

Lara Urban

Personal Information

Name	Lara Urban	E-Mail	lara.h.urban@gmail.com
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Academic career

06/2022 – 05/2027 **Principal Investigator · Helmholtz Pioneer Campus, Helmholtz AI, and Junior Fellow & Faculty council · Technical University of Munich School of Life Sciences, Germany**
Genomics and Artificial Intelligence for Planetary Health

01/2020 – 04/2022 **Independent Research Fellow, Alexander von Humboldt Fellowship · Departments of Mathematics & Statistics and Anatomy, University of Otago, New Zealand**
Statistical conservation and environmental genomics

10/2015 – 12/2019 **PhD Fellow, International EMBL PhD Fellowship · EMBL-European Bioinformatics Institute (EBI) and University of Cambridge, United Kingdom**
Statistical genomics in human cancer and single-cell research (PhD supervisor: Oliver Stegle)
since 08/2019: EMBL Post-doctoral Bridging Fellowship, EMBL and EMBL-EBI

08/2013 – 09/2015 **Master of Science in Biology · Julius-Maximilians-University of Würzburg, Germany**
Focus on statistics, bioinformatics and ecology (Master thesis supervisor: Tobias Müller)
Grade: 1.0 (A+ with Distinction)

10/2010 – 07/2013 **Bachelor of Science in Biology · Julius-Maximilians-University of Würzburg, Germany**
Focus on ecology, simulation programming and statistics (Bachelor thesis supervisor: Hans Poethke)
Grade: 1.1 (A+ with Distinction); Award for Distinction & Award for Outstanding Master Thesis

09/2001 – 06/2010 **Abitur (A-level) · Gymnasium of Marktbreit, Germany**
Grade: 1.0 (A+ with Distinction); Award for Distinction

Funding

Fellowships

06/2022 – 05/2027 **Helmholtz Principal Investigator Starting Grant [> € 1.9M]**
"Machine Learning in Biomedicine" at Helmholtz Munich

02/2020 – 04/2022 **Feodor Lynen Research Fellowship by the Alexander von Humboldt Foundation [> € 130k]**
Full funding of employment as a Research Fellow at the University of Otago

10/2015 – 07/2019 **International EMBL PhD Fellowship · EMBL-EBI and University of Cambridge [> £ 200k]**
Full PhD scholarship including stipend and tuition fees (funded by PanCanRisk/Horizon2020)

10/2010 – 09/2015 **Friedrich-Ebert-Foundation Scholarships [> € 65k]**
Full scholarships for both, Bachelor and Master studies, and international collaborations

Selected Grants & Awards

05/2022 **Finalist in the Cambridge Independent Science and Technology Awards**

06/2021 **New Zealand Department of Conservation Grant (Principal Investigator) [NZ\$ 17,250]**
Funding for developing portable sequencing approaches for kākāpō pathogen surveillance

06/2021 **New Zealand Department of Conservation Grant (Principal Investigator) [NZ\$ 11,500]**
Funding for developing environmental DNA monitoring approaches for the kākāpō

04/2021 **Oxford Nanopore Technologies [ORG.one](#) funding (Principal Investigator) [> US\$ 10,000]**
Funding for creating a reference genome of the Māui dolphin using ultra-long DNA reads

11/2020 **[Revive & Restore](#) Wild Genomes Catalyst Science Fund (Principal Investigator) [US\$ 53,750]**
Funding of the takahē conservation genomics project

10/2020 **University of Otago Research Grant (Associate Investigator) [NZ\$ 50,000]**
Biodiversity and biosecurity monitoring using environmental DNA from natural samplers

09/2020 **[Birds New Zealand](#) Research Fund (Principal Investigator) [NZ\$ 8,500]**
Funding of environmental DNA research on NZ's endangered avifauna

09/2020 **COVID-19 Innovation Acceleration Fund by New Zealand Ministry of Business (Associate Investigator) [NZ\$ 1,658,201]** Member of SARS-CoV-2 wastewater epidemiology team

