General Information

Unit convenor and teaching staff
Unit Convenor
Michelle Leishman
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Contact via michelle.leishman@mq.edu.au

Other Staff
Katherine McClellan
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Credit points
3

Prerequisites
BIOL227(P) and BIOL235(P)

Corequisites

Co-badged status

Unit description
This unit covers the major themes of biodiversity and conservation: patterns of biodiversity, principles of conservation biology, human impacts, and management principles. Topics include global biodiversity, threatening processes, protected area and off-reserve conservation, habitat fragmentation, restoration ecology, climate change impacts, and management. Much of the focus is on Australian examples. Field and laboratory work are an important component of this unit and are conducted in two compulsory on-campus sessions.

Important Academic Dates
Information about important academic dates including deadlines for withdrawing from units are available at https://students.mq.edu.au/important-dates

Learning Outcomes
1. ability to describe the major patterns of biodiversity globally
2. ability to identify key threatening processes that lead to the loss of biodiversity
3. ability to critically evaluate and synthesise diverse information sources on a conservation issue and communicate that understanding using a variety of techniques
4. able to use principles of conservation biology to describe and evaluate conservation
management options for a particular case

**Assessment Tasks**

<table>
<thead>
<tr>
<th>Name</th>
<th>Weighting</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral seminar</td>
<td>10%</td>
<td>23-24 August</td>
</tr>
<tr>
<td>Blog</td>
<td>5%</td>
<td>23 Aug &amp; 1 Sept</td>
</tr>
<tr>
<td>Draft recovery plan</td>
<td>20%</td>
<td>15 September</td>
</tr>
<tr>
<td>MQ Ecology Reserve PoM</td>
<td>30%</td>
<td>13 October</td>
</tr>
<tr>
<td>Participation</td>
<td>5%</td>
<td>throughout semester</td>
</tr>
<tr>
<td>Final exam</td>
<td>30%</td>
<td>Exam period</td>
</tr>
</tbody>
</table>

**Oral seminar**

Due: **23-24 August**  
Weighting: **10%**

You must prepare a 10 minute talk that is a summary and critical appraisal of a journal article chosen from the recent (last 5 years) conservation biology literature. The article you choose should be reporting and interpreting new information, not a review article or opinion piece. Please check your article is suitable with the unit convenor at least one week before the on-campus session. Students will be assessed on the seminar content and presentation quality, and their ability to answer questions. Students will also be assessed on their contribution during question time of the other student talks.

This Assessment Task relates to the following Learning Outcomes:

- ability to describe the major patterns of biodiversity globally
- ability to identify key threatening processes that lead to the loss of biodiversity
- ability to critically evaluate and synthesise diverse information sources on a conservation issue and communicate that understanding using a variety of techniques

**Blog**

Due: **23 Aug & 1 Sept**  
Weighting: **5%**

You should prepare a 500 word post about the article you presented for the oral seminar and post it via the iLearn website onto the unit’s ‘The Conservation piece’ blog. Follow the style of websites such as the environmental research briefs of The Conversation
You should look at the other student’s posts and comment (intelligently and constructively) on at least 3 on the website (Due 1st September)

This Assessment Task relates to the following Learning Outcomes:
• ability to describe the major patterns of biodiversity globally
• ability to identify key threatening processes that lead to the loss of biodiversity
• ability to critically evaluate and synthesise diverse information sources on a conservation issue and communicate that understanding using a variety of techniques

Draft recovery plan
Due: 15 September
Weighting: 20%

You will write a draft recovery plan for a species of your choice whose life-history and circumstances interest you. You will first select a species that doesn’t already have a recovery plan. From the literature you will identify the threats challenging this species’ persistence and suggest management strategies necessary to mitigate these threats. Finally, you will suggest performance criteria to measure and evaluate the efficacy of your recommended strategies.

