University of the West of England
BRISTOL

**ACADEMIC SERVICES**

**MODULE SPECIFICATION**

| **Part 1: Basic Data** | | | | | | |
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| Module Title | Advanced Ecosystem Conservation in Practice | | | | | |
| Module Code | USSKDD-30-M | | Level | M | Version | 1 |
| UWE Credit Rating | 30 | ECTS Credit Rating | 15 | WBL module? | No | |
| Owning Faculty | Health and Applied Sciences | | Field | Environmental | | |
| Department | Biological, Biomedical and Analytical Sciences | | Module Type | Standard | | |
| Contributes towards | MSc Advanced Wildlife Conservation in Practice | | | | | |
| Pre-requisites | None | | Co- requisites | None | | |
| Excluded Combinations | None | | Module Entry requirements | None | | |
| First CAP Approval Date | 2nd June 2015 | | Valid from | January 2016 | | |
| Revision CAP Approval Date | | | Revised with effect from | | | |

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| **Review Date** | January 2021 |

| **Part 2: Learning and Teaching** | |
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| Learning Outcomes | On successful completion of this module students will be able to:<br>• Demonstrate an in-depth and advanced knowledge of ecosystem structure and function, and relate ecological theory to the practice of ecosystem protection and species management in real world situations *(assessed in component A)*;<br>• Work with third parties to draw up conservation aims, objectives, and agreed management strategies for ecosystem conservation *(assessed in component B1)*;<br>• Evaluate and implement a range of survey methods available for the collection of ecological data in the field, including novel and cutting-edge techniques where appropriate *(assessed in component B2)*;<br>• Carry out monitoring surveys in the field, and analyse, interpret and present the resulting data using a variety of communication methods and advanced data analysis techniques *(assessed in component A, B2)*;<br>• Critically discuss the effectiveness of a range of ecosystem management strategies in the context of the wider landscape *(assessed in component A)*;<br>• Assess the range of threats and propose relevant habitat interventions to a defined landscape (*A, B1*). |
| Syllabus Outline | What is Natural? Concepts of wilderness and discussions around re-wilding. |

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| | Ecosystem Structure and Function: General principles of ecosystem structure and function including recent advances in ecological theory that impact on ecosystem function and conservation.<br><br>Key threats to species and ecosystems: Identification of the key threats to biodiversity and ecosystem protection: habitat loss and fragmentation, global climate change, invasive species, wildlife disease, mis-management, pollution.<br><br>• Habitat loss and Fragmentation: Rates of habitat loss locally – globally; advanced methods of monitoring habitat extend and quality (including remote sensing techniques); impacts of fragmentation on species diversity and population viability; theories of meta-populations, the importance of wildlife corridors, and landscape-scale conservation.<br>• Global Climate Change: Review of how increased $CO_2$ and future climate change might impact on species and ecosystem; methods of predicting future climate change impacts including modelling, field trials, risk assessment. Planning for future climate change in developing conservation strategies for ecosystem and species conservation.<br>• Invasive Species: The scale and significance of invasive species, and their impact on biodiversity; what makes a successful invasive species? Methods of control including biological and chemical control, management methods, and Integrated Pest Management.<br>• Wildlife Diseases: Problems of managing disease in wild population; case studies of wildlife diseases and assessment of management strategies. Managing human/livestock/crop diseases in wild hosts; Advanced techniques for detecting, controlling, and evaluating effectiveness of control methods for diseases in wild populations.<br>• Pollution: Overview of range and impacts of pollutants on species and ecosystems (eg. air pollution, heavy metals, nitrogen pollution; pesticides). Defining toxicity and damage thresholds for species and ecosystems; Advanced theories of pollution effects, including multiple stresses; problems of detecting pollution effects in the field; finding and prosecuting culprits. Case studies.<br><br>Ecosystem (re-) creation and restoration: General principles of ecosystem (re-) creation and restoration; species conservation, habitat loss mitigation, revision of ecosystem services; natural succession vs. active restoration; re-introducing plants and animals; dealing with sites with special problems (fertility, toxicity, industrial waste etc); evaluation of success in restoration projects.<br><br>Habitat Management: What is habitat management and why is it necessary? General principles and techniques of habitat management. Setting aims and objectives and writing management plans.<br><br>Module learning is underpinned by a range of subject-specific knowledge and skills, including:<br>• Techniques for habitat mapping and assessment<br>• Remote sensing, GIS, aerial photography etc.<br>• Sources and uses of archive material and data<br>• Policy and legislation relating to aspects of ecosystem conservation<br>• Project management (and other client-facing activity)<br>• Advanced statistics eg. multivariate techniques and generalised linear models<br>• Report writing |
| Contact Hours | The aim of this module is to provide a platform for students to gain an in-depth and advanced understanding of ecosystem conservation in practice. |

