



**S F S** THE SCHOOL  
FOR FIELD STUDIES

# Rainforest Management Studies in Australia & New Zealand SFS 3540

**Syllabus, Summer I**

The School for Field Studies (SFS)  
Centre for Rainforest Studies (CRS)  
Queensland, Australia

This syllabus may develop or change over time based on local conditions, learning opportunities, and faculty expertise.  
Course content may vary from semester to semester.



## Course Overview

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### Rainforest Management Studies in Australia and New Zealand:

In this field course students will compare and contrast the ecological, geographical, social, economic and historical factors that have shaped natural resource management in Australia and New Zealand. While Australia and New Zealand share a similar Gondwanan ancestry they differ significantly with respect to indigenous and European settlement patterns, economic development and current as well as historical land-use practices. By comparing and contrasting natural resource management in these two locations, students will gain a detailed understanding of the drivers of species extinctions and current conservation problems including management of endangered and exotic species. In New Zealand, students will discover the unique flora and fauna of Auckland and Northland and develop an understanding of the factors that have resulted in their disjunct populations. In Australia, students will take their New Zealand experiences and examine similarities and differences in history, historical land use patterns and biogeography.

In both countries, field excursions will be conducted that examine the influence of fragmentation on abiotic and biotic attributes of forest communities. Students will also participate in indigenous cultural activities and have an opportunity to understand current and historic indigenous land use practices and challenges in both countries. From these opportunities, students will gain an understanding of both successful and unsuccessful natural resource management policies and practices in Australia and New Zealand, and be able to identify appropriate management techniques with regards to biological systems, national boundaries, and/or social systems.

### Themes

Throughout the course we focus on the meta-question “what are the ecological and/or socio-economic factors that shape the different resource management strategies of each region?” Considering this question in bio-diverse areas of Australia and New Zealand will allow students to develop their own understanding of ‘what works where and why’.

The themes are:

- 1) Biogeography and history of Australian and New Zealand Rainforests
- 2) Human impacts on Australian and New Zealand Rainforests
- 3) Natural resource management in New Zealand and Australia, including ecological restoration

### Learning Objectives

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During this course, students should develop a working knowledge related to:

- 1) **Australian and New Zealand Biogeographical History.** Students will learn the key similarities and differences between the history of Australian and New Zealand flora and fauna. We will study Gondwanan ancestry, plate tectonics, climate change, geology, and factors that led to distributions of forest communities before human impacts.
- 2) **Indigenous use of Forest Systems.** Demonstrations of the use of forest resources by indigenous communities in Australia and New Zealand will allow students to understand the scale and type of impacts experienced before European settlement and traditional indigenous perception of nature.
- 3) **Effects of European Settlement on Forests.** Students will gain an understanding of the underlying causes of forest fragmentation (with respect to changing land-use) by examining patterns of settlement on the Atherton Tablelands (Queensland, Australia) and around Auckland/Northland (New Zealand). Students also gain a detailed understanding of the impacts of habitat loss and fragmentation on forest communities by examining abiotic and biotic attributes of remaining fragmented and contiguous forest communities.

- 4) **Conservation of Fragmented Biological Communities.** Students will compare and contrast key aspects of conserving endangered forest communities and species in New Zealand and Australia such as the management of invasive species, fragmentation, native species' extinctions and habitat restoration.
- 5) **Socio-economics of natural resource management.** The socio-economics component of the course examines the history of rainforest clearing and environmental degradation (e.g. agriculture, farming, and mining). Students will discuss the importance of social and economic factors that shape the use of natural resources. The economic, social, and political incentives and impediments for environmental conservation will also be explored.
- 6) **Economic benefits provided by rainforest ecosystems.** Rainforests provide us with a range of services from recreation through pharmaceutical use to carbon sequestration. The course will look at some of the economic value of these services.

## Assessment

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In Australia, lectures, discussions and field excursions will be based at the Center for Rainforest Studies and around the Atherton Tablelands. In New Zealand, the course will move between locations and field excursions will focus on Auckland and Northland. Classroom lecture topics will include essential background information and field lectures/exercises are used to reinforce key concepts and provide students with on-ground experiences. Student attention at field lectures/exercises will be enhanced by the requirement for them to complete a Field Journal and students' ability to compare and contrast natural resource management/conservation in Australia and New Zealand will be assessed via group presentations.

