FR1 (Castagniccia, France): Farm types, land cover change in a Mediterranean region exposed to fire risk

Introduction

In mountainous Mediterranean areas, one the objective of the CAP is to maintain livestock farming at a minimal level of stocking in order to either prevent land abandonment and over-grazing/over-intensification that both have negative environmental impacts. However, in the northern rim of the Mediterranean basin many of these areas such as Sierra de Grazalema and Sierra de Guara in Spain or Corsica in France, the level of vegetation increased. Meanwhile, the number of farms kept decreasing while the total number of animals was stable or decreased.

Objective

We want to show that such situations of agricultural decline i.e. where land scarcity is low, lead farmers to opt for hyper-extensive systems, i.e. ranching that has not a sufficient stocking rate to control biomass growth and fire risk. Thus, we analyse breeders' production choices in a central area of Corsica called "Castagniccia". This is done base on farm data (survey data cross-tabulated with CAP farmers' declarations) and land-use data (remote sensing data). In a first step, we estimate the change in the state of vegetation during the last decades using a transition matrix. In the second step, we confront the evolution of actual farm (classified in types) and the areas that they are supposed to impact.

Methodology

First, we assess vegetation dynamics in this area. The current dynamics mainly concern the evolution of shrubs and scrublands toward forest. Indeed, crop growing was abandoned long ago in the Corsican Mountains, and for the last 50 years the main human influence occurred through animal grazing (Said, 2002). Therefore we use remote sensing data to capture fuzzy differences between vegetation heights, rather than contrasts between agricultural and non-agricultural land. We chose the period between 1994 and 2012, long enough to allow us to monitor changes in vegetation cover and the transformation of farm types. A direct survey allowed identifying farm sites for both 1992 and today. Almost 240 sites of farming activity were spotted by this survey.

Results

We assess the general vegetation growth (Fig. 1), although most of the area is undergoing no change (which is consistent with the nature of the vegetation classes: for example, forest generally remains forest). The most common change concerns the evolution of what we call low vegetation, i.e. Maquis, scrub and pastures toward the forest state (with even quercus ilex, alders, pine). This means that particularly in the most mountainous parts of the area, the vegetation is evolving toward a state useless to ruminant breeders and we suspect that the farms are unable to slow down this tendency.

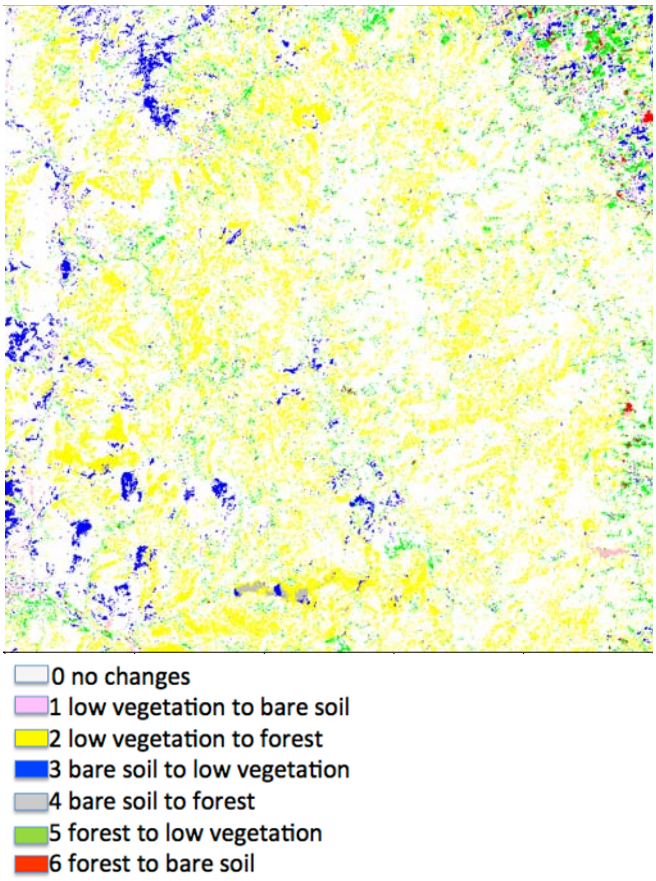

Figure 1. Vegetation change between 1994 and 2012.

Concerning the impact of farm type on vegetation we find that even though high vegetation (Maquis with heather, forests) constitutes a major component of the farmland throughout the area and for all farm types, cattle farms present a higher proportion of low vegetation (grass and scrub) than average. But cattle farms are less able to slow down vegetation growth than farms without beef cows (sheep and goats). This is no doubt because, being larger than the other farms, beef farms include more pature land, particularly grass and cistus, but cannot always maintain them in that state.

As far as forest fires are concerned, as we assumed from the beginning that the fire risk has increased in terms of dimension of the fires, while the frequency of occurrence has generally decreased. However, we have not found any difference between the ability of the farm type to decrease the risk (except for Chestnut that are rarely touched and for the goats that are often touched). The medium size of the fires has particularly increased for areas “impacted” by the beef cows.

Links connecting agents and causal connections through which landscape can potentially affect rural economies and societies

Especially in summertime the landscape is attractive for tourists. Same applies for urban Corsicans, which are also very attached to the villages because they see them as markers for their identities. Many of them for example are buried in the villages, people come back for important celebrations, summer holidays and sometime for retirement. The reduction of fire risk, in addition to the direct employment generated by the public intervention (firemen hired, subsidies to clear bushes, etc.),

protects habitations and inherited landscape, and as a second effect incentives tourism and the return to the villages for retired people.

Lesson learned & Policy Recommendations

Results clearly show that the key problem is the disappearance of a small-farm system based on ewes and goats. The prospect could be then to appraise the possibility to design CAP application aiming to maintain these later in order to make them more attractive for young farmers. We have to note that, the evolution a non-pasture landscape, new techniques and skills are necessary to manage this kind of landscape. This could be part of the solution, beyond questions of subsidies.

Focussing at the problem of the specific regulation service provided by the agriculture (here particularly fire prevention), there is a general tendency towards non-control of the biomass by the farmers. According to our results, the design of the CAP as it is does not change anything in that sense. The systems that seem to have an impact on fire risk are, for very different reasons, the chestnuts orchards and the dairy ewes systems. Concerning the latter the fires used to be in their area more frequent but of smaller extension then today. It is necessary to investigate if the use of controlled fires within the farm could be an efficient tool to control the biomass. Maybe a mix of controlled fires or any traditional technique to control the vegetation growth in non-mechanized areas and intensive traditional cultivation as chestnuts or other orchards could be a way to promote.

Responsible partner/person

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