



GSE 854

Biodiversity Survey and Habitat Assessment Techniques

S1 External 2014

Dept of Biological Sciences

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General Information

Unit convenor and teaching staff

Unit Convenor

Adam Fawcett

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Contact via adam.fawcett@mq.edu.au

Other Staff

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E8A 376

Other Staff

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Credit points

4

Prerequisites

Admission to MWldMgt or PGDipWldMgt or PGCertWldMgt or MMarScMgt or MSc in Biodiversity Conservation or PGDipSc in Biodiversity Conservation

Corequisites

Co-badged status

Unit description

This unit provides training in the study of wildlife populations. Skills in observation and interpretation and field experience in taxonomy will be linked to the planning required to conduct safe, ethical and efficient wildlife surveys and research, including design, data entry, storage and analysis. Students gain skills in a wide range of standard survey techniques for birds, bats, mammals, reptiles, amphibians, insects, plants and habitat assessment. On completion, students will be able to design, conduct and report on wildlife surveys.

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:

Gain awareness of the range of specialist methods available to quantify plant and animal communities or populations. Gain in field and lab experience in the practise of a range of specialist survey techniques.

Develop skills to review and evaluate survey data and scientific reports, relevant to biodiversity surveys. Gain awareness and skills in methods of sampling, measurement, analysis and interpretation. Gain understanding of methods used for measuring and assessment of habitat including abiotic variables.

Develop a working knowledge of the planning and implementation of field work necessary for projects utilising biodiversity survey techniques.

Make full use of biodiversity survey data through analysis and use of all data collected.

Apply skills to improve results from biodiversity survey during field components.

Display discussion and presentation skills through online discussions and field trip interaction. Plan and present written arguments in coherent, well structured and documented form. Work as part of a team during the field trip, demonstrating effective communication skills within and between teams and to supervising staff.

Be able to ensure that procedures are safe for personnel. Ensure survey techniques are ethical with regard to flora and fauna at all times

Minimise impact of biodiversity surveys undertaken on the people using sites, wildlife being surveyed and the environment surveys are undertaken in

Recognise the strengths and limitations with respect to personal skill level. Develop the ability to seek expert help and advice as needed based on scenario and personal skill levels. Reflect on how personal experiences influence your own capacity for critical analysis. Present a convincing argument for the results of biodiversity survey.

Demonstrate effective time management and work organisation skills. Demonstrate effective project management skills. Assess your own learning and performance in group work and class and your ability to work in cross disciplinary and multi cultural situations.

Assessment Tasks

Name	Weighting	Due
<u>A1. Selection of a study site</u>	20%	30/3/14
<u>A2A. FieldTrip Report</u>	20%	13/4/14

Name	Weighting	Due
A2B. Field Notebook	10%	23/3/14
A3. Biodiversity Survey	40%	8/6/14
Discussions	10%	8/6/13

A1. Selection of a study site

Due: **30/3/14**

Weighting: **20%**

Identify and describe a site for a Biodiversity Survey including target species and the techniques to be used. This assignment will require you to use initiative and learning materials to locate a site suitable for a biodiversity survey. The site can be located in any tenure as long as it meets the objectives of the assignment.

More details will be available thru iLearn at the start of the semester.

Word Count: 2000 Words

On successful completion you will be able to:

- Gain awareness of the range of specialist methods available to quantify plant and animal communities or populations. Gain in field and lab experience in the practise of a range of specialist survey techniques.
- Develop a working knowledge of the planning and implementation of field work necessary for projects utilising biodiversity survey techniques.
- Display discussion and presentation skills through online discussions and field trip interaction. Plan and present written arguments in coherent, well structured and documented form. Work as part of a team during the field trip, demonstrating effective communication skills within and between teams and to supervising staff.
- Be able to ensure that procedures are safe for personnel. Ensure survey techniques are ethical with regard to flora and fauna at all times
- Recognise the strengths and limitations with respect to personal skill level. Develop the ability to seek expert help and advice as needed based on scenario and personal skill levels. Reflect on how personal experiences influence your own capacity for critical analysis. Present a convincing argument for the results of biodiversity survey.
- Demonstrate effective time management and work organisation skills. Demonstrate effective project management skills. Assess your own learning and performance in group work and class and your ability to work in cross disciplinary and multi cultural situations.

