



# BIOL887

## Regional and Global Conservation

S2 Day 2019

*Dept of Biological Sciences*

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## General Information

### Unit convenor and teaching staff

#### Convenor

Robert Harcourt

[robert.harcourt@mq.edu.au](mailto:robert.harcourt@mq.edu.au)

E8A272

Tuesday 0900-1700

#### Tutor

Jessica Boomer

[jessica.boomer@mq.edu.au](mailto:jessica.boomer@mq.edu.au)

email or Tuesday 0900-1300

Caitlin Kordis

[caitlin.kordis@mq.edu.au](mailto:caitlin.kordis@mq.edu.au)

### Credit points

4

### Prerequisites

BIOL875 or GSE804 or ENV808 or ENVS808 or (admission to MMarScMgt or MConsBiol or GradDipConsBiol or GradCertConsBiol or MSc or MScInnovation)

### Corequisites

### Co-badged status

BIOL787

### Unit description

This unit deals with the problem of conserving biodiversity as a whole rather than concentrating on individual species or populations. The unit is applied and multidisciplinary, drawing on such areas as ecology, evolutionary biology, biogeography, and informatics. We will explore the concept of biodiversity in both the scientific and legislative arenas. The problem of measuring biodiversity is considered in detail, including the conceptual and practical impediments to measurement. Current and emerging threats to biodiversity are reviewed on a global scale, along with the practical and ethical arguments for conservation. Tutorials and assessments are focussed on analysing and interpreting patterns in biodiversity in space and time as a means of informing conservation decisions.

## Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are

available at <https://www.mq.edu.au/study/calendar-of-dates>

## Learning Outcomes

On successful completion of this unit, you will be able to:

Knowledge of conservation biology: Explain the principles and methods used by Conservation Biology to quantify and value biodiversity at local to global scales.

Knowledge of conservation biology: Elucidate the patterns, mechanisms and consequences of biodiversity and biodiversity loss.

Compile, analyze and interpret biodiversity patterns in a conservation context.

Integrate observed spatial pattern of biodiversity with other sources of spatial information in order to identify and prioritise areas requiring biodiversity monitoring and/or conservation action.

Make recommendations on locations requiring conservation action based on sound scientific evidence.

Critically evaluate and synthesize scientific literature on topics of interest in Conservation Biology.

Communicate Conservation Biology issues to diverse audiences in written and oral form.

## Assessment Tasks

Name	Weighting	Hurdle	Due
<a href="#">Online tests</a>	15%	No	3 times in semester
<a href="#">Conservation Problem- Abstract</a>	20%	No	15 September
<a href="#">Conservation Problem- Talk</a>	25%	No	15,22,29 October
<a href="#">Conservation plan</a>	40%	No	8 November

### Online tests

Due: **3 times in semester**

Weighting: **15%**

There will be a total of 3 online tests (worth 5 marks each) to be completed in your own time. Each test will consist of a single short-answer question and will be based on any lecture, tutorial or assigned reading given up to that point. You will have one week in which to prepare and submit an answer to the question. Marks and feedback will become available after the test has been closed.

On successful completion you will be able to:

- Knowledge of conservation biology: Explain the principles and methods used by Conservation Biology to quantify and value biodiversity at local to global scales.
- Knowledge of conservation biology: Elucidate the patterns, mechanisms and consequences of biodiversity and biodiversity loss.
- Compile, analyze and interpret biodiversity patterns in a conservation context.
- Integrate observed spatial pattern of biodiversity with other sources of spatial information in order to identify and prioritise areas requiring biodiversity monitoring and/or conservation action.
- Make recommendations on locations requiring conservation action based on sound scientific evidence.

