

CHRISTOPHER HUNTER LEAN

Curriculum Vitae

School of Philosophy
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AOS: Environmental Ethics, Philosophy of Biology and Ecology, Philosophy of Technology, Philosophy of Science.

AOC: Ethics (esp. Bioethics and Metaethics), Philosophy of Social Science, Philosophy of Medicine.

EDUCATION

2013 – 2019 **PhD in Philosophy**, Awarded 13.12.19, Australian National University
Supervisor: Kim Sterelny
Thesis: *'Ecological Kinds and the Units of Conservation'*

2010 – 2012 **Masters of Arts (Coursework), Philosophy**, University of Utah

2005 – 2009 **Bachelor of Science with First Class Honours in History and Philosophy of Science**,
University of Sydney

CURRENT AFFILIATIONS

Jan 2024 - Research Fellow, Department of Philosophy, The Centre of Excellence in Synthetic Biology,
The Centre for Ethics and Agency, Macquarie University

PREVIOUS ACADEMIC EMPLOYMENT

Jan -Dec 2023 Research Fellow, Theory and Method in the Biosciences, School of Historical and
Philosophical Inquiry, University of Sydney.

Oct 2021 –
Dec 2022 Research Fellow, ARC Centre of Excellence in Synthetic Biology, Institute of Society and
Culture, Western Sydney University.

Feb – Sept 2021 Moore Foundation Post-Doctoral Researcher, Biochemistry and Molecular Biology
Department, Dalhousie University

Nov 2018 –
Feb 2021 Post-Doctoral Researcher, School of Historical and Philosophical Inquiry,
University of Sydney

Feb – July 2018 Lecturer, Department of Philosophy, University of Otago

Feb – July 2017 Lecturer, School of Historical Philosophical Inquiry, University of Sydney

Aug – Oct 2015 Lecturer, School of Philosophy, Australian National University

Jan 2011 –
Dec 2012 Teaching Assistantship, Department of Philosophy, University of Utah

Aug – Dec 2011 Research Assistant for Anya Plutynski (Philosophy, University of Utah)

PAPERS

Articles

1. Lean, C. H. & Plutynski, A. (2016). The evolution of failure: explaining cancer as an evolutionary process. *Biology & Philosophy*, 31, 39-57.
2. Lean, C. H. (2017). Biodiversity Realism: Preserving the tree of life. *Biology & Philosophy*, 32(6), 1083-1103.
3. Lean, C. H. (2018). Indexically structured ecological communities. *Philosophy of Science*, 85(3), 501-522.
4. Lean, C. H. (2019). Can communities cause?. *Biology & Philosophy*, 34(6), 59.
5. Lean, C. H. (2019). General Unificatory Theories in Community Ecology. *Philosophical Topics*, 47(1), 125-142.
6. Lean, C.H. (2021). Invasive species and natural function in ecology. *Synthese* **198**, 9315-9333.

7. Lean, C. H. (2020). Why wake the dead? Identity and de-extinction. *Journal of Agricultural and Environmental Ethics*, 33(3), 571-589.
8. Lean, C. H. (2021). Invasive species increase biodiversity and, therefore, services: An argument of equivocations. *Conservation Science and Practice*, 3(12), e553.
9. Lean, C. H. (2022). Authenticity and autonomy in de-extinction. *Ethics, Policy & Environment*, 25(2), 116-120.
10. Lean, C. H., Doolittle, W. F., & Bielawski, J. P. (2022). Community-level evolutionary processes: Linking community genetics with replicator-interactor theory. *Proceedings of the National Academy of Sciences*, 119(46), e2202538119.
11. Matthewson, J. & Lean, C. H. (2022). 'Introduction: Function, explanation, and other biological considerations' *Australasian Philosophical Review*, 6(4), 327-334.
12. Lean, C. H., & Jones, C. J. (2023). The evolution of multispecies populations: a multilevel selection perspective. *Biology & Philosophy*, 38(5), 40.
13. Alimardani, A., McCay, A., & Lean, C. (2023). Big Data, Behavioural Genetics and Risk of Future Offending. *Law, Tech. & Hum.*, 5, 221.
14. Lean, C. H. (2024). Synthetic Biology and the Goals of Conservation. *Ethics, Policy & Environment*, 1-21.
15. Lean, C. H. (2024). Navigating the "Moral Hazard" Argument in Synthetic Biology's Application. *Synthetic Biology*.
16. Lynch, K. E., Allen, B. E., Berger-Tal, O., Fidler, F., Garrard, G. E., Hampton, J. O., **Lean, C. H.**, Parris, K. M., Sherwen, S. L., White, T. E., Wong, B. E., and Blumstein, D. T (2025) 'Explicit Value Trade-offs in Conservation: Integrating Animal Welfare.' *Trends in Ecology and Evolution*.
17. Lean, C. H. (2025). Open Border Ecosystems: Against Globalised Laissez-Faire Conservation. *Cambridge Prisms: Extinction*.
18. Allen, B. + 38 authors, including **Lean, C. H.** (2025). Ethical arguments that support intentional animal killing. *Frontiers in Ecology and Evolution*. Vol. 13
19. Lean, C. H., Latham, A., Sandrussi, A., and Rogers, W. (Forthcoming). De-Extinction and the Risk of Moral Hazard. *Biological Conservation*.

