original scientific article
received: 2016-04-21

DOI 10.19233/ASHS.2017.09

PHYLLOXERA REVISITED: THE SPREAD OF GRAPEVINE DISEASE IN DALMATIA AND ITS INFLUENCE ON SOCIO-ECONOMIC DEVELOPMENT AND AGRICULTURAL LANDSCAPE

Anica ČUKA
University of Zadar, Department of Geography, Franje Tuđmana 24i, 23 000 Zadar, Croatia
e-mail: acuka@unizd.hr

Lena MIROŠEVIĆ
University of Zadar, Department of Geography, Franje Tuđmana 24i, 23 000 Zadar, Croatia
e-mail: lmirosev@unizd.hr

Josip FARIČIĆ
University of Zadar, Department of Geography, Franje Tuđmana 24i, 23 000 Zadar, Croatia
e-mail: jfaricic@unizd.hr

Vera GRAOVAC MATASSI
University of Zadar, Department of Geography, Franje Tuđmana 24i, 23 000 Zadar, Croatia
e-mail: vgraovac@unizd.hr

ABSTRACT

The paper discusses the influence of phylloxera on the socio-economic features and landscape of Dalmatia, a region of Croatia. The aim of the paper is to investigate the spread of phylloxera in Dalmatia and how it affected the landscape, economy and population of the area in question. The research is based on a comparative analysis of various spatial data sources. Phylloxera spread through Dalmatia in the late 19th and early 20th centuries, when the region belonged to the Austro-Hungarian Monarchy. Since agriculture, along with maritime activities and fishing, formed the heart of economic activities in Dalmatia, the crisis in viniculture caused by phylloxera had a particularly negative influence on social and economic circumstances. At the same time, changes occurred in the agrarian landscape, as many of the vineyards affected by phylloxera were never renewed; some arable areas were reassigned to other cultures, while others were completely abandoned.

Keywords: phylloxera, Dalmatia, agricultural landscape, depopulation, emigration

FILLOSSERA: LA DIFFUSIONE DELLA MALATTIA DELLA VITE IN DALMAZIA E IL SUO EFFETTO SULLO SVILUPPO SOCIO-ECONOMICO E SUL PAESAGGIO AGRICOLO

SINTESI

Il presente lavoro, basato sull'analisi comparativa delle diverse fonti di dati spaziali, esamina l'effetto della fillossera sulle caratteristiche socio-economiche e paesaggistiche della Dalmazia, la regione croata situata nella parte nord-orientale del mare Adriatico. Fillossera si diffuse in Dalmazia alla fine del XIX secolo e all'inizio del XX secolo, nel periodo in cui la regione apparteneva all'Impero Austro-ungarico. Dato che l'agricoltura, accanto agli affari marittimi e la pesca, rappresentava l'attività economicha principale in Dalmazia, la crisi della viticoltura, condizionata tra l'altro anche dalla fillossera, ha avuto un impatto molto negativo sulle opportunità sociali ed economiche. Tra le conseguenze si distingue in particolare l'emigrazione intensiva della popolazione giovane, vitale e in età lavorativa, soprattutto verso Nord e Sud America. Allo stesso tempo c'è stato un cambiamento del paesaggio agrario, perché una gran parte dei vigneti devastati dalla fillossera non sono stati mai ripristinati: una parte di queste terre coltivabili è intesa per altre colture (olivo, ciliegia marasca ecc.), oppure completamente abbandonata.

Parole chiave: fillossera, Dalmazia, paesaggio agricolo, spopolamento, emigrazione

INTRODUCTION

Phylloxera is a grapevine disease, introduced from the USA, which gradually gained ground and then destroyed European vineyards in the latter half of the 19th and early 20th centuries. Since viniculture was extremely important in many parts of Europe, the arrival and spread of phylloxera had a profound effect on social and economic circumstances and on changes to the agrarian landscape. The phylloxera epidemic of the late 19th century affected the Croatian coast and islands in the northeast Adriatic.

The area discussed in this paper is the historical region of Dalmatia, which occupies the greatest part of the Croatian coastline. Although the region's borders changed several times, we will analyse it within the borders of Austrian Dalmatia, since those borders were the official ones during the period discussed in this paper. Today, most of the Austrian Dalmatia is a part of Croatia, and only a small part of it is in present-day Montenegro (the Bay of Kotor).

Since the economy of the Adriatic region largely depended on agriculture and maritime activities, changes to these were reflected in significant ways in the area, including the way in which the landscape changed. Of course, agriculture primarily affected the formation of the rural landscape, while maritime activities mostly had a direct impact on urban and rural settlements (the construction of harbour infrastructure, maritime signalisation, etc.). In the Dalmatian rural landscape, two types of karst landscapes dominated: pastureland and drywall areas (Ogrin, 2005). Four patterns could be distinguished in them: olive groves, vineyards, karst pasturelands for cattle breeding, and degraded Mediterranean forests and maquis. Since the greatest changes in the 19th century affected viniculture, as part of the particular changes in that branch of agriculture throughout Mediterranean Europe, huge changes became apparent in the mosaic of the Dalmatian landscape in a relatively short period of time.

The aim of this study is to discuss the influence of phylloxera on the socioeconomic features and rural landscape of Dalmatia from the geographic point of view. The research began with the hypothesis that in Dalmatia, as a peripheral region of the Austro-Hungarian Monarchy, in which agriculture formed the core of economic activities, grapevine disease and problems with the market placement of wines led to enormous changes in spatial organisation and the demographic structure of the population, and these had a consequential influence on changes to the rural landscape. Using the available archive sources, articles in the scientific and expert literature at the turn of the 20th century, and statistical and cartographic spatial data sources, the research attempted to establish the flow of the geographic spread of phylloxera in Dalmatia, its effect on the crisis in viniculture, and further, to gain an insight into the traces left by phylloxera on the physiognomy of the Dalmatian area. The most useful archive sources were maps, published by the Austrian Military Geographic Institute and statistical yearbooks of the Austrian Monarchy. In reconstructing the spread and influence of phylloxera, very useful source of information were articles published in specialist agricultural journals such as *Bolletino Agrario della Dalmazia* and *La Dalmazia Agricola*, and articles written by Stanko Ožanić, were especially useful. In particular, Ozanić's data on phylloxera in Dalmatia should be regarded as a valuable eye-witness statement on the outbreak, as he was the vineyard commissioner for Dalmatia, and participated personally through his educational and expert work in curbing the disease and dealing with its consequences.

The intense transformation of the Croatian coastal landscape, including the Dalmatian part, after many long centuries in history during which there had been no marked change, was caused by increased grapevine cultivation and wine production in the latter half of the 19th century. However, the viniculture boom was halted by an outbreak of phylloxera which led to the collapse of the coastal vineyards. In the surrounding context of agrarian over-population, this prompted a huge wave of emigration between the end of the 19th century and the 1920s, mostly to North and South America and Australia (Tomasevich, 1955; Čizmić et al., 2005; Nejašmić, 2008). The same processes which had launched the spread of phylloxera in other European viniculture regions reached Dalmatia a little later, in the latter half of the 19th and early 20th centuries.

HISTORICAL BACKGROUND

In order to discuss the changes of the cultural landscape, it is necessary to understand the historical and social circumstances, since the cultural landscapes are the result of continuous reorganisation of space that meets the social demands in certain historical periods. Historical-geographic dynamics of north-eastern Adriatic coast from prehistoric times until today has influenced the formation of a specific cultural landscape, but also the political framework of the space, which has been the result of conflicts and compromises among great European powers (Mirošević, Faričić, 2011). Additionally, such processes have influenced the disintegration of the Croatian political space and contributed to the development of regional particularism. At the turn of the 20th century, the area discussed in this paper was faced with political changes that had strong economic and social implications.

Political integration of the majority of north-eastern Adriatic coast started under the rule of the Venetian Republic, which proclaimed its territory of Dalmatia. This political integration of the area can be divided into two periods. The first period lasted from 1409 to 1420 and was marked by the acquisition of the area by the

Venetian Republic, and the second period that followed could be called the period of *contraction and expansion* of the Venetian territories. Particularly important for the formation of these territories were the peace treaties of Karlowitz (1699) and Požarevac (1718), which granted the expansion of the *Venetian* Dalmatia up to Velebit and Dinara Mountains (Kruhek and Pavlović, 1991; Čoralić, 2003 and 2005). Such territorial organization was the foundation for the subsequent *Austrian* Dalmatia. Namely, after the several centuries long continuous rule of the Venetian Republic over the north-eastern Adriatic, that former Venetian territory became a part of the Austrian Empire (which was in 1867 renamed Austro-Hungarian Monarchy). At first, it was a short term administration (1797–1805), because according to the Treaty of Požun (1805), the Austrian territorial acqusitions on the Adriatic became French territories. However, after Napoleon was defeated, the Austrian Empire again ruled the whole north-eastern Adriatic coast (coastal and insular area from Soča to Budva), which was in accordance with the provisions of Congress of Vienna (1814–1815) (Šidak et al., 1990; Chaline, 2001; Kirchner Reill, 2012). This, so-called, second Austrian administration over the north-eastern Adriatic lasted until 1918. During this period, Dalmatia, which had had the status of a kingdom since 1817, was a peripheral province with many social and economic problems (Stockhammer, 1878).

In 1814, the Austrian Empire organised the newly-acquired territory as a separate region called Austrian Littoral with Trieste as the capital. The region was divided into four counties: Rijeka, Istria, Gorica and Trieste. In 1816, the Kingdom of Illyria was founded, and in the following year Dalmatia, which was a part of Illyria, became a separate region. In 1817, Dalmatia was granted the title of Kingdom. The capital of the Kingdom of Dalmatia was Zadar, and the Kingdom was organised into counties: Zadar, Split, Dubrovnik, Kotor and Makarska (but in 1818 the County of Makarska was abolished and annexed to Split). The counties were further divided into districts and municipalities (Pederin, 2004).