This Assessment Task relates to the following Learning Outcomes:
• ability to describe the major patterns of biodiversity globally
• ability to identify key threatening processes that lead to the loss of biodiversity
• ability to critically evaluate and synthesise diverse information sources on a conservation issue and communicate that understanding using a variety of techniques
• able to use principles of conservation biology to describe and evaluate conservation management options for a particular case

MQ Ecology Reserve PoM
Due: 13 October
Weighting: 30%

The university is negotiating a Voluntary Conservation Agreement for an area of bushland between Talavera Road and the Lane Cove River. We will assess the area for its biodiversity values, threats including weeds & feral animals, fire management and public access and amenity. All data will be collected, presented and distributed during the second on-campus session (16-18 September). Using these data you will write a Plan of Management for the area. An example PoM will be provided on the iLearn website.
This Assessment Task relates to the following Learning Outcomes:

- ability to identify key threatening processes that lead to the loss of biodiversity
- ability to critically evaluate and synthesise diverse information sources on a conservation issue and communicate that understanding using a variety of techniques
- able to use principles of conservation biology to describe and evaluate conservation management options for a particular case

**Participation**

Due: throughout semester  
Weighting: 5%

You will be assessed for your participation in weekly lectures, ‘The Conservation Piece’ blog, in group fieldwork (contributing to field tasks) and in question time after student seminars and lectures.

This Assessment Task relates to the following Learning Outcomes:

- ability to critically evaluate and synthesise diverse information sources on a conservation issue and communicate that understanding using a variety of techniques

**Final exam**

Due: Exam period  
Weighting: 30%

The final examination is worth 30% of the unit’s assessment. It will be 3 hours plus 10 min reading time. The examination will consist of a mixture of multiple choice, short answer and essay questions: examples will be provided in Lecture 26. There will be an emphasis placed on integration of material from lectures and practicals rather than on rote learning of facts and figures.

This Assessment Task relates to the following Learning Outcomes:

- ability to describe the major patterns of biodiversity globally
- ability to identify key threatening processes that lead to the loss of biodiversity
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- able to use principles of conservation biology to describe and evaluate conservation management options for a particular case
Delivery and Resources

Unit web page

The unit web page can be accessed via the student portal (log in at https://ilearn.mq.edu.au/login/MQ/). There you will find unit information, resource material, links to interesting websites including career information, ECHO (formerly iLectures), announcements, forum and dialogue facilities, as well as links to Turnitin for submitting assessment tasks. You are encouraged to use the discussion & email facilities for communication among staff and students. Please also check the unit webpage regularly for announcements and additional resource material.

RECOMMENDED TEXTS

There is no single text that covers the whole unit. Several general texts are recommended and are in the library or available free on-line:


TECHNOLOGY USED AND REQUIRED

Students are expected to access all unit material through the iLearn unit webpage. Basic multimedia software (eg. Windows Media Player, Quicktime) will be needed to listen to recorded lectures. Students will be required to use internet resources for sourcing information and to use appropriate software, particularly Excel, for data analysis.
## Unit Schedule

### Lecture schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>L#</th>
<th>Lecture</th>
<th>Lecturer</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 July</td>
<td>1</td>
<td>Introduction</td>
<td>Michelle Leishman</td>
</tr>
<tr>
<td>31 July</td>
<td>2</td>
<td>Valuing &amp; measuring biodiversity</td>
<td>Michelle Leishman</td>
</tr>
<tr>
<td>6 Aug</td>
<td>3</td>
<td>Global patterns of biodiversity</td>
<td>Michelle Leishman</td>
</tr>
<tr>
<td>7 Aug</td>
<td>4</td>
<td>Biodiversity &amp; ecosystem function</td>
<td>Michelle Leishman</td>
</tr>
<tr>
<td>13 Aug</td>
<td>5</td>
<td>Loss of biodiversity: extinction</td>
<td>Michelle Leishman</td>
</tr>
<tr>
<td>14 Aug</td>
<td>6</td>
<td>The conservationist's toolbox</td>
<td>Michelle Leishman</td>
</tr>
<tr>
<td>20 Aug</td>
<td>7</td>
<td>Vulnerability to extinction</td>
<td>Michelle Leishman</td>
</tr>
<tr>
<td>21 Aug</td>
<td>8</td>
<td>Human population and habitat loss</td>
<td>Michelle Leishman</td>
</tr>
<tr>
<td>27 Aug</td>
<td>9</td>
<td>Habitat fragmentation</td>
<td>Michelle Leishman</td>
</tr>
<tr>
<td>28 Aug</td>
<td>10</td>
<td>Climate change</td>
<td>Michelle Leishman</td>
</tr>
<tr>
<td>3 Sept</td>
<td>11</td>
<td>Invasive species</td>
<td>Michelle Leishman</td>
</tr>
<tr>
<td>4 Sept</td>
<td>12</td>
<td>Invasive plants in Sydney vegetation</td>
<td>Michelle Leishman</td>
</tr>
<tr>
<td>10 Sept</td>
<td>13</td>
<td>Over-exploitation, disease &amp; pollution</td>
<td>Michelle Leishman</td>
</tr>
<tr>
<td>11 Sept</td>
<td>14</td>
<td>Protected areas</td>
<td>Michelle Leishman</td>
</tr>
<tr>
<td>1 Oct</td>
<td>15</td>
<td>Off-reserve conservation</td>
<td>Michelle Leishman</td>
</tr>
<tr>
<td>2 Oct</td>
<td>16</td>
<td>Ecological restoration</td>
<td>Michelle Leishman</td>
</tr>
<tr>
<td>8 Oct</td>
<td>17</td>
<td>Biodiversity &amp; fire management</td>
<td>Michelle Leishman</td>
</tr>
<tr>
<td>9 Oct</td>
<td>18</td>
<td>Species-level conservation</td>
<td>Michelle Leishman</td>
</tr>
<tr>
<td>15 Oct</td>
<td>19</td>
<td>Seed banking</td>
<td>Peter Cuneo</td>
</tr>
</tbody>
</table>
### Introduction to conservation genetics