Book Chapters

20. Lean, C. H. & Maclaurin J. (2016). 'The Value of Phylogenetic Diversity.' In *Biodiversity Conservation and Phylogenetic Systematics*. Ed: Pellens, R and Grandcolas, P. Springer Press, 19-37
21. Lean, C. H. & Sterelny, K. (2016) 'Biodiversity and Ecological Hierarchy' *The Routledge Handbook of the Philosophy of Biodiversity* Ed: Garson, J., Plutynski, A., and Sarkar, S. Routledge, 110-124
22. Matthews, B. J., Gibbs, E., Cain, A., Hassan, K., & Lean, C. (2025). 'Transdisciplinarity and the Role of Creative Industries in Science and Technology Research Teams.' *The Elephant's Leg II: Creativity in Action* Ed: C. Hight & M. Minichello 11-25.

Conference Proceedings

23. Lean, I. J. & Lean, C. H. (2010) 'Improving the scientific credibility of farm systems and on farm dairy research' (with Ian Lean as first author) *Proceedings to the Australasian Dairy Science Symposium*, 126-137

In Review Climate Adaptation as Evolvability (with Michael Weisberg & Rachael Brown), Biodiversity (Commissioned Chapter), Ecocide is not the solution to wild animal suffering (with Jay Odenbaugh), Maintaining the ethical asymmetry between conserving and creating biodiversity (Commissioned the Monist).

296 Citations and H-Index 9 (Google Scholar)

AWARDS, GRANTS, AND SCHOLARSHIPS

2025 RNA Research Project Seed Fund (\$50,000) "Trusted RNA: Building an AI-enabled ethics law and social licence (ELSL) decision-support prototype" (AI)

2025	MQ Future Ecosystems Network (\$5000), "Future Organisms" research group (AI)
2024	CoESB Mid-Term Review STAR (\$150), For aid in the Centre's Mid-Term Review.
2024	MQ Bioinnovation Grant (\$28,490) "The 'ELSL Toolkit' for BioInnovation" (AI)
2024	Awarded the Australian Association of Philosophy Media Prize (best philosophical outreach in Aus/NZ for the year) for the podcast 'De-extinction'.
2023	Inspire NSW/ QLD (\$12,200) "Untapped Potential! Wild Yeast and You" (AI)
2023	Bio-Platforms Australia Multiomics Grant (\$25,000) "Wild Yeast Biobank: Multiomics in the Wild" Primary Investigator (PI) of a team of five.
2022	CSIRO On Prime Program. Pre-accelerator for academic start-ups for "The Native Yeast Biobank: A Resource for Synbio Research". Awarded a \$4500 performance bonus.
2022	EMCR Seed Fund (\$25,000) "The Native Yeast Biobank: A Resource for Synbio Research". Primary Investigator (PI) of a team of five.
2021	Forrest Prospect Fellowship at the University of Western Australia ' <i>Synthetic Biology and Conservation</i> ' (One and half years of funding equalling \$142,500). Declined to take WSU position.
2016	The Vice Chancellor's Travel Grant, Australian National University (\$1500)
2013 – 2017	Australian National University Research Scholarship, PhD scholarship
2015	Volkswagen Foundation. Funding for attending the 'Superorganisms, Organisms and Suborganisms as Biological Individuals' conference, Gut Sigen (\$2250)
2010 –2012	University of Utah, Postgraduate Funding (Teaching Assistantship)

TEACHING

COURSES DESIGNED, LECTURED, AND ADMINISTRATED:

2018	Philosophy of Science
2018	Philosophy of Biology
2017	How Biology Matters to Philosophy
2017	Philosophy of Sex (1/2)
2015	Philosophy of Biology (1/4)
2011 – 2012	Introduction to Philosophy: Philosophy and Human Nature (Online)