After the collapse of the Austro-Hungarian Monarchy, the Croatian territories, including Dalmatia, were integrated into the newly-founded political unit – State of Croats, Serbs and Slovenes (1918). Only a month later, it united with Serbia into the first Yugoslav state – Kingdom of Serbs, Croats and Slovenes (in 1929, it was renamed the Kingdom of Yugoslavia). Consequently, the former state borders became administrative borders, and Croatian territories, excluding Baranja, were united. However, territorial integration of Croatian territories, particularly the coastal area, was interrupted when Italy, according to the provisions of the Treaty of Rapallo, annexed Trieste, Gorica, Gradiška, western Kranj, Istria (excluding Kastav), Zadar and its surroundings, as well as the islands of Lastovo, Sušac and Palagruža in 1920. Additionally, according to the Treaty of Rome[1], Italy annexed Rijeka in 1924. When the former capital of Dalmatia, Zadar, and the islands were annexed, Dalmatia ceased to exist as an administrative unit and as a while. Similar territorial changes continued within the Kingdom of Yugoslavia through various territorial and administrative changes when the north-eastern Adriatic coast was divided into different administrative units (called *Banovine*). In the context of this paper, it is important to emphasise that only a small portion of the territory annexed by Italy in 1920 was located in Dalmatia (the town of Zadar and the islands of Lastovo, Sušac and Palagruža), so this territorial change did not influence significantly the surface of the area investigated in this paper.

In the 19th century, three types of land ownership could be distinguished: land owned by the farmers, land owned by the noblemen or the Church, and land owned by the community (municipality). Most of the land was in the hands of the noblemen or the Church with various private and legal variants of the agreement between the landowners and the farmers: colonate, *livel* and serfdom. Colonate was mostly present in central Dalmatia and on the islands, and it was defined by the agreement between the landowner and the lessee, who worked the land. The land owner would get between a half and a fifth of the yearly income off the land (rent) and a number of other previously determined benefits. *Livel* was mostly present in northern Dalmatia. The labourer would always give the same, i. e. fixed, amount of products or money to the landowner. Serfdom was the most frequent in Dubrovnik area. The serf would get the land (and the house) from the landowner, and in exchange, he would pay the rent by giving a part of the produce to the landowner and by working a certain number of days at the landowner's estate. Such relations were interrupted by the regulations from 1930 and 1931, when the land labourers became the land owners, and the previous owners were reimbursed. Complete settlement of the agrarian relations in Dalmatia occurred after the Second World War (Defilippis, 1997).

According to the size, most of the estates in Dalmatia in 1902 were small and extremely small. The estates sized less than 0.5 hectare comprised 16,2 % of all estates, those between 0,5 and 1 ha comprised 18,1 %,

1 Italian territorial claims of the north-eastern Adriatic coast were the result of the agreement between the Great Britain and France. Namely, these countries signed the secret Treaty of London (1915) and urged Italy to join the Triple Entente, and in return they granted Italy the following territories: Trentino, Tirol, Istria, a part of Dalmatia stretching from Lisarica in the north to Planka Cape in the south, including the islands ranging from Premuda and Silba in the north to Mljet and Palagruža in the south (excluding the islands of Veliki and Mali Drvenik, Čiovo and Šolta) (Peričić, 1973). The remaining part of Dalmatia would become a part of Croatia, Serbia (from Krka River to Ston, including the Pelješac Peninsula and the Island of Brač) and Montenegro (coastal area from Ston to Budva, and Albanian coast up to the port of Shenghin) (Diklić, 1990 and 1998).

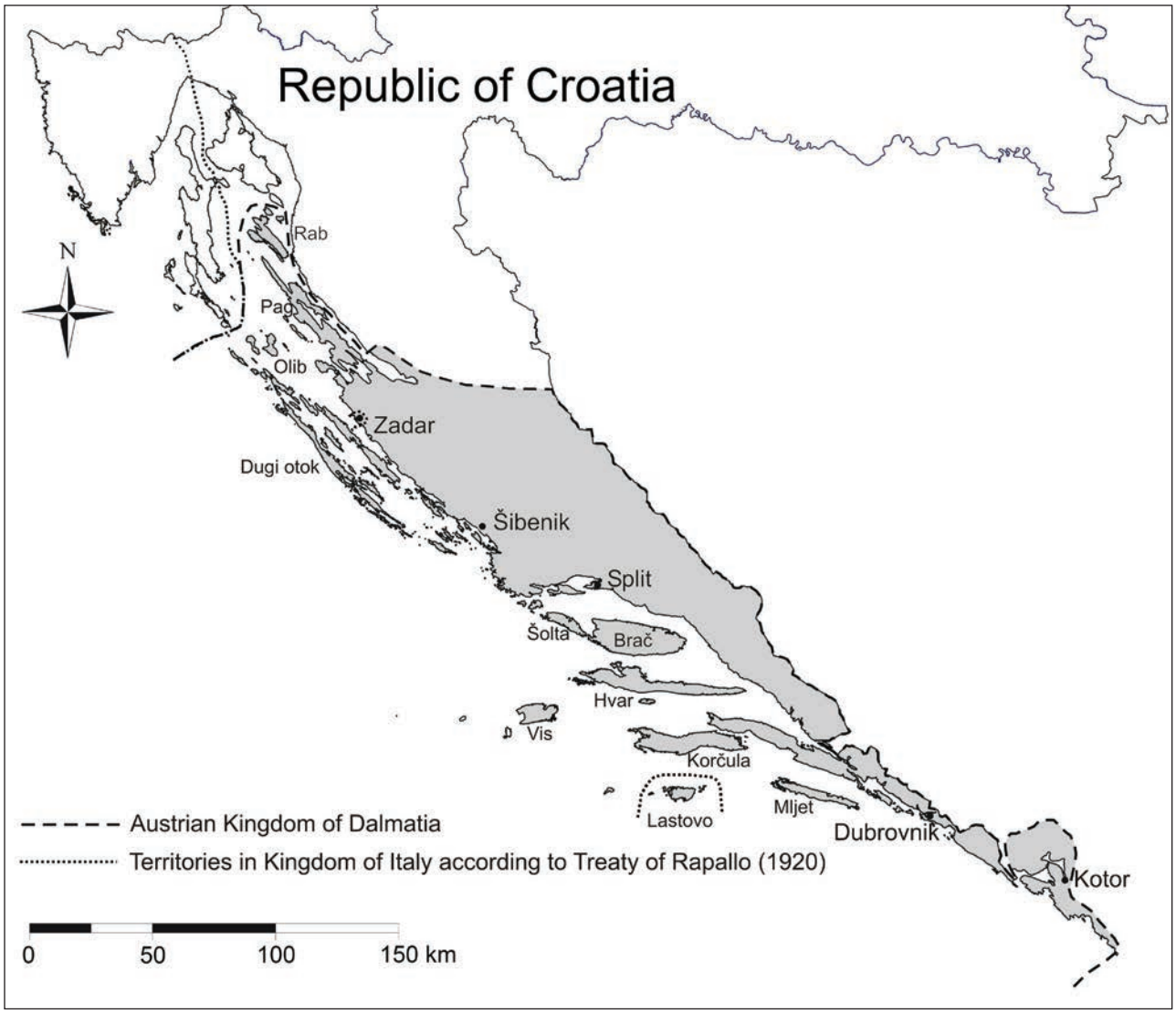


Figure 1: Territory of Austrian Dalmatia (Source: authors)

1 to 2 ha 24,9 %, 2 to 5 ha 27,0 %, 5 to 10 ha 9,5 %, 10 to 20 ha 3 %, and only 1,3 % had more than 20 ha (Šimončić-Bobetko, 1989).

SPREAD OF PHYLLOXERA IN EUROPE AND ECONOMIC SITUATION IN DALMATIA BEFORE THE PHYLLOXERA OUTBREAK

Although the grapevine had been the most widespread agricultural culture in the island and coastal part of Dalmatia since classical times, a real viniculture boom in this part of the Adriatic region only began in the mid-19th century. The golden age of Dalmatian viniculture lasted from 1875 to 1894 (Ožanić, 1955; Kraljević, 1994). The intense growth of viniculture in Dalmatia was directly linked to the crisis in the trade in other European countries, at first due to the appearance of mildew and peronospora, followed by phylloxera. The misfortunes of the western and southern European vineyard regions facilitated the expansion of exports from the Dalmatian vineyards, accompanied by a rise in the price of wines, particularly on the French market, but also in the receiving regions of Italy, Austro-Hungary and Germany. So, phylloxera in France, Spain, Portugal and Italy led to economic prosperity for the coastal and insular population of Dalmatia. However, when phylloxera reached the Croatian coast, it resulted in economic crisis and emigration. The consequences of phylloxera were catastrophic, as the Dalmatian economy at the turn of the 20th century was emphatically oriented towards the monoculture production of grapevines (Kraljević, 1994).