Assessment Item	Value (%)
Field Journal	50
Group presentations (meta-question)	20
- Peer evaluation	10
Final Quiz	20
<b>TOTAL</b>	<b>100</b>

<sup>1</sup>NB. The group's choice of topic for presentation will be determined following discussion and consultation with faculty.

## Field Excursions New Zealand

**Auckland Area:** We will stay in Auckland city, where more than 25% of New Zealand’s population lives. There we will view the harbour, surrounding volcanic cones and visit Auckland’s War Memorial Museum, the major regional museum with its excellent Maori culture and natural history displays. We will also visit Tiri-tiri Matangi Island to learn about island fauna sanctuaries, habitat restoration and strategies for volunteer involvement and visitor management and Wenderholm Regional Park to experience coastal forest and learn about the mainland island concept.

**Northland:** Northland (5 days/4 nights): Our trip in Northland will blend an examination of conservation issues with insights into New Zealand’s bicultural history and identity. Lodging will occur primarily at a Maori marae hosted by the extended Prime family. The local iwi (tribe) will share their land management experiences with us and introduce us to their rich cultural heritage as we explore their land, Ruapekapeka Pa (an old Maori “fort”), and share meals and experiences. At their Kaitoki Bush Reserve, activities will include a forest walk. In Waitangi we will visit the Treaty Grounds to learn about the historic signing of the Treaty of Waitangi providing historical context to current natural resource management.

Northland will also give us the opportunity to visit a Bird Recovery Centre to learn about threats to New Zealand’s unique bird fauna and ways to mitigate these threats. Two nights will be spent at Waipoua, home of Tane Mahuta and the majestic kauri forests.

**Kaipara:** Kaipara (Half a day): At Glorit on the Kaipara Harbour, we will be visiting CUE Haven, a property where habitat restoration has been underway for a couple of years. We’ll be involved in volunteer habitat restoration work at the property

## Field Excursions Australia

**Around the Atherton Tablelands (4-5 days, daily return to CRS):** Students will tour the Tablelands and: i) understand the geological, historical and socio-economic reasons underlying current land-use practices that have led to fragmentation of Wet Tropics rainforests; ii) examine forest remnants on the Tablelands; iii) compare these fragments to more contiguous patches of forest elsewhere (including the CRS property); iv) gain a perspective of the temporal, spatial and logistical requirements for habitat restoration and the potential achievements given appropriate resources.

**MY Country and Daintree (3 days/2 nights):** Students will spend a day with the Mandingalbay Yidinji (MY) Aboriginal tribe who will share their land management/cultural practices. They will also attend a one day conference on indigenous land management in which the MY people will be involved. In the Daintree, students will visit the Discovery Centre (information centre) for a self-guided tour and a strategic view of the rainforest canopy. They will learn about the rainforest ecosystems in the Daintree national park.

## Grading Scheme

A	95.00 – 100.00%	B+	86.00 – 89.99%	C+	76.00 – 79.99%	D	60.00 – 69.99%
A-	90.00 – 94.99%	B	83.00 – 85.99%	C	73.00 – 75.99%	F	0.00 – 59.99%
		B-	80.00 – 82.99%	C-	70.00 - 72.99%		

## General Reminders

Electronic copies of the recommended readings will be available prior to class. It may be important that these be read before class since we may use these papers as a starting point for discussion. Faculty will inform you when this is the case.

Plagiarism – using the ideas and material of others without giving due credit, is cheating and will not be tolerated. A grade of zero will be assigned if anyone is caught cheating or aiding another person to cheat either actively or passively (e.g., allowing someone to copy your work).

Deadlines for written and oral assignments are instated to promote equity among students and to allow faculty ample time to review and return assignments. As such, deadlines are firm and extensions will only be considered under only the most extreme circumstances. If you believe that you have been prevented from completing your work on time for reasons beyond your control (e.g. illness), make sure that you discuss this with the relevant faculty member as soon as possible, and certainly before the assignment is due. Late assignments will incur a penalty proportional to the length of time that they are late. This means an assignment that is one day late when students were given two days to work on it will have 50% of total points removed from the grade awarded for that assignment, and an assignment that is 2 hours late when two full days (16 hrs) were allocated to work on it will have 12.5% of total points removed from the grade.