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| | In order to achieve this aim the module uses a variety of teaching and learning methods and approaches, including face-to-face contact, independent learning, and distance learning that is facilitated through remote contact.<br><br>Students will spend 60 hours in face-to-face contact, which is organised into 2 teaching blocks of 3-4 days per block. These direct contact hours will focus on the development of practical skills and analysis of real-world scenarios, and will offer opportunities for one-to-one and small group sessions with tutors to explore students' learning development, and enhance cohort identity. Group work and learning will be enhanced by the use of 'twilight' tasks, where students are given topics to research in their 'free' time within the teaching block, which they can then report on in a plenary session as the end of each teaching block.<br><br>The majority of the theoretical component of the module will be presented through distance learning, through the delivery of lectures online, and will involve a number of technological enhancements. The learning of lecture content will be reinforced through time spent in independent learning by the directed reading of recommended texts and through the use of technology enhanced learning resources that will be provided online. This online learning and engagement will be delivered through several avenues:<br><br>• Synchronous online tutorials where the students will contribute to online activities that are facilitated by an academic;<br>• Asynchronous discussions in the student's own time where they will engage/collaborate with other students on the course or in specified groups, and in which the academic is permitted to moderate where necessary, but is not expected to contribute.<br>• Synchronous surgery sessions timetabled for a specific time in which the academic will be available online to answer live questions via discussion boards/blogs/collaborate or to respond to questions posted/asked prior to the session.<br>• Interactive, online formative quizzes.<br><br>This formalised on-line contact will contribute a total of 12 hours toward the student's total contact time.<br><br>The remaining 228 hours will be spent in independent learning, and in particular on the planning, implementation, analysis and reporting of the Management Plan tasks that form the summative assessment for the module. |
| Teaching and Learning Methods | Teaching will be a mixture of scheduled, independent, and distance learning.<br><br>**Scheduled learning** includes lectures, seminars, tutorials, practical classes and workshops; fieldwork; external visits; external speakers<br><br>**Independent learning** includes hours engaged with essential reading, assignment preparation and completion etc.<br><br>These sessions constitute an average time per level as indicated in the table below. |
| Key Information Sets Information | Key Information Sets (KIS) are produced at programme level for all programmes that this module contributes to, which is a requirement set by HESA/HEFCE. KIS are comparable sets of standardised information about undergraduate courses allowing prospective students to compare and contrast between programmes they are interested in applying for. |

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| *Number of credits for this module* | | | | 30 |
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| Hours to be allocated | Scheduled learning and teaching study hours | Independent study hours | Placement study hours | Allocated Hours |
| 300 | 72 | 228 | 0 | 300 |

The table below indicates as a percentage the total assessment of the module which constitutes a -

**Written Exam**: Unseen written exam, open book written exam, In-class test
**Coursework**: Written assignment or essay, report, dissertation, portfolio, project
**Practical Exam**: Oral Assessment and/or presentation, practical skills assessment, practical exam

Please note that this is the total of various types of assessment and will not necessarily reflect the component and module weightings in the Assessment section of this module description:

| Total assessment of the module: | |
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| Written exam assessment percentage | 0% |
| Coursework assessment percentage | 100% |
| Practical exam assessment percentage | 0% |
| | 100% |

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| Reading Strategy | All students will be encouraged to make full use of the print and electronic resources available to them through membership of the University. These include a range of electronic journals and a wide variety of resources available through web sites and information gateways. The University Library's web pages provide access to subject relevant resources and services, and to the library catalogue. Many resources can be accessed remotely. Students will be presented with opportunities within the curriculum to develop their information retrieval and evaluation skills in order to identify such resources effectively.<br><br>Any **essential reading** will be indicated clearly, along with the method for accessing it, e.g. students may be expected to purchase a set text, be given or sold a print study pack or be referred to texts that are available electronically, etc. This guidance will be available either in the module handbook, via the module information on Blackboard or through any other vehicle deemed appropriate by the module/programme leaders.<br><br>If **further reading** is expected, this will be indicated clearly. If specific texts are listed, a clear indication will be given regarding how to access them and, if appropriate, students will be given guidance on how to identify relevant sources for themselves, e.g. through use of bibliographical databases. |
| Indicative Reading List | The following list is offered to provide validation panels/accrediting bodies with an indication of the type and level of information students may be expected to consult. As such, its currency may wane during the life span of the module specification. However, as indicated above, CURRENT advice on readings will be available via other more frequently updated mechanisms. |