Although Dalmatia was a predominantly agricul-

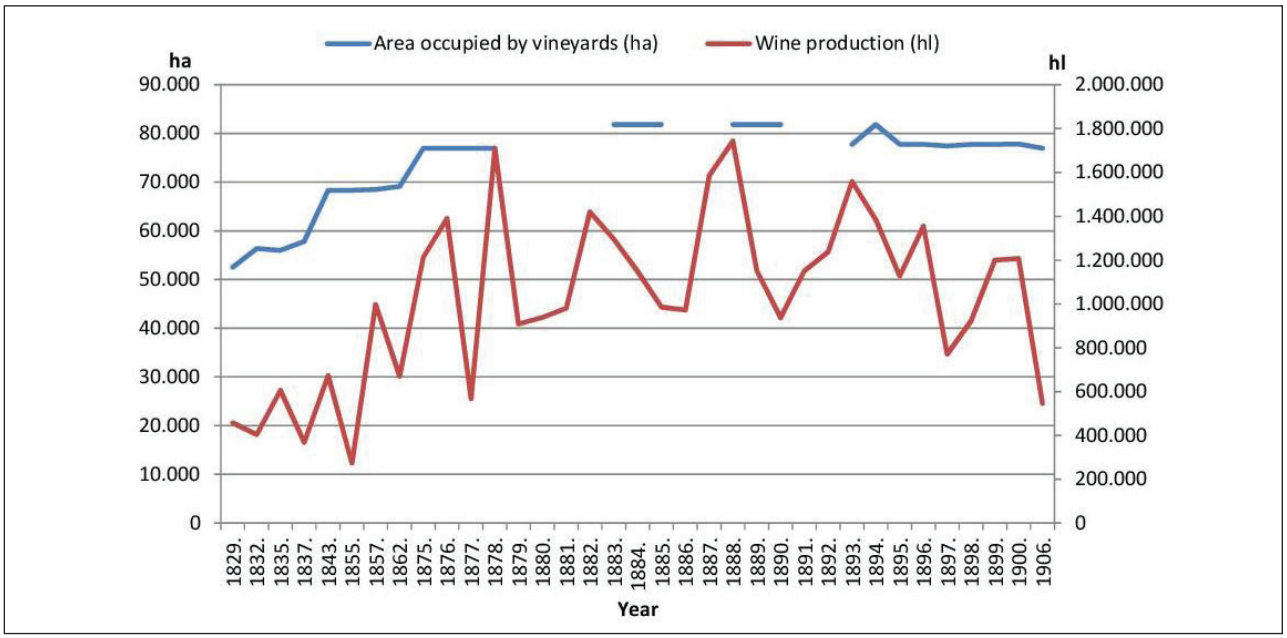


Chart 1: Areas occupied by vineyards and wine production in Dalmatia, 1829–1906[2]

tural area, its agrarian production did not meet the population's requirements in terms of food. There were many reasons for this, including outdated feudal proprietary relations and extensive agriculture, with the application of primitive working resources. The greatest problem was the lack of cereals, while the main agricultural products were olive oil and wines. The short-lived French administration (1806–1813) attempted to implement modernisation measures in terms of agricultural development, and was responsible, among other things, for the introduction of potato growing, which went some way towards offsetting the lack of cereals in the local diet. Tense agrarian and proprietary relations during the second Austrian administration (1813–1918) did little to improve the situation up to the end of the 19th century. The outdated land-property system, high taxes, usury and the economic crisis which affected the entire country were the main factors hindering the economic development of Dalmatia (Obad, 1990; Diklić, 2010). The Dalmatian villages were affected most, where over 80 % of the total population of this Croatian coast region lived. Therefore, landowners and peasants reacted spontaneously to any market incentives to improve their difficult socioeconomic status.

By the early years of the second Austrian administration, the rising price of wine had led to increased interest in viniculture in Dalmatia. Therefore, from the 1830s onwards, the Austrian authorities recorded a gradual increase in the surface area being cultivated for grape-growing (Chart 1, Table 1). Statistical data for the area covered by vineyards up to the second half of the 19th century showed the wide extent of vineyard acreage, from over 100.000 hectares (e.g. the data for 1828, the first year covered by official statistics), to 68.000 hectares (in the mid-19th century). The range of statistics did not so much reflect the actual situation, as the consequence of the fact that in Dalmatia, a comprehensive cadastre land survey was not carried out until the period 1823–1838, so data on categories of land use for agricultural cultures were not available for mutual comparison until the mid-19th century. However, even then, there was no continuous monitoring of viniculture which would have included the entire Dalmatian area, which explains some chronological gaps and repeated data. This means it is impossible to produce a comprehensive reconstruction of changes to areas where grapevines were grown and an assessment of the quantities of wines produced.

The statistical cadastre data was accompanied by economic descriptions of cadastral municipalities written in the mid-19th century. In these descriptions, it is mentioned that wines and olive oil are often the

2 Chart made by authors by using data from: HR-DAZD, Versuch einer Darstellung der oesterreichischen Monarchie in Statistischen tafeln, 1828–1844, Per A-10; Uebersichtstafeln zur Statistik der Oesterreichischen Monarchie für die Jahre 1862–1872; K.K. Statistischen Central-Commission, Wien 1863–1873; Statistisches Jahrbuch für 1875–1906; K. K. Statistischen Central-Commission, Wien 1876–1908; Peričić, 1998; Kraljević, 1994; Općinski rječnik za Dalmaciju, C. Kr. Središnja statistička komisija, Beč, 1908.

Table 1: Areas under viniculture and wine production in Dalmatia, 1829–1906[3]

Year	Area occupied by vineyards (ha)	Wine production (hl)
1829	52,519	456,579
1832	56,389	403,620
1835	55,972	605,560
1837	57,850	367,221
1843	68,358	672,000
1855	68,362	273,840
1857	68,480	996,600
1862	69,092	670,000
1875	76,974	1,212,254
1876	76,974	1,389,823
1877	76,974	566,754
1878	76,974	1,710,800
1879	-	907,960
1880	-	937,800
1881	-	980,400
1882	-	1,420,250
1883	81,853	1,295,000
1884	81,853	1,148,000
1885	81,853	985,270
1886	-	972,000
1887	-	1,585,000
1888	81,853	1,743,584
1889	81,853	1,150,640
1890	81,853	937,000
1891	-	1,150,000
1892	-	1,237,530
1893	77,794	1,557,930
1894	81,853	1,383,320
1895	77,765	1,126,750
1896	77, 765	1,354,980
1897	77,445	770,134
1898	77,799	922,176
1899	77,799	1,200,000
1900	77,812	1,206,494
1906	76,974	545,086

only products traded by the islanders, as they produced surpluses of these products, while the basic trading good is most often mentioned as wine, rather than olive oil. However, wine production was conducted in very modest conditions. The rural population was hard-working, but insufficiently educated and suspicious of innovations, i.e. anything which might conflict with the knowledge they had acquired from their ancestors, or based on personal experience. This is abundantly evident in the eleventh chapter of the economic description of the Žirje cadastral municipality, covering the islands of Žirje and Kaprije in the Šibenik archipelago:

> *There is little that can be said about the hard-working nature of the growers, since they all, without exception, work their land unstintingly, yet their efforts produce sparse yields from the dry ground, strewn with boulders and pits. In general, they are all more or less badly off, to the extent that they need loans and assistance from others on many occasions. They lack fertilisers, the earth is shallow at the foot of the hills and on the peaks and promontories, and the prejudices they have inherited from their forebears are the main hindrances to improving the state of cultivation (HR-DAST-152, Operato Dell'estimo censuario del commune di Zuri, 1844).*

In spite of these adverse circumstances, the area under grapevine cultivation in Dalmatia gradually increased, as did wine production, particularly in the 1850s. This was the era in which vineyards planted in earlier times reached the peak of production (with the exception of 1854, which was a particularly bad year).

An outbreak of mildew in the Dalmatian vineyards (1857–1867) slowed the further development of viniculture. However, a resolution to the crisis appeared in the form of the unexpected boom triggered by the collapse of European vineyards. In fact, the newest, most important success of the Dalmatian vintners occurred when the potential for exporting Dalmatian wines in large quantities arose, due to an outbreak of phylloxera in France, which had until then been the dominant wine-producing country on the European market. In Europe, phylloxera was actually first noted in England, as early as 1859 (Stevenson, 1980), although the first description of the disease there is dated 1863 (Hancock, Williams, 2012). But the appearance of phylloxera, its spread and means of combating it were only written about in more detail when it appeared in France, the country with the most significant wine-producing regions in Europe. Gale (2003) says that as early as 1866, about five hectares of vineyards had succumbed to the disease in the lower

3 Table made by authors by using data from: Versuch einer Darstellung der oesterreichischen Monarchie in Statistischen tafeln, 1828–1844 (HR–DAZD, Per A-10); Uebersichtstafeln zur Statistik der Oesterreichischen Monarchie für die Jahre 1862–1872; K.K. Statistischen Central-Commission, Wien 1863–1873; Statistisches Jahrbuch für 1875–1906; K. K. Statistischen Central-Commission, Wien 1876–1908; Peričić, 1998.; Kraljević, 1994.; Općinski rječnik za Dalmaciju, C. Kr. Središnja statistička komisija, Beč, 1908.

Rhône area, while Carton et al. (2007) claim that the new disease on the European continent was first discovered in the Lagoy area (south of Avignon, in the Rhône valley), on 15 July 1868. In 1868, the French botanist Jules Emile Planchon named the vine disease *phylloxera* (Planchon, 1868; Macedo, 2011). It was known earlier in North America, but French experts were unfamiliar with it. During the next decade, it spread swiftly to all the important vine-growing regions of Europe and further, to other continents[4]. By 1871, it was found in Portugal (Colomé Ferrer and Valls-Junyent, 2012), and became epidemic in that country from 1872 on (Morrow, 1973). In 1878 and 1879, the disease spread to Spain (Colomé Ferrer and Valls-Junyent, 2012). In the Malaga area alone, which was one of the most important Spanish wine regions, and the first in the country to be affected, phylloxera destroyed 80% of the area occupied by vineyards. This resulted in agricultural diversification, which later led to a significant decrease in the vineyard area, the reassignment of land for other purposes, and thus changes to the landscape (Barke, 1997). Since viniculture had been one of the main activities, the spread of phylloxera and collapse of the vineyards brought about a swift economic downfall, mostly among small vine-growers, and led to emigration from Spain (Harrison, 1973; Oestreicher, 1996; Colomé Ferrer and Valls-Junyent, 2012). In the early 20th century, only a very few regions, such as Catalonia, succeeded in increasing the area cultivated for grape-growing in comparison to the period before the onslaught of phylloxera (Badia-Miró et al., 2010). Allowing for such exceptions, landscape changes and depopulation in the areas blighted were the main features of the wine-growing regions in Spain, and similar situations were recorded in other European regions affected by phylloxera (Roudié, 1985; Gale, 2011).

While the Spanish vineyards were being devastated by phylloxera, the disease was also noted in Italy. By 1879, it had encroached upon three Italian municipalities, covering 24 hectares, but in the next decade, spread throughout the country[5]. It started on Sicily, and then moved through Lombardy and Liguria[6].