## Conservation Problem- Abstract

Due: **15 September**

Weighting: **20%**

You will be tasked with formulating a smart conservation problem based on a real world example of conservation biology. You will be provided with a published peer reviewed paper which describes fundamental conservation knowledge. You will use this paper to present on: 1) the key aspects of what is known about the conservation issue, 2) formulate and present on key aspects of the conservation problem, 3) describe a hypothetical solution to the problem. The assignment of the peer reviewed paper and discussion of the key aspects of proper problem formulation will occur in a tutorial. In this first part you will write an abstract maximum 250 words and design an infographic

On successful completion you will be able to:

- Knowledge of conservation biology: Explain the principles and methods used by Conservation Biology to quantify and value biodiversity at local to global scales.
- Compile, analyze and interpret biodiversity patterns in a conservation context.
- Critically evaluate and synthesize scientific literature on topics of interest in Conservation Biology.
- Communicate Conservation Biology issues to diverse audiences in written and oral form.

## Conservation Problem- Talk

Due: **15,22,29 October**

Weighting: **25%**

You will be tasked with formulating a smart conservation problem based on a real world example of conservation biology. You will be provided with a published peer reviewed paper which describes fundamental conservation knowledge. You will use this paper to present on: 1) the key aspects of what is known about the conservation issue, 2) formulate and present on key aspects of the conservation problem, 3) describe a hypothetical solution to the problem. Internals will

deliver a five minute presentation during tutorials. External students will submit a recording of your presentation (no more than 5 minutes long). The assignment of the peer reviewed paper and discussion of the key aspects of proper problem formulation will occur in a tutorial. Total length of the presentation should be **no more than 5 minutes**.

On successful completion you will be able to:

- Knowledge of conservation biology: Explain the principles and methods used by Conservation Biology to quantify and value biodiversity at local to global scales.
- Knowledge of conservation biology: Elucidate the patterns, mechanisms and consequences of biodiversity and biodiversity loss.
- Compile, analyze and interpret biodiversity patterns in a conservation context.
- Make recommendations on locations requiring conservation action based on sound scientific evidence.
- Critically evaluate and synthesize scientific literature on topics of interest in Conservation Biology.
- Communicate Conservation Biology issues to diverse audiences in written and oral form.

## Conservation plan

Due: **8 November**

Weighting: **40%**

You will prepare a conservation plan for Tasmania. We will use existing data on ecosystems (from NVIS) and species distributions (from SPRAT database) to determine conservation priorities for Tasmania using Marxan, a commonly used systematic conservation planning tool. Analyses for this assignment will be conducted during tutorials. Students can collaborate on making a conservation plan but write and submit their assignments individually. The plan is expected to be well illustrated with maps and graphs, have an extensive bibliography, and be *no more than 3000 words* (including references).

On successful completion you will be able to:

- Knowledge of conservation biology: Explain the principles and methods used by Conservation Biology to quantify and value biodiversity at local to global scales.
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- Compile, analyze and interpret biodiversity patterns in a conservation context.
- Integrate observed spatial pattern of biodiversity with other sources of spatial information in order to identify and prioritise areas requiring biodiversity monitoring and/or conservation action.

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- Critically evaluate and synthesize scientific literature on topics of interest in Conservation Biology.
- Communicate Conservation Biology issues to diverse audiences in written and oral form.

## Delivery and Resources

### Technology

This unit requires access to a computer and a reliable internet connection to complete tutorials and assignments. Both weekly tutorials (internal students) and on-campus sessions (external students) will be held in computer labs with the relevant software installed. Students attempting tutorials on their own will need to install particular software packages (details in tutorial notes). *Some of these packages are only available for Windows OS.*

### Delivery for internal students

Internal students are expected to attend weekly lectures and tutorials. Times and venues can be found in the university timetable. If unable to make the scheduled times, please discuss options with the convenor.

### Delivery for external students

Weekly lectures will be available online through the unit website. Tutorials can either be completed remotely or by attendance at the two weekend on-campus sessions. Dates for the on-campus sessions can be found in the university timetable. **Attendance at on-campus sessions is highly recommended** but not compulsory.

### Unit website

Teaching materials and online communications will be via the unit website ([ilearn.mq.edu.au](http://ilearn.mq.edu.au)).

### Changes since last offering

There have been some significant changes since the last offering (2016) of this unit, particularly with respect to assessments. The presentation on formulating a conservation problem replaces a written assessment on hotspot priorities.

