Dr. Samuel J L Gascoigne

RESEARCH FELLOW · SCHOOL OF BIOLOGICAL SCIENCES

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Education

Pembroke College, University of Oxford   *Oxford, UK*
DPHIL IN ZOOLOGY   *October 2020 - May 2024*
Advisors: Dr. Roberto Salguero-Gómez & Dr. Irem Sepil

Lake Forest College   *Lake Forest, IL, USA*
BACHELORS OF ARTS IN BIOLOGY & NEUROSCIENCE, *Magna cum laude*   *September 2016 - May 2020*
Advisors: Dr. Flavia Barbosa, Dr. Shubhik DebBurman & Dr. Alexander Shingleton

Professional Experience

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2024-28	**Research Fellow**, PI: Dr. Greta Bocedi, University of Aberdeen
2024	**Research Associate**, PI: Dr. Roberto Salguero-Gómez, University of Oxford
2020-24	**DPhil student**, PIs: Dr. Roberto Salguero-Gómez & Dr. Irem Sepil, University of Oxford
2018-20	**Research Associate**, PI: Dr. Flavia Barbosa, Lake Forest College
2019	**Research Assistant**, PI: Dr. Gregory Jefferis, MRC-LMB, Cambridge University
2016-18	**Research Associate**, PI: Dr. Alexander Shingleton, Lake Forest College

Awards & Grants

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2023	**Dean of Graduates Fund**, Pembroke College, University of Oxford	*£970*
	Finalist for the SORTEE Open Science Student Award, SORTEE	
	Shortlisted for the Sidnie Manton Award, Journal of Animal Ecology	
2021	**Biology Eurofins Foundation Award**, Eurofins Foundation	*£540*
	Elizabeth Hannah Jenkinson Fund, University of Oxford	*£2,000*
2020	**David D. Towle Award**, Lake Forest College	
2019	**Barry M. Goldwater Scholarship**, Barry Goldwater Scholarship & Excellence Foundation	*$7,500*
2017	**Richter Scholarship**, Lake Forest College	*$2,000*
2016-20	**Dean's List**, Lake Forest College	
2016	**Presidential Scholarship**, Lake Forest College	*$120,000*
	Reid Music Scholarship, Lake Forest College	*$8,000*

Publications

*25 manuscripts total: 13 published, 12 under review; * = equal contribution*

### UNDER REVIEW

25. Santos GS, Yang X, **Gascoigne SJL**, Compagnoni A, Dias ATC, Tuljapurkar S, Kajin M, Salguero-Gómez R. Population responses to environmental stochasticity are primarily driven by survival-reproduction trade-offs and mediated by aridity. *Nature*. Under review.

24. Sanghvi K, Shandilya S, Brown A, Todorova B, Jahn M, **Gascoigne SJL**, Camilleri TL, Pizzari T, Sepil I. Reproductive output of old polygynous males is limited by seminal fluid, not sperm number. *Proceedings of the National Academy of Sciences*. Under review. Preprint link ⧉ .

23. Xiao-Lu ST, Yu-Kun H, Shea K, **Gascoigne SJL**, Qing W, Li-Chen T, Dan-Dan L, Li SL. Germination time affects the responses of seedlings to variation in rainfall. *Annals of Botany*. Under review.

22. Noble DWA, Zoe A, Xirocostas ZA, Wu NC, Martinig AR, Almeida RA, Bairos-Novak KR, Heikel Balti H, Bertram MG, Bliard L, Brand JA, Byrne I, Chan YC, Clink DJ, Corbel Q, Correia RA, Crawford-Ash J, Culina A, D'Bastiani E, Deme GG, de Souza Leite M, Dhellemmes F, Dimri S, Drobniak SM, Elsy AD, Everingham SE, **Gascoigne SJL**, Grainger MJ, Hossack GC, Hovstad KA, Ivimey-Cook ER, Jones ML, Kačergytė I, Küstner G, Leibold DC, Mair MM, Martin J, Mizuno A, Moodie IR, Moreau D, O'Dea RE, Orr JA, Paquet M, Parajuli R, Pick JL, Pottier P, Purgar M, Recio P, Roche DG, Royauté R, Sabet SS, Segovia JMG, Silva I, Sánchez-Tójar A, Soares BE, Szabo B, Takola E, Thoré ESJ, Timilsina B, van Dis NE, Verberk WCEP, Vriend SJG, Wild KH, Williams C, Yang Y, Nakagawa S, Malgorzata Lagisz M. The promise of community-driven preprints in ecology and evolution. *Proceedings of the Royal Society B*. Under review. Preprint link ⧉ .

