

25225 - Management and conservation of flora and fauna

Syllabus Information

Academic Year: 2019/20

Subject: 25225 - Management and conservation of flora and fauna

Faculty / School: 201 -

Degree: 277 - Degree in Environmental Sciences

571 - Degree in Environmental Sciences

ECTS: 6.0

Year: 571 - Degree in Environmental Sciences: 3

277 - Degree in Environmental Sciences: 3

Semester: Second Four-month period

Subject Type: Compulsory

Module: ---

1.General information

1.1.Aims of the course

The subject and the results presented respond to the following approaches and objectives:

- Offer a vision of the process of extinction of populations and species in the current era, and the main anthropic threats for living beings.
- Provide an overview of deterministic and stochastic processes - demographic, genetic or risk - natural resources that affect the conservation of species and small populations.
- Provide knowledge on the in situ and ex situ conservation programs of species, as well as on legislative measures adopted for the protection of living beings.
- Train students in the use of management tools for threatened species.
- Offer a historical perspective on the conservation of Spanish flora and fauna and draw a parallel weighted of the species threatened by taxonomic groups.
- Encourage the habit of observation and analysis of biological diversity.
- Awareness of the need to conserve Iberian fauna and flora.
- Encourage research capacity in conservation biology.
- Know the fields of academic and professional application of Management and conservation of flora and fauna.

1.2.Context and importance of this course in the degree

The subject contributes knowledge of direct application in the exercise of the profession in fields related to the management and conservation of plants and animals, especially endangered species, and also others of interest ecological or economic (restoration, hunting, etc.).

1.3.Recommendations to take this course

This subject is offered in the [English Friendly](#) form

2.Learning goals

2.1.Competences

2.2.Learning goals

2.3.Importance of learning goals

The competences of this subject are relevant because they contribute to the basic and applied management processes and conservation of flora and fauna. They also imply the development in the student of skills in reasoning, problem solving and critical thinking. As a training subject mandatory that is provides useful knowledge in other matters of the degree. It has application in the profession.

3.Assessment (1st and 2nd call)

3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview

The methodology followed in this course is oriented towards the achievement of the learning objectives. A wide range of teaching and learning tasks are implemented, such as lectures, practice sessions and fieldwork.

4.2.Learning tasks

This course is organized as follows:

- **Lectures** (30 lectures, 50 minutes each). The teacher will explain concepts promoting students participation and interest in the subject.
- **Fieldwork** (from 10 to 20 hours) in natural areas with management programs of endangered species, or centers of flora and fauna conservation programs. 1 to 2 field trips with a duration of 10-20 hours (depending on the number of field trips). The aim of these field trips is to conduct an in situ examination of the conservational problems of endangered species, to know and discuss management strategies with those responsible for those actions and to develop critical thinking.
- **Practice sessions** (30 hours) and elaboration and oral exposition of a short seminar by students in the framework of the objectives of the course. Basic knowledge and principles of practical conservation will be given to complement the field trips. Also a brief endangerment species seminar will be given by students.

4.3.Syllabus

This course will address the following topics:

Lectures

Section A) Introduction and general concepts

- Wildlife conservation. Interests and action framework. Conservation biology: empirical context and the methods it entails.
- The basics of biodiversity. Levels of complexity. Brief look at its geographic guidelines. Basics of biogeography.
- Historic look of the extinction of species. Colonization. Present causes of extinction and getting odd, dynamics and pace and of species.
- The dynamics of small populations. Genetic characterization. Population genetics. Genetic drift. Hybridization. Metapopulations. The minimum viable population possible.
- The practice of conservation. Spatial conservation in comparison with wildlife conservation. In situ and ex situ conservation. International, Spanish and autonomous regional legislative framework. The ICUN Red List. Plans of action for the recuperation species.

Section B) Plant conservation and management

- Brief history of plant conservation. European regulations. The Red List and the Atlas of Spanish threatened flora. The decentralization of management: competition and initiatives of Autonomic Regions.
- Conservation of flora in Spain. Evaluating its state and threats. Case studies: micro-reserves in Valencia, Sierra Nevada, and threatened flora in the Balearic and Canary Islands.
- Flora conservation in Aragon: Catalogue of threatened plants. Evaluation of their state and plans of protection and recuperation. Case studies: Pyrenean endemisms, plants of the steppes/grasslands.

Section C) Fauna management and conservation

- Specific diversity of different groups. History of wildlife conservation in Spain.
- Issues in the conservation of invertebrates. Invertebrates threat factors.
- Analysis of the list of threatened Spanish invertebrates. Diversity and conservation.
- Issues in the conservation of vertebrates. Specific threat factors. Legislation on vertebrates.
 - Practice 0. What is a threatened species seminar?
 - Practice 1. Wildlife sampling methods.
 - Practice 2. Population size estimation.
 - Practice 3. Spatial distribution.
 - Practice 4. Biodiversity characterization.