TUTORING:

2019	Environmental Philosophy (with three guest lectures)
2018	Biology, Ethics, and Society
2017	Biology, Ethics, and Society; How Biology Matters to Philosophy; Philosophy of Sex
2015	Philosophy of Biology; Introduction to Philosophy (with guest lecture)
2014	Philosophy of Science
2010	Bioethics; Environmental Ethics (with guest lecture)

PUBLIC OUTREACH

2025	The AAP Annual, Alan Saunders Lecture. The leading lecture for public communication for philosophy in Australia and New Zealand. "Environmental Techno-Futures" on both ABC Big Ideas and Philosophers Zone.
April 2024	"Should we change species to save them?" <i>The New York Times</i> 15.4.2024. Comments and link to my research.
Dec 2023	"Untapped Potential: Wild Yeast Zoo and You!" The Wild Yeast Zoo team ran an event at the Woodford Folk Festival, a festival attended by 120,000 people. We ran a nature walk with wild yeast sampling and presented on stage.
Oct 2023	Comments for 'A Simple Test Could Leave Your DNA-And Your Family's-Up for Sale' <i>The Daily News</i> . 9.10.2023.

- May 2023 'Not Natural' University Science Gallery Exhibition/ University of Melbourne Interview.
<https://melbourne.sciencegallery.com/not-natural>
- April 2023 'De-Extinction Part 1 & Part 2' *Philosophers Zone*. Radio National, Australian Broadcast Corporation.
- May 2022 Invited Talk with The Raffles Institution Singapore "Introducing Synthetic Biology and Ethics"
- March 2022 Camden Rotary Club Public Lecture "Big Data and Sentencing"
- May 2021 Judge for the Australian High School Ethics Olympiad
- Feb 2021 "Cracking Cold Cases: is it in our genes?" Interview for the *Law Society Journal* Issue 74: 29-33
- Jan 2020 "A Relatives Online DNA Test Could Be Used in Your Court Case" Interview with 2SER Radio Station 29.1.2020
- Jan 2020 "Cousin took a DNA test? Courts could use it to argue you are more likely to commit crimes" (with Allan McCay) *The Conversation*. 21.1.2020
- Oct 2018 Comments for *National Geographic* article "Human caused extinctions have set mammal evolution back millions of years"

PRESENTATIONS

SELECT REFEREED CONFERENCE TALKS AND KEYNOTES:

- July 2025 "Natural Authenticity as Evolutionary Entanglement" ISHPSSB Biennial Conference, Porto.
- Nov 2024 "Biodiversity in the Synthetic Age" Biennial Meeting of the Philosophy of Science Association, New Orleans, USA.
- Aug 2023 "Against Ecocide" International Society for the History, Philosophy and Social Studies of Biology (ISHPSSB Biennial Conference), Toronto.
- Jun 2023 "Invasive Genes in the Synthetic Age" ANZ-PhilBio Workshop, ANU.
- Aug 2022 "Invasive Genes in the Synthetic Age" FordFest: Celebrating the Career of Ford Doolittle
- Aug 2022 "Invasive Genes in the Synthetic Age" Philosophy of Biology in the Mountains Appalachia
- Feb 2022 "Synthetic Biology and Conservation" RISK Conference
- Nov 2021 "Against Ecological Neoliberalism" **Invited Keynote** for the Australian Postgraduate Philosophy Conference, Online.
- July 2021 "The Rediscovery of Arguments for Biotic Colonialism" ISHPSSB Biennial Conference, Online.
- Mar 2020 'Genetic Genealogies and Sentencing' (Poster Presentation) Ethics and AI International Conference, University of Sydney. (Cancelled due to Covid).
- Feb 2020 'Invasive Species in the Bushfire Crises' Philosophical Reflections on the Bushfire Disaster and Climate Crisis, University of Sydney.
- Jul 2019 'Invasive Species and Biodiversity Realism.' ISHPSSB Biennial Conference, Oslo, Norway.
- Sep 2018 'Remembering the Big Question' Charles Darwin University, Evolving Minds
- Jul 2017 'Species Identity and De-extinction.' Australian Association of Philosophy Annual Conference, University of Adelaide.
- Nov 2016 'Indexically Structured Ecological Communities.' 25th Biennial Meeting of the Philosophy of Science Association, Atlanta, USA.
- Dec 2015 'The Resurrection of Swamp Mammoth; Or our fight against the Romantics.' New Zealand Association of Philosophy, Massey University.
- Jul 2015 'Three Types of Biological Individuality.' Superorganisms, Organisms and Suborganisms as Biological Individuals: Gut Siggen, Germany.
- Jul 2015 'Indexically Structured Ecological Communities.' ISHPSSB Biennial Conference, Montreal.