21. **Gascoigne SJL**, Kajin M, Sepil I, Salguero-Gómez R. Testing for efficacy in four measures of demographic buffering. *Methods in Ecology & Evolution*. Under review. Preprint link ⧉ .

20. Huang Y, Wu C, Huang W, Liu Y, Qi M, Bai J, Dong Y, **Gascoigne SJL**, Ciais P, Peñuelas J, Salguero-Gómez R. Climate change has desynchronized insect and vegetation phenologies across Europe. *Nature Communications*. Under review. Preprint link ⧉ .

19. Tuljapurkar SD, Jaggi H, **Gascoigne SJL**, Zuo W, Kajin M, Salguero-Gómez R. From disturbances to nonlinear fitness and back. *Ecology*. Under review. Preprint link ⧉ .

18. **Gascoigne SJL**, Rosen R, Sanghvi K, Compagnoni A, Steiner UK, Bocedi G, Sepil I. Current perspectives and future directions in animal life history evolution. *Journal of Animal Ecology*. Under review. Preprint link ⧉ .

17. Uwera Nalukwago D, **Gascoigne SJL**, DeFoe B, Barbosa F. A proximate mechanism for evolutionary trade-offs in the bean beetle Callosobruchus maculatus. *Evolution*. Under review.

16. **Gascoigne SJL**, Kajin M, Tuljapurkar SD, Santos GS, Compagnoni A, Steiner UK, Vinton AC, Jaggi H, Sepil I, Salguero-Gómez R. Structured demographic buffering: A framework to explore the environment drivers and demographic mechanisms underlying demographic buffering. *Ecology Letters*. Under review. Preprint link ⧉ .

15. Santos GS*, **Gascoigne SJL***, Dias ATC, Kajin M, Salguero-Gómez R. A unified framework to identify demographic buffering in natural populations. *Ecology Letters*. Under review. Preprint link ⧉ .

14. Veit W, **Gascoigne SJL**, Salguero-Gómez R. Evolution, complexity, and life history theory. *Biological Theory*. Under review. Preprint link ⧉ .

Published

13. Sanghvi K, Vega-Trejo R, Nakagawa S, **Gascoigne SJL**, Johnson S, Salguero-Gómez R, Pizzari T, Sepil I. 2024. Meta-analysis shows no consistent evidence for senescence in ejaculate traits across animals. *Nature Communications*. Link ⧉ .

12. **Gascoigne SJL**, Kajin M, Salguero-Gómez R. 2023. Criteria for buffering in ecological modelling. *Trends in Ecology & Evolution*, *39*(2), 116-118, Link ⧉ .

11. Wood A, **Gascoigne SJL**, Gambetta G, Jeffers L, Coulson T. 2023. Seasonal climate impacts wine quality in Bordeaux. *iScience*, *26*(107954). Link ⧉ .

10. **Gascoigne SJL**, Rolph S, Sankey D, Nidadavolu N, Stell Pičman AS, Hernandez CM, Philpott MER, Salam A, Bernard C, Fenollosa E, Lee YJ, McLean J, Hetti Achchige Perera S, Spacey OG, Kajin M, Vinton AC, Archer CR, Burns JH, Buss DL, Caswell H, Che-Castaldo JP, Childs DZ, Capdevila P, Compagnoni A, Crone E, Ezard THG, Hodgson D, Knight TM, Jones OR, Jongejans E, McDonald J, Tenhumberg B, Thomas CC, Tyre AJ, Ramula S, Stott I, Tremblay RL, Wilson P, Vaupel JW, Salguero-Gómez R. 2023. A standard protocol to report discrete stage-structured demographic information. *Methods in Ecology & Evolution*, *14*(8), 2065-2083. Link ⧉ .