The vineyard crisis, first in the French regions, then in Portuguese, Spanish and Italian areas, provided an incentive for the strong development of Croatian wine production on the coast. It was then that the use of agrarian land in the entire coastal and insular area, and even in the Dalmatian hinterland belt, began to spread, in conditions which were quite unfavourable in terms of the geomorphological and pedological features of the karst terrain. The spatial expansion of vines in the Dalmatian area can be traced statistically from 1873, and particularly from 1883 onwards. It was the beginning of the golden age, a great boom period in Dalmatian viniculture. In the entire area under consideration, the vine played a key role in agriculture and in the overall economy, and occupied a third of the arable land in Dalmatia (Ožanić, 1955; Kraljević, 1994).

However, the prosperity of Dalmatian viniculture was not exploited to advance agrarian production through innovations in terms of cultivation techniques, soil improvement, vine strains, and in particular, the quality of wine-making and wine cellars. The Dalmatian vintners produced large quantities of mediocre wines. These were mostly purchased by French vintners, who then improved them using advanced oenological procedures (Kraljević, 1994). Dalmatian agriculturalists were considered excellent grape-growers, but poor wine-makers (Kraljević, 1994).

As the areas under vine cultivation increased, so did the quantities of wine produced, but not its quality. In the period leading up to the 'golden age' of viniculture, the average annual yield in Dalmatia was about 600.000 hl, while in the boom period, it exceeded 1.000.000 hl. In 1888, a record year was achieved, when 1.743.584 hl of wine was produced (Kraljević, 1994).

Commercial grape-growing led to the intensive cultivation of new areas, even rocky terrain with very shallow fertile soil structures. Sometimes, when suitable land was lacking, vineyards were planted in former olive groves. Along with great changes to the landscape, changes in agrarian production began to be reflected in a special way in the collective memory of the local inhabitants. For example, on the Zadar island of Ist, the present population tends to think that their forebears were never involved in olive growing, but only grape-growing (and animal husbandry), in terms of farming activities. This is borne out by the fact that only a few olive trees, mostly planted in gardens attached to houses, are found on the island today. However, in the mid-18th century, there were still about 300 olive trees on this small island (surface area 9,7 km^2) (HR-DAZD-359, vol. 28, pos. 2), and olive oil production is mentioned in the economic description of the Municipality of Ist for 1844 (HR-DAST-152, Operato dell'estimo censuario del commune di Isto, 1844).

Most of the grape-growing capacity was in the insular and coastal belt of Dalmatia. By the mid-19th century, and particularly during the boom period, although the spatial dispersion of grape-growing areas had spread to the hinterland, the hub of production in Dalmatia had not changed. The main focal points on the mainland remained Zadar and Šibenik, while Brač, Hvar, Vis and Korčula formed the island belt. The southern part of the region and the hinterland were much more modest in terms of wine production.

4 Its outbreak in Austro-Hungary will be discussed in the following chapter.
5 Bolletino Agrario della Dalmazia, 16. 7. 1892, 176.
6 Bolletino Agrario della Dalmazia, 16. 2. 1882.

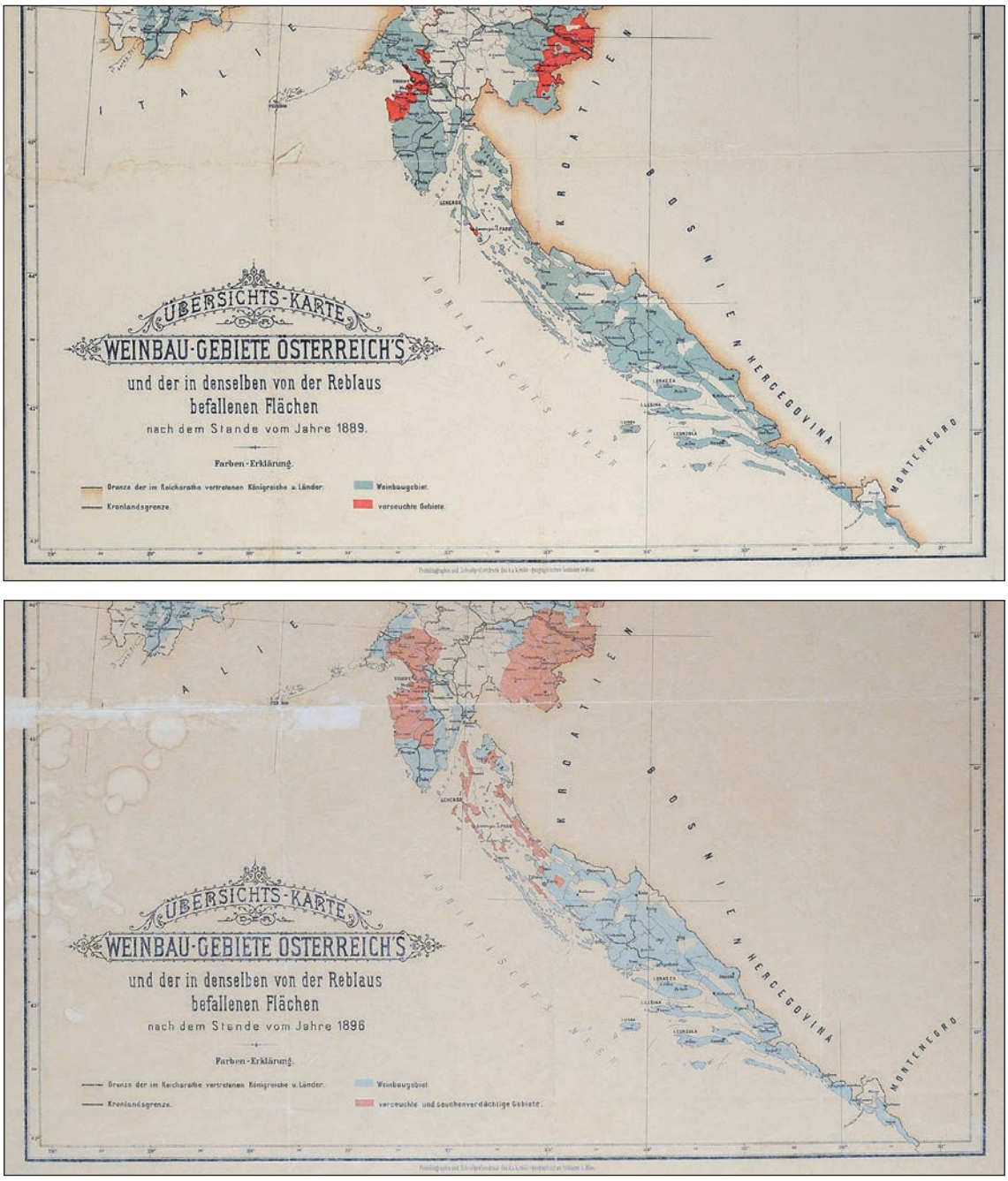
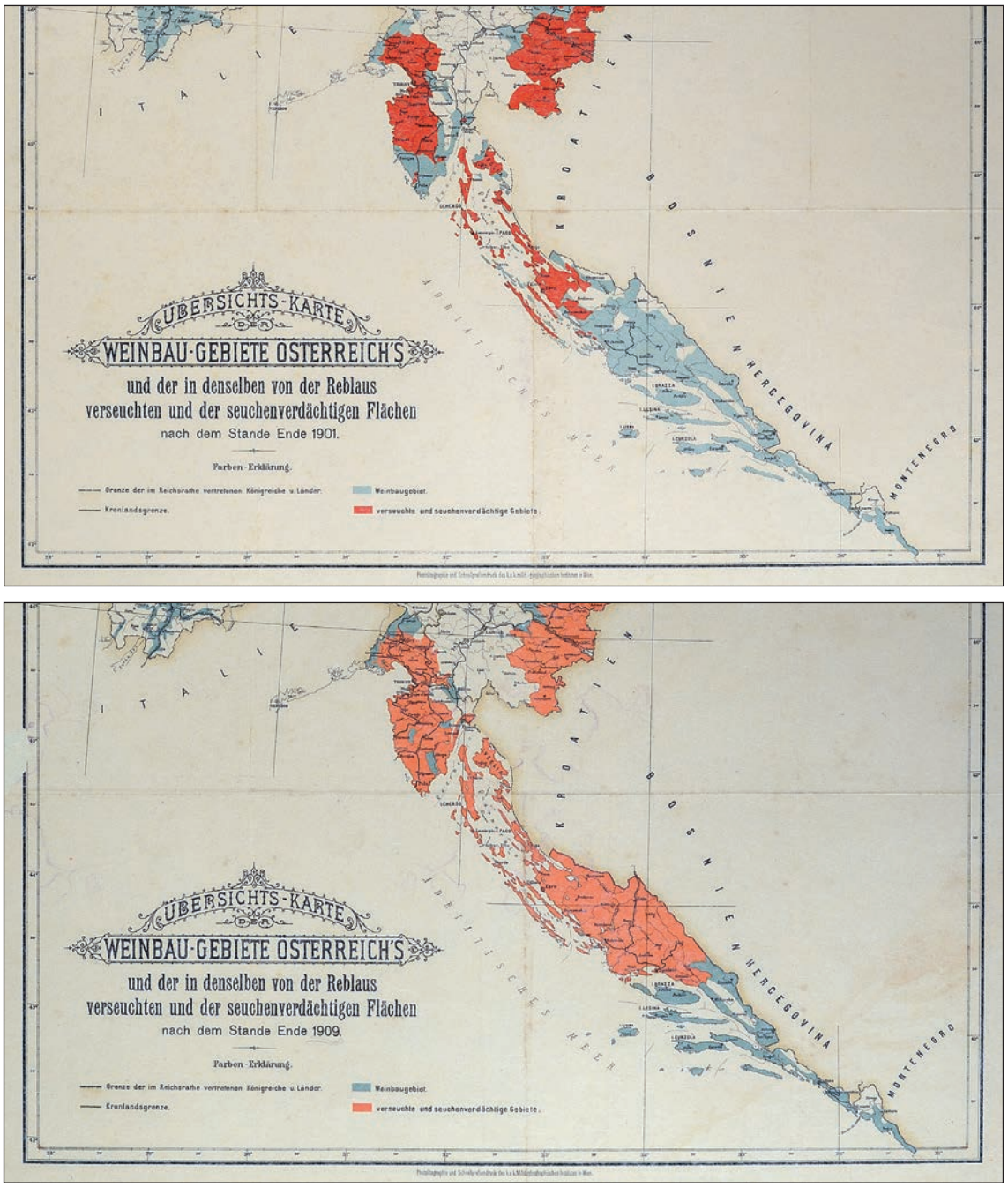