Student must participate in all components of the program. Our program is likely to be more intensive than you might be used to at your home institution, and missing even one lecture or field trip can have a large effect on your final grade simply because there is little room to make up for lost time or opportunities. In addition, your actions can significantly affect the experience you and your classmates have while with SFS and our reputation in the community; therefore, it is important that you are prompt for all activities, bring the necessary equipment for field excursions and simply get involved.

## Course Content

Key: **AT** = Atherton Tablelands, **WT** = Wet Tropics, **NZ** = Auckland/Northland, New Zealand

**JK** = Justus Kithia; **CP** = Catherine Pohlman; **Guest** = guest lecturer

**L** = Lecture, **FL** = Field Lecture

<b>Number</b>	<b>Lecture Title and Description</b>	<b>Lecturer</b>	<b>Hours</b>	<b>Readings</b>
EE01	Course Overview (L)	Faculty	1.0	
<b>THEME 1</b>	<b>Biogeography and history of Australian and New Zealand Rainforests</b>			
EE02	<p><b>Introduction to NZ Rainforests (L+ FLs)</b></p> <ul style="list-style-type: none"> <li>- Waipoua Forest</li> <li>- Wenderholm Regional Park</li> <li>- Kaitoki Reserve</li> <li>- Tiritiri-Matangi Island</li> </ul> <p>Students will be introduced to New Zealand's rainforests, their Gondwanan heritage and recent history. Field lectures will include guided observations of different rainforest plant communities in northern New Zealand.</p> <p>Activities: Guided observation of rainforest communities in the Auckland and Northland regions.</p>	CP	3.5	(Ogden J., Basher L. & McGlone M, 1998)
EE03	<p><b>Introduction to Australian Rainforests (L+FL)</b></p> <ul style="list-style-type: none"> <li>- SFS Site Walk</li> <li>- Malanda Falls Conservation Park</li> <li>- Daintree rainforests</li> </ul> <p>Students will learn how the ancient rainforest of Australia have changed in extent over time.</p> <p>Activities: Guided observation of rainforest communities on the Atherton Tablelands and in the Daintree lowlands.</p>	CP	3.5	
EE04	<p><b>Introduction to the Fauna of NZ (L + FL)</b></p> <ul style="list-style-type: none"> <li>- Auckland War Memorial Museum (natural history galleries)</li> <li>- Tiritiri-Matangi Island</li> </ul> <p>This lecture will outline the unique characteristics of the NZ fauna.</p> <p>Activities: Field lectures in Waipoua and Tiri Tiri Matangi as well as a visit to the natural history section of the Auckland War Memorial will deepen the understanding of NZ's fauna.</p>	Guest & CP	2.0	(Wilson, K-J, 2004). Chapter 1

EE05	<p><b>Introduction to the Fauna of the WT, Australia (L + FL)</b></p> <p>This lecture will outline the special characteristics of the Australian fauna.</p> <p>Activities: Field lectures on the Atherton Tablelands, and Daintree, Australia</p>	Guest	2.0	
EE06	<p><b>Landscape and Landuse on the Atherton Tablelands (L +FL)</b></p> <ul style="list-style-type: none"> <li>- Tablelands landscape and land-use tour</li> </ul> <p>Activities: Field lectures on the biogeography and socio-economics of the Atherton Tablelands, Australia.</p>	JK & CP	2.5	(Tablelands Futures Corp, 2007)
EE07	<p><b>Maori culture/traditions prior to and after European settlement (FLs)</b></p> <ul style="list-style-type: none"> <li>- Auckland War Memorial Museum – Maori galleries &amp; natural history galleries</li> <li>- Cultural Performance (Waitangi)</li> <li>- Marae stay</li> <li>- Waitangi &amp; Northland war trails</li> </ul> <p>Students will learn about some aspects of Maori as well as resource management techniques prior to and after European settlement.</p> <p>Activities : Guest lectures, discussion, cultural experiences</p>	JK & Guests	8.0	(Cumberland, KB, 1949)  (Extracts from: Pitts, M, 2004)
EE08	<p><b>Aboriginal culture/traditions prior to and after European settlement (FLs)</b></p> <ul style="list-style-type: none"> <li>- Djunbunji Land and Sea Program, Mandingalbay country visit</li> <li>- Indigenous land management conference</li> </ul> <p>Students will learn about some aspects of Aboriginal culture as well as resource management techniques prior to and after European settlement.</p> <p>Activities : Guest lectures, discussion, cultural experiences</p>	JK & Guests	8.0	(Cumberland, KB., 1949)  (Extracts from: Pitts, M, 2004)
<b>THEME 2</b>	<b>Human Impacts on Australian and New Zealand Rainforests</b>			
EE09	<p><b>Impacts of human settlement on NZ landscapes (L + FL)</b></p> <ul style="list-style-type: none"> <li>- Auckland War Memorial Museum – Maori galleries &amp; natural</li> </ul>	JK	3.0	(Craig et al, 2000)  (Frawley, K, 1991)