07/2019 **Mozilla Science Mini Grant (Associate Investigator) [US\$ 7,300]**
Organisation of gene editing and DNA-sequencing workshops

05/2019 **OpenPlant Biomaker Challenge (Associate Investigator) [£ 750]**
Genomic detection of plant pathogens to support food security in Kenya

10/2018 **[Heredity Field Grant](#) by the Genetics Society UK (Principal Investigator) [£ 1,500]**
Support for research on the ecology of the kākāpō parrot in New Zealand

09/2018 **EMBL Fuchs Fund for a special opportunity in science career [€ 500]**

07/2018 **Invitation to the 68th Lindau Nobel Laureate Meeting [€ 5,000]**

07/2018 **University of Washington Biostatistics Summer Institutes Scholarship [US\$ 1,650]**

03/2018 **University of Cambridge Wolfson College Research Grant (Principal Investigator) [£ 1,200]**
Support for genomic research on the kākāpō parrot in New Zealand

11/2017 **University of Cambridge Public Engagement Seed Fund (Associate Investigator) [£ 1,500]**

08/2017 **[OpenPlant Grant](#) by BBSRC and EPSRC (Associate Investigator) [£ 4,000]**
Support for research on freshwater monitoring by portable DNA-sequencing

06/2016 **Burke's Peerage Foundation Grant (Principal Investigator) [£ 1,000]**
Support for development of conservation genomics projects

Invited and selected presentations

06/2022	Invited speaker: Nanopore sequencing and planetary health · <i>Senckenberg LOEWE-TBG Frankfurt</i>
05/2022	Invited plenary speaker: <i>In situ</i> real-time epidemiology to safeguard wild species from extinction · <i>London Calling 2022</i>
04/2022	Invited expert panelist: Conservation Genomics of threatened birds · <i>ELSA workshop Mauritius</i>
02/2022	Invited webinar: Genomics and AI in the context of planetary health · <i>Helmholtz Pioneer Campus</i>
12/2021	Invited speaker: Planetary health and nanopore sequencing · <i>Nanopore Day, Queenstown, NZ</i>
12/2021	Speaker: Genomic monitoring of kākāpō · <i>International Congress for Conservation Biology</i>
10/2021	Invited speaker at the American Genetic Association Symposium 2021 · <i>Utah, USA</i>
09/2021	Plenary speaker: Leveraging adaptive sampling of eDNA for monitoring the critically endangered kākāpō · <i>Biodiversity Genomics 2021, Wellcome Sanger Institute</i>
07/2021	Speaker: Leveraging quantitative genomics for kākāpō conservation · <i>SMBE 2021</i>
07/2021	Invited speaker: Access and benefit-sharing of traditional knowledge · <i>ERGA ELSI webinar</i>
06/2021	Invited speaker: Leveraging genomics for kākāpō conservation · <i>University of Auckland, NZ</i>
05 & 06/2021	Plenary speaker: Leveraging adaptive sampling of environmental DNA for monitoring the critically endangered kākāpō · <i>London Calling 2021 & London Calling Collection 2021</i>
05/2021	Speaker: Quantitative genomic analyses support the conservation of the critically endangered kākāpō · <i>CSHL The Biology of Genomes 2021</i>
05/2021	Invited speaker: Freshwater monitoring using DNA analysis · <i>European Leptospirosis Society</i>
03/2021	Keynote speaker: Environmental monitoring using eDNA · <i>Genetics Otago Symposium</i>
01/2021	Invited speaker: Freshwater monitoring using nanopore sequencing · <i>Accessible Genomics</i>
11/2020	Invited speaker: Quantitative conservation genomics · <i>Wageningen University</i>
11/2020	Invited panelist: Global loss of biodiversity · <i>EMBL Science & Society conference 2020</i>
07/2020	Invited speaker: Statistical conservation genomics · <i>Genomics Aotearoa Seminar</i>
10/2018	Invited panelist: The importance of conservation · <i>EMBL Benefit Gala</i>
02/2017	Invited speaker: Statistical cancer genomics · <i>Wolfson College Cambridge Research Event</i>