Figure 2: Spread of phylloxera in Dalmatia, according to maps published by the Military Geographic Institute in Vienna: a) 1889, b) 1896, c) 1901, d) 1909. The red areas are those affected by phylloxera (HR-DAZD-383, Sign. 125)

SPREAD OF PHYLLOXERA IN DALMATIA AND ITS IMPACT ON DALMATIAN VITICULTURE AND ECONOMY

Economic growth in Dalmatia was hindered by peronospora (1889) and the Wine Clause (1891), while viniculture and the entire economy of Dalmatia ground to a halt with the arrival of phylloxera (1894). The consequences of the almost simultaneous entry into force of the Wine Clause (regarding the trade agreement between Austro-Hungary and Italy) and the phylloxera epidemic were catastrophic in Dalmatia. The Wine Clause, which was a concession made by Austro-Hungary towards Italy during the rearrangement of military and political alliances in



Europe, allowed Italian wines to be placed on the Austro-Hungarian market without customs protection for domestic producers (Perić, 1978), including those in Dalmatia. In spite of protests by local vintners and demands for the Wine Clause to be rescinded, higher quality, competitively priced Italian wines flooded the Austro-Hungarian market. At the same time, phylloxera devastated thousands of hectares of Austro-Hungarian vineyards.

Phylloxera was first noted in Austro-Hungary in the early 1870s, in the vicinity of Kosterneuburg[7]. It spread from the northwest to the Dalmatian area, affecting the Dalmatian vineyards almost three decades after the first outbreaks in continental Europe. It appeared in Istria in 1880, and by 1891 had affected 14 municipalities[8]. It was probably observed on the Kvarner Islands in the same year, in the area adjoining Dalmatia along its northwest

7 Bolletino Agrario della Dalmazia, 1. 12. 1892, 359.
8 Bolletino Agrario della Dalmazia, 12. 6. 1893, 17.

border. By 1 February 1892, reports of phylloxera in Kvarner were appearing in Dalmatian journals specialising in agricultural news[9]. In addition to these journals, the *Bolletino Agrario della Dalmazia* (1882–1893) and *La Dalmazia Agricola* (1907–1910) also reported the spread of phylloxera in Dalmatia, and its progress can be traced based on thematic maps published in 1909 by the Military Geographic Institute in Vienna.[10]

On 1 February 1892, the *Bolletino Agrario della Dalmazia* printed an important announcement (*Notification*) stating that phylloxera was moving nearer to Dalmatia, i.e. spreading to the neighbouring Kvarner Islands, and prohibiting the import of grapes or plants from the area. Anyone ignoring this prohibition would be fined or imprisoned[11]. Nonetheless, the disease continued to spread and quickly reached Dalmatia, moving northwest to southeast. According to an 1894 report by Mate Dudan, a teacher, it affected the vineyards on the Zadar islands of Silba, Olib and Pag (Ožanić, 1955), and then continued to spread to several parts of the north Dalmatian coastline and hinterland. In only five years, it covered the entire Zadar hinterland, i.e. north Dalmatia. Central Dalmatia was affected between 1901 and 1909 (Figure 1). The central Dalmatian islands and south Dalmatia were affected by phylloxera later, between 1912 and 1925 (Ožanić, 1926).

In spite of the calamities which plagued the Dalmatian farmers, in the early years of the crisis (1888–1894), average production was more or less maintained, but the unstoppable progress of phylloxera led to a fall in production in the following years, particularly from 1897 onwards.

Statistical data on wine production in individual parts of Dalmatia in the three census years (1890, 1989 and 1906) clearly indicate the spatial spread of phylloxera and its consequences (Chart 2, Table 1). So, in 1898, compared to 1890, there was a significant fall in wine production, confirmed in the northern Dalmatian islands, i.e. Rab and Pag, which coincided with the area in question being affected by phylloxera. At the same time, other parts of Dalmatia generally noted growth in wine production. However, in 1906, by which time most of Dalmatia was affected by the disease, statistical data reflect a significant fall in wine production.

The vineyard collapse (1892–1904) meant economic collapse which affected most of Dalmatia. There is a testament to the kind of panic which took hold in Dalmatia due to phylloxera in the form of a prayer engraved in the little church in Ivan Dolac on Hvar, an island where viniculture was the main economic activity:

> *To the glory of the Mother of God, this church was raised by*
> *Ivan Carić, of the Juraj family*
> *Mildew and peronospora destroyed the grapes from the year 1852*
> *It was a time of terrible hardship*
> *The sap-sucker*[12] reached Zadar*
> *The vines failed, and in fear the downfall of the people is awaited.*
> *O people! The hard of heart offend God*
> *Turn to the Blessed Virgin Mary, and may God Almighty preserve you from these three creatures (Politeo, 1978).*

Given the role and dominance of the grapevine over other agricultural cultures, the future depended on reviving the vineyards by grafting onto various American rootstocks which were resistant to the causes of phylloxera. The provincial authorities in Dalmatia responded swiftly to the outbreak of phylloxera by raising parent plantations of American rootstock (40 different varieties at first, later reduced to four, brought from France, which had proved most suited to the pedological and climate conditions in Dalmatia). Experimental vineyards were established in Arbanasi, Vrana, Glavica near Knin, Šibenik, Kaštela, Čibača near Dubrovnik, Zavala on the Island of Hvar, and elsewhere (Ožanić, 1955; Politeo, 1978), while instructions were printed for vineyard owners (Pučka knjiga 3, 1894; Ožanić, 1904 and 1906) and the *National Phylloxera Commission for Dalmatia* was established. The response, however, was inadequate. Though Dalmatian agricultural workers were aware of the impending catastrophe, prevention measures failed, and a lack of financial resources meant that reviving the vineyards using American rootstock was too slow and ineffective. The ratio of revived areas to those devastated by phylloxera was defeating (Kraljević, 1994). There was a reduction in the area cultivated for vines which, during the first years after the disease appeared were left uncultivated or used for grazing, and then were partially restored as vineyards, grafted onto American rootstock. Advice given at the time regarding how to treat areas infected by phylloxera insisted they should be left fallow for at least a year, then planted with vetch which should be ploughed in after flowering, followed by potatoes.

9 Bolletino Agrario della Dalmazia, 1. 2. 1892, 33.

10 K. u. K. Milit.-geographischen Institutes, Wien: Übersichts-Karte Weinbau-Gebiete Osterreich›s und der in denselben von der Reblaus befallenen Flächen nach dem Stande vom Jahre 1889., *Übersichts-Karte Weinbau-Gebiete Osterreich's und der in denselben von der Reblaus befallenen Flächen nach dem Stande vom Jahre 1896.*, *Übersichts-Karte Weinbau-Gebiete Osterreich's und der in denselben von der Reblaus verseuchten und der seuchenverdächtingen Flächen nach dem Stande Ende 1901.* and Übersichts-Karte Weinbau-Gebiete Osterreich›s und der in denselben von der Reblaus verseuchten und der seuchenverdächtingen Flächen nach dem Stande Ende 1909 (HR-DAZD-383, Sign. 125).

11 Bolletino Agrario della Dalmazia, 1. 2. 1892, 295–296.

12 Colloquial name for phylloxera.

Table 2: Areas under viniculture and wine production in Dalmatia, 1921–1925[14]

Vineyards and wine production	Year				
	1921	**1922**	**1923**	**1924**	**1925**
Vineyards on American rootstock (ha)	19,246	-	25,690	27,629	30,725
Vineyards using domestic stock (ha)	10,160	-	8,457	7,612	5,590
Total vineyard area (ha)	**29,407**	**30,839**	**34,148**	**34,702**	**36,316**
Wine production (hl)	638,750	535,359	856,600	842,200	760,650

Only in the second year after infection by phylloxera was it recommended that domestic strains be grafted onto American rootstock[13]. It is interesting that, in the period when phylloxera was rampant, more and more articles appeared in the agricultural journals analysed encouraging the development of olive growing and often stressing the need to increase olive oil production.

After the First World War, changes occurred in the political framework within which the socioeconomic development of Dalmatia unfolded. In 1918, the Austro-Hungarian Monarchy collapsed, and most of Dalmatia became part of the newly established Kingdom of the Serbs, Croats and Slovenes. The town of Zadar and the islands of Lastovo, Sušac and Palagruža, according to the provisions of the 1920 Treaty of Rapallo, were assigned to the Kingdom of Italy. However, these political-geographic changes did not promote any significant economic recovery. By the outbreak of the First World War, phylloxera had affected most Dalmatian vineyards, and renewal, though it had begun, was slow, due to unresolved proprietary relations and the tardy implementation of agrarian reform. According to statistical data from the Kingdom of Yugoslavia (Table 2), although the vineyard area gradually increased in size, it represented less than half of the area under vine cultivation in the boom period during the 19th century[15]. These statistics are the best evidence of the catastrophic proportions of the phylloxera epidemic. And all these factors influenced the revival of waves of emigration of the Dalmatian population.

IMPACT OF PHYLLOXERA ON POPULATION AND EMIGRATION

During two decades spent fighting the spread of phylloxera and renewing the vineyards, both the coastal and insular populations began to engage in waves of emigration. As phylloxera advanced, the embarkation points for emigrants moved from northwest towards southeast Dalmatia. Emigration had a dual effect on landscape change. In the first place, there was no longer a strong enough workforce to cultivate agricultural land, so uncultivated plots were abandoned to the endemic plant cover. In the second place, as the younger generation emigrated, biological reproduction dwindled and the birth rate fell, causing a natural decrease and inflicting long-term effects on population ageing and the rural exodus. These processes were accompanied by the desertion of arable land.

