

Analysis and Management of Natural Landscapes

Code: 43054
ECTS Credits: 6

Degree	Type	Year	Semester
4313784 Interdisciplinary Studies in Environmental, Economic and Social Sustainability	OT	0	1

The proposed teaching and assessment methodology that appear in the guide may be subject to changes as a result of the restrictions to face-to-face class attendance imposed by the health authorities.

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Use of Languages

Principal working language: english (eng)

Teachers

Raquel Cunill Artigas

Prerequisites

Students must have basic knowledge in environmental sciences and ability to follow lectures in English.

Objectives and Contextualisation

To understand the landscape as an expression of natural and social history.

Methodological approach to understand and analyse examples in Europe and the Mediterranean region.

Comprehend a historical perspective on the conservation origins and Natural Protected Areas (NPA), as well as the existing legislative figures of protection.

To study tools for management and biodiversity monitoring and conservation in Natural Protected Areas (NPA), in the context of global change and its socioecological implications.

Explain criteria and analytical and legal tools for diagnosis and assessment of NPA management.

Competences

- Analyse how the Earth functions on a global scale in order to understand and interpret environmental changes on the global and local scales.
- Communicate and justify conclusions clearly and unambiguously to both specialised and non-specialised audiences.
- Integrate knowledge and use it to make judgements in complex situations, with incomplete information, while keeping in mind social and ethical responsibilities.
- Seek out information in the scientific literature using appropriate channels, and use this information to formulate and contextualise research in environmental sciences.

- Solve problems in new or little-known situations within broader (or multidisciplinary) contexts related to the field of study.
- Work in an international, multidisciplinary context.

Learning Outcomes

1. Assess human impact on coastal areas and the function of marine nature reserves, both coastal and oceanic, in biodiversity conservation and the capacity to generate biomass.
2. Communicate and justify conclusions clearly and unambiguously to both specialised and non-specialised audiences.
3. Integrate knowledge and use it to make judgements in complex situations, with incomplete information, while keeping in mind social and ethical responsibilities.
4. Interpret current models for protected natural areas with local and worldwide cases, both marine and terrestrial.
5. Locate and analyse the great biogeographical regions and their situation regarding the conservation of biodiversity.
6. Seek out information in the scientific literature using appropriate channels, and use this information to formulate and contextualise research in environmental sciences.
7. Solve problems in new or little-known situations within broader (or multidisciplinary) contexts related to the field of study.
8. Work in an international, multidisciplinary context.

Content

Module presentation.

Sub-Module 1: Protected areas (CB)

PROTECTED AREAS

The origin and the evolution of Protected Areas. Protection schemes.

Biosphere reserves as science for sustainability support sites.

The case of the network of Mediterranean Biosphere Reserves.

Global change indicators in protected areas: forests and Mediterranean river basins.

EXPERIENCES FROM THE ANALYSIS AND THE MANAGEMENT IN PROTECTED AREAS

Natural Park and Biosphere Reserve of Montseny. Objectives and interactions between protection figures.

The Pyrenees as a trans-frontier conservation area.

Cajas National Park and Biosphere Reserve (Ecuador): management experience.

Tourism management in protected areas. The case of Costa Rica.

Sub-Module 2: Landscape (RC)

Landscape and Landscapes

Socioecological heritage and rural landscapes.

Sub-Module 3: Fieldworks*

Montseny Biosphere Reserve 17 de novembre de 2021(CB) (RC)

* In case the excursions cannot be carried out, they will be replaced by activities.

Methodology

Lectures

Active participation in the classroom

Field trip

Essays/works

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Field work	30	1.2	4, 7, 5
Theoretical presentations	40	1.6	2
Type: Autonomous			
Essays/works preparation	37	1.48	6, 2
Lectures	25	1	3

Assessment

The final mark will be the result of:

Exam (40 %).

Biosphere Reserve Analysis (25%)

Field work and assignments (15%).

Critical essay of a paper (15%).

Attendance and participation (5%).

