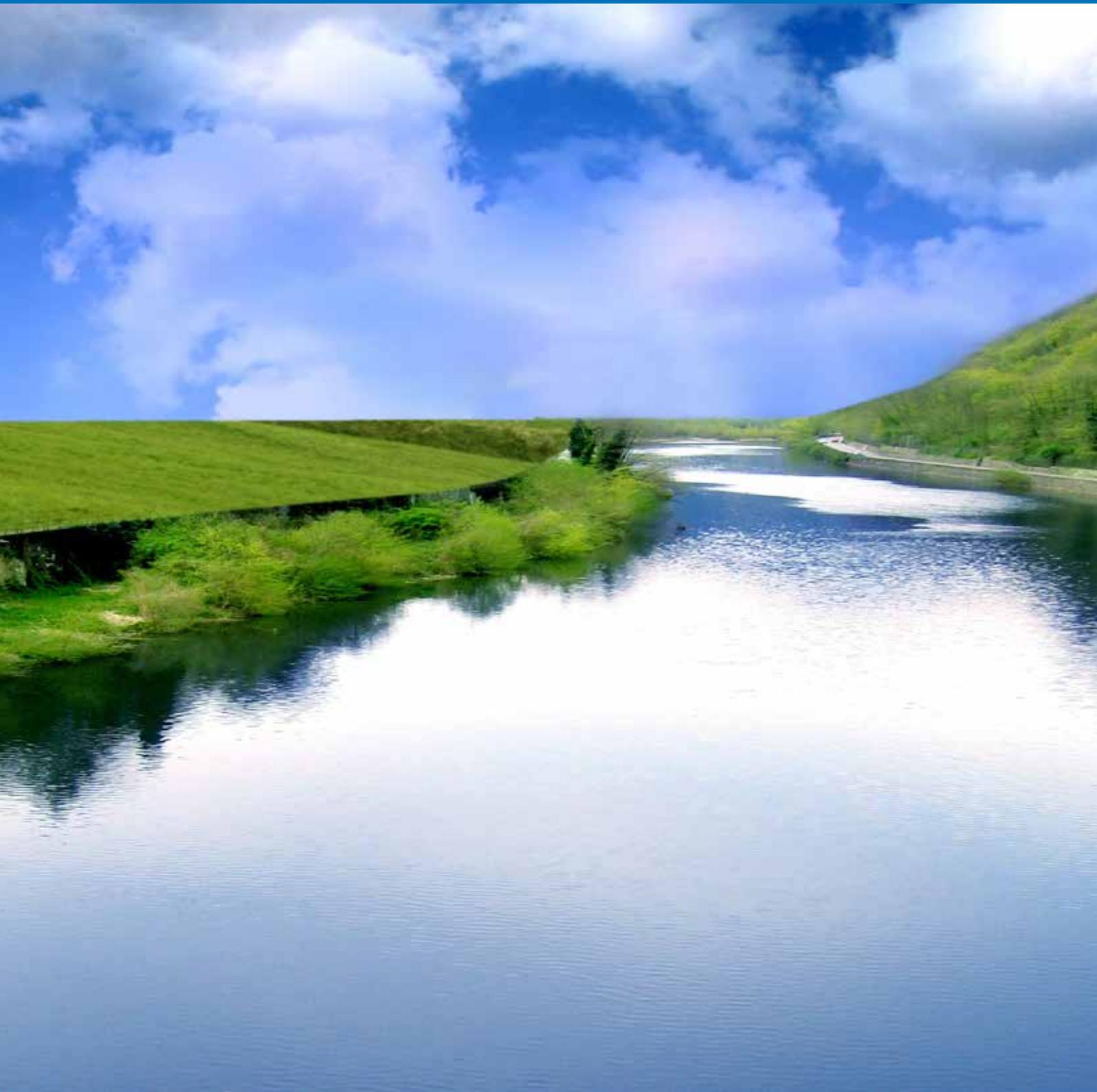




**LINCOLN
UNIVERSITY**
Library, Teaching
& Learning

Conservation and Ecology Careers

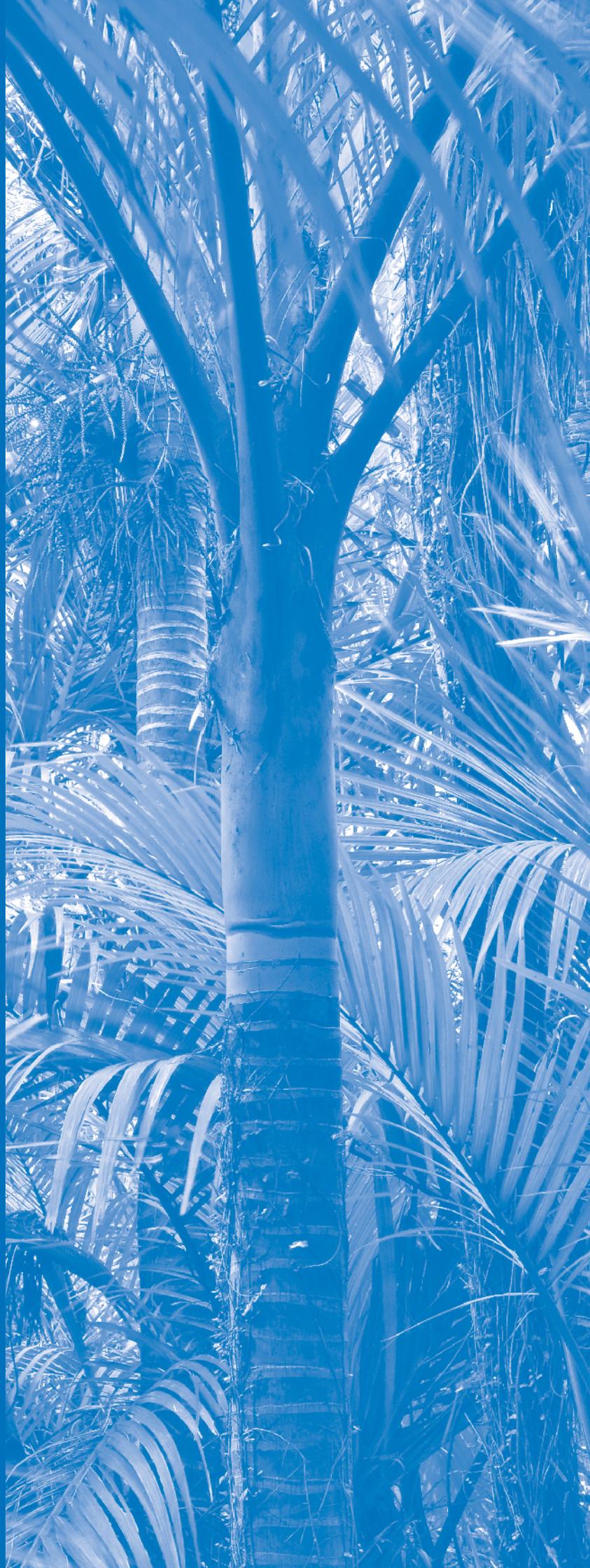


What are Conservation and Ecology?

Specialists in conservation and ecology graduate ready to address the environmental issues that the world faces today. How can we feed the world while maintaining environmental standards? How can we protect our environment from biological threats? How can we maintain environmental quality to sustain us for generations to come? Conservation and ecology specialisation equips students with the scientific skills and knowledge to help answer these questions.

Ecology is an area of study concerned with the interconnections between living things and their environment- from small living things such as bacteria, to entire ecosystems and even global systems. Conservation is often linked with ecology because of their shared concern with the relationships between people, animals, plants and the land or waterways. The conservation and ecology specialisation builds on a solid scientific grounding to focus on issues ranging from biological diversity, sustainability, and biometrics, to field ecology research and methodology, and data analysis.

Conservation and ecological scientists must grapple with big issues such as climate change, biodiversity, and sustainability. With the growth and movement of populations there is increased pressure on global resources. Qualified professionals who can manage and innovate, and who have a sound knowledge of scientific and social principles, are needed in this sector.



Conservation and ecology in New Zealand and the world

Ecological and conservation matters are a high priority for citizens and governments of New Zealand and the world. Alongside economic growth comes increased demand for resources, and an increase in infrastructure and building projects, the ecological impacts of which are often required by law to be monitored and assessed. This makes conservation and ecology professionals sought after in both developed and developing economies, and across many sectors.

Conservation is a topic very much in the public domain; with increased attention comes more demand for specialists in the field who can advise, arbitrate and quantify the issues. These roles require qualified professional staff. Scientists who wish to become specialised may consider post-graduate study to a doctorate level or beyond, which would make them eligible to apply for research, strategic or academic positions. Bachelor degree graduates will find opportunities in areas such as land restoration, laboratory or field-based research, biodiversity monitoring, or in advisory roles in areas such as regulation, management and communications. Immigration New Zealand currently lists Environmental Research Scientist on its long-term skills shortage list, showing that demand for professionals in this field is projected to remain high.

