

CV—Timothée BONNET

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PERSONAL DATA

BIRTH DATE: November 1st 1988
CITIZENSHIPS: French & Australian
WORK ADDRESS: Centre d'Etudes Biologiques de Chizé
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LANGUAGES: French (mother tongue), English (fluent), Spanish (basic)

ACADEMIC POSITIONS

FEB 2023 - ...	Research scientist (permanent), Centre d'Etudes Biologiques de Chizé, French National Centre for Scientific Research (CNRS) / La Rochelle University
DEC 2021 - JAN 2023	DECRA fellow at the Research School of Biology, Australian National University (ANU)
JUL 2017 - NOV 2021	Post-doctorate at the Research School of Biology, ANU In Loeske Kruuk's group.
MAR 2019 - DEC 2021	Teacher/consultant at the Biological Data Science Institute, ANU (20%FTE) Lead by Eric Stone.
OCT 2016 - JUL 2017	Post-doctorate at IEU, University of Zürich. In Arpat Ozgul's PopEcol group.

EDUCATION

OCT 2012 - SEP 2016	PhD student in Zürich evolutionary biology PhD program. <i>Individual-level causes and population-level consequences of variation in fitness in an alpine rodent.</i> Under the supervision of Dr Erik Postma.
SEP 2011 - JUN 2012	M.Sc. in evolutionary biology and ecology. University Montpellier II, France. <i>Research project:</i> <i>Neutral processes and biased mitochondrial introgression at the center for population biology and management (CBGP).</i> Supervised by Drs Raphaël Leblois, Pierre-André Crochet and François Rousset.
SEP 2008 - SEP 2011	B.Sc Biology: National engineering school in biology and agronomy, Montpellier Supagro, France. Specializations in biodiversity conservation, ecology, population genetics, GIS. <i>Research projects:</i> JAN-AUG 2011 <i>Population dynamics of rodents, and agricultural practices.</i> Chizé Centre for Biological Studies (CEBC), France. Supervised by Drs Bertrand Gauffre and Vincent Bretagnolle. SEP-DEC 2010 <i>Genetic identification, speciation, hybridization and role of gonosomes in flycatchers and sparrows.</i> Centre for Ecological and Evolutionary Synthesis in Oslo, Norway. Supervised by Prof. Glenn-Peter Sætre. MAY-AUG 2010 <i>Meadow birds phenology, conservation and agriculture</i> at LPO (Birdlife international), in Grenoble, France.

SEMINARS

Invited seminars

- *Contemporary adaptive evolution in wild animals and where to go from there.* Universität Bielefeld, Germany, June 21th **2023**.
- *Contemporary adaptive evolution in wild animals and where to go from there.* Laboratoire d'Écologie Alpine, Grenoble, France, May 4th **2023**.
- *Some thoughts on the definition of fitness.* Centre for Biodiversity Analysis, Trondheim, Norway, March 15th **2023**.
- *Contemporary adaptive evolution in wild animals.* Research School of Biology Director's seminar series. ANU, Canberra, Australia, October 5th **2022**.
- *Empirical study of current adaptive evolution in wild animals.* School of Biological Sciences, University of Queensland, Australia, September 2nd **2022**.
- *Empirical study of current adaptive evolution in wild animals.* Institute of Applied Ecology, University of Canberra, Australia, August 12th **2022**.
- *Long-term monitoring to study on-going adaptive processes.* Long-term animal research seminar series. Duke University, USA, September 28th **2021**.
- *Measuring current adaptive evolution in wild animal populations* Centre for Biodiversity Dynamics, NTNU, Trondheim, Norway, April 20th **2021**.
- *Stochasticity, fitness and evolution* Bern University, Switzerland, March 9th **2016**.
- *Body mass selection in an alpine rodent: does it fluctuate? does it matter?* Radboud Universiteit Nijmegen, the Netherlands, December 4th **2014**.
- *Variation in fitness: proximal and ultimate causes.* CNRS Brunoy, France. October 28th **2014**.
- *Individual-level causes of variation in fitness in an alpine rodent.* IEU, Zurich, September 29th **2014**.