Professional and International Experience

Experience in Genomics

10/2021 – today	Formal member of the IUCN Conservation Genetics Specialist Group Genetic advice on policy and management within IUCN's Species Survival Commission
09/2021 – today	Scientific Advisor of the company Bioeconomy Design of Biodiversity offset credits by integration of genomic data
02/2021 – today	Member of the Kākāpō Aspergillosis Research Consortium International collaboration to understand Aspergillosis in the endangered kākāpō
01/2021 – today	Advisor of the Accessible Genomics initiative Application of nanopore sequencing to monitor SARS-CoV-2 in the developing world
11/2020 – today	Council member of the European Reference Genome Atlas (ERGA) consortium Generation of reference genomes representing the European biodiversity
10/2017 – today	Foundation and Co-organisation of the PuntSeq initiative Application of portable DNA-sequencing technology to metagenomic studies
09/2022	Committee member of the European Conference on Computational Biology · Barcelona, Spain
03/2022	Co-organiser and committee member of the 1st Australasian eDNA conference
01/2022	Organiser of the PAG Avian Genomics workshop · PAG XXIX, San Diego, USA
09/2021	Co-chair of the Biodiversity Genomics 2021 conference · Wellcome Sanger Institute
02/2021	Co-chair of the Quantitative Genetics Symposium · University of Otago, NZ
01/2019 – 02/2019	Visiting Scientist at the University of Otago, NZ Statistical analysis of kākāpō genomic data to promote its conservation
07/2018	Participation in the University of Washington Biostatistics Summer Institute · Seattle, USA
07/2017	Participation in the DeepLearn international Summer School · DeustoTech Bilbao, Spain
02/2017	Co-organiser of the eSCAMPS conference · University of Cambridge, UK
11/2016	Co-organiser of the EMBL PhD Symposium · Heidelberg, Germany
10/2016	Co-organiser of the MASAMB conference · University of Cambridge, UK
07/2016 – 08/2016	Visiting Scientist at the UCLA Computational Genomics Summer Institute , USA Application of deep learning methodology to epigenomics
06/2015 – 09/2015	Visiting Scientist at the Computer Laboratory, University of Cambridge , UK Development of multivariate statistical methods for data integration in transcriptomics

Experience in Ecology

10/2020 – 12/2020	Fieldwork and qualification as University and Rescue Diver · <i>Doubtful Sound, NZ</i> Collection of natural samplers for biodiversity and biosecurity monitoring
02/2019 – 03/2019	Visiting Scientist · NZ Department of Conservation New Zealand, Whenua Hou, NZ Conservation and monitoring of the kākāpō
09/2014	Fieldwork · DFG Research Group Kilimanjaro, Kilimanjaro, Tanzania Fieldwork and statistical analysis on pollination patterns
02/2014 – 04/2014	Visiting Scientist · Tropical Research and Conservation Centre, Semporna, Malaysia Collection and statistical analysis of biodiversity data of coral reef ecosystems

08/2013 – 09/2013 **Visiting Scientist** · Forschungsmuseum Koenig & Universidade Federal de Mato Grosso
Analysis of the avian biodiversity of the Pantanal

03/2013 – 04/2013 **Fieldwork** · **La Gamba Tropical Field Station of the University of Vienna, Costa Rica**
Fieldwork and statistical analysis on phytotelmata

07/2012 – 09/2012 **Visiting Scientist** · **Whale Research Centre *OrcaLab*, Canada**
Fieldwork on whales' behaviour and distribution

03/2012 – 04/201 2 **Intern** · **Friedrich-Ebert-Foundation Dakar, Senegal**
Administration and supervision of ecological workshops for local farmers and politicians