9. Bernard C, Santos GS, Deere J, Rodriguez-Caro R, Capdevila P, Kusch E, **Gascoigne SJL**, Jackson J, Salguero-Gómez R. 2023. MOSAIC: A unified trait database to complement structured population models. *Scientific Data*, *10*(335). Link ⧉ .

8. Vinton AC, **Gascoigne SJL**, Sepil I, Salguero-Gómez R. 2023. The importance of spatial and temporal structure in determining the interplay between plasticity and evolution. *Trends in Ecology & Evolution*, *38*(3), 221-223. Link ⧉ .

7. Vinton AC, **Gascoigne SJL**, Sepil I, Salguero-Gómez R. 2022. Plasticity's role in adaptive evolution depends on environmental change components. *Trends in Ecology & Evolution*, *37*(12), 1067-1078. Link ⧉ .

6. Kapali GP, Callier V, **Gascoigne SJL**, Harrison JF, Shingleton AW. 2022. The steroid hormone ecdysone regulates growth in response to oxygen availability. *Scientific Reports*, *12*(1), 1-10. Link ⧉ .

5. **Gascoigne SJL**, Uwera Nalukwago D, Barbosa F. 2022. Larval density, sex, and allocation hierarchy affect life-history trait covariances in a bean beetle. *The American Naturalist*, *199*(02). Link ⧉ .

4. Salguero-Gómez R, Jackson J, **Gascoigne SJL**. 2021. Four key challenges in the open-data revolution. *Journal of Animal Ecology*, *90*(9), 2000-2004. Link ⧉ .

3. Sandler A, Anderson J, Balaram A, Ganev Y, **Gascoigne SJL**, Gimondo C, Palmero B, Quraishi A, Rodriguez A, Said OS, Conrad W. 2020. Decitabine Treatment Demethylates Vast Majority of High-Confidence Differentially Methylated Regions In HCT-116 Colorectal Cancer. *F1000 Research*, *9*(886). Link ⧉ .

2. McDonald JMC, Ghosh SM, **Gascoigne SJL**, Shingleton AW. 2018. Plasticity through canalization: The contrasting effect of temperature on trait size and growth in Drosophila. *Frontiers in Cell and Developmental Biology*, *6*(156). Link ⧉ .

1. Abeysiriwardena NM, **Gascoigne SJL**, Anandappa A. 2018. Algal bloom expansion increases cyanotoxin risk in food. *Yale Journal of Biology and Medicine*, *91*(2), 129-142. Link ⧉ .

Presentations

* primary presenter (9 total); ⁺ mentored student; § poster

18. Thuroczy VL, **Gascoigne SJL**, Salguero-Gómez R. Jun 2024. *Comparison of aquatic and terrestrial life history strategies: Adaptations to the higher environmental variability of terrestrial systems result in lower reproduction and longer lifespan*. Ecological Forecasting Initiative Annual Conference, Helsinki, Finland.

17*. **Gascoigne SJL**, Kajin M, Sepil I, Salguero-Gómez R. Dec 2023. *Testing for efficacy in four measures of demographic buffering*. British Ecological Society Annual Conference, Belfast, UK.

16. Kajin M, **Gascoigne SJL** Zuo W, Jaggi H, Bonsall M, Tuljapurkar S, Salguero-Gómez R. Dec 2023. *Integrated demographic profiles: A new tool to assess how populations cope with environmental variability*. British Ecological Society Annual Conference, Belfast, UK.

15. Rosen A, Battison R, **Gascoigne SJL**, Jucker T, Salguero-Gómez R. Dec 2023. *Modelling forest dynamics using integral projection models (IPMs) and multi-temporal LiDAR*. British Ecological Society Annual Conference, Belfast, UK.