Symposium

- *Towards a unified biology of populations: Integrating ecology, evolution and demography.* Evolution, Montpellier, France, August 18-22 **2018**. Co-organized with Erik Postma, Matthew Wolak, and Ron Brassar.

Contributed seminars

- *Contemporary evolution in subantarctic seabirds.* Petit Poids Dérivé French conference of evolutionary biology, July 3rd **2023**.
- *Additive genetic variance in fitness and how fast is adaptive evolution in wild animals today?* American Society of Naturalists, Asilomar, USA, January 9-12 **2021**.
- *How fast are wild animals currently adapting?* International Conference of Quantitative Genetics, Brisbane, Australia, November 2-13 **2020**.
- *How fast is adaptive evolution in wild animals today?* Evolution, Sydney, Australia, November 23-26 **2019**.
- *How much are wild vertebrates populations evolving right now?* Evolution, Montpellier, France, August 18-22 **2018**.
- *Genetic evolution, climate change, and wild animal evolution: to understand and predict.* Collaboration across boundaries, Canberra, Australia, December 7th **2017**.
- *Demographic consequences of adaptive evolution and the nature of selection* Wild Animal Models Biennial Meeting, Saint-Michel-des-Saints, Québec, Canada, July 3rd-7th **2017**.
- *What rescues the voles. Demographic consequences of contemporary adaptive evolution in a wild rodent population* Evolution, Portland, Oregon, USA, June 23rd-27th **2017**.

- *Adaptation against selection* Evolution, Austin, Texas, USA, June 17th-21th **2016**.
- *The stasis that wasn't: Adaptive evolution goes against phenotypic selection in a wild rodent population* Biology16, the Swiss conference on organismic biology, Lausanne, Switzerland, February 11th-12th **2016**.
- *The stasis that wasn't: Adaptive evolution goes against phenotypic selection in a wild rodent population* 3rd Young Natural History scientists Meeting, Paris, France, February 2nd-6th **2016**.
- *Rapid adaptive evolution opposite to phenotypic selection. Or why snow voles get smaller despite selection for larger individuals* European Society for Evolutionary Biology (ESEB) 15th, Lausanne, Switzerland. August 10th-14th **2015**.
- *Evolution outreach through dirtiness* Poster at the ESEB Workshop on Teaching Evolution, Lausanne, Switzerland. August 9th **2015**.
- *Successful by chance? The power of mixed models and neutral simulations for the detection of individual fixed heterogeneity in fitness components* GDR Ecological Statistics meeting, Lyon, France, March 12th-13th **2015**.
- *Why voles do not become beavers: indirect relationships between traits and fitness counteract selection for larger individuals in a snow vole population* Poster at Biology15, the Swiss conference on organismic biology, Dübendorf, Switzerland, February 12th-13th **2015**.
- *Fluctuating selection and genetic gradients on snow vole mass* Wild Animal Models Biennial Meeting, University of St Andrews, U.K. July 21st-25th **2014**
- *Lord of the scree by chance or by merit? Dynamic vs. fixed heterogeneity in an alpine rodent population.* Evolutionary Demography Society (EvoDemoS) first meeting, in Odense, University of South Denmark. October 5th-10th **2013**.
- *Climatic variability, viability selection and demography in an alpine rodent.* European Meeting of PhD Students in Evolutionary Biology (EMPSEB) 19th, at university of Exeter, U.K. September 3rd-7th **2013**.
- *Neutral processes and cyto-nuclear discordant introgression.* Colloquium Petit Pois Dérivé, Avignon, France. August 29th **2012**.

SKILLS

Scientific

Biology | Evolutionary biology, population and quantitative genetics, population ecology and demography, contemporary evolution, genomic data.

Statistics | Generalized Linear Mixed Models, Non-linear models, Bayesian methods, Mark-Recapture analysis. High-Performance computation, Individual based simulations, Experimental design.

Mathematics | Linear algebra, analysis, probabilities.

