

VENDREDI 14 DECEMBER 2018, 10h00 - 13h00

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Campus Arbois - CEREGE

Soutenance, IMBE

GARCIA-NIETO ANA-PAULA | IMBE

## **ECOSYSTEM SERVICES AROUND THE MEDITERRANEAN BASIN - SOUTENANCE DE THÈSE DE ANA PAULA GARCIA NIETO**

Global change, through the impact of human activities on the processes that regulate the functioning of the Earth system, poses important challenges to society. The acceleration of human pressures during the last decades has had profound impacts on Mediterranean socio-ecological systems including the reduction of important contributions from nature to human well-being, referred to as ecosystem services (ES). For the coming decades, there is growing concern about how pressures of social-ecological systems, in particular urbanization, land management practices and nature conservation policies, will affect the supply of ES in the Mediterranean Basin and how the associated vulnerabilities could be reduced. Sustainable supply of ES is a key prerequisite to the achievement of many Sustainable Development Goals (SDGs), but knowledge on how this could best be achieved is sparse, in the Mediterranean Basin but also elsewhere. This lack of knowledge is not confined to issues of scientific understanding, but also to the fact that research efforts are more limited in Northern African countries as compared to Europe. There is a particular need to elucidate trends, trade-offs and synergies between ES under the influence of pressures and management in the wider Mediterranean basin.

The main goal of this thesis is to analyze how ES flows in the Mediterranean Basin area, and the trade-offs between them, are affected by drivers of change. To this end, a multidisciplinary assessment perspective - from biophysical to socio-cultural factors, covering multiple spatial scales from the local to the Mediterranean Basin - has been used to analyze changes in ES supply and demand. The core results are presented on three independent studies. In the first one (chapter 2.1) I assess land cover and ES capacity supply trends in Mediterranean peri-urban areas due to urbanization using spatial open data sources. In the second sub-chapter (2.2), I present a literature review to identify the impact of conservative management practices on ES. In the third subchapter (2.3), I explore the impact of the role of stakeholders in environmental management decisions on their perception of ES patterns using collaborative mapping workshops.

In the peri-urban zones around 12 Mediterranean cities I found a general decrease in the overall capacity to supply ES due to land cover changes (1990 - 2016) (chapter 2.1). In the European peri-urban areas, expansion of the urban surface has occurred at expense of agricultural land loss, whereas in North African experienced an increase of irrigated agricultural land. In chapter 2.2, a selection of alternative management options positively impacts the supply of regulating ES in Mediterranean agro-ecosystems. In contrast, crop yield was increased using management options such as no tillage and mulching, but decreased under mulching among others. Chapter 2.3 demonstrated that the spatial scale of influence of stakeholders on ES management affects the recognition of contributions from specific or wider landscape elements (e.g. protected areas) to ES supply... Suite sur [www.imbe.fr](http://www.imbe.fr)

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