The Environmental Research Institute offers research, advisory and consultancy services to a range of end-users, including industry, government agencies and departments, iwi and community organisations. We seek collaborative partnerships in New Zealand and internationally with other researchers, the environmental science community, the public community, industry, the education sector and all tiers of government.

We can work with you across a broad range of areas through:

- Contract research
- Collaborative research programmes
- Consultancy services
- Professional development programmes
- Educational programmes
- Survey design and analysis
- Environmental monitoring programme development
- Spatial plan development
- Environmental data analysis and interpretation

The Environmental Research Institute (ERI) takes a collaborative, systems-level approach to environmental research to develop insights and expertise related to improving and sustaining the quality of New Zealanders’ natural and physical environment. The Institute builds on the University of Waikato’s significant strengths in environmental research across four themes:

- Terrestrial ecosystems,
- Freshwater ecosystems,
- Coastal marine ecosystems,
- Antarctic ecosystems.

Cross-cutting these themes are a range of disciplines. The ERI draws on the research expertise of leading national and international researchers across the biological sciences, microbiology, chemistry, earth and ocean sciences, and engineering.

The ERI works across the entire value chain—from research to development to implementation—to enable research outputs to be translated into effective policies, processes, practices and tools. The Institute is committed to building strong research partnerships with other research institutes in New Zealand and overseas, and to developing and maintaining effective relationships with end-users.
The University of Waikato has a long and proud tradition of integrated research on environmental issues. Since the establishment of the original School of Science in 1970, biologists, chemists and earth scientists have collaborated on research projects ranging from Antarctic biodiversity and ecosystems to lake restoration and sustainable soils.

The Environmental Research Institute integrates the work of several research centres and groups at the University, including the Centre for Biodiversity and Ecology Research (CBER), the Coastal Marine Group (CMG) and the International Centre for Terrestrial Antarctic Research (ICTAR).

A key goal of the University is to be relevant to the region, and this has resulted in linkages with a range of environmental research partners, including CRIs, government bodies, the Bay of Plenty and Waikato regional councils, local government and iwi/hapu, and the Port of Tauranga and Northport.

In bringing together the University’s wide-ranging environmental research expertise under one roof, the ERI offers current and potential partners a strong outcomes-based approach towards improving environmental resilience and management.

During 2012, a Research Advisory Panel will be created to provide advice on research strategy, direction and emerging issues at regional, national and international levels. The panel will comprise research representatives and external stakeholders who have a shared interest in the values and objectives of the Institute.
KEY PEOPLE

Professor Chris Battershill holds the inaugural Bay of Plenty Regional Council Chair in Coastal Science, based in Tauranga. Amongst other national and international collaborations the new Chair oversees the New Zealand operation of the INTERCOAST programme, established by the University of Waikato and Bremen University in Germany to create a major centre of marine research excellence in the Bay of Plenty. Professor Battershill also heads the Coastal Marine Group in the Faculty of Science and Engineering. Formerly Principal Scientist and Research Team Leader (Supporting Sustainable Use of Marine Biodiversity) at the Australian Institute of Marine Science (AIMS), his research focuses on marine ecology and environmental science, and he was responsible for the establishment of the first dedicated marine biodiscovery teams in Australia and New Zealand, focusing on the medicinal and agricultural sectors.

Professor Chris Battershill  
THEME LEADER: COASTAL MARINE ECOSYSTEMS  
BSc MSc PhD Auckland

Professor Bruce Clarkson is Dean of the Faculty of Science and Engineering, and heads the Centre for Biodiversity and Ecology Research (CBER) within the Faculty. He is recognised as one of New Zealand’s foremost authorities on ecological restoration, and leads a $300,000 per year government-funded research programme looking at the best methods to restore indigenous biodiversity in cities. His research has had a direct impact on Hamilton gully restoration initiatives and the Waikakarake Natural Heritage Park project near Hamilton Zoo. In 2005, together with independent consultant Dr Wren Green he carried out a review of progress of the New Zealand Biodiversity Strategy for the chief executives of the sponsoring government agencies; in 2006 he was awarded the Loder Cup, New Zealand’s premier conservation award. Professor Clarkson is a member of the international expert panel developing the City Biodiversity Index to measure countries’ progress in relation to the UNEP Convention on Biological Diversity to which New Zealand is a signatory.