Lab | DNA extractions, PCR, sequencing preparation, respirometry.

Field | Handling rodents and birds, trapping, 4WD driving, manual photography, first aid courses (2018, 2013, 2006).

IT

O.S | **Linux**, Microsoft Windows, MacOS X

Scripting & programming | **Expansive experience: R, C/C++, Bash shell, BUGS/JAGS/Stan/Nimble, L^AT_EX, Markdown**
Occasional use : Matlab, Python, S4, HTML

See my GitHub: <https://github.com/timotheenivalis>
& GitLab: <https://src.koda.cnrs.fr/timotheebonnet>

High Performance Computing | Regular work on the NCI Raijin/Gadi & the GDUserver in Canberra
CBGP Cluster in Montpellier, ScienceCloud in Zurich

TEACHING

Courses and workshops

JUL-NOV 2022	Biol 8001 “Consulting in Quantitative Biology” at the Australian National University, 3h/week for 12 weeks
SEPT 2021	Advanced R programming for Atlas of Living Australia CSIRO, 3h/week for 4 weeks
JUL-NOV 2021	Biol 8001 “Consulting in Quantitative Biology” at the Australian National University, 3h/week for 12 weeks
MAY 2021	“Linear mixed models” at the Australian National University, twice 3h
JUL-NOV 2020	Biol 8001 “Consulting in Quantitative Biology” at the Australian National University, 3h/week for 12 weeks
APR-JULY 2020	Weekly “Biological Data Science Course ” at the Research School of Biology: R, Statistical modelling, tools for reproducible science
OCT 2018	3-days course “Statistical thinking and experimental design” at the Research School of Biology
FEB 2018-APRIL 2020	Fortnightly workshops covering various aspects of statistics and coding in R (https://github.com/timotheenivalis/RSB-R-Stats-Biology)
AUG 2016	Two weeks teaching assistant for Keller’s and Manser’s field course, Białowieża Forest, Poland
MAR 2016	Ten afternoons of practicals in Ozgul’s population ecology
MAR 2015	One hour practical in Postma’s intro to quantitative genetics
FEB 2015	One day introductory course to L ^A T _E X(self-organized)

Supervision and tutoring

JAN 2024 - JUN 2024	Master’s student internship (Laura Martínez Antón)
APR 2024 - MAY 2024	3rd year student internship (Jean-Joseph Matta)
MAY 2024 - CURRENT	PhD committee for Julien Offresson, at CEFÉ, Montpellier, France.
MAR 2022 - CURRENT	PhD committee for Paul Cuchot, at CEFÉ, Montpellier, France.
MAR 2021 - CURRENT	PhD panel for Jennifer Evans, at ANU, along with Prof. Mikheyev and Prof. Kruuk.
NOV 2021 - JAN 2022	One summer student fulltime internship.
APR 2018 - OCT 2021	Mentoring of three PhD students with the RSB HDR Mentoring Program
DEC 2016	3 weeks supervision of three Bachelor student projects
JUL 2014 - DEC 2015	Master’s student (Andres Hagmayer, now evolutionary biology PhD student in Wageningen, Netherlands)
DEC 2013	3 weeks supervision of a Bachelor student project

Assessment

NOV 2021 | Two Honours/Masters Proposal Assessment at ANU

APR 2021 | One Honours/Masters Proposal Assessment at ANU

SEP 2020 | Two Honours/Masters Proposal Assessment at ANU

APR 2020 | One Honours/Masters Proposal Assessment at ANU

Consulting

Over 150 sessions of statistical and programming consulting sessions for other researchers. In a few cases my help was acknowledged in publications:

- Ratnayake & al. (2021). Visual obstruction, but not moderate traffic noise, increases reliance on heterospecific alarm calls. *Behavioral Ecology*. doi:10.1093/beheco/arab051
- Vrtílek & al. (2021). The role of maternal effects on offspring performance in familiar and novel environments. *Heredity* 127, 52–65
- Tegtman & Magrath (2020). Discriminating between similar alarm calls of contrasting function. *Philosophical Transactions of the Royal Society, B*, 375: 20190474.

