

Fractured climate cultures in depopulated Southern Spanish communities

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1 Introduction

This study analyzes the elements that construct a fractured climate culture in depopulated Southern rural areas in Spain. The main arguments are that:

- the political ecological notion of shadow landscapes help revealing conflicting place identities and social processes that create a fractured climate culture.
- place identities are key in understanding challenges for effective responses to climate change.
- despite the current challenges, there are opportunities for the cultivation of climate protection practices.

2 Background and Rationale

Changing climatic trends in Southern rural Spain

- ↑ temperatures, aridity, rain intensity, droughts
- ↓ overall rain fall
- 10% decrease in mean winter precipitation and an increase of 1-2°C in summer temperatures for 2011-2050 (Coll et al. 2015).
- climatic variation is already having an effect on flowering periods of olives in southern Spain

Changing social systems in Southern rural Spain

- Depopulation:** steady demographic decline.
 - 1950: 39% of total population living in the Spanish in villages <2,000 inhabitants.
 - 2017: 18% of total population living in the Spanish in villages <2,000 inhabitants.
- Deagrarianization:** a breakdown between agriculture and rural territories
- Deterritorialization:** social relations as well as identities increasingly depend on factors determined elsewhere, e.g. in urban areas, global markets and regional governments

3 Study Goal

To examine the connections between **responses to climate change** and place identities in depopulated Southern Spanish communities.

Climate change perception

Climate change adaptation practices

4 Theoretical Approach

Climate cultures

Relational cultural spaces approach: incorporates spatial references into the discussion on collectively shared knowledge about both climate vulnerability Heimann (2018) .

Place

A social construct in which social actors create place identity via a series of socio-economic and cultural processes in their local spaces.

Political ecology

'Shadow landscapes', "which brings together processes of marginality, scale, socio-nature and cultures of depopulation to explain human-environmental dynamics in those areas marked by the relative absence of people." Bryant, Paniagua and Kizos (2015: 233)

5 Study Area & Methods



Southeastern Spain (Province of Granada)

Semi-structure interviews

- Content analysis of 24 semi-structured interviews in 10 municipalities in 5 comarcas (subregional rural areas) that are depopulating (at least a loss of 2% of their population since 2000)
- Recruitment: personal connections and snowball sampling
 - Requirements to participate: familiarity with the town well, but preference to those that work or have worked in the agricultural sector and those that are involved with the town's local administration

Analysis of official documents

- Analysis of LDS (local development strategies) for the period of 2014-2020 that pertain to these same 5 comarcas.
- Step 1: 133 quotes that contained the words 'loss' or 'abandonment' were identified and coded
- Step 2: codes were grouped into 5 categories intended to capture the perceived adverse changes taking place in these rural areas

6.1 Results: Place identity in depopulated and changing Southern Spanish communities

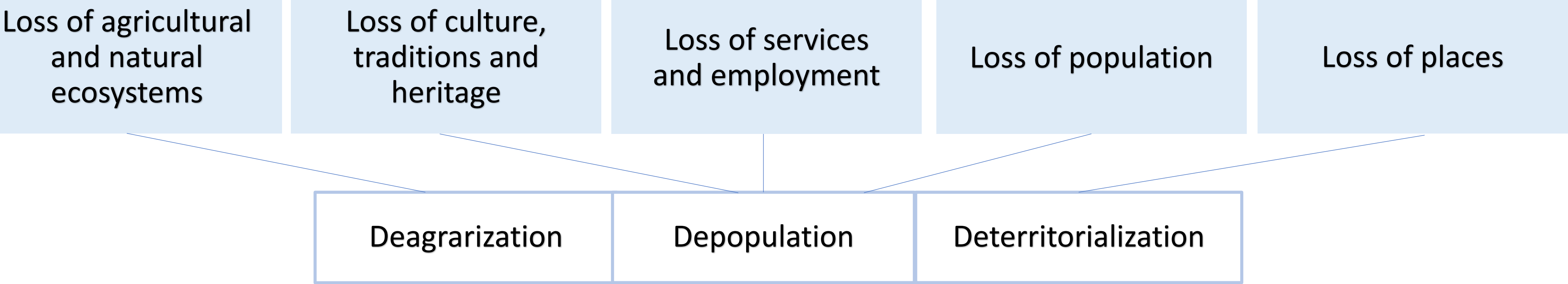
Place identity in depopulated and changing Southern Spanish communities