Lecturing and Supervision

Supervision

10/2021 – 12/2021 **Supervision of Research Intern** · Biological Sciences, University of Auckland, New Zealand
Topic: *Elucidating disease aetiology in kākāpō through metagenomics and -transcriptomics*

02/2021 – 09/2021 **Co-supervision of PhD student** · Biological Sciences, University of Auckland, New Zealand
Chapter title: *Capturing species-wide diversity of the gut microbiota and its relationship with genomic variation in the critically endangered kākāpō*

04/2020 – 10/2020 **Co-supervision of Honours thesis** · University of Otago
Thesis title: *The role of gene duplication in the sexual plasticity of teleost fish*

05/2017 – 02/2018 **Co-supervision of Bachelor thesis** · EMBL-EBI
Thesis title: *Combined single-cell profiling of expression and DNA methylation*

since 10/2012 **Tutor and mentor** at University of Würzburg, Friedrich-Ebert-Foundation, Wolfson College Cambridge, EMBL and University of Otago

Teaching

10/2020 – today **Certified *The Carpentries* Instructor** to teach international data science workshops

06/2021 – 11/2021 **Co-leader of Bachelor degree Genetics papers** (GENE411/412) · University of Otago
Topic: *Conservation Genomics in a changing world*

10/2021 **Lecturer** at the international *Annual Environmental DNA Workshop on emerging technologies*

05/2021 **Instructor at environmental DNA workshop** · University of Otago

11/2020 **Instructor at eDNA Bioinformatics Spring School** · University of Otago

08/2020 **Invited guest lecturer** in Conservation genomics · *Massey University Auckland*

04/2020 **Instructor at environmental DNA workshop** · University of Otago

01/2017 **Teaching and co-organisation of the EMBL-EBI PhD introductory course** · EMBL-EBI
Lectured on Unix, python, R and internal EMBL regulations

10/2016 **Teaching of the EMBL PhD basic teaching module** · EMBL Heidelberg
Lectured on statistics and data visualization in R

04/2014 – 07/2015 **Research Assistant** · Group of Statistical and Computational Biology, Würzburg
Lectured in the MSc courses *Algorithmic Bioinformatics* and *Quantitative Biology* (120h)

06/2013 – 12/2014 **Research Assistant** · Group of Evolutionary Ecology, Fabriksschleischach
Lectured in the BSc courses *Statistics in Animal Ecology* and *Population Ecology* (80h)

Professional Service

2021 – today **Member of the international [eLife Early-Career Advisory Group](#)** to catalyse broad reform in the evaluation and communication of science and increase equity, diversity and inclusion; **Member of the [eLife preprint working group](#)** to build an effective transparent peer review system

2021 – today **eLife-associated early-career reviewer**

2020 – today **Member of the ELSI and DEIJ committees of the [European Reference Genome Atlas \(ERGA\)](#)**

2020 – today **Head of the Emerging Researcher Group** and committee member · University of Otago, NZ

2022 **Departmental member** of the Social & Outreach Committees · University of Otago, NZ

2022 **External Master Thesis investigator** · University of Auckland, NZ

2022 **External Master Thesis investigator** · Globe Institute, University of Copenhagen, Denmark

2021 **Reviewer of the *Ben Barres Spotlight Awards*** to increase equity in science

2021 **External expert** on cancer and quantitative genomics for the [Scientific American](#)

2017 – 2019 **Head of Wolfson College Science Society & Wolfson College Plant Society** · Cambridge, UK

Co-organiser of Wolfson College Data Science Group · Cambridge, UK

Co-organiser of Wellcome Genome Campus Distinguished Lecture Series · Cambridge, UK

2016 – 2018 **First PhD representative of EMBL-EBI**; as such, co-organiser of retreats, research reviews, seminar days and PhD as well as group leader interviews · Cambridge, UK

2010 – 2015 **Student head of the Friedrich-Ebert-Foundation** · Würzburg, Germany

2012 – 2014 **Student parliament, international and equal opportunities officer** · Würzburg, Germany