REVIEWING ACTIVITY

Journals

86 reviews for 32 journals (<https://publons.com/a/822275/>), including:

PNAS, *Molecular Ecology*, *Heredity*, *Proceedings of the Royal Society B: Biological Sciences*, *BMC Evolutionary Biology*, *Evolution*, *Oikos*, *Methods in Ecology and Evolution*, *The American Naturalist*, *Current Biology*, *Systematic Biology*, *eLife*, *PCI Evolutionary Biology*...

Grants

2024 | DFG-Elan grant (250,000€) Deutsche Forschungsgemeinschaft, Germany.

2023 | Mitacs Elevate postdoctoral fellowship (160,000 CAD) reviewed for Mitacs, Canada.

2022 | Three future fellowship grants (ca. 880,000AUD, 890,000AUD and 1,030,000AUD) reviewed for the Australian Research Council.

2021 | Three discovery project grants (ca. 360,000AUD, 620,000AUD and 660,000AUD) reviewed for the Australian Research Council.

2017 | One grant (4 years, ca. 400,000€) reviewed for the Agence Nationale de la Recherche, France.

Conferences

2020 | Jury member for the RSB PhD student conference, ANU, Australia

2016 | Jury member for biodiversity and conservation at YNHM 16, Paris

EXTERNAL ACTIVITIES

Popular science

Contributions to:

- The Conversation Australia (MAY 2022)
- Radio interview about the scientific legacy of Darwin's Origin of Species (Nov 2019) <https://timotheenivalis.github.io//science/ABCinterview/>.
- the National Youth Science Forum at RSB (Two talks in JAN 2019) www.nysf.edu.au.
- Planet-Vie, resources for biology teachers. (1 article, 2018). Around 5700 reads/year <http://planet-vie.ens.fr/article/2536/evolution-action>
- Scientific "speed-dating" with the public at ESEB 15 and Biology 16 conferences
- Dans les testicules de Darwin. (7 articles, 2013 - 2015) <http://danslestesticulesdedarwin.blogspot.ch>
- Un pied dans le plat. (1 article, 2012) www.unpieddansleplat.fr/menu_gauche/alimentation_sante/laitage_et_cancer.php

Ornithology and naturalism

MAY 2021	Wildlife and science expert guide on a nature tour to far north Queensland, with Nature Art Lab
2012 - <i>current</i>	Member of the regional rare bird committee Tarn-Aveyron-Lot http://www.faune-tarn-aveyron.org/index.php?m_id=20025

COMPETITIVE FUNDING

2024	LUDI PhD funding, La Rochelle University (ca. 128,000€)
2020	Discovery Early Career Research Award (DE210100549), for a 3-year research project (417,328AUD)
2018	Co-applicant for RSB Innovation grant "Future proofing scientific rigour at RSB" (10,000AUD)
2018	Center for Biodiversity Analysis synthesis grant (15,920AUD)
2016	One year post-doc from UZH Forschungskredit (108,639CHF)
2016	Fieldwork grant from the Georges and Antoine Claraz-Donation (770CHF)
2016	Travel grant to attend the 3rd Young Natural History Scientists Meeting, Paris, France (150CHF)
2013	Co-applicant for grant "Molecular and population genetic signatures of cytonuclear interactions: the Podarcis model"; led by Catarina Pinho. https://app.dimensions.ai/details/grant/grant.3534828 (50,000EUR)
2012	PhD fellowship at IEU UZH

PEER-REVIEWED PUBLICATIONS

PDFs available for download at <https://timotheenivalis.github.io//publications/>.

