

# Endorsing An Ecosystem Service Management Approach to Vineyards in the Context of Global Climate Change: Experiences from a Wide Range of Enological Regions

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## Panel Abstract:

This panel will focus on the analysis of the climate change impacts on vineyard's land use management practices, including projections of current vineyard land use areas that (a) are lost due to climate change, (b) that are retained despite climate change and (c) new vineyards areas that are created due to climate change. The analysis will explore the use of GIS maps and shall explore the use of both global and regional scales. Furthermore, this session will also shed light on the socio-economic dimension of the climate changes impacts on wine industry and viticulture by exploring the use of an ecosystem service approach. In fact, this sector is responsible for the provision of a wide range of benefits, in addition to wine products, including biodiversity protection, but also the culture services, including landscape values and eno-tourism benefits, as well a regulating services, including carbon sequestration and the protection of soil from erosion. In this context, the present proposal explores the potential of the ecosystem service approach for the management of vineyards as a regional strategic plan to promote sustainable development including (1) the improvement of people's quality of life; (2) the increase the prospects for and the quality of jobs in rural areas; and, (3) the protection of regional commons, including both biodiversity and cultural heritage oriented commons.

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## “Climate Change, Wine and Conservation”

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## Abstract:

Climate change may cause shifts in agriculture that will have negative impacts on conservation. Viticulture exemplifies these issues, as it is highly sensitive to climate and the majority of global production comes from Mediterranean regions that are global biodiversity hotspots<sup>5</sup>. Here we assess the conservation conflicts that may arise due to changing climate suitability for viticulture using multiple suitability models and climate scenarios. 96% of currently suitable

area for wine grapes is lost this century under an A2 emissions scenario. The pronounced decline of suitability in traditional growing regions will create strong incentives for increased water use to ameliorate heat stress, as well as vineyard relocation into natural habitat upslope and at higher latitudes. Extensive areas newly suitable for viticulture open in the Northern Hemisphere. Several novel winegrowing regions intersect with global conservation priority areas. Much smaller areas of novel suitability appear in the Southern Hemisphere, making global redistribution of wine production a significant possibility. Increased water use as well as conflict with upslope habitats and protected areas is especially likely in the south. The wine industry has demonstrated sensitivity to the environmental footprint of its product, which is significantly affected by habitat conversion and water use. Collaborative conservation solutions are needed to avoid damage to the wine industry and loss of biodiversity due to climate change.

### **Climate change impact on wine regions in Europe**

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#### **Abstract**

In Europe, centuries of experience in viticulture led to a fragile equilibrium between climate, soil and varieties that profoundly influences the production of high quality wines. Projected climate change represents a great threat for the preservation of this equilibrium.

In this study, the impact of climate change on the distribution of the most important European wine regions was assessed by using a comprehensive suite of spatial informative layers, including Huglin and Winkler Index, and water deficit as predictor variables. A machine learning approach (Random Forest) was calibrated for the present period and applied to future climate conditions as simulated by HadCM3 General Circulation Model to predict the possible spatial shift/extension of the main wine regions in 2020, 2050 and 2080 under A2 and B2 SRES scenarios.

Results indicated that under A2 and B2 scenarios a progressive increase of temperature-related indexes as well as of water deficit will alter the climatic profile of grapevine cultivated area over the domain. Suitable area progressively shifted north-westwards and each wine region expanded or contracted depending on its degree of suitability for the new areas viable for grapevine cultivation. Wine regions typically of the Mediterranean were found prevailing (Languedoc, Provence, Côtes Rhône Méridionales) over new territories, with the exception of Cognac and Loire which represent the uppermost wine region over the domain.

## **“Wine tourism in the District of Conegliano Valdobbiadene PDO”**

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### **Abstract:**

Veneto is the first region in Italy for touristic flows: in 2009 it focused the 14.6% of arrivals and the 16.3% of presences of tourists who arrived in the Italian peninsula. In 2010 there was an increased number of tourists. In particular, if the number of presences has yet to reach that of 2008, arrivals, which underlies a new trend, called “the next trip”, have exceeded the figure of 2008: nearly 14.6 million visitors in 2010 against 14.1 million in 2008. In fact, the tourists’ behavior has changed: they prefer destinations closer to home, they reduce the duration of their stay, saving many costs once they arrive on site. This kind of tourist is very similar to the so-called “wine tourist”. In fact, the food and wine tourism, with its characteristics of proximity, short break, value for money, it is less dependent on cyclical fluctuations of the economy, incomes and consumptions. Therefore, wine tourism plays a role in facing this hard economic situation.

In recent years, wine tourism has expanded considerably in the District of Conegliano Valdobbiadene PDO, located in the north-east of Veneto region. In fact, both supply and demand for wine tourism products has increased, as rural tourists facilities and B&B have, along with the number of wine shops and tasting rooms at wineries. In this area, a road network winding on a hilly landscape through little towns prevents the spread of mass tourism, while a quality tourism is developing, which has the potential to enhance existing resources.

This study aims to describe the characteristics both of supply and of demand for wine tourism in the District of Conegliano Valdobbiadene PDO, as resulted from a survey carried out by the Interdepartmental Centre for Viticulture and Enology in Conegliano.

## **“The influence of vineyards landscape on tourism flows: An application to Tuscany”**

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### **Abstract:**

It is widely acknowledged that landscape features can play a major role in determining tourism demand. The analysis presented in this work aims at assessing the impact of vineyard landscape and high-quality wine production on regional tourism flows. This paper focuses on Tuscany, a major touristy region in Italy renowned for its pleasant climate and enchanting countryside. Thus, vineyard landscape and high-quality wine production have been included as explanatory variables in a regression model encompassing also the socio-demographic and geographical characteristics of each municipality, accommodation availability, the presence and availability of protected areas and the main types of tourism attraction factors, such as art and proximity to the seaside. This model has been run for total tourist demand, which has then been disentangled into the international and domestic markets. Results allow concluding that vineyard landscape and the production of quality wines represent a positive externality on tourism flows. A monetary evaluation of the impacts of agricultural landscape and wine production has been performed. The results show that the yearly contribution of these externalities to the revenue of tourism services differs across the provinces. This can have important policy implications for tourism promotion choices and allows drawing a profile of the average tourist visiting different parts of Tuscany.

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