ALPS: ANALYZING AND MODELING TRANSITIONS OF COMMON PROPERTY PASTURES IN THE SWISS ALPS

The common property pastures in the Swiss Alps provide significant services to the mountainous regions, such as income sources for farmers and tourism industry, protection from soil erosion, water-run-off, landslides, and high biodiversity. These services are highly dependent on continuous management of the alpine pastures. In Switzerland, most alpine summer pastures are common property and have been managed by local governance systems since the Middle Ages avoiding an over-use of the scarce resources. Societal changes, like industrialization, rapid economic growth, and new agricultural policies, induced major transitions of the pasture management system, leading to abandonment of marginal land or intensification of productive areas ensuing reduction of biodiversity on the long-term.

The **objectives** of this project are:

1. To characterize, analyze, the transitions of the management system of common property pastures in the Swiss Alps, with special focus on institutional development, farmers decision making, and land use change.
2. To dynamically model the transitions of the social-ecological system (SES) using a systems dynamics approach.
3. To develop, scenarios and strategies for coping with upcoming challenges such as market liberalization.

The **conceptual model** is based on Ostrom's general framework for analyzing social-ecological systems (Ostrom 2009). It shows the social subsystems (blue) interacting (red) with the ecological subsystems (green).This conceptual model is quantified based on survey data (farmer's decision making), and federal statistics (farm structure, land use, and land cover). The data of the SES are modelled using a systems dynamics approach.

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