Professor Bruce Clarkson  
DIRECTOR, ENVIRONMENTAL RESEARCH INSTITUTE  
THEME LEADER: TERRESTRIAL ECOSYSTEMS  
BSc MSc PhD Waikato

Professor David Hamilton holds the inaugural Bay of Plenty Regional Council Chair in Lakes Management and Restoration, and leads the Water Quality Group for LERNZ (Lake Ecosystem Restoration New Zealand), a ten-year $10 million initiative to identify and remediate threats to lake ecosystems. His research focuses on how algal blooms form, how nutrients are transformed and how models can be used for prediction and management of lake ecosystems. He was the original author of CAEDYM, now recognised around the world as the foremost system-level ecological model for predictions of water quality in lakes and reservoirs. Professor Hamilton is President of the New Zealand Freshwater Sciences Society, and the 2010 recipient of the Society’s Medal in recognition of outstanding contributions to freshwater science. He is an invited member of the expert panel advising the Queensland State Government on water recycling, and has been a member of the Tumbali Group advising on water industry reform in New Zealand.

Professor David Hamilton  
THEME LEADER: FRESHWATER ECOSYSTEMS  
BSc PhD Otago

Professor Craig Cary is a microbial ecologist with an interest in researching bacteria which live in extreme environments, such as deep sea thermal vents and the soils of Antarctica. He heads the International Centre for Terrestrial Antarctic Research (ICTAR) in the Faculty of Science and Engineering, and has made eight research trips to Antarctica since 2001. His work on terrestrial Antarctic biocomplexity was awarded an International Polar Year award in 2007. Dr Cary’s current research projects also include deep sea hydrothermal vent research, lake restoration work, and toxic sea slugs. He is based at the Thermophile Research Unit, University of Waikato and is Emeritus Professor of Marine Biosciences at the University of Delaware in the USA.

Professor Craig Cary  
THEME LEADER: ANTARCTIC ECOSYSTEMS  
BSc Florida Institute of Technology, MSc San Diego State, PhD University of California, San Diego

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THEME LEADER: ANTARCTIC ECOSYSTEMS  
BSc Florida Institute of Technology, MSc San Diego State, PhD University of California, San Diego
Our national & international links

Collaborative research programmes are of fundamental importance to the Environmental Research Institute. We work with:

- AgResearch
- Antarctica New Zealand
- Cawthron Institute
- Landcare Research
- MOTU
- NIWA
- Plant & Food Research
- SCION
- University of Auckland
- Gateway Antarctica, University of Canterbury
- University of Otago
- Victoria University of Wellington
- Waahi Whaanui Trust
- Waikato-Tainui College for Research and Development Internationally, the ERI has links with:

- Argonne National Laboratory, Illinois, USA
- Australian Antarctic Division, Department of Sustainability, Environment, Water, Population and Communities, Australia
- Australian Institute of Marine Sciences, Queensland, Australia
- Baltimore Ecosystem Study, Cary Institute of Ecosystem Studies, Millbrook, New York, USA
- Colorado State University, Fort Collins, USA
- Desert Research Institute, Reno, Nevada, USA
- DOE, Joint Genome Institute, Walnut Creek, California, USA
- Ecological Cities Project, University of Massachusetts, USA
- GLEON (Global Lake Ecological Observatory Network)
- Invasive Animal Cooperative Research Centre, Australia
- INTERCOAST, University of Bremen, Germany
- Korea Polar Research Institute, South Korea
- Lawrence Livermore National Laboratory, USA
- MO BIO Laboratories Inc, Carlsbad, California, USA
- National Parks Board, Singapore
- San Francisco State University, USA
- South China Institute of Oceanology, China
- Tongji University, Shanghai, China
- University of Aberdeen, United Kingdom
- University of California, Berkeley, USA
- University of California, Davis, USA
- University of Nevada, Las Vegas, USA
- University of Southern California, USA
- University of Western Australia, Perth, Australia
- University of Western Cape, Cape Town, South Africa
- Virginia Tech, Virginia, USA
- Yamanashi Institute of Environmental Sciences, Japan

