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# Reconstitution of the historical dynamics of agrarian systems and their effects on the local ecosystems

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## Abstract

Since the development of the agriculture during the Neolithic and until present, humans never stopped to shape their environment to obtain required resources. Over millennia, they were able to change their operating modes and to adapt their technologies and their techniques to changing socio-economic and political contexts but also to variable climatic and local environmental conditions. The different phases of agrarian history defined as the combination of the mode of exploitation of an ecosystem – *i.e.* seen as an "agro-system" –, the technical system, and the socio-economic logic governing the whole have been summarized by agronomists in the theoretical concept of agrarian system (Mazoyer and Roudart, 1997). This conceptual framework is particularly applicable to lowlands where human societies have historically found less-limiting climatic and topographic conditions for the development and the diversification of agro-pastoral activities. Thus, the Pre-Alps lowlands sheltered many archaeological evidences of ancient human occupations since the Neolithic with several pile-dwelling sites (*i.e.* Paladru, Aiguebelette, Bourget-du-Lac) and over the past 7000 years. In this lowland area, paleoenvironmental multi-parameter (pollen, micro- and macro-charcoal, NPPs, sedaDNA, XRF) studies have been undertaken on two lacustrine sedimentary sequences from Paladru and Moras lakes located 30 km away. The aim was to both identify and quantify the operating modes of successive agrarian societies at a micro-regional scale and to determine their potential impacts on each ecosystem components whether soil, vegetation or lacustrine system.

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