

## Internship application - 5 to 6 months - Aix-en-Provence (France)

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**Subject: Analysis of the spatial elements influencing the provision of ecosystem services within the Scarpe-Escaut Regional Natural Park.**

### Presentation

The ecosystem services (ES) concept is one of the approaches dealing with the nature-society interactions within socio-ecological systems (SES). The notion of ecosystem service emphasizes the importance of ecological systems and biodiversity to people and societies (Bierry et al., 2015; Centre d'Analyse Stratégique, 2009; Sharachchandra Lele et al., 2013). Ecosystem services could be defined as "contributions that ecosystems make to human well-being" (CICES, Haines-young & Potschin, 2013). It emphasizes the link between human and nature based on an anthropocentric vision of nature (MEA, 2005). This notion is now widely present in policies and stakeholders' discourses for the preservation of biodiversity and of ecological functionality as well as sustainable development of territories.

Several methods exist for assessing and mapping ecosystem services (qualitative, quantitative, models, etc.). But in many cases quantitative data on large geographic areas are very rare or require important data acquisition and/or models.

Semi-quantitative participatory methods proved to be relevant for assessing ecosystem services via the collaborative construction look-up tables linking habitats and ecosystem services by experts elicitation, often referred to as "capacity matrices" (e.g. Burkhard, Petrosillo, & Costanza, 2010; Stoll et al., 2014; Vihervaara, Kumpula, Tanskanen, & Burkhard, 2010). In addition, habitat based approaches are the most frequent analytical strategies in the literature (Potschin and Haines-Young, 2012). These capacity matrices summarize the available expertise on the capacity of different habitats to provide different ecosystem services, and thus can be easily expressed spatially in maps. As a consequence, one of the main inconvenient is the absence of variability in space of the capacity for a given habitat.

As part of an ongoing PhD, a capacity matrix has been realised in the Scarpe-Escaut Regional Natural Park in 2016. Based on this matrix and a regional mapping, this study allows the mapping of services Ecosystem provided by different types of land use. Following Hermann *et al.* (2013), we would like to identify the elements and characteristics of the environment that modulate the capacity to provide ecosystem services. And use this to adjust the capacity matrix scores in space.

We propose the following steps for the internship:

- Bibliography and assimilation of the notions and the method
- Appropriation of the method and the landscape elements (Hermann *et al.*, 2013)
- Determine a list of landscape elements from the literature
- Determine the impact of landscape elements on ecosystem services based on the literature and experts' elicitations
- Retrieve data from indicators of available landscape elements
- Participate in a workshop with local experts in order to acknowledge the spatial variability of ES

- Mapping of spatial data and quantification of the influence of these elements on ecosystem services
- Analysis and report writing.

#### Candidate profile:

- Student in Master degree in geography or ecology
- Fluent in English
- Knowledge in French would be better for local and practical integration
- Knowledge and experience in GIS software (Arcgis ou Qgis),
- Knowledge on the notion of ecosystem services

Internship's details: 5 to 6 months in IRSTEA Aix, Aix-en-Provence (France). A monthly grant of 500€ based on the French regulation for internships. The institute does not provide accommodation. It is required that this internship is part of a university program.

#### For application or further information please contact:

Philip ROCHE (Directeur de recherche, IRSTEA) : [philip.roche@irstea.fr](mailto:philip.roche@irstea.fr)

AND Sylvie CAMPAGNE (Doctorante, IRSTEA) : [sylvie.campagne@irstea.fr](mailto:sylvie.campagne@irstea.fr)

Please send CV (resume) and motivation letter to the two contacts before 31<sup>st</sup> March, 2017

The beginning of the internships is flexible depending of the selected intern but our preference is May 2017

#### **BIBLIOGRAPHY**

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