**UNDERGRADUATE DISSERTATION PLAN**

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Title: Can land intensification and abandonment in Latvia be linked to key socio-political events?

Introduction

Land-use, as defined by human employment of land (Meyer and Turner, 1992), is undoubtedly an important part of all civilisations, due to the provision of natural resources (Foley *et al.*, 2005; Turner *et al.*, 2007). However, this is often at the environment’s expense. Human-driven land-use change through urbanisation, deforestation and agricultural expansion has placed pressure on the functioning of several ecological processes, as well as ecosystems themselves (Foley *et al.*, 2005; Turner *et al.*, 2007). Since 1850, roughly 35% of anthropogenic carbon dioxide (CO2) emissions have resulted directly from human land-use, altering the global carbon cycle (Foley *et al.*, 2005; Turner *et al.*, 2007). Fragmentation and destruction of natural habitats through land conversion is also one of the largest threats to terrestrial biodiversity, causing extinctions and range reductions (Foley *et al.*, 2005; Jetz *et al.*, 2007).

Such fragmentation and destruction has primarily occurred through changes in agricultural practices (Foley and Ramankutty, 1999), with croplands and pastures covering over 40% of Earth’s land surface (Foley *et al.*, 2005). Expansion is largely made possible through technologies produced during the ‘Green Revolution,’ an agricultural revolution during the mid-twentieth century that increased global food production (Foley *et al.*, 2005). However, modern practices may be risking long-term ecosystem services (e.g. air quality and nutrient cycling) for short-term yield increases (Foley *et al.*, 2005). Global concern is therefore placed on land-use change, with a focus on mitigating its effects (Foley and Ramankutty, 1999).

Countries and regions appear to follow similar trajectories of changing land-use regimes, moving from subsistence to intensive agriculture at differing rates depending on their social and political contexts (Lambin *et al.*, 2001; Foley *et al.*, 2005). However, a study in Ethiopia indicates that not all countries follow this pattern, as Ethiopia experienced deintensification within a changing socio-political environment (Reid *et al.*, 2000).

The extent to which socio-political events can have a marked influence on trends in land-use change has seldom been quantified, with notable studies considering only one socio-political event (Reid *et al.*, 2000; Prishchepov *et al.*, 2012). Analysing if the signature of a socio-political shift can be detected through land-use change would shed light into the importance of socio-political events as drivers of such transitions on a country scale.

In this study, I will be focusing on Latvia due to its quick-changing political status, making it an appropriate case study to examine if land-use change can be linked to socio-political events. The two events I will be examining are (1) the Soviet Union collapse in 1991 and (2) the addition of Latvia to the EU in 2004 (vote in 2003). After the Soviet Union, there was an increase in abandoned land, tree cutting and percent coverage of protected areas (Prishchepov *et al.*, 2012). After joining the EU, the share of large farms (intensive) increased, while the share in small farms (extensive) decreased (Csaki and Jambor, 2009).

Ultimately, this type of analysis could be replicated for other countries to outline the impacts of shifting political power on land-use and thus, have implications for wider aspects such as ecosystem services, the economy and human movement/urbanisation across Europe and other regions around the world.

Objectives

Focusing on Latvia, this study aims to investigate the importance of socio-political events as drivers of land-use change.

Research questions

To answer my overarching question, I will specifically be examining the following aspects:

1. Is there a clear, marked linkage between key socio-political events and land-use change in Latvia?
2. Is the strength and direction of land-use change different with extensive, intensive and abandoned land?
3. Is there a time lag between socio-political events and the occurrence of land-use change? Does this differ between land-use type?

Hypotheses and predictions

Proposed methods of working

Proposed methods of sampling and data analysis

Stats and anticipated results and their likely importance in terms of the bigger picture

Risk mitigation

Anticipated problems and what will you do to minimize their effect

Challenges that you anticipate having to overcome

Proposed timetable

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