	<p>history galleries</p> <ul style="list-style-type: none"> <li>- Auckland – Northland drive, land-use</li> </ul>			
EE10	<p><b>Impacts of human settlement on North Queensland landscapes (L + FL)</b></p> <ul style="list-style-type: none"> <li>- Tablelands landscape and land-use tour</li> <li>- Daintree drive, landscapes and land-use</li> </ul>	JK & CP	3.0	<p>(Craig et al, 2000)</p> <p>(Frawley, K, 1991)</p>
EE11	<p><b>Threats to the WT, Australia fauna (L + FL)</b></p> <ul style="list-style-type: none"> <li>- Visits to various fragments on the Tablelands</li> <li>- Daintree</li> </ul> <p>Threats such as fragmentation, invasive species and climate change and their impact on the fauna of Australia are discussed.</p> <p>Activities: Visits to fragmented forest communities to examine the influence of fragmentation on tropical forest attributes.</p>	Guests & CP	3.0	Invasive Pets Pamphlet
EE12	<p><b>Threats to the Fauna of NZ (L + FLs)</b></p> <ul style="list-style-type: none"> <li>- Wenderholm Regional Park</li> <li>- Bird Discovery Centre</li> </ul> <p>This lecture will examine the effects of habitat loss, fragmentation, invasive species and climate change on the unique fauna of NZ.</p> <p>Activities: Walks in Waipoua and Wenderholm Regional Park will familiarize students with various problems linked with the conservation of New Zealand’s endemic species. A look inside the Bird Recovery Centre will show birds that encountered various threats to their habitat.</p>	Guests & CP	2.5	<p>(Wilson, K-J, 2004)</p> <p>(Wilson, K-J., 2008)</p>
<b>THEME 3</b>	<b>Natural resource management in New Zealand and Australia</b>			
EE13	<b>Socio-economics in NRM – NZ (L)</b>	JK	1.0	<p>Recommended reading: North &amp; South article, Principles of the Treaty of Waitangi</p>
EE14	<b>Socio-economics in NRM – Aus (L)</b>	JK	1.0	<p>(Esparon, M. et al, 2014)</p>

				<p><i>Know your Community tool:</i>  <a href="http://statistics.ggs.qld.gov.au/datsip/profiles">http://statistics.ggs.qld.gov.au/datsip/profiles</a></p>
EE15	<p><b>Fauna conservation strategies in NZ (L + FL)</b></p> <ul style="list-style-type: none"> <li>- Tiritiri Matangi</li> <li>- Wenderholm Regional Park</li> <li>- Bird Discovery Centre</li> </ul> <p>This lecture examines conservation strategies in NZ and the circumstances in which different techniques may be appropriate.</p> <p>Activities: Group discussion during field excursions to Wenderholm Regional Park, the Bird Discovery Centre and the Island Sanctuary Tiritiri Matangi.</p>	CP & Guests	2.5	<p>Wilson et al (2014). Chapter 9</p> <p>Towns et al. (2013).</p>
EE16	<p><b>Fauna conservation strategies in the WT, Australia (L)</b></p> <p>This lecture will explore Australia’s approaches to mitigating threats to its biota.</p> <p>Activities: Visits in the Wet Tropics World Heritage Area, several iconic parks on the Atherton Tablelands including Lake Eacham, Curtain Fig.</p>	Guests & CP	1.0	
EE17	<p><b>Island sanctuaries and their role in conservation in NZ (Tiritiri Matangi) FL</b></p> <p>Predator free islands have a special role in New Zealand as sanctuaries for endangered species. This lecture examines the importance of these islands to New Zealand conservation.</p> <p>Activities: Visit to Tiritiri-Matangi Island Fauna Sanctuary.</p>	JK & CP & Guest	1.0	
EE18	<p><b>Mainland Islands and their role in conservation in NZ (Wenderholm) FL</b></p> <p>In an effort to mimic natural islands, “mainland islands” have been established in an effort to retain endangered species on the New Zealand mainland. This lecture examines the management challenges mainland islands pose and the role they can play in conservation.</p>	CP	0.5	