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Active participation in the classroom	5%	4	0.16	6, 3, 7, 2
Exam, field work and deliverables, course assignment and essays	95%	14	0.56	6, 4, 3, 7, 2, 5, 8, 1

Bibliography

References

- Bertrand, C., & Bertrand, G. (2006). Geografía del medio ambiente. *El Sistema GTP: Geosistema, Territorio y Paisaje, Universidad de Granada*. (Translation of: Une géographie traversière : l'environnement á travers territoires et temporalités)
- Botequilha, A.; Miller, J.; Ahern, J. i McGarigal, K. (2006): Measuring landscapes. A Planner's Handbook. Washington: Island Press.
- Carranza, S.; Amat, F. Taxonomy, biogeography and evolution of Euproctus (Amphibia: Salamandridae), with the resurrection of the genus Calotriton and the description of a new endemic species from the Iberian Peninsula. *Zool. J. Linn. Soc. Lond.* 2005, 145, 555-582.
- Dudley, N. (Editor) (2008). Guidelines for Applying Protected Area Management Categories. Gland, Switzerland: IUCN.
- Ervin, J., Sekhran, N., Dinu, A., Gidda, S., Mergeichik, M., Mee, J. (2010). Protected areas for the 21st century: Lessons from UNDP/GEF's portfolio. Montreal: UNDP, New York and Secretariat of the Convention on Biological Diversity.
- European Environment Agency (2012): Protected areas in Europe - an overview. Luxembourg: Publications Office of the European Union.
- Farina, A. (2006). Principles and methods in landscape ecology: towards a science of landscape. Dordrecht: Springer.
- Heinen, J. 2012. International Trends in Protected Areas Policy and Management. In: Sladonja, B. (Ed.). Protected Areas Management. DOI: 10.5772/50061.
<<http://www.intechopen.com/books/protected-area-management/international-trends-in-protected-areas-policy-ar>
- Huntington, H. P. (2000): Using traditional ecological knowledge in science. Methods and Applications. *Ecological Applications* 10(5): 1270-1274.
- Ishwaran, N., Persic, A., Tri, N.H., 2008. Concept and practice: the case of UNESCO biosphere reserves. *International Journal of Environment and Sustainable Development*. 7 (2):118-131.
- Jones-Walters, L.; Civic, K. 2013. European protected areas: Past, present and future. *Journal for Nature Conservation* 21: 122- 124.
- Lambin, E. F. I Geist, h. (eds.): Land-use and Land-cover Change. Local processes and global impacts. Springer. Berlín, 2006.
- Makhzoumi, J. i Pungetti, G. (1999): Ecological Landscape Design and Planning. The Mediterranean Context. Londres: E & FN Spon
- McGarigal, K. i Marks, B. (1995): FRAGSTATS: Spatial Pattern Analysis Program for Quantifying Landscape Structure. Washington: Department of Agriculture General Technical Report.
- McDonald, D.; Crabtree, J. R.; Wiesinger, G.; Dax, T.; Stamou, N.; Fleury, P.; Gutierrez Lazpita, J. i Gibon, A. (2000): Agricultural abandonment in mountain areas of Europe: Environmental consequences and policy response. *Journal of Environmental Management* 59: 47-69.
- Otero, I.; Boada, M. i Tàbara, J.D. (2013): Social-ecological heritage and the conservation of Mediterranean landscapes under global change: a case study in Olzinelles (Catalonia). *Land Use Policy*. 30, pp. 25 - 37. Butterworth Scientific. ISSN 0264-8377
- Peñuelas, J.; Boada, M. (2003): A global change-induced biome shift in the Montseny mountains (NE Spain), en *Global Change Biology*, 9:131-140.
- Sluiter, R. i de Jong, S. M. (2007): Spatial patterns of Mediterranean land abandonment and related land cover transitions. *Landscape Ecology* 22:559-576.

Further reading

Adams, W., Aveling, R., Brockington, D., Dickson, B., Elliott, J., Hutton, J., Vira, B., Wolmer, W. 2004. Biodiversity Conservation and the Eradication of Poverty. *Science* 306:1146-1149.