- Practices 5-8. Seminars.
- Field Trip 9. Botanic inventory.
- Field Trip 10. Abiego-Ainsa-Revilla.
- Field Trip 11. Reserva Natural Dirigida Galachos y Sotos del Ebro Examples and cases of conservation and management of the main groups of vertebrates: Amphibians, Reptiles, Birds and Mammals.

Practice sessions

Seminar: The student or group of students will select a species of flora or fauna that is in some category of threat in the Iberian Peninsula and the assignment (report and defense) will be made up of at least the following parts:

- Systematic position (Kingdom/Division-Phylum/Class/Order/Family/Genus/Species)
- Synonyms
- Intraspecific taxa
- Number of species of the genus in the world
- Number of species of the genus in the Iberian Peninsula and the Balearic Islands
- Number of species of the genus in Aragon
- Number of genera of the family in the world
- Number of genera of the family in the Iberian Peninsula and the Balearic Islands
- Number of genera of the family in Aragon
- Morphological description of the species
- Area of distribution in the world, provinces of Spain and Aragon
- Number of populations and individuals
- Reproductive biology
- Habitat
- Cataloguing of conservation status in the General Council of Aragon and the Government of Spain
- IUCN Category in Spain. Specify points
- Threat factors
- Existing types of measures for protection/management/recovery (specific plans and protected spaces included in that) and appropriate proposals. Legislation of the General Council of Aragon (BOA, Official Aragon Bulletin).

4.4.Course planning and calendar

Teacher's material, issues related to the subject, practice guides and other information relevant for the lecture will be published in ADD.

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course will be provided on the first day of class or please refer to the Faculty of Sciences / Escuela Superior website and Moodle.

4.5.Bibliography and recommended resources

- BB** Atlas y libro rojo de la flora vascular amenazada de España : taxones prioritarios / [editores y coordinación científica del proyecto, Ángel Bañares Baudet ... (et al.)] . Madrid : Tragsa : Ministerio de Medio Ambiente, 2003
- BB** Especies exóticas invasoras : diagnóstico y bases para la prevención y el manejo / autores, Laura Capdevila Argüelles ... [et al.] . Madrid : Organismo Autónomo Parques Nacionales, D.L. 2006
- BB** La diversidad biológica de España / coordinadores- editores, F.D. Pineda [et al.] . Madrid : Prentice Hall, D.L. 2002
- BB** Primack, Richard B.. Essentials of conservation biology / Richard B. Primack . 6th ed. Sunderland (Massachusetts) : Sinauer Associates, cop. 2014
- BB** Primack, Richard B.. Introducción a la biología de la conservación / Richard B. Primack y Joandomènec Ros . Barcelona : Ariel, D.L. 2002
- BC** Atlas de las aves reproductoras de España / realizado por la Sociedad Española de Ornitología (SEO-Birdlife) ; editores Ramón Martí y Juan Carlos del Moral. . - 1ª reimpr. Madrid : Organismo Autónomo de Parques Nacionales, 2004
- BC** Atlas de las plantas alóctonas invasoras en España / [editores y coordinación científica del proyecto] Mario Sanz Elorza, Elías D. Dana Sánchez y Eduardo Sobrino Vesperinas . Madrid : Ministerio de Medio Ambiente, Organismo Autónomo Parque Nacionales, 2004