The ERI's key end-users include:

- Auckland Council
- Bay of Plenty District Health Board
- Bay of Plenty Regional Council
- Dairy New Zealand
- Department of Conservation
- Fish and Game New Zealand
- Hamilton City Council
- Lake Taupō Rotorua Association
- Lake Water Quality Society
- MAF Biosecurity New Zealand
- Ministry for the Environment
- Ministry of Fisheries
- Ministry of Foreign Affairs and Trade
- Ministry of Agriculture and Forestry
- New Plymouth District Council
- NZ Landcare Trust
- QEII National Trust
- Rotorua District Council
- Taumarua City Council
- Waikato Regional Council
- Te Arawa Lakes Trust
- Waikato Ruapuha Lands Trust
The Environmental Research Institute conducts research across four broad environmental themes. The Institute takes a systems-level approach to research, maintaining linkages across the themes and individual disciplines, particularly at the land/water interface. For example, improving the quality of water in lakes and rivers is dependent on taking a catchment approach to managing input of nutrients and sediment into waterways, as well as maintaining biodiversity.

### Terrestrial Ecosystems

New Zealand’s terrestrial environment is unique with its high level of endemism (unique flora and fauna) - at 80% it is second only to Hawaii - which is a direct result of the country’s geographic isolation. The major pressures on our environment are from the intensification of farming, particularly dairying, and the impact of introduced weeds and pests. Alongside its work on rural soils, wetlands and forest fragments, the Environmental Research Institute has a strong focus on the restoration of the urban environment to increase biodiversity and reduce weeds and pests.

**Areas of research expertise include:**
- Conservation
- Forest fragments
- Urban restoration
- Urban planning and design
- Catchment
- Biodiversity
- Wetlands
- Microbiology
- Soil biogeochemistry and microbiology
- Environmental and resource economics
- Environmental and resource law
- Remote sensing and GIS

### Freshwater Ecosystems

New Zealand has significant freshwater resources but water quality is under threat from the intensification of farming leading to excess nutrients entering the watershed and degradation caused by invasive weeds and pests. The Environmental Research Institute is undertaking a 10-year research project funded by the Ministry of Science and Innovation (MSI) to investigate measures to mitigate these problems and improve water quality.

**Areas of research expertise include:**
- Biodiversity
- Harmful algal bloom dynamics and ecology
- Microbiology
- Lake restoration
- Riverine ecology
- Pest fish control and eradication
- Nutrient modelling
- Hydrology
- Wetlands
- Catchments
- Environmental and resource economics
- Environmental and resource law
- Remote sensing and GIS

### Coastal Marine Ecosystems

New Zealand has the fourth largest exclusive economic zone in the world with extensive fisheries and mineral deposits. The coastal environment faces increasing pressure and conflicts of use from urban development, aquaculture development, recreational use, subsistence living, and mineral and sand exploitation. Additionally, iwi and hapu have claims to customary use of the foreshore, as well as growing commercial interests. A biodiversity census and an understanding of the biogeography are crucial for the management of these resources and environmental wellbeing. Marine spatial planning will help manage the conflicting uses and needs of different groups.

**The Environmental Research Institute offers research expertise in:**
- Biodiversity
- Soil biogeochemistry
- Chemical ecology
- Climate change ecology
- Ecosystem dynamics
- Estuarine ecology and sedimentology
- Microbiology
- Sustainable aquaculture – impacts and development
- Physical oceanography
- Tsunamis and hazards
- Coastal planning and design
- Remote sensing and GIS

### Antarctic Ecosystems

The University of Waikato has been home to Antarctic research for nearly 50 years, with a focus on Antarctic terrestrial biodiversity and biocomplexity in the Ross Sea region. Researchers at the Environmental Research Institute are providing the science that will underpin the conservation, protection, and management of terrestrial ecosystems, and predict the effects of environmental impacts, such as climate change. The Institute is also seeking to re-establish marine programmes on marine biodiversity, drawing on Professor Chris Battershill’s previous work.