**Date:** 16 Oct  
**Session:** 20  
**Speaker:** Richard Frankham

### Genetic m’ment of small popns

**Date:** 22 Oct  
**Session:** 21  
**Speaker:** Richard Frankham

### Captive breeding & re-introduction

**Date:** 23 Oct  
**Session:** 22  
**Speaker:** Richard Frankham

### Climate change adaptation & policy

**Date:** 29 Oct  
**Session:** 23  
**Speaker:** Lesley Hughes

### Species translocation

**Date:** 30 Oct  
**Session:** 24  
**Speaker:** Nola Hancock

### Legislation

**Date:** 5 Nov  
**Session:** 25  
**Speaker:** Michelle Leishman

### Wrap-up

**Date:** 6 Nov  
**Session:** 26  
**Speaker:** Michelle Leishman

## On-campus sessions

### Session 1: 23-24 August

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>23 Aug</td>
<td>AM</td>
<td>Seminars</td>
</tr>
<tr>
<td>23 Aug</td>
<td>PM</td>
<td>Assessment of threat status</td>
</tr>
<tr>
<td>24 Aug</td>
<td>AM</td>
<td>Seminars</td>
</tr>
<tr>
<td>24 Aug</td>
<td>PM</td>
<td>Ecological restoration in practice - LCNP site visit</td>
</tr>
</tbody>
</table>

### Session 2: 22-24 September

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>22 Sept</td>
<td>AM</td>
<td>Overview of MQ Nature Reserve with Lane Cove National Park staff</td>
</tr>
<tr>
<td>22 Sept</td>
<td>PM</td>
<td>Organise into groups, collate resources, field work</td>
</tr>
<tr>
<td>23 Sept</td>
<td></td>
<td>Group field work</td>
</tr>
<tr>
<td>24 Sept</td>
<td>AM</td>
<td>Group field work</td>
</tr>
<tr>
<td>24 Sept</td>
<td>PM</td>
<td>Data presentation</td>
</tr>
</tbody>
</table>
Learning and Teaching Activities

Lectures
Lectures on theory and principles of conservation biology

Practicals
Practicals include exercises in assessment of threat of extinction, population viability analysis, collecting data for conservation planning and management.

Policies and Procedures
Macquarie University policies and procedures are accessible from Policy Central. Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy http://mq.edu.au/policy/docs/academic_honesty/policy.html
Disruption to Studies Policy http://www.mq.edu.au/policy/docs/disruption_studies/policy.html The Disruption to Studies Policy is effective from March 3 2014 and replaces the Special Consideration Policy.

In addition, a number of other policies can be found in the Learning and Teaching Category of Policy Central.

Student Code of Conduct
Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/support/student_conduct/

Student Support
Macquarie University provides a range of support services for students. For details, visit http://students.mq.edu.au/support/

Learning Skills
Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to improve your marks and take control of your study.

• Workshops
Our graduates will take with them the intellectual development, depth and breadth of knowledge, scholarly understanding, and specific subject content in their chosen fields to make them competent and confident in their subject or profession. They will be able to demonstrate, where relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary solutions to problems.