## Unit Schedule

Activities are organised into weekly topics. Please note that the current schedule is provisional and is subject to minor changes.

Week	Topic	Lecture	Tutorial
1	Conservation science	Conservation Biology and Biodiversity	Documentary ( <i>Lord of the Ants</i> )
2	Biodiversity	Biodiversity patterns and processes	What is biodiversity?

3	Ecosystem functions and services	Ecosystem functions and services	Hotspot priority setting
4	Threats to biodiversity - habitat loss	Habitat loss and fragmentation	Defining a conservation problem
5	Threats to biodiversity - threatening processes	Threatening processes	Island biogeography
6	Loss of biodiversity	Extinction and species management	Defining a conservation problem
7	Conservation planning	Systematic conservation planning	Conservation planning game
8	Environmental management	Management actions and effectiveness	Mapping and estimating biodiversity
9	Social dimensions of conservation	People and conservation	Prioritisation for conservation
10	Monitoring and Evaluation	Inventory and monitoring	Gap analysis
11	Conservation in action	Planning for invasive species management - from research to real world	Conservation planning
12	Implementation	Conservation implementation and the implementation gap	Drop-in session
13			

## Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central \(https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central\)](https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- [Academic Appeals Policy](#)
- [Academic Integrity Policy](#)
- [Academic Progression Policy](#)
- [Assessment Policy](#)
- [Fitness to Practice Procedure](#)
- [Grade Appeal Policy](#)
- [Complaint Management Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#) (**Note:** *The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.*)

Undergraduate students seeking more policy resources can visit the [Student Policy Gateway \(https://students.mq.edu.au/support/study/student-policy-gateway\)](https://students.mq.edu.au/support/study/student-policy-gateway). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

If you would like to see all the policies relevant to Learning and Teaching visit [Policy Central](http://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central) (<http://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/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/study/getting-started/student-conduct>

## Results

Results published on platform other than [eStudent](#), (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in [eStudent](#). For more information visit [ask.mq.edu.au](http://ask.mq.edu.au) or if you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## 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](http://mq.edu.au/learningskills)) provides academic writing resources and study strategies to improve your marks and take control of your study.

- [Workshops](#)
- [StudyWise](#)
- [Academic Integrity Module for Students](#)
- [Ask a Learning Adviser](#)

## Student Services and Support

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

## Student Enquiries

For all student enquiries, visit Student Connect at [ask.mq.edu.au](http://ask.mq.edu.au)

If you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## IT Help

For help with University computer systems and technology, visit [http://www.mq.edu.au/about\\_us/offices\\_and\\_units/information\\_technology/help/](http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/).

When using the University's IT, you must adhere to the [Acceptable Use of IT Resources Policy](#). The policy applies to all who connect to the MQ network including students.



## Graduate Capabilities

### PG - Capable of Professional and Personal Judgment and Initiative

Our postgraduates will demonstrate a high standard of discernment and common sense in their professional and personal judgment. They will have the ability to make informed choices and decisions that reflect both the nature of their professional work and their personal perspectives.

This graduate capability is supported by:

#### Learning outcomes

- Knowledge of conservation biology: Explain the principles and methods used by Conservation Biology to quantify and value biodiversity at local to global scales.
- Knowledge of conservation biology: Elucidate the patterns, mechanisms and consequences of biodiversity and biodiversity loss.
- Communicate Conservation Biology issues to diverse audiences in written and oral form.

#### Assessment tasks

- Online tests
- Conservation Problem- Abstract
- Conservation Problem- Talk
- Conservation plan

### PG - Discipline Knowledge and Skills

Our postgraduates will be able to demonstrate a significantly enhanced depth and breadth of knowledge, scholarly understanding, and specific subject content knowledge in their chosen fields.