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| | The most recent edition of the following texts:<br><br>Allison, S.K. (2012) *Ecological restoration and environmental change: renewing damaged ecosystems*. Abingdon, Routledge. *E-book: full text on-line*<br><br>Ausden, M. (2007) *Habitat management for Conservation: a handbook of techniques*. Oxford, Oxford University Press.<br><br>Dickinson, G. & Murphy, K.J. (2007) *Ecosystems*. London, Routledge. *E-book: full text on-line*<br><br>Galatowitsch, S.M. (2012) *Ecological restoration*. Sunderland, Massachusetts Sinauer Associates.<br><br>Jax, K. (2010) *Ecosystem Functioning*, Cambridge, Cambridge University Press. *E-book: full text on-line*<br><br>Princeton University (2012) *The Princeton Guide to Ecology* , Princeton University Press. *E-book: full text on-line*<br><br>Horning, N., Robinson, J.A., Sterling, E.J. & Turner, W. (2010) *Remote sensing for Ecology and conservation. A Handbook of Techniques.* Oxford University Press.<br><br><u>Journals</u><br><br>*Biological Conservation*<br><br>*Ecosystem*<br><br>*Journal of Applied Ecology* |

| **Part 3: Assessment** | |
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| Assessment Strategy | Strategy:<br>The assessments are designed to allow students to demonstrate the breadth and depth of their understanding of ecological principles and practice by applying their knowledge and skills to a real-world conservation problem. Students will work with a 'client' (e.g. land-owner or nature reserve manager) to review a management plan for a nature reserve or ecosystem restoration project that is local to them and consider the opportunity for increasing its function within the landscape ecological context.<br><br>Assessment 1 (Component B): Management Plan Review e.g:<br>• Students will identify a 'client' nature reserve manager, review the management plan and carry out a gap analysis. They will then validate sections of the management plan by designing, implementing and analysing a habitat survey of key areas of the reserve. The analysis will include multi-variate ordination techniques. The results will be designed to be fed back to the client.<br>• Indicative content extents:<br>  • Review of management plan and gap analysis (1000 words)<br>  • Risk assessment (length as required)<br>  • Habitat survey report (2000 words)<br>• Resit: Critical literature review of management techniques for three contrasting habitat types of conservation concern (3000 words).<br><br>Assessment 2 (Component A): Ecological network modelling e.g.<br>• Students will map the landscape context of a reserve using remote sensing data and GIS and identify areas of core, buffer and linking habitats as well as priority restoration zones. They will subsequently provide a critical analysis of a range of potential mechanisms for |

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| | instigating habitat restoration within the wider landscape.<br>• Indicative content extents:<br>  • One series of maps with explanatory text (500 words)<br>  • Review of restoration opportunities (2000 words)<br>• This will be the controlled element of the coursework since each student will be choose a separate reserve to model. |

| Identify final assessment component and element | **Component A** | |
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| **% weighting between components A and B** (Standard modules only) | **A:**<br>**50%** | **B**:<br>**50%** |

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| **Component A** (controlled conditions)<br>**Description of each element** | **Element weighting**<br>**(as % of component)** |
| 1. Ecological Network Modelling | 100% |
| **Component B**<br>**Description of each element** | **Element weighting**<br>**(as % of component)** |
| 1. Management Plan Review | 20% |
| 2. Survey Results and Evaluation | 80% |

| **Resit (further attendance at taught classes is not required)** | |
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| **Component A** (controlled conditions)<br>**Description of each element** | **Element weighting**<br>**(as % of component)** |
| 1. Critical Literature Review | 100% |
| **Component B**<br>**Description of each element** | **Element weighting**<br>**(as % of component)** |
| 1. Review of Management Plan | 20% |
| 2. Survey Results and Evaluation | 80% |
| If a student is permitted a retake of the module under the University Regulations and Procedures, the assessment will be that indicated by the Module Description at the time that retake commences. | |