29. Ghislain, M *, **Bonnet, T ***, Godeau, U, Dehorter, O, Gimenez, O, Henry, PY **2024**. Synchrony in adult survival is remarkably strong among common temperate songbirds across France. *Ecology*, In Press (* co-first authors)

28. Subasinghe, K, Symonds, MRE, Prober, SM, **Bonnet, T**, Williams, KJ, Ware, C, Gardner, JL. **2024** Spatial variation in avian bill size is associated with temperature extremes in a major radiation of Australian passerines. *Proceedings of the Royal Society B*. 291
27. Menário Costa, W, Kind, WJ, **Bonnet, T**, Festa-Bianchet, M, Kruuk, LEB **2023**. Early-life behavior, survival, and maternal personality in a wild marsupial. *Behavioral Ecology* 34(6)
26. Latimer, A, Sherratt, E, **Bonnet, T**, Scheyer, TM **2023** Semicircular canal shape diversity among modern lepidosaurs – Life habit, size, allometry. *BMC Ecology and Evolution* 23(10)
25. Shokirov, S, Jucker, T, Levick, SR, Manning, AD, **Bonnet, T**, Yebra, M, Youngentob, KN **2023** Habitat highs and lows: Using terrestrial and UAV LiDAR for modelling avian species richness and abundance in a restored woodland. *Remote Sensing of Environment* 285
24. Gardner, JL, Clayton, M, Allen, R, Stein, J & **Bonnet, T** **2022** The effects of temperature extremes on survival in two semi-arid Australian bird communities over three decades, with predictions to 2104. *Global Ecology and Biogeography* 31(12):2498-2509.
23. Crates, R, Watson, DM, Albery, GF, **Bonnet, T**, Murphy, L, Rayner, L, Stojanovic, D, Timewell, C, Meney, B, Roderick, M, Ingwersen, D & Heinsohn, R **2022** Mistletoes could moderate drought impacts on birds, but are themselves susceptible to drought-induced dieback. *Proceedings of the Royal Society B Biological Sciences* 289:1978.
22. **Bonnet, T**, Morrissey, MB, de Villemereuil, P, Alberts, SC, Arcese, P, Bailey, LD, Boutin, S, Brekke, P, Brent, L, Camenisch, G, Charmantier, A, Clutton-Brock, TH, Cockburn, A, Coltman, DW, Courtiol, A, Davidian, E, Evans, SR, Ewen, JG, Festa-Bianchet, M, de Franceschi, C, Gustafsson, L, Höner, OP, Houslay, TM, Keller, LF, Manser, M, McAdam, MG, McLean, E, Nietlisbach, P, Osmond, HL, Pemberton, JM, Postma, E, Reid, JM, Rutschmann, A, Santure, AW, Sheldon, BC, Slate, J, Teplitsky, C, Visser, ME, Wachter, B, LEB Kruuk. **2022** Genetic variance in fitness indicates rapid contemporary adaptive evolution in wild animals. *Science* 376(6596): 1012-1016.
21. Aich, U, **Bonnet, T**, Head, ML & Jennions, MD. **2021** Disentangling the effects of male age and mating history: Contrasting effects of mating history on precopulatory mating behavior and paternity success. *Evolution* 75(11): 2867-2880.
20. Cooper, E, **Bonnet, T**, Osmond, H, Cockburn, A & Kruuk, L **2021**. Ageing and senescence across reproductive traits and survival in superb fairy-wrens (*Malurus cyaneus*). *The American Naturalist* 197(1): 111-127.
19. Subasinghe, K, Symonds, MRE, Vidal-García, M, **Bonnet, T**, Prober, SM, Williams, KJ & Gardner JL **2021**. Repeatability and Validity of Phenotypic Trait Measurements in Birds. *Evolutionary Biology* 48(1): 100-114.
18. Cooper, EB, **Bonnet, T**, Osmond, H, Cockburn, A & Kruuk, LEB **2020**. Do the ages of parents or helpers affect offspring fitness in a cooperatively breeding bird? *Journal of Evolutionary Biology* 33(12): 1735-1748.
17. Aich, U, **Bonnet, T**, Fox, RJ & Jennions, MD **2020**. An experimental test to separate the effects of male age and mating history on female mate choice. *Behavioral Ecology* 31(6): 1353-1360.
16. Hagmayer, A, Camenisch, G, Canale, C, Postma, E & **Bonnet, T** **2020**. Limited mass-independent individual variation in resting metabolic rate in a wild population of snow voles (*Chionomys nivalis*). *Journal of Evolutionary Biology* 32(5): 608-618.
15. **Bonnet, T**, Morrissey, M, Morris, A, Morris, S, Clutton-Brock, T, Pemberton, J & Kruuk, L **2019**. The role of selection and evolution in changing parturition date in a red deer population. *PLoS Biology* 17(11): e3000493.
14. **Bonnet, T**, Morrissey, M & Kruuk, L **2019**. Estimation of genetic variance in fitness, and inference of adaptation, when fitness follows a log-normal distribution. *Journal of Heredity* 110(4): 383-395.
13. Morrissey, M & **Bonnet, T** **2019**. Analogues of the fundamental and secondary theorems of selection, assuming a log-normal distribution of expected fitness. *Journal of Heredity* 110(4): 396-402.
12. **Bonnet, T** & Postma, E **2018**. Fluctuating selection and its (elusive) evolutionary consequences in a wild population. *Journal of Evolutionary Biology* 31(4): 572-586.