Skills and knowledge developed by studying conservation and ecology

The types of skills gained from studying conservation and ecology at Lincoln University are highly valued by employers. Coursework provides students with a solid base knowledge of the biological sciences. Students are afforded the opportunity to extend themselves with project work and get hands-on experience with practical work in the field. Transition from a learning to a real world setting is made smoother by experience gained during study. Lincoln University has a well-regarded team of researchers and academics who excel in and have a passion for what they do. A large part of this is to pass on their skills and knowledge so that the next generation of graduates are well-equipped as they head into professional roles.

Employers seek well-rounded, engaged graduates with a strong work ethic. As in any sector, employers value those with a professional attitude. This includes good communication (including the ability to communicate to groups, as well as effective interpersonal and written communication), honesty, self-motivation, initiative, time management, and flexibility. The importance of these basic skills cannot be underestimated, even in voluntary or internship roles, as future job opportunities often arise from a good reputation and a varied network of contacts.

Skills and knowledge valued in conservation and ecology roles:

Strong knowledge of environmental, ecological, and social systems

Knowledge of sustainability and biological diversity

Ability to follow appropriate organisational and scientific procedures

Communication skills including the ability to deliver written reports and oral presentations

Ability to collect, synthesise, review, and report on data

Knowledge of current scientific and public debates in the field

Awareness of tikanga Māori

Solution-focussed attitude

Knowledge of and adherence to health and safety rules

Knowledge of fieldwork procedures

Ability to work across disciplines and with a range of people

Research methods, data collection, and analysis skills

Innovative thinking

Cultural knowledge and sensitivity

Numerical and quantitative skills

Willingness to learn and to teach

Knowledge of laboratory practices

Attention to detail

Where can conservation and ecology graduates find work?

Places of employment for graduates include:

- Local/ regional government (e.g., Gisbourne District Council, Greater Wellington Regional Council, Nelson City Council)
- Government bodies/ departments (e.g., Department of Conservation (DoC), Land Information NZ (LINZ), Ministry for Primary Industries (MPI), Ministry of Transport (MoT))
- Crown Research Institutes (e.g., NIWA, SCION, Landcare Research, AgResearch, GNS Science, Plant and Food Research)
- Universities (e.g., Lincoln University, Massey University)
- Group, iwi, trust or other non-government organisation (NGO) – regional, national or multinational (e.g., Ngāi Tahu, International Union for Conservation of Nature, Greenpeace, Royal Society Te Apārangi, Stewart Island/ Rakiura Community and Environment Trust)
- Private consultancy or professional services firm (e.g., Wildlands Consultants Ltd., Tonkin + Taylor, Environmental Resources Management (ERM), Landpro Ltd., Parker Conservation)
- Mineral resources industries, such as oil, gas or mining (e.g., Spencer Ogden, EnergyStream, OceanaGold, Solid Energy)

Conservation and ecology job titles

Advisor/ Senior Advisor	Land Management Officer
Aquatic Ecology Technician	Marine Biologist
Assistant Ecological Surveyor	Marine Biologist/Ecologist
Biodiversity Ranger/ Supervisor/Officer	Monitoring/ Compliance Officer
Community Advocate	Natural Resources Manager
Conservation Officer/ Advisor	Parks and Spaces Specialist
Consulting Officer	Pest Manager
Contaminated Sites Manager	Policy Advisor/Analyst
Ecological Consultant/ Consultant Ecologist	Project Manager
Ecological Field Surveyors	Quarantine Officer
Ecological Restoration Advisor	Ranger/ Park Ranger
Ecologist/Terrestrial Ecologist	Regional Advisor Ecology
Ecosystem Restoration Technician	Research Scientist/ Assistant
Education Officer/ Teacher/ Lecturer	Resource Management Monitoring Specialist
Environmental Auditor/ Consultant/Scientist	Science Support Administrator
Environmental Manager/ Officer/ Coordinator	Scientist/Land Scientist
Field Coordinator	Site Auditor
Fisheries Officer/ Technician	Sustainability Educator
Freshwater Ecologist	Sustainable Development Planner
Improvement Manager	Technical Support Officer – Animal, Pests, Biosecurity
Industrial Ecologist	Technician- Applied Entomology
Laboratory Technician	Water and Coastal Resources Officer



Pay rate indications: full time equivalent (FTE) \$NZ per annum

Most starting salaries for graduates of bachelor degrees fall between 40,000 - 55,000. Entry level jobs are stepping stones to roles with increased responsibilities and remuneration. Your employability is enhanced by all of your life experiences, be they employment related, or the transferrable skills and competencies gained from community involvement, volunteer work, or previous work or study- all of which can grow competency, expand networks, and demonstrate enthusiasm to future employers.

