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Analysis

More than wine: Cultural ecosystem services in vineyard landscapes in England and California

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ABSTRACT

Vineyard landscapes provide cultural ecosystem services (CES), which have been little studied in previous ecosystem services research. To fill this gap, we assess perspectives of wine producers and residents regarding CES provided by vineyards in two wine regions: Southeast England, an emerging wine area, and the counties of Sonoma and Napa, California (hereafter: Sonoma and Napa), a more traditional wine area. We used Q-methodology to reveal the perspectives expressed by participants from both areas, each of whom ranked 44 Q-statements. We found that wine producers and local residents have different perceptions. In Southeast England, wine producers are more positive about vineyard landscapes than residents. Wine producers in Sonoma and Napa value CES directly connected with wine production, while residents emphasize CES that benefit nature conservation or entertainment. Comparing the regions, we conclude that Southeast England vineyards represent sometimes unwelcome development to residents, while in Sonoma and Napa they represent conservation of nature and tradition. Our findings show that perspectives on CES are experience- and context-dependent, as the perspectives on vineyards of residents and wine producers are strongly held but vary widely. Understanding these perspectives will help land use planners and regional politicians make better decisions for optimizing available CES.

1. Introduction

A decade ago, the Millennium Ecosystem Assessment (MEA, 2005) found that around 60% of global ecosystem services (ES) were declining. Since then, research on ES has greatly increased, new classification systems such as the Common International Classification of Ecosystem Services (CICES) have been developed (Haines-Young and Potschin, 2012), and the concept has found its way into policy-making and planning, for instance with the UK National Ecosystem Assessment (2011) or the Green Infrastructure Strategy of the European Union (European Commission, 2013). Research on cultural ecosystem services (CES) has rapidly grown in recent years (Daniel et al., 2012; Milcu et al., 2013; Plieninger et al., 2015), however there is still more research done on non-CES than on CES (Bennett et al., 2015; Seppelt et al., 2011).

People benefit from CES, which in general are non-material, occur in natural or semi-natural physical settings, and affect people's personal state (Haines-Young and Potschin, 2012). Many authors stress the importance of CES for people, especially in industrialized countries; among other reasons, they play a crucial role to increase people's awareness and motivation for nature protection (Opdam et al., 2015; Orenstein, 2013; Plieninger et al., 2015). CES provide a connection between intrinsic values and the utilitarian and economic values often dominating ES approaches, which can hide the social–cultural values of CES (Schröter et al., 2014). This is important because currently CES often fall victim to decision-makers' preference for economic or ecological values (Milcu et al., 2013).

Landscapes provide a variety of ES including CES (Plieninger et al., 2015). Cultural landscapes are areas "designed and created intentionally by man" (World Heritage Centre, 2012, p. 88). Even though, in developed countries, the livelihoods of most people do not directly depend on landscapes, people have distinct relationships to and perceptions on the landscape surrounding them (Tempesta, 2010; van Zanten et al., 2014). Thus, changing landscapes entails a change of CES and also of people's perspectives on the landscape.

The growing, making, and selling of wine (wine production) leads to vineyard landscapes, which are both physical and cultural landscapes. Previous viticulture studies have talked about balancing provisioning, and regulating and maintenance ES in vineyards using ecological practices (Sandhu et al., 2012a; Viers et al., 2013). Other studies have looked into cultural meaning and heritage of vineyards (Harvey et al., 2014; Mitchell et al., 2012) and into different aspects of wine tourism such as perspectives of potential tourists (Getz and Brown, 2006; Quintal et al., 2015; Sparks, 2007). Hence, vineyard landscapes provide not

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only grapes, but also a variety of CES to people living among or visiting them. These landscapes are trademarks for their areas (Daniel et al., 2012) and special infrastructure, like educational trails, can attract additional visitors (Fiedler et al., 2008). Vineyards serve as motives for art, as places for spiritual activities like weddings, and as strong identity-creating landscapes representing also cultural heritage, such as the UNESCO World Heritage designation for vineyard regions like the terroirs of Burgundy. While other authors have included some vineyard CES in their studies (especially entertainment) (Sandhu et al., 2012b; Tompkins, 2010), we present the first comprehensive study of CES in vineyard landscapes.

In this paper, we seek to identify local perspectives on CES provided by vineyard landscapes, and how these vary depending on personal experiences. We selected vineyard landscapes because they provide both distinct physical landscapes and a special product culture likely to be valued for CES. We assess and compare perspectives on CES of people working in the local wine industry (wine producers) and of people living in the area, but not working in the wine industry (residents) in two wine regions: Southeast England, as an emerging wine-producing area, and in the counties of Sonoma and Napa, California (hereafter Sonoma and Napa), as a well-established wine-producing area. To assess individual perspectives on CES, we use Q-method, a discourse analysis tool (Brown, 1980; Webler et al., 2009) that has only been applied in a few recent studies about perspectives on ES (Bredin et al., 2015; Pike et al., 2015).