14. Gupta A⁺, **Gascoigne SJL**, Qi M, Fenollosa E, Salguero-Gómez R. Dec 2023. *Multi-species IPMs as an effective tool to understand community dynamics under anthropogenic disturbances*. British Ecological Society Annual Conference, Belfast, UK.

13*. **Gascoigne SJL**. Oct 2023. *Enhancing reproducibility in population ecology*. MEE Live Webinar, *Methods in Ecology & Evolution*. Link to the webinar ⧉ .

12*§. **Gascoigne SJL**, Kajin M, Santos GS, Vinton AC, Sepil I, Salguero-Gómez R. Mar 2023. *Structured demographic buffering: Analysing drivers from environment to vital rate*. Evolutionary Demography Society Annual Conference, Paris, France.

11. Kajin M, **Gascoigne SJL**, Salguero-Gómez R. Mar 2023. *Redefining demographic strategies to cope with environmental variability*. Evolutionary Demography Society Annual Conference, Paris, France.

10*. **Gascoigne SJL**, Kajin M, Santos GS, Vinton AC, Sepil I, Salguero-Gómez R. Dec 2022. *Structured demographic buffering: Analysing drivers from environment to vital rate*. British Ecological Society Annual Conference, Edinburgh, UK.

9. Sanghvi K, Vega-Trejo R, Nakagawa S, **Gascoigne SJL**, Johnson S, Salguero-Gómez R, Pizzari T, Sepil I. Dec 2022. *No consistent declines in ejaculate traits with advancing male age across animals: A meta-analysis*. British Ecological Society Annual Conference, Edinburgh, UK.

8§. Vinton AC, **Gascoigne SJL**, Sepil I, Salguero-Gómez R. Dec 2022. *Plasticity's role in adaptive evolution depends on environmental change components*. British Ecological Society Annual Conference, Edinburgh, UK.

7*. **Gascoigne SJL**. Dec 2021. *Environment-vital rate relationships determine winning life-history strategies in stochastic environments*. Ecology Across Borders, Liverpool, UK.

6. Vinton AC, **Gascoigne SJL**, Sepil I, Salguero-Gómez R. Dec 2021. *Tradeoffs between developmental time, survival and reproduction determine thermal performance of Drosophila melanogaster*. Ecology Across Borders, Liverpool, UK.

5*. **Gascoigne SJL**, Sepil I, Salguero-Gómez R. Jul 2021. *Environment-vital rate relationship determine winning life history strategies in stochastic environments*. British Ecological Society Quantitative Ecology Special Interest Group, Online.

4. Vinton AC, **Gascoigne SJL**, Sepil I, Salguero-Gómez R. Jul 2021. *The environment-dependent nature of plasticity and its ability to facilitate adaptive evolution*. British Ecological Society Quantitative Ecology Special Interest Group, Online.

3*. **Gascoigne SJL**, Sepil I, Salguero-Gómez R. May 2021. *Staying fit in a random world: testing the effects of the r-K continuum and environmental stochasticity on life-history strategies in silico*. Behaviour, Ecology, and Evolution student conference, Online.

2*§. **Gascoigne SJL**, Uwera DN, Barbosa F. Jul 2019. *Evolutionary trade-offs between dispersal and sexually-selected traits in the bean beetle*. Annual Conference of the Animal Behaviour Society, Chicago, IL, USA.

1*§. **Gascoigne SJL**, McDonald JMC, Ghosh SM, Shingleton AW. Jul 2018. *Plasticity through canalization: The contrasting effect of temperature on trait size and growth in Drosophila*. Annual Meeting of the Society for Developmental Biology, Portland, OR, USA.

Organised Workshops

5 total: * primary organizer/co-organizer (3 total)

5*. **SORTEE**. Oct 2023. *Open data for state-structured population ecology*. Online.

4*. **EvoDemoS**. Mar 2023. *Analysis and interpretation of stage-structured population models via RCOMPADRE, Rage, and ipmR*. Paris, France.

