MESSYA

Mapping Ecosystem Service SupplY in conservation Areas

Project leader: Géraldine BOCQUEHO, UMR Bureau d'Economie Théorique et Appliquée (BETA)

LabEx partners: David SHANAFELT

Context —

Ecosystem services (ES) are increasingly recognised for their usefulness in spatial planning and land-use management. In particular, analysing spatial synergies and trade-offs between ES can help identify which specific locations decision makers should target for each ES, in order to achieve multiple objectives in an efficient way.

Objectives —

We aim to examine to what extent forested conservation areas can reconcile economic, ecological and social objectives at the territory scale. More specifically, we will appraise the productive efficiency of the current management with respect to the joint supply of wood products and other ES, including global climate regulation (through carbon sequestration), recreation, water purification, and conservation of biodiversity.

Approaches —

In a first step, we will harmonise heterogeneous spatial datasets in order to build a consistent database and quantify by land unit the ES public forests provide in a conservation area. The elicitation of the production functions will be based on a combination of local field data and literature on the correspondences between land characteristics and provision of goods. In a second step, we will assess synergies and trade-offs between forest ES in spatially-explicit terms. We will rely on descriptive and statistical methods to study the complementary, supplementary and competitive relationships between ES, controlling for spatial ecological and socio-economic factors. This approach will be applied to the *Ballons des Vosges* Regional Nature Park.

Expected results and impacts —

The principal output will be maps revealing hot and cold spots for the production of multiple ES. The statistical analysis will inform the future park strategy with respect to spatial management. Besides, the harmonised database will open several research avenues for the territory, such as land-use optimization and identification of spatial mismatches with the demand for ES.