- BC** Atlas de los mamíferos terrestres de España / Dirección General de Conservación de la Naturaleza, Ministerio de Medio Ambiente, Sociedad Española para la Conservación y Estudio de los Mamíferos (SECEM), Sociedad Española para la Conservación y Estudio de los Murciélagos ; L. Javier Palomo y Julio Gisbert (editores) . Madrid : Organismo Autónomo de Parques Nacionales, 2002
- BC** Atlas y libro rojo de los anfibios y reptiles de España / [editores, J. M. Pleguezuelos, R. Márquez, M. Lizana ; coordinador del atlas, V. Pérez Mellado ; coordinadores del libro rojo, R. Márquez y M. Lizana] . Madrid : Organismo Autónomo de Parques Nacionales, 2002
- BC** Baskin, Y. (1997). The work of nature. How the diversity of life sustains us. Washington: Island Press
- BC** Caughley, G., Gunn, A. (1996). Conservation biology in theory and practice. Massachusetts: Blackwell Science
- BC** Devesa Alcaraz, Juan Antonio. Especies vegetales protegidas en España : plantas vasculares (Península Ibérica y Baleares) / por Juan Antonio Devesa Alcaraz, Ana Ortega Olivencia; colaboradores Josefa López Martínez, Tomás Rodríguez Riaño. Madrid : Ministerio de Medio Ambiente, Organismo Autónomo de Parques Nacionales, D.L. 2004
- BC** Estrategia española para la conservación y el uso sostenible de la diversidad biológica . [1a. ed.] [Madrid] : Centro de Publicaciones, Ministerio de Medio Ambiente, 1999
- BC** Fiedler, P.L., Jain, S.K. (2013). Conservation biology: the theory and practice of nature conservation, preservation and management. Springer
- BC** Galante, Eduardo.. Los artrópodos de la ?Directiva Hábitat? en España / Eduardo Galante y José R. Verdú. . Madrid : Organismo Autónomo Parques Nacionales, D.L. 2000
- BC** Given, D.R. (1994). Principles and practice of plant conservation. London: Chapman&Hall
- BC** Guía de invertebrados y peces marinos protegidos por la legislación nacional e internacional / editores José Templado y Marta Calvo ; director técnico Javier Pantoja . Madrid : Organismo Autónomo de Parques Nacionales, D.L. 2004
- BC** Hunter, Malcolm L.. Fundamentals of conservation biology / Malcolm L. Hunter, J. Gibbs . 3rd ed. Malden, MA : Blackwell Publishing, 2007
- BC** Jeffries, Michael J.. Biodiversity and conservation/ Michael J. Jeffries . 2ª ed. London: Routledge, 2005
- BC** Libro de la flora vascular rara, endémica o amenazada de la Comunidad Valenciana / Antoni Aguilera Palasí ... [et al.] ; dirección y coordinación Emilio Laguna Lumbreras. València : Direcció General de Conservació del Medi Natural, 1994
- BC** Libro rojo de las aves de España / [realizado por la Sociedad Española de Ornitología (SEO/Birdlife) ; Alberto Madroño, Cristina González y Juan Carlos Atienza (editores) . 1ª ed. Madrid Organismo Autónomo Parques Nacionales, D. L. 2004
- BC** Libro rojo de los invertebrados de España / José R. Verdú , Eduardo Galante, editores . Madrid : Organismo Autónomo Parques Nacionales, 2006B. Complementaria
- BC** Libro rojo de los vertebrados de España / Juan Carlos Blanco y José Luis González, editores . Madrid : ICONA, D.L. 1992
- BC** Mace, G.M., Balmford, A., Ginsberg, R. (2009). Conservation in a changing world. Cambridge: University Press
- BC** Meffe, Gary K.. Principles of conservation biology / Gary K. Meffe, C. Ronald Carroll and contributors . 2nd ed. Sunderland, Massachusetts : Sinauer Associates, cop. 1997
- BC** New, T.R. (1995). An Introduction to invertebrate conservation biology. Oxford: University Press
- BC** Ramos, María Ángeles. Los invertebrados no insectos de la ?Directiva Hábitat? en España / Mª Angeles Ramos, Dolores Bragado y José Fernández [Madrid] : Organismo Autónomo Parques Nacionales, D.L. 2001
- BC** Soulé, M.E., Orians, G.H. (2001). Conservation [biology:research](#) priorities for the next decade. Washington: Island Press
- BC** Spellerberg, I.F. (1996). Conservation biology. Essex: Longman/Pearson Education
- Spellerberg, I.F. (2013). Evaluation and assessment for conservation: ecological guidelines for determining

- BC** priorities for nature conservation. London: Chapman & Hall
- BC** Sutherland, J. (2008). Conservation science and action. Oxford: Blackwell Science
- BC** Watson, R.T., Heywood, V.H., (ed)(1995). Global biodiversity assessment. Cambridge: University Press
- BC** Wilson, Edward Osborne. La diversidad de la vida / Edward O. Wilson ; traducción castellana de Joandomènec Ros . Barcelona : Crítica, D.L. 1994

LISTADO DE URLs:

Blanca, G., et al. (1999). Libro Rojo de la Flora Silvestre Amenazada de Andalucía. Tomo I: Especies en Peligro de Extinción. Sevilla: Consejería de Medio Ambiente. Junta de Andalucía - [http://digital.csic.es/bitstream/10261/42314/1/libro_rojo_flora_tomo1.pdf]

Blanca, G., et al. (2000). Libro Rojo de la Flora Silvestre Amenazada de Andalucía. Tomo II: Especies Vulnerables. Sevilla: Consejería de Medio Ambiente. Junta de Andalucía - [http://www.biolveg.uma.es/links/libro_rojo_andalucia_tomo_ii.pdf]

The updated recommended bibliography can be consulted in:

<http://psfunizar7.unizar.es/br13/egAsignaturas.php?codigo=25225&Identificador=C70914>