a.r.u.

Module Definition Form (MDF)

Module code: MOD002869	**Version:** 7 **Date Amended:** 22/Apr/2022

1. Module Title
Population Ecology and Wildlife Management

2a. Module Leader
Toby Carter

2b. School
School of Life Sciences

2c. Faculty
Faculty of Science and Engineering

3a. Level
6

3b. Module Type
Standard (fine graded)

4a. Credits
15

4b. Study Hours
150

5. Restrictions

Type	Module Code	Module Name	Condition
Co-requisites:	None		
Exclusions:	None		
Courses to which this module is restricted:	None		

LEARNING, TEACHING AND ASSESSMENT INFORMATION

6a. Module Description

Population ecology is the study of the factors that affect a population, and how and why a population changes. Knowing how populations will respond to interventions is vital to wildlife management.

You will explore the first principles of population ecology and the quantitative methods used, prior to seeing how these theories are applied practically in wildlife management. We will study the demography and dynamics of wildlife populations and you will be guided in how to use the mathematical tools and models to understand population change. Population ecology can also be explored in the wider context of current developments in population genetics, evolutionary biology and animal behaviour.

Through the study of examples, you will review and assess the factors which are important in the population dynamics, management and conservation of wild populations. The current scientific literature is a critical resource; you will read scientific papers relating to marine and terrestrial ecosystems, looking at both exploited and threatened populations that are conservation priorities. You will work in groups to address practical challenges in population ecology, developing skills in teamwork, problem solving and the application of IT. An important theme throughout the module is the development of critical thinking skills and their application in understanding the advantages and limitations of population models when applied to real world ecological systems. These are skills that are relevant to a wide-range of careers in biology and ecology, as well as in other industries.

6b. Outline Content

POPULATION ECOLOGY

- Demography and population growth - modelling population growth

- Exponential and geometric growth

- Life history analysis

- Population age structure - life tables

- Dispersal and Migration

- Distributions and Metapopulations

- Population regulation

- Population stability and change

- Predator prey interactions and chaos

- Population cycles

- Competition and mutualisms

- Parasitism

WILDLIFE MANAGEMENT

- Managing populations

- Inter-specific and Intra-specific Competition

- Stochastic processes and population vulnerability

- Sustainable exploitation of populations

- Fundamental problems in application of theory

6c. Key Texts/Literature

The reading list to support this module is available at: https://readinglists.aru.ac.uk/

6d. Specialist Learning Resources

Suitable 'Ecology' Laboratory Technical support Field trip - Visit to site of long-term monitoring of fish populations

7. Learning Outcomes (threshold standards)		
No.	**Type**	**On successful completion of this module the student will be expected to be able to:**
1	Knowledge and Understanding	Identify and explain the range of factors that influence and regulate wild populations and the limits to our understanding of this field of study
2	Knowledge and Understanding	Critically evaluate the social and ethical dimensions relating to the management and conservation of wild populations
3	Intellectual, practical, affective and transferrable skills	Use mathematical models to explain current dynamics or single and interacting populations, and project future change
4	Intellectual, practical, affective and transferrable skills	Communicate concepts in population ecology to scientific audiences

8a. Module Occurrence to which this MDF Refers				
Year	**Occurrence**	**Period**	**Location**	**Mode of Delivery**
2025/6	ZZF	Template For Face To Face Learning Delivery		Face to Face

8b. Learning Activities for the above Module Occurrence			
Learning Activities	**Hours**	**Learning Outcomes**	**Details of Duration, frequency and other comments**
Lectures	11	1-4	11 x 1 hr lectures/active learning
Other teacher managed learning	25	1-4	11 x 2 hrs computer workshops + 3 hrs assessment literacy
Student managed learning	114	1-4	Background reading, online activities, preparation for lectures and practicals, and completion of assessments
TOTAL:	150		

9. Assessment for the above Module Occurrence					
Assessment No.	**Assessment Method**	**Learning Outcomes**	**Weighting (%)**	**Fine Grade or Pass/Fail**	**Qualifying Mark (%)**
010	Coursework	1,3,4	24 (%)	Fine Grade	30 (%)
In class tests and exercises associated with tutorial sessions (2,000 words equivalent)					

Assessment components for Element 010			
Component No.	**Assessment Title**	**Submission Method**	**Components needed for Mark Calculation?**
010/1	Worksheet quiz 1	Scheduled Activity: Timetabled assessment task	Best 3 out of 4. All components used in calculation are equally weighted
010/2	Worksheet quiz 2	Scheduled Activity: Timetabled assessment task	
010/3	Worksheet quiz 3	Scheduled Activity: Timetabled assessment task	
010/4	Worksheet quiz 4	Scheduled Activity: Timetabled assessment task	

Assessment No.	**Assessment Method**	**Learning Outcomes**	**Weighting (%)**	**Fine Grade or Pass/Fail**	**Qualifying Mark (%)**
011	Practical	1-4	76 (%)	Fine Grade	30 (%)
Written Report (1000 Words Equivalent)					

Assessment components for Element 011				
Component No.	**Assessment Title**	**Submission Method**	**Weighting (%)**	**Components needed for Mark Calculation?**
011/1	Theory quiz 1	Scheduled Activity: Timetabled assessment task	16 (%)	All
011/2	Theory quiz 2	Scheduled Activity: Timetabled assessment task	16 (%)	
011/3	Theory quiz 3	Scheduled Activity: Timetabled assessment task	16 (%)	
011/4	Written Report (1300 words)	Canvas	52 (%)	

In order to pass this module, students are required to achieve an overall mark of 40% (for modules at levels 3, 4, 5 and 6) or 50% (for modules at level 7*).

In addition, students are required to:
(a) achieve the qualifying mark for each element of fine graded assessment as specified above
(b) pass any pass/fail elements

[* the pass mark of 50% applies for all module occurrences from the academic year 2024/25 – see Section 3a of this MDF to check the level of the module and Section 8a of this MDF to check the academic year]