**Areas of research expertise include:**
- Biodiversity and biocomplexity
- Chemical ecology
- Marine biodiversity, ecology and community dynamics
- Terrestrial microbiology
- Terrestrial ecology
- Terrestrial biogeochemistry
- Remote sensing and GIS
Antarctica’s dry valleys have long been regarded as the closest thing on Earth to the surface of Mars – a cold, lifeless desert. Using modern molecular techniques, University of Waikato researchers can now tell a different story. Soils once thought to be sterile now appear to support an unexpectedly high diversity of microbial organisms, waiting for water and/or food to burst into life.

The University of Waikato has led New Zealand’s terrestrial biological research in Antarctica for more than 25 years, and is home to the International Centre for Terrestrial Antarctic Research (ICTAR), partnered with Gateway Antarctica at the University of Canterbury.

ICTAR Director Professor Craig Cary is a microbial ecologist with a special interest in bacteria which live in extreme environments. He leads a Marsden-funded project with Associate Professor Ian McDonald looking at the bacteria living in the high temperature soils on Mount Erebus. He is also working with Dr Charles Lee of the University’s Thermophile Research Unit on another Marsden-funded project to research the bacteria living in the dry valleys of Antarctica. Together with Professor Allan Green, an expert on Antarctic lichens and mosses, Professor Cary recently led a study of terrestrial ecosystem biocomplexity in the Ross Sea region in collaboration with the US National Science Foundation. This was the largest and most comprehensive landscape scale study of this kind ever undertaken.

As part of the International Polar Year (IPY 2007-9) initiative, the project drew together an international team of biologists, hydrologists, chemists and geologists to deliver a GIS/biodiversity database model linking biodiversity, landscape and environmental factors.

Biocomplexity is ‘big picture’ ecosystem research which aims to inform efforts to protect or manage the environment, or to be able to forecast effects of climate change. The simplicity of the terrestrial biology system in Antarctica provides a unique opportunity to develop ecosystem research to a high level of sophistication.

Native fish and plants are in decline in most New Zealand lakes and waterways. Pest fish and invasive weeds out-compete native species, and they also alter the environment to cause proliferation of harmful algal blooms. Nutrient run-off from farms has created an ideal habitat for pest fish, such as koi carp, to thrive, but University of Waikato researchers are hopeful removing pest fish can help restore some lakes without forcing farmers to drastically reduce their fertiliser use.

To tackle the problem, Dr Adam Daniel has researched koi carp movements, and designed and installed a barrier on an outlet stream coming from Lake Ohinewai – near Huntly. The one-way barrier placed at an outlet stream allows koi carp to move out of the lake but not return. Removing the remaining koi carp population and measuring the resulting water quality may help provide a template for lake and waterway restoration.

The project is part of LERNZ Lake Ecosystem Restoration New Zealand, based at the University of Waikato, which has $10 million over 10 years to research the threats posed by algal blooms, pest fish and other invasive species – and how to address those threats.

Funded by the Ministry of Science and Innovation, the programme focuses on the Rotorua Lakes but will have nationwide and international application.

Professor David Hamilton, Dr Deniz Oskundaki and Dr Daniel are running the programme, which has input from regional councils, community groups, the water industry and other organisations, as it is those groups that will ultimately benefit from the research work. The researchers have also developed monitoring tools to detect and understand more about algal blooms, which have in some cases resulted in water supply closure, cattle deaths and closures of lakes for recreational activities.

That work is also providing benefits in China, where monitors have been installed in Taihu Lake to provide information about blooms of blue-green algae which affect drinking water supplies for more than five million people.

www.ictar.aq

www.lernz.co.nz
WHAT PRICE CLEANER WATER?

