LET's SEMINAR

Metropolitan **Laboratory of Ecology and Territory** of Barcelona

Monday 23th September 2019 at 3 p.m. at the IERMB (MRA Building 2nd floor, Autonomous University of Barcelona, Bellaterra)

"Agroecosystem's Energy-Landscape Optimization for Land-Use Planning"

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Rapid population growth has led to an increase in food demand, challenging the agricultural sector with a food-biodiversity dilemma. This process has led to some disastrous losses in biodiversity of the lands in the past few decades. Trying to control these losses, studies have been done in order to develop models and indicators to measure the "goodness" of the lands in terms of sustainability.

In the study presented, we use these indicators and try to find optimal solutions to the problems designed to represent the food-biodiversity dilemma. In the three settings of our optimization problem, we try to optimize a variable in the interest of one side of this dilemma, while maintaining a variable representing the other side. Different tools have been used to obtain the results, and a comparison of these tools and their reliability in the case of our problems is done. Also, we have analysed how choosing one setting might affect the key variables of the analysis.

Finally, a parametric analysis is conducted. This can be taken as a reference of future policies to be chosen for land use planning, considering the cost of making the changes to the lands, and the effect of these changes on objective functions.