The depopulation of the vineyard areas devastated by phylloxera can be traced in authentic citations in publications of the day, and in a basic form in official demographic statistical data. In 1907, *La Dalmazia Agricola* published an article on the drastic level of emigration due in large part to the phylloxera epidemic, but also to other unfavourable factors in agriculture and the overall economy (La Dalmazia Agricola, 15. 9. 1907, 5). It claimed that in 1906 alone, 62,000 Croats, of whom 20,800 (one-third) were Dalmatians, had emigrated to America. Since the population had decreased and lost many young, active workers, the areas under vine cultivation were being renewed very slowly, and viniculture never regained the level it had reached before the first appearance of phylloxera. In the same journal, it was claimed that only 6 % of the areas affected by phylloxera in Dalmatia had been renewed[16]. It should be remembered that at this time, not all of Dalmatia had been affected, and some of the important grape-growing regions had been spared, primarily the Pelješac peninsula and the islands of Brač, Hvar, Korčula and Vis.

In 1908, it was recorded that phylloxera had reached several areas in the Split District, seriously threatening the livelihood of the rural settlements and resulting in

13 La Dalmazia Agricola, 1. 4. 1910, 77–78

14 Table made by authors by using data from: Land cultivated and harvests in 1921 and 1920, Ministry of Agriculture and Water of the Kingdom of the Serbs, Croats and Slovenes, 1922; Land cultivated and harvests in 1923 and 1922, Ministry of Agriculture and Water of the Kingdom of the Serbs, Croats and Slovenes, 1924; Land cultivated and harvests in 1925 and 1924, Ministry of Agriculture and Water of the Kingdom of the Serbs, Croats and Slovenes, 1926.

15 However, it is important to mention that a part of the reduction in the vineyard area was caused by the territorial changes that occured at the beginning of 1920s (Zadar and the islands of Lastovo, Sušac and Palagruža were annexed by Italy, and the Bay of Kotor became a part of Montenegro), but the surface of the excluded areas (and their vineyards) was extremely small in comparison to the surface of the whole Dalmatia.

16 La Dalmazia Agricola, 15. 10. 1907, 6.

intensified emigration[17]. In order to demonstrate the extent of emigration, the magazine editors provided the information that in 1908, there were more than 3,000 Dalmatians living in New Zealand, exploiting kauri gum north of Auckland[18]. Another detail which provides clear evidence of the extent of emigration and the poor economic picture of the insular area was given in an article printed in 1910, in which it was expressly stated that due to debt, taxes, phylloxera (preceded by peronospora) and the falling price of wine, 300 men from the village of Grohote on the Island of Šolta (pop. 1,500) had left for America. This had left the village with an inadequate workforce, as most émigrés were between the ages of 18 and 50[19].

It should be mentioned that among the agricultural announcements that often accompanied articles about difficult economic circumstances resulting from poor conditions in agriculture, phylloxera was not always identified as the sole culprit. There are frequent references to the disadvantages caused by debt, rents, and the low price of wine. Thus, for example, in 1909, it was reported that many people in Dalmatia had been unable to produce any wine at all (due to phylloxera), while those who could, had been unable to sell it due to poor market conditions[20], obviously alluding to the unfavourable provisions of the Wine Clause (for the Dalmatian vintners). The role of phylloxera in the context of economic and demographic development was back in the news in June 1910, when the disease arrived on the Island of Vis, then famous for the quality of its wines, where most of the arable land was under vine cultivation. The press described it as "terrible news"[21]. There were no tracts of land on the island suitable for growing cereals, and the article claimed that the spread of phylloxera might result in the negative socioeconomic conditions already noted on Brač, Šolta and other affected islands[22]. In 1925, *Novo doba* newspaper stated that 1,200 people (8,6% of the population) had emigrated from Blato and Vela Luka municipalities on the Island of Korčula in a single day (21. April 1925). By the end of 1928, 3,000 people had left (Mirošević, 1988).

The available official demographic data reveal population reductions in many rural settlements during the phylloxera epidemic. The Austrian authorities did not record information about emigration or the motives which led people to leave. Some of this information was indirectly available, through analysing general trends in population numbers. The demographic 'skeleton', however important it was, based on officially verified statistics, could not be interpreted without the 'musculature' provided by the information in contemporary news articles. However, even having assembled a demographic 'anatomy', we cannot answer all questions, as it is difficult to link phylloxera and depopulation unequivocally. Among other things, depopulation was also prompted by poor proprietary and legal relations, debts incurred when peasants were allowed to buy land as the feudal system ended, the low price of wine, and other vine diseases. In any case, depopulation was not only the result of a negative net migration, since natural population trends also need to be taken into account as motivating factors. In fact, in the early 1880s, the demographic transition started in Croatia, during which the death rate decreased while the birth rate remained high, resulting in strong natural increase. In line with such natural trends, the population growth rate increased (Nejašmić, 2008). However, in Dalmatia, particularly on the islands, population growth was not as marked, due to the unenviable economic situation which resulted in emigration. In spite of this, it should be emphasised that of the total population of Dalmatia in 1890, 86 % was engaged in agriculture (Antić, 1995). While there was a high natural growth rate and the population increased, agrarian overpopulation led to people moving away. The viniculture crisis, the end of the sailing ship era, the inauspicious political situation, the crisis in fishing and household divisions, all exacerbated the economic situation and spurred the younger generations even more to emigrate (Nejašmić, 2008), particularly from the islands. Overseas emigration (primarily to the USA) depended largely on the information available to them about opportunities and life abroad (Nejašmić, 2008). The Dalmatian population, in comparison to those in other parts of the country, became involved early on in overseas emigration, primarily thanks to the accessibility of travel. Overseas migration from Dalmatia at the turn of the 20th century became part of a huge wave which carried off part of the excess European agricultural population, and which, for many, meant a permanent departure from this Croatian region (Nejašmić, 2008; Klemenčič, 1993).

Migration did not begin at the same time in all parts of Dalmatia. Since phylloxera appeared first in the vineyards of the north Dalmatian islands, this area was affected first by depopulation. Up to the end of the 19th century, numbers rose markedly, but in the 1910 census, a significant loss was recorded in comparison with the previous period, and this trend continued, particularly in the Dalmatian insular area (Chart 2, Tables 3 and 4). Thus, in the insular area, the population growth rate was

17 La Dalmazia Agricola, 1. 9. 1908, 200.
18 La Dalmazia Agricola, 15. 9. 1908, 213.
19 La Dalmazia Agricola, 15. 3. 1910, 68.
19 La Dalmazia Agricola, 15. 3. 1910, 68.
20 La Dalmazia Agricola, 15. 4. 1909, 90.
21 La Dalmazia Agricola, 1. 6. 1910, 129.
22 La Dalmazia Agricola, 15. 6. 1910, 140–141.

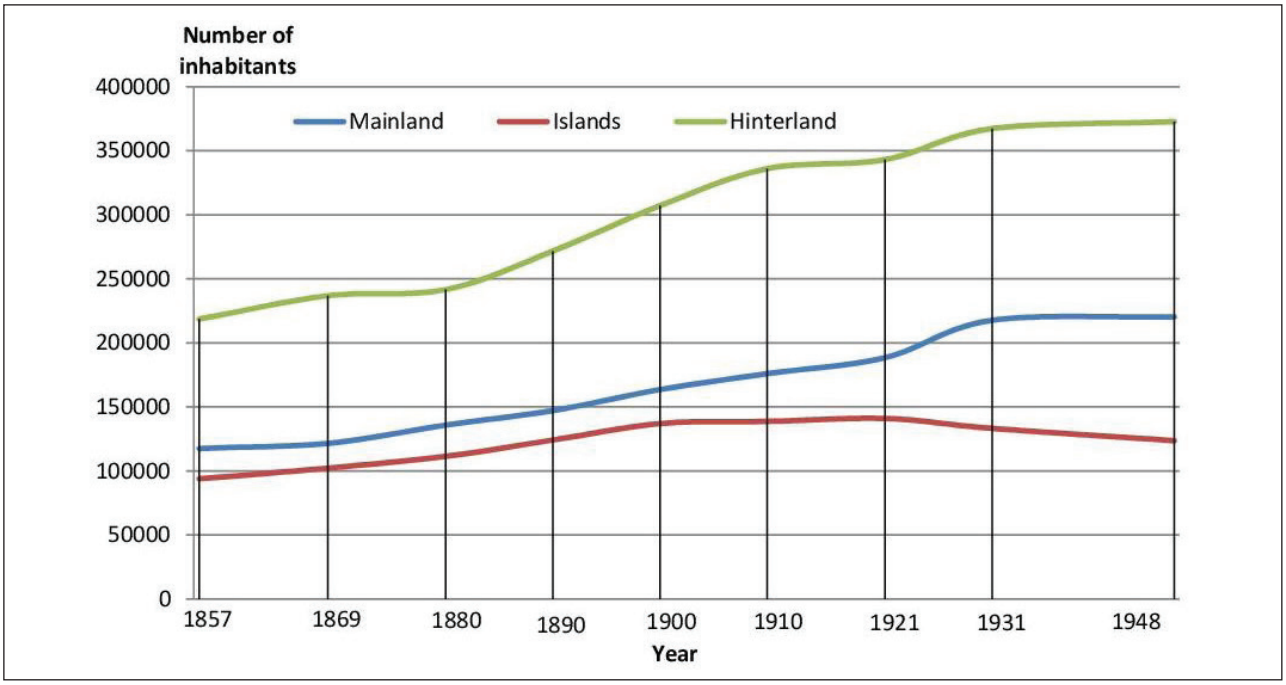


Chart 2: Population of Dalmatia, by regions, 1857–1948[23]

only 1,3 %, due to difficult economic circumstances and living conditions, while the situation on the mainland and in the hinterland was only a little better, as the local economies were not dependent exclusively on agriculture. The coastal area, particular the towns, had developed various types of economic activity (primarily industrial and maritime), and this attracted island dwellers, while cattle-breeding had developed in the hinterland. Certainly, some islanders moved to the mainland, i.e. the nearest urban centre, as a result of the viniculture and general economic crisis. A similar trend was noted in France, when thousands of workers left the vineyards and moved into the towns. In Marseille, for example, the population doubled in a short time, while the department recorded a decline in the population overall. Some emigrated to Tunisia and Algeria, in the hope of starting over in areas unaffected by phylloxera (Gale, 2003). The Dalmatian islands reached peak population levels in 1921, after which a long period of depopulation followed (and is still continuing). Emigration had both short-term and long-term effects. This was because most émigrés were young, of working and child-bearing age, and this had an immediate effect on population numbers. In the long term, it had a negative effect on the future fertility of the population and the size of the work force.

