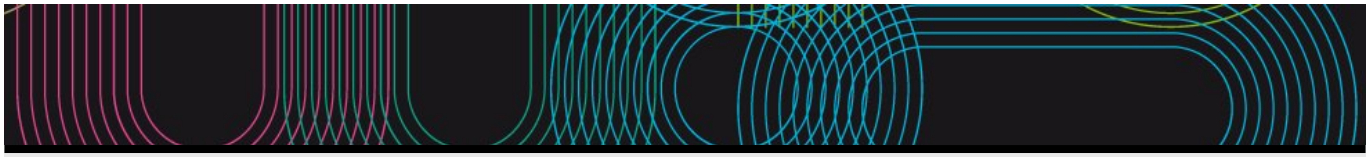

IDENTIFYING DATA				
Management of protected areas and biodiversity				
Subject	Management of protected areas and biodiversity			
Code	P03G370V01801			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	4th	2nd
Teaching language	Spanish Galician			
Department				
Coordinator	Cordero Rivera, Adolfo			
Lecturers	Cordero Rivera, Adolfo			
E-mail	adolfo.cordero@uvigo.es			
Web	http://ecoevo.uvigo.es			
General description	(*)Introdución aos principios da Bioloxía da Conservación aplicados á Xestión de Espazos protexidos e Conservación da Biodiversidade			

Competencies
Code

Learning outcomes	
Expected results from this subject	Training and Learning Results

Contents	
Topic	
1. The science of conservation.	The origins and brief history of conservationist movements. Principles of conservation biology. Ecology and Environmentalism. Importance of science in conservation.
2. The ecological values and functions of biodiversity.	Genetic, species and ecosystem diversity: the concept of biodiversity. Why we should conserve the species? The intrinsic value of species and their conservation status. The instrumental values and rarity of the species. Ecosystemic values.
3. Biodiversity and stability.	The concept of stability. The diversity-stability debate (a history of this controversy, current studies, compartmentalization, diversity and global change, implications for conservation biology). Retrogression.
4. Ecological principles in the exploitation of natural resources.	The concept of maximum sustainable yield. Principles for the exploitation of resources. Genetic changes in exploited populations. The exploitation of forests. Forest certification (FSC, PEFC).
5. Extinction	The number of species that inhabit the planet. The causes of the rarity of the species. IUCN classification. Estimation of extinction rates. Processes and causes of extinction. Degradation and destruction of habitats. Metapopulation dynamica. Population Viability Analysis (PVA).
6. Management of species and populations.	Management units. In situ and ex situ conservation. Limioting resources. Control of threats. Translocations and artificial breeding. Role of zoos, botanical gardens and museums. Importance of ethology in conservation. Case study: the example of the black-footed ferret.
7. Management and restoration of ecosystems	Principles of ecosystem management. Modified ecosystems (forest exploitation, agricultural ecosystems, aquatic ecosystems). Restoration of ecosystems.
8. Social factors in conservation.	Description of etic values. Valuation of priorities. Cultural changes. Environmental education.