Environmental economists based at Waikato Management School have been trying to put a value on some of the benefits of cleaner water in the Rotorua Lakes by looking at property prices and the behaviour of anglers.

The study, led by Dr Dan Marsh, was based on the idea that property prices around the Rotorua Lakes depend on various attributes - including water quality. Better quality water is likely to mean higher prices, all things being equal.

The researchers analysed data for more than 1100 property sales over a five-year period within 1km of Lakes Rotorua, Rotoiti, Tarawera or Okareka. The data set included variables capturing property characteristics, property sales data, water quality data and distance to lake.

The analysis showed a clear link between secchi disk depth (the water quality/clarity indicator) and house sale price. A one metre improvement in water clarity resulted in an average increase in house sale price of about 7%. As an example, a house on Lake Rotoiti worth $300,000 would increase in value by around $70,000 if water clarity improved by three metres.

Another project is using data from the National Angling Survey to look at how water quality affects anglers’ choice of fishing destination. Traveling to a more distant lake increases travel cost, so this data can be used to put a lower limit on the amount that anglers are willing to pay to achieve better water quality. Researchers have found that even a small improvement in water quality could produce benefits for anglers worth in excess of $1 million per year.

Economists can also contribute through cost effectiveness analysis of alternative water quality policies. Current work includes large simulation models to figure out the best mix of regulations and incentives to reduce nitrate leaching from dairy farms - a key factor in achieving cleaner waterways. Recent results show that a flexible approach costs half as much as imposing a uniform cap on nitrogen emissions.

SAFEGUARDING THE FUTURE OF TAURANGA HARBOUR

Tauranga Harbour is coming under the microscope to ensure future development in the area is sustainable. The initiative is linked to the INTERCOAST programme between the universities of Waikato and Bremen in northern Germany, focusing on multi-disciplinary marine research in the Bay of Plenty and around the North Sea in Germany.

Both areas are dealing with rapid population increase, burgeoning commercial growth and significant recreational usage, which means that careful long-term planning is critical to ensuring future harbour development is sustainable.

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Heading the University of Waikato’s research efforts is Professor Chris Battershill, who has taken up the inaugural Bay of Plenty Regional Council Chair of Coastal Science in Tauranga. An expert in marine biodiversity, Professor Battershill will focus on establishing a census of marine life in and around Tauranga Harbour and the biogeography of these organisms. In addition, his research will investigate how marine organisms adapt to environmental change.

Researchers Dr Willem de Lange and Dr Karin Bryan, have begun mapping the Tauranga Harbour seabed using acoustic imagery to gather information on changes to marine habitats and sedimentary dynamics which may affect circulation of the harbour.

How marine habitats could be impacted if large amounts of sediment are removed during future harbour construction, and how the tidal system and current changes impact the seabed and channels are some of the issues under investigation. Another project, led by Dr Vicky Moon, is using a submersible probe to measure the stability of the seabed.

The projects have been developed with input from Bay of Plenty Regional Council, Priority One and the Port of Tauranga, and will contribute to building a comprehensive picture of Tauranga Harbour and its coastline to help local planners with their decision-making.

The multidisciplinary research team will provide long-term data modelling and impact analysis from projects looking at the effects of harbour development on ecosystems, protection and utilisation of the harbour and coastline, and sediment studies.

Under the co-direction of Waikato’s Professor Chris Battershill and Bremen’s Professor Katrin Huhn, the INTERCOAST programme will also involve law and social science research into legal issues around fisheries, coastal management and marine energy resource development, as well as social changes taking place in coastal communities.
Work on restoring a Hamilton park will provide a model for restoring ecosystems in cities in New Zealand and around the world. Biodiversity loss has been greatest in or near New Zealand’s cities where development has often resulted in total landscape transformations, but the magnitude of this loss has been recognised only in recent years.