Since no official records were kept on emigration from Dalmatia, some demographers have attempted to provide estimates based on archive research. According to Nejašmić (2008), for example, about 100.000 people left Dalmatia between 1880 and the outbreak of the First World War, while Holjevac (1967) estimates that about 350.000 people left the islands and mainland areas of coastal Croatia (Istra, the Kvarner islands and Dalmatia) by the First World War (about 44 % of the population according to the 1910 census). The intensity of emigration, particularly to the USA, is also evident from the database of the Ellis Island Foundation (EIF, 2009). There was a reception centre on Ellis Island, in New York harbour, through which millions of European immigrants passed into the USA. Using the criterion of 'ethnicity' in searching the database, about 25.000 persons who declared themselves to be Dalmatians were found. However, it is important to emphasise that this was by no means the final number of Dalmatians who emigrated to the USA between 1892 (when the harbour was opened) and 1924 (when the Immigration Act imposing quotas was passed). In fact, many people did not declare themselves to be Dalmatians, but Croats, Yugoslavs (after 1918), Italians, Austrians or Hungarians, as can be seen from documents recording their places of birth and domiciles before arrival on Ellis Island. And,

23 Chart made by authors by using data from: Settlements and population in the Republic of Croatia, 1857–2001, CD-ROM, Croatian Bureau of Statistics, Zagreb, 2005; Special-Orts-Repertorium von Dalmatien, K.U.K. Hof und Universitats-Buchhandler, Wien, 1894; Ljubić, 1885.

Table 3: Population of Dalmatia, 1857–1948[24]

Region	1857	1869	1880	1890	1900	1910	1921	1931	1948
Mainland	117,535	121,508	135,746	147,056	163,478	175,917	188,396	217,584	220,316
Islands	93,813	102,179	111,340	124,105	136,905	138,684	140,955	133,199	123,615
Hinterland	218,543	236,763	241,600	271,557	307,103	335,933	343,060	367,240	372,722
Dalmatia	429,891	460,450	488,686	542,718	607,486	650,534	672,411	718,023	716,653

Table 4: Population change in Dalmatia, by periods (in %)[25]

Region	1857 - 1869	1869 - 1880	1880 - 1890	1890 - 1900	1900 - 1910	1910 - 1921	1921 - 1931	1931 - 1948	1857 – 1880	1880 – 1910	1910 – 1948
Mainland	3,4	11,7	8,3	11,2	7,6	7,1	15,5	1,3	15,5	29,6	25,2
Islands	8,9	9,0	11,5	10,3	1,3	1,6	-5,5	-7,2	18,7	24,6	-10,9
Hinterland	8,3	2,0	12,4	13,1	9,4	2,1	7,0	1,5	10,6	39,0	11,0
Dalmatia	7,1	6,1	11,1	11,9	7,1	3,4	6,8	-0,2	13,7	33,1	10,2

of course, not all immigrants to the USA passed through Ellis Island.

An analysis of the Dalmatians registered on Ellis Island shows that their average age was 25,8. Almost a quarter of them were aged 15 to 19. They were mostly males. The Island of Olib is a good illustration of emigration and subsequent depopulation. The island was affected by phylloxera in 1894, and its population peaked in 1900 at 1495 inhabitants. From then on, numbers fell steadily. The Ellis Island database contains the names of 414 people who declared themselves as Dalmatians from the Island of Olib. However, the actual number of émigrés from the island was probably higher, as they did not all declare themselves as Dalmatians.

CONCLUSION

Given the great importance of agriculture in the Dalmatian economic system in the second half of the 19th and first half of the 20th centuries, any changes which affected this activity left perceptible traces in the rural landscape of this historical Croatian Adriatic region. In this sense, the sweeping changes in that period which occurred in viniculture took on dramatic dimensions. Alongside olive-growing, grape-growing formed the basis of Dalmatian agriculture. In the latter half of the 19th century, the exceptional variability of vineyard production, and therefore viniculture, was caused by the appearance of vine diseases, first mildew and peronospora, then another, which was resistant to all treatment – phylloxera (colloquially known as 'sap-sucker'). Since the disease first affected the Western European Mediterranean vineyard region, where the largest European (and global) producers and consumers of wine were located, the Dalmatian vineyards initially experienced a period of flourishing as they strove to meet the demand to offset the wine deficit on the European market. This boom period in viniculture, among other things, was evident in the cultural landscape of rural Dalmatia, where vineyards became the dominant agricultural feature. Vines were planted in places where other Mediterranean cultures had previously been grown, but also on new cultivatable plots acquired by clearing the rocky karst tracts and terracing the slopes. However, when phylloxera arrived in Dalmatia in 1894 and began to spread, the archaic agricultural system virtually collapsed, and the worst effects were seen in the rural settlements where grapevines were the only culture. Although the Austrian authorities responded swiftly, attempts to renew the devastated vineyards proved organisationally and financially inadequate, and did not produce the expected results. In addition, the appearance of phylloxera corresponded with the renewal of the vineyards in France, Portugal, Spain and Italy, the introduction of high customs tariffs which made it harder to place Dalmatian wines on the previously 'thirsty' French market, and in particular, the application of the unfavourable customs agreement known as the Wine

24 Table made by authors by using data from: Settlements and population in the Republic of Croatia, 1857–2001, CD-ROM, Croatian Bureau of Statistics, Zagreb, 2005.; Special-Orts-Repertorium von Dalmatien, K.U.K. Hof und Universitats-Buchhandler, Wien, 1894.; Statistika pučanstva u Dalmaciji, ed. Kažimir Ljubić, Zemaljski odbor dalmatinski, Zadar, 1885.

25 Calculated according to the data in Table 3.

Clause, according to which Austro-Hungary allowed Italy to place its wines on the Austro-Hungarian market for a minimum customs tariff. Not only did these events almost paralyse the placement of Dalmatian wines on the foreign market, but they also had highly negative effects on the sales of Dalmatian wines in Austro-Hungary. Phylloxera exacerbated existing problems in the Dalmatian vineyards, primarily agrarian overcrowding, old-fashioned agricultural techniques, the poor level of viniculture and wine cellars, and the fragmentation of land parcels which occurred as a result of the end of feudalism (in other respects a modernising process!). Due to the viniculture crisis, farmers turned to olive-growing, and to a lesser extent, to other fruit cultures (maraschino cherries, almonds and figs), maritime activities, fishing, etc. A large number of vineyard workers and their families emigrated, mostly to distant destinations in the Americas, Australia and New Zealand. Emigration and deagrarianisation, for which phylloxera was the catalyst, were the causes of sweeping changes to various spatial structures in Dalmatia, and also had an effect on changes to the landscape in two major ways: some vineyards were turned into olive groves or orchards, and some were completely abandoned to be taken over by a succession of Mediterranean vegetation. Research carried out during the phylloxera epidemic, its effects on the Dalmatian economy, and traces in the rural landscape, based on various sources of geographic data (cartographic sources, official statistics, and contemporary newspaper reports and expert interpretations), allows us to establish the spatial extent of this grapevine disease. However, the lack of data of the same type, source, precision and spatial range for the entire area of the Austrian crown land of Dalmatia, along with the fact that the viniculture crisis was caused and deepened by various problems simultaneously, does not permit a total areal reconstruction of the effects of phylloxera on changes to the Dalmatian rural landscape.

FILOKSERA (TRTNA UŠ): ŠIRJENJE TRTNE BOLEZNI V DALMACIJI IN NJEN VPLIV NA DRUŽBENO-GOSPODARSKI RAZVOJ TER KMETIJSKO KRAJINO

Anica ČUKA
Univerza v Zadru, Oddelek za geografijo, Franje Tuđmana 24i, 23 000 Zadar, Hrvaška
e-mail: acuka@unizd.hr

Lena MIROŠEVIĆ
Univerza v Zadru, Oddelek za geografijo, Franje Tuđmana 24i, 23 000 Zadar, Hrvaška
e-mail: lmirosev@unizd.hr

Josip FARIČIĆ
Univerza v Zadru, Oddelek za geografijo, Franje Tuđmana 24i, 23 000 Zadar, Hrvaška
e-mail: jfaricic@unizd.hr

Vera GRAOVAC MATASSI
Univerza v Zadru, Oddelek za geografijo, Franje Tuđmana 24i, 23 000 Zadar, Hrvaška
e-mail: vgraovac@unizd.hr

POVZETEK

Namen tega prispevka je, z geografskega vidika, preučiti vpliv trtne uši na dalmatinski podeželski okoliš. Študija temelji na primerjalni analizi različnih geografskih in statističnih podatkov in zgodovinskih virov. Ko je leta 1894 trtna uš prispela v Dalmacijo in se začela širiti, je arhaični kmetijski sistem skoraj propadel. Najhuje je bilo na podeželskih območjih, kjer je bilo vinogradništvo monokultura.

Trtna uš je poudarila obstoječe probleme v dalmatinskem vinogradništvu, predvsem agrarno prenaseljenost, zastarele agrotehnike, slabo vinarstvo in kletarjenje, vendar tudi razdrobljenost zemljišč (čestic), ki so se pojavile kot posledica (ali posodobitev!) procesa defeudalizacije. Zaradi krize v vinogradništvu so se kmetje preusmerili na gojenje oljk, redkeje na vzgojo drugih sadnih pridelkov (višnje, mandlji in fige), pomorstvo, ribištvo in druge dejavnosti. Veliko število pridelovalcev in njihovih družin se je preselilo, predvsem v določene oddaljene destinacije v Ameriki, Avstraliji in Novi Zelandiji.