A2A. FieldTrip Report

Due: **13/4/14**

Weighting: **20%**

Participate in a team survey of the study site on the field trip and provide a report on the results of the field trip surveys. Carry out flora and fauna surveys as per the Field Trip Agenda and Field Trip Outline.

More information on this assignment will be available thru iLearn at the start of semester.

Word Count: 2000 Words

On successful completion you will be able to:

- Gain awareness of the range of specialist methods available to quantify plant and animal communities or populations. Gain in field and lab experience in the practise of a range of specialist survey techniques.
- Develop skills to review and evaluate survey data and scientific reports, relevant to biodiversity surveys. Gain awareness and skills in methods of sampling, measurement, analysis and interpretation. Gain understanding of methods used for measuring and assessment of habitat including abiotic variables.
- Develop a working knowledge of the planning and implementation of field work necessary for projects utilising biodiversity survey techniques.
- Display discussion and presentation skills through online discussions and field trip interaction. Plan and present written arguments in coherent, well structured and documented form. Work as part of a team during the field trip, demonstrating effective communication skills within and between teams and to supervising staff.
- Be able to ensure that procedures are safe for personnel. Ensure survey techniques are ethical with regard to flora and fauna at all times
- Minimise impact of biodiversity surveys undertaken on the people using sites, wildlife being surveyed and the environment surveys are undertaken in
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A2B. Field Notebook

Due: **23/3/14**

Weighting: **10%**

During the field trip for GSE854, all students will be required to utilise a field notebook for data collection purposes. Field notebooks will be assessed at the end of the field trip and handed back to students.

On successful completion you will be able to:

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- Develop a working knowledge of the planning and implementation of field work necessary for projects utilising biodiversity survey techniques.
- Make full use of biodiversity survey data through analysis and use of all data collected. Apply skills to improve results from biodiversity survey during field components.
- Display discussion and presentation skills through online discussions and field trip interaction. Plan and present written arguments in coherent, well structured and documented form. Work as part of a team during the field trip, demonstrating effective communication skills within and between teams and to supervising staff.
- Be able to ensure that procedures are safe for personnel. Ensure survey techniques are ethical with regard to flora and fauna at all times
- Recognise the strengths and limitations with respect to personal skill level. Develop the ability to seek expert help and advice as needed based on scenario and personal skill levels. Reflect on how personal experiences influence your own capacity for critical analysis. Present a convincing argument for the results of biodiversity survey.
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A3. Biodiversity Survey

Due: **8/6/14**

Weighting: **40%**

Complete a Biodiversity survey of a chosen study site and provide a report on the results with consideration of existing wildlife management activities on the site.

More information on this assignment will be available thru iLearn at the start of semester.

Word Count: 4500 Words

On successful completion you will be able to:

- Gain awareness of the range of specialist methods available to quantify plant and animal

communities or populations. Gain in field and lab experience in the practise of a range of specialist survey techniques.

- Develop skills to review and evaluate survey data and scientific reports, relevant to biodiversity surveys. Gain awareness and skills in methods of sampling, measurement, analysis and interpretation. Gain understanding of methods used for measuring and assessment of habitat including abiotic variables.
- Develop a working knowledge of the planning and implementation of field work necessary for projects utilising biodiversity survey techniques.
- Make full use of biodiversity survey data through analysis and use of all data collected. Apply skills to improve results from biodiversity survey during field components.
- Display discussion and presentation skills through online discussions and field trip interaction. Plan and present written arguments in coherent, well structured and documented form. Work as part of a team during the field trip, demonstrating effective communication skills within and between teams and to supervising staff.
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Discussions

Due: **8/6/13**

Weighting: **10%**

You will be expected to participate in online discussion throughout the semester.

Assessment will be based on your input to the Discussions forum, including starting new discussion threads and contributing to existing threads.