Participants revealed a high attachment to their towns

Tensions around change, spaces are:

- perceived as unchanging
- exposed to accelerated shifts: environmental and demographic changes, and deterritorialization
- To some degree being 'restored'. For example, some traditional agricultural practices are being rescued alongside the adoption of agroecology in some rural areas

Five consistent themes around the idea of loss and abandonment:



Particularly salient: reduction and destruction of employment due to the mechanization of labor:

"We are competing in a world in which they are doing very intensive olive tree agriculture (...) they are using a harvester (...). Here we have olive trees that are 500 or 600 old, but [the olive trees in intensive farms] that are 4 or 5 years (...) don't need work force, it is all done by a machine. Our towns provide a lot of employment, it is concerning."
Eduardo (Farmer from Algarinejo)

6.2 Results: Climate change perception in depopulated communities

Perception of impacts and vulnerabilities around climate change

- Participants perceived a general increase in temperatures, and decreased but more intense rainfall
- 'Place' was often used as a point of reference to point out perceived environmental changes:
 - decreasing amount of wildlife, decreasing levels of water in river basins, loss of experiences with snow (snow in the town's plaza, shoving snow, etc.), loss of crops due to lack of rainfall and excessive rainfall.

"When I was little, I remember there were years of dryness, but not like now, not that many consecutive years. We used to live from the countryside, and now we can do that anymore" Mario (Gor)

Climate Change Concern

- General high concern about accelerated climate change most expressed their concern at a local and interpersonal level
 - place was sometimes used to trivialize climate change by noting that there always been climatic changes (i.e. referring to a point in the past in which similar weather changes where noticed).

6.3 Results: Adaptation practices in depopulated communities

- National and regional governments have plans and strategies for climate change adaptation
- Participants had a hard time thinking of specific measures that were being adopted at both the community and individual level.
- Three main practices:
 - Soil management changes (e.g. stop pesticides, no tillage, bees)
 - Crop variety changes: incorporation of tropical crops, and change in crop variety due to earlier springs which prompt earlier blooms that in turn are more vulnerable to frost
 - Water management changes: construction of wells and shifts to drip irrigation as a response to the lack of water
 - Conflicting reactions: irrigation efficiency vs. increase in well drilling

7 Conclusion

Conflicting place identities emerge in rural depopulated areas. The social costs of industrialization have fractured space, provoking deterritorialization, loss, and existential struggles. At the same time there is a survival of traditional place identities that hurdle between both obsolete and sustainable notions. These conflicting place identities construct a fractured climate culture with inconsistent climate change adaptation practices.

- It is necessary to combine notions of the relational cultural approach with political ecology to fully understand climate cultures in depopulated rural Spain
- Fractures are noted between the official and local climate cultures
- Fractures climate culture in the studied areas are explained by the shifts that rural depopulated areas are experiencing (e.g. different degrees of loss)
- High attachment to place and acute environmental awareness present an opportunity for the cultivation of climate protection practices

Limitations and Directions for Future Research

- The sample is mostly male, a product of a sampling strategy that focus on agricultural workers in areas with male overrepresentation. The voices and perspectives of other gender identities should also be featured in future research
- There are other relevant socio-natural dynamics that need further attention such as ethnic relations or local politics dynamics. Fractures climate culture in the studied areas are explained by the shifts that rural depopulated areas are experiencing (e.g. different degrees of loss)
- Special attention should be paid to communities that practice dryland and small-scale agriculture as these are more likely to be less resource extractive and tend to be more affected by water scarcity.