A University of Waikato-led research group is working on a four-year MSI-funded project to determine the best way to restore natural ecosystems in city areas, using the 60ha Waikakareke Natural Heritage Park in Hamilton as a case study.

The modified peat lake and catchment area is New Zealand’s largest inland restoration project, and so far 12ha of former farmland have been replanted with native trees, including kauri, totara and kanuka. Waikakareke has already drawn international recognition, and is rated one of Australasia’s Highly Commended ecological restoration projects by the Global Restoration Network.

Top ecologist Professor Bruce Clarkson, who heads the research project at the University’s Centre for Biodiversity and Ecology Research, says the park provides a unique opportunity in restoration. “Our role is not to conduct the reconstruction, but to underpin the restoration effort with excellent science.”

The researchers are developing a model to reverse the loss of native plants and wildlife in New Zealand’s urban areas and provide New Zealand’s restoration groups with the best methods to use.

There’s considerable international interest in the Waikato University research which aims to help transform traditional city approaches to managing parks and gardens to one more closely aligned to ecosystem management and sustainable development.

Professor Clarkson has been invited to share his findings at the World Cities Summit in Singapore, and at the University of California Santa Barbara National Center for Ecological Analysis and Synthesis.

Soil matters: 17 percent of our GDP depends on the top 15 centimetres of our soil.

Carbon or organic matter - is critical to maintaining soil quality, and may also help New Zealand meet its international obligations by removing CO₂ out of the atmosphere.

But little is known about the impacts of changing pasture management practices on the amounts of carbon stored in soil.

With colleagues from Landcare Research and GNS Science, University of Waikato Associate Professor Louis Schipper has been measuring soil carbon at more than 120 pastures sites around New Zealand, and comparing their information with data recorded from the same sites around 30 years ago.

This work is funded by the Ministry of Agriculture and Forestry and the Ministry of Science and Innovation, with support from DairyNZ, and is aimed at determining how different land management practices alter long-term stores of soil carbon.

In a related project, Dr Schipper and colleagues Dr Susanna Rutledge and Dr Dave Campbell are leading research at a DairyNZ farm to determine ways to increase soil carbon storage in pasture soils.

The researchers want to see if alternative pasture species – with greater root biomass and inputs of carbon into soils - can increase soil carbon storage. They aim to work with farmers to introduce a more diverse pasture sward into their farming systems.

Funded by the New Zealand Agricultural Greenhouse Gas Research Centre, the project aims to develop a ‘carbon balance sheet’ so that farmers can compare the environmental and production consequences of their land management decisions.
With its small population, substantial renewable energy and natural resources, and stunning landscape, New Zealand has a unique opportunity to secure a high quality of life for its people, sustainable for future generations.

However, it will require some bold moves to change existing policy direction, says urban sustainability expert Professor Bob Evans.

One example is our use of cars. “Our cities sprawl and that means people here use their cars far more than they do in more compact cities,” says Professor Evans. “Despite our small population, our cities are not far off gridlock in some places at rush hour.”

Compared with the UK and other countries in Northern Europe, petrol is still relatively cheap in New Zealand, but with ‘peak oil’ and increasing global demand for oil, that’s unlikely to last. This means we need to re-think how we plan and manage our cities, he says.

But it’s not just about buildings and land use. Professor Evans is looking at ways to encourage people to adopt more sustainable and resilient patterns of living, including a dramatic reduction in our consumption of natural resources.

One project, in collaboration with the Nelson-based Cawthron Institute, is examining how local social networks and institutions can provide the ‘soft infrastructure’ to support sustainability. The project is being carried out with the cooperation of the local governments in the top of the South Island.

Professor Evans has also researched civic engagement in renewable energy developments in the UK. That project focused on offshore wind, tidal energy and biomass developments, and concluded that greater and earlier citizen and interest organisation involvement in the development and location of these technologies usually results in greater acceptance of such developments.

Environmental education is now a fundamental part of the school curriculum, and the University of Waikato is a key provider of teaching and research in this area.