- Dec 2014 'Ecological Hierarchy and its implications for Biodiversity.' New Zealand Association of Philosophy Annual Conference, University of Canterbury.
- Jun 2014 'The Evolution of Failure: Explaining Cancer as an Evolutionary Process.' Australian Association of Philosophy Annual Conference, Australian National University.
- Mar 2014 'A Phylogenetic Basis for Biodiversity.' 7th Munich-Sydney-Tilburg Conference on the Philosophy of Science - Evolutionary Thinking, University of Sydney.
- Oct 2012 'Reducing Reactive Aggression: MAOA and Responsible Intervention.' North-West Philosophy Conference, Oregon State University, Corvallis.
- Aug 2012 'Foot in Mouth: The danger of representing biological properties with normative language" (Poster Presentation). Rocky Mountain Ethics Conference, University of Colorado, Boulder.
- Jul 2011 'The Ecological Species Concept Should be more than a Citation.' ISHPSSB Biennial Conference, University of Utah.
- Feb 2011 'The Ontology and Boundaries of Ecological Communities.' History and Philosophy of Biology in the Desert, Arizona State University.
- Feb 2010 'The Boundaries of Ecological Communities.' Australasian Association of History, Philosophy and Social Studies of Science, Annual Conference, University of Sydney.

COLLOQUIUM TALKS:

University of Sydney (2025 & 2019), Australian National University (2024 & 2018 & 2014), Macquarie University (2025 & 2024 & 2019), University of Melbourne (2024 & 2022), National Australian Centre for the Public Awareness of Science (2022), University of Leeds (2022), Centre of Excellence in Synthetic Biology (2021), University of Dalhousie (2021), Groupe De Recherche en Ethique Environnementale (2020), Philosophy of Biology at Dolphin Beach 14 & 10 (2020 & 2016), University of Otago (2017), Australian National University (2014), University of Sydney (2009).

PROFESSIONAL SERVICE

- 2022 – Now Section Editor for the "Integrative Conservation Clinic" an online conservation science resource.
- 2022 Programme Committee, British Society of Philosophy of Science Meeting
- 2022 EMRC Subcommittee for the Centre of Excellence in Synthetic Biology April Conference Organiser
- 2021 EMRC Subcommittee for the Centre of Excellence in Synthetic Biology December Conference Organiser
- 2021 Early and Mid-Career Researchers Subcommittee for the Centre of Excellence in Synthetic Biology
- 2021 Reviewer for the US Government National Science Fund
- 2021 Curator for a special issue of The Australasian Philosophical Review.
- 2021 Programme Committee, British Society of Philosophy of Science Meeting
- 2019-2020 Organiser, Australasian Association of Philosophy (AAP) Conference.
- Aug 2015 – 2017 Student Committee Representative, International Society for the History Philosophy and Social Sciences of Biology (ISHPSSB)
- May 2016 Started Annual "Stuff I wish I knew when I started my PhD at ANU" Talk at Kioloa Graduate Conference.
- May 2016 Organiser, 'Evolutionary History and Conservation' Interdisciplinary Conference. Keynote: Daniel Faith (Australian Museum)
- Mar 2013 – 2015 Convenor, Evolutionary Theory reading group at the Australian National University
- Nov 2014 Organiser, Sydney-ANU Philosophy of Biology Conference Organizer
- Jun 2014 On-site Coordinator, Australian Association of Philosophy Conference

Nov 2013 Organiser, Australian National University Kioloa Graduate Conference
Mar 2012 Organiser, The Ninth Annual Intermountain West Graduate Student Conference (with
 Blake Vernon and Lucas Matthews). Keynote: C. Kenneth Waters (University of
 Minnesota).
Jul 2011 On-site Coordinator, ISHPSSB Conference

REFeree: *Acta Biotheoretica, Biology & Philosophy, British Journal for Philosophy of Science, Cambridge Prisms: Extinction, Conservation Biology, Conservation Letters, Current Biology, Current Opinion in Environmental Sustainability, Environmental Ethics, Ergo, European Journal for Philosophy of Science, Frontiers in Bioengineering, History and Philosophy of the Life Sciences, Oxford University Press, Philosophy Theory and Practice in Biology, Philosophy of Science, Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences, Synthese, Historical and Conceptual Foundations of Phylogenetic Systematics* (Edited Book).