On successful completion you will be able to:

- Gain awareness of the range of specialist methods available to quantify plant and animal communities or populations. Gain in field and lab experience in the practise of a range of

specialist survey techniques.

- Develop a working knowledge of the planning and implementation of field work necessary for projects utilising biodiversity survey techniques.
- Make full use of biodiversity survey data through analysis and use of all data collected. Apply skills to improve results from biodiversity survey during field components.
- Display discussion and presentation skills through online discussions and field trip interaction. Plan and present written arguments in coherent, well structured and documented form. Work as part of a team during the field trip, demonstrating effective communication skills within and between teams and to supervising staff.
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Delivery and Resources

Teaching Staff

Contact details for Staff delivering GSE854 are as follows:

Adam Fawcett (Unit Convener/Lecturer)

Email: adam.fawcett@mq.edu.au

Phone: 0427 929 554

Technology Used and Required

Students are required to have access to a computer and the internet to access the teaching website and lecture materials. Students will also be required to have access to a word processor, spreadsheet manager and database programs to be able to complete set assessment tasks.

For field work students will require access to some field equipment, a complete list of which will be supplied within the teaching website on activation.

Unit Web Page

To access the unit and associated resources, please login to iLearn (<http://ilearn.mq.edu.au/>)

Guides for assist students with on-line websites and resources can be found at

Student iLearn guides: https://www.mq.edu.au/iLearn/student_info/guides.htm

Student Echo guides: https://www.mq.edu.au/iLearn/student_info/lecture_recordings.htm

Teaching and Learning Strategy

The unit is designed to give students an understanding and skills in planning, undertaking and reporting biodiversity surveys. Teaching material is delivered online with topics divided into the semester weeks. Given the online nature of this lecture material, students are expected to participate in online discussions of addition material provided or source and discuss additional material as instructed. Content most closely related to field work will also be delivered as part of the field trip.

The unit has two components:

1. A distance component using web-based delivery through the Macquarie University online teaching website [iLearn](#). Students are expected to work at their own pace through the unit material with ongoing guidance and discussion from unit conveners and teaching assistants.
2. A four-day field trip will be held at the Smiths Lake Field Research Station. This will provide hands on experience and further learning input to deliver the practical skills described in the learning objectives. The field trip will involve both field and lab based lectures and exercises to develop these skills. The date of the field trip is planned for **Wednesday 19 to Sunday 23 March 2014.**

It is strongly recommended that all students attend the field trip although it is not compulsory. Details are provided in [iLearn](#) at the start of the Semester or contact the Unit Convener for more information.

Please note that should there be a clash with other units during the dates of the field trip (either field trips or compulsory course-work components) students will need to decide which unit they wish to be enrolled in for this semester to enable attendance.

Changes since the last offering of this unit

Revision and update of lecture material has been undertaken to ensure currency. Other resources have similarly reviewed and updated as required. No major changes to the unit content otherwise.

Required and Recommended Texts/Materials

Set Text

Sutherland W J (Ed) (2006) *Ecological Census Techniques: a handbook*. Second Edition. Cambridge University Press, Cambridge. Paperback ISBN 9780521606363

Copies of this text are available through the [Co-Op Bookshop](#) at Macquarie University

Assignment Submission

All assignments are submitted using the tools provided within the unit in [iLearn](#). In addition, students are required to submit assignments to the [Turnitin](#) website.

Examination Conditions

No exams are for this unit with set assignments forming the assessment for this unit.

Requirements to Complete this Unit Satisfactorily

To successfully complete the unit, students are required to submit all assessment tasks and gain an overall pass mark from these assessment tasks.

Grading Criteria and Standards

Assessment tasks for GSE854 are graded unit and grading criteria are provided within the unit website in [iLearn](#).