11. Ponzi, E, Keller, L, **Bonnet, T** & Muff, S **2018**. Heritability, selection, and the response to selection in the presence of phenotypic measurement error: effects, cures, and the role of repeated measurements. *Evolution* 72(10): 1992-2004
10. **Bonnet, T**, Leblois, R, Rousset, F & Crochet, PA **2017**. A reassessment of explanations for discordant introgressions of mitochondrial and nuclear genomes. *Evolution* 71(9): 2140-2158.
9. **Bonnet, T**, Wandeler, P, Camenisch, G & Postma, E **2017**. Bigger is fitter? Quantitative genetic decomposition of selection reveals an adaptive evolutionary decline of body mass in a wild rodent population. *PLoS Biology* 15(1): e1002592.
8. van Benthem *, K, Bruijning, M *, **Bonnet, T** *, Jongejans, E, Postma, E & Ozgul, A **2017**. Disentangling evolutionary, plastic and demographic processes underlying trait dynamics: A review of four frameworks. *Methods in Ecology and Evolution* 8:75–85. (* co-first authors)
7. **Bonnet, T** & Postma, E **2016**. Successful by chance? The power of mixed models and neutral simulations for the detection of individual fixed heterogeneity in fitness components. *The American Naturalist* 187(1). Recommended by Faculty of 1000
6. García-Navas, V, **Bonnet, T**, Waldvogel, D, Camenisch, G & Postma, E **2016**. Consequences of female philopatry for reproductive success and mate choice in an Alpine rodent. *Behavioral Ecology*.
5. García-Navas, V, **Bonnet, T**, Bonal, R & Postma, E **2016**. The role of fecundity and sexual selection in the evolution of size and sexual size dimorphism in New World and Old World voles (Rodentia: Arvicolinae). *Oikos* Early view.
4. García-Navas, V, **Bonnet, T**, Waldvogel, D, Wandeler, P, Camenisch, G & Postma, E **2015**. Gene flow counteracts the effect of drift in a Swiss population of snow voles fluctuating in size. *Biological Conservation* 191: 168–177.
3. **Bonnet, T**, Crespin, L, Pinot, A, Bruneteau, L, Bretagnolle, V & Gauffre, B **2013**. How the common vole copes with modern farming: Insights from a capture-mark-recapture experiment. *Agriculture, Ecosystems & Environment* 177: 21–27.
2. Elgvin, TO, Hermansen, JS, Fijarczyk, A, **Bonnet, T**, Borge, T, Sæther, S a, Voje, KL & Sætre, GP **2011**. Hybrid speciation in sparrows II: a role for sex chromosomes? *Molecular Ecology* 20: 3823–3837.
1. **Bonnet, T**, Slagsvold, PK & Sætre, GP **2011**. Genetic species identification of a Collared Pied Flycatcher from Norway. *Journal of Ornithology* 152: 1069–1073.