This graduate capability is supported by:

Learning outcomes

- ability to describe the major patterns of biodiversity globally
- ability to identify key threatening processes that lead to the loss of biodiversity
- ability to critically evaluate and synthesise diverse information sources on a conservation issue and communicate that understanding using a variety of techniques
- able to use principles of conservation biology to describe and evaluate conservation management options for a particular case

Assessment tasks

- Oral seminar
- Blog
Critical, Analytical and Integrative Thinking

We want our graduates to be capable of reasoning, questioning and analysing, and to integrate and synthesise learning and knowledge from a range of sources and environments; to be able to critique constraints, assumptions and limitations; to be able to think independently and systemically in relation to scholarly activity, in the workplace, and in the world. We want them to have a level of scientific and information technology literacy.

This graduate capability is supported by:

**Learning outcomes**

- ability to describe the major patterns of biodiversity globally
- ability to critically evaluate and synthesise diverse information sources on a conservation issue and communicate that understanding using a variety of techniques
- able to use principles of conservation biology to describe and evaluate conservation management options for a particular case

**Assessment tasks**

- Oral seminar
- Blog
- Draft recovery plan
- MQ Ecology Reserve PoM
- Final exam

Problem Solving and Research Capability

Our graduates should be capable of researching; of analysing, and interpreting and assessing data and information in various forms; of drawing connections across fields of knowledge; and they should be able to relate their knowledge to complex situations at work or in the world, in order to diagnose and solve problems. We want them to have the confidence to take the initiative in doing so, within an awareness of their own limitations.

This graduate capability is supported by:

**Learning outcomes**

- ability to critically evaluate and synthesise diverse information sources on a conservation issue and communicate that understanding using a variety of techniques
- able to use principles of conservation biology to describe and evaluate conservation management options for a particular case
Assessment tasks

- Draft recovery plan
- MQ Ecology Reserve PoM

Creative and Innovative

Our graduates will also be capable of creative thinking and of creating knowledge. They will be imaginative and open to experience and capable of innovation at work and in the community. We want them to be engaged in applying their critical, creative thinking.

This graduate capability is supported by:

Assessment tasks

- Oral seminar
- Blog

Effective Communication

We want to develop in our students the ability to communicate and convey their views in forms effective with different audiences. We want our graduates to take with them the capability to read, listen, question, gather and evaluate information resources in a variety of formats, assess, write clearly, speak effectively, and to use visual communication and communication technologies as appropriate.

This graduate capability is supported by:

Assessment tasks

- Oral seminar
- Blog
- Participation

Engaged and Ethical Local and Global citizens

As local citizens our graduates will be aware of indigenous perspectives and of the nation's historical context. They will be engaged with the challenges of contemporary society and with knowledge and ideas. We want our graduates to have respect for diversity, to be open-minded, sensitive to others and inclusive, and to be open to other cultures and perspectives: they should have a level of cultural literacy. Our graduates should be aware of disadvantage and social justice, and be willing to participate to help create a wiser and better society.

This graduate capability is supported by:

Learning outcome

- ability to describe the major patterns of biodiversity globally
Assessment tasks

• Draft recovery plan
• MQ Ecology Reserve PoM
• Participation

Socially and Environmentally Active and Responsible

We want our graduates to be aware of and have respect for self and others; to be able to work with others as a leader and a team player; to have a sense of connectedness with others and country; and to have a sense of mutual obligation. Our graduates should be informed and active participants in moving society towards sustainability.

This graduate capability is supported by:

Assessment tasks

• Draft recovery plan
• MQ Ecology Reserve PoM
• Participation

Capable of Professional and Personal Judgement and Initiative

We want our graduates to have emotional intelligence and sound interpersonal skills and to demonstrate discernment and common sense in their professional and personal judgement. They will exercise initiative as needed. They will be capable of risk assessment, and be able to handle ambiguity and complexity, enabling them to be adaptable in diverse and changing environments.

This graduate capability is supported by:

Learning outcome

• able to use principles of conservation biology to describe and evaluate conservation management options for a particular case

Assessment tasks

• Oral seminar
• Draft recovery plan
• MQ Ecology Reserve PoM

Changes from Previous Offering

Updated external offering dates
## Changes since First Published

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
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<tbody>
<tr>
<td>10/07/2014</td>
<td>external session 2 dates updated</td>
</tr>
<tr>
<td>24/06/2014</td>
<td>Assessment dates updated</td>
</tr>
<tr>
<td>24/06/2014</td>
<td>Assessment dates changed</td>
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