9. The economics of conservation.	Economic evaluation of biodiversity (types of sustainability, decision models in ecological economics, the value of biodiversity). Costs of conservation (method of cost of travel, the method of revealed preferences, an economic and ecological perspective of market). The tragedy of the commons.
10. Political action and conservation.	International organizations (IUCN MAB program). Government agencies: The Spanish strategy for sustainable development. Spanish strategy for the conservation of biodiversity. Non-governmental organizations (NGOs). Companies and individuals. Scientific research, policy and conservation. Ecologism as a political ideology.
11. Reserves and protected parks.	Objectives of the creation of reserves (the problem of fragmentation). Representation of biodiversity. The main features of reserve design: size, dynamism, spatial context, connectivity, buffer zones. Protected natural areas of Galicia.
12. Conservation legislation	International Biodiversity Agreements (Bern, Ramsar, Washington (CITES), Bonn, Biodiversity (Rio de Janeiro). European legislation (Birds Directive, Habitats Directive) State legislation (Law 42/2007 on Natural Heritage, Decree 139 / 2011 Catalog endangered species, Decree 1628/2011 Catalog of alien invasive species) Legislation of Galicia: Galician law of conservation of nature.
13. Management plans for endangered species.	Guidelines, objectives and feasibility. Examples: the management plan for the European turtle (Emys orbicularis) in Galicia; management plan of the odonate populations of European interest; Reproductive biology and management of Corema album in the Cíes Islands.
Practical 1. Design of Reserves: Testing the species-area relationship.	(*)
Practical 2. Taxonomic principles and characteristics of communities. Its use in the decision-making process on conservation.	(*)
Practical 3. Contingent assessment	Discussion about the social attitudes on conservation issues and valuation of emblematic species
Practical 4. Analysis of the viability of populations: using the vortex program.	(*)
Practical 5. Field lesson. Visit to the Center of Zoogenetic Resources of Galicia.	Study of the systems of conservation of germoplasm of autochthonous cattle breeds.
Practical 6. Field lesson. Visit to the Natural Park of Fragas do Eume.	Contact with the managers of the protected area, to discuss its specific characteristics and problems.
Practical 7. Field lesson. Visit to the National Park of the Atlantic Islands of Galicia.	Given the peculiarities of the Park, with its insularity, the visit will be to the reception center of visitors in Vigo, if the climatic conditions do not allow visiting the islands.

Planning

	Class hours	Hours outside the classroom	Total hours
Lecturing	30	52.5	82.5
Studies excursion	11	16.5	27.5
Mentored work	5	10	15
Practices through ICT	4	4	8
Problem and/or exercise solving	2	0	2
Essay	5	10	15

*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

Methodologies

	Description
Lecturing	Lectures in the classroom
Studies excursion	Field lessons
Mentored work	Personal work under supervision
Practices through ICT	Practical lessons in the computers room

Personalized assistance

Tests	Description
Essay	A sand county almanac, Aldo Leopold. Monographic work on the book

Assessment

	Description	Qualification	Training and Learning Results
Lecturing	They will be evaluated through short answer exams.	65	
Studies excursion	They will be evaluated in the examination of the subject through specific questions.	5	
Mentored work	It will be evaluated in the exam of the subject through specific questions or through written reports.	10	
Practices through ICT	They will be evaluated in the exam of the subject through specific questions or through written reports.	10	
Problem and/or exercise solving	They are part of the written exam of the course.	0	
Essay	Delivery of a monographic work on the book "A sand county almanac", by Aldo Leopold. The essay must be submitted one month before the exam date. It must consist of a summary of the book and a section of personal analysis of it.	10	

Other comments on the Evaluation

The competences of the subject will be evaluated in the written exam.

The attendance to the practicals is compulsory.

The unjustified absence of more than one practical implies a negative evaluation. The monographic work on the book by Aldo Leopold is an essential condition for the evaluation, and must be submitted at the most one month before the exam.

Dates of exams:

1st period: 21 May 2020, 12 h

2nd period: 9 July 2020, 16 h

The official dates and any subsequent modification are available on the web http://forestales.uvigo.es/gl/

Sources of information

Basic Bibliography

Leopold, Aldo, **A sand county almanac (versión española: Una ética de la tierra)**, Oxford University Press, 1949

Complementary Bibliography

Primack, R.B. & J. Ros, **Introducción a la Biología de la Conservación**, Ariel, 2002

Cordero Rivera, A. (Editor), **Proxecto Galicia, Ecoloxía. Volumen 45. Conservación I.**, Hércules de Ediciones, 2005

Hunter, M.L., **Fundamentals of Conservation Biology**, Blackwell Science, 2002

Sutherland, W.J., **The Conservation Handbook: Research, Management and Policy**, Blackwell Science, 2000

Shafer, C. L., **Nature Reserves**, Smithsonian Institution Press, 1990

James P. Gibbs, Malcolm L. Hunter, Jr., Eleanor J. Sterling, **Problem-solving in conservation biology and wildlife management: exercises for class, field, and laboratory**, 2, Blackwell Science, 2008

Recommendations

Subjects that it is recommended to have taken before

Forestry Ecology/P03G370V01402

Contingency plan