Dr Chris Eames of the Centre for Science and Technology Education Research (CSTER) has been involved in developing New Zealand Curriculum frameworks for environmental education. Schools are now expected to work with their students to be actively involved in contributing to the environmental, social and economic well-being of this country.

Dr Eames has subsequently led research looking at ways schools can develop sustainable approaches in their management, operations, curriculum and grounds.

Working with a national team of school advisers and teachers from schools in five regions of the country, the researchers explored how such whole school approaches can enhance student learning. Using a framework developed for understanding students’ thinking, feeling and acting towards environment and sustainability issues, they found students to be highly engaged in their learning and empowered to work towards the resolution of problems.

For example, one teacher was able to engage students from diverse ethnic backgrounds in planting alongside a waterway in the school grounds to improve water quality. In another study, young primary school students focused on providing suitable habitats for native birds in their school grounds. These studies highlight the development of informed participation and decision-making which can provide students with the skills for sustainable citizenship.

Other work in environmental education at the University of Waikato includes teacher professional development through the Science Learning Hub (www.sciencelearn.org.nz), a web-based science platform that makes New Zealand science accessible to schools and supports student learning about the environment.
The New Zealand government may need to revisit its obligations under international laws to protect biodiversity in the wake of a Waitangi Tribunal report on the Wai 262 claim.

The Wai 262 claim covers Māori rights to indigenous flora and fauna and cultural and intellectual property under mātauranga Māori – that is, the unique Māori way of viewing the world, encompassing both traditional knowledge and culture. The claim includes the rights of Māori to the customary take of culturally important plant and animal species, such as mutton birds, kererū (wood pigeon) and some flax species. In some cases, these are endangered species protected under international laws such as the Convention on Biological Diversity.

The Waitangi Tribunal has recommended that laws and policies should be reformed to enhance the relationship between the Crown and Māori. In the light of the Wai 262 claim, a University of Waikato environmental law expert is currently looking at international practice in dealing with indigenous claims to protected species to help find better ways to manage the relationship between Māori customary practices and conservation estate.

Professor Al Gillespie is an international authority on conservation, biodiversity and international law, and the author of eight books on the subject. He is the first New Zealander to be named Rapporteur for the World Heritage Convention, and has successfully advocated a fundamental change in the way the international community practises conservation – namely that communities, not just governments, must be at the heart of all initiatives.

Professor Gillespie says other countries with strong indigenous communities have pioneered ways to balance indigenous cultural needs with conservation, and he’ll be looking at what New Zealand can learn from overseas experience. For example, under the International Convention for the Regulation of Whaling, indigenous peoples in North America are allowed to take a small number of whales for cultural purposes, while the International Whaling Commission has set aboriginal subsistence whaling catch limits for specific species in four countries: the United States, Denmark (Greenland), Saint Vincent and the Grenadines, and Russia.

Professor Gillespie says similar arrangements in New Zealand could help preserve Māori culture and identity while also protecting the country’s unique biodiversity – and maintaining our international treaty obligations.

We live in a society forged by the experience of empire. It affects our education, beliefs and values, the language we speak, and even the pressing social and political issues we face today.

But how much is New Zealand’s environment the legacy of our colonial past? It’s a question being asked by University of Waikato historian Dr James Beattie, who’s the author of a recent book on the environmental culture of the British Empire.

The book, Empire and Environmental Anxiety, 1800-1920, reveals the dynamic connections between imperialism, environmental modification and conservation in colonial South Asia, New Zealand and Australia – and provides a valuable historical background to resource management issues we face today.

“Most studies represent European expansion as reckless, confident and profligate,” says environmental historian Dr Beattie. “This study presents a picture of greater complexity.”

Dr Beattie’s research shows systematic deforestation was accompanied by anxieties about human-induced climate change. He’s found evidence of colonial fears about the power of environments to affect health.

His book also argues that conservation was a form of imperial control that generated revenue and enabled resources to be more systematically exploited.
The Environmental Research Institute undertakes multi-disciplinary environmental research across a range of ecosystems to inform policy and practices that will support effective environmental outcomes.