	Activities: Visit to Wenderholm Regional Park to view a mainland island project.			
EE19	<p><b>Ecological Restoration and Restoration Ecology (L)</b></p> <p>Students will be introduced to the major factors involved in the success (or failure) of ecological restoration of rainforests. Students will be introduced to a number of techniques used in rainforest restoration. This lecture will provide context for a number of practical sessions undertaken in New Zealand and Australia on rainforest restoration.</p>	CP	1.0	
EE20	<p><b>Ecological Restoration Practices (FLs and practical)</b></p> <ul style="list-style-type: none"> <li>- Mataia Restoration Project</li> <li>- CUE Haven</li> <li>- TREAT/Landcare</li> </ul> <p>Students will learn about number of ecological restoration techniques in New Zealand and Australia through participation in practical sessions.</p> <p>Activities: Working with local community groups at rainforest restoration sites.</p>	CP & JK SAM Team Guests	7.0	(Goosem, S. and Tucker, N.I.J., 2013)
EE21	<p>Establishment of corridors for fauna movement (FLs)</p> <ul style="list-style-type: none"> <li>- Peterson Creek Fauna Corridor</li> </ul> <p>In this field lecture we will visit a riparian area on the Atherton Tablelands in Australia and explore its effectiveness as a wildlife corridor.</p> <p>Activities: Visit a riparian corridor and examine its function as a wildlife corridor</p>	CP & Guest	2.0	Freeman, A.N.D., Freeman, A. B & Burchill, S. (2009).
EE22	Wrap up natural resources and conservation management in NZ (Discussion Session)	All	2.0	
EE23	What have we learnt? Pulling it all together.	Faculty	1.0	
	TOTAL		62.5	

## Reading List

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- Craig et al. (2000). Conservation issues in New Zealand. *Annu. Rev. Ecol. Syst.* 2000. 31:61–78.
- Cumberland, KB. (1949) Aotearoa Maori: New Zealand about 1780. *Geographical Review* 39(3), pp. 401-424.
- Esparon, M., Stoeckl, N., Larson, S., Farr, M and Schmider, J. (2014). How 'valuable' are the ecosystem services of the Wet Tropics World Heritage Area to residents and tourists? Report to the National Environmental Research Program.
- Frawley, K. (1991). Past rainforest management in Queensland. Chapter 8 In: *The Rainforest Legacy. Australian National Rainforests Study Vol 3. Special Australian Heritage Publication Series No 7(3).*
- Freeman, A.N.D., Freeman, A. B & Burchill, S. (2009). Bird use of revegetated sites along a creek connecting rainforest fragments. *Emu* 109: 331-338. Provided as pdf file.
- Goosem, S. and Tucker, N.I.J. (2013) Repairing the rainforest. Theory and practice of rainforest re-establishment in North Queensland's Wet Tropics. Wet Tropics Management Authority, Cairns.
- Invasive Pests – A threat to the Wet Tropics World Heritage Area (Pamphlet)
- Know Your Community* – a community profiling tool which enables you to build a community profile containing data and key insights into Aboriginal and Torres Strait Islander Queenslanders and the communities they live in. <http://statistics.qgso.qld.gov.au/datsip/profiles>
- North & South article, Principles of the Treaty of Waitangi
- Ogden J., Basher L. & McGlone M. (1998). Fire, forest regeneration and links with early human habitation: Evidence from New Zealand. *Annals of Botany* 81: 687–696.
- Pitts, M. (2004). Recognising Race and Race Relations in Far North Queensland. Charles Darwin University, Darwin.
- Tablelands Futures Corp. (2007). *Cairns Highlands Investment Environment*. Dept. of Primary Industries Report.
- Towns et al. (2013). Purposes, outcomes and challenges of eradicating invasive mammals from New Zealand islands: an historical perspective. *Wildlife* 40: 94-107.
- Wilson, K-J. (2004). *Flight of the Huia- Ecology and conservation of New Zealand's frogs, reptiles, birds and mammals*. Canterbury University Press, Christchurch New Zealand.
- Wilson, K-J. (2008). The State of New Zealand's Birds 2008. Conservation of Birds on the Mainland. Provided as pdf file.