiversidad de España frente al Cambio Climático* (ed M.A. Zavala, A. Herrero). Ministerio de Agricultura, Alimentación y Medio Ambiente, Madrid.
4. *Conservation report: Suggitt, A.J., Wilson, R.J.* (author 2/17), August, T.A., ... Maclean, I.M.D. (2014) *Climate change refugia for the flora and fauna of England*. Natural England Commissioned Reports 162.
5. *Conservation report: Wilson, R.J.* (2012) Impacts of climate change on European invertebrates, with reference to the vulnerability of Bern Convention species. Ch II, Pp 49-94 in: *Biodiversity and Climate Change: Reports and Guidance Developed Under the Bern Convention Volume II*. Nature and Environment No. 160 Council of Europe.
6. *Training and administration: Deputy Director for Scientific and Professional Training, Museo Nacional de Ciencias Naturales (MNCN-CSIC)*, 06/21-present.
7. *Training and administration: Chair, Committee for Equality, Diversity and Inclusivity, Biosciences, University of Exeter (UK)*, 01/14-07/18.