Unit Schedule

Topics

Topics covered by GSE854 include:

- Introduction: review of fundamentals of biodiversity survey and understanding why are you doing the field work/task?
- Preparation and planning for field work
- Animal care and ethics considerations
- Methods for counting taxa
- Field and lab taxonomy
- Flora survey
- Habitat assessment
- Invertebrate studies
- Field techniques for reptiles and amphibians
- Field techniques for mammals
- Field techniques for bats
- Field techniques for birds
- Maintaining the results of field work: data archiving, field station maintenance and equipment storage
- Report writing and presentations

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

Assessment Policy <http://mq.edu.au/policy/docs/assessment/policy.html>

Grading Policy <http://mq.edu.au/policy/docs/grading/policy.html>

Grade Appeal Policy <http://mq.edu.au/policy/docs/gradeappeal/policy.html>

Grievance Management Policy http://mq.edu.au/policy/docs/grievance_management/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/

How do I Request an Extension?

Students may request an extension for any of the set assessment tasks with the unit convener. Requests for an extension will be assessed on a case-by-case basis in accordance with the Macquarie University handbook. Students will be required to supply suitable documentation to support their request.

Please note that requests for extensions should be made as early as possible.

Penalties for Late Submission

Where a student fails to submit an assessment task by the due date plus any extension granted by the lecturer, a penalty of 10% of the value of the assignment will be deducted per day.

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](#)
- [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

IT Help

For help with University computer systems and technology, visit <http://informatics.mq.edu.au/help/>.

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

Graduate Capabilities

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

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- Be able to ensure that procedures are safe for personnel. Ensure survey techniques are ethical with regard to flora and fauna at all times
- Minimise impact of biodiversity surveys undertaken on the people using sites, wildlife being surveyed and the environment surveys are undertaken in
- Demonstrate effective time management and work organisation skills. Demonstrate effective project management skills. Assess your own learning and performance in group work and class and your ability to work in cross disciplinary and multi cultural situations.

Assessment tasks

- A1. Selection of a study site
- A2A. FieldTrip Report
- A2B. Field Notebook
- A3. Biodiversity Survey
- Discussions

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

- Gain awareness of the range of specialist methods available to quantify plant and animal communities or populations. Gain in field and lab experience in the practise of a range of specialist survey techniques.
- Develop skills to review and evaluate survey data and scientific reports, relevant to biodiversity surveys. Gain awareness and skills in methods of sampling, measurement, analysis and interpretation. Gain understanding of methods used for measuring and assessment of habitat including abiotic variables.
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Assessment tasks

- A2A. FieldTrip Report
- A2B. Field Notebook
- A3. Biodiversity Survey
- Discussions

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

- Gain awareness of the range of specialist methods available to quantify plant and animal communities or populations. Gain in field and lab experience in the practise of a range of specialist survey techniques.
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Assessment tasks

- A2A. FieldTrip Report
- A2B. Field Notebook
- A3. Biodiversity Survey

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

- Gain awareness of the range of specialist methods available to quantify plant and animal communities or populations. Gain in field and lab experience in the practise of a range of specialist survey techniques.
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assessment of habitat including abiotic variables.

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- Recognise the strengths and limitations with respect to personal skill level. Develop the ability to seek expert help and advice as needed based on scenario and personal skill levels. Reflect on how personal experiences influence your own capacity for critical analysis. Present a convincing argument for the results of biodiversity survey.

Assessment tasks

- A1. Selection of a study site
- A2A. FieldTrip Report
- A2B. Field Notebook
- A3. Biodiversity Survey
- Discussions

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

- Gain awareness of the range of specialist methods available to quantify plant and animal communities or populations. Gain in field and lab experience in the practise of a range of specialist survey techniques.
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ability to seek expert help and advice as needed based on scenario and personal skill levels. Reflect on how personal experiences influence your own capacity for critical analysis. Present a convincing argument for the results of biodiversity survey.

Assessment tasks

- A1. Selection of a study site
- A3. Biodiversity Survey
- Discussions

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

- Gain awareness of the range of specialist methods available to quantify plant and animal communities or populations. Gain in field and lab experience in the practise of a range of specialist survey techniques.
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effective project management skills. Assess your own learning and performance in group work and class and your ability to work in cross disciplinary and multi cultural situations.

Assessment tasks

- A1. Selection of a study site
- A2A. FieldTrip Report
- A2B. Field Notebook
- A3. Biodiversity Survey
- Discussions