Izseljevanje in deagrarizacija območji prizadetih s trtno ušjo, sta povzročila velike spremembe različnih prostorskih struktur Dalmacije. Med drugim je to vplivalo na pokrajinske spremembe, ki so se zgodile v dveh glavnih smereh: del vinogradov so nadomestili z olj̆nimi nasadi in drugimi sadovnjaki, na drugi del, ki je bil popolnoma opustošen, pa se je uspešno naselila mediteranska vegetacija.

Ključne besede: filoksera, Dalmacija, kmetijska krajina, depopulacija, odseljevanje

SOURCES AND BIBLIOGRAPHY

Bolletino Agrario della Dalmazia. Zadar, Comizio agrario di Zara, 1872–1893.

HR–DAZD – Državni arhiv u Zadru, Zadar (DAZD), Versuch einer Darstellung der Oesterreichischen Monarchie in Statistischen tafeln, 1828–1844, Per A-10.

HR–DAST–152 – Državni arhiv u Splitu, Arhiv mapa za Istru i Dalmaciju, Split (HR-DAST), Operato dell'estimo censuario del comune di Isto, 1844.

HR–DAZD–359 – Državni arhiv u Zadru, Zadar (DAZD), Fond obitelji Lantana, anagraph tables from 1759.

HR–DAZD–383 – Državni arhiv u Zadru, Zadar (DAZD), Geographic and topographic maps of Dalmatia and neighbouring districts, Sign. 125.

K. K. Statistischen Central-Commission, Wien 1876–1908.

K.K. Statistischen Central-Commission, Wien 1863–1873.

La Dalmazia Agricola: giornale di agricoltura e di economia. Zadar, 1907–1913.

Općinski rječnik za Dalmaciju. C. Kr. Središnja statistička komisija, Beč, 1908.

Pučka knjiga 3 (1894). Filoksera ili Trsni ušenac Zadar, Družtvo Pučka knjiga.

Special-Orts-Repertorium von Dalmatien, K.U.K. Hof und Universitats-Buchhandler, Wien, 1894.

Ljubić, K. (ed) (1885): Statistika pučanstva u Dalmaciji. Zadar, Zemaljski odbor dalmatinski.

Statistisches Jahrbuch für 1875–1906.

Uebersichtstafeln zur Statistik der Oesterreichischen Monarchie für die Jahre 1862–1872.

Antić, L. (1995): The Economic Causes of Emigration from Croatia in the Period from the 1880s to the First World War. Povijesni prilozi, 14, 291–300.

Badia-Miró, M., Tello, E., Valls, F. & R. Garrabou (2010): The grape phylloxera plague as a natural experiment: the upkeep of vineyards in Catalonia (Spain), 1858–1935. Australian Economic History Review, 50, 1, 39–61.

Barke, M. (1997): Lo Que ha de ser no puede faltar ('What has to be cannot be avoided'): Phylloxera and the demise of the Malaga wine industry. Journal of Wine Research, 8, 3, 139–158.

Carton, Y., Sorensen, C., Smith, J. & E. Smith (2007): Une coopération exemplaire entre entomologistes français et américains pendant la crise du Phylloxera en France (1868–1895). Annales de la Société entomologique de France, 43, 1, 103–125.

Chaline, O. (2001): L'Adriatique, de la Guerre de Candie à la fin des Empires (1645–1918) – Les dèpouilles de Venise (1797–1866). In: Cabanes, P. (ed.): Histoire de L'Adriatique. Paris, Seuil, 397–436.

Čizmić, I., Sopta M. & V. Šakić (2005): Iseljena Hrvatska. Zagreb, Golden marketing-Tehnička knjiga.

Colomé Ferrer, J. & F. Valls-Junyent (2012): En torno a las consecuencias demográficas de la crisis filoxérica en la región vitícola del Penedès (Cataluna). Historia Agraria, 57, 41–76.

Čoralić, L. (2003): Kraljica mora s lagunarnih sprudova – Povijest Mletačke Republike. Samobor, Meridijani.

Čoralić, L. (2005): Dalmacija i Boka kotorska u 18. stoljeću. In: Valentić, M. & L. Čoralić (eds.): Povijest Hrvata, II. Zagreb, Školska knjiga.

Defilippis, J. (1997): Dalmatinsko selo u promjenama. Dva stoljeća sela i poljoprivrede Dalmacije. Split, Avium.

Diklić, M. (1990): Pojava pravaštva i nastanak Stranke prava u Dalmaciji. Radovi Zavoda za povijesne znanosti u Zadru, 32, 5–107.

Diklić, M. (1998): Pravaštvo u Dalmaciji do kraja Prvog svjetskog rata. Matica hrvatska i Zavod za povijesne znanosti HAZU, 101–243.

Diklić, M. (2010): Dalmacija u XIX. stoljeću. Zadar, Matica hrvatska – Ogranak u Zadru.

EIF (2009): Ellis Island Foundation. Http://www.libertyellisfoundation.org (12.5.2012).

Gale, G. (2003): Saving the vine from Phylloxera: A never-ending battle. In: Sander, M. & R. Pinder (eds.): Wine: A scientific Exploration. London and New York, Taylor and Francis, 70–91.

Gale, G. (2011): Dying on the Vine: How phylloxera transformed wine. Berkley and Los Angeles, University of California Press.

Hancock, G. & P. Williams (2012): An early preserved example of Phylloxera infesting British grape vines. Archives of Natural History, 39, 2, 351–354.

Harrison, J. (1973): The Spanish Famine of 1904-1906. Agricultural History, 47, 4, 300–307.

Kirchner Reill, D. (2012): Nationalists Who Feared the Nation: Adriatic Multi-Nationalism in Habsburg Dalmatia, Trieste, and Venice. Stanford, Stanford University Press, Stanford Studies on Central and Eastern Europe.

Klemenčič, M. (1993): Images of America among Slovene and Other Yugoslav Migrants. In: Hoerder, D. & H. Rössler (eds.): Distant Magnets: expectations and realities in the immigrant experience, 1840-1930. Ellis Island series. New York, Holmes, Meier, 199–221.

Kraljević, R. (1994): Vinogradarski slom i demografski rasap južne Hrvatske u osvit 20. stoljeća. Split, Književni krug.

Kruhek, M. & A. Pavlović (1991): Granice Republike Hrvatske u svjetlu Karlovačkog (1699) i Požarevačkog (1718) mira. Povijesni prilozi, 10, 105–115.

Macedo, M. (2011): Port Wine Landscape: Railroads, Phylloxera and Agricultural Science. Agricultural History, 85, 2, 157–173.

Mirošević, F. (1988): Iseljavanje iz Dalmacije u razdoblju od 1921. do 1929. Radovi, 20, 107–119.

Mirošević, L. & J. Faričić (2011): Perception of Dalmatia in Selected Foreign Lexicographic Publications. Geoadria, 16, 1, 119–140.

Morrow, D. W. (1973): Phylloxera in Portugal. Agricultural History, 47, 3, 235–247.

Nejašmić, I. (2008): Stanovništvo Hrvatske: demogeografske studije i analize. Zagreb, Hrvatsko geografsko društvo.

Obad, S. (1990): Dalmatinsko selo u prošlosti. Split, Logos.

Oestreicher, A. (1996): La crisis filoxerica en España (Estudio comparativo sobre las consecuencias socio-economicas de la filoxera en algunas regiones vitivinicolas Españolas). Hispania, LVI, 2, 193, 587–622.

Ogrin, D. (2005): Mediterranean Landscapes – Contribution to a better management, A report commissioned by Priority Actions Programme. Split, UNEP Mediterranean Action Plan – Priority Actions Programme Regional Activity Centre, 11–21.

Ožanić, S. (1904): Sadimo amerikansku lozu. Split, Narodna tiskara.

Ožanić, S. (1906): Žiložđera ne škodi amerikanskoj lozi. Pučki list, 16, 16, 166–167.

Ožanić, S. (1926): Vinogradarstvo na našem primorju. Split, Almanah Jadranska straža.

Ožanić, S. (1955): Poljoprivreda Dalmacije u prošlosti. Split, Društva agronoma NR Hrvatske – Podružnica Split.

Pederin, I. (2004): Dalmacija u djelu Die österreichisch-ungarische Monarchie in Wort und Bild. Radovi Zavoda za povijesne znanosti HAZU u Zadru, 46, 395–424.

Perić, I. (1978): Wine Clause in the penultimate trade contract between Austria-Hungary and Italy and the consequences it caused in Dalmatia. Rad Jugoslavenske akademije znanosti i umjetnosti – Razred za društvene znanosti, 18, 257–296.

Peričić, Š. (1973): Prilog poznavanju talijanske okupacije Dalmacije od 1918. do 1923. godine. Radovi instituta JAZU u Zadru, 20, 7–48.

Peričić, Š. (1998): Gospodarska povijest Dalmacije od 18. do 20. Stoljeća. Zadar, Matica hrvatska – Zadar.

Planchon, J-E. (1868): Nouvelles observations sur le puceron de la vigne (Phylloxera vastatrix nuper Rhizaphis, Planch). Montpellier, Typographie de Pierre Grollier.

Politeo, I. (1978): Vinogradarstvo otoka Hvara. Prilozi povijesti otoka Hvara, 1, 123–127.

Roudié, P. (1985): Long-distance emigration from the port of Bordeaux 1865-1920. Journal of Historical Geography, 11, 3, 268–279.

Šidak, J., Foretić, V., Grabovac, J., Karaman, I., Strčić P. & M. Valentić (1990): Hrvatski narodni preporod – Ilirski pokret. Zagreb, Školska knjiga.

Šimončić–Bobetko, Z. (1989): Agrarno pitanje u Dalmaciji između dva rata 1918–1941, Povijesni prilozi, 8, 1, 93–141.

Stevenson, I. (1980): The diffusion of disaster: The phylloxera outbreak in the département of the Hérault, 1862–80. Journal of Historical Geography, 6, 1, 47–63.

Stockhammer, L. (1878): Relazione sulle condizioni economiche della Dalmazia. Zadar, Camera di commercio di Zadar.

Tomasevich, J. (1955): Peasants, Politics and Economic Change in Yugoslavia. Stanford, Stanford University Press.