This graduate capability is supported by:

#### Learning outcomes

- Knowledge of conservation biology: Explain the principles and methods used by Conservation Biology to quantify and value biodiversity at local to global scales.
- Knowledge of conservation biology: Elucidate the patterns, mechanisms and consequences of biodiversity and biodiversity loss.
- Compile, analyze and interpret biodiversity patterns in a conservation context.
- Integrate observed spatial pattern of biodiversity with other sources of spatial information in order to identify and prioritise areas requiring biodiversity monitoring and/or conservation action.
- Make recommendations on locations requiring conservation action based on sound

scientific evidence.

- Critically evaluate and synthesize scientific literature on topics of interest in Conservation Biology.

## **Assessment tasks**

- Online tests
- Conservation Problem- Abstract
- Conservation Problem- Talk
- Conservation plan

## **PG - Critical, Analytical and Integrative Thinking**

Our postgraduates will be capable of utilising and reflecting on prior knowledge and experience, of applying higher level critical thinking skills, and of integrating and synthesising learning and knowledge from a range of sources and environments. A characteristic of this form of thinking is the generation of new, professionally oriented knowledge through personal or group-based critique of practice and theory.

This graduate capability is supported by:

## **Learning outcomes**

- Knowledge of conservation biology: Explain the principles and methods used by Conservation Biology to quantify and value biodiversity at local to global scales.
- Knowledge of conservation biology: Elucidate the patterns, mechanisms and consequences of biodiversity and biodiversity loss.
- Compile, analyze and interpret biodiversity patterns in a conservation context.
- Integrate observed spatial pattern of biodiversity with other sources of spatial information in order to identify and prioritise areas requiring biodiversity monitoring and/or conservation action.
- Make recommendations on locations requiring conservation action based on sound scientific evidence.
- Critically evaluate and synthesize scientific literature on topics of interest in Conservation Biology.

## **Assessment tasks**

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## PG - Research and Problem Solving Capability

Our postgraduates will be capable of systematic enquiry; able to use research skills to create new knowledge that can be applied to real world issues, or contribute to a field of study or practice to enhance society. They will be capable of creative questioning, problem finding and problem solving.

This graduate capability is supported by:

### Learning outcomes

- Compile, analyze and interpret biodiversity patterns in a conservation context.
- Integrate observed spatial pattern of biodiversity with other sources of spatial information in order to identify and prioritise areas requiring biodiversity monitoring and/or conservation action.
- Make recommendations on locations requiring conservation action based on sound scientific evidence.
- Critically evaluate and synthesize scientific literature on topics of interest in Conservation Biology.
- Communicate Conservation Biology issues to diverse audiences in written and oral form.

### Assessment tasks

- Online tests
- Conservation Problem- Abstract
- Conservation Problem- Talk
- Conservation plan

## PG - Effective Communication

Our postgraduates will be able to communicate effectively and convey their views to different social, cultural, and professional audiences. They will be able to use a variety of technologically supported media to communicate with empathy using a range of written, spoken or visual formats.

This graduate capability is supported by:

### Learning outcomes

- Make recommendations on locations requiring conservation action based on sound scientific evidence.
- Critically evaluate and synthesize scientific literature on topics of interest in Conservation Biology.
- Communicate Conservation Biology issues to diverse audiences in written and oral form.

## Assessment tasks

- Conservation Problem- Abstract
- Conservation Problem- Talk
- Conservation plan

## PG - Engaged and Responsible, Active and Ethical Citizens

Our postgraduates will be ethically aware and capable of confident transformative action in relation to their professional responsibilities and the wider community. They will have a sense of connectedness with others and country and have a sense of mutual obligation. They will be able to appreciate the impact of their professional roles for social justice and inclusion related to national and global issues

This graduate capability is supported by:

## Learning outcomes

- Knowledge of conservation biology: Explain the principles and methods used by Conservation Biology to quantify and value biodiversity at local to global scales.
- Knowledge of conservation biology: Elucidate the patterns, mechanisms and consequences of biodiversity and biodiversity loss.
- Compile, analyze and interpret biodiversity patterns in a conservation context.

## Assessment tasks

- Online tests
- Conservation Problem- Abstract
- Conservation Problem- Talk
- Conservation plan