3*. **British Ecological Society Annual Conference**. Dec 2022. *Comparative demography with stage-based models*. Edinburgh, UK.

2. **Ecology Across Borders**. Dec 2021. *Analysis and interpretation of stage-structured population models via RCOMPADRE, Rage, and ipmR*. Liverpool, UK.

1. **Ecological Society of America**. Aug-Sep 2021. *Introduction to COMPADRE and COMADRE matrix population model repositories: Data submission, database use, and demographic analyses in R*. Online.

Teaching Experience

2023	**Introduction to Life History Theory**, Post-Graduate Lecturer, OxNet ⧉	*U. of Oxford*
2023	**M.Sc. Biodiversity & Conservation Management: Research Methods Teaching**, Assistant Lecturer, School of Geography & Environment	*U. of Oxford*
2019	**Introductory Neuroscience, Neuroscience Department**, Teaching Assistant	*Lake Forest C.*
2018	**Cell & Molecular Biology**, Teaching Assistant, Biology Department	*Lake Forest C.*
2018	**General Chemistry Lab**, Teaching Assistant, Chemistry Department	*Lake Forest C.*
2017	**Introductory Neuroscience, Neuroscience Department**, Teaching Assistant	*Lake Forest C.*
2017-20	**Tutor for the Life Science**, Quantitative Resource Centre	*Lake Forest C.*

Supervision & Mentoring

I have also mentored 3 secondary school students through the UNIQ program ⧉.

2023-24	**Viktoria Thuroczy**, M.Biol. Student	*U. of Oxford*
2023	**Young Jun Lee**, Research Assistant	*U. of Oxford*
2022-23	**Matthew Philpott**, Research Assistant	*U. of Oxford*
2022-23	**Daisy Sankey**, UNIQ+ Student	*U. of Oxford*
2022-23	**Nagalakshmi Nidadavolu**, Research Assistant	*U. of Oxford*
2022-23	**Adrian Stell Pičman**, Research Assistant	*U. of Oxford*
2022-23	**Aiyla Salam**, Research Assistant	*U. of Oxford*
2019-20	**Desire Uwera Nalukwago**, Mentee	*Lake Forest C.*

Outreach & Professional Development

ACADEMIC SERVICE AND OUTREACH

2024	**British Ecological Society Review College**, Reviewer	*BES*
2024	**SORTEE Fundraising Committee**, Committee member	*SORTEE*
2023	**OxNet** ⧉, Volunteer Post-Graduate Lecturer	*U. of Oxford*
2021-present	**COMPADRE & COMADRE Databases** ⧉, Chief Compadrino	*U. of Oxford*
2019-20	**Student Academic Advisory Committee**, Elected member for the Biology Department and Neuroscience Program	*Lake Forest C.*
2017-20	**Nu Rho Psi**, Brain Bee coordinator	*Lake Forest C.*
2017-18	**Grades K-6 Outreach**, Co-coordinator	*Lake Forest C.*
2016-19	**Synapse: Neuroscience Outreach Club**, Multiple roles	*Lake Forest C.*

DEVELOPMENT

Project managment: I have taken multiple project management courses during my doctoral studies at the University of Oxford.

ED&I: I have attended multiple workshops on equality, diversity and inclusion practices in academia. Furthermore, I have also taken a workshop, run by Creative Tuition ⧉, on decolonising practices within academia.

PEER REVIEW

Invited reviewer for: *Ecology Letters* (x3), *Methods in Ecology & Evolution*, *Functional Ecology*, *PeerJ* (x2), *Annals of Botany Plants*, *Peer Community in Ecology* (x2).

PROFESSIONAL MEMBERSHIPS

Academic societies: British Ecological Society ⧉ (since 2020), Evolutionary Demography Society ⧉ (since 2022), SORTEE ⧉ (since 2022).

WORKING GROUPS

I am a member of the EcoCode ⧉ working group within the GEO BON ⧉ network. Specifically, I am a part of an international team performing the first model inter-comparison project. Here, we are testing the efficacy of different modelling approaches at predicting changes in population sizes for a diverse array of species.