Job title	Indicative pay
Environmental Scientist	58,000 - 120,000
Biosecurity (Customs) Officer (early career)	40,000 - 45,000
Biosecurity Officer (late career)	55,000 - 75,000
Contaminated Land (Graduate Consultant)	From 50,000
Plant Imports Advisor	65,000 - 80,000
Technician- Applied Entomology	40,000 - 50,000
Quarantine Officer (early career)	49,000 - 51,000
Quarantine Officer (late career)	52,000 - 61,000
Pest Control Researcher	60,000+
Environmental Technician	48,000 - 76,000
Academic Lecturer/ Professor	74,000 - 120,000+
Field/ Environment Technician	38,000 - 55,000
Environmental Consultant	45,000 - 90,000+
Fisheries Officer	48,000 - 81,000
Analyst (early career)	50,000 - 80,000
Analyst (late career)	80,000 - 93,500+
Laboratory Technician	40,000 - 65,000

Conservation and ecology tasks

Because of the varied career pathways open to graduates with specialisation in conservation and ecology there is no one typical job destination. The following section outlines two career paths, and the associated tasks one could expect in those roles.

a) Field/ Environmental Technician:

Conduct site observations, inspections and investigations

Trace and record pathways of environmental pollutants

Measure and record characteristics of biological systems

Collect samples in the field

Test samples in the laboratory

Prepare, analyse and report samples

Reporting to staff, managers, clients or other groups in meetings, group presentations, video-conferencing, or skype

Prepare written reports of findings

Learn and use applicable regulations and compliance requirements

Incorporate social and other issues to the management of environmental systems

Maintain and repair equipment

Review or contribute to resource consent application processing

b) Quarantine Officer:

Undertake biosecurity risk assessments at various locations (at airports, aboard vessels, at mail centres)

Locate, identify and inspect risk goods

Review clearance documentation

Interpret x-ray images of baggage/ mail/ cargo/ goods

Inspect baggage/ mail/ cargo/ goods

Determine penalties for non-compliance with biosecurity rules or laws

Liaise with colleagues, management and stakeholders

Prepare written reports of findings

Monitor and audit standards and systems

Utilise intelligence information

Sample cargo/ stored products

Report and analyse data for internal and/or external reporting

Data entry and secure record keeping

Job tasks are role-specific, so the above is an indication only. For more information on roles, registered Lincoln University students can search Lincoln CareerHub (including expired jobs) for job titles similar to those they are interested in. Job descriptions, including tasks and skills required, are often available.



Graduate profiles



George Ledgard
Bachelor of Science
(Honours) (Conservation
and Ecology)

Senior Ranger Biodiversity -
Kaitiaki Matua (Kanorau Koiora),
Department of Conservation (DoC)



Robin Pieper
Bachelor of Science
(Conservation
and Ecology)

Land Management Officer,
Bay of Plenty Regional Council



Oscar Pollard
Bachelor of Science
(Conservation
and Ecology)

Field Ranger and Animal
Behaviour Technician, Zero
Invasive Predators (ZIP)

Industry bodies

Membership of an industry specific body enhances the professional status of students and employees. By joining a professional body, members can research career options, access training and events, and network and collaborate with industry colleagues at all levels.

Examples of conservation and ecology industry bodies include:

New Zealand Ecological Society

www.newzealandecology.org

New Zealand Freshwater Sciences Society www.freshwater.science.org.nz

New Zealand Marine Sciences Society

www.nzmss.org

Environment Institute of Australia and New Zealand

www.eianz.org

Soil Ecology Society

www.soilecologysociety.com

Science New Zealand

www.sciencenewzealand.org

Royal Society of New Zealand

www.royalsociety.org.nz

Conservation Volunteers New Zealand

www.conservationvolunteers.co.nz

New Zealand Conservation Trust

www.nzconservationtrust.org.nz

Environment and Conservation Organisation of Aotearoa New Zealand (ECO)

www.eco.org.nz

Royal Forest and Bird Protection Society

www.forestandbird.org.nz



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