Batisse, M. 1997. Biosphere Reserves: A Challenge for Biodiversity Conservation & Regional Development, *Environment: Science and Policy for Sustainable Development* 39(5): 6-33.

Burel, F. i Baudry, J. (2002): *Landscape Ecology: Concepts, Methods, and Applications*. CRC Press.

Forman, R. T. T. i Godron, M. (1986): *Landscape ecology*. Nova York: Wiley and sons.

Grove, A.T.; Rackham, O. (2001): *The Nature of Mediterranean Europe: an ecological history*. New Haven (EUA): Yale University Press.

Leverington, F., Lemos, K., Courrau, J., Pavese, H., Nolte, C., Marr, M., Coad, L., Burgess, N., Bomhard, B., Hockings, M. 2010. Management effectiveness evaluation in protected areas - a global study. The University of Queensland Brisbane Australia.

Li, H. i Wu, J. (2004): Use and misuse of landscape indices. *Landscape Ecology* 19: 389-399.

Otero, I.; Marull, J.; Tello, E.; Diana, G. L.; Pons, M.; Coll, F. i Boada, M. (2015): Land abandonment, landscape, and biodiversity: questioning the restorative character of the forest transition in the Mediterranean. *Ecology and Society* 20(2): 7. doi: 10.5751/ES-07378-200207.

Peñuelas, J. *et al.* : *Evidence of current impact of climate change on life: a walk from genes to the biosphere*. *Global Change Biology*, 2013, 19: 2303-2338

Peñuelas J *et al.* (2017): *Impacts of Global Change on Mediterranean Forests and Their Services*. *Forests* 8, 463.

Smit, IPJ, Roux DJ, Swemmer LK, Boshoff N, Novellie P (2017): Protected areas as outdoor classrooms and global laboratories: Intellectual ecosystem services flowing to-and-from a National Park. *Ecosystem Services* 28 B:238-250.

[Sutherland, William J.; HILL, David A. \(eds.\) *Managing habitats for conservation*. Cambridge: Cambridge University Press, 1995. 399 p. ISBN 0521447763](#)

Further reading in Catalan and in Spanish

Boada, M.; Rivera, M. (2000): *L'origen dels espais naturals protegits*. *Medi Ambient*, 27:4-14. Barcelona: Generalitat de Catalunya. Departament de Medi Ambient.

Boada, M.; Sánchez, S.; Maneja, R.; Varga, D.(2011): Diseño de indicadores para la evaluación de los servicios ambientales ofrecidos en la Reserva de la Biosfera del Montseny, 43-63, a M. Onaindía (Ed.): *Servicios Ambientales en Reservas de la Biosfera Españolas*. Organismo Autónomo de Parques Nacionales. Ministerio de Medio Ambiente. UNESCO. Red Española de Reservas de la Biosfera. NIPO: 781-10-040-5.

Boada, M. i Toledo, V. M. (2003): *El Planeta, nuestro cuerpo: la ecología, el ambientalismo y la crisis de la modernidad*. México: Fondo de Cultura Económica.

[Corraliza, J. A.; García, J.; Gutiérrez del Olmo, E. V. *Los parques naturales de España: Conservación y disfrute*. Madrid: Fundación Alfonso Martín Escudero, 2002. 491 p. ISBN 8484760561](#)

[Generalitat de Catalunya. Departament de Medi Ambient. Direcció General de Patrimoni Natural. *El pla d'espais d'interès natural a Catalunya*. Barcelona: Generalitat de Catalunya. Departament de Medi Ambient, 1996.](#)

Mallarach, J. M. 2008. Protegits, de fet o de dret?: primera avaluació del sistema d'espais naturals protegits de Catalunya. Barcelona: Institució Catalana d'Història Natural.

Websites

European Commission. Natura 2000.

<http://ec.europa.eu/environment/nature/natura2000/index_en.htm>

IUCN. Protected Areas. <<https://www.iucn.org/theme/protected-areas>>

Protected Planet. <https://www.protectedplanet.net/>

UNEP. <<https://www.unep-wcmc.org/resources-and-data/united-nations-list-of-protected-areas>>

Software

Knowledge of GIS is an option valued in the subject.