2. Case Description

We selected two wine producing regions for comparison. Both were in English-speaking areas, which facilitates a comparison of perspectives assessed based on ranking statements using Q-method. Both regions are currently dealing with climate change, with concerns about climate warming threatening traditional varieties and wine styles in Napa and Sonoma, while warming may open up new growing frontiers in southern England (Hannah et al., 2013). The Californian region has been the subject of long-term study by the second author (e.g. Nicholas and Durham, 2012; Nicholas, 2015; Nicholas et al., 2011), while the English region was under investigation as part of the European Commission-funded research project OPERAs, aiming to operationalize ecosystem services for policy and practice (http://www.operas-project.eu/). The selected case study areas differ greatly in size of wine production and producing areas, and the varieties of wines produced (Table 1).

England is not well-known as a winegrowing area. Since 2004, the producing area has nearly doubled, but harvested yield has heavily fluctuated (Fig. 1) due to extremely different annual weather patterns. The 2012 yield is less than half of the 2004 yield (Wine Standards Board, 2013), which shows that the area still faces challenges on the margins of climate suitability for winegrowing, even as the industry is rapidly expanding, concentrated in Southeast England. Climate change predictions for England, with drier summers and overall higher temperatures, are favorable for increasing future wine production (Jenkins et al., 2009).

Table 1
Comparison of key characteristics of the English and Californian wine industries, showing that the English wine industry is much smaller in all regards, with a striking emphasis on sparkling wine production, while the Californian industry is more diverse. All data are for 2012, except California wine types are from 2013. Sources: English Wine Producers, 2013; UKVA, 2012; Wine Institute, 2012, 2014a, 2014b.

	England	California
Number of winegrowers	432	4600
Producing area (in 1000 ha)	1.3	221.0
Average vineyard size (in ha)	3.3	39.9
Number of wineries	124	3800
Main wine varieties/style	60% sparkling wine	20% Chardonnay 13% Cabernet Sauvignon 9% Merlot

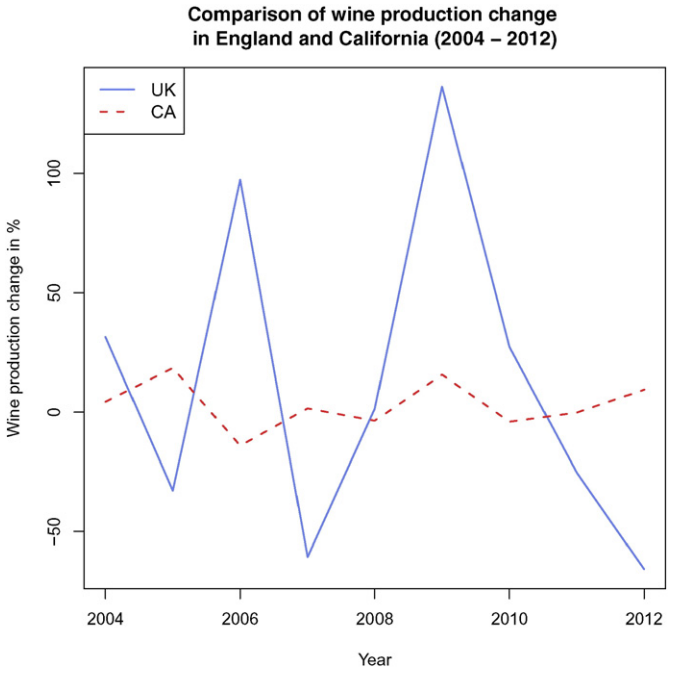

Fig. 1. Comparison of wine production rates (2004–2012) in England (blue, solid) and California (red, dashed). The percentage change rate is based on annual wine production compared to the previous year. Californian wine production fluctuates less than 20% over the years. In contrast, the production change rate for England reaches extremes in both positive (100% higher than the previous year) and negative (50% less than the previous year) directions. These variations in production reflect the more variable climate conditions in England. Data from Wine Institute (2013) and Wine Standards Board (2013).

On the other hand, the US is one of the largest wine producers in the world, with about 40% of the production volume of the leading nation, France (OIV, 2014). California produces 90% of the total US wine (Wine Institute, 2012). Both vineyard area and wine production have increased over the last decade. The wine-producing tradition is long, with the first recorded date of grape cultivation in the 1770s (Viers et al., 2013). The Californian wine industry not only produces wine, but also markets the natural assets of vineyard landscapes for tourism and local entertainment. As wine production is widespread in California, we concentrate our study on Sonoma and Napa, which are the most well-known winegrowing areas in California and have a well-developed visitor marketing strategy.

3. Methods

3.1. Classification and Assessment of CES

There are various CES classifications and terminologies (e.g. Chan et al., 2012b; MEA, 2005; UK National Ecosystem Assessment, 2011). In this paper, we use the CICES classification, which is widely adopted in research and policy, including the European Union Biodiversity Strategy to 2020 (Potschin et al., 2014) as well as in European research projects like OPERAs. CICES follows a standardized structure to better allow comparison between cases. CICES classifies CES in eleven classes: experiential use, physical use, scientific, educational, heritage, cultural, entertainment, aesthetic, symbolic, sacred and/or religious (here called spiritual), existence, and bequest (Haines-Young and Potschin, 2012). To our knowledge, we present one of the first studies that uses CICES for a comprehensive, semi-qualitative study on CES. We believe this is valuable because following CICES ensures that the full range of eleven CES classes is considered, and allows comparisons between cases.