Reviewer [since 10/2014]: *Journals*: Nature Ecology & Evolution, Microbial Genomics, Ecology & Evolution, Systematic Biology, Scientific Reports, PeerJ, Diversity, Biological Conservation, Environmental DNA, Genome Research, Journal of Molecular Medicine, Bioinformatics

Conferences: International Society for Computational Biology, Research in Computational Molecular Biology, German Conference on Bioinformatics, European Conference on Computational Biology

Grants: Auckland Medical Research Foundation

Public Engagement

11/2022	Invited webinar panelist at the EMBL “Life in academia: making the most of your postdoc” panel
06/2022 – today	Member of the Munich Science Communication Laboratory community
11/2021	Invited panelist at the Berlin Exchange Student Journal Panel: Peer review for an interdisciplinary future
10/2020 – 05/2022	Head of citizen science project using eDNA to discover the potentially extinct South Island Kōkako
08/2021 – 10/2021	Outreach campaign leader in the New Zealand Bird of the Year competition
06/2021	Outreach presentation at the annual <i>Birds New Zealand</i> conference
02/2018 – 31/12/2020	Production of video series, website and online seminars for PuntSeq
09/2019	Outreach presentation at the <i>European Researchers’ Night</i>
08/2019	Co-organisation of the <i>Cambridge Metagenomics Challenge</i> , a two-day workshop on real-time nanopore sequencing for freshwater monitoring
03/2019	Co-organisation of the <i>Cambridge Science Festival</i>
01/2018 – 10/2018	Co-organisation of and research panel participant at the <i>EMBL Benefit Gala 2018</i>
05/2018	Outreach presentation at <i>Pint of Science</i>
Research featured by	Nature Methods (<i>Conservation Genomics in practice</i>) BBC (<i>The DNA sequencing revolution</i>) Spektrum (<i>Kakapos riechen wie moosiger Waldboden</i>) Oxford Nanopore Technologies (<i>Applying portable sequencing technology to nature conservation</i>) Nature Methods (to be published) The Guardian (to be published) Science News (<i>Tuatara mitochondrial genomes</i>) BBC (<i>DNA study of Cambridge river aims to identify water bugs</i>) Oxford Nanopore Technologies (<i>Portable nanopore sequencing of freshwater metagenomes</i>) Revive & Restore (<i>Conservation Genomics of the New Zealand takahē</i>) Nature Ecology & Evolution (<i>Tuatara mitochondrial genomes</i>) Women in Science blog (<i>Ten questions with Lara Urban</i>) EMBL (<i>Life with the endangered kākāpō; An in silico hope for biology: machine learning</i>) EMBL-EBI and EMBL (<i>Monitoring dangerous bacteria in freshwater</i>) Lindau Nobel Laureate Meeting (<i>#LINO18 exceeded my expectations</i>) Cambridge breakfast radio (<i>The PuntSeq organisation</i>) That’s West Anglia TV (<i>DNA Sequencing Workshop</i>) Wolfson College (<i>Thirty-nine laureates in Lindau; Using genomics to bring a rare bird back</i>) Genetics Otago (<i>Studying cancer biology to help our taonga species</i>) Forest & Bird (<i>High-tech hunt for the Grey Ghost</i>) Lindau Nobel Laureate Meeting (<i>From a Glass of Wine in Lindau to a Scientific Publication</i>)

Additional Information

Certificates	DELFB2 Certificate in French IELTS in Academic English (8/9) Advanced Certificate in Intercultural Competence (GSiK) · University of Würzburg 10/2007 - 02/2009 Frühstudium (Early Study program for gifted secondary school pupils) in Political and Social Studies · University of Würzburg
Languages	German · Native, English · full professional proficiency, French · limited working proficiency, Spanish · limited working proficiency
IT	Python {pandas, scipy, scikit-learn, biopython, tensorflow}, R, Pascal, Perl, Bash, Git, TeX
Personal Interests	Hiking, running, rugby and rowing club, diving (University-certified Rescue Diver)